Foreword

This report is the second of two major volumes covering the 1999 Solomon Islands population and housing census. The first volume, which was published one year after enumeration, comprised basic tables, the administrative report and maps of provinces, wards, constituencies and enumeration areas (Statistics Office, 2000). The present report presents detailed analyses of the various areas of investigation that were covered in the 1999 census as well as population projections for the 15-year period following the census.

With the publication of this volume valuable information becomes available for development planning in the Solomon Islands, not only in the area of demographic change, but also in priority areas like health, education, employment, housing and sanitation. The analyses provided the basis for a series of workshops, presentations and other dissemination activities that took place in 2001. The aim of these activities was to present census users and the wider public with the results of the 1999 census, but also to facilitate access to and actual use of this source of information, which is by far the richest in the country. It should, however, be borne in mind that the present analysis is only a first step; census users and scientific researchers should take it from here to tailor census results to their specific needs and to explore further the wealth of information.

With an impact even greater than on the enumeration itself and the ensuing data processing, the ethnic conflict in the Solomon Islands critically interfered with tabulation and analysis activities. The census office was closed for four months and although tabulation was completed according to plan, it was at the expense of analysis. In addition, the analysis of census data was greatly complicated by the large-scale displacement of population before and after the census in November 1999. It should be observed that no analysis would have taken place without the project extension, which already had been granted by the EU in an earlier stage to enhance the limited scope of analysis that was originally foreseen in the project.

Credit for the preparation of this volume must go to the group of experts that contributed to the thorough analysis included in the report. These authors include:

- *Jeannette Schoorl*, researcher at Netherlands Interdisciplinary Demographic Institute (NIDI), who was responsible for the chapter on migration and displacement, co-authored the chapters on economic activity and labour force, housing, sanitation and amenities, and the report's summary, and assisted in various other analysis activities;
- *Ward Friesen*, lecturer at the Department of Geography, University of Auckland, who wrote the chapter on economic activity and labour force, and co-authored the chapter on migration and displacement;
- *George Groenewold*, researcher at NIDI, the first author of the chapters on fertility and mortality, and on population projections;
- *Jeroen van Ginneken*, researcher at NIDI, who importantly contributed to the chapter on fertility and mortality;
- *Gerry Beimers*, director Solomon Islands Translation Advisory Group (SITAG), who was responsible for the section on language;
- *Ronald Horstman*, researcher at NIDI, who contributed the section on disability;
- *Burcu Savaş*, research assistant at NIDI, who contributed to the section on maternal and child health, and assisted in many analyses tasks.

Special thanks are also due to Arij Dekker, consultant to NIDI, for preparing the basic tables and limitless further data-processing support during the analysis phase. In addition Ian Scales (consultant, Australian National University), Martin Bakker (consultant, World Bank), Lieneke Hoeksma and NIDI's secretarial staff (Jacqueline van der Helm and Tonny Nieuwstraten-Prins) should be mentioned for their assistance and advice in the areas of cartography, demographic analysis and report finalisation.

Honiara / The Hague,
February 2002

Reuben Tovutovu, census commissioner
Bart de Bruijn, census advisor

Table of contents

Key indicators – national level

Total population	409,042
Intercensal annual growth rate	2.8%
Sex ratio (males per 100 females)	107
Life expectancy at birth	61.1
Males	60.6
Females	61.6
Infant Mortality Rate (deaths before age 1 per thousand live births)	66
Crude Birth Rate 1999 (births per thousand population)	34
Crude Death Rate 1999 (deaths per thousand population)	9
Rate of natural increase 1999 (per thousand)	25
Total Fertility Rate (1997-1999)	4.8
Number of households	65,014
Average household size	6.3
Population aged 14 and over, doing paid work	57,472 (23%)
Males	39,761 (31%)
Females	17,711 (15%)
Population aged 14 and over, looking for paid work	27,652 (11%)
Population aged 14 and over, doing unpaid work	111,329 (45%)
Self-reported literacy, population 15 years and over	77%
Males	84%
Females	69%
Children 5-19 years of age attending school	56%
Males	58%
Females	54%
Disabled population	2.7%
Population using bednets	53%
Population displaced due to ethnic tension (1999)	35,309
Household amenities	
Access to modern toilet facility	23%
Access to SIWA/RWSS water supply	61%
Households with electricity	16%
Households with working radio	41%

Key indicators – provincial level

Indicator	Choiseul	Western	Isabel	Central	Rennell-Bellona	Guadal-canal	Malaita	Makira-Ulawa	Temotu	Honiara
Total population	20,008	62,739	20,421	21,577	2,377	60,275	122,620	31,006	18,912	49,107
Intercensal annual growth rate	3.0%	3.2%	2.6%	2.0%	2.2%	1.5%	3.3%	2.7%	1.9%	3.8%
Sex ratio (males per 100 females)	105	112	104	108	107	109	100	106	94	126
Life expectancy at birth										
Males	60.6	60.6	59.6	61.0	61.0	59.8	60.2	60.8	61.5	61.7
Females	61.6	61.6	60.4	62.1	62.1	60.7	61.1	61.9	61.9	62.8
Crude Birth Rate 1999 (births per thousand population)	36	34	33	34	29	36	38	37	33	29
Crude Death Rate 1999 (deaths per thousand population)	10	9	10	10	13	9	10	10	11	7
Rate of natural increase 1999 (per thousand)	26	25	23	24	16	28	27	23	23	23
Total Fertility Rate	5.3	4.8	4.8	4.9	4.9	5.0	5.4	5.1	4.1	3.4
Number of households	3,142	9,992	3,556	3,625	432	10,399	18,606	4,926	3,415	6,921
Average household size	6.4	6.3	5.7	6.0	5.5	5.8	6.6	6.3	5.5	7.1
Population 14 and over, doing paid work	2,668 (23%)	13,497 (35%)	2,721 (22%)	3,740 (28%)	184 (13%)	6,740 (19%)	8,713 (12%)	2,342 (13%)	1,407 (12%)	15,460 (44%)
Males	1,858 (31%)	9,209 (45%)	1,975 (32%)	2,686 (39%)	150 (20%)	4,555 (24%)	5,964 (18%)	1,631 (17%)	944 (18%)	10,2789 (54%)
Females	810 (14%)	4,288 (24%)	746 (12%)	1,054 (17%)	34 (5%)	2,185 (13%)	2,749 (8%)	711 (8%)	463 (7%)	4,671 (32%)
Population 14 and over, looking for paid work	917 (8%)	3,126 (8%)	777 (6%)	763 (6%)	308 (21%)	3,979 (11%)	10,811 (15%)	1,984 (11%)	2,189 (19%)	2,798 (8%)
Population 14 and over, doing unpaid work	5,507 (47%)	15,985 (42%)	6,993 (56%)	6,409 (49%)	756 (52%)	20,310 (56%)	36,369 (52%)	10,516 (56%)	5,295 (46%)	3,189 (9%)

Self-reported literacy, population 15 and over	92%	94%	75%	72%	87%	73%	61%	81%	61%	91%
Males	93%	95%	83%	82%	92%	80%	72%	87%	74%	94%
Females	91%	93%	67%	62%	81%	66%	51%	75%	50%	86%
Children 5-19 years of age attending school	63%	65%	66%	57%	72%	41%	49%	65%	62%	68%
Males	63%	65%	67%	60%	73%	43%	52%	67%	65%	69%
Females	64%	66%	65%	53%	71%	40%	46%	64%	58%	66%
Disabled population	2.8%	2.8%	2.3%	2.5%	5.5%	2.7%	2.9%	2.6%	3.5%	1.9%
Population using bednets	68%	54%	64%	59%	26%	60%	53%	48%	42%	36%
Population displaced due to ethnic tension (1999), enumerated in province	316	1,140	331	486	32	12,806	12,676	584	599	6,339
Household amenities										
Access to modern toilet facility	13%	28%	16%	11%	22%	15%	12%	10%	8%	88%
Access to SIWA/RWSS water supply	57%	62%	87%	61%	1%	40%	58%	65%	43%	95%
Households with electricity	8%	20%	12%	14%	1%	8%	4%	5%	3%	73%
Households with working radio	37%	41%	39%	41%	46%	39%	37%	28%	26%	79%

List of abbreviations

ASDR	Age-Specific Death Rate
ASFR	Age-Specific Fertility Rate
CBR	Crude Birth Rate
CCM	Cohort Component Method
CDR	Crude Death Rate
CEB	Children Ever Born
CEMA	Commodity Export Marketing Authority
CFC	Christian Fellowship Church
CoM	Church of Melanesia
Cust	Customary beliefs
EA	Enumeration Area
EDF	European Development Fund
EU	European Union
GDP	Gross Domestic Product
GFR	General Fertility Rate
GIS	Geographic Information System
GRA	Guadalcanal Revolutionary Army
HDI	Human Development Index
ICIDH	International Classification of Functioning, Disability and Health
ICPD	International Conference on Population and Development
IFM	Isatabu Freedom Movement
ILO	International Labour Organisation
IMPS	Integrated Microcomputer Processing System
IMR	Infant Mortality Rate
ISCO	International Standard Classifications of Occupations
ISIC	International Standard Industrial Classification of all economic activities
JW	Jehovah's Witnesses
MAC	Mean Age at Childbearing
MEF	Malaita Eagle Force
MHMS	Ministry of Health and Medical Services
NFD	National Fisheries Development
NIDI	Netherlands Interdisciplinary Demographic Institute
NMCP	National Malaria Control Programme
NNS	National Nutrition Survey
NRH	National Referral Hospital
OBM	Outboard Motor
PNG	Papua New Guinea
RCC	Roman Catholic Church
RWSS	Rural Water Supply and Sanitation
SBD	Solomon Islands Dollar
SDA	Seventh Day's Adventists
SIBC	Solomon Islands Broadcasting Corporation
SICHE	Solomon Islands College of Higher Education
SIEA	Solomon Islands Electricity Authority
SIG	Solomon Islands Government
SIPL	Solomon Islands Plantation Ltd.
SITAG	Solomon Islands Translation Advisory Group
SIWA	Solomon Islands Water Authority

SMAM	Singulate Mean Age at Marriage
SSEC	South Seas Evangelical Church
STL	Solomon Taiyo Ltd.
TA	Technical Assistance
TFR	Total Fertility Rate
UC	United Church
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children's Fund
VRS	Village Resources Survey
VSO	Voluntary Service Overseas
WHO	World Health Organisation

List of tables

List of figures

List of text boxes

1. Introduction

Reuben TOVUTOVU and Bart DE BRUIJN

1.1 Country profile

The Solomon Islands is a country in the South Pacific, which became independent in 1976. In geographical terms it is a scattered eastward continuation of the landmass of New Guinea, consisting of nearly one thousand islands. The backbone of the country consists of a double chain of six major islands: Choiseul, New Georgia, Isabel, Guadalcanal, Malaita and Makira. All the islands together make up a land area of approximately 30.4 thousand square kilometres within a sea area of roughly 1.5 million square kilometres. The largest island (Guadalcanal) measures 5,336 square kilometres while the others scale down to mere dots in the ocean. Most of the landmass consists of hills and rugged mountain ranges with tropical rainforests, while the rest consists of coastal plains and low-lying atolls. The Solomon Islands has a tropical climate with little temperature change over the year. Rainfall, however, is concentrated in the period November to April.

The country's form of government is a constitutional monarchy within the Commonwealth, in which the British monarch is represented by the Governor General. Executive power is in the hands of the national Cabinet headed by the Prime Minister. The Parliament consists of 50 members, each of whom is elected from a constituency. The second administrative level is formed by nine provinces and Honiara town council. The provinces and Honiara are again subdivided into wards, of which there are 183 in total.

The Solomon Islands is part of the Melanesian cultural area, with close ties to countries like Vanuatu, Papua New Guinea and Fiji. However, there are also other influences through people from Micronesia (mainly Kiribati) and Polynesia, and small European and Chinese populations. Land ownership and land use are largely organised along tribal lines, and people maintain strong attachment with their islands of origin. Christianity has a large influence on Solomon Islands society and is represented by a large variety of denominations. The country is also characterised by a rich linguistic diversity: the census distinguished 91 different vernacular languages. English is the official language of the country, but Pidgin is widely used as the *lingua franca*. The majority of the people live along the coast, but there are substantial population pockets in the inland areas of Guadalcanal and Malaita.

The recent ethnic conflict has had far-reaching consequences for Solomon Islands' economy and society. Major companies in the country were closed down and a large number of people were displaced, leading to a significantly different population distribution in the country. Primary social services were reduced and several major aid donors cut back their support in the wake of the policy pursued by the Solomon Islands government. At the time of writing this report, the country is still struggling to regain its former stability.

1.2 Report: purpose and structure

The primary aim of this report is a first analysis of the census results to provide census users with a better understanding of the state of affairs in the Solomon Islands in the various areas covered by the 1999 census. The analyses include assessments of the data in terms of accuracy and reliability, and the search for and interpretation of relations between included variables. An important part of this work is based on the tables published in the Basic tables report (Statistics Office, 2000), but to a significant

extent it also depends on additional data processing. The various chapters often combine census results with information from other sources to widen the basis of analysis. Lastly, in many cases attempts are made to place analysis results in the broader perspective of the region or even the world, and in a historical perspective by examining trends in different areas of analysis. These first analyses provide the basis for the final chapters on population projections, and summary and policy implications.

The demographic core of the report comprises the chapters on population profile and change (chapter 2), fertility and mortality (chapter 4) and migration and displacement (chapter 5). Chapter 2 addresses population size and distribution, population structure by age and sex, and population growth. In addition, it describes the implications of the displacement of people in 1999 for provincial population growth and distribution, by reconstructing the situation in the country without the large ethnic-conflict related movement of people. Displacement itself, and its size and direction, are taken up in chapter 5, in addition to the analysis of internal and international migration. Different types of migration are distinguished and analysis is taken down to the level of wards. Chapter 4 deals with the vital events of births and deaths. It assesses various fertility and mortality analysis methods in a synthetic approach. In view of apparent inconsistencies and cultural backgrounds it suggests an alternative estimation method to capture mortality levels trends in the country.

A number of other chapters address thematic topics, including a social profile of the Solomon Islands' population (chapter 3), economic activities and the labour force (chapter 6), health (chapter 7), and housing and sanitation (chapter 8). Chapter 3 combines analyses of ethnicity, religion, language, marital status and household composition, and educational performance and literacy. Chapter 6 deals with the economic activities of both households and individuals. It includes descriptions of activity status, employment, occupation and industry in paid work, and unpaid activities. Chapter 7 covers health-related issues included in the 1999 census. These refer to mother and child health, disability and malaria control. Chapter 8, finally, is based on the household module of the census and includes, among other things, the use of construction materials for houses, house ownership, the permanency of dwellings and urban-rural differentiation of housing characteristics. In addition, it addresses access to sanitation facilities and other housing amenities.

In chapter 9 a technical and substantive underpinning is given for several population projections. The chapter provides national projections based on four different future scenarios, which depend on fertility and mortality assumptions. At the provincial level, two projections are computed related to an optimistic and a pessimistic scenario with regard to economic and political recovery of the country. The two scenarios include assumptions about internal migration besides those on fertility and mortality.

The concluding chapter summarises the main findings in the earlier chapters and attempt to distil implications for development planning in the Solomon Islands. The major key indicators that can be derived from the census are given in the list preceding this introduction.

2. Population profile and change

Bart DE BRUIJN

2.1 Introduction

This chapter discusses the basic demographic characteristics of the Solomon Islands population as reported in the 1999 census, and in addition addresses its change over time. In doing so, it focuses on the situation in November 1999 and on the 1986-1999 intercensal period, but extends its time frame when more historical depth is required. Detailed analyses of periods before 1986 are given in the previous census reports of 1970, 1976 and 1986 (Western Pacific High Commission 1972, Statistics Division 1981, Statistics Office 1989).

The present chapter starts with a brief description of the historical demographic development of the Solomon Islands as a general background to the present situation. In this respect, section 2.2 distinguishes overall population development and internal dynamics, and in addition addresses the series of population counts and censuses that have recorded population change over time. Section 2.3 focuses on general population distribution across the country, including the distribution over provinces, urban and rural areas, and settlements, as well as population density by province.

Apart from absolute numbers of people and their geographic distribution, information on age and sex is the most important result of a census. Such information constitutes a basic input element for successful development planning, which often targets specific groups since needs vary with sex or age. Planning in the areas of education, health services, housing, employment or food supply, for instance all depend on reliable details on the age and sex composition of the population. And for fertility and mortality analysis, programme impact assessment and population projections, too, such information is essential. Therefore, an account and scrutiny of the age and sex structure reported in the 1999 census is important as a basis for development planning, but also as input for subsequent chapters in this report. Sections 2.4 and 2.5 assess the quality of the census information and deal with the characteristics of this population structure, respectively focusing on age and sex.

Section 2.6 examines population growth in the past decades, at both the national and provincial level, and in addition with respect to increase of the urban and rural sectors. In this respect, this section partly builds on the chapters on fertility and mortality, and migration (chapters 4 and 5 respectively). A separate sub-section is devoted to the effect of the large-scale displacement prior to the census and an attempt is made to give a reconstruction of what the population distribution and growth would have been if the country had not experienced this consequence of the ethnic conflict. The last section summarises the main findings of this chapter.

2.2 Historical background

2.2.1 Historical background

2.2.1.1 General development

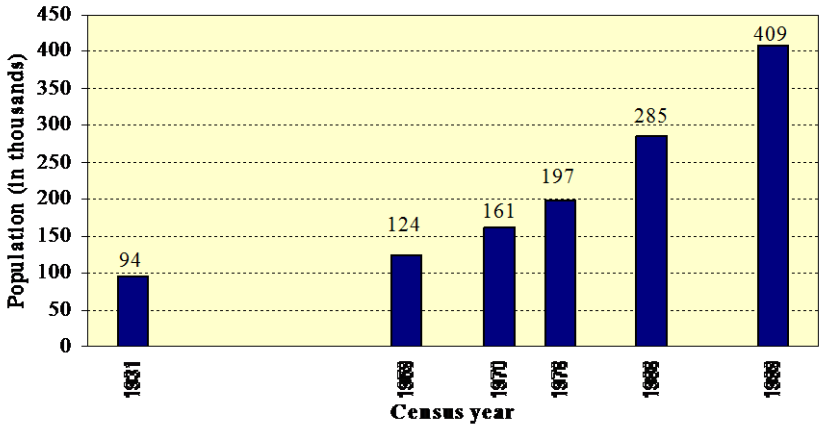
Settlement in the area that now constitutes the independent state of the Solomon Islands can be traced back to as early as 10,000 BC. Initial waves of immigrants came from New Guinea, while around 4000 BC Melanesian settlers arrived, following the development of agriculture in Southeast Asia. Around 1500 AD groups of Polynesian islanders began to arrive in the Solomon Islands, occupying

the smaller outer islands that were relatively uninhabited. European exploration of the country started in the late 1560s, but until 1890 European presence was restricted to a few missionaries and traders. In 1893 the area was declared a British protectorate, which it remained until the transition period to independence in 1978. The intervening period was characterised by the capture of most of the country by Japan in World War II and by the arrival of small numbers of Chinese traders and —in the 1950s and 1960s— a sizeable group of Gilbertese who were resettled from what is now Kiribati. In the 1990s Bougainville refugees entered the country, most of whom, however, were repatriated before the census in 1999. It is likely that the population of the Solomon Islands increased steadily from its earliest history, although this growth may have been reversed temporarily when epidemics introduced by European traders swept the country in the 19th century. In addition, head-hunting practices prevailed into the first half of the next century, suppressing further population growth. Historical estimates and a first census-type operation in 1931 suggest that the population fell from well above 100 thousand at the beginning of the twentieth century to 94 thousand in 1931. Data collection for the 1931 and 1959 censuses differed markedly from the subsequent ones (see section 2.2.2) and direct comparison of their results must be carried out with great caution. Nevertheless, the various population counts seem to indicate that the population recovered after 1931 at a rate of about 1 percent per year until 1959, probably because of a combination of declining mortality and increasing fertility. From then on, population growth further accelerated and probably peaked in the mid-1970s at around 3.3 percent annually. *Figure 2.1* presents population sizes as reported in the censuses since 1931.

2.2.1.2 Internal population dynamics

The settlement of the various ethnic groups was not evenly spread across the country. While most areas are inhabited by Melanesians, population groups of Polynesian origin dominate some outlying islands, like Rennell and Bellona, Ontong Java (Malaita) and Tikopia, Anuta and the Reef and Duff islands in Temotu. The Gilbertese settled mostly in Southeast Choiseul, Gizo and Honiara, whereas European and Chinese communities originally concentrated in Tulagi, the capital until World War II. After the war, the country's administrative and commercial hub was transferred to Honiara, which in time triggered a large-scale influx into that part of Guadalcanal island, mainly from Malaita. The development of other commercial and administrative centres —in particular the Guadalcanal production areas and, more recently, Noro— led to smaller-scale internal migration flows. The displacement caused by the ethnic conflict prior to the 1999 census forced large numbers of persons to move from Guadalcanal and Honiara, most to Malaita. A second wave of displacement occurred directly after the coup in June 2000. This mostly affected the population of Honiara and again saw Malaita as the main recipient province. This second movement was, however, not captured by the 1999 census.

Figure 2.1. Population size in census years 1931-1999



The ethnic conflict on Guadalcanal

November 1998	Tension results in the first families fleeing from Guadalcanal
January-May 1999	IFM factions gain coherence; increasing number of refugees flee from Guadalcanal or are displaced within the province
June	Full-scale ethnic purging on Guadalcanal; the province under effective control of IFM; sections of Honiara population leave town; government declares state of emergency; SIPL operations suspended
July-October 1999	Tension eases somewhat; some internally displaced people on Guadalcanal return home; some displaced from Honiara return
November 1999	Solomon Islands census
January 2000	Emergence of MEF as counter force to IFM; start of direct armed engagements
February-May 2000	Raids and retaliations on Guadalcanal and in Honiara cause new displacement; conflict builds up to new heights; Gold Ridge operations suspended
June 2000	MEF seizes power in Honiara; large-scale outflow of persons from Honiara
July-September 2000	Continuation of status quo; IFM controls Guadalcanal, MEF Honiara; few people return to Honiara; 800 civil servants made redundant
October 2000	Townsville peace agreement signed; more displaced people return to Honiara.

2.2.2 Census operations

The first reliable counts of the population of the Solomon Islands date back to 1931. Before that population figures were based on rough estimates and circumstantial evidence.

In 1931, a first census-like operation was carried out in the country. It included information about broad age groups (0-5, 6-16 and over 16) and a question on occupation for men over 16. However, for some areas the operation consisted of a headcount only and in some remote areas even this was impossible. Overall, for about half the population the figures are based on less than accurate information. In the years following the 1931 census several headcounts were carried out and population figures were obtained from annual reports of District Officers. Different compilation methods and lack of reporting on these methods make these sources relatively unreliable and incomparable to census operations.

After World War II a census was planned for 1949, but had to be abandoned because of internal political opposition. It was not until 1959 that a sample-based census was carried out, collecting limited information on age, sex, relation to the head of household, marital status, fertility, place of birth, ethnicity, and religion. A first full-scale census was conducted in 1970. In terms of information collected, it was comparable to the 1959 census, but in addition included a question on educational attainment. The 1970 census was the first in the series of comprehensive *de facto* censuses held up to 1999, by and large based on the same enumeration methods. The results of all these censuses are therefore directly comparable. The censuses of 1976 and 1986 each saw an expansion of the covered topics. In 1976, questions about paid economic activity and first language were added to the census questionnaire, and in 1986 the census included more detailed information about fertility and mortality, migration, income-earning activities of the households and gardening, but left out language. Compared with these, the 1999 census was even more elaborate as it again addressed language, but also literacy, citizenship, disability and other health issues, and it included a full module on housing, sanitation, household amenities and agricultural production by the household. Furthermore, information about education and economic activities (including unpaid work) was more extensive, although economic activities of households was somewhat less.

The successive census reports include detailed information about enumeration methods and data quality. The 1970 report includes an elaborate section on the assessment of the collection of population data prior to the 1959 census.

2.3 Population size and geographical distribution

The 1999 census recorded a population of 409,042 people in the country on census night, 21 to 22 November 1999, of whom 197,661 were females and 211,381 were males. The enumeration included usual residents who were abroad, but who intended to stay away for two months or less. It excluded resident diplomatic staff and their families, foreign military personnel, passengers and crew on foreign ships and foreigners visiting (or intending to visit) the country for two months or less.

The Solomon Islands in global perspective

The population size of 409 thousand ranks the Solomon Islands third after Papua New Guinea and Fiji among the Pacific Island countries, although at the global level the country is considered a 'micro state' (cf. Caldwell *et al*., 1980).

Population size, share of the world population and size rank for selected countries[a]

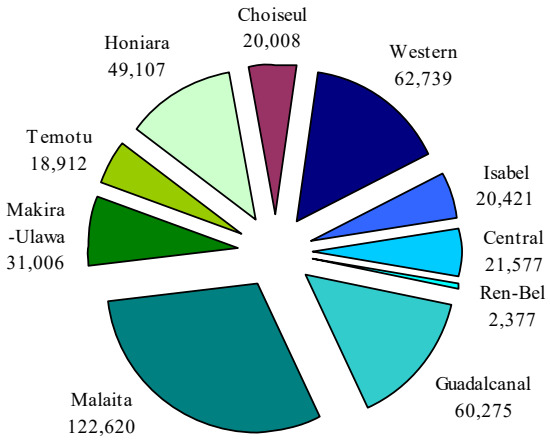
Country	*Population (x million)*	*% of world population*	*Size rank*
World	6,002.5	100.00	
Solomon Islands	0.4	0.01	171
Australia	18.9	0.32	52
China	1,252.5	20.83	1
Fiji	0.8	0.01	156
Indonesia	221.1	3.68	4
Mexico	98.8	1.65	11
Papua New Guinea	4.8	0.08	111
Uganda	22.7	0.38	43
United Kingdom	59.4	0.99	20
Vanuatu	0.2	0.00	184

[a] 1999 figures (except for Solomon Islands).
Source: US Bureau of the Census 2000.

2.3.1 Population by province

The population distribution across the provinces is very uneven, as *figure 2.2* illustrates. With over 122 thousand people, Malaita has around twice the population of the next largest provinces, Guadalcanal and Western province. Its share in the total population is 30 percent, whereas Rennell-Bellona with 2,377 inhabitants represents less than 0.6 percent. A group of similar sized provinces in terms of population numbers includes Temotu, Isabel, Central and Choiseul provinces, all with around 20 thousand people, or 5 percent each of the total population. Makira-Ulawa province and the capital Honiara are again significantly larger and make up respectively 8 and 12 percent of the country's population. If Guadalcanal province and Honiara are combined, the island of Guadalcanal represents around 27 percent of the total population.

Figure 2.2. Population by province



Urban-rural distinction

Given the small size of settlements —including the capital— international qualifications for 'urban' are hardly relevant in the Solomon Islands. However, for analytical purposes a distinction is made between urban and rural settlements. Urban areas include Honiara town council, Noro as the next largest settlement and next major commercial centre, and all provincial administrative centres (see *figure 2.4*).

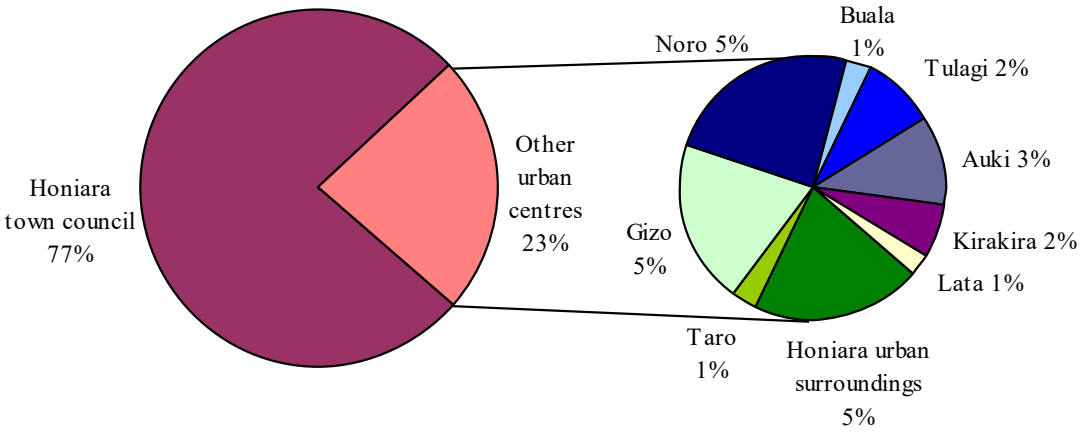
In addition, a number of enumeration areas surrounding Honiara were classified as urban on the basis of their proximity and access to the town, population density, permanency of settlements and variety of economic activities. All other areas in the country were considered to be rural.

2.3.2 Urban-rural distribution

By any standards, the urban population in the Solomon Islands is small. Less than 16 percent of the population live in areas that were defined as urban. This urban sector of just under 64 thousand people is dominated by Honiara town council (see *figure 2.3*). The capital accommodates more than three-quarters of all urban residents, and if the adjoining urban areas of Guadalcanal are included, 'greater Honiara' even represents 82 percent of all urban population.

The other main urban centres are —in order of population size— Noro, Gizo, Auki and Tulagi. The other provincial centres are much smaller and deserve urban status on the basis of their administrative function only, rather than in terms of population size, economic differentiation or population density. Specific information about the urban centres and size of localities can be obtained from tables B1.05 and B2.04 in the Basic tables report.

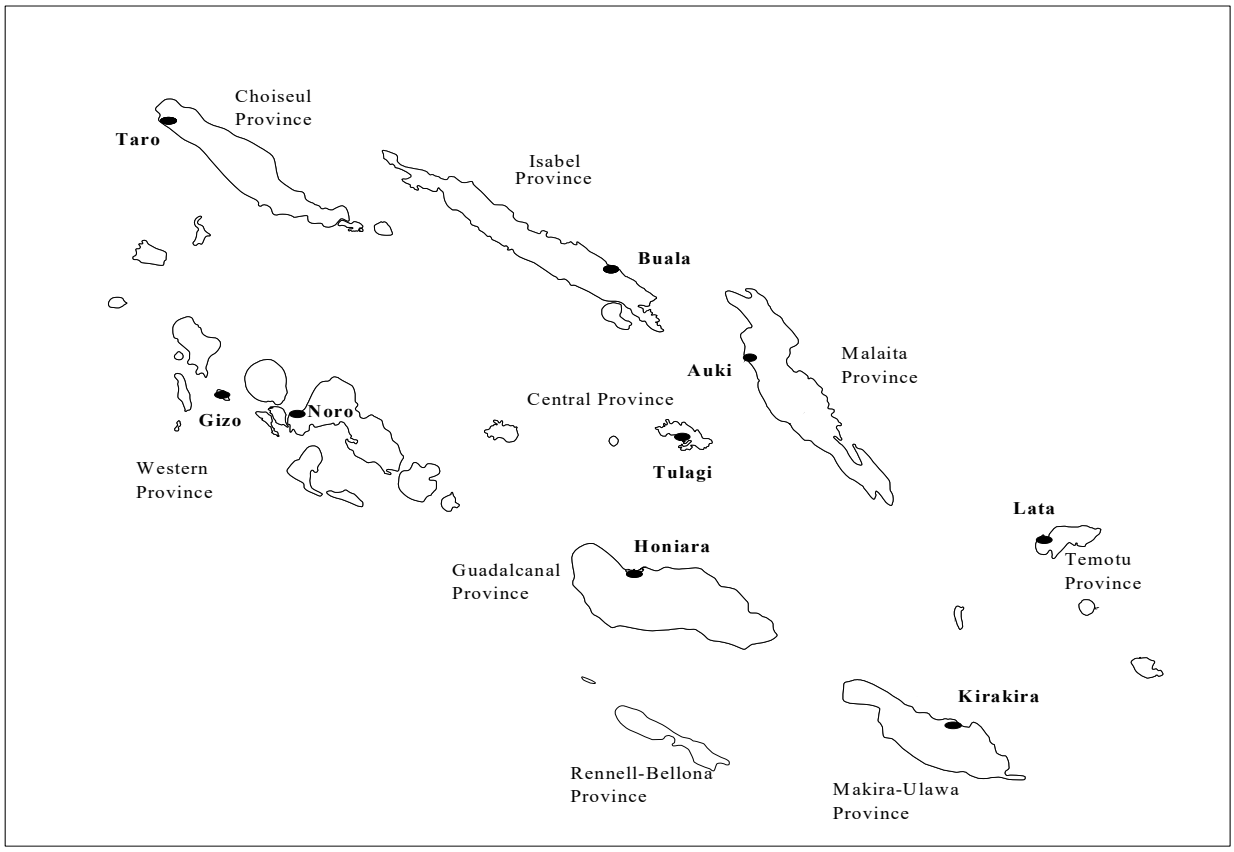
Figure 2.3. Urban population distribution



2.3.3 Size of settlements

The 1999 census collected village information as a characteristic of geographic division. However, for a number of reasons information by village, for instance as represented in table B1.05 of the Basic tables volume, should be interpreted with caution. The most important reason is that villages have no administrative status and nowhere are their boundaries defined formally. Only two towns in the country —Honiara and Noro— have a status as a formal and geographic entity. In addition to this, villages tend to move, to split up and to be renamed or abandoned, and their identification is largely a matter for local inhabitants, who may even disagree among themselves about their definitions. Regularly, settlements counting as few as one or two households are considered to constitute a village, which would imply a compilation of over ten thousand villages that —apart from their inhabitants— would have little sustainability and little meaning for planners. Therefore, even though the census office issued guidelines to the field staff on how to define villages, their identification is a rather arbitrary issue.

Figure 2.4. Urban centres



Because of the arbitrariness of village information, the census office did not cross-tabulate any variables by settlement, except for settlement size. For the same reason, comparing the number and size distribution of settlements recorded in 1999 with those of previous censuses has hardly any relevance at all.

A total of 5,919 different settlements were recorded during the census, which implies an average size of 69 persons and 11 households per locality. Over three-quarters of the population live in villages of 50-499 inhabitants. If urban localities are excluded, the rural villages of the Solomon Islands consist of 58 people and 9 households on average.

2.3.4 Population density

The Solomon Islands as a whole has a very low population to land ratio: the country's population density is only 13 persons per square kilometre. The overall density is somewhat misleading, however, since a large part of the country consists of rugged and jungle-clad mountain ranges, which are largely uninhabited. Most of the population lives on the less than ten percent of flat coastal plains and lagoon islands and atolls. Just as the provinces differ in terms of population size, they also vary in population density (see table B1.01 in the Basic tables volume). As an urban area, Honiara stands out with a density as high as 2,244 people per square kilometre. On the other hand, Rennell-Bellona, Isabel and Choiseul record extremely low densities of 4, 5 and 5 respectively. Among the provinces, Central province (with a population density of 35), Malaita (29) and Temotu (22) have the highest figures. The remaining provinces take an intermediate position, ranging from 8 to 11 persons per square kilometre.

2.4 Age structure

2.4.1 Age determination

A relatively large share of the Solomon Islands' population has no accurate knowledge about their date of birth. The 1999 census therefore paid special attention to the determination of people's date of birth through other means than direct recall. Enumerators were obliged to enter a year of birth on the questionnaire form for every person in their enumeration area and they were trained to use successive strategies if a respondent could not reply to the question about year of birth (see inset). Missing information about the month of birth could, in principle, be accepted. The instructions to provide a year of birth were well observed and the few persons for which no year of birth was entered had a year assigned by the manual checking staff on the basis of other information on the census form. Person records with month of birth missing were randomly assigned a value through automatic imputation. This information was used to calculate the age on census night.

Age determination during enumeration

Enumerators were instructed to apply the following strategies in a prescribed order to establish a person's year of birth:

1. Accept a prompt answer to the question on when the person was born;
2. Ask for an official document stating the person's birth date (e.g. the family bible, an immunisation document, a birth certificate, a baptismal certificate, et cetera.);
3. Relate a person's date of birth to some important event. For this purpose a historical calendar was prepared for each province, giving the year and month of notable events like epidemics, large earthquakes and cyclones, festivals, visits by important persons or other (inter)national or local events that people may remember;
4. Relate a person's age or year of birth to that of another person in the household, whose information was available;
5. Estimate a person's year of birth by his or her looks.

2.4.2 Quality of data

2.4.2.1 Introduction

Despite efforts to determine accurate and precise birth dates, age distributions of a population characteristically incorporate different kinds of distortion. In many cases information on age relies on data-collection strategies that are less accurate. But even if exact information on age is available, respondents may for some reason prefer to report a different age.

Conceptually, inaccuracy of age reporting can be traced back to two causes: age-heaping and age-shifting. Age-heaping is the tendency of preferring certain ages or birth years to others. It is not uncommon for census data to report a preference for terminal digits 0 and 5. Age-shifting occurs when the real age of respondents is understated or overstated. Various techniques and measures are available to indicate the extent to which age misreporting occurs.

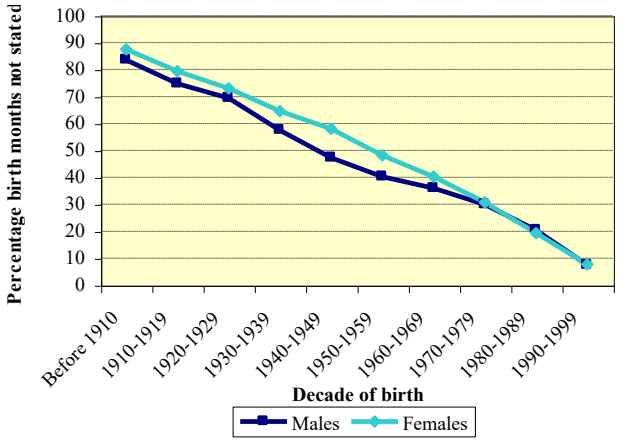
2.4.2.2 Month of birth

A first indication of the accuracy of age reporting can be obtained by looking at the number of people for whom no month of birth was reported. It is likely that if the month of birth is not stated the year of birth will, on average, be less accurate because the respondent did not know exactly when he or she was born, and no official documents were available.

Twenty-six percent of the total population could not state a month of birth. Men had a slightly lower non-response (25 percent) than women (27 percent). Although the share of the population with no specified birth month is still significant, it is well down from the 45 percent found in the 1986 census. As expected, the percentage not stated declines as the time of birth is closer to the census (*figure 2.5*): from over 83 percent for persons born before 1910 to around 7.5 percent for children born in the period 1990-1999. Whereas the percentage shown for women varies almost directly with the time of birth, the line for men shows a slight dip for the birth period between 1930 and 1970. Although this

might be a true representation of the situation, it could also indicate that some men born before 1975 (i.e. older than 25) who did not know their exact birth date successively shifted to earlier birth years and higher age groups. This idea is supported by the fact that the 1986 census found this phenomenon for the same age range.

Figure 2.5. Percentage of persons with non-stated birth month, by sex and decade of birth



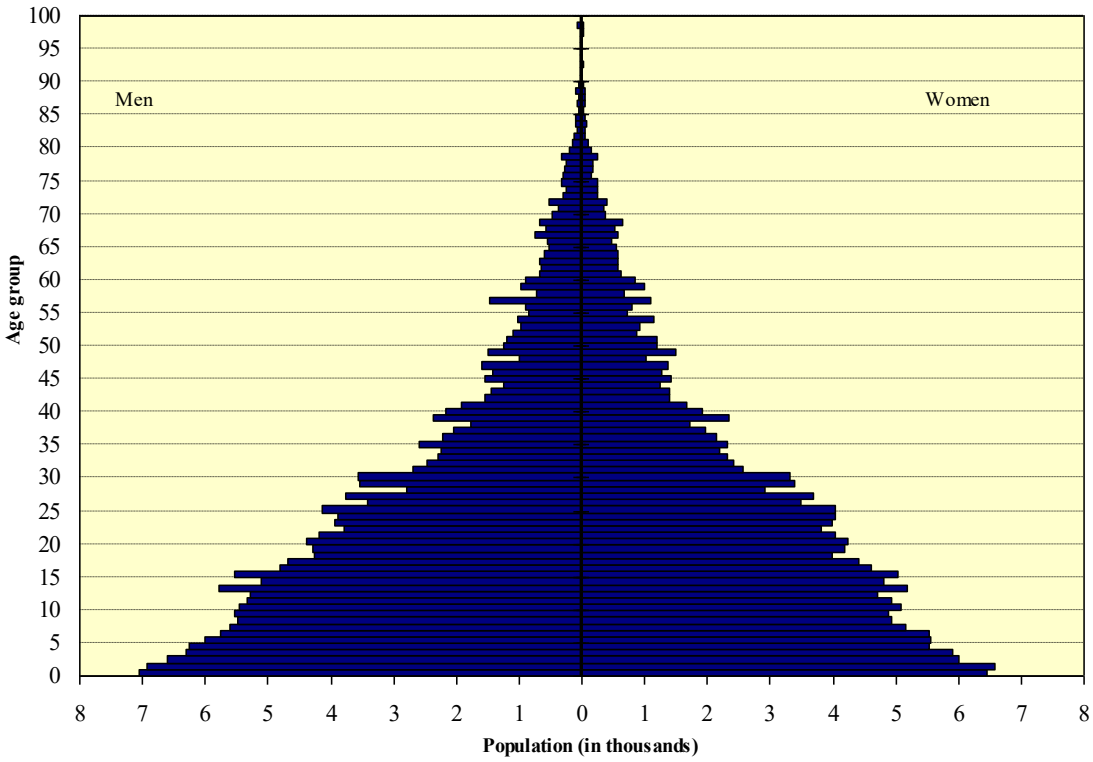
2.4.2.3 Age composition

A next step to assess age accuracy is an inspection of the age structure as reported in the census. With the absence of any substantial international migration, the population of the Solomon Islands can be understood as a closed system, whose dynamics are shaped by fertility and mortality. Birth cohorts will decrease in size with the passage of time because of deaths occurring among the cohort members. If fertility and mortality levels remain constant, the population will have a structure like a smooth-edged pyramid with each age group being smaller than the next younger one. Irregular pyramid sides may occur because of fluctuations in mortality and fertility, or because of age misreporting.

The graphic representation of the population of the Solomon Islands (*figure 2.6*) is clearly pyramid shaped, but the sides are jagged, which suggests the occurrence of age misreporting. A method generally used to measure age digit preference is the Myers index. For each end digit, it indicates the deviation from the 10 percent of the total reported ages expected if there is no age preference. The effect may be blurred because the respondents' preference might relate to a certain calendar year rather than to age, as the census question referred to year of birth and not directly to age. Thus, a preference to report a birth year ending with a '0' (e.g. 1960) would in most cases contribute to a heaping of ages with '9' as terminal digit (in this case 1999-1960=39). At the same time, however, people may have an idea about their age at the time of the census —perhaps including a preference effect— and calculate the corresponding year of birth. If relatively many people think of their age in rounded figures ending on a '0' (e.g. 30) and then calculate their year of birth (here 1999-30=1969), this will in most cases be converted back to an age with terminal digit '0' during the data processing.

According to Myers age digit preference (see *figure 2.7*), ages with terminal digits 0, 5, 7 and 9 are preferred, whereas the other ones —and in particular 2 and 8— were not. The preference for ages with end digits 0 and 5 is quite common in census results and the relatively strong preference for 9 might indicate a preference for birth years ending on 0. The relatively strong preference for ages with terminal digits 7 and 9 has the incidental effect of draining the intermediate age with end digit 8, which is most pronounced for ages 28, 38, 48 and 58 (see figure 2.6 and *table 2.1*).

Figure 2.6. Population distribution by age and sex

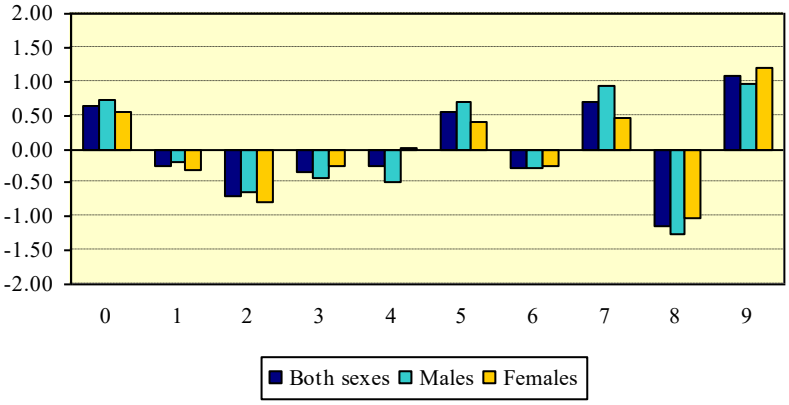


The reason for favouring digit 7 is less obvious than that for digit 9, but can readily be explained by closer inspection of the years of birth to which ages ending on 7 correspond. Apart from a general preference for birth years ending with digit 2, the 1942 Guadalcanal campaign in World War II seems to be an important reference point for the determination of a respondent's year of birth. As in the previous censuses of 1970, 1976 and 1986, the frequency of reporting 1942 as birth year has a significant heaping effect, which can be observed from the protruding bars for age 57 in the population pyramid in figure 2.6. A second important contribution to the preference for end digit 7 is the frequent occurrence of age 47, which may be attributed to reference to the cyclone that hit large parts of the country in 1952. Elimination of the preference for these two ages would reduce the heaping effect for digit 7 by more than half.

Another bar that stands out in the pyramid of figure 2.6 is the one related to age 13. This age corresponds to birth year 1986 in which two memorable events occurred: the cyclone Namu that caused enormous damage in large parts of the Solomon Islands, and the previous population census, which was an important reference point for many enumerators who participated again in the 1999 census.

Whereas in 1999 the preference for birth years ending on 0 and 2 showed up as age heaping for ages with terminal digits 7 and 9, because census intervals were not exactly 10 years preceding censuses reflected heaping for ages ending on other digits. For the 1986 census (with enumeration similarly in November) it resulted in a preference for ages ending on 6 and 4 and for the 1976 census (enumeration in February) in preferences for 5 and 3. If this shift is taken into account, the digit preference in 1999 by and large shows the same pattern as in 1986 and, although somewhat less clearly, in 1976. The heaping effect of reporting birth years ending on 2 was somewhat stronger in 1986, which can be expected as at that time events like the 1952 cyclone and the war represented a reference point for a larger part of the population than in 1999.

Figure 2.7. Myers age digit preference[a]



[a] Age range 10-89

Table 2.1. Myers index

Digit	*Myers digit deviation*		
	Both sexes	*Males*	*Females*
0	0.64	0.73	0.55
1	-0.26	-0.20	-0.32
2	-0.70	-0.63	-0.78
3	-0.35	-0.44	-0.25
4	-0.25	-0.50	0.02
5	0.55	0.68	0.40
6	-0.27	-0.27	-0.26
7	0.71	0.93	0.47
8	-1.14	-1.26	-1.02
9	1.07	0.95	1.20
Meyers index[a]	**5.93**	**6.59**	**5.28**
5-year age group distribution			
0-4	-0.91	-1.03	-0.78
5-9	0.91	1.03	0.78

[a] Sum of absolute values

The most striking differences, however, appear for terminal digits 1 and 5. In 1999, a preference for an age ending on 5 —rather than a preference for a birth year ending on 4— probably caused the heaping for 5 as terminal digit. If the same preference existed in 1986 at all, it was apparently completely swamped by the draining effect of the heaping related to adjacent birth years ending on 0 and 2. The second difference is the more pronounced avoidance of ages ending on 1 in 1986. This might indicate that rounding off a birth year to end digit 5 was not a salient consideration either. Although the 1999 data show a preference for ages ending on 5, there is no analogous preference for birth years with a terminal digit 5 (corresponding to ages ending on 4).

Many users of census data aggregate single years into five-year age groups to facilitate analysis and to reduce age fluctuations. However, if the effect of single-year heapings is not evenly allocated to the five-year age groups, aggregation may result in an unrealistic distribution. Thus, a disproportionate heaping in the higher digits may cause age groups with end digits 5-9 to be overstated compared with the 0-4 end digit group. Inspection of the Myers indices in table 2.1 reveals that this is not a serious problem for the 1999 Solomon Islands census data: the digit distribution over the 0-4 and 5-9 groups is quite even, although somewhat less so for men than for women, and overall, Myers index is low.

Another measure to estimate the accuracy of the five-year age group distributions is provided by the UN age-sex accuracy index (United Nations 1955). Census data can be described as 'accurate' if the index is below 20, as 'inaccurate' if it is in the range 20-40 and 'highly inaccurate' if it is over 40. If the method is applied to the 1999 Solomon Islands census (*table 2.2*), an index level of 21.5 is obtained, which is situated very close to the accurate range. However, the application of a coefficient to adjust for random factors that may occur because of the small population size (cf. INED 1973) reduces the level to 19.5, which is just inside the accurate range.

Table 2.2. United Nations age-accuracy index[a]

Age	*Population*		*Analysis of age ratios*				*Analysis of sex ratios*	
	Males	*Females*	*Males*		*Females*		*Ratio[c]*	*Successive difference*
			Ratio[b]	*Deviation from 100*	*Ratio[b]*	*Deviation from 100*		
0- 4 years	33,150	30,482					108.75	
5- 9 years	28,402	26,074	94.48	-5.52	94.46	-5.54	108.93	-0.18
10-14 years	26,970	24,723	103.74	3.74	102.37	2.37	109.09	-0.16
15-19 years	23,592	22,229	100.04	0.04	99.15	-0.85	106.13	2.96
20-24 years	20,196	20,114	97.92	-2.08	101.21	1.21	100.41	5.72
25-29 years	17,656	17,517	105.48	5.48	106.35	6.35	100.79	-0.39
30-34 years	13,282	12,829	92.70	-7.30	91.55	-8.45	103.53	-2.74
35-39 years	11,001	10,508	101.94	1.94	102.67	2.67	104.69	-1.16
40-44 years	8,301	7,640	91.93	-8.07	89.20	-10.80	108.65	-3.96
45-49 years	7,059	6,622	102.15	2.15	102.03	2.03	106.60	2.05
50-54 years	5,520	5,340	92.37	-7.63	98.03	-1.97	103.37	3.23
55-59 years	4,893	4,273	108.24	8.24	99.95	-0.05	114.51	-11.14
60-64 years	3,521	3,210	88.46	-11.54	91.19	-8.81	109.69	4.82
65-69 years	3,068	2,767	112.34	12.34	114.84	14.84	110.88	-1.19
70-74 years	1,941	1,609	86.17	-13.83	86.09	-13.91	120.63	-9.76
75-79 years	1,437	971	110.50	10.50	95.52	-4.48	147.99	-27.36
80-84 years	660	424	71.97	-28.03	71.68	-28.32	155.66	-7.67
85-89 years	397	212	98.51	-1.49	87.60	-12.40	187.26	-31.60
90-94 years	146	60	49.83	-50.17	44.61	-55.39	243.33	-56.07
95 +	189	57					331.58	-88.25
Total (absolute values)				76.07		65.93		49.45
Mean				**5.85**		**5.07**		**3.53**
UN index	**21.52**	**(A+B+3*C)**		**(A)**		**(B)**		**(C)**

[a] Applied to the age rage 0-79

[b] Calculated as the sex ratio of a specific age group minus the sex ratio of the adjoining younger age group.

[c] Calculated as the number of persons in a specific age group divided by the average of the adjoining age groups.

2.4.2.4 Conclusion

Compared with 1986, age reporting showed a slight improvement if measured according to the Myers index (5.9 compared with 6.0) and a more considerable improvement in terms of the UN age-accuracy index (21.5 compared with 34.0). According to the adjusted UN index, data can be considered as accurate, especially since the index assigns a heavy weight to the sex-ratio component that in the Solomon Islands probably genuinely represents a large deviation (see section 2.5). Although age heaping does occur in the 1999 census data, it can be concluded that its occurrence is not excessive. Therefore, age smoothing is not required to produce sufficiently accurate baseline data and analyses can confidently be based on either single year or five-year age groups as produced in the 1999 census tabulation report.

2.4.3 Broad age distributions

The population structure by five-year age categories represents a fairly smooth pyramid shape, as shown in *figure 2.8.* Close inspection reveals that the 5-9 years age group is relatively small, probably because some children in this category are erroneously attributed to the youngest age group (0-4). Similarly, the 25-29-age category appears too large at the expense of the 30-34 year-olds. However, as these two cohorts were largely included in the 10-14 and 15-19 age groups respectively in the 1986 census, and the same phenomenon was observed there, in this case age reporting might well be correct. A detailed overview of the percentage age distributions by five-year age groups for all 1970-1999 censuses can be found in *annex I* of this report.

The pyramid shape reflects the young age structure of the population. In 1999, the *median age* —the age that exactly divides the population in two parts of identical size— was 18.7 (18.6 for men and 18.9 for women). The population under 15 amounted to 41.5 percent of the total population, which represents a sizeable decline since the 1986 census (47.3 percent, see *table 2.3*). This reflects the marked fertility decline over the past 15 years as expounded in chapter 4.

The *dependency ratio* —the number of persons under 15 and over 60 in relation to the number of persons aged 15-59— is an important indicator for economic development planners. It represents the size of the younger and older population, who are dependent on others for income and subsistence, relative to the population in the productive ages. The dependency ratio of 87 in 1999 implies a significant decline since the previous censuses, which reported 112 and 109 for 1976 and 1986 respectively. Whereas the proportion of the population over 60 increased only slightly, the major shift contributing to the decreasing dependency ratio was that from the under-15 population to the age group 15-44. The latter age category accounted for 45.2 percent of the population in 1999 compared with 39.7 in 1986 and 38.7 in 1976.

Figure 2.8. Population by five-year age categories and by sex, 1976, 1986 and 1999

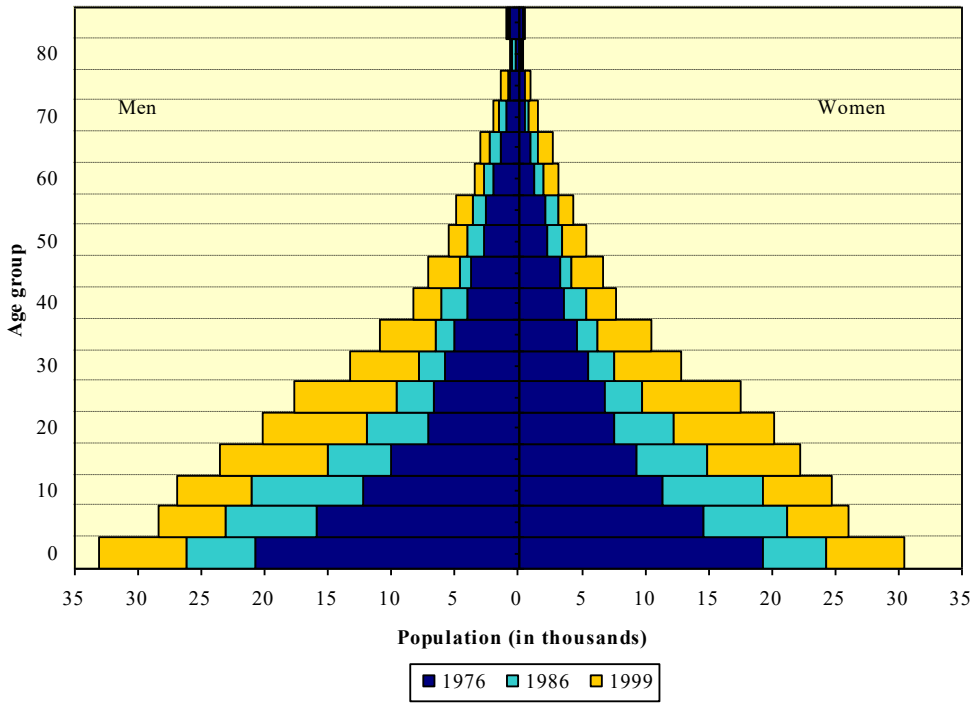


Table 2.3. Percentage age distributions by broad age groups, dependency ratios and child/woman ratios for census years 1970-1999

Age group	*1970*[a]	*1976*[a]	*1986*[a]	*1999*
Total	100.0	100.0	100.0	100.0
0-14	44.7	47.8	47.3	41.5
15-44	41.1	38.7	39.7	45.2
45-59	8.8	8.4	8.1	8.2
60+	5.4	5.0	4.9	5.1
Dependency ratio[b]	100	112	109	87
Child/woman ratio[c]	84	107	90	70

[a] Solomon Islanders only.
[b] Calculated as all persons in age categories 0-14 and 60+ per 100 persons in age category 15-59.
[c] Calculated as all children in age category 0-4 per 100 women in age category 15-44.

Another indicator that reflects the declining share of the youngest cohorts caused by decreasing fertility is the child/woman ratio. This ratio represents the number of children aged under five per 100 women in the childbearing ages 15-44. In 1999, 100 women in this age range took care of 70 children, whereas the ratio was 90 in 1986 and as high as 107 in 1976. This implies a substantial reduction of the care-taking tasks of women in the Solomon Islands in recent years.

The age pyramid and broad age groups for each of the provinces are provided in *annexes II and III* respectively. Here, it suffices to mention that Honiara has a structure that strongly deviates from the other provinces. Rather than a pyramid shape, the population structure shows an overrepresentation of the 15-29 year age group, which is related to the employed and employment-seeking population in the capital. Both the groups of young (0-14 years) and old (60 years and over) population in Honiara are relatively small (31 and 2 percent respectively), resulting in a dependency ratio of only 50.
Rennell-Bellona is the only other province with an irregular pyramid shape, which can be explained by the combination of an extremely small population and high migration rates (see chapter 5). Especially the age ranges 15-29 years (only 38 percent), and 60 and over (as much as 11 percent) deviate significantly from the corresponding ages at the national level.
The other provinces are more similar in population structure. Malaita and Makira-Ulawa have relatively large shares of young population (45 and 44 percent respectively), whereas the lowest shares are found in Western province and Temotu (41 percent each). Relatively high dependency ratios are found in Malaita (102) and Choiseul (98) and relatively low ones in Guadalcanal and Western province. Other remarkable features can be found in Temotu and Makira-Ulawa, where the 0-4 and 5-9 year age groups seem to be underrepresented.

2.5 Sex ratio

2.5.1 Introduction

The proportion of males to females in a population is important background information for development planning. It has far-reaching implications in a wide range of areas like employment and marriage opportunities, population growth, demand for health services, et cetera. The expected sex ratio —the number of males per 100 females— across age groups follows a pattern in which boys outnumber girls at birth (with around 105 to 100), by and large maintain this pre-dominance in early childhood, to gradually converge with the number of women at later ages. Around age 50 the male surplus usually turns into a shortfall, which increases at older ages, resulting in an overall sex ratio

generally close to 100. This pattern results from the usually small excess of boys at birth and the common higher mortality of males over females. Genuine deviations from this pattern can be caused by variations in the sex ratio at birth and sex-specific mortality, or by sex-specific migration. However, sex-specific age-misreporting and undercounting or overcounting can also lead to unexpected sex ratios.

The overall sex ratio in the 1999 Solomon Islands population is 107, which indicates a substantial male surplus. This is the more remarkable since survival rates of women seem to be slightly higher than those of men (cf. section 4.2 of this report). This masculinity is, however, in line with results of previous censuses in the Solomon Islands, although the respective censuses since 1959 show a gradual decline in the sex ratio from 119 to 107 (see the table in the textbox 'Men and women in global perspective').

As can be seen in *figure 2.9* age-specific sex ratios in 1999 deviates from the expected course in several respects: the ratio of boys to girls at birth is higher than usual, the sex ratio slopes down rather quickly to a balance around age 25, but picks up from that age onwards and, contrary to expectation, increases at older ages. Figure 2.9 compares the age-specific sex ratios for the five censuses between 1959 and 1999. By and large they show similar patterns, although the 1959 and 1970 graphs are more erratic, probably because of severe age misreporting. Another marked difference is the age at which sex ratios start increasing to extreme heights.

Men and women in global perspective

The unusually high sex ratio in the Solomon Islands is reflected in several other Melanesian countries, although these also experience a downward trend over time. Melanesian populations in more developed Pacific countries (Fiji, New Caledonia) tend to have lower sex ratios. The figures in the table below represent for selected countries different demographic experiences in terms of sex ratios.

Sex ratio for selected countries

Country	*Year*	*Sex ratio*
World	2000	102
Solomon Islands	1931	119
	1970	112
	1976	109
	1986	108
	1999	107
Fiji	2000	103
New Caledonia	2000	105
Papua New Guinea	2000	109
Vanuatu	2000	105
Australia	2000	99
United Kingdom	2000	95
Pakistan	2000	106
China	2000	106

Source: UNDP 2001.

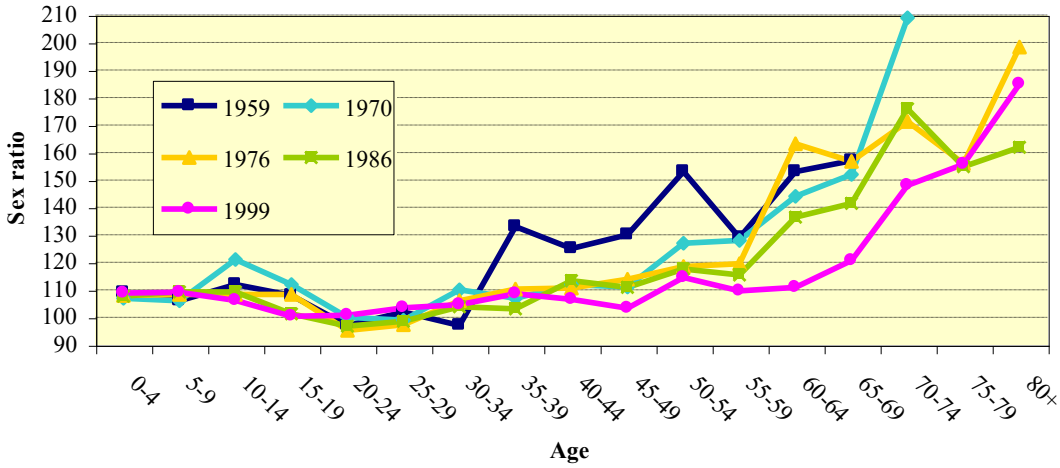
The subsequent sections address the maintained male dominance as well as the conspicuous sex ratio pattern across ages according to the different factors that may attribute to the deviations from the expected situation.

2.5.2 Factors underlying the 1999 sex ratios

2.5.2.1 Sex ratio at birth

Available data from the respective Solomon Islands censuses and other sources consistently point to a sex ratio at birth that is significantly higher than the 105 generally found around the world. The sex ratio of children ever born to women as reported in the 1999 census (109) is close to the figures that were found in the 1986 and 1976 censuses (109 and 110 respectively, see *table 2.4*). One explanation is that this reported high ratio is caused by sex-specific recall errors. If this is the case, the effect can be expected to be more pronounced for mothers in the older age ranges than for younger mothers who had their children more recently and will have a more accurate memory in this respect. However, this was not the case for any of the censuses 1976, 1986 and 1999, and if a trend can be detected at all, it points the other way: older women reporting children ever born at lower sex ratios than younger women (table 2.4).

Figure 2.9. Sex ratios, by five-year age groups for census years 1959-1999



The children born in the twelve months preceding the 1999 census show a sex ratio similar to the one for all children ever born. These births took place in the very recent past and, therefore, recall error among respondents is unlikely to occur. As sex-specific mortality at younger ages is not very likely given the fairly constant sex ratio over the first 15 years in the Solomon Islands population, this might provide further support to the notion that at birth boys outnumber girls to an unusually high extent. Apart from genuine recall errors related to accurate respondent memory, it is also possible that people are deliberately biased towards reporting sons rather than daughters. Although this may be the case in certain countries, there is no apparent reason to believe that sex preference in reporting is a significant factor in the Solomon Islands.

Table 2.4. Sex ratio of children ever born, by census year and age group of mothers

Mother's	*Sex ratio*		
Age group	*1976*	*1986*	*1999*
All ages	110	109	109
15-19	111	103	110
20-24	113	110	111
25-29	111	109	107
30-34	109	110	109
35-39	107	111	109
40-44	109	107	110
45-49	112	108	110
50-54	110	108	109
55-59	110	105	107
60+	110	109	108

A breakdown of sex ratios of children ever born by province does not reveal large differentiation. Isabel province records the lowest sex ratio (107), while the figure for Malaita is the highest (110).

Accurate national statistics on children ever born could give conclusive evidence on the issue of whether the reported high sex ratio at birth is genuine or caused by misreporting. Unfortunately, such nation-wide figures are not available in the country. Although the Ministry of Health does compile statistics on births, these are far from complete and, more importantly, do not provide a breakdown by

sex. The National Referral Hospital in Honiara, however, does collect information about live births by sex. The information may be judged as fairly accurate and, as the hospital assists in around one quarter of all deliveries in the country (attracting women from Honiara and Guadalcanal, but also from Centralprovince, Malaita and Rennell-Bellona), it also gives a fairly representative picture. The most recent data for the five years 1996-2000 reproduce an almost exact equivalent of the sex ratio as reported for the children ever born in the 1999 census. Therefore, this supplies strong support for the reliability of the census and for an unusually high sex ratio at birth. Consequently, the sex ratio at birth of 109 is considered correct and considerably contributes to the explanation of the overall figure for the country.

2.5.2.2 Migration influences

Migration is often gender specific and if it occurs on a relatively large scale it can significantly influence the sex ratio in a population. In addition, sometimes migrant groups have characteristics that over time demographically distinguish them from the resident (mainly Melanesian) population. In its history, the Solomon Islands has experienced several waves of immigration and emigration. During the last part of the 19th century a large number of labourers were recruited to work on plantations in Australia and Fiji. This male-dominated emigration took place in such a remote past that it cannot affect the current sex ratio in the population, and if anything, it would reduce it rather than push it up.

Migrants from the Polynesian islands in the Pacific who came to the Solomon Islands in former times have long since settled there, and as a separate group they display a fair balance between males and females (see *figure 2.10*). In more recent decades, a sizeable group of I-Kiribati was resettled from the then Gilbert and Ellice Islands (now Kiribati and Tuvalu). This occurred mainly in the 1950s, but some unassisted migration to the Solomon Islands continued into the late 1960s. However, this Micronesian immigration largely involved whole families resulting in a well-balanced sex distribution. The contribution of both Pacific immigrant populations, therefore, consists of a suppression of the sex ratio in the Melanesian-dominated total population, and thus emphasises rather than explains the issue of male dominance.

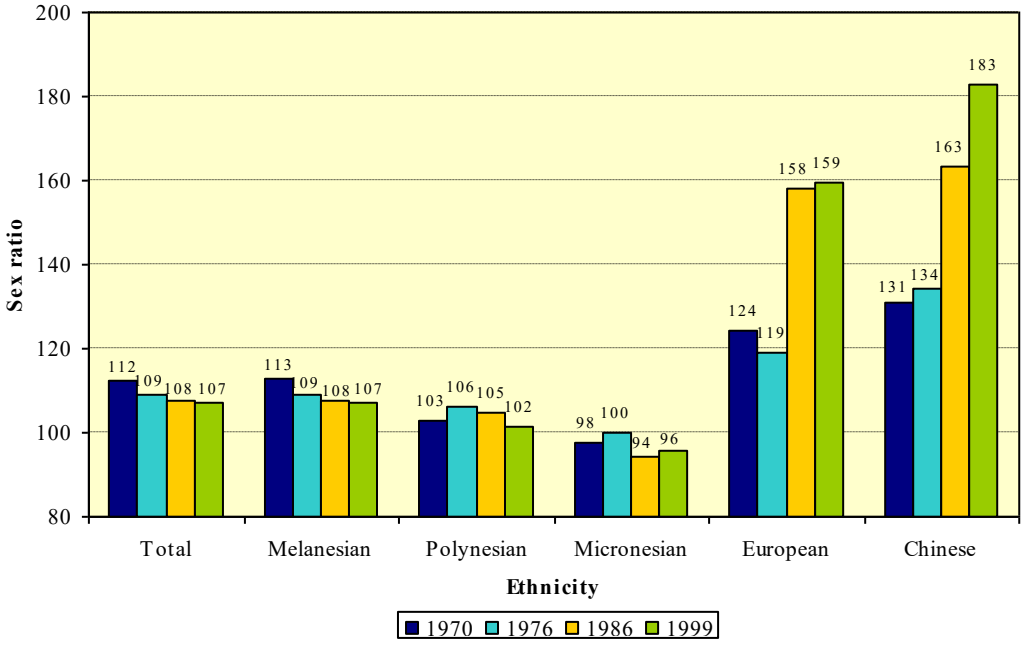
With respect to other population groups in the Solomon Islands, a strong male dominance can be observed in the European and Chinese communities in the country. Immigration of these ethnic groups is strongly related to economic activity, which attracts more men than women. Even as the Chinese community already includes third-generation immigrants, census data suggest that men far outnumber women: the sex ratios of the Chinese and Europeans are 183 and 159 respectively. However, the size of these populations is so small that the numbers hardly influence the distribution between males and females in the country as a whole.

By means of questions about citizenship and place of birth, it is also possible to measure the direct impact of immigration into the Solomon Islands (see also section 5.3.1). The sex ratio of the foreign-born population is high (126), that of the foreign-born foreign citizens even much higher (177), but again their numbers are so small that the impact is negligible. The overall conclusion is therefore that migration across the borders of the country and maintained demographic characteristics of next generations cannot explain the high sex ratios found in successive national censuses, and on balance even contribute to a lower level.

2.5.2.3 Undercounting and overcounting

Consistent undercounting of women and overcounting of men can be a factor during enumeration and may therefore result in strongly deviating sex ratios. In countries where female seclusion is widespread, this may seriously impede access to women and consequently result in significant omission of women from the records. Other customs may differently affect the inclusion or exclusion

Figure 2.10. Sex distribution of major ethnic groups in census years 1970-1999[a]



[a] For 1970, 1976 and 1986, the Micronesian population refers to I-Kiribati only.

of either males or females during enumeration. Also, misreporting of population groups may arise from high mobility, although it is not clear in advance whether this would result in overcounting or undercounting.

In general, there is no reason to believe that cultural factors affect gender-specific inclusion of the population in the Solomon Islands. In some very traditional areas women tend to be temporarily secluded during their menstrual period, but the prevalence of this custom is low and its effect on enumeration minimal. Census field reports from Choiseul mentioned the inclusion of deceased family members on the census forms, but again this related to occasional incidents only. Moreover, most misreports were apparently corrected by field supervisors and the issue did not seem to involve deceased men more than women.

A common finding in censuses is that mobile people have a higher chance of being omitted from enumeration. This is more likely to be a problem in a *de jure* census than in a *de facto* census like that of the Solomon Islands. The criterion for inclusion at enumeration (present on census night in the household rather than usually residing there) is relatively straightforward and leaves little room for omissions. Moreover, as in the Solomons mobility of men and women is fairly similar (see section 5.1.5), this would not likely result in an overcount of men, and therefore cannot contribute to the explanation of the high male sex ratio.

2.5.2.4 Sex-specific mortality

Several countries in the world record higher mortality levels for women than for men. Female vulnerability in this respect can manifest itself in higher infant and child mortality among girls or higher mortality among older women. Importantly, in addition maternal mortality may contribute to lower survival rates for women. In the Solomon Islands, however, current mortality rates for women are no higher than those for men. If anything, life expectancy is greater for women than for men (cf. section 4.2 in this volume), a finding similar to the 1986 census results. The anthropological and demographic literature on the Solomon Islands does not mention any widespread practice of

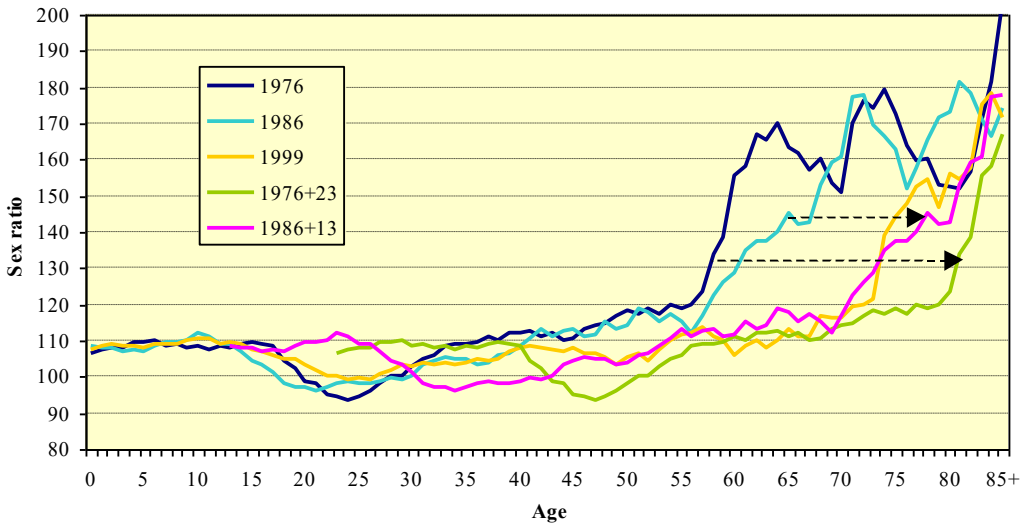
infanticide either. These findings combined imply that male surpluses in various age ranges cannot be explained on the basis of present sex-related probabilities of dying.

It is however possible that the present population distribution carries remnants of significant sex-specific mortality in the past. If, for instance, in certain periods in the past female mortality was higher than that for males, the surviving age groups should show a deficit that can be retraced in the successive censuses as a cohort effect.
This seems to be the case if the age-specific sex ratios from the last three and most reliable censuses are plotted in a different way. In *figure 2.11* smoothed sex ratios are shifted in order to take the ageing of the population into account: the 1986 graph is shifted 13 years upwards and the 1976 graph 23 years upwards. The figure clearly shows the repetition of the twin-peaked pattern of the standard 1976 sex ratio data at the older ages in the 1986 data, although due to age mis-reporting, the age interval between the corresponding peaks is compressed to around eight years instead of the intercensal 10 years. On the extreme right-hand side of the figure the first peak can still be observed in the 1999 graph, at an age correctly about 13 older than in the 1986 data. The population representing the second peak has died off by 1999.

If the 1976 and 1986 graphs are shifted according to the period between these censuses and the 1999 one, the figure reveals a striking overlap for the first peak for all three censuses (the second peak is now beyond the plausible upper age limit). The same applies to the strong upsurge in the sex ratio at the older ages as far as the 1986 and 1999 data are concerned. The 1976 pattern increases too late to fit well, but the similarity in shape may indicate that this is again due to age-shifting.

The consistent patterns of the 1976, 1986 and 1999 censuses support the idea that recorded high sex ratios at the older ages reflect a genuine underrepresentation of women, rather than merely the effect of age misreporting as was assumed in previous analyses. If this idea is accepted the picture provides a window to the past, suggesting that the cohorts of women born before around 1930 experienced a significantly higher mortality risk during their lives. Women who were younger than 70 in 1999 were by and large spared these conditions.

Figure 2.11. Smoothed age-specific sex ratios for census years 1976-1999



Although mere speculation, it might be interesting to consider what the adverse situation of women consisted of and what caused the marked and rather sudden improvement of this situation. If the steep increase in sex ratio indeed reflects a rapid decline of female mortality, it would suggest that it is the effect of particular events or interventions, rather than that of general development or social change.

This might indicate the involvement of maternal health care measures, which can dramatically reduce maternal mortality. As this affects women mostly between 20 and 45, and as women below age 70 in 1999 seem to have fully benefited, the onset of the intervention can be traced to the time before they were around 20, i.e. before 1949. This may indicate that it was developments following World War II that included significant improvements in maternal health care.

2.5.2.5 Conclusion

There is no reason to assume that the high sex ratio found in the successive censuses should be attributed to international migration, current excess female mortality or sex-specific under or over-counting. It is likely that it can basically be attributed to two factors: a genuine high sex ratio at birth and a high-mortality environment for women up to the 1940s. This conclusion suggests that the issue of male dominance in the Solomon Islands population that has puzzled demographers for decades is close to being resolved. A high sex ratio at birth is reported consistently in the successive censuses and convincingly evidenced by medical records over time. All sources indicate a sex ratio at birth at least as high as 109 and by now this figure can confidently be accepted as correct for the Solomon Islands population. Over the last decades, female mortality was just below that of males, implying that the male dominance at the onset is largely maintained as the population ages.

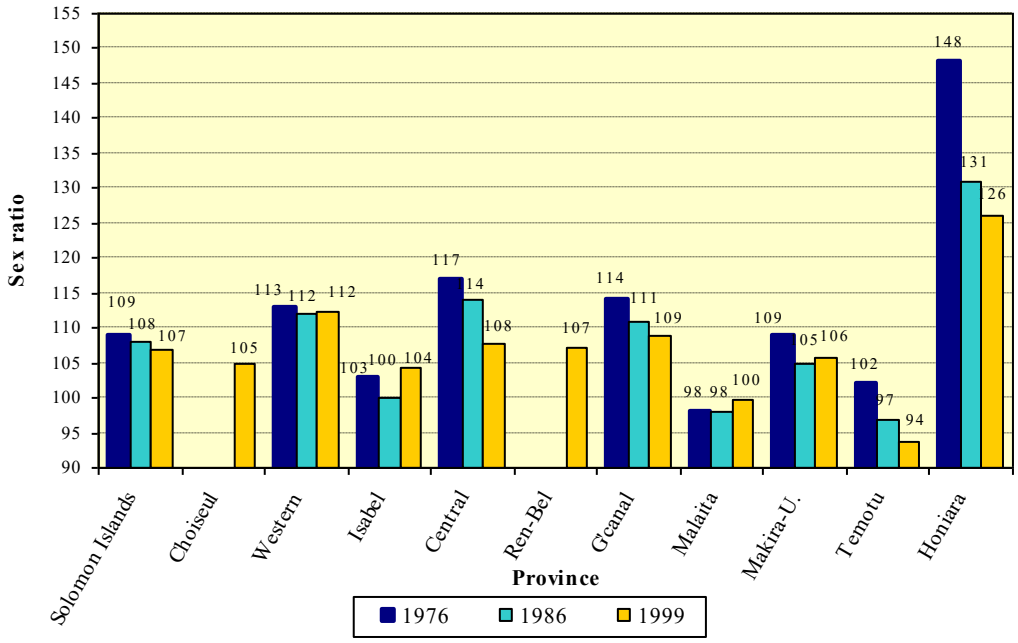
Interpretation of age-specific sex ratios in different censuses supports the idea that in a more remote past the mortality regime significantly depleted cohorts of women born before 1930, probably because of maternal health risks in particular. Apparently, the situation improved markedly after World War II and the number of women who experienced the adverse mortality conditions gradually become fewer and fewer and eventually disappear from the statistics. The fading away of these cohorts offers an explanation for the decreasing overall sex ratio as found in the successive censuses. If these cohorts are excluded, the subsequent censuses report a consistent overall sex ratio in the population of 106.

This fits reasonably within the acceptable range modelled by a continuous sex ratio at birth of 109 and sex-specific mortality rates as reported for the last decades. It may therefore be expected that by the time of the next census the ratio will approach 106, as by then the older cohorts will have been replaced by cohorts that did not experience high female mortality.

2.5.3 Sex ratio by province

Figure 2.12 shows that sex ratios differ significantly between provinces, for the 1999 census ranging from 94 in Temotu to 126 in Honiara. In contrast to the sex ratio at the national level, the major influencing factor at the provincial level is migration. The provinces with the lowest sex ratio — Temotu and Malaita— are traditionally the ones that supply labour to the capital and major commercial and plantation areas. Choiseul and Isabel are other provinces with an appreciable net out-migration and have corresponding suppressed sex ratios. The demographic effect of predominantly male migration on the sending provinces is mirrored in the destination provinces offering employment, the most pronounced cases being Honiara, and —to a lesser extent— Western province, Guadalcanal and Central province. For detailed analysis of internal migration flows and migrant characteristics, see to section 5.1 of this report.

Figure 2.12. Sex ratio per province[a], 1976, 1986 and 1999



[a] In the 1976 and 1986 censuses Choiseul and Rennell-Bellona were not separate provinces.

Comparison with earlier censuses reveals clear trends for several provinces.

- The steep decline of the sex ratio in Honiara in figure 2.12 reflects the increased importance of the locally-born population *vis à vis* the male-dominated immigrant population (see also section 5.1.3.1 in this report).
- The decline in Temotu probably reflects the increasing importance of predominantly male out-migration.
- The decline in Central province is likely to result from the diminishing commercial and administrative role of the province (and especially Tulagi) over the years.
- The decline in Guadalcanal may be the effect of a largely male immigrant population gradually becoming more balanced by family union and family formation.

2.5.4 Sex ratio by urban-rural residence

Urban centres with relatively many employment opportunities usually attract more men than women. Besides for Honiara, this is especially reflected in the sex ratio of Noro and Tulagi, with respectively 164 and 150 males per 100 females. The sex ratios of the urban surroundings of Honiara on Guadalcanal are close to that of the capital (129), whereas Taro, Gizo, and Kirakira —all within the range of 110-114— are only just above the national average. Buala and Auki (each with a sex ratio of 105) and especially Lata (96) have ratios below the national level. The last two centres closely correspond to the low levels of their respective provinces.

Having sent away more men than women, the rural regions of the Solomon Islands present a relatively balanced sex ratio of 104 males per 100 females. The differentiation across provinces with respect to sex ratios in rural areas does not deviate to any noticeable extent from the provincial figures as a whole because of the overwhelming representation of the rural sector in the provinces.

2.6 Population growth

2.6.1 Introduction

Changes in the size of a population can basically be decomposed into three factors: birth, death and migration. The net balance of the first two factors —the difference between the number of births and deaths in a population— defines the *natural growth* of that population in a certain period. The third factor describes the difference between the number of immigrants and emigrants. Natural growth in combination with migration determines the overall population change between two censuses. The results of successive censuses therefore capture the combined effect of natural growth and migration, unless the coverage of population in the censuses is different.
There is no reason to believe that the 1999 census experienced significant underenumeration (or overenumeration). The ethnic tension did affect the operation, but primarily in the preparation phase —and mostly on Guadalcanal— not the enumeration itself. Moreover, field reports from Guadalcanal confirmed that even there full cooperation was encountered and coverage was as complete as could be expected. It is therefore assumed that coverage in the 1999 census was at least as complete as that in 1986. This assumption is further supported by the fact that the 1986 census similarly experienced substantial difficulties in its preparatory stage because of the cyclone Namu, and reported coverage problems in the Kwaio area on Malaita.

The assumption that the accuracy of both censuses was approximately equal has important implications for the demographic analysis, namely that the difference in population size between 1986 and 1999 should be adequately described by the analysis of fertility, mortality and migration. These analyses are outlined in detail in chapters 4 and 5 of this volume; in this chapter the major results will be used to address the intercensal population growth. Here, it suffices to mention that national population growth is further assumed to depend solely on natural increase. International migration (both immigration and emigration) is so limited that, as in the 1986 census analysis, it can be safely ignored for all practical purposes without affecting the overall result. The case made in chapter 4 to define fertility and mortality is thus built on the combined assumptions that coverage in 1999 and 1986 is approximately equal, and that overall growth equals natural growth.

2.6.2 National population growth

The population of 409,042 people enumerated in November 1999 implied a 43 percent increase in the 13 years since the 1986 census. On an annual basis this indicates a growth rate of 2.8 per year. Differentiation by sex was very small with a slightly lower annual growth rate for men (2.78) than for women (2.85). *Table 2.5* provides an overview of population development since 1970.

Table 2.5 shows that the growth of the population was considerably lower than in the intercensal period before 1986. As the 1986 census report explains (Statistics Office 1989, p. 5), population growth reached its peak just before 1976, even though the measured overall 1970-1976 intercensal growth rate was slightly below the 1976-1986 one. This implies that the annual growth rate around 1986 was well below the 3.5 that captures the increase over the total intercensal period. Calculated birth and death rates revealed a plausible rate of 3.3 in 1986. So the further decline to a growth rate of 2.8 per annum over the last census interval makes sense, especially given the fact that the period under consideration was as long as it was: 13 years. Even though the decline in the growth rate was substantial, its level still puts the Solomon Islands among the fastest growing countries in the world. According to estimates by the United Nations only 37 countries out of 174 have higher rates of increase.

The analysis of fertility and mortality in chapter 4 provides the conclusion that the likely Crude Birth Rate (CBR) is 34 per thousand population and the likely Crude Death Rate 9 per thousand. This gives

Table 2.5. Total population, by census year and by sex and province; also intercensal population increase by sex and province

Sex and province	*Population census year*				*Rate of annual population increase*		
	1970	*1976*	*1986*	*1999*	*1970-1976*	*1976-1986*	*1986-1999*
Solomon Islands	160,998	196,823	285,176	409,042	3.4	3.5	2.8
Males	85,179	102,808	147,972	211,381	3.1	3.4	2.8
Females	75,819	94,015	137,204	197,661	3.6	3.6	2.8
Choiseul	8,017	10,349	13,569	20,008	4.3	2.8	3.0
Western	24,214	29,980	41,681	62,739	3.6	3.1	3.2
Isabel	8,653	10,420	14,616	20,421	3.1	3.2	2.6
Central	9,418	11,683	16,655	21,577	3.7	3.4	2.0
Rennell-Bellona	1,504	1,893	1,802	2,377	3.9	-0.5	2.2
Guadalcanal	23,996	31,677	49,831	60,275	1.5	4.3	1.5
Malaita	51,722	60,043	80,032	122,620	2.5	2.7	3.3
Makira-Ulawa	12,390	14,891	21,796	31,006	3.1	3.6	2.7
Temotu	9,078	10,945	14,781	18,912	3.2	2.8	1.9
Honiara	12,006	14,942	30,413	49,107	3.7	6.8	3.8

a total population growth rate in 1999 of 25 per thousand or 2.5 percent, which is compatible with the 2.8 growth deduced from the overall increase in population between 1986 and 1999.

2.6.3 Population growth at the provincial level

In contrast to the country as a whole, migration is a noticeable contributing factor to population change within the provinces and in several cases a prominent one. It is difficult to determine exactly the share of migration compared with that of natural growth, as no information about inter-provincial migration is available for the period between the censuses. However, census information about life-time gives a fair indication of its importance for each of the provinces. In addition, indications of natural growth are summarised in *table 2.6.* For a detailed discussion on migration and fertility and mortality data, see chapter 5 and 4 respectively.

Table 2.6 reveals marked differences between provincial growth rates, although the variation is less than in 1986. In this respect, it must be borne in mind that the figures —especially those for Guadalcanal, Honiara and Malaita— are distorted by the large-scale displacement that occurred in 1999 just before the census. Section 2.6.5 addresses this issue separately and outlines the situation that could have been expected if normal conditions had prevailed.

As expected, Honiara as the major commercial, service and employment centre stands out with the highest growth rate, and this figure is even deflated by the effect of the large number of displaced people who left the town. Assessment of vital and migration statistics show that of all the provinces, population increase in Honiara depends most on a high rate of in-migration. The contribution of natural increase, on the other hand, is relatively small.

Malaita is the province with the next highest growth rate. It used to be a province with high out-migration, but this process was counterbalanced to a significant extent by the influx of displaced people from Guadalcanal and Honiara. Overall the net effect of migration in the intercensal period remained negative, but this is counteracted by a high natural growth, primarily sustained by a high level of fertility. The CBR estimated for Malaita for the years preceding the census was as high as 38

Table 2.6. Selected indicators of population change

Province	*Population*		*Population increase*		*Vital rates*				*Lifetime net*	*Percent of population*	
	1986	*1999*	*Absolute*	*Annual rate*	*TFR*	*CBR*	*CDR*	*RNI*	*migration rate*[a]	*in paid work*	*unemployed*
Solomon Islands	285,176	409,042	123,866	2.8	4.8	34	9	25		14	7
Choiseul	13,569	20,008	6,439	3.0	5.3	36	10	26	-5.1	13	5
Western	41,681	62,739	21,058	3.2	4.8	34	9	25	3.3	22	5
Isabel	14,616	20,421	5,805	2.6	4.8	33	10	23	-5.8	13	4
Cental	16,655	21,577	4,922	2.0	4.9	34	10	24	2.1	17	4
Rennell-Bellona	1,802	2,377	575	2.2	4.9	29	13	16	-3.8	8	13
Guadalcanal	49,831	60,275	10,444	1.5	5.0	36	9	28	-4.0	11	7
Malaita	80,032	122,620	42,588	3.3	5.4	38	10	28	-7.9	7	9
Makira-Ulawa	21,796	31,006	9,210	2.7	5.1	37	10	27	-2.1	8	6
Temotu	14,781	18,912	4,131	1.9	4.1	33	11	23	-14.9	7	12
Honiara	30,413	49,107	18,694	3.8	3.4	29	7	23	31.2	31	6

a The number of net migrants expressed as a percentage of the total population in the province

and the TFR was as high as 5.4, the highest figures in the country. The two western-most provinces also have growth rates higher than the national average. Growth in Choiseul is caused exclusively by natural increase (a CBR of 36 and a TFR of 5.3) as more people tend to leave than enter the province. Western province has a natural growth rate close to the national average, but also gains population through in-migration. The relatively large share of the population engaged in paid work is an indication of the province's attraction for labour from other provinces.

The lowest growth rates were recorded for Guadalcanal, Temotu, Central Province and Rennell-Bellona. The exceptionally low growth of Guadalcanal can be attributed to the large-scale outflow of displaced persons in 1999, which is only partly offset by high natural increase (28 per thousand), while the lower-than-average increase in Rennell-Bellona is largely caused by out-migration, but also by low natural increase. In both provinces the labour market seems unfavourable as indicated by high unemployment and low participation in paid work.

Overall growth rates in Isabel and Makira-Ulawa are close to the national average. In neither province, but especially not in Makira-Ulawa, seems migration a very determining factor of population development. Notwithstanding the similar growth rate over the period 1986-1999 and similar recent net migration, Makira-Ulawa has a significantly higher natural growth, mainly generated by high fertility.

Compared with the pre-1986 situation, in most provinces growth rates decreased, reflecting the general fall of natural growth. Deviations from this rule can be observed in Choiseul, Malaita, Rennell-Bellona and Western province where growth accelerated. A variety of causes can be pointed out that contributed to this increase:

- The displacement of a large number of people who in particular swelled the population of Malaita and to a much lesser extent that of Western province.
- The growing importance of Western province as an area of labour demand.
- The establishment since 1986 of Choiseul and Rennell-Bellona as separate provinces, which may have created local job opportunities and increased the attractiveness of the area.

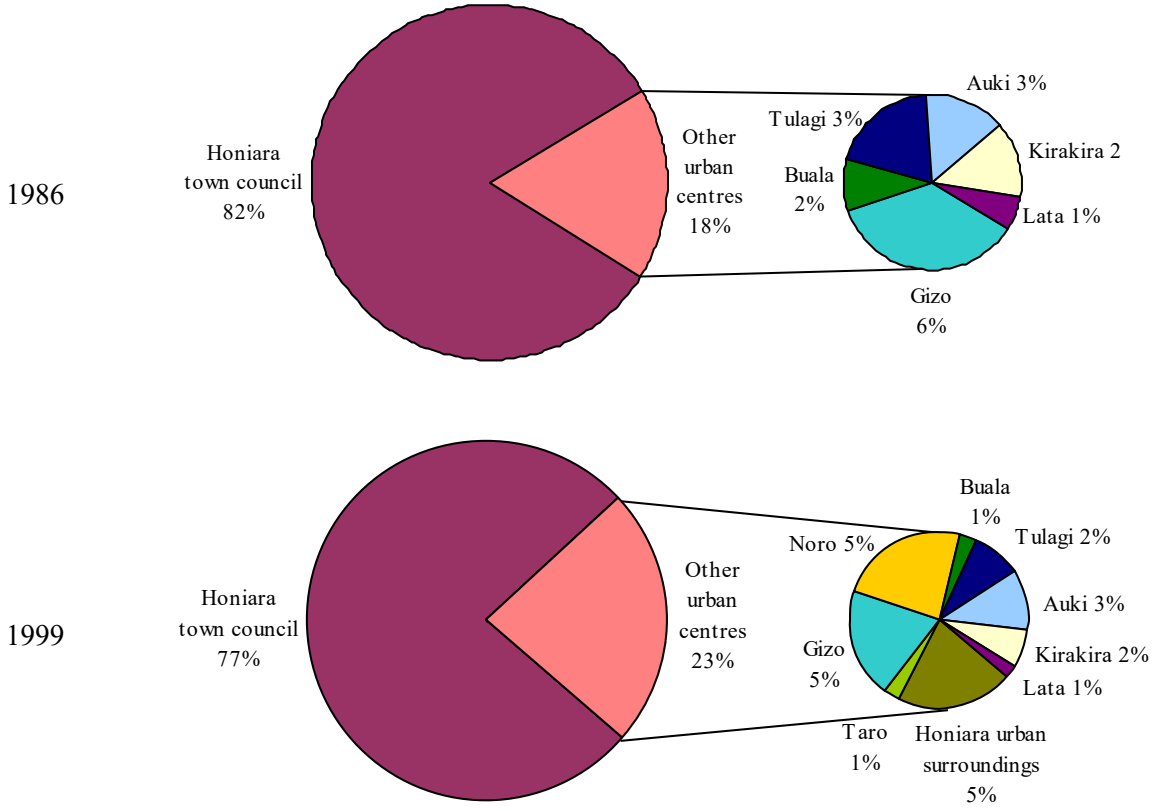
With the renewed increase in Rennell-Bellona, the area reversed the negative population growth observed in the 1986 census. At that time this population decrease went largely unnoticed because the twin islands had not acquired the status of province and were not included separately in most presentations.

The most noticeable decreases in population growth were recorded for Guadalcanal and Honiara. The 4.3 percent annual growth in the 1976-1986 period reflected the position of northern Guadalcanal as the major commercial area in the country after Honiara. This position was maintained until 1999, but the province subsequently completely lost its attraction to established enterprises and non-Guadalcanalese residents upon the ethnic purging of the island. Growth rates for Honiara were similarly affected because of the tension in 1999, resulting in an overall modest average increase of 3.8, down from 6.8 in the intercensal period before 1986. Temotu already had a relatively low growth rate in 1986, at that time largely caused by out-migration. By 1999 a lowered natural increase was added to the inclination to leave. The remarkable deceleration of the growth rate of Central province can only partly be explained by the fact that the province has lost ground in terms of economic and administrative importance. Another factor could be population pressure, given the fact that with 35 persons per square kilometre, population density in Central province came second after the urban area of Honiara (see table B1.01 in the Basic tables volume).

2.6.4 Urbanisation[1]

Since the 1986 census, the Solomon Islands' urban population has increased substantially, from 36,919 to 63,732 persons, and up from 18,314 in 1976. The 73 percent increase implies an annual growth rate of 4.3, with which urban growth far outpaced national (2.8) and rural (2.6) growth rates. The provincial urban centres made themselves felt with a combined population increase of 125 percent compared with the 61 percent of the capital Honiara[2]. This means that the process of urbanisation is increasing and at the same time is tending towards a balance across the country. The emergence of new urban areas like Noro and the urbanised areas around Honiara in Guadalcanal mainly account for this development (see *figure 2.13*). In the near future, a case could be made to incorporate Munda in the urban sector as well.

Figure 2.13. Urban population distribution, 1986 and 1999



The largest provincial urban increase occurred in Western province, especially because of the development of Noro into a major urban centre. It not only overtook the province's capital Gizo in terms of population size, but also established its position as the country's largest settlement after Honiara. Of all provincial urban centres existing in 1986, Auki reveals the highest increase (61 percent), followed by Gizo (27). Tulagi and Kirakira had very low growth, whereas population numbers fell in Lata (-15 percent) and especially Buala (-27 percent). This might be an indication that these centres are becoming more marginalised.

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1 For the location of urban centres, see figure 2.4.

2 However, if the Guadalcanal urban area is included in greater Honiara, the growth becomes 78 and 71 percent respectively.

2.6.5 Effects of displacement

2.6.5.1 Introduction

The 1999 census included a question about the place of residence before displacement for those who reported being displaced because of the ethnic conflict in 1999 prior to the census. The outcome revealed a total of 35,309 displaced persons, of whom 24,597 lived on Guadalcanal and 10,712 in Honiara before displacement. A substantial number of these people were either displaced within the respective province or had returned to the place where they lived before displacement at the time of the enumeration. However, over 22 thousand people (63 percent) were enumerated in a different ward than they lived in before displacement, of whom over 19 thousand even moved to another province. Section 5.2 of this volume presents a detailed analysis of this displacement.

The mass movement of people had a significant impact on the population distribution across the provinces, and consequently on provincial growth rates as measured on the basis of the 1999 and 1986 enumerations. As such these figures are not typical for population development in the country and represent a misleading basis for projections and future planning. The census data allow a reconstruction of the provincial population distribution without displacement. This distribution is presented in *table 2.7,* together with the corresponding growth rates.

2.6.5.2 Population distribution without displacement

The most dramatic effect of the redistribution of displaced persons according to their place of residence before displacement occurred for Guadalcanal. Without the effects of the ethnic tension the population in that province would have been as much as 20 percent larger than actually recorded during enumeration. Without this loss of one-fifth of its population Guadalcanal would have 72 thousand inhabitants and would clearly have been the second largest province, far beyond Western province that took this position in the census. Honiara would also have been substantially larger (9 percent), whereas Malaita would have recorded only around 110 thousand people instead of over 122 thousand (10 percent less than actually listed in the census). The population size of the other provinces would have remained in the same order of magnitude.

The shift of displaced persons had relatively minor effects on population density in the provinces. The most noticeable effects are recorded for Guadalcanal, Malaita and Honiara, which recorded densities of respectively 11, 29 and 2,244 instead of 14, 26 and 2,444 that would have been the case had no displacement occurred.

Table 2.7. Population distribution and growth rates with and without displacement, by province

Province	*Census results (with displacement)*		*Results without displacement*			
	Population	*Growth rate*	*Population*	*Difference (%)*	*Growth rate*	*Difference (%)*
Solomon Islands	409,042	2.8	409,042	0	2.8	0
Choiseul	20,008	3.0	19,692	-2	2.9	-4
Western	62,739	3.2	61,599	-2	3.1	-5
Isabel	20,421	2.6	20,090	-2	2.5	-5
Central	21,577	2.0	21,091	-2	1.8	-9
Rennell-Bellona	2,377	2.2	2,345	-1	2.0	-5
Guadalcanal	60,275	1.5	72,066	20	2.9	95
Malaita	122,620	3.3	109,944	-10	2.5	-26
Makira-Ulawa	31,006	2.7	30,422	-2	2.6	-5
Temotu	18,912	1.9	18,313	-3	1.7	-13
Honiara	49,107	3.8	53,480	9	4.4	18

With respect to the urban-rural distribution, the displacement of population had a slight effect as the outflow from Honiara to rural areas was partly offset by the inflow from Guadalcanal into Honiara and provincial urban centres. Without displacement, the urban sector would counted just over 67 thousand people instead of nearly 64 thousand, which both amount to around 16 percent of the total population.

2.6.5.3 Growth rates without displacement

As can be observed in table 2.7, the impact of displacement is even more pronounced in terms of growth rates than in terms of population size. The largest implications of the population distribution according to its pre-displacement residence are again in Guadalcanal. In this province population increase would have been nearly twice as high as actually recorded in 1999. The growth rate in Honiara would have been 18 percent higher (4.4 per year instead of 3.8). The population of Malaita on the other hand would have increased by significantly less, a difference of 26 percent compared with the actual situation. With 2.5 percent growth per year it would have been well below the national average. A relatively large impact can also be observed for Temotu (with a growth rate that would have been 13 percent lower) and Central province (9 percent lower). The difference in the remaining provinces is around 5 percent.

The picture sketched for the provincial growth rates is supported if growth rates over the period between the 1986 census and the national elections in August 1997 are considered. These rates closely correspond to the intercensal rates excluding displacement as presented in table 2.7. The only exception is for Honiara, where the 1986-1997 growth rate reveals a level close to the one actually found (including displacement). This second approach, however, largely supports the idea that the adjusted figures accurately assess the provincial distribution and growth rates that prevailed under normal conditions.

2.7 Summary and conclusion

The population of the Solomon Islands has maintained a high growth rate, despite a substantive decline since the census of 1986. As international migration is insignificant, almost all population increase can be attributed to natural growth. The annual growth rate of 2.8 would imply that the population will double in 25 years.

Growth rates at the provincial level vary between 3.8 for Honiara and 1.5 for Guadalcanal. However, these are both exceptional provinces: Honiara because of its position as national capital and major urban centre, and Guadalcanal because of the a-typical population drain related to the ethnic conflict. Of the other provinces, Temotu recorded the lowest growth rate (1.9) and Malaita the highest (3.3), closely followed by Western province (3.2). In contrast to the country as a whole, alongside natural growth, migration is a major factor underlying growth differentials at provincial level, especially for Honiara, Guadalcanal, and to a lesser extent Malaita, Western province and Temotu.

The population distribution across the provinces is very uneven. With the split-off of two new provinces since the 1986 census (Choiseul and Rennell-Bellona), the difference in population size even increased further: with over 122 thousand inhabitants Malaita represents 30 percent of the Solomon Islands population, whereas Rennell-Bellona accommodates less than one percent (2,377 people). The relative weight of the provinces —at least in terms of population— is therefore very unequal.

The displacement of population that occurred because of the ethnic conflict on Guadalcanal had a major impact on the growth and distribution of the populations of Honiara, Guadalcanal and Malaita. The first two provinces —and especially Guadalcanal— would have recorded larger populations (53 and 72 thousand, respectively) and higher growth rates (4.4 and 2.9, respectively) if the tension had

not occurred. The opposite is true for Malaita, which would have had a population of only 110 thousand and a growth rate of only 2.5. The situation that emerged as a result of the conflict, as well as the uncertain future of the country posed significant problems for the formulation of population projection scenarios (chapter 9).

With respect to urbanisation, the situation in 1999 was not much different from that in 1986. Honiara maintains its large dominance in the country's urban sector, especially if the town's adjoining urbanised fringes in Guadalcanal are included in its functional perimeter ('greater Honiara'). Developments with respect to the urban sector are the possible concentration of urban areas in Western province (Noro, Gizo and perhaps Munda) and Malaita (Auki). The evolution of Noro from a mere village into the second largest settlement in the country in the space of a few years is the most significant development. Other provincial centres lost ground in a relative, and in two cases (Tulagi and Lata) even in an absolute sense. Despite urbanisation trends it should be noted that more than 84 percent of the population remain in rural settlements with on average fewer than 10 households and fewer than 60 inhabitants.

The age structure recorded in the 1999 census is pyramid shaped, reflecting a very young population structure. The percentage of population under 15 years of age is as large as 41.5 (compared with 47.3 in 1986), whereas the over-60 population represents only 5.1 percent.
Notwithstanding the fact that a substantial number of people have no accurate knowledge of their birth date, the quality of information on the age distribution is considered sufficient and can therefore be accepted as an accurate baseline without requiring age smoothing.

With respect to the strikingly high sex ratio found in the Solomon Islands population, it can be concluded that this can largely be explained by a genuinely high sex ratio at birth, probably in combination with excess female mortality prior to the 1950s. If the current similarity in mortality between males and females persists, in the next decade the sex ratio can be expected to remain at the present level (107) slightly below the sex ratio found at birth. At the provincial level, deviations in sex ratio from the national level are in the expected direction and can largely be explained by internal migration.

3. Social profile

Bart DE BRUIJN and Gerry BEIMERS

3.1 Introduction

This chapter addresses several social and cultural characteristics of the Solomon Islands population that were covered by the census questionnaire. The subsequent sections deal with ethnicity, religion, language, marital status, household composition, and education and literacy. Most subjects were also covered in the previous censuses. However, language was added again after having been omitted in 1986, and literacy and an additional question on qualifications in tertiary education were included in 1999 for the first time.

3.2 Ethnicity

3.2.1 Introduction

The concept of ethnicity as included in the Solomon Islands censuses refers to general ethnic groups and does not distinguish people from specific islands or tribes in the country. Thus, the 1999 census classified the five largest general ethnic groups in the country: Melanesians, Polynesians, Micronesians (in previous censuses only including I-Kiribati), Chinese and Europeans. In addition, a category was included to cover those people that report themselves as of mixed descent and a remaining group for all other ethnicities.

The term 'European' was used in the questionnaire for the sake of simplicity and is an approximation of people of Caucasian descent. No effort was made to exactly determine ethnic components of people who are of mixed descent. In all cases self-reported ethnicity was accepted and those who did mention more than one ethnicity were included in the mixed category. Definition and reporting problems may occur, especially if data of different censuses are compared. It may be possible that over time people would prefer to emphasise a different ethnic background than in a previous census. The change in the share of one ethnic group within a population may, therefore, be a result of a complex combination of natural growth, migration, intermarriage, reporting preference and enumeration coverage.

3.2.2 Size and change of ethnic groups

Table 3.1 provides the size and share of each ethnic group within the Solomon Islands population. Melanesians are still the largest group by far, comprising 95 percent of the total population. Their share has even steadily increased since the 1970 census at the expense of most other ethnic groups — Polynesians, Micronesians, Chinese and Europeans. The decline in the share of the Polynesian population can largely be ascribed to a lower level of fertility found there (a Total Fertility Rate of 4.1, compared with 4.9 for Melanesians, see section 4.1.3.3). However, the relative decrease in the number of Micronesians since 1970 is probably caused by marriage into and identification with the Melanesian population, as Micronesian fertility cannot account for the shift being as it is substantially higher than that of the total population (a TFR of 5.9).[3, 4] A larger than proportionate share of the population of mixed ethnicity indeed has a Polynesian parent.

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[3] The calculation of the fertility of Micronesians is based on relatively few observations and should therefore be treated with caution. However, the problem is partly overcome by using data for three successive years. The result is also in line with the trends found for different ethnic groups in the 1986 census (Statistics Office

The European population showed an actual decrease, continuing the trend since 1970 and well in line with the information on the largely overlapping foreign-born and foreign citizens (section 1.3). Like the Chinese, the Europeans have all but disappeared as an ethnic group in the Solomon Islands. On the other hand, the share of people who report themselves as of mixed descent is rising, which may be a reflection of the increase of mixed marriages (see section 3.5.3.2) or a weaker preference to identify oneself with a specific ethnic background. The sharp increase in the number and share of persons with mixed descent between 1976 and 1986 is largely a matter of changing definition.

Table 3.1. Total population, by census year and by ethnicity

Ethnic group	*Number*					*Percentage*				
	1959	*1970*	*1976*	*1986*	*1999*	*1959*	*1970*	*1976*	*1986*	*1999*
Total	124,120	160,998	196,823	285,176	409,042	100.0	100.0	100.0	100.0	100.0
Melanesian	117,620	149,667	183,665	267,649	386,745	94.8	93.0	93.3	93.9	94.5
Polynesian	4,625	6,399	7,821	10,328	12,257	3.7	4.0	4.0	3.6	3.0
Micronesian[a]	459	2,400	2,753	3,782	4,906	0.4	1.5	1.4	1.3	1.2
Chinese	366	577	452	342	464	0.3	0.4	0.2	0.1	0.1
European	781	1,280	1,359	1,021	669	0.6	0.8	0.7	0.4	0.2
Mixed[b]	183	262	312	1,540	2,870	0.1	0.2	0.2	0.5	0.7
Other[c]	86	413	461	514	1,131	0.1	0.3	0.2	0.2	0.3

[a] In 1970, 1976 and 1986 only including people from Kiribati and Tuvalu.
[b] In 1959, 1970 and 1976 only including part-Chinese and part-Europeans.
[c] Including not stated ethnicity.

Some insight into the fluidity of ethnicity can be obtained by looking at the ethnicity reported by persons whose parents were enumerated in the same household and for whom the child-parent relation was identified[5]. The census includes 152,928 persons for whom this information is available. Of this group, 1,496 (one percent) claimed mixed ethnicity, but this number would double if this status is attributed to all persons with parents of different ethnicity. Apparently, many people prefer to be identified with one specific ethnicity, rather than with a diffuse group.

Table 3.2 shows all persons who reported a specific ethnicity (excluding mixed ethnicity), and the number among them for whom it was observed that they had parents with mixed ethnicity. Thus, among 145 thousand people who said they were Melanesian, fewer than one thousand were actually of mixed descent. This percentage of people who actually have parents with different backgrounds (but did not report this) increases inversely with the size of the ethnic group. This is not surprising, as the representation of a mixed couple is greater in the smaller than in the larger of the two ethnic groups. However, among the Chinese persons with known ethnicity of the parents, only four percent did not have two Chinese parents, which is much less than the similarly sized group of Europeans. This indicates that the Chinese community is relatively closed and much more than the other ethnic groups, resists the encapsulating by the Melanesian population.

On average, people who have parents with different ethnicity, were just as likely to adopt the ethnicity of the father as that of the mother (49 percent each). For persons who reported being Melanesian and

1989, p. 101). This suggests that whereas fertility of Melanesian and Polynesian women declined in the intercensal period 1976-1986 —although at a different level— fertility of Micronesian women remained at the same level.

4 The sharp increase of the Micronesian population between 1959 and 1970 reflects the immigration of I-Kiribati in the 1960s under official resettlement schemes in the wake of a prolonged drought in the then Gilbert and Ellice Islands.

5 Strictly speaking this could also refer to adoptive parents, but it is assumed that most adoption takes place within the same ethnic group.

Polynesian, this ratio was just slightly in favour of the father's ethnicity. However, among Micronesians of mixed background, relatively more people chose the ethnicity of the mother (59 percent, against 37 percent for the father's ethnicity). The numbers of Chinese and Europeans are too small to draw any reliable conclusions in this respect. Lastly, there are very small minorities of people who identify with neither their father's nor their mother's background. Although they may refer to other ethnic lines in their families, it is also quite likely that they are down to data errors.

Table 3.2. Relationship between reported (non-mixed) ethnicity of person and ethnicity of parents, for all persons with an ethnically mixed parental couple; also stating total persons of reported ethnicity, irrespective of parental ethnicity

Reported ethnicity	*Total*	*Mixed ethnicity*		*Ethnicity of*			*Percent ethnicity of*		
		Number	*Perc.*	*Father*	*Mother*	*Other*	*Father*	*Mother*	*Other*
Total	149,852	1,460	1.0	713	720	27	48.8	49.3	1.8
Melan.	145,410	935	0.6	470	455	10	50.3	48.7	1.1
Polyn.	2,903	312	10.7	164	143	5	52.6	45.8	1.6
Micron.	1,358	198	14.6	74	116	8	37.4	58.6	4.0
Chinese	91	4	4.4	2	1	1	50.0	25.0	25.0
Europ.	90	11	12.2	3	5	3	27.3	45.5	27.3

Table 3.3 includes all people of mixed descent, irrespective of whether they report so or claim a specific ethnicity. It appears that those of whom one parent is European, Micronesian or Chinese (and the other parent is of any other ethnic background) are more likely to report in accordance with their mixed descent than people with one Melanesian or Polynesian parent. People with one Melanesian parent adopt this Melanesian background twice as often as the ethnic background of the other parent (in 37 against 18 percent of the cases). The difference is particularly pronounced if the other parent is European, Chinese or of mixed descent. If a non-Melanesian parent is taken as the reference parent, the results show the opposite: apparently ethnic descent from the other parent (often Melanesian, because of the large size of this group) is more popular. This is more so for people with a European or Chinese reference parent than for those with a Polynesian or Micronesian parent. Very few children of couples consisting of a Polynesian and a Micronesian adopt the Polynesian background: of every ten people only one identifies as Polynesian, whereas three adopt the background of the other parent and six report mixed descent.

Table 3.3. Percentage distribution of reported ethnicity of respondents with parents of different ethnicity, by ethnicity of reference parent

Ethnicity of reference parent	*Ethnicity of respondent (in percent)*			*N*[a]
	Ethnicity of reference parent	*Other ethnicity*	*Mixed ethnicity*	
Total	30	27	43	5,544
Melanesian	37	18	44	2,481
Polynesian	21	36	43	1,440
Micronesian	21	25	54	918
Chinese	4	38	59	85
European	13	38	50	200
Mixed	cf. mixed	41	59	420

[a] The actual number of respondents is 2,772, but they are mentioned twice in the table as both parents of the respondent appear as reference parent.

3.2.3 Geographic distribution of ethnic groups

The geographic distribution of ethnicity shows marked areas of concentration. *Figure 3.1* shows the share that each province contributes to a particular ethnic group. In view of the overwhelming majority of Melanesians, it is not surprising that the distribution of this group closely resembles the distribution of the total population. For each of the other ethnicities, Honiara reveals a strong over-representation. Whereas the capital accommodates only 12 percent of the total population, it represents almost twice as many people from Polynesian and Micronesian descent (21 and 22 percent respectively), 56 percent of all Europeans and no less than 79 percent of all Chinese. Micronesians are furthermore strongly represented in Choiseul and Western province: 26 and 44 percent of them live here, whereas the share of these provinces in the total population is only 5 and 15 percent, respectively. People of Polynesian descent are concentrated in the remote provinces Temotu and Rennell-Bellona. The position of Rennell-Bellona is quite remarkable: although within the distribution of the total population its share is practically invisible, it does accommodate nearly one in five of all Polynesians in the Solomon Islands. No less than 93 percent of the total population in Rennell-Bellona belongs to this ethnic group. Temotu represents over one quarter of Polynesians (and less than 5 percent of the total population).

Malaita is a province with a strong under-representation of non-Melanesian ethnicity. This reflects its position as a closed society for non-indigenous people. The province hardly figures in the distribution of Micronesians, Chinese and Europeans, whereas it has by far the largest share in the country's total population. With regard to Polynesians, its contribution is closer to the overall distribution, but this does not reflect the situation on the mainland of Malaita province, which accommodates 98 percent of the province's population of whom over 99 percent are of Melanesian descent. Guadalcanal, Isabel and Makira-Ulawa also have relatively few non-Melanesian inhabitants (less than 5 percent). Besides Rennell-Bellona, only Temotu and Honiara have less than 90 percent non-Melanesian population (82 and 88 percent, respectively).

Figure 3.2 further clarifies the geographic concentration of ethnic groups. It shows a striking concentration of non-Melanesian population in the remote islands of the country, which are inhabited by people of Polynesian descent in particular. When the Polynesians arrived in the area, they found the main islands already inhabited and settled on the outer atolls and islands of Rennell, Bellona, Ontong Java, Sikaiana, Tikopia, Anuta and other islands of Temotu. Polynesian populations in one province remained independent of those in other provinces (cf. Western Pacific High Commission 1961), which is reflected, for instance, in the virtual absence of any migration between the communities. More recently, Polynesian communities emerged on the Russell Islands, Makira-Ulawa and Honiara (cf. Feinberg 1990) because of internal migration from the primary settlement areas.

The presence of the Micronesian population is of more recent nature. These immigrants arrived from Kiribati in several waves in the years after 1955 and in particular in the early 1960s. Most of them were settled under official schemes in Wagina, Inner Shortlands, Gizo and Honiara. Others immigrated unassisted and established communities in other areas, for instance on Vonavona. All these areas still show up as pockets of high Micronesian concentration. In contrast to the primary Polynesian communities, strong relations exist between these population groups, manifested by relative intense migration and intermarriage. Just as Honiara attracts Polynesians to a greater extent than Melanesians, relatively many people of Micronesian descent have settled in the capital.

Any substantial contribution to concentrations of non-Melanesian population by Chinese and Europeans can only be traced in Honiara. Mataniko ward, where Chinatown is located, accommodates

Figure 3.1. Ethnic groups, by province

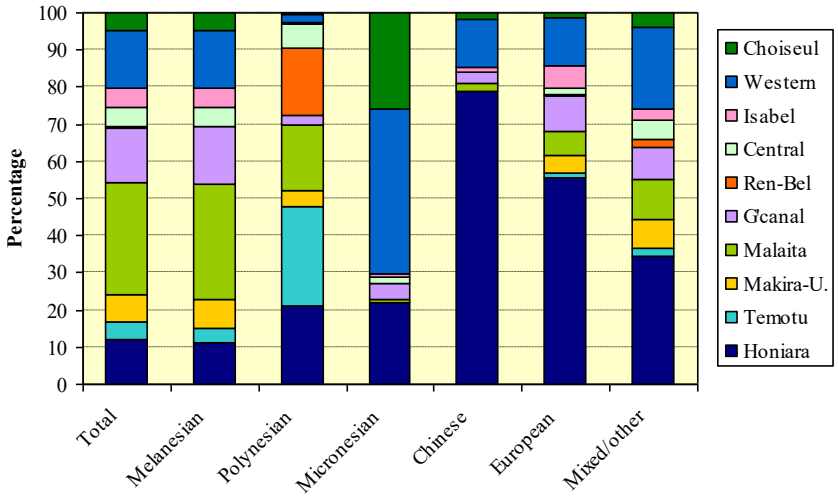
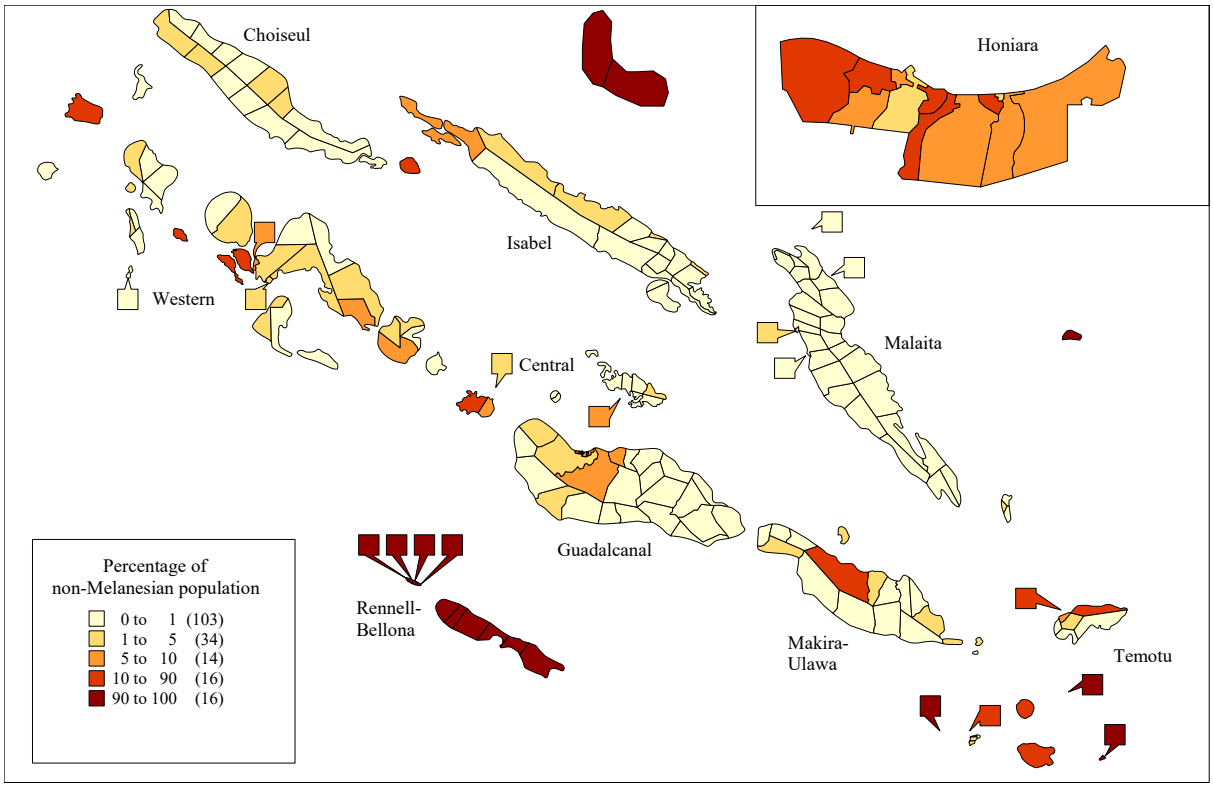


Figure 3.2. Percentage non-Melanesian population, by ward



the highest concentration of Chinese, but this is still only four percent of the ward's total population. Europeans also increase the non-Melanesian populations in the urban areas of Gizo, Tulagi and Tandai (the outskirts of Honiara), as well as Munda. The concentrations of non-Melanesians in Western province, Isabel, Guadalcanal and Makira-Ulawa are also related to the presence of 'other ethnicities': Japanese working for the Noro fish industry and labourers of logging companies from Indonesia, Malaysia and the Philippines.

Mainland Malaita has an almost exclusively Melanesian population and the same is the case for large areas of Guadalcanal, Makira-Ulawa, Isabel and Choiseul.

3.2.4 Age and sex distribution of ethnic groups

The age structures of the different ethnic groups in the Solomon Islands show a large variation (*figure 3.3).* The Melanesian population is characterised by a regular figure with a broad base and a narrow top. The large size of the younger cohorts in this ethnic group implies a continuously fast growing population for the near future. The Micronesian population structure is an almost exact duplicate of the Melanesian one, but the other ethnic groups have different characteristics. The Polynesian population structure shows clear evidence of the earlier start of the fertility decline, which was already observed in the censuses of 1976 and 1986 (Statistics Division 1981, Statistics Office 1989, see also section 4.1.3.3). The population structure is only pyramid-shaped in the age range over 25, but below that age the figure resembles a square box of which the subsequent age groups are similar in size. The percentage of children under 15 is 36, whereas in the Melanesian and Micronesian population it is 42. This contributes to a relatively low dependency ratio of 79 (87 and 84 for Melanesians and Micronesians, respectively).

The population structure of Chinese and Europeans show clear evidence of migration effects. The populations are characterised by a large share of temporary immigrant workers without families, which is reflected in the large share of people of working age and the dominance of men. Children, especially those in the age range of secondary and higher education[6], are under-represented. The effect is accentuated by low fertility in these populations.

The strong concentration in the younger cohorts in the population of 'mixed and other ethnicity' can largely be attributed to a combination of an increase of intermarriage and a new tendency to claim mixed descent rather than adopting the ethnicity of one of the parents.

3.3 Religion

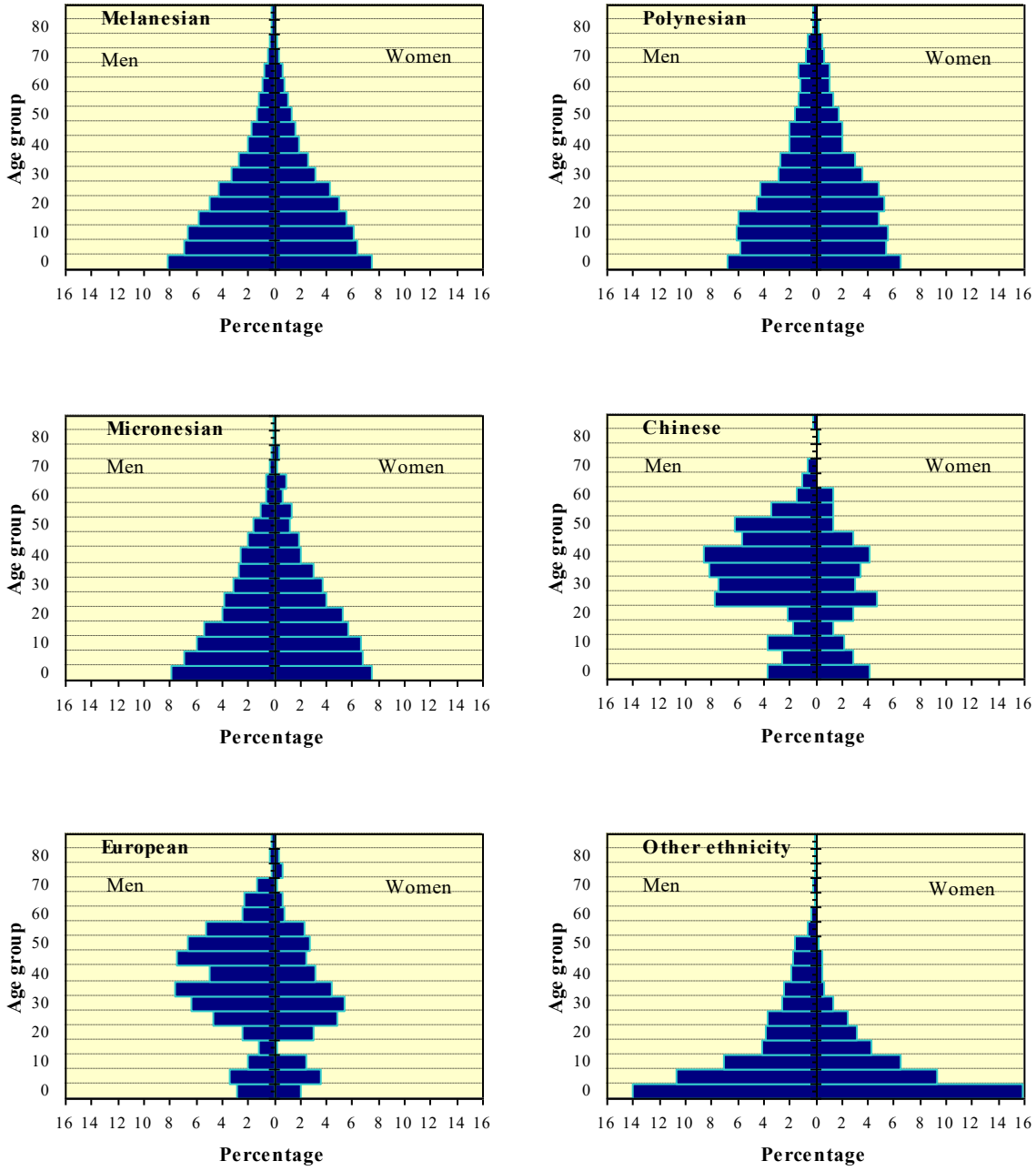
3.3.1 Introduction

Despite its small population, the Solomon Islands has an abundant variety of religions. The country can be characterised as a Christian society as 98 percent of the population report that they belong to a some version of Christian church. However, aspects of traditional religion are still practised in some areas alongside church attendance. Within the Christian faith a large variety of denominations can be observed. Non-Christians mainly consist of Bahai, traditional customary beliefs and adherents of religions of Asian origin. Table B3.05 in the Tabulation report gives information on religion by sex, age group and province.

During enumeration and in this report the term 'religion' is used to refer to any religion, religious denomination, church or belief that people report they feel to belong to. Thus, the census does not take a position in any discussion as to whether a community of faith represents a religion, a denomination, a sect or whatever other definition may be applied.

[6] There are no secondary schools with international standards in the Solomon Islands.

Figure 3.3. Population, by age and sex, for different ethnic groups



3.3.2 Religious variety and change

The census identified twenty different religions, but this does not fully exhaust the number of different religions present in the country. All other religions —particularly those of people of Asian descent— were classified as 'other religion'. In addition a category was included to cover people without any religious affiliation.

As shown by *figure 3.4* with one-third of the total population the Church of Melanesia is clearly the largest denomination in the Solomon Islands (see also *table 3.4*). It is followed by four other major churches —the Roman Catholic Church, the South Seas Evangelical Church, the Seventh Day's Adventists and the United Church— each representing between ten and twenty percent of the total population. The Christian Fellowship Church and the Jehovah's Witnesses are the two only other religions that exceed one percent of the population. Together, these seven denominations account for 95 percent of the Solomon Islands population. The accompanying box on small religions provides complementary information about the remaining religious affiliations.

Small religions

The Solomon Islands is home to a large number of religions and denominations, some of whom are represented by only few people. The following table include those that have less than one percent followers among the country's total population.

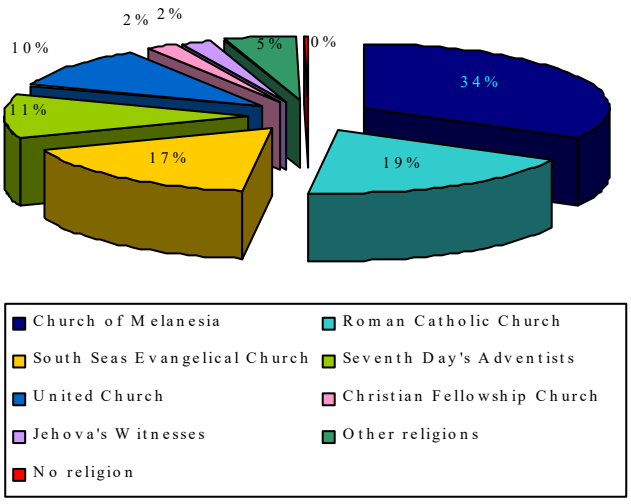
Population distribution across small religions

Religion	*Number*	*Perc.*[a]
Total	22,115	5.4
Christian Outreach Church	3,841	0.9
Customary Beliefs	2,633	0.6
Bahai	2,300	0.6
Assembly of God	2,262	0.6
Church of the Living Word	1,933	0.5
Baptist church	1,455	0.4
Rhema	1,050	0.3
Moro Movement	599	0.1
Christian Revival Church	553	0.1
Bible Way Centre	375	0.1
Nazarene Church	100	0.0
Church of the Living God	75	0.0
Mormon	74	0.0
Other religion	2,662	0.7
None	790	0.2
Not reported	1,413	0.3

[a] Percent of the total Solomon Islands population

The results on religion from all censuses from 1970 to 1999 show that the increase of most religions is in accordance with overall population growth. This is reflected in the almost constant share of the various religions maintained over time (table 3.4). Of the five big denominations only the Seventh Day's Adventists have experienced a slight, but consistent increase in their share since 1970, resulting in a 207 percent growth since then. The others showed minor fluctuations over time and had increases close to the national average of 154 percent.[7] Together the five major denominations accounted for a steady 90 percent of the population over the period 1970-1999.

Figure 3.4. Percentage distribution of population, by religion



[7] With 138 percent increase in the period 1970-1999, the United Church had a somewhat slower growth.

Table 3.4. Population distribution, by census year and religion

Religion	*Number*				*Percentage*			
	1970	*1976*	*1986*	*1999*	*1970*	*1976*	*1986*	*1999*
Total	160,998	196,823	285,176	409,042	100.0	100.0	100.0	100.0
Church of Melanesia	54,004	67,370	96,592	134,288	33.5	34.2	33.9	32.8
Roman Catholic	30,117	36,870	54,618	77,728	18.7	18.7	19.2	19.0
SSEC	27,772	33,306	50,344	69,651	17.2	16.9	17.7	17.0
United Church	18,075	22,209	31,441	42,236	11.2	11.3	11.0	10.3
SDA	14,939	19,113	28,514	45,846	9.3	9.7	10.0	11.2
Christian Fellowship	3,878	4,822	7,031	9,693	2.4	2.4	2.5	2.4
Jehovah's Witnesses	2,946	3,530	5,100	7,485	1.8	1.8	1.8	1.8
Customary beliefs[a]	7,394	7,130	6,096	2,633	4.6	3.6	2.1	0.6
Other religions	593	873	4,079	17,279	0.4	0.4	1.4	4.2
No religion/not stated	1,280	1,600	1,361	2,203	0.8	0.8	0.5	0.5

[a] In 1976 customary beliefs included minor other religions as well.

Whereas the Christian Fellowship Church and the Jehovah's Witnesses similarly maintained a constant share within the population, large changes were observed for customary beliefs and other religions. Traditional religions have all but disappeared from the religious landscape of the Solomon Islands: the successive censuses show that absolute numbers of followers are declining and their share is diminishing at an increasing rate.

The growth of the category of other religions, on the other hand, is the result of newly emerging religions —partly in the wake of new immigrants from Asian countries (see also section 5.3)— and the rapid increase of some smaller religions, like the Bahai faith, the Christian Revival Church and the Assembly of God. The combined group of these other religions increase elevenfold since 1970, compared with a 2.4-fold increase of the other religions combined.

Figure 3.5 addresses in more detail the recent change in the shares of the various religions. It shows that more recently, too, the increase of most religions is comparable and close to overall population growth (43 percent), with the United Church somewhat lower and Seventh Day's Adventists somewhat higher (34 and 61 percent, respectively). The most striking result is again the negative growth of the customary beliefs (-57 percent) and the massive increase of other religions (324 percent).

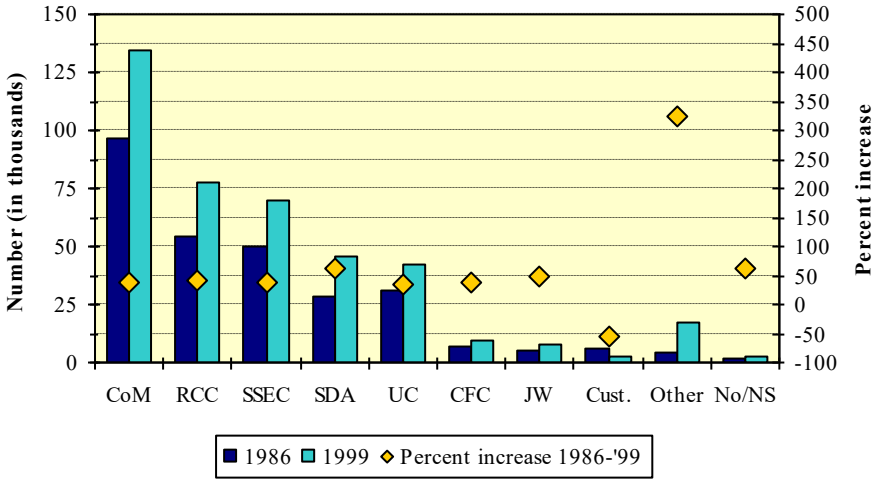
3.3.3 Geographical distribution

The Christian faith was introduced in the Solomon Islands in the nineteenth and twentieth centuries by missionaries of different denominations who usually operated very locally. This imprint is still visible in the present geographical distribution of religions.

Table 3.5 in combination with *figure 3.6* gives a fair insight into the distribution of the major religions across the country at provincial level. The table shows the share of each religion within the respective provinces, while the figure indicates how the followers of specific religions are located in the country. Thus, the table reveals that the majority of inhabitants of Choiseul belong to the United Church and the large majority of inhabitants of Temotu, Central province and Isabel to the Church of Melanesia — even constituting an almost universal denomination in the latter province. Very large shares (between half and one third) of provincial populations belonging to a specific denomination are furthermore found in Western province (United Church), Guadalcanal (Roman Catholic Church), Makira-Ulawa and Honiara (both Church of Melanesia), and Rennell-Bellona, which divides its population almost equally between the South Seas Evangelical Church and Seventh Day's Adventists.

Figure 3.6 provides a complementary picture, showing for instance that the Church of Melanesia is quite evenly distributed over all provinces, except the two western ones and Rennell-Bellona. On the

Figure 3.5. Size and growth of religions, 1986-1999[a]



[a] CoM = Church of Melanesia, RCC = Roman Catholic Church, SSEC = South Seas Evangelical Church, SDA = Seventh Day's Adventists, UC = United Church, CFC = Christian Fellowship Church, JW = Jehovah's Witnesses, Cust. = Customary beliefs.

other hand, the Christian Fellowship Church, Jehovah's Witnesses and customary beliefs show extreme concentrations in Western province (92 percent), Malaita (78 percent) and again Malaita (95 percent), respectively. Majority concentrations of adherents of the South Seas Evangelical Church and United Church can also be observed in Malaita and Western province, respectively.

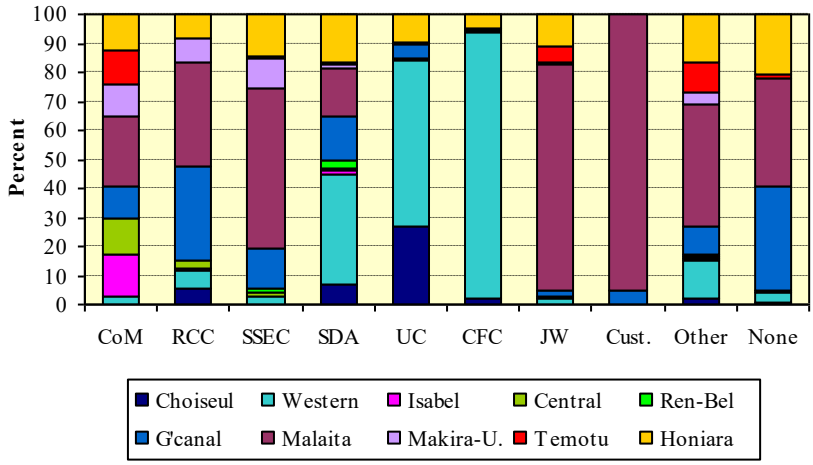
The figure also shows that Honiara is the only province where all religions (except customary beliefs) are represented to any significant degree. Because of its huge size, the Malaitan population appears as a prominent share in most religions, but not in the United Church and the Christian Fellowship Church.

Table 3.5. Percentage distribution of population, by province and by religion[a]

	Total	*Province*									
Religion		*Chois.*	*West.*	*Isabel*	*Centr.*	*R-B*	*Guad.*	*Mal.*	*M-U*	*Tem.*	*Hon.*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CoM	32.9	1.4	4.9	95.7	80.3	3.5	23.2	26.6	48.6	86.1	33.4
RCC	19.1	22.0	7.9	0.7	10.5	0.3	42.0	22.7	21.2	0.3	13.1
SSEC	17.1	1.2	2.6	0.4	4.6	45.9	16.1	31.1	24.8	0.4	21.0
SDA	11.2	16.1	27.8	2.2	2.4	45.1	11.7	6.1	2.8	1.5	15.4
UC	10.4	56.3	38.8	0.4	1.0	0.2	3.3	0.3	0.2	0.1	8.2
CFC	2.4	1.0	14.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.0
JW	1.8	0.0	0.2	0.0	0.3	0.1	0.3	4.8	0.2	2.1	1.7
Cust.	0.6	0.0	0.0	0.0	0.0	0.0	0.2	2.0	0.0	0.0	0.0
Other	4.2	2.1	3.5	0.6	0.7	4.9	2.7	6.0	2.2	9.5	5.8
No	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.1	0.3
N	407629	19985	62590	20399	21558	2374	60042	122046	30853	18906	48876

[a] For abbreviations, see figure 3.5.

Figure 3.6. Percentage distribution of religions across provinces[a]



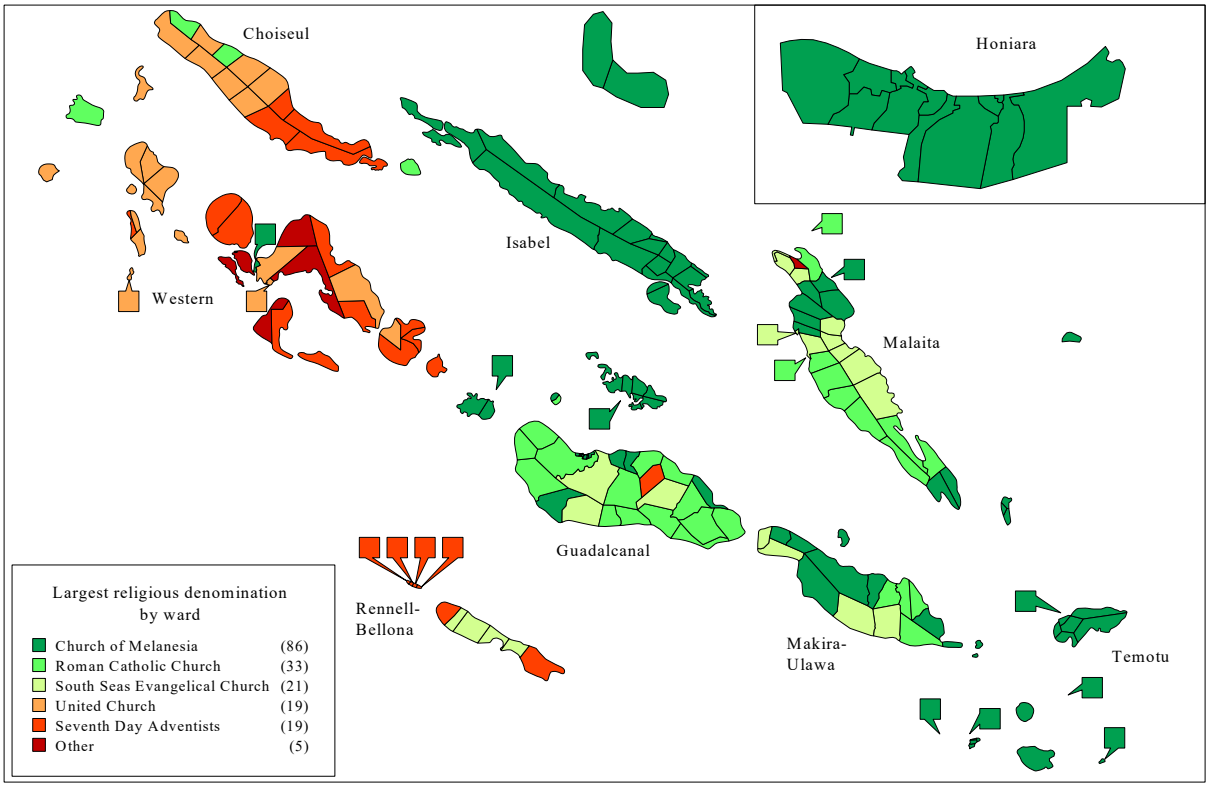
[a] For abbreviations, see figure 3.5.

A further insight into the local nature of religions can be obtained from *figure 3.7* which shows the largest religion in each ward of the Solomon Islands. A clear pattern emerges with regard to the concentration areas of specific denominations. Isabel, Temotu and Central province stand out as provinces where in every ward, except South Savo, the Church of Melanesia is the largest and even in all but two wards constitutes the majority in the population. But in Honiara, too, despite the fact that only one in three people here adhere to this denomination, in all wards the Church of Melanesia constitutes the largest share (ranging from 25 percent in Panatina to 55 percent in Naha). This indicates that religions are quite evenly distributed within the capital (see also figure 3.6). Other areas of strong Church of Melanesia presence are found in northern Malaita and on its southern tip, and even more so (95 percent adherence) on the Malaita outer islands. North Makira, all Makira's islands and Ulawa (close to the community on south Malaita) also feature very strong concentrations of Church of Melanesia followers and in a few dispersed wards on Guadalcanal this church takes first position.

The Roman Catholic Church is relatively well spread across Guadalcanal. It is the largest denomination in 14 out of 22 wards —in eight even constituting an absolute majority— and only in six wards does it have less than 30 percent followers among the population. On Malaita this church is also well represented and relatively well distributed, although mainly only in the west and south-east of the islands is it the first religion. Eastern Makira is another Catholic stronghold, as well as the isolated community on the Inner Shortlands in the extreme west of the country (91 percent Catholic population).

The South Seas Evangelists are even more evenly distributed than the Catholic Church across mainland Malaita, with the result that despite their greater total number, they constitute an absolute majority in fewer wards. There are, however pockets of very high concentrations on the Weathercoasts of Makira (a 95 percent SSEC population) and Guadalcanal (75 percent) and central Rennell (75 percent).

Figure 3.7. Largest religion, by ward



The other areas of Rennell and Bellona have an absolute majority (79 percent) of Seventh Day's Adventists, which is also the case in south Choiseul and several areas on New Georgia and its surrounding islands. The presence of the United Church is also mostly felt in the two western provinces, in particular in northern Choiseul, the western islands of Western province, but to a lesser extent also in most other areas of Western province. On mainland New Georgia and several surrounding islands these two denominations share a prominent position with the Christian Fellowship Church, which is the largest in four wards. The only other ward where the largest religion is not one of the big five denominations is Matakwlao in north Malaita, where the Jehovah's Witnesses are the largest religious group, accounting for 35 percent of the total population.

Although figure 3.7 gives a fair indication of the often localised presence of religions, it does not fully do justice to the intricate relations between religious communities that co-exist at the ward level. For instance, in Kola'a ward in Honiara, the Church of Melanesia has the most followers, but the difference with the second denomination —the South Seas Evangelical Church— is only three persons (2,232 against 2,229). Also, possible strong concentrations of any of the smaller religions cannot be presented.

In this respect it is interesting to note that the largest remaining pockets of customary beliefs are located in the Kwaio area, in the interior of central east Malaita. Some villages here uniformly adhere to traditional beliefs and in Waneagu-Taelanasina ward customary beliefs represent 26 percent of the total population. Secondary concentrations can be found in inland north-east Malaita (7 percent) and in the interior of eastern Guadalcanal. Followers of the Moro movement are restricted to remote villages in central Guadalcanal, comprising eight and nine percent of the populations of Vulolo and Malango wards respectively. The Bahai faith is notably present in some western Malaitan wards (between 8 and 16 percent of the population), and Jehovah's Witnesses have further significant concentrations around

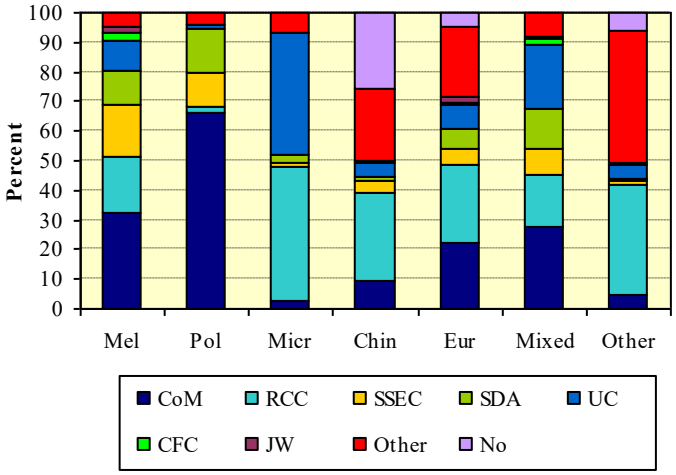
Matakwlao ward in north Malaita and also on the eastern side of the island in Nafinua ward (22 percent).

3.3.4 Distribution by ethnicity

The specific ethnic groups in the Solomon Islands tend to have distinct preferences for specific religious denominations. Because of its size, the Melanesian population closely resembles the distribution of the total population over the various religions (*figure 3.8*). However, among Polynesians twice the share of the total population report that they belong to the Church of Melanesia (66 percent), and Catholic Church and United Church worshippers are virtually non-existent in this population. Among Micronesians, the preference is almost equally divided between Catholicism and the United Church (45 and 41 percent, respectively).

Europeans have a larger variety of religious adherence, but of the big five Christian denominations only the Catholic Church attracts more than the average share (26 against 19 percent in the total population). The most remarkable feature of this group is the large number of adherents of 'other religions', most of which are not specified in the census. A similar pattern is observed for the Chinese population. Adherence to the Catholic faith among the Chinese is even larger than in the European community (29 percent) and there are very few followers of any other specified Solomon Islands religion. One in four Chinese report that they do not to belong to any religious affiliation. The group constituting all other ethnicities resembles the Chinese population, although adherence to Catholicism and other religions is even larger here (37 and 44 percent, respectively). The fact that most Europeans, and Chinese and 'other ethnic' groups comprise expatriates or people with foreign descent largely explains the predominance of the category of other religions, which will mainly be Asian or other Christian faiths.

Figure 3.8. Percentage distribution of religions, by ethnicity[a]



[a] For abbreviations, see figure 3.5.

3.3.5 Age and sex distribution

There are slight deviations from the national sex ratio of 107 men for every 100 women[8] for all five largest denominations: they range from 104 for Seventh Day's Adventists to 109 for the community of the United Church. Differences among the smaller religions are larger. The Christian Outreach Church and the Church of the Living Word have slightly more women than men (a sex ratio of 99). Jehovah's witnesses also have a relatively balanced number of men and women (102 men for every 100 women), but men are over-represented among the Bahai, the Baptist Church, the group with other religions and those without any religion (sex ratios of 115, 118, 120 and 140, respectively). The large male dominance in the last two groups is to a large extent the consequence of sex-selective immigration of (temporary) workers.

In terms of age distribution (*table 3.6*), most religions closely resemble the overall age structure (see section 2.4 in this report). Where deviations occur, these are likely to be explained by fertility differences, selective international migration, age-related conversion or baptism.

The average 42 percent of children under 15 in the overall population is approximated by the seven largest denominations. However, customary beliefs and the population with no religion have a significantly lower share of children, probably for different reasons. The age distribution of people who report no religious affiliation is distorted by the fact that this group is affected by immigration, which is concentrated in adult working ages over 20. For the traditional beliefs, on the other hand, it is more likely that, under the influence of the larger society, the young cohorts embrace Christian denominations, thereby depleting the age group 0-14. This effect is also observed for the subsequent age group 15-29, but to a lesser extent. The older cohorts that remain are therefore more than usually represented in this religious group. The close resemblance between the age structure of the total population and that of the other religions conceals some differences. Thus, the share of the under-15 population ranges from 39 percent (for unspecified other religions) to 45 percent (Assembly of God).

Table 3.6. Percentage distribution of population, by large age group and by religion

Religion	*Age group*				
	0-14	*15-29*	*30-44*	*45-59*	*60+*
Total	41.5	29.7	15.5	8.2	5.1
Church of Melanesia	40.9	30.1	15.2	8.5	5.3
Roman Catholic Church	43.1	29.4	14.8	8.0	4.8
South Seas Evangelical Church	41.5	30.4	15.1	8.0	5.0
Seventh Day Adventists	41.0	29.2	17.0	8.1	4.8
United Church	40.9	29.3	16.4	8.3	5.1
Christian Fellowship Church	43.1	26.6	16.7	8.4	5.1
Jehovah's Witnesses	43.2	29.3	14.8	8.1	4.5
Customary beliefs	36.3	24.9	16.7	11.2	10.9
Other religion	42.0	28.7	16.8	8.0	4.6
No religion	29.1	25.9	21.1	13.4	10.4

[8] See also section 2.5 of this report.

3.4 Language

3.4.1 Introduction

The language situation in the Solomon Islands is rich and complex. The official language is English, the *lingua franca* is Solomon Islands Pidgin (hereafter called Pidgin) and there are numerous local languages, some with several dialects. Many people are multilingual, though others, especially in remote areas, speak only their vernacular. Although it is difficult to capture such richness and complexity through a census, much valuable information is now available because of this instrument. Its value is all the more enhanced because the language situation in Solomon Islands has not been measured since 1976 (the 1986 census did not ask about language).

To probe this linguistic richness, the 1999 census contained two questions regarding language, namely: "Do you speak Pidgin?" and: "What language did you learn first as a child?" The question was put only to people over the age of 28 months, as before this age it may not be clear which language a child primarily speaks. The detailed tables showing the language information are included in the Basic Tables volume (tables B3.06 and B3.07).

Table 3.7 presents a basic comparison of the 1999 numbers of speakers over five years of age of each language with the same information from 1976.

There are several ways to survey language use. Asking for the first-learned language is most likely to give a reliable guide to how many people speak any particular language. Not all people continue to use the language they first learned daily; in sociolinguistic terms, the 'language of habitual use' differs from the first language. Many adults living in Honiara would have Pidgin as their language of habitual use, while their first language could be any one of many vernaculars. However, if the same person were to live in a village in their home area, their language of habitual use would be the same as their first language. In other words, a person's main language depends entirely on the social context, whereas the language first learned as a child is fixed (though the answer may be clouded if a child learns more than one language at once).

The names of the languages spoken in Solomon Islands is a vexed issue in some places, especially, for example, on Santa Cruz island and the Weathercoast of Guadalcanal. No fewer than 123 dialect names were identified in the initial planning for the census language questions. And although some of these names are merely alternatives for more commonly recognised names, many are area dialect names of a language and as such represent a linguistic entity. In any case the census recognised 91 vernacular language names (some of which are dialect names). Numbers recorded under alternative names have been incorporated with those recorded under the associated main name. *Annex IV* shows the language names in the census tables and the alternative names that correspond to those names.

Apart from the complication of which names are used, there is the added factor that because some Solomon Islanders are not used to talking about language, they do often not know what to call their language. Enumerators collecting data in areas with multiple languages or dialects may not have been able to assist respondents in reporting clearly what their language is. In addition to this difficulty there may have been occasions when enumerators had to resort to proxy interviews (with neighbours, family members or other people). In such cases the proxy may not have been fully aware of the respondent's first language. As a result, we note that 4,455 people did not state their language, which is 1.1 percent of the population. In 1976 this figures was 2,347, which was 1.5 percent of the population. In this respect the current census has improved its data collection.

The census information allows us to investigate which languages are endangered, the stability of languages and their locations, the rise of Pidgin, and a comparison with the 1976 census.

Table 3.7. Population aged 28 months and over, and five years and over, with language first learned as a child, compared with 1976 population aged 5 years and over with first language

Language first learned as a child	*1999 population*		*1976 population aged 5+*	*Notes*	*Percent increase for populations aged 5+*
	28 months and over	5 years and over			
All languages	376,981	345,410	154,593	This shows the average growth rate	123
Pidgin	24,390	20,038	1,527		1,212
Local languages					
Alu	3,337	3,083	1,470	Includes Mono and Fauro	110
Amba	593	538	179	Possibly ‘not stated Utupua’ in 1976	201
Anuta	267	249	159		57
Are'are	17,791	16,453	7,227		128
Arosi	6,752	6,224	2,727		128
Asumboa	10	10	Not listed		
Avasö	1,456	1,349	656		106
Ayiwo	8,399	7,925	3,961	Listed as Gnivo in 1976	100
Babatana	5,610	5,255	2,355		123
Baenggu	5,935	5,476	2,277		140
Baelelea	8,782	8,095	4,252		90
Baniata	1,879	1,734	259	1976 had 480 not stated for Rendova which probably included mostly Baniata speakers then	569
Bareke	399	367	263		40
Bauro	3,420	3,168	2,019		57
Bellona	4,394	2,998	1,950	Includes Rennell	54
Bilua	8,742	8,062	3,543		128
Birao	5,902	5,390	3,486		55
Blablanga	1,773	1,640	540		204
Bughotu	4,048	3,747	1,701		120
Cheke holo	10,840	10,120	5,049	Listed as Maringe in 1976	100
Dai	9	9	Not listed		
Dorio	2,406	2,177	571		281
Duke	2,312	2,130	916		133
Fagani	902	824	Not listed		
Fataleka	6,703	6,133	2,487		147
Fauro	3,337	3,083	1,470	Includes Alu and Mono	110
Gae	953	845	423		100
Gao	1,215	1,125	491		129
Gela	11,876	10,981	5,323		106
Ghaimuta	158	142	1,436	Possibly listed as Ghua in 1976	-90
Ghanongga	2,508	2,347	1,563		50
Ghari	7,113	6,499	2,714	Plus 650 as Nggeri	139
Gula'alaa	1,568	1,469	Not listed		
Haununu	1,031	959	468	Includes Rawo	105
Hoava	459	420	394		7
Kahua	5,165	4,745	1,570		202
Katazi	205	195	111		76
Kiribati	4,869	3,682	2,302		60
Kokota	530	477	166		187
Koo	4,494	4,156	2,224	1976 included 1062 Poleo	87
Kushage	2,395	2,199	842		161
Kwaio	13,249	12,171	6,776		80
Kwara'ae	32,443	29,733	13,216		125
Laghu	15	14	2		600

Langalanga	6,978	6,491	3,066		112
Lau	16,937	15,747	7,393		113
Lavukaleve	1,783	1,635	659		148
Lengo	13,594	12,443	4,942	1976 included 589 Paripao	152
Longgu	1,894	1,757	594		196
Lungga	2,767	2,579	1,046		147
Malango	4,135	3,743	579		546
Marau	140	134	323		-59
Marmaregho	524	487	78		524
Marovo	8,094	7,566	3,680		106
Moli	2,087	1,907	803		137
Mono	3,337	3,083	1,470	Includes Alu and Fauro	110
Nambakaenger	4,276	4,085	1,658	Listed as Londai in 1976	146
Nanggu	210	206	311	Includes Mbaengo 73	-34
Ndi	3,019	2,740	914		200
Nea	1,623	1,541	927		66
Nginia	487	447	209		114
Ontong java	2,367	2,173	1,019		113
Oroha	38	36	Not listed		
Pileni	1,662	1,582	878	1976 included Taumako	80
Rawo	1,031	959	468	Includes Hanunu	105
Rennell	4,394	2,998	1,950	Includes Bellona	54
Ririo	79	78	11		609
Roviana	9,871	9,079	4,284		112
Sa'a	7,298	6,876	4,446		55
Santa ana	3,069	2,893	See Tawarafa		
Savo	2,415	2,263	1,147		97
Senga	4,350	4,041	2,426		67
Sikaiana	731	697	483		44
Simbo	2,701	2,549	1,326		92
Suafa	133	119	See Lau		
Talise	5,944	5,473	2,080	1976 included 774 Malagheti, 1027 Tolo	163
Tandai-nggaria	547	502	359		40
Tanema	3	3	See Vano		
Tanimbili	15	15	43	Used name Gnisunggu in 1976	-65
Taumako	520	487	See Pileni		
Tawarafa	5,337	4,935	2,470	1976 included Santa Anna	100
Teanu	24	22	See Vano		
Tikopia	3,324	3,134	1,858		69
To'abaita	12,572	11,668	5,228		123
Ughele	1,202	1,132	See Ulawa		
Uki ni masi	917	848	See Ulawa		
Ulawa	5,423	5,062	2,065	1976 included Ughele, Uki ni masi	145
Vaghua	1,960	1,770	874		103
Vangunu	508	470	254		85
Vano	515	466	155		201
Varisi	5,161	4,681	1,702		175
Zabana	2,146	2,010	974		106
Zazao	10	10	14		-29

3.4.2 Comparison with 1976 census

To compare the numbers of speakers of each language between 1999 and 1976, we need to adjust for the fact that in 1976 the language question was only put to people aged five years and over. In table

table 3.7 the population for each language and an adjusted figure for the population aged five and older is shown so that correct comparisons are made. The numbers in the text below refer to these adjusted figures.

A number of languages appear to have had their speaker population incorrectly recorded in the 1976 census (or perhaps they were incorrectly recorded in 1999, although that is less likely). Ririo was recorded as having eleven speakers in 1976, and 78 in 1999. However, the age profile in the 1999 census suggests the 1976 census was inaccurate. According to the age profile there should have been at least 37 speakers in 1976, not counting those who were under five years old then or older people who spoke it then but are now dead (see also *table 3.8*).

Table 3.8. Possibly endangered languages

Language	*Number*	*Age range*	*1976 number*	*Percent growth since 1976*	*Unable to speak Pidgin*
Tanema	3	10-29	Not recorded in 1976	NA	1
Dai	9	10-60+	Not recorded in 1976	NA	0
Asumboa	10	All but one is over 20 years old	Not recorded in 1976	NA	1
Zazao	10	All ages have one or two speakers	14	-29	1 elderly
Laghu	14	All	2	600	1
Tanimbili	15	All up to 49	43	-65	0
Teanu	22	All up to 49	Not recorded in 1976	NA	0
Oroha	36	All up to 59	Not recorded in 1976	NA	1
Ririo	78	All	11	609	2 children, 2 elderly
Marau	134	All	323	-59	5 children
Ghaimuta	142	All	1436	-90	36
Katazi	195	All	111	76	38
Nanggu	206	All, but lower than expected number for under 10 years old	311	-34	2
Anuta	249	All, but lower than expected number for under 10 years old	159	57	57
Bareke	367	All	263	40	49
Hoava	420	All	394	7	118
Tandai-nggaria	502	All	359	40	34
Sikiana	697	All, but lower than expected number for under 10 years old	483	44	18

Mamaregho and Malango are affected by similar under-recording in 1976. At that time Mamaregho was recorded as having 78 speakers, compared with 487 in 1999. The small number reported in 1976 would suggest that it was an endangered language. However, the 1999 age profile indicates that the number of speakers in 1976 should have been at least 178 (again not counting speakers who are now dead). Similarly Malango was recorded as having 579 speakers, compared with 3,743 on census night 1999. However, the age profile in the latter census indicates that the number of speakers in 1976 should have been at least 1,278.

3.4.3 Endangered languages

The subject of endangered languages is deep and complex. Readers should look to other sources to familiarise themselves with the issues involved. Here we draw attention to those languages with very few speakers (fewer than 200), or whose speaker population has diminished since 1976, or whose speaker population grew by significantly less than the average 123 percent. The languages mentioned in table 3.8 appear to be in danger.

Perhaps most significant in this table is the fact that Laghu was recorded in 1976 as having two speakers. The age profile in the current census indicates that there must have been two speakers plus two who spoke it but were under five years of age and so were not recorded in the census then. It is now recorded as having fifteen speakers, eleven of whom were born after 1976. This may suggest that the two remaining adult speakers made a deliberate choice to pass on their language and prevent its extinction.

3.4.4 Language locations

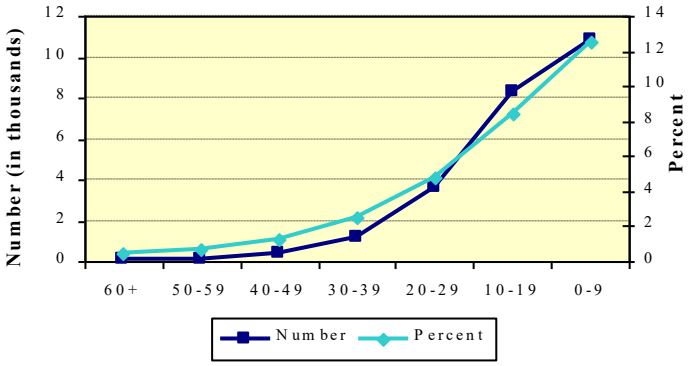
For the purposes of language planning it is important to know in some detail where particular languages are spoken. The charts in *Annex V* show the languages as they occur by wards. In rural wards the two main languages are shown. However, because of the multiplicity of languages in urban areas, any language spoken by more than one percent of the population in the major urban wards of Gizo, Auki and Noro is represented in the chart for that ward. The same technique is used for Honiara although here the information is not represented at ward level but for the town. In this way there is a linguistic profile for Honiara as a whole rather than for the wards within Honiara.

3.4.5 First language Pidgin speakers

One somewhat startling result is the large increase in the number of people who speak Pidgin as their first language: 24,390 in 1999, making Pidgin the second largest native language in the country. The only language with more first language speakers is Kwara'ae. In 1976 there were 1,527 people over five years of age who said they spoke Pidgin as their first language, in 1999 20,038 Pidgin speakers were in this age group. This is a massive increase of 1,212 percent.

Figure 3.9 shows the age profile for first language speakers of Pidgin. The growth of Pidgin in the under 30 age brackets is phenomenal. Overall, the chart indicates an almost exponential growth in the number of first language Pidgin speakers. Even allowing for the fact that some of the population in the 50+ age brackets will already have died, there is still an enormous growth. This is further illustrated in the chart by the fact that only 0.4 percent of people in the 60+ age bracket speak Pidgin as their first language compared with about 12.5 percent of the under-tens.

Figure 3.9. Population age profile for first language Pidgin speakers



3.4.6 All Pidgin speakers

The total number of Pidgin speakers over 28 months of age is 306,167, or 81 percent of the population over 28 months. This proportion is in the region of that determined in the national language and literacy survey conducted in 1991. That sample-based survey estimated that approximately 83 percent of adults spoke Pidgin. If people under 15 years of age are not counted in the 1999 figures, then 92 percent of adults over 15 years old could speak Pidgin. It does indeed seem to be the case that Pidgin is the unofficial *lingua franca* of the Solomon Islands.

It is interesting to look at the age profile of the Pidgin speakers. *Figure 3.10* illustrates the age profiles for male, female and all Pidgin speakers. The most obvious thing that the age profiles reveal is that most people acquire Pidgin as a second language at school ages. This can be deduced because in the age brackets up to 19 years of age there are increasing numbers of Pidgin speakers, that is, each age bracket up to the 15-19 age bracket has a steadily greater percentage of Pidgin speakers than the age bracket below. The percentage of Pidgin speakers for each age bracket from 20 years up is fairly steady up to the 35-39 bracket, and then it steadily declines. However, for men the decline in percentages does not commence until the 55-59 age bracket. Another way to describe this trend is that the difference in the percentage of female and male speakers increases with age in the older age brackets (over 25 years of age). Up to 15 years of age there is virtually no difference between boys and girls. From 15 to 25 years of age the difference between male and female acquisition is very small. However, from age 25 years and up the percentage of female speakers declines markedly compared with the percentage of male speakers. A possible conclusion is that men have been acquiring Pidgin for longer than women but that over the last 20 years this difference has been minimised. In the future we would not expect to find the gender differences in Pidgin acquisition seen here for the older age groups.

Some areas of the Solomon Islands have fewer Pidgin speakers than others. Unsurprisingly, areas in contact with urban zones have more Pidgin speakers than more remote areas. *Figure 3.11* shows the density of Pidgin speakers in terms of percentages of speakers by wards. All wards in or adjacent to urban zones have between 90 and 100 percent Pidgin speakers. There are only four wards, each of them remote, that have only between 40 and 60 percent Pidgin speakers.

Figure 3.10. Percentage of Pidgin speakers among population of 28 months and over, by five-year age group and by sex

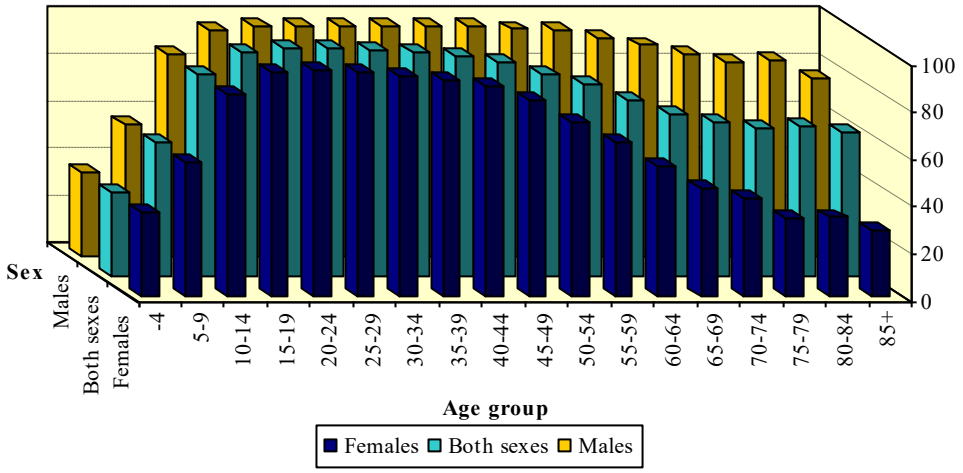
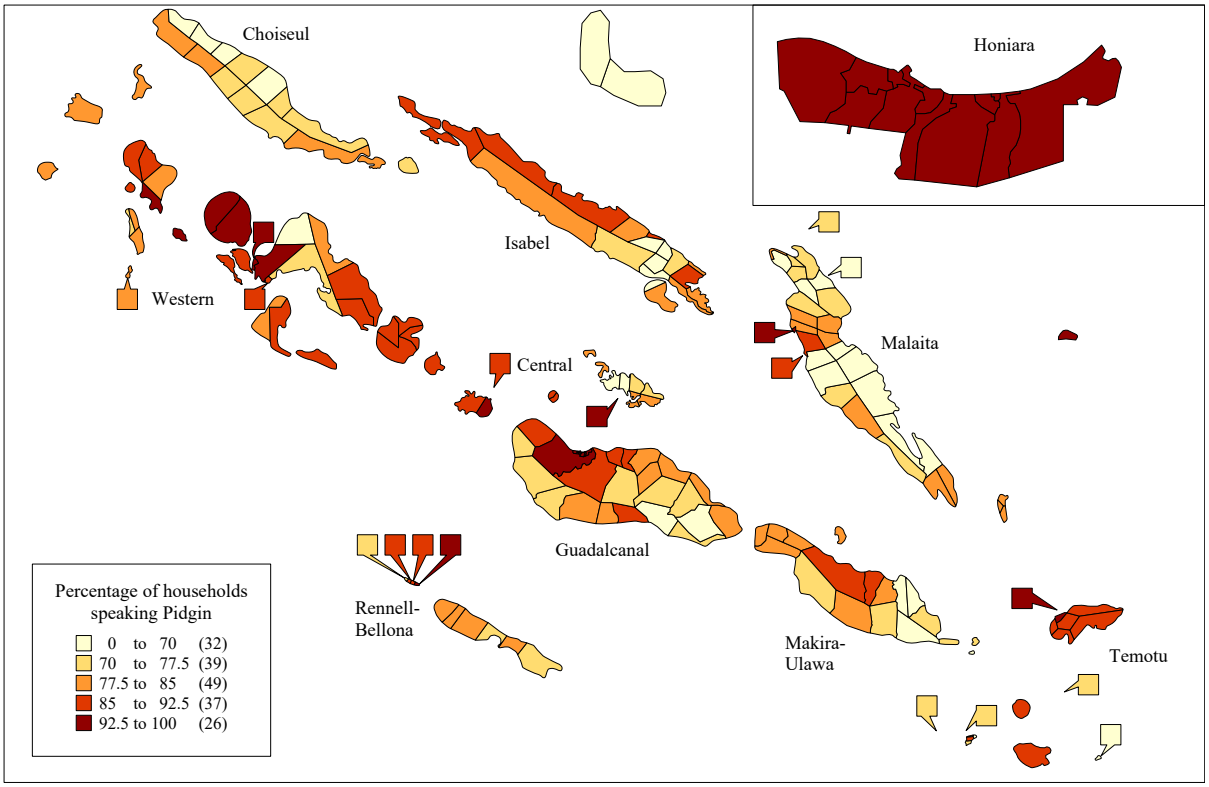


Figure 3.11. Percentage of population able to speak Pidgin, by ward



3.4.7 Language and literacy

Here, the matter of literacy levels in certain language groups is briefly examined. Further discussion on the topic of literacy is presented in section 3.7.5 below.

Certain calibration issues are associated with self-reported literacy. As a general rule people tend to overrate their level of literacy. Given these limitations we can still make some general comparisons.

The overall rate of literacy reported for people aged over five years is 65 percent. The levels of literacy and illiteracy for all language groups are given in *Annex VI*. A number of language groups seem to have literacy rates well below the average. Not that the average rate of literacy is very high, but these language groups have an even more serious illiteracy problem. These languages are listed in *table 3.9*, panel a.

There are also languages that report relatively high levels of literacy (table 3.9, panel b). Given the national average and the difficult education conditions in the country, it is important to determine whether the higher levels of self-reported literacy are accurate, and if so which factors have contributed to these higher levels. It is significant to note that most (but not all) of the languages with high literacy rates are in Western and Choiseul provinces (see also section 3.7.5).

Table 3.9. First language groups with (a) literacy rate below 60 percent and (b) literacy rate over 80 percent, for population five years of age and over[a,b]

a. Literacy rate below 60 percent		*b. Literacy rate over 80 percent*	
Language	*Percent Literate*	*Language*	*Percent Literate*
Kwaio	42	Baniata	80
Baeggu	43	Hoava	80
Koo	47	Ughele	80
Baelelea	47	Babatana	81
Taumako	47	Simbo	81
Ghaimuta	48	Vangunu	82
Birao	48	Avaso	82
Ontong java	50	Zabana	82
Suafa	50	Sikaiana	83
Fataleka	51	Roviana	83
Malango	53	Marovo	83
Dorio	53	Bilua	83
Pileni	54	Fauro	85
Amba	55	Duke	85
Kwara'ae	56	Ririo	88
Vano	56	Rawo	90
Ayiwo	56	Bareke	90
Nambakaenger	57		
Tikopia	58		
Anuta	58		
Gela	59		

[a] Cases for which language was not stated were excluded from the calculation of percent literate.

[b] A cut-off point of 75 speakers was used to avoid irrelevant calculations due to small population size.

One other fascinating finding is that the overall literacy rate (for all ages over five years) for those who speak Pidgin (as first or second language) is 74 percent while the literacy rate for those who do not speak Pidgin is only 10 percent. This supports the hypothesis that school-age children indeed acquire Pidgin at school, since that is where the skill of literacy is acquired.

3.4.8 Recommendations

For a deeper insight into the importance of the Solomon Islands' linguistic situation and resources the following recommendations can be made:

- Preparation for the census revealed that in several places in the Solomon Islands language names are uncertain. It would be worthwhile to conduct some linguistic survey work in these areas, in particular in Santa Cruz and the Weathercoast of Guadalcanal.
- The language communities affected, language planners, linguists and anthropologists should take serious note of the eighteen endangered languages listed above. Simple assessment of census numbers is insufficient to establish definitively which languages are endangered; further research should be undertaken by those wishing to make decisions concerning such endangered languages.
- Further insights into language vitality for both the endangered and non-endangered languages could be gained by investigating cross-tabulated census data for the head of household's first language in relation to the first language of those in a familial relationship with this head. This investigation can potentially show areas in which language is not being passed on to children.
- With respect to language locations, educators, language planners, NGOs and government departments involved in communication with the general population should take note of the languages in their areas of operation and consider how to harness this resource to achieve successful communication.
- When compared with the 1976 census, the 1999 census has demonstrated the rapid growth of first language Pidgin speakers. This is an area worthy of investigation by sociolinguists. It would be particularly valuable to research how the phenomenon interacts with issues such as change of attitude towards Pidgin since independence (especially in the education system), mobility, the rise of inter-ethnic marriages (see also section 3.5.4.2), urban drift, and endangered language loss.
- With regard to speakers with Pidgin as a second language, it would be worthwhile for a socio-linguistic study to be made of the factors affecting Pidgin acquisition. This could include an investigation of the reasons for the balancing out of acquisition between male and female Pidgin speakers in the younger age brackets. Factors to be investigated could include mobility and migration of women, education opportunities for women, impact of the removal of colonial influence since independence, and changing cultural attitudes to women.
- Obviously, much remains to be done in the area of literacy. Educators, government departments and NGOs involved in development activities, and in particular those interested in vernacular education and literacy, should take note of the language groups reporting the lowest literacy rates. Furthermore, while some language groups appear to have higher than average literacy rates, further research is needed to substantiate these literacy levels. Where they are found to be genuinely high, it will be worthwhile to find out which factors have contributed to this.

3.4.9 Conclusion

The census data concerning the language situation in the Solomon Islands provide us with an excellent 'picture' of the linguistic complexity of the nation. Many language communities have grown normally since 1976, when the last 'picture' was taken. Unfortunately, a significant number of languages have not grown or have even declined over the last twenty-five years to such an extent that they can be considered as endangered. It is quite possible that the factors affecting the decline of some languages are at the same time connected with the phenomenal growth in the number of first language speakers of Pidgin. The growth of Pidgin as a de facto *lingua franca* is also clearly demonstrated by the data analysed here. That Pidgin should be the *lingua franca* in the urban areas is not surprising, given the multiplicity of languages both in Honiara and the other main urban areas. Many people consider multiple languages as a barrier to communication and development. Although there is no doubt that linguistic complexity does present challenges, if language is viewed as a cultural resource in which people find their identity and have the ability to communicate with clarity, then the census shows that the Solomon Islands is indeed richly endowed with such resources.

3.5 Marital status

3.5.1 Introduction

Marital status is an important determinant for a person's position in his or her life course, and in society as a whole. Getting married and the break-up of a marital relation for any reason —death of the partner, divorce or separation— are important transitions in people's lives. They are accompanied by changes in rights, obligations, options and constraints. For instance, widowed women often constitute a vulnerable group, because they lack the support and income of their husbands and even may lose access to housing or materials that were part of the household when they were married. Getting married also means new obligations towards the family-in-law and may interfere with an educational or professional career. Marriage also has important demographic implications, since according to the norms in most societies, having children is confined to married couples.

These considerations underlay the inclusion of a question on marital status. The census distinguished persons who had never married, who were married at the time of the census (currently married), who were widowed and who were divorced or separated. Everyone in the groups currently married, widowed or separated or divorced make up the group 'ever married'. Persons were considered to be married if they reported themselves as such, whether or not they went through a civil, religious or custom marriage ceremony.

The remaining subsections subsequently discuss the composition of the population by marital status in the censuses from 1959 to 1999 (section 3.5.2), the marital status distribution according to the 1999 census (3.5.3) and various break-downs in marital status by other variables (3.5.4).

3.5.2 Historical change

As can be seen in *table 3.10*, there have been a few changes in the marital status distribution among the population since the census of 1959. The proportion of never married people increased slightly until 1986 and then this trend reversed. This development is directly associated with the increase and decrease in the share of the population under 15 (see section 2.4.3 in this report, especially table 2.3), a segment of the population that by and large has not entered marriage. The development of the proportion of married people is largely the complement of that of the never married, but not entirely. The most consistent trends relate to the proportions who ever married, but became single again because of either the death of the spouse or separation/divorce. The share of the widowed population declined for men and women steadily: in 1999 the proportion of widowed women was two thirds of that in 1959 and for men it was even only one third. This strong decline for men can partly be

Table 3.10. Total population, by census year and by marital status

Marital status	*Census year*									
	1959[a]		*1970*		*1976*		*1986*		*1999*	
	Males	*Fem.*	*Males*	*Fem.*	*Males*	*Fem.*	*Males*	*Fem.*	*Males*	*Fem.*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never married	64.8	58.6	66.6	59.9	66.7	60.5	67.3	61.6	65.4	58.8
Currently married	31.0	34.5	30.1	34.0	30.3	33.8	30.7	33.9	32.9	36.0
Widowed	4.0	6.4	2.9	5.6	2.5	4.8	1.6	3.8	1.3	4.1
Separated/ divorced	0.3	0.4	0.3	0.5	0.4	0.8	0.4	0.7	0.5	1.0

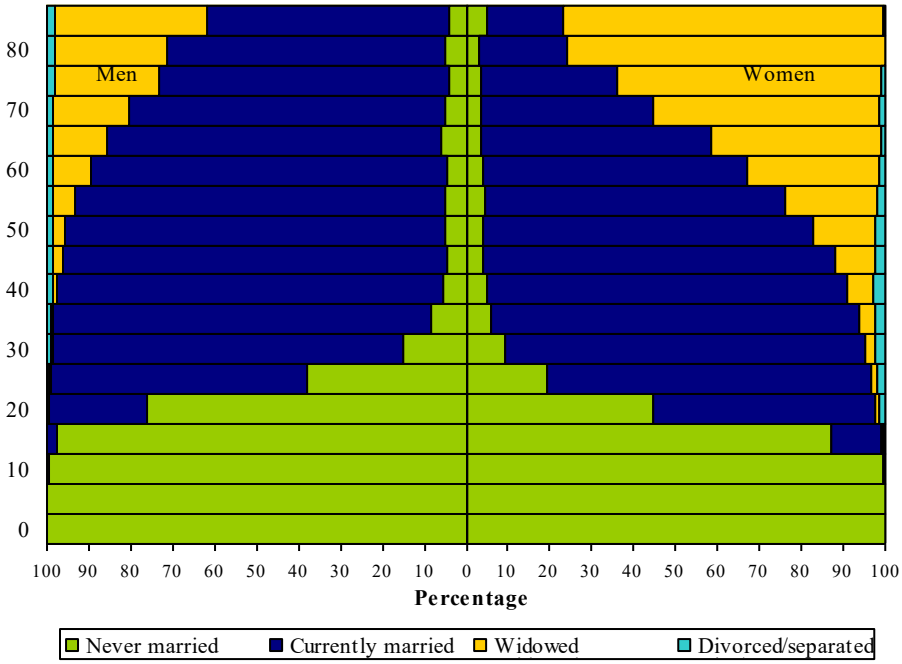
[a] Melanesians and Polynesians only

attributed to the disappearance of the cohorts that experienced female excess mortality in the past (see section 2.5.2.4). The proportion of divorced or separated people almost consistently increased between 1959 and 1999, which might reflect growing acceptance of this phenomenon in the course of modernisation.

3.5.3 Marital status distribution

Figure 3.12 gives the percentage distribution of the population by sex and marital status for five-year age groups. *Annex VII* gives the underlying percentage figures, and the actual numbers can be obtained from table 3.1 of the Tabulation report. The figure shows the distribution of the population in 1999, but it also gives an impression of the share of men and women that experience transitions from one position to another.

Figure 3.12. Marital status percentage distribution, by five-year age groups



3.5.3.1 Never-married population

The total number of never married people in 1999 was 253 thousand, 83 percent of whom were under 20 years of age and two-thirds even under 15. Men outnumber women in all age categories, and even significantly so above age 15. This is not surprising in a society where marriage is the norm and where the number of men exceeds that of women (see section 2.5).

Figure 3.12 shows that nearly everyone remains unmarried until around age 15. In the subsequent age groups, the share of people that have not entered marriage rapidly decreases, faster for women than for men. Thirteen percent of women in the age group 15-19 had ever been married, but only three percent of men. In the age group 20-24 these percentages increased to 55 and 24, respectively. Above age 40 a very small but consistent share of the population (around 4.7 percent) had not found a marriage partner. This may be caused by an exhaustion of the 'marriage market' —not uncommon in small isolated communities— or because of social, economic or health reasons. The latter explanation is supported by the fact that eight percent of married people aged 40 and over are disabled, compared with no less than 22 percent of never married people in this age category.

Comparison with the census data of 1976 and 1986 shows that the proportion of never married in the age category 15-19 consistently increased, especially for women. For men it was 95 percent and for women 73 percent in 1976, whereas by 1999 the respective percentages are 97 and 87. This is a clear indication of a rise in age at first marriage (see also the next section).

3.5.3.2 Currently-married population

Around 34 percent of the total population were married at the time of the census. This corresponds to 140 thousand people, roughly 69 thousand men and 70 thousand women. The excess of married women was 1,675, which is in line with figures found in previous censuses. As yet this discrepancy has not been satisfactorily explained. As international migration is not assumed to be an important factor[9], selective out-migration cannot provide sufficient explanation. Neither is there any indication of an under-enumeration of men (see also section 2.5.2.3). Polygamy may explain a small part of the apparent inconsistency between the number of married men and women, and although polygamous marriages may not always have been mentioned, the total of 25 reported cases indicate that it is not common practice. The most likely explanation, therefore, is misreporting, which might be caused by a different appraisal of a union by men and women. Another obvious reason for misreporting is women with children born out of wedlock saying they are married in order to avoid embarrassment.

In the 15-29 age group married women greatly outnumber men, mainly because men customarily marry women younger than themselves. The census did not ask for age at first marriage, but the mean number of years lived by a cohort before first marriage can be indirectly estimated (see text box). The 'singulate mean age at marriage' (SMAM) in 1999 was 26.1 for men and 22.6 for women. Compared with the 1986 census results, this means that both sexes, but women in particular, tend to start their marital career later and that the age gap between husbands and wives is closing.

Singulate mean age at marriage

The 'singulate mean age at marriage' (SMAM) is the mean age at marriage among those who ever marry. It is calculated from the proportion of men and women never married in successive age groups (Hajnal 1953).

The SMAMs calculated on the basis of the successive censuses reveal a trend of increasingly younger ages at marriage for men and women until 1986. The 1999 census shows that this trend has reversed since then. In particular, the age at marriage for women increased substantially, resulting in a smaller age difference between men and women when they marry.

Singulate mean age at marriage, by sex and by census year

Census Year	*Sex*		
	Men	*Women*	*Difference*
1970	27.0	22.3	4.7
1976	25.5	21.4	4.1
1986	25.0	21.0	4.0
1999	26.1	22.6	3.4

The largest proportions of married people (over 80 percent) are in the later middle-age range 30-59, with a peak at ages 35-49 (around 89 percent). The pattern differs between men and women, largely because of cultural practices. One effect of their earlier age at marriage is that women tend to outlive their husbands and, consequently, a larger proportion of men remain in marriage until they die. In addition, in the setting of the Solomon Islands it may be easier for men than for women to remarry after the first marriage ended for whatever reason, either because of social norms or because of the opportunities on the local marriage market at later ages. As a result of these practices, in the age group 40-44, for instance, married men constitute 92 percent of the total male population, but for women the corresponding figure is 86 percent. For the age group 75 and above, the difference is much larger: the percentages still married are 66 and 27 for men and women, respectively.

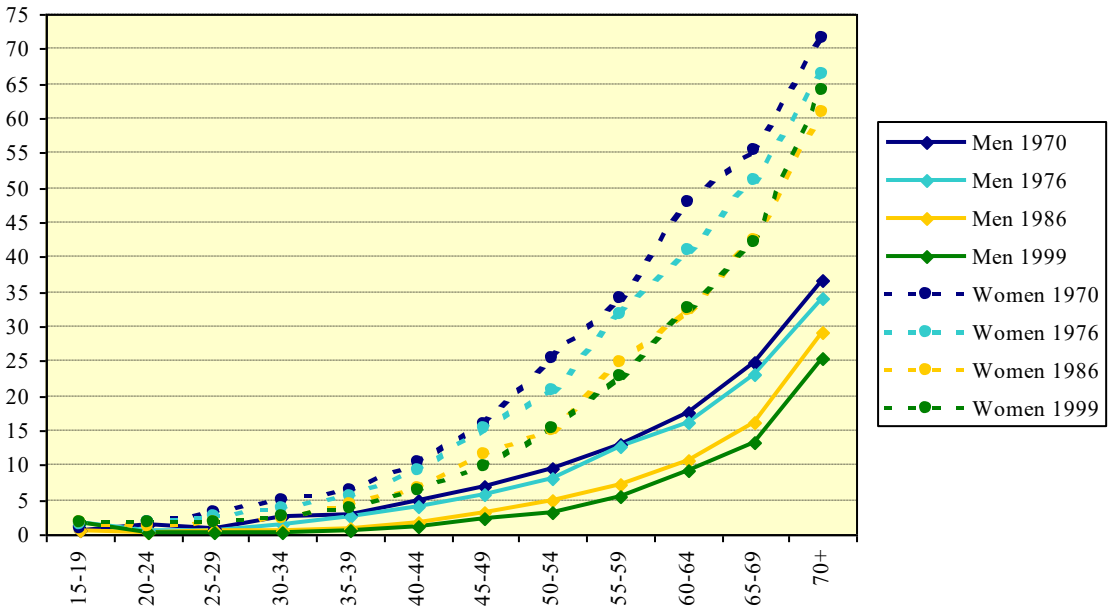
[9] In fact, the small expatriate population with an excess of men suggests that the observed discrepancy is even larger.

3.5.3.3 Widowed population

The number of widowed people in the total population was 10,785 or 2.6 percent, most of whom were women: 8,115, and only 2,670 men. The main reason for this excess of widows is the fact that women tend to marry men who are older than themselves, but differences in patterns of remarriage may also contribute to the surplus of women in this category. In the future the excess of widows is expected to diminish in view of the present close life expectancies for men and women (see section 4.2 of this report) and the trend of declining difference in age at first marriage.

As shown in figure 3.12, the proportion of married persons is depleted with increasing age, for women much more rapidly than for men. The increasing chance of being widowed is similarly reflected in *figure 3.13*[10]. This figure also shows a consistent decrease in the proportion of widowed for both sexes since 1970, except for women between 1986 and 1999. Ten percent of all ever-married women in the age group 45-49 had already lost their spouse, a figure that increases to 33 for those aged 60-64 and nearly 64 for the oldest category of 70 and over. The corresponding figures for men are 2, 9 and 25 percent, respectively.

Figure 3.13. Percentage of widowed among ever-married persons, by census year, sex and five-year age groups



3.5.3.4 Divorced and separated population

In addition to the death of either of the partners, marriage can also end in separation or divorce. The total number of people divorced or separated is even smaller than the number widowed. Because of the small numbers involved, figures by age and sex are somewhat erratic.

Compared with widowhood, marital status following divorce or separation is relatively constant across all ages and produces less pronounced differences between men and women, since both spouses survive the event (*table 3.11*). For each age, the proportions of men and women divorced or separated are determined by an intricate combination of dissolution rates, and sex-specific mortality and remarriage patterns. As far as any trends can be deduced from *table 3.11* one is that in the life course

[10] The ever-married population is used as the reference population to avoid interference of fluctuations in the proportion of never married who were never exposed to the risk of widowhood.

Table 3.11. Percentage divorced or separated among ever married persons, by census year, sex, and by five-year age group

Age group	*Census year, sex*							
	1970		*1976*		*1986*		*1999*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*	*Men*	*Women*
All 15+	0.8	1.2	1.3	2.2	1.3	1.9	1.3	2.5
15-19	1.7	7.8	1.8	3.1	1.7	2.5	2.2	4.0
20-24	0.8	2.2	1.4	2.8	1.1	2.0	1.1	2.5
25-29	0.7	2.0	1.4	2.5	1.0	2.1	1.0	2.5
30-34	0.9	1.3	1.0	2.0	1.2	2.3	1.1	2.9
35-39	0.6	1.2	1.1	2.1	0.9	2.4	1.0	2.8
40-44	0.6	1.4	1.0	1.8	1.2	1.7	1.3	3.0
45-49	0.7	1.0	1.1	1.7	1.2	1.7	1.6	2.4
50-54	1.1	0.8	1.2	1.3	1.2	1.0	1.5	2.4
55-59	1.0	0.8	1.6	2.2	1.4	1.3	1.4	2.0
60-64	1.2	0.5	1.5	1.7	1.6	1.7	1.7	1.7
65-69	1.4	0.9	1.3	1.6	2.3	1.5	1.8	1.2
70+	1.1	0.2	2.0	1.5	1.7	1.4	1.4	1.3

the proportion remaining divorced or separated increases for men and decreases for women; another is that in general for both sexes —but more so for women than for men—being divorced or separated occurs more frequently than in the past.

3.5.4 Marital status by province and ethnicity

3.5.4.1 Marital status distribution by province

Given the fact that marital status is very age-dependent and that provincial populations have different age distributions, it comes as no surprise that there are considerable differences in the marital status distributions across the country. The provincial age distributions are influenced by fertility differentials, but importantly also by inter-provincial migration, which may be sex and marital-status specific. In addition, local cultural practices may influence timing of marriage, the age difference between spouses (and thus widowhood) and the propensity for divorce and separation. This report is not the appropriate place to elaborate the backgrounds of differences in the marital status structure of the various provinces, but we shall highlight some main observations.

Table 3.12 shows marked differences in the proportions of never married in the population of 15 years and older. Honiara has the largest share of single people (41 percent) and Isabel the lowest (31 percent). In every province, the proportion of single men is larger than that of women, but the variation across the country is somewhat smaller for men (7.7 percent against 11.0 percent for women). Apparently, migration of single men is an important factor, as typical immigration provinces like Honiara and Western province have relatively high shares of never married men, which are compensated by relatively low shares in typical migrant-sending provinces, like Temotu and Malaita.

The proportions of married people in each province are more or less the complement of the situation for the never married. Temotu is the only province where the share of married men is larger than the share of married women, although the actual number of married men is smaller than that of women (3,050 against 3,457). Selective out-migration of never married men is again the foremost explanation here. The singulate mean age at marriage does not vary greatly by province. Especially if the provinces with a deviant age structure (Honiara, Rennell-Bellona and Temotu) are disregarded, the difference is around two years: from 25.3 (Malaita) to 26.9 (Western province) for men and from 22.1 (Central province) to 23.3 (Makira-Ulawa) for women. The smallest average age difference between spouses is found in Malaita (2.8 years), the largest in Isabel (4.0).

Table 3.12. Percentage of population 15 years and older, by sex, marital status, and by province

Provincs	*Both sexes*				*Males*				*Females*			
	Never married	*Cur. married*	*Widowed*	*Divorced/ separated*	*Never married*	*Cur. married*	*Widowed*	*Divorced/ separated*	*Never married*	*Curr. married*	*Widowed*	*Divorced/ separated*
Total	35.3	58.9	4.5	1.3	40.4	56.7	2.2	0.8	30.2	61.6	7.1	1.8
Choiseul	33.5	60.0	5.3	1.2	38.7	58.2	2.4	0.8	28.4	62.1	8.2	1.7
Western	36.9	58.8	3.3	1.0	43.4	54.3	1.6	0.7	29.5	64.4	5.3	1.3
Isabel	31.0	62.9	5.5	0.6	37.0	60.2	2.3	0.5	25.3	66.3	8.8	0.8
Central	33.9	60.0	4.9	1.2	39.0	57.6	2.5	0.9	28.5	62.8	7.5	1.6
Rennell-Bellona	35.8	51.8	8.7	3.7	42.8	48.2	5.5	3.5	28.4	56.4	12.3	4.1
Guadalcanal	34.5	59.4	4.9	1.3	40.3	56.8	2.3	0.6	28.3	62.3	7.7	2.0
Malaita	33.4	59.6	5.8	1.2	37.6	58.9	2.8	0.7	29.7	60.9	8.6	1.7
Makira-Ulawa	36.8	57.5	4.7	1.0	41.3	55.0	3.1	0.6	32.5	60.7	6.4	1.5
Temotu	33.5	58.6	5.8	2.1	36.7	59.7	2.5	1.1	30.8	57.8	8.7	3.0
Honiara	40.9	55.8	1.7	1.6	44.4	53.6	0.8	1.2	36.3	59.0	2.8	2.3

As widowhood tends to occur at later ages and migration is specifically concentrated in the younger adult years, it is not surprising that the provinces with the lowest proportions of widows and widowers are those that attract migrants: Honiara, Western province and Guadalcanal. The provinces with high emigration rates —Rennell-Bellona, Malaita and Temotu— on the other hand, have high proportions of people whose marriage ended in the death of their spouse. In Rennell-Bellona, widows constitute one in eight women of 15 years or older. Provincial variation in the proportions of separated or divorced is more difficult to explain, but Rennell-Bellona is again the province with an exceptional share: for both sexes combined it is three times as high as the national average.

3.5.4.2 Marital status by ethnicity

Solomon Islands marriages tend to be contracted along ethnicity lines. However, there are various factors that intermediate the extent to which marriage candidates are bound to find a partner with the same ethnic background. One is the strength of cultural identity and social norms that may allow some groups to associate more freely with people from different ethnic backgrounds than others. There may also be distinct gender differences for this cultural or social proclivity, for instance giving men more freedom to transgress ethnic boundaries in search of a marriage partner than women. The supply side may also influence the chance of finding a spouse of a particular ethnic descent. Honiara provides an environment with a large ethnic variety, but in a homogeneous community like inland Malaita or Rennell, the choice of a partner is virtually restricted to one option, and this is even more so in isolated and remote communities. Another factor in this respect is the overall size of ethnic groups in the country. The marriage market for someone who wants to marry within his or her ethnic group is much more limited for people from a relatively small group like the Micronesians than it is for Melanesians, and even more so for even smaller groups like the Chinese. This implies that —if cultural or physical barriers do not interfere— people from small ethnic groups are more likely to marry someone from another group than people from the larger ethnic groups. A major effect of the relative size of ethnic groups is also that one additional intermarriage in a small group has much more impact on the ethnic distribution of spouses than in a large group. This must be borne in mind when interpreting figures on intermarriage in this section.

The census provides information about the ethnicity of both spouses for couples who were enumerated in the same household. This was the case for 48,492 couples, or 69 percent of all people who reported being married at the time of the census. Only 2.3 percent of these couples were of mixed ethnicity, which indicates that ethnic background remains an important determinant in the choice of a partner. *Table 3.13* gives the breakdown of the couples by ethnicity of both spouses. Panel a. focuses on the ethnic distribution of spouses for men of a specific ethnicity, whereas panel b. does the same for women of a particular ethnic group.

In general the share of mixed marriages increased if the data in this table for the main ethnic groups are compared to the results of the 1986 census. The diagonal line in each table panel that starts in the lower right corner and moves up to the left shows the proportions of ethnically homogeneous couples. For Melanesian men and women, marrying a partner of the same ethnic background is almost universal, whereas Polynesian men and women have a similar propensity to marry a Polynesian spouse (81 and 80 percent for men and women, respectively), although this propensity is not as strong as that of Melanesians. Among the other ethnic groups the proportion marrying a person of the same background is usually lower and also differs significantly between men and women. Explanations for these lower propensities may be found in the assumption that these groups are more open to ethnic intermarriage, live in more heterogeneous environments (especially the Chinese and Europeans) or experience a restricted marriage market in terms of own ethnicity (again especially the Chinese and Europeans). It is less common for women to marry a husband of another ethnic descent than for men.

Table 3.13. Percentage distribution of couples enumerated in the same household, by ethnicity of the spouses

a. Percentage distribution of couples enumerated in the same household, by ethnicity of the husband, and by ethnicity of the wife

Ethnicity of the wife	*Total*	*Ethnicity of the husband*					
		Melanesian	*Poly-nesian*	*Micro-nesian*	*Chinese*	*European*	*Mixed/ other*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Melanesian	95.1	99.0	16.7	18.4	23.5	39.4	55.7
Polynesian	3.1	0.6	81.4	4.0	1.0	3.7	9.5
Micronesian	1.2	0.3	1.0	76.0	7.8	3.7	10.1
Chinese	0.2	0.0	0.0	0.0	64.7	0.5	0.6
European	0.2	0.1	0.0	0.2	1.0	47.9	0.6
Mixed/other	0.2	0.1	1.0	1.4	2.0	4.8	23.4
N	48,492	46,074	1,465	505	102	188	158

b. Percentage distribution of couples enumerated in the same household, by ethnicity of the wife, and by ethnicity of the husband

Ethnicity of the husband	*Total*	*Ethnicity of the wife*					
		Melanesian	*Poly-nesian*	*Micro-nesian*	*Chinese*	*European*	*Mixed/ other*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Melanesian	95.0	98.9	17.2	25.7	6.8	21.2	39.5
Polynesian	3.0	0.5	79.9	2.6	0.0	0.0	12.3
Micronesian	1.0	0.2	1.3	66.3	0.0	0.8	6.1
Chinese	0.2	0.1	0.1	1.4	90.4	0.8	1.8
European	0.4	0.2	0.5	1.2	1.4	76.3	7.9
Mixed/other	0.3	0.2	1.0	2.8	1.4	0.8	32.5
N	48,492	46,117	1,491	579	73	118	114

Thus, only 24 percent of European women and 10 percent of Chinese women marry into another group, compared with 52 percent of European men and 35 percent of Chinese men. As the two ethnic communities are similar in size, the smaller proportion of Chinese marrying into another ethnic group may be an indication that the Chinese community is culturally more closed. The Micronesian population form an exception to the rule that women have fewer marital relationships with men from different ethnicity: one in three Micronesian women enter a mixed marriage, compared with fewer than one quarter of men.

Given the ethnic distribution of the total population, it is not surprising that the large majority of those from other ethnic groups who do not have a partner from the same background find a Melanesian spouse. However, intermarriage between Micronesians and Melanesians is lower than between Polynesians and Melanesians. The Chinese and European populations are too small to justify any reasonable conclusions in this respect.

3.6 Household composition

3.6.1 Introduction

The household is the smallest organisational entity in the census and provided the unit of enumeration of individuals. The household also has important social significance in terms of production and reproduction, gender relations and group identification within communities. Although there is a large overlap with families, households are conceptually different, as they are defined by agreement on

collaboration, not necessarily on kinship or consanguinity (see text box). A distinction in this respect is made between private and collective household types.

This section addresses the average household size, but also household structure. In all households, one person was designated as head of that household. In principle, the household itself did this, but where necessary, the enumerator had to identify a head. All other household members were identified by their relationship to this head. Besides size and structure, households can be characterised by the characteristics of the individual household members. However, it is out of the scope of this report to elaborate on this matter. The only exception is made for the presence of displaced persons, as this apparently had a substantial impact on the size and structure of households in 1999.

Household: definition and types

In the census a household is defined as a group of people who share a common eating arrangement: members of a household normally eat food prepared in the same kitchen or they share in the cost, collection and preparation of that food. Although the identification of a household was based on a usual common eating arrangement of a group of people, enumeration coverage rules prescribed the inclusion of all and only those people who slept in the household on census night.

The census distinguished between two types of households:

A *private household:* a group of related people (for example a family) with or without additional persons who live together and share a common eating arrangement. A private household can also consist of one person or two to five unrelated persons who have a common eating arrangement.

A *collective household* consists of six or more unrelated persons staying together for special reasons, like education, medical treatment, boarding or travel.

3.6.2 Number and size of households

In 1999 census information was obtained in 65,014 households, of which 63,404 (79.5 percent) were private households and 1,610 collective households. *Table 3.14* compares the numbers of households and persons, and the average household size in the census years since 1970, broken down by type of household. It clearly shows that collective households —including large institutions, like boarding schools, hospitals, prisons, hotels and passenger ships sailing on census night— are significantly larger than private households. The table also shows that following a period of increasing household size observed between 1970 and 1986, the trend had reversed in 1999. The most important factor in this respect is the decline in fertility. The relative increase of the population between 1986 and 1999 is somewhat lower than that of the households in the same period, at least as far as private households are concerned[11]. This would almost certainly have been different had not many people abandoned their homes and moved in with other households as a result of the ethnic conflict in 1999 (see below).

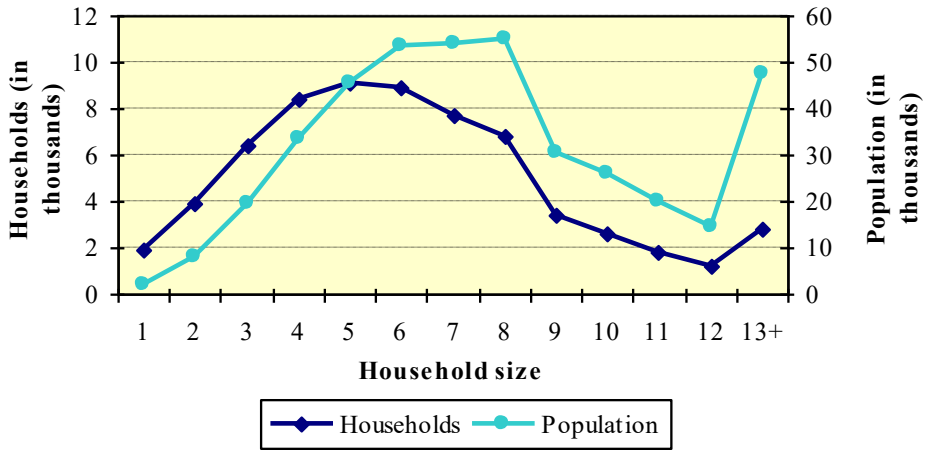
Households with 4-6 persons are most common in the Solomon Islands (see *figure 3.14*); together they represent over one quarter of all households. Single-person households constitute only three percent of all households, but this varies from less than two percent in Malaita and Guadalcanal, to five percent in Honiara and eight percent in Rennell-Bellona. It is likely that the largest share of these differences have to do with migration, either regular migration or displacement. Large households —more than ten persons— constitute only 13 percent of all households. The distribution of the population across households on the other hand is concentrated in those with 6-8 persons (comprising 40 percent of the population), but also in large households: over one quarter of the population live in households with at least ten people and 12 percent in households with at least 13 people.

[11] The large and erratic fluctuations of the number of collective households —and consequently of the population in these households— are caused by different definitions of collective household in the subsequent census years.

Table 3.14. Households, population and household size, by census year, and by type of household

Household, population and household size	*Census year*			
	1970	*1976*	*1986*	*1999*
Households				
Total	29,940	34,849	43,841	65,014
Private	28,213	34,660	43,386	63,404
Collective	1,727	189	455	1,610
Population				
Total	160,998	196,823	285,176	409,042
Private	144,703	194,145	278,542	389,922
Collective	16,295	2,678	6,634	19,120
Household size				
Total	5.4	5.6	6.5	6.3
Private	5.1	5.6	6.4	6.1
Collective	9.4	14.2	14.6	11.9

Figure 3.14. Number of households and population, by household size



The distribution of households across provinces is given in *table 3.15*. The large number of collective households in Western province can be explained by the population on the fishing fleet and in the shared workers' accommodations of Noro, as well as many lodging accommodations. Honiara is also disproportionately represented in terms of the number of collective households and the population enumerated there, because of its concentration of hotels, guesthouses and other institutions (including the National Referral Hospital), as well as the passenger ships sailing to and from the town on census night.

Rennell-Bellona and Temotu are the provinces with the smallest average household size. This can largely be explained by high numbers of out-migrated household members and relatively low fertility (Temotu). The absorption of displaced persons in households in Malaita and Honiara is an important factor for the relatively high average household size in these provinces. In addition, Honiara households often accommodate relatives from the province who stay in town more or less temporarily. Another contributing factor for the large household size in Malaita —and in Choiseul too— is the high fertility in that province (see also chapter 4).

Table 3.15. Number of households, population and average household size, by household type and by province

Province	*Households*			*Population*			*Household size*		
	Total	*Collect.*	*Private*	*Total*	*Collect.*	*Private*	*Total*	*Collect.*	*Private*
Total	65,014	1,610	63,404	409,042	19,120	389,922	6.3	11.9	6.1
Choiseul	3,142	97	3,045	20,008	1,131	18,877	6.4	11.7	6.2
Western	9,992	422	9,570	62,739	5,360	57,379	6.3	12.7	6.0
Isabel	3,556	84	3,472	20,421	1,055	19,366	5.7	12.6	5.6
Central	3,625	92	3,533	21,577	981	20,596	6.0	10.7	5.8
Rennell-Bel.	432	9	423	2,377	74	2,303	5.5	8.2	5.4
Guadalcanal	10,399	235	10,164	60,275	2,259	58,016	5.8	9.6	5.7
Malaita	18,606	244	18,362	122,620	2,429	120,191	6.6	10.0	6.5
Makira-U.	4,926	67	4,859	31,006	758	30,248	6.3	11.3	6.2
Temotu	3,415	80	3,335	18,912	669	18,243	5.5	8.4	5.5
Honiara	6,921	280	6,641	49,107	4,404	44,703	7.1	15.7	6.7

The contribution of displacement is revealed if households with displaced persons are compared with those without (*table 3.16*). Households not affected by the influx of displaced people had on average only 6.0 persons, compared with 7.9 for households that were accommodating any displaced persons and 6.3 for all households. Of the three provinces that were affected most by displacement, the difference for Honiara is the most significant: the average household size observed in the census was 12 percent larger than that of households without displaced people. Honiara households with displaced persons were on average nearly 3 persons larger than those without. If this difference can be attributed to the absorption of displaced persons it implies a major burden to the receiving household.

Table 3.16. Average household size, by household displacement status, for Solomon Islands and most affected provinces

Province	*Households*		
	All households	*Without displaced*	*With displaced*
Total	6.3	6.0	7.9
Guadalcanal	5.8	5.6	6.3
Malaita	6.6	6.3	8.3
Honiara	7.1	6.4	9.2

3.6.3 Household structure and characteristics

3.6.3.1 Head of household

The large majority of households —84 percent, or 54 thousand households— is headed by a man. For the 48 thousand households where a married couple were present, the male partner was head in 99 percent of all cases. However, if there was no spouse in the household (in 15 thousand cases), the majority of heads —62 percent— were women. These were households where the partner of the head was temporarily absent or where the head was not married, either never-married, widowed or separated/divorced. This large occurrence of female-headed households is largely caused by the fact that 73 percent of widowed or separated/divorced household heads are women. For most provinces the total percentage male-headed households is close to the national average of 84 percent, except for Temotu (77 percent) and Honiara (89 percent), which is closely related to sex-specific migration in the country.

The age distribution of male household heads is similar to that of female heads. The only noticeable difference is the relative overrepresentation of women in the age groups under 20 and over 50. This is

largely caused by the fact that on average women marry younger than men (hence their stronger presence at younger ages) and consequently more of them remain as head of a household when the husband dies, which explains their stronger presence at older ages (see also section 3.5.3).

3.6.3.2 Relationship to the head of household

Everyone in the household was asked to state their relationship to the head of household. These relationships were classified in eight categories. *Table 3.17* gives the proportions of each category by province for private households. The share of spouses is close to that of heads, indicating that absence of spouses from the household is not very common. However, Temotu and Rennell-Bellona have significantly lower proportions spouses, which is probably related to the high rates of out-migration from these provinces, resulting in a temporary absence of one spouse. The largest category —nearly half of all persons in private households— consisted of children of the head[12]. There is considerable variation in the share of grandchildren, but it is difficult to determine the extent to which this can ascribed to selective migration, the occurrence of extended families, fertility or other reasons.

Again, Honiara is a special case. The large share of single people in the capital, in combination with the relatively young age of those who are married result in the small share of children and grandchildren. On the other hand, siblings and other relatives, as well as unrelated persons, have disproportionately large shares. These groups are mostly temporarily visiting relatives from the provinces looking for work or just staying with Honiara-based relatives.

Table 3.17. Percentage distribution of population in private households, by relationship to head of household and by province

Province	*Relationship to head of household*							
	Head	*Spouse*	*Child*	*Grand-child*	*Parent*	*Brother /sister*	*Other relative*	*No relation*
Total	16.3	12.3	46.7	8.0	1.7	5.2	8.7	1.1
Choiseul	16.2	11.9	44.6	13.6	1.9	4.1	7.2	0.6
Western	16.8	12.0	43.5	11.2	1.3	4.5	9.0	1.7
Isabel	18.0	13.1	43.0	10.0	2.2	3.8	8.3	1.5
Central	17.2	13.2	48.0	6.9	2.2	5.0	6.8	0.8
Rennell-Bell.	18.3	10.9	37.5	15.5	3.7	5.3	7.4	1.4
Guadalcanal	17.6	14.4	51.3	5.5	1.3	3.7	5.6	0.6
Malaita	15.3	11.9	52.1	7.6	1.9	4.5	6.3	0.3
Makira-Ulawa	16.1	12.1	46.4	9.5	1.6	5.1	8.1	1.0
Temotu	18.3	12.6	42.4	9.3	1.8	5.6	9.2	0.9
Honiara	14.9	10.9	34.4	3.4	1.4	10.7	21.0	3.3

3.7 Education

3.7.1 Introduction

Education is not compulsory in the Solomon Islands. The schooling system comprises six grades of primary education ('Standard') and a maximum of six grades of secondary education ('Form'). A full educational career requires a child to pass a test at the end of primary school to be admitted to secondary school, and subsequently to pass tests before admission to Form 4 and Form 6. There is no university in the Solomon Islands, except the extension services available at the University of the South Pacific Centre in Honiara. Most students who want to study for a university degree go to Fiji, Papua New Guinea, New Zealand or Australia. The Solomon Islands College of Higher Education

[12] This category includes own children, but also stepchildren and adopted children.

(SICHE) in Honiara does offer a range of tertiary education, however. Some primary schools offer a preparatory year.

Schools run by churches provide an important contribution to the education system: one in eight schools are under the authority of a church. Whereas primary education is relatively widely available throughout the country, access to the first years of secondary education ('Junior secondary school') is much more restricted, and this is increasingly so for Form 4-5 and Form 6 (cf. Ministry of Education 2001). The present system has insufficient capacity to absorb the potential student population and, given the increasing numbers to be expected (see chapter 9), it is likely that the gap between supply of and demand for education will widen further.

The 1999 census included several questions relating to education; relevant information can be found in tables B5.01 to B5.05 in the Tabulation report. A first question asked for the highest level of formal education ever completed, with six possible answer categories, i.e. no education, or any grade of respectively pre-school, primary, secondary, vocational or tertiary education. People who reported having completed any year of tertiary education were asked about the highest qualification they obtained (no qualification, diploma, certificate, degree, Master's degree, Ph.D. or anything else). A third question probed into educational attendance during the entire 1999 school year and a last question aimed at establishing whether people should be classified as literate or illiterate.

3.7.2 School attendance

3.7.2.1 Attendance by age, sex and province

The information on school attendance by age can be used to estimate school enrolment figures. A very general indicator for the prevalence of education, which is convenient for comparison between countries and areas, is the gross enrolment ratio. This overall gross ratio can be differentiated into a gross primary enrolment ratio and a gross secondary enrolment ratio (see text box 'Gross enrolment ratios'). A disadvantage of these indicators is that they do not relate to the actual number of students in primary and secondary school. Since many children in the Solomon Islands start education at relatively old ages, the age ranges of the gross enrolment ratios do not correspond to the age ranges of students in (primary or secondary) school. Thus, some 15 year-old children are still in primary school, but figure in the calculation of gross secondary enrolment, which mistakenly inflates the secondary gross enrolment ratio and deflates the primary ratio. Similarly, some students in secondary education who are 20 years or older are not included in the secondary gross enrolment ratio.

Gross enrolment ratios

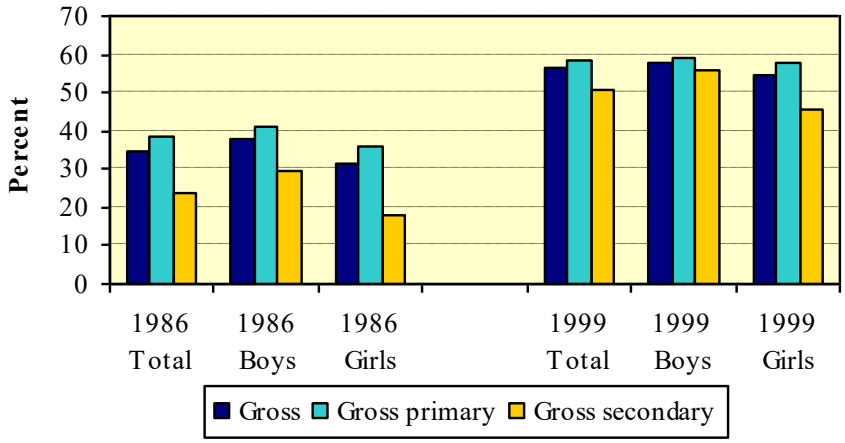
For the purpose of this report the *Gross enrolment ratio* is calculated as the number of children in the age category 5-19 attending school divided by all children in that age category (excluding 'attendance not stated' cases).

The *Primary gross enrolment ratio* is calculated as the number of children in the age category 5-14 attending school divided by all children in that age category (excluding 'not stated' cases).

Similarly, the *Secondary gross enrolment ratio* divides the number of children in the age category 15-19 attending education by all children in that age category.

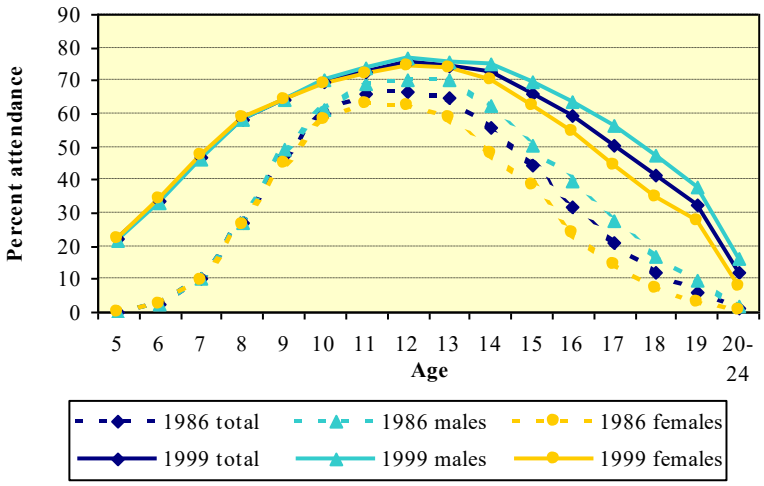
Figure 3.15 gives the enrolment ratios by sex, and compares the 1999 levels with those in 1986. The most striking result is the large increase in gross enrolment in the intercensal period, especially for girls. In 1999 there was still a considerable gap between boys and girls in secondary enrolment, but hardly in primary enrolment, as far as indicated by these gross ratios. Although these figures compare favourably with many other developing countries, among the Pacific islands countries, the Solomon Islands performance is one of the poorest (cf. House 1999).

Figure 3.15. Gross enrolment ratios, by sex, 1986 and 1999



Again, caution is warranted as the gross ratios blur the actual attendance in primary and secondary school, because of different age at entrance into the school system. *Figure 3.16* shows that only 22 percent of all five-year old children attend school and that by age seven this is still less than half (47 percent) of all children. The graph again shows the improvement in school attendance since 1986, especially at the younger and older school-going ages. It suggests that many more children than in the past start school at young ages and also that duration of education has increased. The lines also indicate the closing gap between school attendance of boys and girls. In 1999 girls even actually had very slightly higher attendance rates in the youngest ages, which reversed above age eight. However, it was not until age 14 that sex-specific attendance start to diverge clearly. This is close to the average age of admission to secondary education, suggesting that girls are still less likely to continue schooling after primary education.

Figure 3.16. Age-specific education attendance, by sex, 1986 and 1999



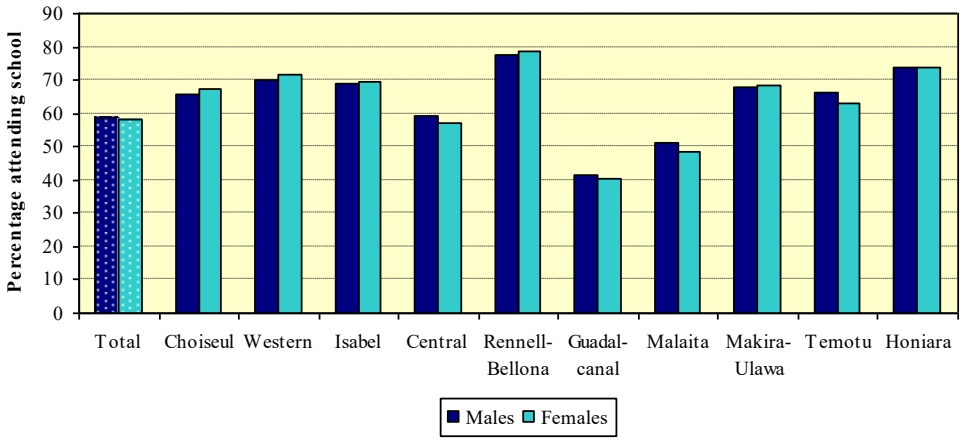
The gross primary attendance rates by province range from 78 and 74 in Rennell-Bellona and Honiara to 50 and 41 in Malaita and Guadalcanal (*figure 3.17*). The fact that only half of children or less in the latter two provinces attended school for the entire year 1999 is without doubt related to the displacement of many children, which caused at least a temporary drop-out from school. However, other factors also play a role, since differentiation by displacement status alone cannot fully explain the low levels of attendance in Guadalcanal and Malaita. The graph furthermore shows that the nearly equal attendance of boys and girls is repeated in all provinces.

3.7.2.2 Comparing census data with Ministry of Education data

There are several reasons that preclude a direct comparison of data from the census with those on school enrolment collected annually by the Ministry of Education, and caution against imprudent interpretations of census results is warranted.

- There is a difference between enrolment figures provided by the heads of schools, based on numbers of children that start a school year, and the census attendance data, which relate to whether or not children went to school for the entire school year. In principle, the attendance figures should be lower than enrolment figures, since during the school year some children will drop out because of illness, inability to pay school fees, the need to help the family, and —importantly in 1999— displacement.
- Data provided by heads of schools may contain a certain upward bias, since they have an interest in keeping enrolment lists as complete as possible, resulting in the recording of doubtful cases.
- At the time of writing, the latest available government statistics related to 1998, the year prior to the census.

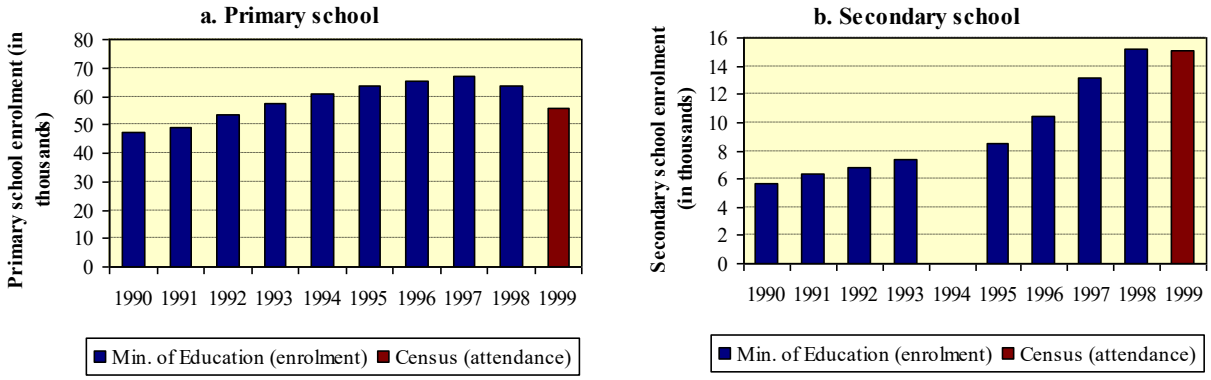
Figure 3.17. Gross primary enrolment ratio, by province and sex



In *figure 3.18* (panel a), the annual government statistics on primary school enrolment 1990-1998 are complemented with the census data on 1999 school attendance. The figures from the Ministry of Education reveal a fast but levelling student growth until 1997 and then even a decline in numbers. This decline in 1998 is surprising given the ever-increasing number of children in the primary-school age category. The census attendance data for 1999 are lower than the enrolment data for 1998 for each grade in Standard.

The 12 percent difference between the latest government figures and census data is comparable with that found in the 1986 census. However, the lower figure for 1999 compared with 1998 —56.1 thousand against 63.9 thousand— could well make sense given the above observations with respect to possible bias of school-based statistics and drop-out during the school year, especially because of displacement.

Figure 3.18. Enrolment/attendance figures, 1990-1999, for primary schools (panel a) and secondary schools (panel b)



As in 1986, census figures on secondary school attendance are much closer to government enrolment data (figure 3.18, panel b), for which the 1986 census report gives some plausible explanations: it is quite possible that the data of the census and of the Ministry are of much better quality. The relevant respondents are usually better educated, resulting in more accurate answers, and administrative leadership and control of secondary schools is probably better than in the case of primary schools. On the other hand, it is likely that drop-out from secondary schools is less prevalent, although the disturbances on Guadalcanal and in Honiara will have caused lower rates of full attendance than in other years. All in all, the census results would support the level of enrolment suggested by the Ministry of Education, but better assessment will only be possible when the 1999 enrolment data become available.

Whereas the gross enrolment ratio suggests that relatively just as many girls as boys go to primary school, there is a majority of 54 percent boys in the population of primary school pupils largely because of the male-dominated population structure (see section 2.5 in this report). The male majority in secondary school is even larger —59 percent on average, increasing from 56 percent in first grade to 65 percent in grade 6— because of the reinforcing effects of the sex ratio in the population and lower attendance rates for girls in secondary education.

3.7.2.3 Population not attending school

The group of persons aged ten years and older who did not attend any form of education in 1999 numbered 221,968 persons. Most of these will have completed their education or will never enter the school system, although there may be some who are not in education temporarily and will re-enter the system later. As such, information about the level of education attained by this group gives a measure of preparedness for modern society as far education is concerned.

The majority of non-attenders (55 percent) consist of people who have completed one or more years at primary school (*table 3.18*). The second largest group (more than one quarter) is made up of people without any form of formal education, while people with some level of secondary education account for another 13 percent. The group with tertiary education —high school and university combined— is relatively small, at less than four percent. In spite of some definition differences between the subsequent censuses, it is clear from the table that there have been very large changes in the educational level of the population. In 1976 more than half of those not attending school had received no education at all and an almost equally large share had only some primary education, leaving a small proportion of four percent with anything higher than primary education. In the course of time the share of people without education dropped drastically, and was especially compensated by increases in secondary and higher education.

Table 3.18. Distribution of population aged 10 and older, not attending education, by census year and by highest level of education obtained

Highest level of education obtained	*Census year*						*Percent increase*	
	1976		*1986*		*1999*			
	Number	*Perc.*	*Number*	*Perc.*	*Number*	*Perc.*	*76-86*	*86-99*
Total	105,687	100.0	157,888	100.0	221,968	100.0	49.4	40.6
No education[a]	53,640	50.8	62,761	39.8	60,330	27.2	17.0	-3.9
Standard	47,589	45.0	78,991	50.0	122,607	55.2	66.0	55.2
Form 1-3[b]	2,289	2.2	10,788	6.8	21,449	9.7	371.3	98.8
Form 4-6[b]	1,413	1.3	3,554	2.3	6,931	3.1	151.5	95.0
Vocational	268	0.3	599	0.4	2,127	1.0	123.5	255.1
Tertiary[c]	488	0.5	1,195	0.8	8,524	3.8	144.9	613.3

[a] Includes pre-school in 1999
[b] For 1976 census Form 1-2 and 3-6, respectively
[c] Only including university in 1976 and 1986

The development of educational attainment in the population not attending school is also visible in the distribution by age. Panel a of *figure 3.19* clearly shows the increasing share of the population admitted to the educational system. A large majority of people in the oldest age categories received no education, but with each younger age group the share of people with some level of primary school increases, especially those who attained higher primary education levels[13]. In the population under 40 years of age, the share of higher education becomes more noticeable. Panel b gives the same development in the distribution of educational attainment in absolute numbers. Again, the increase in the number of people with primary school, and later higher education, is clearly visible. A remarkable feature, however, is the persistent group of around five thousand people in each age category that remains without any education.

Figure 3.19. Distribution of population aged 10 and older, not attending education, by highest level of education obtained, and by five-year age category

a. Percentage distribution ***b. Absolute numbers***

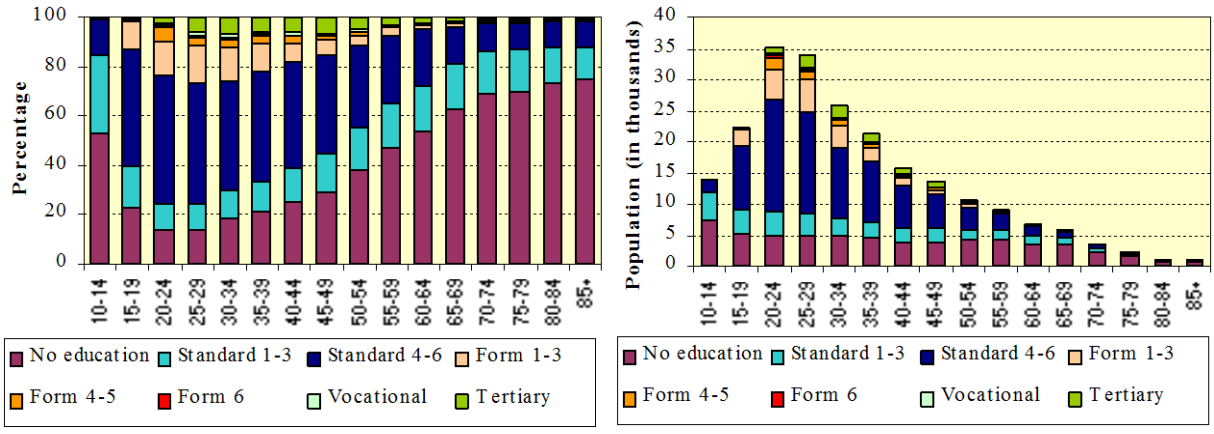


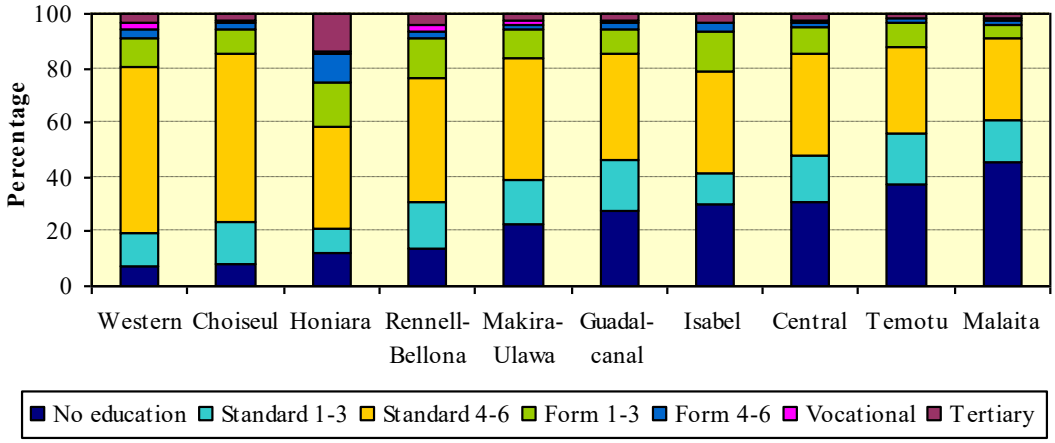
Table B5.01 of the Tabulation report gives the underlying data on educational attainment for persons not attending school, by age, sex and province. With respect to the sex differentiation it suffices to resume that the higher the education level obtained, the more women are underrepresented. They

[13] The large share of people with no education in the youngest age groups is caused by the fact that these groups consist of the small residuals of those who presently attend school.

constitute a majority of 65 percent among people without education, around half of those with Standard, but only 38, 33 and 29 percent of the population with Junior secondary school, Form 4-5 and Form 6, respectively, and 28 percent with any level of university education.

With respect to the distribution of educational attainment in each province, it is notable that relatively fewer people in the two western-most provinces have no education than in the capital Honiara. Temotu and Malaita, on the other hand, have very high shares of people with no schooling (37 and 46 percent, respectively). More than half (55 percent) of Malaitan women even never received any formal education. The proportion with secondary or higher education in Malaita is also very small compared with the other provinces: 9 percent. It should be noted, however, that many Malaitans, and in particular probably the more educated Malaitans, live in Honiara. This shift may partly explain the large representation of Form 4-6 and tertiary education in the capital. Other explanations relate to the better chances of the urban population of Honiara to receive advanced education —including tertiary education at SICHE— and the attraction of higher educated persons from other provinces because of the relatively large formal sector located here (see *figure 3.20).*

Figure 3.20. Percentage distribution of population aged 10 and older, not attending education, by province and by highest level of education obtained; sorted by share of population without education



3.7.3 Tertiary qualifications

Human resources in terms of people in the country with any tertiary qualification are very small. The census included fewer than nine thousand people with any formal qualification (see table B5.05 in the Tabulation report for details in this respect). Around four-fifths of these are people with a diploma or certificate of some (local) course. Only four percent of the population with any tertiary qualification —less than one thousandth of the total population— have any major university degree (Master's or Ph.D.), and two-fifths of this tiny group consists of expatriates.

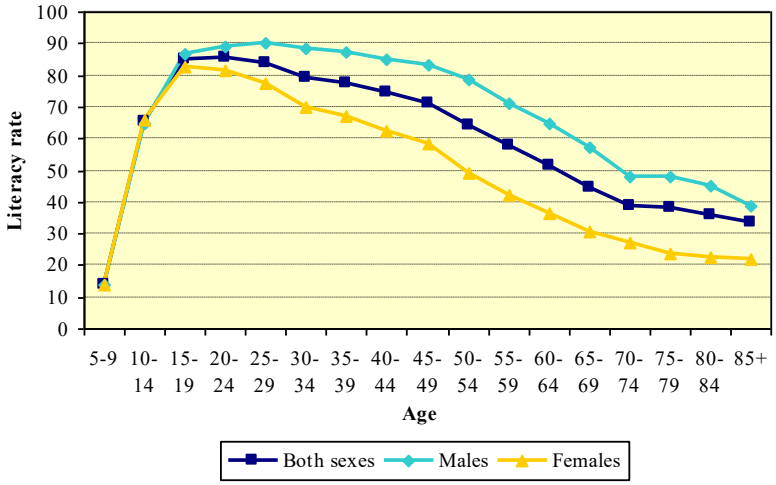
3.7.4 Literacy

The literacy rate in a population is one of the most important indicators of development. Literacy —defined as the ability to read and write— pertains to a skill that enables people to access the huge amount of information that is present in modern society and to communicate better with each other. Thereby it contributes to a better understanding of other people and one's own environment, and to a range of other benefits, like improved health, better chances on the labour market and understanding of formal documents. Society at large equally benefits from high literacy, since it can be expected to be healthier, and more efficient and productive.

It is possible to distinguish between levels of literacy, for instance in terms of the degree to which people are able to read or write, or whether people can read but not write. These distinctions require elaborate testing, which was done, for instance, in the National Literacy and Language Survey (NLLS) conducted in the Solomon Islands in 1991-92. A census cannot repeat such time-consuming survey methods. However, the 1999 census did include a question in order to get a general indication of the literacy situation in the country. The question reads: "Can you read and write a simple letter to a friend?". The way the question was phrased captures a basic skill of reading and writing, and not the more restricted affluent literacy. A disadvantage of a question like this is that the obtained measure refers to self-reported literacy, which is likely to be biased as many illiterate people may be embarrassed to admit that they cannot read and write.

Of the 237,196 people aged 15 and over who answered the question on literacy, 181,583 answered that they were able to read and write, which implies a literacy rate of 76.6 percent. For women the rate was 69.0 percent, for men 83.7. These rates are among the lowest in Pacific islands countries. Literacy is clearly age-related, increasing for people in younger age categories (*figure 3.21*). Sixty percent of people aged 65 and older are not able to read and write, which decreases to 15 percent in age group 15-19. Literacy rates in the two youngest five-year age groups are lower since a proportion of these children only recently started school and had not yet acquired reading and writing skills. Another noticeable feature of the graph is the convergence of literacy of men and women as the age categories become younger, especially from age 50 downwards.

Figure 3.21. Literacy rates for population aged 15 and over, by sex and age

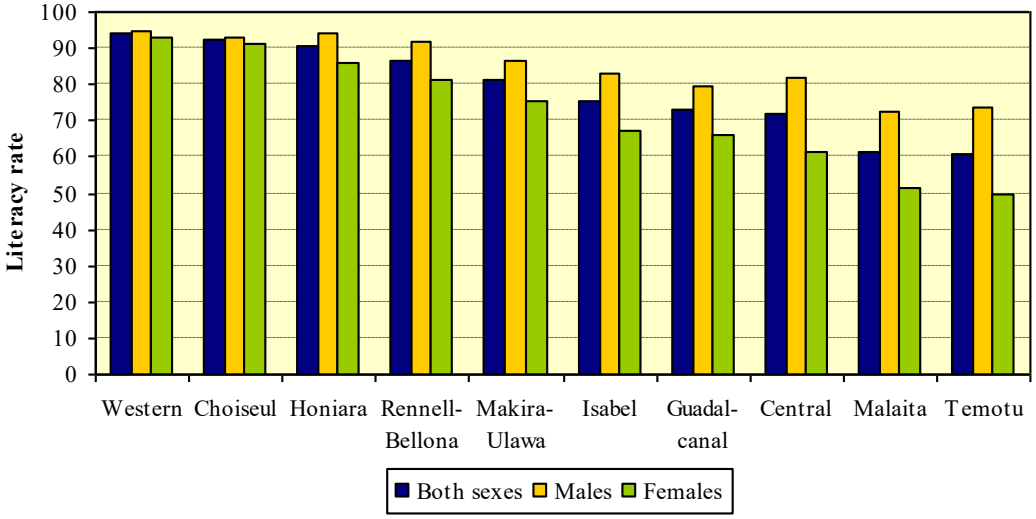


The NLLS measured 38 percent of illiterate people in the population 15 years of age and over in 1991-1992. Since then a significant improvement in the overall literacy rate will have occurred as the added new younger cohorts are increasingly educated and they are many times larger than the relatively illiterate older cohorts they replace. However, a decrease from 38 percent in 1991-92 to 23 percent in 1999 cannot be explained by this process alone. The mentioned bias in literacy reporting probably plays a role here, implying that the true literacy rate will most likely be close to 70 percent.

Provincial literacy rates range from 94 percent in Western province to 61 percent in Temotu (*figure 3.22*). The close relationship between school attendance and literacy is indicated by the fact that *figure 3.22 is* almost an exact copy of figure 3.20 as far as performance of each province is concerned. It shows again that the two western-most provinces perform best (and again even better than Honiara), and Malaita and Temotu worst. It is also interesting to note that the lower the literacy rates, the larger

the difference between men and women is. In Malaita the literacy rate among women is as low as 51.3 percent and in Temotu even 49.6 percent.

Figure 3.22. Literacy rates in population aged 15 and above, by sex and province; sorted by share of illiterate population



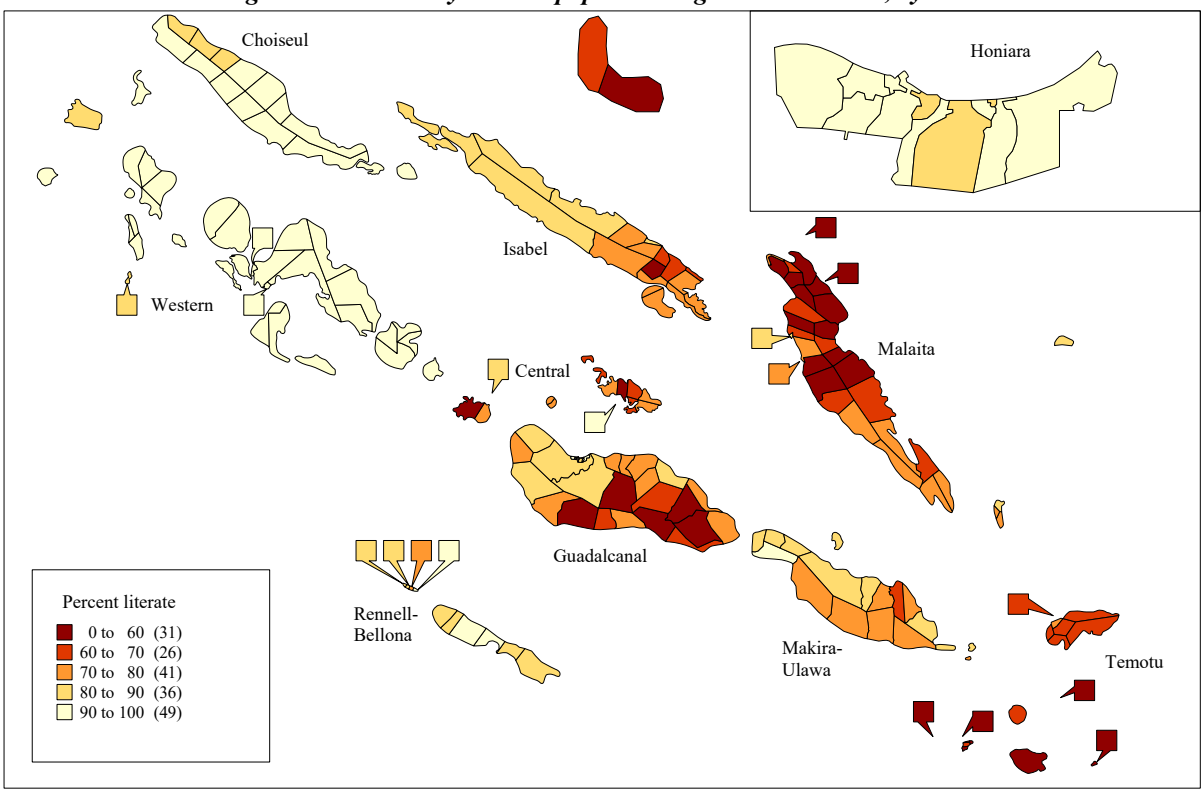
Overall, the Solomon Islands have nearly 56 thousand illiterate people, 64 percent of whom are women. The distribution of this illiterate population is concentrated in Malaita, where close to 26 thousand people cannot read and write (*table 3.19*), the equivalent of 46 percent of all illiterate people. Guadalcanal —which is similar in population size to Western province— is the next largest province in terms of illiterate population: over nine thousand, corresponding to 17 percent of all illiterates.

Table 3.19. Illiterate population, 15 years and above, by sex and province

Province	*Total*	*Men*	*Women*
Total	55,613	19,893	35,720
Choiseul	875	385	490
Western	2,212	1,030	1,182
Isabel	2,905	994	1,911
Central	3,533	1,202	2,331
Rennell-Bellona	187	60	127
Guadalcanal	9,300	3,666	5,634
Malaita	25,682	8,839	16,843
Makira-Ulawa	3,350	1,202	2,148
Temotu	4,370	1,350	3,020
Honiara	3,199	1,165	2,034

Figure 3.23 shows the percentage distribution of the population who are able to read and write by ward. It clearly shows the pockets of low literacy rates, which are concentrated in Malaita, Temotu, Guadalcanal and Central province.

Figure 3.23. Literacy rates in population aged 15 and above, by ward



3.8 Summary

The census results on ethnicity and religion suggest that these continue to be important factors for identification for the people of the Solomon Islands, as relatively few shifts and changes occur in the proportions of each distinguished religion and ethnicity. A real noticeable development, however, is the virtual disappearance of traditional non-Christian beliefs that have characterised the country for generations. Another remarkable feature is the very localised presence of ethnic and religious groups.

With regard to language, the most interesting development revealed by the census is probably the importance and phenomenal growth of Pidgin. This language has now clearly become the *lingua franca* of the Solomon Islands. Despite this growing importance of Pidgin, the country is still richly endowed with local languages, although the census indicates that a substantial number are all but extinct.

The assessment of marital status showed that marriage remains the standard for people in the Solomon Islands, but that age at first marriage has increased somewhat. Marriage between persons of different ethnicity remains an exception. The census results furthermore indicate that the share of widows and widowers has declined and that of divorced or separated people has increased. Widowhood is the most important reason that the majority of single-headed households are headed by women, but in practically all cases where two spouses were present the husband was the household head. The trend of increasing household size observed between 1970 and 1986 has been reversed, and this would have been even more pronounced without the effect of the ethnic conflict that especially caused households in Malaita, Honiara and Guadalcanal to absorb displaced people. Honiara is the province with the largest average household size: the lower fertility and early stage of family formation in many households is more than offset by the (temporary) presence of relatives from the provinces.

All education indicators show an improvement on previous censuses and by age: school attendance, attained levels of education and literacy significantly increased. Another trend revealed by the census results is that girls and women are catching up in educational performance. Primary school attendance is almost the same for boys and girls, and this also applies to literacy in the younger cohorts. However, there are substantial differences between the provinces, with Western province, Choiseul and Honiara invariantly performing best and Temotu and Malaita, and to a lesser extent Central province, lagging far behind. In Guadalcanal school attendance in 1999 was poor as well, most probably related to the displacement of people. Despite the favourable developments in recent years, the Solomon Islands remains one of the poorest performers in terms of education within the Pacific region.

4. Fertility and mortality

George GROENEWOLD and Jeroen VAN GINNEKEN

4.1 Fertility

4.1.1 Introduction

Demographers distinguish between direct and indirect methods to estimate fertility. Direct methods rely on figures obtained from direct questions to women 15-49 years old on the number of births they had within a particular reference period. Because they often observed inaccuracies when these direct figures were used, demographers developed indirect estimation methods (United Nations 1983). This chapter reports on results of five methods used to estimate fertility: two direct and three indirect methods. The direct methods are discussed first. At the end of this section conclusions will be drawn on the most likely fertility levels in the Solomon Islands in 1999 and earlier years, as derived from the 1999 census.

4.1.2 Direct estimates of fertility

4.1.2.1 Number of children ever born

One direct approach to the estimation of fertility relies on the so-called cohort approach. It provides figures on the number of children women have had at different ages and during their lifetime. The number of children ever born (CEB) and changes therein over the past 30 years are presented *table 4.1.* With respect to the 1999 census one can see that, as expected, the number of children ever born increases with age. The table shows the average number of children of women in the age range 15-49 years in different censuses. The average number of children is 2.5, while the average for the two oldest age groups, 40-49 years old, is 5.6.

Table 4.1. Mean number of children ever born alive by age of women in 1970, 1976, 1986, 1999

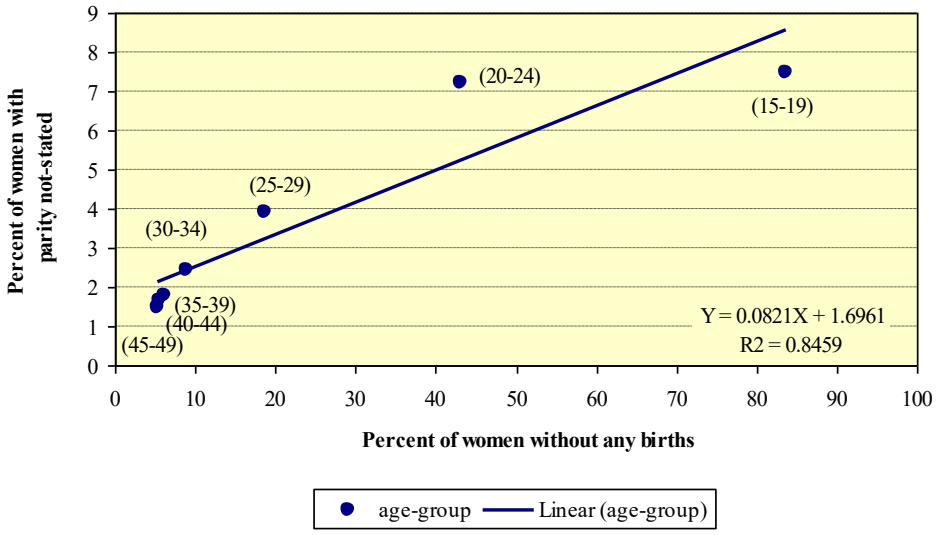
Age group	*1970*[a]	*1976*[b]	*1986*[b]	*1999*[c]
15-19	0.10	0.29	0.21	0.12
20-24	0.92	1.40	1.35	0.94
25-29	2.33	2.94	2.95	2.15
30-34	3.77	4.42	4.40	3.58
35-39	5.02	5.61	5.42	4.65
40-44	5.80	6.21	6.07	5.41
45-49	5.99	6.23	6.29	5.82

[a] Melanesians and Polynesians
[b] Solomon Islanders (i.e. Melanesians, Polynesians, I-Kirbati, Chinese)
[c] Total population

A comparison with the 1986 census shows that for women 40-49 years old CEB decreased from 6.2 in 1986 to 5.6 in 1999, a decline of about 10 percent. CEB also fell at other ages, most sharply for the youngest age groups: it decreased by 43 percent between 1986 and 1999 for women aged 15-19 years and by 30 percent for 20-24 year-old women.

One problem of the CEB approach is how to correct for women who did not reply to the census question (P29a) on how many children they had had. The average percentage 'not stated' for all age groups of female respondents was 5.5 percent in 1999 (compared with 5.0 percent in 1986). This is a problem, because 'not stated' answers occur especially for women in age groups 15-19 years and 20-24 years. It is likely that many of the young women for whom numbers of births were not recorded were women who actually had not yet had a baby, that is, women with zero parity. It is possible to correct for this by using the El-Badry correction method. This method essentially examines whether there is a linear relationship between women for whom numbers of children ever born were, for various reasons, not recorded and women who reported having had no births at all. *Figure 4.1* shows that there is indeed a linear relationship with a reasonable fit.

Figure 4.1. Association between women who reported zero-parity and women for whom the number of births was not recorded



With the aid of the regression function reported in figure 4.1, correction factors can be computed to determine the number of 'not stated' in each group of women that must be considered as actual zero parity. Figure 4.1 illustrates that percentages of 'parity not stated' in each age group are actually small. However, if the correction method is applied, it would mean an increase of women with no children in the age group 15-19 from 18,580 to 19,439 (correction factor: 0.9979). This is such a small increase that it was decided not to implement El-Badry method corrections. Incidentally, this conclusion was also reached on the basis of analysis of the 1986 census data (Statistics Office 1989). Therefore, it was decided not to add the number of 'parity not stated' women to the denominator of CEB consisting of the total number of women aged 15-49 years, thereby following the 1986 census analysis.

CEB figures have also been calculated by sex and by province. The number of boys born was somewhat higher than the number of girls (in all age categories). This is compatible with the finding that the sex ratio at birth was 109 (109 boys per 100 girls) in the 1999 census and 108 and 109 in previous censuses (see section 2.5.2.1 in this report and previous census reports). With regard to provincial calculations of CEB, these varied from 6.0 in Makira-Ulawa to 4.6 in Honiara for women 40-49 years old.

The advantage of the cohort approach is that it provides precise figures on the number of children of women who have reached the end of their reproductive period. The limitation of the approach is that it is difficult to arrive at one overall measure of fertility summarising fertility for all age groups in a population.

4.1.2.2 Number of live births in the 12 months preceding the census

The second direct approach to measuring fertility makes use of births that occurred in a particular calendar year, or in, for example, the 12 months preceding a census or survey. This approach determines current fertility levels and results in age-specific, general and total fertility rates (ASFR, GFR and TFR). This information is presented in *table 4.2*, which is based on answers to question P31 in the questionnaire, pertaining to number of births in the 12 months preceding the census. The number of births in this period was 12,680, including 38 births in age group 12-14 years. For women aged 15-49 years this gives a general fertility rate (GFR) of 130 per thousand. The age-specific rates can be used to calculate the total fertility rate (TFR), which comes out at 4.1 births per woman.

Table 4.2. Age-specific fertility rates per thousand women and total fertility rates (i.e. average numbers of children per woman) derived from one direct and three indirect estimation techniques

Age group	*Births reported in 12 months before census*	*P/F ratio method (1998)*	*Arriaga method (1998)*	*Own children method (1997-1999)*
15-19	48	67	52	72
20-24	186	223	206	216
25-29	216	245	241	246
30-34	184	202	205	207
35-39	118	127	131	136
40-44	46	48	51	63
45-49	18	16	20	28
TFR (est.)	4.1	4.6	4.5	4.8

The problem with this approach is that, on average, women underestimate the actual number of live births they have had. One reason for this is that women do not include babies who died soon after birth. It is also often difficult for women to decide whether or not to report if the exact birth date is not remembered but is considered close to 12 months before the census date. The reporting of twins may also be a problem: a mother may mention only one birth. And then there is the problem that a woman may have had two births within one year. Indirect techniques of estimation were applied to check whether births were underreported (or mis-reported).

The frequency of births in recent calendar years will give an impression of underreporting or misreporting of births. The number of live births was of the same order of magnitude in 1999 and 1998 (11,756 and 12,332 respectively), but much lower in 1997 (7,793) and earlier years. This is an indication that births were certainly underreported for three and more years before the census. Frequency of births was also plotted by month of birth in 1998 and 1999. The number was fairly constant between April and September (around 1,100 per month) in both years, but irregular in other months (e.g. 1,354 in December 1998). Seasonality of births may have played a role, but errors in reporting are also a distinct possibility.

The TFR based on births reported for the 12 months preceding the census was also calculated by province and level of education. Fertility was highest in Malaita (4.4) and lowest in Honiara (3.1). There were large differentials by level of education: TFR was highest for women with no education or a few years of education (4.3 and 4.2 respectively) and lowest for women with Form 4 and higher (3.1).

The conclusion to be drawn on the basis of data presented here is that figures on TFR (in our case a TFR of 4.1) provide minimum levels of fertility for the Solomon Islands. There are reasons to believe that the true level of fertility must be higher.

4.1.3 Indirect estimates of fertility

A variety of methods and techniques have been developed to estimate fertility in situations where there are good reasons to believe that direct techniques yield imprecise figures. The three most frequently used methods were applied to the census data; the results are described below.

4.1.3.1 P/F ratio method: fertility estimation using period and cohort fertility data of one census

The results of this method record that the P/F ratios were larger than 1 in all age categories, indicating the need to adjust current fertility estimates.

Using an adjustment factor found for ages of mothers in the 20-29 years range (K=1.138), ASFR and TFR values were obtained (see table 4.2).

At 4.6 TFR was 0.5 higher than the figure obtained with the direct method. A problematic feature of the technique is that it assumes constant fertility in the recent past, while it is known that fertility in the Solomon Islands has been falling since about 1975 (Statistics Office 1989).

P/F ratio method

The principles underlying this technique are explained in Manual X of the United Nations (1983).

The technique, developed by Brass and refined by others, compares period or current fertility rates (F) with cohort or lifetime fertility figures (P).

If fertility has remained constant in the recent past, the P/F ratio should be 1 in all age groups 15-49. If values are found which deviate from 1, the reported (current) fertility will be higher or lower depending on the deviations found. If the P/F ratios are higher than 1, the current fertility figures are probably too low; and if the P/F ratios are lower than 1, the reported current fertility figures may be too high. In order to compare P/F ratios in each of the various age groups, it is first of all necessary to estimate cumulated fertility (fertility at exact age 15, 20, 25 etcetera). These figures are then converted to age-specific rates by means of interpolation procedures.

4.1.3.2 Arriaga method: fertility estimation from cohort fertility in two censuses

According to the Arriaga method the TFR was 5.9 in 1987 and 4.5 in 1998 (see table 4.2). The TFR of 5.9 in 1987 compares reasonably well with the 6.1 calculated for the 1986 census. If the figure of 4.5 is accepted, the TFR obtained with the direct method (4.1) will need to be increased by 0.4.

Arriaga method

The Arriaga method is described in Manual X of the United Nations (1983).

The method compares average parities in different age groups in two censuses. The average parities in each of the two censuses are used to estimate cumulative fertility (fertility at exact age 15, 20, 25, etc.) and these are then converted in age specific fertility rates.

The end result of the method leads to estimates of ASFR and TFR in the year after the first (1986) census and the year prior to the second (1999) census.

The Arriaga method has the same drawback as the P/F ratio method, in that it too is based on the assumption of constant fertility levels in the recent past; we have already seen that this was not the case in the Solomon Islands.

4.1.3.3 Own-children method: fertility estimation by reverse survival of children ever born

For the reverse-survival of mothers and children assumptions must be made about the value of and change in age-specific survival ratios pertaining to each of the 15 years before the census. In the case of the Solomon Islands population, these survival ratios are deduced from the life tables as reported in *annex VIII* and *IX*. It is assumed that there was a *proportional* improvement in mortality levels between 1986 and 1999, so that concomitant survival ratios can be taken from life tables resulting from interpolation between those suggested in *table 4.11* for the years 1986 and 1999. Reverse survival of mothers and children to each of the 15 (birth) years before the census leads to numbers of births that can be grouped according to the age group of reverse-survived mothers. As a result, for each of these 15 years, numbers of births grouped by age group of mothers and numbers of mothers by

age group constitute the numerators and denominators of the ASFRs, respectively. These ASFRs in each year facilitate computation of TFRs. It is common practice to average these yearly estimates of TFR, for instance by averaging TFRs for three adjacent calendar years, so that fluctuations in TFRs are graduated. Among other things, such fluctuations are caused by age misreporting and age-heaping.

Figure 4.2 summarises the results of own-children method calculations. The estimated TFRs for the period 1986-1999 show a consistent, plausible and almost linear decline.

A linear regression line through the estimated TFRs shows an almost perfect fit. The estimate of 7.1 in figure 4.2 for the year 1986 can be considered to be an outlier, which may be attributable to preference for the year 1986 as year of birth. There appears to be a significant heaping of children aged 13, while there is no empirical evidence of a one-year peak in births in 1986. This heaping is probably responsible for an upward bias in numbers of births, the numerator of ASFRs, leading to a (too) high estimate of the TFR for the year 1986. The latter can be verified by examining the age distribution of the 1999 census population. It seems that this age heaping occurred at the cost of the reporting of children aged 12, 14 and 15 years (see section 2.4.2.3 of this report).

The own-children method

The own-children method (Cho 1973, United Nations 1983) for fertility estimation builds on current practices in census questionnaires of including questions that record the type of relationship between household members. The word 'own' refers to the relationship between mothers and their biological offspring.

Of particular interest are answers to questions that allow linkage between mothers and *own*-children, in particular children between 0 and 14 years old within a household. Once mothers and own children are linked and their ages are known, a so-called 'own-children table' can be created whereby children are classified by single year of age and single year of mother's age. Based on the own-children table thus created, mothers and children are reverse-survived to the child's birth year. Thus, depending on the number of 'own children' a mother is reverse survived more than once.

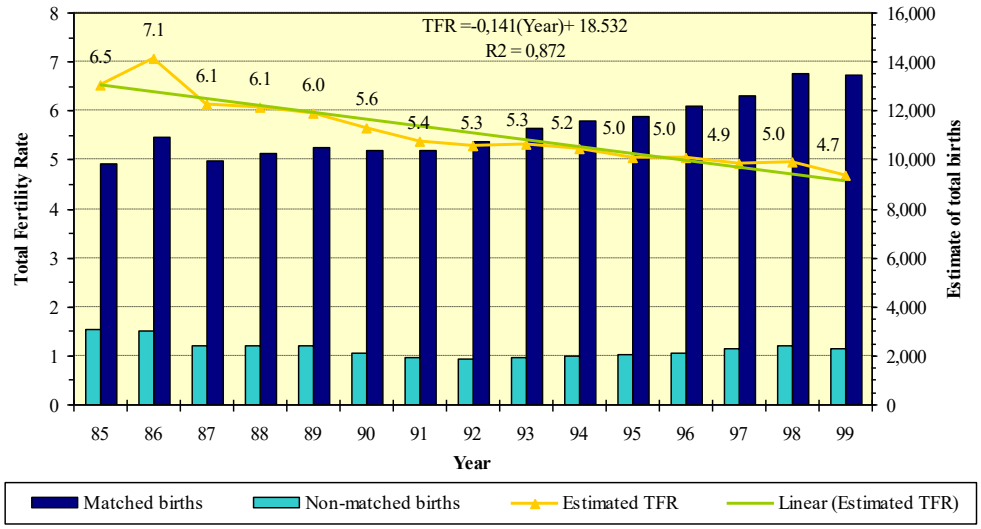
One complication that often arises in applying the method is that database records of a number of children cannot be linked to the record of a mother in that household. Reason may be that the mother has died or is absent and lives elsewhere as a result of separation, divorce or (temporary) migration. To avoid underestimation of fertility rates, such non-matched children are not left out of the computations but —provided their age is known— are allocated to age groups of mothers in accordance with the age distribution of children that were successfully linked/matched to their mother.

Another complication arises in areas with a high prevalence of adopted or fostered children in households. This prevalence may be the result of traditional cultural practices and/or increase in orphans in HIV/AIDS affected areas. In such situations, mothers that are linked to children may not be *biological* mothers. This will affected estimates of the mean number of 'own-children' born to women.

Figure 4.2 also shows relatively large numbers of non-matched births in each of the 15 years before the census. As children grow older the likelihood of mothers and own children living together in the same household decreases. This may partly be the effect of adoption and fosterage. The average for the period 1997-1999 can also directly be computed from figure 4.2 by averaging the TFRs for these three years. Thus, the own-children method computations suggest that women who were in the age range 15-49 years in the period 1997-1999 be expected, on average, to give birth to a total of 4.8 children. Based on 1986 census data, the own-children method estimate of TFR in the period 1984-1986, with 1985 as the reference year, resulted in an average of 6.1 children per woman (Statistics Office 1989).

It is interesting to note that the regression line estimate, shown in figure 4.2, results in an estimate of 6.5 (i.e. $(-0.141 \times 85) + 18.532 = 6.547$) for 1985, which is higher than the estimate of 6.1 for the reference year 1985 (i.e. 1984 - 1986) based on 1986 census data. This is because own children estimates based on older children, born 13-15 years before the census, are less reliable than own

Figure 4.2. Own-children method estimates of numbers of births and total fertility rates pertaining to 15 calendar years before the census



children estimates based on younger children. One of the reasons for this is that it is more difficult to link older children to their biological mother for reasons mentioned in the beginning of this section.

Table 4.3 shows that fertility has declined. Between 1976 and 1999 the average number of children women are expected to give birth to fell from 7.1 to 4.8. *Figure 4.3* shows own-children method estimates of age patterns of fertility of women in the age range 15-50 years old, for the periods 1984-1986 and 1997-1999 and based on 1986 and 1999 census data, respectively.

The decline in TFRs from 6.1 (1984-1986 average) to 4.8 (1997-1999 average) during the intercensal period apparently resulted from relative declines in fertility which were similar in magnitude for women in all age-groups leading to similarly shaped fertility curves for 1999 and 1986. Consequently, the mean age at which women give birth to children (MAC) remained about the same, at about 29.5 years, during the 13 year intercensal period. However, the figure also shows that the largest contribution to the overall fertility decline came from women below age 30.

Table 4.3. Age-specific and Total Fertility Rates estimated with the own-children method based on data from the 1976, 1986 and 1999 censuses

Age	*1976 Census (1971-75)*	*1986 Census (1985-86)*	*1999 Census (1997-99)*
15-19	126	101	72
20-24	296	280	216
25-29	336	295	246
30-34	305	252	207
35-39	237	177	136
40-44	137	84	63
45-49	45	25	28
TFR	7.1	6.1	4.8
MAC	30.3	29.5	29.5
CBR: Total	44.6	42.6	34.1
Male	44.2	42.5	34.2
Female	45.0	42.7	34.1

Figure 4.3. The age-pattern of fertility according to own-children method estimates of ASFRs, based on 1986 and 1999 census data

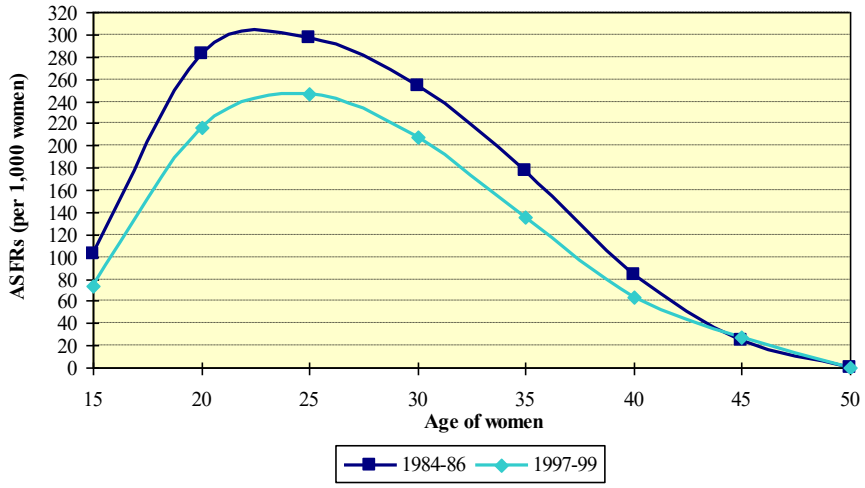


Table 4.4 presents levels and trends in estimated TFRs in the ten provinces of the Solomon Islands derived from the 1999 and 1986 census data. Central province and Rennell-Bellona are taken together because of the small numbers of estimated births involved. In the period 1997-1999 fertility levels were lowest in Honiara town council (3.4 children). TFR is also relatively low in Temotu (4.1 children) and it is highest in Malaita (5.4 children) and Choiseul (5.3 children).

Table 4.4. Levels and change in own-children method estimates of TFRs (i.e. three year averages) based on 1986 and 1999 census data, by province

Province	*1985-1987*	*1997-1999*
Solomon Islands	6.1	4.8
Choiseul[a]	-	5.3
Western	6.1	4.8
Isabel	6.1	4.8
Central + Rennell Bellona	6.0	4.9
Guadalcanal	6.1	5.0
Malaita	6.3	5.4
Makira	6.5	5.1
Temotu	5.8	4.1
Honiara	5.1	3.4

[a] Choiseul and Western province were merged in the 1986 census analyses

As can be computed from the data in the table, the decline in TFR in the period 1985-1998 was highest in Honiara and Temotu, as TFRs fell by 35 and 29 percent respectively in this period. In Malaita, the province with highest fertility according to the last census, the decrease of 14 percent was the smallest of all provinces.

The own-children method was also applied to estimate TFRs for the three main ethnic groups: Melanesians, Polynesians and Micronesians. The 1986 census analysis report (figure V.5, p. 101) shows that Melanesians and Polynesians experienced a steady decline of TFR over the period 1973-1985, i.e. from 7.5 to 6.1 for Melanesians and from 6.7 to 5.2 for Polynesians. Thus, the fertility of Polynesian women was consistently lower and its decline slightly larger than that of Melanesian

women. During the same period, the decline in fertility of Micronesians was much less: the three-year average decreased from 6.6 to 6.4.

For the period 1985-1999 the recent census data present a somewhat different pattern of decline in fertility in these three groups. The decline in fertility of Micronesians was still smaller than that observed in the other two ethnic groups. However, contrary to the earlier period, the decline in fertility of Melanesians was slightly larger than the decline of Polynesians. The differences in fertility decline of the three ethnic groups in the past 26 years has led to a situation where in the period 1997-1999 the TFR of Polynesians is lowest (4.1) and that of Micronesians highest (5.9), whereas in the period 1973-1975 the TFR of Micronesians was lowest (6.6) and that of Melanesians highest (7.5).

A closer look at estimates of ASFRs and TFRs of Micronesians produced by the own-children method reveals an erratic pattern for these estimates for the period 1985-1999, which may be partly attributable to small numbers of reversed survived Micronesian children and women.

The custom of adoption and fosterage is widespread in the Pacific region and there are indications that this also common in the Solomon Islands, and may thus affect the quality of reporting of the survival status of children and parents[14]. The application of the own children method gives some indication of the prevalence of this custom. In addition to figure 4.3, *figure 4.4* illustrates that, depending on the age of the child, a large number of children could not be matched to their 'biological' mother. If adoption and fosterage is common practice, the observed high numbers of non-matched children could be a reflection of this. In figure 4.4 so-called non-own children factors are plotted as measured in the last three censuses.

Figure 4.4. Non-own children factors resulting from own-children method tabulations based on 1976, 1986 and 1999 census data

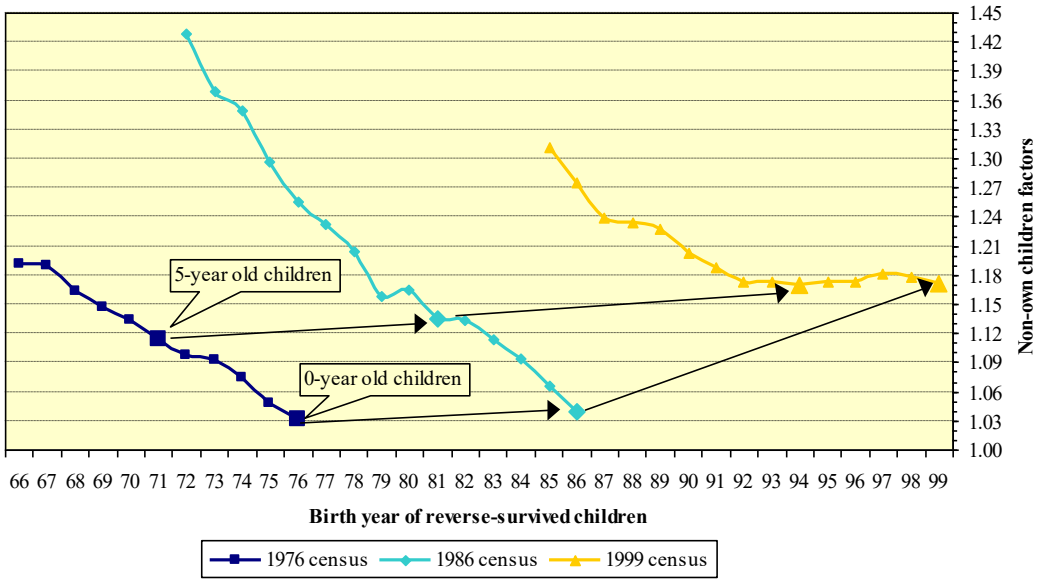


Figure 4.4 shows the following:

The level and pattern of non-own children factors based on 1976 and 1986 census data are similar and differ considerably from those computed from the 1999 census. It must be noted that for the 1976

[14] This issue is discussed in detail in the section on mortality, in particular section 4.3.1.

census only 11 non-own children factors are plotted referring to children in the age range 0-10 years, whereas for the 1986 and 1999 census 15 factors were plotted referring to children in the age range 0-14.

As mentioned before, non-own children factors increase with increasing age of children and, in general, this is applicable in all censuses. However, regarding non-own children factors in the 1999 census, the values are relatively high (i.e. 17 percent) and similar for all children in the age range 0-8 years.

Looking at non-own children factors for children of the same age in the three different censuses, all age-specific factors show an increase between 1976 and 1986. However, between 1986 and 1999, the situation is different. Age-specific non-own children factors increase for all ages between 0 and 6 years, but remain the same or decrease for higher ages.

Overall, non-own children factors are high. For the census year 1999 non-own factors are in the range 17 (for the youngest children 0-7 years old) to 31 percent (for children of age 8 and older).

4.1.4 Conclusions

The first direct method to estimate fertility - the cohort approach - led to a total of 5.6 children ever born (CEB) for women aged 40-49 years (in 1999). The second, i.e. the period approach based on the number of births in the 12 months preceding the 1999 census gave a total fertility rate (TFR) of 4.1. Application of three indirect methods produced TFRs of 4.5, 4.6 and 4.8 indicating that, as expected, the result of the direct method to estimate TFR was too low. Of the three indirect methods used, the own-children method with its resulting TFR of 4.8 in 1997-99 is the best and the most precise. One of the reasons for this is that time-series estimates of TFR show a plausible and consistent pattern of change (i.e. decline), and plausible estimates of mortality change, derived in section 4.3, are explicitly taken into account in estimating yearly numbers of births and women in the past 15 years. The method was also employed in the two previous censuses. For this reason the figure of a TFR of 4.8 and a crude birth-rate (CBR) of 34 per thousand population in 1997-99 are used as the final result. A comparison of CEB of 5.6 for women 40-49 years of age with the TFR of 4.8 implies that fertility levels are declining in the Solomon Islands.

4.2 Mortality

4.2.1 Introduction

The objective of this section on mortality is to derive estimates of the mortality levels and patterns of men and women in the Solomon Islands. A basic tool in this respect is the *life table*: a summary table reflecting the level and age pattern of mortality in a country or region. The main advantage of the life table is that it captures the values of all mortality indicators in a standardised manner so that mortality level indicators of one country can be directly compared to those of other countries, irrespective of differences in national age structures. Moreover, in the process of deriving a life table, so-called ‘survival ratios’ are computed which in turn are required for population projections.

Within the context of generating plausible life tables for the male and female population of the Solomon Islands, the focus below is on estimation of the following mortality indicators: (1) the number of years a new-born may, on average, expect to live, in short, the life expectancy at birth, e(0); (2) the chance of a new-born dying in its first year, in short, the infant mortality rate (IMR); (3) the number of years a person, on average, may expect to live after reaching adulthood, in short, the life expectancy at age 20, e(20).

The following sections explore various avenues to estimate plausible values for the level and age pattern of mortality of the Solomon Islands population. Section 4.2.2 describes a *direct* approach: the examination of recorded numbers of deaths in households in the 12 months before the census. In

section 4.2.3 mortality levels are estimated using indirect estimation methods based on numbers of children ever born and children surviving, and on the survival status of biological parents. The plausibility of mortality estimates from *direct* and *indirect* estimation methods is examined in section 4.2.4. More specifically, the plausibility of estimates of e(0) are examined in the context of prevailing health and socio-economic development indicators. This leads to the conclusion that an alternative approach should be followed to determine levels of mortality in the Solomon Islands. This alternative approach is discussed in section 4.3.1 leading to the computation of a final but tentative set of life tables for male and female Solomon Islanders[15].

4.2.2 Direct estimates of mortality

The 1999 census included a direct question on deaths occurring in the household: each household was asked whether a death had occurred in the past 12 months. If so, the age and sex of deceased persons were recorded. In principle, the numbers and distribution of deaths by age and sex, and the age and sex distribution of the population counted in the census is sufficient to derive various mortality indicators. A frequently encountered problem with the direct measurement of mortality is that deaths are generally underreported, a problem that is usually less pronounced with indirect methods. For this reason countries that have problems with accurate death reporting only include indirect census questions on mortality. The inclusion of the direct measurement of mortality in the 1999 Solomon Islands census, however, provides an opportunity to assess the reliability of indirectly obtained results by providing a minimum reference level.

In addition to underreporting, age-misreporting of deaths also frequently occurs. The level of mortality in old age, for instance, often turns out to be underestimated. Here the underlying reason is often in the age composition according to a census: people, especially old people, tend to overestimate their age. In other words, numbers of men and women in the older age groups as recorded in the census may be too high at the cost of numbers in the age group between roughly 30-65 years. As this goes hand in hand with a tendency for respondents to be more realistic when estimating the age of people who have died, age-specific death rates (ASDR) at older ages will be too low.

There were a number of problems with reported deaths in the 1999 census. Out of a total of 2,852 reported deaths there were 302 people (11 percent) of whom sex and/or age at death was not known. For the majority of these, 93 percent, only their age was unknown. To facilitate the computation of direct mortality indices, the age and sex of these 302 persons were imputed using the information of the age-sex distribution of the deaths where age was known. The sex ratio in the number of deaths is 138 men per 100 women, which is substantially higher than the sex ratio of 107 in the general population. This may reflect a genuine overall higher risk of mortality for men than for women, or a disproportionately higher underreporting of deaths of women.

The data resulting from the direct question on mortality imply a Crude Death Rate (CDR) of about 7.0 persons per thousand population[16] (i.e. 2,852/404,543), which is lower than the CDR of 10 according to the 1986 data. For the male population, the CDR appears to be 8 and for the female population 6. The reported data also enable the direct estimation of Infant Mortality Rates (IMR)[17], which appear to be 30 per thousand boys and 28 per thousand girls.

Taking the reported numbers of deaths by age and sex at face value, a set of ASDRs for men and women can be determined facilitating the computation of a life table for men and women. By

[15] The software Mortpak-lite (1988), Excel Population Analysis Spreadsheets (PAS) (1997), EASWESPOP (1992) and Manual X of the United Nations (1983) aided demographic analysis in this section on mortality.

[16] Reverse-survived census population to 22 May 1999, assuming 2.8 percent population growth rate.

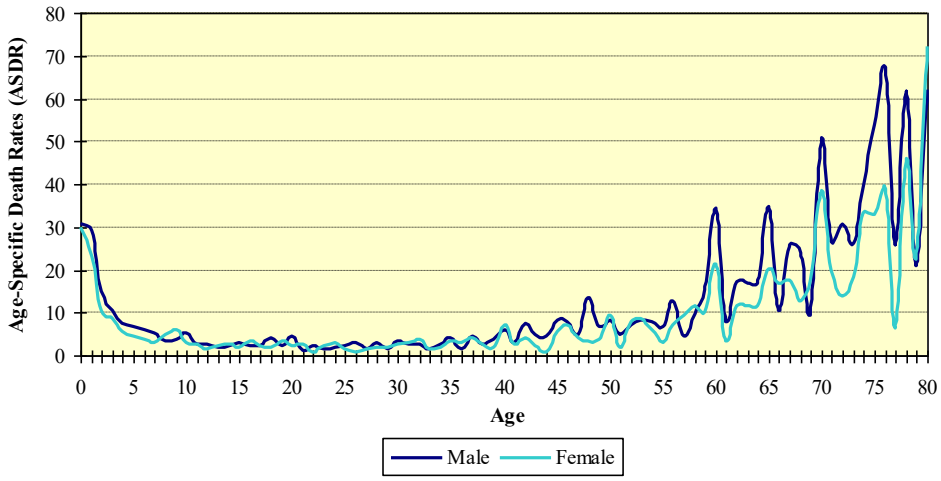
[17] I.e. the life-table ${}_1q_0$-value associated with reported set of ASDRs and assuming a Coale and Demeny Model-West age-pattern of mortality.

assuming that the age-pattern of mortality is similar to that embodied by the set of Coale and Demeny model West life tables, life expectancies at birth, e(0), are computed, leading to values of 63.9 years for men and 67.5 years for women. This compares with final estimates in 1986 of 59.9 years for men and 61.4 years for women.

A closer look at the reported mortality data shows that the above results may not be credible *figure 4.5* illustrates the main problems in the reported mortality data, being:

- Mortality rates do not drop immediately after the first birthday, suggesting that a number of children who died at an age of less than 12 months were recorded as having died at an age of more than 12 months (i.e. age-shifting). More specifically, the ASDRs of one-year-old children are 29 and 23 per thousand for boys and girls respectively. This is almost as high as the risk of a baby dying in its first year, which is not plausible. The implication is that IMRs are underestimated.
- Single-year ASDRs fluctuate between subsequent ages and this is most pronounced in ages above 40 years. Moreover, age heaping on ages at death ending on digits 0 and 5 is pronounced beyond age 40. ASDRs are expected to increase monotonically at higher ages, whereas they do not according to the figures.

Figure 4.5. Single-year ASDRs (per thousand) based on reported deaths in households in the 12 months period before the census



As mentioned above, deaths are generally underreported. To obtain some idea of by how much, it is assumed that the observed population age distribution is the result of decades of more or less constant mortality and fertility conditions[18], and that deaths are equally underreported at each age. Preston et al. (1980) developed a method to derive a mathematical equation based on an assumed population growth rate, assumed age-pattern of mortality and stable-population theory. The equation to be derived relates the total number of deaths at age x and older to the population at age x.

In the case of the Solomon Islands the age distribution of male and female deaths is taken, a population growth rate of 2.8 percent is assumed and it is assumed that the age pattern of mortality conforms to patterns found in life tables of Coale and Demeny region West. Subsequently, the

[18] Strictly speaking the constant mortality and fertility assumption does not hold, as analysis of the previous census found that mortality and fertility levels show signs of a decline. However, the method is reasonably robust to departures from this stability assumption.

equation was derived and used to estimate expected numbers of persons at age x in the population. Lastly, the ratios between observed and expected populations of age x were computed so that the relative completeness of recording of deaths could be determined.

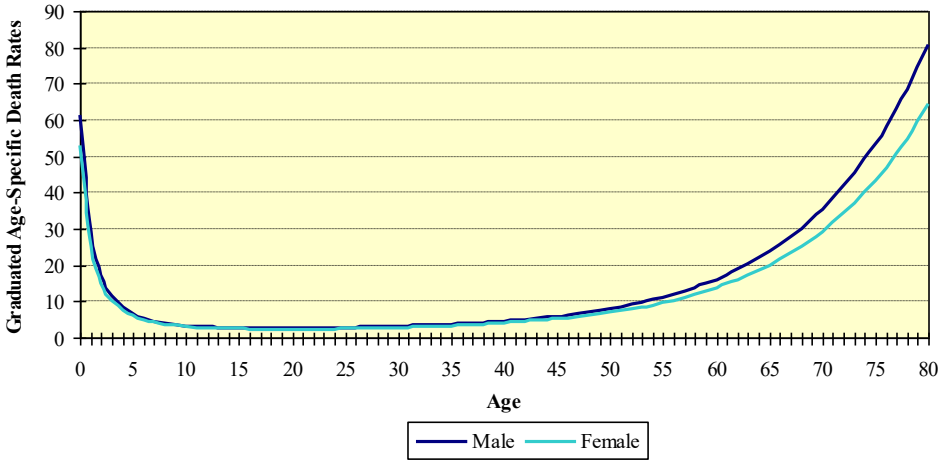
Application of the method yields the following: the average completeness of death reports in the census is about 71 percent for male deaths and 41 percent for female deaths. More specifically, reporting of male deaths was least complete in the age range 25-29 years (59 percent) and most complete (82 percent) in the age range 70-74 years. Completeness of reporting of deaths of women was lowest (33 percent) in the age-range 25-29 and most complete for older women, in particular those above age 70 (45 percent).

Overall, completeness of death reports in the census was highest for children (under 10 years of age) and people above age 60. Completeness appeared to be lowest for male and female household members in the age range 20-30 years, according to the method of Preston *et al.* (1980). The implication of this age and sex specific pattern of undercounting is that estimates of infant mortality rates are too low and estimates of the life expectancy at birth too high, notably for women.

To cope with the above shortcomings in the reported data on deaths, the reported ASDRs are graduated. The Heligman-Pollard polynomial is chosen for graduation because it fits data of a wide range of existing age patterns of mortality very well (Heligman-Pollard, 1980). To obtain graduated ASDRs, the reported ASDRs are converted into age-specific probabilities of dying ($_nq_x$). Subsequently, model parameters are estimated and used to compute graduated $_nq_x$ values. These graduated probabilities are then converted back into ASDRs.

The fitted Heligman-Pollard polynomials for male and female deaths are shown in *figure 4.6*. The figure shows that graduation leads to a more plausible age-pattern of mortality compared with those in figure 4.6. These 'graduated' $_nq_x$ values imply different life tables for men and women from those based on 'reported' $_nq_x$ values.

Figure 4.6. Graduated single-year ASDRs (per thousand) by sex using a Heligman-Pollard polynomial



Focusing on the key indicators of mortality, i.e. the level of infant mortality (IMR), the level of adult mortality, e(20), and the overall level of mortality in terms of the life expectancy at birth, e(0), the following can be concluded:

- The graduated IMR per thousand male births is 61 and is substantially higher than the reported IMR of 30. The graduated IMR per thousand female births is 53 and this too is higher than the uncorrected IMR of 28. *Table 4.5* summarises the set of reported and graduated ASDRs.
- The life expectancy at birth, e(0), associated with graduated values of ${}_nq_x$ is 61 years for men which is lower than the e(0) of 64 implied by the reported and uncorrected ASDRs. The graduated e(0) for women is 64 years, lower than the 68 years implied by the reported but uncorrected ASDRs.
- The life expectancy at age 20, e(20), is 52 years for men, compared with 53 years suggested by reported and uncorrected ASDRs. Women at the age of 20 can expect to live for another 54 years according to the graduated ASDRs, whereas the reported and uncorrected ASDRs suggest 56 years.

To conclude, the figures produced by direct methods do not provide acceptable estimates, as there is evidence that deaths have been underreported, notably deaths of women. Actual mortality rates must therefore be higher and life expectancies lower. Consequently, the direct estimate of the IMR must be a minimum value and the estimate of e(0) a maximum value. The direct measure of mortality led to underreporting of female deaths, which is higher than that of male deaths. This difference remained after graduating the reported ASDRs. Consequently, estimates of life expectancies of men and women based on reported and graduated ASDRs will show differences that are more pronounced than actual differences in the population.

4.2.3 Indirect estimates of mortality

If vital registration systems are deficient and unreliable, and censuses fail to cover the entire population and record accurate numbers of births and deaths in the preceding 12 months, an alternative method will have to be used to estimate mortality and fertility. Brass (1964, 1975) developed one of the first methods to estimate levels of fertility and mortality indirectly.

Table 4.5. Reported and graduated age specific death rates (per thousand), by sex

Age	*ASDR (reported)*		*ASDR (graduated)*	
	Male	*Female*	*Male*	*Female*
0	30	28	61	53
1-4	16	12	17	15
5-9	5	4	5	4
10-14	3	2	3	3
15-19	3	3	3	2
20-24	2	2	3	2
25-29	2	2	3	3
30-34	3	3	3	3
35-39	3	3	4	4
40-44	5	4	5	4
45-49	8	5	7	6
50-54	7	7	7	6
55-59	9	8	13	11
60-64	20	13	19	16
65-69	21	17	28	24
70-74	35	24	41	34
75-79	45	29	63	51
80+	107	88	99	81

Below, different indirect methods are used to estimate infant, adult and overall mortality levels. Indirect methods relate answers to specific questions posed in censuses or surveys to mathematical models of fertility and mortality in order to estimate levels of mortality and fertility.

To facilitate comparison of our results with those of previous censuses, in particular the 1986 census, it is assumed below that age patterns of mortality of Solomon Islanders resemble those in model West life tables of the Coale and Demeny (1966) system of model life tables.

Estimating child mortality from information on children ever born and children surviving

Brass (1964, United Nations 1983) developed a procedure to convert proportions of dead children experienced by women in age groups 15-19, 20-24, et cetera into estimates of the probability of a child dying ($_xq_0$) before attaining certain exact age (i.e. before ages 1, 2, 3, 5, 10, 15 and 20). He found that the reported proportions of dead children are primarily a function of the age pattern of fertility of women, and more specifically of the mean age at childbearing. Depending on the mean age at childbearing in the population, a set of multipliers was derived to facilitate conversion of observed proportions of dead children in each age group of women into life table probabilities of dying. Later, Coale and Trussell (1974) derived new sets of multipliers using a wider range of empirical evidence to underpin the values that multipliers take on. The assumption of the Brass method of constant fertility and mortality can be relaxed if the rate of mortality decline is known and more or less constant over time. If so, the different probabilities of dying that are estimated can be exactly located in historical time so that a series of estimates of the IMR and, by extrapolation, e(0) can be deduced. It has been found that the probabilities of dying $_2q_0$, $_3q_0$ and $_5q_0$ are most reliable and these values are generally taken to estimate the mortality in early childhood, notably the IMR.

4.2.3.1 Childhood mortality

Infant and child survivorship can be estimated indirectly by examining answers of women aged between 15 and 50 years regarding numbers of children ever born and numbers of deceased children. When classified by the women's age, these numbers facilitate the computation of mean numbers of children ever born, mean numbers of children surviving and mean proportions of dead children.

For ease of interpretation, in *table 4.6,* the proportions of dead children as reported in the four recent censuses are expressed as numbers of dead children per thousand live births. The table shows that in the past 30 years women of all age groups apparently experienced a decline in mortality among their children. The average decline in numbers of dead children between 1970 and 1999 reported by women aged 15-49 years was almost 75 percent. Focusing on the latest period, 1986-1999, the average decline in reported deaths among children of women aged 15-44 appears to be about 35 percent.

Table 4.6. Number of dead children among children born alive to women in different age groups, expressed per thousand children born alive

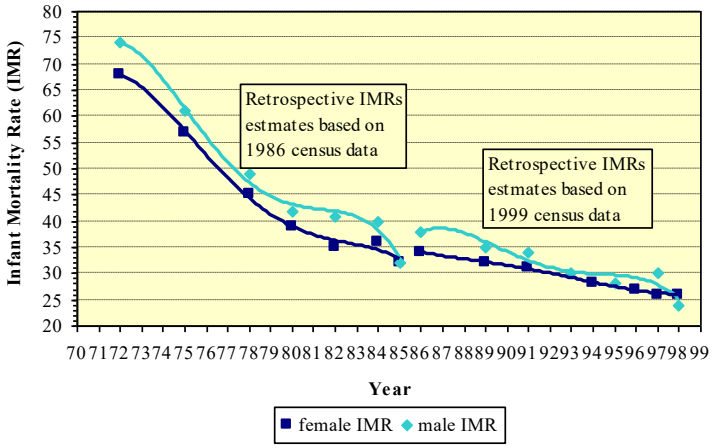
Age group	*1970*[a]	*1976*[b]	*1986*[b]	*1999*[c]
15-19	69	57	33	22
20-24	87	62	40	28
25-29	115	80	44	31
30-34	145	109	52	35
35-39	173	142	65	42
40-44	213	167	90	46
45-49	241	221	124	56

[a] Melanesians and Polynesians only
[b] Melanesians, Polynesians, Kiribati and Chinese only
[c] Total population

The reported proportions of dead children in each age group of women in 1999 and 1986 were converted into probabilities of dying before attaining certain exact childhood ages. Each of these probabilities implies a particular infant mortality rate. The implied two sets of infant mortality rates (i.e. based on 1999 and 1986 data) are plotted in *figure 4.7*. As children born to older age groups of women, on average, were exposed longer to the risk of dying, the derived estimates of IMRs refer to periods, which are situated further in the past relative to the date of the census. The resulting IMRs, including the approximate reference period, were computed from the 1999 as well as the 1986 census data.

Figure 4.7 shows that infant mortality rates have been declining since the early 1970s, from as high as 68 and 74 per thousand girls and boys respectively, to 24 and 26 per thousand in the 1990s. The suggested decline was steepest in the 1970s and levelled off in the 1980s and 1990s. However, the

Figure 4.7. IMR estimates and fitted trend lines based on reported proportions of dead children by sex in each age group of women, derived from indirect estimation method



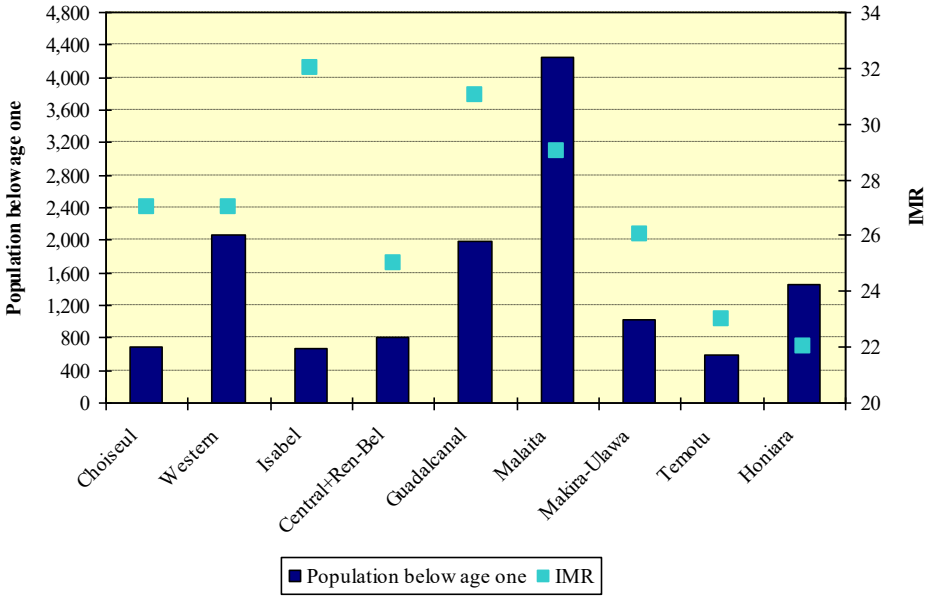
results should be interpreted with due caution: it is generally acknowledged that the credibility of reported proportions of dead children by the youngest and older age groups of women are least reliable. In general, proportions reported by women in the age-group 20-24 are considered most reliable, because births as well as deaths will have occurred more recently and misreporting is least likely to occur. These proportions suggest that the IMRs for boys and girls were 36 and 40 per thousand around 1984 and had fallen to 26 and 30 respectively per thousand by 1997.

It is important to note which life expectancies at birth the IMRs imply. To do this an assumption must be made about the age pattern of mortality, namely that it conforms to patterns embodied in the region West model life tables of Coale and Demeny. Unless there is good reason to believe differently, region West model life tables are generally representative for age-patterns of mortality. Consequently, the implied life expectancy, e(0), is 68.1 years for girls and 67.0 years for boys born around 1984. The lower IMRs realised by 1997 imply higher life expectancies, that is 70.7 years for boys and 69.7 years for girls. Based on information on child survivorship data alone, this implies an improvement of 2.6 and 2.7 years in the life expectancy at birth of girls and boys over a period of 13 years.

Estimates of infant mortality were made for the various provinces of the Solomon Islands, based on the reported proportions of dead children among 20-24 year old women. Figure 4.8 shows that the level of infant mortality is lowest in Honiara province and highest in Isabel province. The figure also reports for each province the numbers of children that have not yet reached their first birthday. If they are accurate, such rates, in combination with the actual numbers of children below age 1, could be

important for health policy-makers as the costs of health improvements of infants (and children) are expressed 'per infant'. Unfortunately, the IMRs presented in figure 4.8 are unlikely to be close to reality so that such cost computations cannot be made. Under the assumption that the degree of underreporting of deaths among infants and children is the same in all provinces, figure 4.8 reflects inter-provincial differences in levels of IMRs.

Figure 4.8. Estimates, derived from indirect methods, of numbers of children under one year old and IMRs per thousand live births, by province



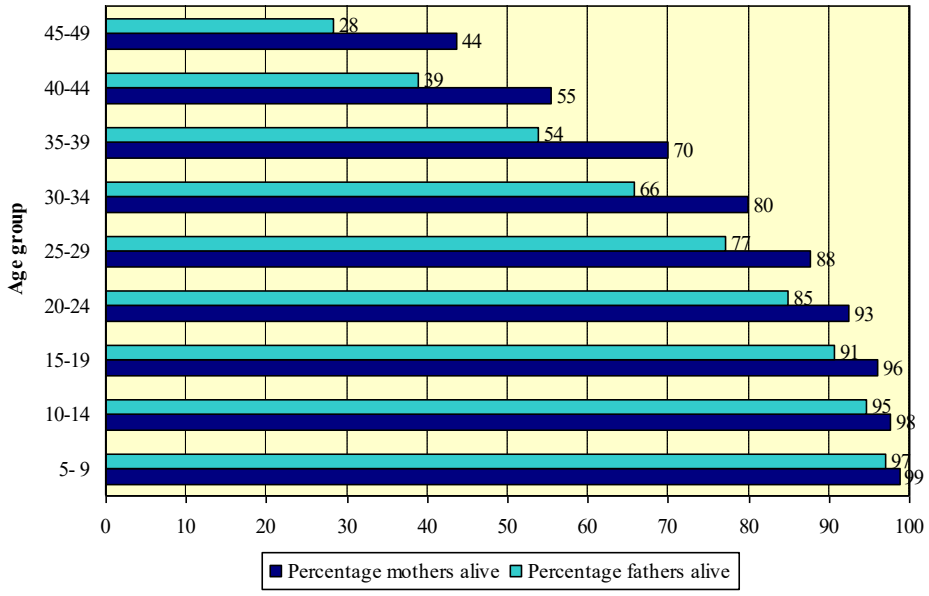
Although IMRs do not vary much between provinces, the provincial level estimates of IMRs in combination with actual numbers of children help to set priorities for the allocation of central government health budgets. For instance, the IMR is higher in Isabel province than in Choiseul, Central province (including Rennell-Bellona) and Temotu, although numbers of children below the age of one year old are about the same in all provinces. Infants in Isabel province deserve some extra attention when funds to improve health are allocated.

4.2.3.2 Adult mortality

The census questionnaire included questions on whether respondents' mothers and fathers were still alive. The answers of persons in the age range 15-54 years to these seemingly simple questions can yield indirect estimates of adult mortality.

In the case of the Solomon Islands, the age range of respondents for which survivorship of parents is examined is 5-49 years. *Figure 4.9* shows that in all age groups of respondents the percentage of respondents who report that their (biological) mother is still alive is higher than the percentage who report that their (biological) father is still alive. More than half of respondents in their early forties report that their mother is still alive, whereas only 39 percent report that their father is still alive.

Figure 4.9. Percentage of respondents reporting that their mother and/or father were alive at the time of the census in 1999, by age



Age misreporting and the custom of adoption and fostering are important factors influencing the proportions of respondents who report that their mothers and father are still alive. For instance, if the socialisation process of individuals in a particular society recognises the special role of non-biological or adoptive parents, then the apparently simple question on maternal and paternal survival will prove very difficult to answer. Respondents who have been adopted may refer to the survival status of their adoptive parents, not their biological parents. The likelihood of adoptive parents still being alive is by definition greater than that of biological parents. Consequently, the proportion of biological parents who are no longer living is underreported. This results in an overestimation of conditional probabilities of survival and too high estimates of life expectancies at adult ages. Adoption and fostering are common practices in the Pacific and the issue is taken up again in section 4.3.1.

Estimating adult mortality from orphanhood data

Brass (1974, United Nations 1983) developed a method whereby the reported proportions of respondents in two contiguous five-year age groups reporting that their mother was still alive at the time of the interview are converted into conditional probabilities of surviving from age 25 to age 35, 40, 45,…, et cetera. Similarly, but with a different age range because of the different age range of the reproductive life of men, conditional probabilities of survival of fathers are estimated from age 32.5 to 42.5, 47.5, 52.5,…, et cetera or from age 37.5 to 47.5, 52.5, 57.5,…, et cetera depending on the local situation.

For each five-year age group the reported proportions of respondents with a surviving mother or father is multiplied by a particular factor. Factors are based on outcomes of simulation studies using particular model mortality and fertility schedules. Hill and Trussell (1977) and Timaeus (1992) refined Brass' original method. The method assumes that men and women who do not have children have the same mortality characteristics as those who do. In situations where mortality levels change and the extent of change is known, the probabilities of survival provided can be computed as referring to a particular time in the past. Manual X of the United Nations (1983) discusses other assumptions of the method.

An important limitation of the method is that estimates of adult mortality levels do not refer to the most recent years. The younger the age group of respondents, the more recent the period to which mortality estimates of parents refers. Response of persons aged 15-19 years will usually have to be discarded. The reports of maternal and paternal survival of respondents in age groups 20-24 and 25-29

years lead to estimates that refer to a time at least eight years prior to the survey (Timaeus and Graham 1989, Timaeus 1991).

In spite of these limitations and assumptions, the maternal and paternal orphanhood methods were applied to the data of the 1986 and 1999 census to estimate levels of adult mortality, that is e(20) for the male and female adult population. The most recent set of factors available was used (Timaeus 1991) to carry out the required computations. Although it is not conventional to deduce estimates for life expectancy at birth, e(0), and Infant Mortality (IMR), 1q(0), by extrapolation within life tables associated with particular levels of e(20), we did so here to investigate how these estimates compare with those resulting from application of the methods in the previous sections.

Table 4.7 presents the results of two different versions of the maternal and paternal orphanhood method. The outcomes differ because the methods are based on different sets of multipliers. The results of the Timaeus version are considered to be more reliable on theoretical grounds and because older versions of the paternal orphanhood method contained errors in the tabulation of weighting factors (Timaeus 1992).

Table 4.7. Estimates of life expectancy at age 20, e(20), and at birth, e(0), for men and women using different versions of the maternal and paternal orphanhood method[a]

Method	*e(20)*		*e(0)*	
	Male	*Female*	*Male*	*Female*
Hill-Trussell (1983)	50.5	51.8	64.4	67.9
Timeus (1992)	50.7	53.2	65.8	69.2

[a] Based on answers of respondents 20-30 year old

As mentioned above, estimates of adult mortality based on information collected in 1999 do not refer to mortality levels in recent years. The estimated number of years to live for persons who had reached the age of 20 by 1989 was about 51 years for men and 53 years for women. To compare the results of the different methods in this chapter, an estimate of life expectancy at birth, e(0), was extrapolated from these estimates of adult mortality for these reference years. Boys born in 1989 could expect to live to about 66 years and girls to 69 years. As stated before, if adoption and age misreporting are significant, the proportions of respondents with surviving fathers and mothers may be overestimated and the values of e(20) and e(0) are thus too optimistic.

4.2.3.3 Synthesis of childhood and adult mortality

Apart from being valuable in their own right, estimates of childhood and adult mortality are also valuable for constructing life tables for the Solomon Islands population. Life tables are essential to make population projections based on cohort component methodology. They reflect a hypothetical population characterised by the same age and sex-specific mortality rates observed in our census population, but in which every year 100,000 persons are born. The observed mortality rates are applied to these new-borns and the survivors of birth cohorts in previous years, leading to a life table population in which for each person the number of person-years to live after reaching age x can be determined. The latter is called life expectancy at age x. The value of the life table is that the effect of the overall mortality level as well as age-pattern of mortality is presented in a standardised manner so that the age-specific mortality characteristics of one population (i.e. Solomon Islanders) can be compared with that of others. The main summary indicators of the life table are the IMR (1q0) and life-expectancy at birth, e(0).

If observed ASDRs are unreliable (see section 4.2.2), and only indirect estimates of mortality at the lowest ages and indirect estimates of adult mortality at some adult age are available, then an approach is required that substitutes for the absence of estimates of mortality at the remaining ages. Various

approaches can be followed to generate a life table that results from combining indirect estimates of childhood mortality (section 4.2.3.1) and indirect estimates of adult mortality (section 4.2.3.2). Here a similar approach is followed as in 1986. The method to generate a composite life table is explained in the text box 'Construction of composite life table'.

It must be remembered that, strictly speaking, the resulting composite life tables pertain to some ill-defined reference period, because the reference period for childhood mortality estimates (e.g. l(1), l(5)) reflect the situation around 1997, whereas the adult mortality estimates of e(20) reflect mortality conditions around 1989! Consequently, the composite life tables below would be acceptable if the third assumption made in the construction of a composite life table regarding the shape of the mortality function is considered realistic and mortality levels have not changed between 1989 and 1999.

Construction of Composite life table

The method to generate a composite life table essentially boils down to the following:

1. Derive estimates of l(1) and l(5) based on estimates of 1q0 (=IMR) and 4q1 (=probability of dying before exact age 5 after survival to exact age 1) implied by the reported proportions dead for respondents in the age-group 20-24. The values that were deduced were 1q0(males)=.029 and 1q0(females)=.026, and 4q1(males)=.007 and 4q1(females)=006. Therefore,

   $l(1)_{males}$ = l(0) - (1q0 × l(0)) = 100,000 - (.029 × 100,000) = 97,100

   $l(1)_{females}$ = l(0) - (1q0 × l(0)) = 100,000 - (.026 × 100,000) = 97,400

   $l(5)_{males}$ = l(1) - (4q0 × l(1)) = 97,100 - (.007 × 97,100) = 96,420

   $l(5)_{females}$ = l(1) - (4q0 × l(1)) = 97,400 - (.006 × 97,400) = 96,816

2. Accept e(20), in our case the values generated by the Timaeus version of the orphanhood method, that is: $e(20)_{male}$=50.7 years and $e(20)_{female}$=53.2 years.

3. Create a composite life table for men and women by fitting a model age pattern of mortality that uses the estimates in (1) and (2) as reference points. The assumption was made that the ultimate shape of the fitted model age pattern of mortality resembles age patterns found in region West model life tables of the Coale and Demeny model life table system (United Nations 1983 and United Nations 1988).

According to the composite life tables, around 1997 the implied estimate of the life expectancy at birth, e(0), for men was 66.9 years and for women 70.2 years. The level of adult mortality, in terms of e(20), is estimated to be 50.7 years for men and 53.2 years for women. The implied level of the Infant Mortality Rate (i.e. 1q0) is 29 per thousand for boys and 26 per thousand girls born.

4.2.4 Conclusions

So far, levels of major mortality indicators have been estimated with different methods and using different types of data collected in the census. *Table 4.8* summarises the results. The table shows some interesting findings.

Analysis of the data based on the *direct* question posed to the household about deaths occurring in the past 12 months leads to higher infant mortality rates and lower life-expectancies at birth than estimates based on *indirect* questions on child survivorship and survivorship of parents (i.e. maternal and paternal orphanhood). This is quite remarkable because in most cases direct questions on deaths in the household result in underreporting of deaths. In section 4.2.2 this underreporting of deaths was indeed diagnosed, most notably of female deaths. Consequently, it is concluded that values of IMR and e(0) as computed from direct questions must be considered as borderline values, that is, that the actual IMR

will be higher than the direct estimate and the actual e(0) will be lower. Moreover, we conclude from this that estimates based on indirect questions led to underestimation of mortality, in particular at the youngest ages, and to over-optimistic estimates of life expectancy at birth.

It is important to note in table 4.8 that the direct but uncorrected estimate of the IMR is already higher than the indirect estimate of IMR based on child survivorship data. However, the direct estimate of adult mortality leads to somewhat higher estimates for e(20) than the indirect methods, which may indicate underreporting of adult deaths in the previous 12 months. These unexpected and contradictory findings produced by the different types of methods raise questions about the plausibility of the mortality estimates derived by the standard approaches used in the previous sections.

Table 4.8. Overview of estimates of major mortality level indicators using different methods

Estimation method	*Estimates*								
	IMR (per thousand)			*Life expectancy at age 20 (e(20))*			*Life expectancy at birth (e(0)*		
	Male	*Female*	*Year*	*Male*	*Female*	*Year*	*Male*	*Female*	*Year*
Direct estimation:									
Reported ASDRs	31	30	1999	53.2	55.9	1999	63.9	67.5	1999
Graduated ASDRs (Heligman-Pollard 1980)	61	53	1999	51.9	54.3	1999	60.9	64.1	1999
Indirect estimation:									
Childsurvivorship data:									
(Hill-Trussel 1977)	29	26	1999				69.7	70.7	1997
Adult survivorship data*:*									
(Hill-Trussel 1983)				50.5	51.8	1989	64.3	67.9	1989
(Timaeus 1992)				50.7	53.2	1989	65.8	69.2	1989
Child+adult survivorship data:									
(Composite lifetable, UN 1983)	29	26	1999	50.7	53.2	1999	67.0	70.2	1997

So far, it is concluded that indirect estimates of IMR based on 1999 census data may be too low and that estimates of life expectancy at birth, e(0) in the range of 69-71, may be too high. The IMRs and e(0) values derived by graduating reported deaths by fitting a Heligman-Pollard mortality model, probably come closer to reality of actual but yet unknown mortality levels of Solomon Islanders. The implication of this tentative conclusion is that *infant mortality rates (IMR) may be at least twice as high* and *life expectancies at birth considerably lower* than calculated on the basis of indirect techniques. This is contrary to estimates reported elsewhere (i.e. World Bank, United Nations) and lead us to search for further evidence and a different approach to make more plausible estimates of mortality. This is the subject matter covered in the next section.

4.3 An alternative method to estimate mortality

4.3.1 Regional and socio-economic context of mortality

To improve our knowledge about what might be more plausible values for the aforementioned mortality indicators it was decided to:

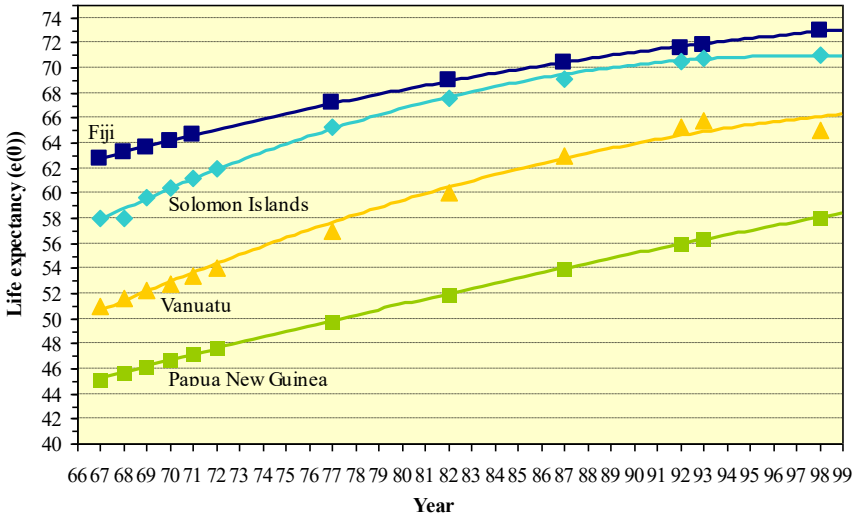
Examine past trends in mortality in the region according to the statistics of international organisations with particular reference to the position the Solomon Islands.

Examine the level of mortality and levels of selected indicators of health and socio-economic development for a large number of countries and investigate how the Solomon Islands is positioned relative to other countries.
Examine cultural practices of Solomon Islanders that may affect the underreporting of mortality.

Figure 4.10 shows trends in e(0) in the country and region as adopted by UNDP and World Bank (UNDP 2000, World Bank 2000). According to these organisations, the life expectancy at birth for Solomon Islanders (both sexes combined) increased from about 58 years in 1967 to about 71 years by 1998. Compared with the values reported in table 4.8, these organisations apparently adopt a value of e(0) in 1998 that is about two years higher than the values that were found using indirect estimation methods (i.e. about 69 years, both sexes combined, based on composite life table).

The estimate of 71 years for the year 1998 adopted by UNDP and World Bank is more than 8 years higher than the direct estimate based on graduated reported ASDRs (i.e. about 62.5 years, both sexes combined). This is remarkable because, as was concluded in 4.2.2, a value of 62.5 years for e(0) is to be considered as a *maximum* value around 1998. Although our indirect estimate of about 69 years lies

Figure 4.10. UNDP and World Bank estimates of life expectancy at birth, e0), and fitted trend-lines for the population of the Solomon Islands and selected countries in the region, period 1967-1998



below that of these international organisations, this value must also be considered too high. Our conclusion that (all) indirect estimates of mortality are likely to be far too low builds on the premises that our direct mortality estimate is the appropriate yardstick. But what if other yardsticks are used?

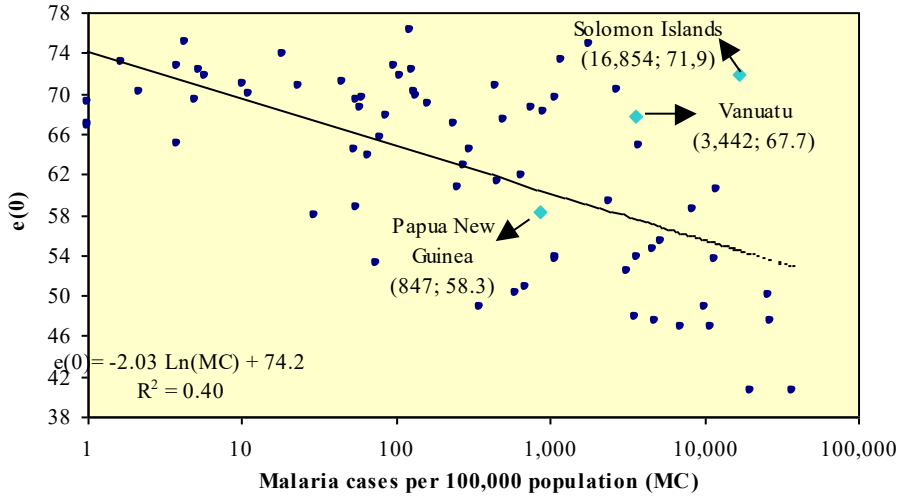
Another approach to examining the plausibility of our indirect mortality estimate of e(0) for the Solomon Islands population (i.e. 69 years) and those adopted by international organisations (i.e. 71 years) consists of relating e(0) to indicators of health and socio-economic development for a large number of countries. The pattern of association between e(0) and these development indicators, and of the position of the Solomon Islands is of particular interest. The following benchmark indicators were selected from the UNDP *Human Development Report 2000* databases (UNDP 2000):

1. The incidence rate of malaria in 1998 per 100,000 population;
2. The index of education as defined within the context of the Human Development Index (HDI);
3. The index of Gross Domestic Product (GDP).

The malaria incidence rate was chosen because the disease is an important cause of death on the Solomon Islands and because malaria is particularly lethal for children and is thus of particular interest when levels of IMR and e(0) are examined (WHO 2000, UNICEF 2000). Incidence of malaria in the Solomon Islands is very high, in particular of the most lethal Plasmodium Falciparum type. The overall incidence rate in 1998 was 169 per thousand population, a rate similar to rates found in Sub-Saharan Africa where the highest incidence rates in the world are found (Ministry of Health 1999, UNDP 2000). Estimates based on the Solomon Islands National Malaria Control Programme and updated population figures from the 1999 census even suggest an incidence rate of 185 per thousand population in 1998 (see section 7.4. of this report).

Figure 4.11 illustrates how values of e(0) are associated with malaria incidence in 75 countries for which data are available. As many more malaria cases are reported in some areas than in others, a logarithmic scale is used to be able to capture the data of all countries in one graph. As compared with other countries where malaria is prevalent, the Solomon Islands is clearly an outlier in the figure as it combines a very high e(0) with a very high incidence of malaria suggesting that the UN estimates of a life expectancy of 71 years and life expectancy of 69 years, as calculated with our indirect methods, are probably too high.

Figure 4.11. Relationship between malaria incidence rates and life expectancy at birth, based on data of 75 countries in the world in 1998



Level of education and gross domestic product (GDP) can be considered as underlying factors that have implications for health, morbidity and mortality. For 174 countries considered in the *Human Development Report* levels of life expectancy at birth, education and GDP are combined to give an index value to rank countries. Indices of life expectancy at birth, education and GDP in *Figure 4.12* and *figure 4.13* take on values between 0 (lowest) and 1 (highest).

Figure 4.12. Association between (index of) level of education and (index of) life expectancy at birth, e(0), in 174 countries in the world in 1998

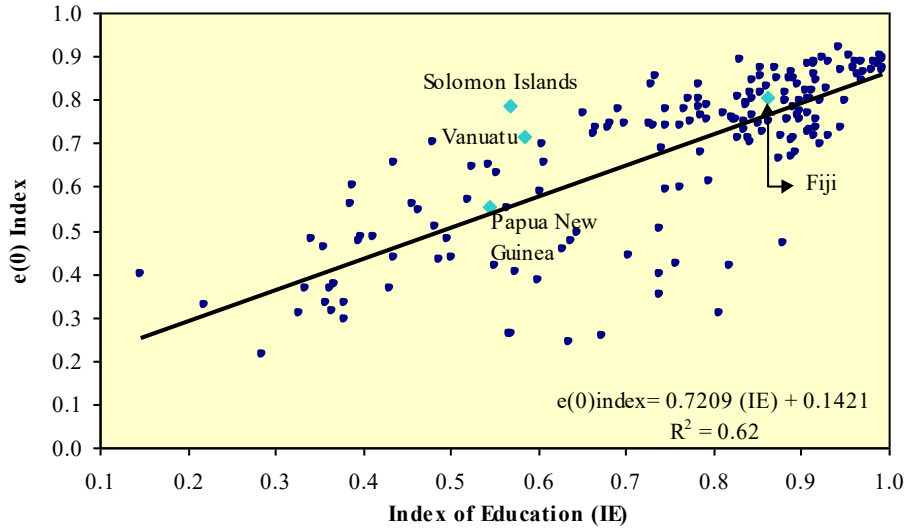
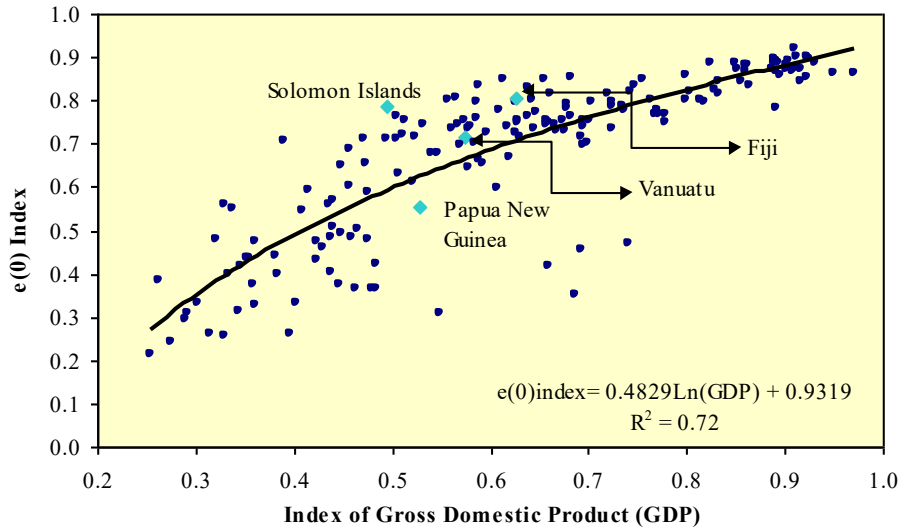


Figure 4.13. Association between (index of) gross domestic product (GDP) and (index of) life expectancy at birth, e(0), in 174 countries in the world in 1998



The figure 4.12 and figure 4.13 capture the relationship between life expectancy at birth and level of education[19] and between life expectancy at birth and per capita gross domestic product in US dollars, respectively. From these figures we can draw the general conclusion that levels of education and GDP per capita and life expectancy at birth show a positive relationship. However, in relation to levels of education and GDP per capita, the estimate of life expectancy at birth in the Solomon Islands is atypically high. With respect to neighbouring and culturally close countries, it puts the Solomon Islands between Vanuatu and Papua New Guinea with respect to attained levels of education. However, the estimate of the life expectancy at birth for the Solomon Islands places the country between countries with much higher levels of life expectancy at birth than those prevailing in these two neighbouring countries. Figure 4.13 shows that compared with Fiji, Vanuatu and Papua New

[19] The index of education consists of a combination of attained levels of adult literacy and levels of primary, secondary and tertiary school enrolment.

Guinea, the GDP per capita in the Solomon Islands is lowest. However, its life expectancy at birth ranks as second highest among these countries.

Another avenue to assess the plausibility of high e(0) resulting from indirect estimation methods is to look at certain cultural practices which may be typical for the Solomon Islands. Observed differences in mortality estimates derived from direct and indirect mortality estimation in table 4.8 may result from the effect of certain cultural practices, such as adoption and fostering, on the response to certain census questions. More specifically, adoption and fostering will impact on the calculation of mortality rates, in particular the rates based on answers to indirect questions on the survival status of own children and own biological parents. Adoption is defined as the permanent assignment of a child to new parents, which may or may not entail breaking ties with the old ones. Fostering is the temporary assignment of a child to new parents and, therefore, implies the return at some point in time of the child to the biological parents (Keesing and Strathern 1998).

Many anthropologists have drawn attention to the fact that adoption and fosterage are very common on Pacific islands, for example: "... Oceanic societies … are well known in anthropological literature for the frequency and apparent casualness of adoption" (Terrell and Modell 1994, p. 156); "In parts of Polynesia, adoption is so frequent as to be almost the normal form …"(Keesing and Strathern 1998, p. 237). In addition, two volumes dealing with various aspects of adoption in Pacific island societies by Carroll (1970) and Brady (1976) underscore the importance of this form of kinship structure in this part of the world. Quantitative data on the frequency of adoption in Pacific islands have been summarised by Silk (1980). She concludes from her review of census or survey data collected in about 20 anthropological studies that: "…adopted children represent up to 31 percent of the population of some Oceanic societies…. These figures demonstrate that adoption is a common practice in Oceanic societies" (Silk 1980, p. 803).

Momberg (1970) carried out a quantitative study in the Solomon Islands. He conducted a census in Bellona in 1966 and found that of the 366 children under 16 years, 27 percent were publicly recognised as living under conditions of adoption and 3 percent under conditions of fosterage. However, most adopted children also lived with their biological parents from time to time (Momberg, 1970). The frequency with which adoption occurs in the Pacific region and, therefore, probably also on the Solomon Islands raises the question if and to what extent it influences mortality rates calculated with indirect methods. This applies in particular to the 'children ever born - children surviving' ratio to estimate infant mortality, and to proportions of respondents stating that their biological parents are still alive on which estimates of adult mortality are based in the orphanhood method. Several authors such as Timaeus (1991, 1992) and Haberkorn (1997) have mentioned that adoption and fosterage can bias mortality rates.

What may happen, for example, in the estimation of infant and child mortality rates is that adopted children are counted as own children twice: by the natural parents and by the adoptive parents, but are only counted once when they die (Jorari, personal communication). A similar and more important bias can take place with respect to application of the maternal (or paternal) orphanhood method. Census enumerators were instructed to specifically ask whether respondents' *biological* parents were still alive, but in practice enumerators may have simplified the question by leaving out the specification 'biological'. Furthermore, respondents may not be aware that their adoptive parents are not their natural parents. In many cases, therefore, answers to the question about the 'alive' status of parents will refer to the adoptive rather than the natural parents.

Also, if the adoptive mother and the natural mother are not of a similar age, their risk of dying will not be similar. Most importantly, a child may have been adopted because one or both of its natural parents have died, which will not be recorded if the respondent is not consciously aware of his or her adoption status. The effect of the above may be that too many respondents report that their parents are still alive

while they are not (see figure 4.9). This will lead to estimates of adult mortality levels that are too low and life expectancies at birth that are too high.

The effects of adoption and fostering customs may be less important in the recording of deaths occurring in the households in the previous 12 months. Although underreporting will be prevalent in the direct measurement of deaths, indirect methods will be affected relatively more by underreporting of deaths because of widespread adoption and fosterage, explaining the relatively large discrepancies of outcomes of the two types of mortality estimation approaches in table 4.8.

We like to conclude this review on the relationship between estimates of mortality levels in the Solomon Islands and prevailing levels of socio-economic development, health conditions and cultural practices regarding adoption and fostering as follows: high values of e(0) in the range of 69-71 years and levels of infant mortality in the range of 25-30 deaths per thousand children in the first year of life, are not plausible.

4.3.2 Plausible estimates of mortality by an alternative method

The analyses in the previous section thus suggest higher current and past mortality rates. However, such higher mortality rates must of course be reconcilable with estimated rates of fertility and (international) migration. As it appears, flows of international migration are negligibly small and are not considered to have influenced demographic change in the period 1986-1999 (see section 5.3 of this report). The estimation of demographic change during this period thus largely boils down to estimating changes in rates of natural increase, that is rates of fertility and mortality.

The alternative method to mortality estimation, to be discussed in detail below, is based on the following reasoning:

- If age misreporting and differences in undercounting in the 1986 and 1999 censuses are absent and if the populations in both censuses are closed to international migration, the age distribution of the 1999 census population can be predicted by projecting the reported 1986 census age distribution to the year 1999. To make that projection use can be made of own-children estimates of fertility levels in the intercensal period and an appropriate life table reflecting the *average* level and age pattern of mortality during the intercensal period. The task is to find, through simulations with cohort component projections, an *average* model life table that minimizes the difference between the 1999 census population as counted and the 1999 census population as predicted.
- Another way of looking at the aforementioned 'intercensal life table' is to think of this lifetable as representing the level and pattern of mortality prevailing in the calendar year halfway the intercensal period. If we assume that mortality has decreased in the 1986-1999 period, what then would be the rate of decrease, or, in terms of e(0), what would be the marginal increase of e(0) per year in the period 1986-1999? The task would be to find time-series estimates of e(0) for the Solomon Islands. By fitting a regression line to this time-series, the 'slope' indicator of the regression line would then be an estimate of the yearly change in e(0). The 'slope'-indicator for the yearly change in e(0) in combination with the derived 'average' intercensal life table associated with the calendar year halfway between the two censuses can be used to derive a second regression line. This time-series regression line essentially describes the (linear) change in e(0) between 1986 and 1999. Substitution of different values for the independent variable leads to estimates of e(0) for different calendar years.

Let us elaborate on this outline. The projection assumptions are:

1. The Solomon Islands population is essentially closed to migration in the period 1985-1999;
2. The 1984-1986 own-children (see previous section) estimate of the level (TFR=6.1) and age pattern of fertility give a fairly precise description of levels of fertility in 1985. Similarly, the 1997-1999

own children estimate of TFR (4.8) and concomitant age-pattern of fertility are considered to be representative for fertility levels in 1998;

3. For reasons that will become clear below an even more conservative projection assumption was adopted in the projection exercises by assuming that a TFR of 4.8 would only be reached by mid 2000 instead of mid 1998.

Mid-year 1985 was chosen as the base-year for all projection simulations. Based on 1986 census analysis data, the November 1986 population was reverse survived by age and sex to midyear 1985, assuming an annual rate of natural increase of 3.2 percent (Statistics Office 1989). Then, the mid-year 1985 population by age and sex was projected to midyear 2000, using the cohort component method (CCM). Reverse survival of the November 1986 population was done to midyear 1985, and not midyear 1986 because own-children fertility estimates from the 1986 census essentially refered to the the situation in 1985. Moreover, the November 1999 population was reverse survived to midyear 1999, assuming an annual population growth rate of 2.8 percent. Although projections were actually carried out over three 5-year projection intervals, results for single-year projection intervals could easily be derived through interpolation. In this way a prediction of the midyear 1999 population was made. Several projections were made each using the same fertility assumptions but different mortality assumptions. Projection simulations continued until a set of life tables was identified resulting in minimal differences between the projected 1985 population to midyear 1999 and the reverse survived November 1999 census population to midyear 1999.

An obvious limitation of the approach is that results of simulations are affected by the extent to which age misreporting in 1986 differ from those in 1999. Results are also affected by differences in under- and overcounting between the 1986 and 1999 census and the extent to which such errors are age and sex specific. Moreover, because age patterns also changed in the 14-year period between 1985 and 1999, exact prediction cannot be expected. However, this was not considered to be a major drawback, as our task was to find a (model) life table that minimised the difference between the counted and projected population.

Although a number of simulations were done, the mortality assumptions of only three projections are discussed here. For the first simulation, the 1986 life tables for men and women published in the 1986 census analysis report (Statistics Office 1989, p. 120) were used to project the base year mid-1985 population to mid-year 2000. Although it may seem unrealistic, it was assumed that the reported level and age pattern embodied in these tables did not change during the projection period of 15 years (i.e. constant mortality assumption).

In fact, two approaches were tested, and the one leading to the most precise projection results was adopted. This was the one that assumed an age pattern of mortality that conforms to patterns observed in the Coale and Demeny model West life tables (see *table 4.9*). The other approach started out by capturing the level and age-pattern of the lifetables derived by 1986 census analysts (Statistics Office 1989, p. 120) in the form of a two-parameter Brass model life table[20]. Subsequently, these Brass lifetables were used in the projection simulations. Both approaches assumed a level and age pattern of mortality associated with values of e(0) of about 59.9 years for men and 61.4 years for women. This seemingly unrealistic assumption of constant mortality led to the remarkable finding that the projected population from midyear 1985 to midyear 1999 was, depending on the approach followed, about 8,000 to 10,500 persons higher than the reverse survived 1999 census population to midyear 1999. In fact, the projected 1985 population to midyear 1999 was also about 3,500 to 6,000 persons higher than the number of persons counted in census, late November 1999 (i.e. 409,042 persons of which 211,381 men and 197,661 women). Strictly speaking, the differences would even be larger because the life-

[20] Brass logit life tables, based on the General Standard, with the following values: α(males)= -.5681 and β(males)= 1.2383; α(females)= -.6337 and β(females)= 1.2361

tables that were used in these projections refer to the period 1980-1984. The mortality conditions may have been somewhat better by 1985 resulting in more survivors by midyear 1999.

Table 4.9. Comparison of projected 1985 population to mid-year 1999 with the 1999 census population using two different approaches (i.e. model lifetable systems)

• *Coale and Demeny model life table system*	*Total*	*Males*	*Females*
a. Projected midyear 1985 population to midyear 1999[a]	412,469	212,737	199,732
b. Reverse survived 1999 census population to midyear 1999	404,505	209,059	195,446
Difference (a-b)	7,964	3,678	4,286
• *Brass model life table system*			
a. Projected midyear 1985 population to midyear 1999[a]	415,040	213,706	201,334
b. Reverse survived 1999 census population to midyear 1999	404,505	209,059	195,446
Difference (a-b)	10,535	4,647	5,888

[a] Assuming constant mortality, i.e. e(0)m=59.9 and e(0)f=61.4

Table 4.9 illustrates the findings. As a result of these 'unexpected' projection findings, the task became to derive a set of male and female life tables that would minimise the difference between the midyear 1999 projection population and the reverse survived census population of November 1999.

After a number of simulations the following set of life tables minimised the difference between the two types of midyear 1999 populations, that is: Coale and Demeny model West life tables with $e(0)_{males} = 57.2$ and $e(0)_{females} = 58.0$. These minimum differences by age and sex are shown in *table 4.10* and *figure 4.14*.

Table 4.10. Comparison of projected 1985 population to mid-year 1999, based on a constant mortality assumption using 'optimal' Coale and Demeny model West lifetables, with the reverse-survived 1999 census population to mid-year 1999

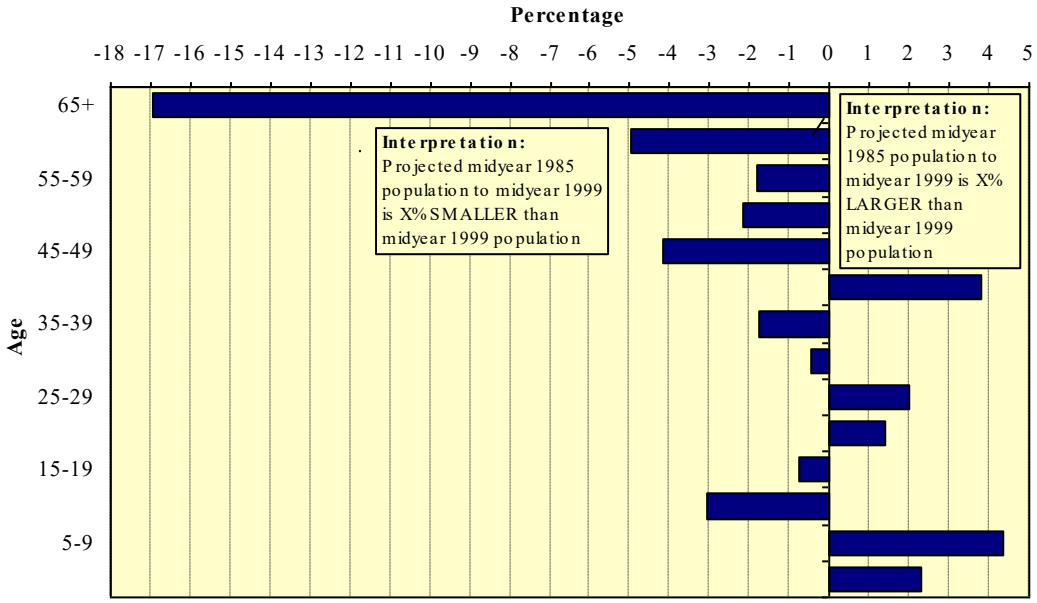
	Total	*Males*	*Females*
a. Projected midyear 1985 population to midyear 1999[a]	404,755	208,718	196,037
b. Reverse survived 1999 census population to midyear 1999	404,505	209,059	195,446
Difference (a-b)	250	-341	591

[a] See note in table 4.9

However, only for the persons in the age groups 65+ did the method lead to a fairly high discrepancy between the projected and the reverse survived midyear 1999 population. This is probably caused by the combined effect of differential age-misreporting at higher ages in the 1986 and 1999 censuses and actual old-age mortality patterns that differ from patterns underlying the Coale and Demeny model West life tables. So far, this set of male and female life tables may be the best approximation of *average* mortality conditions prevailing during the period 1985-1999. Located in time, these life tables could be thought of as representing the level and age pattern of mortality halfway between 1985-1999, that is, the year 1992. Of course, assuming constant mortality over a period of 14 years is of course not realistic. The level of mortality in 1985 is likely to be lower than in 1999, but by how much?

In the absence of evidence to the contrary the assumption is made that changes in levels of mortality over the 14 year period are linear. If so, a sex-specific *trend line* will have as pivotal point for the period 1986-1999 the co-ordinates: year = 1992, $e(0)_{male} = 57.2$ and year = 1992, $e(0)_{female} = 58.0$, respectively. If time series estimates of e(0) can be found that cover parts of the period 1986-1999 then the 'assignment' would become the fitting of a regression line, e(0) = a+b(year) and derive values for the two parameters 'a' and 'b'.

Figure 4.14. Differences in population size between 1986-1999 projection and midyear 1999 census population expressed as percentage of the midyear 1999 population



Thus, the following two equations need to be estimated:

$Y_{(male)} = a + bX$
$Y_{(female)} = a + bX$
or,

$e(o)_{male} = a + b(year)$
$e(0)_{female} = a + b(year)$

The value of 'b', the slope, is crucial because it ultimately determines the estimated difference between the 1999 and 1986 levels of e(0). After finding 'b', through substitution, 'a' can simply be deduced (see below). Substitution of the values 99 and 86 in these equations then results in estimates of e(0) for 1999 and 1986.

To estimate the 'slope' indicator 'b', time series data for the period 1967-1999 for sex-specific estimates of e(0) for Solomon Islanders and for other nearby populations were found (United Nations 1999, World Bank 2000, see figure 4.10). In fact, linear regression lines were fitted to the time series data of Fiji, Vanuatu and Papua NG and the Solomon Islands. Whether the reported levels of e(0 in the time-series were correct is not our prime interest but quantification of the underlying marginal change over time (the slope) is. However, it is important that the assumption holds that relative errors made in estimating levels of e(0) over the period 1967-1999 are constant.

It was found that the estimates of the slope 'b' in the region varied: 0.351 (Fiji); 0.427 (Papua New Guinea); 0.495 (Solomon Islands, both sexes combined); 0.576 (Vanuatu). The slopes for the male and female Solomon Islanders appeared to be 0.479 and 0.507, respectively. The higher the value of the slope, the greater the marginal change in e(0) over time. Thus, the marginal improvement in e(0) in Fiji is much lower than in Vanuatu, which is because the e(0)s in Fiji have already attained high values. Moreover, the yearly improvement of e(0) for women in the Solomon Islands has been somewhat greater than that for men. If the above estimates of the *average level* of mortality are considered for the period 1986-1999, then the above equations can be transformed into:

$$\overline{Y}(male) = a + b\,\overline{X}$$
$$\overline{Y}(female) = a + b\,\overline{X}$$

In the equation $\overline{Y}$ denotes the average value of e(0) for the period 1967-1999, and $\overline{X}$ denotes the concomitant mid-period value of 92. A value for 'a' is computed, by substituting our estimates of $e(0)_{male}$ = 57.2 and $e(0)_{female}$ = 58.0 in the equation as well as the derived sex-specific estimates of the slope 'b'.

For example, for the male population 'a' is computed as follows:

57.2 =a + (0.479 × 92)
a= 57.2-44.07=13.13

Similarly the value of 'a' for women can be computed (i.e. 11.36), leading to the following final equations:

$e(0)_{males}$ = 13.13 + 0.479 (Year), where 67≤ year ≤ 99
$e(0)_{females}$ = 11.36 + 0.507 (Year), where 67≤ year ≤ 99

By substituting the values 86 and 99 in the above equations, regression estimates of life expectancies at birth in the two census years 1986 and 1999 can be deduced. *Table 4.11* summarises the results for this substitution. In a similar manner an estimate of e(0) for both sexes combined can be obtained. In that case the slope 'b' estimate is 0.495.

Table 4.11. Estimates of IMR, life expectancies at birth (e(0)) and at age 20 (e(20)) for men and women at the time of the census in 1986 and 1999, derived from regression analysis

Year	*IMR (per 1,000)*		*e(0)*		*e(20)*		*Implied CDR*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
1986	98	94	54.3	55.0	44.8	46.2	13.2	11.9
1999	67	65	60.6	61.6	47.8	49.3	9.6	8.4

The estimates of e(0) arrived at by the 'alternative method' must be compared with those reported in table 4.8. The earlier conclusion was that estimates of levels of life expectancies at birth using indirect methods grossly overestimate actual levels. The obtained regression estimate for e(0) for males in 1999, 60.6 years, is very close to the 'direct method' estimate of 60.9 years resulting from fitting a Heligman-Pollard model to reported deaths in the 12 months preceding the census. The regression estimate for women, 61.6 years, is somewhat lower than the estimate of 64.1 years as derived from fitting a Heligman-Pollard model. The obtained estimates are substantially lower than those used by international and national organisations, including the estimates reported in the 1986 census analysis report.

As stated above, the Heligman-Pollard model results should be considered as *maximum* values of e(0) because there were indications in section 4.2.2 that deaths are probably underreported. Indications were found that underreporting of female deaths was much higher than of male deaths, leading to a value of e(0) for women which is too high as compared with the value obtained for men. The latter explains why observed differences between estimates of e(0) for men and women resulting from fitting a Heligman-Pollard model are greater (i.e. 3.2 years) than estimates of e(0) for men and women derived from the fitted regression equations (i.e. 1 year).

Given the data available to us, our ultimate conclusion is that the regression estimates of e(0) in table 4.11 (i.e. 60.6 and 61.6 years, for men and women respectively) come closest to the true but unknown

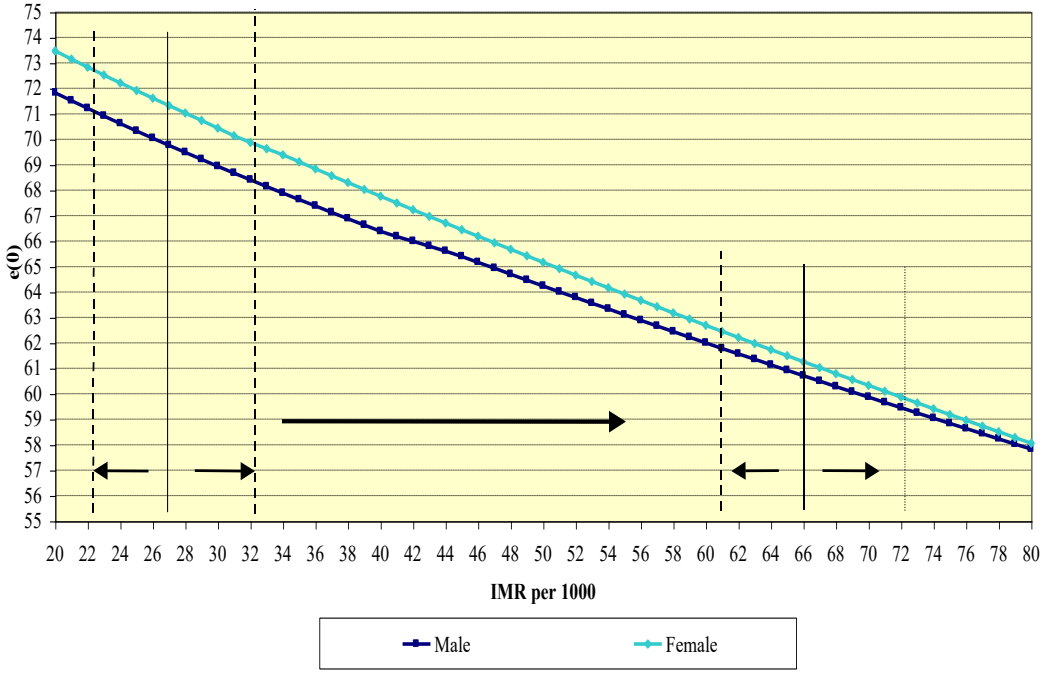
level of mortality of Solomon Islanders. In the absence of convincing evidence to the contrary, it is assumed that the age pattern of mortality in the Solomon Islands resembles patterns that underlie region West model life tables in the Coale and Demeny system of model life tables. Moreover, we adopt levels of IMR and e(20) and other mortality level indicators implied by the derived model West life tables. These are printed as annex VIII and annex IX, and serve as input for national level population projections in chapter 9. With help of these life tables, in particular the column containing the life table Age Specific Death Rates (i.e. the M(x,n)-column), and the age distribution of the midyear 1999 population by age and sex, Crude Death Rates (CDRs) were computed for the male and female populations and these are reported in table 4.11. IMRs for men and women were deduced after the appropriate model life tables were selected, through interpolation, in the Coale and Demeny model life table system. National level estimates of IMRs are 67 and 65 per thousand for boys and girls respectively.

For the derivation of *provincial level estimates* of e(0) and corresponding life tables, the above reasoning is reversed. Estimates of e(0) for each province are derived from indirect estimates of provincial level IMRs, bearing in mind that IMRs derived by indirect estimation methods result in rates which are far too low. Figure 4.8 in section 4.2.3.1 shows these provincial-level estimates of IMR, derived from indirect estimation. It is argued here that *differences* between these provincial-level estimates of IMRs may adequately represent real provincial differences.

To derive provincial level estimates use is made of the pattern of differences and center this pattern around national-level estimates of IMR This is illustrated in *figure 4.15*, which also shows the linear relationship between IMRs and e(0)s in Coale and Demeny model West life tables.

Using the data of figure 4.8, the difference of each province IMR with the (weighted[21]) mean IMR (27.6 per thousand) of all provinces was computed. National level IMRs for men and women can be

Figure 4.15. Relationship between levels of Infant Mortality Rates and life expectancies at birth in Coale and Demeny model West life tables



[21] Weighted by the number of children below age 1 in each province.

interpreted as 'weighted means' of IMRs of all provinces. Subsequently, the computed provincial-level deviations from the mean IMR of all provinces are used to compute a set of 're-scaled' provincial-level IMRs centering around the national-level value of 66 per thousand (both sexes) or 67 and 65 per thousand for boys and girls, respectively. Once these re-scaled province-level IMRs were computed, model West life tables consistent with resecaled province-level IMR were derived by interpolating these IMRs in the Coale and Demeny system of model life tables.

Analysis of the linear relationship between model IMRs and e(0) in figure 4.15 shows that it is valid to transfer provincial level differences that center around around a particular reference point, e.g 27.6, to another reference point, e.g. 66, because first order differences between subsequent values of e(0) in model West life tables are very small within a relatively small range of values of IMRs. Figure 4.8 shows that the range of provincial level IMRs is relatively small, that is, between 22 and 32 per thousand. *Table 4.12* presents the results of this re-scaling exercise. The derived provincial level e(0)s are used in chapter 9 as base-year values for mortality assumptions in sub-national projections.

Table 4.12. Provincial-level estimates of IMR (per thousand) and e(0) for 1999

Province	*Indirect estimates of IMR*	*Re-scaled IMRs*		*Implied e(0) in Coale and Demeny model West life table system*	
	Both sexes	*Men*	*Women*	*Men*	*Women*
Choiseul	27	66.4	64.4	60.6	61.6
Western	27	66.4	64.4	60.6	61.6
Isabel	32	71.4	69.4	59.6	60.4
Central+Ren-Bel	25	64.4	62.4	61.0	62.1
Guadalcanal	31	70.4	68.4	59.8	60.7
Malaita	29	68.4	66.4	60.2	61.1
Makira-Ulawa	26	65.4	63.4	60.8	61.9
Temotu	23	62.4	60.4	61.5	62.6
Honiara	22	61.4	59.4	61.7	62.8
Weighted Mean	27.6				

4.4 Conclusions

1. Application of a direct method to estimate fertility led to a Total Fertility Rate (TFR) of 4.1 while indirect methods yielded TFRs of 4.5, 4.6 and 4.8 in 1997-99. Of the three indirect methods, we find the own-children method the most appropriate and conclude that the TFR in 1987-1999 is 4.8. This is a decrease from the TFR of 6.1 in 1984-1986 found in the 1986 census. The decrease from 6.1 to 4.8 is considered to be moderate compared with various other countries. A value of a TFR of 4.8 corresponds with a CBR of 34 per thousand population.
2. Various direct and indirect techniques were applied to estimate mortality. One direct method led to a life expectancy at birth of about 62.5 years in 1999, while three indirect methods produced life expectancy values of 70.2, 67.5 and 68.6 years. The direct technique is important, because it provides minimum estimates of mortality. We found that the indirect techniques yielded higher life expectancy values than those obtained with the direct approach. This is an unexpected finding, because it is usually the other way around. For this reason the correctness and precision of the results achieved with the indirect estimates are questioned.
3. There are also other reasons to doubt the correctness of the results obtained with the indirect techniques. Data on a large number of countries were analysed, linking indicators of malaria incidence and socio-economic development with mortality. In all cases it could be demonstrated that the Solomon Islands is an outlier and occupies an extreme and highly unusual position. Since

the life expectancy values for the various low-income countries were for the most obtained with indirect methods, this is another reason to raise doubts concerning the validity of indirect techniques as applied to the Solomon Islands.

4. We also looked into reasons why indirect techniques apparently underestimate mortality levels in the Solomon Islands and hypothesise that the widespread practice of adoption (and fosterage) in the Solomon Islands might be an important reason.
5. Since existing estimation techniques apparently do not provide acceptable and correct estimates of mortality, an alternative estimation method was developed. A key feature of this method was the use of the cohort component projection method for the 1986-1999 period. Another feature was the estimation of average life expectancy figures in 1986-1999, and a third feature the estimation of mortality figures for both 1986 and 1999 based on trends in mortality prevailing in several South Pacific countries in 1986-1999. This procedure leads to a life expectancy at birth of 60.6 for males and 61.6 years for females in 1999. Infant mortality rates are estimated at 67 per thousand for boys and 65 for girls. Crude death rates are estimated to be 9.6 per thousand population for men and 8.4 for women. In the absence of evidence to the contrary these figures are considered to come closest to actual figures for the Solomon Islands.
6. Assuming that the 'alternative approach' is the most appropriate, it may also be concluded that the sole dependence on indirect estimation techniques in the previous census analyses consistently underestimated mortality leading to estimates of life expectancies which were too high. Application of the alternative approach introduced here would imply that the life expectancy at birth for the year 1986 should have been 54.3 years for men and 55.0 years for women instead of 59.9 years and 61.4 years. Moreover, the analyses show that mortality has fallen between 1986 and 1999 resulting in an increase in life expectancy of 6.3 years for men and 6.6 years for women between 1986 and 1999.
7. A crude birth rate of 34 per thousand in 1999 in combination with a crude death rate of 9 per thousand leads to a total population growth rate of 25 per thousand or 2.5 percent in 1999. This figure is compatible and in line with the average annual population growth rate of 2.8 percent for the whole period 1986-1999 reported in chapter 2.

5. Migration and displacement

Jeannette SCHOORL and Ward FRIESEN

5.1 Internal migration

5.1.1 Introduction

Internal migration data from the 1999 Solomon Islands census capture both the regular movement of people between wards, islands and provinces within the country, and part of the displacement from the island of Guadalcanal following the tension in 1999 (section 5.1). In addition, a separate section (5.2) is devoted to the analysis of this population displacement. The last section, 5.3, covers international migration and immigrants in the Solomon Islands.

> ***Definitions of migrants***
>
> A *'lifetime migrant'* is someone who at the time of the census lives away from his/her place of birth.
>
> A '*recent migrant'* is someone whose place of residence at the time of the census differs from that just before the national election of August 1997, when the Mamaloni government was replaced by the Ulufa'alu government; thus someone who has moved in the 28 months preceding the census.
>
> A '*displaced person'* is anyone who reported they had moved or fled from his/her place of residence due to the ethnic tension.

To facilitate comparison with the 1986 census, the same migrant categories are distinguished (cf. Statistics Office 1989, p. 50). Thus, everyone born before the 1997 election falls into one of the following categories:

- *non-migrant*: residence is the same at birth, at the 1997 election and on census night;
- *recent-only* or *recent migrant*: residence is the same at birth and at the 1997 election, but different at the census;
- *past-only* or *non-recent migrant*: residence at the 1997 election and at the census are the same, but place of birth is different;
- *return migrant*: residence at birth and at the census are the same, but was different at the 1997 election;
- *multiple migrant*: the places of residence are different on all three occasions.

Recent-only, past-only and multiple migrants are all lifetime migrants; recent-only, return and multiple migrants are all post-1997-election (or recent) migrants.

5.1.2 Inter-provincial migration

5.1.2.1 Lifetime migration

In the period 1976-1986 the number of lifetime inter-provincial migrants almost doubled, from 25.6 thousand to 48.9 thousand (*table 5.1*). In the subsequent 13 years, the volume further increased significantly, to 68.3 thousand persons or 17 percent of the population now living outside their province of birth (table 5.1). If there had been no displacement in the months preceding the census, the estimate of the number of lifetime migrants is somewhat higher, at 70.3 thousand.[22] This higher number is mainly due to Malaitans displaced from Guadalcanal or Honiara having returned to their province of birth.

[22] This figure is arrived at by counting all persons who reported that they had been displaced to another province, as if they had not been displaced and would have been enumerated in the ward where they had been living just before they were displaced.

Table 5.1a. Lifetime migration: population born in Solomon Islands, by province of birth and by province of enumeration, 1986

Province of enumeration	*Solomon Islands*	*Province of birth*								*In-migrants*
		Western	*Isabel*	*Central*	*G'canal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*	
Solomon Islands	280,720	54,340	15,307	17,399	42,178	97,472	22,171	16,715	15,138	
Western	53,630	48,929	281	276	579	1,811	173	266	1,315	4,701
Isabel	14,549	171	13,124	144	236	153	68	86	670	1,425
Central	18,288	364	366	14,204	364	1,723	227	524	516	4,084
Guadalcanal	49,441	725	298	735	38,123	6,943	253	511	1,853	11,318
Malaita	79,807	617	70	291	2,233	75,599	236	94	2,233	4,208
Makira-Ulawa	21,735	122	62	101	142	369	20,091	470	378	1,644
Temotu	14,751	76	50	201	132	119	163	13,690	320	1,061
Honiara	28,519	3,336	1,056	1,450	1,935	10,655	960	1,074	8,053	20,466
Out-migrants		5,411	2,183	3,195	4,055	21,873	2,080	3,025	7,085	48,907

Table 5.1b. Lifetime migration: population born in Solomon Islands, by province of birth and by province of enumeration, 1999

Province of enumeration	*Solomon Islands*	*Province of birth*										*In-migrants*
		Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*G'canal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*	
Solomon Islands	403,131	20,615	59,297	21,440	21,020	2,452	62,200	131,359	31,350	21,697	31,701	
Choiseul	19,587	17,192	1,365	45	45	5	177	195	28	47	488	2,395
Western	61,365	1,842	51,917	484	452	32	822	2,400	431	660	2,325	9,448
Isabel	20,253	86	282	18,206	171	6	252	286	145	99	720	2,047
Central	21,476	67	217	295	17,529	58	505	1,596	191	398	620	3,947
Rennell-Bellona	2,361	2	17	5	42	1,694	9	28	2	5	557	667
Guadalcanal	59,789	166	497	234	460	51	53,968	1,899	300	380	1,834	5,821
Malaita	121,723	119	740	126	479	21	3,417	110,499	265	164	5,893	11,224
Makira-Ulawa	30,699	38	133	94	124	8	246	471	28,400	524	661	2,299
Temotu	18,880	6	135	28	183	2	282	144	141	17,392	567	1,488
Honiara	46,998	1,097	3,994	1,923	1,535	575	2,522	13,841	1,447	2,028	18,036	28,962
Out-migrants		3,423	7,380	3,234	3,491	758	8,232	20,860	2,950	4,305	13,665	68,298

Honiara followed by Guadalcanal were the main destinations of migrants in the previous censuses of 1986 and 1976. Honiara is still clearly the main destination, but because of the ethnic tension Guadalcanal has been overtaken by Western province and Malaita. Displacement caused by the tension that built up in the year preceding the census plays a major role in explaining the relative decline of Guadalcanal and inversely the increasing importance of Malaita as destinations (for more detailed information about the ethnic tension, see the text box 'The ethnic conflict on Guadalcanal in chapter 2 in this report and section 1.6 in the Basic tables volume). If this displacement had not taken place, the number of lifetime immigrants in Guadalcanal would have been an estimated 13.8 thousand instead of the 5.8 thousand actually enumerated, well above the pre-displacement estimate for Western province (8.8 thousand).

Provinces: comparison with earlier censuses

Comparison with previous censuses presents relatively few problems. In the 1970 census, Honiara was included in Guadalcanal Council Area, which, together with Isabel Council Area and Rennell and Bellona Council Area, formed a part of the Central District. The 1970 Eastern District comprised the current provinces of Makira-Ulawa and Temotu. The Council Areas of the 1976 Census are the same as the provinces of 1986, except that the Council Areas of Makira and Ulawa have become a separate province. Changes between the 1986 and 1999 censuses include the separation of Choiseul from Western province, and that of the islands of Rennell and Bellona from Central Province.

Inversely, the 11.2 thousand immigrants enumerated in Malaita province would have been more than halved (5.3 thousand) if the displacement had not taken place. At the time of the census, Honiara was still relatively little affected: instead of the 29 thousand immigrants enumerated there would have been 31 thousand without displacement. Out-migration was equally influenced by displacement: relative to the figures listed in table 5.5b in the absence of displacement, out-migration from Guadalcanal would almost have halved, while out-migration from Malaita would have increased by one third.

Not only the number of lifetime migrants has grown over the decades, the percentage of the population living outside their province of birth has also steadily increased (see *table 5.2* and *figure 5.1*). The 1999 census shows a stabilisation or even a slight decrease, however. This too is probably caused by the displacement following the ethnic tension in the months preceding the census.

For most provinces, a larger proportion of the population is now living outside their province of birth than in previous decades. Especially the small province of Rennell-Bellona is confronted with out-migration: almost one in three of those born in this province now live elsewhere. The rate for Honiara is even higher (43 percent) but is showing a gradual decline.

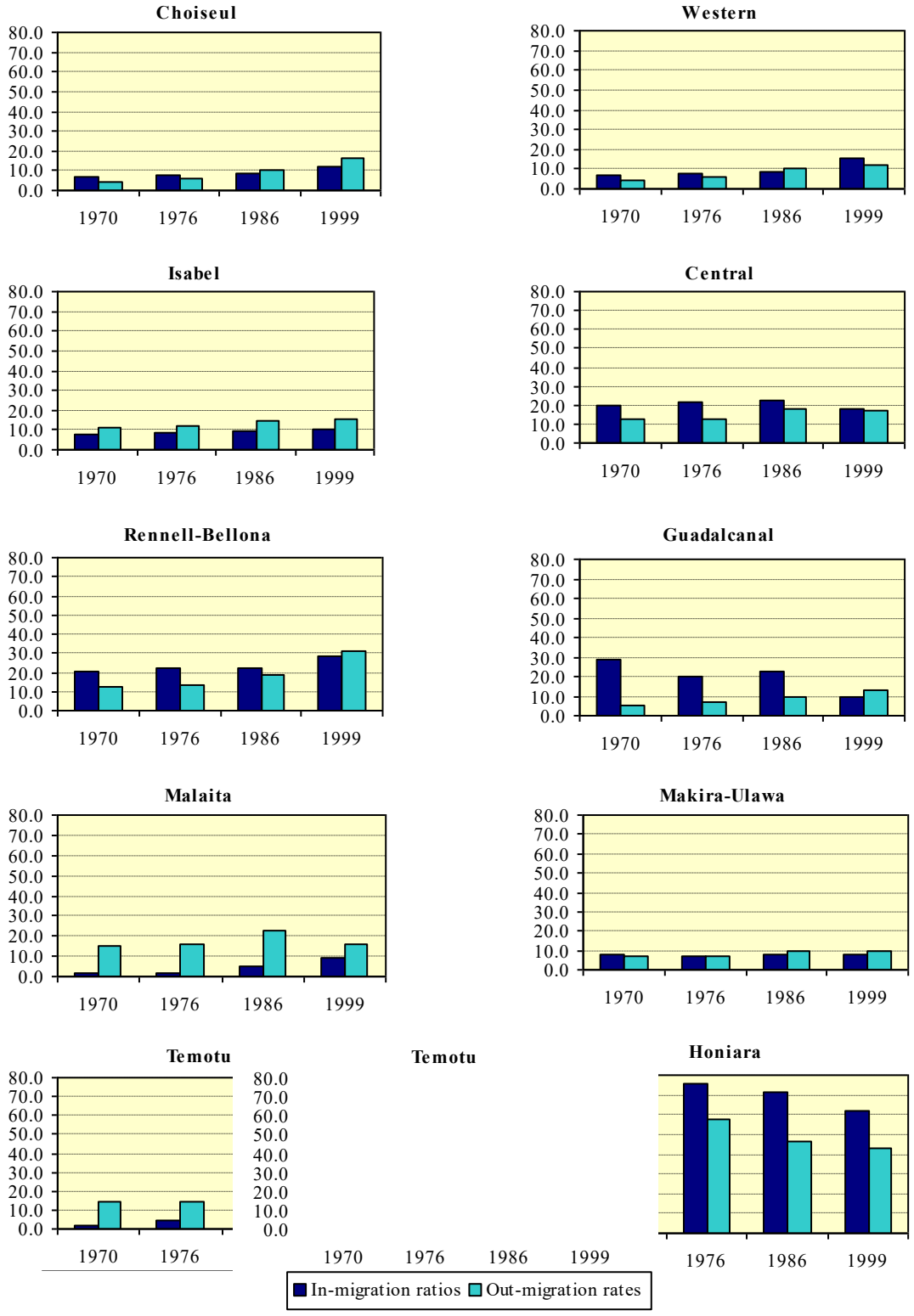
Out-migration from Honiara is strongly counteracted by high rates of in-migration: 62 percent of the population enumerated in Honiara were born elsewhere. Out-migration is often likely to be a hidden form of return migration of children born in Honiara who return with their parents to their 'home' province. Malaita and Temotu provinces are characterised by fairly strong out-migration, although the numbers from the much smaller province of Temotu are fewer. Both lack sufficient employment opportunities for their populations, tend to be densely populated and therefore lack sufficient agricultural land.

Migration rates and ratio's

In-migration ratio: the number of people who now live in a specific region but who were living in another region previously, expressed as a percentage of the total population living in that specific region. This ratio is a measure of the 'burden' of in-migration to the region receiving the migrants.

Out-migration rate: the number of people who lived in a specific region previously but are now living elsewhere, expressed as a percentage of the total population living in that region previously. This rate measures the chance of people moving out from a place of origin (for instance their province or ward of birth).

Figure 5.1. Rates of lifetime inter-provincial migration of the population born in the Solomon Islands, 1970, 1976, 1986, 1999



- Choiseul province was included in Western province in census years 1970, 1976, 1986.
- Rennell-Bellona province was included in Central province in census years 1970, 1976, 1986.
- Honiara town council was included in Guadalcanal province in census year 1970.

Table 5.2. Rates of lifetime inter-provincial migration of the population born in the Solomon Islands, by province, 1970, 1976, 1986, 1999 [a,b]

Province	*Out-migrants as a percent of population born in province*				*In-migrants as a percent of population enumerated in province*			
	1970	*1976*	*1986*	*1999*	*1970*	*1976*	*1986*	*1999*
Solomon Islands	10.5	12.0	17.4	16.9	10.5	12.0	17.4	16.9
Choiseul	4.3	6.2	10.0	16.6	7.2	7.8	8.8	12.2
Western				12.4				15.4
Isabel	11.2	11.9	14.3	15.1	7.8	8.2	9.8	10.1
Central	12.2	12.9	18.4	16.7	20.2	21.9	22.3	18.4
Rennell-Bellona				30.9				28.3
Guadalcanal	5.1	7.1	9.6	13.2	29.0	19.7	22.9	9.7
Honiara		57.5	46.8	43.1		76.0	71.8	61.6
Malaita	15.5	16.4	22.4	15.9	1.3	1.8	5.3	9.2
Makira-Ulawa	6.6	7.4	9.4	9.4	7.8	7.4	7.6	7.5
Temotu	14.0	14.8	18.1	19.8	2.0	4.1	7.2	7.9

[a] 1970, 1976 and 1986: Solomon Islands citizens born in the Solomon Islands only; 1999: including 438 persons born in the Solomon Islands having a foreign citizenship or of whom citizenship is unknown (0.1 percent of the total population born in the Solomon Islands).

[b] The 1970 and 1976 censuses recorded the *de facto* place of birth, while in the 1986 and 1999 censuses this relates to the mother's usual place of residence. Thus, in the last two censuses, movement from a clinic or hospital soon after birth is not recorded as a move.

Choiseul and Isabel provinces are relatively thinly populated, and have few centres for wage-employment. "The importance of these locational factors in encouraging circular migration from Choiseul has been shown to be only one of many factors. Other important factors include education, the employment policies of government and other institutions, and household or family strategies in which labour migration complements cash cropping and subsistence agriculture" (Friesen 1986, in Statistics Office 1989, p. 57). Makira-Ulawa province has low rates of out-migration, perhaps related to the overall low participation rates in the cash economy; cf. Statistics Office 1989, pp. 57-58). In previous censuses Guadalcanal had low rates of out-migration too, and this could easily be explained by the fact that there were many opportunities for employment within the island, while the people on the northern coast have road access to Honiara, facilitating use of urban services without the need to relocate (Statistics Office 1989, pp. 57-58). The high rate of out-migration found in 1999 is due to displacement factors following the tension (see section 5.2).

The difference between the number of in-migrants and out-migrants for an area is called *net migration*. Together with natural growth (the difference between the number of births and deaths) net migration determines the total growth rate of an area. In the Solomon Islands, over the decades, Guadalcanal and especially Honiara have attracted more migrants than they lost (*table 5.3*). However, the effect of the tension-related displacement is notable for Guadalcanal: a net outflow instead of a continuation of the growth in net in-migration. The only other province showing a strong positive net in-migration is Western province, which has grown into an important region of attraction. Central province, traditionally also an area of in-migration, is gradually losing its attraction. Malaita has always been a major 'exporter' of people. The other provinces which have consistently lost people due to net out-migration are distant Temotu and Isabel, while Makira-Ulawa has become a net-exporter of its population more recently. Lastly, Choiseul province in the north has negative net migration, which was previously offset by its inclusion in Western province.

Table 5.3. Net lifetime inter-provincial migration of the population born in the Solomon Islands, 1970, 1976, 1986, 1999

Province	*Net migration (difference between lifetime in-migrants and out-migrants)*			
	1970	*1976*	*1986*	*1999*
Choiseul	+890	+607	-710	-1,028
Western				+2,068
Isabel	-340	-436	-758	-1,187
Central	+950	+1,398	+889	+456
Rennell-Bellona				-91
Guadalcanal	+8,267	+3,743	+7,263	-2,411
Honiara t.c.		+5,573	+13,381	+15,297
Malaita	-8,657	-9,499	-17,665	-9,636
Makira-Ulawa	+152	-6	-436	-651
Temotu	-1,262	-1,380	-1,964	-2,817

5.1.2.2 Recent migration

Although information on lifetime migration provides an idea of the importance of migration in the society as a whole, it has an important disadvantage as well: we do not know whether people moved a long time ago, or only recently. In order to evaluate the importance of recent migration, the census asked everyone born before the national election of August 1997 where they were living at the time of this election. *Table 5.4* summarises this recent migration.

In general, both the volume and the relative importance of recent migration is smaller (see *figure 5.2*). About one in every ten persons were living in a different province from where they were living 28 months before the census. Again, Honiara stands out: 28 percent of the population living in the Solomon Islands in 1997 and enumerated in Honiara in 1999 were recent immigrants, mainly from Malaita and Guadalcanal, and to a lesser extent from Western province. In Malaita too a significant percentage of recent in-migrants were counted in 1999, 12 percent, again an indication of the displacement, as the large majority of these said that they were living in Guadalcanal in 1997. In fact, had there been no displacement, the number of recent in-migrants in Malaita would have been only one quarter of the number actually enumerated.

Recent out-migration is most important from Honiara (26 percent, 11.3 thousand persons), especially to Malaita (13 percent, 5.8 thousand persons) and at a much lower level to Western province (5 percent, 2.1 thousand persons). In total, Guadalcanal lost 12.9 thousand persons, which was counteracted by very limited in-migration, resulting in an unprecedented net loss of 11.1 thousand persons. Malaita was by far the largest recent net gainer, with 8.5 thousand persons; opposite a recent in-migration of 13.7 thousand stood a recent out-migration of 5.1 thousand persons. Without displacement these figures would have been very different: out-migration from Guadalcanal and Honiara would have been roughly less than one third and one half of the enumerated figures respectively.

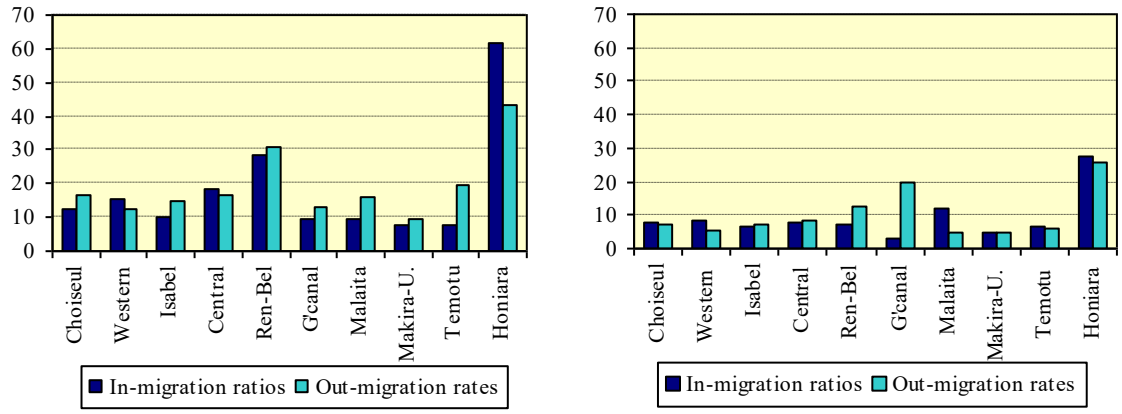
5.1.2.3 Return migration

There are various types of migrants: past-only migrants, who moved between birth and 1997 but not subsequently; recent-only migrants, who moved between 1997 and the time of the census but not before; multiple migrants, who moved to different places during both periods; and return migrants, who moved from their place of birth before mid-1997 and have moved back there since then (see section 5.1.1).

Table 5.4. Population 28 months and over and living in Solomon Islands in 1997, by province of residence in 1997 and by province of enumeration

Province of enumeration	*Solomon Islands*	*Province of residence in 1997*										*In-migrants*	*In-migrants rate*
		Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*G'canal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*		
Solomon Islands	373,147	18,168	55,632	18,747	20,048	2,288	66,118	103,135	28,050	17,430	43,531		
Choiseul	18,220	16,827	563	31	21	-	172	57	11	11	527	1,393	7.7
Western	57,397	715	52,665	189	178	2	646	586	159	138	2,119	4,732	8.2
Isabel	18,651	30	127	17,423	76	3	275	107	67	30	513	1,228	6.6
Central	19,862	29	91	114	18,348	12	439	302	69	42	416	1,514	7.6
Rennell-Bellona	2,166	-	2	3	15	2,006	22	5	-	1	112	160	7.4
Guadalcanal	54,984	44	183	71	149	14	53,200	343	88	91	801	1,784	3.2
Malaita	111,621	38	274	43	311	8	7,004	98,003	136	45	5,759	13,618	12.2
Makira-Ulawa	28,046	18	62	45	66	2	365	103	26,754	74	557	1,292	4.6
Temotu	17,530	2	76	11	35	1	446	45	46	16,374	494	1,156	6.6
Honiara	44,670	465	1,589	817	849	240	3,549	3,584	720	624	32,233	12,437	27.8
Out-migrants		1,341	2,967	1,324	1,700	282	12,918	5,132	1,296	1,056	11,298	39,314	
Out-migration rate		7.4	5.3	7.1	8.5	12.3	19.5	5.0	4.6	6.1	26.0		
Net migration		52	1,765	-96	-186	-122	-11,134	8,486	-4	100	1,139		

Figure 5.2. In-migration ratios and out-migration rates, lifetime migrants (left-hand panel) and recent migrants (right-hand panel)



Slightly more than one in five persons born in the Solomon Islands have migrated at some time; among them (*figure 5.3*, left-hand panel), half moved last before 1997, almost one quarter are recent migrants, 17 percent are returnees, and the remaining 9 percent are multiple migrants (figure 5.3, right-hand panel). Only in Honiara does the majority of the population (70 percent) have a migrant background.

More than one in four migrants enumerated in Malaita are return migrants. This is the only province with such a high proportion of return migrants, undoubtedly caused by a combination of two factors: the return of Malaitans displaced from Guadalcanal and Honiara, and the relative unattractiveness for people from other provinces to settle in Malaita. In all other provinces, past migrants from other provinces are the largest category. Temotu is the only other province which has a fairly large proportion of returnees among its migrants (32 percent).

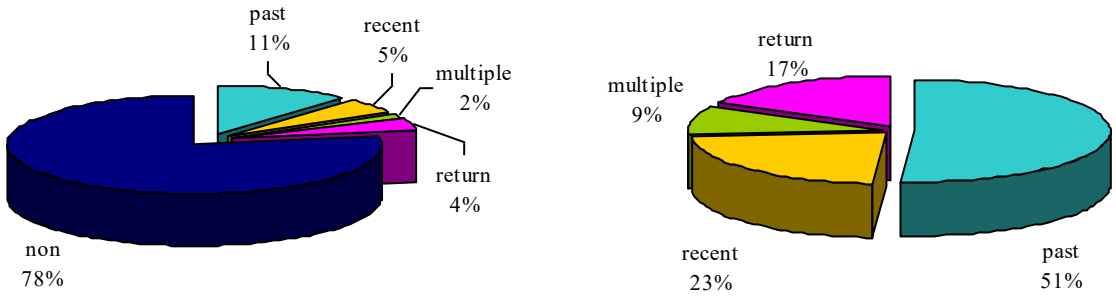
Measured either against the population by province of birth or by province of enumeration, Central province and —influenced by the recent displacements— Guadalcanal attract relatively few returnees. Solomon Islanders are most likely to return to Malaita, Honiara, and Temotu. Nevertheless, returnees never make up more than about six percent of a province's population.

5.1.2.4 Multiple migration

Multiple migrants invariably constitute the smallest group among the four types of migrants, on average less than one in ten (figure 5.3). Numerically, most multiple migrants live in Honiara. Half of these people first moved from their province of birth to Guadalcanal and then more recently onward to Honiara; most of them by far are Malaitan-born, followed at a long distance by Temotuans and Westerners. Other multiple migrants have moved to Honiara via Western province —again mostly Malaitans. Lastly, quite a number of Honiara residents born in other provinces moved to Honiara after having spent a period abroad.

The other most frequently found patterns of multiple migration also involve Honiara, Malaita, and Western province as recent or current destination. For instance, of all multiple migrants in Western province, the majority (56 percent) moved there by way of Honiara, mostly from birth places in Malaita, Temotu, Guadalcanal, or Choiseul. Two thirds of multiple migrants in Malaita previously lived in Guadalcanal, the majority of them originally born in Honiara; these are probably children of Malaitan parents.

Figure 5.3. Population distribution of Solomon Islands by migration status: recent-only, past-only, multiple, return or non-migrant (left-hand panel); also migration status for migrants (right-hand panel)



Thus, migration links are strongest between the provinces of Malaita, Guadalcanal, Western province and Honiara, whereby the latter frequently functions not only as a major current destination for Solomon Islands migrants, but also as a temporary, 'transit' residence for Solomon Islanders moving from one province to another. Migratory links between most of the other provinces directly are fairly weak, probably reflecting the lack of economic bonds between these provinces. Only neighbouring Choiseul and Western province have somewhat more substantial migration links.

5.1.3 Migration between wards: magnets of attraction and rural out-migration

Migration rates at the provincial level provide an average view of migration. In reality, there are substantial differences between wards within provinces in the extent to which they contribute to inter-provincial migration. Moreover, analyses limited to the provincial level obscure the considerable amount of movement that takes place between wards within the same province. An analysis of migration at the level of individual wards makes it possible to indicate the main magnets of attraction, the areas of population loss, as well as the regions within the Solomon Islands that remain relatively little affected by migration.

In order to illustrate lifetime ward-level migration, *figure 5.4a* shows the number of in-migrants who were born in one ward and enumerated in another, as a percentage of the total population of the ward of destination. *Figure 5.4b* illustrates out-migration from wards: the number of persons born in a specific ward and enumerated in another, as a percentage of the total population in the ward of origin. *Figure 5.5a/b* are comparable with figure 5.4a/b, but display recent-migration patterns at the ward level, rather than patterns of lifetime migration. Figure 5.4a and 5.5a thus form an indicator of the effect of migration on the receiving wards; figures 5.4b and 5.5b measure the 'risk' of out-migration.

Figure 5.6a/b complement the series by presenting lifetime net migration (figure 5.6a) and recent net migration, that is, the net population gain or loss due to migration (figure 5.6b).

5.1.3.1 Magnets of attraction

Honiara (consisting of 12 urban wards), and most of the wards containing the provincial capitals (Gizo, Tulagi, Buala, Auki), as well as wards harbouring main commercial centres (Noro and Munda in Western province) or large plantations (Kolombangara in Western province, and Banika and Pavuvu on the Russell Islands in Central province) show both high in-migration and high out-migration rates, reflecting the mobile nature of the population related to employment opportunities.

Figure 5.4a. Lifetime in-migration: number of persons born in another ward than the ward of enumeration, as a percentage of the total population in the ward of enumeration (population born in the Solomon Islands)

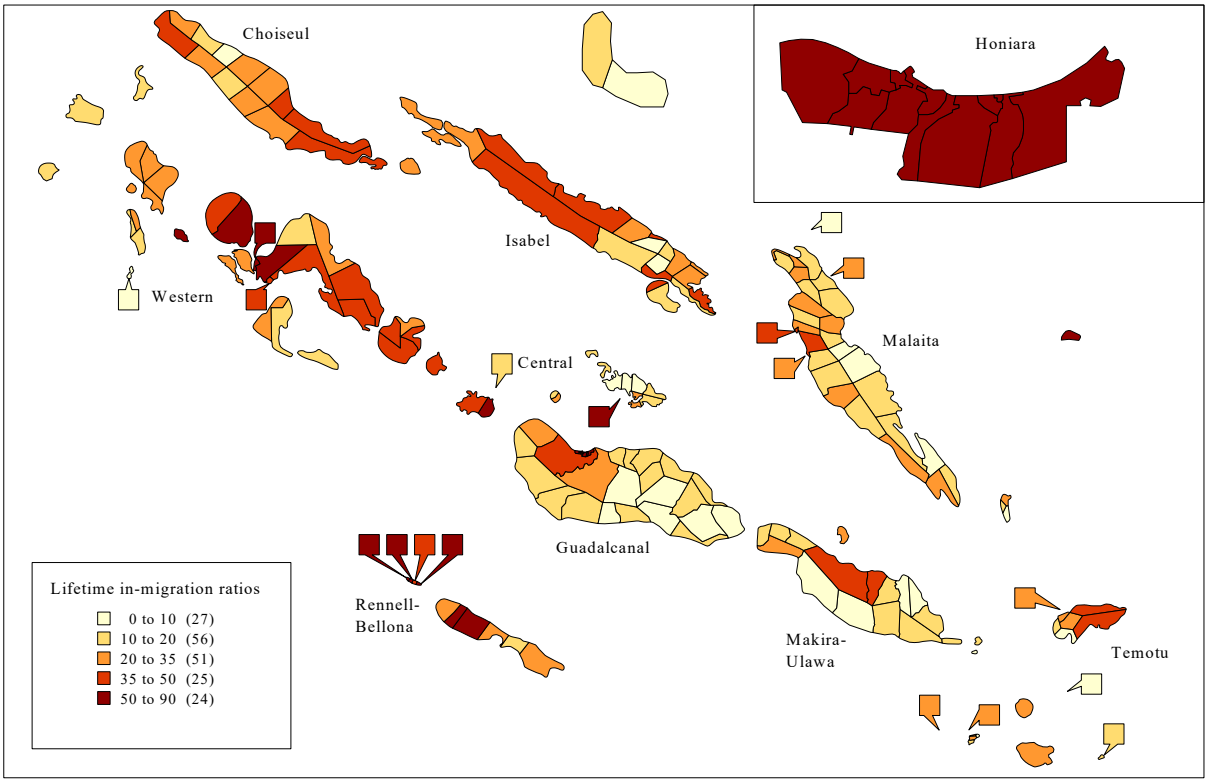


Figure 5.4b. Lifetime out-migration: number of persons enumerated in another ward than the ward of birth, as a percentage of the total population in the ward of birth (population born in the Solomon Islands)

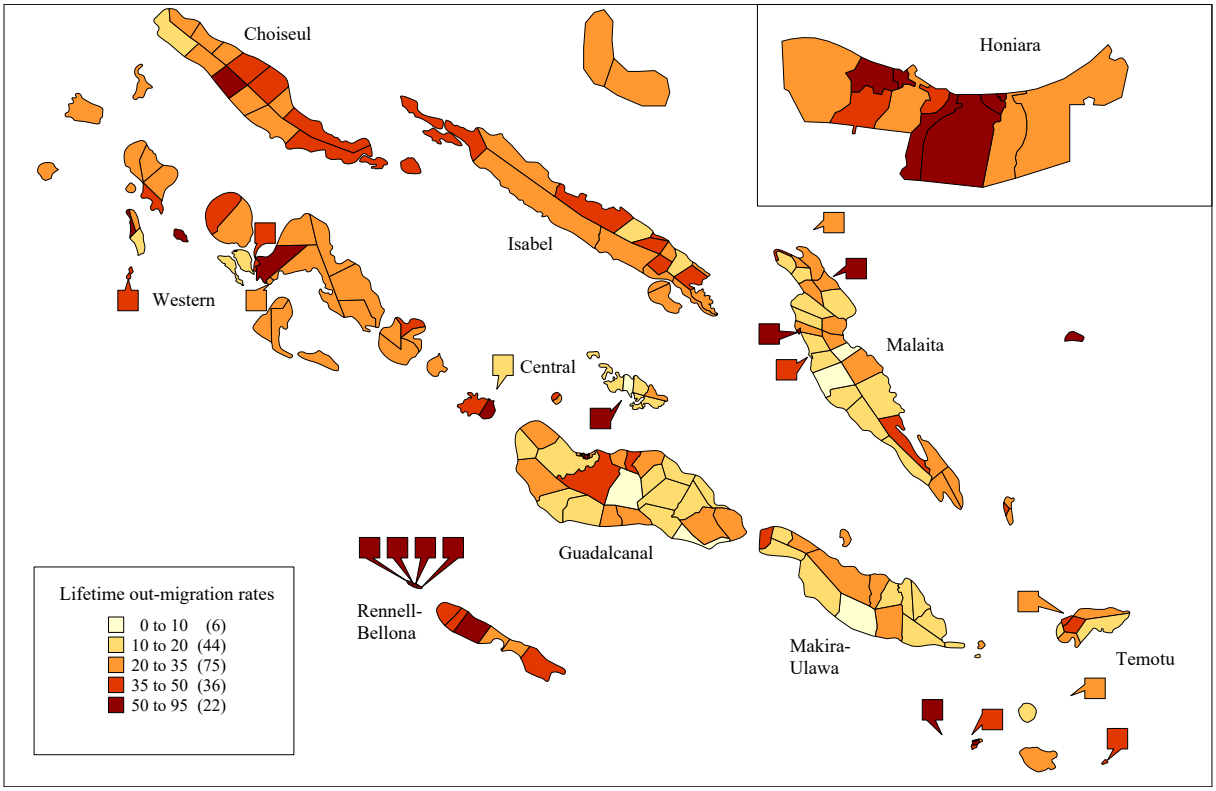


Figure 5.5a. Recent in-migration: number of persons living in another ward in August 1997 than the ward of enumeration, as a percentage of the total population in the ward of enumeration (population 28 months or older)

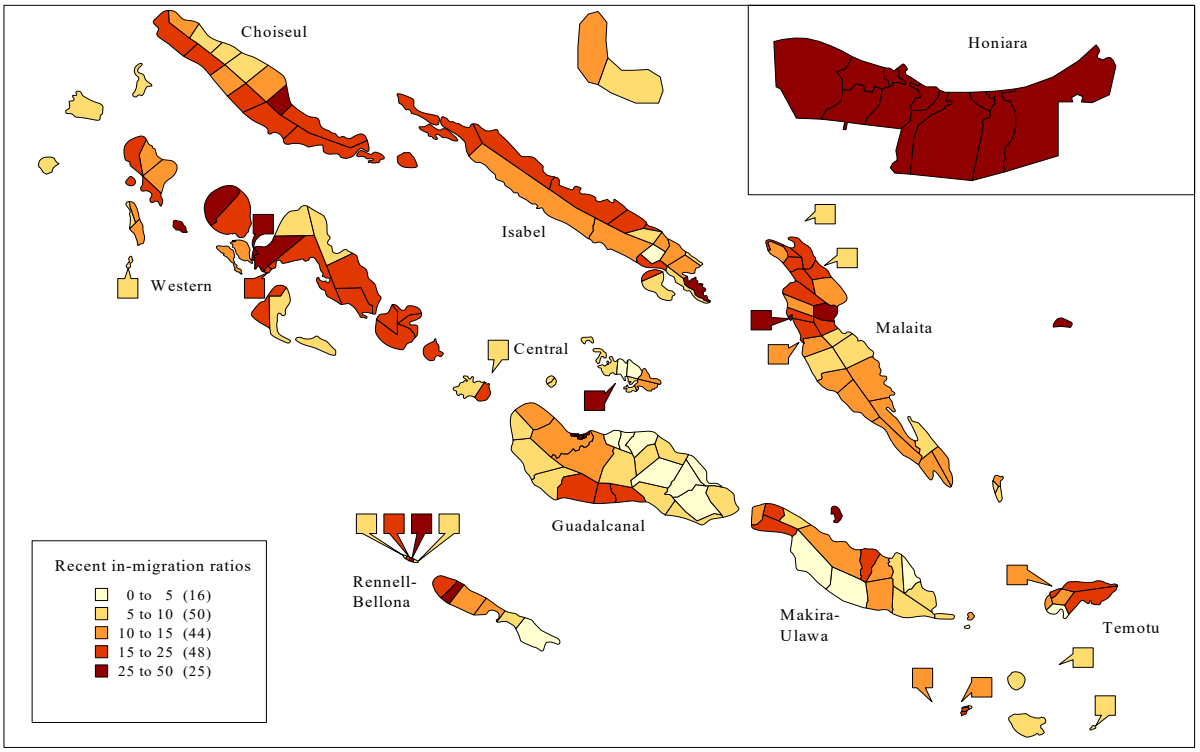


Figure 5.5b. Recent out-migration: number of persons enumerated in another ward than the ward of residence in August 1997, as a percentage of the total population in the ward of residence in August 1997 (population 28 months or older)

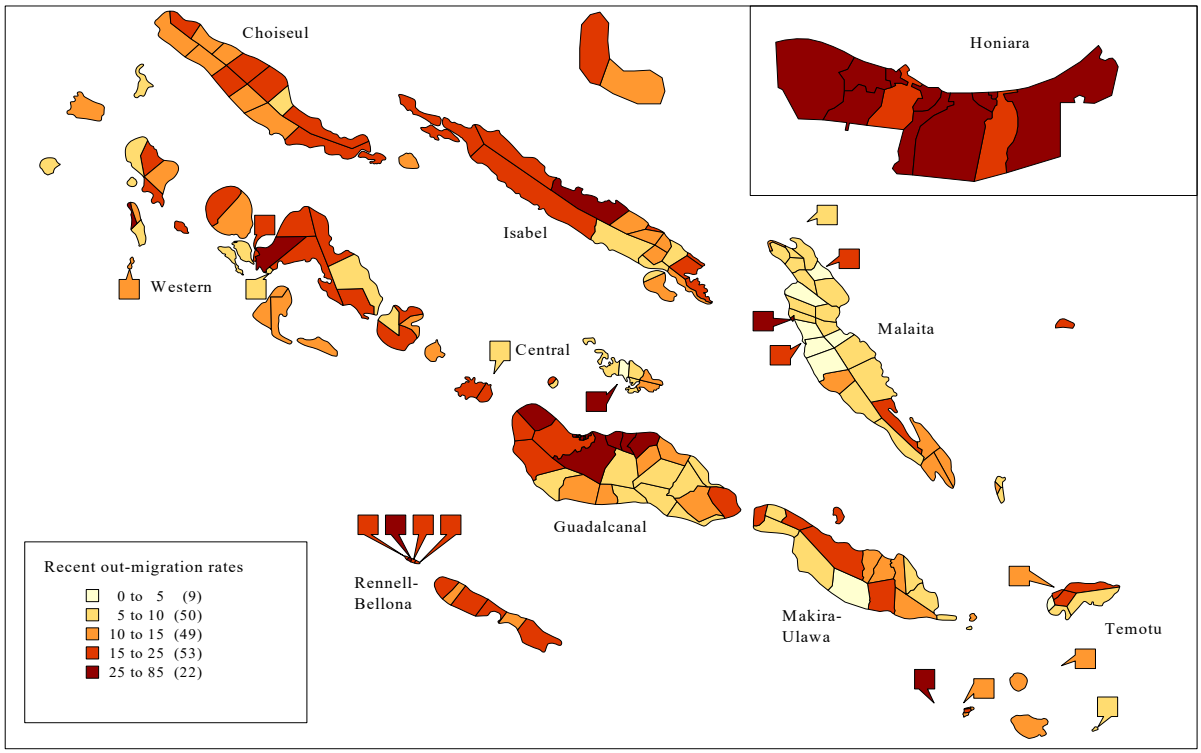


Figure 5.6a. Lifetime net-migration: difference between the number of persons born in a ward and the number enumerated in that ward (population born in the Solomon Islands)

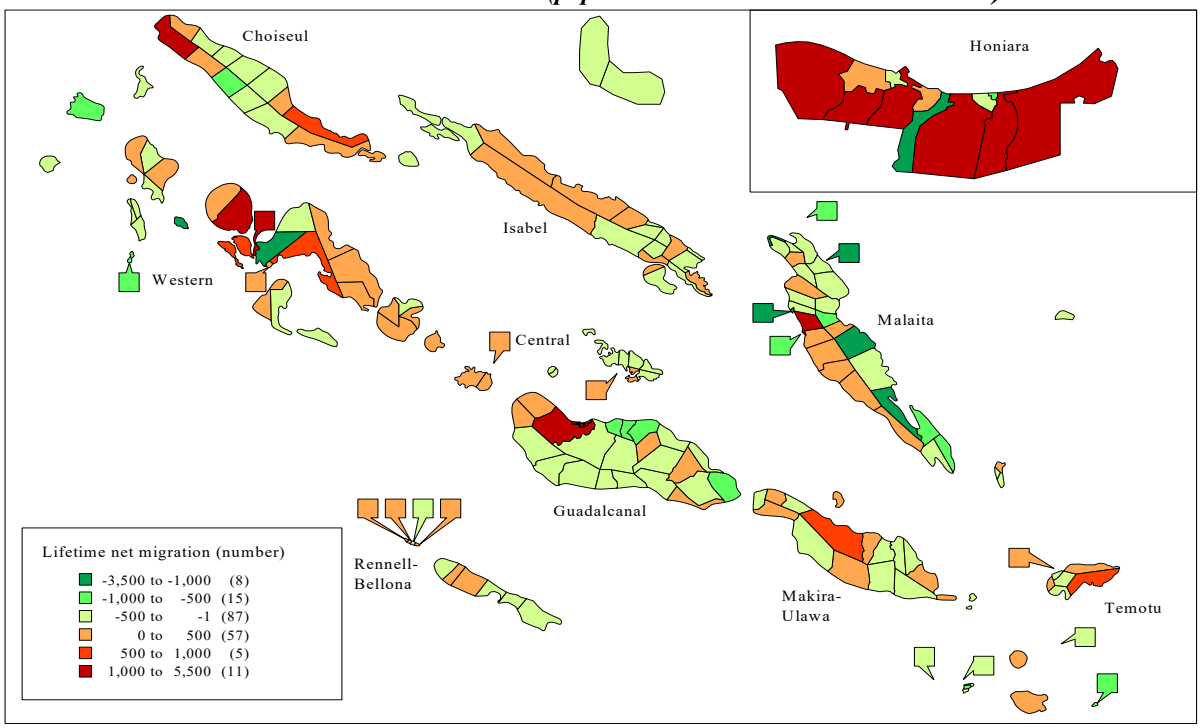
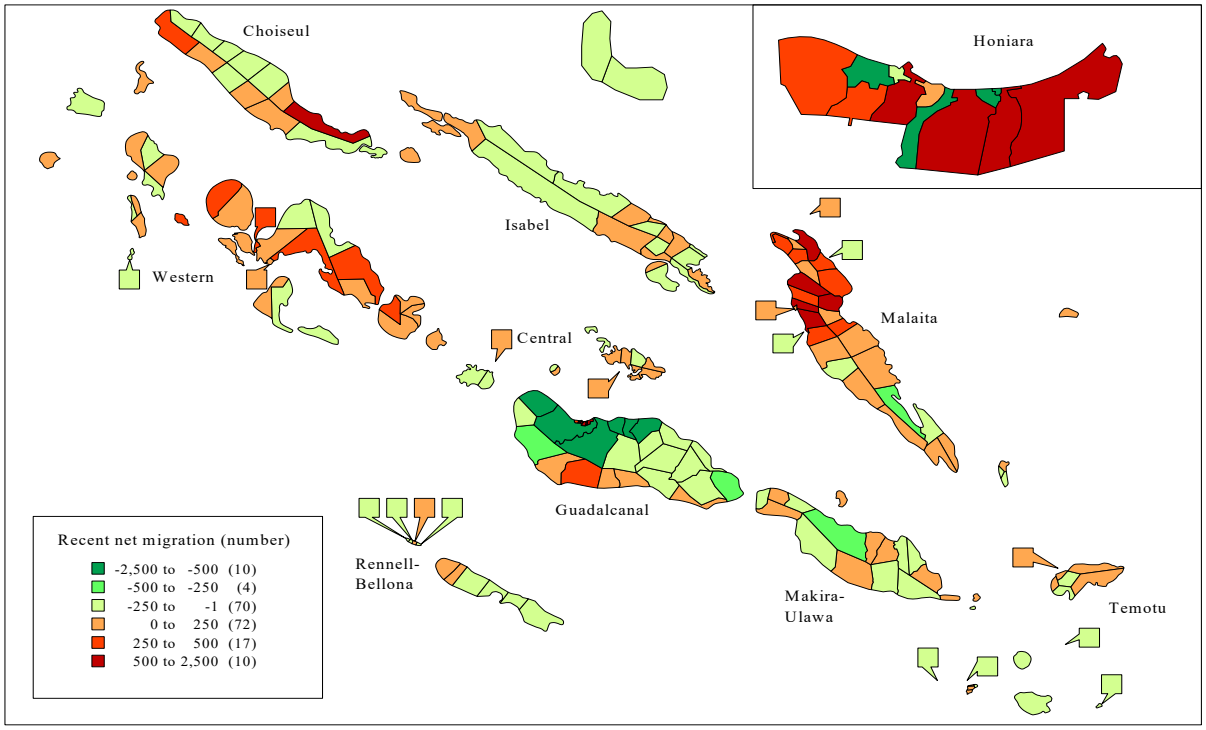


Figure 5.6b. Recent net-migration: difference between the number of persons residing in a ward in August 1997 and the number enumerated in that ward (population 28 months or older)



Honiara. A quarter of a century ago, in 1976, more than three out of every four people living in Honiara were born elsewhere. A decade later this proportion had declined slightly as Honiara-born children of life-time immigrants made their presence felt within the population. In 1999, the situation was somewhat complicated, as the census took place between two major waves of displacement that affected Honiara severely (see also section 5.2). At the 1999 census, the total population enumerated in Honiara was 49.1 thousand, of which 63 percent were born outside Honiara.

Therefore, in a relative sense the percentage of the Solomon Islands-born population born outside Honiara is steadily decreasing, although in absolute numbers, Honiara accommodates about the same number of lifetime migrants as before: 29.0 thousand in 1999 and 28.5 thousand in 1986. Many Honiara residents have actually moved to Honiara recently, between the 1997 national election and the 1999 census: 28 percent of the Solomon Islands-born population aged 28 months or older enumerated in Honiara had moved recently.

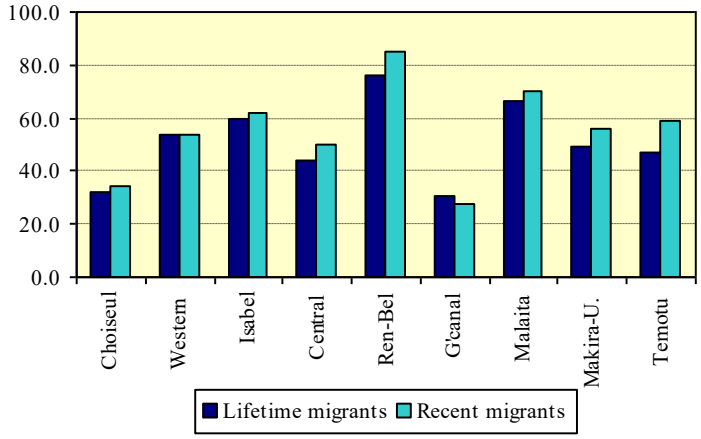
Honiara is the most popular destination for both lifetime and recent migrants from most provinces (*figure 5.7*). Only for migrants from Choiseul is Western province a more sought-after destination, while people who previously lived or were born in Guadalcanal most often moved to Malaita. The latter are native Malaitan return migrants, forced back there by the ethnic tension.

As table 5.2 shows, the rate of out-migration from Honiara is also high: 43 percent of those born there were living in another province in 1999. Equally, rates of recent in-migration to and out-migration from Honiara are higher than for the other provinces.

Within Honiara, the wards on the outer edges, where land is still available for housing, tend to have high in-migration ratios which are not counteracted by high out-migration. Panatina and Vura in eastern Honiara in particular, followed by Vavaea, Nggossi and Mbumburu in the west and south-west of the city have high positive net migration. The inner-city areas have lower net in-migration, probably because of lack of construction sites. Nevertheless, rates of in-migration (from other provinces) are among the highest in the country for all wards of Honiara: they vary from 53 percent (lifetime migration) and 22 percent (recent migration) in Nggossi, to 76 percent and 39 percent respectively in Naha.

Net migration to Honiara, both lifetime and recent, is generally positive and high. An exception is Mataniko ward. Its vulnerable location, extending into rural Guadalcanal, with fighting nearby during part of 1999 might perhaps be related to the outflow of population. Also Rove-Lengakiki, Cruz and

Figure 5.7. Percentage of lifetime and recent out-migrants from each province who have Honiara as their destination



Kukum show recent net outflows, and this corresponds with displacements reported from these wards (see section 5.2.2). The large and more spacious wards forming the western and eastern expansions have gained most migrants.

Administrative centres: the provincial capitals. The provincial capitals are Gizo (Western province), Auki (Malaita), Tulagi (Central province), Kirakira (Makira-Ulawa), Buala (Isabel), Taro (Choiseul), and Lata (Temotu). Most of these capitals are fairly small and serve mainly as administrative centres. Gizo is the largest, with 3.0 thousand inhabitants, followed by Auki (1.6 thousand) and Tulagi (1.3 thousand). Despite their small size, they stand out as points of attraction for migrants, some of them undoubtedly short-term stayers, others working in administration, in the local schools or hospitals, or in commercial activities. Tulagi for a while also housed a Solomon Taiyo factory, while several ports house CEMA-depots for copra and/or cocoa. As figures 5.4a and 5.5a clearly show, Gizo, capital of the large and economically relatively diversified Western province, and Tulagi are characterised by high rates of lifetime and recent in-migration, both from other wards within the province and from other provinces. For all provincial capitals the in-migration rates from other provinces stay well below those for Honiar, in the order of 13-26 percent, with only Tulagi showing an exceptionally high 57 percent. Adding the not inconsiderable flow of in-migrants from within the province, rates rise as high as 80 percent for Tulagi: so four out of five persons enumerated in Tulagi were born elsewhere. For the other provincial capitals, the percentage of lifetime in-migrants is less important, but still ranges between one third and one half of the population. Like Honiara, the provincial capitals also have a highly outwardly mobile population, as roughly 20-40 percent of the population born in the smaller capitals were enumerated elsewhere, increasing to 60 percent of the population born in Auki or Gizo, and 70 percent of those born in Tulagi. For recent migration, the pattern is similar, although at lower levels.

Lastly, net migration patterns are generally positive to the capitals, with the exception of Auki (lifetime migration), the capital of Malaita, which is a long-standing out-migration region. The recent positive net inflow into Auki can again be explained by the arrival of refugees from Guadalcanal and Honiara. The negative net lifetime migration from Gizo is more puzzling; it might be either a phenomenon of the past (recent net migration to Gizo is strongly positive), or related to the possibility that people have declared Gizo as their place of birth if they were born in the local hospital.[23]

Commercial centres. The fastest growing town apart from Honiara is *Noro*, in north-western New Georgia, which counted 3.5 thousand inhabitants in the 1999 census. It was defined as a separate ward only at the current census, but has already surpassed Gizo, the largest provincial capital, in size. Its main commercial establishment is the large fish cannery of Solomon Taiyo, at the time of the census a joint Solomon Islands and Japanese enterprise, with around 2,000 employees (however, because of the tension, activities were suspended in June 2000). Noro port also has storage facilities for copra, and attracts smaller commercial and service enterprises as well. As a result, both lifetime and in-migration rates are among the highest in the country: 88 percent of its population were born elsewhere (of which over two thirds in other provinces), and one in three inhabitants are recent migrants. By comparison, lifetime out-migration is modest: about 40 percent of the Noro-born population have left the town.

Another commercial attraction was the start of operations at the Goldridge gold mine in Guadalcanal in 1998, in Vulolo ward, bordering on Malango ward. In order to create space for mining, inhabitants of the region were relocated, and the mines hired about 300-400 workers. The mine, which remained in operation throughout 1999, closed down in May 2000, due to severed transportation and communication lines.

[23] Instructions to enumerators were that a person should declare as his/her ward of birth the ward where his/her mother was living at the time of the person's birth. However, it is not unlikely that there has been some mis-reporting in this respect.

Several large plantations also attracted large workforces. The oil palm plantation of SIPL/CDC on the northern Guadalcanal plains (wards of East and West Ghaobata and West Tasimboko) employed about 2,000 staff, but operations were mostly discontinued back in June 1999 because of the increasing tension. Furthermore there are the palm plantations of RIPEL on the Russell Islands (Banika and Pavuvu wards) in Central province, the Kolombangara plantations in Western province, a cocoa plantation on Isabel, et cetera. Although less visible for the wards in Guadalcanal province disturbed by ethnic tension and the resulting displacement (as signalled by high rates of recent out-migration), the wards harbouring these main commercial activities generally show fairly high rates of in-migration and out-migration, indicating their attraction for workers and the mobility of the labour force.

Although forest resources are disappearing rapidly, there are several major logging operations, mainly in Western, Choiseul and Isabel provinces, but as these usually last for only a few months, they have limited effects on longer-term migration.

Net migration to commercial centres is often strongly positive, as can be seen in figures 5.6a/b for for instance the wards of Noro and the Kolombangaras in Western province, the Russell Islands in Central province, and Tandai ward in the urbanised area surrounding Honiara town council. The figure displaying recent net migration patterns once more bears witness to the displacement from Guadalcanal to Malaita.

5.1.3.2 Rural out-migration

A second group consists of wards and/or islands characterised by relatively strong out-migration that is not counteracted by significant in-migration: areas of rural population loss caused by migration. Especially the more densely populated islands are affected, relying as they do on a vulnerable basis of marine products and subsistence agriculture, such as the Reef Islands and Tikopia in Temotu province (figure 5.6a/b), which also showed high out-migration in the previous census (Statistics Office 1989, p. 57).

High out-migration also takes place from Rennell as well as from densely populated Bellona and Sikaiana, but these three islands have high rates of in-migration as well, probably return migration, resulting in overall slight population losses through net migration. Wage employment and services on these islands are limited, and this may partly explain the high out-migration revealed in the last four censuses.

Few areas are now untouched by out-migration: only in some wards in Guadalcanal, Makira-Ulawa and Malaita do less than ten percent of the population born there live elsewhere. Most wards in the relatively sparsely populated Choiseul and Isabel provinces have lifetime out-migration as high as 20-50 percent, and they have long been areas of out-migration, lacking opportunities for wage employment, as was also noted during the previous census (Statistics Office 1989, p. 57). Many of these rural wards have negative net migration balances, they lose more population than they attract. But as much migration takes place within provinces, each province also has wards with a positive migration balance.

5.1.4 Short-term mobility

Short-term circular mobility is thought to be fairly common in the Solomon Islands (as in other parts of Melanesia). Visits to *wantoks* living and working in the towns are undertaken fairly frequently (see for instance Chapman and Protheroe 1985). The census data may provide some indication for this type of mobility by comparing the place where someone was enumerated with his/her place of usual residence. In addition,

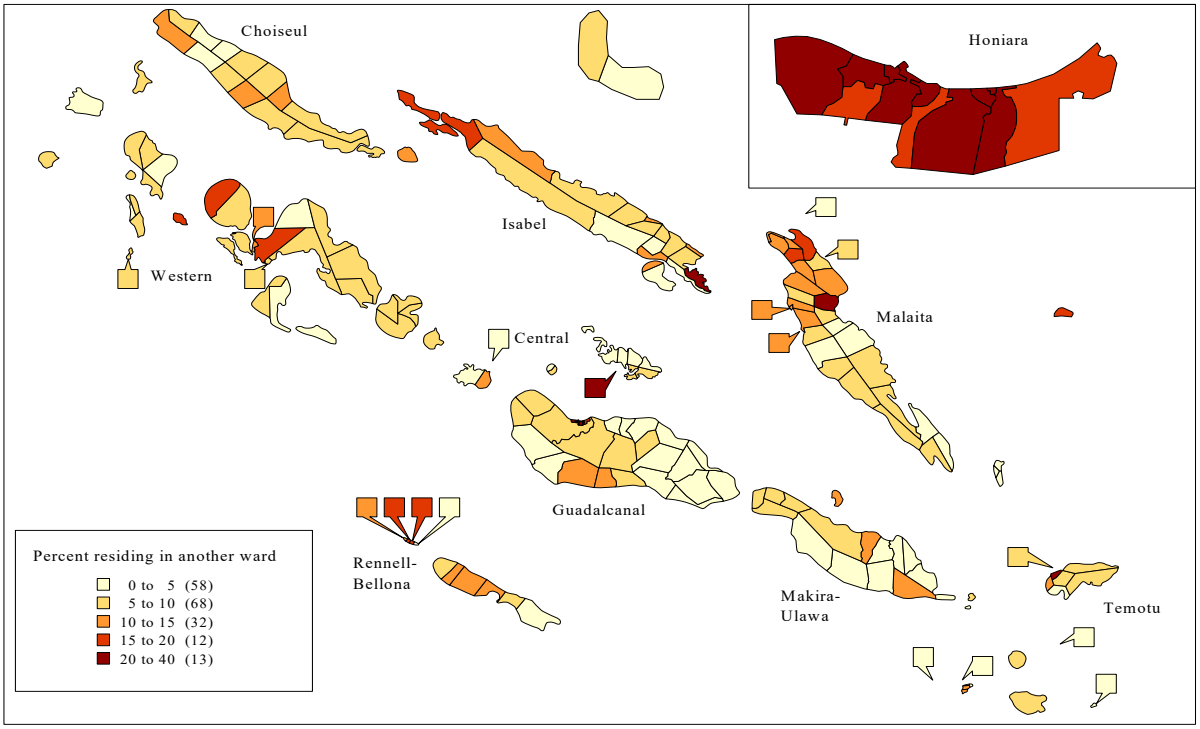
Usual place of residence

All persons enumerated in the census were asked about their 'usual place of residence'. If this was not clear, enumerators were to ask where the person had lived most in the past six months and where the person's closest relatives lived.

such data capture people travelling for business purposes, or for reasons of medical treatment, et cetera.

Most of the population of the Solomon Islands lived in the place where they were actually enumerated. Nevertheless, one in ten people reported that their usual place of residence was in a different ward from the one where they were enumerated. This figure is considerably higher than expected on the basis of the previous census. For example, of the population enumerated in Honiara in 1986, 10 percent (men) and 8 percent (women) reported that their usual place of residence was elsewhere. By comparison, the figure found in the 1999 census amounts to almost 20 percent.[24] *Figure 5.8* displays the percentages of the population enumerated in one ward, but usually residing in another. Apart from the high percentages found in the wards of Honiara (partly explained by people who may have been enumerated in their place of work while they actually live in another part of Honiara), other urban places and commercial centres stand out, as in the previous census. For instance, the provincial capitals Gizo, Tulagi, Auki and Lata; and commercial or medical centres such as Munda and North Kolombangara in Western province. In general, travellers from all provinces were visiting Honiara during the census. In addition, Choiseuleans are found as visitors to Gizo.

Figure 5.8. Percent of population enumerated in a ward reporting usual residence in another ward



However, apart from the general pattern that may be associated with visiting relatives in town *figure 5.9a* shows many other wards with high percentages of temporary visitors: persons who reported that their usual residence was elsewhere. These data provide another clear indication of the displacement situation (see also section 5.2). Usually resident in Guadalcanal or Honiara, many have temporarily left for the other provinces. For instance, Temotuans and people from Central province who reported living in the wards of Malango, East Tasimboko, or West or East Ghaobata in Guadalcanal province,

[24] Figures are not completely comparable, as those for the 1986 census refer to the population aged 15 years or older only.

among the wards most heavily affected by the ethnic tension, have temporarily taken leave to travel to their provinces of origin (cf. section 5.2.2). Most obvious is the departure of Malaitans from Guadalcanal and Honiara, as illustrated by the high percentages of non-residents in the wards in northern Malaita in particular.

5.1.5 Characteristics of migrants

Among both lifetime and recent migrants men slightly outnumber women: 56 and 55 percent respectively (compared with 52 percent in the total population). In the provinces of Temotu, Malaita and Makira-Ulawa out-migration is somewhat more male-dominated than in the other provinces. Western province attracts an above average share of male lifetime migrants, while Central province and Guadalcanal do so for male recent migrants. Women form a majority only in migration to Temotu and (lifetime only) Malaita.

Migrants are very often young adults, and the Solomon Islands is no exception to this world-wide finding[25] (*figure 5.9b*). Recent out-migration from most provinces is dominated by young adults in the current age groups 15-19 and 20-24 years. Only among the recent out-migrants from Guadalcanal and Honiara are there relatively many children (influence of ethnic tension). The age distribution of in-migrants closely mirrors that of out-migrants, but in this case it is the provinces of Malaita and Temotu which have received a relatively large percentage of children.

5.2 Displacement in 1999

5.2.1 Introduction[26]

From November 1998, tension based on ethnic differences started to build up in various areas of Guadalcanal, resulting in people being displaced from their villages. The Isatabu Freedom Movement (IFM, originally known as Guadalcanal Revolutionary Army) gained control of Guadalcanal, and a major upheaval in June 1999 caused a large-scale displacement, effectively ethnically cleansing the island except for the Malaitan pocket on the eastern tip. As the situation in Honiara also became unstable, a major movement of people emerged there too.

Although most of those displaced from Guadalcanal were Malaitans, people from Guadalcanal were equally affected because of local retaliations, the generally insecure situation and the pressure from the various parties involved in the conflict. However, their displacement largely occurred within the province.

After July 1999 the tension eased to a certain extent and some of the people who had been displaced within Guadalcanal or had fled from Honiara returned to their original places of residence. It was during this period that the census took place.

In January 2000 the ethnic tension flared up again, with a new factor: the emergence of the Malaita Eagle Force (MEF). Raids and retaliations on Guadalcanal and in Honiara set new flows of displaced persons in motion. However, it was not until the armed take-over of the capital by the MEF early in June that displacement reached new heights. In contrast to the major upheaval one year previously, this may have involved the population of Honiara more than that of Guadalcanal. A peace agreement was signed on October 15, 2000.

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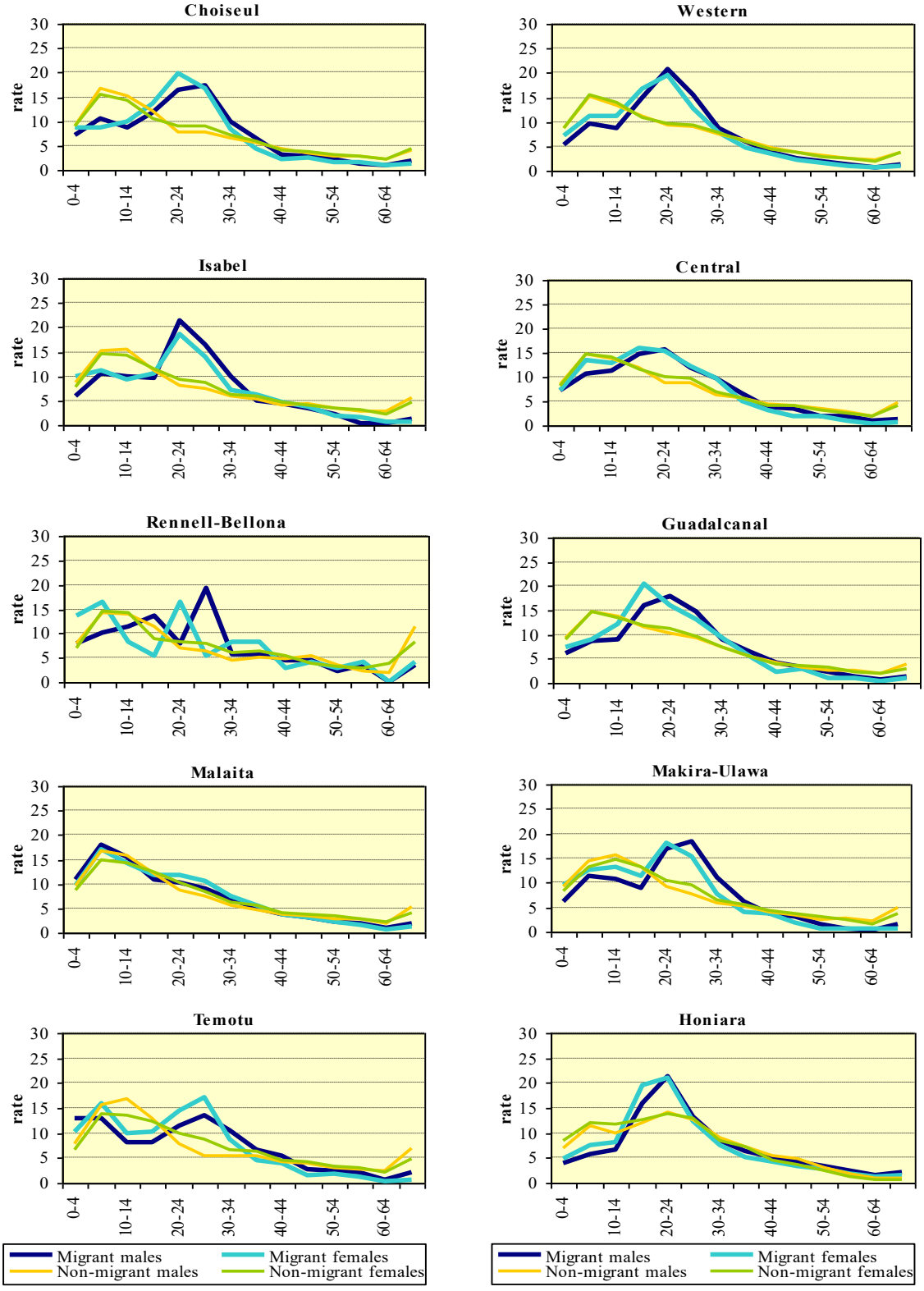
[25] This refers to the current age distribution rather than the age distribution at the time of migration. However, as recent migration took place at most 28 months prior to the census, the distortion is limited.

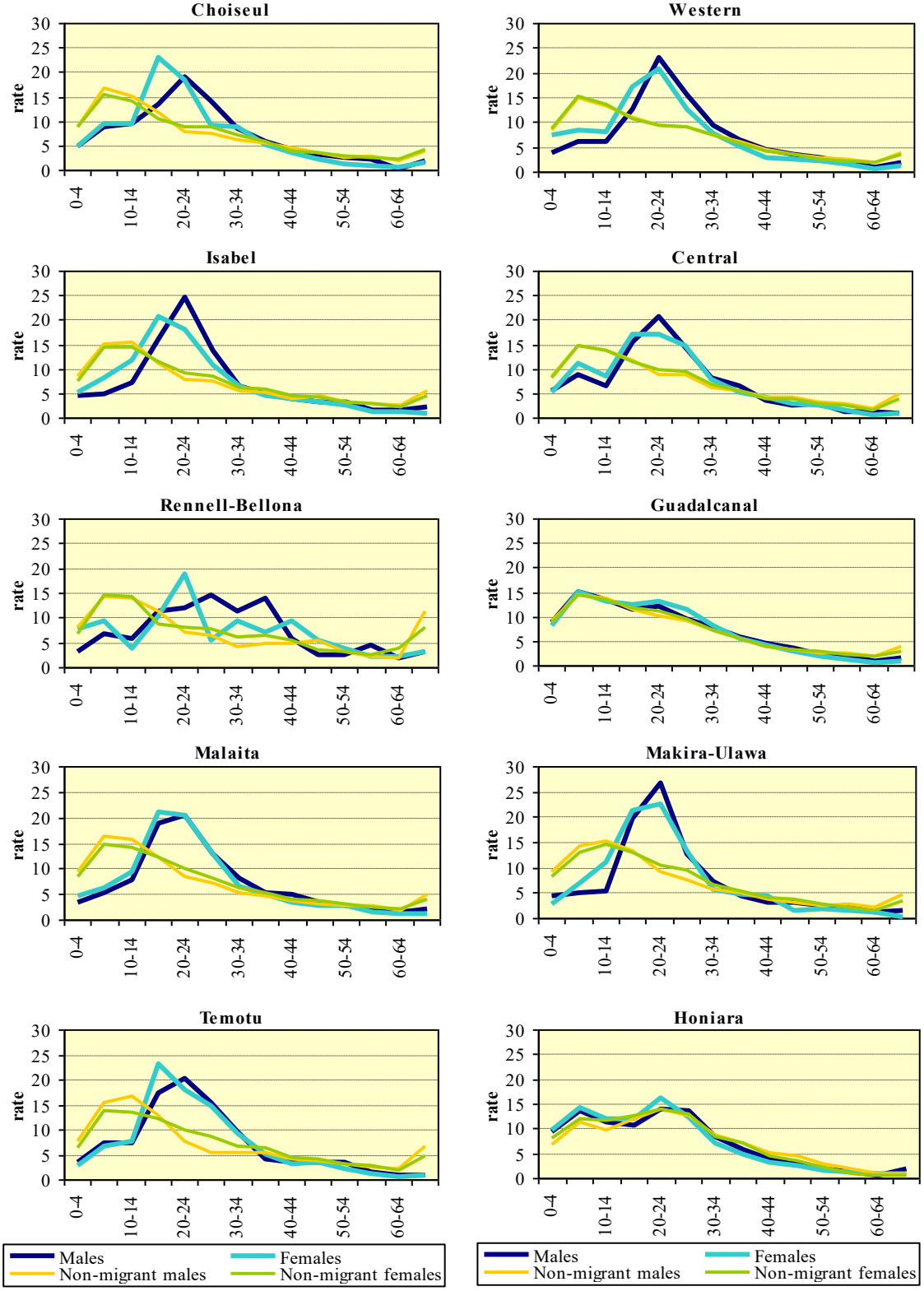
[26] For a more detailed description of the events and ethnic tension leading up to a massive displacement of population from Guadalcanal and Honiara, see also chapter 2 and Basic tables report.

Figure 5.9a. Age-distribution of recent in-migrants[a] and of total population, by sex and province of enumeration (population 28 months or older)



[a] Recent in-migrants: persons living in a ward in August 1997 other than the ward of enumeration.

Figure 5.9b. Age-distribution of recent out-migrant[a] and of total population, by sex and province[b] (population 28 months and older)



[a] Recent out-migrants: persons enumerated in another province than the province of residence in mid 1997.
[b] Province of residence in 1997 for out-migrants, province of enumeration for total population.

In an effort to capture the displacement of the population prior to the census, Solomon Islanders were asked if they had moved or fled from Guadalcanal or Honiara because of the ethnic tension, and if so, in which ward they were living before they moved or fled. The inclusion of this question on displacement in the census reveals how many people had been directly affected by the ethnic tension prior to November 1999. Besides information about their personal characteristics, the census results show which areas displaced people left and give a fair indication of where they went. In this sense, census information can be an important data source for rehabilitation programmes and a valuable addition to displacement surveys by relief organisations. One advantage of the census data over surveys held by relief organisations is that nothing was to be gained by answering the displacement question in a specific way, so the bias that seeps in as soon as respondents are entitled to certain benefits by claiming they have been displaced is avoided.

As most of the displacement into Malaita from rural Guadalcanal occurred before mid-December 1999, the census is likely to have captured most of that movement. On the other hand, a large part of displacement from Honiara occurred in 2000, and this is not registered by the census.

5.2.2 Extent and direction of displacement

A total of 35.3 thousand people reported in the census that they had moved from their place of residence in Guadalcanal or Honiara because of the tension, almost 9 percent of the population of the Solomon Islands. Given the geographical concentration of the tension, the effect on Guadalcanal province was strongest, in terms of population movement: 24.6 thousand peoples were displaced. That is, an estimated 34 percent of the pre-displacement population.[27] Prior to the census, 10.7 thousand people were displaced from Honiara, or 19 percent of its population (*table 5.5*).

Thus, in 1999 most of the displacement, 70 percent, was from rural Guadalcanal. At that time, Honiara's share in the displacement was only 30 percent, especially from the large wards of Kola'a and Panatina (16 percent each).

Overall, displacements (irrespective of the destination) were most massive from East Tasimboko from which 4.9 thousand people fled (20 percent of all displacement from Guadalcanal province) (*table 5.6*). This ward, together with West and East Ghaobata, housed the workers of the SIPL plantation, many of whom were from Malaita, with a smaller group originating from Temotu. Second in displacement comes Malango (4.1 thousand displaced, 17 percent of Guadalcanal displacements), followed by Tandai (3.2 thousand), West and East Ghaobata (2.8 and 1.6 thousand respectively), Saghalu (1.9 thousand) and Vulolo (1.1 thousand). Together, these seven wards account for 80 percent of all displacements from or within Guadalcanal (19.7 thousand people).

In relation to their estimated pre-displacement population sizes, these same seven wards were most heavily affected. East Tasimboko, West and East Ghaobata and Malango saw a staggering 66, 65, 58 and 58 percent respectively of their populations displaced. The other three, Tandai (44 percent) and Saghalu (39 percent) in western Guadalcanal, and Vulolo in centre-north (39 percent) were somewhat less affected, although there too considerable population displacement occurred. In Honiara at that time only one ward was that strongly affected: Naha, which had 61 percent of its population displaced.

But many inhabitants were also displaced from Mataniko (Tuvaruhu village), Rove-Lengakiki, Cruz and Kukum (see *figure 5.10*).

[27] The pre-displacement population is estimated by adding the displaced population enumerated in other provinces to the population enumerated in the province (see also section 2.6.5 in this report).

Table 5.5. Population displaced from Guadalcanal and Honiara, by province of displacement and by province of enumeration

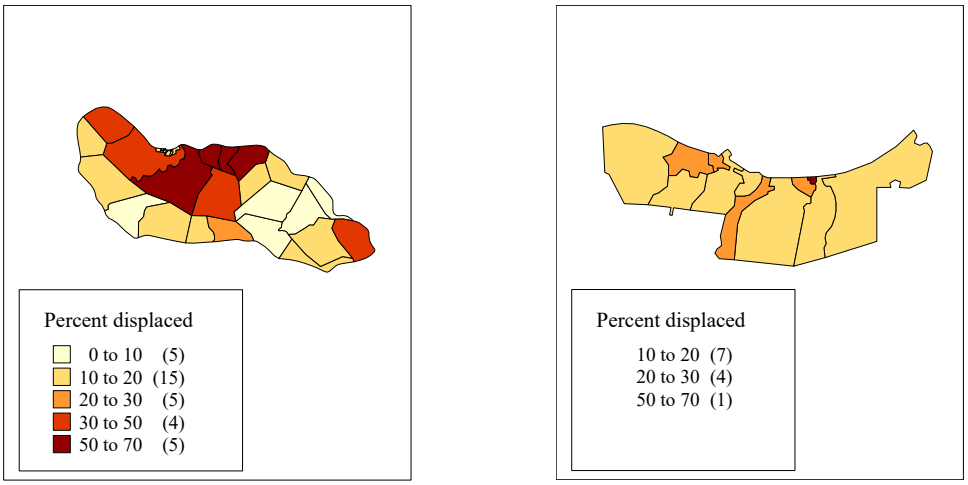
Province of enumeration	*Guadalcanal+Honiara*		*Guadalcanal*		*Honiara*	
	displaced	*% of pop.*	*displaced*	*% of pop.*	*displaced*	*% of pop.*
Solomon Islands	35,309	8.6	24,597	6.0	10,712	2.6
Choiseul	316	1.6	133	0.7	183	0.9
Western	1,140	1.8	418	0.7	722	1.2
Isabel	331	1.6	197	1.0	134	0.7
Central	486	2.3	341	1.6	145	0.7
Rennell-Bellona	32	1.4	9	0.4	23	1.0
Guadalcanal	12,806	21.3	12,381	20.5	425	0.7
Malaita	12,676	10.3	7,788	6.4	4,888	4.0
Makira-Ulawa	584	1,9	283	0.9	301	1.0
Temotu	599	3.2	360	1.9	239	1.3
Honiara	6,339	12.9	2,687	5.5	3,652	7.4

Table 5.6. Number of people displaced from wards in Guadalcanal and Honiara and their share in the total number of displacements

Ward of residence before displacement	*Number displaced*	*Percent displaced*	*Ward of residence before displacement*	*Number displaced*	*Percent displaced*
Guadalcanal and Honiara	**35,309**	**100.0**			
Guadalcanal	*24,597*	*69.7*	*Honiara*	*10,712*	*30.3*
East Tasimboko	4,924	20.0	Kola'a	1,705	15.9
Malango	4,098	16.7	Panatina	1,705	15.9
Tandai	3,241	13.2	Naha	1,351	12.6
West Ghaobata	2,808	11.4	Vura	1,227	11.5
Saghalu	1,881	7.6	Nggossi	1,063	9.9
East Ghaobata	1,594	6.5	Mataniko	952	8.9
Vulolo	1,148	4.7	Vavaea	845	7.9
Birao	851	3.5	Rove/Lengakiki	582	5.4
Moli	633	2.6	Kukum	492	4.6
Talise	540	2.2	Mbumburu	371	3.5
Aola	402	1.6	Vuhokesa	180	1.7
Tangarare	352	1.4	Cruz	106	1.0
Vatukulau	349	1.4	Ward not stated	133	1.2
Duidui	345	1.4			
Savulei	332	1.3			
Paripao	301	1.2			
Longgu	150	0.6			
Wanderer Bay	147	0.6			
Avuavu	115	0.5			
Tetekanji	108	0.4			
Kolokarako	62	0.3			
Valasi	60	0.2			

Where did all these people go? That in itself cannot be derived from the census data directly, as no question was asked on this. What we do know is where they were on census night. Therefore, this tells us the direction of displacement only to the extent that people were still displaced at the time, and had not yet returned. It is estimated that some people at least had returned, especially those that had not fled far, within Guadalcanal, although it is thought that the majority of the Malaitans, who returned to their province of origin, were still in Malaita on census night. The data support this, as over one third

Figure 5.10. Percent of population displaced from Guadalcanal and Honiara



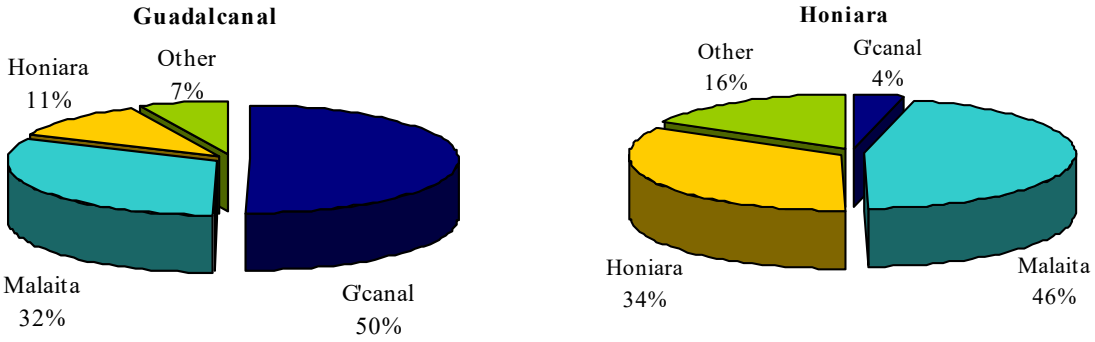
of all the displaced from Guadalcanal and Honiara together were enumerated in Malaita (36 percent, or 12.7 thousand persons). More than half were enumerated in Guadalcanal (36 percent, or 12.8 thousand people), or in Honiara (18 percent, 6.3 thousand people) itself.

Although close to half of the displaced from Honiara were enumerated in Malaita on census night (46 percent, 4.9 thousand persons), in fact 34 percent (3.7 thousand) were also enumerated in Honiara. Relatively few went to other provinces: only 4 percent (425 people) went from Honiara to Guadalcanal, less than the 8 percent (722 persons) who took refuge in Western province. Furthermore, most of the displaced from Honiara who were again enumerated in Honiara (84 percent), were enumerated in the same ward, suggesting that they might have returned before census night (*figure 5.11*). People who lived in Honiara's eastern wards of Vura and Panatina and in centrally located Vavaea in particular before displacement were enumerated there too. But Vura and Panatina also lost most people through displacement, followed by Kola'a and Nggossi. The small ward of Naha, on the other hand, saw only 16 percent of the displaced back before census night.

By comparison, just over half of people who had originally fled from Guadalcanal were enumerated there (12.4 thousand persons), one third (7.8 thousand) were in Malaita on census night and 11 percent in Honiara (2.7 thousand). Of those displaced from Guadalcanal but also enumerated there, as in Honiara, a high percentage (83 percent) were enumerated in the same ward they reported living in prior to displacement. Assuming these were mostly returnees, the lowest return (or alternatively, within-ward displacement) seems to have been to the wards of Duidui on the weather coast (40 percent) and Saghalu in western Guadalcanal (50 percent). On the other hand, the wards of Vatukulau, Talise and Moli on the Weathercoast, Tetekanji and Birao in the south-east as well as East Tasimboko and Malango in the centre-north had high rates of return or within-ward displacement, of over 90 percent. The wards reporting the highest numbers of intra-Guadalcanal displacements are East Tasimboko (2.4 thousand), Tandai (2.3 thousand), Malango (1.6 thousand), West Ghaobata (1.2 thousand) and Vulolo (1.0 thousand).

With so much of the displacement being in the direction of Malaita, by census night one in ten of this province's population reported displacement status. Wards in northern Malaita carry a comparatively heavy burden, relative to the population size (*figure 5.12*). In Nafinua ward more than one in five

Figure 5.11. Province of enumeration of the population displaced from Guadalcanal (left-hand panel) and Honiara (right-hand panel)

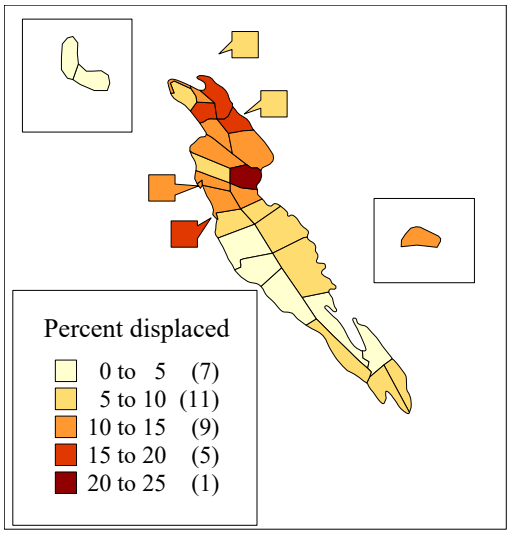


people said they were displaced (22 percent), and a number of other wards reported between 15 and 20 percent displaced among the population: Takwa, East Baegu, Mandalua/Folot and Langalanga in northern Malaita, and the island of Sikaiana.

5.2.3 Characteristics of the displaced

Displacement hit men and women almost equally: 52 percent of the displaced were men, 48 percent women. The age distribution of the displaced and the enumerated populations in Guadalcanal and Honiara is illustrated by *figure 5.13*. Generally, the age distributions are remarkably comparable, as it seems that in most cases whole families were displaced, although from the census data we cannot deduce whether families moved together, or for instance children were sent away sooner. Only in the case of Honiara are there somewhat more children (ages 0-14 years) and comparatively fewer adults of working age among the displaced than among the total population of the capital. This can well be

Figure 5.12. Percent displaced among the population of Malaita province, by ward



explained by the likelihood that those with a job in town stayed on, while sending their children and non-working spouses to other provinces. This is further supported by the finding that there are somewhat more women than men in the age group 20-34 among the displaced.

Finally, men and women 15 years of age or older who were displaced from Guadalcanal tend to be slightly over-represented in both the higher educational levels (attended form or higher) and in the lowest one (never attended school), relative to the total population enumerated in Guadalcanal province. The displaced from Honiara were on average lower educated than the total population of the town (*figure 5.14*). This might suggest that the higher educated, with jobs in the formal economy, were more likely to stay on, or otherwise that the population groups most at risk of displacement are overrepresented at the lower educational levels.

Figure 5.13. Age distribution of the displaced population and of the total population, by province of origin and by sex

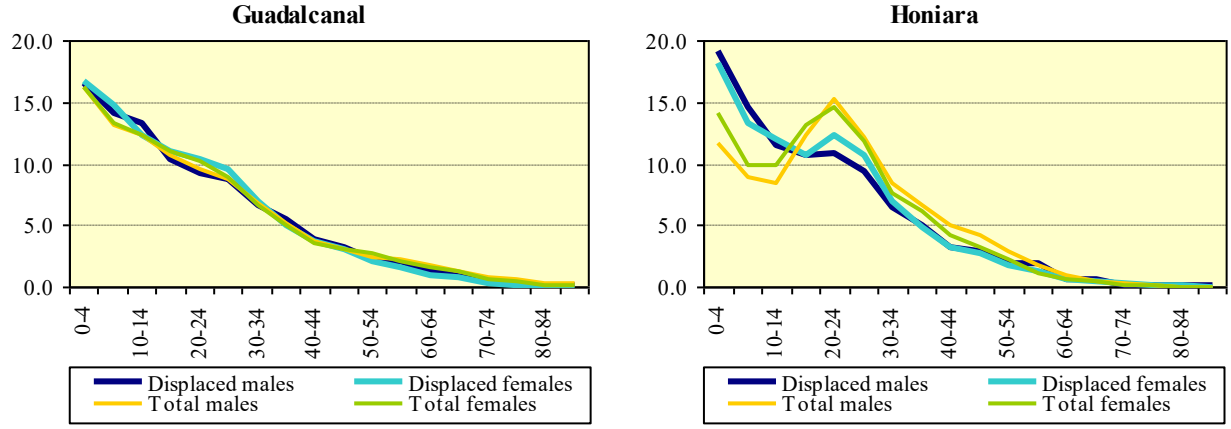
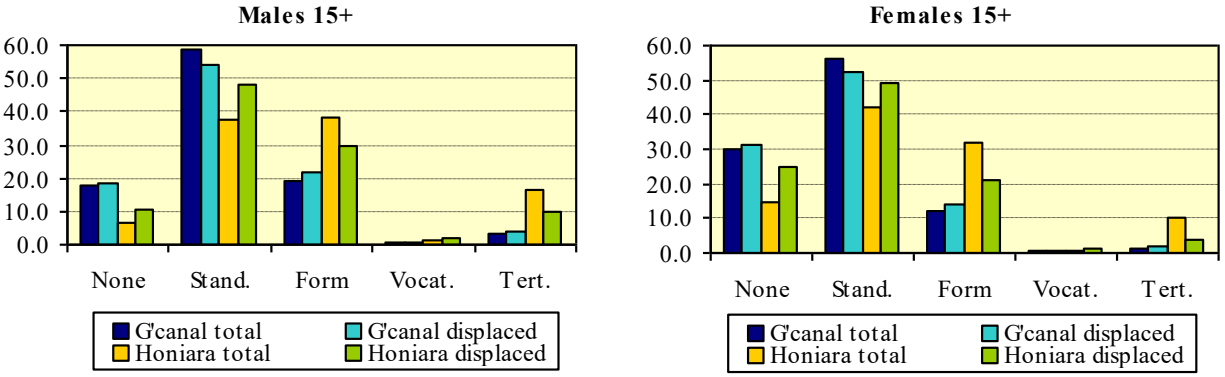


Figure 5.14. Educational level[a] of the displaced population and of the total population 15 year or older, by province of origin and by sex



[a] Educational level attended (and with at least one year completed at that level).

5.3 International migration

5.3.1 Foreign-born people in the Solomon Islands

International migration is not all that important in the Solomon Islands (*table 5.7*). The number of foreign-born people was just 1.0 per cent of the population (4.1 thousand persons). Low as it is, it is still slightly lower than the 4.2 thousand (1.5 percent) reported in the 1986 census, and the 4.3 thousand (2.2 percent) in the 1976 census, continuing the downward trend from 1970 (2.5 percent).

Groups excluded from enumeration

Both in the 1986 and in the 1999 censuses, the following groups were excluded from enumeration:

(a) diplomatic staff and their families;
(b) foreign military personnel;
(c) passengers and crew on foreign ships; and
(d) foreigners visiting (or intending to visit) the country for two months or less). In the 1976 census, all foreign citizens were included.

Table 5.7. Total population by country of birth and country of citizenship

Country of Citizenship	*Total population*	*Country of birth*		*Not stated*
		Solomon Islands	*Abroad*	
Total population	409,042	403,132	4,141	1,769
Solomon Islands	406,598	402,694	2,362	1,542
Foreign	2,166	375	1,774	17
Not stated (incl. stateless)	278	63	5	210

Almost three out of four people born overseas were born in Oceania, and within that region Papua New Guinea and Kiribati were the most important, accounting for 26 and 23 percent of foreign-born people in the Solomon Islands, followed at a distance by Australia (8 percent) and Fiji (5 percent). One in five people born outside the Solomon Islands were born in an Asian country, of which six percent in PR China. Only four percent were born in America (practically all USA), and another four percent in Europe. Among Solomon Islands citizens the dominance of Oceania is clearly even more important: of foreign-born Solomon Islanders 39 percent were born in Kiribati and 30 percent in neighbouring Papua New Guinea; among the remaining 31 percent, PR China, Fiji, and Australia are the most important countries of birth.

Men outnumber women in the overall foreign-born population: 56 versus 44 percent, but men are far more over-represented among those born in Asia (with the exception of PR China) and to a lesser extent Europe. However, among the foreign citizens born abroad the over-representation of men is stronger: almost two in three are male, while among the foreign-born Solomon Islands citizens the sex-distribution is evenly balanced. This is easily explained by the fact that many of the foreign citizens are temporary workers, many of whom do not bring their families with them. In particular, this applies to Malaysians, Indonesians, Filipinos (most working in the logging industry), Taiwanese and Japanese, over 80 percent of whom are men.

Overall among the foreign-born population, 80 percent are 15-64 years old, with 16 percent 0-14 and just 5 percent 65 years or older. There is little difference in this respect between men and women, although men are still somewhat more concentrated in the 15-64 year age group (82 percent, versus 77 among women). The age structure is only different for the I-Kiribati, who settled in the Solomon Islands in the period 1955-1970 from the then Gilbert and Ellice Islands (now Kiribati and Tuvalu) (Statistics Office 1989, p. 47). The permanent nature of this movement, with few new arrivals since, is reflected in the sex and age structure of this population group: a fairly high proportion of elderly (12

percent 65+), and few foreign-born (2 percent) among the young generation (0-14 years). Immigrants from Kiribati originally settled in Western province (Shortland Islands and Gizo), Choiseul (Wagina Island), and near Honiara. The current distribution of the foreign-born still reflects this pattern: 41 percent live in Western province, 26 percent in Choiseul, and 24 percent in Honiara (see also section 3.2.3 in this report).

An indication of the permanence of the migration is given by the extent to which those born abroad have obtained Solomon Islands citizenship, either at birth, as the children of Solomon Islands parents, or later in life. Among those born abroad, the majority are Solomon Islands citizens (57 percent). There is a great difference by country of birth, however. By now almost all (96 percent) of those who were born in Kiribati have Solomon Islands citizenship. Many from other Oceanian states, too, have Solomon Islands citizenship, in particular people born in Fiji (64 percent) or in Papua New Guinea (67 percent). Another quite settled group are the Chinese from PR China (60 percent have Solomon Islands citizenship). On the other hand, only a small minority (ten percent at most) of those born in Indonesia, Japan, the Republic of Korea, or Malaysia are Solomon Islands citizens. As noted above, these are mostly male temporary workers.

Unsurprisingly, foreign-born inhabitants are strongly concentrated in Honiara, which houses 1.9 thousand or 47 percent of the foreign-born against only 12 percent of the native-born population. Another 152 foreign-born people live in Honiara's urban surroundings, making a total of 2.1 thousand for greater Honiara urban area. Only two other provinces have an 'over-representation' of foreign-born people: Western province (15 percent of the native-born and 24 percent of the foreign-born, mostly I-Kiribati and Papua New Guineans) and Choiseul (5 percent of the native-born and 9 percent of the foreign-born, again mostly and Papua New Guineans).

Compared with the Melanesians and the Polynesians, the percentage born in the Solomon Islands among those of Micronesian, Chinese or European ethnic origin is relatively low (80, 29 and 6 percent respectively). Those of Micronesian ethnic origin are mainly from Kiribati, while the ethnic Chinese were born in PR China (34 percent), Malaysia (11 percent), Hong Kong (10 percent) or Taiwan (4 percent).

5.3.2 Foreign citizens in the Solomon Islands

Because of the evacuation following the June 2000 armed conflict, the number of foreigners in the country has dwindled, although once peace is restored the number is likely to gradually return to its previous level.

But even in November 1999, at the time of the census, the number of foreign citizens was quite small, even smaller than the number of foreign-born, both in an absolute (2.2 thousand) and in a relative (0.5 per cent) sense. Most foreign citizens come from the Oceania-Pacific region: 60 percent, with Papua New Guineans (20 percent) and Australians (16 percent) forming the largest groups. Just over one quarter of foreign citizens come from a variety of Asian countries, mainly Malaysia, PR China, the Philippines and Japan.

Almost half of foreign citizens (48 percent) live in Honiara, which houses 12 percent of the total Solomon Islands population. The only other province housing more than the average share of foreign citizens is Western province (18 percent of foreign citizens and 15 percent of the total population).

Most foreign citizens born before the 1997 national election also lived in the Solomon Islands at the time of this election, 63 percent, but 35 percent were living abroad then, especially Australians (44 percent), New Zealanders, Japanese, Malaysians, Canadians, citizens of the USA and Dutch.

5.3.3 Return migration of Solomon Islanders

Recent return migration of Solomon Islands citizens may be deduced by examining the place of residence in 1997. Very few Solomon Islands citizens now living in the Solomon Islands were living abroad then, just 0.2 percent (816 people), mostly in Fiji (200), Papua New Guinea (195), Australia (157) and New Zealand (96). Education and work are likely to be the most important reasons for Solomon Islanders' temporary residence abroad.

5.4 Summary and conclusions

Internal migration is a phenomenon of increasing importance in the Solomon Islands. The strong population growth, combined with limited local opportunities for wage employment induce people to migrate in search for work. At the time of the 1999 census, one in six Solomon Islanders, more than 68 thousand persons, were living outside their province of birth, and one in ten had moved in the preceding 28 months. The main destinations for migrants are Honiara and Western province. For a long time, Guadalcanal province was the second most important destination, but the displacement in the wake of the ethnic tension caused its sudden decline. All other provinces except Central experience net losses of population due to lifetime migration, with Malaita as the main source of migrants. However, this does not imply that the population of these provinces is actually declining, as natural increase (the surplus of births over deaths) is an important factor in population growth in the Solomon Islands (see also section 2.6.3 in this report).

Migration linkages are strongest between the provinces of Malaita, Guadalcanal, Western, and Honiara, with the latter functioning not only as a major current destination for Solomon Islanders from the other provinces, but also as a temporary, 'transit' residence for those moving between other provinces. Neighbouring Choiseul and Western province also have relatively intensive migration links. But direct migration linkages between the other provinces are generally weak, reflecting the lack of economic bonds between them.

Honiara is unequivocally the single most important focus of migrants. As the country's capital, it houses all ministry head offices (although there are some national branch offices in the provinces), functions as a primary commercial centre, serviced by both a port and the country's only international airport for regular cargo and passenger traffic, and is the major centre for higher education in the country. The 'bright lights' of Honiara, the only big town in the country, no doubt contribute to its attraction for migrants. The population of Honiara is the only one to consist in majority of people born elsewhere, and the strong in-migration is a major factor in the rapid growth of the capital, which is spilling over into surrounding Tandai ward, now part of the 'urbanised' area. But the capital's population is also highly outwardly mobile: although many migrants and native-born Honiarans stay to work and live there, others return home after some time or move on to yet another destination.

Apart from Honiara, there are definite magnets of attraction in many other provinces too, with high rates of both in and out-migration. Such magnets are in the first place the centres of commercial activity, where the locally available labour supply is often too small to satisfy demand: the fast growing town of Noro with its large fish cannery (Western province), and the wards harbouring the larger plantations, such as those on the northern Guadalcanal plains and in Western and Central provinces, and the Goldridge mines in Guadalcanal, have been main destinations for Solomon Islanders in search of wage employment. However, in the months preceding the census, migration flows reversed as a consequence of the ethnic tension. The rapid economic decline associated with the suspension of plantation and mining activities in northern Guadalcanal, and of the cannery in Noro have so far prevented significant return migration.

Despite their relatively small size, the provincial capitals, too, stand out as attraction points for migrants. They provide modest governmental employment as well as some jobs in the commercial and services sectors. For almost all provincial capitals, in-migration rates from other provinces are well below those recorded for Honiara, with only Tulagi showing well above average rates.

The massive displacement associated with the ethnic tension strongly distorted the 'normal' migration patterns summarised above, especially those of Guadalcanal, Honiara and Malaita. In the months prior to the census 35 thousand men, women and children left their homes in Guadalcanal province (24.6 thousand) and Honiara (10.7 thousand). Because of these movements, Guadalcanal became a net 'exporter' of people instead of the important destination it has been for so long. In Honiara, too, growth slowed down, although the census does not yet take into account the displacement that occurred in 2000 and which was mostly from Honiara. The provinces of Malaita and to a lesser extent Temotu received far more return migrants than they would normally have received.

Wards in northern Guadalcanal have been hardest hit by the tension, with East Tasimboko, Malango, West and East Ghaobata, Tandai, Saghalu and Vulolo accounting for 80 percent of total displacement from Guadalcanal, the first four wards mentioned losing as much as 58-66 percent of their populations.

Refugees who originally came from outside Guadalcanal or Honiara turned to their places of origin or otherwise to places where close relatives live. Outside the island of Guadalcanal, this resulted in a concentration of displaced in northern Malaitan wards, as well as in a number of wards in Temotu, burdening the demand for services such as education, health, and other basic community services in these wards in particular, and expanding local labour supplies substantially. In the other provinces, the direct population effects of displacement were minor and scattered.

A number of displaced people either moved within their ward of residence or had, already before the census, returned to the ward they fled from. In fact, one third of the displaced from Honiara and half of those from Guadalcanal were enumerated in the same province, the large majority even in the same ward they had fled from. Such a return is easier for those who were displaced within their native province, but harder, and therefore less likely, for natives from other provinces, such as Malaitans or Temotuans. Employment opportunities in Guadalcanal and Honiara have dwindled, with the closure of the SIPL plantations, the Goldridge mines, and the budget cuts in ministries and other government offices or government subsidised sectors, such as medical and educational services. Apart from the direct effect on those who lost their jobs, there is a wider effect on family dependants, and on employment opportunities in other sectors, such as the retail trade. However, the bigger companies will have to be able to rely on more than the small local population before they restart operations, and this will necessitate renewed in-migration of formerly displaced and/or new migrants.

While internal migration affects young adults (15-24 years) in particular, and men somewhat more than women, the tension-related displacement has hit men and women equally, across all age groups. Nevertheless, in Honiara, working-age adults with jobs in the formal economy, and among these perhaps particularly the higher educated, seem to have stayed on, at least during the tensions in 1999.

In sum, migration and, recently, displacement thus have important consequences for the (re)distribution of the population. Added to the natural growth of a population, an increase caused by migration brings with it an increase in the demand for services. Apart from obvious services such as education (demand for schools and teachers), health services (hospitals, clinics, doctors and nurses), and other basic community services, there is also an increased demand for housing and land. Land shortage and disputes over land use may cause conflict in the situation of the Solomon Islands, where property structures are complicated, available land is becoming increasingly scarce in some of the more densely populated regions, and migration is creating increased cultural diversity within regions.

A final aspect of migration is the modest significance of international migration for the Solomon Islands: before the political events of 2000, the Solomon Islands housed approximately 2.2 thousand foreigners, mostly temporary employees of international companies or joint ventures, such as the logging, fishing, and plantation industries. The majority were evacuated in June 2000. Some have returned since, and it is expected that the number of foreign residents will gradually revert to previous levels once the economy restarts.

Although the census is not the proper instrument to measure this, emigration of Solomon Islanders does not seem to be an important phenomenon. The most important destinations are Papua New Guinea, Fiji, Australia and New Zealand. The pursuit of higher education is probably a main motive for (temporary) emigration, while labour emigration appears to be rare. Up to now, the strong reliance on a subsistence economy combined with as yet sufficient land resources to support such an economy have made unnecessary for Solomon Islanders to move abroad in large numbers to earn a living. Also, unlike the citizens of many other Pacific countries, Solomon Islanders do not have easy immigration access to countries with larger economies and higher wage levels.

6. Economic activity and labour force

Ward FRIESEN, Jeannette SCHOORL and Reuben TOVUTOVU

6.1 Introduction: census questions and enumeration

Information on economic activities collected in the census falls into two main categories. First, each household was asked about the crops, livestock or marine products produced during the year leading up to the census. Second, a series of questions were asked of each individual born before 1988 about work activities. Thus this chapter deals with economic activities at the two levels of household and individuals of working age. The questionnaire used in the census enumeration is included as annex V to the Basic tables volume. The detailed tables dealing with the economic information are in the Basic tables volume in the section *Group 6: Economic characteristics*. The purpose of this chapter is to outline the most important aspects of this information.

6.1.1 Measurement of economic activity

There is no universally accepted definition of 'work', nor even of which activities in a society can be termed 'economic'. In classical Western economics, an activity was 'economic' if money changed hands, and the 'labour force' involved only those who were employers or workers receiving a wage or salary. However, this classification overlooked a great deal of important activity in a country like the Solomon Islands, since much of the rural village economy did not fall into these categories (Friesen 1990). Since the 1986 Solomon Islands census, a new International Standard Classification of Occupations (ISCO-88) has been adopted in an attempt to deal with this problem. This system, which recognises a much wider range of activities than its predecessor, was used in the 1999 census, with a few modifications to adapt it to Solomon Islands conditions. The classifications used for various aspects of economic activity are outlined in the Basic tables volume (pp. 26-27) and summarised in the accompanying text box.

Definitions of economic activity

Activity status identifies the activities a person was engaged in during the week before enumeration, including paid work, unpaid work or neither.

Labour force includes all persons doing paid work or looking for paid work.

Paid work is any type of work for which the worker received pay, either in money or in kind.

Unpaid work is any type of work for the production of economic goods and services for which a person received no pay, either in money or in kind.

Employment status refers to the work arrangement under which a person working for pay carries out his or her activities (e.g. self-employed, waged labour et cetera)

Industry refers to the main activity of the establishment employing a worker.

Occupation refers to the kind of work done (e.g. primary school teacher, labourer et cetera)

6.2 Sectoral development of the Solomon Islands economy 1986 to 1999

Before contemplating the census household and individual economic data, it is useful to consider some of the broad changes that have taken place since the previous census. First, export statistics are presented, to give some indication of the changes taking place in some sectors of the economy. This is followed by a more general consideration of sectoral production and developments, including both export-oriented sectors and those with a more internal orientation.

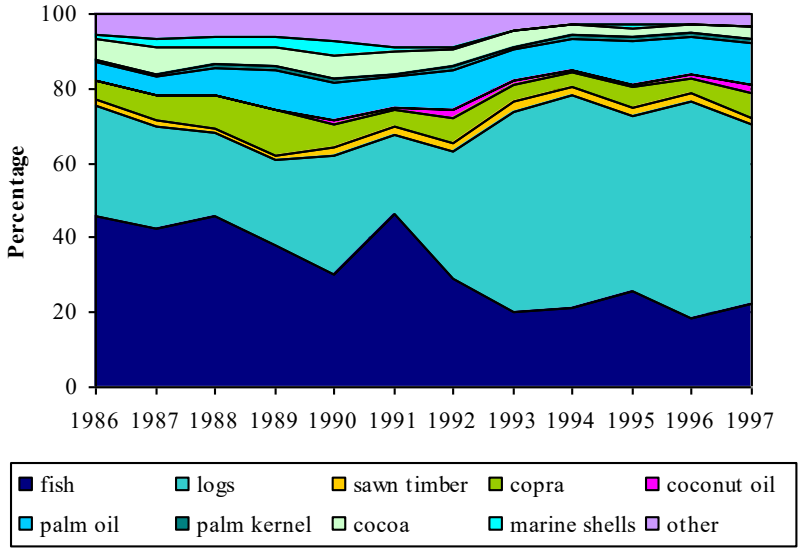
6.2.1 Exports 1986 to 1997

In absolute terms trade soared between the censuses, from just over SI $100 million in 1986 to over SI $ 700 million in 1999 (CBSI 2000). This expansion can be attributed to the rapid growth in exports of particular products, for which data were only available up to 1997 at the time of writing. *Figure 6.1* shows that timber and fish dominated the Solomon Islands export trade from 1986 to 1997, accounting for about 75 percent of all trade receipts. In the mid-1980s, fish products made up almost half of all exports, but timber grew in importance, accounting for about 60 percent of all trade by 1997. In 1986, cocoa, copra and palm oil were almost equally important at about five percent each, but palm oil began to dominate through the 1990s, and by the end of the period, made up more than the other two put together in terms of value. Reasons for these changes are outlined in the sections below.

6.2.2 Sectoral change 1986 to 1999

The report of the 1986 census contained an assessment of sectoral changes between the 1976 and 1986 censuses. This section continues this assessment for the subsequent intercensal period to 1999. The focus here is on cash-related activities, both at the village or smallholder level and on the larger scale of plantations, companies and government agencies. The purpose of this overview is to set the 1999 census data in context, and to suggest processes which have been significant influences on the changes that have emerged since the 1986 census.

Figure 6.1. Main export commodities 1986-97 by percentage of total value of exports



6.2.2.1 Agriculture

Coconut production. The coconut is used for both subsistence and cash purposes. The production of copra was the most widespread source of cash income in villages throughout the twentieth century, although levels of production varied considerably from year to year, especially as a result of price fluctuation. *Figure 6.2* shows that there was some fluctuation in production between 1986 and 1999. In the 1990s a number of coconut presses were set up in various provinces, so an increasing amount of coconut oil is being produced, a process which increases the amount of value-added remaining within the country. By 1999 there were eight small-scale coconut mills in at least seven provinces, and a further large-scale one on the RIPEL plantation in Russell Islands (ADB 1998, CBSI 2000). Another interesting trend shown in figure 6.2 is that large-scale plantation production of copra has declined rapidly. To some extent this is because the larger-scale producers are converting their coconuts to

coconut oil, which is worth more. Furthermore, in the course of 1999 the ethnic tension on Guadalcanal disrupted plantation production. As figure 6.2 shows, smallholders (village growers) have become the primary producers of copra, and this is discussed further in the context of the analysis of the census data on copra production below.

Cocoa production. Cocoa is important both as a plantation crop, and for village smallholders. *Figure 6.3* shows that total cocoa production increased steadily between 1986 and 1991 and then tumbled somewhat until a revival in 1997. These fluctuations are explained both by world cocoa prices and by the production cycle. Through the 1980s world prices were relatively high and a great deal of new planting took place both in the plantation and smallholder sectors during this period. However, there was a steady decline in the world price from 1984 to 1992, and this may be a factor in the decline in production after 1991. Prices started to pick up again until a drop in 1999, and the revival of production shown for 1997 and 1998 may be a response to that. In 1999 production was interrupted on Guadalcanal as a result of the tension, but in other areas, it generally continued.

Figure 6.2. Solomon Islands production of coconut products, 1986-1999

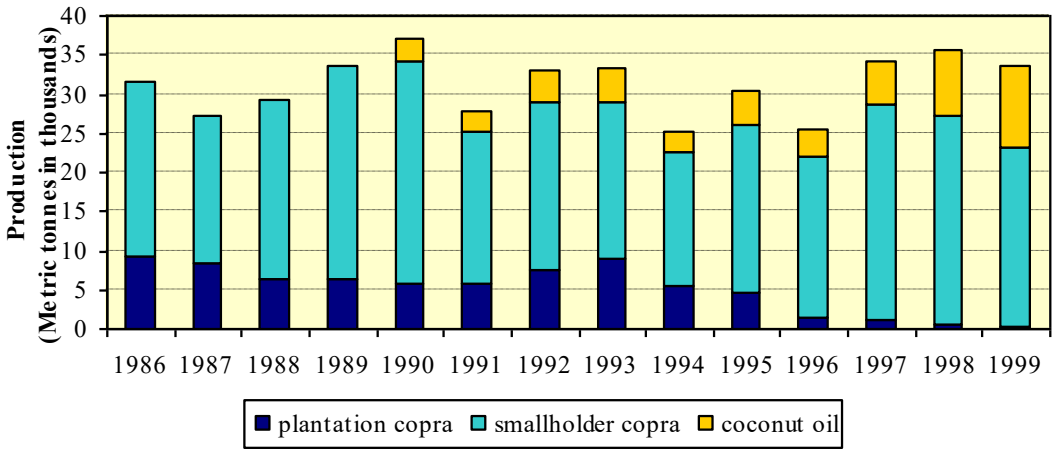
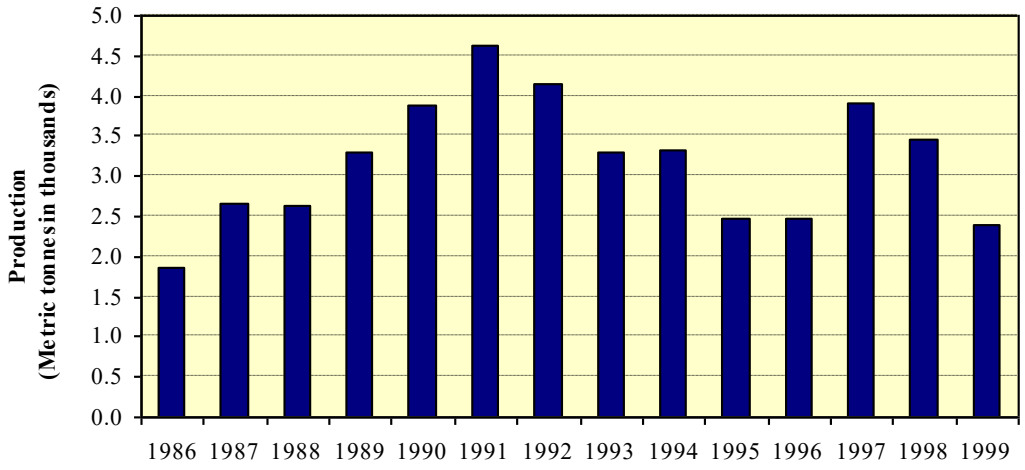


Figure 6.3. Solomon Islands cocoa production, 1986-1999



Rice production. The first substantial production of rice began in the Solomon Islands in the early 1970s. This involved large-scale plantation production on the Guadalcanal Plains, which continued until disrupted by cyclone Namu in 1986. The reason that the 1986 census did not contain a question on smallholder rice production had little to do with the cyclone, and more with the fact that rice production was totally a large-scale commercial endeavour during the 1970s and 1980s. However, this situation was very different by the time of the 1999 census. In the mid-1990s, some of the land on Guadalcanal that had been used for the large-scale production of rice in the 1980s was allocated to smallholders for paddy rice production. This project was supported mainly by aid from the Republic of China (Taiwan) as were a number of smaller projects in other provinces promoting village level production of rice. By 1999, the production of rice in villages, mainly upland (dry) production, had spread quite widely, although the ethnic tension on Guadalcanal caused the paddy projects in that province to cease production.

Palm oil production. The production of palm oil started on the Guadalcanal Plains in the mid-1970s, and has since spread to other areas, although Guadalcanal still dominated production in recent years. The production of palm oil and palm kernels since 1986 is shown in *figure 6.4.* At the beginning of this period, production levels were low because of damage to the palm plantations during cyclone Namu in 1986. By the early 1990s, production levels of about 30 thousand tonnes were reached and production remained relatively stable until the ethnic tension of 1999. At the time of the census, production on Guadalcanal had ceased, so very few people were employed in this sector according to census data.

Other commercial agricultural activities. Various other agricultural products have been promoted in the rural economy in an attempt to diversify production. One of the longest term has been chilli production, and mostly in small-scale operations. In 1997, with strong support from the Commodity Export Marketing Authority (CEMA), commercial production of chilli reached 4.7 metric tonnes, but there was a drastic decline in the following year because of "…the problem of cross-pollination in the second crop. Cross pollinated harvests were found to be of various shapes and sizes not desired by buyers." (CEMA 2000, p. v). Although better seed stock was available in 1999, the ethnic tension resulted in very low production in that year. Thus at the time of the census, chilli production was abnormally low.

Other significant agricultural commodities produced for sale include market vegetables and honey, although these were not enumerated in the census.

6.2.2.2 Forestry and logging

Although logging took place during the colonial period, log exports only became significant from the 1960s onwards. *Figure 6.5* shows the level of timber production between 1986 and 1999. The level of timber exploitation has been controversial, with the level of production shown in the late 1990s more than twice the level considered sustainable in the long term (CBSI 2000, p. 16). Thus, part of the fluctuation shown in the chart may be attributed to the changes in policy on the level of production as governments changed. Declining world prices for timber from the mid-1990s onwards may also have resulted in lower production levels. Timber production was less affected by the ethnic tension than some other sectors, since most of the logging took place in Western, Choiseul and Isabel provinces.

The employment impacts of logging and forestry are not as great as they might be since during the 1990s only about 10 percent of the total timber production was milled in the Solomon Islands. However this is likely to change in the near future. A plywood and veneer factory started production in 1999, and a large sawmill is proposed for Ringi Cove in Western province, near to the large exotic timber plantation of Kolombangara Forest Plantation Limited.

Figure 6.4. Solomon Island production of palm oil and kernels, 1986-1999

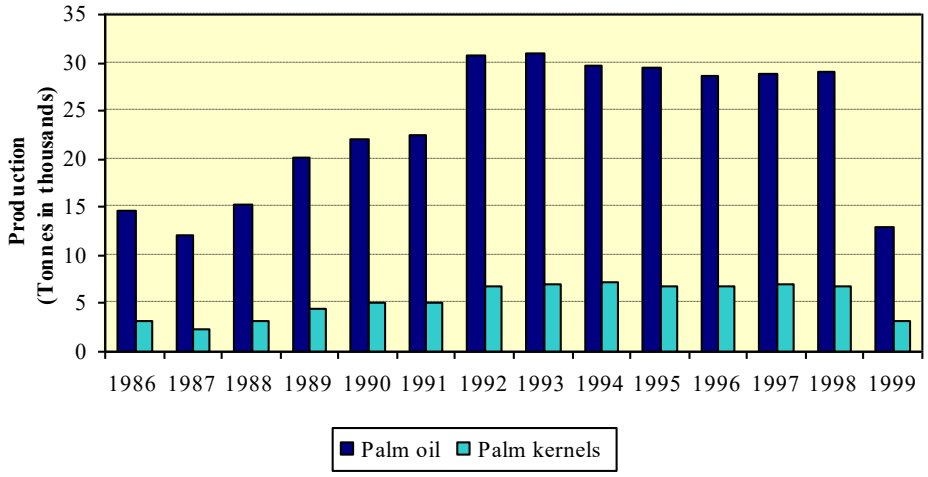
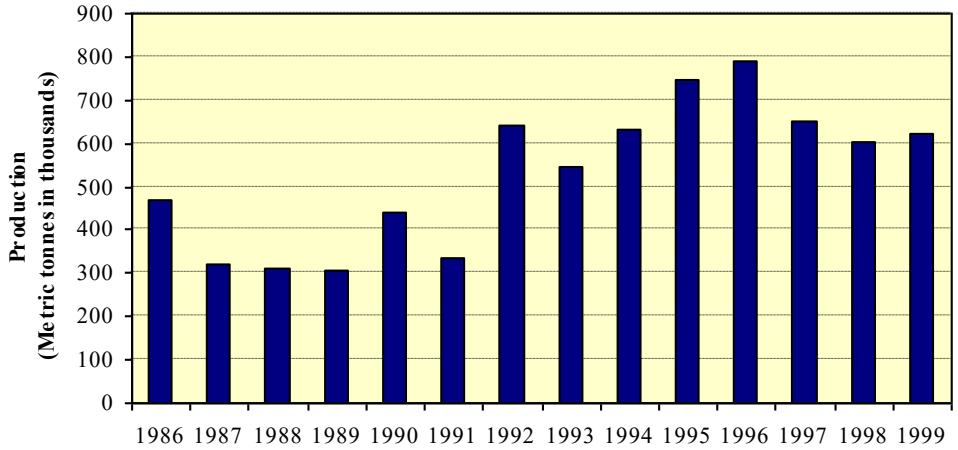


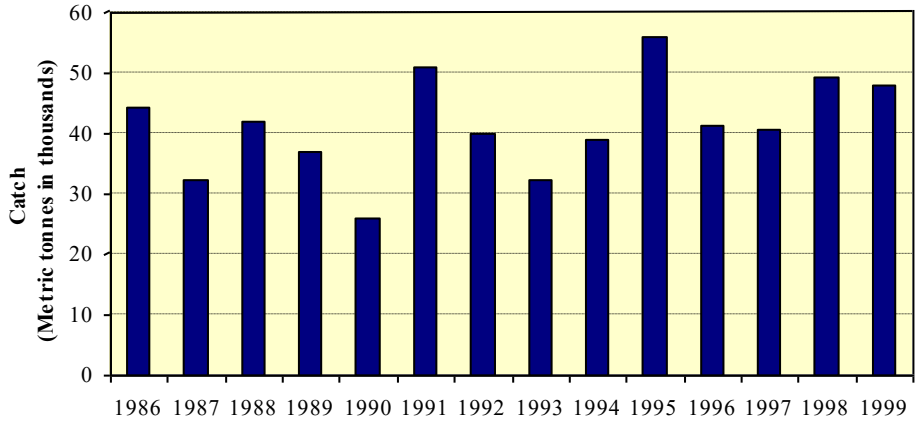
Figure 6.5. Solomon Island timber production 1986-1999



6.2.2.3 Fishing

Fishing is an important activity at three different levels: subsistence production, small-scale cash fishing, and the large-scale offshore fishing industry. Information on the first two is not usually available, except from the census. *Figure 6.6* shows the levels of production of the large-scale fishing industry between 1986 and 1999. There were two major local fishing companies in 1999, Solomon Taiyo Ltd. (STL) and National Fisheries Development (NFD), as well as some smaller joint ventures between provinces and foreign fishing companies. STL has a large cannery at Noro in Western province which produced nearly a million cases of canned tuna in 1999 (from 12,300 tonnes of raw tuna), about one-quarter of which was sold within the country. The NFD fleet operates from Tulagi. While domestic prices for fish remained high during 1999, the world price of tuna plummeted, causing NFD to cease operations late in the year. STL continued to operate during the census period, but ended its operations in early 2000 in response to the ethnic tension and the temporary seizure of one of its boats.

Figure 6.6. Solomon Islands fish catch, 1986-1999



Small-scale cash fishing is most successful near urban markets, especially that of Honiara. Since the early 1980s, 31 fisheries centres providing refrigeration and marketing opportunities have been established throughout the country, although many of these have subsequently failed (ADB 1998, p. 101). In the late 1990s, some centres were being renovated and a further attempt made to facilitate the marketing of fish not only to Honiara, but also to Australia. As well as this, villagers may earn cash from providing the tuna fishing boats with bait fish; this is particularly the case near the fishing bases at Noro and Tulagi.

6.2.2.4 Other maritime activities

A number of other maritime products are harvested in the Solomon Islands, mostly for cash purposes. Throughout the twentieth century shells have been exported, both as items for collection, and for use in button production, although in some areas the meat of shellfish is a significant item of consumption. Beche-de-mer (also known as sea cucumber or trepang) is collected mostly for export to Asia. Other products, such as crab and lobster are caught both for own consumption, and for marketing within the country.

6.2.2.5 Mining

For many years, alluvial gold mining has been a small scale activity on Guadalcanal. However, the first large-scale mine in the Solomon Islands was opened in 1998 at Gold Ridge on Guadalcanal by the Ross Mining Company of Australia (it became a subsidiary of Delta Gold, Australia in 2000). Production continued through 1999, although by the time of the census, the level had been reduced because of the ethnic tension. The company ceased operations altogether in mid 2000, although the scale of investment and recent infrastructure development means that it is keen to restart operations.

6.2.2.6 Manufacturing

Manufacturing has never been a major industry in the Solomon Islands, but the sector has grown substantially in the last two decades. The most important manufacturing enterprises cater for the local market in areas such as food processing, beer, furniture, construction materials and outboard motor canoe construction. Traditional handicrafts for sale to tourists and to a small extent for export include woodcarvings, fibre weaving and shell ornaments.

6.2.2.7 Tourism

Tourism in the Solomon Islands has remained a relatively small industry for many years. The average number of visitors between 1986 and 1998 was fewer than 12 thousand a year, with relatively little increase until the last two years of that period. Although figures are not available, it is known that the numbers of visitors fell dramatically in 1999 as a result of the ethnic tension and the cessation of many

of the air services into the country. Thus at the time of the census, hotels had very low occupancy rates and many activities catering to tourists were not operating.

6.3 Economic activities of households

In the Solomon Islands the household is the predominant economic unit within which most individuals operate. The characteristics of households are outlined in chapter 3, but their economic activities are discussed here. The household questionnaire contained a series of questions on the production of a range of crops, livestock and marine products (simply whether produced or not; there was no inquiry into the amount produced), and further whether this production was intended for own consumption or for sale. In addition, for a selected number of crops, a question asked whether these were produced by commercial or traditional methods. The responses to these questions combined with information from other surveys, allow an assessment of the subsistence and cash economies at the village level.

6.3.1 Production for own consumption (subsistence)

The great majority of households in the Solomons produce food for their own use. The most common subsistence food crop is banana, with 86 percent of all households growing this crop. In most provinces nine out of ten households grew bananas for own consumption, and even in Honiara nearly half of all households did this (*table 6.1*). The next most commonly produced foods for consumption were sweet potato (kumara) and cassava, with 84 percent of all households producing these over the previous year. The more traditional root crops of pana, yam and taro were less common, being grown in 66, 65 and 62 percent of households respectively. This may partly be explained by the fact that sweet potato and cassava are more easily produced, and the latter can be grown in a greater variety of soil conditions.

Fish is an important element in the Solomon diet. Sixty two percent of all households caught fish for their own consumption, and in the provinces more distant from Honiara this proportion rose considerably, reaching 87 percent in Western and 85 percent in Temotu. Other types of marine produce were also significant for consumption, with 39 percent of households catching shellfish and 39 percent crab or lobster.

Livestock is not as important in the subsistence economy as fish. Only 45 percent of households raised pigs for their own consumption, and 37 percent had other types of livestock. Although pigs played an important role in exchange in traditional Melanesian society, their importance has declined with the introduction of cash and the reduction of feasting. Furthermore some religions prohibit pork consumption, and the low proportions of households rearing pigs in Choiseul and Western provinces may be partly a result of the considerable number of Seventh Day Adventists in these provinces. The 'other livestock' raised is mostly chickens, although some cattle are still raised in villages.

6.3.2 Production for sale: the marketing of agricultural and marine products

If the proportion of households which produce goods for the market is considered as an indication of the relative importance of the commodity concerned, then the most important sources of cash in the village household economy are, in order ranging from 41 to 20 percent of households, coconuts, betelnut, fish and cocoa (*table 6.2*). Other products which were produced or collected by less than ten percent of households nationally include beche-de-mer, shellfish, crabs and lobsters, rice, turtles and chillies.

Table 6.1. Percentage of households producing subsistence crops, by province

Subsistence product	*Solomon Islands*	*Province*									
		Choiseul	*Western*	*Isabel*	*Central*	*Rennell-Bellona*	*Guadalcanal*	*Malaita*	*Makira-Ulawa*	*Temotu*	*Honiara*
Crops											
Coconut	73	80	74	74	79	96	77	78	81	78	36
Chilli	7	8	22	4	3	0	8	3	2	3	9
Betelnut	52	57	47	80	80	1	61	47	69	77	9
Rice	9	19	13	15	5	3	5	8	13	7	0
Yam	65	88	69	69	87	86	77	60	88	82	7
Pana	66	80	69	67	88	86	75	64	89	86	8
Cassava	84	92	88	92	96	74	94	86	92	87	35
Taro	62	90	62	53	75	74	71	66	77	60	9
Banana	86	94	89	90	95	90	94	86	95	93	48
Pineapple	65	82	77	79	87	48	80	57	74	66	11
Sweet Potato	84	94	88	93	95	84	93	92	96	91	17
Ngali nut	50	63	62	69	73	0	57	39	75	58	3
Other fruit	75	84	80	82	89	84	84	66	87	87	51
Livestock											
Pigs	45	28	27	58	34	21	58	61	56	66	3
Other livestock	37	42	35	55	41	59	40	38	52	44	5
Marine products											
Fish	62	84	87	75	84	82	60	51	82	85	4
Shellfish	39	45	46	58	70	32	23	37	67	68	1
Crab/lobster	39	42	42	59	72	39	26	34	67	70	1
Turtle	14	24	21	23	24	10	7	12	13	29	0
Beche-de-mer	3	5	4	6	4	1	1	5	2	6	0

Table 6.2. Percentage of households producing agricultural and marine products for sale, by province

Subsistence product	*Solomon Islands*	*Province*									
		Choiseul	*Western*	*Isabel*	*Central*	*Rennell-Bellona*	*Guadal-canal*	*Malaita*	*Makira-Ulawa*	*Temotu*	*Honiara*
Crops											
Coconut	42	63	54	53	46	39	45	34	58	55	1
Chilli	2	2	5	1	3	0	2	2	0	3	0
Betelnut	30	35	30	51	60	0	36	24	36	48	0
Rice	3	6	3	6	3	0	1	2	3	5	0
Cocoa	20	7	12	25	11	1	36	25	29	10	0
Marine products											
Fish	24	38	44	30	44	25	16	18	19	39	1
Shellfish	7	9	14	7	12	10	4	7	5	15	0
Crab/lobster	6	6	11	8	14	12	4	5	8	9	0
Turtle	3	4	5	3	3	3	1	4	2	11	0
Beche-de-mer	9	14	16	17	15	9	1	7	7	23	0

It is interesting to consider how cash production relates to subsistence production. *Table 6.3* shows that by far most households that participated in cash production of a product also produced these goods for their own use. This suggests that cash production may often involve marketing of subsistence surplus, or at least an additional effort as part of general subsistence production. The main exception to this is beche-de-mer which is not usually consumed in the Solomons. Three other products involve a relatively higher proportion of 'market only' production: chillies, rice and turtles. About one-third of households who had done any marketing produced these items for market only, despite the fact that these products are also usually items of consumption.

6.3.2.1 Coconut production for sale

The production of copra, in which the flesh of coconuts is dried, is the most widespread activity in the Solomon Islands. *Figure 6.7* shows the incidence of the production of coconuts for sale, which includes sales for coconut oil and for food consumption, but the production of copra is the predominant activity in most places. Outside Honiara it is obvious that coconut production is most important in the provinces furthest from the capital, and least important in the more central provinces, particularly Malaita. These differences reflect the greater pressure on land in Malaita, but may also indicate that the areas more distant from Honiara have fewer economic alternatives, such as the marketing of food and other products, than the capital. Areas with more than 80 percent of households producing coconut for sale include parts of Choiseul, Shortlands, Isabel and Makira.

To assess the typicality of the census data in relation to coconut production, it is useful to consider copra production over time. *Figure 6.8* shows that total smallholder production of copra was slightly less in 1999 than it had been in 1986, and when this is considered on a per capita basis for the country as a whole, there was a decline from an average 79 kilograms to 51 kilograms per person. Of course there was a great deal of fluctuation in production in this period as shown in figure 6.8, and while 1999 continued the downward trend of the two previous years, its production level was similar to levels in the mid-1990s.

There are at least two reasons for the downward trend in copra production. On Guadalcanal, the ethnic tension in 1999 resulted in reduced production in both the plantation and smallholder sections. The second factor is that during the 1990s, an increasing proportion of coconuts were processed into coconut oil with the establishment of eight small crushing mills throughout the provinces, including four established in 1999 (CBSI 2000, p. 19). Thus in that year more than 10 thousand tonnes of coconut oil were produced and if this is added to the scale of copra production, this shows an increased level of production from coconuts overall since the last census. This helps to explain the fact that in the 1999 census, 42 percent of households produced coconuts for market compared with only 29 percent in the 1986 Census.

Table 6.3. Percentage of all private households according to mix of subsistence and cash production of agricultural and marine products

Crop	*Percent subsistence only*	*Percent market only*	*Percent both subsistence and market*	*Percent neither subsistence nor market*
Coconut	32.4	0.8	41.3	25.6
Chilli	6.2	0.8	1.4	91.7
Betelnut	22.5	0.6	30.2	46.6
Rice	6.9	0.8	1.9	90.5
Fish	38.0	0.5	24.4	37.1
Shellfish	32.9	0.5	7.0	59.6
Crab/lobster	33.3	0.6	6.0	60.1
Turtle	11.8	0.9	2.5	84.9
Beche-de-mer	1.4	7.0	2.2	89.4

Figure 6.7. Percentage of households producing coconuts for sale

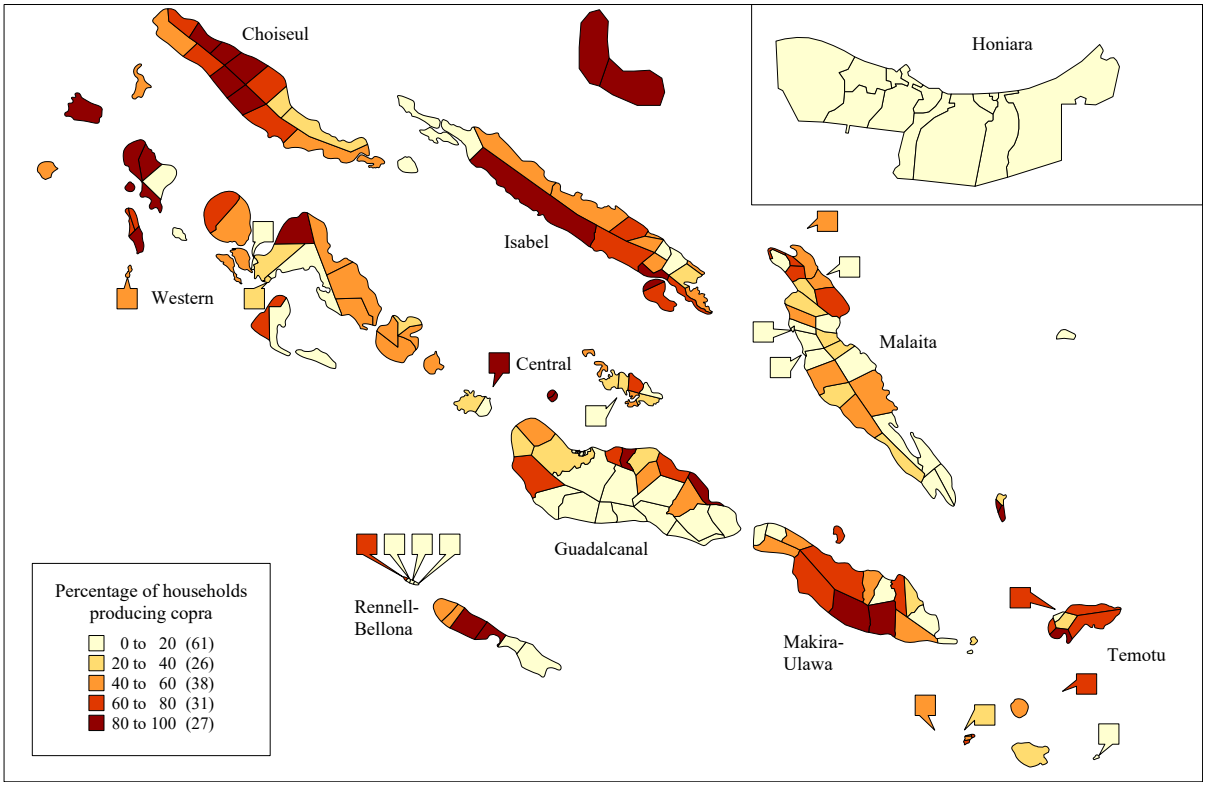
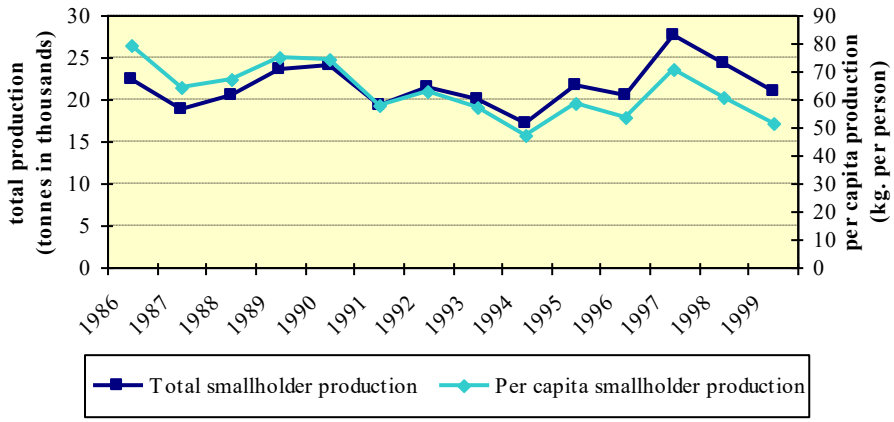


Figure 6.8. Solomon Islands smallholder copra production, 1986-1999



6.3.2.2 Marketing of betelnut

A high proportion of Solomon Islanders chew betelnut. What they chew is the kernel of the areca nut, wrapped in a leaf from the piper betel plant, and often mixed with coral lime. The combination of these three elements results in a red liquid well known to Honiara pedestrians. Betel is chewed in almost all areas of the Solomons, although not in villages with certain religious persuasions. The nut trees that are used are both wild and cultivated, and can be seen in most villages.

Thirty percent of all households were producing betelnut for market in 1999, up from 17 percent in 1986. The increase is well illustrated in the proliferation of betelnut sellers in the streets of Honiara in recent years; this is one of the few products not confined to the central market. It is not clear whether this increased activity is a result of an increased usage of betelnut, or some other factor. The proportions of households growing betelnut for sale in different parts of the country are shown in *figure 6.9.* This distribution is not easy to explain, although in the cases of south Isabel, south-west Guadalcanal and Nggela proximity to Honiara may be a factor.

6.3.2.3 Production of cocoa

Cocoa is produced both by smallholders and on larger plantations. Twenty percent of households said they had produced cocoa for sale in the year before the census. Although this is less significant than coconut production, it should be noted that as this product has little subsistence use, the percentage indicates some success in the promotion of this crop by the government. Between each census there has been a doubling of the proportion of households producing cocoa: only five percent of households in 1976, nearly ten percent by 1986, and twenty per cent in 1999.

The production of cocoa is concentrated in certain areas of the Solomons as shown in *figure 6.10*. Guadalcanal is the province with the highest level of participation in smallholder cocoa production, followed by Makira-Ulawa, Malaita and Isabel.

The data for the involvement of households in cocoa production in 1999 may be low compared with the trend through the 1990s. Production in 1999 was 30 percent less than in the previous year as a result of two factors: once again, the unrest on Guadalcanal inhibited production, and this was particularly significant because of the importance of this province in national production. Also, in 1999 the international price of cocoa slumped to its lowest level in the 1990s, and this probably discouraged some producers.

6.3.2.4 Marketing of fish and other marine products

Fishing for own consumption is one of the most important activities of households: 62 percent of all households fish for their own use. At the same time, fishing as a source of cash income appears to be slowly increasing. In 1986, only 17 percent of households had earned money from fishing, but by 1999 this had risen to 24 percent of all households in the country.

There are three main types of fishing for money. First, some fish enters the small-scale trading systems at the village level. Second, fish is traded directly in urban areas, especially in Honiara, or shipped from fisheries collection centres. The third activity which falls into this category is bait-fishing to supply the tuna fishing industry. The nature of these possible avenues for fishing for money partly explains the distribution of market fishing shown in *figure 6.11.* This activity was high in Western and Central provinces near to the large company fishing bases at Noro and Tulagi, but high rates are also shown in parts of Choiseul, Isabel and Temotu.

Household involvement in the marketing of other marine products all averaged less than ten percent of households across the country (table 6.2). However, there is considerable variation in the distribution of household involvement with some of these products. The collection of shellfish is well above average in Temotu, Western and Central provinces, as is the collection of crab and lobster in Central province, Rennell-Bellona and Western province (table 6.2). Beche-de-mer was especially important in Temotu, but also well above average in Isabel, Western, Central and Choiseul provinces.

Figure 6.9. Percentage of households growing betelnut for sale

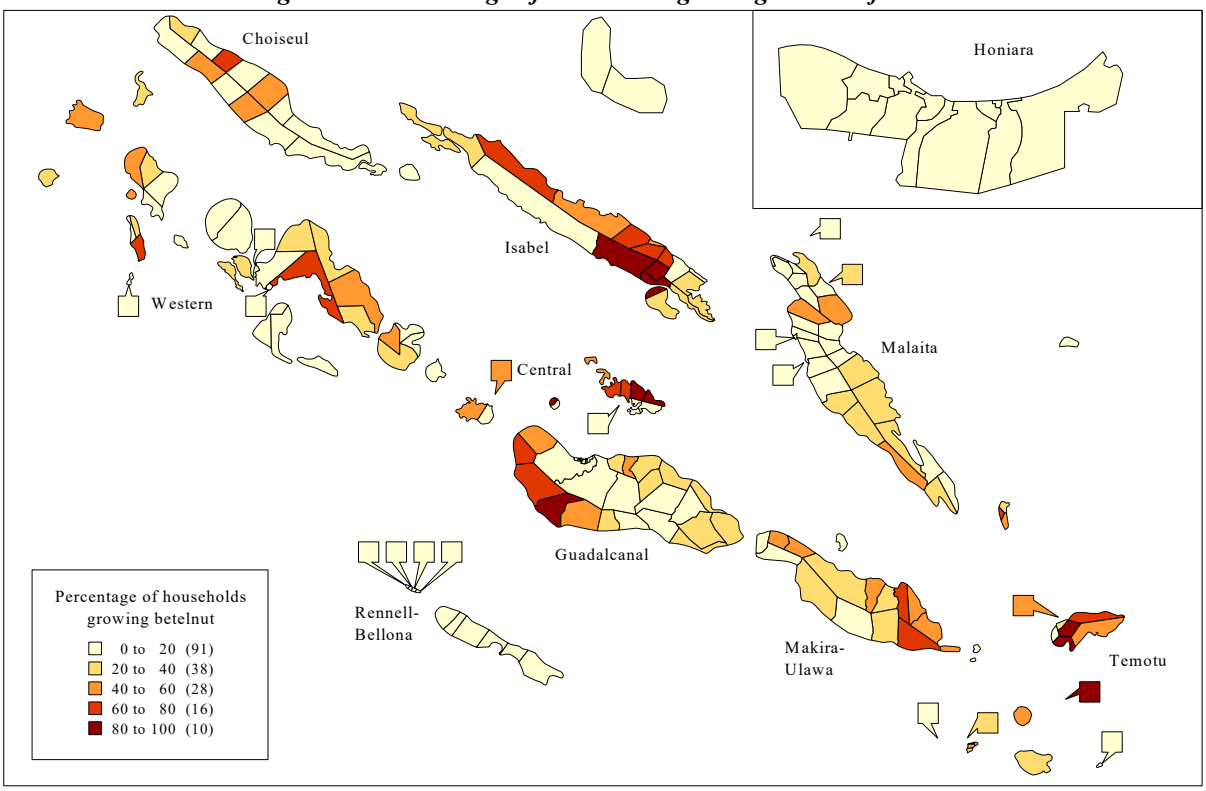


Figure 6.10. Percentage of households growing cocoa for sale

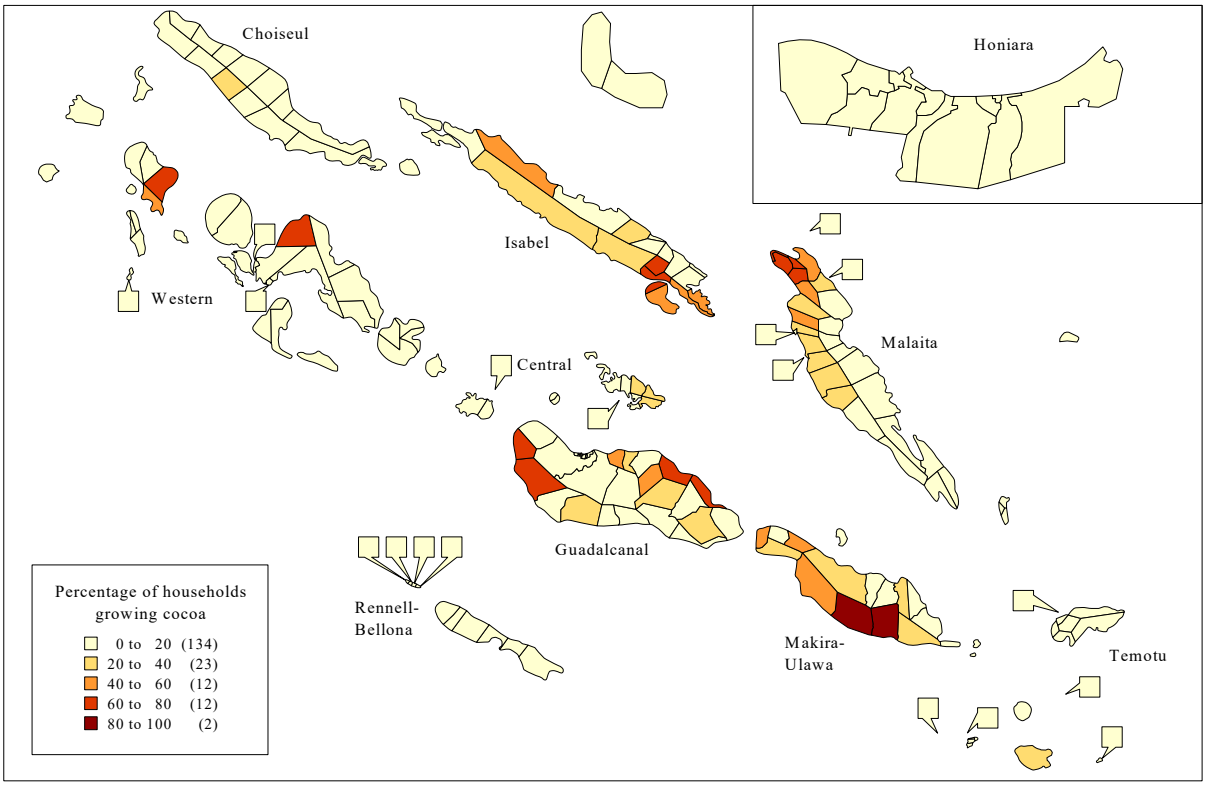
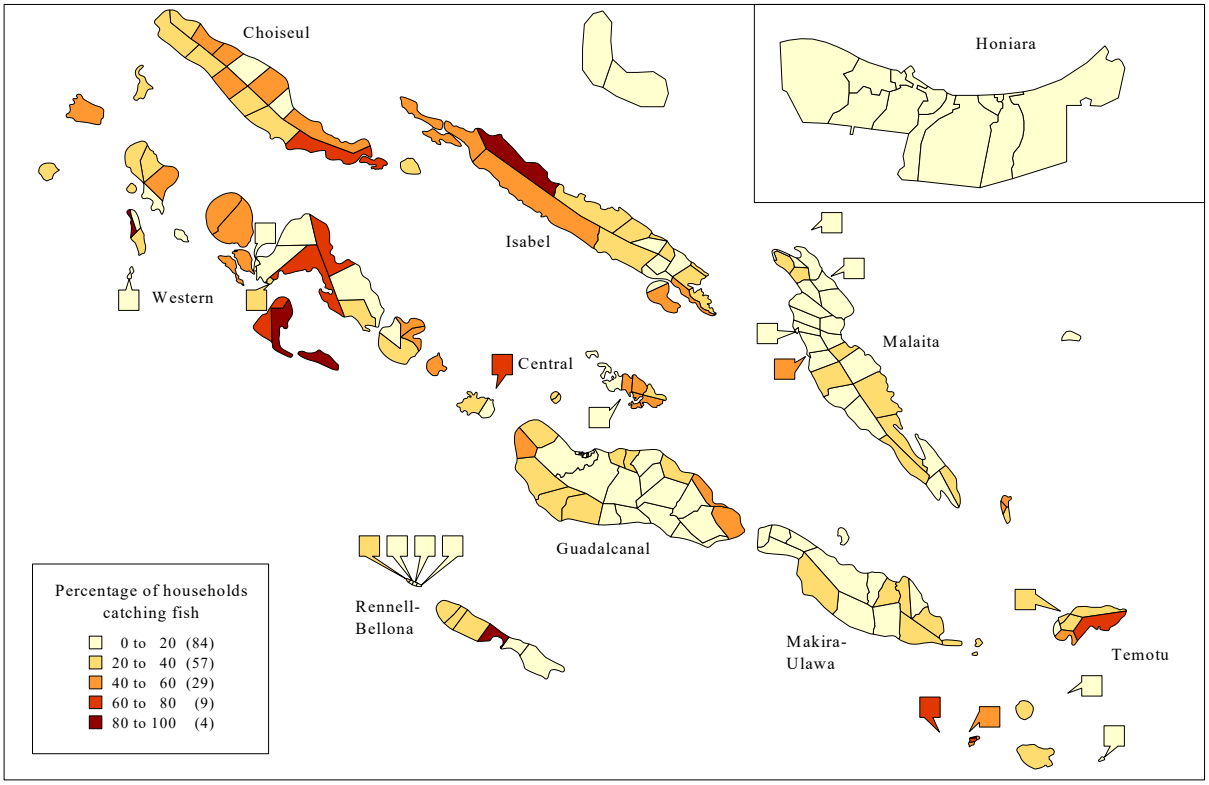


Figure 6.11. Percentage of households catching fish for sale



6.3.3 Production methods

Households producing coconut, chilli, betelnut, rice and cocoa for market were asked if they used traditional or commercial methods of production in the planting and care of these crops. Commercial methods included the use of pesticides, crop rotation, and specified methods of plant spacing, all promoted by the Ministry of Agriculture, particularly for certain crops. The detailed information on this question is presented in Basic Table B6.17, and summarised here in *table 6.4*. The latter table shows that of all households involved in the market production of coconuts, 41 percent used commercial methods. This is probably because many of the coconut trees currently producing were planted many years ago, before the 'commercial' methods were well known. On the other hand, quite a high proportion of households involved in market production of rice and cocoa used commercial methods, partly because the cultivation of these crops started more recently. At the other end of the spectrum is betelnut, with only 16 percent of market households using commercial methods. This results from the fact that in many cases, betelnut trees grow in the forest with a minimum agricultural cultivation.

Table 6.4. Households according to market production of food crops and type of production

Crop	*Number of households in market production*	*Percent of all households in market production*	*Number of market households using commercial methods*	*Percent of market households using commercial methods*
Coconut	27,018	41.6	10,508	40.8
Chilli	1,378	2.1	473	37.0
Betelnut	19,671	30.3	2,885	15.8
Rice	1,657	2.5	1,087	72.9
Cocoa	12,855	19.8	7,685	63.8

6.4 Economic activities of individuals

6.4.1 Activity status

The information on the work activity of individuals in this report refers to the population aged 14 and over at the time of the census. In some places this is referred to as the 'adult' population, to distinguish it from the total population, and when percentages or rates are used they are usually based on this group.

The census question asked "Did you work for money or payment in kind in the last 7 days, or would have done if you had not been absent because of holiday, illness, pregnancy et cetera?". Thus it was intended to include not only those earning wages or salaries, but also those who earned money (or payment in kind) from other activities such as cash cropping. Note that the seven-day period specified makes this question quite different from the household question on economic activity which asked about activity the previous year. It should thus identify those who were most likely to work for money on a regular basis, rather than those who only occasionally do so.

Of the adult population of the Solomon Islands, only 23 percent said they had had paid work in the week before the census (*table 6.5,* details in table B6.01). About one-third of these also did unpaid work. Men were more than twice as likely as women to do paid work, at 31 and 15 percent respectively. A further 11 percent of the adult population were unemployed but actively seeking work, again more men than women reported this: 14 versus 8 percent. About one-third of the population claimed that they did neither paid nor unpaid work, and were not actively looking for work (unemployed). Women were more highly represented in this group than men. There is considerable variation in work status between provinces, as *figure 6.12* illustrates. As expected, as the centre of much wage employment Honiara had the highest proportion of people who were working for pay. Of the provinces, Western had the highest proportion of paid workers, which reflects the location of employment in fishing and logging, but also perhaps the relatively high rate of participation in the cash economy. It is interesting to note the provincial variation in unemployment rates: provinces such as Rennell-Bellona, Temotu and Malaita, with relatively few wage employment opportunities, have the highest rates. Differences between provinces in female participation in paid work is illustrated in the graphs in figure 6.12. Female participation was as low as 5 percent in Rennell-Bellona, but reached 32 percent in Honiara.

6.4.2 Why aren't people working for pay?

People who said they had not engaged in paid work were further asked: "What is the reason you did not work for money or kind in the last 7 days?" Considering the fact that nearly two-thirds of the adult population and more than three-quarters of women did not do paid work, it was important to determine the nature of activities undertaken by this group. *Figure 6.13* shows that for nearly half of

Table 6.5. Economic activity of population aged 14 and over, by sex

Sex	*Economic activity*				
	Paid work	*Unemployed*	*Not in paid work*	*Not stated*	*Total 14+*
			Number		
Both sexes	57,472	27,652	161,223	2,821	249,168
Males	39,761	17,957	68,813	1,443	127,974
Females	17,711	9,695	92,410	1,378	121,194
			Percentage		
Both sexes	23.1	11.1	64.7	1.1	100.0
Males	31.1	14.0	53.8	1.1	100.0
Females	14.6	8.0	76.2	1.1	100.0

Figure 6.12a. Activity status of males as percentage of all males aged 14 and over, by province

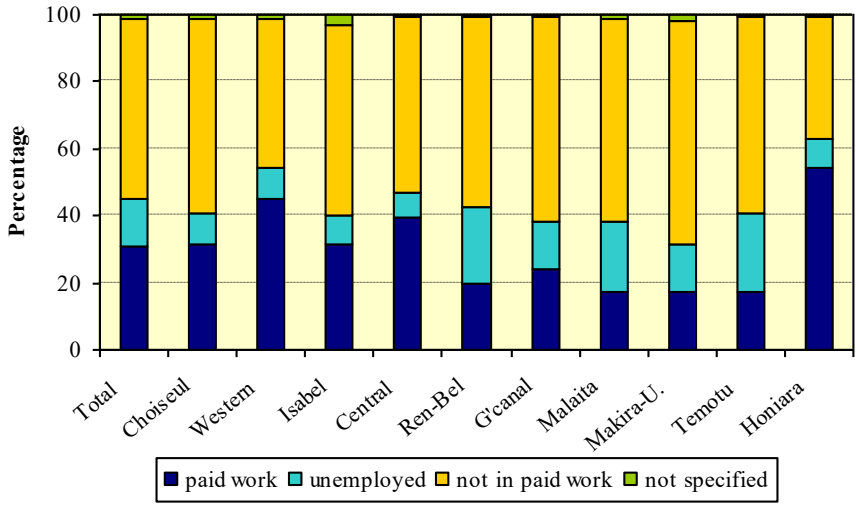
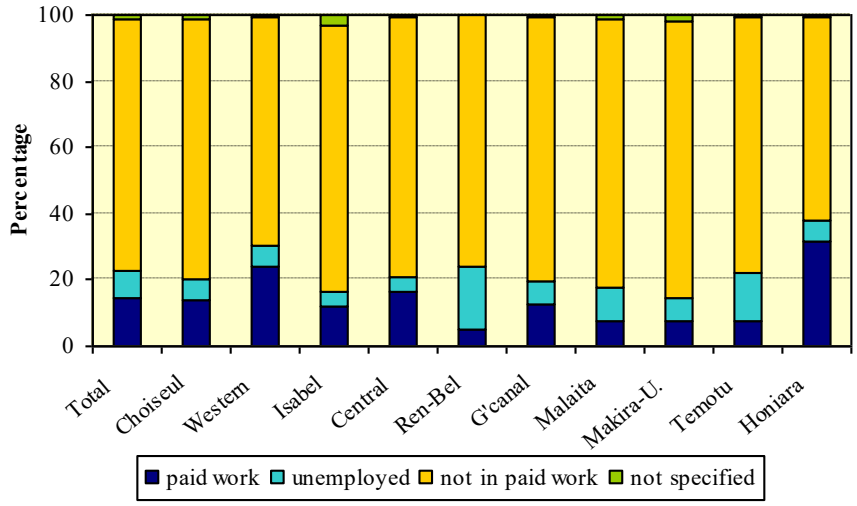


Figure 6.12b. Activity status of females as percentage of all females aged 14 and over, by province



all women aged 14 and over, 'domestic duties' were the main reason given for not engaging in paid work (also see table B6.13). As discussed further below, work around the household is not considered 'unpaid work' unless it is an activity which substitutes for a cash activity. Within 'domestic duties' activities related to cooking, cleaning, childcare et cetera are significant. At the same time, it is likely that many of these women undertake unpaid work as well, even though this was not stated as the main reason for not being in paid employment.

The most important reason stated by men for not being in paid work, was that they were engaged in unpaid work, with about one-third of all men in this category. For women, this was also a significant reason, reported by about one-quarter as the primary reason. The unpaid activities of women and men are discussed further in the next section.

Figure 6.13a. Reasons for not engaging in paid work: males 14 and over

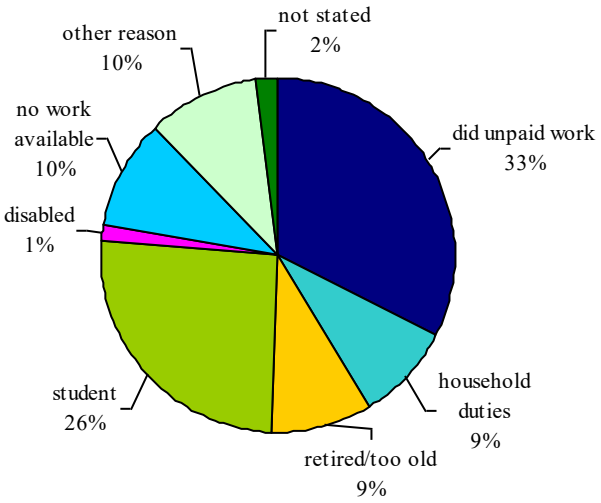
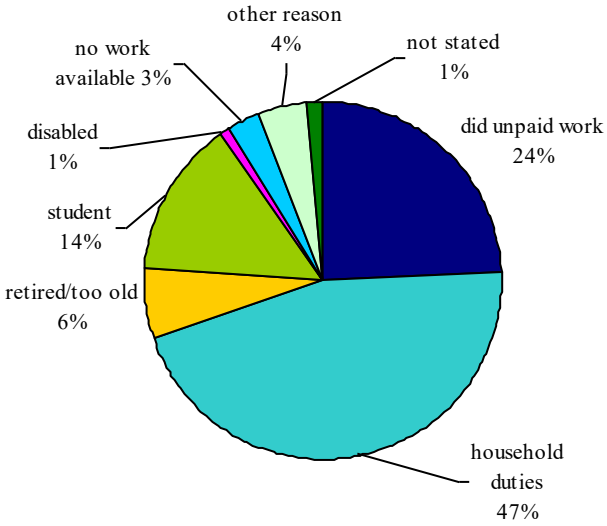


Figure 6.13b. Reasons for not engaging in paid work: females 14 and over



For people under 25 years of age, the main reason for not working for pay was that they were students. In figure 6.13 it is notable that proportionally nearly twice as many men as women were in this category, reflecting the higher participation levels of men in secondary and tertiary levels of education (see chapter 3).

6.4.3 Unpaid work: lifeblood of the subsistence economy

In the census, all household members born before 1988 were asked "Did you do any unpaid work in the last seven days". To clarify the meaning of this question, enumerators were instructed to add "For instance, did you do any garden work or fishing for household consumption, or community work, or home production, such as weaving mats or making clothes for the household?" This type of work was distinguished from 'domestic' activities undertaken in most households everywhere (childcare, cleaning, cooking) by the criterion that the work should be 'productive' in the sense of producing something that would otherwise have to be purchased (although it can be argued that many 'domestic' activities can also be purchased).

Figure 6.14 shows the main unpaid work activities of men and women (see also table B6.03). Individuals were asked to identify the activities that they had spent the most time on during the previous week. In reality, of course, most individuals, especially in the village economy, will undertake a variety of unpaid tasks, including most of those shown in figure 6.14. However, this question attempts to identify the most significant work activity, so that when generalising about the national labour force, it might be possible to incorporate important subsistence 'occupations' alongside those normally enumerated in the cash and wage sectors. For both men and women, by far the most important agricultural activity was gardening and growing crops and fruit. Within craft and related activities, house construction was very important for men, and productive household work was most important for women.

It is interesting to note the relationship between unpaid work activity and paid activity. We shall consider this in relation to unpaid agricultural work, by far the most important unpaid work activity. In *figure 6.15* the number of hours in unpaid work for men and women in agriculture is considered

Figure 6.14a. Main unpaid work activity of males 14 and over

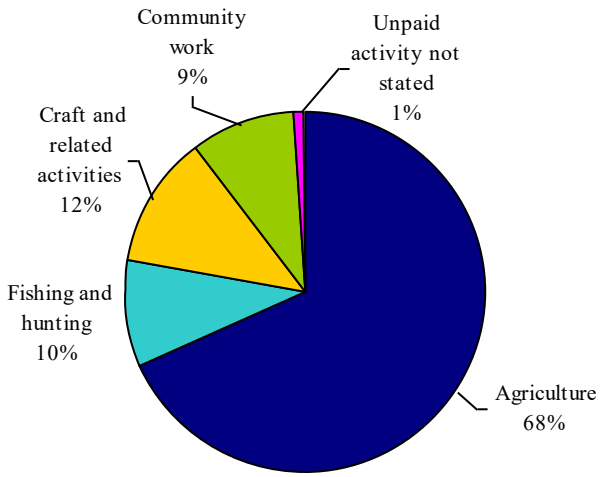
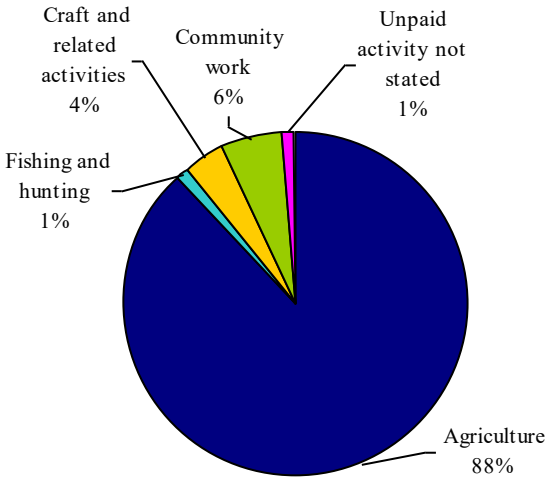


Figure 6.14b. Main unpaid work activity of females 14 and over



according to whether they had also done paid work. For both men and women, as the number of hours in unpaid agricultural work increased the participation in paid work decreased. There are two interpretations of this. First, as an individual's commitment to subsistence agriculture increases, perhaps as household size increases, there is less time to search for or undertake paid work. Alternatively, people who have few paid work opportunities are more likely to spend more of their time in unpaid activities.

6.4.4 Employment status of active population

The employment status of men and women engaged in paid work is shown in *figure 6.16*. Of all men in paid work, 56 percent were working for wages, compared with 45 percent of women. This gender difference is apparent in all provinces, except Rennell-Bellona where numbers are very small, and Honiara, where the proportions are quite similar. Although fewer women in the provinces participate in the formal wage economy, they are well represented in activities which earn cash or payment in kind. In Honiara, there are relatively few opportunities in the informal sector to earn money, so women who are in paid work are just as likely as men to be working for a wage. In all areas, men are more likely to be employed in contract labour, while women are likely to be working as family help. Women are more likely to be self-employed, although the meaning of this category is difficult to interpret since it includes most women doing some non-wage village cash activity as well as those who work for themselves in the formal sector.

6.4.5 Paid work by industry sector: which parts of the economy are growing?

The sectoral changes in the Solomon Islands economy outlined in section 6.2 have resulted in significant changes in employment by economic sector as shown in *table 6.6* using the International System of Industrial Classification (ISIC). Overall, the number of people working for money increased by about 47 percent between 1986 and 1999, a slightly higher rate of increase than that for the total population, which grew by 43 percent in the same period. However, the 'potential labour force' of all persons aged 15 to 64 increased by 60 percent between the two censuses, so the participation rate in paid employment has actually decreased. This is a result of what is sometimes called 'the youth boom' whereby the younger working force age cohorts are much larger than the older cohorts moving out of the potential labour force (Friesen 1994).

Figure 6.15. Males and females whose primary unpaid activity is agriculture according to paid work status

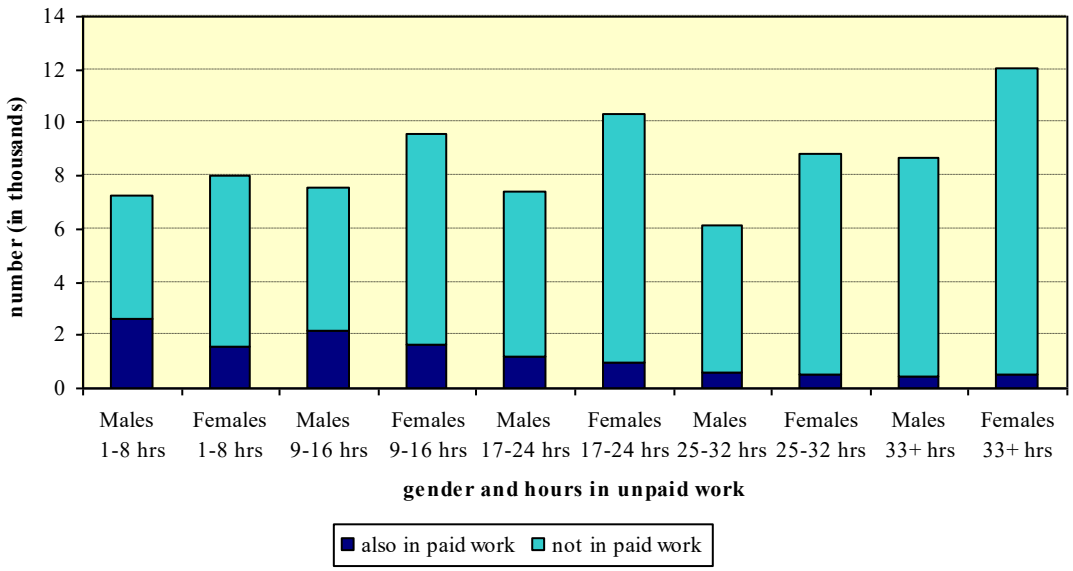


Figure 6.16a. Employment status of males by province as percentage of all males working for pay

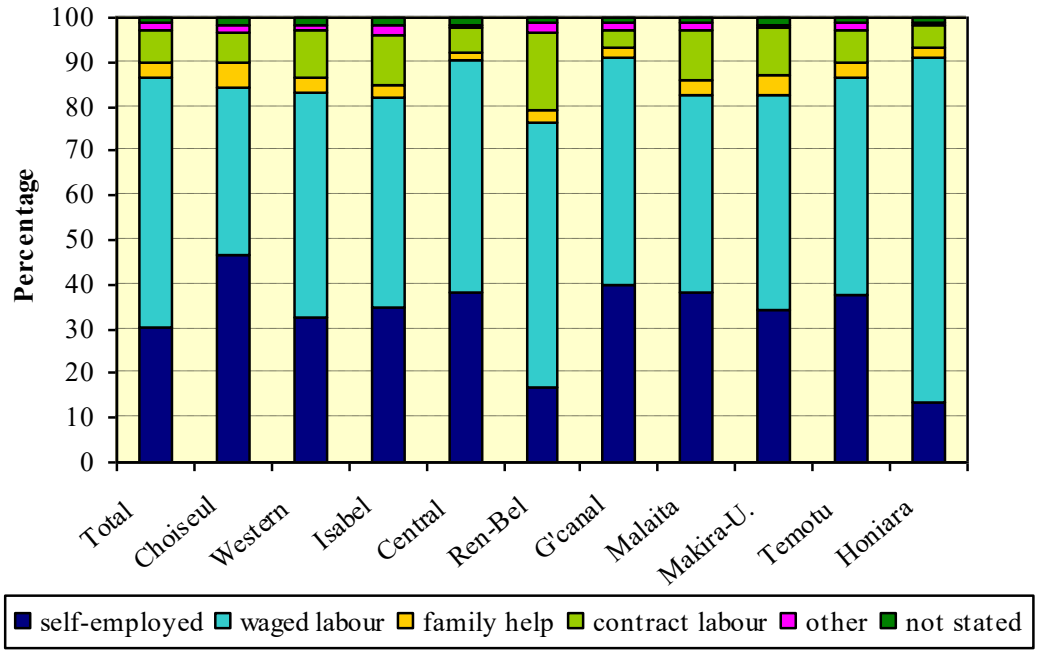


Figure 6.16b. Employment status of females by province as percentage of all females working for pay

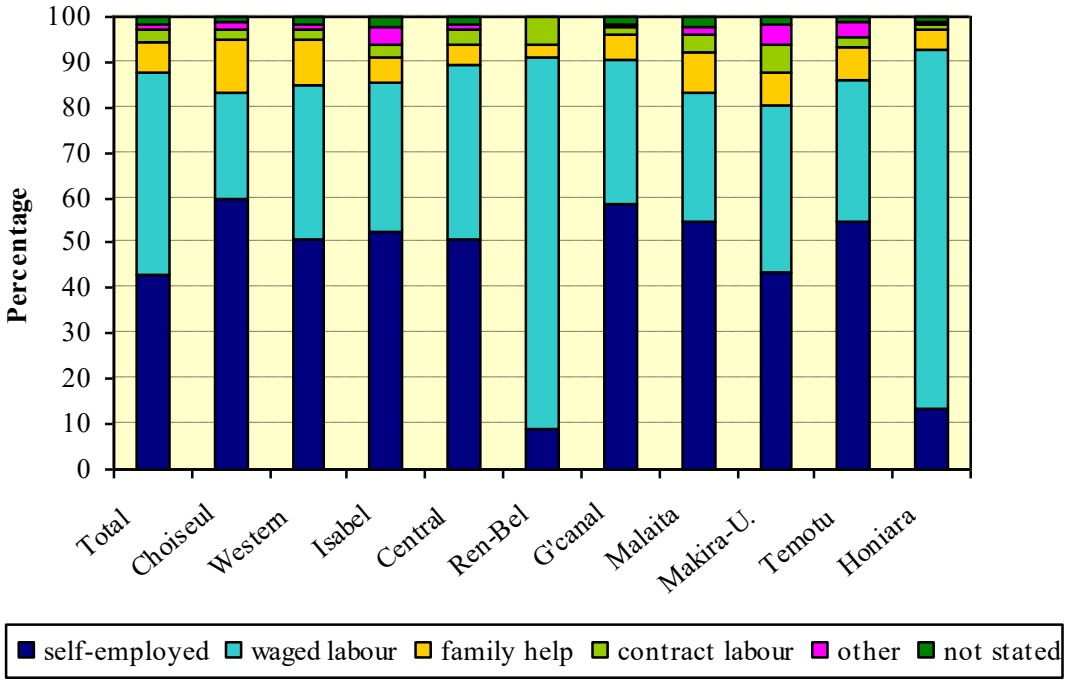


Table 6.6. Changes in paid employment 1986-1999 by industrial sector

Industry (ISIC groups)	*Year of census*						*Sectoral change 1986-1999*					
	1986			*1999*			*Additional jobs*			*Percent change*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
All industries	39,210	29,178	10,032	57,472	39,761	17,711	18,262	10,583	7,679	46.6	36.3	76.5
Agriculture	12,149	7,805	4,344	11,859	6,313	5,546	-290	-1,492	1,202	-2.4	-19.1	27.7
Forestry and logging	1,823	1,766	57	3,375	3,143	232	1,552	1,377	175	85.1	78.0	307.0
Fishing	4,059	3,313	746	3,367	2,935	432	-692	-378	-314	-17.0	-11.4	-42.1
Mining and quarrying	703	472	231	574	488	86	-129	16	-145	-18.3	3.4	-62.8
Manufacturing	2,273	1,685	588	7,237	5,387	1,850	4,964	3,702	1,262	218.4	219.7	214.6
Electricity and water	426	407	19	530	490	40	104	83	21	24.4	20.4	110.5
Construction	2,206	2,140	66	2,997	2,948	49	791	808	-17	35.9	37.8	-25.8
Wholesale and retail trade	2,781	2,246	535	7,275	4,263	3,012	4,494	2,017	2,477	161.6	89.8	463.0
Hotels and restaurants	519	311	208	865	417	448	346	106	240	66.7	34.1	115.4
Transport, storage and communication	2,014	1,893	121	3,239	2,978	261	1,225	1,085	140	60.8	57.3	115.7
Financial intermediation	453	311	142	581	308	273	128	-3	131	28.3	-1.0	92.3
Real estate, business services	97	67	30	994	840	154	897	773	124	924.7	1153.7	413.3
Public admin., social security	3,062	2,638	424	4,337	3,480	857	1,275	842	433	41.6	31.9	102.1
Education	2,093	1,366	727	4,324	2,673	1,651	2,231	1,307	924	106.6	95.7	127.1
Health and social work	1,406	749	657	1,830	872	958	424	123	301	30.2	16.4	45.8
Other services	1,405	1,177	228	2,122	1,542	580	717	365	352	51.0	31.0	154.4
Private household employees	1,316	540	776	1,065	67	998	-251	-473	222	-19.1	-87.6	28.6
Extra territorial organisations	96	55	41	208	133	75	112	78	34	116.7	141.8	82.9
Industry not stated	329	237	92	693	484	209	364	247	117	110.6	104.2	127.2

Another notable feature of labour force change between 1986 and 1999 is that the number of women working is still less than half the number of men, while the growth rate of female employment was more than twice that of men: 77 versus 36 percent.

Looking at the industry sectors which have shown the largest changes in absolute job numbers, the most significant is manufacturing, closely followed by wholesale and retail trade. In manufacturing, subsectors associated with large-scale primary production had the greatest growth. The number of people working in food manufacturing (including beverages) rose from 547 in 1986 to 3,145 in 1999. While some of this increase may be attributed to supplying local demand, much of the growth took place in fish processing, a large part of which was for export. Processing of wood and wood products was also a growth area. From only 492 workers in wood processing and furniture construction in 1986, there was an increase to 3,149 workers in 1999.

The next most significant sector in terms of additional job creation is education, which more than doubled in size with 2,231 new jobs. This reflects the steady growth of the school age population, and an attempt to expand investment in the school system, an area in which there has been considerable international aid donor focus over this period.

The largest sector of employment is agriculture, although this sector appears to have contracted slightly since 1986. This reflects the fact that there has been relatively little expansion in the large-scale plantation sector over this period, and also the closure of SIPL and other agricultural operations on the Guadalcanal Plains in mid 1999 as a result of the ethnic tension. Similarly, the fishing sector also shrank, but this is not explained as easily since the large-scale fishing industry was still active at the time of the census (although subsequently closed in June 2000). The explanation for this reduction appears to be related to changes in the small-scale fishing sector.

The main area of employment growth among primary industries was in forestry and logging. This sector expanded by 85 percent between the censuses, and particularly notable was the increase in female involvement, although their numbers are still relatively small. Over the period logging moved into new areas such as Choiseul, and continued or expanded production in areas such as New Georgia and Guadalcanal.

The sector in which there has been the greatest relative growth is real estate and business services, which according to table 6.6 grew by 925 percent between 1986 and 1999. This growth is partly caused by classification technicalities within the area of business services (and overlaps with business intermediation), and the fact that two-thirds of jobs in this sector were ‘business activities not elsewhere classified’ confirms this. Since a considerable proportion of these jobs (76 percent) are self-employed this suggests that they range from people who advise small village-level enterprises to business consultants working for large corporations. In any case, the broad area of business services is a significant area of growth since when the two business services categories are combined, they turn out to have created more than a thousand new jobs.

Two other sectors of significant growth are public administration and social security, and transport, storage, and communications. These reflect the general expansion of the infrastructure of the country as the population and the economy continue to grow.

Further details on employment within industry sectors down to the three digit ISIC level, and broken down by gender and age group, are given in table B6.04 in the Basic tables report of the census. Further details relating ISIC to employment status as well as gender are also in that volume, table B6.06.

6.4.6 Paid work occupations: what people do for money

Another way of considering how the labour force is structured, and how it is changing, is by using the International System of Classification of Occupations (ISCO). This system classifies jobs both according to their content and to the level of skill they require, and this can be done at four levels of detail. In 1988 the ISCO system was changed to make it more meaningful to contemporary economies, and to incorporate more of the 'informal' activities common in many countries, including the Solomon Islands. Unfortunately, this change means it is very difficult to compare results with those based on earlier classification systems, so in this section this is only attempted at one level.

In the Basic tables volume table B6.02 presents information on the first (major) level to the third (minor) level of occupations in Solomon Islands. *Table 6.7* gives a breakdown of occupations into the ten major ISCO categories. By far the largest occupational group is that of skilled agricultural and fishery workers. The fact that a high proportion of these people are working in mixed-subsistence - cash cropping activities is suggested by the high proportion who are self-employed, and this idea is supported by evidence on household subsistence-cash cropping strategies discussed earlier (section 6.3.2). Only about one-third of men and five percent of women were in waged or contract labour. When specific occupations are considered (*table 6.8*), the largest occupation is market gardeners and crop growers, making up 18 percent of the labour force. The next largest is fishery workers, hunters and trappers accounting for a further six percent of the labour force.
In the classification by major ISCO groups, several similarly sized groups follow the group of workers in the agricultural and fisheries sector. In order, these are workers in service, shop and market sales, craft and related trades workers, elementary occupations and professionals. The specific occupations with large numbers in each of these groups can be identified in table 6.8 (note that in this table the first digit of the number on the left identifies the major ISCO group into which an occupation falls).

A comparison of occupations with those found in the 1986 Census is nearly impossible because of the total reclassification of the ISCO system after 1988. A few specific occupations are relatively easy to compare, for example the number of primary and pre-school teachers in 1986 was 1,729, compared with 2,938 in 1999. However, for other occupations the problems are greater; e.g. the nearest thing to the 10,434 'market gardeners and crop growers' of 1999 might be the 6,943 persons classified in 1986 as 'plantation owners' + 'field crop farm owners' + 'field crop workers', but it is doubtful that this would be an exact match.

In the Basic tables volume, table B6.08 provides further details about the relationship of occupations to industrial sectors, and this is presented to the ISCO two-digit level for 17 ISIC industry groups and thus is too detailed to present here.

6.4.7 Age-sex structure of the labour force

The age-sex structure of the labour force is shown in the pyramid in *figure 6.17a*. This includes all people working for pay as well as those looking for work. The predominance of men in their 20s confirms their high rate of participation in employment in the formal economy but also in other cash activities. These age cohorts are the most important for women as well, although their participation rate is only about half that of men, reflecting their greater commitment to subsistence and domestic activities. At older ages, these gender differences diverge even further.

Table 6.7. Major occupations, by gender, employment status 1999

Occupation (ISCO major groups)	*Both sexes*					*Males*					*Females*				
	Total	*Self-employed*	*Waged and contract labour*	*Other*	*Not stated*	*Total*	*Self-employed*	*Waged and contract labour*	*Other*	*Not stated*	*Total*	*Self-employed*	*Waged and contract labour*	*Other*	*Not Stated*
All occupations	57,472	19,625	33,873	3,141	833	39,761	12,050	25,499	1,667	545	17,711	7,575	8,374	1,474	288
1. Legislators, senior, officials, manangers	2,502	904	1,491	81	26	2,085	698	1,303	63	21	417	206	188	18	5
2. Professionals	6,514	147	6,141	133	93	4,052	108	3,800	92	52	2,462	39	2,341	41	41
3. Technicians and associate professionals	3,044	154	2,759	93	38	2,510	119	2,287	73	31	534	35	472	20	7
4. Clerks	2,301	68	2,178	22	33	1,155	40	1,083	14	18	1,146	28	1,095	8	15
5. Workers in service, shop, market sales	7,826	2,442	4,816	457	111	4,902	1,102	3,504	229	67	2,924	1,340	1,312	228	44
6. Skilled agricultural and fishery workers	15,220	11,131	2,468	1,406	215	9,626	6,601	2,167	735	123	5,594	4,530	301	671	92
7. Craft and related trades workers	7,327	2,801	4,064	357	105	5,728	1,584	3,887	182	75	1,599	1,217	177	175	30
8. Plant and machine operators, assemblers	5,783	1,448	4,103	158	74	5,262	1,442	3,600	150	70	521	6	503	8	4
9. Elementary occupations	6,955	530	5,853	434	138	4,441	356	3,868	129	88	2,514	174	1,985	305	50
Not stated or inadequately defined	1,667	176	1,342	71	78	1,283	135	1,060	38	50	384	41	282	33	28

Table 6.8. Specific occupations (3 digit ISCO classification) by, gender and ranked by number

Occupation (ISCO minor groups)	*Both sexes*	*Males*	*Females*	*Percent of labour force*	*Percent female*	*Percent who are waged/ contract*
All occupations	57,472	39,761	17,711	100.0	30.8	58.9
611 Market gardeners and crop growers	10,434	5,362	5,072	18.2	48.6	7.3
615 Fishery workers, hunters and trappers	3,300	2,880	420	5.7	12.7	18.4
233 Primary and pre-school teachers	2,938	1,687	1,251	5.1	42.6	95.9
712 Building frame workers	2,540	2,520	20	4.4	0.8	78.5
516 Protective service workers	2,191	2,066	125	3.8	5.7	96.4
522 Shop salespersons	2,172	1,389	783	3.8	36.0	68.3
523 Market and stall salespersons	2,168	847	1,321	3.8	60.9	3.0
921 Agricultural and fishery labourers	2,015	1,542	473	3.5	23.5	89.0
913 Domestic helpers, cleaners and launderers	1,850	292	1,558	3.2	84.2	81.0
832 Motor-vehicle drivers	1,485	1,480	5	2.6	0.3	68.3
814 Wood processing and plant operators	1,436	1,423	13	2.5	0.9	35.0
733 Handicraft workers in wood, textile, leather, et cetera	1,254	606	648	2.2	51.7	3.1
614 Forestry and related workers	1,188	1,165	23	2.1	1.9	85.7
827 Food products machine operators	1,077	589	488	1.9	45.3	97.1
723 Machinery mechanics and fitters	1,062	1,053	9	1.8	0.8	84.0
931 Mining and construction labourers	919	886	33	1.6	3.6	85.0
833 Mobile plant operators	913	911	2	1.6	0.2	78.5
131 General managers	883	682	201	1.5	22.8	25.3
741 Food processing workers	874	298	576	1.5	65.9	15.1
223 Nurses and midwives	847	280	567	1.5	66.9	96.8
232 Secondary school teachers	762	510	252	1.3	33.1	96.1
512 Housekeeping and restaurant service workers	739	276	463	1.3	62.7	90.5
314 Ship controllers and technicians	692	688	4	1.2	0.6	97.4
241 Business professionals	660	452	208	1.1	31.5	94.7
122 Production and operations dept. managers	645	555	90	1.1	14.0	73.8
834 Ship's deck crew	610	609	1	1.1	0.2	97.5
343 Administrative associate professionals	570	348	222	1.0	38.9	94.2
246 Religious professionals	527	511	16	0.9	3.0	82.2

The differences between male and female participation in the labour force are greater when the age-sex structure of wage and contract workers is considered (*figure 6.17b*). This category represents the bulk of those working in the formal economy, although there are also some self-employed in this category. Comparing this age-sex pyramid with that for 'all wage workers' in the 1986 census, the shape is similar, but the relative inequality between men and women has diminished. Thus for example, while men aged 20 to 24 outnumbered women by about four to one in 1986, in 1999 there were just slightly more than twice as many men as women. This was shown for other younger cohorts as well, reflecting the increased participation of women in the formal economy over this period.

Figure 6.17a. Age-sex structure of labour force, 1999

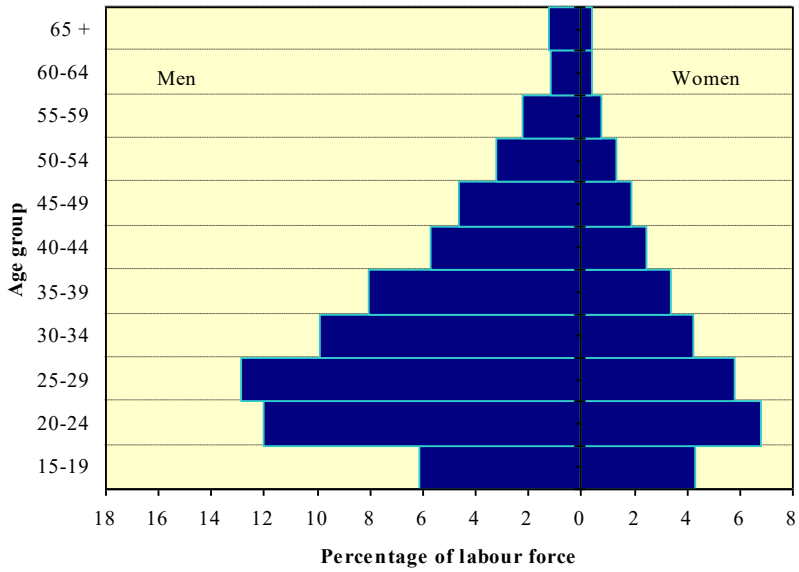
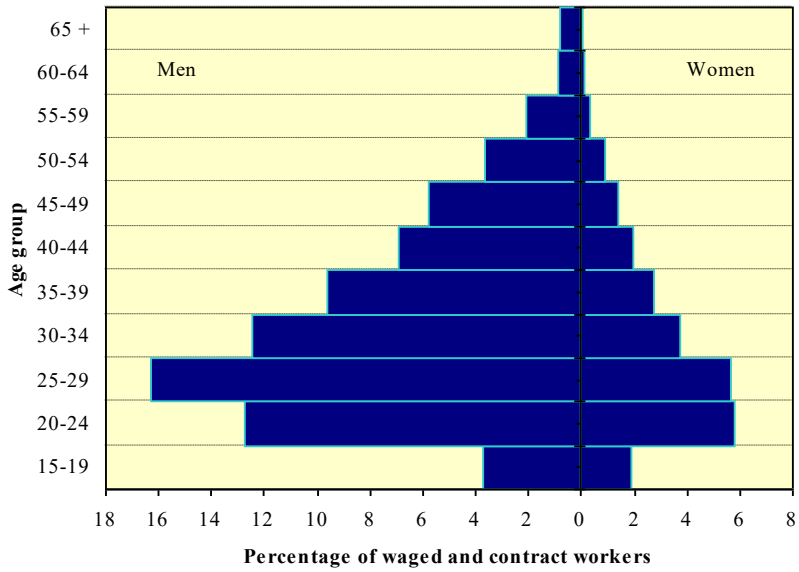


Figure 6.17b. Age-sex structure of wage and contract workers, 1999



6.5 Conclusions: recent changes, future possibilities

The 1999 Census has documented a number of economic changes since the previous census in 1986, while at the same showing that some aspects of the economy have remained much the same. The latter is best illustrated by the activities of village households. As was shown in previous censuses, the great majority of households outside Honiara are still active in subsistence production and gathering of food products. A substantial proportion of rural households also produce crops or harvest seafood for sale, and this is usually associated with subsistence consumption of these products. While the subsistence and cash production of coconuts remains the most important activity in the villages, there have been some changes in the household production of other products since 1986. The smallholder production of cocoa and betelnut for sale approximately doubled, while the production of rice in the villages was introduced between the censuses. Copra production was relatively static, and other data show a decline

in per capita production. The marketing of marine products increased, although this was modest in relation to the efforts that went into the establishment of fisheries collection centres in the 1990s.

Census data on the activities of Solomon Islanders show some interesting trends. While the majority of adults are still active in domestic and unpaid activities, there has been some expansion in paid work activities. Overall, paid work increased more rapidly than the population as a whole, although with the youthful structure of the population, the number of new jobs created was less than the number of potential new entrants into the labour force age cohorts. Agriculture remained the most important sector of employment between 1986 and 1999, but in relative terms it declined slightly. In absolute terms, manufacturing and wholesale and retail trade experienced the greatest expansions, accounting for about 5,000 and 4,500 new jobs respectively. There were about 2,200 new jobs in education and about 1,400 in forestry and logging. These employment changes reflected the growth of population and thus markets, as well as private investment in activities such as manufacturing and logging, and national and international support for government services, especially education. The composition of the labour force has changed since 1986. The participation of women has increased relatively, so that the age-sex structure of those in wage and contract labour is much less imbalanced than it was earlier.

As discussed in various parts of this chapter, the economic patterns shown by the 1999 census were affected by the ethnic tension of that year. The most obvious cases were the disruption of both large scale and small scale production on Guadalcanal. Honiara was less affected at the time of the census, but there were some impacts there, and these became more severe during 2000, especially after the events of June. Economic impacts were also felt on Malaita which received an influx of people fleeing from Guadalcanal, most of whom were suddenly housed with relatives in the villages. It is important then, to briefly consider the significance of the tensions for the interpretation of the economic information discussed in this chapter and for future projections, under the assumption that the Townsville Peace Agreement will hold, and that much of the economy will 'return to normal'.

For the country as a whole, the household economic patterns shown by the census are probably quite accurate, with the exception of Guadalcanal. Nevertheless, since the household question asked about activities over the previous year, some of the marketing and other small-scale activities which are significant on Guadalcanal should have been enumerated, and this is confirmed by the data. However, the Malaitan and other households which were evacuated from Guadalcanal will have been missed and in most cases their members will have been added to existing households in Malaita. Also, a considerable number of Guadalcanal households were also displaced, so there is probably some undercounting of these as well. In the short to medium term it is unlikely that many of the non-Guadalcanalese households will be re-established on the Guadalcanal Plains or on the outer edges of Honiara, so the situation shown by the census may be relevant to the immediate future. On the other hand many of the displaced households may be re-established elsewhere, so the enumeration of economic activities on Malaita is likely to under-represent future activities.

For the paid labour force, impacts of the ethnic tension were quite specific for certain sectors of the economy. The most obvious case was palm oil production on the Guadalcanal Plains, and the future of this industry is unclear, since it seems unlikely that the large labour force will be able to resettle in that area for some time. The employment profile shown for logging and forestry was only affected on Guadalcanal, and this was a relatively small part of the total industry. The future of this industry is more likely to be affected by government policy. The fishing industry is somewhat different, since although the census seems to have captured a relatively 'typical' profile of fishing, the industry was subsequently severely affected by closure during the events of 2000. However, with political stability, it seems likely that fishing will return to 'normal' levels of production, even if the same companies are not involved. The census data suggest that the levels and types of government employment enumerated were reasonably typical of recent years, although this was also disrupted in the course of 2000. The future of government employment, however, is somewhat dependent on the resumption of

the larger revenue-generating private sector activities, as well as the continuing involvement of overseas development assistance. In the case of the latter, there is no reason to believe that levels of support for sectors such as education and health will change much from the patterns of the 1990s, assuming political stability is maintained.

7. Health

Bart DE BRUIJN, Ronald HORSTMAN and Burcu SAVAŞ

7.1 Introduction

The 1999 census introduced the area of health as a new topic in the series of Solomon Islands censuses. Besides the collection of information about disability —which is relatively common in censuses around the world— this census included a number of questions on maternal and child health, and on the use of mosquito bednets. The incorporation of these last two issues reflect on the one hand the government's increased attention towards reproductive health and on the other the fact that malaria is the single most important health threat in the Solomon Islands. The structure of this chapter is largely determined by these three health issues: disability, maternal and child health, and malaria. Besides a presentation of the overall results, in several cases differentiation will be made according to relevant variables, like educational level, employment status and region.

7.2 Disabilities

7.2.1 Introduction

In general, aspects of disability are indicators of the health of a population. Disability is usually conceptualised as a multi-dimensional experience for the person involved. There may be effects on organs, limbs or other parts of the body, such as impairment of the mobility of joints or bones, or the function of muscles. Certain activities could be limited, for instance lifting or gripping objects with the hand. There may be consequences for a person's participation in aspects of life, such as education, work or leisure. This can be facilitated in various ways; for instance, by the provision of technology or environmental modifications. Physical and social environmental factors play a significant role in people's becoming disabled.

The International Classification of Functioning, Disability and Health, known as ICIDH-2 (WHO 2001a), defines components of health and health-related components of well being.[28] From the perspectives of the body, the individual and society, ICIDH-2 provides useful profiles of individuals' *functioning* and *disability* as expressed in three dimensions: body function and structures, activities and participation. Functioning thus refers to body functions, activities and participation, whereas disability refers to impairments, activity limitations and participation restrictions. ICIDH-2 has moved away from a 'consequences of disease' classification (ICIDH 1980 version) to a 'components of health' classification. In terms of aetiology, neutrality towards causal factors has replaced the 'determinants' of health and 'risk factor' approach. Similarly, the current classification identifies the constituents of health, whereas its predecessor focused on the impacts of diseases or other health conditions.

The 1999 census question on disability screens the population by self-perceived status of health in terms of functioning and disability. These main aspects are captured in the question: "Do you have any problem seeing, hearing, talking, moving, holding, gripping or any mental problem?", and can be

[28] ICIDH-2 represents a revision of the International Classification of Impairments, Disabilities and Handicaps (ICIDH), which was first published by WHO in 1980. The terms used in ICIDH-2 replace the formerly used terms 'impairment', 'disability' and 'handicap'.

categorised into four main dimensions: sensorial, physical, mental and multiple. For interpretation of the questions the descriptions in the accompanying text box apply (United Nations 1998).

The question in the 1999 Solomon Islands census is meant to screen the population at large, not to describe in detail individual health conditions in terms of the ICIDH-2. Further research would be needed to answer some of the following questions. How do we distinguish someone, for example:

- with an impairment but without capacity limitations (for instance, a disfigurement caused by leprosy may have no effect on a person's capacity);
- with performance problems and capacity limitations but without evident impairments (for instance, reduced performance of elderly people in daily activities associated with diseases);
- with performance problems but without impairments or capacity limitations (for instance, an ex-patient recovered from mental illness facing stigma or discrimination in interpersonal relations or work)?

Description of types of disabilities in the census

Sensorial

- *Seeing problem*. A person has problem seeing if he/she cannot use one eye or both eyes. People who are short-sighted or long-sighted and wear glasses are not included.
- *Hearing problem*. A person has a problem hearing if he/she cannot use one ear or both ears to hear. A person using a hearing aid is regarded as having a hearing problem.
- *Speaking problem*. A person has a problem with speaking if he/she cannot talk at all, if he/she can make sounds but not talk, or he/she has some kind of difficulty when trying to talk.

Physical

- *Moving problem*. A person has a problem with moving if he/she cannot reach, crouch or kneel; cannot use his or her legs to walk; uses sticks to help him/her to walk; or is lame or has had polio.
- *Holding/gripping problem*. A person has a problem with gripping if he/she cannot use his/her hand(s) to hold things or who has one hand smaller than the other.

Mental

- *Mental problem*. A person has a mental problem if he/she suffers from intellectual difficulties or mental retardation, or has severe psychological or emotional problems.

Multiple

- *Multiple problems*. A person having more than one of the different problems stated above is classified as having multiple difficulties.

Underlying the prevalence of disability in a society or at individual level are the following causes, as described by United Nations (forthcoming publication) in six main categories:

1. infectious and parasitic diseases;
2. congenital anomalies and perinatal conditions;
3. other disease and conditions;
4. injury/accidents/trauma;
5. other causes including natural and environmental factors;
6. causes unknown.

Information on these causes of disability is important for planning and the evaluation of prevention programmes. However, the census does not provide this background information.

The following sections elaborate on the prevalence of disability in the Solomon Islands. First, overall prevalence is compared with other countries, whereafter disability prevalence by age and type is described. Then, differences in the disability prevalence by province are shown and last, disability prevalence will be highlighted in two distinct population sub-groups: children in school going ages and people in working ages. Where appropriate we shall refer to specific disabilities and their causes, and for some compare these with global features.

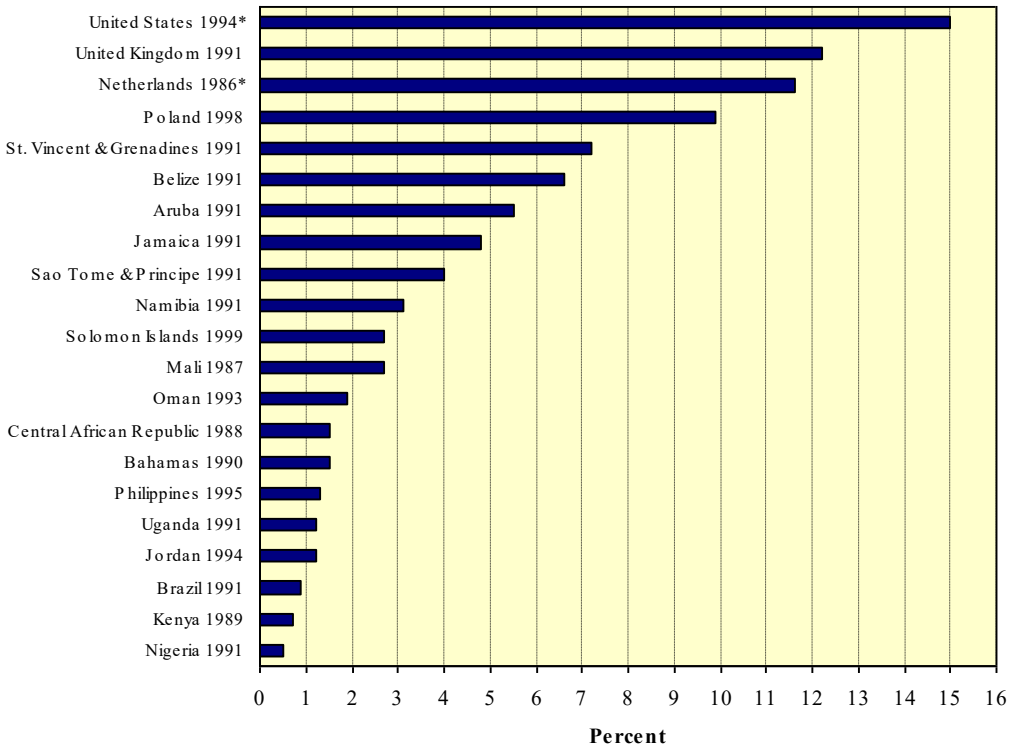
7.2.2 Overall prevalence of disability

The prevalence of disability in a population is usually expressed as a rate or percentage. We define the disability (prevalence) rate as the number of disabled persons per thousand in the population at risk. Similarly, the age-specific disability rate is expressed as the number of disabled persons in a specific age group per thousand population in that age group; and the type-specific disability rate is expressed as the number of persons with a certain type of disability per thousand population with that type of disability.

Many countries collect data on disability. However, the rates derived from these data vary greatly for a number of reasons, including conceptual and measurement as well as 'true' differences. For example, differences occur in the type and clarity of the questions used. Also, census data yield lower prevalence then surveys (United Nations 2001). In general, census questions normally function as a first screening using one to a few questions at the most, whereas surveys can be more elaborate and detailed.

Figure 7.1 compares data from the 1990 round of censuses for selected countries, showing the overall percentage of disabled in the population. Except for the Netherlands and the United States, these are data from national censuses. The shown percentages presented in the figure range from 0.5 in Nigeria to 15 in the United States. The rate of 15 percent for the United States (1994) compares with only 5.2 percent according to the National Health Interview Survey (United Nations 2001) conducted in 1990 in the United States, confirming the wide variation caused by the concepts and methods applied.

Figure 7.1. Census data on percentage of disabled persons for selected countries



* Survey data.
Source: United Nations 2001

In the 1999 census of the Solomon Islands, in total 11,107 persons reported having a disability (*table 7.1*). This means that 2.7 percent of the total population were registered as having a disability, slightly more men (2.9 percent) than women (2.5 percent).

Table 7.1. Number and percent of disabled persons, by sex

Sex	*Total*	*Number*	*Percent*	*Not stated*	*Percent*
Total	409,042	11,107	2.7	1,569	0,4
Male	211,381	6,158	2.9	781	0,4
Female	197,661	4,949	2.5	788	0,4

Not all disabilities are equally common. *Figure 7.2* and *table 7.2* show that problems with sight exceed all other categories, followed by hearing, moving and multiple disability categories. Sensorial disabilities, that is problems with seeing, hearing and speaking, represent more than half of all disabled persons (57 percent), physical disabilities 21 percent, and mental disorders 6 percent. Sixteen percent of all persons with a disability have more than one problem.

Figure 7.2. Percentage distribution of disabled persons, by type of disability

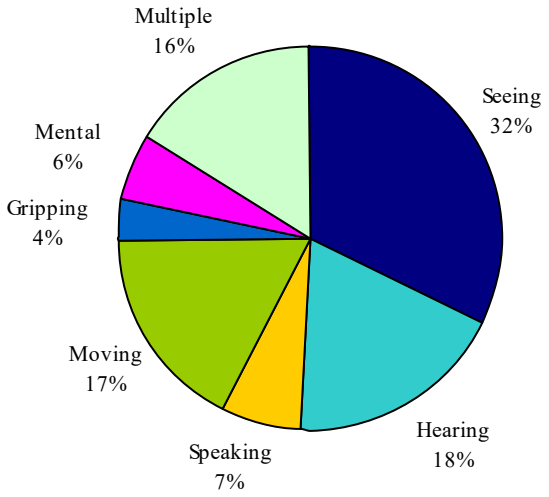


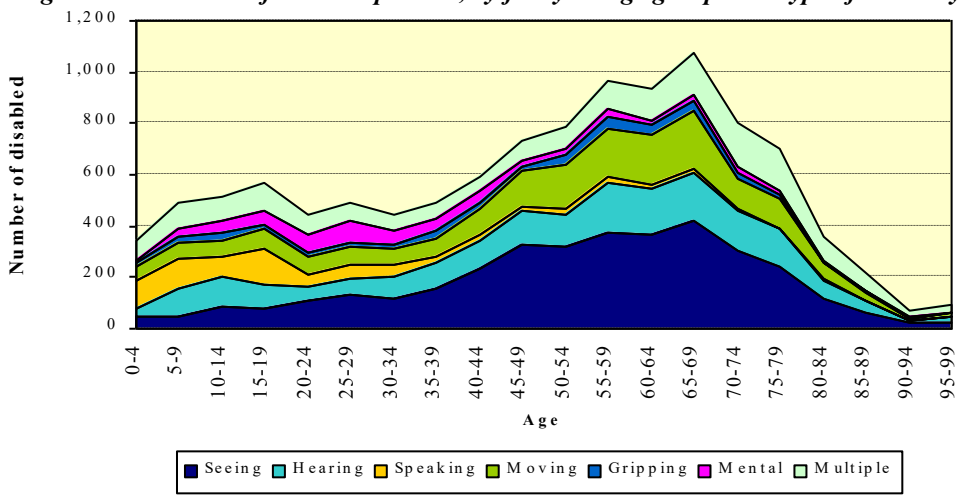
Table 7.2. Number of disabled persons, by type of disability and by sex

Sex	*Total*	*Seeing*	*Hearing*	*Speaking*	*Moving*	*Gripping*	*Mental*	*Multiple*
Total	11,107	3,568	2,050	743	1,899	417	634	1,796
Male	6,158	1,919	1,162	418	1,089	256	352	962
Female	4,949	1,649	888	325	810	161	282	834

7.2.3 Prevalence by age and type of disability

It is important to know just how many people are disabled if social policies and plans to help this group function in society are to be developed. *Figure 7.3* shows the number of disabled persons by five-year age groups. Most disabled people are in the age group 40-69 years, an average of 169 persons disabled per single year of age. The majority of these disabled individuals suffer from

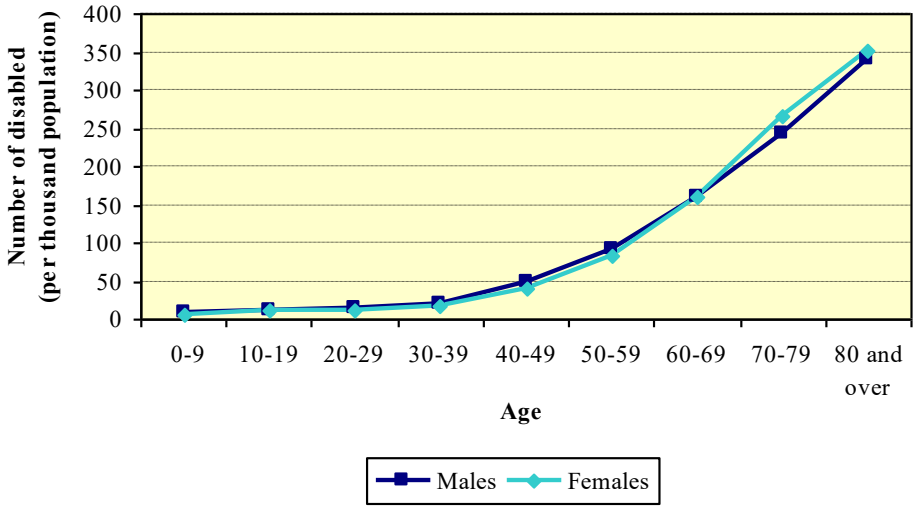
Figure 7.3. Number of disabled persons, by five-year age groups and type of disability



problems with sight and mobility. Under 40 years of age the numbers of disabled people are considerably lower (on average 95 disabled persons per single year of age). In the high age groups (from 80 years), absolute numbers of disabled become very low.

The age distribution in figure 7.3 is similar to the pattern in other countries. This normal distribution is confirmed in *figure 7.4* Disability prevalence rates gradually increase with age. They show the relative risk of becoming disabled at a certain age by relating the number of disabled persons to the risk population. Figure 7.4 shows that from around 40 years of age the number of disabled persons per thousand population increases. Furthermore, almost one in ten 50-59 year-olds are disabled and over one third of all people over 80 years of age.

Figure 7.4. Number of disabled persons per thousand population, by ten-year age group and sex



The steady increase in the disability rate with increasing age combined with an initial rise in the absolute number of disabled until around 65 years, and a subsequent fall can be explained by the additional effect of smaller cohort size and mortality on the disabled population aged 65 years and over. The natural process of the decreasing capacity of individuals to regenerate physically when growing older results in reduced functionality and an increase in disability with age. At around 65 years the growing numbers of disabled are also suppressed by the fact that the cohorts become very small and higher mortality in the disabled population. However, the increasingly smaller population at risk in older age groups yields relatively more disabled, which is reflected in a dramatic increase in the disability rate.

In children we observe a rise in the numbers of disabled in the age categories 5-9 and 15-19 years, followed by a decline in the numbers. This trend is largely accounted for by larger numbers of children indicating a problem with speaking or hearing. Heaping on these ages might be related to specific events in the lifetime of children. The increase at age 5-9 could be related to the moment of school enrolment, with a likely effect that parents then realise that school going children should meet certain requirements and expectations. If the perceived level of a child's functioning does not meet these requirements and expectations, the child is likely to be considered as having one or more problems that had gone unnoticed beforehand. The added numbers in age group 15-19 are much more difficult to explain. One hypothesis relates them to social expectations for adolescents around that age in terms of their transition to a stage of production for the household, marriage and family formation. However, more in-depth investigation is required to test this hypothesis.

The following subsections elaborate on each type of disability.

7.2.3.1 Blindness and visual disabilities

Loss of sight is one of the most serious misfortunes that can befall a person. In total 3,568 persons have problems with their sight, slightly more boys and men (54 percent) than girls and women (46 percent) (see table 7.2). These people account for some 32 percent of all people disabled and almost one percent of the total population (9 per thousand population). As we have seen in figure 7.4 the largest share of people with seeing problems are concentrated in ages 40 and above.

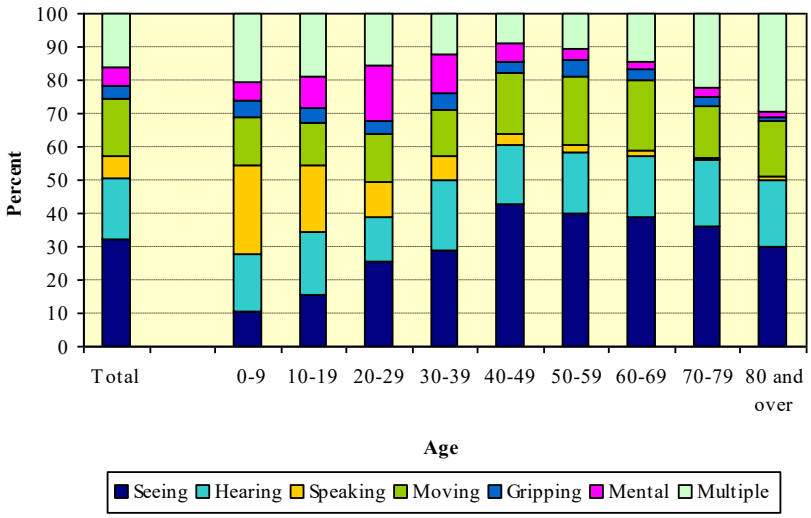
Figure 7.5 shows that the proportion of people in the multiple disability category increases from 40 years. It is likely that an increasing portion of older people with sight problems fall in this category.

In 1994, the WHO estimated that there were around 38 million blind persons globally, with a further 110 million cases of low vision that are at risk of becoming blind (WHO 1998a). World-wide, approxi-mately seven million people become blind each year. Over 70 percent of them receive treatment and recover their vision. Thus the blind population increases by up to two million a year. Eighty percent of these new cases are related to ageing.

Nine out of ten of blind people live in developing countries. In general, more than two-thirds of today's blindness could be avoided (prevented or treated) by applying existing knowledge and technology. Apart from loss of functional ability and self-esteem, blindness and serious visual impairment have considerable economic implications. They lead to a loss of productivity and income, and to social dependence which requires rehabilitative and supportive measures.

Major age-related avoidable causes of blindness and visual disability in the developing world include cataract and glaucoma. Other preventable causes are trachoma, xerophthalmia (blindness due to vitamin A deficiency) and onchocerciasis or 'river blindness'. Leprosy may also cause problems with vision. Cataract, trachoma and glaucoma together account for more than 70 percent of blindness world-wide.

Figure 7.5. Percentage distribution of disabled persons, by type of disability and ten-year age groups



Most common causes of blindness and visual disability in the world

Cataract accounts for approximately half of all blindness world-wide. Cataract has various origins: some children are born with it and some cataracts develop after eye injuries. However, cataracts are largely related to the ageing process. The majority of people with cataract world-wide are over 50 years of age. At present the causes of ageing-related cataracts are not well known and prevention is therefore not generally possible. Ageing-related cataract can usually be treated with a relatively simple operation to remove the opaque lens.

Trachoma is one of the oldest infectious diseases known. It is responsible for 15 present of the world's blindness. Trachoma is still endemic in several Asian countries, but there is a lack of updated information from some major populations, such as India and China. Trachoma is spread through contact with eye discharge from infected persons (on towels, handkerchiefs, fingers, et cetera) and through transmission by eye-seeking flies. Trachoma and related blindness can be prevented through the implementation of the SAFE strategy, i.e. surgery, antibiotics, facial cleanliness and environmental improvement, which is a combination of community-targeted public health inter-ventions.

Glaucoma is considered to be the third largest cause of blindness world-wide. More than 80 percent of the blind and suspected cases live in the developing world. Glaucoma as such cannot be prevented, but visual loss can be avoided if the disease is detected and treated at an early stage. Improved awareness and education aimed at persons at particular risk facilitate the early detection and treatment of glaucoma.

Vitamin A deficiency leads to blindness in some 350,000 children annually. It impairs the immune system, increasing the risk of dying in childhood by about 20 percent.

Source: WHO 2001.

7.2.3.2 Deafness and hearing impairment

The WHO's most recent estimate (2001b) states that 250 million people in the world today have disabling hearing impairment (moderate or worse hearing impairment in the better ear). Two-thirds of these people live in the developing world. Hearing impairment can retard an individual's development by causing delay in language acquisition and cognitive development and impeding school progress. It can cause vocational and economic difficulties and lead to social isolation and stigmatisation at all ages.

Frequent causes of deafness and hearing impairments include chronic infections (otitis media), ageing, ototoxic drugs, ante and peri-natal problems, meningitis, measles and inherited causes. But nutrition, trauma and excessive noise are also mentioned as causative factors. The use of toxic drugs, for example misuse of antibiotics, is known to cause childhood deafness. In China, for example, this cause was held responsible for about 70 percent of the nation's deaf children (UNICEF, 1989).

In the 1999 census of the Solomon Islands, hearing problems were recorded for 2,050 persons. This is five persons per thousand in the population. Accounting for 18 percent of all disabled people, deafness and hearing impairments come second behind seeing problems. Apparently, problems with hearing occur in all ages, slightly more for school-age children and in the age of 50-80 years (figure 7.5).

7.2.3.3 Speaking disability

A total of 743 people reported problems with speaking, almost two persons per thousand people (a disability rate of 1.8) and the equivalent of seven percent of all disabled people. The proportion of persons with speaking problems diminishes with age. Speech defects are most obvious in childhood. More than a quarter of all disabled (27 percent) in the age group 0-9 years were reported as having a problem speaking. However, this figure might be inflated: figure 7.4 shows that a considerable number of one and two year-olds were reported as having speech problems. As normal children cannot be considered as being able to speak properly anyway at these ages, it is likely that some of the children are misreported. The numbers have not been corrected in further analysis as they are relatively small.

7.2.3.4 Moving and gripping

Physical disabilities include problems with reaching, crouching or kneeling, and walking; but also problems with gripping or holding things. There are many causes for these functional limitations in daily life. They include trauma and injuries, polio-meyelitis, lameness, leprosy, ageing, and also congenital deformities like talipes (clubfoot). Preventive measures as well as proper treatment and the use of aids to facilitate daily activities reduce the burden of disability on society in social, economic but also psychological terms.

After seeing and hearing disabilities, problems with moving are most common. Overall 1,899 people are reported to have problems with moving, a disability rate of 4.6. They account for 17 percent of all disabled. Moving problems are apparent in all age groups, with slightly higher disability rates between 40 and 70 years. Above 70 years people with moving problems are likely to have been reported under the multiple disability category.

Problems with gripping or holding things are reported by 417 persons: one per thousand in the population, accounting for only 4 percent of all registered disabled persons. These handicaps are observed in all age groups.

7.2.3.5 Mental Health

Mental health is a complex phenomenon that is determined by multiple social, environmental, biological and psychological factors. It depends in part on the successful implementation of public health efforts to control neurological and psychological disorders such as depression, anxiety disorders, schizophrenia, dementia and epilepsy.

Mental health problems are increasing dramatically world-wide. One in four people will suffer from a mental or neurological disorder at some point during their lifetime. Data suggest that mental health problems are among the most important contributors to the global burden of disease and disability. In 2000, mental and behavioural disorders accounted for 12.3 percent of the global burden of disease.

Behind these striking statistics are individuals suffering from a disorder which is compounded by pervasive stigma and discrimination. According to the WHO (2001c) a number of groups of people have an increased risk of being afflicted by the burden of mental health problems because of extremely difficult conditions or circumstances. These include children and adolescents experiencing disrupted nurturing, abandoned elderly people, abused women, those traumatised by war and violence, refugees and displaced persons, many indigenous people and persons in extreme poverty.

In the 1999 census, 634 people were reported to be suffering from a mental disorder (a disability rate of 1.5). Overall, this is six percent of all disabled persons, but it is more common in middle age groups: 17 and 12 percent in the age groups 20-29 and 30-39 respectively. It is likely that with increasing age people with mental disorders have been classed as having multiple disabilities.

7.2.3.6 Multiple disabilities

Disabled persons with more than one of the sensorial, physical or mental problems stated above are included in the category 'multiple disabilities'. The census results put a total of 1,796 persons in this category (a disability rate of 4.4). Relatively large shares can be observed at younger and older ages. In age groups 0-9 and 10-19 about every fifth disabled person has multiple problems. These could be children with severe malfunctions due to for example birth defects, cerebral palsy, polio-meyelitis, and retardation. Hypothetically, the relative decrease in this category until around age 40 could be caused by higher mortality among multiple-disabled people. Above 50 years the rate increases from one in ten (age group 50-59) to one in four (above 70 years).

As mentioned above, it is likely that as they grow older, disabled people encounter more than just one problem. We therefore expect that decreasing proportions in the categories seeing, moving and mental disorders can be explained, at least partly, by an increase in the multiple category.

7.2.4 Provincial differences in the prevalence of disability

For most of the ten provinces in the Solomon Islands, the disability rate across ages is close to the overall rate (27 per thousand population) for the country (see *figure 7.6*). Four provinces have deviant rates. Honiara and Isabel have lower than average disability prevalence rates. Temotu and Rennell-Bellona have higher rates.

With a disability rate of 19 per thousand population Honiara has the lowest rate. The younger age structure and relatively higher number of healthy people, partly as a consequence of selective in-migration, should be held accountable to this difference, together with lower prevalence rates at older ages. The latter points towards better health for elderly in the capital than in other parts of the country. Comparison of type-specific disability rates for Honiara with those for the country shows lower rates for hearing (-1.2 per thousand population), moving (-2.0 per thousand population) and multiple (-2.5 per thousand population) disabilities.

Isabel has a moderately lower rate (23 per thousand population) compared with that for the Solomon Islands. *Figure 7.7* shows that age-specific disability rates for age groups 40-49 and older are all lower than those for the Solomon Islands as a whole. The lower rate can almost completely be ascribed to fewer vision problems (with a type-specific disability rate that is 3.2 per thousand lower than that for the country) among people aged 40 and over.

Figure 7.6. Number of disabled persons per thousand population, by province

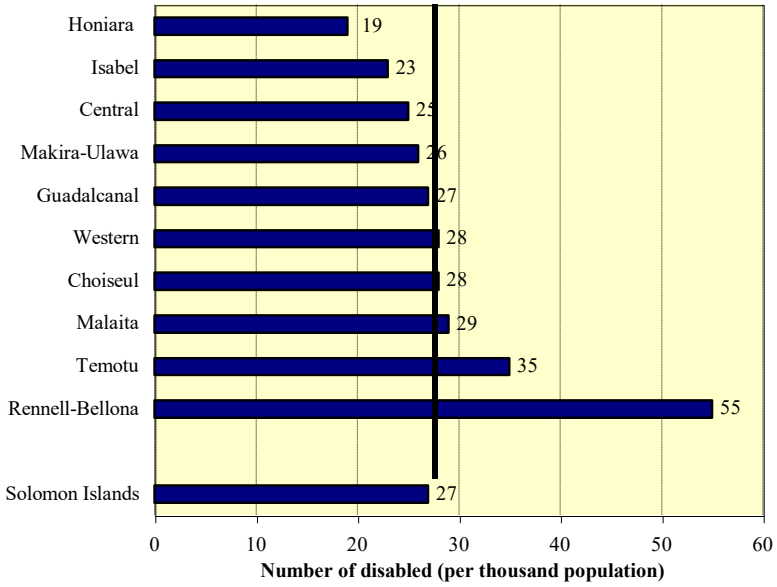
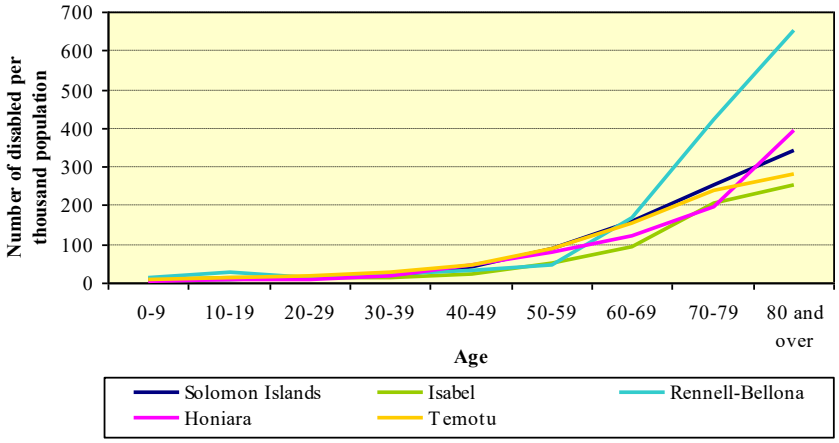


Figure 7.7. Number of disabled persons per thousand population for selected provinces



The disability rate for Temotu is 35 per thousand population, which is eight per thousand higher than for the country. Compared with national rates, type-specific disability rates for Temotu are higher for seeing disabilities (+4.0 per thousand population), moving (+1.4 per thousand population) and multiple disabilities (+1.8 per thousand population). Figure 7.7 shows slightly higher levels in the middle age groups from 20-59 years.

Rennell-Bellona province has a disability rate that is almost twice of that for the country: 55 per thousand population (figure 7.6). The age structure, with relative more elderly and fewer people in the middle age ranges, is responsible for a large part of the difference, again perhaps in combination with the selective out-migration of healthy people. Age-specific disability rates rise sharply after age 70, which could only be explained by the less healthy segments of this age group being left behind. The very small numbers involved might be a complementary factor, because the rate becomes very sensitive to the occurrence of just a few disability cases. Figure 7.7 also shows slightly higher age-specific rates in the younger age groups, and lower rates in the middle age groups 40-49 and 50-59.

Comparing type-specific disability rates for Rennell-Bellona province with those for the country yields higher rates for multiple (+16.6 per thousand population), gripping (+4.4 per thousand population) and hearing (+3.8 per thousand population) disabilities.

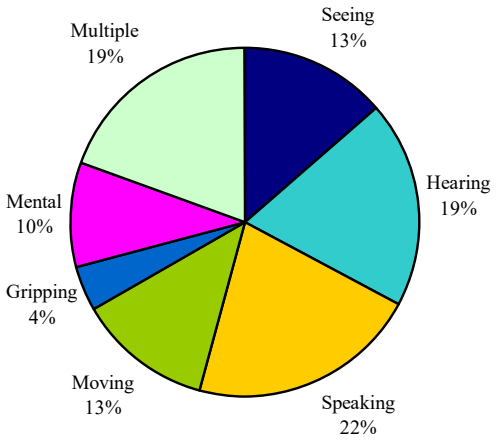
7.2.5 Disability prevalence in school going ages

One percent of all children of school ages (5-19 years) are disabled (see *table 7.3*). This is a total of 1,568 children (representing a disability rate of 10.4), with slightly more boys then girls. As observed earlier, specific types of disabilities emerge in younger age groups. *Figure 7.8* shows that compared with the overall population (see table 7.2), the proportions of persons with speaking disabilities, mental disorders and multiple disabilities are larger, whereas seeing and moving disabilities are relatively less common.

Table 7.3. Number and percentage of disabled persons 5-19 years, by sex

Sex	*Population*	*Number disabled*	*Percent disabled*
Total	151,388	1,568	1.0
Boys	78,630	865	1.1
Girls	72,758	703	1.0

Figure 7.8. Percentage distribution of disabled persons in school-going ages (5-19)



Almost three-quarters of all disabled children 5-19 years old (1,094) do not attend school, which is 1.7 per cent of all children in that age category. *Figure 7.9* shows that those who do not go to school suffer from a whole range of disabilities and suggests that disabled children are clearly disadvantaged in terms of educational opportunities. Compared with disabled children who do attend school, speaking, moving, mental and multiple disabilities have a higher prevalence in disabled children who stay at home, which may indicate which type of disabilities represent the primary obstacles for school enrolment and attendance.

7.2.6 Disability prevalence in working ages

The burden that disability places on society can be expressed in terms of the costs of health and social care, as well as of loss of economic benefits, that is the loss of work force and production because of disability. *Table 7.4* shows that two percent of the working age population (14-64 years) are disabled people who are economically non-active. The distribution of types of disabilities in this sub-population is similar to that in the total disabled population (see *figure 7.10*).

Figure 7.9. Number of disabled persons 5-19 years per thousand population, by school attendance and sex (left-hand panel), and by type of disability (right-hand panel)

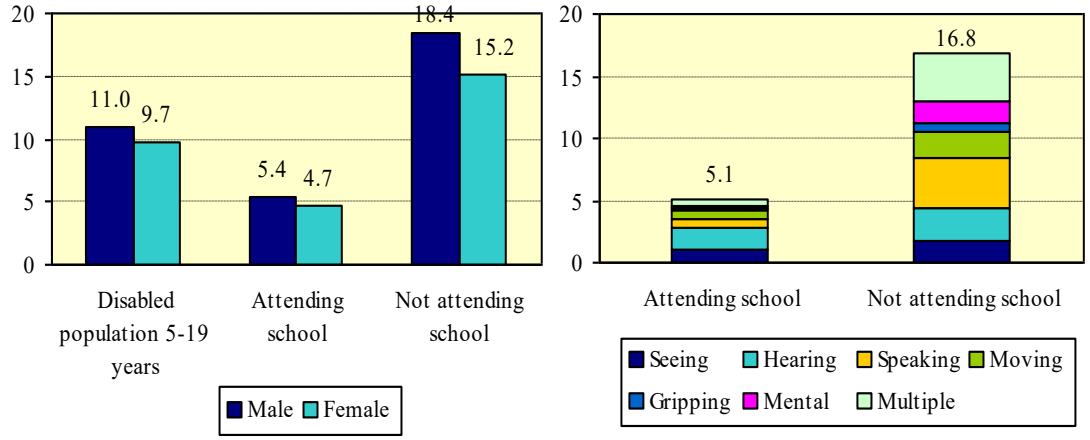
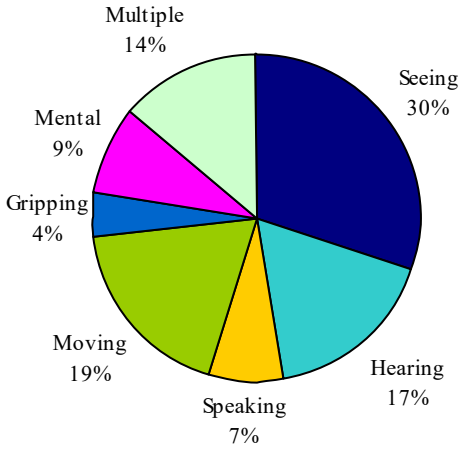


Table 7.4. Number and percentage of disabled persons aged 14-64 years, by economic activity status in paid or unpaid work and by sex

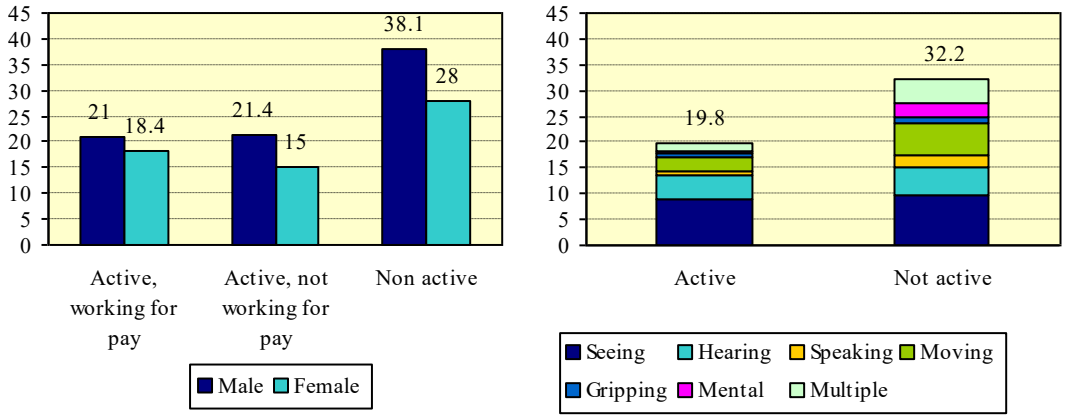
Sex	*Population*	*Disabled*		*Disabled doing (un)paid*		*Disabled not doing*	
		Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Total	232,598	6,458	2.8	1,662	0.8	4,796	2.0
Male	118,790	3,562	3.0	1,196	1.0	2,366	2.0
Female	113,808	2,896	2.5	466	0.4	2,430	2.1

Figure 7.10. Percentage distribution of disabled persons not active in paid or unpaid work



Thirty-two persons per thousand in the total population not working report a disability (*figure 7.11*). For the working population this disability rate is one third lower, at 20 per thousand population. One may conclude that those still active have disabilities which restrict their functionality at work only modestly or not at all. On the other hand, one could say that disabled persons who do not work have less functionality and are more severely hindered by their disability. This is also evident from the higher prevalence of moving (6.0 per thousand population) and multiple problems (4.5 per thousand population), and mental disorders (2.9 per thousand population) among the non-active disabled group.

Figure 7.11. Number of disabled persons aged 14-64 years per thousand population, by involvement in paid work and sex (left-hand panel), and by type of disability (right-hand panel)



7.2.7 Summary and conclusions

With a disability prevalence rate of 27 disabled persons per thousand population —equivalent to a total of 11,107 persons— the Solomon Islands is comparable with other developing countries. It must be noted, however, that the measurement of the prevalence of disabilities is not uniform world-wide. International standards and instruments for measurement have been under development since 1980, the year in which the first version of ICIDH was issued. Building on the old version, a new classification (ICIDH-2) was issued recently by the WHO, concentrating on functionality and disability. People with a sensorial disability, that is those who have problems with sight, speaking or hearing, account for more than half of all disabled people, followed by physically disabled people (problems with moving and gripping) and persons with mental disorders.

Specific types of disabilities are age-related. The loss of eyesight is most common above 40 years of age. The WHO recognises that most of these ageing-related sight problems are preventable. In children we see a rise in numbers of disabled with hearing and speaking problems. Mobility problems are prevalent in all ages but increase above 40 years of age, and mental disorders are slightly more prevalent in young adults. People with multiple disabilities are often elderly, but young children and adolescents also fall into this category. The latter are assumed to be children with severe malfunctions.

Most provinces show similar disability prevalence patterns. Lower disability rates are found in Honiara and Isabel. Temotu shows a higher prevalence rate, together with Rennell-Bellona. The age structure and perhaps selective out-migration of healthy people from Rennell-Bellona are reasons for a disability prevalence rate that is twice as high as the national rate.

Among children a range of disabilities may prevent 1.7 percent of 5-19 year-olds from going to school and thus miss educational opportunities. The economically non-active disabled population accounts for two percent of the working age population. Relatively large numbers of disabled per thousand in the working population indicate that, in terms of severity, they encounter modest or no loss of functionality because of their disability. On the other hand, one may conclude that disabled persons who do not work are more severely hindered in their functionality and may opt for social and medical support.

7.3 Maternal and child health

7.3.1 Introduction

In an international perspective reproductive health has become a central issue since the adoption of ICPD Plan of Action in Cairo, 1994. The position of women in this area is of foremost concern given the additional risks they face during their lives connected with pregnancy and childbirth. Maternal mortality and impairment related to maternity-related complications is a primary health concern for women (e.g. Royston and Armstrong 1989). Especially in countries with less than optimal health service provisions, sufficient awareness of the risks of pregnancies at very young and very old ages, and very short birth intervals could avoid unnecessary deaths and health problems. The proposed population policy for the Solomon Islands suggested measures to create this awareness and to provide people with the means to act in accordance with these health considerations (Ministry of Health and Medical Services 1994).

The Solomon Islands has committed itself to the ICPD action plan and the Ministry of Health requested that questions on some key indicators be included in the census. Standard questions included for fertility and mortality analysis partly overlap with a reproductive health perspective, but the 1999 questionnaire went beyond that in order to assess the reach of some reproductive health services across the country. All in all the following reproductive health related topics were covered in the 1999 population and housing census:

- Total number of children and childlessness;
- Age at first birth;
- Age at last birth;
- Medical check-up during last pregnancy;
- Birth attendance at last delivery.

The pilot census also included questions about the use of family planning methods and place of delivery of the last child. These were deleted from the final questionnaire because family planning appeared to be too sensitive an issue, and place of delivery correlated to such an extent with the question on birth attendance that inclusion of both was not warranted.

With respect to child health, reference is made to chapter 4, which concluded that the overall Infant Mortality Rate is probably in the region of 66 per thousand, ranging from 60 per thousand in Honiara to 70 in Isabel. The present chapter will additionally address duration of exclusive breastfeeding of the last child about which a question was included in the census questionnaire.

7.3.2 Number and timing of children

Health research indicates a relationship between maternal age and infant and maternal health. The studies suggest a U-shaped association, in which young and old ages at birth tend to be associated with serious health complications for mother and child. Adverse health consequences may include low birth weight and congenital abnormalities, with the greatest prevalence among mothers under 20 and over 40 years of age (Reichman and Pagnini 1997, Croen and Shaw 1995). The relationship between early childbearing and adverse birth outcomes has been a topic for debate. As pregnant women under 20 years of age are considered to still be growing, they may be competing with the foetus for nutrients, but at younger ages the mother's physical immaturity, too, may contribute to complications during pregnancy and childbirth. Delayed childbearing also poses risks: pregnant women older than 35 years of age were found to be exposed to higher risks of having babies with genetic disorders, prenatal medical and obstetric complications, intrapartum complications, and perinatal and neonatal morbidity and mortality (e.g. Chervenak and Kardon 1991). Also, chromosome anomalies such as Down's syndrome are suggested to be more prevalent as maternal age rises (Czeizel 1988). In addition, having

many children and having them in quick succession is associated with maternal, infant and child mortality. For instance, the survival chance for children born after a birth interval of one year or less is only half of that of children born after an interval of at least two years (Isaacs and Financioglu 1989, WHO 1991, Hobcraft *et al*. 1985). Summarising, mothers and children are exposed to additional risks if women bear children at very young or old ages —under 20 (especially under 18) or over 35 (especially over 40)— if they have many children (more than four) and if they have them after short birth intervals (less than 24 months).

While high fertility may be a reproductive health concern, in a country like the Solomon Islands, where the desire for children among women is almost universal, the inability to conceive a child may pose considerable social and psychological problems as well. As in many other countries in the Pacific region (e.g. Silk, 1980), in the Solomon Islands adoption is a common and well-accepted option for childless parents, which makes the problem somewhat less visible.

Most of these issues represent determinants of fertility, but in this chapter they are viewed from a health perspective. The census questions on date of birth of the first and last child give some information about childbearing at young and old ages, which is dealt with in sections 7.3.2.3 and 7.3.2.4. The issue of the total number of children is addressed in section 7.3.2.2. Section 7.3.2.1 starts out with an indication of the extent to which infertility is a reproductive health problem.

7.3.2.1 Childlessness

Infertility is difficult to measure apart from through the observation of the numbers of women who remain childless. A problem is that this does not distinguish infertility of women from either that of their spouses or intended childlessness. However, in the setting of the Solomon Islands (where a general desire for children may be assumed), a fair indication can be obtained by looking at the number of married women who remain childless at the end of their reproductive career, since they have then been exposed to the risk of pregnancy for considerable time[29]. In the group of women aged 50 and older 3.6 percent have no children, a level that already is reached by women around age 35. This fits reasonably well with levels of infertility found around the world, typically in the range of two to four percent (cf. Bogue *et al*. 1993). It is also similar to the level found in the 1986 census (Statistics Office 1989, p. 89), which at that time implied a continued decline in infertility since the 1970 and 1976 censuses, probably due to improved hygiene, nutrition and medical care.

For most provinces the percentage of childless women who have completed their reproductive period falls within this range of 2-4 percent as well, with Choiseul having the lowest infertility and Isabel the highest. Only Honiara and Makira-Ulawa, each with around five percent of childless women aged 50 and over, have significantly higher levels. Closer investigation is required to find out whether this higher incidence is related to a real inability to conceive, postponement or renunciation of starting a family, or deviant reporting. For Honiara, however, social-behavioural factors are most probably more important than physiological ones. Its female population is highly selective in favour of women involved in paid work, a social position for which childlessness can be advantageous and, therefore, deliberate.

The proportion of all women of 15 years and older —ever married and never married— who remained childless increased from 293 and 289 per thousand in 1976 and 1986 respectively, to 308 in 1999. This increase is the combined effect of a later start of childbearing in the reproductive life span of women and the large size of the youngest cohorts of reproductive women that realise this postponement of childbearing. *Table 7.5* gives the percentages of all women —ever married and never married—

[29] No correction is made for possible inaccurate allocation of women with parity 0 to those with 'parity not stated', because the application of the El-Badry correction method showed that adjustments would only be minimal (see section 4.1.2.1).

Table 7.5. Percentage of women remaining childless, by current age of women

Age	*Census year*			
Group	*1970* [a]	*1976* [b]	*1986* [b]	*1999* [c]
15-19	91.6	80.8	86.1	90.4
20-24	50.8	36.8	37.2	46.5
25-29	23.0	16.9	14.3	19.4
30-34	13.2	10.3	7.0	9.1
35-39	10.3	8.2	7.2	6.3
40-44	10.0	7.6	6.5	5.6
45-49	10.2	8.4	7.6	5.3
50-54	12.5	8.7	7.3	5.4
55-59	12.1	9.2	8.0	6.1
60+	15.1	11.4	8.8	7.7

[a] Melanesian and Polynesian women
[b] All Solomon Islands women
[c] All women

remaining childless by age, according to the successive censuses since 1970. For all ages from 15 to 30, the column for 1999 shows a steep decline of the proportion of women who remain childless, followed by slower decline until age 45, which is about the end of women's reproductive period. The increased childlessness among the higher ages is probably caused by a combination of fertility reporting errors, higher infertility prevalence in the past and perhaps a lower mortality of women without children.

Compared with 1976, the 1986 census data showed an increase in the proportion of women without children in the two youngest age groups (15-24), which can be taken as an indication of postponement of the reproductive career as part of an overall fertility decline that set in just before the 1976 census. Older women at that time experienced the high fertility regime prevailing in the early 1970s. By 1999, this effect had extended to the next two age groups (25-34), which largely correspond to the 15-24 aged women in 1986. In the subsequent age groups the percentage of childless women drops below the 1986 levels, again possibly betraying improved health conditions. In the oldest age categories of 40 years and older the proportion of women without children in 1999 is only half of that in 1970.

7.3.2.2 Total number of children

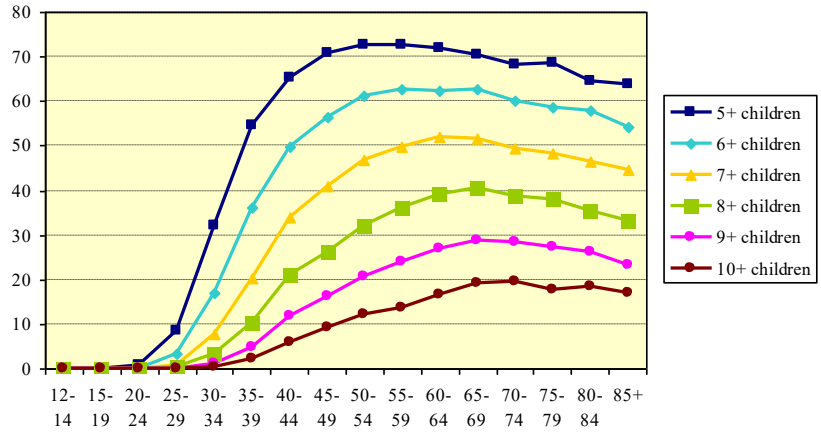
The Total Fertility Rate (TFR) is the best indicator of the average number of children women have during their lifetime. A disadvantage of the TFR measure is that it assumes current age-specific fertility levels to calculate life-time fertility, whereas women may have different reproductive behaviour when they reach the ages of their present older counterparts.

Chapter 4 concluded that an average of 4.8 children was the most likely figure for the TFR in the period immediately preceding the 1999 census (see section 4.1). The decline from 6.1 for the corresponding period before the 1986 census implies a moderate fertility decrease, but the present level of nearly five children still poses a significant health burden for women in the Solomon Islands. In order to reach an average of more than four children, women who restrict their number of children to four or fewer need to be compensated by women who have significantly more, and this is the group that is especially at risk. *Figure 7.12* shows the proportion of women with specific numbers of children. Seventy-one percent of women in the age group 45-49, who have largely completed their reproductive period, had five or more children, more than a quarter had eight or more, and nearly one in ten had ten or more children[30]. But in the reproductive ages (under 45) too, significant proportions

[30] The declines that can be observed in later ages probably reflect lower fertility in the more distant past, perhaps in combination with reporting errors.

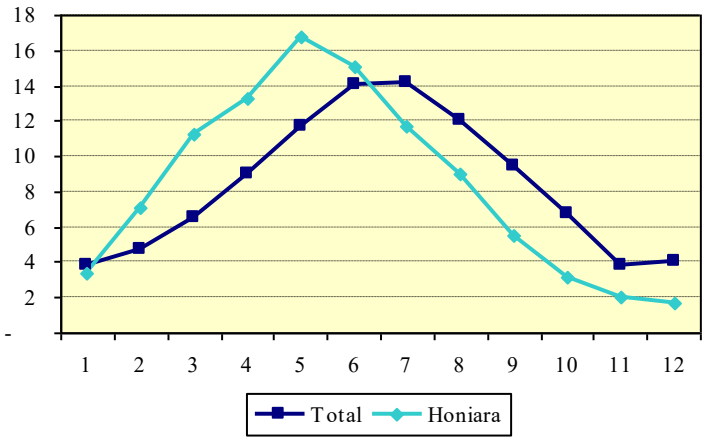
of women have numbers of children that imply increased health risks. Around one-third of women in the 30-34 age range already had five or more children, and this share will undoubtedly increase since these women have a considerable time to go before they reach the end of their childbearing period.

Figure 7.12. Percentage of women with a specific number of children, by age



Another way to look at the issue is by plotting the distribution of the total number of children born to women who have completed their reproductive career. *Figure 7.13* shows that for women aged 45 and older who have at least one child the most common numbers they had were six and seven (each 14 percent). The large majority —76 percent— had five or more children, the number at which health risks start to increase. This overall pattern is very similar for all provinces, except Honiara, which is also shown in the figure. In the capital the modal number of children for mothers aged 45 or older is five, while fewer children usually occur more frequently and more children usually less frequently than for women in the country as a whole. The share of women who had five or more children in Honiara was 65 percent. It should be noted that the distribution of numbers of children of younger women still in reproductive ages will probably shift towards lower numbers, given the observed fertility decline. However, figure 7.12 suggests that a still very considerable part will end up with family sizes that expose them and their children to increased health risks.

Figure 7.13. Percentage distribution of number of children born to women aged 45 and older with at least one child



7.3.2.3 Age at first birth

According to the information derived from the 1999 census, the mean age at first birth in the Solomon Islands is 21.0. If the mean age at first birth is analysed on a provincial basis, it is possible to conclude that it does not vary much between the provinces (*figure 7.14*): a difference of 1.2 years between the provinces with the lowest and those with the highest age at first birth, 20.4 in Isabel and 21.6 in Malaita.

Figure 7.14. Mean age at first birth, by province; sorted by age at first birth

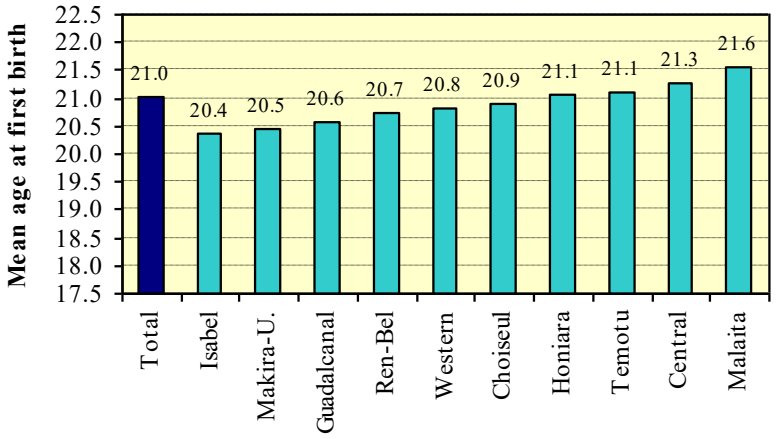
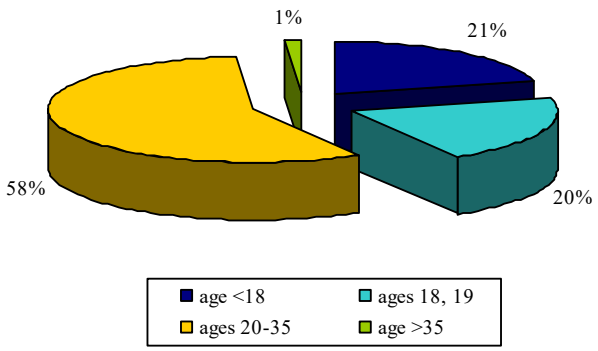


Figure 7.15 shows the percentage distribution of mothers by age at first birth. Among all mothers, the proportion who had their first children before age 20 is 41 percent. More than half of these (21 percent) even had their first child when they were 18 or younger, which is considered a risky period. While almost six in ten mothers had their first babies in the so-called secure period (20-34 years of age), one percent began childbearing after age 35, which is a critical period as well.

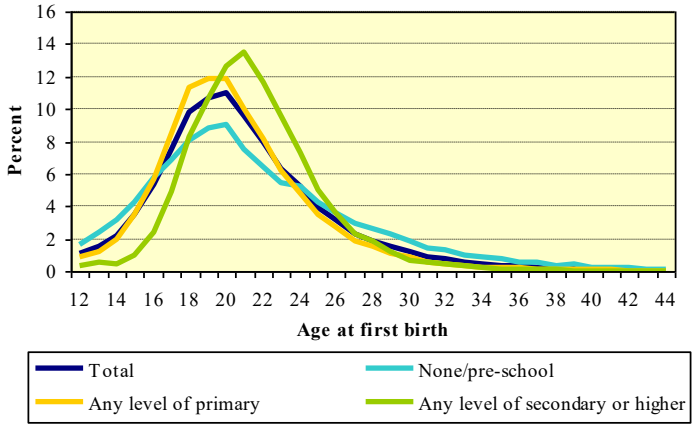
Figure 7.15. Percent distribution of mothers, by age at first birth



Educational attainment is often mentioned as an important determinant of age at first birth, usually through age at first marriage (see also section 3.5.2.2). *Figure 7.16* seems to confirm this view in the framework of the Solomon Islands. The graph shows that for all mothers the start of childbearing was concentrated in ages 18-21 (births at these ages represent 41 percent). For women with no education or pre-school only, these age groups are also the most common, but the concentration of first births at

these ages is much less (34 percent): first births occur more frequently at very young ages (15 and younger), but also later ages (25 and over). Women with any level of primary education closely resemble the overall pattern, although age at first birth was even more concentrated in the age range 18-21. Those with any level of secondary or higher education have a different pattern. These women clearly postpone childbearing at least compared with the other educational groups. The most common age for them to have their first child is 19-22 years and the concentration of births at these ages was higher than among other levels of education (48 percent).

Figure 7.16. Age at first birth, by educational attainment of mothers



A large proportion of mothers with moderate levels or no education (any level of primary education or less) had their first child before age 20 (41 and 45 percent respectively), compared with 28 percent of those with at least any level of secondary education. The percentage who started childbearing even before age 18 varied from 24 and 22 to 10 for women with no education or pre-school only, women with any level of primary education and those with at least any level of secondary education respectively.

Involvement in paid work does not seem to have a significant effect on age at first birth, as mothers with paid work reveal a similar pattern in this respect as their peers without paid work.

7.3.2.4 Age at last birth

As with childbearing before age 20 —and especially before age 18— pregnancy and birth among women aged over 35 years —and especially over age 40— is associated with increased health risks and mortality of mothers and children. The census information about the birth date of the last child may give some indication of the prevalence of childbearing at late ages. Relevant information in this respect is restricted to women with completed birth histories as, by definition, women under age 35 will not have had any children in the unsafe older age range. It should again be taken into account that the fertility of the older cohorts largely reflects past fertility regimes and women presently in the reproductive ages may differ in their experiences with respect to older-age fertility. Another limitation of the census data is that although they tell us whether a birth occurred at a late age, they say nothing about how many children women had at these ages. Therefore, the information gives a lower limit of older-age fertility prevalence.

Only 12 percent of all women aged 45 or and older had completed childbearing by the age of 35. Twenty percent had their last child at ages 35-39 and no less than 68 percent continued childbearing into their forties. The mean age at last birth for these women varied very little around the national

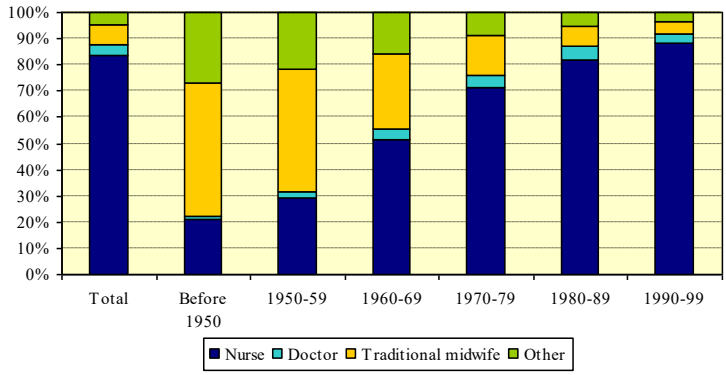
average of 37.0 (with a range from 36.8 in Makira-Ulawa and Isabel to 37.5 in Malaita), except for Honiara (34.8) and Rennell-Bellona (33.5). These very low mean ages at last birth are no doubt caused by the unusual population structures in these provinces.

7.3.3 Reproductive health care

7.3.3.1 Birth attendance

Among mothers of all ages, 87 percent were attended by trained medical staff, the large majority of whom were nurses (see *figure 7.17*). This percentage increased to 92 for the ten years prior to the census. In every next decade before 1990, mothers relied more on other forms of birth attendance, such as traditional midwives and family members. Only from the 1960s onwards were the majority of women assisted by medically qualified staff.

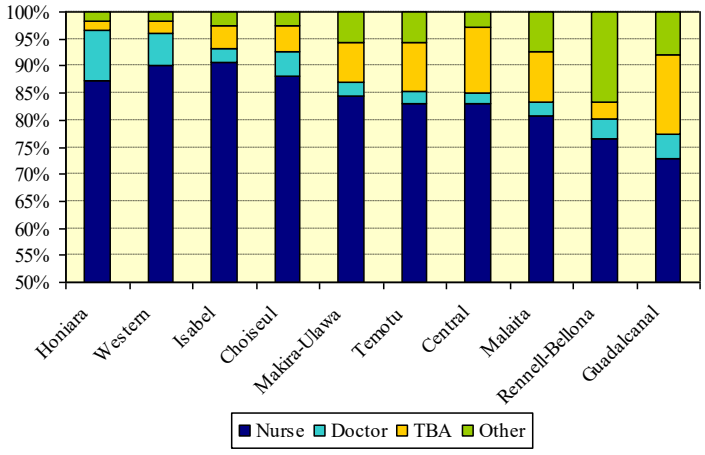
Figure 7.17. Birth attendance at last birth, by year of birth of last child



The current situation implies that the Solomon Islands easily achieves the ICPD goal of 60 percent of births attended by trained medical personnel set for the year 2005. Nevertheless compared with other Pacific island countries, the Solomon Islands still lags behind: most claim a full 100 percent of deliveries attended by trained personnel and only three have lower rates (see House 1999, p. 8).

The variation in the level of qualified birth attendants across the provinces is shown in *figure 7.18*. Over 92 percent of mothers in the three western-most provinces had their last delivery attended by a doctor or a nurse. For Honiara, this figure is even as high as 97 percent, with most of the remaining 3

Figure 7.18. Birth attendance at last birth, by province; sorted by percent of last deliveries attended by trained medical staff



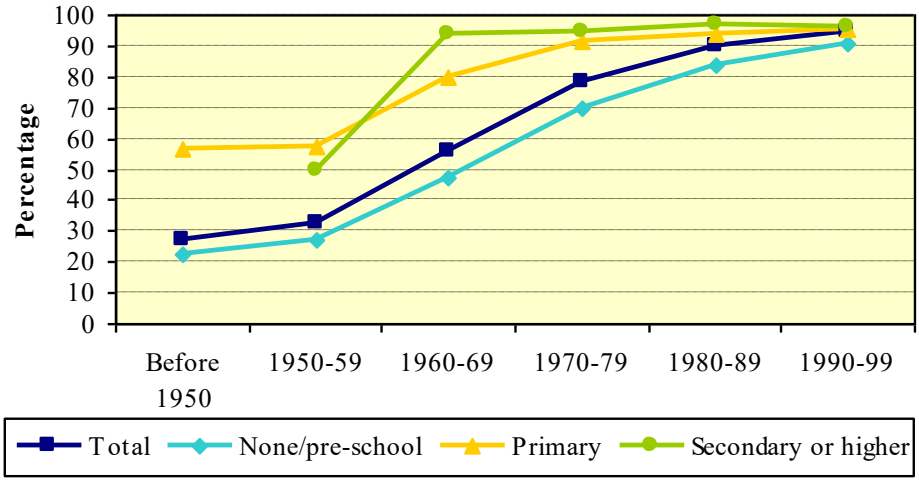
percent probably having had their last child when they were living in any of the other provinces. At the other end of the scale are Malaita, Rennell-Bellona and Guadalcanal, each with less than 85 percent of the last births attended by medically trained staff. These relatively low figures may be related to a combination of difficult accessibility to health services and traditional ways of life in the more remote areas. Indeed, among women belonging to the Moro movement and those with customary beliefs, for instance, 45 and not less than 88 percent respectively delivered their last child without trained assistance. Figure 7.18 also shows the larger availability of doctors to attend deliveries in Honiara because of the presence of the National Referral Hospital there.

There is also some difference in birth attendance practices between mothers with various educational levels. There is very little difference between women who attained any level of education (any number of years completed at primary or secondary and higher education), but there is some between these and those without any education. The gap between the two groups, however, is closing. In the 1960s 89 percent of all women with any level of education had their last birth attended by a nurse or doctor, compared with only 70 percent of mothers with no education. In the 1990s these figures were 95 and 87 percent respectively.

7.3.3.2 Medical check-up during pregnancy

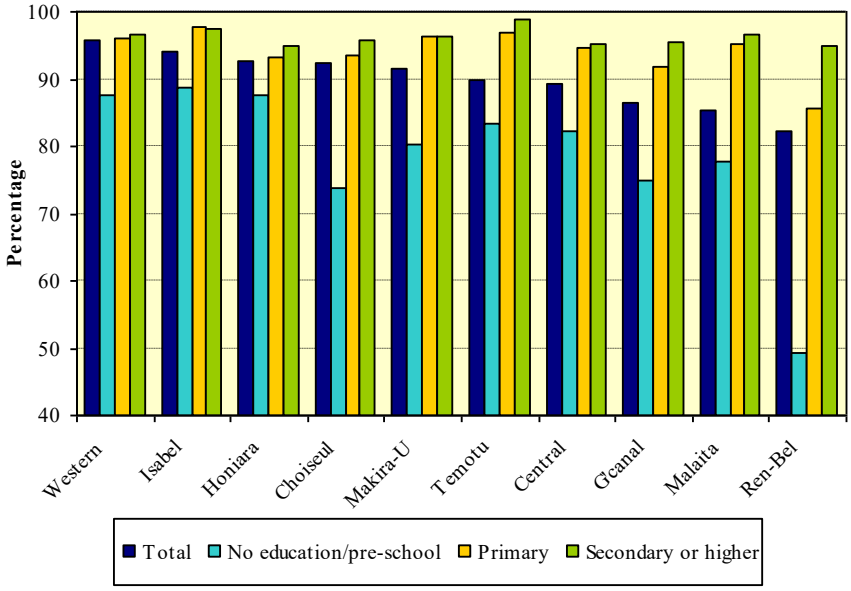
The trend line showing the proportion of women that had a medical check-up during their pregnancy closely corresponds to the increase in women with birth attendance by trained medical personnel. *Figure 7.19* shows that for mothers who had their last birth before the 1960s a medical check to monitor pregnancy development was not common practice. However, since then the proportion has steadily increased, to reach 94 percent in the 1990s. The figure also shows that women with any level of education always more often had a medical check-up than those without any education or pre-school only. In the 1990s, however, the proportions for all levels of educational attainment closely converged to a range between 90 and 96 percent.

Figure 7.19. Percentage of women with medical check-up during last pregnancy, by year of birth of last child and level of education



Differentiation by province again shows, by and large, the same picture as birth attendance: Western province, Isabel, Honiara and Choiseul perform best, and Guadalcanal, Malaita and Rennell-Bellona perform poorest with the other provinces taking an intermediate position (*figure 7.20*). With regard to the association between medical checks and educational attainment, only between women with no education and those with any education can consistent difference be observed.

Figure 7.20. Percentage of women with medical check-up during last pregnancy, by level of education and province; sorted by percentage of total women with medical check-up



7.3.4 Exclusive breastfeeding

Duration of breastfeeding has important effects on a wide array of both demographic, and maternal and infant health outcomes (Adair *et al*. 1993). Breastfeeding is beneficial for infant health in that it is nutritionally appropriate, provides immunological protection, and is free of contamination (Popkin *et. al*. 1986, cf. Grummer-Strawn and Trussell 1993). In addition, because of its effect on the duration of post-partum amenorrhoea (temporary infecundability following childbirth), breastfeeding contributes to the achievement of improved maternal and infant health by lengthening birth intervals (*ibidem*). Despite the numerous advantages of breastmilk over artificial food, the practice is being undermined in many countries by the availability of infant feeding bottles and breastmilk substitutes and by other changing lifestyle factors.

The findings of the National Nutrition Survey (NNS) conducted in the Solomon Islands in 1989 indicated a very high prevalence of breastfeeding in the country, with one hundred percent of women breastfeeding their infants in the first three months (Ministry of Health and Medical Services 1998). However, the NNS also showed that the Solomon Islands has been taking part in the general trend of decline in the duration of breastfeeding. The issue was identified as a priority problem that needed to be addressed by the Ministry of Health and Medical Services' (MHMS) Nutrition Improvement Programme (*ibidem*).

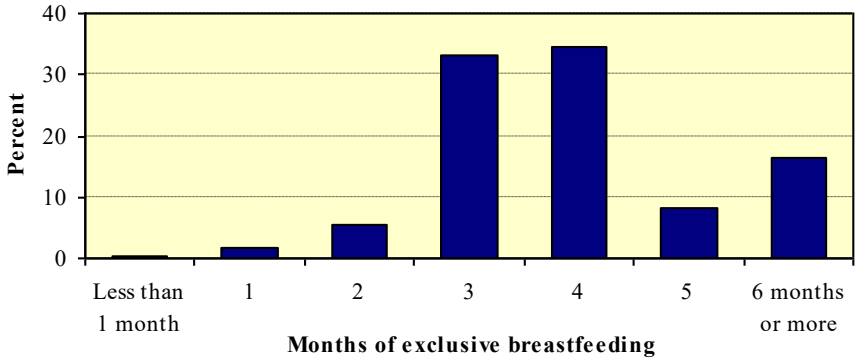
Although the importance and the benefits of breastfeeding in general have been accepted, there is no universal consensus on the duration of *exclusive* breastfeeding[31] to sustain satisfactory and optimal growth. While some argue that breastmilk alone is not sufficient after four months, others claim that exclusive breastfeeding for six months provides infants with sufficient nutrition and will not hamper optimal growth (Eregie and Abraham 1997). In 1991, the MHMS joined the UNICEF/WHO global campaign to 'promote, protect and support breastfeeding'. In the framework of the national

[31] 'Exclusive breastfeeding' is defined as the infant feeding practice consisting of giving solely breastmilk with no additional food or drink, not even water, but allowing for drops and syrups (vitamins, minerals and medicines) (cf. WHO 2001).

breastfeeding policy legislated in 1995, exclusive breastfeeding was recommended for a duration of four to six months following birth (Ministry of Health and Medical Services 1998).

At the request of the Ministry of Health, the 1999 population and housing census included a question on exclusive breastfeeding. Mothers were asked how many months they had breastfed their last child exclusively. The mean duration of exclusive breastfeeding in the Solomon Islands is calculated as 3.9 months (ranging from a mean duration of 3.6 months in Malaita to 4.2 months in Guadalcanal), which is just below the duration set as target by the national breastfeeding policy. Among all mothers who completed breastfeeding, the most prevalent duration of exclusive breastfeeding of the last child was three or four months, respectively 33 and 34 percent of all cases (see *figure 7.21*). Nearly one quarter of all breastfeeding mothers gave exclusive breastfeeding for more than four months and only eight percent did so for less than three months.

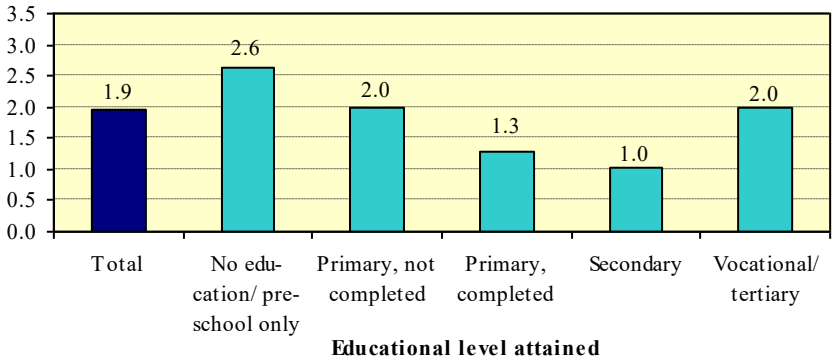
Figure 7.21. Duration of exclusive breastfeeding of last child for mothers who completed breastfeeding



Some women, however, never started breastfeeding their last child. This was the case for less than two percent of all mothers (see *figure 7.22*). The figure also suggests an association between omission of breastfeeding and education of the mother. Among mothers who had no education (or pre-school only), the level of not breastfeeding was highest and this declined as educational attainment increased. Only those with the highest levels of education —vocational and tertiary— seem to deviate from this trend. It is difficult to explain the apparent association and the deviation by highly educated mothers. One suggestion could be that better educated women are more aware of the positive effects of breastfeeding —possibly as the result of awareness campaigns— but that the most educated women in addition had other considerations for abstaining from breastfeeding, for instance for work-related reasons.

The NNS emphasised the relation between breastfeeding practices and urbanisation. Western province and Honiara, which had experienced more development and urbanisation at the time of the NNS than other provinces, reported higher rates of bottle feeding, early introduction of solids and a shorter duration of breastfeeding (Ministry of Health and Medical Services 1998). Census data do not seem very consistent with these observations. Although Honiara women indeed reported a relatively short duration of exclusive breastfeeding (3.8 months), mothers in Western province had one of the longest durations (4.1 months). Overall, variation across provinces seems small: it ranges from 3.6 months in Malaita to 4.2 in Guadalcanal.

Figure 7.22. Percentage of mothers who never breastfed their last child, by educational attainment of mother



The variation in the proportion of women that never breastfed their last child might be significantly larger. According to the census figures it ranges from only 0.5 percent in Makira-Ulawa to 5.6 percent in Rennell-Bellona. Again, the hypothesis that urbanisation and development have a negative effect on the decision to start breastfeeding is contradicted, as Honiara women almost unanimously start breastfeeding (99.4 percent) and mothers in Western province only slightly less so (98.7 percent). Figures showing information by province about mean duration of exclusive breastfeeding and percentages of children not breastfed are given in *annex X*.

One remark with regard to the reliability of information about breastfeeding is in order. A census may well not be an appropriate instrument to collect information about a topic like this. It might be considered a specifically female realm, and male enumerators, who are moreover not specifically trained in this field, might not be able to create the right interview environment to address the issue. Therefore, census results with regard to breastfeeding practices must be treated with due caution.

7.4 Malaria

Malaria is the single-most important health issue in the Solomon Islands, as was expressed in the 1996 Health services report for one (Ministry of Health and Medical Services 1996). The country has one of the highest malaria incidence rates in the world, despite the fact that significant progress has been made by the National Malaria Control Programme (NMCP). In 1992 the malaria incidence rate reached its highest level of 440 confirmed cases per thousand population (National Malaria Control Programme 1999). This had fallen to 165 by 1998, the last year for which nation-wide figures are available. As these figures refer to microscopically confirmed cases only, real incidence rates will certainly be higher.

The information from the 1999 population and housing census is relevant for the NMCP in several respects. Firstly, updated population figures provide the baseline information, which can be used to calculate accurate incidence rates. Secondly, the census included a few questions with regard to the availability and use of mosquito bednets (cf. table 7.8 in the Tabulation report). These issues will be addressed in the subsequent sections.

7.4.1 Correction of malaria incidence rates

Indicators of the severity of malaria as a health problem, and the success of the programme to control the disease depend on accurate information about the population at risk. In the absence of annually updated population figures, baseline data were obtained by population projections since the 1986

census. As population growth was more moderate than these projections assumed, malaria incidence rates were progressively too low.

The NMCP based the calculation of its incidence rate in 1998 on an estimated population of 442 thousand people. This results in an incidence rate of 165 given the nearly 73 thousand confirmed malaria cases in that year. However, on the basis of the 1986 and 1999 censuses the population is more accurately estimated by applying the average annual growth rate for the various years between these two reference years (2.85 percent). This produces a mid-year population of 394 thousand people in 1998, and consequently an incidence rate of 185 per thousand population. Similarly, the population in 1992 was more likely to have been nearer 333 thousand than 348 thousand as estimated by population projections. This would imply a malaria incidence rate in that year of 460 per thousand population instead of 440.

Table 7.6 presents the malaria incidence rates according to the NMCP and adjusted rates on the basis of 1986 and 1999 population data.

Table 7.6. Malaria incidence rates, according to NMCP and 1999 census, 1992-1998[a]

Year	*Population*		*Confirmed*	*Malaria incidence rate*	
	NMCP	*Census*	*malaria cases*	*NMCP*	*Census*
1992	(348,150)	333,044	153,359	440	460
1993	(362,285)	342,544	(127,887)	353	(373)
1994	(376,995)	352,314	(130,817)	347	(371)
1995	(392,300)	362,364	(117,690)	300	(325)
1996	409,158	372,700	84,793	207	228
1997	425,078	383,331	68,125	160	178
1998	441,840	394,265	72,806	165	185

a. Figures between brackets are estimated by the census office on the basis of NMCP incidence rates and interpolation of estimated population size.

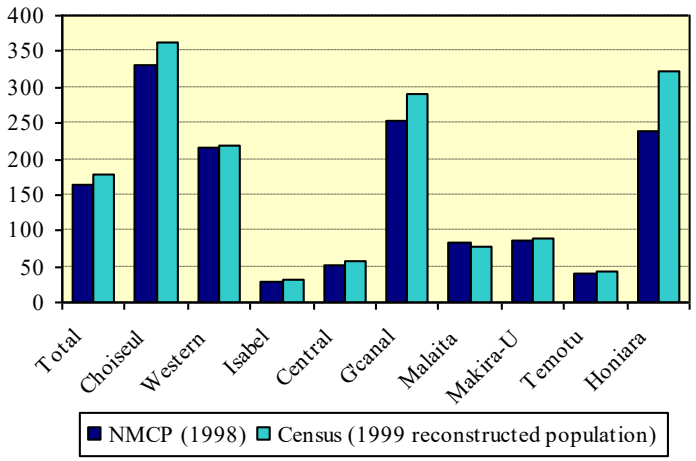
Although malaria incidence in 1998 was 12 percent higher than assumed, the drop since the 1992 peak is still 60 percent, which is close to the 63 percent assumed by the NMCP.

A similar reconstruction of malaria incidence rates at the provincial level is more difficult, given the unprecedented population movements —both in terms of numbers and direction— in the period preceding the census. *Figure 7.23* compares the incidence rates as estimated by the NMCP for 1998 with those calculated on the basis of reported malaria cases in 1998 and the 1999 census population adjusted for displacement (see section 2.6.5, in particular table 2.7). It should be borne in mind that the denominator in both calculations is inflated. In the first case this is because projections assumed too high population growth, and in the second case because the denominator refers to the population in 1999 rather than 1998, the one that would correspond to the measurement of malaria cases[32]. In general, therefore, incidence rates will be higher (probably close to four percent higher) as the populations at risk should be smaller. However, for the purpose of comparing incidence rates between NMCP and census results and across provinces, figure 7.23 gives a reasonable indication.

In terms of order of magnitude, incidence rates according to the NMCP for 1998 and those calculated on the basis of the 1999 reconstructed population are fairly close, except for Honiara. This may be

[32] Unknown effects on migration patterns related to the ethnic tension mean that reverse estimates of provincial populations in 1998 are too uncertain.

Figure 7.23. Malaria incidence rate according to NMCP (1998) and according to the number of cases in 1998 in combination with 1999 census population, adjusted for displacement[a]



[a] There is no separate information on malaria incidence available for Rennell-Bellona.

caused by the effects of the ethnic tension, which not only initiated displacement, but probably also reduced the normal flow of migrants to Honiara in 1999. Under normal circumstances, the town's population would have been even larger than the adjusted figures suggest and, correspondingly, incidence rates would have been lower. A similar discrepancy can be observed for Guadalcanal and the opposite effect for Malaita. In general, figure 7.23 shows that malaria is a serious health issue in Choiseul, Guadalcanal, Honiara and Western province. All have incidence rates of well over 200, and, according to the census, Choiseul and Honiara even over 300 per thousand population. The other provinces reveal much lower incidence rates: nowhere do they surpass 100, and in Isabel and Temotu even 50 per thousand persons. It is unclear, however, to what extent accurate case reporting is a factor for differences between provinces.

7.4.2 Availability and use of mosquito nets

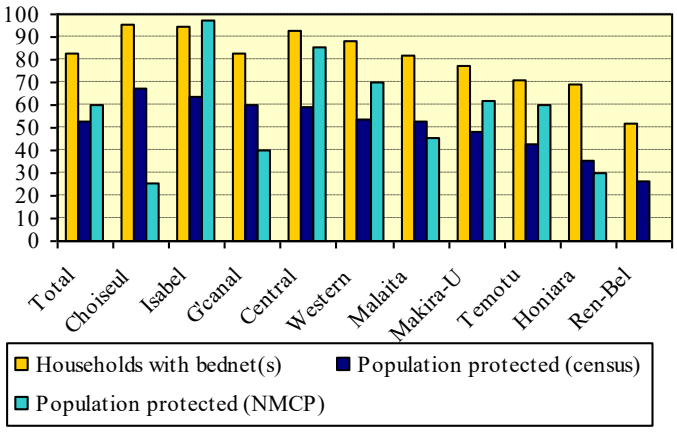
The main focus of the activities of the NMCP is on malaria prevention by the use of mosquito bednets: the programme includes a nation-wide effort to distribute malaria bednets. In addition, these nets are treated with insecticide and are periodically re-treated to maintain optimum protection. Old and damaged nets are replaced. According to own estimates, the NMCP assumes that 60 percent of the total population is protected by malaria bednets provided by their services. In addition, people may obtain bednets through commercial outlets.

The household module of the 1999 census included information on the availability of bednets — obtained from the NMCP or elsewhere— in the household. Where bednets were available, subsequent questions inquired about the number of people in the household that had slept under a bednet the night before the interview and about how long ago the bednets had been treated with insecticide for the last time.

According to the census information while no less than 83 percent of households had at least one bednet, only 53 percent of the total population actually used them. Whereas this bednet protection rate at the national level does not deviate too much from the NMCP figure of 60 percent, differences at the provincial level are usually much larger, although not consistently. For instance, the NMCP claims 85 percent coverage in Central province and almost universal coverage in Isabel, whereas the census reported only around 60 percent coverage for each province (see *figure 7.24*). On the other hand, according to the NMCP, coverage rates in Guadalcanal and especially Choiseul are very low (40 and

25 percent respectively), while the census reported 60 and 68 percent respectively. These discrepancies are hard to explain, particularly the cases in which census figures are lower than NMCP figures, since they would also include bednets obtained from other outlets than the NMCP.

Figure 7.24. Percent of private households with at least one bednet, and percent of population protected by bednets according to the NMCP and the 1999 census, by province; sorted by percent of population protected by bednets



Another general observation that can be made on the basis of the census data is that if availability of bednets in households is higher, more people tend to sleep under one, not only in absolute terms, but also relatively. In other words, the more households with bednets, the larger the share of people in those households actually using them.

Figure 7.25 shows levels of protection against malaria by bednets by ward. It clearly shows generally high protection in Choiseul and Isabel and moderate protection in Guadalcanal, with concentrations of high protection on the SIPL areas and the north-eastern Guadalcanal Plains. Honiara shows remarkably low protection levels, possibly in connection with the highly transient nature of its population. The high protection rate in Choiseul is surprising given the very high malaria incidence rate in that province (see figure 7.23). As the incidence rates refer to 1998 this discrepancy could be explained if a large-scale campaign for bednet provision had been carried out in Choiseul since then. Otherwise it would imply that either one of the figures is grossly incorrect or bednets are a totally insufficient precaution against malaria in the Choiseul setting.

In addition to the availability and use of bednets, treating them with insecticide —every six months for an optimal effect— increases protection against mosquitoes. The NMCP issues treated bednets and organises campaigns for regular re-treatment. The census information suggests that half of all households have bednets that were treated according to these guidelines for optimal protection. Around one-third had bednets that were either treated more than six months before the census or not at all (see *figure 7.26*, see also table 7.8 in the Tabulation report). The share of bednets treated recently, however, varies greatly across the country. In Central province, Isabel and Choiseul it was close to or well over 70 percent, whereas in Rennell-Bellona, Honiara and Guadalcanal it was under 40 percent. Possible explanations for these low levels might relate to inaccessibility of areas for NMCP staff in 1999 because of the ethnic tension (Guadalcanal) and alternative provisions of bednets, which do not involve treatment with insecticide.

Figure 7.25. Percentage of population sleeping under bednets, by ward

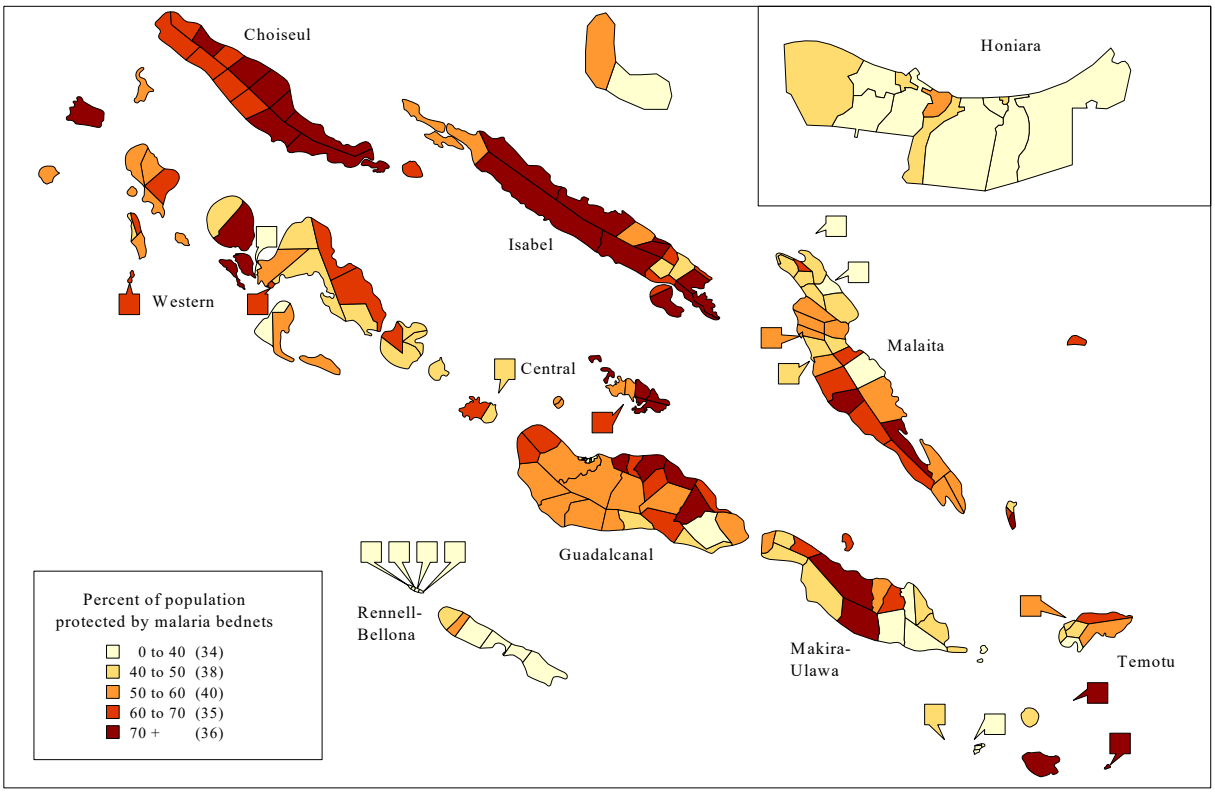
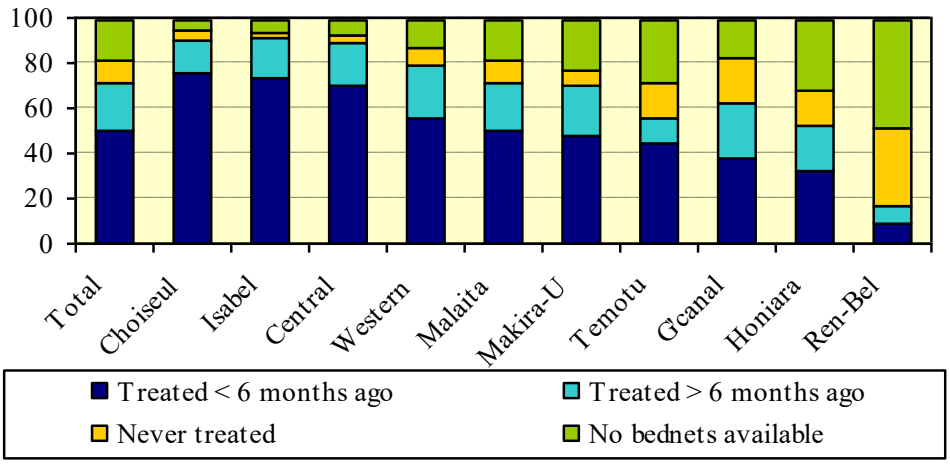


Figure 7.26. Percent of private households with bednets and treatment of bednets, by province; sorted by percent bednets treated less than six months prior to the census



7.5 Main conclusions

Information on disability reveals that as far as prevalence and types of disability are concerned the situation in the Solomon Islands is comparable with other developing countries. It shows a normal pattern of disability increasing with age, which —through the effect of local population structures— places the burden of health more on some provinces (especially Rennell-Bellona) than on others. Labour-market and school participation rates indicate that the disabled population is in a disadvantaged position, which may call for special support programmes. Another possible area of intervention may be prevention of disability, especially as far as loss of eyesight is concerned.
The 1999 census sketches a reasonably positive picture of health service delivery in the Solomon Islands as far as the provision of malaria bednets, birth attendance by medically trained staff and medical check-ups during pregnancy are concerned. Maternal health services show a considerable increase over time and relatively high service rates for the most recent period; the provision of malaria bednets has apparently increased and there has been a considerable decrease in malaria incidence rates.

However, this positive picture is modified if other perspectives are taken into account. With respect to the protection against malaria by bednets, still a significant proportion of the population remains unserviced or do not use bednets as a precaution. This problem is aggravated if one takes into account the percentage of bednets not treated with insecticide within the prescribed period of six months. Although malaria incidence has considerably decreased since its 1992 peak, it is still high at a rate of 185 per thousand population in 1998, and this only covers confirmed cases. The rate is also higher than assumed on the basis of 1986 population projections that are by now disproved by the 1999 census. Lastly, there are large differences across the country with respect to malaria incidence rates and bednet use, but also with respect to the provincial percentages of the population protected by bednets as suggested by the Malaria programme and the census. With incidence rates of more than 200 or even 300, malaria is in particular a serious health issue in Choiseul, Guadalcanal, Honiara and Western province. Besides the severe direct negative consequences on individual health and mortality, the high incidence of malaria has enormous implications for school attendance and economic productivity in the country (Ministry of Health and Medical Services 1996 and WHO 1998b)

As far as maternal health is concerned, the observed improvements cannot disguise the fact that compared with other countries in the Pacific region, circumstances in the Solomon Islands remain poor. Moreover, the improved service rates do not reflect the significant problems faced by the health system in terms of adequate training of medical staff, infrastructure and transport, provision of medical supplies and of medical staff, especially in the remote areas (cf. Ministry of Health and Medical Services 1996). Finally, despite the overall fertility decline in the country, many women still face considerable health risks because of early, late and frequent childbearing. This reproductive pattern also has significant implications for infant and child health and mortality.

8. Housing, sanitation and amenities

Reuben TOVUTOVU and Jeannette SCHOORL

8.1 Introduction

This chapter discusses the housing and sanitation situation in the Solomon Islands and the availability of specific amenities as revealed by the 1999 national population and housing census. The chapter begins with a section on housing (section 8.2), describing the type and quality of housing that is available, and discussing its role in Solomon Islands cultural and family life.

Water and sanitation are also very crucial development issues (section 8.3). Easy access to a clean and safe water supply, a healthy sanitary system and a clean environment are matters that have a direct bearing on the health status of the population in general and children in particular. Problems with access to water for family drinking, cooking, washing and cleaning place a special burden on women and affect their ability to provide for their families, especially in rural areas. The country must ensure that everyone —especially the vulnerable and the disadvantaged— has access to basic housing and services, such as piped water and sanitation. Section 8.3 also deals with other household facilities, like electricity supply, availability of a working radio and the main source of cooking fuel for the household.

Access to electricity, safe drinking water and sanitation constitute an important measure of the country's social development status. The data on housing, sanitation and electricity collected by the 1999 population and housing census provide the first opportunity to include such indicators for Human Development Indexes produced annually by United Nations Development Programme and other Agencies. Housing and sanitation questions were not asked in the 1970, 1976 and 1986 censuses. As comparative data from other sources are also lacking, it is unfortunately not possible to outline trends or changes.

8.2 Housing

8.2.1 Introduction

As early as the 1970s, the national government's housing policy was to enable every Solomon Islands family to live in an affordable and adequate house, with reasonable comfort, health and safety. One of the government's aims was to ensure that private housing in the rural areas is of reasonable standard and comfort, and to rely to an important extent on local resources and skills to do so. Also, according to the Sixth Development Plan, "Employers are required by the Labour Ordinance to provide 'proper and adequate' housing for employees who cannot return to their homes at the conclusion of their daily work" (British Solomon Islands Protectorate 1971). In the 1970s the government itself, too, was obliged by law to provide reasonable housing for its employees.

While it fulfils a variety of social roles, housing primarily provides shelter and security for the family and individuals, and provides a relative measure of social status and an expression of lifestyle choices and comfort. As an important social institution, housing provides owners with a sense of worth and belonging in any community, whether rural or urban.

The challenge for the country and any government of the day is to provide sustainable livelihoods, safe and secure living environments and a better quality of life for the poor and other vulnerable groups, while maintaining a reasonable standard of the existing housing stock. This is becoming more urgent in the urban areas because the national government has not put into place a social safety net to formally take care of the needs of the poor and vulnerable.

The Universal Declaration of Human Rights adopted in 1948 recognised the right to shelter as a component of the right to an adequate standard of living (UNCHS 1997). While recognising the importance placed on the above declaration, this chapter will not, however, discuss in detail the issue and meaning of 'adequate shelter' in the context of the Solomon Islands. Nor will it go into housing costs and the availability of credit facilities, and house rents and the affordability of these rent levels in the urban areas. However, it will highlight some gaps in the housing sector in order to enforce points of discussion.

The housing stock is an important part of the country's economy and a major form of investment, and it provides employment and livelihood for a variety of other trades. "In most regions, housing has the potential of becoming an economic engine of growth because of its high yield on invested resources, a high multiplier effect, and a host of beneficial forward and backward linkages in the economy. However, while the economic benefits of housing have been widely recognised, housing is rarely used as an element of poverty alleviation" (UNCHS 2000b).

Where population growth is more pronounced, there is more pressure on the available resources such as water and sanitation, land, and services. This competition for and access to the limited resources for house construction and services is more often a problem in urban than in rural areas.

According to the 1999 census, most households, 86 percent, live in the rural areas. Thus, the rural sector has by far the largest population and, with 345,310 people, constitutes the major part of the Solomon Islands society and economy. For many years now, this rural sector has been providing and acting as a social safety net for many families, especially the vulnerable families who may well have been on the streets without shelter and food otherwise. This safety net mechanism is made possible by the nature of the local traditional land tenure system, which entitles every person born to an indigenous Solomon Islander to land inheritance through either the mother or the father. If the government were to recognise and support the coping mechanisms that have evolved in the rural environments and among the population over time, it would minimise the risks of economic shocks, the vulnerability of the poor with respect to land tenure, and homelessness.

There are no up-to-date and reliable data on housing apart from the information collected in the 1999 census. In 1976 data on housing were collected for Honiara only. In 1998 a similar effort was made in Honiara, in preparation for the 1999 national population census.

8.2.2 Dwellings and households

The census distinguishes between buildings, houses, and dwellings (see text box 'Buildings, houses, dwellings'). A building refers to any construction that has a roof and walls. A house is a building in which people are living. A dwelling is the living space occupied by a household. Thus, a dwelling may be a whole house or only part of a house. And, as there is only one household per dwelling, the total number of occupied dwellings equals the total number of households in the country.

In the 1999 census, a total of 66,624 dwellings were counted in the Solomon Islands. Of these, 1,610 were vacant during the enumeration period, resulting in an occupancy ratio of almost 98 percent. However, in the areas on the Guadalcanal Plains that were vacated in the wake of the ethnic conflict, some enumerators did not include empty dwellings in their coverage, and therefore, the occupation ratio will be slightly lower than reported.

The household is the smallest aggregate unit used in the census. Following a widely used definition, a household is defined as a group of people living together and sharing a common eating arrangement. Members of a household usually eat food prepared in the same kitchen, while the cost, collection and preparation of that food is shared amongst householders.

For the country as a whole, the census shows a population of 409,042 persons and 65,014 households, compared with 285,176 persons and 43,841 households according to the 1986 census. This is a population increase of 43 percent and corresponds to an annual population growth rate of 2.8 percent. The number of households grew by 48 percent, corresponding to an annual household growth rate of 3.1 percent.

Buildings, houses, dwellings

The 1999 census distinguished several accommodation strucures:

Building – for census purposes, a building refers to a construction with a roof and walls. It may be a house, a shed, a shop, a factory, or a combination of any of these. Buildings may include vacant houses —but not abandoned houses —and also factories, shops, sheds, et cetera as long as these are also used to house people.

Dwelling – refers to the living space that is occupied by a household. It can be a house or part of a house occupied by households.

House – a building in which people live; a house may be occupied by more than one household and, therefore, may contain more than one dwelling.

Private and collective households

Private household – refers to a single-person household, a group of related people with or without additional persons, or a group of fewer than six unrelated people who share a common eating arrangement.

Collective household – consists of six or more unrelated persons who stay together for special reasons. Institutions such as hospitals, clinics, prisons, hotels, rest houses, boarding schools and ships are considered to be collective households.

Private households make up almost 98 percent of all households in the country in 1999, a decline of 4 percent compared with the 1970 census. Collective households constitute just over two percent. The 63,404 private households enumerated have a population of 389,922. This gives an average occupancy of 6.1 persons per dwelling, down 5 percent from the 1986 census (see *table 8.1*). The 1,610 collective households have a total population of 19,120 and an average household size of 11.9 persons, a fall of 18 percent compared with 13 years ago, but still 27 percent higher than in 1970.

Permanent and temporary dwellings

A dwelling is considered to be *permanent* if it is well-planned and is mainly made of durable materials (e.g. concrete, corrugated iron, fibro or timber) with a sound foundation.

A dwelling that is mainly made from bush materials, packing cases or waste timber is classified as *temporary*.

If a dwelling is made up of a mixture of permanent and temporary materials it is classified as *semi-permanent*.

Intercensal changes in the distribution of dwellings by number of occupants reflect demographic, social and economic trends. They also may indicate shifts and changes in the attitudes and choices of Solomon Islanders. While the number of dwellings accommodating small households of one or two persons show an absolute increase over the intercensal period 1986-1999, their relative share has decreased. Instead, there has been a major shift towards the intermediate-size households with occupancy rates of three to six persons per dwelling. In addition, the shift importantly also occurred at the expense of very large households (nine or more inhabitants), which together decreased from 23 percent in 1986 to less than 17 percent in 1999. However, the fact that still more than one in six dwellings accommodate at least nine people is remarkable (*table 8.2*). Section 3.6 similarly addresses the issue of household size and its development according to the different censuses since 1970.

Table 8.1. Number of dwellings and population size, by urban-rural location, occupancy status and permanency status of dwelling

Type of dwelling	*Total*				*Urban*				*Rural*			
	Number of dwellings	*Number of occupants*		*Percent of households*	*Number of dwellings*	*Number of occupants*		*Percent of households*	*Number of dwellings*	*Number of occupants*		*Percent of households*
		Population	*Average*			*Population*	*Average*			*Population*	*Average*	
All occupied dwellings	65,014	409,042	6.3	100.0	9,206	63,732	6.9	100.0	55,808	345,310	6.2	100.0
Private households	63,404	389,922	6.1	97.5	8,815	57,430	6.5	95.8	54,589	332,492	6.1	97.8
Permanent	17,942	116,206	6.5	28.3	7,300	49,112	6.7	82.8	10,642	67,094	6.3	19.5
Semi-permanent	4,543	28,450	6.3	7.2	472	2,834	6.0	5.4	4,071	25,616	6.3	7.5
Temporary	40,806	244,554	6.0	64.4	1,028	5,387	5.2	11.7	39,778	239,167	6.0	72.9
Type not stated	113	712	6.3	0.2	15	97	6.5	0.2	98	615	6.3	0.2
Collective households	1,610	19,120	11.9	2.5	391	6,302	16.1	4.2	1,219	12,818	10.5	2.2
Permanent	826	12,228	14.8	51.3	354	5,938	16.8	90.5	472	6,290	13.3	38.7
Semi-permanent	117	1,196	10.2	7.3	9	75	8.3	2.3	108	1,121	10.4	8.9
Temporary	666	5,689	8.5	41.3	28	289	10.3	7.2	638	5,400	8.5	52.3
Type not stated	1	7	7	0.1	0	0	-	-	1	7	7	0.1

8.2.3 Types of dwelling

8.2.3.1 Permanent and temporary dwellings

Dwellings were classified according to the estimated degree of permanency of their construction. Enumerators were provided with a list of criteria to help them make a classification into three categories: permanent dwellings, temporary dwellings and a mixed category of semi-permanent dwellings (see text box 'Permanent and temporary dwellings').

The most common form of dwelling in the country is the temporary type, which houses 64 percent of the private households in the country as a whole, and as many as 73 percent of the private households in the rural areas (table 8.1 and *figure 8.1*. This category includes both the so called 'proper leaf houses', which form the majority of temporary dwellings in the rural areas, and 'squatter type houses', which are more commonly located in urban areas. A 'proper leaf house' is a house built with good quality traditional materials, with floors constructed from either traditional material or timber.

Squatter-type temporary dwellings are those made of waste materials such as packing cases and waste timber. The 12 percent of households living in temporary dwellings in the urban areas are mostly found in the squatter settlements in and around Honiara, housing those who cannot afford the house rents in town.

As well as being a symbol of status, permanent dwellings provide durability and security to households. In the Solomon Islands, a total of 22,485 permanent or semi-permanent dwellings with a population of 144,656 people make up 35 percent of all private dwellings. But permanent housing is much more common in the urban than in the rural areas: in the rural areas only 20 percent of private households live in permanent dwellings, whereas 83 percent of urban households live in such residences (figure 8.1).

There are also differences between the regions: 85 percent of Honiara private households, more than half of those in Rennell-Bellona and 40 percent of those in the Western province live in permanent dwellings. In the other provinces, the share of permanent housing is influenced by both financial and cultural factors and ranges from a low of 7 percent in Temotu to 23 percent in Central province (*figure 8.2*).

The average household size for permanent private dwellings is 6.5 persons, while that of the temporary private households is slightly lower, 6.0 persons. The difference is most marked in urban areas, where permanent dwellings house on average 6.7 persons, and temporary dwellings only 5.2. This does not necessarily imply that permanent dwellings are more crowded than temporary ones, as the former tend to have more rooms: the average number of rooms is 5.3 for permanent dwellings, and decreases to 4.4 in semi-permanent dwellings and 3.7 in temporary ones.

Collective households, which are only a small minority in the country, are concentrated in the urban areas: 24 percent of collective households live in urban areas, compared with only 14 percent of private households. Naturally the average size of collective households is considerably larger than that of private households: 16.1 persons in urban areas and 10.5 in rural areas. The most common collective households in rural areas are resorts, hospitals or health centres, boarding schools and ships. Just over half of these are temporary structures. Honiara is home to more than three quarters of the urban population, and collective households there include for instance the National Referral Hospital, the prison services, motels and hotels, boarding schools, and ships. A large majority (90 percent) are permanent buildings.

Table 8.2. Number of occupants in private dwellings, 1986-1999

Number of occupants	*1986 census*		*1999 census*		*Intercensal change (percent)*
	Number of dwellings	*Percent*	*Number of dwellings*	*Percent*	
Total	43,386	100.0	63,404	100.0	46.1
1	1,469	3.4	1,861	2.9	26.7
2	2,705	6.2	3,858	6.1	42.6
3	3,771	8.7	6,338	10.0	68.1
4	4,905	11.3	8,284	13.1	68.9
5	5,388	12.4	8,985	14.2	66.8
6	5,618	12.9	8,773	13.8	56.2
7	5,202	12.0	7,523	11.9	44.6
8	4,390	10.1	6,649	10.5	51.5
9	3,435	7.9	3,297	5.2	-4.0
10 and over	6,503	15.0	7,836	12.4	20.5

Figure 8.1. Permanency status of dwellings, by urban-rural location (percent)

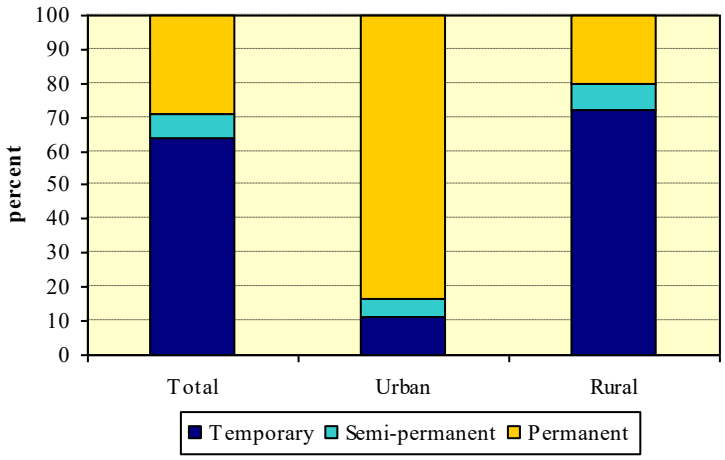
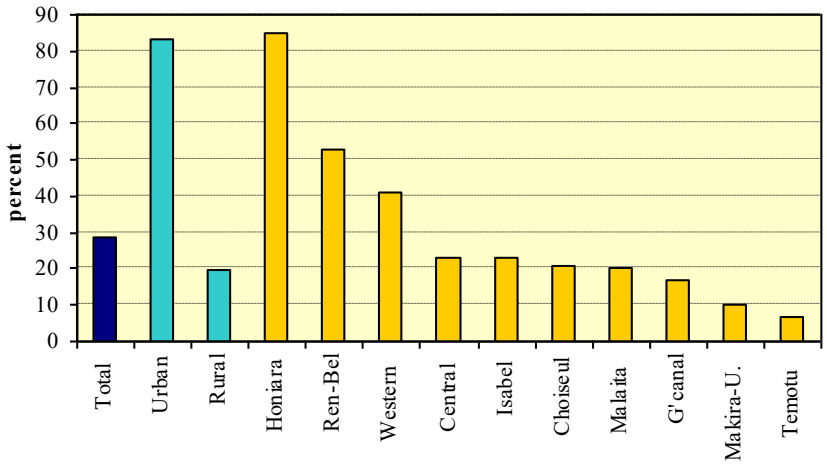


Figure 8.2. Percent of private and collective households residing in permanent dwellings, by province and by urban-rural location



8.2.3.2 Types of building

In addition to information on the permanency status of dwellings, the census provides information on the type of building that each household lives in. Seven building categories were distinguished: detached houses, semi-detached houses, labour lines, terraced houses or apartments, flats, combined residential dwelling and business buildings, and a category of other types such as hotels, prisons, hospitals, ships (see text box 'Types of building').

The most common type of building in the Solomon Islands is the detached house, that is a house that stands alone, with no other houses directly attached to it. Overall, 94 percent of private households in rural areas and almost 80 percent of those in urban areas live in a detached house (*table 8.3* and *figure 8.3*), and for collective households, too, it is the most commonly found type, with 75 percent.

Semi-detached houses and labour lines are quite similar in structure and are quite common in company-owned cocoa, coconut and oil palm plantations in the rural areas. Similarly, these are also a common form of accommodation in Honiara and other urban areas for low-income families working for either the government or the private sector; as such, they are usually rent free.

Practically all temporary private dwellings are detached houses (96 percent), with most of the remaining few percent being semi-detached. While permanent or semi-permanent houses are also mostly detached (84 percent), quite a few of the (semi-) permanent housing are semi-detached houses or labour lines.

Types of building

Several types of building were distinguished in the census:

Detached house – a house standing alone, with no other house attached to it. It may be made from any material, e.g. concrete, leaf, et cetera.

Semi-detached house – a house joined to one other house only. That is, only one wall is shared by the two housing units, and each has its own entrance.

Labour line – a building in a row of more than two houses and consisting of one floor only.

Terraced house/apartment – a building composed of three or more dwellings, which have their own outside entrance and two floors.

Flat – a building having at least two floors, with each floor having at least one dwelling.

Part business building – building of which one part is used as a dwelling and the other part as business premises.

Other – any other type of building that cannot be classified as one of the above types (e.g., hotels, ships, hospitals, prisons, police barracks, et cetera).

As the economy grows and workers move away from low-income status, the type of accommodation they occupy also changes, usually away from labour lines and semi-detached to detached. Although no comparative figures are available nation-wide, housing censuses conducted in Honiara in 1976 and 1998/99 showed a decrease from 21 to 8 percent of households living in semi-detached houses in this period. Terraced houses or apartments and flats are only common in Honiara; in general these are rare forms of accommodation in the Solomon Islands.

8.2.4 Tenure structure

Shelter is very significant in the Solomon Islands culture. The great majority of households (85 percent) resides in owner-occupied dwellings, although there is a large difference between urban and rural areas in this respect: as many as 92 percent of the dwellings in the rural sector are owner-occupied, compared with only 43 percent of dwellings in the urban areas (*figure 8.4*). In contrast to the urban areas, the rural sector provides security of land tenure. One of the reasons why more than nine in ten households in the rural sector are owner-occupiers is that most rural land is customary. Most, if not all, of the villages in the rural areas of the country are located on communal lands owned by tribes and almost every rural householder lives on tribal or kinship land.

In contrast, urban land is under the jurisdiction of the Ministry of Lands. In order to build a house in the urban areas, Town and Country Planning Board regulations have to be met, while land is always registered. This might imply that access to urban land by ordinary and low-income families to build owner-occupied houses is limited. Furthermore, many urban residents are in formal employment and receive either rent-free housing provided by their employer, or have employers who pay their rent costs. These factors, as well as the fact that many residents stay in town only temporarily, partly explain why more than a third of urban households rent their homes, and a further fifth live in rent-free dwellings either with 'wantoks' or relatives, or in dwellings owned or rented by their employers.

In the rural areas, owner-occupied dwellings are mostly of the temporary type — the most common type of construction in the rural areas. More than three out of every four households who own their house lives in a temporary dwelling. Rural rented or rent-free dwellings are much more likely to be permanent constructions (*figure 8.5*). In all categories of rural dwellings, ownership rates are high, varying between 75 percent for permanent dwellings to 97 percent for temporary ones (*figure 8.6*).

Table 8.3. Number of private dwellings and population size, by type and permanency status of dwelling

Type of dwelling	*Number of dwellings*	*Number of occupants*		*Percent of households*
		Population	*Average*	
All private dwellings	63,404	389,922	6.1	100.0
Detached	58,135	357,528	6.1	91.7
Semi-detached	3,642	23,273	6.4	5.7
Labour line	641	3,747	5.8	1.0
Terraced/apartment	236	1,360	5.8	0.4
Flat	154	798	5.2	0.2
Part of business	254	1,331	5.2	0.4
Other buildings	185	924	5.0	0.3
Not stated	157	961	6.1	0.2
Permanent and semi-permanent	22,485	144,656	6.4	100.0
Detached	18,948	122,852	6.5	84.3
Semi-detached	2,153	14,098	6.5	9.6
Labour line	621	3,642	5.9	2.8
Terraced/apartment	216	1,227	5.7	1.0
Flat	146	766	5.2	0.6
Part of business	207	1,062	5.1	0.9
Other buildings	135	667	4.9	0.6
Not stated	59	342	5.8	0.3
Temporary	40,806	244,554	6.0	100.0
Detached	39,140	234,380	6.0	95.9
Semi-detached	1,487	9,161	6.2	3.6
Labour line	19	101	5.3	0.0
Terraced/apartment	20	133	6.7	0.0
Flat	8	32	4.0	0.0
Part of business	46	267	5.8	0.1
Other buildings	49	236	4.8	0.1
Not stated	37	244	6.6	0.1
Type not stated	113	712	6.3	0.2

Figure 8.3. Households, by type of building (percent)

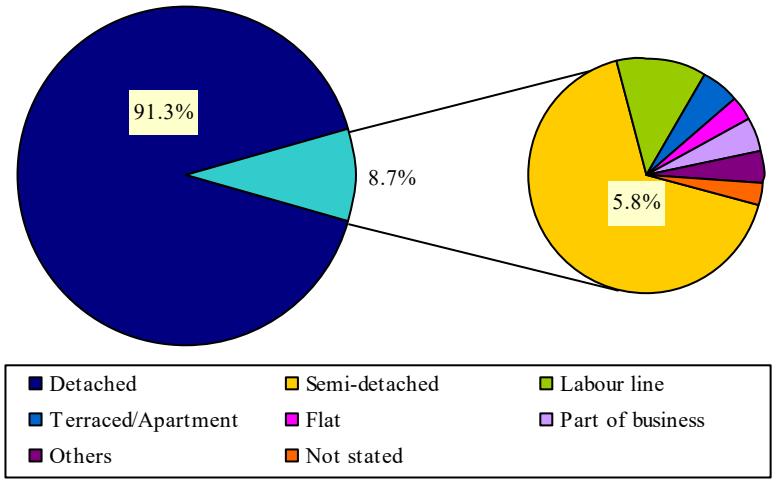
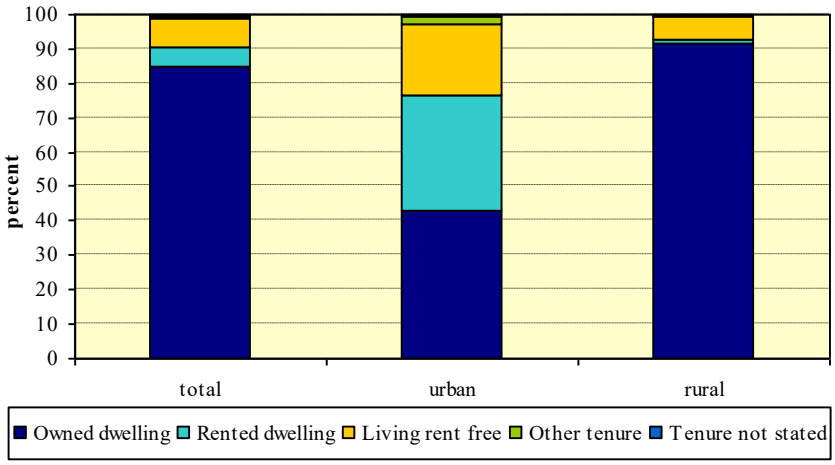


Figure 8.4. Tenure structure of dwellings, by urban-rural location



In urban areas, too, where the predominant type of housing is permanent, ownership is most common for temporary buildings: 77 percent of occupants, mainly low-income families, own their house (figure 8.6). But of all urban owners, most (71 percent) live in a permanent dwelling (figure 8.5).

8.2.5 Year of construction of dwelings

Almost three in four dwellings were constructed between the 1986 and the 1999 censuses (*figure 8.7*), and of these relatively recently built dwellings the large majority (94 percent) are detached accommodations. Dwellings constructed before the 1986 census and still existing today are mostly permanent constructions; the more temporary ones constructed before the 1986 census have mostly been rebuilt since then and are enumerated as having been built in the last intercensal period.

Figure 8.5. Permanency status of dwelling, by tenure structure and urban-rural location

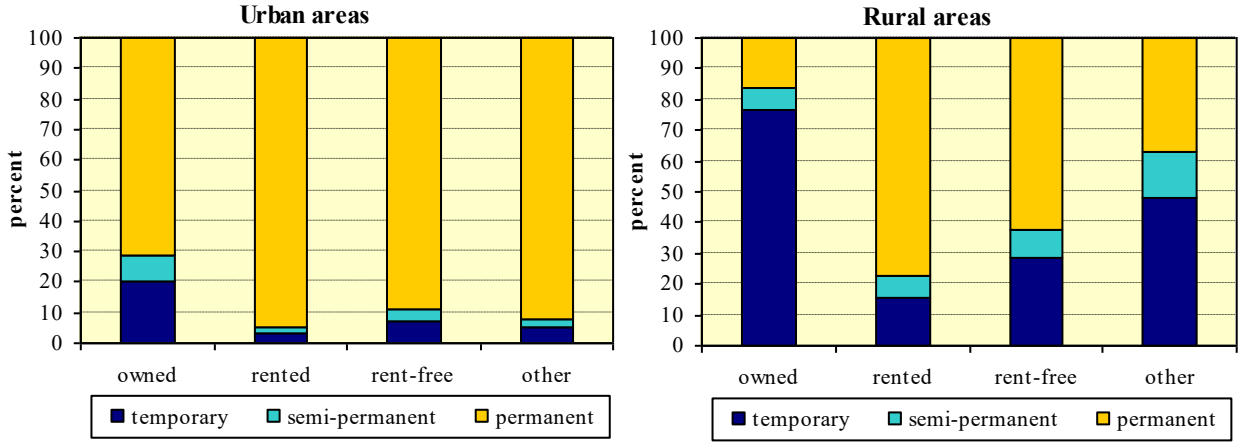
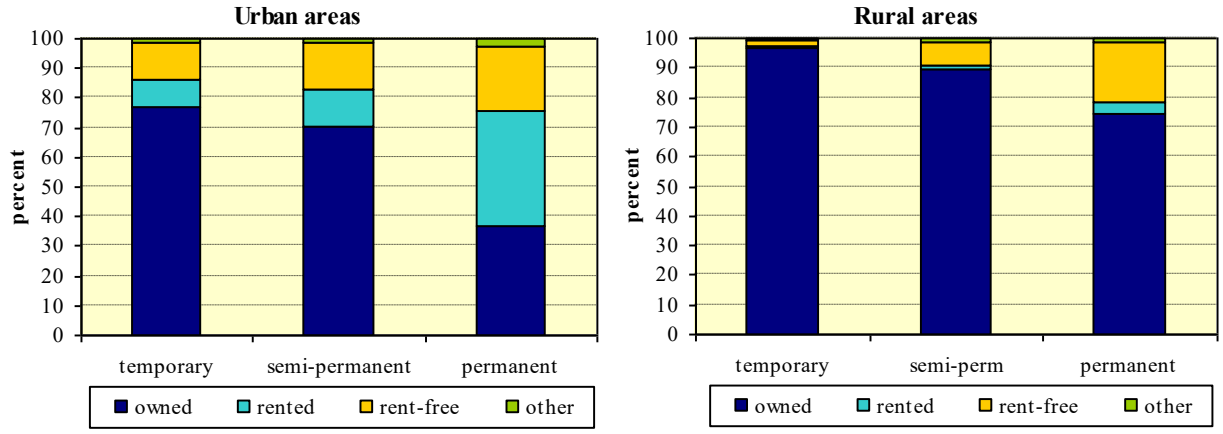


Figure 8.6. Tenure structure of dwellings, by permanency status and urban-rural location



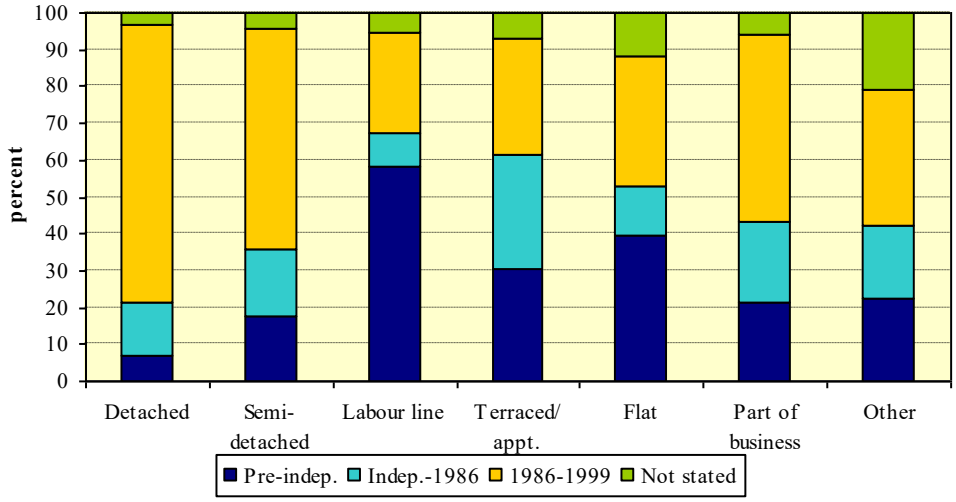
Prior to independence, labour lines were a quite common form of accommodation especially for low-income labourers; about eight percent of households lived in labour line housing in that period. Flats and apartments or terraced buildings were also popular among small (two or three person) expatriate households in the 1970s and 1980s, and these accommodations had a relatively high status at the time. However, lack of maintenance since then has caused these flats to decline in desirability.

8.2.6 Construction materials

Most houses in rural areas are built mainly with traditional materials. They are built by unskilled labourers using labour-intensive techniques.

Thatched or sago palm leaf is the most common material for roofing, especially for temporary buildings in rural areas (see *table 8.4*). This type of material is used for 65 percent of buildings. Before

Figure 8.7. Construction period of dwellings, by type of building



it can be used for roofing, sago palm leaf is woven and knitted together and then sun-dried. People prefer sago because it is cheaper and more readily available locally than other materials such as corrugated iron and concrete. Corrugated iron (33 percent of dwellings) is the main roofing material for permanent buildings, and it is the type of roof most frequently found in urban areas. Only in Noro and the urban surroundings of Honiara do a substantial percentage of the houses have thatched roofs (27 and 36 percent respectively).

While timber, concrete and fibro are the main materials for construction of the walls of permanent dwellings, again palm leaf is the main component of wall construction for temporary buildings, and most rural housing is of this type. Because timber is plentiful locally, it is also often used as a construction material for walls of temporary buildings. Accounting for just 16 percent of walls, timber is not as common in walls of rural houses as in the urban areas, where 38 percent of dwellings have walls made of wood (*table 8.5*). Timber-walled dwellings are most common in Noro (56 percent), which has grown recently, followed by Honiara (41 percent). In the smaller provincial centres most walls are made of either fibro (for example in Tulagi, Taro, Buala, Gizo and Lata), or concrete (Auki and Kirakira). Honiara's urbanised surroundings still have a relative abundance of leaf-walled houses, and in that sense resemble rural Solomon Islands, but often in combination with the more urban appearance of corrugated iron roofs.

Table 8.4. Materials used for construction of roofs of occupied dwellings, by urban-rural location

Materials	*Total*		*Urban*		*Rural*	
	Number of dwellings	*Percent*	*Number of dwellings*	*Percent*	*Number of dwellings*	*Percent*
Thatched	42,734	65.7	1,110	12.1	41,624	74.6
Corrugated iron	21,449	33.0	7,769	84.4	13,680	24.5
Timber	337	0.5	128	1.4	209	0.4
Concrete	105	0.2	60	0.7	45	0.1
Other material	256	0.4	115	1.2	141	0.3
Not reported	133	0.2	24	0.2	109	0.2

Table 8.5. Materials used for construction of walls of occupied dwellings, by urban-rural location

Material	*Total*		*Urban*		*Rural*	
	Number of dwellings	*Percent*	*Number of dwellings*	*Percent*	*Number of dwellings*	*Percent*
Total	65,014	100.0	9,206	100.0	55,808	100.0
Palm leaf	43,088	66.3	1,077	11.7	42,011	75.3
Timber	12,318	18.9	3,537	38.4	8,781	15.7
Fibro	4,625	7.1	2,315	25.1	2,310	4.1
Concrete	2,606	4.0	1,841	20.0	765	1.4
Corrugated iron	864	1.3	244	2.7	620	1.1
Other material	1,356	2.1	154	1.7	1,202	2.2
Not reported	157	0.2	38	0.4	119	0.2

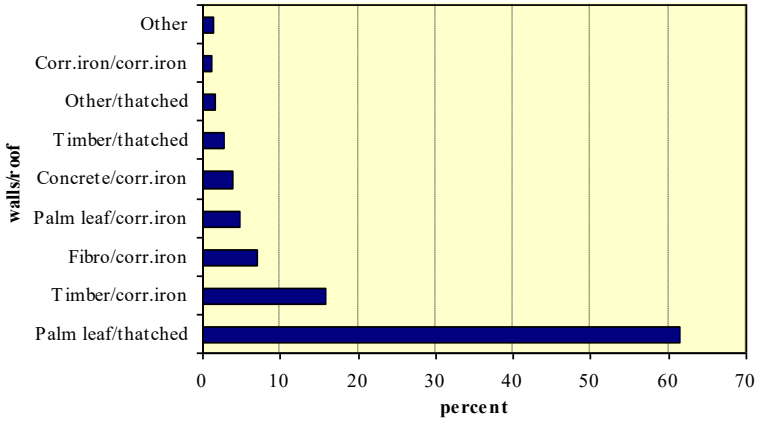
The main flooring material is timber which is most often used in permanent buildings but is common in temporary ones as well. It is found in 70 percent of urban dwellings and in almost half the rural dwellings. Alternative materials used for floors in temporary rural housing are earth, or 'other materials', a category referring to local traditional materials such as properly prepared palm tree trunks. The alternative for urban housing is concrete floors (see *table 8.6*).

When the construction materials for walls, roofs and floors are considered in combination, it is clear that the large majority of dwellings in the Solomon Islands consists of thatched houses with palm leaf roofs: more than six out of ten houses can be classified as such (*figure 8.8*). In these houses, timber or traditional material floors are the most common (40 and 37 percent respectively), followed at a distance by earth floors (23 percent). Apart from this type of thatched palm leaf housing, most of the remaining dwellings have corrugated iron roofing in combination with a variety of wall types. Among these, timber walled houses with corrugated iron roofs are the single most important category (16 percent of dwellings in the Solomon Islands). More than nine out of ten such dwellings have timber floors; otherwise the floors are made of concrete. Fibro, palm leaf or concrete walls form the alternatives for houses with corrugated iron roofs (together another 16 percent of dwellings). Fibro-walled houses mostly have timber floors, or otherwise concrete floors. Concrete-walled housing practically always also has concrete floors. Palm-leaf walled houses with corrugated iron roofs are more likely to have timber floors than palm-leaf walled houses with thatched roofs, and earth floors are rare in this type of housing.

Table 8.6. Materials used for construction of floors of occupied dwellings, by urban-rural location

Material	*Total*		*Urban*		*Rural*	
	Number of dwellings	*Percent*	*Number of dwellings*	*Percent*	*Number of dwellings*	*Percent*
Total	65,014	100.0	9,206	100.0	55,808	100.0
Earth	9,858	15.2	56	0.6	9,802	17.6
Timber	33,864	52.1	6,431	69.9	27,433	49.2
Concrete	5,191	8.0	2,609	28.3	2,582	4.6
Other	15,916	24.5	87	0.9	15,829	28.4
Not reported/ not applicable	185	0.3	23	0.2	162	0.3

Figure 8.8. Distribution of dwellings by type of construction material of walls and roofs



8.3 Access to water supply and sanitation, electricity and other amenities

8.3.1 Introduction

The general access of the population to water, sanitation, electricity and other basic amenities are an important measure of the country's development. Improving the quality and sustainability of electricity and water supply and of sanitation are very essential for social and economic growth, and employment creation. Unfortunately, comparison with the 1986 and previous censuses is difficult because the former censuses did not include questions on access to water, sanitation and electricity.

8.3.2 Water supply

The main providers of piped water in the Solomon Islands are the Solomon Islands Water Authority (SIWA) and the Rural Water Supply and Sanitation (RWSS). In 1992, the SIWA Act was enacted by Parliament and SIWA (formerly the Water Unit of the Public Works Ministry) then became an authority and formally commenced operations in 1994. Under the Act, "SIWA is responsible for the development and management of water and wastewater services in all urban and provincial centres throughout the Solomon Islands." Its main aim is to "…provide safe, sustainable and reliable water and wastewater services to the Solomon Islands urban areas." (Solomon Islands Water Authority 1997).

Thus, SIWA provides water to Honiara, Auki, Tulagi and Noro. The mission of RWSS is to complement SIWA and to supply water to the rural areas. RWSS has implemented between 75 and 100 water supply projects and has constructed hundreds of sanitation facilities yearly, spread throughout all nine provinces.

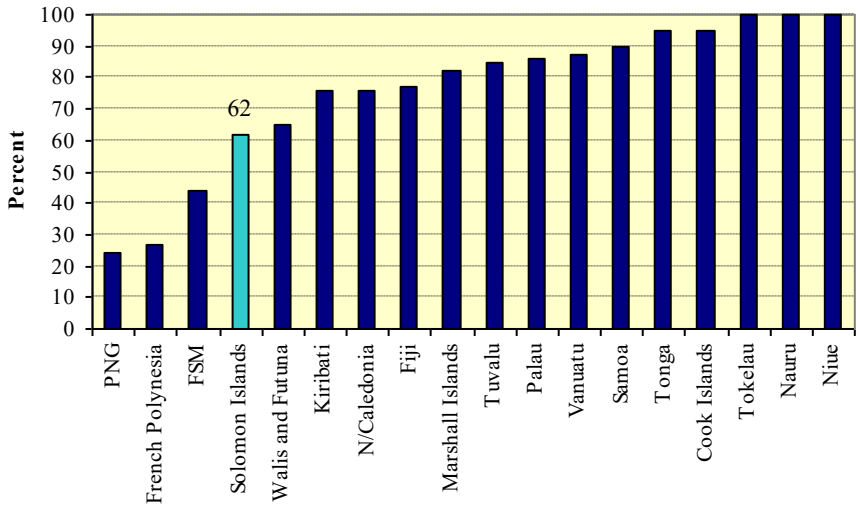
According to the 1999 census, 61 percent of households and 62 percent of the population has access to piped water from either SIWA or RWSS (*table 8.7*). Compared with other countries in the Pacific region, the Solomon Islands has a rather modest score in this respect (*figure 8.9*).

Access to piped water from SIWA or RWSS varies considerably by province. Honiara's main piped water supply system supplies 95 percent of the population of Honiara with water. According to SIWA, 80 percent of the Honiara population was supplied with piped water in 1996. The only other province with well above average access to SIWA/RWSS water supply is Isabel (88 percent of the population). In Rennell-Bellona hardly anyone has RWSS water. Guadalcanal (40 percent) and Temotu (43 percent) are also relatively behind in piped water supply, while in the other provinces the proportion of the population having piped water (56-65 percent) are close to the average for the country as a whole.

Table 8.7. Percent of households and population having access to piped water supply by SIWA/RWSS, by province

Province	*Percent of households*	*Percent of population*
Solomon Islands	60.8	61.9
Choiseul	56.7	55.5
Western	62.1	62.5
Isabel	87.1	88.0
Central	61.0	61.2
Rennell-Bellona	1.4	1.0
Guadalcanal	40.3	40.4
Malaita	57.6	58.5
Makira-Ulawa	65.1	65.4
Temotu	43.0	43.4
Honiara	95.4	95.9

Figure 8.9. Percentage of the population having access to piped water supply, by country



Source: Gladys Beccalossi, Demography Section, SPC, Noumea, July 2001

A 1998-report by the RWSS project indicated that the population in the rural areas served by the water supply systems constructed by RWSS was 64 percent in 1996. The 1999 census figure for the nine provinces, excluding Honiara, is lower: only 57 percent. Although the latter figure includes some urban areas that do not fall under the jurisdiction of RWSS, their exclusion would probably increase the gap between the RWSS estimate and the census data. The difference between the RWSS and the census data may be explained by the fact that in their 1996 estimate RWSS used the 1986 projected population figures for the rural areas, resulting in an overestimation of rural water supply.

Given that almost 40 percent of the population has no access to SIWA or RWSS water supply, what then is their main source of drinking water? *Figure 8.10* illustrates the main source of drinking water for households in relation to their access to SIWA/RWSS water. Although 62 percent of households report access to SIWA or RWSS water supply, only 52 percent of households overall report piped water as their main source of drinking water, which is not necessarily a safe source. About 17 percent of the households with SIWA/RWSS water supply inside their dwelling, or outside but for private use,

report that they use another source for drinking water; mostly, these households rely on rain tanks or to some extent on bore holes, wells or springs. Of the households with an outside supply of SIWA/RWSS water shared with other households, 15 percent do not use it as their main source of drinking water. Instead, they resort mainly to water from rain tanks (8 percent) or from rivers or streams (5 percent).

Next to the 52 percent of households that rely on piped water as their source of drinking water, rivers or streams form the next important source (22 percent), followed by rain tanks (16 percent) and by the category of bore holes, wells or springs (9 percent).
As was the case with SIWA/RWSS piped water supply, other sources for drinking water differ again substantially between provinces (*figure 8.11*). For households in Honiara, piped water is the major source (89 percent). The remaining households in Honiara mostly have rain tanks, but a few seem to rely on bore holes or wells, springs, or on rivers or streams for drinking water. Isabel is the only other province where a large share of the population drink piped water (74 percent); as in Honiara, rain tanks or rivers and streams form the alternative. In Rennell-Bellona there is no piped water: the large majority of households (84 percent) have a rain tank for drinking water; bore holes, wells or springs are used by the others.

Figure 8.10. Main source of drinking water of households, by type of access to SIWA/RWSS water supply

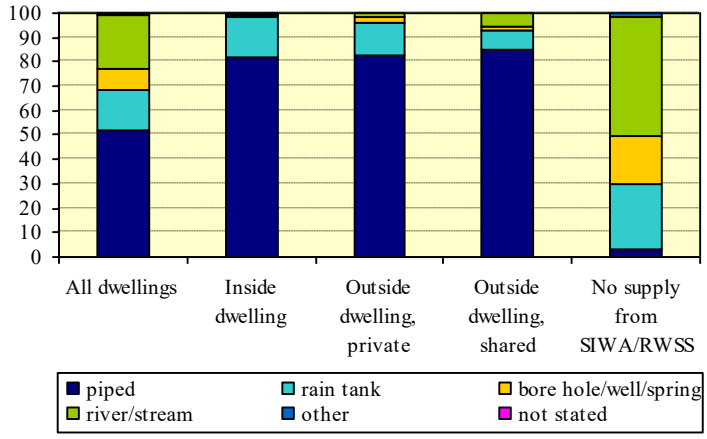
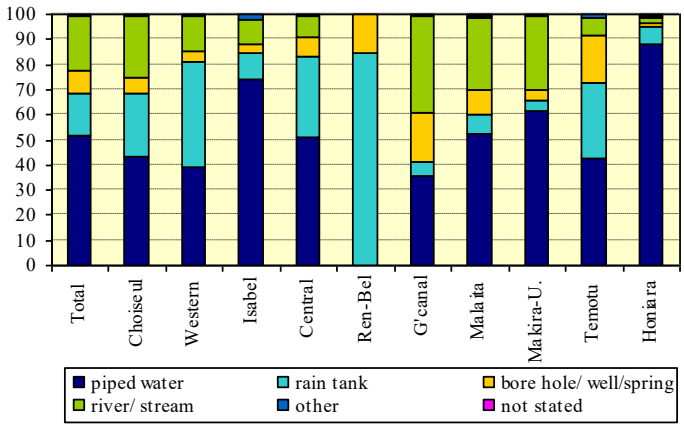


Figure 8.11. Main source of drinking water of households, by province



In the other provinces, 36-61 percent of the households drink piped water. For households in Central, Temotu and especially Western province, rain tanks are frequently used as well (30-42 percent), while in the provinces of Guadalcanal, Malaita and Makira-Ulawa households more often rely on rivers and streams (29-39 percent). In Choiseul, both these sources are important. Bore holes, wells or springs are a relatively important source of drinking water in Guadalcanal and Temotu provinces (18-19 percent).

8.3.3 Sanitation

In 1999, only 23 percent of households in the country had modern toilet facilities. Compared with other countries in the Pacific region, the Solomon Islands ranks quite low on this aspect of sanitation (*figure 8.12*).

The percentage of households with modern toilet facilities ranges from 8 percent in Temotu to 28 percent in Western province. Honiara town council, where 88 percent of households have modern toilet facilities, is an exceptional case (*figure 8.13).* Here, and in other provincial centres where SIWA provides piped water supply, sewage and sanitation are the responsibility of the same organisation. The 12 percent of households in Honiara without modern toilets are largely situated in the squatter settlements within the city boundaries, where people mostly reside in temporary dwellings.

Modern toilet facilities

Modern toilet facilities refer to installations constructed to dispose of human excreta. Therefore, they exclude toilet facilities in the sense of bush, rivers, beaches or sea. In the census, five types of (modern) toilets are distinguished:

Flush toilet – an installation that has its own cleaning-water system, which washes away the wastes;

Pour toilet – an installation where the toilet is cleaned after use by pouring water from a bucket;

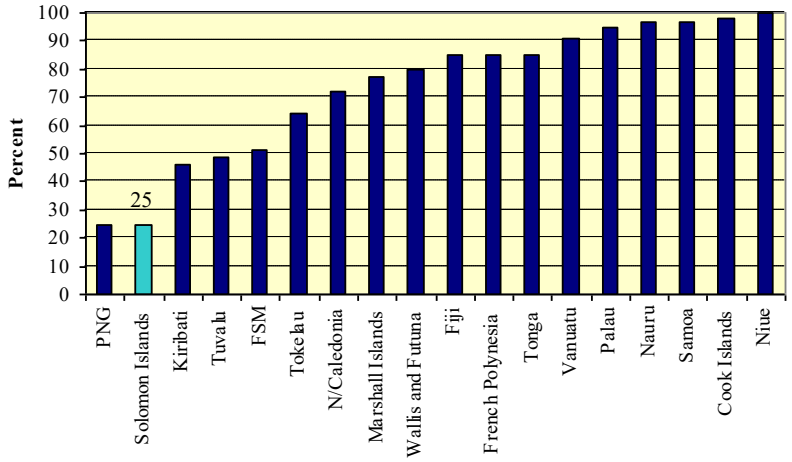
Pit toilet – a (covered) hole in the ground used as a toilet;

Ventilated improved pit (VIP) toilet – a modernised pit-type toilet;

Other – any type of toilet that does not fit any of the above descriptions.

The most common modern toilet facilities are flush, pour and pit toilets (see text box). They contribute 13, 8 and 3 percent respectively of the 23 percent (*table 8.8*).

Figure 8.12. Percentage of population with modern toilet facilities



Source: Gladys Beccalossi, Demography Section, SPC, Noumea, July 2001

In households with a toilet facility outside the dwelling, the most common type is the the pour toilet, especially if it is for private use (66 percent). Households sharing a modern toilet facility located outside the dwelling are most likely to use either a pour toilet (41 percent) or a pit toilet (35 percent).

Among the 88 percent of households in Honiara with modern toilets, flush toilets are the standard in dwellings with in-house toilet facilities. Pour and pit toilets are associated with low-income families, which are commonly housed in temporary dwellings.

Figure 8.13. Percentage of households with modern toilet facilities, by province

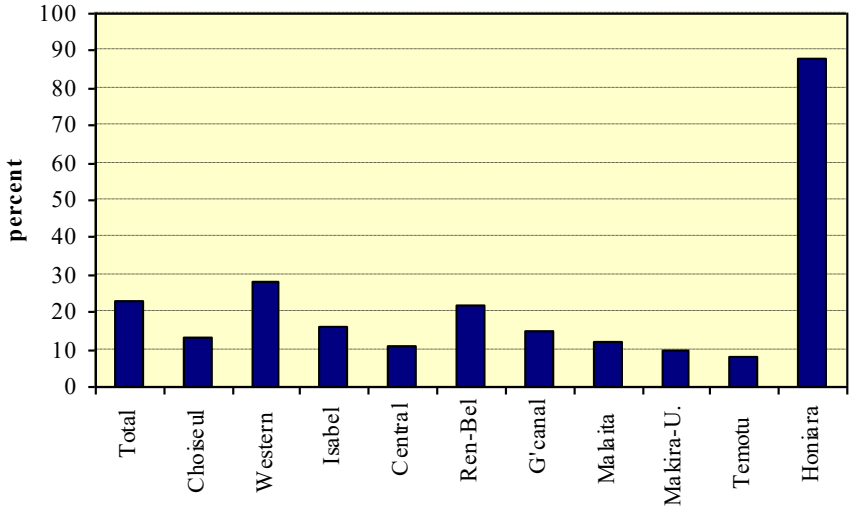


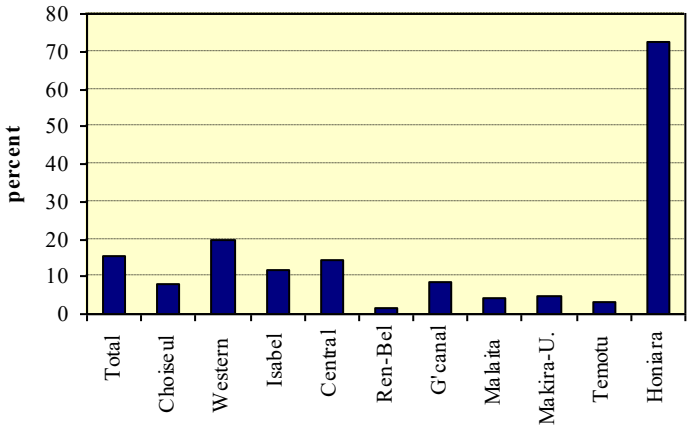
Table 8.8. Households by type and location of modern toilet facility

Location of modern toilet facility	*All types*	*Type of modern toilet facility*				*No modern toilet facilities or not stated*
		Flush toilet	*Pour toilet*	*Pit toilet*	*Other type*	
Total country	100.0	12.6	7.6	2.5	0.4	77.0
Modern toilet inside dwelling	100.0	97.8	2.0	0.1	0.0	-
Modern toilet outside dwelling, private	100.0	18.8	66.0	13.5	1.7	-
Modern toilet outside dwelling, shared	100.0	21.1	41.1	35.2	2.7	-
Honiara	100.0	71.1	15.4	1.2	0.1	12.1
Modern toilet inside dwelling	100.0	99.5	0.4	0.0	0.0	-
Modern toilet outside dwelling, private	100.0	37.3	58.0	4.4	0.4	-
Modern toilet outside dwelling, shared	100.0	50.9	44.1	5.0	0.0	-

8.3.4 Electricity

Overall, very few households in the Solomon Islands have access to a source of electricity, just 16 percent. However, in Honiara, 73 percent of households have access to electricity. The only other provinces where more than 10 percent of the households have electricity are Western province (20 percent), and Central and Isabel provinces (15 and 12 percent respectively) (*figure 8.14*).

Figure 8.14. Percentage of households having access to electricity, by province



The main supplier of electricity in the urban areas is the Solomon Islands Electricity Authority (SIEA). It is practically the only supplier in Honiara, but private companies are active in many of the provinces, and some households draw electricity from their own (*figure 8.15*).

Access to electricity is strongly concentrated in the urban areas (*table 8.9*). Most of the provincial towns have higher rates of access to electricity than Honiara, in particular Buala, Lata, Auki, Gizo and Kirakira, where more than 90 percent of the households has access to electricity. As these are fairly small towns, it should be noted that the actual number of households involved is often very small. In Taro and the urban surroundings of Honiara, electrification is more limited than in the other urban areas: just one fourth and one third respectively of the households have electricity. In most urban areas, electricity is supplied by SIEA, but in Tulagi a number of households are supplied by a private company, while in Taro and to some extent Gizo, some households have generators or other private sources of electricity. The rural areas are practically without electricity, just over 6 percent of households drawing electricity from one source or another.

Figure 8.15. Source of electricity in households having access to electricity, by province

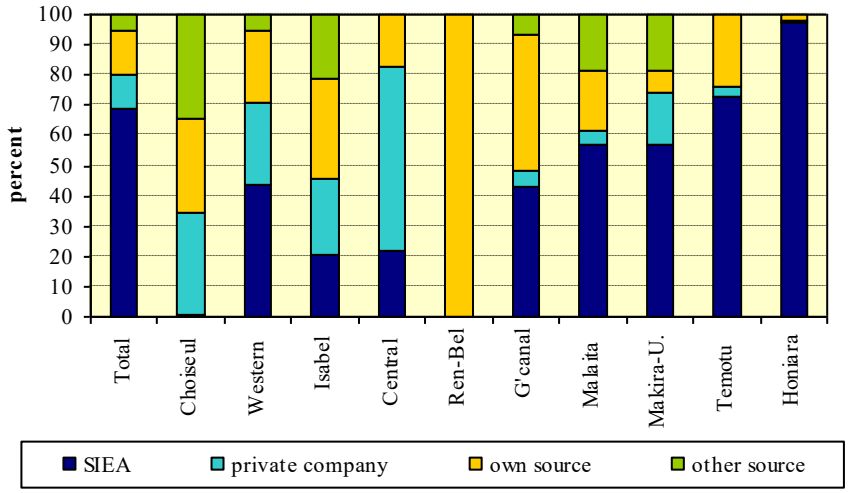
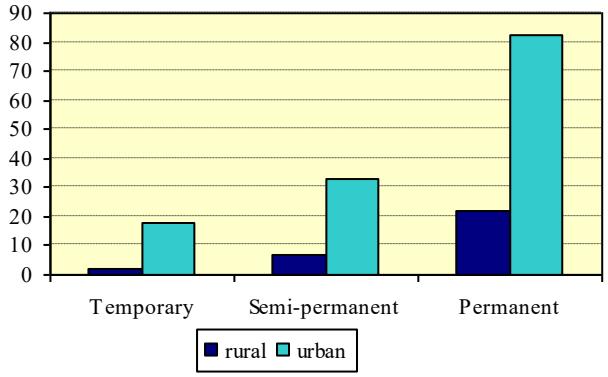


Table 8.9. Households, by access to electricity, source of electricity supply, and by rural-urban location

Area	*Households without electricity*		*Households with electricity*		*Of which by:*			
	Number	*Percent*	*Number*	*Percent*	*SIEA*	*Private company*	*Own source*	*Other*
Solomon Islands	54,538	84.2	10,209	15.8	10.8	1.8	2.3	0.8
Rural areas	52,007	93.6	3,557	6.4	1.2	2.0	2.3	0.9
Honiara urban surroundings + Taro	392	69.1	175	30.9	24.0	0.0	4.8	2.1
Honiara	1,887	27.3	5,018	72.7	70.9	0.1	1.4	0.2
Other urban areas	116	9.4	1,116	90.6	80.0	4.9	5.0	0.6

Permanent dwellings are much more likely to have electricity than temporary ones, as the former are seen as a long-term investment justifying associated capital expenditures. Overall, 47 percent of permanent dwellings in the country have access to electricity, and 82 percent of permanent dwellings in Honiara. The 86 percent of temporary dwellings and 18 percent of permanent dwellings in Honiara that have no access to electricity are located mainly in the peripheral areas and squatter settlements surrounding the town. Even in the rural areas, 22 percent of the permanent dwellings have electricity (*figure 8.16*).

Figure 8.16. Percent of households having access to electricity, by rural-urban location and permanency status of dwelling



8.3.5 Cooking fuel

Firewood is still the most common cooking fuel in the Solomon Islands. At the time of the 1999 census, more than 87 percent of households relied on wood for cooking. There are some differences by province, but the percentage of households cooking on wood is high everywhere, ranging from 90 percent in Western province to 98 percent in Temotu (*figure 8.17*). The exception is Honiara, where 67 percent of the households cook on gas; however, there too, another 25 percent still rely on wood.

In other urban areas, too, the reliance on wood is less than in the rural areas, but still twice as high as in Honiara. In addition to wood and gas, kerosene is used for cooking in 16 percent of households in the provincial towns (*figure 8.18).*

Figure 8.17. Source of household fuel for cooking, by province

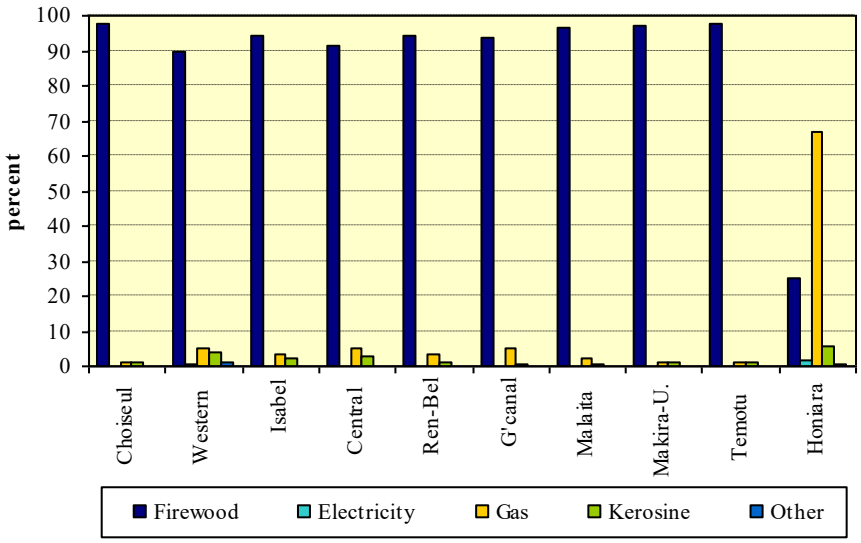
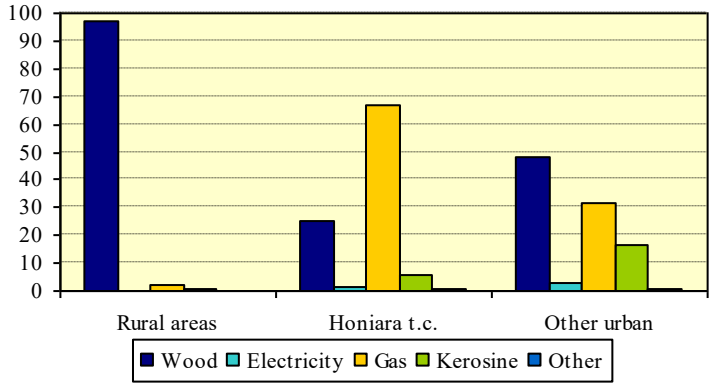


Figure 8.18. Source of household fuel for cooking, by urban-rural location



Considering the heavy reliance of the population on wood as a fuel for cooking and the high rate of population growth, pressure on forest resources will be a huge environmental challenge for the government. There is a need to create and encourage better and more efficient forms of burning wood-fuel (such as the use of charcoal and energy-efficient types of stoves), to manage, sustain and replenish wood-fuel resources, and to consider alternatives sources of cooking fuel.

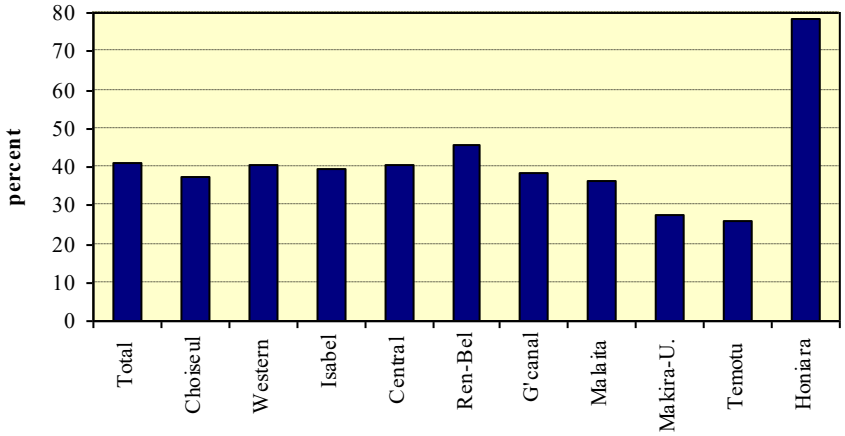
8.3.6 Working radios

Only recently, in 1998, was television introduced for Honiara viewers, during the soccer world-cup. Australia's ABC was broadcast in the Solomon Islands at the time of the census; it has been replaced by BBC-world since. Newspapers, too, are mostly limited to the capital, and given the high rate of illiteracy, these cannot be considered a widely accessible form of information dissemination or communication either. The only available form of technology for communication with and dissemination of information in Solomon Islands' rural areas is the radio. The national broadcaster, Solomon Islands Broadcasting Services (SIBC), is located in Honiara and has two additional stations Of these two, at the time of the census, only the station at Gizo in Western province was operational, whereas the station at Lata in Temotu has not been working since 1998. Also at the time of the census,

there were three additional FM broadcasting stations, owned by different companies. These three are located in Honiara and can only be received in the Honiara region. All radio broadcasts are in Pidgin, or occasionally in English.

A question on the availability of working radios in the household was included in the 1999 census, but not in prior censuses. And as unfortunately no comparable data are available from other sources, it is impossible to analyse trends. Only 41 percent of households indicated they had a working radio. In Honiara, radio availability is well above average (79 percent), while in the other provinces it ranges from 26 percent of the households in Temotu to 46 percent in Rennell-Bellona. As with other services and amenities, the rural areas are under-endowed: just over one third (36 percent) of the rural areas have a radio, against 77 percent of the urban households (71 percent in the urban areas excluding Honiara) (*figure 8.19*).

Figure 8.19. Percent of households owning a working radio, by province



8.4 Conclusions

The present chapter describes the housing situation in the Solomon Islands, as well as the availability of water, sanitation facilities and electricity to Solomon Island households. Furthermore, brief sections were devoted to the types of fuel Solomon Islanders use for cooking; and to the presence of working radios, the main means of communication and dissemination of information available in the country.

Data on housing, water and sanitation, and other amenities are only available from the 1999 census results. No comparative material exists from previous censuses, and very little information can be drawn from other sources. Therefore, no trends could be established, but for the first time, at least, a picture of the existing situation arises.

Government *housing* policies are already in existence since the 1970s, although they are not necessarily strictly enforced.

Most of the 65,014 households of the Solomon Islands, over 60 percent, live in so called 'proper leaf houses', constructed from palm leaves using traditional building methods. Such houses, the standard in the rural areas, are classified as temporary, not because they would be lacking in quality, but because the materials used require replacement more frequently than materials such as concrete, brick or timber. Temporary houses in the urban areas are more often made of packing cases and other waste materials, housing the urban poor in squatter settlements, mostly in and around Honiara.

Timber-walled houses with corrugated iron roofs are the next important type of housing, providing shelter to 16 percent of households, mostly in urban areas; other urban housing often has concrete or fibro walls, again with corrugated iron roofing (11 percent). Such housing types were classified as 'permanent' for the purpose of the census, indicating that houses built from such materials generally last many years.

Some dwellings combine traditional and modern materials, often walls of palm leaf with corrugated iron roofs, or timber walls with thatched roofs; 8 percent of households live in such 'semi-permanent' dwellings.

Private households living in permanent dwellings average 6.5 persons, while those living in temporary dwellings average 6.0 persons. The difference is more marked in urban areas, where permanent dwellings house an average of 6.7 persons, and temporary dwellings only 5.2. This does not necessarily imply that permanent dwellings are more crowded, as these also tend to have more rooms: 5.3 against only 3.7 in temporary dwellings.

With so many houses being traditional leaf houses, it comes as no surprise that most are detached, that is, they stand alone and are not connected to another house. More than nine out of every ten households lives in a detached house. Houses on plantations and houses for low-income families in urban areas are sometimes of the semi-detached type, or are in labour-lines; although it seems that this latter type of housing is decreasing in importance, as Solomon Islanders generally aspire to live in detached houses.

Most households, 85 percent, own their dwelling, but there is great difference between urban and rural areas in this respect: as many as 92 percent of rural dwellings are owner-occupied, but only 43 percent of those in the towns. Home ownership is closely related to the customary structure of rural land ownership, providing most Solomon Islanders with access to land property. Urban land is governed by Town and Country Planning Board regulations, and many urban residents live in houses for which rent is paid by their employers or which are provided rent-free by them. These factors, combined with the fact that many urban residents consider their residence in town as temporary, partly explain why there are so few owner-occupiers in the urban areas.

The main providers of piped *water* in the Solomon Islands are the Solomon Islands Water Authority (SIWA) for urban areas, and Rural Water Supply and Sanitation (RWSS). Together they supply 60 percent of all households (61 percent of the population) with piped water. This is still a considerably lower percentage than in most other countries in the Pacific region.

No judgement was made in the census on the quality and safety of the water provided, either from SIWA/RWSS or from other sources. However, with the increase of the population, rivers and streams, still an important source of drinking water in several provinces, will increasingly be at risk from pollution and contamination, jeopardising public health.

Almost all Honiara residents (95 percent) rely on SIWA for their water supply. Rennell-Bellona is the other extreme, with practically no household having piped water; most get their water from rain tanks instead.

Given that almost 40 percent of the population has no access to SIWA or RWSS water, they have to resort to other sources. In fact, even some of the households that do have SIWA/RWSS water draw their drinking water from other sources. Nevertheless, piped water is the main source of drinking water for 52 percent of households. Rivers or streams are the next important source (21 percent), followed by rain tanks (16 percent). In Central, Temotu, and Western provinces rain tanks are an

important alternative for piped water; in Guadalcanal, Makira-Ulawa and Malaita people rely more on rivers and streams.

The availability of *sanitation* or *modern toilet facilities* in the Solomon Islands is still quite limited, also when compared to the situation in other countries in the Pacific region. Again, given the rapid population growth, there is some cause for concern. For instance, in Honiara 88 percent of the households have a modern toilet facility, but this still leaves 12 percent that have to do without. Overall, in the country as a whole, fewer than one in four households have modern toilet facilities, either flush toilets, or pour or pit toilets. The former are the most common type in permanent urban dwellings; the other two types are more common where the facility is located outside the dwelling itself.

Electricity is another amenity that has not yet gained wide distribution in the Solomon Islands. In fact, access to electricity is practically completely limited to urban households, either in Honiara or in the provincial towns, where a large majority have electricity. The main supplier is Solomon Islands Electricity Authority (SIEA), but in the provincial towns some households get their electricity from private companies, from their own generators or from other sources.
Most Solomon Islanders use wood as *cooking fuel*. As 83 percent of the households use wood for their daily cooking needs, and the population continues to grow rapidly, there will be heavy pressure on forest resources, and this should be reason for policy concern. Alternative sources are mostly used in Honiara, where two thirds of the households cook on gas, but 25 percent are still using wood. In other urban areas too, wood is the main cooking fuel, although gas and kerosene are frequently used alternatives.

The *radio* is the main means for disseminating information and for mass communication in the Solomon Islands, especially the rural areas. Television has arrived only recently and is limited to Honiara, and newspapers are also mostly read in the urban areas, and not accessible to the large group of illiterate Solomon Islanders. Even the distribution of radios is limited, as only 40 percent of households have a working radio. As with other services and amenities, the rural areas are under-endowed: just 36 percent of the rural households have a radio, and more than twice as many in towns.

In sum, house construction in the Solomon Islands seems still firmly rooted in solid traditional building practices, with high rates of home ownership in the rural areas. In urban areas, house rents are often linked to employment. These factors, combined with the tradition of hospitality extended to visiting ‘wantoks’, ensure that serious problems of homelessness that characterise so many other countries are avoided in the Solomon Islands.

The supply of piped water, sanitation facilities and of electricity in the Solomon Islands is still very limited, and the country is generally lagging behind other Pacific countries in these respects. Rapid population growth is reason for concern both with regard to public health (water and sanitation), and with regard to environmental issues (cooking fuel).

9. Population projections

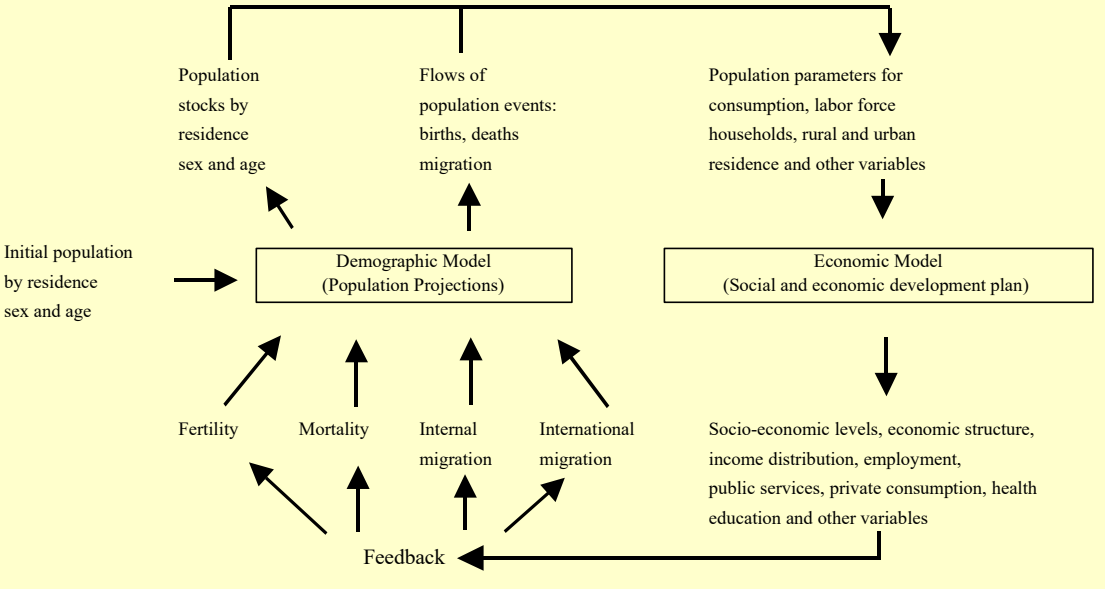
George GROENEWOLD and Bart DE BRUIJN

9.1 Introduction

The process of change in a society can be viewed as an iterative interaction process between demographic and socio-economic variables that operate at the macro and micro level. The chart in *figure 9.1* is a simplified representation of this dynamic interaction process.

Population projections are estimates of the future size and structure of the population and they are needed for a variety of purposes, for example for comprehensive and sector planning.[33] Estimates of the future size, structure and geographical distribution of the population are needed for the planning of education, health, housing and road infrastructure, the monitoring of changes in the geographical distribution of the population and the estimation of costs of social security and pensions schemes. It is difficult to make such estimates because there is still incomplete insight into the above mechanism. In addition, the uncertain socio-economic and political situation in which the Solomon Islands finds itself since the events of 1999 and 2000 makes any assessment of future developments extremely hazardous. Lastly, relevant and reliable input data are often lacking.

Figure 9.1. Simplified model of interaction between demographic and socio-economic variables



Source: Shorter *et al*. (1987).

[33] Comprehensive planning is a form of overall development planning covering most or all sectors of the economy. Unlike sector planning, comprehensive planning addresses the full range of variables such as employment, income, imports/exports, household and government income, expenditure and savings. Sector planning is concerned with one specific sector (e.g. health, education, housing); the financial limits of sector planning are set by the comprehensive plan.

Although there are projection models that to some extent integrate the dynamics of socio-economic, environmental, demographic and policy variables in time and space, they are not of practical use in case of the Solomon Islands because many input data are either lacking or of insufficient quality. The projection model used in this chapter, the 'cohort component model', is one used by most national statistical offices to estimate future populations. The horizon for the projections is set at 15 years (1999-2014) and the projection software PEOPLE[34] is applied to carry out the computations for national level and provincial projections.

The use of an appropriate projection model is a necessary but not sufficient condition to make reliable projections. The art of making realistic projections hinges on making appropriate assumptions with regard to current and future levels of the determinants of population change: fertility, mortality and migration. Of particular interest is the search for regularities in population-related data: relationships that remain constant through time or whose fluctuations are random and small. Among other things, this involves examining past trends and processes underlying population change. Although changes in size and structure of population groups are much less volatile than, for instance, changes in the values of stocks, predicting future populations remains a precarious undertaking. The further in the future the date they pertain to, the less likely it is they will turn out to reflect real developments. To quote William Brass (1974): "There is only one feature that all demographic predictions have had in common: they have all been falsified by events". As we shall see in the sections below this is once more confirmed when we compare the 1986 national level projections for the year 1999 with the result of the counts in the 1999 census.[35] In addition, population projections for the Solomon Islands are complicated by the impact of the large-scale displacement due to the ethnic tension and the uncertain effects of the social unrest in the near and medium-term future.

The projection variants presented in this chapter are designed with an eye to technical detail and taking into account past changes in the socio-economic and demographic context. They are based on consultations with local planners and policy-makers, economic and political monitors and demographic experts. Moreover, the predictions relate to a relatively short projection horizon of 15 years (1999-2014), which is much shorter than the 35 years adopted by the analysts of the 1986 census. In our opinion, a projection horizon of more than 15 years is unwarranted as in today's world, economic, social and health changes are rapid and modern channels of communication affect human behaviour, including reproductive and health behaviour, practically everywhere. Moreover, it is not really possible to ascertain the demographic impact of recent political unrest and concomitant economic problems of the country in fertility, mortality and migration assumptions. In particular it is difficult to make assumptions about the volume and direction of internal migration. Policy-makers and planners must bear these limitations in mind when using the results of sub-national level projections.

When preparing the data for the projections, no attempt was made to smooth irregularities in the age distribution of the census population, the base population for projections, an exercise often carried out if the quality of age reporting is insufficient. As set out in section 2.4.2.3 of this volume, the summary indicators for the quality of age reporting do not justify such smoothing. Moreover, the gain in accuracy by smoothing the age distribution of the base population for projection purposes will be watered down by the inaccuracies introduced as a result of effects of the recent ethnic tension and concomitant stagnation of development of the country.

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[34] PEOPLE v3.0, (1992), Richard Leete, Fong Cheng Hong, Cheng Fan Soon and Geoff Simmons. ODA United Kingdom and Economic Planning Unit, Government of Malaysia.

[35] The projections made in the report of the 1986 Census are limited to the projection of 'Solomon Islanders' only, i.e. the population of Melanesian, Polynesian, Kiribati and Chinese ethnic origin. In 1986, however, this sub-population constituted 99.4 percent of the total population of the Solomon Islands. The projections in this chapter refer to the entire and de facto population of the Solomon Islands as counted on census night in 1999. In that count, Solomon Islanders, as defined in terms of the 1986 definition of 'Solomon Islanders' appear to constitute 99.0 percent of the total population of the Solomon Islands.

9.2 Projection methodology and projection assumptions

9.2.1 Projection methodology

All projections in this chapter are based on the cohort component projection method. This method can be explained through the balancing equation of population change, where the changes in the population between any given years is attributable to the changes in the four demographic components of change, that is, births, deaths, in-migration and out-migration.

$$N(t+n) = N(t) + B(t, t+n) – D(t, t+n) + I(t, t+n) – O (t, t+n)$$

where,

n	=	period of 1, 5, or 10 years
N(t+n)	=	Population at time t+n (end year of the projection, for example 2004)
N(t)	=	Population at time t (base year of the projection, for example 1999)
B(t,t+n)	=	Births between t and t+n
D(t, t+n)	=	Deaths between t and t+n
I(t, t+n)	=	Immigrants entering the area between t and t+n
E(t, t+n)	=	Emigrants leaving the area between t and t+n

The population in the future, N(t+n) can be estimated if we have data describing the size and structure of the base year population N(t) and data on levels and patterns of fertility, mortality and migration during the projection interval t to t+n. More specifically, for the component projection method, the following date are needed:

- Age distribution in single or five-year ages, by sex;
- Measures of mortality in the base year and in future years, in particular age and sex specific survival ratios as reported in (model) life tables (for example the S(x) column in *annex VIII)*;
- Measures of fertility in the base year and in future years, in particular values of indicators of the level and age pattern of fertility;
- Measures of internal and external migration, such as age and sex-specific in and out migration rates or age and sex specific net migration rates.

The four steps described in the text box on the cohort component model (see the text box below) essentially set out how the population of a country is projected into the future. In a similar manner, the population of each individual province can be projected into the future. However, two problems are likely to occur. Firstly, the sum of the projected populations of individual provinces differs from the figures produced by the national level projection. Secondly, the sum of the net number of migrants of all areas does not add to zero.

The first problem is solved by assuming that the computations of changes in five-year age cohorts at the provincial level are erroneous and that results of national level age and sex projections will be used to correct these provincial level errors. If the sum of the projected province totals differs from the national projection, each province receives or loses numbers of people in proportion to the five-yearly increase or decrease of its population. An alternative method is to simply redistribute inconsistencies between the national level and provincial levels according to current population size of provinces. This approach is not used, as it does not take account of situations where growth trends of provinces may differ. Particular areas may be declining, for instance because of economic or political reasons, in a context of an overall increase in population.

The cohort component method

The cohort component method projects the population in the base year (t) into the future in the following way. Assume an age distribution of the total population in the area by age and sex in five-year age groups and a five-year projection period, so that n=5.

Firstly, each age-group 0-4, 5-9, …, 70-74 is multiplied by the appropriate age and sex specific survival ratios as reported in the life table that describes the assumed level and age pattern mortality for the first five-year projection period. The age group 0-4 in the base year (t) will become the age group 5-9 five years later in the projection year (t+5). Similarly, the age group 5-9 in the base year is survived over a period of five years to constitute the age group 10-14 five years later. This is done for the base year population of all five-year age groups, except the last open-ended age group (74+).

Secondly, the age group 0-4 in the projection year (t+5) must be estimated. This is formed by all children born in the period of five years between the base year (t) and projection year (t+5). These children are born to women in reproductive ages who are alive in the five-year projection interval. The average number of women alive in the projection interval (t to t+5) is estimated as the average of the number of women alive in the age range 15-49 in the base year (t) and numbers alive in the projection year (t+5). The number of births is determined by the age-specific fertility rates that prevail among these women in the projection interval. By assuming a particular sex ratio at birth —for the Solomon Islands it is assumed that 109 boys are born for every 100 girls— the total number of births in the projection interval can be decomposed into new-born boys and girls. Subsequently, new-born boys and girls in the projection interval of 5 years are survived to t+5 according to the sex-specific probabilities of dying at ages 0-4, as reported in the life tables of annexes VIII and *IX*. Thus, the surviving children born in the interval t to t+5 constitute the age group 0-4 in the projection year (t+5).

Thirdly, the oldest open-ended age group in the projection year (t+5) —the population aged 74 and over— consists of persons from two groups surviving from t to t+5: those from the age group 70-74 in the base year (t) and those from the age group 74 and over in base year (t).

Fourthly, the net number of migrants (in-migrants minus out-migrants) are added to or subtracted from the projected population of each age-group (t+5), thus to or from the population present at the end of the projection interval. These net migrants are therefore only exposed to mortality in subsequent projection periods, that is from t+5 onwards. Net numbers of 15-49 year-old female migrants are included in the number of women who are present at the end of the projection interval (t+5). The computation of the number of births in the area over the projection period (t to t+5) also includes the children born to these women.

These four steps are repeated to project the population by age and sex between t+5 and t+10 and, subsequently, between t+10 and t+15.

The second problem is dealt with in a similar manner. If the sum of the net migrants for all areas is positive, the number is subtracted from each area in proportion to its number of net migrants, leading to adjusted age and sex-specific net migration numbers and rates. Conversely, if the sum of net migrants is negative, this number is added to each area in proportion to the number of net migrants and according to the age-sex distribution of net migrants. The sum may remain slightly positive or negative because of rounding errors in the computations.

9.2.2 Projection assumptions

Table 9.1 presents a characterisation of six different projection variants: four national-level and two provincial-level projections, all covering the period between 1999 and 2014. The four projections at the national level reflect different scenarios for the development of fertility and mortality over this 15-year period. The provincial projections additionally include assumptions about internal migration. Each of the provincial projections corresponds to a national-level projection in terms of fertility and mortality development: P1 to N3 and P2 to N2.

Projection results all refer to mid-year populations (1 July), and in all projections a sex ratio at birth of 109 is assumed, based on findings reported in chapters 2 and 4. Moreover, as it is assumed that international migration is a negligible factor in understanding population change on the Solomon

Islands, national level changes in size and structure of the population are assumed to be determined by changes in fertility and mortality alone. The subsequent sections describe the underlying assumptions of each of the six variants in detail.

Table 9.1. Summary of projection assumptions for the period 1999-2014

National-level projections		*Projection assumptions*		
Code	*Name*	*Fertility*	*Mortality*	*International migration*
N1	High	Constant	Constant	None
N2	Medium-high	Moderate decrease	Moderate decrease	None
N3	Medium-low	Moderate decrease	Constant	None
N4	Low	Rapid decrease	Moderate decrease	None

Privincial-level projections		*Projection assumptions*		
Code	*Name*	*Fertility*	*Mortality*	*Internal migration*
P1	Stagnation	Moderate decrease	Constant	Reduced
P2	Revival	Moderate decrease	Moderate decrease	Revival and restoration

9.2.2.1 National level assumptions

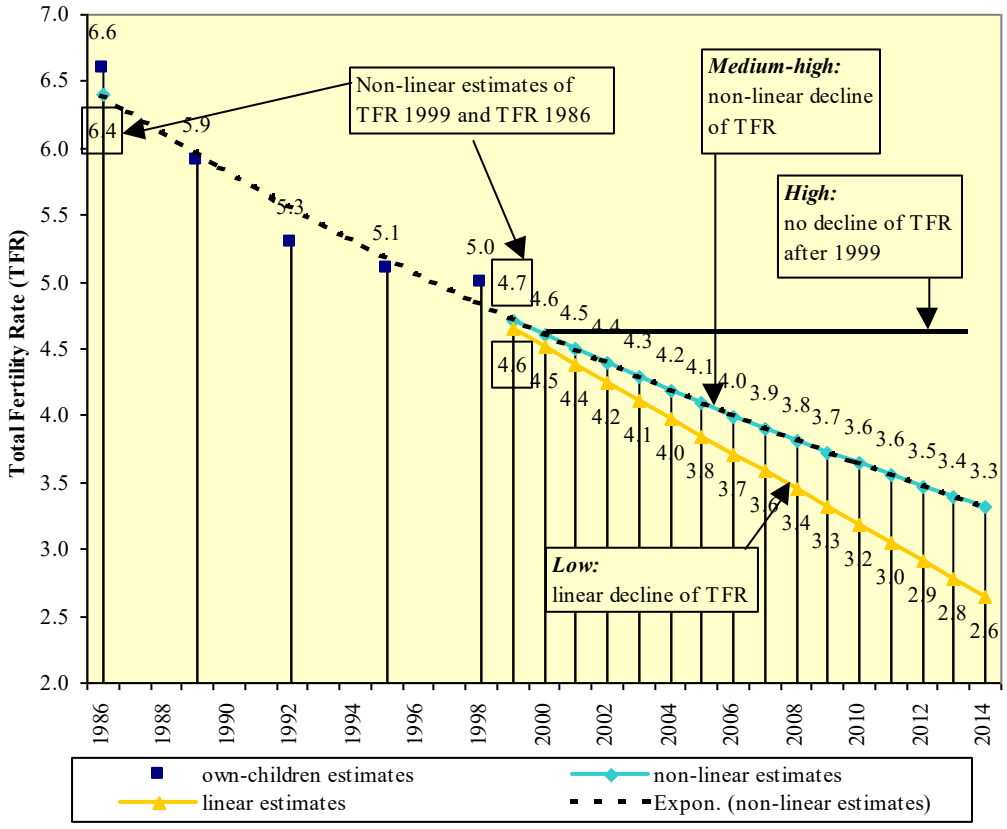
The first projection variant, N1, called 'High', assumes that the level and age pattern of fertility and mortality remain at the 1999 levels for the full 15-year projection period. The total fertility rate (TFR) remains constant at a level of 4.7, as illustrated in *figure 9.2* by the horizontal line associated with the label 'High'. Life expectancy at birth —e(0)— for men and women remain constant at 60.6 years and 61.6 years, respectively. These were found to be the most plausible estimates in chapter 4 and the values are reported in table 4.11 for the year 1999. A scenario like this would reflect socio-economic development that is characterised by stagnation or even deterioration. Among other things, this may lead to a breakdown of (reproductive) health services, including access to information and methods of family planning, and consequently to an increase in unplanned and unwanted pregnancies and births, as well as to relatively higher rates of mortality (infant, child and maternal mortality).

The projection variants N2 and N3 —respectively indicated as 'Medium-high' and 'Medium-low'— assume that the level of fertility decreases over time according to a pattern of change derived from extrapolations of own-children estimates of the TFR for the period 1986-1999 by a best-fitting (i.e. R^2=0.91) non-linear trend line[36]. In these medium variants, the TFR is expected to decrease at a diminishing rate, from 4.7 in 1999 to 3.3 in 2014, a pattern of fertility decline commonly found around the world. This feature is captured by the curve in figure 9.2 labelled 'Medium'. The underlying equation, based on 1999 census data, gives a TFR of 6.4 for the year 1986, only 0.3 higher than the average TFR for the period 1984-1986 as described in the 1986 census report.
There is no empirical evidence that the age-pattern of fertility has changed much. Table 4.3 in chapter 4 shows that the shape of the fertility distribution and the associated mean age at childbearing (MAC) of the schedule did not really change in the 13-year period between 1986 and 1999: it remained the same at 29.5 years. We therefore assume that the age-pattern of fertility in the years to come will also remain the same.

While the two medium variants are in agreement on their fertility assumptions, they differ with respect to their expectations about mortality. The medium-low variant assumes constant mortality, similar to

[36] $TFR=6.5355e^{-0.0234(X)}$, where X runs from 1 to 29 (i.e. 1=1986, 2=1987, ….14=1999 and 29=2014).

Figure 9.2. Estimation of future levels of TFR by fitting time-series regression lines to own-children-method estimates of past levels of TFRs



Determination of mortality levels (scenarios N2 and N4)

Mortality levels of men and women represented by sex-specific life expectancies are derived by extrapolation of the trends found for the period 1967 to 1999. The equations corresponding to these trends can be used to derive life expectancies by substituting future years. Thus,

$e(0)_{males} = 13.13 + 0.479 \times (Year)$
$e(0)_{females} = 11.36 + 0.507 \times (Year),$

where $67 \leq Year \leq 99$ for the period 1967-1999, and $99 \leq Year \leq 114$ for the projection period 1999-2014.

For instance, substitution of 114 in these equations leads to the following estimates of mortality for the year 2014:

$e(0)_{males} = 13.13 + 0.479 \times 114 = 67.7$
$e(0)_{females} = 11.36 + 0.507 \times 114 = 69.2.$

the high national projection (N1). This is included as a separate scenario in order to have a national-level counterpart of the provincial scenario P1, which assumes that the present trend of mortality decline is likely to break if the current economic and political problems are not settled.

The medium-high variant, on the other hand, envisions improvements in mortality conditions over the projection period. In this respect, use is made of the equations derived in section 4.3 (see also text box 'Determination of mortality levels'). This implies that for the medium-high projection variants an improvement in mortality conditions is envisioned for the next 15 years associated with an increase in life expectancy from 60.6 years to 67.7 years for men and from 61.6 years to 69.2 years for women.

The fourth national projection variant (N4), called 'Low', assumes that the level of fertility decreases faster over time than suggested by the medium variants. In fact, the path of decline in the TFR is assumed to take place as indicated by the best fitting linear regression line[37] (R^2=0.89) to TFR estimates for the period 1986-1999. This line is labelled 'Low' in figure 9.2. The low variant assumes the same mortality decrease as the medium-high variant. Both assumptions reflect favourable socio-economic development during the period 1999-2014. It should be clear that this rapid fertility decline, although possible, should be considered as a theoretical limit to the speed of the decline. Compared with the medium variants the decline is more rapid in the sense that a TFR of 3.3, reached by the medium variants only by 2014, would already be reached in the low variant by the year 2009. This low variant assumes that by 2014 the TFR would reach 2.6, which is about 0.4 of a child above replacement level fertility.[38]

9.2.2.2 Provincial-level assumptions

The provincial-level scenarios require input on three major factors: assumptions on fertility, mortality and inter-provincial migration. With respect to fertility and mortality assumptions, the provincial projection variant P1 ('Stagnation') corresponds to the national medium-low variant (N3), and the provincial variant P2 ('Revival') corresponds to the national medium-high variant (N2). The two scenarios represent respectively a bleak outlook into the medium-term future in terms of economic development and political stability, and a more optimistic outlook for the 15 years following the 1999 census.

Fertility. Both provincial-level projections are based on changes in fertility as suggested by provincial-specific patterns of change in TFRs. A non-linear regression line was fitted to own-children method estimates of TFRs for the period 1985-1999. With the aid of the resulting regression equation, future TFRs were derived in a similar way to the TFRs derived for the national-level medium variants. *Annex XI* presents the fertility assumptions for both provincial-level projection variants.

Mortality. The two provincial-level variants differ in terms of mortality assumptions: scenario P2 (the revival variant) assumes a mortality decline, whereas scenario P1 (the stagnation variant) assumes constant mortality. For scenario P2 the estimates in chapter 4 of provincial mortality levels by sex — indicated by life expectancy, e(0)— provide the mortality levels for the base year 1999. Although these starting points differ across the country, it is assumed that the relative improvement of life expectancies in each of the provinces for the period 1999 to 2014 is proportionate to the improvement in life expectancy assumed in the national-level projections N2 and N4. Applying the assumption of linear mortality decline again at the provincial level produces the end-year (2014) mortality level for each of the provinces. *Table 9.2* summarises the resulting mortality assumptions.

In projection scenario P1 —stagnation— mortality is assumed to remain at the same level during the total projection period because of a prevailing adverse situation in the country: the 1999 life expectancies mentioned in table 9.2 prevail throughout the projection period to 2014.

Migration. In addition to mortality and fertility the size and structure of province populations are influenced by inter-provincial migration; indeed for a province such as Honiara the migration growth component is a very important factor. The formulation of realistic assumptions about future trends and levels of internal migration requires representative data from the recent past and plausible expectations about development in the projection period. In the case of the Solomon Islands it was difficult to meet these requirements because of the impact of the large-scale displacement of population and the extremely uncertain economic and political situation in the medium-term future. The results should therefore be interpreted with caution.

[37] TFR= -0.1333(X)+ 6.5133, where X runs from 1 to 29 (i.e. 1=1986, 2=1987, ….,14=1999 and 29=2014).

[38] Replacement level fertility means that, on average, all mothers are 'replaced' by a daughter and these daughters will at least survive to the end of their reproductive life, that is to the age of about 50 years.

Table 9.2. Provincial-level mortality assumptions for projection base- and end-year (Coale and Demeny, model West)

Province	*Life expectancy (e(0))*			
	Base year (1999)		*End year (2014)*	
	Men	*Women*	*Men*	*Women*
Choiseul	60.6	61.6	67.8	69.2
Western	60.6	61.6	67.8	69.2
Isabel	59.6	60.4	66.6	67.9
Central	61.0	62.1	68.2	69.7
Rennell-Bellona	61.0	62.1	68.2	69.7
Guadalcanal	59.8	60.7	66.8	68.1
Malaita	60.2	61.1	67.3	68.6
Makira-Ulawa	60.8	61.9	68.0	69.5
Temotu	61.5	62.6	68.7	70.3
Honiara	61.7	62.8	69.0	70.5

Annex XII-a gives the net migration rates per province, adjusted to offset the effects of displacement (see also text box 'Neutralisation of displacement effects'). The net migration rates are the result of subtracting destination-specific out-migration rates from destination-specific in-migration rates per province. They are expressed as the number of persons per thousand of the average provincial population. *Annex XII-b* provides the net *number* of migrants per province that corresponds to these rates.

The age and sex-distribution of recent migrants in the various provinces does not differ much and can be approximated by the average pattern valid for all provinces. Moreover, data analysis shows that the age and sex-distribution of displaced persons, at least of those who fled across provincial boundaries before the census, is similar to that of the general population of the provinces (see section 5.2.3). Therefore, there is no need to adjust the average age and sex-pattern of migrants for the provincial projections, and migration assumptions can be made on the basis of this distribution of migrants. All migration projection scenarios have been developed in such a way that the sum of all net numbers of migrants across provinces is zero.

Although a reconstruction of the population distribution that neutralises the effect of displacement is required to determine 'normal' migration, it would be unrealistic to use this distribution for the base population in the provincial population projections. Therefore, the *de facto* population at census night is used as the base population, irrespective of displacement status.

Neutralisation of displacement effects on population distribution and migration rates

Data on recent migration usually give a fair indication of what can be expected for mobility in the near and medium-term future. The 1999 census questionnaire included a question to establish this recent migration. Respondents are considered to be recent migrants if, on census night, they were counted in a different province than the one where they lived shortly before the national elections in August 1997, thus about 2.3 years before census night (see section 5.1.1). However, if respondents also indicated that they had been displaced and that they were not living in the province they had fled from, then, for the purpose of computing migration rates, they were considered to be residing in the province from which they had fled. Such persons are only considered to be recent migrants if their province of residence before displacement differed from the province of residence before the national election in 1997. This 'reconstruction' of the population at census night makes it possible to determine the recent migration rates for the period of 2.3 years preceding the census without the effect of displacement. Consequently, these adjusted migration figures are assumed to reflect the levels and patterns of migration prevailing under 'normal' circumstances.

New waves of displacement occurred in the year following the census, and as a consequence the base population for projections as measured by the census has lost some of its validity. Since there is no way to correct for this, it is assumed that the migration rates in the projections correct for this as time goes by. Moreover, as the second wave of displacement mostly affected Honiara, and residence itself is not a cause for conflict there, it is likely that the population distribution before this second wave was more or less restored when the situation returned to normality.

The first provincial-level variant (P1) —'Stagnation'— assumes that the gloomy social and economic outlook, including employment opportunities in Honiara, Guadalcanal and Western province, will prevail and will impede migration in the period 1999-2014. Technically speaking, the scenario assumes that while the geographical *pattern* of internal migration flows observed in the 2.3 years preceding the census will be sustained, the *levels* of in, out and net migration rates are assumed to be lower. The assumption is that the intensity of internal migration will drop to 50 percent of the intensity observed during the 2.3 years period before the census, and will remain at this level for the three five-year projection intervals between 1999 and 2014 (for details, see text box 'Backgrounds of provincial assumptions'). *Annex XIII* shows the number of net migrants for each of the provinces that correspond to these assumptions for scenario P1.

The second provincial scenario (P2) —'Revival'— presents a less pessimistic picture for the three five-year projection periods between 1999 and 2014 than the first one. As described in the side text on backgrounds of provincial developments, it is assumed that in the course of the first five years new employment opportunities will be created with the restart of major companies and spin-off activities. However, only in the second five-year period will operations return to levels approaching the pre-conflict ones and will labour demand consequently increase. This will particularly affect Western province, Guadalcanal and Honiara where economic activities are concentrated. Assumptions with respect to inter-provincial migration for this scenario are summarised in *table 9.3.* The corresponding number of net-migrants for each of the five-year projection periods that were fed into the projection calculations, are presented in a*nnex XIVa-c*.

Backgrounds of provincial assumptions

Although recent history has showed that internal migration (in the form of displacement) can be triggered by ethnic tension, large-scale violence and political instability, in normal circumstances it is mostly directly or indirectly related to job opportunities. In this respect, the provinces' employment potential, in combination with the general investment climate in the country, largely determines internal mobility. The two provincial scenarios are developed on the basis of different considerations with respect to economic development, which, in turn, are importantly related to the way in which the recent social unrest will be solved. At this point in time there is no justification to indicate either of the two provincial projections as the most plausible future.

Stagnation (P1)
The 'stagnation' scenario assumes that throughout the projection period important obstacles will remain for economic development in the country, especially as related to the social upheaval in 1999 and 2000. The safety situation on Guadalcanal will not allow the restart of operations of large employers such as SIPL and Goldridge, it will hamper the marketing of cocoa and copra, and the province will remain virtually closed for settlers from other provinces. In Western province, operations of Soltai (Noro) will resume, but they will only reach around half the scale of 1999, with a corresponding limited number of employees that will partly be attracted from other provinces. In addition, the possible new Vangunu plantation and the construction of a new airfield at Munda have been suspended.

(cont.)

(Cont.)

The specific circumstances on Guadalcanal and a generally unstable situation in this scenario (including land ownership issues) will discourage the return of foreign investors and the initiation of new economic activities. This will have repercussions for government revenues and consequently requires a sustained reduction of the public services. This will particularly affect Honiara and provincial centres where various government jobs will disappear, but also rural areas where general services (for example education, health clinics and infrastructure projects) may have to scale down. In addition, the general situation will impede the development of tourism, which has most effect on job opportunities in Western province and Honiara, and indirectly again on government revenue.

The effect of the limited job creation across the country because of the economic and political situation sketched in this scenario will be that there will be much less reason for inter-provincial migration. A fair judgement seems to be that net-migration rates for the full 15-year projection period and for all provinces will be reduced to half the level encountered under normal conditions before the census. It is also assumed that the limited job opportunities and the decrease in internal migration will not lead to increased international emigration of Solomon Islanders to, say, Australia or New Zealand.

Revival (P2)
In the second provincial-level scenario, (P2), it is assumed that the ethnic conflict will be resolved and that safety and political stability in the country will return in the immediate future. It assumes that confidence of international investors will be restored, jobs (re-)created and that tourism and public services will return to levels of just before the ethnic conflict, or even expand.

In particular this would mean that migration of workers to Guadalcanal will resume for the operation of the Goldridge mine and (although likely at trimmed-down levels) the SIPL plantation and plant. Similarly, in Western province the Noro factory of Soltai and related fishery will approach 1999 levels of operation, requiring large-scale recruitment from other provinces.

In addition, the plantation on Vangunu will gradually develop into an employment opportunity and the tourism branch will expand, especially if the upgrading of the Munda airfield to international standards is effectuated. Honiara, and to a lesser extent the provincial centres, will regain their attraction for employment seekers as government services are restored and expanded in relation to yearly population growth. Apart from the direct creation of new jobs, the revival of the economy across the country will have a spin-off, creating additional employment.

The effect of the economic development suggested in this scenario is that inter-provincial migration will increase to meet local labour demands, especially migration to Guadalcanal and Western province, which seems to have the largest new economic potential. Migration by workers across provincial borders will furthermore in many cases be multiplied by the number of dependants that accompany them to their new place of residence. However, it is unlikely that in the first five-year projection period migration intensity will immediately reach the level prevailing in the normal situation before the 1999 census, especially in view of the fact that two years have already gone by without a full restoration of normalcy. Therefore, the first projection interval is assumed to be a lead-up time in which companies will start up and activities may resume from the present low levels. It is only in the second projection period that new labour demand will peak and that migration will increase accordingly. In the third period, migration intensity will level off to normal pre-census levels, as most vacancies will then have been filled.

In practical terms, this scenario assumes that Guadalcanal will require a migration surplus of around 800 people (including workers and their dependants) as a consequence of restarting enterprises in the 1999-2004 projection period. Honiara, being the country's capital, is the only province that on balance drains people from Guadalcanal, although the net rate is only half that of the period before the conflict. Although Malaita will remain the largest supplier of migrants, compared with other provinces its share will be reduced in view of the recent experiences of Malaitan settlers. In the same period Western province will have to restore its pre-conflict migration surplus as the local economy picks up. Since both Western province and Guadalcanal are similar in size and foreseen economic development, the net migration between these provinces is assumed to be neutral. The other provinces will still feel the aftermath of the ethnic crisis and will show suppressed migration rates.

(cont.)

(end.)

The scenario assumes that in the second five-year projection period, Goldridge and, to a lesser extent, Soltai will return to full operation, and SIPL will be operating in a trimmed form with about half its original number of employees. This implies that in this period Guadalcanal will experience a net immigration of another 1,600 people and Western province will have net in-migration that is significantly higher than in the first period. Overall, migration in the country is assumed to intensify to just above pre-conflict levels, especially in relation to the re-distribution of labour across provinces.

The third projection period will resemble the normal situation before the census, with the exception that Guadalcanal will remain a province of attraction rather than one that loses people. Consequently, pre-conflict migration rates will apply, except for Guadalcanal where overall in-migration will surpass out-migration at a level similar to the first projection period.

Table 9.3 summarises the assumptions and considerations underlying this migration scenario.

Table 9.3. Migration projection assumptions (revival variant, P2)

a. Projection period 1999-2004

Province	*Assumptions*		
	Underlying	*General migration*	*Specific migration*
Guadalcanal	Gradual restart of operations of SIPL, Goldridge and minor enterprises requires influx of external labour (followed by dependants)	Restoration to net in-migration region (surplus of 800 persons)	Net outflow to Honiara reduced to 50 percent of pre-conflict level (i.e. –9/1000 population, –564 persons) Net migration with Western Province set to 0 Migration rates with other provinces neutralised and remaining required number of in-migrants are: for 2/3 supplied from Malaita (i.c. 909) for 1/6 supplied from Temotu (i.c. 227) for 1/6 supplied from Choiseul, Isabel, Central, Rennell-Bellona and Makira-Ulawa in plausible ratio
Western province	Expanding activities of Soltai and minor enterprises requires influx of external labour (followed by dependants)	Overall result of migration similar to pre-conflict situation	Net migration with Guadalcanal set to 0 Net migration rates with other provinces raise pro rato to compensate for neutralisation of migration with Guadalcanal
Other provinces	Generally less economic activity due to effects of ethnic conflict	Migration level at 75 percent of pre-conflict situation. Migration pattern similar to pre-conflict situation, except for adjust-ments in relation to Western and Guadalcanal provinces	Net migration rates reduce to 75 percent of pre-conflict levels Further adjustments to reflect adjusted relations with Western province and Guadalcanal

Table 9.3. Migration projection assumptions (revival variant, P2) (cont.)

b. Projection period 2005-2009

Province	*Assumptions*		
	Underlying	*General migration*	*Specific migration*
Guadalcanal	Goldridge and SIPL in full operation (SIPL with reduced labour force) Additional minor enterprises	Expanding economic activity produces doubling of overall net migration rate of 1999-2004 period (surplus of 1,600 persons)	Net migration rate with Honiara remains constant at 1999-2004 level Migration rates with other provinces supply 2/3 of net inmigrants from Malaita (i.e. 1,443) 1/6 of net inmigrants from Temotu (i.e. 361) 1/6 of net inmigrants from remaining provinces (migration rates increase pro rato to 1999-2004 period)
Western province	Soltai approaches pre-conflict level in operations Additional economic development	Expanding economic activity produces doubling of overall net migration rate of 1999-2004 period	Net migration rates double compared to 1999-2004 period
Other provinces	General situation comparable to pre-conflict situation	Migration level increases to above pre-conflict situation to adjust for labour demands Migration pattern similar to 1999-2004 period	Net migration rates increase to 100% of the pre-conflict levels plus extra migration to Western province and Guadalcanal

c. Projection period 2010-2014

Province	*Assumptions*		
	Underlying	*General migration*	*Specific migration*
Guadalcanal	Situation comparable to pre-conflict situation	Remains net in-migration region (surplus of 800 persons)	Net migration rate with Honiara remains constant at 1999-2004 level Migration with other provinces return to levels of 1999-2004 period
Other provinces	Situation comparable to pre-conflict situation	Migration patterns and levels similar to pre-conflict situation	Net migration rates remain at 100 percent of the pre-conflict levels plus extra migration to Guadalcanal

9.3 Projection results

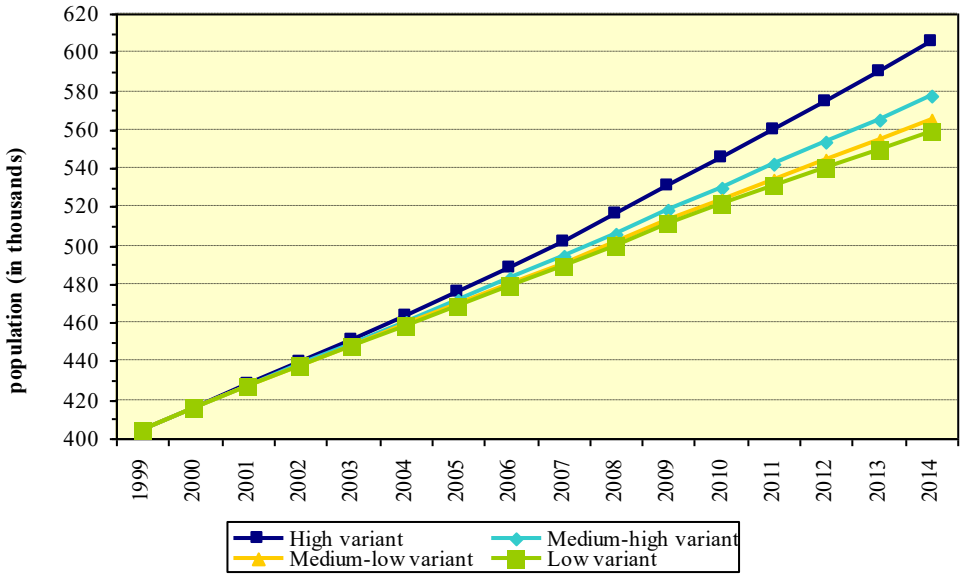
9.3.1 National population projections

9.3.1.1 General observations

The four national-level projection variants lead to population growths as depicted in *figure 9.3*. *Table 9.4* summarises the most important demographic indicators for each scenario, while the number of men and women by age and sex that according to these scenarios are expected to live in the Solomon Islands in the 15 years following the census, is presented in *table 9.5*.

The medium-high projection variant —the one which is believed to embody the most likely pattern of change in the future— estimates that the total mid-year population of 404,511 persons in 1999 will

Figure 9.3. Projected population growth according to four national projection variants (N1-N4)



increase to 460,111 in 2004 and to 577,145 in 2014. Thus, between 1999 and 2004 the population is expected to grow by almost 56 thousand, a little over 11 thousand persons on average per year. By the year 2014, the total population is expected to have grown by about 173 thousand persons since mid-1999, an increase of 43 percent. *Annex XV* presents the results of the medium-high projection variant by single years of age.

The high projection variant results in a total population of 605 thousand by 2014, a net increase of over 200 thousand people (50 percent), whereas even the low projection variant still expects the population to grow to about 559 thousand, a net increase of about 154 thousand people (38 percent). For the immediate future —the period 1999-2004— the high and low variants predict a net increase in the total population of about 58 and 54 thousand respectively.

The decline in TFR and the increase in life expectancy at birth as foreseen by the medium-high projection variant eventually leads to a decline in CBR, CDR and rate of natural increase. Table 9.4 shows that the CBR is expected to decline from around 34 per thousand to 27 per thousand around mid-period 2009-2014. The CDR is expected to decrease from around 8 per thousand around mid-period 1999-2004 to 6 per thousand around mid-period 2009-2014. As a result of these changes in CBR and CDR, the rate of natural increase will decline from 2.6 to 2.1 percent. The decreasing rate of growth in total number of births will have the effect that, in due course, the median age of the population will increase. According to the medium-high variant, the median age will have increased to about 22 years by 2014, from 19 years in 1999.

Figure 9.4 shows that the shape of the age distribution in the most likely scenario (N2) is expected to change slightly between 1999 and 2014, most notably at the base of the pyramid. The broad base of the pyramid indicates that beyond 2014 the total population will continue to grow, probably for decades, even if fertility falls below replacement level. The reason is the built-in population momentum in the Solomon Islands population: as a result of past high levels of fertility, large cohorts of women continue to enter the reproductive ages and, although at lower average rates, these will be responsible for a further increase in absolute numbers of births and growth of the population.

Table 9.4. Demographic indicators for different projection scenarios

Indicator	*1999-2004*				*2004-2009*				*2009-2014*			
	High	*Medium - high*	*Medium - low*	*Low*	*High*	*Medium - high*	*Medium - low*	*Low*	*High*	*Medium - high*	*Medium - low*	*Low*
Growth rate (%)	2.7	2.6	2.6	2.5	2.7	2.4	2.4	2.2	2.6	2.2	2.2	1.8
Dependency rate (%)	85	84	84	83	84	79	78	76	83	72	71	67
Births	77,905	73,516	73,516	71,352	89,410	75,328	75,328	69,624	99,889	75,233	75,233	63,903
CBR (per 1,000)	36	34	34	33	36	31	31	29	35	27	27	24
Deaths	19,461	17,928	17,928	17,781	22,022	17,096	17,096	16,754	25,054	16,399	16,399	15,849
CDR (per 1,000)	9	8	8	8	9	7	7	7	9	6	6	6
Natural increase	58,444	55,588	55,588	53,571	67,388	58,232	58,232	52,870	74,835	58,834	58,834	48,054
Rate of N.I. (per 1,000)	27	26	26	25	27	24	24	22	26	21	22	18
TFR (per woman)	4.7	4.4	4.4	4.3	4.7	4.0	4.0	3.7	4.7	3.5	3.5	3.0
GRR (per woman)	2.3	2.1	2.1	2.1	2.3	1.9	1.9	1.7	2.3	1.7	1.7	1.4
MAC (per woman)	29	29	29.2	29	29	29	29.2	29	29	29	29.2	29
Life expectancy (m)	60.6	61.8	61.9	61.8	60.6	64.2	64.4	64.2	60.6	66.5	66.8	66.5
Life expectancy (f)	61.6	62.9	63.1	62.9	61.6	65.4	65.6	65.4	61.6	67.9	68.1	67.9

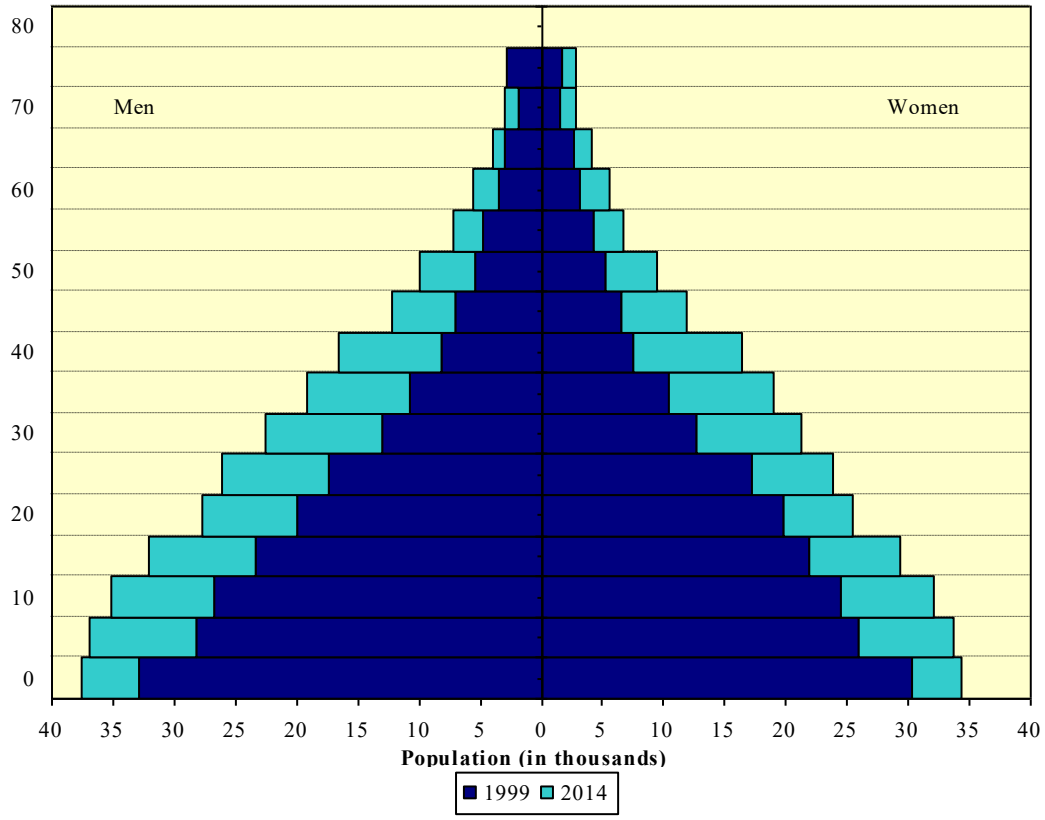
Table 9.5. Demographic indicators associated with national projection variants N1-N4

	High variant (N1)				*Medium-high variant (N2)*			
Men	*1999*	*2004*	*2009*	*2014*	*1999*	*2004*	*2009*	*2014*
0-4	32,913	37,616	43,170	48,229	32,913	35,753	37,125	37,511
5-9	28,227	32,274	36,886	42,332	28,227	32,359	35,327	36,867
10-14	26,770	28,031	32,048	36,630	26,770	28,047	32,194	35,191
15-19	23,274	26,541	27,788	31,772	23,274	26,559	27,869	32,033
20-24	19,880	22,975	26,199	27,429	19,880	23,001	26,300	27,651
25-29	17,333	19,567	22,621	25,792	17,333	19,594	22,734	26,063
30-34	13,079	17,039	19,236	22,238	13,079	17,071	19,347	22,507
35-39	10,827	12,813	16,701	18,852	10,827	12,836	16,811	19,118
40-44	8,225	10,546	12,486	16,268	8,225	10,567	12,582	16,535
45-49	6,969	7,931	10,175	12,043	6,969	7,954	10,266	12,271
50-54	5,467	6,618	7,533	9,660	5,467	6,637	7,611	9,873
55-59	4,848	5,067	6,131	6,977	4,848	5,082	6,206	7,158
60-64	3,493	4,322	4,522	5,471	3,493	4,342	4,586	5,642
65-69	3,038	2,941	3,642	3,806	3,038	2,958	3,706	3,958
70-74	1,925	2,343	2,266	2,807	1,925	2,352	2,315	2,944
75+	2,794	2,493	2,637	2,651	2,794	2,514	2,725	2,857
Summary:								
Total	209,062	239,117	274,041	312,957	209,062	237,626	267,704	298,179
0-14	87,910	97,921	112,104	127,191	87,910	96,159	104,646	109,569
15-44	92,618	109,481	125,031	142,351	92,618	109,628	125,643	143,907
45-59	17,284	19,616	23,839	28,680	17,284	19,673	24,083	29,302
60+	11,250	12,099	13,067	14,735	11,250	12,166	13,332	15,401
Median age	18.6	19.1	19.5	19.6	18.6	19.3	20.3	21.4
Women	*1999*	*2004*	*2009*	*2014*	*1999*	*2004*	*2009*	*2014*
0-4	30,271	34,477	39,567	44,206	30,271	32,764	34,033	34,419
5-9	25,911	29,585	33,693	38,668	25,911	29,672	32,285	33,700
10-14	24,534	25,707	29,349	33,423	24,534	25,727	29,508	32,156
15-19	21,961	24,307	25,468	29,076	21,961	24,335	25,556	29,366
20-24	19,819	21,679	23,997	25,137	19,819	21,702	24,103	25,377
25-29	17,212	19,501	21,332	23,611	17,212	19,532	21,450	23,889
30-34	12,630	16,896	19,143	20,936	12,630	16,922	19,264	21,217
35-39	10,348	12,359	16,529	18,732	10,348	12,383	16,644	19,011
40-44	7,560	10,080	12,044	16,108	7,560	10,102	12,135	16,370
45-49	6,531	7,321	9,762	11,664	6,531	7,335	9,840	11,863
50-54	5,266	6,255	7,013	9,352	5,266	6,272	7,074	9,525
55-59	4,233	4,961	5,887	6,602	4,233	4,973	5,951	6,747
60-64	3,167	3,871	4,534	5,382	3,167	3,886	4,596	5,537
65-69	2,721	2,757	3,371	3,949	2,721	2,770	3,430	4,099
70-74	1,581	2,185	2,218	2,711	1,581	2,202	2,268	2,841
75+	1,704	1,891	2,402	2,659	1,704	1,907	2,480	2,849
Summary:								
Total	195,449	223,832	256,309	292,216	195,449	222,484	250,617	278,966
0-14	80,716	89,769	102,609	116,297	80,716	88,163	95,826	100,275
15-44	89,530	104,822	118,513	133,600	89,530	104,976	119,152	135,230
45-59	16,030	18,537	22,662	27,618	16,030	18,580	22,865	28,135
60+	9,173	10,704	12,525	14,701	9,173	10,765	12,774	15,326
Median age	18.9	19.6	20.0	20.1	18.9	19.7	20.8	21.9
Both sexes	**404,511**	**462,949**	**530,350**	**605,173**	**404,511**	**460,110**	**518,321**	**577,145**

Table 9.5 Demographic indicators associated with national projection variants N1-N4 (cont.)

	Medium-low variant (N3)				*Low variant (N4)*			
Men	*1999*	*2004*	*2009*	*2014*	*1999*	*2004*	*2009*	*2014*
0-4	32,913	35,469	36,239	36,002	32,913	34,702	34,312	31,861
5-9	28,227	32,274	34,781	35,536	28,227	32,359	34,288	34,075
10-14	26,770	28,030	32,047	34,535	26,770	28,047	32,195	34,154
15-19	23,274	26,541	27,789	31,772	23,274	26,559	27,868	32,032
20-24	19,880	22,975	26,199	27,430	19,880	23,001	26,300	27,652
25-29	17,333	19,567	22,621	25,792	17,333	19,594	22,734	26,063
30-34	13,079	17,039	19,236	22,238	13,079	17,071	19,347	22,507
35-39	10,827	12,813	16,701	18,852	10,827	12,836	16,811	19,118
40-44	8,225	10,546	12,486	16,268	8,225	10,567	12,582	16,535
45-49	6,969	7,931	10,175	12,043	6,969	7,954	10,266	12,271
50-54	5,467	6,618	7,533	9,660	5,467	6,637	7,611	9,873
55-59	4,848	5,067	6,131	6,977	4,848	5,082	6,206	7,158
60-64	3,493	4,322	4,522	5,471	3,493	4,342	4,586	5,642
65-69	3,038	2,941	3,642	3,806	3,038	2,958	3,706	3,958
70-74	1,925	2,343	2,266	2,807	1,925	2,352	2,315	2,944
75+	2,794	2,493	2,637	2,651	2,794	2,514	2,725	2,857
Summary:								
Total	209,062	236,969	265,005	291,840	209,062	236,575	263,852	288,700
0-14	87,910	95,773	103,067	106,073	87,910	95,108	100,795	100,090
15-44	92,618	109,481	125,032	142,352	92,618	109,628	125,642	143,907
45-59	17,284	19,616	23,839	28,680	17,284	19,673	24,083	29,302
60+	11,250	12,099	13,067	14,735	11,250	12,166	13,332	15,401
Median age	18.6	19.3	20.3	21.5	18.6	19.4	20.6	22.2
Women	*1999*	*2004*	*2009*	*2014*	*1999*	*2004*	*2009*	*2014*
0-4	30,271	32,508	33,213	32,999	30,271	31,799	31,455	29,233
5-9	25,911	29,586	31,769	32,460	25,911	29,672	31,337	31,148
10-14	24,534	25,706	29,351	31,515	24,534	25,727	29,506	31,209
15-19	21,961	24,307	25,466	29,078	21,961	24,335	25,556	29,365
20-24	19,819	21,679	23,997	25,138	19,819	21,702	24,103	25,377
25-29	17,212	19,501	21,332	23,611	17,212	19,532	21,450	23,889
30-34	12,630	16,896	19,143	20,936	12,630	16,922	19,264	21,217
35-39	10,348	12,359	16,529	18,732	10,348	12,383	16,644	19,011
40-44	7,560	10,080	12,044	16,108	7,560	10,102	12,135	16,370
45-49	6,531	7,321	9,762	11,664	6,531	7,335	9,840	11,863
50-54	5,266	6,255	7,013	9,352	5,266	6,272	7,074	9,525
55-59	4,233	4,961	5,887	6,602	4,233	4,973	5,951	6,747
60-64	3,167	3,871	4,534	5,382	3,167	3,886	4,596	5,537
65-69	2,721	2,757	3,371	3,949	2,721	2,770	3,430	4,099
70-74	1,581	2,185	2,218	2,711	1,581	2,202	2,268	2,841
75+	1,704	1,891	2,402	2,659	1,704	1,907	2,480	2,849
Summary:								
Total	195,449	221,863	248,031	272,896	195,449	221,519	247,089	270,280
0-14	80,716	87,800	94,333	96,974	80,716	87,198	92,298	91,590
15-44	89,530	104,822	118,511	133,603	89,530	104,976	119,152	135,229
45-59	16,030	18,537	22,662	27,618	16,030	18,580	22,865	28,135
60+	9,173	10,704	12,525	14,701	9,173	10,765	12,774	15,326
Median age	18.9	19.8	20.9	22.1	18.9	19.8	21.2	22.8
Both sexes	**404,511**	**458,832**	**513,036**	**564,736**	**404,511**	**458,094**	**510,941**	**558,980**

Figure 9.4. Population by age and sex, 1999 and 2014 (medium-high variant, N2)

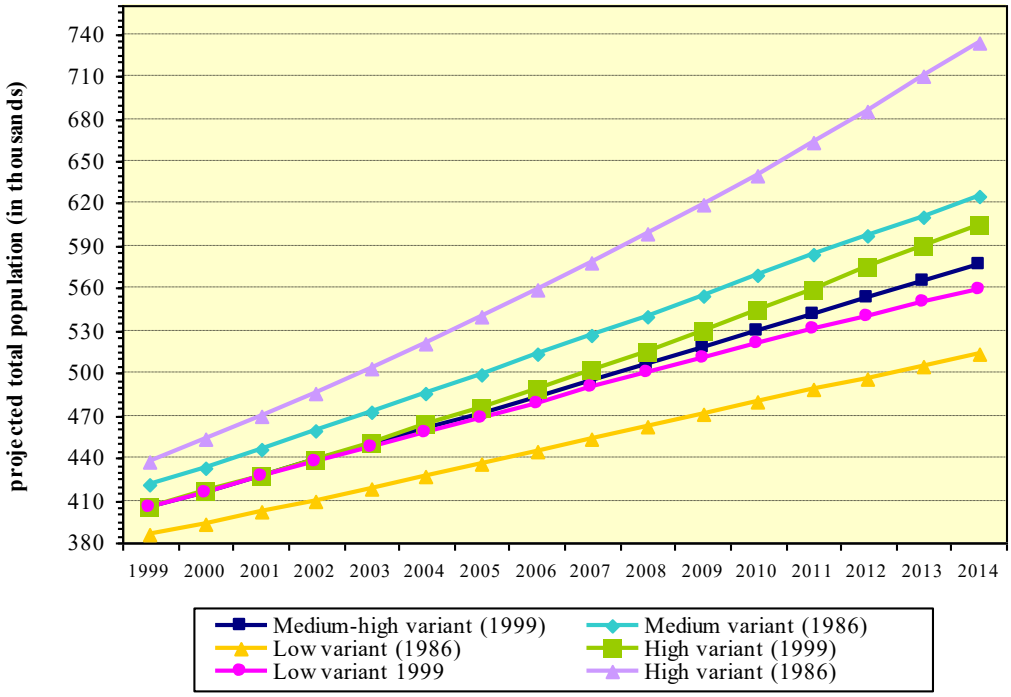


According to the medium-high projection variant (cf. table 9.5), the younger age groups relative to the older ones will become smaller. The three youngest five-year age groups amount to 36 percent of the population in 2014, compared with 42 percent in mid-1999. The share of the youngest age group (0-4 years of age) alone decreases over the same period from 16 percent of the total population to 12 percent, whereas the share of the age category 15-59 increases from 53 to 58 percent. In terms of dependency ratio this implies a decrease from 88 to 71.

The shares of the different age categories in the medium-low variant deviate very little from the ones in the medium-high projection and the same applies to the dependency ratios. However, the high and low variants reveal different outcomes. The 0-4 age category decreases in the high and low variants to 15 and 11 percent respectively, and the broader category 0-14 years of age decreases to 40 percent (high) and 34 percent (low). In contrast, the working age category (15-59 years of age) increases in these scenarios to 55 and 60 respectively. Accordingly, the dependency ratio drops from 88 in 1999 to only 82 in 2014 in the high projection variant, but to 66 in the low variant.

At this stage it is interesting to compare the 1986 national-level projections with the present ones. *Figure 9.5* shows that the band width of the 1999 high and low projection variants is considerably narrower than that of the 1986 high and low variants. In fact, the entire set of 1999 projections fall between the 1986 low and medium projection variants. The 1986 medium variant estimates that by 2014 the population of Solomon Islanders will be about 625 thousand, whereas the 1999 medium-high variant estimate for that year is almost 50 thousand persons fewer, that is, 577 thousand people.

Figure 9.5. Comparison of 1986 and 1999 projection results



The difference between the 1986 low and high estimates for the total population in the year 2014 is around 221 thousand (734 thousand minus 513 thousand). The difference between the 1999 low and high projection variants, however, is only 46 thousand persons. In other words, the range between upper and lower limits of realistic projection variants (as perceived in 1999) is much smaller, which means that the perceived margin of uncertainty for projections made in 1999 is much smaller than in 1986. This is partly a result of the fact that the plausible range of values that the TFR and e(0) can take has become smaller and more is known about past trends. Moreover, the 1986 high variant assumes a constant fertility at the high 1986 levels (a TFR of 6.4) and the effect of this over the years on population growth, compared with the low variant, is very large. We now know that the TFR has decreased significantly in the past 13 years from 6.4 in 1985 to 4.8 in 1998.

Regarded as the most likely population projection, the 1986 medium variant estimated that the mid-year population for 1999 would be 420,416.[39] This appears to be about 16 thousand persons or 4 percent too high compared with the mid-year 1999 estimate derived from the 1999 census (404,511 persons). The 1986 low projection variant for the year 1999 (385,485 persons) appeared to be about 5 percent lower than the estimated 1999 midyear population.

9.3.1.2 Sector-related results

For sector planning it is more relevant to assess the absolute number of people in various age categories according to different scenarios. In the most plausible medium-high projection variant, the total number of new-borns will increase in the first two five-year projection periods from nearly 74 thousand babies to over 75 thousand, a level that stabilises in the last five-year projection interval (see table 9.4). A much larger increase is observed in the number of births in the high variant: here the expected number of babies in the interval 2009-2014 is around 100 thousand. In the low variant it would only be 64 thousand.

[39] Result of exponential interpolation between predicted population in 1996 and 2001.

With respect to the population in the working age range, the projection variants do not show large differences. For all variants the age category 15-59 increases from 215 thousand people in mid-1999 to somewhere around 335 thousand in mid-2014 (see *table 9.6*). The 1999 census indicated a rate of participation in paid work of 25 percent for this age bracket [40], and if this rate prevails until 2014, around 84 thousand people could then be expected to be engaged in paid work. This implies that between 1999 and 2014 around 30 thousand new jobs need to be created in addition to the 54 thousand at the time of the census: an increase of 54 percent. If the participation rate increases to, say, 30 percent the required total number of jobs would be 100 thousand (an additional 46 thousand jobs), implying an increase of close to 85 percent for the different scenarios. Under the 1999 participation rate conditions, the number of unemployed (i.e. people looking for paid work) in the age category 15-59 will have increased from 26 thousand in 1999 to 40 thousand in 2014.

Table 9.6. National population projections for selected sector topics (in thousands)[a]

Population	*Mid-*	*High variant*			*Medium-high variant*			*Low variant*		
	1999	*2004*	*2009*	*2014*	*2004*	*2009*	*2014*	*2004*	*2009*	*2014*
In working age (15-59)	215	252	290	332	253	292	337	253	292	337
With paid employment (25%)	54	63	73	83	63	73	84	63	73	84
Unemployed (12%)	26	30	35	40	30	35	40	30	35	40
Not in paid employment (63%)	136	159	183	209	159	184	212	159	184	212
In schooling age (5-19)	151	166	185	212	167	183	199	167	181	192
Attending school (60%)	91	100	111	127	100	110	120	100	109	115

[a] Highest, lowest and most-likely variant only

A rough indication of the number of students in the years to come can be obtained if the projection results are combined with the school attendance rates found in the 1999 census. As table 9.6 illustrates, here the different scenarios produce a much larger variance: from 91 thousand children who indicated full school attendance in 1999 (60 percent of the population 5-19 year of age), to a range between 115 thousand (low projection variant) and 127 thousand (high variant) in 2014. The most likely scenario (medium-high variant) indicates a number of 120 thousand students by that time. Were the attendance rate to rise to 75 percent, the number of children attending school would rise to levels between 144 and 159 thousand, with a most likely number of students of around 149.

9.3.2 Provincial population projection

9.3.2.1 Introduction

The two provincial projection variants P1 and P2 correspond to the national-level projections N3 and N2 respectively as far as mortality and fertility assumptions are concerned. However, because provincial population structures in terms of age and sex may deviate from the national distribution, the impact of these assumptions may be very different. Moreover, migration between the provinces causes large differences in population change over the 15-year projection period, in terms of both absolute numbers and distribution by age and sex. The interaction of migration, fertility and mortality can therefore result in very different population developments at the provincial level.

A detailed overview of demographic indicators by province is provided in *annex XVI* for projection variant P1 and in *annex XVII* for variant P2. *Annexes XVIII* (P1) and *XIX* (P2) present future population figures by sex and five-year age categories for each of the provinces.

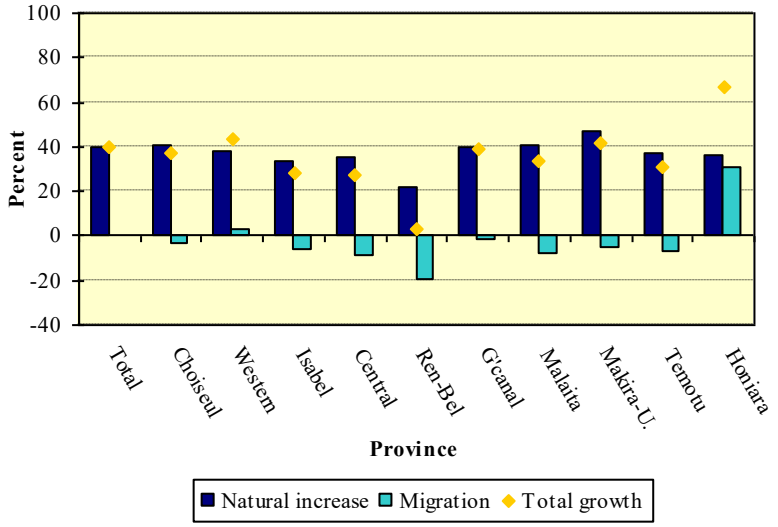
[40] Analysis in chapter 6 referred to the population 14 years and over, here the age limits are 15-59.

9.3.2.2 Scenario P1: stagnation

In provincial scenario P1, overall population growth is relatively slow, based on the assumption of constant mortality. Compared with the second provincial scenario and with the period preceding the census, the role of migration in population change is reduced as the situation caused by the recent social unrest has not settled down, and consequently inter-provincial mobility is relatively low, although significant for some provinces.

Figure 9.6 reveals that in this projection variant Honiara, with 68 percent growth between 1999 and 2014, far exceeds the average population increase of 40 percent. The significance of the migration component for the town's growth is clearly illustrated as it is nearly as important as natural increase. In this scenario, Honiara will accommodate 15 thousand additional in-migrants by 2014, besides 18 thousand people who will enter the population through natural increase (see *table 9.7).* Together these numbers exceed the population of Honiara recorded in the 1986 census.

Figure 9.6. Percentage of population increase by province 1999-2014: total growth, natural increase and migration (stagnation variant, P1)



Rennell-Bellona will experience hardly any population growth over the projection interval (3 percent only). The most important factor in this respect is out-migration: the number of people having left Rennell-Bellona by 2014 will be around one-fifth of the 1999 population. A secondary factor is the combination of a relatively low birth rate and a relatively high death rate for each of the projection years, which can be attributed to the skewed population structure with an under-representation of women in childbearing ages and an over-representation of people of older ages.

Among the other provinces, Makira-Ulawa and Western province show slightly above-average growth, whereas Guadalcanal, Choiseul, Malaita, Temotu, Central province and Isabel (in that order) reveal population growths in the range between 38 and 27 percent. In all provinces with below-average population increase, growth is suppressed by net out-migration. More than in other provinces, natural increase contributes to the growth of Makira-Ulawa: it has the highest birth rates in the country and only average mortality (see annex XVI).

In this scenario growth rates decline for all provinces, but declines start from different levels and occur at different speeds (see annex XVI). In absolute terms, Honiara, Western province, Guadalcanal,

Table 9.7. Population growth 1999-2014, by province, with growth components (stagnation variant, P1)[a]

Province	*Population*		*Total growth 1999-2014*		*Growth 1999-2014 due to*			
					natural increase		*migration*	
	Mid-1999	*Mid-2014*	*Absolute*	*Percent*	*Absolute*	*Percent*	*Absolute*	*Percent*
Solomon Islands	404,505	564,737	160,232	40	160,230	40	-	-
Choiseul	19,787	27,216	7,429	38	8,105	41	-720	-4
Western	62,038	88,785	26,747	43	23,865	38	2,187	4
Isabel	20,198	25,837	5,639	28	6,773	34	-1,161	-6
Central	21,337	27,102	5,765	27	7,615	36	-1,869	-9
Rennell-Bellona	2,351	2,417	66	3	525	22	-462	-20
Guadalcanal	59,610	82,788	23,178	39	23,923	40	-903	-2
Malaita	121,297	161,756	40,459	33	49,457	41	-9,177	-8
Makira-Ulawa	30,668	43,534	12,866	42	14,377	47	-1,575	-5
Temotu	18,706	24,435	5,729	31	7,003	37	-1,305	-7
Honiara	48,513	80,867	32,354	67	17,497	36	14,985	31

[a] Figures for migration and natural increase (births and deaths) are obtained from annex XVI by summing projection interval results. Interaction effects of fertility, mortality and migration in subsequent intervals induce slight differences between the sum of the component figures and overall population growth.

Makira-Ulawa and Choiseul start at high levels of growth in the first projection interval (ranging from 4.1 to 2.4 percent), and Rennell-Bellona, Isabel, Central province and Temotu at relatively low levels (0.3 to 1.9 percent), while Malaita takes an intermediate position (2.2).

In terms of absolute population size, projection variant P1 results in a situation where after Malaita as the largest province (with 161 thousand people representing 29 percent of the total population), there will be a group of three large provinces of about equal size: Honiara, Western province and Guadalcanal. Each of these will have a population of over 80 thousand people (each around 15 percent of the total population). The population size of another group of four provinces (Choiseul, Central province, Isabel and Temotu) will converge in a narrow range of 24 to 27 thousand people (each nearly five percent of the total), within which Choiseul will overtake Isabel and Central province. Makira-Ulawa remains significantly larger (nearly 44 thousand people) and Rennell-Bellona, with just over two thousand people and representing less than half a percent of the total population, is virtually invisible in terms of number of people.

One of the consequences of the first provincial scenario for the population structure by age and sex is that in several provinces sex ratios will decline (see *table 9.8*). In most provinces the slight excess mortality of men over women, often in combination with male dominated net out migration, offsets or even exceeds the effect of the high sex ratio at birth of 109 boys per 100 girls. Only in Choiseul and Isabel can a rise in sex ratios be observed for the 15-year projection period. On the other hand, Rennell-Bellona and Makira-Ulawa will nearly reach a balance between men and women in their population, a situation that already exists and will remain in Malaita. In Temotu women increasingly outnumber men, thereby continuing the trend of the previous decades (see figure 2.12).

With respect to the age distribution, the foreseen developments result in a decline of the share of the under-15 population in all provinces. At the same time an increased variance of the relative size of this age group can be observed. The share of children aged 0-14 years decreases in all provinces except Makira-Ulawa to levels well below 40 percent in 2014. The largest absolute declines occur in Rennell-Bellona, Isabel and Malaita. The decline in Honiara is very modest because there the increasing

Table 9.8. Selected population indicators, by province, 1999 and 2014 (stagnation variant, P1)

Province	*Sex ratio*		*% of population under 15*		*Dependency ratio*	
	1999	*2014*	*1999*	*2014*	*1999*	*2014*
Solomon Islands	107	107	41.5	36.0	87	70
Choiseul	105	106	43.9	37.3	98	74
Western	112	111	41.2	35.2	86	67
Isabel	104	106	42.0	34.7	94	70
Central	108	108	41.3	35.6	88	71
Rennell-Bellona	107	102	41.0	33.1	108	72
Guadalcanal	109	108	42.0	36.3	88	70
Malaita	100	100	44.9	37.8	102	76
Makira-Ulawa	106	103	42.4	40.1	92	82
Temotu	94	93	41.1	37.2	93	77
Honiara	126	125	31.3	30.4	50	54

importance of natural increase (driven by continuous high fertility) compared with in-migration will be felt over time. Apart from Honiara, the variation between the relative size of the under-15 population increases to seven percent points in 2014 (from 33 to 40 percent), whereas in 1999 this was only four (from 41 to 45 percent).

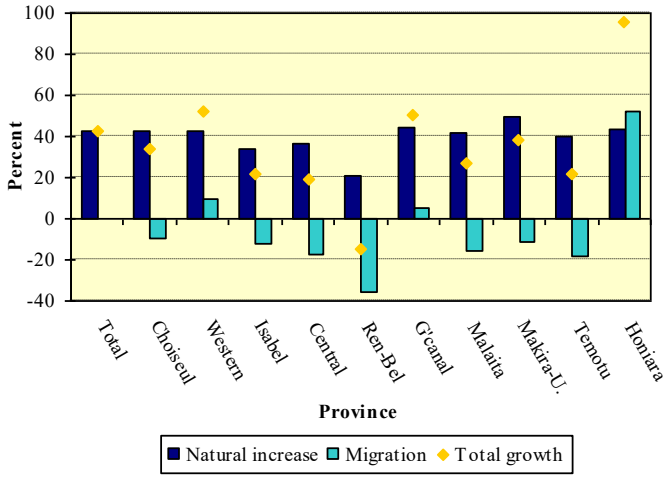
The decreasing shares of young age groups also affect the dependency ratios at the provincial level: in all provinces, except Honiara, dependency ratios will significantly decline between 1999 and 2014. The general process underlying this decline is the decrease in size of new birth cohorts in relation to the population in the age range 15-59 (due to declining fertility), in combination with the fact that the older age groups remain relatively small, partly because of constant mortality. The decline of dependency ratios can be strengthened or suppressed by age-specific mobility between the provinces. In the case of Honiara, the increasing share of locally born residents versus in-migrants in the population distribution will push up the dependency ratio. In general, dependency ratios across the country seem to converge.

9.3.2.3 Scenario P2: revival

In projection variant P2, overall population growth is higher than in variant P1 because of the assumption of sustained mortality decline. The reduction in the number of deaths and the larger surviving population that will contribute to additional births results in a 2014 population that is 12 thousand larger than the one in the stagnation scenario: a growth of 43 instead of 40 percent. However, most provinces will experience lower growth rates than in projection variant P1 because of the direct and indirect effects of regenerated migration flows in the wake of economic restoration.

The pattern of population increase as illustrated in *figure 9.7* reveals a wide variation between the provinces. Because of the attraction of labour, population growth in Honiara, Western province and Guadalcanal is significantly higher than average national growth (see also *table 9.9*). Especially striking is the increase of Honiara according to this scenario: with 96 percent growth it will nearly have doubled its population by 2014 to 95 thousand people. Figure 9.7 also clearly shows that in-migration is a more important contributing factor to the town's growth than natural increase. Around 25 thousand additional net migrants can be expected to flock to Honiara between 1999 and 2014, while the difference between births and deaths in this period will contribute around 21 thousand new inhabitants. For Guadalcanal and Western province, natural increase is by far the most important component of growth.

Figure 9.7. Percentage population increase, by province 1999-2014: total growth, natural increase and migration (revival variant, P2)



Another remarkable consequence of projection variant P2 is the exodus from Rennell-Bellona. Relatively low birth rates and high death rates produce a natural increase that cannot compensate the large net loss of migrants. If this scenario becomes reality, the trend of population decrease that was found for Rennell-Bellona in the 1986 census will be restored, and the province's population will hit the two thousand mark again in 2014. In addition to Rennell-Bellona, this projection variant results in relatively low growths in Central province, Temotu, Isabel and Malaita.

In this scenario too, provincial growth rates decline over the total projection period (see annex XVII), largely driven by declining fertility. However, for some provinces the decline is quite irregular because of the impact of migration, especially in the second projection interval. In the overall trend of decline between 1999 and 2014, Western province, Honiara and Guadalcanal show relatively high growth rates in the interval 2004-2009, whereas, for instance, Temotu —a province with relatively high net out migration— shows the opposite. Here, the growth rate in the last projection interval even returns to the level of the first one.

Table 9.9. Population growth 1999-2014 per province, with growth components (revival variant, P2)[a]

Province	*Population*		*Total growth 1999-2014*		*Growth 1999-2014 due to*			
	Mid-1999	*Mid-2014*			*natural increase*		*migration*	
			Absolute	*Percent*	*Absolute*	*Percent*	*Absolute*	*Percent*
Total	404,505	577,162	172,657	43	172,654	43	-	-
Choiseul	19,787	26,448	6,661	34	8,399	42	-1,832	-9
Western	62,038	94,630	32,592	53	26,594	43	5,721	9
Isabel	20,198	24,591	4,393	22	6,791	34	-2,460	-12
Central	21,337	25,387	4,050	19	7,742	36	-3,758	-18
Rennell-Bellona	2,351	2,008	-343	-15	497	21	-846	-36
Guadalcanal	59,610	89,690	30,080	50	26,605	45	3,202	5
Malaita	121,297	154,078	32,781	27	50,655	42	-18,474	-15
Makira-Ulawa	30,668	42,524	11,856	39	15,109	49	-3,438	-11
Temotu	18,706	22,744	4,038	22	7,403	40	-3,477	-19
Honiara	48,513	95,060	46,547	96	20,937	43	25,355	52

[a] Figures for migration and natural increase (births and deaths) are obtained from annex XVII by summing projection interval results. See note a of table 9.7.

In terms of absolute population size, Malaita with 154 thousand people will remain by far the largest province in the country. Its share in the country's total population, however, will drop from 30 to 27 percent. Honiara will become the next largest province (16.5 percent of the total), closely followed by Western province (16.4 percent) and Guadalcanal (15.5 percent). The population size of these provinces ranges between 90 to 95 thousand people. Choiseul, Central province, Isabel and Temotu again form another group in the range of 23 to 26 thousand people, each representing around 4 percent of the Solomon Islands population. Makira-Ulawa is significantly larger (43 thousand people, 7 percent) and Rennell-Bellona is insignificant as far as population size is concerned.

The revived migration flows assumed in this scenario make themselves prominently felt in the provincial sex ratios over time (see *table 9.10*). Migrant sending provinces generally lose more men than women. In Malaita, which in the past maintained a balance between men and women by steady male dominated out-migration, women will outnumber men by the year 2014. The most significant change, however, will occur in Temotu, where only 85 men will be left for every 100 women. On the other hand, the steep rise in in-migration into Honiara reverses the downward trend of the sex ratio observed in the period before the 1999 census. With a sex ratio of 130 the town will become even more male-dominated than in 1999.

The assumed decline in fertility leads to smaller shares of the 0-14 year old children in the total population in all provinces (see Table 9.10), although the population in this age bracket remains slightly more significant than in projection variant P1. As a consequence, dependency ratios will remain slightly higher as well, but will still show a significant decrease since 1999 (see also section 9.3.1.2). The variation in the share of the under-15 population between the provinces (not counting the outlier Honiara) will be somewhat larger than in the stagnation scenario, but certainly larger than in 1999.

Table 9.10. Selected population indicators, by province, 1999 and 2014 (revival variant, P2)

Province	*Sex ratio*		*% of population under 15*		*Dependency ratio*	
	1999	*2014*	*1999*	*2014*	*1999*	*2014*
Solomon Islands	107	107	41.5	36.4	87	71
Choiseul	105	105	43.9	37.8	98	77
Western	112	111	41.2	35.5	86	68
Isabel	104	107	42.0	34.8	94	72
Central	108	110	41.3	36.0	88	74
Rennell-Bellona	107	101	41.0	32.9	108	76
Guadalcanal	109	108	42.0	36.8	88	72
Malaita	100	97	44.9	38.5	102	79
Makira-Ulawa	106	100	42.4	41.1	92	86
Temotu	94	85	41.1	38.7	93	83
Honiara	126	130	31.3	30.8	50	54

9.4 Conclusion

The aim of this chapter is to indicate, within reasonable limits, different possible future developments of the population in the Solomon Islands. The results are *projections*, which means that they are the logical consequences of the assumptions that are formulated with regard to fertility, mortality and migration. They are not —and cannot be— *predictions* of the future population, because the future size and structure of the population depend on socio-economic and political factors that are uncertain and as yet unknown. Presenting different projection variants demonstrates the long-term effect of the formulation of a specific assumption in one way or another. Of course, some sets of assumptions are more plausible than others. To the extent that assumptions rely on current scientific insights and

reliable and up-to-date information, a projection is considered to yield a realistic picture of the future and may be called a *forecast* (cf. Keilman 1990). As the national medium-high projection is based on past and current trends in the development of the Solomon Islands population, international experiences in the field of demography, and consultation with economic and political monitors, of all the presented projections this is the one that is expected to indicate the most plausible future and comes closest to a population forecast. For policy and planning purposes it is therefore recommended that the results of the medium-high projection variant (N2) be used. Given the present economic and political uncertainty, no similar recommendation can be given with regard to the provincial-level projection variants.

On the basis of potential demographic futures, social and economic planners are able to anticipate the needs that such futures are likely to create, for instance with respect to the number of schools, hospital beds, teachers, nurses, houses and jetties, or with respect to water and electricity supply or communication services. Population projections also provide a basis for judging whether or not efforts should be undertaken to re-direct population trends in such a way as to serve national development goals. The formulation of different projection variants helps planners to identify the effects of demographic and socio-economic determinants. It gives them the relevant knowledge about possible areas of intervention and can help them to become aware of the (sometimes unintended) consequences of certain policy and planning decisions.

All four national-level scenarios indicate continuous rapid population growth, mainly driven by high fertility. Population growth in itself does not pose a problem and can even be advantageous in specific circumstances. However, population development should be considered in relation to available resources: natural and financial resources, and human capital. To assess whether a growing population in the Solomon Islands is a favourable development or not, it could, for instance be considered whether the present combination of limited arable land, extensive production methods and culturally restricted access to land can accommodate much additional population. If not, is it realistic to assume that employment outside the subsistence sector can sufficiently absorb an increasing labour force? Can the health services be expanded to cope with a larger population —especially maternal and child care and care for the elderly? This will require additional qualified nurses and doctors, medical supplies and facilities. Similarly, will a larger student-aged population be accommodated by more schools, vocational training opportunities, teachers, lecturers and teaching materials? And if there is an anticipated need for trained professionals in, say, five years time, are there sufficient funds and facilities to train them now? It is not within the scope of this report to find answers to these questions, but this is an appropriate place to indicate some of the implications of the different scenarios.

The low national projection variant (N4) shows a clear reduction in the total number of births and even in the population in the age-group 0-14. This would considerably ease the pressure on the education system and partly on the health system as well, compared to the consequences of the other scenarios. All in all, the growth rate in the last projection interval (2009-2014) is still 1.8, which implies an average of around 10 thousand additional people per year in that period.

According to the medium projection variants (N2 and N3) the increase in the total number of births will only level off in the last projection interval. In the high variant (N1) there is not even any sign of this. In all scenarios N1-N3, the number of women who enter their reproductive ages in the successive years is so large that it should be expected that, even if they each have fewer children than women before them, the total number of births together will increase or at least maintain high population growth. In these scenarios, this population momentum will continue to make itself felt for a significant time to come, and pressure on health and education systems, and other public services in general, will be significant. In all scenarios the number of people who want paid employment will increase substantially, even if the paid labour participation rates remain as low as in 1999. If the trend of

increasing female labour participation continues (cf. section 6.4.7), planners should expect increasing numbers of women involved in and looking for paid jobs.

Although any one of the projection variants will pose a big challenge for the government of the Solomon Islands, there is at least one favourable development in the most plausible population projection (N2). It shows a significant decline in the dependency ratio, which means that the population in the productive ages in proportion to those in the non-productive ages becomes increasingly favourable. If possible, economic planning should capitalise on this development, and stimulate and facilitate productive work among this increasing share of the population.

The concentration of people in the young age categories and the likely rapid increase of the population call for investment of a large share of the country's resources in human capital. On the other hand it makes comprehensive population planning an urgent issue, preferably embedded in the larger context of reproductive health.

With respect to the provincial projections, the most striking result is the different impact of the alternative migration assumptions, which are in turn strongly linked to assumptions with regard to regional differences in economic development and the return of political stability.

A major lesson planners could learn from these projection results is that concentrations of economic development in the country will almost inevitably generate migration flows, consisting firstly of labourers and secondly —but in the long term not less importantly— their dependants. Population growth in some areas will be boosted by in-migration from other provinces that may or may not be intended, or may even be undesired, by planners. On the other hand, other provinces may be drained as a side-effect of differences in job opportunities or other services.

Clear examples include Rennell-Bellona that will effectively decrease in population if the revival scenario comes true and if no local alternatives are created for things that people now only find outside their province. Conversely, in this projection variant Western province and Guadalcanal may be faced by an influx of people from the major labour-supplying provinces in order to meet labour demands from large companies that cannot be met locally. Honiara, being the national capital and the major commercial and administrative centre, will continue to attract people to do the jobs, and those looking for jobs or living off family members with income. In the revival scenario, which basically continues recent growth rates, the town may boom to around 100 thousand inhabitants in 2014, and therefore will face major challenges with respect to land and housing issues, employment, traffic and provision of services in the field of health, education, water supply, electricity, et cetera.

In the stagnation scenario, which sketches a rather bleak outlook for the country, provincial population trends are less violent and less differentiated. At the time of the writing this report, however, no substantiated case can be made for any one projection variant. Which one will be closest to future reality is largely in the hand of local politicians and other people who determine the political climate in the country.

10. Summary and policy implications

Bart DE BRUIJN, Jeannette SCHOORL and Reuben TOVUTOVU

10.1 Introduction

The 1999 population and housing census yielded more information than any Solomon Islands census before had ever done. The tabulated results as presented in the *Basic tables report*, additional tables prepared at the request of census users and the in-depth analysis presented in this report are intended as relevant input for policy-makers and development planners.

The census results reflect the state of affairs as in November 1999, and give a fair indication of the developments since the previous census in 1986 in the topical areas covered in the questionnaire. However, it should be borne in mind that the events of 2000 and the subsequent political developments and economic breakdown of society has caused an unprecedented situation. These considerations are duly taken into account during the analysis, and wherever possible an assessment is made of the new situation and data relevance. Despite the altered circumstances in the country since the census, the majority of census data retain their relevance for planning and policy development in numerous areas. Given the challenges facing the country in the area of re-thinking its development and planning, results from the 1999 census will be an even more indispensable tool for national and international partners contributing to the future of the Solomon Islands.

This last section of the analysis report aims to summarise the main results derived in the previous chapters. This summary is supported by the list of key indicators at the beginning of this report. An additional purpose of this chapter is to highlight the policy relevance of the census information. Although it is not our objective —nor are we in a position— to make concrete policy recommendations, this evaluative chapter is an appropriate setting to stress some of the major policy implications of the census outcomes.

10.2 Main results and implications

10.2.1 The demographic situation

10.2.1.1 Population development at the national level

International migration. The Solomon Islands can justifiably be considered to be a closed demographic system. International migration has hardly any impact on the composition and development of the country's population[41], and this near negligible effect is apparently even decreasing. This development might lend support to the hypothesis that the country is withdrawing from the international scene rather than establishing integration, or at least cannot keep pace with the globalisation trend around the world. Although the uprisings in 1999 and 2000 did attract political attention —especially in the region— they certainly did not help the country to become attached economically and socially to the outside world.

[41] We can really judge this only for immigration, as out-migration is not covered by the census. However, available statistics indicate that there is no important emigration surplus.

Fertility and mortality analysis. The very low exchange of people with other countries implies that change in population size of the Solomon Islands by and large can be explained by natural increase, the combined result of fertility (births) and mortality (deaths). The 1999 census included the collection of data in these areas that allow a wide range of standard demographic estimation techniques. Rather than indiscriminately accepting standard calculation procedures, demographic analysis also took other considerations into account. These included the internal consistency of fertility and mortality trends, the international position of the Solomon Islands in terms of development and demographic status, as well as cultural practices considered relevant for the collection and interpretation of demographic data.

Fertility. With regard to fertility, the most likely outcome of the census presents a Total Fertility Rate (TFR: the 'average number of children per woman') of 4.8. Although this is significantly lower than the level of 6.1 found in the 1986 census, the decline over a 13-year period is only moderate if viewed in a world-wide perspective. In this regard it may be remarked that the population policy, which was developed on the basis of the alarmingly high population growth as expressed by the 1986 census, failed to be effectuated. The value of 4.8 for the TFR corresponds with a Crude Birth Rate (CBR) of 34 per thousand population. This in turn implies that for the immediate period following the census every year 14 thousand babies will be added to the population of the Solomon Islands.

Mortality. Life expectancy at birth is the most comprehensive measure of mortality. The most plausible level for life expectancy was established at 61.1 years; 60.6 for men and 61.6 for women. These results are based on unconventional estimation techniques as one of the main conclusions from the mortality analysis was that standardly used techniques are not responsive to the cultural specificity of the country —especially adoption practices— and that they consistently underestimate mortality and overestimate life expectancy. It is important to stress that the mortality results from the 1999 census analysis should not be considered in relation to the results published on the basis of the 1986 census (for instance, a life expectancy of 59.9 for men and 61.4 for women). According to the present insights, life expectancy in 1986 should be re-established at 54.3 for men and 55.0 for women, which implies a significant and credible increase in life expectancy of around 6.5 years over the intercensal period. The estimated life expectancy of around 61 corresponds with a Crude Death Rate (CDR) of around 9 per thousand population (to be compared with a re-calculated level of between 12 and 13 per thousand in 1986). This CDR would imply that for the period immediately following the census, every year just under four thousand people will die.

The Infant Mortality Rate (IMR: the number of babies who die before their first birthday per thousand live-born babies) is an important determinant of overall mortality as well as an important indicator for development. Its level was estimated at 66 (65 for girls and 67 for boys). Again, readers should be cautioned against comparing these levels with the published estimates on the basis of the 1986 census, since this would incorrectly imply an increase of the Infant Mortality Rate. A re-assessment of the 1986 level produces a plausible IMR of 94 for girls and 98 for boys. A correct conclusion, therefore, should be that IMR declined significantly (by almost one third), implying a considerable improvement of health services in the country between the two most recent censuses. At the same time it implies that there is ample room for further improvement since the present level is uncomfortably high.

Population growth. A Crude Birth Rate of 34 per thousand in combination with a Crude Death Rate of 9 per thousand implies a natural growth rate of 25 per thousand population. If these levels are maintained, the population will increase by 10 to 11 thousand people every year in the decade following the 1999 census. In the absence of any significant international migration this rate of natural increase is identical to overall population growth, which implies that the population will double in 28 years time. The 2.5 percent annual growth rate around 1999 is well in line with the overall intercensal growth rate of 2.8 implied by the population estimates of the 1986 and 1999 censuses. Although this represents a substantial fall of the growth rate, it is still very high. In fact, population growth of the Solomon Islands remains among the highest in the world and clearly the highest in the Pacific region.

Distribution by sex. The relative surplus of men in the Solomon Islands population compared with the number of women has again declined, thereby continuing the downward trend observed since the earliest population count in 1931. The 1999 census reports a sex ratio (the number of men per 100 women in the population) of 107. The unusually high sex ratio has puzzled demographers in the past, but it has now become clear that it is caused by a combination of a high sex ratio at birth (109) and remnants of excess mortality of women in the distant past. With the older cohorts gradually disappearing and with the present slightly higher life expectancy of women, the overall sex ratio is likely to remain close to the present level.

Age composition. Despite the recent decline in fertility the population of the Solomon Islands can be characterised as young, which is clearly visible in the classic population pyramid form with a broad base gradually sloping to a narrow top. More than two in five people in the country (41.5 percent) are younger than 15 years of age.
The share of the older population (60 years of age and over) remains small, at just over 5 percent. Given the rather recent onset of fertility decline this is likely to be maintained in the decade following the 1999 census. The old and young age groups combined in relation to the 'working age' population (15-59 years of age) is represented in a dependency ratio of 87. This reflects a favourable development since 1986 and 1976, when the dependency ratios were as high as 109 and 112 respectively, implying a much higher economic burden for those in the productive ages. If society is able to capitalise on this potential workforce, it is favourably positioned to boost its economy. However, to the extent that it cannot gainfully employ the young adult population, the opportunity will be lost and will turn into a burden rather than a development prospect.

10.2.1.2 Population development at the provincial and regional level
Geographic distribution. The provinces of the Solomon Islands are characterised by very divergent population sizes. Malaita province has the largest population (30 percent of all people in the country) and Rennell-Bellona the smallest (less than one percent). The divergence is further emphasised by the fact that Malaita has a size similar to the two next largest provinces —Western province and Guadalcanal — combined. In terms of population density, Honiara clearly stands out with 2,244 people per square kilometre. At a distance follow Central province, Malaita and Temotu (35, 29 and 22 persons per square kilometre, respectively) and the lowest densities are found in Rennell-Bellona, Isabel and Choiseul (4, 5 and 5 persons per square kilometre, respectively).

At lower administrative levels, too, populations diverge widely. Wards range from fewer than 100 people in Matangi ward (Rennell-Bellona) to over 9.6 thousand in Takwa (Malaita). According to the guidelines of the Constituency Boundaries Commission (Constituency Boundaries Commission 1996) 16 out of 183 wards (9 percent) are below the recommended lower limit of population size (500 inhabitants) and no less than 39 (21 percent) above the upper limit of 2,900 people[42]. Similarly, of all 50 constituencies, eight are either under or over the recommended limits. The latest census figures on population distribution may therefore assist in a revision of either ward and constituency (or even province) boundaries or the population size criteria to determine administrative boundaries.

The urban sector in the Solomon Islands remains very small. With around 64 thousand people the settlements classified as urban represent less than 16 percent of the total population. This puts the country among the least urbanised in the world. If the urban surroundings of Honiara in Guadalcanal province are taken into account, the capital fully maintains its dominant position within the urban sector: greater Honiara represents no less than 82 percent of all urban population. It should be noticed

[42] Population size is the principle criterion for the establishment of wards and provinces. However, the Constituencies Boundaries Commission explicitly mentions that other considerations may be taken into account as well.

that 55 percent of all other urban inhabitants live in the Western province towns Noro and Gizo — even more if Munda is considered urban.
The great majority of people living in rural areas are distributed over a large number of small villages, partly because of extensive farming methods that require low population densities. On average, rural settlements accommodate only 58 people in 9 households. This extreme scattering of the population into small settlements in addition to the island geography of the country provides significant obstacles for targeted development efforts and service delivery.

Fertility and mortality. The fertility and mortality differentials between the provinces are small, although —as expected— Honiara consistently takes the most outspoken position. The 1999 census results indicate a variation in TFR between 4.1 in Temotu and 5.4 in Malaita, whereas Honiara clearly stands out with only 3.4. All provinces showed fertility decline since the previous census. Malaita maintained its position as the province with not only the highest fertility, but also the lowest fertility decline (14 percent in the intercensal period only). The opposite is the case for Honiara, where fertility exactly halved in the space of 23 years since the 1976 census. The next slowest and fastest fertility decline since 1986 are recorded for Guadalcanal (18 percent) and Temotu (29 percent) respectively.

Life expectancy has an even narrower range, from 60 in Isabel to just over 62 in Honiara. In all provinces women outlive men by around one year. There is somewhat more differentiation in terms of infant mortality, where Isabel again shows the poorest performance (of every thousand new born babies, 70 will die before their first birthday) and Honiara the best (an IMR of 60 per thousand).

Internal migration. Whereas population change at the national level is almost exclusively determined by fertility and mortality, at the lower levels internal migration is a significant factor and is indeed gaining in importance. The 1999 census shows that one in six Solomon Islanders —a total of more than 68 thousand people— were living outside their province of birth. Had there been no displacement these figures would undoubtedly have been higher. In the brief and recent period of nearly two-and-a-half years before the census, the number of persons that moved from one province to another was over 39 thousand. Although virtually all areas of the Solomon Islands are touched by migration, only relatively few provinces are involved in intensive migration flows: primarily Honiara, Malaita, Guadalcanal and Western province. A closer examination of migration between wards shows that at this level mobility is much more intense than that between provinces.

Destination of migration flows. Honiara maintains its position as the main destination for internal migrants, basically because of employment and education opportunities, provision of a variety of services, excitement of city life and its role as a hub for mobility between other provinces. The significance of migration for Honiara is demonstrated by the fact that 62 percent of its population were born in another province, although this percentage is falling with the growing numbers of people born locally.
Guadalcanal used to be the next most important province of in-migration, but since the first wave of displacement in 1999 its position turned into one of out-migration. Western province, on the other hand, developed from a net exporter of people into a migrant-receiving province. The diversification and growth of the economy of Western province, and a corresponding demand for labour are major factors in this development. The provincial capital Gizo, plantation sites on Kolombangara and the fishery industry in Noro are magnets of attraction that play a key role in this respect. As previously in Guadalcanal, the local population base cannot sufficiently support demand for manpower, both in terms of absolute numbers and specific qualifications. Therefore, Western province needs to attract external labour to run large-scale enterprises and government services.
Other administrative centres and plantations in the country also stand out as attraction points. The net in-migration that characterises all magnets of attraction is, however, typically the balance of high in-migration and high out-migration. In the wake of the ethnic tension, Malaita acquired a temporary

status of major migration destination as within the space of a few months it received thousands of displaced persons from the island of Guadalcanal.

Origin of migration flows. As in the past, Malaita is the main source of migrants and even with the return of a large number of displaced persons, the province remains a 'net exporter' of life-time migrants. Its sheer size in terms of population means that even if the propensity to out-migrate is not extremely high, absolute numbers of out-migrants are very large. The opposite is true for provinces with small populations. Here, the propensity to leave may be very high —as in Temotu and Rennell-Bellona— but since the base population is small, resulting out-migration in an absolute sense is limited. Therefore, on the basis of number of people alone, Malaita will remain the largest source of labour in the country. However, the importance of migration for sending regions is better judged on the basis of out-migration rates: relative to the population in the province of origin, after Honiara, out-migration is highest in —in descending order— Rennell-Bellona, Temotu, Central province, Choiseul and only then followed by Malaita. Respective percentages of the population born in these provinces and living elsewhere are 31, 20, 17, 17 and 16, with which Malaita is even below the national average. These provinces with high out-migration are often characterised by relatively few employment opportunities, limited services provision, and above average pressure on land and other local resources.

Population growth. As a combined result of internal migration and natural growth, population growth differs markedly across provinces. Guadalcanal shows the lowest growth over the intercensal period (1.5 percent annually), though this would have been very different without the displacement in 1999. Temotu also has a relatively low population increase, which is caused by significant net out-migration and relatively low fertility. Honiara, on the other hand, is the fastest growing province (3.8 percent annually), but, like Guadalcanal, overall growth was reduced by large numbers of people fleeing from the ethnic disturbances in 1999. Malaita too experienced high population growth (3.3 percent per year), which is fuelled by high fertility, but also markedly enhanced by the influx of displaced persons. Other provinces where natural growth is relatively important are Guadalcanal, Makira-Ulawa and Choiseul.

Urban population increase outpaced growth in rural areas by 4.3 to 2.6 percent annually. It should be noted, however, that urbanisation remains strongly concentrated in greater Honiara (including surrounding urban areas in Guadalcanal) and, more recently, Western province. The fact that other provinces accommodate only very small urban populations and the observation that in other urban centres except Auki growth was stagnating or even negative, leads to the suggestion that urban development is contracting to Honiara and Western province and that most other urban centres are becoming marginalised instead of powering local development.

Population structure by age and sex. The relatively narrow range of fertility and mortality levels for the different provinces (except Honiara) results in fairly similar age compositions for the provincial populations. Only in Malaita and Choiseul (with high fertility and correspondingly large numbers of young people) and Temotu and Honiara (with relatively low fertility and correspondingly small cohorts in the younger ages) is some effect noticeable. However, age-specific migration significantly shapes the age structures of the provinces that are most affected by migration. For Honiara this effect is most prominent in the strong under-representation of children (under 15 years of age) and the elderly (60 and over), and a strong over-representation of young adults (15-44) in the working-age range. Similar effects in the young adult ages —although much less distinct— are observed for the two other labour-attracting provinces, Western province and Guadalcanal. Here too, the share of the oldest age group is slightly below average, but the for the youngest age group the effect is negligible. These population compositions translate into the lowest dependency ratios in the country; 50, 86 and 88 for Honiara, Western province and Guadalcanal, respectively.

The opposite is the case for provinces with strong out-migration: Rennell-Bellona and Malaita have dependency ratios of 108 and 102, respectively, which is mostly related to an over-representation of elderly people (particularly in Rennell-Bellona, where the share of over-60s is twice the national average) and an under-representation of young adults (again particularly so in Rennell-Bellona, which clearly shows the lowest figures of all provinces).

The sex composition is similarly affected by migration, as more men than women migrate. Migrant-receiving provinces have high sex ratios; Honiara stands out with 126 men for every 100 women, but Western province and Guadalcanal too show relatively high sex ratios (112 and 109, respectively). Malaita and especially Temotu, as important migrant-sending provinces, reveal low sex ratios: in Malaita the sexes are balanced with a sex ratio of 100, but in Temotu the surplus of men over women moving to other provinces produces a sex ratio of 94 men per 100 women only. The sex composition of the urban population closely resembles that of Honiara, whereas the rural sex ratio with 104 men per 100 women is below the national level of 107.

10.2.1.3 Displacement

Census information. The massive movement of displaced people in 1999 had a large impact on the distribution of the population, especially with regard to Guadalcanal, Honiara and Malaita. The fact that the census closely followed on the first and largest wave of displacement created an exceptional situation in the sense that prompt information was obtained that can be characterised as accurate and unbiased by claimant interests. In very few cases anywhere in the world, if ever, has displacement of this proportion been so carefully monitored. Concomitant advantageous features of the census measurement of displacement are the full coverage of the population and the expectation that reporting suffers less from bias since no gain or disadvantage was involved in answering the displacement question.

Volume and direction of displacement. The census recorded 35 thousand persons who had been displaced from their ward of usual residence, nearly 11 thousand from wards in Honiara and 25 thousand from wards on Guadalcanal. This represented 20 and 34 percent of the respective provincial populations. The most affected wards on the Guadalcanal Plains lost more than half and up to two-thirds of their population. Nearly 13 thousand displaced people moved to Malaita, adding a full 10 percent to its population. Other provinces were much less affected. In effect, the usual migration flows between Malaita as a migrant supplying area, and Guadalcanal and Honiara as receiving areas have been reversed, temporarily at least for Malaita-Honiara and to date more permanently for Malaita-Guadalcanal. A remarkable finding, however, is that one third of the displaced from Honiara wards (3.7 thousand) and even half of those from Guadalcanal wards (12.4 thousand) either fled within the ward of original residence or had returned to it by the time of the census.

Consequences of displacement. The ethnic tension and in its wake the large flows of displaced persons had an enormous impact on Solomon Islands society. Apart from the closure of major enterprises and the corresponding loss of employment and revenues, displacement and disturbances had important effects for things like malaria control programmes, health service deliveries and school attendance, evidence for which can be found in the census data on birth attendance and school attendance. On the other hand, in the areas that were most affected by the influx of displaced people —particularly in north Malaita— there was a lot of additional pressure on land, housing, the labour market, education, health and other basic services. Again, census information confirms this development.

10.2.2 The economic situation of individual and households

Subsistence economy. By and large the Solomon Islands can be characterised as a subsistence economy. Only 23 percent of the population (57 thousand people) of working ages (14 years and older) are engaged in any type of paid work. On the other hand no less than 45 percent (112 thousand persons) are involved in unpaid activities, largely subsistence farming, fishing and household-related

craft work. It is interesting to note that more women than men are active in subsistence activities. If unpaid work is restricted to subsistence production only, around 53 thousand women mention their involvement against only 49 thousand men. This highlights the role of women, not only as principal housekeepers and child raisers, but importantly also as the economic backbone of the family and society. A breakdown of unpaid activities shows that farming is the most important type of work, but more so for women than for men: 88 percent of women indicate that this is the unpaid activity they spend most time on, whereas only 68 percent men say so. For men, in addition, fishing and craft work are important activities. Household information also emphasises the importance of subsistence production of staple foods, fruits and fish for the large majority of households in the country. The census information on household production of crops, livestock and marine products, shows that subsistence production is often combined with market production. The data suggest that regularly surplus subsistence production is marketed, or that cash production involves additional effort as part of general subsistence production.

Population with and without paid work. Overall, the number of people working for remuneration increased by 47 percent between 1986 and 1999, a slightly higher rate of increase than that for the total population, which grew by 43 percent in the same period. However, the 'potential labour force' of all persons aged 15 to 64 increased by 60 percent between the two censuses, which means that the participation rate in paid employment has actually decreased (from 25 to 23 percent). This is often observed in countries with high population growth, where job creation cannot keep pace with the increase in the labour force caused by the replacement of small older cohorts by large young cohorts. Given the young population structure of the Solomon Islands, it can be expected that the present unemployment rate of 11 percent (equalling about 28 thousand people in 1999) will at least be maintained and will probably even increase unless there is a strong expansion of the economy and employment opportunities.

Another notable feature of labour force development between 1986 and 1999 is that the number of women with a paid job (18 thousand) is still less than half the number of men (40 thousand), while the growth rate of female employment was more than twice that of men: 77 versus 36 percent. The rate of male participation in paid work actually fell from 36 percent in 1986 to 31 percent in 1999, while that of women increased from 13 to 15 percent in the same period.

There is considerable variation in work status between provinces. Honiara —the centre of wage employment— has the highest proportion of people with paid work, relatively closely followed by Western province. This reflects the growth and diversification of the economy in that part of the country. Unemployment is highest in Rennell-Bellona, Temotu and Malaita, provinces characterised by relatively few wage employment opportunities and little economic development.

Industrial and occupational sectors. Besides an absolute expansion, since 1986 the Solomon Islands' economy also reflects structural changes. The largest industrial sector by far remains agriculture, followed by trade and manufacturing. However, the number of jobs in agriculture has diminished since 1986 —partly the result of closure of SIPL and other agricultural enterprises on the Guadalcanal Plains— whereas manufacturing and trade were the sectors that expanded most in terms of absolute numbers of jobs. Another important growth sector is education, which clearly reflects the swelling number of school-aged population. All in all, the share of the primary sectors of the economy has significantly declined since 1986, although it maintains its dominant position in the Solomon Islands' economy.

The occupational structure presents a similar picture of extensive dependency on the primary sector. Farmers are clearly the largest occupational group, representing 18 percent of the labour force. Other occupations raise the share of the primary sector to around one third of the labour force. Teachers (primary and secondary combined) form the second largest occupation group.

Post-census developments. Together with population distribution, the economic characteristics of households and individuals is the factor most affected by the disturbances in the wake of the ethnic conflict. After the census in November 1999, more businesses and enterprises were scaled down or closed all together, and the same applied to public institutions like schools, hospitals and government departments. This will have had enormous implications in terms of labour market perspectives, and probably also in terms of pressure on local means of subsistence outside the formal sector, in particular arable land for subsistence agriculture.

10.2.3 Individual health

Malaria. Probably the greatest health concern in the Solomon Islands is the incidence of malaria. As the actual population figures from the 1999 census are lower than estimates based on the 1986 census, the newly established malaria incidence rate of 185 is 12 percent higher than assumed to date (for 1998). The census data, however, fully support the claim that malaria has been significantly reduced since 1992: a recalculation of the incidence rates on the basis of information now available suggests a decrease of 60 percent (instead of 63 percent based on 1986 projections) over the period 1992-1998. Nevertheless, the incidence rate is still very high compared with the global level and poses a major threat to public health. Children and pregnant women are particularly at risk, and malaria is likely to be a major factor in poor school attendance and maternal mortality (Ministry of Health and Medical Services 1996, WHO 1998b).

The census recorded high coverage of households as far as the distribution of bednets is concerned: in 83 percent of households at least one bednet was available. However, only 53 percent of the total population reported that they actually used bednets, which is a lower rate than estimates by the National Malaria Control Programme (60 percent). It is important to note that there are significant differences between the census and the NMCP in information about actual bednet protection at the provincial level. The census also suggests that only half of households have bednets that meet the prescribed requirement of half-yearly treatment with insecticide to optimise protection.

Maternal and child health. Despite considerable fertility decline over the past decades, women in the Solomon Islands still face a heavy reproductive health burden. This is partly due to the present childbearing levels and patterns. The high average number of children as expressed by the Total Fertility Rate of 4.8, and the significant percentages of women that gave birth at ages that are considered unsafe (under 18 and over 40) —21 and 68 percent, respectively— are all contributing factors. In addition, medical check-ups and professional birth attendance do not yet fully cover all pregnant women, despite the considerable progress made in this respect. Compared with other countries in the Pacific, these health services remain poor. There is ample scientific evidence that proper monitoring by trained medical staff as well as safe reproductive patterns (not having too many children, not having them too young or too old, and not in quick succession) have a considerable positive impact on the health and mortality of both mothers and their children.

Mortality. A health improvement is evidenced by a moderate to considerable mortality decline since the 1986 census, for instance as expressed by the life expectancy at birth and the Infant Mortality Rate (IMR). The analysis suggests that life expectancy increased by around 6.5 years to 61.1 and the IMR decreased from 96 to 66. Women and girls have slightly higher survival chances than men and boys.

Disability. Although with 11 thousand people or 2.7 percent of the population disability in the Solomon Islands does not seem excessive, people who suffer from a sensorial or physical disability or a mental disorder constitute a sizeable, vulnerable and disadvantaged group. In terms of policy development they may represent a target group in need of medical assistance, but perhaps also of support in terms of access to education or the labour market. Loss of eyesight is the most common type of disability, and is typically a form of disability that often can be prevented or cured by proper

intervention. Because of its unusual population structure and migration history, Rennell-Bellona has a disability prevalence that is twice as high as the national average.

10.2.4 Educational characteristics

The education situation on the Solomon Islands has considerably improved in the course of time, which is clearly revealed by census time series on educational attainment and school attendance. It is also reflected in the distribution of these characteristics by age. The gross primary enrolment rate increased from 39 percent in 1986 to 59 percent in 1999 and the age-specific school attendance increased for all ages, but especially the for youngest and oldest school-age categories. The proportion of people who had not received any education declined from 40 percent in 1986 to 27 percent in 1999, which is especially compensated by gains in secondary and tertiary education.

In terms of literacy, the census data suggest similar improvements: whereas among the population aged 65 and over, 60 percent are not able to read and write, this share declined to 15 percent for the age group 15-19. However, some caution is required in this respect, since the figures refer to self-reported literacy, which certainly involves an upward bias. In total the census counted 56 thousand illiterate people, mainly concentrated in Malaita, Temotu, Central province and Guadalcanal. These provinces also perform poorest in terms of educational attainment and school attendance. With respect to all educational indicators, the two western-most provinces and Honiara perform best. Despite the favourable developments in recent years, the position of the Solomon Islands within the Pacific in terms of educational performance remains among the poorest countries.

10.2.5 Socio-cultural characteristics

Household, family and marriage. The 1999 census revealed a clear turning point in the trend of increasing household size observed in previous censuses since 1970. The average size for private households in 1999 was 6.1 persons and this would have been even lower if many households had not absorbed relatives who were displaced as a consequence of the ethnic unrest. The effect of displacement is most noticeable in Honiara and Malaita.

Most households have a traditional structure, with a male head, a female spouse and children comprising the largest share of household members. Grandchildren, ‘other relatives’ and siblings constitute smaller but still substantial shares within the households. Honiara households clearly accommodate many other relatives who are passing through or staying temporarily in the capital.

Marriage remains the standard for people in the Solomon Islands, although across ages there is a small but persistent group who remain unmarried, probably because of physical, social or economic reasons. Age at first marriage has increased slightly since 1986, particularly for women, with the side-effect that the share of widows has somewhat decreased. Divorce and separation, on the other hand, have become slightly more common.

Ethnicity. At 95 percent, the share of Melanesians in the Solomon Islands remains unceasingly high and has even slightly increased since 1986. The share of Polynesians, on the other hand, declined, probably due to a combination of lower fertility and intermarriage. The already small populations of Chinese and Europeans almost disappeared as noticeable ethnic groups: they constituted only 0.1 and 0.2 percent of the population, around one quarter of their shares in 1970. The sex and age structure of these two groups is very much affected by selective migration patterns. At the lower administrative levels, the distribution of Polynesians, Micronesians, Chinese and Europeans is quite concentrated in specific provinces and wards.

Religion. The Church of Melanesia maintains its long-standing leading position among the various denominations in the country. With followers numbering around one third of the population it is followed by four main other denominations —in descending order the Roman Catholic Church, the

South Seas Evangelical Church, Seventh Day Adventists and the United Church— each with adherents accounting for 10 to 20 percent of the population. By and large, all religions and religious denominations increased in close correspondence with overall population growth in the intercensal period, with two exceptions. Customary beliefs showed a substantial decline in followers and all but disappeared from the country's religious profile, whereas the group of very small and relatively new denominations together increased fourfold. Denominations tend to be distributed along marked geographic patterns, with strong representations of Seventh Day Adventists and United Church in the western-most provinces, Roman Catholics on Guadalcanal and to a lesser extent on Malaita, the South Seas Evangelical Church on Malaita and Makira and a virtually exclusive representation of the Church of Melanesia in Isabel, a very strong presence in Temotu and Central province, and again somewhat less in Makira-Ulawa and Honiara.

Language. The linguistic situation in the Solomon Islands is characterised by an enormous richness and complexity. All in all, 91 different local languages were distinguished in the census in addition to Pidgin and a few foreign languages. It appeared that 18 languages could be identified as being endangered because very few speakers remain or because the language showed very little growth or even decline since the 1976 census. Other local languages have significant numbers of speakers and seem to be flourishing. The 1999 census forms a good starting point for further investigation into this area, either to record a vanishing cultural heritage or to explore means to preserve it or to consider the possibility of vernacular education.

Another remarkable finding from the census is the phenomenal growth of Pidgin as the first language people learn as a child, not only in the urban, but also in the rural areas. It now takes the second position as the first language learned in childhood. Overall, 81 percent of the population over 28 months indicate an ability to speak Pidgin, and it has clearly become the *lingua franca* in the differentiated linguistic setting of the Solomon Islands, even though English is the country's official language. It seems that in the past primarily men acquired Pidgin, but in each younger cohort women have gained on men and for people under age 20 there is no sex difference at all in terms of the ability to speak Pidgin.

10.2.6 Housing and household facilities

Housing. The housing situation reveals a picture where the large majority of people live in self-owned dwellings made of temporary and locally available materials. However, the situation in the urban sector, and in Honiara in particular, is completely different. Here, accommodations tend to be permanent and households more often rent the dwelling or have other tenure arrangements. These differences are largely based on land tenure systems that provide or restrict free access to land, housing policies implemented by the government and major companies, and the temporary residence of many town dwellers.

Household facilities. For most household facilities —water supply, toilets, electricity and access to radio messages— a similar gap exists between urban (predominantly Honiara) and rural areas. Around 60 percent of households have access to piped water from SIWA/RWSS, but this percentage ranges from 40 percent on Guadalcanal to 87 on Isabel, with Honiara and Rennell-Bellona as outliers with 95 and 1 percent respectively. Only 52 percent of households rely on any type of piped water for drinking water. Provinces with large rainwater catchment areas like Makira, Malaita and Guadalcanal depend to a large extent on rivers and streams.

Only 23 percent of households have access to modern toilet facilities, either private or communal. The situation is completely different in Honiara where 88 percent of inhabitants have access. The only other province where access is higher than average is Western province. Availability is lowest for Temotu and Makira-Ulawa (8 and 10 percent respectively). A very similar picture exists with regard to supply of electricity to households: Honiara amply exceeds the country's 16-percent average (73

percent), Western province is the only other province with above average availability (20 percent), and Temotu and Rennell-Bellona have fewest connections with just 3 and 1 percent of households supplied with electricity. Surprisingly, other urban centres have even higher electricity supply than Honiara: 91 percent. Overall, SIEA is the main supplier of electricity. Access to information by radio —the main channel of communication in the Solomon Islands— is limited to 41 percent of the households. Again, Honiara is much better serviced than average (79 percent) and Temotu and Makira-Ulawa are at the other end of the range (26 and 28 percent respectively). In all provinces firewood is the cooking fuel for 90 percent or more of the households, except for Honiara, where gas is the main fuel.

10.2.7 Future population developments

Projection results. This report includes population projections for the country as a whole (four variants) and for the separate provinces (two variants), based on assumptions with regard to fertility, mortality, migration, and economic and political development. The medium-high national projection, which is considered the most realistic variant, expects a population of 577 thousand people in 2014, a 43 percent increase in 15 years that is fuelled by around 15 thousand births annually. Population estimations for 2014 by the other projection variants vary between 559 and 605 thousand people, an increase of 38 and 50 percent respectively.

The two provincial projection variants assume two completely different economic and political settings in the country. The 'revival' scenario assumes that the economy and society will return to circumstances resembling the pre-conflict situation, whereas the 'stagnation' variant assumes a continuation of the present near-collapse of society. No case is made to determine the most likely scenario for projections at the provincial level. Both scenarios show Honiara and Western province as the fastest growing areas, but the growth rates in the 'revival' scenario are much higher. Here Honiara is expected to come close to a town of 100 thousand inhabitants in 2014, whereas Rennell-Bellona may experience an actual decline of its population.

Implications of projections. The different population projections provide input for planners with regard to required services in the years to come. The size of projected age groups in combination with demand assumptions —for instance, expressed in rates of school enrolment or labour market participation— determine what needs to be realised. For example, if the present school attendance rates prevail, according to the most likely scenario in 2014 there will be 30 thousand more students than the 90 thousand recorded by the census in 1999. However, if the attendance rate is set higher, correspondingly more students should be expected, for whom timely planning, teacher training, material development and construction of accommodation will be required. This can be based on observed past trends or on development target-setting by the government.

With respect to the provincial scenarios, the outlook for the country's development in the 'stagnation' scenario is fairly bleak, with negative implications for income, employment and basic services, transport and communication. The 'revival' scenario may pose a much more desirable alternative. However, planners and policy-makers should bear in mind that to an important extent this scenario is based on the re-start of major companies and that the attraction of external labour is prerequisite for this (since local labour supply and expertise is insufficient) which was precisely one of the issues at the root of the ethnic conflict.

10.3 General observations

The 1999 census showed improvements and favourable developments in various fields. The economy seems to be diversifying and fertility is declining. Educational participation and literacy has increased in recent years, as have birth attendance by trained medical staff and the share of women receiving a medical check-up during pregnancy. This probably contributed to the increase in life expectancy and

the decrease in infant and adult mortality. Another important finding is that the position of women in Solomon Islands society seems to be improving. In terms of labour market participation, education and literacy, and ability to communicate in Pidgin, women are catching up with men. The reduction in fertility has almost certainly contributed to an improvement of women's health, and the observed increase in age at first marriage and decrease in age difference with the spouse has probably strengthened women's position in the family.

Despite these favourable developments, the census also identifies certain areas of concern. One is the fact that despite the observed improvements, there is still a long way to go. Malaria incidence as well as fertility are among the highest in the world, and —where comparable information is available— within the Pacific region, the Solomon Islands is consistently among the poorest performers. This applies, for instance, to primary school attendance, infant mortality, professional birth attendance, piped water supply and availability of modern toilet facilities. Also, with high fertility, young commencement of childbearing and childbearing at later ages, Solomon Islands women are at risk for reproductive health-related impairment and maternal mortality.

A second point of concern is the seemingly uneven development within the country, or perhaps even marginalisation of certain areas. The strong contraction of urbanisation in Honiara and Western province is a case in point. Urban centres in other provinces —with the exception of Auki— show little growth and some even show decline, and, therefore, hardly seem to function as anchor points of local development. In general, and especially since the withdrawal of Guadalcanal from the society at large, development seems to be concentrating in the capital and in Western province. Here, the economy is strongest and most diversified and many other indicators show the consistently favourable position of these provinces. These include labour market participation, school attendance, educational attainment and literacy, health service provisions, electricity and piped water supply, and the availability of modern toilets and communication means. On the other hand Rennell-Bellona, Malaita, Temotu and to a lesser extent Guadalcanal and Makira-Ulawa often perform very poorly in these areas. It is not surprising that the first three provinces —which are characterised by high unemployment, relatively high pressure on land (except Rennell-Bellona), and generally few services and opportunities— are the ones to have the highest out-migration rates.

A final observation regards the rapid increase of the population in the Solomon Islands, which poses a massive challenge to the government. The large young age groups that enter society will in time claim their position in terms of access to land and employment. As they grow older, they will also contribute to an increasing demand for facilities like housing, education, health services, and supply of water, electricity and transportation. Although in most parts of the Solomon Islands land shortage is still not a pressing problem, it will become so in the near future, especially if extensive farming methods are maintained and the absorption capacity of the formal economy remains low. Even today, the population in some areas (for example on the remote islands of Temotu) faces problems related to limited land resources. Increased land disputes will most probably be another consequence of increasing pressure on land, as well as the depletion of wood resources for fuel and building material, and increased pollution of drinking water resources.

An increased cash economy will probably be needed to absorb surplus labour that cannot be accommodated within the limits of the subsistence economy. In addition, it will probably be required to support the development of the country. This will imply a higher mobility of the population, since labour demand and supply are usually not well-matched. A prerequisite for economic development, therefore, may involve measures to influence obstacles to the free movement of people, a daunting task in the setting of the Solomon Islands given its land tenure system and the sensitivity caused by the recent ethnic conflict.

The population projections in chapter 9 give an indication of the challenges associated with fast population growth. At the time of the 1999 census, the labour force was characterised by a low participation rate: only 23 percent were involved in any kind of paid work and an additional 11 percent could be classified as unemployed, but looking for paid work. Together this implies a demand for 85 thousand paid jobs. If these conditions prevail, 15 years on no fewer than 130 thousand jobs will be required for full employment: 45 thousand or 53 percent more than required in 1999, which is 72 thousand (85 percent) more jobs than there actually were in the census year. Even a flourishing economy would hardly be able to cope with such a pressure on the labour market. If instead of 23 percent, say, half the labour force participate in 2014, 190 thousand jobs would be required for full employment (133 thousand jobs or 156 percent more than in 1999).
Education is another area that is significantly affected by population growth. Notwithstanding the expected moderate fertility decline in the years following the 1999 census, every year the population momentum will produce larger cohorts of potential students that want to enter the educational system. Even with the present low overall attendance rate (56 percent), by 2014 the number of students will probably be one third higher than in 1999. This, of course, requires a correspondingly higher budget for venues and accommodation, school materials and teachers, and timely planning of staff training. However, if development goals of increased school attendance (say up to 80 percent) are to be effectuated, for 2014 plans should be based on a student population of around 159 thousand, which is two-thirds more than in 1999.

In conclusion, the 1999 census describes a situation in the Solomon Islands in which the population size is not remotely matched by the country's capacity to provide full education and meaningful employment for its population, or to provide a sufficient subsistence base and adequate health care or other basic services. Irrespective of a reverse of the present economic decline, continuous high population growth will severely aggravate the problems of income and employment, and pressure on land and services in the years to come. In all likelihood this will result in an actual deterioration of the situation of substantial parts of the population, even to the extent that it may threaten their means of subsistence as traditional modes of production cannot incessantly absorb large new numbers of people. Prospects for the country's progress, therefore, depend on a combination of strategies, which include firm policies that address population increase and facilitate economic recovery and growth, thereby necessarily taking into consideration the root causes of the ethnic problems in the past years. Given the large size of the cohorts that will reach the ages of education, labour market participation and childbearing, or have recently reached these ages, development policies should pay special attention to youths and young adults.

The most likely population development and the problems that can be identified as a result, are based on the medium-high projection variant. However, if the high projection variant is realised, the problems associated with population growth will be even more urgent. Accordingly, if the low variant becomes reality, pressure will be lower. International evidence shows that there is considerable room for effective policies on population growth and, therefore, efforts and facilitation by the government in the end may determine which of the scenarios identified in this report will be followed. The future of the Solomon Islands partly depends on the decisions that are made in this respect by present policy makers, which places an important responsibility on their shoulders. In the past, a population policy has been formulated without being followed by a vigilant decision to accept and implement it. Again disregarding population development as a policy area would represent a policy decision even though it is a passive decision; but it would be one with concrete and far-reaching consequences.

Annexes

Annex I Percentage age distributions, by age groups, census years 1970–1999

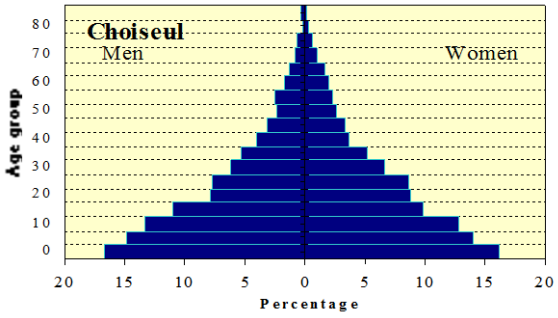
Age group	*Census year*											
	1970[a]			*1976*[a]			*1986*[a]			*1999*		
	Total	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0-4	16.6	16.3	17.0	20.3	20.2	20.5	17.7	17.7	17.7	15.6	15.7	15.4
5-9	15.0	14.6	15.5	15.5	15.5	15.6	15.5	15.6	15.4	13.3	13.4	13.2
10-14	13.1	13.6	12.6	12.0	11.9	12.1	14.1	14.2	14.0	12.6	12.8	12.5
15-19	10.1	10.1	10.1	9.8	9.8	9.9	10.5	10.2	10.8	11.1	11.2	11.2
20-24	7.6	7.2	8.1	7.4	7.0	8.0	8.5	8.0	9.0	9.9	9.6	10.2
25-29	7.6	7.2	8.1	6.9	6.5	7.3	6.8	6.5	7.1	8.6	8.4	8.9
30-34	5.9	5.9	6.0	5.8	5.7	5.9	5.5	5.4	5.6	6.4	6.3	6.5
35-39	5.6	5.5	5.7	4.9	4.9	4.9	4.5	4.4	4.6	5.3	5.2	5.3
40-44	4.2	4.2	4.2	3.9	3.9	3.9	4.0	4.1	3.9	3.9	3.9	3.9
45-49	3.7	3.7	3.8	3.5	3.6	3.5	3.1	3.1	3.1	3.3	3.3	3.4
50-54	2.8	3.0	2.6	2.5	2.6	2.4	2.6	2.7	2.5	2.7	2.6	2.7
55-59	2.3	2.4	2.1	2.4	2.5	2.3	2.4	2.4	2.3	2.2	2.3	2.2
60-64	1.8	2.0	1.6	1.6	1.9	1.3	1.7	1.8	1.5	1.6	1.7	1.6
65-69	1.3	1.5	1.1	1.2	1.4	1.0	1.3	1.5	1.1	1.4	1.5	1.4
70-74	2.2	2.9	1.5	2.3	2.7	1.8	1.9	2.3	1.5	2.0	2.3	1.7
Broad age groups												
0-14	44.7	44.4	45.0	47.8	47.6	48.1	47.3	47.5	47.1	41.5	41.9	41.1
15-44	41.1	40.1	42.3	38.7	37.7	39.7	39.7	38.5	40.9	45.2	44.5	46.0
45-59	8.8	9.1	8.5	8.4	8.7	8.1	8.1	8.3	7.8	8.2	8.3	8.2
60+	5.4	6.4	4.2	5.0	6.0	4.0	4.9	5.7	4.1	5.1	5.4	4.7
Dependency ratio[b]	100			112			109			87		
Child/woman ratio[c]	84			107			90			70		

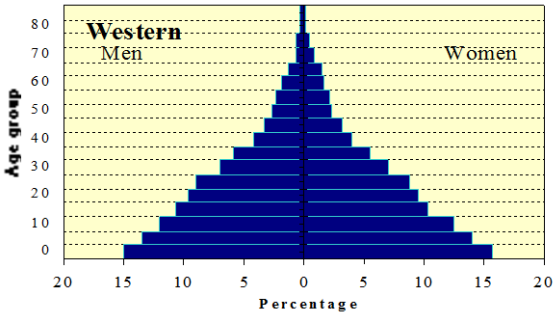
[a] Solomon Islanders only.

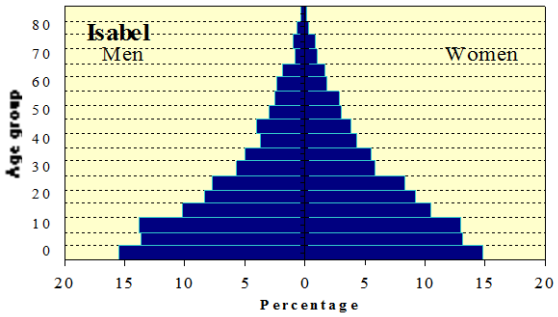
[b] Calculated as all persons in age categories 0-14 and 60+ per 100 persons in age category 15-59.

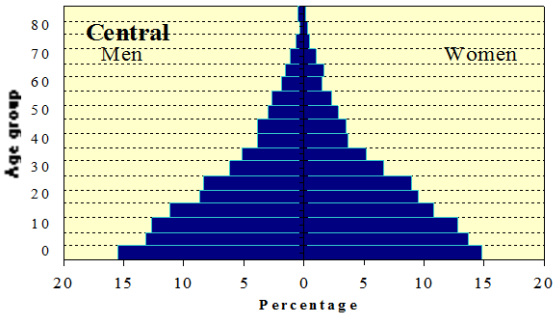
[c] Calculated as all children in age category 0-4 per 100 women in age category 15-44

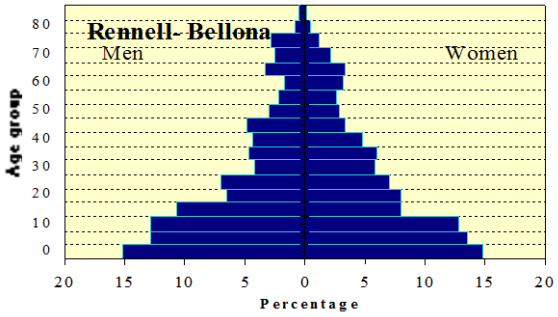
Annex II Population by age and sex for each province

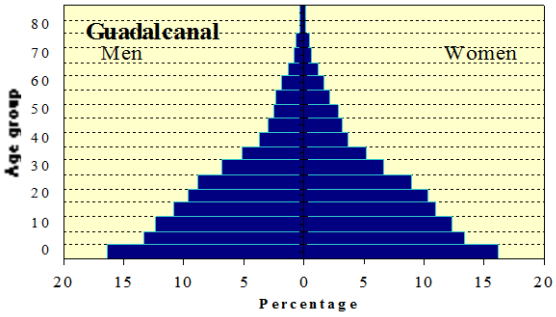


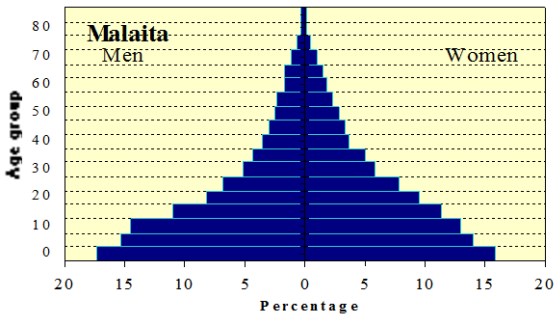


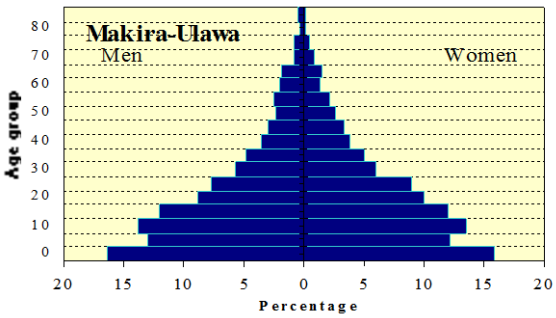


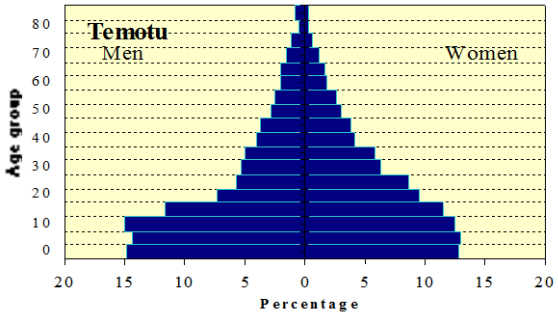


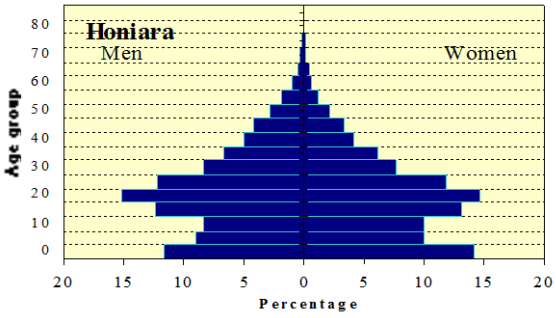












Annex III Percentage age distributions, by province

Province		*Age group*				*Dependency*	*Child/woman*
	Total	*0-14*	*15-44*	*45-59*	*60+*	*ratio*	*ratio*
Choiseul	100.0	43.9	42.4	8.2	5.5	98	78
Western	100.0	41.2	45.8	8.0	5.0	86	72
Isabel	100.0	42.0	42.0	9.5	6.5	94	71
Central	100.0	41.3	44.1	9.0	5.5	88	70
Rennell-Bellona	100.0	41.0	38.5	9.5	11.0	108	79
Guadalcanal	100.0	42.0	45.3	7.9	4.8	88	74
Malaita	100.0	44.9	41.2	8.2	5.6	102	76
Makira-Ulawa	100.0	42.4	44.3	7.9	5.4	92	72
Temotu	100.0	41.1	42.7	9.2	6.9	93	58
Honiara	100.0	31.3	58.9	7.9	1.8	50	50

Annex IV Solomon Islands vernacular languages and alternative names

Language name	*Alternative names*	*Province*	*Region*
Alu	Alo	Western	Shortland Islands
Amba	Aba, Nembao, Utupua	Temotu	Aveta, Matembo and Nembao Utupua
Anuta		Temotu	Anuta Island
Are'are		Malaita	South Malaita and Marau Sound
Arosi	Wango	Makira-Ulawa	North West Makira
Asumboa	Asumbua, Asumuo	Temotu	Asumbuo Utupua
Avasö	Lömaubi	Choiseul	South East Choiseul
Ayiwo	Aiwo, Gnivo, Nivo, Nifilole, Lomlom, Reef Islands	Temotu	Santa Cruz
Babatana	East Choiseul, Kuboro, Kumboro, Mbambatana	Choiseul	South Central Choiseul
Baeggu	Baegu, Mbaenggu	Malaita	North Malaita
Baelelea	Mbaelelea	Malaita	North Malaita
Baniata	Lokuru, Mbaniata	Western	South Rendova Island
Bareke	Mbareke	Western	North Vangunu Island
Bauro		Makira-Ulawa	Central Makira
Bellona	Bellonese, Mugiki, Mungiki	Rennell-Bellona	Rennell and Bellona Islands
Bilua	Mbilua, Vella Lavella	Western	Vella Lavella Island
Birao	Mbirao	Guadalcanal	East Guadalcanal
Blablanga	Gema, Goi	Isabel	Central Isabel
Bughotu	Bugotu, Mbughotu, Mahaga, Hageulu, Vulava	Isabel	South East and North West Isabel
Cheke holo	A'ara, Hogirano, Hograno, Kubonitu, Maringhe	Isabel	Central Isabel
Dai	Ndai	Malaita	North East Malaita
Dorio	Kwarekwareo	Malaita	West Central Malaita
Duke	Kolombangara, Ndughore, Nduke	Western	Kolombangara Island
Fagani	Agufi, Faghani, Rihu'a	Makira-Ulawa	North West Makira
Fataleka		Malaita	East Malaita
Fauro		Western	Fauro Island
Gae	Nggae	Guadalcanal	West, N-W and North Central Guadalcanal
Gao	Nggao	Isabel	Central Isabel
Gela	Florida Islands, Ngela	Central province	Gela, Florida Islands, Guadalcanal, Savo
Ghaimuta	Ghua	Guadalcanal	North and East Central Guadalcanal
Ghanongga	Ganongga, Kubokota, Kumbokota	Western	North Ranonga Island
Ghari	Gari, Geri, Nggeri, Sughu, Tangarare, West Guadalcanal	Guadalcanal	West, N-W and North Central Guadalcanal
Gula'alaa	Kwai, Ngongosila	Malaita	Kwai and Ngongosila Islands

Annex IV (cont.)

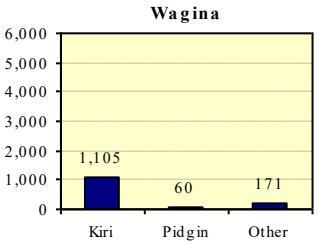
Language name	*Alternative names*	*Province*	*Region*
Haununu	Hauhunu	Makira-Ulawa	South Central Makira
Hoava		Western	North Marovo
Kahua	Anganiwai, Anganiwei, Narihua, Wainoni	Makira-Ulawa	South Makira
Katazi		Choiseul	North Central Choiseul
Kokota		Isabel	North East and South West Isabel
Koo	Inakona, Poleo	Guadalcanal	South East and South West Guadalcanal
Kushage	Kusage	Western	North New Georgia
Kwaio	Koio	Malaita	Central Malaita
Kwara'ae		Malaita	Central Malaita
Laghu	Katova, Lagu	Isabel	Kia District Isabel
Langalanga		Malaita	West Central Malaita
Lau		Malaita	North East Malaita
Lavukaleve	Laube, Laumbe, Lavukal, Russell Island	Central province	Russell Islands
Lengo	Aola, Paripao, Ruavatu, Tasemboko	Guadalcanal	North and East Central Guadalcanal
Longgu	Logu	Guadalcanal	East Guadalcanal
Lungga	Kumbokola, Luga	Western	South Ranonga Island
Malango	Bahomea, Huaho	Guadalcanal	Central Guadalcanal
Marau	Marau	Guadalcanal	Marau Sound
Marmaregho		Makira-Ulawa	Central Makira
Marovo		Western	South New Georgia, Marovo Lagoon, Vangunu Island
Moli		Guadalcanal	South East and South West Guadalcanal
Mono		Western	Treasury Island
Nambakaenger	Balo, Banwa, Deni, Graciosa Bay, Mbanua, Lwepe, Malo, Ndeni, Nemba, Neo, Nep, Natugu	Temotu	Santa Cruz
Nanggu		Temotu	Santa Cruz
Ndi	Di, Vaturanga	Guadalcanal	West And North West Guadalcanal
Nea	Banyer, Manoputi, Noole, Nooli	Temotu	Santa Cruz
Nginia	Nginia	Guadalcanal	West, N-W and North Central Guadalcanal
Ontong java	Leuangiua, Lord Howe, Luangiua, Luaniua, Pelau	Malaita	Lord Howe Atoll
Oroha	Mara ma-siki, Oraha	Malaita	South Malaita
Pileni	Aua, Matema, Nukapu, Nupani, Pilheni	Temotu	Outer Eastern Islands
Rawo	Ravo	Makira-Ulawa	South Central Makira
Rennell	Mugaba, Munggava, Rennellese	Rennell-Bellona	Rennell and Bellona Islands
Ririo		Choiseul	East Choiseul

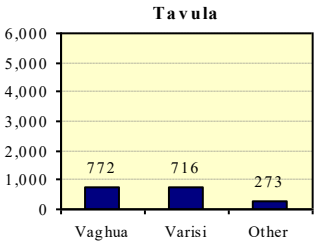
Annex IV (end)

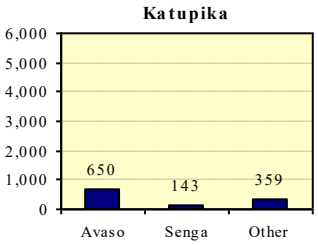
Language name	*Alternative names*	*Province*	*Region*
Roviana	Robiana, Rubiana, Ruviana	Western	North Central New Georgia, Roviana Lagoon, Vonavona
Sa'a	Apae'aa, Saa, South Malaita	Malaita	South Malaita
Santa ana	Owa raha, Owa, Owa riki	Makira-Ulawa	Santa Ana and Santa Catalina
Savo	Savosavo, Savo Island	Central province	Savo Island
Senga	Senga, Sengan, Sengga, Sisingga	Choiseul	South Choiseul
Sikaiana	Sikayana	Malaita	Sikaiana Atoll
Simbo	Madeggusu, Mandeghughusu, Sibo	Western	Simbo Island
Suafa	Suafa	Malaita	North East Malaita
Talise	Malagheti, Talisi, Tolo	Guadalcanal	South East and South West Guadalcanal
Tandai-nggaria	Tanaghai, Tandai	Guadalcanal	West, N-West and North Central G'canal
Tanema	Tanima	Temotu	Vanikoro Island
Tanimbili	Nyisunggu	Temotu	Tanimbili, Utupua
Taumako	Duff	Temotu	Taumako, Duff Islands
Tawarafa	Star Harbour	Makira-Ulawa	South Makira
Teanu	Buma, Puma	Temotu	Puma, Lavaka, Emua, Lale, Vanikoro
Tikopia		Temotu	Tikopia, Makira, Russell
To'abaita	Malu, Malu'u, To'ambaita	Malaita	North Malaita
Ughele	Ugele	Western	North Rendova Island
Uki ni masi	Ugi	Makira-Ulawa	Ughi, Three Sisters Islands
Ulawa		Makira-Ulawa	Ulawa, Three Sisters Islands
Vaghua	Tavola, Tavula, Vagua	Choiseul	North Choiseul
Vangunu	Vangunu	Western	South West Vangunu
Vano	Vanikolo, Vanikoro	Temotu	Vanikoro Island
Varisi	Ghone, Varese	Choiseul	North Choiseul
Zabana	Jabana, Kia	Isabel	South West and North East Isabel
Zazao	Jajao, Kilokaka	Isabel	Central Isabel

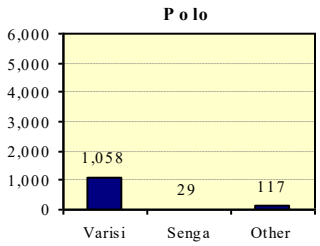
Annex V Major first languages, by ward

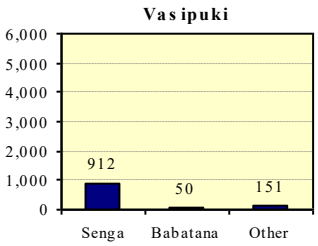
Choiseul province

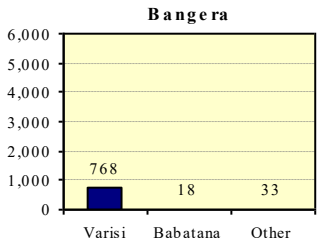


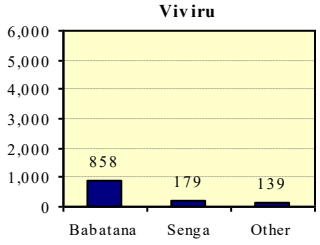


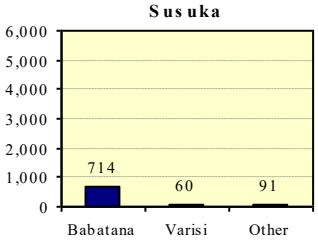


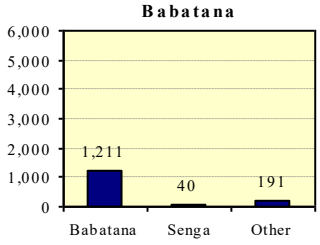


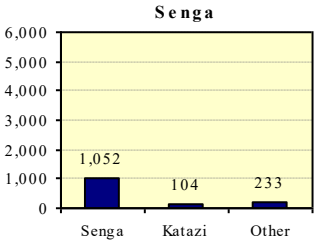


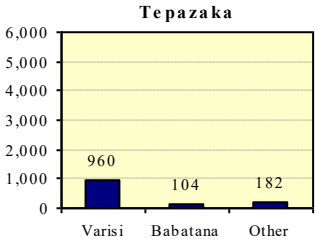


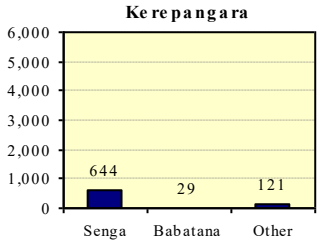


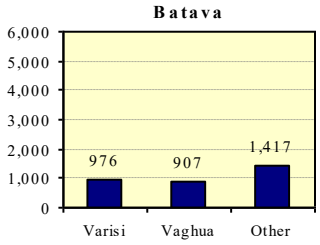


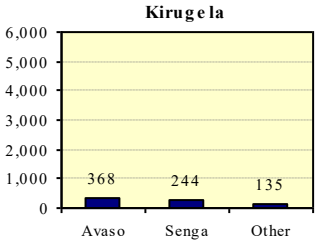






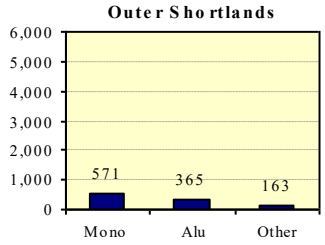


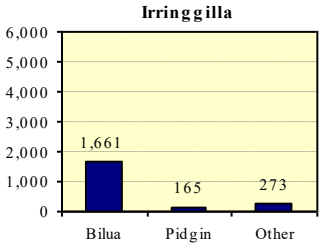


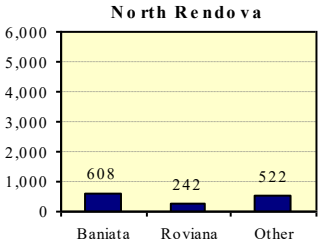


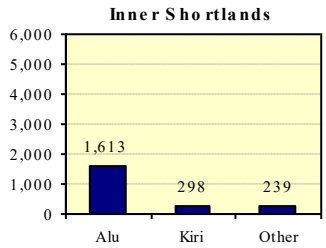
Annex V

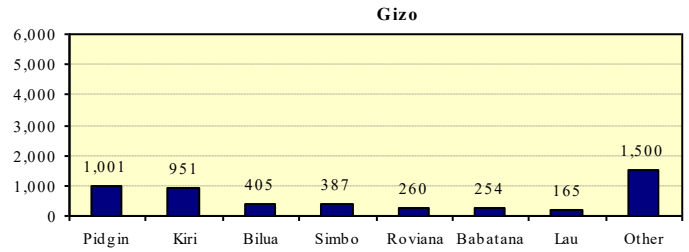
Western province

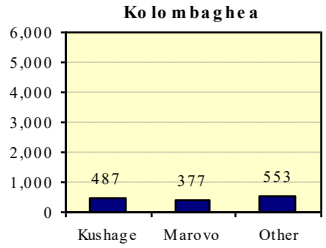


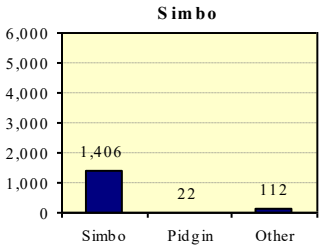


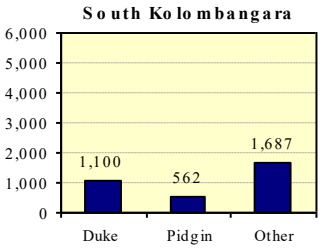


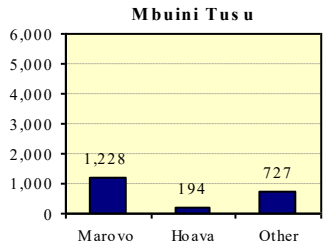


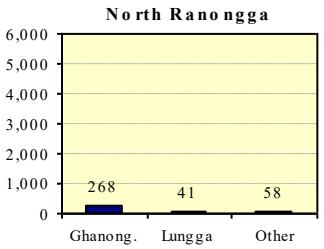


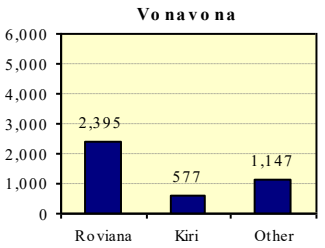


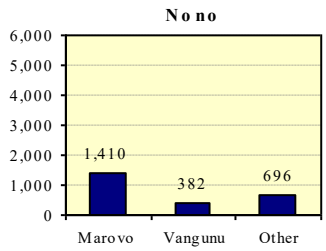


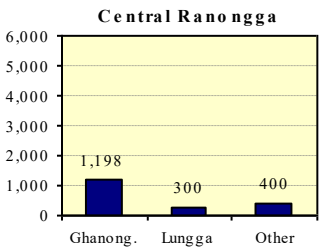


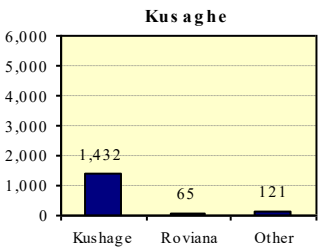






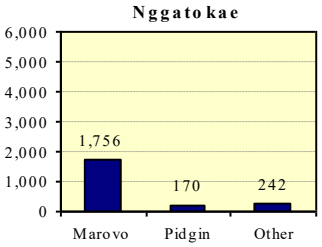


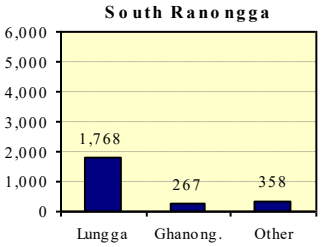


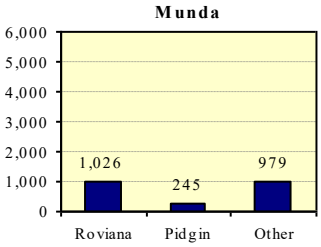


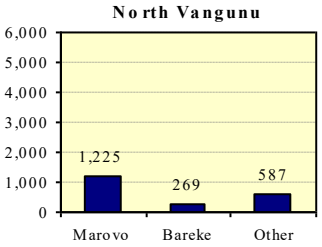
Annex V

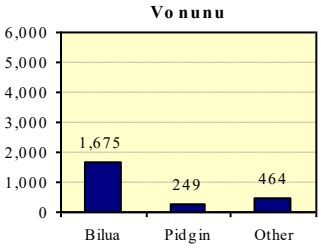
Western province (end.)

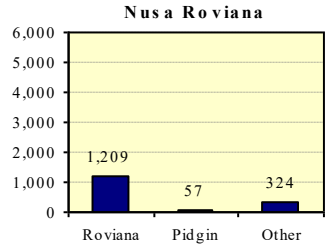


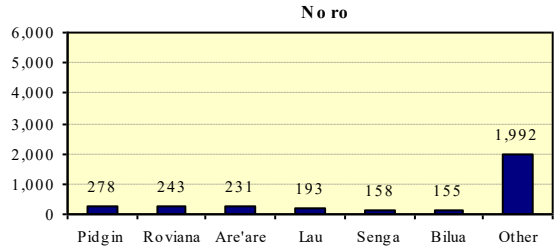


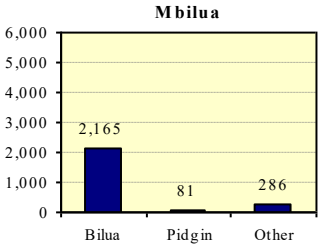


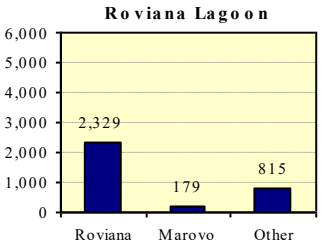


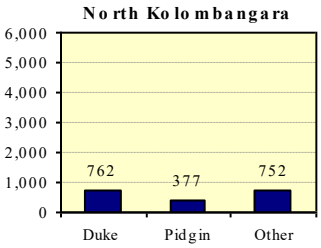


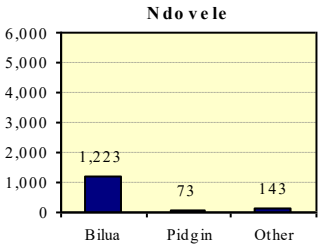


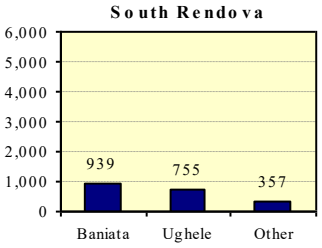






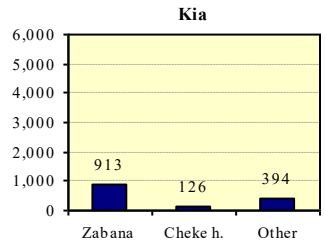


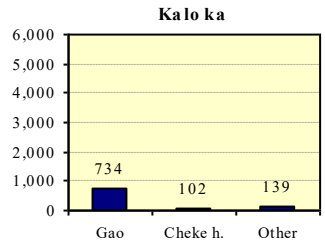


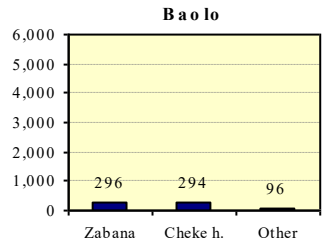


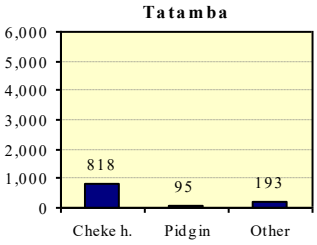
Annex V

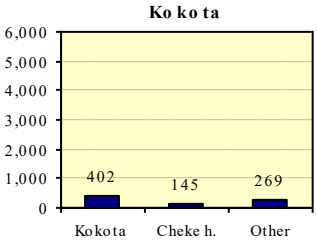
Isabel province

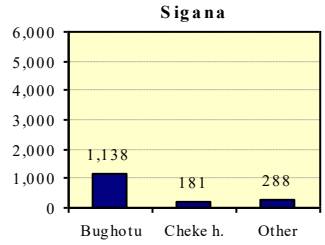


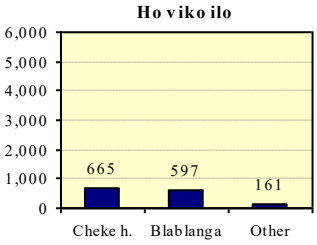


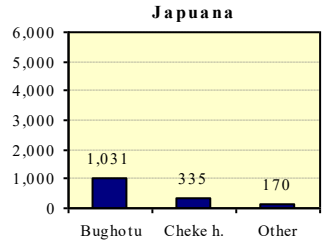


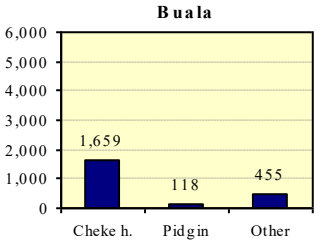


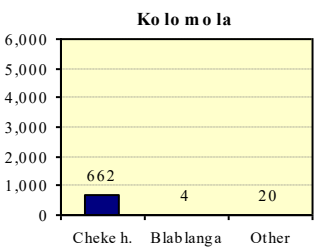


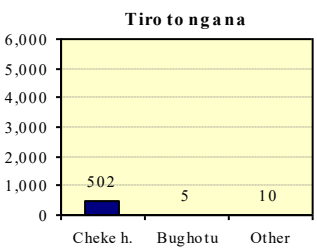


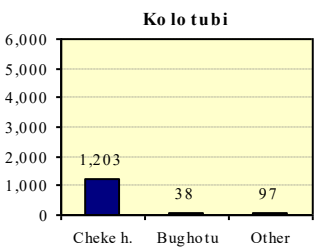


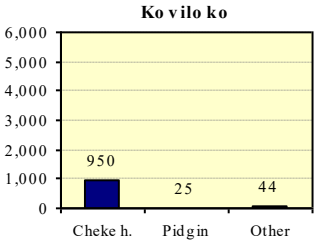


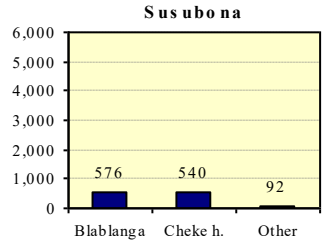


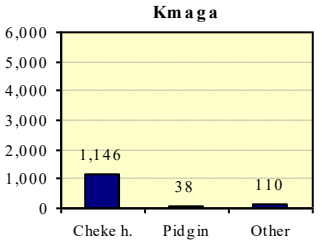


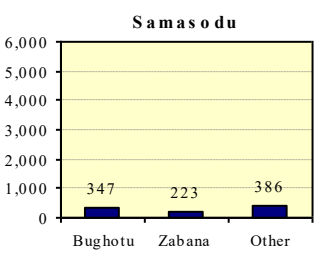






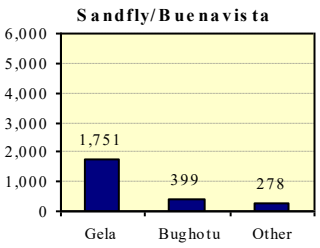


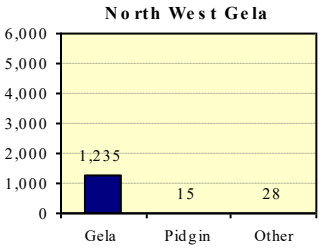


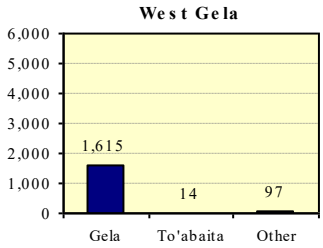


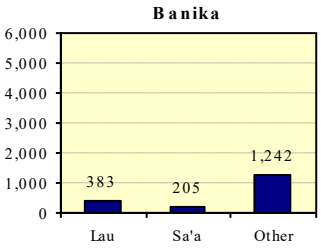
Annex V

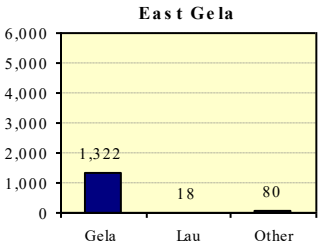
Central province

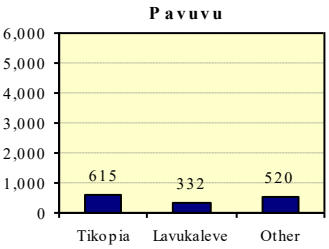


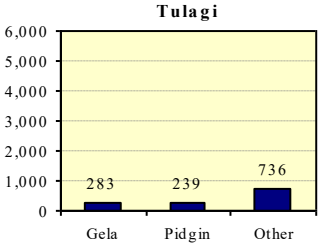


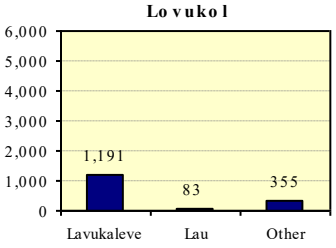


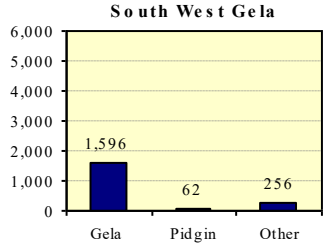


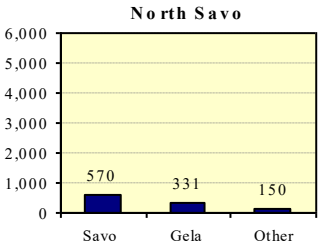


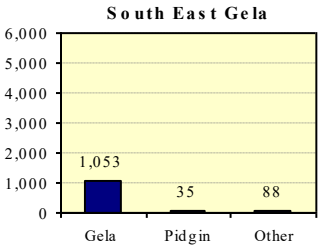


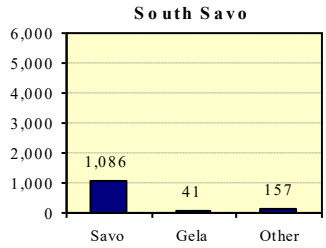


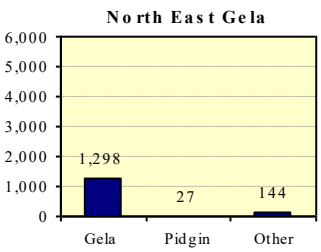






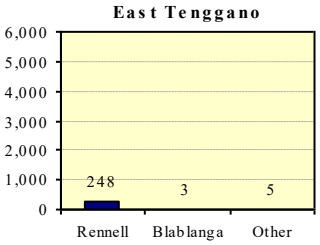


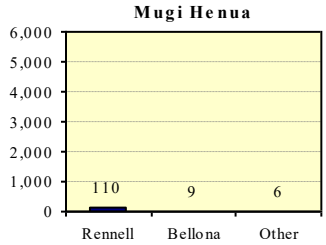


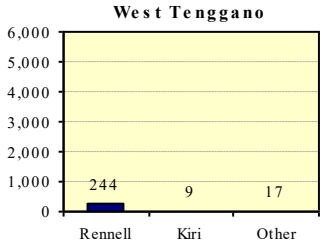


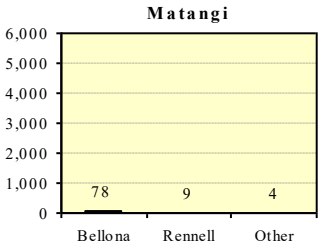
Annex V

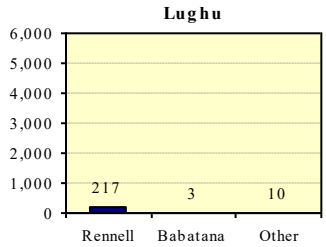
Rennell-Bellona province

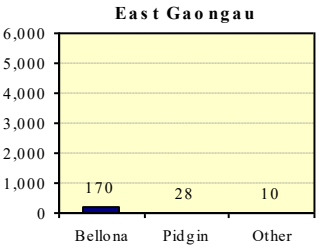


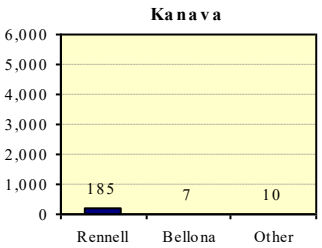


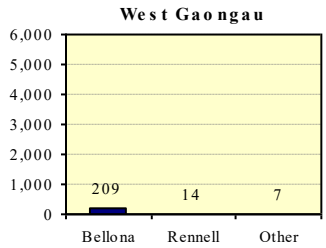


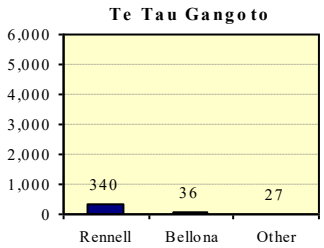


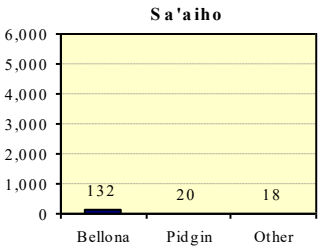




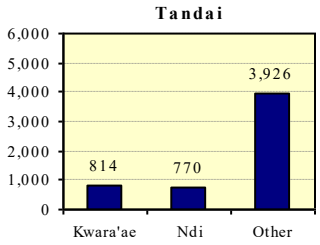


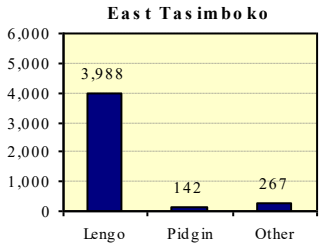


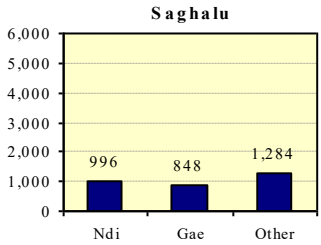




Guadalcanal province

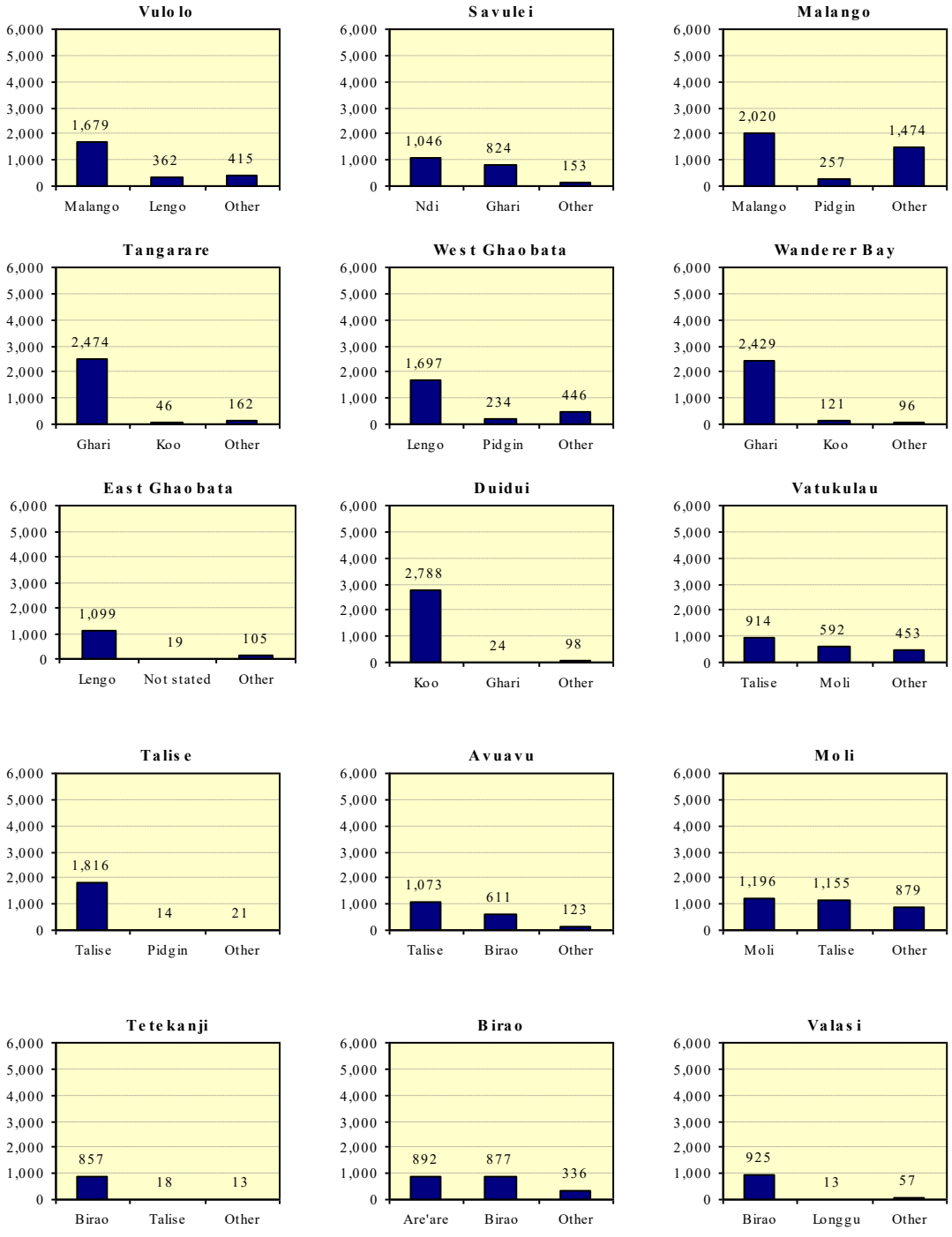






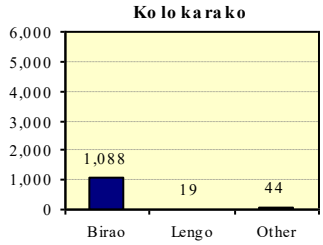
Annex V

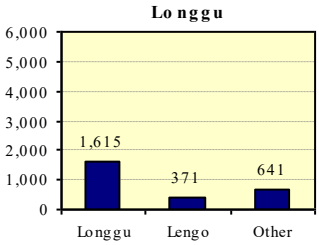
Guadalcanal province (cont.)

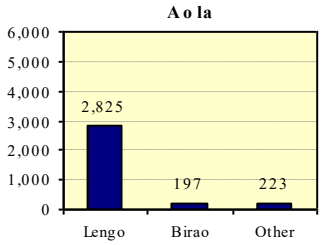


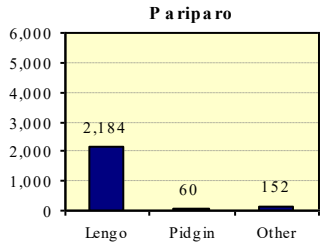
Annex V

Guadalcanal province (end)

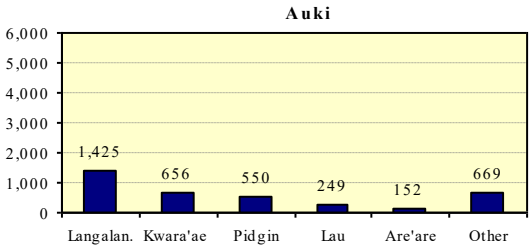


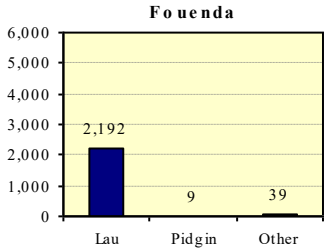


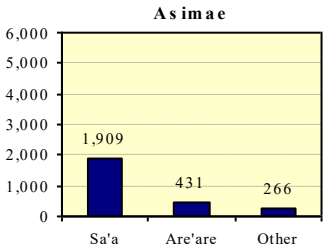


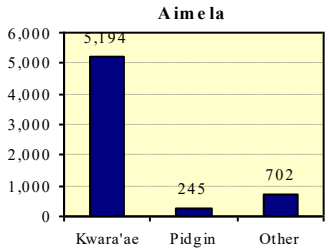


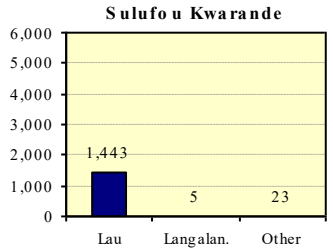
Malaita province

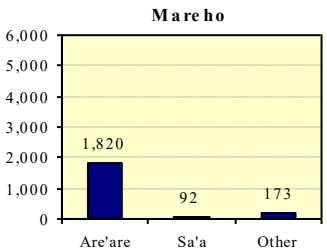


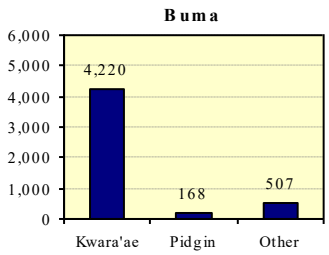


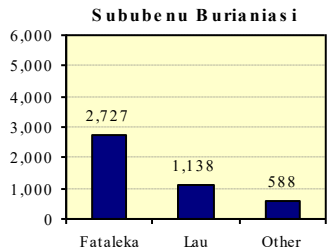






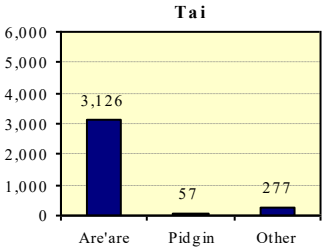


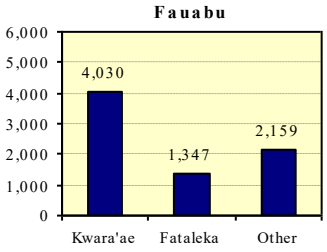


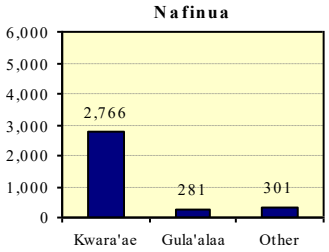


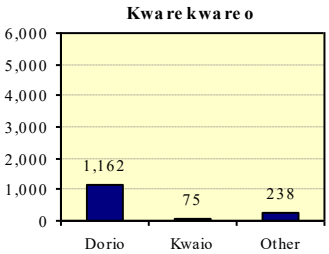
Annex V

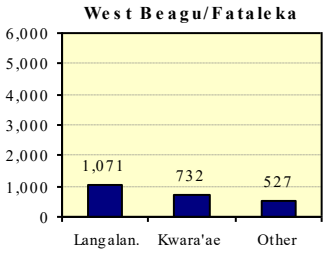
Malaita province (cont.)

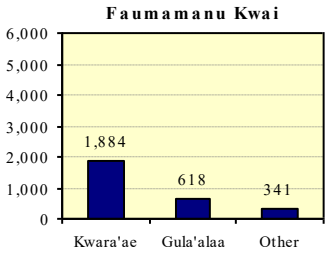


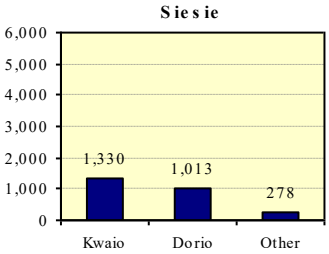


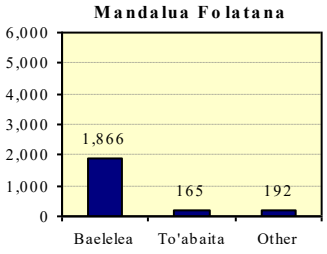


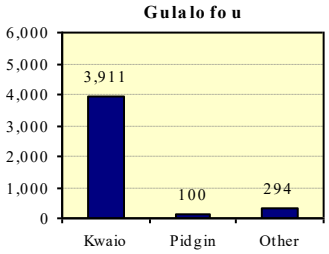


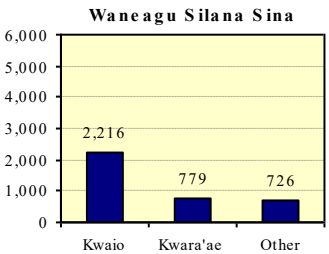


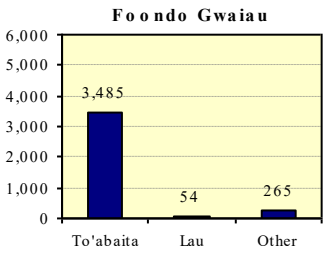


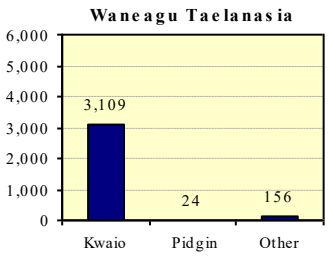


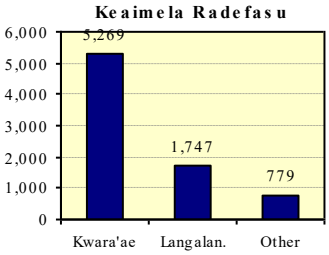


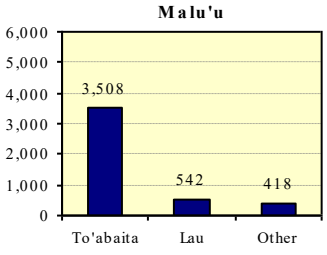


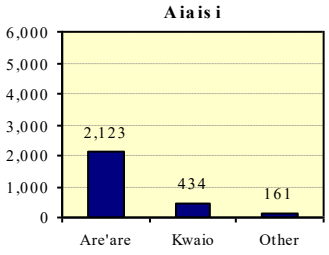






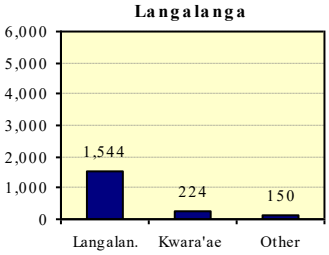


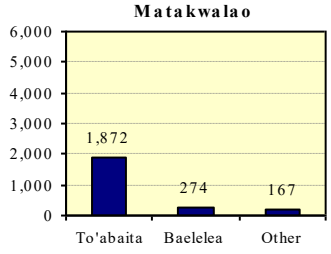


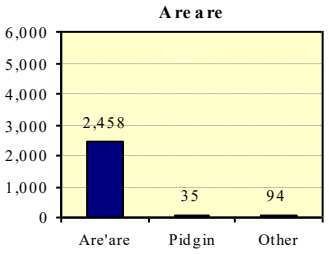


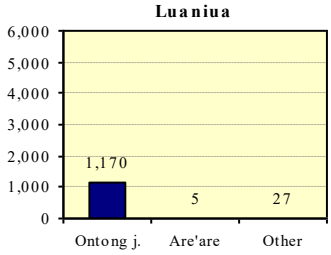
Annex V

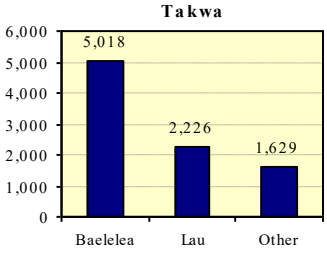
Malaita province (cont.)

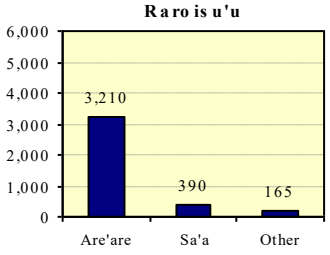


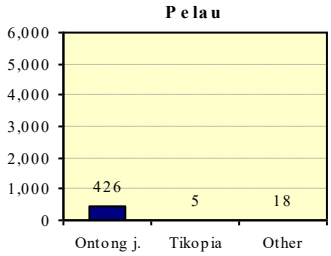


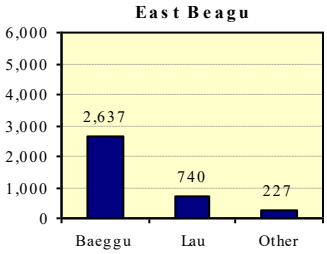


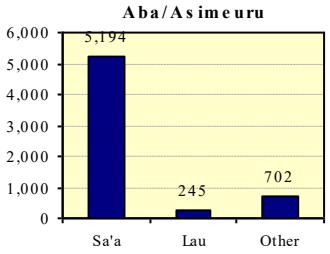


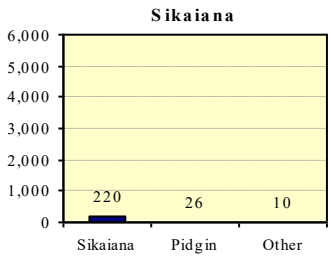




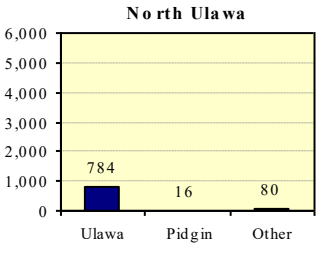


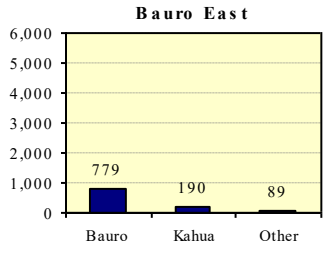


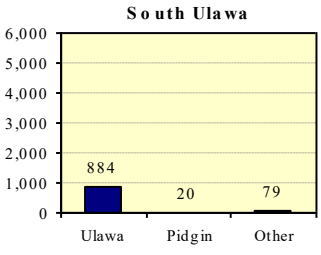




Makira-Ulawa province

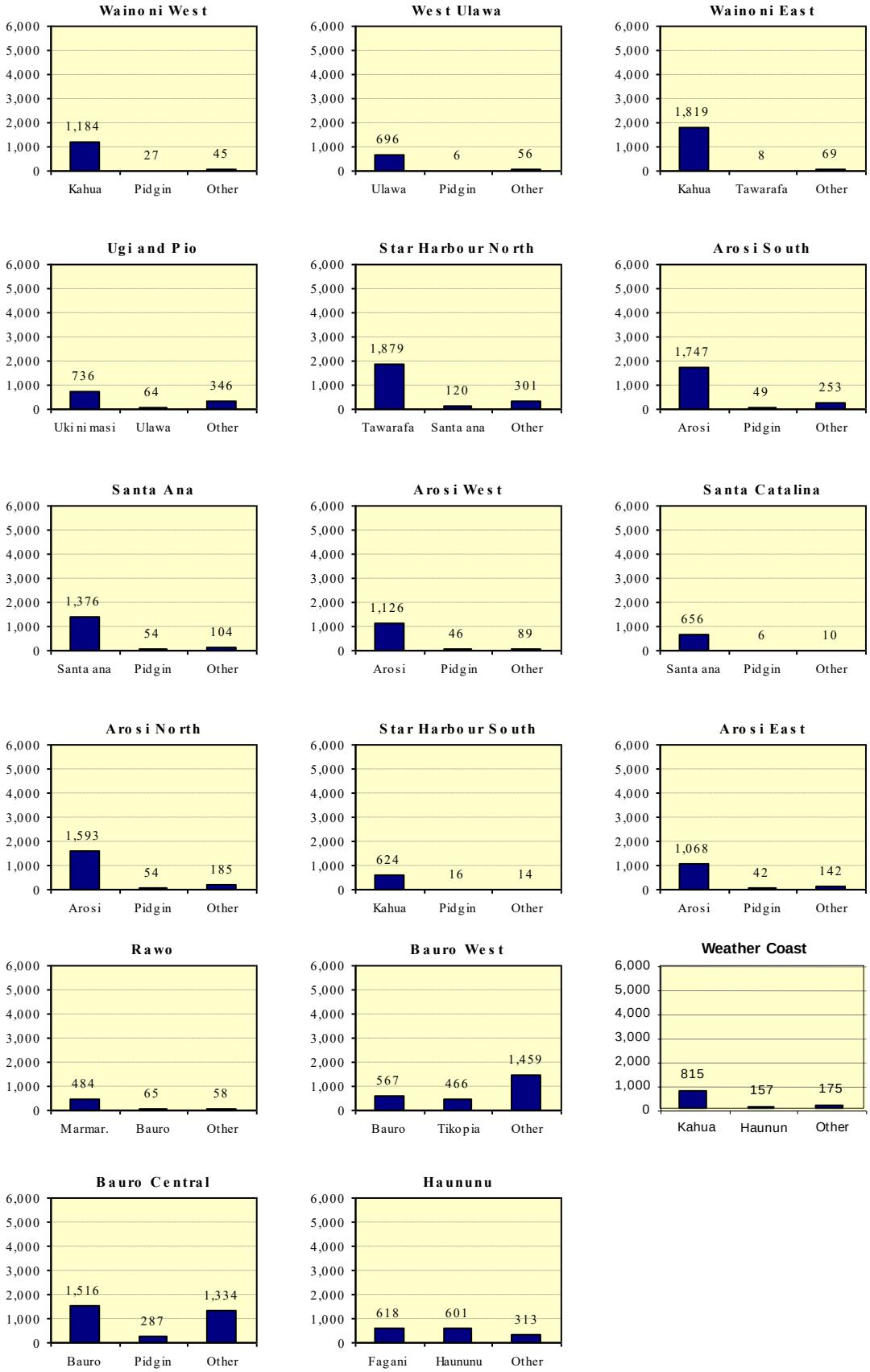






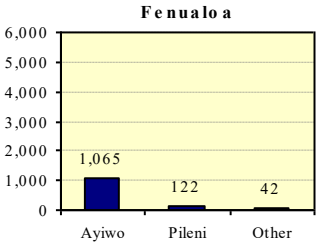
Annex V

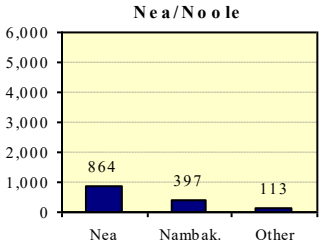
Malaita province (end.)

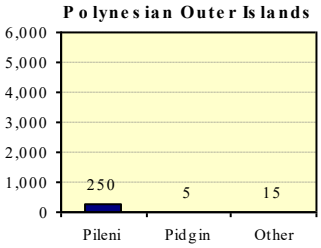


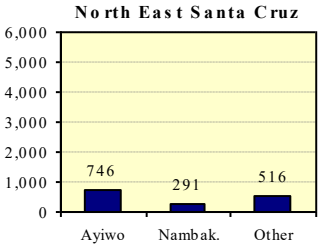
Annex V

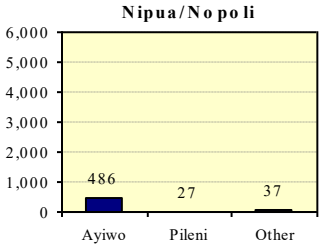
Temotu province

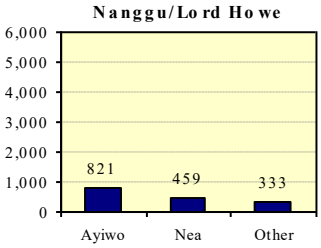


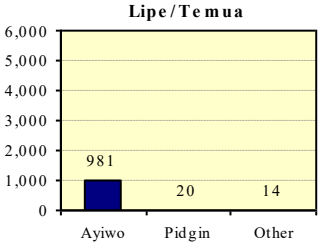


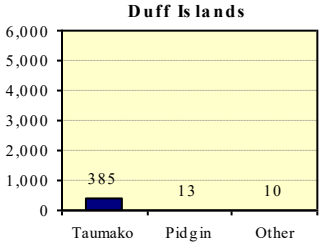


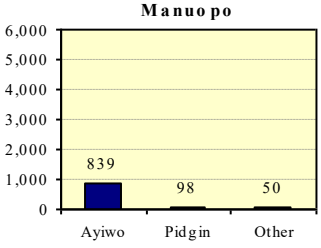


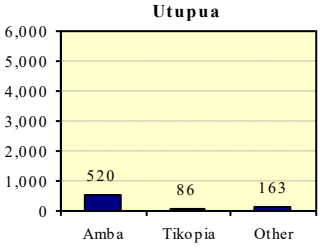


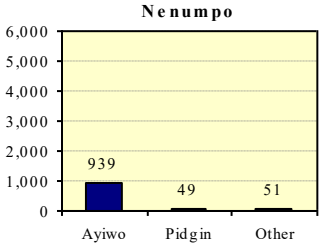


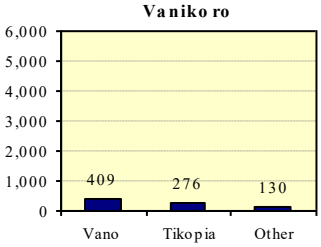


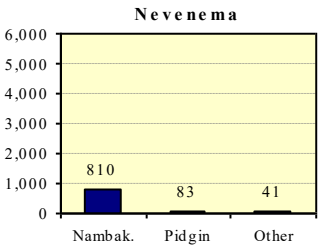


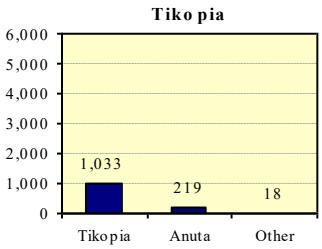


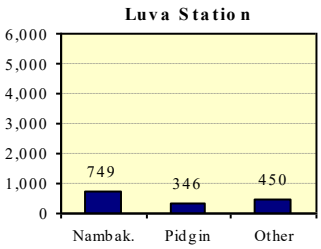


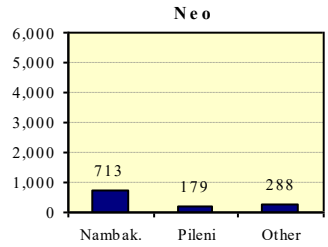


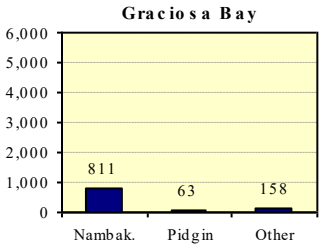




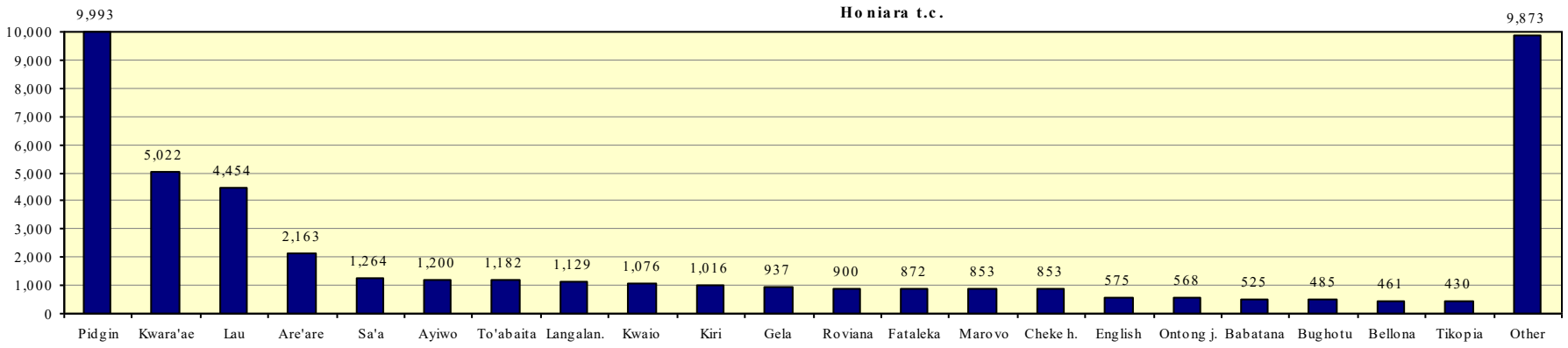








Honiara Town Council



Annex VI Population five years of age and over, by literacy and illiteracy and by language

Language learned first at a child	*Total*	*Literate*	*Illiterate*	*Percent literate*
Total	341,043	222,405	118,638	65
Pidgin	19,852	14,157	5,695	71
Local language	311,413	200,222	111,191	64
Alu	2,412	1,909	503	79
Amba	537	297	240	55
Anuta	246	143	103	58
Are'are	16,220	10,895	5,325	67
Arosi	6,190	4,548	1,642	73
Asumboa	9	7	2	78
Avaso	1,333	1,090	243	82
Ayiwo	7,870	4,431	3,439	56
Babatana	5,226	4,229	997	81
Baeggu	5,339	2,294	3,045	43
Baelelea	8,019	3,758	4,261	47
Baniata	1,712	1,375	337	80
Bareke	366	331	35	90
Bauro	3,124	2,246	878	72
Bellona	1,126	895	231	79
Bilua	7,998	6,660	1,338	83
Birao	5,303	2,529	2,774	48
Blablanga	1,620	1,119	501	69
Bughotu	3,702	2,512	1,190	68
Cheke holo	10,000	6,430	3,570	64
Dai	9	7	2	78
Dorio	2,124	1,129	995	53
Duke	2,068	1,763	305	85
Fagani	820	558	262	68
Fataleka	6,023	3,090	2,933	51
Fauro	13	11	2	85
Gae	837	627	210	75
Gao	1,092	676	416	62
Gela	10,935	6,417	4,518	59
Ghaimuta	141	67	74	48
Ghanongga	2,342	1,871	471	80
Ghari	6,363	4,510	1,853	71
Gula'alaa	1,446	992	454	69
Haununu	858	587	271	68
Hoava	419	337	82	80
Kahua	4,736	2,932	1,804	62
Katazi	192	151	41	79
Kokota	475	345	130	73
Koo	4,072	1,905	2,167	47
Kushage	2,175	1,678	497	77
Kwaio	12,047	5,067	6,980	42
Kwara'ae	29,392	16,355	13,037	56
Laghu	14	13	1	93
Langalanga	6,396	4,637	1,759	72
Lau	15,582	9,608	5,974	62
Lavukaleve	1,620	1,140	480	70
Lengo	12,272	7,739	4,533	63

Annex VI (end.)

Longgu	1,745	1,086	659	62
Lungga	2,564	1,943	621	76
Malango	3,676	1,931	1,745	53
Marau	133	99	34	74
Marmaregho	486	356	130	73
Marovo	7,518	6,237	1,281	83
Moli	1,896	1,168	728	62
Mono	613	470	143	77
Nambakaenger	4,065	2,327	1,738	57
Nanggu	205	162	43	79
Ndi	2,695	1,742	953	65
Nea	1,536	960	576	63
Nginia	443	286	157	65
Ontong java	2,172	1,087	1,085	50
Oroha	36	29	7	81
Pileni	1,084	583	501	54
Rawo	99	89	10	90
Rennell	1,840	1,444	396	78
Ririo	78	69	9	88
Roviana	8,983	7,449	1,534	83
Sa'a	6,763	4,665	2,098	69
Santa ana	2,882	2,095	787	73
Savo	2,252	1,471	781	65
Senga	4,020	3,097	923	77
Sikaiana	695	575	120	83
Simbo	2,525	2,047	478	81
Suafa	119	60	59	50
Talise	5,332	3,282	2,050	62
Tandai-nggaria	499	362	137	73
Tanema	3	1	2	33
Tanimbili	15	13	2	87
Taumako	486	229	257	47
Tawarafa	2,034	1,473	561	72
Teanu	22	20	2	91
Tikopia	3,117	1,811	1,306	58
To'abaita	11,609	7,026	4,583	61
Ughele	1,128	908	220	80
Uki ni masi	840	587	253	70
Ulawa	3,062	2,268	794	74
Vaghua	1,754	1,312	442	75
Vangunu	465	379	86	82
Vano	466	261	205	56
Varisi	4,638	3,208	1,430	69
Zabana	1,995	1,636	359	82
Zazao	10	9	1	90
Foreign language	5,640	4,819	821	85
English	867	844	23	97
Chinese	308	293	15	95
Kiribati	4,465	3,682	783	82
Other language	1,482	1,384	98	93
Not stated	2,656	1,823	833	69

Annex VII Percentage distribution, by sex, marital status and by five-year age group

Age group	*Males*				*Females*			
	Never married	*Currently married*	*Widowed*	*Divorced/separated*	*Never married*	*Currently married*	*Widowed*	*Divorced/separated*
Total	65.4	32.9	1.3	0.5	58.8	36.0	4.1	1.0
0-4	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
5-9	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-14	99.6	0.3	0.0	0.0	99.5	0.5	0.0	0.0
15-19	97.4	2.5	0.0	0.1	87.0	12.3	0.2	0.5
20-24	76.0	23.7	0.1	0.3	44.9	52.7	1.0	1.4
25-29	37.8	61.4	0.2	0.6	19.4	77.2	1.4	2.0
30-34	15.1	83.6	0.3	1.0	9.3	85.8	2.3	2.6
35-39	8.1	90.3	0.6	0.9	6.2	87.6	3.5	2.6
40-44	5.6	92.0	1.1	1.2	4.9	86.1	6.1	2.9
45-49	4.6	91.8	2.1	1.5	4.2	84.0	9.4	2.3
50-54	5.0	90.6	2.9	1.5	4.2	78.8	14.7	2.3
55-59	5.0	88.4	5.3	1.3	4.7	71.5	21.8	1.9
60-64	4.4	85.1	8.9	1.7	4.3	62.7	31.3	1.7
65-69	6.0	79.9	12.4	1.7	3.8	54.5	40.6	1.1
70-74	4.9	75.3	18.4	1.3	3.4	41.2	54.1	1.3
75-79	4.2	69.2	24.4	2.1	3.7	32.4	62.8	1.0
80-84	4.9	66.6	26.7	1.8	3.1	20.8	75.9	0.2
85+	4.2	57.4	36.4	1.9	5.0	18.2	76.4	0.3

Annex VIII Coale and Demeny region west model life table for the male population implied by regression estimate of e(0) of 60.6 years and reference year 1999

IMR, ×1,000 = numbers of deaths in first year of live per 1,000 live births

Age-specific survival ratios for population projections

Number of years a new-born can expect to live

Age	*M(X,N)*	*Q(X,N)*	*I(X)*	*D(X,N)*	*L(X,N)*	***S(X,N)***		*T(X)*	*e(X)*
0	.07009	**.06651**	100000.	6651.	94903.	.92559	/A/	6060000.	**60.600**
1	.00587	.02315	93349.	2161.	367890.	.98093	/B/	5965098.	63.901
5	.00174	.00864	91188.	788.	453970.	.99239		5597206.	61.381
10	.00132	.00657	90400.	594.	450515.	.99172		5143236.	56.894
15	.00216	.01073	89806.	964.	446784.	.98694		4692721.	52.254
20	.00305	.01515	88842.	1346.	440950.	.98431		4245936.	**47.792**
25	.00322	.01596	87496.	1397.	434032.	.98310		3804987.	43.487
30	.00365	.01810	86099.	1559.	426699.	.98000		3370954.	39.152
35	.00451	.02233	84541.	1887.	418165.	.97427		2944256.	34.826
40	.00604	.02979	82653.	2462.	407406.	.96472		2526091.	30.562
45	.00852	.04174	80191.	3348.	393033.	.94957		2118685.	26.420
50	.01248	.06059	76844.	4656.	373211.	.92645		1725651.	22.457
55	.01852	.08870	72188.	6403.	345762.	.89175		1352440.	18.735
60	.02798	.13115	65785.	8628.	308335.	.84114		1006678.	15.303
65	.04226	.19176	57157.	10960.	259352.	.76780		698343.	12.218
70	.06522	.28113	46197.	12987.	199130.	.66317		438991.	9.503
75	.10178	.40472	33210.	13441.	132057.	.44944	/C/	239862.	7.223
80	.18338	…..	19769.	19769.	107804.	…..		107804.	5.453

/A/ Value given is for survivorship of 5 cohorts of birth to age group 0-4 = L(0,5)/500000.
/B/ Value given is for S(0,5)=L(5,5)/L(0,5).
/C/ Value given is S(75+,5)=T(80)/T(75).

Number of years to live after reaching age 20, e(20).

Annex IX Coale and Demeny region west model life table for the female population implied by regression estimate of e(0) of 61.6 years and reference year 1999

IMR, ×1,000 = numbers of deaths in first year of live per 1,000 live births

Age-specific survival ratios for population projections

Number of years a new-born can expect to live

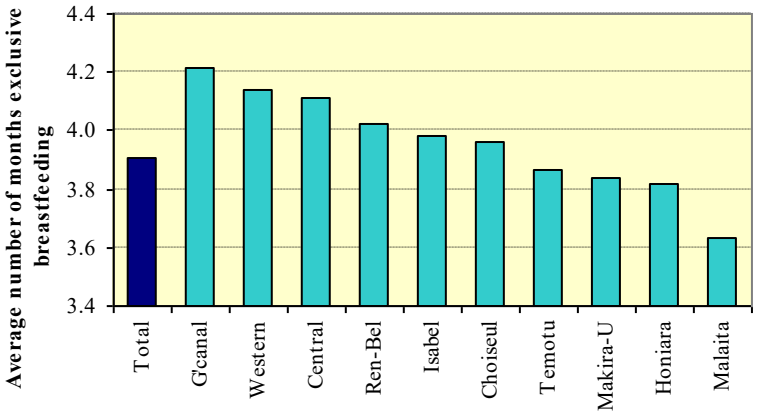
Age	*M(X,N)*	*Q(X,N)*	*I(X)*	*D(X,N)*	*L(X,N)*	***S(X,N)***		*T(X)*	*e(X)*
0	.06788	**.06456**	100000.	6456.	95117.	.92463	/A/	6160000.	**61.600**
1	.00736	.02889	93544.	2703.	367200.	.97767	/B/	6064883.	64.835
5	.00196	.00974	90841.	885.	451994.	.99133		5697683.	62.721
10	.00152	.00759	89956.	683.	448075.	.99092		5245689.	58.314
15	.00225	.01120	89274.	1000.	444005.	.98692		4797614.	53.741
20	.00300	.01488	88274.	1314.	438196.	.98387		4353609.	**49.319**
25	.00348	.01726	86960.	1501.	431128.	.98146		3915413.	45.025
30	.00402	.01992	85459.	1702.	423133.	.97845		3484285.	40.772
35	.00472	.02335	83757.	1956.	414015.	.97447		3061153.	36.548
40	.00569	.02806	81801.	2295.	403444.	.96849		2647137.	33.361
45	.00726	.03570	79505.	2838.	390733.	.95790		2243693.	28.221
50	.01017	.04965	76667.	3807.	374282.	.94130		1852961.	24.169
55	.01437	.06950	72861.	5064.	352311.	.91441		1478679.	20.295
60	.02209	.10495	67797.	7115.	322155.	.87087		1126368.	16.3614
65	.03423	.15828	60682.	9605.	280556.	.80265		804213.	13.253
70	.05552	.24477	51077.	12502.	225189.	.70045		523657.	10.252
75	.08961	.36640	38575.	14134.	157734.	.47152	/C/	298468.	7.737
80	.17367	…..	24441.	24441.	140734.	…..		140734.	5.758

/A/ Value given is for survivorship of 5 cohorts of birth to age group 0-4 = L(0,5)/500000.
/B/ Value given is for S(0,5)=L(5,5)/L(0,5).
/C/ Value given is S(75+,5)=T(80)/T(75).

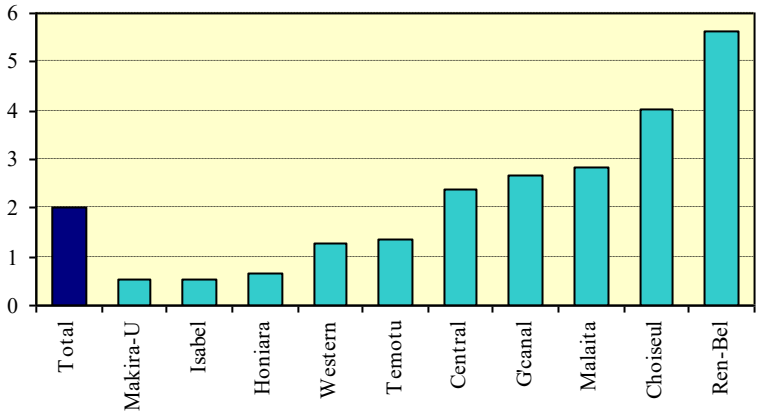
Number of years to live after reaching age 20, e(20).

Annex X Breastfeeding

Annex X-a *Average duration of exclusive breastfeeding of last child for mothers who completed breastfeeding, by province*



Annex X-b *Percentage of mothers who never breastfed their last child, by province*



Annex XI Assumed future levels and trends of TFR's, by province

Province	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*
Choiseul	5.0	4.9	4.8	4.7	4.6	4.5	4.4	4.3	4.2	4.2	4.1	4.0	3.9	3.8	3.7	3.6
Western	4.7	4.6	4.4	4.3	4.2	4.1	4.0	3.9	3.9	3.8	3.7	3.6	3.5	3.4	3.3	3.3
Isabel	4.6	4.5	4.4	4.3	4.2	4.0	4.0	3.9	3.8	3.7	3.6	3.5	3.4	3.3	3.2	3.2
Central	4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.6	3.5	3.5	3.4	3.3
Ren-Bel	4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.6	3.5	3.5	3.4	3.3
Guadalcanal	4.8	4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.6	3.5	3.4	3.4
Malaita	5.3	5.1	5.0	4.9	4.7	4.6	4.5	4.3	4.2	4.0	3.9	3.8	3.6	3.5	3.4	3.2
Makira-Ulawa	4.8	4.8	4.7	4.7	4.6	4.5	4.5	4.5	4.4	4.4	4.3	4.3	4.3	4.2	4.2	4.2
Temotu	4.1	4.0	4.0	3.9	3.9	3.8	3.8	3.8	3.9	3.7	3.6	3.6	3.6	3.5	3.5	3.5
Honiara	3.2	3.1	3.1	3.1	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8

Annex XII Net migration figures

Annex XII-a Adjusted net migration rates, August 1997 — November 1999

This first part of the annex shows net migration rates per province for a simulated situation in which no displacement is assumed to have occurred. The rates are calculated by subtracting destination-specific out-migration rates from destination-specific in-migration rates per province (controlling for displacement). Out and in-migration rates were computed as the number of migrants entering or leaving the province divided by the average number of persons that lived in the province during the observation period of 2.3 years.

The rates in Annex XII-a are expressed as the number of persons per thousand of the average provincial population. Thus, the bold printed entry '-8' in the upper left corner of the table means that the number of out-migrants per thousand population of Choiseul who left for Western province (which was 39 per thousand) is 8 persons per thousand higher than the number of in-migrants per thousand population of Choiseul who originated from Western province (31 per thousand). The bold printed entry '+3' means that the number of out-migrants per thousand population in Western province who left for Choiseul (10 per thousand) is 3 persons per thousand higher than the number of in-migrants per thousand population in Western province who originated from Choiseul (13 per thousand). The column total for a particular province (e.g. 14 per thousand for Choiseul) is the overall net migration rate, being the sum of the balance of in- and out-migration rates of that province with all other provinces.

Annex XII-b Numbers of net migrants per province, August 1997 — November 1999

If the rates of annex XII-a are applied to the provincial populations mid-period August 1997 — November 1999, the net number of persons involved in migration between provinces of origin and destination can be computed. Annex XII-b illustrates the result of these computations.

Annex XII-c Simulated numbers of net migrants per province, pre-census five-year period
All numbers in annex XII-b refer to a reference period of 2.3 years, according to the migration questions included in the 1999 census. For purposes of easy comparison with the five-year projection periods, the numbers of migrants in the 2.3 year observation period prior to the census were simply doubled on the basis of the assumption that these doubled numbers represent the migration intensity in a five-year period preceding the census.

a. Adjusted net migration rates per province, August 1997 – November 1999

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	**3**	0	0	0	0	0	0	0	3
Western	**-8**	-	-3	-5	0	-1	-3	-3	-4	2
Isabel	0	1	-	2	0	0	-1	-1	-1	9
Central	0	2	-2	-	2	1	0	0	-1	12
Rennell-Bellona	0	0	0	0	-	0	0	0	0	3
Guadalcanal	0	1	1	-3	-5	-	-5	0	1	17
Malaita	1	6	4	2	-1	7	-	-1	0	48
Makira-Ulawa	0	2	1	0	-1	0	0	-	-2	9
Temotu	0	1	1	0	0	0	0	1	-	7
Honiara	-7	-2	-23	-29	-68	-12	-22	-15	-19	-
Total	**-14**	13	-21	-32	-71	-5	-31	-19	-26	111

b. Number of net migrants per province, August 1997-November 1999

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	147	-1	4	0	-8	-17	7	-8	116
Western	-147	-	-57	-89	1	-55	-326	-95	-70	109
Isabel	1	57	-	37	0	-19	-65	-19	-20	415
Central	-4	89	-37	-	5	57	-32	-1	-9	555
Rennell-Bellona	0	-1	0	-5	-	10	2	2	-1	147
Guadalcanal	8	55	19	-57	-10	-	-470	-7	11	752
Malaita	17	326	65	32	-2	470	-	-28	2	2,177
Makira-Ulawa	-7	95	19	1	-2	7	28	-	-26	410
Temotu	8	70	20	9	1	-11	-2	26	-	314
Honiara	-116	-109	-415	-555	-147	-752	-2,177	-410	-314	-
Total	-240	729	-387	-623	-154	-301	-3,059	-525	-435	4,995

c. Simulated number of net migrants per province, pre-census five-year period prior to the 1999 census

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	294	-2	8	0	-16	-34	14	-16	232
Western	-294	-	-114	-178	2	-110	-652	-190	-140	218
Isabel	2	114	-	74	0	-38	-130	-38	-40	830
Central	-8	178	-74	-	10	114	-64	-2	-18	1,110
Rennell-Bellona	0	-2	0	-10	-	20	4	4	-2	294
Guadalcanal	16	110	38	-114	-20	-	-940	-14	22	1,504
Malaita	34	652	130	64	-4	940	-	-56	4	4,354
Makira-Ulawa	-14	190	38	2	-4	14	56	-	-52	820
Temotu	16	140	40	18	2	-22	-4	52	-	628
Honiara	-232	-218	-830	-1,110	-294	-1,504	-4,354	-820	-628	-
Total	-480	1,458	-774	-1,246	-308	-602	-6,118	-1,050	-870	9,990

Annex XIII Net migration numbers, provincial projection variant P1 (projection input)

The numbers of net migrants presented as projection input represent 50 percent of the net migrants (presented in annex XII-c) that correspond to the fictitious net migration rates of a five-year period preceding the census. They are assumed to prevail in each of the three projection intervals.

Assumed net number of migrants per province for all three projection intervals 1999-2004, 2004-2009 and 2009-2014 (stagnation variant, P1)

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	147	-1	4	0	-8	-17	7	-8	116
Western	-147	-	-57	-89	1	-55	-326	-95	-70	109
Isabel	1	57	-	37	0	-19	-65	-19	-20	415
Central	-4	89	-37	-	5	57	-32	-1	-9	555
Rennell-Bellona	0	-1	0	-5	-	10	2	2	-1	147
Guadalcanal	8	55	19	-57	-10	-	-470	-7	11	752
Malaita	17	326	65	32	-2	470	-	-28	2	2,177
Makira-Ulawa	-7	95	19	1	-2	7	28	-	-26	410
Temotu	8	70	20	9	1	-11	-2	26	-	314
Honiara	-116	-109	-415	-555	-147	-752	-2,177	-410	-314	-
Total	-240	729	-387	-623	-154	-301	-3,059	-525	-435	4,995

Annex XIV Net migration numbers, provincial projection variant P2 (projection input)

Some of the migration assumptions underlying scenario P2 are phrased in terms of numbers of net migrants, others in terms of net migration rates (see table 9.4). In general, the scenario applies net migration rates in proportion to the rates reconstructed for a five-year period before the census (adjusted to neutralise displacement), except for Western province and Guadalcanal. Since the projection software requires numbers rather than rates, this annex presents the corresponding numbers. In principle, these numbers should change slightly over the different projection intervals, as they should reflect a specified migration rate in a population, which changes because of natural growth and internal migration. For reasons of simplicity, however, for all projection intervals the numbers of migrants are calculated on the basis of the population distribution before the census. Assumptions for Western province and Guadalcanal are directly phrased in terms of numbers and do not depend on a changing population distribution.

Starting points in this scenario are that in the first projection period the general level of migration is assumed to be only 75 percent of that of the reconstructed pre-census period, whereas from the second projection period onwards it is back at 100 percent. Specific net-migration in Western province and Guadalcanal (the respective columns in annexes XII-a to c), however, deviate from this general pattern according to the assumptions of table 9.4, basically in order to re-populate the major companies with labour that cannot be supplied internally. Consequently, the numbers (and underlying rates) for the corresponding provinces (in the rows of Guadalcanal and Western province in annexes XII-a to c) are adjusted to mirror the net numbers of migrants appearing in the columns of these two provinces. At country level net internal migration should be around 0.

XIV-a Assumed net number of migrants per province for projection interval 1999-2004 (revival variant, P2)

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	318	-2	6	0	8	-26	11	-12	174
Western	-318	-	-123	-193	2	0	-705	-205	-151	236
Isabel	2	123	-	56	0	16	-98	-29	-30	623
Central	-6	193	-56	-	8	105	-48	-2	-14	833
Rennell-Bellona	0	-2	0	-8	-	16	3	3	-2	221
Guadalcanal	-8	0	-16	-105	-16	-	-909	-85	-227	564
Malaita	26	705	98	48	-3	909	-	-42	3	3,266
Makira-Ulawa	-11	205	29	2	-3	85	42	-	-39	615
Temotu	12	151	30	14	2	227	-3	39	-	471
Honiara	-174	-236	-623	-833	-221	-564	-3,266	-615	-471	-
Total	-477	1,457	-662	-1,014	-232	800	-5,008	-925	-942	7,001

XIV-b Assumed net number of migrants per province for projection interval 2004-2009 (revival variant, P2)

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	636	-2	8	0	12	-34	14	-16	232
Western	-636	-	-247	-385	4	0	-1,410	-411	-303	472
Isabel	2	247	-	74	0	25	-130	-38	-40	830
Central	-8	385	-74	-	10	167	-64	-2	-18	1,110
Rennell-Bellona	0	-4	0	-10	-	25	4	4	-2	294
Guadalcanal	-12	0	-25	-167	-25	-	-1,443	-135	-361	564
Malaita	34	1,410	130	64	-4	1,443	-	-56	4	4,354
Makira-Ulawa	-14	411	38	2	-4	135	56	-	-52	820
Temotu	16	303	40	18	2	361	-4	52	-	628
Honiara	-232	-472	-830	-1,110	-294	-564	-4,354	-820	-628	-
Total	-850	2,916	-970	-1,506	-311	1,602	-7,379	-1,392	-1,416	9,304

XIV-c Assumed net number of migrants per province for projection interval 2009-2014 (revival variant, P2)

Province of origin	*Province of destination*									
	Choiseul	*Western*	*Isabel*	*Central*	*Ren-Bel*	*Guadalcanal*	*Malaita*	*Makira-U.*	*Temotu*	*Honiara*
Choiseul	-	294	-2	8	0	8	-34	14	-16	232
Western	-294	-	-114	-178	2	0	-652	-190	-140	218
Isabel	2	114	-	74	0	16	-130	-38	-40	830
Central	-8	178	-74	-	10	105	-64	-2	-18	1,110
Rennell-Bellona	0	-2	0	-10	-	16	4	4	-2	294
Guadalcanal	-8	0	-16	-105	-16	-	-909	-85	-227	564
Malaita	34	652	130	64	-4	909	-	-56	4	4,354
Makira-Ulawa	-14	190	38	2	-4	85	56	-	-52	820
Temotu	16	140	40	18	2	227	-4	52	-	628
Honiara	-232	-218	-830	-1,110	-294	-564	-4,354	-820	-628	-
Total	-504	1,348	-828	-1,237	-304	800	-6,087	-1,121	-1,119	9,050

Annex XV National population projection by sex and single years of age, base year (1999) and projection years (2004, 2009 and 2014) (medium-high variant, N2)

Mid-year 1999							
Age	*Men*	*Women*	*Total*	*Age*	*Men*	*Women*	*Total*
0	7,289	6,688	13,977	39	1,950	1,838	3,788
1	6,864	6,310	13,174	40	1,830	1,703	3,533
2	6,514	5,997	12,511	41	1,709	1,572	3,281
3	6,234	5,741	11,975	42	1,613	1,471	3,084
4	6,012	5,535	11,547	43	1,554	1,418	2,972
5	5,841	5,375	11,216	44	1,519	1,396	2,915
6	5,713	5,251	10,964	45	1,483	1,372	2,855
7	5,620	5,159	10,779	46	1,455	1,352	2,807
8	5,552	5,089	10,641	47	1,413	1,323	2,736
9	5,501	5,037	10,538	48	1,348	1,273	2,621
10	5,472	5,004	10,476	49	1,270	1,211	2,481
11	5,465	4,995	10,460	50	1,198	1,152	2,350
12	5,418	4,954	10,372	51	1,123	1,098	2,221
13	5,293	4,857	10,150	52	1,069	1,047	2,116
14	5,122	4,724	9,846	53	1,043	1,004	2,047
15	4,960	4,604	9,564	54	1,034	965	1,999
16	4,800	4,482	9,282	55	1,025	928	1,953
17	4,646	4,373	9,019	56	1,020	892	1,912
18	4,501	4,286	8,787	57	996	853	1,849
19	4,367	4,216	8,583	58	941	806	1,747
20	4,226	4,136	8,362	59	866	754	1,620
21	4,076	4,050	8,126	60	796	706	1,502
22	3,948	3,964	7,912	61	724	654	1,378
23	3,853	3,879	7,732	62	671	616	1,287
24	3,777	3,790	7,567	63	651	598	1,249
25	3,698	3,702	7,400	64	651	593	1,244
26	3,629	3,619	7,248	65	643	583	1,226
27	3,521	3,495	7,016	66	629	568	1,197
28	3,348	3,310	6,658	67	613	550	1,163
29	3,137	3,086	6,223	68	591	526	1,117
30	2,936	2,869	5,805	69	562	494	1,056
31	2,729	2,643	5,372	70	523	453	976
32	2,561	2,462	5,023	71	470	399	869
33	2,457	2,357	4,814	72	403	333	736
34	2,396	2,299	4,695	73	317	249	566
35	2,329	2,236	4,565	74	212	147	359
36	2,271	2,183	4,454	75+	2,794	1,704	4,498
37	2,195	2,106	4,301				
38	2,082	1,985	4,067	All ages	209,062	195,449	404,511

Annex XV National population projection by sex and single years of age, base year (1999) and projection years (2004, 2009 and 2014) (medium-high variant, N2) (cont.)

Mid-Year 2004							
Age	*Men*	*Women*	*Total*	*Age*	*Men*	*Women*	*Total*
0	7,254	6,645	13,899	39	2,346	2,250	4,596
1	7,242	6,635	13,877	40	2,280	2,186	4,466
2	7,186	6,588	13,774	41	2,219	2,133	4,352
3	7,097	6,504	13,601	42	2,142	2,056	4,198
4	6,974	6,392	13,366	43	2,029	1,936	3,965
5	6,826	6,258	13,084	44	1,897	1,791	3,688
6	6,659	6,106	12,765	45	1,777	1,660	3,437
7	6,479	5,941	12,420	46	1,657	1,527	3,184
8	6,292	5,770	12,062	47	1,560	1,427	2,987
9	6,103	5,597	11,700	48	1,499	1,372	2,871
10	5,904	5,417	11,321	49	1,461	1,349	2,810
11	5,689	5,224	10,913	50	1,422	1,323	2,745
12	5,532	5,079	10,611	51	1,391	1,302	2,693
13	5,466	5,013	10,479	52	1,346	1,272	2,618
14	5,456	4,994	10,450	53	1,279	1,220	2,499
15	5,438	4,972	10,410	54	1,199	1,155	2,354
16	5,427	4,957	10,384	55	1,126	1,097	2,223
17	5,374	4,912	10,286	56	1,051	1,040	2,091
18	5,247	4,814	10,061	57	994	988	1,982
19	5,073	4,680	9,753	58	963	944	1,907
20	4,909	4,556	9,465	59	948	904	1,852
21	4,746	4,432	9,178	60	932	864	1,796
22	4,590	4,320	8,910	61	920	825	1,745
23	4,445	4,234	8,679	62	891	782	1,673
24	4,311	4,160	8,471	63	836	733	1,569
25	4,168	4,080	8,248	64	763	682	1,445
26	4,019	3,993	8,012	65	698	633	1,331
27	3,891	3,906	7,797	66	639	590	1,229
28	3,796	3,821	7,617	67	585	549	1,134
29	3,720	3,732	7,452	68	538	515	1,053
30	3,644	3,642	7,286	69	498	483	981
31	3,575	3,559	7,134	70	469	459	928
32	3,468	3,437	6,905	71	452	441	893
33	3,296	3,252	6,548	72	453	432	885
34	3,088	3,032	6,120	73	470	430	900
35	2,886	2,817	5,703	74	508	440	948
36	2,681	2,594	5,275	75+	2,514	1,907	4,421
37	2,514	2,414	4,928				
38	2,409	2,308	4,717	All ages	237,626	222,484	460,110

Annex XV National population projection by sex and single years of age (medium-high variant, N2) (cont.)

Mid-Year 2009							
Age	*Men*	*Women*	*Total*	*Age*	*Men*	*Women*	*Total*
0	7,500	6,901	14,401	39	3,036	2,978	6,014
1	7,475	6,862	14,337	40	2,835	2,765	5,600
2	7,437	6,813	14,250	41	2,631	2,544	5,175
3	7,387	6,759	14,146	42	2,464	2,365	4,829
4	7,326	6,698	14,024	43	2,359	2,261	4,620
5	7,253	6,627	13,880	44	2,293	2,200	4,493
6	7,171	6,550	13,721	45	2,223	2,136	4,359
7	7,076	6,466	13,542	46	2,160	2,080	4,240
8	6,971	6,372	13,343	47	2,080	2,002	4,082
9	6,856	6,270	13,126	48	1,968	1,882	3,850
10	6,736	6,166	12,902	49	1,835	1,740	3,575
11	6,619	6,065	12,684	50	1,712	1,607	3,319
12	6,473	5,935	12,408	51	1,592	1,478	3,070
13	6,287	5,767	12,054	52	1,492	1,375	2,867
14	6,079	5,575	11,654	53	1,429	1,321	2,750
15	5,875	5,388	11,263	54	1,386	1,293	2,679
16	5,656	5,191	10,847	55	1,343	1,264	2,607
17	5,495	5,044	10,539	56	1,307	1,240	2,547
18	5,428	4,976	10,404	57	1,259	1,207	2,466
19	5,415	4,957	10,372	58	1,189	1,153	2,342
20	5,392	4,930	10,322	59	1,108	1,087	2,195
21	5,376	4,913	10,289	60	1,034	1,027	2,061
22	5,321	4,864	10,185	61	958	969	1,927
23	5,192	4,765	9,957	62	897	914	1,811
24	5,019	4,631	9,650	63	860	865	1,725
25	4,855	4,508	9,363	64	837	821	1,658
26	4,693	4,382	9,075	65	810	776	1,586
27	4,535	4,271	8,806	66	778	731	1,509
28	4,392	4,181	8,573	67	745	686	1,431
29	4,259	4,108	8,367	68	709	641	1,350
30	4,118	4,027	8,145	69	664	596	1,260
31	3,970	3,940	7,910	70	613	550	1,163
32	3,842	3,852	7,694	71	551	503	1,054
33	3,747	3,767	7,514	72	477	455	932
34	3,670	3,678	7,348	73	389	406	795
35	3,592	3,586	7,178	74	285	354	639
36	3,525	3,503	7,028	75+	2,725	2,480	5,205
37	3,414	3,380	6,794				
38	3,244	3,197	6,441	All ages	267,704	250,617	518,321

Annex XV National population projection by sex and single years of age (medium-high variant, N2) (end)

Mid-Year 2014							
Age	*Men*	*Women*	*Total*	*Age*	*Men*	*Women*	*Total*
0	7,519	6,916	14,435	39	3,622	3,624	7,246
1	7,515	6,903	14,418	40	3,541	3,532	7,073
2	7,507	6,887	14,394	41	3,468	3,448	6,916
3	7,494	6,868	14,362	42	3,360	3,324	6,684
4	7,476	6,845	14,321	43	3,187	3,142	6,329
5	7,451	6,818	14,269	44	2,979	2,924	5,903
6	7,420	6,785	14,205	45	2,777	2,711	5,488
7	7,381	6,747	14,128	46	2,572	2,491	5,063
8	7,336	6,701	14,037	47	2,402	2,313	4,715
9	7,279	6,649	13,928	48	2,295	2,205	4,500
10	7,214	6,590	13,804	49	2,225	2,143	4,368
11	7,142	6,522	13,664	50	2,151	2,076	4,227
12	7,055	6,444	13,499	51	2,085	2,018	4,103
13	6,950	6,352	13,302	52	2,001	1,938	3,939
14	6,830	6,248	13,078	53	1,885	1,818	3,703
15	6,708	6,142	12,850	54	1,751	1,675	3,426
16	6,589	6,037	12,626	55	1,628	1,545	3,173
17	6,441	5,906	12,347	56	1,504	1,414	2,918
18	6,252	5,736	11,988	57	1,403	1,312	2,715
19	6,043	5,545	11,588	58	1,335	1,253	2,588
20	5,835	5,356	11,191	59	1,288	1,223	2,511
21	5,615	5,158	10,773	60	1,240	1,190	2,430
22	5,452	5,008	10,460	61	1,196	1,161	2,357
23	5,381	4,938	10,319	62	1,144	1,123	2,267
24	5,368	4,917	10,285	63	1,072	1,065	2,137
25	5,346	4,890	10,236	64	990	998	1,988
26	5,329	4,870	10,199	65	917	935	1,852
27	5,273	4,821	10,094	66	850	876	1,726
28	5,144	4,721	9,865	67	786	818	1,604
29	4,971	4,587	9,558	68	728	762	1,490
30	4,808	4,462	9,270	69	677	708	1,385
31	4,648	4,336	8,984	70	633	655	1,288
32	4,491	4,223	8,714	71	600	607	1,207
33	4,348	4,135	8,483	72	576	564	1,140
34	4,212	4,061	8,273	73	566	524	1,090
35	4,073	3,978	8,051	74	569	491	1,060
36	3,925	3,891	7,816	75+	2,857	2,849	5,706
37	3,797	3,803	7,600				
38	3,701	3,715	7,416	All ages	298,179	278,966	577,145

Annex XVI Selected demographic indicators by province (stagnation variant, P1)

Assumptions and results	*Choiseul*				*Western*				*Isabel*				*Central*			
	Mid-'99	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*
Assumptions:																
Fertility (TFR)	5.0	4.8	4.3	3.9	4.7	4.4	3.9	3.5	4.6	4.3	3.8	3.4	4.7	4.4	4.0	3.5
Mortality:																
e(0) men	60.6	60.6	60.6	60.6	60.6	60.6	60.6	60.6	59.6	59.6	59.6	59.6	61.0	61.0	61.0	61.0
e(0) women	61.6	61.6	61.6	61.6	61.6	61.6	61.6	61.6	60.4	60.4	60.4	60.4	62.1	62.1	62.1	62.1
Migration (net numbers):																
Total	*	-240	-240	-240	*	729	729	729	*	-387	-387	-387	*	-623	-623	-623
Male	*	-137	-137	-137	*	390	390	390	*	-183	-183	-183	*	-306	-306	-306
Female	*	-103	-103	-103	*	339	339	339	*	-204	-204	-204	*	-317	-317	-317
Results:																
Total population	19,787	22,287	24,768	27,231	62,038	70,930	79,898	88,833	20,198	22,124	23,971	25,670	21,337	23,418	25,463	27,196
Male population	10,124	11,417	12,707	13,992	32,821	37,393	42,018	46,627	10,311	11,314	12,292	13,199	11,071	12,148	13,215	14,127
Female population	9,663	10,869	12,061	13,239	29,217	33,537	37,880	42,206	9,887	10,809	11,680	12,472	10,266	11,270	12,248	13,070
0-14	8,717	9,389	9,896	10,164	25,692	28,260	30,119	31,284	8,524	8,731	8,957	8,883	8,854	9,328	9,753	9,710
15-44	8,357	9,886	11,357	12,941	28,296	33,350	38,478	43,693	8,449	9,938	11,165	12,533	9,384	10,731	11,883	13,059
45-59	1,626	1,796	2,216	2,683	4,949	5,852	7,440	9,426	1,919	2,067	2,364	2,581	1,923	2,059	2,393	2,792
60+	1,088	1,217	1,299	1,443	3,101	3,468	3,861	4,431	1,305	1,389	1,487	1,672	1,179	1,301	1,434	1,638
Dependency ratio (%)	98	91	82	74	87	81	74	67	95	84	77	70	89	83	78	72
Growth rate (%)	*	2.4	2.1	1.9	*	2.7	2.4	2.1	*	1.8	1.6	1.4	*	1.9	1.7	1.3
Sex ratio	105	105	105	106	112	111	111	110	104	105	105	106	108	108	108	108
Births	700	3,661	3,750	3,830	2,128	10,836	11,185	11,424	675	3,363	3,360	3,291	714	3,682	3,749	3,508
CBR(per 1,000)	35	35	32	29	34	33	30	27	33	32	29	27	33	33	31	27
GRR (per woman)	2.4	2.3	2.1	1.8	2.2	2.1	1.9	1.7	2.2	2.1	1.8	1.6	2.2	2.1	1.9	1.7
MAC (per woman)	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.8	28.8	28.8	28.8	28.8	29.4	29.4	28.9	29.4
Deaths	184	959	1,038	1,136	561	2,878	3,167	3,533	207	1,084	1,131	1,207	207	1,013	1,084	1,148
CDR (per 1,000)	9	9	9	9	9	9	8	8	10	10	10	10	10	9	9	9
Natural increase	516	2,702	2,712	2,694	1,566	7,958	8,018	7,891	468	2,279	2,229	2,084	507	2,669	2,665	2,360
RNI (per 1,000)	26	26	23	21	25	24	21	19	23	22	19	17	24	24	22	18
Total migrants	*	-241	-244	-249	*	813	906	996	*	-392	-396	-399	*	-633	-636	-642
Male migrants	*	-137	-138	-141	*	424	473	520	*	-184	-187	-188	*	-309	-310	-312
Female migrants	*	-104	-106	-108	*	389	433	476	*	-208	-209	-211	*	-324	-326	-330

Annex XVI Selected demographic indicators by province (stagnation variant, P1) (cont.)

Assumptions and results	*Rennell-Bellona*				*Guadalcanal*				*Malaita*				*Makira-Ulawa*			
	Mid-'99	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'99*	*2009-'14*
Assumptions:																
Fertility (TFR)	4.7	4.4	4.0	3.5	4.8	4.5	4.0	3.6	5.3	4.9	4.3	3.6	4.8	4.7	4.4	4.3
Mortality:																
e(0) men	61.0	61.0	61.0	61.0	59.8	59.8	59.8	59.8	60.2	60.2	60.2	60.2	60.8	60.8	60.8	60.8
e(0) women	62.1	62.1	62.1	62.1	60.7	60.7	60.7	60.7	61.1	61.1	61.1	61.1	61.9	61.9	61.9	61.9
Migration (net numbers):																
Total	*	-154	-154	-154	*	-301	-301	-301	*	-3,059	-3,059	-3,059	*	-525	-525	-525
Male	*	-86	-86	-86	*	-141	-141	-141	*	-1,921	-1,921	-1,921	*	-378	-378	-378
Female	*	-68	-68	-68	*	-160	-160	-160	*	-1,138	-1,138	-1,138	*	-147	-147	-147
Results:																
Total population	2,351	2,387	2,416	2,426	59,610	67,498	75,161	82,398	121,297	135,569	149,234	161,379	30,668	34,676	39,057	43,631
Male population	1,217	1,220	1,225	1,225	31,078	35,132	39,095	42,854	60,566	67,632	74,475	80,607	15,771	17,706	19,859	22,128
Female population	1,135	1,167	1,191	1,202	28,532	32,366	36,066	39,544	60,731	67,937	74,759	80,772	14,897	16,970	19,198	21,503
0-14	967	928	888	803	25,129	27,547	29,500	29,813	54,710	58,271	60,931	60,880	13,055	14,169	16,142	17,509
15-44	900	979	1,040	1,142	26,930	31,425	35,551	40,285	49,831	59,186	68,024	77,650	13,528	16,008	17,735	20,141
45-59	225	253	280	271	4,704	5,305	6,468	8,193	9,969	10,754	12,340	14,243	2,425	2,695	3,261	3,849
60+	260	228	209	212	2,849	3,222	3,640	4,107	6,789	7,360	7,941	8,605	1,660	1,803	1,920	2,133
Dependency ratio (%)	109	94	83	72	88	84	79	70	103	94	86	76	92	85	86	82
Growth rate (%)	*	0.3	0.2	0.1	*	2.5	2.2	1.8	*	2.2	1.9	1.6	*	2.5	2.4	2.2
Sex ratio	107	105	103	102	109	109	108	108	100	100	100	100	106	104	103	103
Births	67	334	326	304	2,110	10,955	11,063	10,932	4,537	23,222	23,207	22,072	1,178	5,963	6,524	6,886
CBR(per 1,000)	29	28	27	25	35	34	31	28	37	36	33	28	38	37	35	33
GRR (per woman)	2.2	2.1	1.9	1.7	2.3	2.2	1.9	1.7	2.5	2.4	2.0	1.7	2.3	2.2	2.1	2.0
MAC (per woman)	29.4	29.4	28.9	29.4	28.9	28.9	28.9	28.9	29.5	29.5	29.5	29.5	29.0	28.9	28.9	28.9
Deaths	30	148	143	139	530	2,888	3,139	3,432	1,140	6,119	6,517	6,877	290	1,490	1,632	1,799
CDR (per 1,000)	13	12	12	11	9	9	9	9	9	10	9	9	9	9	9	9
Natural increase	37	186	183	165	1,580	8,067	7,924	7,500	3,396	17,103	16,690	15,195	888	4,473	4,892	5,087
RNI (per 1,000)	16	16	15	14	27	25	23	19	28	27	23	20	29	27	27	25
Total migrants	*	-152	-152	-153	*	-301	-304	-306	*	-3,086	-3,109	-3,138	*	-534	-536	-539
Male migrants	*	-86	-86	-86	*	-139	-141	-143	*	-1,933	-1,945	-1,961	*	-382	-383	-386
Female migrants	*	-66	-66	-67	*	-162	-163	-163	*	-1,153	-1,164	-1,177	*	-152	-153	-153

Annex XVI Selected demographic indicators by province (stagnation variant, P1) (end)

Assumptions and results	*Temotu*				*Honiara*				*Solomon Islands*			
	Mid-'99	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*
Assumptions:												
Fertility (TFR)	4.1	4.0	3.7	3.6	3.2	3.1	2.9	2.8	4.8	4.4	4.0	3.5
Mortality:												
e(0) men	61.5	61.5	61.5	61.5	61.7	61.7	61.7	61.7	60.6	60.6	60.6	60.6
e(0) women	62.6	62.6	62.6	62.6	62.8	62.8	62.8	62.8	61.6	61.6	61.6	61.6
Migration (net numbers):												
Total	*	-435	-435	-435	*	4,995	4,995	4,995	*	*	*	*
Male	*	-324	-324	-324	*	3,086	3,086	3,086	*	*	*	*
Female	*	-111	-111	-111	*	1,909	1,909	1,909	*	*	*	*
Results:												
Total population	18,706	20,543	22,528	24,599	48,513	59,404	70,529	81,374	404,505	458,835	513,025	564,737
Male population	9,050	9,889	10,828	11,830	27,050	33,124	39,285	45,258	209,059	236,977	264,998	291,845
Female population	9,656	10,653	11,700	12,769	21,462	26,280	31,244	36,117	195,446	221,859	248,026	272,892
0-14	7,721	7,952	8,417	9,080	15,261	18,966	22,737	24,828	168,630	183,569	197,399	203,048
15-44	7,964	9,330	10,402	11,367	28,500	33,469	37,879	43,109	182,136	214,309	243,535	275,959
45-59	1,724	1,892	2,231	2,469	3,857	5,477	7,499	9,779	33,319	38,153	46,501	56,296
60+	1,297	1,320	1,373	1,519	894	1,493	2,414	3,659	20,420	22,805	25,588	29,434
Dependency ratio (%)	93	83	77	77	50	53	55	54	88	82	77	70
Growth rate (%)	*	1.9	1.9	1.8	*	4.1	3.4	2.9	*	2.5	2.2	1.9
Sex ratio	94	93	93	93	126	126	126	125	107	107	107	107
Births	638	3,194	3,418	3,570	1,417	7,491	8,267	8,522	13,935	73,458	75,055	74,565
CBR(per 1,000)	34	33	32	30	29	28	25	22	34	34	31	28
GRR (per woman)	2.0	1.9	1.8	1.7	1.5	1.5	1.4	1.3	2.3	2.1	1.9	1.7
MAC (per woman)	29.0	29.0	29.0	29.0	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2
Deaths	192	957	1,005	1,069	313	1,642	2,086	2,579	3,645	19,129	20,864	22,855
CDR (per 1,000)	10	10	9	9	6	6	6	7	9	9	9	8
Natural increase	446	2,237	2,413	2,501	1,104	5,849	6,181	5,943	10,291	54,329	54,191	51,710
RNI (per 1,000)	24	23	22	21	23	22	19	16	25	25	22	19
Total migrants	*	-440	-442	-447	*	4,956	4,910	4,869	*	*	*	*
Male migrants	*	-329	-329	-332	*	3,071	3,045	3,025	*	*	*	*
Female migrants	*	-111	-113	-115	*	1,885	1,865	1,844	*	*	*	*

Annex XVII Selected demographic indicators by province (revival variant, P2)

Assumptions and results	*Choiseul*				*Western*				*Isabel*				*Central*			
	Mid-'99	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*
Assumptions:																
Fertility (TFR)	5.0	4.8	4.3	3.9	4.7	4.4	3.9	3.5	4.6	4.3	3.8	3.4	4.7	4.4	4.0	3.5
Mortality:																
e(0) men	60.6	61.8	64.2	66.6	60.6	61.8	64.2	66.6	59.6	60.8	63.1	65.4	61.0	62.2	64.6	67.0
e(0) women	61.6	62.9	65.4	67.9	61.8	62.9	65.4	67.9	60.4	61.7	64.2	66.7	62.1	63.4	65.9	68.4
Migration (net numbers):																
Total	*	-478	-850	-504	*	1,457	2,916	1,348	*	-662	-970	-828	*	-1,014	-1,506	-1,238
Male	*	-273	-485	-288	*	779	1,560	721	*	-313	-459	-392	*	-498	-740	-608
Female	*	-205	-365	-216	*	678	1,356	627	*	-349	-511	-436	*	-516	-766	-630
Results:																
Total population	19,787	22,089	24,061	26,448	62,038	62,038	83,757	94,630	20,198	21,874	23,207	24,591	21,337	23,044	24,225	25,387
Male population	10,124	11,307	12,312	13,544	32,821	32,821	44,156	49,797	10,311	11,207	11,957	12,722	11,071	11,975	12,643	13,284
Female population	9,663	10,782	11,749	12,905	29,217	29,217	39,602	44,834	9,887	10,667	11,251	11,869	10,266	11,069	11,582	12,103
0-14	8,717	9,345	9,728	10,006	25,692	28,534	31,489	33,611	8,524	8,663	8,741	8,568	8,854	9,222	9,376	9,127
15-44	8,357	9,744	10,858	12,337	28,296	33,847	40,438	46,207	8,449	9,773	10,652	11,798	9,384	10,488	11,099	11,930
45-59	1,626	1,784	2,173	2,638	4,949	5,946	7,781	10,011	1,919	2,052	2,323	2,522	1,923	2,037	2,321	2,681
60+	1,088	1,218	1,303	1,469	3,101	3,517	4,050	4,803	1,305	1,388	1,494	1,701	1,179	1,298	1,430	1,649
Dependency ratio (%)	98	92	85	77	87	81	74	68	95	85	79	72	89	84	81	74
Growth rate (%)	*	2.2	1.7	1.9	*	2.9	3.1	2.4	*	1.6	1.2	1.2	*	1.5	1.0	0.9
Sex ratio	105	105	105	105	112	112	111	111	104	105	106	107	108	108	109	110
Births	718	3,633	3,638	3,654	2,131	10,921	11,566	12,051	669	3,328	3,228	3,069	730	3,632	3,548	3,175
CBR(per 1,000)	36	35	32	29	34	33	30	27	33	32	29	26	34	33	30	26
GRR (per woman)	2.3	2.3	2.1	1.8	2.2	2.1	1.9	1.7	2.2	2.1	1.8	1.6	2.2	2.1	1.9	1.7
MAC (per woman)	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.8	28.8	28.8	28.8	28.8	29.4	29.4	28.9	29.4
Deaths	202	897	839	790	558	2,701	2,628	2,615	208	1,022	936	876	213	947	873	793
CDR (per 1,000)	10	9	7	6	9	8	7	6	10	10	8	7	10	9	7	6
Natural increase	516	2,736	2,799	2,864	1,573	8,220	8,938	9,436	461	2,306	2,292	2,193	516	2,685	2,675	2,382
RNI (per 1,000)	26	26	24	23	25	25	23	21	23	22	20	18	24	24	23	19
Total migrants	*	-480	-850	-506	*	1,451	2,897	1,346	*	-667	-980	-831	*	-1,020	-1,515	-1,244
Male migrants	*	-269	-472	-286	*	795	1,602	734	*	-305	-447	-384	*	-488	-716	-597
Female migrants	*	-211	-378	-220	*	656	1,295	612	*	-362	-533	-447	*	-532	-799	-647

Annex XVII Selected demographic indicators by province (revival variant, P2) (cont.)

Assumptions and results	*Rennell-Bellona*				*Guadalcanal*				*Malaita*				*Makira-Ulawa*			
	Mid-'99	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*
Assumptions:																
Fertility (TFR)	4.7	4.4	4.0	3.5	4.7	4.5	4.0	3.6	5.3	4.9	4.3	3.6	4.8	4.7	4.4	4.3
Mortality:																
e(0) men	61.0	62.2	64.6	67.0	59.8	61.0	63.3	65.6	60.2	61.4	63.8	66.1	60.8	62.0	64.4	66.8
e(0) women	62.1	63.4	65.9	68.4	60.7	61.9	64.4	66.9	61.1	62.4	64.9	67.4	61.9	63.2	65.7	68.2
Migration (net numbers):																
Total	*	-231	-311	-304	*	800	1,602	800	*	-5,008	-7,379	-6,087	*	-925	-1,392	-1,121
Male	*	-129	-174	-170	*	425	751	375	*	-3,145	-4,634	-3,822	*	-666	-1,002	-807
Female	*	-102	-137	-134	*	375	851	425	*	-1,863	-2,745	-2,264	*	-259	-390	-314
Results:																
Total population	2,351	2,308	2,169	2,008	59,610	68,927	79,554	89,690	121,297	133,862	143,851	154,078	30,668	34,359	38,123	42,524
Male population	1,217	1,181	1,100	1,010	31,078	35,830	41,260	46,469	60,566	66,588	71,156	75,988	15,771	17,471	19,152	21,220
Female population	1,135	1,127	1,069	998	28,532	33,098	38,295	43,221	60,731	67,274	72,695	78,090	14,897	16,887	18,971	21,305
0-14	967	903	807	660	25,129	28,097	31,298	33,004	54,710	57,869	59,669	59,349	13,055	14,111	16,001	17,460
15-44	900	931	889	896	26,930	32,181	37,726	43,569	49,831	58,004	64,274	72,347	13,528	15,772	17,005	19,139
45-59	225	249	265	243	4,704	5,387	6,743	8,706	9,969	10,643	11,984	13,712	2,425	2,673	3,195	3,762
60+	260	226	206	209	2,849	3,263	3,789	4,412	6,789	7,348	7,924	8,670	1,660	1,803	1,924	2,163
Dependency ratio (%)	109	96	88	76	88	83	79	72	103	95	89	79	92	86	89	86
Growth rate (%)	*	-0.4	-1.3	-1.5	*	2.9	2.9	2.4	*	2.0	1.4	1.4	*	2.3	2.1	2.2
Sex ratio	107	105	103	101	109	108	108	108	100	99	98	97	106	103	101	100
Births	69	325	291	244	2,164	11,110	11,609	11,846	4,640	23,030	22,498	20,957	1,139	5,935	6,417	6,703
CBR(per 1,000)	29	28	26	23	36	35	31	28	38	36	32	28	37	37	35	33
GRR (per woman)	2.2	2.1	1.9	1.7	2.2	2.2	1.9	1.7	2.3	2.4	2.0	1.7	2.3	2.2	2.1	2.0
MAC (per woman)	29.4	29.4	28.9	29.4	29.4	28.9	28.9	28.9	28.9	29.5	29.5	29.5	29.5	28.9	28.9	28.9
Deaths	31	141	120	102	522	2,721	2,644	2,595	1,249	5,733	5,292	4,805	316	1,395	1,315	1,236
CDR (per 1,000)	13	12	11	10	9	8	7	6	10	9	8	6	10	9	7	6
Natural increase	38	184	171	142	1,643	8,389	8,965	9,251	3,390	17,297	17,206	16,152	823	4,540	5,102	5,467
RNI (per 1,000)	16	16	15	14	28	26	24	22	28	27	25	22	27	28	28	27
Total migrants	*	-231	-315	-306	*	798	1,587	796	*	-5,003	-7,358	-6,079	*	-920	-1,381	-1,116
Male migrants	*	-126	-171	-168	*	385	771	381	*	-3,076	-4,495	-3,756	*	-653	-974	-794
Female migrants	*	-105	-144	-138	*	413	816	415	*	-1,927	-2,863	-2,323	*	-267	-407	-322

Annex XVII Selected demographic indicators by province (revival variant, P2) (end)

Assumptions and results	*Temotu*				*Honiara*				*Solomon Islands*			
	Mid-'99	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*	*Mid-'99*	*1999-'04*	*2004-'09*	*2009-'14*
Assumptions:												
Fertility (TFR)	4.1	4.0	3.7	3.6	3.2	3.1	2.9	2.8	4.8	4.4	4.0	3.5
Mortality:												
e(0) men	61.5	62.7	65.1	67.5	61.7	62.9	65.4	67.8	60.6	61.9	64.4	66.8
e(0) women	62.6	63.9	66.5	69.0	62.8	64.1	66.7	69.2	61.6	63.1	65.6	68.1
Migration (net numbers):												
Total	*	-942	-1,416	-1,119	*	7,001	9,304	9,050	*	*	*	*
Male	*	-702	-1,055	-833	*	4,325	5,748	5,591	*	*	*	*
Female	*	-240	-361	-286	*	2,676	3,556	3,459	*	*	*	*
Results:												
Total population	18,706	20,076	21,191	22,744	48,513	61,710	78,187	95,060	404,505	460,092	518,324	577,162
Male population	9,050	9,542	9,829	10,417	27,050	34,610	44,141	53,736	209,059	237,619	267,705	298,186
Female population	9,656	10,534	11,362	12,327	21,462	27,100	34,046	41,324	195,446	222,473	250,619	278,976
0-14	7,721	7,863	8,164	8,791	15,261	19,714	25,203	29,273	168,630	184,322	200,475	209,846
15-44	7,964	9,026	9,507	10,083	28,500	34,835	42,352	50,842	182,136	214,598	244,798	279,145
45-59	1,724	1,865	2,149	2,340	3,857	5,615	8,012	10,825	33,319	38,248	46,943	57,441
60+	1,297	1,321	1,371	1,532	894	1,547	2,622	4,121	20,420	22,927	26,111	30,727
Dependency ratio (%)	93	84	82	83	50	53	55	54	88	82	78	71
Growth rate (%)	*	1.4	1.1	1.4	*	4.8	4.7	3.9	*	2.6	2.4	2.2
Sex ratio	94	91	87	85	126	128	130	130	107	107	107	107
Births	620	3,166	3,311	3,383	1,412	7,614	8,793	9,628	13,935	73,516	75,328	75,233
CBR(per 1,000)	33	33	32	31	29	28	25	22	34	34	31	27
GRR (per woman)	2.3	1.9	1.8	1.7	2.0	1.5	1.4	1.3	2.3	2.1	1.9	1.7
MAC (per woman)	29.0	29.0	29.0	29.0	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
Deaths	198	901	817	739	319	1,519	1,694	1,885	3,645	17,928	17,096	16,399
CDR (per 1,000)	11	9	8	7	7	6	5	4	9	8	7	6
Natural increase	422	2,265	2,494	2,644	1,093	6,095	7,099	7,743	10,291	55,588	58,232	58,834
RNI (per 1,000)	22.6	23.4	24.2	24.1	22.5	22.1	20.3	17.9	25.4	25.7	23.8	21.5
Total migrants	*	-936	-1,402	-1,116	*	7,006	9,317	9,052	*	*	*	*
Male migrants	*	-690	-1,025	-820	*	4,418	5,920	5,682	*	*	*	*
Female migrants	*	-246	-377	-296	*	2,588	3,397	3,370	*	*	*	*

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1)

Choiseul province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	3,261	1,693	1,569	3,403	1,775	1,627	3,459	1,805	1,654	3,535	1,844	1,691
5-9	2,857	1,503	1,354	3,172	1,649	1,523	3,310	1,730	1,580	3,365	1,759	1,607
10-14	2,599	1,354	1,245	2,814	1,482	1,332	3,127	1,626	1,501	3,264	1,706	1,557
15-19	2,053	1,104	949	2,540	1,323	1,217	2,752	1,450	1,303	3,061	1,593	1,469
20-24	1,639	787	852	1,980	1,063	917	2,459	1,279	1,181	2,669	1,404	1,265
25-29	1,612	776	835	1,581	756	825	1,916	1,027	889	2,388	1,240	1,149
30-34	1,255	616	639	1,564	751	813	1,534	731	803	1,863	998	866
35-39	1,039	535	504	1,217	596	621	1,519	728	791	1,489	708	781
40-44	759	407	352	1,004	516	488	1,177	575	602	1,471	704	768
45-49	642	321	321	727	389	338	964	494	470	1,130	551	580
50-54	498	243	254	607	301	306	688	366	322	914	466	448
55-59	486	256	229	462	224	239	564	277	287	639	337	302
60-64	372	178	194	437	228	209	416	199	217	508	246	261
65-69	299	135	164	317	149	169	372	191	181	355	166	188
70-74	182	90	91	235	103	132	249	114	136	292	146	146
75+	235	125	110	228	113	115	262	117	145	288	125	162
Summary												
All ages	19,787	10,124	9,663	22,287	11,417	10,869	24,768	12,707	12,061	27,231	13,992	13,239
Under 15	8,717	4,550	4,168	9,389	4,906	4,482	9,896	5,161	4,735	10,164	5,309	4,855
15-44	8,357	4,225	4,131	9,886	5,005	4,881	11,357	5,790	5,569	12,941	6,647	6,298
45-59	1,626	820	804	1,796	914	883	2,216	1,137	1,079	2,683	1,354	1,330
60+	1,088	528	559	1,217	593	625	1,299	621	679	1,443	683	757

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Western province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	9,553	4,967	4,585	10,247	5,343	4,904	10,498	5,474	5,024	10,724	5,592	5,132
5-9	8,535	4,426	4,110	9,452	4,919	4,533	10,140	5,291	4,848	10,389	5,422	4,967
10-14	7,604	3,937	3,667	8,561	4,438	4,123	9,481	4,933	4,548	10,171	5,306	4,864
15-19	6,523	3,487	3,036	7,679	3,973	3,706	8,647	4,479	4,169	9,576	4,978	4,598
20-24	5,935	3,148	2,788	6,599	3,530	3,069	7,762	4,021	3,742	8,743	4,531	4,212
25-29	5,476	2,934	2,543	5,942	3,155	2,787	6,605	3,537	3,069	7,765	4,027	3,738
30-34	4,365	2,312	2,054	5,432	2,914	2,518	5,897	3,137	2,761	6,554	3,515	3,039
35-39	3,468	1,890	1,578	4,303	2,282	2,021	5,354	2,876	2,478	5,814	3,097	2,718
40-44	2,529	1,368	1,162	3,395	1,850	1,544	4,213	2,235	1,978	5,241	2,816	2,425
45-49	2,016	1,073	944	2,453	1,324	1,129	3,292	1,792	1,500	4,086	2,164	1,922
50-54	1,573	872	701	1,928	1,022	906	2,345	1,261	1,084	3,147	1,706	1,440
55-59	1,360	741	619	1,471	809	662	1,803	948	854	2,193	1,171	1,022
60-64	1,088	581	507	1,229	662	567	1,329	723	606	1,629	847	782
65-69	868	452	417	933	490	443	1,053	559	495	1,138	610	528
70-74	469	240	229	684	348	335	734	378	357	829	431	398
75+	676	396	279	622	332	290	745	376	369	835	415	420
Summary												
All ages	62,038	32,821	29,217	70,930	37,393	33,537	79,898	42,018	37,880	88,833	46,627	42,206
Under 15	25,692	13,330	12,362	28,260	14,700	13,560	30,119	15,698	14,420	31,284	16,320	14,963
15-44	28,296	15,139	13,161	33,350	17,704	15,645	38,478	20,285	18,197	43,693	22,964	20,730
45-59	4,949	2,686	2,264	5,852	3,155	2,697	7,440	4,001	3,438	9,426	5,041	4,384
60+	3,101	1,669	1,432	3,468	1,832	1,635	3,861	2,036	1,827	4,431	2,303	2,128

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Isabel province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	3,073	1,601	1,472	3,090	1,616	1,474	3,064	1,602	1,462	3,000	1,569	1,431
5-9	2,729	1,417	1,312	2,968	1,553	1,415	2,984	1,567	1,417	2,958	1,553	1,405
10-14	2,722	1,439	1,283	2,673	1,392	1,281	2,909	1,526	1,383	2,925	1,540	1,385
15-19	2,084	1,050	1,034	2,634	1,400	1,235	2,586	1,353	1,233	2,819	1,486	1,333
20-24	1,758	862	897	1,980	1,000	980	2,522	1,344	1,178	2,472	1,297	1,175
25-29	1,604	779	824	1,678	822	855	1,895	958	937	2,427	1,296	1,131
30-34	1,152	575	576	1,542	749	793	1,614	791	823	1,827	924	903
35-39	1,041	506	536	1,106	552	553	1,487	722	765	1,557	763	794
40-44	810	377	433	998	484	514	1,061	529	531	1,431	694	737
45-49	789	416	373	771	357	414	952	460	492	1,012	504	509
50-54	600	311	289	743	391	353	726	334	392	898	432	467
55-59	530	253	277	553	284	269	686	358	328	671	306	365
60-64	421	235	186	474	223	250	494	251	243	614	316	297
65-69	366	195	171	357	196	161	403	187	216	419	209	210
70-74	190	93	96	285	149	136	277	149	128	314	142	172
75+	328	201	128	273	147	125	313	161	152	325	167	158
Summary												
All ages	20,198	10,311	9,887	22,124	11,314	10,809	23,971	12,292	11,680	25,670	13,199	12,472
Under 15	8,524	4,457	4,067	8,731	4,561	4,170	8,957	4,695	4,262	8,883	4,662	4,221
15-44	8,449	4,149	4,300	9,938	5,007	4,930	11,165	5,697	5,467	12,533	6,460	6,073
45-59	1,919	980	939	2,067	1,032	1,036	2,364	1,152	1,212	2,581	1,242	1,341
60+	1,305	724	581	1,389	715	672	1,487	748	739	1,672	834	837

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Central province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	3,245	1,718	1,527	3,397	1,777	1,620	3,433	1,796	1,638	3,209	1,679	1,530
5-9	2,882	1,473	1,409	3,125	1,662	1,464	3,273	1,719	1,554	3,308	1,737	1,571
10-14	2,727	1,400	1,327	2,806	1,439	1,367	3,047	1,626	1,421	3,193	1,683	1,511
15-19	2,350	1,235	1,115	2,606	1,345	1,261	2,683	1,383	1,300	2,921	1,568	1,353
20-24	1,919	951	967	2,199	1,159	1,040	2,450	1,267	1,183	2,525	1,304	1,221
25-29	1,842	919	923	1,807	895	913	2,083	1,099	983	2,330	1,206	1,124
30-34	1,364	680	684	1,761	877	884	1,726	853	873	1,997	1,054	943
35-39	1,105	572	533	1,304	649	655	1,693	842	851	1,659	818	840
40-44	804	431	373	1,054	545	509	1,248	620	628	1,627	808	819
45-49	784	420	363	760	406	354	1,002	517	485	1,190	589	601
50-54	613	327	286	735	393	342	713	379	334	944	484	460
55-59	526	290	236	564	298	266	678	359	319	658	347	311
60-64	352	196	157	470	256	214	504	263	241	607	318	289
65-69	338	170	168	298	163	135	399	214	185	429	220	209
70-74	224	130	94	265	131	135	233	125	108	312	164	148
75+	265	160	105	268	154	114	298	152	146	290	148	142
Summary												
All ages	21,337	11,071	10,266	23,418	12,148	11,270	25,463	13,215	12,248	27,196	14,127	13,070
Under 15	8,854	4,591	4,263	9,328	4,878	4,451	9,753	5,141	4,613	9,710	5,099	4,612
15-44	9,384	4,788	4,595	10,731	5,470	5,262	11,883	6,064	5,818	13,059	6,758	6,300
45-59	1,923	1,037	885	2,059	1,097	962	2,393	1,255	1,138	2,792	1,420	1,372
60+	1,179	656	524	1,301	704	598	1,434	754	680	1,638	850	788

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Rennell-Bellona province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	355	186	170	299	156	143	289	151	139	269	140	129
5-9	310	157	153	335	175	160	280	146	134	270	141	129
10-14	302	156	147	294	149	145	319	167	152	264	138	127
15-19	221	131	90	276	142	134	268	135	133	292	153	139
20-24	169	79	91	188	112	76	242	123	119	234	116	118
25-29	164	85	79	146	65	80	164	98	65	217	109	108
30-34	116	51	65	149	77	72	131	57	74	149	90	59
35-39	123	56	68	105	45	60	138	71	68	121	51	69
40-44	107	53	54	115	51	64	97	40	57	129	65	64
45-49	98	59	39	99	48	50	106	46	60	89	36	53
50-54	70	37	33	90	54	36	91	44	47	98	42	57
55-59	57	27	30	64	33	30	83	49	33	84	40	44
60-64	58	21	37	50	23	27	56	29	27	73	43	30
65-69	78	40	38	49	17	32	42	19	23	47	23	23
70-74	54	30	24	61	31	31	39	13	26	33	14	19
75+	70	50	20	68	42	26	72	39	34	59	26	34
Summary												
All ages	2,351	1,217	1,135	2,387	1,220	1,167	2,416	1,225	1,191	2,426	1,225	1,202
Under 15	967	499	470	928	480	448	888	464	425	803	419	385
15-44	900	455	447	979	492	486	1,040	524	516	1,142	584	557
45-59	225	123	102	253	135	116	280	139	140	271	118	154
60+	260	141	119	228	113	116	209	100	110	212	106	106

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Guadalcanal province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	9,745	5,095	4,651	10,171	5,310	4,861	10,192	5,321	4,871	10,073	5,259	4,814
5-9	7,969	4,138	3,830	9,498	4,977	4,521	9,913	5,187	4,726	9,933	5,198	4,736
10-14	7,415	3,871	3,544	7,878	4,096	3,782	9,395	4,928	4,467	9,807	5,137	4,670
15-19	6,504	3,348	3,156	7,297	3,816	3,482	7,756	4,039	3,717	9,258	4,863	4,394
20-24	5,925	2,992	2,933	6,356	3,274	3,082	7,138	3,736	3,403	7,590	3,956	3,634
25-29	5,269	2,723	2,546	5,787	2,923	2,863	6,211	3,201	3,009	6,980	3,656	3,325
30-34	3,992	2,104	1,888	5,147	2,662	2,485	5,655	2,859	2,796	6,071	3,132	2,939
35-39	3,042	1,596	1,446	3,889	2,051	1,838	5,018	2,598	2,421	5,514	2,790	2,724
40-44	2,198	1,165	1,032	2,949	1,547	1,402	3,773	1,989	1,784	4,872	2,521	2,351
45-49	1,842	944	899	2,113	1,118	995	2,838	1,486	1,352	3,633	1,912	1,721
50-54	1,553	766	786	1,748	891	857	2,005	1,057	949	2,696	1,405	1,290
55-59	1,309	710	599	1,444	707	737	1,625	822	803	1,864	975	889
60-64	1,017	553	465	1,177	631	546	1,299	628	671	1,462	730	732
65-69	769	419	350	866	463	403	1,002	529	473	1,108	526	582
70-74	464	271	193	601	320	281	677	355	323	784	405	379
75+	599	385	214	578	345	233	662	360	302	753	389	364
Summary												
All ages	59,610	31,078	28,532	67,498	35,132	32,366	75,161	39,095	36,066	82,398	42,854	39,544
Under 15	25,129	13,104	12,025	27,547	14,383	13,164	29,500	15,436	14,064	29,813	15,594	14,220
15-44	26,930	13,928	13,001	31,425	16,273	15,152	35,551	18,422	17,130	40,285	20,918	19,367
45-59	4,704	2,420	2,284	5,305	2,716	2,589	6,468	3,365	3,104	8,193	4,292	3,900
60+	2,849	1,628	1,222	3,222	1,759	1,463	3,640	1,872	1,769	4,107	2,050	2,057

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Malaita province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	20,177	10,537	9,640	21,395	11,147	10,247	21,215	11,054	10,161	20,167	10,507	9,660
5-9	17,805	9,291	8,514	19,473	10,172	9,301	20,661	10,768	9,892	20,482	10,675	9,807
10-14	16,728	8,777	7,951	17,403	9,070	8,333	19,055	9,943	9,112	20,231	10,533	9,697
15-19	13,490	6,651	6,839	16,103	8,423	7,680	16,766	8,711	8,055	18,398	9,574	8,825
20-24	10,664	4,901	5,762	12,712	6,184	6,528	15,285	7,930	7,355	15,932	8,211	7,722
25-29	8,893	4,139	4,755	10,080	4,557	5,523	12,093	5,818	6,275	14,621	7,534	7,087
30-34	6,687	3,116	3,571	8,484	3,901	4,583	9,646	4,310	5,336	11,621	5,548	6,073
35-39	5,690	2,651	3,039	6,381	2,943	3,438	8,137	3,710	4,427	9,272	4,110	5,163
40-44	4,407	2,129	2,278	5,426	2,503	2,922	6,097	2,786	3,311	7,806	3,532	4,273
45-49	3,811	1,784	2,027	4,169	1,993	2,176	5,152	2,354	2,799	5,801	2,626	3,175
50-54	3,284	1,527	1,757	3,566	1,647	1,919	3,906	1,845	2,061	4,843	2,186	2,657
55-59	2,874	1,451	1,423	3,019	1,382	1,637	3,282	1,493	1,789	3,599	1,676	1,923
60-64	2,075	980	1,095	2,564	1,274	1,290	2,698	1,212	1,486	2,935	1,310	1,625
65-69	1,947	1,006	941	1,756	810	946	2,173	1,057	1,116	2,290	1,004	1,286
70-74	1,303	721	582	1,519	767	752	1,372	615	756	1,698	805	893
75+	1,464	904	560	1,521	860	662	1,698	871	827	1,682	775	907
Summary												
All ages	121,297	60,566	60,731	135,569	67,632	67,937	149,234	74,475	74,759	161,379	80,607	80,772
Under 15	54,710	28,605	26,105	58,271	30,389	27,881	60,931	31,765	29,165	60,880	31,715	29,164
15-44	49,831	23,587	26,244	59,186	28,511	30,674	68,024	33,265	34,759	77,650	38,509	39,143
45-59	9,969	4,762	5,207	10,754	5,022	5,732	12,340	5,692	6,649	14,243	6,488	7,755
60+	6,789	3,611	3,178	7,360	3,711	3,650	7,941	3,755	4,185	8,605	3,894	4,711

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, .2009 and 2014 (stagnation variant, P1) (cont.)

Makira-Ulawa province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	4,963	2,592	2,371	5,541	2,883	2,658	6,020	3,133	2,887	6,357	3,309	3,048
5-9	3,882	2,068	1,814	4,819	2,514	2,305	5,384	2,799	2,585	5,853	3,044	2,809
10-14	4,210	2,201	2,009	3,809	2,023	1,785	4,738	2,466	2,273	5,299	2,748	2,551
15-19	3,688	1,891	1,797	4,093	2,128	1,966	3,695	1,951	1,743	4,615	2,389	2,226
20-24	2,870	1,388	1,481	3,539	1,793	1,746	3,938	2,026	1,912	3,543	1,851	1,693
25-29	2,537	1,201	1,336	2,754	1,315	1,439	3,413	1,713	1,700	3,805	1,942	1,863
30-34	1,785	885	900	2,449	1,148	1,301	2,662	1,260	1,402	3,309	1,651	1,658
35-39	1,511	768	743	1,720	846	874	2,371	1,104	1,267	2,579	1,213	1,366
40-44	1,137	566	571	1,453	733	719	1,656	809	848	2,290	1,060	1,230
45-49	972	475	497	1,084	535	550	1,389	696	693	1,586	769	817
50-54	752	358	394	916	443	473	1,023	499	524	1,314	652	661
55-59	701	389	313	695	326	369	849	405	444	949	457	492
60-64	513	305	208	628	343	285	624	287	337	763	357	405
65-69	505	288	217	435	254	181	534	286	248	532	239	293
70-74	259	139	120	395	221	175	340	194	146	419	219	200
75+	383	257	127	345	202	143	422	233	189	419	229	190
Summary												
All ages	30,668	15,771	14,897	34,676	17,706	16,970	39,057	19,859	19,198	43,631	22,128	21,503
Under 15	13,055	6,861	6,194	14,169	7,420	6,748	16,142	8,398	7,745	17,509	9,101	8,408
15-44	13,528	6,699	6,828	16,008	7,963	8,045	17,735	8,863	8,872	20,141	10,106	10,036
45-59	2,425	1,222	1,204	2,695	1,304	1,392	3,261	1,600	1,661	3,849	1,878	1,970
60+	1,660	989	672	1,803	1,020	784	1,920	1,000	920	2,133	1,044	1,088

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (cont.)

Temotu province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	2,587	1,340	1,247	2,968	1,541	1,427	3,153	1,638	1,516	3,296	1,712	1,584
5-9	2,563	1,298	1,265	2,503	1,291	1,212	2,876	1,488	1,388	3,058	1,583	1,474
10-14	2,571	1,357	1,214	2,510	1,264	1,246	2,450	1,257	1,193	2,819	1,452	1,367
15-19	2,160	1,054	1,106	2,484	1,299	1,185	2,423	1,207	1,215	2,362	1,200	1,163
20-24	1,583	665	919	2,049	977	1,072	2,368	1,219	1,149	2,307	1,127	1,179
25-29	1,341	505	835	1,501	610	891	1,959	918	1,042	2,273	1,155	1,118
30-34	1,089	478	611	1,283	470	813	1,440	572	868	1,891	875	1,016
35-39	1,021	455	567	1,044	450	594	1,234	442	792	1,388	543	845
40-44	770	365	405	979	430	549	1,002	426	576	1,186	417	769
45-49	703	330	373	733	343	390	936	406	530	957	402	556
50-54	542	256	286	662	306	356	691	318	373	885	378	506
55-59	479	224	255	501	232	268	613	279	334	640	291	350
60-64	357	181	176	430	198	233	450	205	245	552	247	305
65-69	343	182	161	303	150	154	367	164	203	384	170	214
70-74	242	138	104	270	140	130	239	115	124	290	126	164
75+	355	224	132	323	188	135	329	174	155	311	151	159
Summary												
All ages	18,706	9,050	9,656	20,543	9,889	10,653	22,528	10,828	11,700	24,599	11,830	12,769
Under 15	7,721	3,995	3,726	7,981	4,096	3,885	8,479	4,383	4,097	9,173	4,747	4,425
15-44	7,964	3,522	4,443	9,340	4,236	5,104	10,426	4,784	5,642	11,407	5,317	6,090
45-59	1,724	810	914	1,896	881	1,014	2,240	1,003	1,237	2,482	1,071	1,412
60+	1,297	725	573	1,326	676	652	1,385	658	727	1,537	694	842

Annex XVIII Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (stagnation variant, P1) (end)

Honiara town council

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	6,226	3,184	3,042	7,466	3,921	3,545	8,131	4,267	3,864	8,370	4,392	3,978
5-9	4,606	2,455	2,151	6,515	3,363	3,152	7,729	4,085	3,644	8,380	4,425	3,955
10-14	4,429	2,278	2,151	4,985	2,676	2,309	6,877	3,576	3,301	8,078	4,291	3,787
15-19	6,161	3,323	2,839	5,137	2,691	2,446	5,680	3,082	2,598	7,549	3,971	3,578
20-24	7,233	4,104	3,129	7,052	3,885	3,168	6,030	3,256	2,774	6,555	3,637	2,919
25-29	5,808	3,273	2,535	7,795	4,470	3,325	7,612	4,251	3,361	6,599	3,628	2,970
30-34	3,903	2,261	1,643	6,122	3,492	2,631	8,073	4,668	3,406	7,891	4,451	3,440
35-39	3,132	1,797	1,335	4,105	2,401	1,704	6,279	3,608	2,671	8,190	4,760	3,430
40-44	2,263	1,365	898	3,258	1,887	1,370	4,205	2,476	1,729	6,325	3,652	2,673
45-49	1,845	1,148	696	2,345	1,420	925	3,307	1,925	1,382	4,222	2,492	1,730
50-54	1,254	772	482	1,879	1,171	708	2,356	1,429	927	3,275	1,909	1,366
55-59	758	506	253	1,253	770	483	1,836	1,141	696	2,282	1,380	902
60-64	405	266	140	736	487	250	1,184	723	461	1,711	1,054	656
65-69	245	150	94	386	251	135	669	437	232	1,054	637	416
70-74	120	75	45	212	130	82	323	208	115	545	353	193
75+	124	93	31	159	110	49	238	154	84	349	226	124
Summary												
All ages	48,513	27,050	21,462	59,404	33,124	26,280	70,529	39,285	31,244	81,374	45,258	36,117
Under 15	15,261	7,917	7,344	18,966	9,960	9,006	22,737	11,928	10,809	24,828	13,108	11,720
15-44	28,500	16,123	12,379	33,469	18,826	14,644	37,879	21,341	16,539	43,109	24,099	19,010
45-59	3,857	2,426	1,431	5,477	3,361	2,116	7,499	4,495	3,005	9,779	5,781	3,998
60+	894	584	310	1,493	978	516	2,414	1,522	892	3,659	2,270	1,389

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2)

Choiseul province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	3,261	1,693	1,569	3,385	1,766	1,619	3,385	1,766	1,619	3,477	1,813	1,664
5-9	2,857	1,503	1,354	3,162	1,644	1,518	3,269	1,709	1,560	3,315	1,733	1,583
10-14	2,599	1,354	1,245	2,798	1,473	1,324	3,074	1,599	1,475	3,214	1,680	1,534
15-19	2,053	1,104	949	2,505	1,305	1,200	2,649	1,397	1,252	2,982	1,551	1,431
20-24	1,639	787	852	1,937	1,039	898	2,316	1,200	1,116	2,532	1,331	1,201
25-29	1,612	776	835	1,552	739	813	1,802	962	839	2,229	1,150	1,078
30-34	1,255	616	639	1,547	741	806	1,463	689	774	1,742	928	814
35-39	1,039	535	504	1,206	589	616	1,478	703	775	1,418	664	754
40-44	759	407	352	997	512	485	1,150	558	591	1,434	679	755
45-49	642	321	321	721	385	337	944	483	462	1,108	536	572
50-54	498	243	254	603	298	304	674	356	317	900	457	443
55-59	486	256	229	460	222	237	555	271	284	630	330	300
60-64	372	178	194	435	227	209	412	196	216	506	244	262
65-69	299	135	164	318	148	169	372	190	182	359	167	192
70-74	182	90	91	236	104	132	252	114	138	300	150	150
75+	235	125	110	229	113	116	267	119	148	304	132	172
Summary												
All ages	19,787	10,124	9,663	22,089	11,307	10,782	24,061	12,312	11,749	26,448	13,544	12,905
Under 15	8,717	4,550	4,168	9,345	4,883	4,461	9,728	5,074	4,654	10,006	5,226	4,781
15-44	8,357	4,225	4,131	9,744	4,925	4,818	10,858	5,509	5,347	12,337	6,303	6,033
45-59	1,626	820	804	1,784	905	878	2,173	1,110	1,063	2,638	1,323	1,315
60+	1,088	528	559	1,218	592	626	1,303	619	684	1,469	693	776

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Western province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	9,553	4,967	4,585	10,427	5,439	4,989	11,247	5,865	5,381	11,726	6,113	5,613
5-9	8,535	4,426	4,110	9,505	4,947	4,558	10,539	5,500	5,039	11,271	5,883	5,388
10-14	7,604	3,937	3,667	8,602	4,460	4,142	9,703	5,049	4,655	10,614	5,537	5,077
15-19	6,523	3,487	3,036	7,767	4,020	3,747	8,992	4,660	4,332	9,862	5,127	4,735
20-24	5,935	3,148	2,788	6,729	3,603	3,126	8,256	4,296	3,960	9,188	4,769	4,419
25-29	5,476	2,934	2,543	6,044	3,213	2,830	7,036	3,782	3,253	8,360	4,359	4,002
30-34	4,365	2,312	2,054	5,505	2,958	2,548	6,196	3,312	2,885	7,072	3,809	3,263
35-39	3,468	1,890	1,578	4,360	2,315	2,044	5,574	3,006	2,568	6,191	3,315	2,876
40-44	2,529	1,368	1,162	3,442	1,879	1,563	4,384	2,336	2,048	5,534	2,987	2,547
45-49	2,016	1,073	944	2,493	1,348	1,145	3,432	1,875	1,557	4,321	2,302	2,019
50-54	1,573	872	701	1,959	1,041	919	2,459	1,329	1,130	3,341	1,821	1,520
55-59	1,360	741	619	1,494	824	671	1,890	1,000	890	2,349	1,263	1,087
60-64	1,088	581	507	1,246	672	574	1,392	761	632	1,752	917	834
65-69	868	452	417	946	498	448	1,103	587	516	1,230	662	567
70-74	469	240	229	692	353	339	768	397	371	899	469	430
75+	676	396	279	633	340	293	787	402	385	922	464	458
Summary												
All ages	62,038	32,821	29,217	71,843	37,908	33,935	83,757	44,156	39,602	94,630	49,797	44,834
Under 15	25,692	13,330	12,362	28,534	14,846	13,689	31,489	16,414	15,075	33,611	17,533	16,078
15-44	28,296	15,139	13,161	33,847	17,988	15,858	40,438	21,392	19,046	46,207	24,366	21,842
45-59	4,949	2,686	2,264	5,946	3,213	2,735	7,781	4,204	3,577	10,011	5,386	4,626
60+	3,101	1,669	1,432	3,517	1,863	1,654	4,050	2,147	1,904	4,803	2,512	2,289

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Isabel province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	3,073	1,601	1,472	3,059	1,603	1,456	2,963	1,555	1,408	2,866	1,502	1,364
5-9	2,729	1,417	1,312	2,953	1,548	1,405	2,927	1,545	1,382	2,861	1,512	1,349
10-14	2,722	1,439	1,283	2,651	1,383	1,268	2,851	1,504	1,347	2,841	1,508	1,333
15-19	2,084	1,050	1,034	2,594	1,384	1,210	2,479	1,310	1,169	2,705	1,441	1,264
20-24	1,758	862	897	1,929	977	951	2,377	1,282	1,095	2,297	1,223	1,074
25-29	1,604	779	824	1,644	807	837	1,775	904	871	2,243	1,216	1,027
30-34	1,152	575	576	1,523	740	783	1,542	757	786	1,689	860	829
35-39	1,041	506	536	1,093	546	547	1,446	701	744	1,476	724	753
40-44	810	377	433	990	480	510	1,033	516	517	1,388	673	716
45-49	789	416	373	764	354	410	933	452	481	983	491	492
50-54	600	311	289	738	388	350	712	327	384	879	423	456
55-59	530	253	277	550	283	267	678	354	324	660	301	360
60-64	421	235	186	473	223	250	492	250	242	613	317	297
65-69	366	195	171	356	195	161	403	186	217	423	211	212
70-74	190	93	96	286	150	137	280	150	130	322	145	178
75+	328	201	128	273	148	125	319	164	155	343	176	167
Summary												
All ages	20,198	10,311	9,887	21,874	11,207	10,667	23,207	11,957	11,251	24,591	12,722	11,869
Under 15	8,524	4,457	4,067	8,663	4,534	4,129	8,741	4,604	4,137	8,568	4,522	4,046
15-44	8,449	4,149	4,300	9,773	4,934	4,838	10,652	5,470	5,182	11,798	6,137	5,663
45-59	1,919	980	939	2,052	1,025	1,027	2,323	1,133	1,189	2,522	1,215	1,308
60+	1,305	724	581	1,388	716	673	1,494	750	744	1,701	849	854

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Central province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	3,245	1,718	1,527	3,344	1,752	1,593	3,247	1,705	1,542	2,956	1,550	1,406
5-9	2,882	1,473	1,409	3,102	1,652	1,450	3,174	1,678	1,496	3,116	1,648	1,468
10-14	2,727	1,400	1,327	2,776	1,426	1,350	2,955	1,588	1,367	3,055	1,625	1,430
15-19	2,350	1,235	1,115	2,546	1,320	1,226	2,523	1,316	1,208	2,749	1,496	1,252
20-24	1,919	951	967	2,125	1,125	1,000	2,229	1,167	1,062	2,265	1,189	1,076
25-29	1,842	919	923	1,758	871	887	1,901	1,013	888	2,046	1,074	971
30-34	1,364	680	684	1,733	863	870	1,616	798	818	1,784	952	833
35-39	1,105	572	533	1,285	640	645	1,627	809	817	1,531	755	777
40-44	804	431	373	1,041	538	503	1,203	597	606	1,555	772	783
45-49	784	420	363	749	401	348	970	501	470	1,139	564	575
50-54	613	327	286	728	389	339	687	367	320	910	468	443
55-59	526	290	236	560	296	263	664	352	311	632	336	297
60-64	352	196	157	467	255	212	496	260	237	599	315	284
65-69	338	170	168	296	162	134	395	212	183	427	220	207
70-74	224	130	94	266	130	135	233	124	108	317	167	150
75+	265	160	105	269	154	115	306	155	151	306	154	152
Summary												
All ages	21,337	11,071	10,266	23,044	11,975	11,069	24,225	12,643	11,582	25,387	13,284	12,103
Under 15	8,854	4,591	4,263	9,222	4,830	4,393	9,376	4,971	4,405	9,127	4,823	4,304
15-44	9,384	4,788	4,595	10,488	5,357	5,131	11,099	5,700	5,399	11,930	6,238	5,692
45-59	1,923	1,037	885	2,037	1,086	950	2,321	1,220	1,101	2,681	1,368	1,315
60+	1,179	656	524	1,298	701	596	1,430	751	679	1,649	856	793

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Rennell-Bellona province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	355	186	170	287	150	137	250	131	119	209	109	100
5-9	310	157	153	329	173	156	256	135	121	222	117	105
10-14	302	156	147	287	146	141	301	159	142	229	122	107
15-19	221	131	90	265	137	128	237	121	117	253	134	119
20-24	169	79	91	173	105	68	202	103	100	177	88	89
25-29	164	85	79	136	60	76	130	80	50	160	79	81
30-34	116	51	65	143	73	70	109	45	65	104	65	39
35-39	123	56	68	101	43	58	124	63	62	92	34	58
40-44	107	53	54	113	50	63	87	35	52	110	55	56
45-49	98	59	39	97	48	49	101	43	57	76	30	47
50-54	70	37	33	89	53	35	86	42	45	90	38	53
55-59	57	27	30	63	33	30	78	47	32	77	36	41
60-64	58	21	37	50	23	27	54	28	27	69	41	28
65-69	78	40	38	48	17	31	41	19	23	46	23	23
70-74	54	30	24	61	30	31	38	12	26	33	14	19
75+	70	50	20	67	41	26	73	38	35	61	25	36
Summary												
All ages	2,351	1,217	1,135	2,308	1,181	1,127	2,169	1,100	1,069	2,008	1,010	998
Under 15	967	499	470	903	469	434	807	425	382	660	348	312
15-44	900	455	447	931	468	463	889	447	446	896	455	442
45-59	225	123	102	249	134	114	265	132	134	243	104	141
60+	260	141	119	226	111	115	206	97	111	209	103	106

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Guadalcanal province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	9,745	5,095	4,651	10,497	5,472	5,025	11,120	5,792	5,328	11,425	5,952	5,473
5-9	7,969	4,138	3,830	9,620	5,031	4,589	10,476	5,457	5,019	11,080	5,775	5,305
10-14	7,415	3,871	3,544	7,980	4,140	3,840	9,702	5,065	4,638	10,499	5,463	5,036
15-19	6,504	3,348	3,156	7,474	3,893	3,581	8,171	4,222	3,949	9,772	5,091	4,682
20-24	5,925	2,992	2,933	6,577	3,382	3,195	7,705	4,004	3,701	8,259	4,262	3,997
25-29	5,269	2,723	2,546	5,939	3,000	2,940	6,704	3,446	3,258	7,734	4,017	3,717
30-34	3,992	2,104	1,888	5,242	2,712	2,530	5,980	3,025	2,954	6,692	3,442	3,249
35-39	3,042	1,596	1,446	3,953	2,085	1,868	5,237	2,712	2,525	5,939	3,008	2,931
40-44	2,198	1,165	1,032	2,996	1,572	1,423	3,929	2,072	1,856	5,173	2,680	2,493
45-49	1,842	944	899	2,148	1,137	1,011	2,956	1,549	1,406	3,853	2,030	1,823
50-54	1,553	766	786	1,775	906	869	2,095	1,105	990	2,863	1,496	1,368
55-59	1,309	710	599	1,464	717	747	1,692	858	835	1,990	1,042	948
60-64	1,017	553	465	1,191	639	552	1,348	653	695	1,560	781	779
65-69	769	419	350	878	469	409	1,041	550	491	1,185	564	621
70-74	464	271	193	608	325	283	705	370	335	843	436	406
75+	599	385	214	586	351	236	695	380	315	824	430	395
Summary												
All ages	59,610	31,078	28,532	68,927	35,830	33,098	79,554	41,260	38,295	89,690	46,469	43,221
Under 15	25,129	13,104	12,025	28,097	14,643	13,454	31,298	16,314	14,985	33,004	17,190	15,814
15-44	26,930	13,928	13,001	32,181	16,644	15,537	37,726	19,481	18,243	43,569	22,500	21,069
45-59	4,704	2,420	2,284	5,387	2,760	2,627	6,743	3,512	3,231	8,706	4,568	4,139
60+	2,849	1,628	1,222	3,263	1,784	1,480	3,789	1,953	1,836	4,412	2,211	2,201

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Malaita province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	20,177	10,537	9,640	21,233	11,057	10,176	20,703	10,772	9,931	19,616	10,199	9,417
5-9	17,805	9,291	8,514	19,375	10,114	9,261	20,318	10,568	9,750	20,011	10,403	9,607
10-14	16,728	8,777	7,951	17,261	8,989	8,271	18,648	9,709	8,939	19,722	10,231	9,492
15-19	13,490	6,651	6,839	15,830	8,271	7,560	16,027	8,292	7,735	17,630	9,126	8,504
20-24	10,664	4,901	5,762	12,355	5,966	6,389	14,243	7,304	6,939	14,720	7,488	7,232
25-29	8,893	4,139	4,755	9,838	4,405	5,433	11,222	5,274	5,949	13,297	6,718	6,579
30-34	6,687	3,116	3,571	8,339	3,806	4,533	9,106	3,957	5,149	10,607	4,893	5,714
35-39	5,690	2,651	3,039	6,286	2,879	3,406	7,806	3,486	4,320	8,657	3,690	4,968
40-44	4,407	2,129	2,278	5,356	2,457	2,900	5,870	2,632	3,239	7,436	3,269	4,167
45-49	3,811	1,784	2,027	4,118	1,960	2,157	4,989	2,242	2,746	5,549	2,446	3,103
50-54	3,284	1,527	1,757	3,528	1,622	1,906	3,786	1,764	2,022	4,673	2,061	2,612
55-59	2,874	1,451	1,423	2,997	1,367	1,630	3,209	1,442	1,767	3,490	1,595	1,895
60-64	2,075	980	1,095	2,553	1,266	1,288	2,663	1,184	1,479	2,890	1,268	1,622
65-69	1,947	1,006	941	1,749	804	945	2,161	1,044	1,117	2,291	988	1,303
70-74	1,303	721	582	1,521	766	755	1,374	611	764	1,727	811	917
75+	1,464	904	560	1,525	860	665	1,726	877	848	1,762	803	959
Summary												
All ages	121,297	60,566	60,731	133,862	66,588	67,274	143,851	71,156	72,695	154,078	75,988	78,090
Under 15	54,710	28,605	26,105	57,869	30,160	27,708	59,669	31,049	28,620	59,349	30,833	28,516
15-44	49,831	23,587	26,244	58,004	27,784	30,221	64,274	30,945	33,331	72,347	35,184	37,164
45-59	9,969	4,762	5,207	10,643	4,949	5,693	11,984	5,448	6,535	13,712	6,102	7,610
60+	6,789	3,611	3,178	7,348	3,696	3,653	7,924	3,716	4,208	8,670	3,870	4,801

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Makira-Ulawa province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	4,963	2,592	2,371	5,529	2,873	2,657	5,993	3,109	2,884	6,371	3,307	3,064
5-9	3,882	2,068	1,814	4,801	2,499	2,301	5,347	2,765	2,581	5,854	3,026	2,828
10-14	4,210	2,201	2,009	3,781	2,005	1,777	4,661	2,411	2,251	5,235	2,693	2,542
15-19	3,688	1,891	1,797	4,040	2,091	1,949	3,552	1,854	1,698	4,472	2,286	2,186
20-24	2,870	1,388	1,481	3,466	1,741	1,725	3,733	1,880	1,853	3,310	1,685	1,625
25-29	2,537	1,201	1,336	2,705	1,279	1,426	3,242	1,587	1,654	3,550	1,755	1,796
30-34	1,785	885	900	2,421	1,126	1,294	2,557	1,179	1,378	3,117	1,503	1,614
35-39	1,511	768	743	1,701	831	870	2,307	1,053	1,254	2,464	1,119	1,345
40-44	1,137	566	571	1,439	723	716	1,614	774	840	2,226	1,003	1,223
45-49	972	475	497	1,074	527	547	1,359	671	688	1,544	731	813
50-54	752	358	394	909	437	472	1,000	480	520	1,286	626	660
55-59	701	389	313	690	322	368	836	393	443	932	439	492
60-64	513	305	208	627	341	285	618	280	338	758	348	410
65-69	505	288	217	434	254	181	535	284	250	535	236	299
70-74	259	139	120	396	221	175	342	195	147	430	223	207
75+	383	257	127	346	202	144	429	236	193	440	239	200
Summary												
All ages	30,668	15,771	14,897	34,359	17,471	16,887	38,123	19,152	18,971	42,524	21,220	21,305
Under 15	13,055	6,861	6,194	14,111	7,377	6,735	16,001	8,285	7,716	17,460	9,026	8,434
15-44	13,528	6,699	6,828	15,772	7,791	7,980	17,005	8,327	8,677	19,139	9,351	9,789
45-59	2,425	1,222	1,204	2,673	1,286	1,387	3,195	1,544	1,651	3,762	1,796	1,965
60+	1,660	989	672	1,803	1,018	785	1,924	995	928	2,163	1,046	1,116

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (cont.)

Temotu province

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	2,587	1,340	1,247	2,924	1,511	1,413	3,045	1,567	1,478	3,180	1,641	1,539
5-9	2,563	1,298	1,265	2,468	1,267	1,202	2,778	1,417	1,360	2,934	1,494	1,439
10-14	2,571	1,357	1,214	2,471	1,237	1,234	2,341	1,181	1,161	2,677	1,349	1,328
15-19	2,160	1,054	1,106	2,413	1,249	1,164	2,248	1,084	1,164	2,166	1,059	1,107
20-24	1,583	665	919	1,954	908	1,047	2,120	1,037	1,082	2,016	916	1,100
25-29	1,341	505	835	1,436	561	875	1,744	757	987	1,953	916	1,037
30-34	1,089	478	611	1,243	438	805	1,303	465	837	1,636	679	957
35-39	1,021	455	567	1,018	430	589	1,148	373	775	1,226	413	813
40-44	770	365	405	962	416	546	944	379	565	1,086	333	753
45-49	703	330	373	719	332	388	895	373	522	890	345	546
50-54	542	256	286	652	298	354	660	293	367	840	340	500
55-59	479	224	255	494	226	268	594	263	331	610	263	347
60-64	357	181	176	427	195	232	439	194	245	537	231	306
65-69	343	182	161	301	148	153	363	159	204	379	161	218
70-74	242	138	104	269	139	130	237	112	125	293	124	169
75+	355	224	132	324	188	136	332	175	158	323	155	168
Summary												
All ages	18,706	9,050	9,656	20,076	9,542	10,534	21,191	9,829	11,362	22,744	10,417	12,327
Under 15	7,721	3,995	3,726	7,863	4,015	3,849	8,164	4,165	3,999	8,791	4,484	4,306
15-44	7,964	3,522	4,443	9,026	4,002	5,026	9,507	4,095	5,410	10,083	4,316	5,767
45-59	1,724	810	914	1,865	856	1,010	2,149	929	1,220	2,340	948	1,393
60+	1,297	725	573	1,321	670	651	1,371	640	732	1,532	671	861

Annex XIX Provincial population projections by sex and five-year age categories, base year (1999) and projection years 2004, 2009 and 2014 (revival variant, P2) (end)

Honiara town council

Age group	*1999*			*2004*			*2009*			*2014*		
	Total	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*	*Total*	*Males*	*Females*
0-4	6,226	3,184	3,042	7,831	4,129	3,703	9,204	4,860	4,344	10,104	5,323	4,780
5-9	4,606	2,455	2,151	6,715	3,482	3,233	8,531	4,553	3,978	9,904	5,274	4,630
10-14	4,429	2,278	2,151	5,168	2,789	2,380	7,468	3,932	3,537	9,265	4,985	4,280
15-19	6,161	3,323	2,839	5,458	2,890	2,568	6,549	3,613	2,936	8,809	4,722	4,088
20-24	7,233	4,104	3,129	7,459	4,154	3,304	7,225	4,027	3,198	8,269	4,705	3,564
25-29	5,808	3,273	2,535	8,075	4,661	3,415	8,628	4,928	3,700	8,380	4,780	3,600
30-34	3,903	2,261	1,643	6,292	3,610	2,682	8,739	5,122	3,617	9,286	5,378	3,908
35-39	3,132	1,797	1,335	4,216	2,479	1,737	6,709	3,904	2,805	9,135	5,397	3,737
40-44	2,263	1,365	898	3,335	1,942	1,393	4,502	2,682	1,820	6,963	4,085	2,878
45-49	1,845	1,148	696	2,404	1,461	942	3,527	2,076	1,451	4,673	2,800	1,873
50-54	1,254	772	482	1,926	1,205	721	2,525	1,547	978	3,617	2,143	1,474
55-59	758	506	253	1,285	793	492	1,960	1,227	733	2,535	1,555	981
60-64	405	266	140	757	501	256	1,267	781	486	1,896	1,182	714
65-69	245	150	94	401	262	140	726	478	249	1,180	723	457
70-74	120	75	45	220	136	85	356	231	124	623	406	217
75+	124	93	31	169	118	51	273	181	92	422	279	143
Summary												
All ages	48,513	27,050	21,462	61,710	34,610	27,100	78,187	44,141	34,046	95,060	53,736	41,324
Under 15	15,261	7,917	7,344	19,714	10,400	9,316	25,203	13,345	11,859	29,273	15,582	13,690
15-44	28,500	16,123	12,379	34,835	19,736	15,099	42,352	24,276	18,076	50,842	29,067	21,775
45-59	3,857	2,426	1,431	5,615	3,459	2,155	8,012	4,850	3,162	10,825	6,498	4,328
60+	894	584	310	1,547	1,017	532	2,622	1,671	951	4,121	2,590	1,531

Concepts and definitions

Activity status identifies the activities a person was engaged in during the week before enumeration, including paid work, unpaid work or neither;

Age-Specific Fertility Rate (ASFR) is the annual number of children borne by women of a specified age or age group, divided by the average number of women of that age or age group;

Age-Specific Mortality Rate (ASMR) is the annual number of deaths of persons of a specified age or age group, divided by the average number of living persons of that age or age group;

Child/woman ratio is the number of children aged under five per hundred women in the childbearing ages 15-44;

Children Ever Born (CEB) is the number of children ever borne alive by a particular woman;

Collective household is a group of six or more unrelated persons staying together for special reasons, like education, medical treatment, boarding or travel;

Crude Birth Rate (CBR) is the annual number of births divided by the average of mid-year population, expressed per thousand population;

Crude Death Rate (CDR) is the annual number of deaths divided by the average of mid-year population, expressed per thousand population;

Dependency ratio is the number of persons under 15 and over 60 per 100 persons aged 15-59;

Disability is an umbrella term for impairments, activity limitations or participation restrictions, which respectively refer to problems an individual may have with physiological functions of the body system, including psychological functions ('body function') or problems with anatomical parts of the body such as organs, limbs and their components ('body structure') (impairments), difficulties an individual may have in executing activities ('activity limitations') and problems an individual may experience in involvement in life situations (participation restrictions).

Displaced person is anyone who reported they had moved or fled from his/her place of residence due to the ethnic tension;

Employment status refers to the work arrangement under which a person working for pay carries out his or her activities;

Exclusive breastfeeding is defined as the infant feeding practice consisting of giving solely breastmilk with no additional food or drink, not even water, but allowing for drops and syrups (vitamins, minerals and medicines);

Expectation of life at age x (denoted by e(x)) is the average number of additional years a person aged x can expect to live;

General Fertility Rate (GFR) is the number of live births during a year per thousand women of fecund age (i.e. 15-49) in the midyear population;

Gross enrolment ratio is the number of children in the age category 5-19 attending school divided by all children in that age category;

Gross Reproduction Rate (GRR) is the average number of female children borne alive by a woman living to the age of 50;
Household is defined as a group of people who share a common eating arrangement;

Industry refers to the main activity of the establishment employing a worker;

Infant Mortality Rate (IMR) is the number of children dying in the first year of life out of thousand born alive;

In-migration ratio is the number of people who now live in a specific region but who were living in another region previously, expressed as a percentage of the total population living in that specific region;

Labour force includes all persons doing paid work or looking for paid work;

Lifetime migrant is someone who at the time of the census lives away from his/her place of birth;

Mean Age at Childbearing (MAC) is the average age of the mothers of the children born in a population during a year;

Multiple migrant is someone whose places of residence are different at birth, at the 1997 national election, and on census night;

Natural growth is the difference between the number of births and deaths in a population;

Net migration is the difference between the number of in-migrants and out-migrants for an area;

Non-migrant is someone whose residence is the same at birth, at the 1997 national election, and on census night;

Non-recent migrant – see '**past only migrant**';

Occupation refers to the kind of work done in the week before enumeration (e.g. primary school teacher, labourer et cetera);

Out-migration rate is the number of people who lived in a specific region previously but are now living elsewhere, expressed as a percentage of the total population living in that region previously;

Paid work is any type of work for which the worker received pay, either in money or in kind;

Past only or **non-recent migrant** is someone whose residence at the 1997 national election and at the census are the same, but place of birth is different;

Permanent dwelling is the type of dwelling that is well-planned and is mainly made of durable materials (e.g. concrete, corrugated iron, fibro or timber) with a sound foundation;

Primary gross enrolment ratio is the number of children in the age category 5-14 attending school divided by all children in that age category;

Private household is a group of related people (usually a family) with or without additional persons who live together and share a common eating arrangement. A private household can also consist of one person or two to five unrelated persons who have a common eating arrangement;

Rate of natural increase (r) is the difference between the crude birth and death rates, or the annual number of additional people due to births and deaths in a population, divided by the mid-year population and expressed per thousand population;

Recent migrant is someone whose place of residence at the time of the census differs from that just before the national election of August 1997; thus someone who has moved in the 28 months preceding the census;

Return migrant is someone whose residence at birth and at the census are the same, but was different at the 1997 national election;

Secondary gross enrolment ratio is the number of children in the age category 15-19 attending education divided by all children in that age category;

Sex ratio is the proportion of males to females in a population, expressed as the number of males per hundred females;

Short-term mobility refers to people whose usual place of residence is in a different ward from the ward where they were enumerated;

Singulate Mean Age at Marriage (SMAM) is the mean age at marriage among those who ever marry;

Temporary dwelling is the type of dwelling that is mainly made from bush materials, packing cases or waste timber;

Total Fertility Rate (TFR) is the average number of children borne alive by a woman who lives to the end of her reproductive life and bore children according to current age-specific fertility rates;

Unpaid work is any type of work for the production of economic goods and services for which a person received no pay, either in money or in kind.

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