

Appendix 2: National Accounting and the Fisheries Sector

The Contribution of Fisheries to the Economies of Pacific Island Countries (Gillett and Lightfoot, 2001) gave considerable detail in discussing points in the System of National Accounts (SNA) that are especially important to the fishing sector. Because that discussion is quite relevant to the present study, it is given here.

Definitions and Conventions in the System of National Accounts

As with any system, there is a set of procedures and conventions that is used in compiling national accounts. The nature and application of these procedures and conventions must be taken into account when interpreting national accounts. Some of the important SNA concepts as applied to the fishing sector are given below.

Productive Activity

One of the most basic issues in the preparation of national accounts is the nature of activities that are included in the estimation of domestic product. In particular, any goods or services that are produced by a resident of a country for sale are included. Goods and services that are for sale are known as market production.

Service activities that are for personal or households own consumption are not included in the calculation of national accounts. For example, house cleaning is not included if carried out by the family. These goods and services are known as non-market production or subsistence production. While the fish may have been caught for a family's own consumption, the convention assumes that the fish could have been sold and, therefore, it should be treated

as adding value to the economy. Clearly, this can be a significant issue in fisheries in the Pacific Island countries where large numbers of households rely on the harvest of aquatic resources for food and other uses.

Residency

The nature and extent of residency is a core concept of the SNA. It defines what shall be counted as domestic product. For goods and services to be included in the domestic product of a particular country, a resident of that country must produce them. A resident is an individual or enterprise whose “center of economic interest” is within the country. The “center of economic interest” is determined by the following tests:

- Do residents of the country, in whose area the fishing activity occurs, get significant factor payments (i.e., wage or operating surplus) from the activity?
- Does the Government of the country or the individual or the business entity located in the country, in whose area the fishing activity occurs, have a day-to-day influence on the way the fishing is carried out?
- Is the fishing based in the economic territory and/or employing local staff?
- Is the fishing an integral part of the domestic economy?

It is important to note that a resident need not be a citizen. The production of foreign nationals is treated as domestic product provided the country is the “center of economic interest” for the enterprise/individual. This concept is particularly important in the case of fishing where many of the enterprises are mobile, and it is common for vessels to be staffed by nationals from different countries. In effect, this means that the product of locally based offshore foreign vessels is treated as domestic product of the country from which they are operating regardless of the nationality of the crew.

Under the SNA, the standard convention is to treat activities by a foreign operator that take place in a country for less than 12 months as being foreign activities. In the case of fishing, it is common for offshore foreign vessels to fish for only part of the year in local waters. In these circumstances, a strict interpretation of the SNA convention on “time in country” would treat these activities as foreign and only include the license fees as part of the national accounts. However, where the activities are seasonal and the main activity of the vessels is based locally, it would be more appropriate to follow the “center of economic activity” convention and count their production as domestic product.

A related issue, which is particularly important in fishing, is the geographic extent of the “center of economic interest”. The SNA convention is to treat any activity as domestic provided it takes place within the “economic territory” of the country. The SNA boundary for domestic activity is not limited to the political boundary. It extends to include the “economic territory”. This convention has particular importance for fishing, especially offshore fishing, which can take place a considerable distance from the land and political boundaries of a country. For example, the political boundary is usually confined to the territorial seas, which extend out to 12 miles from the high water level. In practice, most countries use their exclusive economic zone (EEZ) when defining the geographic limits of their “economic territory”; and in the circumstances, this practice is the most appropriate.

Two other “geographic” issues that must be addressed in fishing are (i) how to treat fishing activities that take place in other jurisdictions, and (ii) how to treat those that take place in international waters.

When the fishing occurs in the waters of another country, the determination of how to treat that activity in the national accounts depends upon the duration of the activity and its “center of economic activity”. The SNA indicates that temporary work in a foreign country should be treated as domestic product in the home country (the center of economic activity) of the entity carrying out the job. For example, the income earned by a consultant who normally resides in Fiji and undertakes a short-term contract in Samoa would be treated as Fiji domestic product, i.e. it is tantamount to an export (of services).

However, GDP is not intended to measure the production taking place within the geographical boundary of the economic territory. Some of the production of a resident producer may take place abroad, while some of the production taking place within the geographical boundary of the economy may be carried out by non-resident producer units. For example, a resident producer may have teams of employees working abroad temporarily on the installation, repair or servicing of equipment. This output is an export of a resident producer and the productive activity does not contribute to the GDP of the country in which it takes place. Thus, the distinction between resident and non-resident institutional units is crucial to the definition and coverage of GDP.

This being the case and in the absence of any indication to the contrary such as the formal relocation of the operation, fishing activity of less than 12

months in foreign waters should be treated as domestic product in the home country of the vessel owner/operator.

Following the same convention, fishing that takes place in international waters may be domestic product of a country provided the operation is carried out by a resident and is temporary in nature. In some circumstances, fishing carried out in international waters could become a particularly perplexing problem for the compilers of national accounts. Where a fleet operates in international waters most of the time, including transshipping and re-supply, the question of whether to allocate the production as domestic or national product becomes an issue.

It is difficult to set strict rules since each situation is different. In practice, the compilers of national accounts will make judgments about where to allocate production of fleets that occurs on the “boundaries” of countries and nationality.

Valuation

In all cases, national accounts are reported in monetary terms. Usually the local currency is used and, almost always, the accounts are presented in current market (nominal) values and constant (real) values. Current market values use the value of the currency at the time of measurement. Constant values are indexed to the price levels of a specified year so as to remove the effects of price inflation and thereby allow the comparison of real changes over time. It is also common for the international agencies such as ADB, International Monetary Fund (IMF), United Nations (UN), and World Bank to produce national accounts using the equivalent value of a convertible currency, usually the United States dollar (US\$). This practice makes it easier to do cross-country comparisons and to track the changes in each country's international competitiveness.

An important valuation convention that is particularly relevant for fishing is the treatment of non-market household production (subsistence). Since by definition these items are not sold and the quantity produced is seldom recorded, it is necessary to make assumptions about their value. It is common practice to value non-market household production conservatively and, in some cases, production for own consumption is not even included in the national accounts.

Assets

In the SNA, assets are restricted to things that are produced by an economic activity. This distinction is particularly important for natural resources and is a contentious issue, especially in relation to the over-exploitation of natural resources.

Naturally occurring assets such as marine resources, minerals, and forests do not enter the national accounts until they are being exploited and then only to the extent that they are being exploited. Unlike changes in inventories of produced assets, changes in the quantum of natural assets are not reflected in the national accounts. This convention ignores the very real impact that changes in abundance of natural assets have on the “wealth” of an economy. This can result in misleading values being reported on fisheries and other sectors that rely on natural resources. For example, the income generated from the exploitation of fish is included in the national accounts, while the changes in abundance are not. In these circumstances, the short-term gain from the over-exploitation of a fish stock shows up as a positive gain for the economy. If the changes in abundance were also taken into account as happens with inventories of “produced assets,” the apparent benefits for the exploitation of natural assets would be substantially reduced.

Fishing vs Fisheries

For the purpose of clarity, it is useful to distinguish between the terms “Fishing” and “Fisheries”. “Fishing” is commonly used to describe the various activities involved in the harvest of aquatic resources, whereas “Fisheries” is usually used to describe a broader range from capture through post-harvest handling, transport, processing, and marketing.

The conventions used in the SNA and those followed in this report are somewhat different. The categories of economic activities recognised by the SNA are those of the International Standard Industrial Classification of All Industrial Activities (ISIC). In this system, the category relevant to fisheries is ISIC 0500: “Fishing, operations of fish hatcheries and fish farms, service activities incidental to fishing.” It is important to note the following:

- Post-harvest activities, including fish processing, are not included in the fishing sector, but rather they are generally counted in manufacturing and other sectors.
- Aquaculture is included in the sector.

- Subsistence fishing is a legitimate component of the fishing category.
- For convenience, the sector is usually referred to as “fishing”.

GDP Considerations

It must be kept in mind that GDP is an estimate of economic activity; it is seldom a precise calculation. Even though the SNA sets out fairly straightforward procedures, in practice, the analyst is usually confronted with many uncertainties. Data are often unavailable, incomplete or suspect; hence, the analyst is forced to make judgments about what data to use and how those data should be treated. Some people may find this apparent lack of rigor disturbing, but it is usually unavoidable, especially in “messy” sectors like fishing. To make matters worse, the fishing sector is often only a small part of GDP which means that only a limited amount of the analyst’s time and effort can be expended for collecting data to update the estimate.

Typically, the sources of data an analyst would use to estimate the contribution of fishing include income and expenditure data from commercial operations, fisheries production and marketing information, and household income and expenditure data. Sometimes, secondary data like social security records, air-cargo records, international market reports, and various reports that bear on aspects of the industry might be used. The choice of which data set to use depends upon the analyst’s judgment about the accuracy of the data, its coverage, and the ease of accessing the information.

GDP and its component parts provide an important and very useful guide to the structure of an economy, but they do not show the impact of any activity on the economy. For example, the fishing contribution to GDP is limited to the value-added to the economy by the activity of fishing, but the flow effects from the activity of fishing appear as value-added by other sectors of the economy. The difference between “contribution” and “impact” can be illustrated by considering the consequences of an increase in fishing activity. If the amount of fishing activity increases by \$1.0 million and the intermediate costs used in this activity are \$0.4 million, then GDP will increase by \$0.6 million. At the same time, the \$0.4 million spent on the intermediate costs will directly increase the level of activity elsewhere in the economy. If \$0.1 million of the \$0.4 million were spent on provisions, the contribution by the “Wholesale and Retail” sectors to GDP would increase by \$0.1 million less any intermediate costs. In addition, the \$0.6 million that has now been added to the fishing contribution to GDP is principally wages and profits,

most of which will be spent by the recipients on goods and services. This, in turn, will increase the level of activity in other sectors of the economy.

The people who benefit from the sale of goods and services from “Fishing” will in turn purchase goods and services from others, and thereby stimulate further activity. The cycle of activity thus generated by the initial production will have ripple effects throughout the economy. The aggregate impact will depend upon the extent to which the goods and services purchased are produced domestically and the proportion of their income that people spend or save. The net effect on economic activity will almost certainly be far greater than the contribution to GDP. This cycle of impact is known as the multiplier effect.

In practice, the multiplier effects can be fairly difficult to calculate. The dynamic nature of economies means that every action will be followed by a reaction. Changes in a sector will be at least partly offset by changes in the structure of the economy. This was illustrated by the response of households in Samoa to the impact of taro blight on their primary subsistence crop. Most households responded by switching their food production efforts to alternative crops, notably plantains. So while the level of economic activity committed to taro production contracted, in terms of the overall level of economic activity in the economy, this contraction was largely offset by the increase in the level of activity in plantain production. While it was beyond the scope of this study to identify the multiplier effects of fishing, it remains an important issue.