**Institutional Units Reflected into the Accounts**

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**Abstract**

The supply and use table is a valuable framework to collect and arrange the facts regarding the production and consumption activities, including the characterization of goods and services subjected to trade. As data are collected, the calculation of product share weights allows the determination of the price index.

**Key words:** goods, indexes, output, consumptions, aggregate

It is important to detail the production and consumption activities of the agents, as well as the types of goods and services they produce and consume. The framework organizing this information is the supply and use table. As this table is built up, we effectively also begin to accumulate data on the product share weights needed for computing price index formulae. The basic accounts of the SNA in which all of these aggregates are recorded at the level of institutional units are the production, use of income, capital, and external goods and services accounts. These accounts organize the information for the following top-level aggregates:

- **Production account:** output $Y$, intermediate consumption $Z$, and value added $Y - Z$;
- **Use of income account:** household consumption $C$ and government consumption $G$;
- **Capital account:** capital formation $I$;
- **External goods and services account:** exports $X$ and imports $M$.

**Recording transactions in goods and services**

Before turning to further elaboration on these four goods and services accounts, it is important to specify how each entry in the value aggregates comprising them is to be

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recorded. The items in the value aggregate equation represent detailed goods and services flows classified into categories of transactions. There are two defining aspects of recording transactions: timing and valuation.

Regarding the timing of transactions, to associate each transaction with a date, the national accounts consider a transaction to have been consummated when a liability to pay is created between the units involved. For flows of goods and services, this occurs when the ownership of the good is exchanged or when the service is delivered. When change of ownership occurs or the service is delivered, a transaction is said to have accrued.

In general, this time need not be the same as the moment at which the payment actually takes place.

There are two valuation principles in the national accounts, one for suppliers and one for users. For suppliers, transactions in goods and services are to be valued at basic prices. The basic price is the price per unit of good or service receivable by the producer. We use the term receivable to indicate that the price refers to an accrued transaction for the seller, and the term payable to indicate a transaction that has accrued to the purchaser. As the producer does not receive taxes (if any) on products, but does receive subsidies (if any) on products, taxes on products are excluded from the basic price, while subsidies on products are included. The producer also does not receive separately invoiced transport and insurance charges provided by other suppliers, or any distribution margins added by other, retail or wholesale service producers, and these are also excluded from the basic price. In contrast, the user, as purchaser, pays all of these charges, and users’ purchases are therefore valued at purchasers’ prices, which add taxes net of subsidies on products and margins for included transport, insurance and distribution services to the basic price.

The SNA 1993 distinguishes between taxes on products and other taxes on production. Taxes net of subsidies on products $T$ include all taxes payable per unit or as a fraction of the value of goods or services transacted. Included in $T$ are excise, sales, and the nonrefundable portion of value added taxes, duties on imports and taxes on exports. Subsidies on products include all subsidies receivable per unit or as a fraction of the value of goods or services produced, including in particular subsidies paid on imports and exports. Other taxes on production comprise, for example, taxes on real property and taxes on profits. Other subsidies on production include, for example, regular payments by the government to cover the difference between the costs and revenues of loss-making enterprises. Of total taxes and subsidies on production, only taxes and subsidies on products are considered in defining basic and purchasers’ prices. By implication, there are no taxes payable on products included in either of the aggregates $Y$ or $M$, while subsidies receivable on products are included in these aggregates.

Accordingly, output $Y$ and imports $M$ are valued at basic prices, to which are added taxes less subsidies on products $T$ to arrive at total supply. The reader may have noted that transport, insurance and distribution margins have somehow disappeared after having been introduced. Whether these services are included with the good or invoiced separately does not affect the total expenditure on goods and services by the purchaser. For the economy as a whole, these transactions cancel out, but when we consider industry or activity and product detail, they will have redistributive effects among goods and services products. This point is revisited in the discussion of the supply and use table below.

The components of total uses are valued at purchasers’ prices. This is straightforwardly interpreted for the final consumption of households and government.
capital formation expenditures, the notion of purchasers’ prices also includes the costs of “setting up” fixed capital equipment. For exports, purchasers’ prices also include export taxes net of subsidies, according to the “free on board” (fob) value at the national frontier. We now discuss each of the four major goods and services accounts in turn.

- **Production**

An institutional unit engaged in production is said to be an enterprise. By implication, any of the five types of resident institutional units can be an enterprise. The production account for enterprises in the SNA 1993 appears, with minor reordering of elements, essentially as shown in Table 14.1. An identical presentation also applies to the establishments or local kind of activity units (LKAUs) owned by enterprises. In fact, an establishment can be defined operationally as the smallest unit for which a production account can be constructed. There are cases in which an establishment or LKAU is synonymous with or at least inseparable from the institutional unit that owns it. This is true of single establishment corporations and of household unincorporated enterprises, for example. In other cases, an enterprise may own multiple establishments. The production account can also be produced for various establishment and enterprise groupings, including, of course, institutional sectors, but also for establishment industry or activity groups. In the production account and throughout the SNA 1993, the transaction codes beginning with P refer to entries for transactions in goods and services. The codes beginning with B refer to so called “balancing items”, which are defined residually as the difference between a resources total and the sum of itemized uses of those resources.

For classifying an establishment or LKAU, output is broken down into market output, which is sold at “economically significant prices” substantially covering the cost of production, and two types of non-market output that are provided without charge or at prices so low they bear no relationship to production cost. The two types of non-market output are output for own final use and other non-market output. Output for own final use includes the production of, for example, machine tools and structures (fixed capital formation items) by an establishment for the use of the establishment itself or other establishments in the same enterprise, the imputed rental value of certain productive assets owned by households, such as (and currently limited to) owner-occupied dwellings, and the production of certain other unincorporated household enterprises, such as agricultural products produced by farmers for consumption by their own families or employees. Other non-market output comprises the output of general government and non-profit institutions serving households distributed free of charge or sold at prices that are not economically significant. In constructing a price index, we will necessarily be focusing on those transactions of establishment units that involve economically significant prices, and thus on market output. The prices collected for market output items may also, however, be used to value the own final use portion of non-market output. Our scope of coverage for price indices thus extends to cover this component of non-market output as well.

A production unit’s resources derive from the value of its output, and its uses of resources are the costs it incurs in carrying out production. The production account therefore uses both the basic price and purchasers’ price methods of valuation, as appropriate to a production unit in its roles as a supplier and a user of products. For the supply (resources) of goods and services, products are valued at basic prices, the national currency value receivable by the producer for each unit of a product. The prices include subsidies, and exclude the taxes on products and additional charges or margins on products.
to pay for included retail and wholesale trade services, and for included transport and insurance. For uses of goods and services, products are valued at purchasers’ prices, the national currency value payable by the user for each unit of a product, including taxes on products as well as trade and transport margins, and excluding subsidies on products.

*Product detail in the production account.* In addition to breaking output down into its market and non-market components, output and intermediate consumption also can be broken down by type of product. Classifying product types using, for example, the international standard Central Product Classification (CPC), the production account for each establishment could be arranged, effectively giving the core structure of the report form of the typical establishment survey providing source data on production for the national accounts.

*Industry detail in the production account.* With the values of total output by product, and total market and non-market outputs for each establishment, we then classify the establishment by its principal activity or industry, and market/non-market status. To reflect the information required for this classification, positions for the activity and market/non-market classification codes of the establishment. The activity classification involves principally, if not exclusively, sorting establishments according to the types of product produced (CPC or other product code, such as the Classification of Products by Activity) for which the total output is greatest.

The SNA 1993 recommends use of the International Standard Industrial Classification (ISIC) for all economic activities, the CPC for domestic products, and the closely related Harmonized Commodity Description and Classification System (HS) for exported and imported products. Each country may adapt the international standard to its specific circumstances. If the adaptation amounts to adding further detail, the classification is said to be derived from the international standard. The Nomenclature générale des Activités économiques dans les Communautés européennes (NACE, the General Industrial Classification of Economic Activities within the European Communities) is an industrial classification derived from the ISIC. If the adaptation reorganizes the way in which detailed categories are grouped compared with the international standard, but provides for a cross-classification at some level of detail, it is said to be related. The North American Industrial Classification System (NAICS) of Canada, Mexico and the United States is an industrial classification related to the ISIC. The European Commission’s PRODCOM classification of industrial products is derived from its Classification of Products by Activity (CPA) which, in turn, is related to the international standard CPC through a cross-classification defined at a high level of product detail.

- **Final consumption**

  Consumption of goods and services in the SNA 1993 is shown in the use of income account, which appears essentially for each institutional unit. It is recalled that the accounts pertaining to goods and services in the SNA 1993 that can be decomposed into price and volume components, and that would thus draw our interest as price index compilers, are designated by the codes P.n.. Individual consumption, actual consumption, and household consumption expenditures. The SNA distinguishes individual from collective goods and services, a distinction that is equivalent to that between private and public goods in economic theory. The distinction is mainly relevant to services. Individual services are provided to individual households and benefit those particular households, whereas collective services are
provided to the community, for example services such as public order, administration, security and defence. Many individual services, however, such as education, health, housing and transport, may be financed and paid for by government or non-profit institutions and provided free or at a nominal price to individual households. A large part of government consumption expenditure is not on public goods but on goods or services supplied to individual households. These individual consumption expenditures by governments and NPISHs are described as social transfers in kind in the SNA 1993.

The concept of “household consumption” can have three distinct meanings. First, it can mean the total set of individual consumption goods and services actually acquired by households, including those received as social transfers in kind. Second, it can mean the subset which households actually pay for themselves. To distinguish between these two sets, the SNA describes the first as the actual final consumption of households and the second as household final consumption expenditures. A third possible interpretation of household consumption is that it means the actual physical process of consuming the goods and services. It is this process from which utility is derived and that determines the household’s standard of living. The process of consuming or using the goods or services can take place some time after the goods or services are acquired, as most consumer goods can be stored. The distinction between acquisition and use is most pronounced in the case of consumer durables that may be used over very long periods of time.

The existence of social transfers in kind is not generally recognized in CPIs, although it is desirable to take account of them, especially when considering changes in the cost of living. Moreover, governments may start to charge for services that were previously provided free, a practice that has become increasingly common in many countries in recent years. The goods and services provided free as social transfers could, in principle, be regarded as also being part of household consumption expenditures but as having a zero price. The shift from a zero to positive price is then a price increase that could be captured by a consumer price index.

Monetary and imputed expenditures. Not all household expenditures are monetary. A monetary expenditure is one in which the counterpart to the good or service acquired is the creation of some kind of financial liability. This may be immediately extinguished by a cash payment, but many monetary expenditures are made on credit. Household consumption expenditures also include certain imputed expenditures on goods or services that households produce for themselves. These are treated as expenditures because households incur the costs of producing them (in contrast to social transfers in kind, which are paid for by government or non-profit institutions).

The imputed household expenditures recognized in the SNA include all those on goods that households produce for themselves (mainly agricultural goods in practice), but exclude all household services produced for own consumption except for housing services produced by owner-occupants. The imputed prices at which the included goods and services are valued are their estimated prices on the market. In the case of housing services, these are imputed market rentals. In practice, most countries follow the SNA by including owner-occupied housing in the CPI. Other imputed prices, such as the prices of vegetables, fruit, or dairy or meat products produced for own consumption, may be included if they comprise a sufficiently large component of household consumption expenditure.

Product detail in the use of income account. As with the production accounts of the establishments owned by institutional units, we can consider extending the product detail of
goods and services consumption in the use of income account according to the type of product consumed. In order to maintain the integration of the system of price and volume statistics on consumption with those we have just covered on production, products would be classified according to the same system as in the production account.

Although the discussion maintains a consistent classification of expenditure by product across all goods and services accounts, other functional classifications of expenditure have been developed for each institutional sector for specific purposes. The international standard versions of these classifications included in the SNA 1993 comprise the Classification of Individual Consumption according to Purpose (COICOP), the Classification of the Purposes of Non-profit Institutions Serving Households (COPNI), the Classification of the Functions of Government (COFOG), and the Classification of the Purposes of Producers (COPP). To facilitate constructing the cross-economy framework of the SNA 1993 considered, there is a concordance between the CPC and the COICOP.

- Capital formation
  Capital formation comprises: the accumulation of fixed tangible and intangible assets, such as equipment, structures and software; changes in inventories and work in progress; and acquisitions less disposals of valuables, such as works of art. These items are accounted for in the SNA capital account, which appears, with minor resorting, essentially for each institutional unit. Net lending (+)/net borrowing (-) is the balancing item of the capital account, making the uses on the left, comprising net acquisitions of stocks of various tangible and intangible items, add up to the resources on the right, comprising the sources of income financing them. From our earlier discussion on institutional units and establishments, it would be easy to conclude that the smallest economic unit to which the capital account can apply is the institutional unit. It was asserted earlier that only institutional units maintain balance sheets and can monitor the stock variables that are the focus of this account. Nevertheless, the physical capital assets for which changes are tracked in the capital account can and should be compiled, if possible, at the establishment/LKAU. Such data are particularly useful for productivity analysis, even though complete capital accounts cannot be compiled at the establishment level.

  Product detail in the capital account. As with the other goods and services-related accounts in the SNA 1993, the capital account’s goods and services items, designated by the codes P.5 with extensions, can be expanded by product type. The account therefore can be rearranged to show details of goods and services, which may pertain to an institutional unit, an institutional sector aggregate, or the total economy. Our focus is on the CPI here, and thus on the version of the form that typically would be part of the package a respondent would fill out in a household expenditure survey. In addition to the Central Product Classification (CPC), the SNA 1993 contains a Non-financial assets classification identifying the specific tangible, intangible, produced, and non-produced fixed assets, as well as inventory and valuables items, recognized by the SNA 1993.

  The expenditure aggregate of the CPI and the capital account. The CPI may be defined to include the household sector’s final expenditure not only for consumption but also for capital formation. This brings into the CPI expenditure aggregate the purchase of new residential structures or expenditure on major improvements to existing residential structures. Consumer price index expenditure aggregate is defined as the monetary individual consumption expenditure of households P.311, which excludes all imputed
expenditure, plus household expenditure on residential fixed capital formation shown as item P.511a Residential structures, Household sector S.14.

- **External trade**

  The external account of goods and services contains the transactions of the non-resident institutional units sector – S.2 Rest of the world – with the five types of resident units taken together and determines the trade deficit (B.11) as imports (resources to rest of the world S.2) less exports (use or resources by the rest of the world). The external goods and services account generally is taken from the balance of payments, which uses adjusted merchandise trade information from the customs services for goods P.61 and P.71, and assembles services data on P.62 and P.72 from various sources. For further details, see International Monetary Fund: Balance of payments manual (fifth edition, 1993). Although the account of external goods and services is shown as an aggregate of the external transactions of all resident institutional units by the SNA 1993, it may be possible to disaggregate it to distinguish the external goods and services expenditures of institutional sectors, hence the institutional sector designation S.1. Our principal interest would be in the household sector S.14 and its sub-sectors S.14nn, as these would relate to the CPI.

  Product detail in the external account of goods and services. As with the other accounts, the external goods and services account can be expanded to show product detail. The SNA 1993 states (SNA 1993) that imported goods should be valued at cost-insurance-freight (cif) at the level of detailed products. On the other hand, the SNA 1993 requires that, in total, imports of goods be valued free-on-board (fob) at the border of the exporting country, thus excluding insurance and transport in a single adjustment to total imports of goods CIF. That part of freight services on imports provided by non-residents is included in imports of transport services, and that part of insurance services provided on imports by non-residents is added to imports of insurance services. Transport and insurance services provided by residents on imports are included in exports of transport and insurance services. This rather roundabout approach is taken to imports by product because, as a practical matter, it may be difficult to obtain insurance and freight charges on imports from customs administrative data systems at the product level of detail. Recent developments in computerized customs documentation have made the itemization of insurance and freight more straightforward, and the SNA 1993 does also allow for the possibility of determining imports by product at their fob values, consistent with the aggregate valuation of imports.

  The export and import price indices and the external account of goods and services. From the point of view of the residents of an economic territory, exports are a supply of goods and services to non-residents. The SNA, however, records exports from the non-resident’s point of view, as a non-resident use of goods and services supplied by residents. Accordingly, the relevant valuation principle for exports determining the behaviour of the non-resident user is the purchasers’ price. The SNA takes the purchasers’ price to the non-resident user to be the fob price at the frontier of the resident supplier’s economic territory or country. The SNA, however, records international trade from the non-resident’s point of view, as the supply of goods and services to residents by non-residents. Accordingly, the relevant valuation principle for imports determining the behaviour of the non-resident supplier is the basic price. The SNA takes the basic price to the non-resident supplier to be the fob price at the frontier of the non-resident supplier’s country in the rest of the world.
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