

Chapter 15: Supply and use tables (revised title) (OLD Chapter 14: The supply and use tables and goods and services account)

A. Introduction

- 15.1 The sequence of accounts described in chapters 6 to 13 portrays the working of the economy with particular emphasis on how income is generated, distributed, redistributed and used for consumption or the acquisition of assets and when assets are disposed of, or a liability is incurred, to acquire other assets or undertake more consumption than current income permits. An alternative view of the economy focuses less on income and more on the processes of production and consumption. Where do products come from and how are they used? The present chapter is concerned with this aspect of the accounts. It consists of a description of a product balance and the generalization of this to the goods and services account, as well as the practical and conceptual benefits of these accounts. It also shows how supply and use tables can be compiled for the economy and provides a link to input-output tables, which are described in chapter 28.
- 15.2
- 15.3 In this chapter, and elsewhere, the expressions “product balance” and “product flow” methods are used in preference to “commodity balance” and “commodity flow method” as reflecting more recent usage of the word product in place of commodity. The change in terminology does not indicate a change in methodology, however.
- 15.4
- 15.5 Supply and use tables are a powerful tool with which to compare and contrast data from various sources and improve the coherence of the economic information system. They permit an analysis of markets and industries and allow productivity to be studied at this level of disaggregation. When, as is usually the case, supply and use tables are built from establishment data, they provide a link to detailed economic statistics outside the scope of the SNA.
- 15.1 The supply and use tables are an integral part of the integrated framework of national accounts forming the detailed framework for the compilation of a single and coherent estimate of GDP, both in current prices and in volume terms. The supply and use tables provide a powerful framework to balance and integrate all the components of the production, income and expenditure approaches to measuring GDP, and provide key links to other parts of the SNA framework and beyond.
- 15.2 In their simplest form, the supply and use tables describe how products (goods and services) are brought into an economy (either as a result of domestic production or imports from other countries) in the supply table, and how those same products are used (as intermediate consumption; final consumption by households, non-profit institutions serving households, and general government; gross capital formation; and exports) in the use table.
- 15.3 The supply and use tables also provide the link between components of output, inputs and GVA by industry. Although typically they show only the industry dimension, supply and use tables can also be formulated to show the role of different institutional sectors (for example, non-financial corporations, government, and others) providing an important linking mechanism to the sequence of economic account (goods and services account, production account, generation of earned income account and the capital account).
- 15.4 Primarily, the supply and use tables are compiled by many countries in the course of producing their key national accounts estimates, thereby improving the coherency and consistency of these estimates.
- 15.5 Importantly, and by design, these interlinkages facilitate data confrontation and the examination of the consistency of data on goods and services obtained from different statistical sources, such as business surveys, household surveys and administrative data within a single detailed framework. They also provide a powerful mechanism for feedback on the quality and coherency of primary data sources.
- 15.6 For a full understanding of international interdependencies and their impact on important policy areas, such as trade, competitiveness and sustainable development, there is an increasing need to view production and

Commented [ED1]: Consistency with the UN Handbook on Supply and Use Tables and Input-Output Table with Extensions and Applications has been applied with the aim of minimising changes to SNA, e.g., removal of obsolete terms.
Also a number simple edits for consistency or clarification.

Commented [ED2]: The introduction has been amended to reflect the significant evolution of SUTs to today. The SUTs role, usage and importance is very different since the 2008 SNA as well as links to various new developments by OECD, UN, European Commission, etc.

[consumption through a global value chain lens. In other words, multi-country supply and use tables and input-output tables have become essential tools to inform policy and policymakers. This has led to the creation of various multi-country databases to allow analyses not only of the national economy but also of the interlinkages between economies covered by the multi-country tables.](#)

15.7 The supply and use tables (and input-output tables) inform several national and international policy issues, including:

- [Digitalisation, for example, digital supply and use tables \(see chapter 22\).](#)
- [Multi-country supply and use tables and multi-country input-output tables \(see chapter 36\).](#)
- [Globalisation, for example, extended supply and use tables \(see chapter 23\), global value chains \(see chapter 23 and 36\) and trade in value added \(see chapter 23 and 36\).](#)
- [Climate change, for example, physical supply and use tables, environmentally-extended input-output tables.](#)
- [Productivity, for example, KLEMS-type productivity measures \(see chapter 18\).](#)
- [Well-being and sustainability, for example, various extended supply and use tables covering education, health and unpaid household service work \(see chapter 34\).](#)

15.8 This chapter covers a concise overview of supply and use tables (section B); more details in the supply table (section C) and the use table (section D); further elaboration of the use table (section E); and a numerical example of a supply and use table (section F). Throughout this chapter, consistency has been ensured and more detail is available in the [UN Handbook on Supply and Use Tables and Input-Output Tables with Extensions and Applications \(2018\)](#).

B. Overview

2-1. Product balances

15-615.9 The amount of a product available for use within the economy must have been supplied either by domestic production or by imports. The same amount of the product entering an economy in an accounting period must be used for intermediate consumption, final consumption, capital formation (including changes in inventories) or exports. These two statements can be combined to give a statement of a product balance:

$$\text{Output} + \text{imports} = \text{intermediate consumption} + \text{final consumption} + \text{capital formation} + \text{exports}$$

15-715.10 The accounting rules from chapter 34 including the time of recording and the valuation rules from chapter 67 and elsewhere apply to each of the entries in this identity. ~~Because the~~ ~~The~~ uses of products are usually valued at purchasers' prices, ~~but and the~~ production at basic prices, ~~thus~~ it is necessary to add ~~trade~~ ~~distribution~~ ~~margins~~ and transport margins, and taxes on products less subsidies on products to the left-hand (or supply) side of the identity so both sides are expressed in purchasers' prices. Thus a fuller articulation of *the product balance for any product recognizes that the sum of output at basic prices plus imports plus ~~trade~~ ~~distribution~~ ~~margins~~ and transport margins plus taxes on products less subsidies on products is equal to the sum of intermediate consumption, final consumption and capital formation, all expressed at purchasers' prices, plus exports.* The treatment of margins and taxes is complex and is described at length in section BC. The valuation applied to imports and exports requires special consideration and is described in sections BC and CD below.

15-815.11 A product balance is an especially powerful tool for a compiler as is best illustrated by example. Typically the [domestic](#) production of tobacco products, mainly cigarettes, is well measured but consumption

of cigarettes is not, because of the reluctance of respondents to report accurately how much is spent on them in a household budget survey. Assuming that output, imports and exports are well measured ([allowing for exhaustiveness, in this case smuggling of tobacco](#)) then the identity of the product balance can be used to generate data for consumption that will be consistent with other items in the identity. The compiler can then use [expertise judgement](#) to reach a balance by adjusting the components as necessary.

Commented [ED3]: Allowing for exhaustiveness.

[15.9](#)[15.12](#) It is not always final consumption that is the weakest component of the identity. In some cases, consumption data may be more reliable than output data. For example, in the case of taxi services where much may be supplied by unregulated and unmeasured activity, the estimate of how much households spend on taxis may help improve the estimates of output to include these aspects of the [informal economy](#) ~~non-observed economy~~.

[15.10](#)[15.13](#) Even for items where informal activity is not an issue, a product balance may be useful. Aircraft manufacture is a long process. Work in progress may be measured either by the amount the manufacturer claims to have completed or by the amounts the potential purchaser has paid for by means of stage payments. These two sources of data need to be reconciled with adjustments in the financial accounts for accounts receivable or payable as necessary.

3.2. The goods and services account

[15.11](#)[15.14](#) If a product balance is drawn up for all goods and services in the economy (either individually or in groups of products) and these are aggregated, the totals for output, imports, intermediate consumption, final consumption, capital formation and exports must be equal to the corresponding items identified in the sequence of accounts elaborated in previous chapters. The ~~trade~~[distribution margins](#) and transport services embodied in margins represent products that may also be seen as being used for intermediate or final consumption, capital formation or exports. The fact that the value of the margins may be included with the value of the goods they apply to does not invalidate the identity. Thus when product balances are aggregated across all goods and services, these margins are necessarily included and do not need to be specified additionally.

[15.12](#)[15.15](#) Since the figures for output and intermediate consumption correspond to the entries for output and intermediate consumption in the production account, the identity of the sum of all product balances may be rearranged to become *the goods and services account, which reads:*

Output - intermediate consumption + taxes on products – subsidies on products = final consumption + capital formation + exports – imports.

As explained in chapter [6.7 \(to check\)](#), the left-hand side of this identity is equivalent to GDP at market prices. The right-hand side is therefore also equal to GDP at market prices and is the well-known statement of GDP often described as the “expenditure approach”. By contrast, the definition coming from the left-hand side of the identity is known as the “production approach” to GDP. [The components of the “income approach” are also shown in the composition of GVA.](#)

Commented [ED4]: Allowing for completeness.

[15.13](#)[15.16](#) The goods and services account is one of the most basic, if not the most basic, identity in the SNA. It captures the idea that all output from within the production boundary, plus imports, must be accounted for in one of the other two basic activities of the SNA, consumption of goods and services or accumulation of goods and services. Without the goods and services account, a supply and use table would not be fully articulated and exhaust all products available within the economy. The whole sequence of [economic](#) accounts can be viewed as built around the goods and services account by adding transactions relating to the generation, distribution and redistribution of income and saving. When these transactions are aggregated across all [institutional](#) sectors and the rest of the world, total resources are equal to total uses. If these were to be “consolidated” out of the sequence of [economic](#) accounts, only the goods and services account would be left.

[15.14](#)[15.17](#) Every row of the supply and use tables is a reminder of the basic identity of the goods and services

account.

4.3. Supply and use tables

[15.15.18](#) With a complete set of product balances, supply and use tables can be created. Supply and use tables exist in pairs with common valuation and level of detail as regards the products identified. The most common format of supply and use tables is at purchasers' prices. *A use table at purchasers' prices consists of a set of product balances covering all products available in an economy arranged in the form of a rectangular ~~matrix~~table with the products, valued at purchasers' prices, appearing in the rows and the columns indicating the disposition of the products to various types of uses. A supply table at purchasers' prices consists of a rectangular ~~matrix~~table with the rows corresponding to the same groups of products as the matching use tables and columns corresponding to the supply from domestic production valued at basic prices plus columns for imports and the valuation adjustments necessary to have total supply of each [group of] product[s] valued at purchasers' prices.*

[15.16.19](#) Sections [BC](#) and [CD](#) below describe the supply and use tables respectively.

[15.17.20](#) Supply and use tables are a necessary first step in preparing input-output tables as described in chapter [2836](#) but have important uses on their own, both analytically and as quality control tools. When supply and use tables are first prepared, they are unlikely to balance and until they are brought into balance, GDP measured from the production approach will differ from the expenditure [measure of GDP approach and the income approach to measuring GDP](#). Only supply and use tables provide a sufficiently rigorous framework to eliminate discrepancies in the measured flows of goods and services throughout the economy to ensure the alternative measures of GDP converge to the same value.

[15.18.21](#) Some countries with less advanced statistical systems still have difficulty in deriving a detailed breakdown of household consumption expenditure from direct sources on a regular basis. Such a breakdown is necessarily available from within a set of supply and use tables. One benefit of this is that the proportionate distribution of expenditure on different product groups can be compared with the weights used in a consumer price index (CPI) as a means of checking both the CPI weights and the supply and use tables for plausibility and consistency.

5.4. The industry dimension

[15.19.22](#) It is conceptually possible to compile a set of supply and use tables with intermediate consumption treated in total only, with the use table showing how much of each product is used for intermediate consumption but with no further detail. Such a presentation has little value as either a compilation or analytical tool but from the earliest elaboration of supply and use tables and input-output tables onwards, further detail was introduced to relate the products used in the economy to the units producing them. The simplest case and the one most often elaborated in [text-bookstextbooks](#) assumes that it is possible to establish a one-to-one correspondence between products and producing units. This indeed is the motivation for defining an establishment as a unit producing only one type of product. However, there is no necessary reason for the match to be one-to-one and many countries now work with [tablesmatrixes](#) where many more groups of products are distinguished than groups of producing units. The most important reason for this is that most units produce very many products, for example, a footwear manufacturer may make sandals, sports shoes, uniform boots and fashion shoes, and it would be neither practicable nor interesting to try to create an establishment for each type of footwear.

[15.20.23](#) Once a set of producing units is determined, the [domestic supply ~~matrix~~table](#) is expanded to show exactly which products [that](#) each of the groups of producing units supplies and the use [matrixtable is expanded to show intermediate demand for each of these groups of producing units. In addition, extra information relating to the producing units is appended below the demand for intermediate consumption, so that the columns corresponding to the producing units contain the components of value added as well as total output. In other words, the identity that](#)

intermediate consumption + value added = output

is apparent for each group of producing units (industry) in addition to the aggregate product-based equivalent. Further

information relating to capital formation and number of employees, for instance, may also be added. These extensions are discussed in section DE.

6.5. A numerical example

15.2415.24 Tables illustrating supply and use tables are shown in section EF with associated descriptive text. These tables contain all the features described in the chapter but at a high level of aggregation since they are intended for illustrative purposes only. In addition, some extracts from these tables are included in the text to illustrate the features being described.

B.C. The supply table

15.2215.25 The main part of the supply matrix table is a matrix sub-table of products (or commodities) by industry showing which what each industry supplies or "makes" which produces by type of product. For this reason, it used sometimes to be described as a "make matrix".

Commented [ED5]: No reference is made to "make" matrix as it is an out of date term.

1. Products and producing units

15.2315.26 While it is possible to compile a supply table using enterprises as the basic building block, it is more common and generally recommended to work with establishments. As noted in the introduction, the idea of an establishment as a unit where only one type of product is produced derives from the idea of an input-output table where there is a one- to-one correspondence between the groups of products distinguished and the groups of producing units distinguished. All the conventions described in chapter 56 about when an establishment is identified apply in the context of using establishment data for a supply matrix table, indeed although establishment-level data may be used in the context of short-term economic indicators, they are used in the SNA only in the context of the supply and use tables.

15.2415.27 The basis for grouping products (i.e., goods and services, including knowledge-capturing products that result from a process of production) is most commonly an aggregation of CPC and the resulting groups are described as "commodities" though modern usage would be "products". The basis for grouping producing units is most commonly ISIC and the resulting groups are often described as "industries".

Commented [ED6]: Commodities is an out of date term, it is now products.

15.2515.28 In the case where there are the same number of groups of producing units as there are products, there will be a large entry in one cell of the column representing the principal product of that group of producing unit, that is the product that gives rise to the largest proportion of value added. If the group of producing units contains only pure establishments, there will be no other entries in the column but most often there will be some secondary production showing as smaller entries in other cells in the column.

15.2615.29 When there are the same breakdown number of groups of producing units as groups of products, the rows and columns are arranged so that the entries for the principal products fall on the diagonal of the resulting matrix table.

15.2715.30 In practice, it is common for there to be more products than types of producing units. For example, it is interesting to specify different sorts of agricultural crops but less interesting or practical to distinguish farms specializing in each of the possible sorts of crop. For this reason, the supply table (make matrix) may be rectangular with more rows than columns but arranged with similar products in adjacent rows so that an aggregation of the rows for similar products would again produce a square matrix table.

15.2815.31 The greater the amount of product detail that is used, the more there will be a scatter of entries around the entries for the principal products, for example when a farm produces more than one crop or a

manufacturer of machinery produces different types of machines. At a level of detail such as “agricultural product” and “machinery” these off-diagonal elements will be merged in a larger diagonal element.

~~15.29~~15.32 However, as well as similar products, many establishments produce some retail and wholesale services, some transport services and some construction [output](#), the last sometimes being produced for own use as capital formation.

2. Accounting rules

~~15.30~~15.33 All the rules about time of recording, re-routing and partitioning of transactions described in chapter [34](#) apply to the entries in the supply and use tables.

~~15.31~~15.34 Although the supply and use tables do not record property income flows, the financial services associated with the payment of interest and with the acquisition and disposal of financial assets and liabilities are recorded in the supply and use tables. Chapter [4725 \(to check\)](#) explains in detail what sorts of financial service flows are associated with transactions in financial assets and property income flows.

~~15.32~~15.35 The re-routing of flows associated with margins is described below under valuation.

3. Production

~~15.33~~15.36 The principles for recording output in the supply and use tables are exactly the same as those for recording output in the production account, as described in chapter [67](#). It should be emphasized that all the concepts and definitions of the SNA elaborated in previous chapters describing the sequence of [economic](#) accounts apply equally and exactly to supply and use tables and input-output tables. The only difference is in the manner of presentation of the accounts, not in the underlying fundamentals of the SNA.

~~15.34~~15.37 As noted in the introductory section, the producing units to be identified in the supply and use tables are determined by reference to an industrial classification such as *ISIC*. However, it may also be useful to distinguish which producing units are market and which are non-market. This may be applied generally or to just those groups where significant production on both bases is common, for instance in health and education services. Similarly, production on own account may also be of special interest and can be distinguished within the *ISIC* categories, for instance for [the construction industry. One could also make the distinction within the industry of the different types of product produced, for example, computer software and construction products.](#)

Table [1415.1](#): Abbreviated version of the production part of the supply table

~~15.35~~15.38 In general, in keeping with the guidance on their treatment given in chapters [45](#) and [56](#), ancillary activities are not treated as giving rise to products that are recorded as output in the accounts. One exception is when some products are used both for own ancillary use and are supplied to another unit. Another exception is where it is appropriate to treat the unit producing the ancillary products as a separate establishment, for example because of its geographical location where it may be a source of significant employment.

~~15.36~~15.39 Bearing in mind the discussion about units, the production part of the supply [matrixtable](#) is a [matrixtable](#) with rows corresponding to product groups and columns corresponding to groups of producing units. The entries in this [matrixtable](#) show the value of output of each type of product by each group of producing unit. The goal of creating establishments is to partition horizontally and vertically integrated enterprises so that each row and column of the [matrixtable](#) is dominated by one entry with only a few non-zero entries, which are typically fairly small, elsewhere. There is more discussion on this sort of partitioning of enterprises in chapter [56](#).

~~15.37~~15.40 Table [1415.1](#) shows columns 16, 20, 23 and 24 of the supply [matrixtable](#) shown in table [1415.12](#). In the full version it is clear that most entries in the sub-[matrixtable](#) for market production are zero. Even in the abbreviated table, this is obvious for production for own final use and for non-market production.

4. Imports

Classification

~~15.38~~15.41 In order to add imports to domestic production to reach total supply, imports must be classified by products in a manner consistent with that used for domestic production. This is not always straightforward since imports (and exports) are classified not according to CPC but according to for example, the HS, ~~or~~ SITC or EBOPS. Finding a level of aggregation of the trade data that is sufficiently detailed but also consistent with domestic production may be a factor in determining the level of detail to be adopted in the supply and use tables.

Goods for processing

~~15.39~~15.42 The traditional view of an input-output table or a supply and use table was that it portrayed the physical or technological process of production. The aim was to show which products were combined, and in what proportions, to make other products. One consequence of this, in combination with the idea of establishments, was that if one establishment of an enterprise was responsible for making steel and another for making steel products, the steel from the first establishment was shown as being delivered (or “sold”) to the second. This meant the final customer for the steel products bought them entirely from the second establishment and the production account showed the value of the steel included in both intermediate inputs and output. A similar approach was taken for goods sent abroad for processing but then returned to the original economy.

~~15.40~~15.43 In terms of the SNA, this approach amounts to imputing a change of ownership when goods are delivered from the first unit to the second. For imports and exports, this is particularly inappropriate in the case of goods sent abroad for processing since to ensure consistency in the SNA, financial transactions that do not take place have to be imputed to match the imputed change in ownership of the goods. In reality, though, the unit processing (processor) the goods assumes no risk associated with the eventual marketing of the products; the risk remains with the legal owner (principal). The processor is not at risk from (and does not benefit from) any unexpected changes in prices of either the components or the final product. The only risk the processor accepts is limited to meeting the contractual commitment in the most cost-effective manner. The value of the output of the processor is the fee agreed for the processing. Any other change in the value of the goods and services processed, for example due to holding gains or losses or to the incorporation of R&D or the benefits of marketing assets accrue to the legal owner of the product. When the processing is carried out abroad, exports from the processing country consist only of the processing fee.

~~15.41~~15.44 With the increasing importance of outsourcing under globalization of markets, there is great interest in knowing where the returns to labour arise and how far operating surplus accrues to the processor and how far to the unit that contracts the processing.

~~15.42~~15.45 The pattern of inputs for an establishment processing goods on behalf of another unit is quite different from the pattern of inputs when the establishment is manufacturing similar goods on their own account. A simple illustration may be given by referring to crude petroleum. The unit refining on own account has intermediate consumption of crude oil and output of refined petroleum products; the unit processing (processor) on behalf of another unit (principal) has all the other similar inputs and uses the same sort of fixed capital but shows neither the crude petroleum nor the refined products in its production account. For similar amounts of crude oil processed, the value added and other inputs will be comparable and when the process is carried out for a non-resident, imports will exclude the crude oil and exports will exclude the refined products but include the processing fee. As a result, the current external balance will be unaffected by this treatment. The result of recording only the processing fee rather than the full value of the goods processed does, however, affect the ratios of imports and exports to GDP and gives a more realistic picture of the extent to which domestic financial resources are required to fund imports or benefit from exports.

~~15.43~~15.46 Similar consequences hold for processing by resident producers. There is discussion in chapter 67 about whether or not to record deliveries from one establishment to another in the same enterprise.

~~15.44~~15.47 Measuring goods for processing by the processing fee instead of by the full value of the processed

goods changes the nature of input-output coefficients. They no longer represent the technological structures of an industrial process but an economic process. Changes in coefficients may result not from changes in technology but from changes in the proportion of oil (in this case) processed on own account and processed on behalf of another unit. More extensive discussion on the treatment of goods for processing (and the similar but distinct case of merchant goods) is given in chapter 2633 but the consequences for supply and use tables and input-output tables are extremely significant and change many of the traditional perceptions about what information is conveyed in these tables.

15.48 Interpreting input-output coefficients as representing the technological structure of an industry does not recognize the role of other factors, such as whether fixed capital is rented or owned, the importance of ancillary activities or the consequences of a statistician balancing the tables. These factors still play an important part in determining input-output coefficients but where extensive processing of goods by third parties occurs, this may be the largest single factor contributing to change in the coefficients.

15.4515.49 More detail on processing is covered in Chapter 23, paragraphs 23.21-23.27 and figure 23.2 (to check)

5. Valuation

15.4615.50 As explained in the introduction, in order to balance total supply with total use, both must be valued in the same way. The most usual way to achieve this is to raise total supply from basic prices to purchasers' prices and this is the approach described here. However, the alternative, of reducing total use to basic prices is also considered in section DE under discussion about deflating the supply and use tables to prices of another year.

15.4715.51 It is helpful to begin by recapitulating the distinction between the purchaser's, producer's and basic prices as explained in chapter 67 and, because of the complexity of VAT and similar deductible taxes, to itemize the difference between the three ways in which VAT is recorded.

- a. Invoiced VAT is the VAT payable on the sales of a producer; it is shown separately on the invoice that the producer presents to the purchaser;
- b. Deductible VAT is the VAT payable on purchases of goods or services intended for intermediate consumption, gross fixed capital formation or for resale that a producer is permitted to deduct from his own VAT liability to the government in respect of VAT invoiced to his customers; and
- c. Non-deductible VAT is VAT payable by a purchaser that is not deductible from his own VAT liability, if any.

15.4815.52 Bearing these ways of recording VAT in mind, the price bases in the SNA are expressed as follows:

- a. The purchaser's price is the amount paid by the purchaser, excluding any deductible VAT or similar deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place;
- b. The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer; and
- b-c. The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, on that unit as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

15.4915.53 When an item is not sold directly by the producer but passes through the hands of one or more

wholesaler or retailer, it is necessary to consider the distribution margins these wholesalers and retailers add to the cost of the product. One possibility is to treat distribution margins as another element increasing the value of the purchaser's price over the producer's price. An alternative possibility is to treat the purchaser as undertaking two quite different transactions; one is the purchase of the item directly from the producer, the second is the purchase of the margins involved. A supply and use table at purchasers' prices assumes the former; a supply and use table at basic prices assumes the latter.

~~15.50~~15.54 _____ Whichever alternative for handling ~~trade~~distribution margins is chosen, the three price valuations can be linked schematically as follows:

Purchasers' prices

minus wholesale and retail distribution margins (~~distribution~~trade margins),

minus transportation charges invoiced separately (transport margins),

minus non-deductible VAT,

equals producers' prices;

minus taxes on products resulting from production excluding invoiced VAT,

plus subsidies on products resulting from production,

equals basic prices.

~~15.51~~15.55 _____ Thus the three factors that need to be considered in converting the values of output and imports to purchasers' prices are:

- a. ~~Trade~~Distribution margins,
- b. Transport margins, including the CIF/FOB adjustment,
- c. Taxes less subsidies on products.

~~15.52~~15.56 _____ Each of these is considered in turn below. ~~Trade~~Distribution margins are typically more significant in size than transport margins but are conceptually more straightforward. Transport margins are complex because of the different ways in which the cost of transport can be recovered.

~~Trade~~Distribution margins

~~15.53~~15.57 _____ ~~Trade~~Distribution margins may be significant and may apply to virtually all goods. When a supply and use table is compiled at purchasers' prices, the distribution margins need to be added to the rows for each group of products.

~~15.54~~15.58 _____ In order to account for the use of wholesalers and retailers margins, an adjustment column is added to the supply part of the supply and use tables. This column shows the addition to the value of each group of goods to which the margins apply with an offsetting negative entry for the rows corresponding to the margins. Typical entries for transport margins are treated in the same manner. Table ~~44~~15.2 shows the adjustment column (2) from the full supply table ~~44~~15.12.

~~15.55~~15.59 _____ ~~Trade~~Distribution margins are usually produced within the economy but may apply to both domestic production and to imports. Transport margins, on the other hand, may be provided by both residents and non-residents and may be provided to both residents and non-residents. This aspect of transport margins is discussed in the following paragraphs.

Table ~~44~~15.2: An example of the entries to adjust supply to include ~~trade~~distribution

margins and transport margins

Transport margins

~~15.56~~15.60 It is helpful to consider the case of domestic transport charges first and see how they are included in the supply and use tables before turning to transport margins on imports.

Domestic transport charges

15.61 As explained in paragraphs ~~6.65 to 6.66~~7.65 to 7.66 (to check) if the producer agrees to deliver the product to the purchaser without explicit charge, the cost of delivery is included in the basic price. Only if the purchaser is explicitly invoiced for the delivery is there a specific transportation margin that is part of the purchaser's price.

15.62 The rationale behind the need for different recordings is that the point when change of ownership occurs is different under the different scenarios. If A agrees or is obliged to provide transport to B, even for a charge, then change of ownership takes place when the product is delivered to B's factory and therefore a transport margin is recorded, if the basic price does not include the cost of delivery. If B agrees or is obliged to arrange delivery itself, then change of ownership takes place when the product leaves A's factory.

~~15.57~~—

~~15.58~~15.63 Consider the situation where a unit, A, sells a product to unit B. For simplicity it is assumed they are both producers with factories some distance apart. If B collects the product from A, the price charged is 200. The cost of transport from A's factory to that of B is 10. Both A and B have delivery fleets that can transfer the product from A to B or ~~either~~—may use a third party, C, to make the transfer. Ten per cent tax (not VAT) is payable on both the cost of the product and the transport costs. Different values of the three possible prices result from the alternative means of moving the product from A to B as shown in table ~~14~~15.3.

~~15.59~~15.64 The entries in the use ~~matrix~~table will be quite different for each of these six cases, even though the total cost to B is similar throughout. Only when B collects the product itself is the purchaser's price for the product plus delivery less than 231. In this case it must be assumed that the internal costs of collection are 10, as before, so only the tax payable on this, 1, is a reduction in the total cost of taking delivery of A's product even though the purchaser's price is 220 compared with 231 for other modes of delivery.

~~15.60~~15.65 When A or B undertake transport as an ancillary activity, the cost of petrol and other consumables will appear in intermediate consumption, the driver's wages in compensation of employees and there will be consumption of fixed capital recorded in respect of the vehicle used.

~~15.61~~15.66 These entries will appear for A when it is undertaking a secondary activity but the cost of the secondary activity will appear as intermediate consumption of A's primary activity.

~~15.62~~15.67 When C acts as an agent for A, whether A charges B directly for C's services or not, the cost of C's services forms part of A's intermediate consumption. When C is hired directly by B, then the service cost is part of B's intermediate consumption.

15.63 The rationale behind these different recordings is that the point when change of ownership occurs is different under the different scenarios. If A agrees or is obliged to provide transport to B, even for a charge, then change of ownership takes place when the product is delivered to B's factory. If B agrees or is obliged to arrange delivery itself, then change of ownership takes place when the product leaves A's factory.

International transport charges

~~15.64~~15.68 The information for allocating domestic transport charges is typically available to national accountants from survey information collected from domestic establishments. In the example above, information from A, B and C would, in principle, be available. For products delivered to establishments abroad, this is not the case. Either A or B is non-resident and possibly C also. The most common situation is where information coming from the administrative records compiled by customs authorities must be used. Increasingly, however, some products circulate without direct customs supervision and recording. This

applies to services but services seldom if ever have transportation charges associated with their delivery.

~~15.65~~15.69 The following are examples of goods that may not be covered in customs statistics:

- a. Goods circulating within a single customs area that spans several economies;
- b. Goods delivered to offshore establishments such as oil platforms;
- c. Certain types of goods, such as diamonds and other precious goods of high value but small volume, that may be carried by persons; [and](#)
- d. Ships and aircraft, which, while hardly concealable in a physical sense, may be difficult to distinguish from the vehicles that belong to another economy and simply transit through the domestic economy.

It is therefore appropriate to consider products subject to customs documentation separately from other internationally traded products. Separate consideration also must be given to transport related to merchant goods and goods sent abroad for processing.

Table 1415.3: Example of the impact on prices of transport charges

CIF/FOB adjustment

15.70 [The CIF/FOB adjustment in the supply and use tables has both the role of balancing detailed service flows on different valuations in the detailed supply and use tables and the role as a macro adjustment to total imports of goods and services. In brief terms:](#)

[\(1\) At the detailed product level, the supply and use of the individual services \(freight transport and insurance\) are adjusted so that they can be meaningfully balanced under the CIF valuation of goods; and](#)

[\(2\) At the macro level, the adjustment entries \(the sum of which must be zero\) that will make the separate totals for exports and imports of goods and of services equal to what is shown in the accounts for the rest of the world, where a FOB valuation of imports of goods is applied.](#)

15.71 [The CIF/FOB adjustment made to the services account for, on the one hand, the difference implied by the two valuations \(FOB and CIF\) of services imports where a non-resident has supplied the services \(this adjustment is negative\), and on the other hand, the difference implied by the two valuations of services exports where the service is supplied by a resident producer. In the supply and use tables, the latter adjustment is shown as a negative import with the result that the difference between the imports of goods on a FOB basis and the imports of goods on a CIF basis, is offset with an adjustment to imports of services, also in the supply table.](#)

15.72 [In table 15.4, the total CIF-based imports are obtained as the sum of data in columns 1 and 4, whereas the FOB-based imports are obtained as the sum of data in columns 1 and 2. This implies that in the measures of the total imports according to the alternative valuations the CIF/FOB correction item will not appear.](#)

15.73 [Note that in the CIF to FOB adjustment in the balance of payments, the value of insurance premiums \(incurred between the two frontiers\) is deducted from the value of goods, whereas the corresponding adjustment in the balance of payments services account is to insurance services. As a result, there would generally be a difference between the total adjustment to goods and the corresponding adjustment to services. This difference is not very significant in the context of the balancing that is done in compiling the supply and use tables.](#)

Products not included in customs documentation

~~15.66~~15.74 In the absence of customs documentation, information must be obtained from surveys and other

Commented [ED7]: Under the 4th category, A charges B for delivery but uses C to deliver, remove 11 as it is not a margin. The numbers 200, 20, 220 should be replaced with 211, 20, 231.

Commented [ED8]: Role of CIF/FOB adjustment described and the link between supply and use tables and the balance of payments.

sources and will typically record the prices at which transactions are actually undertaken. The analysis above for goods transported within the domestic economy is likely to apply to international transport also. When the supplier (exporter) commits to deliver goods to the importer, the value of the goods will include the transport costs. When the purchaser (importer) is responsible for transport, the value of the goods excludes the transport costs and these feature as a separate purchase. Whichever of the units takes responsibility for the transport, the values of the goods for both the exporter and importer are identical. This is an important distinction from the valuation used in customs merchandise trade statistics as discussed in the immediately following section.

15.6715.75 Following the example in the previous section, if A and B are resident in different economies, whenever A takes responsibility for delivery to B, the value of exports from A (and the corresponding value of imports to B) includes the transport element. If B takes responsibility for the transport from A, then neither the value of exports from A nor the value of imports into B includes the value of the transport.

15.6815.76 If the third party, C, is used to undertake the transport, the residence of C is important in determining the value of total imports and exports. If C is co-resident with A and provides services to A, this is a domestic transaction within A's economy. However, the value of the exports of goods from A will reflect the fact that they must cover the cost of services bought from C. If C is co-resident with A but provides services to B to transport the goods from A to B, then C also provides exports to B but these are shown as exports of transport services, not of goods.

15.6915.77 If C is co-resident with B and contracts with A to transport goods to B, there are imports of transport services from B's economy to A's which are then included in the value of exports from A to B. If C contracts with B to transport the goods, this is a domestic transaction for B's economy even though C is operating in foreign territory in collecting and moving the goods.

15.7015.78 If C is resident in an economy other than that of A and B, then the services provided to A constitute exports of services from C's economy to A's and the value of the goods exported from A to B are sufficient to cover this cost of imports just as previously they covered the cost of a domestic transaction. If C contracts with B to move the goods, the cost shows as an export of services from C's economy to B's.

15.7415.79 As in the domestic case, the question of whether the value of goods covers the cost of transportation or not depends on whether the exporter or importer is responsible for transport. Again this is equivalent to whether change of ownership takes place after or before transportation from A to B.

Products covered by customs documentation

15.7215.80 In most countries, most information on imports and exports of goods will come from customs declarations. These declarations are compiled for administrative purposes, namely the levy of import and export duties, and are therefore not necessarily ideal for use in the national accounts or balance of payments context but are used because of their general availability and consistency of valuation.

15.7315.81 Within customs declarations, imports are usually valued CIF (that is, they include cost, insurance and freight) at the point of entry into the importing economy. This valuation is standard, regardless of whether any of the CIF elements are provided by domestic enterprises because import duties are typically imposed on the CIF valuation. It also excludes the cost of transport from the border of the importing economy to the premises of the importer. This transport also may be provided by either a resident or non-resident carrier. Exports are valued FOB (free on board) at the point of exit from the exporter's economy. It includes the cost of transport from the exporter's premises to the border of the exporting economy. The CIF/FOB valuation principles arise from the common situation where goods are transported by ship from one country to another and it is not unreasonable to assume that transport to and from the ship would be undertaken by carriers resident in the relevant economy. This assumption may still hold in the main for goods transported by sea and air. It is much less satisfactory for goods transported overland where a single vehicle may transport goods from the exporter to importer without a break at national borders.

15.7415.82 As noted already, if it is the exporter that contracts the delivery (whatever the nationality of the carrier), it is correct that the cost of transport is included in the value of the good imported, though describing this as CIF is not helpful in the context of the SNA since it is a legitimate part of the cost of the imported

good and should not be seen as a separate import of transport services. The delivery contractor provides services to the exporter and these are shown as an import of services to the exporting economy if the contractor is not co-resident with the exporter.

[15.7515.83](#) If it is the importer that contracts the delivery and if the carrier is not co-resident with the importer, an import of services takes place and, ideally, for the SNA it would be desirable to separate the CIF value into the value of the good only and the value of the transport service. If the importer undertakes delivery itself or contracts with a unit resident in the same economy, there is in fact no import of services even though it will appear there when imports of goods are recorded CIF. To counteract this, a fictional export of the same amount of services must be shown to leave the current balance of goods and services correct.

[15.84](#) [For the 2025 SNA and BPM7, the FOB valuation for exports and imports has been maintained. However, it is generally acknowledged that the observed exchange values, which is closely aligned to invoice values, is conceptually preferred. Subject to further testing of the implementation in practice, it is intended to be introduced as the basic principle for valuing imports and exports in the next versions of SNA/BPM.](#)

Commented [ED9]: G.1 reference.

Transport on merchant goods

[15.7615.85](#) Merchanting is a process whereby a unit in economy X purchases goods from economy Y for sale in economy Z. The goods legally change ownership but do not physically enter the economy where the owner is resident. By convention, the acquisition of the goods intended for resale is shown as negative exports. When the goods are sold, they are shown as [positive] exports. When acquisition and sale take place in the same period, the difference shows as an addition to exports. If only the acquisition takes place in an accounting period, the negative export is offset by an increase in inventories of goods for resale, even though those goods are held abroad. In a subsequent period when the goods are sold, the exports recorded for their sale are offset by a withdrawal from inventories. As normal, the withdrawals should be valued at the cost of the goods at the date of the withdrawal, any increase in value due to a change in the price of the goods being shown as a holding gain or loss.

[15.7715.86](#) The services provided to transport the goods from Y to Z may be paid for by any of the units in X, Y or Z and should be recorded consistently with the principles outlined above. (See chapter [2623 and 33](#) for more on [merchanding and inverse](#) merchanding.)

Table 1415.4: An example of imports entries in the supply table with the global CIF-to-FOB adjustment

Commented [ED10]: The 2008 SNA Table 14.4 will not be used but the version below will form the new Table 15.4. Location of the table retained as replacing the old table.

	Imports of goods	Imports of Services			Total imports
Product groups (CPC sections) to be updated	CIF based detailed goods	FOB based detailed services . (BOP data)	Adjustment of services to SUTs basis	CIF based detailed services (SUTs basis)	

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<u>1 Agriculture</u>	<u>37</u>				
<u>2 Mining, etc.</u>	<u>61</u>				
<u>3 Manufacturing</u>	<u>284</u>				
<u>4 Construction</u>					
<u>5 Trade etc.</u>		<u>62</u>	<u>-6</u>	<u>56</u>	
<u>6 Finance and insurance</u>		<u>17</u>	<u>-4</u>	<u>13</u>	
<u>7 Real estate, etc.</u>					
<u>8 Business, etc.</u>		<u>5</u>		<u>5</u>	
<u>9 Community, etc.</u>					
<u>10 Other services</u>					
<u>11 Public administration</u>					
<u>Total, CIF-based</u>	<u>382</u>	<u>84</u>	<u>-10</u>	<u>74</u>	<u>(1+4)</u>
					<u>456</u>
<u>CIF/FOB adjustment</u>	<u>-10</u>			<u>+10</u>	
<u>Total, FOB-based</u>	<u>372</u>	<u>84</u>		<u>84</u>	<u>(1+2)</u>
					<u>456</u>
<u>Purchases abroad by residents</u>	<u>20</u>	<u>23</u>		<u>23</u>	
<u>Total</u>	<u>392</u>	<u>107</u>		<u>107</u>	

Transport on goods sent abroad for processing

15.7815.87 Goods sent abroad from economy X to economy Y for processing without changing ownership, after which they are returned to economy X, are not shown as either exports of goods from X to Y or subsequently as exports of goods from Y to X. As explained above, only the agreed processing fee is shown as an export of service from Y to X. However, there are costs of transporting the goods on both the journey from X to Y and then on the return journey from Y to X. The costs of these journeys, excluding the value of the goods themselves, must be shown as transportation services. If X is responsible for transport on either the outward or inward journey, the cost is an import to X's economy unless it is carried out by X or another unit co-resident with X. If Y is responsible for the transport, the cost is an import to Y unless it is carried out by Y or another unit co-resident with Y. When Y is responsible for transport costs (on either or both journeys) the costs will be covered by the agreed processing fee and hence in the value of the exports of services from Y to X.

Recording transport margins in the supply and use tables

15.7915.88 In the supply and use tables, either supply must be adjusted to be at purchasers' prices or use must be adjusted to be at basic prices since both sides of the balance must be expressed in the same prices. It is common to compile the use table, initially at least, in purchasers' prices. As shown in table 4415.3, this value will often be the same however the good is transported from the seller to the buyer. The only exception is when the buyer fetches the goods using its own resources. The way the transport service shows in the use table, however, depends critically on how the service is provided (using own resources or a third party contractor) and to whom (the buyer or seller). The different forms of recording in different circumstances are indicated in table 4415.3.

15.8015.89 Imports of goods are to be recorded in the supply table at basic prices with taxes and margins added subsequently. There is no universally appropriate valuation for imports of goods at basic prices. The

following recommendations should be noted.

- a. If the data come from other than customs documentation, it is to be assumed that actual transaction prices are used and it should be clear whether transport services are separately invoiced or not. If they are, the basic price excludes the value of transport; if not, the basic price value of goods includes transport costs. The purchaser's price will differ from the basic price only because of any taxes payable by the purchaser.
- b. If the data come from customs documentation and if it is the exporter of the goods who is responsible for meeting the transportation costs, the value of the goods at basic prices should include the transport costs. In this case a CIF valuation will approximate the basic price (approximate unless a domestic carrier assumes responsibility for transport from the border of the importing country). The purchaser's price will differ from the basic price only because of any taxes and subsidies payable by the purchaser.
- c. If the data come from customs documentation and if it is the importer of the goods who is responsible for meeting the transportation costs, the value of the goods at basic prices should exclude the transport costs. In this case an FOB valuation will approximate the basic price (approximate because the value of transport from the place of origin to the border of the exporting economy is included in the FOB valuation). The purchaser's price will differ from the basic price because of the transport costs incurred plus any taxes and subsidies payable by the purchaser.
- d. It may not be possible to determine from customs declarations which unit is responsible for the transport costs and, even when it is and conceptually the transport costs should be separated from the value of the goods themselves, there may be no information and no resources available to make the separation in practice. In such a case the CIF value of imports may be the only source with a disaggregation by type of good. If the disaggregated CIF figures are used for imports of goods, though, that part of the transport costs and insurance also included in imports of services would be double-counted. In order to avoid this, therefore, an adjustment column is inserted into the supply table. The adjustment column consists of a deduction from the services items for transport and insurance equal to the CIF-to-FOB adjustment for these items with an offsetting global adjustment made to imports of goods. Table 4415.4 gives an example of such an adjustment.

Taxes and subsidies on products

~~15.81~~15.90 The taxes and subsidies on products that add to the value of products available in the economy are exactly those described as taxes and subsidies on products in chapter 7-8 (to be checked). Other taxes on production are included in the basic price measurement of output and other subsidies on production are excluded so do not feature in the adjustment for taxes that intervenes between a valuation at basic prices and purchasers' prices.

~~15.82~~15.91 Value added type taxes in the SNA include VAT proper and taxes that are deductible in a way similar to VAT. The SNA recommends that output, even at producers' prices, is valued excluding VAT invoiced by the producer; imports also are valued excluding invoiced VAT. For intermediate and final uses, the purchases of goods and services are recorded including non-deductible VAT only.

~~15.83~~15.92 The general cases in which VAT is usually deductible, non-deductible or just not applicable are as follows:

Deductible VAT:

- Most of intermediate consumption
- Most of gross fixed capital formation
- Part of changes in inventories. Non-deductible VAT:
- Most of final consumption expenditure

- Part of gross fixed capital formation
- Part of changes in inventories
 - Part of intermediate consumption. VAT not applicable:
- Exports
- Any goods or services subject to a zero rate of VAT regardless of their use
- Any producers exempted from VAT registration (small businesses or the like).

[15.8415.93](#) When output is at basic prices, the taxes column contains total non-deductible VAT on products, taxes and duties on imports excluding VAT, export taxes and taxes on products excluding VAT, import and export taxes. When output is at producers' prices, the taxes column includes only taxes and duties on imports (excluding VAT), plus total non-deductible VAT on those products.

[15.8515.94](#) Subsidies are recorded as if they were negative taxes on products or negative taxes on production. Only subsidies on products (if any) are entered into the column for the tax adjustment to the valuation of supply; they appear with a negative sign to indicate they reduce the value of purchasers' prices rather than increase it.

[15.8615.95](#) Table [1415.5](#) shows columns 3 and 4 from the full supply [matrixtable](#) in table [1415.12](#) that show the adjustments for taxes and subsidies on products.

Table [1415.5](#): An example of the entries to adjust supply to include taxes less subsidies on products

C.D. The use table

[15.8715.96](#) A use table can be viewed as a rectangular table with four quadrants, two in the upper part and two in the lower part. The upper left quadrant consists of a sub-[matrixtable](#) showing the use of different products by different groups of producing units. In other words, this quadrant contains intermediate consumption, disaggregated by product in the rows and by industries in the columns. The upper right quadrant consists of a sub-[matrixtable](#) showing the use of different products by final consumers, a sub-[matrixtable](#) for exports and a sub-[matrixtable](#) showing the use of different products for capital formation. Together these three sub-[matrixtables](#) show the final [demanduses](#). The lower left quadrant contains information on value added disaggregated to show the elements of the generation of income account, that is compensation of employees, gross operating surplus or gross mixed income and taxes less subsidies on production. Each of these five sub-[matrixtables](#) is described below. The lower right quadrant is empty.

[15.8815.97](#) The upper part of the use [matrixtable](#) (the intermediate and final [demanduse](#) quadrants) can be valued at purchasers' prices or at basic prices. In this section sub-matrices at purchasers' prices are discussed. The alternative valuation at basic prices is discussed in section [DE](#) along with considerations about expressing the use table in volume terms.

[15.8915.98](#) Together the left-most quadrants (the intermediate consumption and value added quadrants) can be viewed as a set of columns, each relating to a group of producing units, containing information relating to the production and generation of income accounts plus other information that can be attributed to groups of producing units at a more disaggregated level than groups of enterprises. This other information most often includes capital formation and the number of employees for each group of producing units. These aspects are also discussed in section [DE](#).

1. The use of products by producing units

[15.9015.99](#) The sub-[matrixtable](#) showing the use of specific products by each type of producing unit (the upper

left quadrant of the table) has long been considered one of the more interesting aspects of supply and use tables and input-output tables. It gives a picture of how products are converted to more complex products either for yet further processing or for sale to final users or as exports. Unlike the supply table ~~or make matrix~~, which also shows products by producing units, the sub-~~matrix table~~ of the use table (sometimes called the “absorption matrix”) is densely rather than sparsely populated. The patterns of inputs for market, own final use and non-market producers of the same products are likely to bear a strong resemblance to one another but the variations give insights into how the characteristics of the three sorts of production vary.

~~15.94~~15.100 The definition of intermediate consumption and the borderlines with payments for the use of labour and capital are exactly as explained in chapter 67.

~~15.92~~15.101 Compiling the sub-~~matrix table~~ usually starts from information provided by establishments about their intermediate consumption. These may be classified according to the purpose they serve rather than the type of good. The classification of outlays of producers by purpose (COPP) consists of six main headings that apply to intermediate consumption of establishments, only one of which relates to current production techniques. The other five cover more general categories such as outlays on marketing and human resource development that are common to most establishments. Use of this detail in the form of a ~~satellite thematic~~ account is discussed in chapter 2938.

~~15.93~~15.102 When this is all the information available to the compiler, ~~he~~they must make a judgement of what type of products will be covered in each heading allowing for variations between producing units of different types.

~~15.94~~15.103 It is important to bear in mind the interpretation of data in this sub-~~matrix table~~. The total across the rows show how much of a given product is used as intermediate consumption by all producing units. The total down a column shows the total of all types of products used as intermediate consumption inputs by a single type of producing unit. There is absolutely no reason ~~why~~ the relative size of these two entities should be related in any systematic manner but mistaking one concept for the other is a common error made by users not very familiar with the nature of a supply and use table.

~~15.95~~15.104 Table 4415.6 shows columns 16, 20, 23 and 24 of the use ~~matrix table~~ that include the intermediate consumption by each type of production. This contrasts with table 4415.1 which shows the same columns for the supply part of table 4415.12. Whereas table 4415.1 shows that most manufactured products are produced by the market producers in the manufacturing industry, table 4415.6 shows that all three types of producers use manufactured products and that only about half of manufactured products are used in manufacturing industries. While the proportion quoted depends on this example, the phenomenon is generally observed.

Table 4415.6: Abbreviated version of the intermediate consumption part of the use table

2. The use of products for final consumption

~~15.96~~15.105 [As explained in chapter 9,10 (check), there are ~~three~~four types of units that undertake final consumption; households, NPISHs ~~and~~ general government. ~~and the central bank~~. The manner of compiling the sub-~~matrix table~~ of the use table showing the use of products for final consumption is similar for each of the ~~three~~four types of consumer but starts from a different classification for each of them.

~~15.97~~15.106 Information on consumption by households usually starts from household surveys. In these, household expenditures are classified according to the classification of individual consumption by purpose (COICOP). COICOP classifies household expenditure into ~~ten~~13 main categories, such as food, clothing and housing. This is useful for analysis of how much of household consumption goes on essentials, for instance, and is basic to the establishment of weights for the consumer price index but it is not in the necessary format for inclusion in the use table. For that a conversion table is necessary showing which of the designated products are purchased as food, which as clothing and so on. It should be noted that household surveys typically include expenditure by households abroad, for example on holidays, which must be separated from demand in the domestic economy in the supply and use tables.

Commented [ED11]: X.3 reference

~~15.98~~15.107 A similar approach is used for consumption expenditure by NPISHs but starting from the classification of the purposes of non-profit institutions serving households (COPNI). COPNI spells out the different sorts of NPISHs there may be by their objectives, for example, whether they undertake research and scientific services, education services or are religious associations. Given this knowledge, it should be possible to determine whether the NPISH is one with costs mainly limited to those associated with running an office with few paid employees or whether there are significant costs associated with acquiring goods and services to pass on to households, for instance.

~~15.99~~15.108 For general government consumption expenditure, the starting classification is the classification of functions of government (COFOG). This classification is consistent with that proposed in the [GFSM2004](#)/[GFSM2014](#) and shows a breakdown of government expenditure by standard functions associated with general public services, defence, law and order and so on. As with the classification for NPISHs, knowing the type of function gives a way to start to allocate the expenditure between intermediate consumption and other expenditure and to allocate intermediate consumption to specific product types.

~~15.100~~15.109 It may be useful if possible to split the columns for general government (and NPISHs if appropriate) to show individual consumption expenditure and collective consumption expenditure separately in order to calculate actual consumption rather than consumption expenditure as explained in chapter [9.10](#). [The whole of non-market output by the central bank is considered as collective consumption expenditure.](#)

Commented [ED12]: X.3 reference

Table [14.15.7](#): The final consumption part of a use table

~~15.104~~15.110 When these entries are compiled at purchasers' prices, as assumed in this section, there are no entries for consumption of wholesale and retail services as these are included with the expenditure on the products to which they apply. Equally, taxes payable on products are included in the purchaser's value and do not show separately. (These statements apply equally to products used for intermediate consumption and for capital formation but are much more significant for final consumption.)

~~15.102~~15.111 Table [14.15.7](#) illustrates the part of the use table for final consumption (columns 30, 31, 32 and 29 of table [14.15.12](#)). The entry for production for own final use by households includes the estimate for owner-occupied housing services. The item for expenditure on non-market production by households represents the partial payments made by households for items supplied at nominal prices by government and NPISHs:

~~15.103~~

3. The use of products for **gross** capital formation

~~15.104~~15.112 ~~There are different three~~ types of **gross** capital formation to be examined: [acquisitions less disposals of produced assets \(excluding produced natural capital\)](#), [acquisitions less disposals of produced natural capital](#), ~~gross fixed capital formation~~; changes in inventories and acquisition less disposal of valuables. [In the discussion below, the acquisitions less disposals of produced assets have been combined.](#)

Commented [ED13]: CM.4 – reference to inclusion of depletion.

~~15.105~~

Gross fixed capital formation

~~15.106~~15.113 Allocating gross fixed capital formation to products is the easiest part of the use table since the categories of fixed capital fall quite naturally into product groups. Further, they will often be exempt from taxes on products and not subject to ~~trade~~[distribution](#) margins. However, some assets are subject to costs of ownership transfer on acquisition and disposal and these costs need to be allocated to the appropriate product. This product may be ~~distribution~~[trade](#) or transport but may also be legal services or real estate services, for example, depending on the asset concerned.

15.114 [There is a need to recognise the change in the use of assets. For example, when a household purchases a car, this is recorded as household final consumption expenditure. However, if a household starts to use their car to provide transportation / taxi services to third parties, the car is \(partly\) being used to facilitate the](#)

Commented [ED14]: X.52 reference.

[production of services and there should be the recognition of an asset in the balance sheets in the national accounts. This is recorded as reduction in household final consumption and an increase in household gross fixed capital formation. If the asset is used partly for the households final consumption and partly for production purposes, the value of the asset recorded in the balance sheet should reflect the share of the asset's use in the production of services.](#)

~~15.107~~15.115 One aspect that does need to be mentioned, though, is the treatment of existing goods that are resold to another unit. (This applies to consumption expenditure also but is described here because it is most common for fixed capital.)

Resale of existing goods

~~15.108~~15.116 Strictly speaking, it is not exactly true that all goods available for purchase in the domestic market come from domestic production or imports. Some goods may exist in the economy already and simply change owners. The most obvious example is fixed capital, where buildings and vehicles are regularly sold before their useful life is exhausted. In this case, the supply of goods is recorded not as a positive entry in the supply table but as a negative entry in the use table.

~~15.109~~15.117 When a building is sold, for example, the seller records negative fixed capital formation and the purchaser records positive fixed capital formation. These items frequently do not offset one another exactly as there may be costs of ownership transfer associated with the exchange. As explained in chapter ~~401~~, costs of ownership transfer incurred by the seller should be written off during the period the seller has owned the asset, so that by the time the item is sold, all the costs of ownership transfer on acquisition should have been written off. For the purchaser, costs of ownership transfer on acquisition of the asset are recorded as part of gross fixed capital formation and, in turn, are written off over the period the purchaser expects to use the asset. In this way costs of ownership transfer of both disposal and acquisition are treated as new fixed capital formation.

~~15.110~~15.118 Fixed assets may not always be sold to other producers in the same economy. For example, it is common for aircraft to be sold abroad. In this case, the supply of the aircraft is still recorded as negative capital formation but the use is recorded as an export.

~~15.111~~15.119 Even when an asset is no longer cost effective, it may have a residual value, for example as scrap. (It should be noted, though, that the margins ~~of charged by~~ scrap merchants are often very high compared to the prices paid by them to acquire the scrap.) In that case the supply is recorded as negative capital formation and the use as intermediate consumption of a producing unit processing the scrap. Chapter ~~401~~ also explains why the total ~~of consumption of fixed capital depreciation~~ over the life of the asset is not necessarily the whole value of the asset on acquisition but the difference between the value of the asset on acquisition and its value on final disposal, in this case the scrap value. In cases where the scrap value does not coincide with the residual balance sheet value of the asset immediately before disposal, an adjustment is to be made to the value of the asset via the other changes in the volume of assets account.

~~15.112~~15.120 Second-hand assets may also become household consumption expenditure, as for example when a hire car company sells its cars to households for recreational purposes.

~~15.113~~15.121 If a unit disposes of more assets than it acquires in a period, it will have negative capital formation. It is possible, though not very common, for the figure of capital formation for a group of producing units also to be negative in such a case.

~~15.114~~15.122 As explained in chapter [910](#), it is assumed that a household consumes products at the moment they are acquired. In the case of consumer durables this is not strictly so and consumer durables may be sold or donated to other units at a later time (for example in response to requests for disaster relief). In this case also, the supply of the goods in question is treated as negative expenditure by the previous owner and positive use by the new owner (including households in the rest of the world). The way in which the income element of donations to other units is handled is via transfers, as explained in chapter [89](#) but for a supply and use table this aspect is not relevant since it is only the physical disposition of the product that is recorded.

Changes in inventories

~~15.115~~15.123 While allocating fixed capital formation to product type is relatively straightforward, allocating changes in inventories to product type is challenging. Chapter ~~40~~11 explains how the types of inventories identified in the SNA are materials and supplies, work-in-progress, finished goods, and goods for resale. Work-in-progress and finished goods are straightforward to allocate since the products concerned must be those that the unit reporting the inventories produces. Materials and supplies are more complex. Some will be specific to the producing unit reporting them but virtually all producing units will hold some office supplies and cleaning materials, for example, though maybe not to a significant degree. For goods for resale, however, practically all types of goods may be included in inventories. Not only is the range of goods extensive, the pattern of goods held for resale is subject to a high degree of variation over time and even within an accounting period.

~~15.116~~15.124 In the exercise of balancing a supply and use table, this uncertainty over the composition of inventories, added to the fact that even the valuation of changes in inventories may be less robust than desired, means that inventories are often estimated indirectly and with the need to balance the supply and use table as one of the operating constraints.

Valuables

~~15.117~~15.125 The range of products held as valuables is quite extensive and it is an area where existing ~~products~~goods may feature. For example, antiques and old masters, by their very nature, are not output of the current period. The importance of the value of acquisition less disposals of valuables as an item of capital formation, though, tends to be limited and any major disposal, such as sales by a museum, are likely to be well known.

~~15.118~~15.126 Table ~~44~~15.8 illustrates the capital formation part of a use table.

Table ~~44~~15.8: The capital formation part of a use table

4. Exports

~~15.119~~15.127 The allocation of exports by product requires the same conversion between SITC or HS or EBOPS codes as the allocation of imports does. The valuation of exports is easier, though, since in trade statistics exports are uniformly valued FOB. This valuation may not be in perfect accord with the recording in the SNA since the point of valuation is at the border, not necessarily where change of ownership takes place. As with the valuation of imports, ideally exports should be valued when and where they change ownership from a resident unit to a non-resident unit but, again as with imports, the assumption that this change of ownership takes place at the national border may be the only practical assumption given existing data sources.

15.128 The different components of package tours are recorded separately, i.e., the package is unbundled. Statistical producers need to distinguish the residency of the visitor, the end provider of the tourism service, the travel agency, the tour operator itself and if relevant, the use of a digital intermediate platform. The treatment of package tours should be recorded as a package of services split as a basket of at least three major services:

- the services themselves, for example, transport, food, accommodation;
- the services provided by the tour operator; and
- the margin of the travel agency which is usually different from margin earned by the tour operator selling the tour.

15.129 The impact of recording the unbundling package tours should be consistently applied in estimating domestic output by product(s) using CPC and imports of services (travel account of the balance of payments) by product in the supply table, and again by product, entries for intermediate consumption, household final

Commented [ED15]: C.7 reference.

[consumption expenditure and exports of services \(travel account of the balance of payments\) in the use table. More details are available in BPM 7 Chapter 11.](#)

15.130 [For exports of goods, note the change regarding valuation \(i.e., from FOB to invoice values\) in the next update of the macroeconomic statistical standards as discussed in paragraph 15.77.](#)

Commented [ED16]: G.1 reference to the exports side.

5. Introducing value added

~~15.120~~15.131 The sum across the rows of the use table, encompassing intermediate consumption, final consumption, capital formation and exports, for each product type must be equal to the sum across the rows of the supply table (domestic production plus imports plus valuation adjustments to make the valuation in the supply table consistent with that in the use table) for the same product type. The sum down each column of the supply table shows the value of output for the relevant type of producing unit. The sum down the column of the use table for the same type of producing unit shows the amount of intermediate consumption of that type of producing unit. It is an obvious extension, therefore, to add two further lines to the use table for the column corresponding to producing units. The second of these contains the values of output from the supply table, the first contains the difference between this total and the value of intermediate consumption just described and so represents value added for that type of producing unit.

~~15.121~~15.132 Introducing the entries for value added and output is key to one of the main purposes of the supply and use tables, that of using the structure to ensure the accounts are internally consistent. Returning to some of the examples quoted in the introductory section illustrates this point.

~~15.122~~15.133 Suppose the data from a household survey for cigarette consumption is assumed to be accurate and suppose for simplicity there are no exports of cigarettes. This figure then virtually determines the total use of tobacco products and subtracting imports of cigarettes gives a figure for the output of the domestic cigarette factories. This may be much lower than the amounts reported by the cigarette manufacturers and the compiler may be inclined to think the output of cigarette manufacturers is overstated. However, the main intermediate input to cigarette manufacture will be tobacco [leaf](#) and there will be other figures for either production or imports of tobacco. Given there are few uses for tobacco other than input into tobacco products and exports, if the supply and use table compiler wishes to adhere to the household expenditure survey data, he is faced with assuming either that there are errors of overstatement of cigarette manufacture, tobacco production or imports or the household figures for tobacco consumption are understated.

~~15.123~~15.134 Consider the case of taxi services in a country where communal taxis are the main form of personal transport. As well as the value of taxi services reported by the taxi drivers, there may well be information about the number of cars and amount of petrol or diesel claimed as tax deductions because they are used for taxi services. A judgement can be made about whether these inputs are more consistent with the figure from the household expenditure survey than with the reported output figures.

~~15.124~~15.135 More generally it should be noted that once the supply and use tables are balanced, any increase in final use for a particular good must be met from increased total supply or decreased intermediate consumption for the same good. If the increased supply comes from domestic production, then value added increases in line with the increases in final use; if the increased supply comes from increased imports, then both value added and GDP are unaffected (or only marginally if there are import taxes on the good in question). Similarly, any increase in intermediate consumption without an increase in domestic output must lead to a decrease in final use and also a decrease in value added.

Table [1415.9](#): The value added part of a use table

6. Expanding value added [at basic prices](#)

15.136 Useful as it is to add value added [at basic prices](#) to the bottom of the use table, it is possible and even more helpful to disaggregate value added and show all the entries in the generation of income account (described in chapter [78](#)). Table [1415.9](#) shows the entries for each type of production in rows 14 and 17 to 25 of the use

part of table 1415.12.

15.137 The components of gross value added for market producers shown in the SUTs are as follows:

Commented [ED17]: CM.4 reference.

Gross value added equals compensation of employees
_____ plus other taxes on production
_____ minus other subsidies on production
_____ plus gross operating surplus
_____ plus gross mixed income

15.138 The relationship between gross value added and net value added by producer, by industry or by institutional unit is:

Gross value added _____ minus depreciation of fixed assets
_____ minus depletion of natural resources _____
_____ equals net value added

15.139 The relationship between gross operating surplus / gross mixed income with net operating surplus / net mixed income is:

Gross operating surplus / gross mixed income _____ minus depreciation of fixed assets
_____ minus depletion of natural resources
_____ equals net operating surplus / net mixed
income

15.140 Gross value added by industry can be derived from the production approach and the income approach and balanced within the supply and use tables. Using the production approach, by industry, gross operating surplus (including gross mixed income) on a national accounts basis is estimated as a residual by deducting compensation of employees, other taxes less subsidies on production from gross value added. Whereas, applying the income approach, by industry, using administrative and tax based data, gross operating surplus can be derived from income-based sources, in particular administrative data:

Gross operating surplus and

gross mixed income _____ equals self-employment income (mixed income)
_____ plus gross trading profits of corporations (including quasi-
corporations) before deductions for tax and extraordinary items
_____ less holding gains / losses on inventories
_____ plus rent and rental income (both paid and imputed)
_____ plus conceptual changes, (e.g., implicit financial services on loans
and deposits, insurance related transactions, own-account production,
etc.)
_____ plus depreciation of fixed assets
_____ plus depletion of natural resources

7. Adding other variables

~~15.125~~15.141 As well as the entries for the generation of income account, it is possible to add memorandum items relating to other variables that are useful in a study of production at the establishment level. These are gross fixed capital formation by establishment and ~~the number of employees. As discussed in chapter 19, it is preferable to show employment on a full time equivalent basis if this is available~~ data on labour input. The labour market tables discussed in chapter 16 provide a framework for presenting more detailed data on labour input consistent with the use tables. These labour market tables include further breakdowns of labour input by, for example, sex or gender, level of educational attainment, etc., as well as provide links to variables such as jobs, vacancies and unemployment, which are highly relevant in analysing the labour market.

15.126

~~D.E.~~ Further elaboration of the use table

1. Cross-classification by industry and institutional sectors

~~15.127~~15.142 It is possible to take each column of the use table relating to production units and allocate all the entries to one of the institutional sectors of the economy ~~but often the columns have to be allocated to more than one institutional sector~~. The column for ISIC class ~~covering K~~ (finance and insurance) is mainly allocated to financial corporations ~~but some units may cover unincorporated enterprises which are allocated to households~~. The columns for non-market output are allocated either to general government ~~or NPISHs or the central bank~~. Other columns are mainly allocated to non-financial corporations but with those parts that represent unincorporated enterprises being allocated to households. Such a table provides the link between the supply and use tables and the sequence of accounts since the totals by institutional sector correspond to the data in the production and generation of income accounts. Further discussion of this presentation and a numerical example is given in chapter ~~28.36~~ (to check).

2. A use table at basic prices

~~15.128~~15.143 So far in this chapter, it has been assumed that both the supply and use tables have been expressed in purchasers' prices and this is done by adding to supply valuation terms that explain the differences between basic prices and purchasers' prices. It is also possible to bring the two tables to a common valuation basis by reducing the use table to basic prices, which is the subject of this section. One reason to undertake this more arduous task is to facilitate compiling a supply and use table in volume terms, as described below.

~~15.129~~15.144 In looking at any element of the use table at purchasers' prices it is clear that it may be made up of as many as six components:

- a. domestic production at basic prices;
- b. imports;
- c. ~~trade~~ distribution margins;
- d. transport margins;
- e. taxes on products; and
- f. subsidies on products.

~~15.130~~15.145 In order to reduce the use table ~~at purchasers' prices~~ to a domestic use table at basic prices, each element of the table must be decomposed into these six items. This can be seen as creating six similarly sized tables, each of which contains all the items for one of the components. This is much more resource intensive than bringing the supply table up to purchasers' prices where only six columns are needed, one for each of the six components.

~~Trade~~ Distribution margins

~~15.131~~15.146 Margin services are an important kind of activity in the SNA. Many goods pass from the producer

Commented [ED18]: WS.4 reference.

to the purchaser by means of a wholesaler or retailer. Indeed, some goods may pass through the hands of several wholesalers on the way to the retailer. Many services, on the other hand, are supplied directly by the producer to the purchaser. This is by no means universal, though. Travel agents and offices offering tickets for sports and entertainment events are examples of a kind of “retailing” for services. In addition, many financial instruments are offered for sale (and are repurchased) with a spread between the buying and selling price. The most obvious example is perhaps foreign exchange. These spreads also represent a margin service supplied to the customer. In the case of services, though, the margin is treated as one of the products of the relevant service industries. In the case of goods, a separate type of activity, wholesale and retail services, covers the margins on all goods. Many of these are the output of wholesaler and retail traders but some are provided as secondary activity.

~~15.132~~15.147 As long as the use table is shown at purchasers’ prices, there is no separate use of the [tradedistribution](#) margins provided by wholesalers and retailers. Table ~~14~~15.4 shows that the additions to the values of various goods are exactly offset by negative entries for the supply of [tradedistribution](#) margins so that in effect there is no remaining supply to be explained in the use table.

~~15.133~~15.148 As explained in chapters 34 and 67, the activity of wholesale and retail trade is one where the SNA imposes a partitioning of transactions. Considering the supply and use tables explains why this is desirable. Suppose all goods handled by wholesalers and retailers were shown as being delivered to the wholesaler or retailer and then supplied by them to the purchaser. The rows for goods in the supply and use tables would then be rather uninteresting. Virtually all goods would be used by wholesalers and retailers and almost none would be supplied to other producing units, households or government. The pattern of household consumption would show one large item for purchases from wholesalers and retailers and none from any manufacturing industry or agriculture. Even with grocers distinguished from furniture stores, it would no longer be possible to see exactly what types of food were being purchased and whether it was wooden or metal furniture being sold.

~~15.134~~15.149 The standard treatment in a supply and use table, therefore, follows the rules for partitioning transactions adopted for measuring the output of the wholesale and retail activity. Each acquisition of a product from a wholesaler or retailer is regarded as being the acquisition of two distinct products. One is the physical good, valued at [basicproducers’](#) prices, the other is the [tradedistribution](#) margin. The purchase of the good is shown as a use of that good; the margin is shown as a use of services provided by wholesalers and retailers. As noted, though, portraying the activity of wholesalers and retailers in this way in a supply and use table is resource intensive since it is often the case that different proportionate margins are charged to different types of purchasers, for example households paying higher margins than enterprises. Indeed, even within households the margin on the same good in the same outlet may differ with larger quantities having a smaller proportionate margin than smaller quantities. The compiler has thus to apply a considerable amount of specialized knowledge and judgement to make this partition and make it at the detailed product level.

Transport margins

~~15.135~~15.150 As explained in reviewing the difference between purchasers’, producers’ and basic prices, transport margins only occur when transport services are separately invoiced. If they are separately invoiced, then no partitioning is necessary because the transport service is already treated as a separate product. The compiler’s task is demanding because, for instance, suppliers may sometimes offer free transport for purchases over a certain value and charge for smaller deliveries.

Taxes on products

~~15.136~~15.151 The fact that VAT on the same product may be deductible for some users (typically producing units) and not deductible for others (households) is one reason why a supply and use table at purchasers’ prices may be difficult to interpret. The apparent share of total use by households will be inflated by the element of non-deductible tax as compared with the proportion of use by producing units. After removing [tradedistribution](#) and transport margins from purchasers’ prices estimates, the next step is therefore to remove non-deductible VAT. Removing non-deductible VAT is reasonably straightforward for final users but may be more complicated for intermediate consumption where most, but not all, VAT may be deductible. Once non-

deductible VAT is subtracted, the entries in the use table are valued at producers' prices.

~~15.137~~15.152 For some countries it may not be possible to go beyond this but if possible removing other taxes on products as well is desirable, leaving the entries in the use table at basic prices. When this is done, it is necessary to introduce a new row into the use table. This is a row that shows the taxes on products payable by the producing unit concerned. This row is part of the cost of intermediate consumption at purchaser's prices in the same way as the entries for ~~trade~~redistribution and transport margins are. It will include some taxes on imports when imports that are part of intermediate consumption are subject to taxes on entry to the economy. This row of taxes within the intermediate consumption part of the use table should not be confused with the row that may appear in the value added part of the use table when output is valued at producers' prices. That row shows the amount of taxes on products payable on the products supplied by the unit, not the taxes on products payable by the unit on products used by them.

Subsidies on products

~~15.138~~15.153 If it is possible to remove taxes on products from the entries in the use table, then subsidies on products must be added back also. There is no counterpart to VAT within subsidies so the elimination of subsidies matches the elimination of taxes on products other than VAT.

Separating imports from domestic production

~~15.139~~15.154 A further refinement of the use table in basic prices is to separate imports from domestic production. In some cases, if the only source of a product is from the rest of the world, or if none of the product is imported, there is no problem in making the separation. When products are available from both domestic and foreign sources, making the separation is difficult. One solution may be to work at a more disaggregated level if that helps identify products that are always or never imported, but in general making the separation is a process involving considerable expert knowledge and informed judgement.

~~15.140~~15.155 Table ~~14~~15.15 shows the import content of table ~~14~~15.12. Table ~~14~~15.10 shows columns 24, 29 and 35 indicating the amount of imports going to each of intermediate consumption, final consumption and capital formation.

Table ~~14~~15.10: The imports content of the use ~~matrix~~table

Commented [ED19]: In table 15.10 and table 15.12, the row "CIF/FOB adjustment" row should be called "Direct purchases abroad by residents".) Also, the fifth line reads: "transport services (6)", it should read: "Trade, accommodation, food & beverages; transport services (6)"

3. Expressing the use table in volume terms

~~15.141~~15.156 The supply and use framework not only constrains the current value estimates of supply and use to balance exactly, it also provides a way to ensure that the corresponding volume estimates, expressed in the prices of another year, are in balance and that the series of prices implied by the existence of one table in current prices and one in volume terms are strictly consistent. In general, the best way to ensure mutual consistency is to prepare the supply and use tables in current values and in volume terms at the same time.

~~15.142~~15.157 In most countries there are sets of price indices available for consumer prices, producer prices and import and export prices. Separate international manuals on the methodology and compilation of these exist. The general question of the development and use of appropriate prices to deflate national accounts is the subject of chapter ~~15~~18. What follows, therefore, anticipates that general discussion but is provided here to complete the discussion on supply and use tables. The section illustrates the problems that need to be addressed in expressing a supply and use table in volume terms rather than giving detailed compilation advice. For that, reference should be made to the price manuals and to documents dedicated to the compilation of supply and use tables and input-output tables such as the Eurostat Manual of Supply, Use and Input-Output Tables (Eurostat, 2008), both in current prices and in volume terms, such as the UN Handbook on Supply and Use Tables and Input-Output Tables with Extensions and Applications (2018). The preferred approach is to

[balance supply and use tables both in current prices and in volume terms, simultaneously at basic prices and at purchasers' prices. This may be resource and data intensive but provide various quality-related benefits improving consistency and coherency across the different domains.](#)

Commented [ED20]: Up to date practice and guidance in line with the UN Handbook on SUTs and IOT with Extensions and Applications.

Deflating which tables?

~~15.143~~15.158 The first decision to be made in compiling supply and use tables in volume terms is whether to work with tables in basic prices or in purchasers' prices. ~~There are arguments for and against each choice, or as preferred both simultaneously. There are arguments for and against each choice depending upon resources, time available, source data, systems, etc. These are covered in detail in the UN Handbook on Supply and Use Tables and Input-Output Tables with Extensions and Applications (2018) which brings all the various parts together into an integrated process.~~

Commented [ED21]: Up to date practice and guidance in line with the UN Handbook on SUTs and IOT with Extensions and Applications.

~~15.144~~15.159 When working with a basic price table, all the elements relating to ~~tradedistribution~~ and transport margins and to taxes less subsidies on products will have been separated from the value of goods and services at basic prices. Confusingly, the prices known as producer price indices (PPIs) correspond not to the concept of producer prices in the SNA but to basic prices. They exclude both ~~tradedistribution~~ and transport margins and the effect of taxes less subsidies on products. PPIs therefore seem well suited to deflating the rows of a basic price supply and use table on the grounds that the entries along a row of the use table are more homogeneous than in the case of a purchasers' price table. However, the claim that the resulting entries are sufficiently homogeneous to justify using a single price index for each of them must be qualified. In addition, the elements referring to margins and taxes must be deflated ~~separately~~ [\(using the volume change of the basic price and the rate of the margin or tax of the previous year applied to that volume change give the volume of the margin or tax\)](#) and this raises conceptual and practical issues also.

Commented [ED22]: Additional clarification.

~~15.145~~15.160 When working with purchasers' prices, greater use is made of CPIs and fewer problems arise about the treatment of margins and taxes. However, although CPIs are generally held to be robust, their underlying assumptions might not always be entirely compatible with those in the supply and use tables.

~~15.146~~15.161 Whether a purchasers' price table or a basic price table is being deflated, there are likely to be problems in deflating exports and imports.

Homogeneity

~~15.147~~15.162 The justification for using PPIs to deflate the rows of a supply and use table is that the elements of the rows are sufficiently homogeneous to use a single price throughout the row. There are two reasons why this may not be so.

~~15.148~~15.163 The elements of the rows at purchasers' prices are certainly not homogeneous as they include ~~tradedistribution~~ and transport margins on the one hand and taxes less subsidies on the other. As noted, these may not fall on the same product in the same proportion for different users. Eliminating these entries should reduce this cause of non-homogeneity but there will inevitably be a degree of approximation involved in the exercise so some residual non-homogeneity from this cause will persist.

~~15.149~~15.164 The other cause of non-homogeneity is due to aggregation. Even with a very large number of products distinguished in the supply and use tables, there is still a considerable degree of aggregation in each row. Even if screws were separated from other metal products, the price of screws varies according to the length, diameter, type of head and material they are intended to be used in. It is obviously impracticable to introduce a degree of disaggregation that would identify each of these types of screw separately and the thought of identifying screws separately from nails and other metal construction materials is already implausible. The problem of non-homogeneity is thus inevitable but may be reduced by considering the level of detail available in PPIs when determining the type of products to be identified in the supply and use tables.

The applicability of CPIs

~~15.150~~15.165 Consumer price indices (CPIs) are applicable for deflating household consumption at purchasers'

prices but at a disaggregated level. The weights used to compile CPIs are usually not entirely consistent with the weights implicit in the column of expenditures for household consumption. This is because the weights may relate to another year and may exclude some categories of expenditure. The CPIs are likely to have been derived from a household survey. Household surveys often exclude the richest and poorest households, so the coverage is less comprehensive than the household consumption figures in the supply and use tables. As explained above, the act of balancing the table may cause some elements from the household survey to be amended. In the case of tobacco products, for instance, in principle similar adjustments to the CPI weights should also have been made but in some other cases matching adjustments to the CPI weights may not have been made.

Imports and exports

~~15.151~~ 15.166 Import price indices can be problematical. Many countries rely on unit value indices that do not take quality change into account adequately. Even when true import price indices are available, there is the problem of matching the degree of detail in the price indices with that of the products in the supply and use tables. Further, as mentioned in describing the correct valuation of imports, import price indices inevitably make different assumptions about how [tradedistribution](#) and transport margins are paid for than may be the case for individual purchasers. This can be seen clearly in the case of export prices. The difference between export prices and PPIs for an identical product is due to the assumption that export prices are valued at the border of the economy whereas PPIs are valued as the goods leave the factory.

[TradeDistribution](#) and transport margins

~~15.152~~ 15.167 [TradeDistribution](#) and transport margins also need to be expressed in volume terms. If the margin is the same proportion of the purchaser's price in the current year as in the base year, then the volume measure of the margin is simply that proportion of the volume of the expenditure in question; volume measure and price move in line with the product to which the margin applies. Often the rate of the margin will change between the base year and the current period either because of a difference in the rates of margins charged or because of a change in the mix of products in a group. Further discussion of the way to derive estimates of margins in volume terms may be found in the manuals on CPIs and PPIs.

Taxes less subsidies on products

~~15.153~~ 15.168 Different approaches to expressing taxes less subsidies in volume terms are required depending on the way in which the tax is levied.

~~15.154~~ 15.169 If a tax is calculated as a percentage of the value of an item (an ad valorem tax) such as VAT, the volume measure is calculated in the same manner as that described for [tradedistribution](#) and transport margins.

~~15.155~~—

~~15.156~~—

~~15.157~~—

~~15.158~~ 15.170 Some taxes are levied according to the quantity of the item purchased. These are called specific taxes and excise duties typically are levied this way. For these taxes, the volume effect is strictly limited to changes in the quantity of the item purchased; any change in the rate of the specific tax is a price increase. The price increase of a specific tax may change in line with the general level of inflation but quite often it will move quite differently, for example if government wants to discourage spending on the item in question such as tobacco or alcohol.

~~15.159~~ 15.171 Changes in tax regimes mean that from one year to the next the range of taxes levied changes with one disappearing and another replacing it. Volume series imply using not just the prices of the base year but also the tax structure. Thus volume series for an item may include a tax element that does not exist in the

current values of the item and the tax element in the current value may not affect the volume series. In such a case a purchaser's price index is still valid but the concept of a "tax price index" is meaningless.

~~15.160~~15.172 Subsidies on products are less common than taxes but if they exist, volume measures should be calculated using the same principles.

Value added

~~15.161~~15.173 In the SNA, balancing items such as value added are regarded as not having price and volume dimensions. Nevertheless, it is possible to express them "in real terms" by using the balancing item approach to derive a figure from the volume estimates of the other items in the account.

~~15.162~~15.174 Given the existence of PPIs for the rows of the use table, these can be applied to the rows of the supply table also and the column sums then give a figure for output in volume terms. Deducting the figures for intermediate consumption in volume terms derived from the deflation exercise for the product rows in the use table permits the calculation of value added for each type of producing unit as a residual. It is this residual that is described as being "in real terms". It is also possible to derive an implied deflator for value added by dividing the current value by the value in real terms.

~~15.163~~15.175 Many analysts are interested in pursuing the question of deflating value added more explicitly. Calculating compensation of employees in volume terms is possible if enough information is available on wage rates and numbers employed by category of worker. Allowance must be made for changes in non-wage compensation and changes between full-time and part-time staff but there are few conceptual problems in deflating compensation.

~~15.164~~15.176 In order to deflate taxes less subsidies on production, it is necessary to consider the basis on which the tax is levied. In most cases, taxes on production relate to the numbers of some or all employees or the capital used in production. As with taxes on products, there may be both a price element and a quantity element involved in calculating changes in the volume measure.

~~15.165~~15.177 Deriving figures for operating surplus and mixed income in real terms is possible by subtracting compensation of employees and taxes less subsidies on production in volume terms from value added in real terms. However, the advocates of the capital services approach to measuring operating surplus suggest a more direct means of deriving operating surplus in real terms. This approach is not a standard part of the SNA but is described in chapter 2017.

E.F. Numerical example

1. The full supply and use table

~~15.166~~15.178 Table 4415.12 shows a full supply and use table. The topmost part consists of the supply table. The first column shows total supply at purchasers' prices. This is followed by information first on [trade distribution](#) and transport margins, as in table 4415.2, and then on taxes and subsidies on products, as in table 4415.5. Deducting the elements in all these columns from the corresponding elements in the column for total supply at purchasers' prices gives the next column, which is total supply at basic prices. This is followed by the largest part of the table, the supply of products by type of domestic producing units. This is an expanded form of table 4415.1. At the extreme right of the supply table is the information on imports, corresponding to table 4415.4.

15.179 The middle part of table 4415.12 is the product part of the use table. The first column is total supply at purchasers' prices and corresponds exactly to the column above in the supply table. The next three columns are blank in the use table. Then the detailed information on use of products by type of producing unit is shown. This is the expanded version of table 4415.6. The column for exports and columns for final consumption and capital formation follow. These correspond to tables 4415.7 and 4415.8.

~~15.167~~15.180 Below the product part of the use table is the value added part. In the columns for taxes and subsidies, information on taxes and subsidies on production is shown. Details of the generation of income account for each of the types of producing unit are shown under their use of products as intermediate

consumption. These entries correspond to the summary information in table 4415.9. Information on capital formation by type of producing unit and employment/labour input are also shown. There are no entries under the columns for exports, final consumption or capital formation.

2. Margins and taxes

15.168 15.181 Within table 4415.12, row 3 shows that the value of manufactured products at basic prices is 1,998. To this value, subsidies of 5 are deducted, taxes of 94 and [tradedistribution](#) and transport margins of 74 are added to give a value at purchasers' prices of 2,161. Within the use part of table 4415.12, the whole of the value of 2,161 is accounted for. This means that the margins of 74 are accounted for in this way and not as demand on the trade and transport industry directly. In row 5 of the supply part of the table, therefore, these margins are shown as offsetting supply of [tradedistribution](#) and transport services (along with margins of 2 apply to each of agricultural products and ores and minerals) so the total of [tradedistribution](#) and transport margins at purchasers' prices shown in column 1 is less than the total at basic prices shown in column 5.

15.169 15.182 The right-most part of the supply table shows the way the margins on imports are handled. It is assumed that imports of goods are only available on a CIF basis. Within the balance of payments figures for imports of services, however, the figures of 6 and 4 will be included in the imports of services of these products. Thus column 26 shows the necessary adjustments. The negative entries of 6 and 4 are offset within the column by an adjustment item of 10 in a special row for the CIF/FOB adjustment. This in turn is offset by a negative entry in the same row within the column for the import of goods (column 27).

15.170 15.183 Instead of handling margins in this way, it is possible to reduce a supply and use table at purchasers' prices to basic prices by removing the margins and taxes from the purchasers' price estimates of all use elements. As explained in the last part of section DE, this is often done as a basis for deflation of the table to volume terms. Table 4415.13 shows the elements of [tradedistribution](#) and transport margins, taxes on products and subsidies on products included in table 4415.12. This table does not distinguish all the columns for each type of production but for ease of reference the column numbers in table 4415.13 (and indeed for tables 4415.14 and 4415.15) correspond exactly to those used in table 4415.12.

3. A use table at basic prices

15.171 15.184 Table 4415.14 is the use table expressed in basic prices. It is derived by deducting all the relevant elements of table 4415.13 from the corresponding elements of table 4415.12. For reasons of compactness, it is presented in the abbreviated form with no distinction between market production, production for own final use and non-market production but the column numbering corresponds to the full version for ease of reference.

4. The imports [matrix](#) use table

15.172 15.185 As well as removing the margin and tax elements from table 4415.12, it is possible to also identify and remove that part of each element that represents supply from imports rather than from domestic production. In order to do this, a [matrix](#) table similar to tables 4415.1 and 4415.14 must be compiled including imports only. Table 4415.15 is such a table. This may then be deducted, element by element from table 4415.14 to deduce a [matrix](#) table showing the use of domestic production at basic prices only. (The imports [matrix](#) use table excludes margins and taxes applying to imports so must be deducted from the basic price table and not the purchasers' prices one.)

15.173 15.186 Although a complete table showing domestic use only is not presented, table 4415.11 shows in summary form how the total value of supply at purchasers' prices is built up from domestic supply, imports, [tradedistribution](#) and transport margins, subsidies on products and taxes on products.

Table 4415.11: Breakdown of use by producing units into the five elements making up purchasers' price valuation

Table 1415.12: Supply and use tables at purchasers' prices

Commented [ED23]: In table 14.10 and Table 14.12, the row "CIF/FOB adjustment" row should be called "Direct purchases abroad by residents".

Table 1415.12 (cont): Supply and use tables at purchasers' prices

Table 1415.14: Supply and use table: Final and intermediate uses at basic prices, ISIC breakdown

Table 1415.15: Imports used for intermediate consumption and final demanduses