16th Meeting of the Advisory Expert Group on National Accounts,
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Agenda item: 7.2

An Initial Proposal for Developing Further Guidance on SNA Valuation Principles

Problem statement

The 2008 SNA contains general principles for valuing transactions and positions in the system of national accounts. For transactions, para. 2.59 states clearly that the main principle for valuation is the actual price agreed upon by the transactors, i.e. the market price or the exchange value. In the absence of market transactions, two alternatives are provided: (i) cost-based method, either or not including a mark-up that reflects the net operating surplus or mixed income attributable to the producer; and (ii) using market prices for analogous goods or services.

In relation to the valuation of assets and liabilities, para. 2.60 states that these should be valued at current values at the time to which the balance sheet relates. The most appropriate valuation basis would be the value at which the relevant assets and liabilities might be bought in markets at the time of valuation. In cases where such information is not available, again two main alternatives are provided: (i) accumulating and revaluing transactions over time; and (ii) by estimating the discounted present value of future returns expected from a given asset. The Perpetual Inventory Method (PIM) is an example of the application of the first methodology for valuing non-financial assets.

The most relevant details on valuation, which can be derived from the 2008 SNA, are listed in the annex to this short note.

The above recommendations for valuation of transactions and positions look rather straightforward and unambiguous. However, in discussing the new international standards for ecosystem accounting, the System of Environmental-Economic Accounting: Ecosystem Accounting (SEEA EA), especially Chapters 8 – 11 on valuing (services from) ecosystem assets, it showed that there is quite some divergence about the interpretation of the 2008 SNA and the valuation methodologies that are considered acceptable in the case market prices are not (directly) available. General consensus exists about the main valuation principle, i.e. exchange values, that needs to be applied to arrive at a valuation of (services from) ecosystem assets which is consistent with the SNA. However, when it comes to the application of certain methodologies, one can observe a divergence between national accounts experts who favour a very strict application of exchange values, and therefore consider a limited number of methodologies consistent with the main valuation principle of the 2008 SNA, versus national accounts experts who consider a broader range of methodologies appropriate. More information on the various valuation methodologies of ecosystem services, and the valuation of the ecosystem assets which can be derived from the application of these methodologies, can be found in Section 9.3 of the final draft of the SEEA-EA, as adopted at the March 2021 meeting of the UN Statistics Commission; see BG-3f-SEEA-EA_Final_draft-E.pdf (un.org).

Because of the above divergence of opinions, it is considered highly relevant to provide more detailed guidance on valuation techniques in the absence of directly observable market prices. This issue has become even more topical, because of the need to broaden the framework of the traditional national accounts with extended accounts on aspects of wellbeing and sustainability, where many transactions and positions need to be estimated in the absence of market prices. Examples do not only concern (services from) ecosystem assets, but also unpaid household activities, human capital, etc.

Proposal for drafting a guidance note on valuation principles and methodologies

It is proposed to set up a small group of 5-10 national accounts experts. This group could be complemented with 1-2 experts on valuation techniques for ecosystems, and 1-2 experts from academia. The chair of this group would preferably be an experienced national accounts expert from the Advisory Expert Group (AEG) on National Accounts.

The main objective of this group is to draft a guidance note which provides (i) more detailed guidance on the main valuation principles for transactions and positions in the system of national accounts; and (ii) to assess the appropriateness, and the main pros and cons, of the various valuation techniques that are being considered and/or applied. For the latter, the methodologies discussed in the context of accounting for ecosystems could be used as a starting point.

The group would meet virtually, with written consultations in between. Considering the timing, it is proposed that the group prepares a first draft of the guidance note at the end of 2021. This draft could then be discussed at a meeting of the AEG, after which a final draft for global consultation could be prepared in the course of 2022 (exact timing dependent on the remaining issues that need to be addressed).

Annex: General principles for valuation according to the 2008 SNA

2.59 Transactions are valued at the actual price agreed upon by the transactors. Market prices are thus the basic reference for valuation in the SNA. In the absence of market transactions, valuation is made according to costs incurred (for example, non-market services produced by government) or by reference to market prices for analogous goods or services (for example, services of owner-occupied dwellings).

2.60 Assets and liabilities are recorded at current values at the time to which the balance sheet relates, not at their original valuation. Theoretically, national accounts are based on the assumption that the values of assets and liabilities are continuously up-rated to current values, even if in fact up-rating occurs only periodically. The appropriate valuation basis for assets and liabilities is the value at which they might be bought in markets at the time the valuation is required. Ideally, values observed in markets or estimated from observed market values should be used. When this is not possible, current values may be approximated for balance sheet valuation in two other ways, by accumulating and revaluing transactions over time or by estimating the discounted present value of future returns expected from a given asset (see also chapter 13).

2.61 Internal transactions are valued at current values at the time these transactions occur, not at the original valuation. These internal transactions include entries into inventories, withdrawals from inventories, intermediate consumption and consumption of fixed capital.

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3.118 The power of the SNA as an analytical tool stems largely from its ability to link numerous, very varied economic phenomena by expressing them in a single accounting unit. The SNA does not attempt to determine the utility of the flows and stocks that come within its scope. Rather, it measures the current exchange value of the entries in the accounts in money terms, that is, the values at which goods, services, labour or assets are in fact exchanged or else could be exchanged for cash (currency or transferable deposits).

3.119 Market prices for transactions are defined as amounts of money that willing buyers pay to acquire something from willing sellers; the exchanges are made between independent parties and on the basis of commercial considerations only, sometimes called “at arm’s length”. Thus, according to this strict definition, a market price refers only to the price for one specific exchange under the stated conditions. A second exchange of an identical unit, even under circumstances that are almost exactly the same, could result in a different market price. A market price defined in this way is to be clearly distinguished from a price quoted in the market, a world market price, a going price, a fair market price, or any price that is intended to express the generality of prices for a class of supposedly identical exchanges rather than a price actually applying to a specific exchange. Furthermore, a market price should not necessarily be construed as equivalent to a free market price; that is, a market transaction should not be interpreted as occurring exclusively in a purely competitive market situation. In fact, a market transaction could take place in a monopolistic, monopsonistic, or any other market structure. Indeed, the market may be so narrow that it consists of the sole transaction of its kind between independent parties.

3.120 When a price is agreed by both parties in advance of a transaction taking place, this agreed, or contractual, price is the market price for that transaction regardless of the prices that prevail when the transaction takes place.

3.121 Actual exchange values in most cases will represent market prices as described in the preceding paragraph. Paragraphs 3.131 to 3.134 describe cases where actual exchange values do not represent market prices. Transactions that involve dumping and discounting represent market prices. Transaction prices for goods and services are inclusive of appropriate taxes and subsidies. A market price is the price payable by the buyer after taking into account any rebates, refunds, adjustments, etc. from the seller.

3.122 Transactions in financial assets and liabilities are recorded at the prices at which they are acquired or disposed of. Transactions in financial assets and liabilities should be recorded exclusive of any commissions, fees, and taxes whether charged explicitly, included in the purchaser's price, or deducted from the seller's proceeds. This is because both debtors and creditors should record the same amount for the same financial instrument. The commissions, fees, and taxes should be recorded separately from the transaction in the financial asset and liability, under appropriate categories. The valuation of financial instruments, which excludes commission charges, differs from the valuation of non-financial assets, which includes any costs of ownership transfer.

3.123 When market prices for transactions are not observable, valuation according to market-price-equivalents provides an approximation to market prices. In such cases, market prices of the same or similar items when such prices exist will provide a good basis for applying the principle of market prices. Generally, market prices should be taken from the markets where the same or similar items are traded currently in sufficient numbers and in similar circumstances. If there is no appropriate market in which a particular good or service is currently traded, the valuation of a transaction involving that good or service may be derived from the market prices of similar goods and services by making adjustments for quality and other differences.

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Transfer prices

3.131 In some cases actual exchange values may not represent market prices. Examples are transactions involving transfer prices between affiliated enterprises, manipulative agreements with third parties, and certain non-commercial transactions, including concessional interest (that is, interest payable at a reduced rate as a matter of policy). Prices may be under- or over-invoiced, in which case an assessment of a market-equivalent price needs to be made. Although adjustment should be made when actual exchange values do not represent market prices, this may not be practical in many cases. Adjusting the actual exchange values to reflect market prices will have consequences in other accounts. Therefore, when such adjustments are made, corresponding adjustments in other accounts should also be made, for example, if prices of goods are adjusted, associated income account or financial account transactions or both should also be adjusted.

3.132 Values put on an invoice may deviate systematically or to such a large extent from the prices paid in the market for similar items that it must be presumed that the sums paid cover more than the specified transactions. An example is so-called transfer pricing: affiliated enterprises may set the prices of the transactions among themselves artificially high or low in order to effect an unspecified income payment or capital transfer. Such transactions should be made explicit if their value is considerable and would hinder a proper interpretation of the accounts. In some cases, transfer pricing may be motivated by income distribution or equity build-ups or withdrawals. Replacing book values (transfer prices) with market-value equivalents is desirable in principle, when the distortions are large and when availability of data (such as adjustments by customs or tax officials or from partner economies) makes it feasible to do so. Selection of the best market-value equivalents to replace book values is an exercise calling for cautious and informed judgment.

3.133 The exchange of goods between affiliated enterprises may often be one that does not occur between independent parties (for example, specialized components that are usable only when incorporated in a finished product). Similarly, the exchange of services, such as management services and technical know-how, may have no near equivalents in the types of transactions in services that usually take place between independent parties. Thus, for transactions between affiliated parties, the determination of values comparable to market values may be difficult, and compilers may have no choice other than to accept valuations based on explicit costs incurred in production or any other values assigned by the enterprise.

Concessional pricing

3.134 While some non-commercial transactions, such as a grant in kind, have no market price, other non-commercial transactions may take place at implied prices that include some element of grant or concession so that those prices also are not market prices. Examples of such transactions could include negotiated exchanges of goods between governments and government loans bearing lower interest rates than those with similar grace and repayment periods or other terms for purely commercial loans. Concessional lending is described in chapter 24. Transactions by general government bodies and private non-profit entities not engaged in purely commercial undertakings are often subject to non-commercial considerations. However transfers involving provision of goods and services may also be provided or received by other sectors of the economy.

Valuation at cost

3.135 If there is no appropriate market from which the value of a particular non-monetary flow or stock item can be taken by analogy, its valuation may be derived from prices that are established in less closely related markets. Ultimately, some goods and services can only be valued by the amount that it would cost to produce them currently. Market and own-account goods and services valued in this way should include a mark-up that reflects the net operating surplus or mixed income attributable to the producer. For non-market goods and services produced by government units or NPISHs, however, no allowance should be made for any net operating surplus.

Valuation of assets

3.136 Sometimes it is necessary to value stocks at their estimated written down current acquisition values or production costs. The write-down should then include all changes that have occurred to the item since it was purchased or produced (such as consumption of fixed capital, partial depletion, exhaustion, degradation, unforeseen obsolescence, exceptional losses and other unanticipated events). The same method could be applied to non-monetary flows of existing assets.

3.137 If none of the methods mentioned above can be applied, stocks, or flows arising from the use of assets, may be recorded at the discounted present value of expected future returns. For some financial assets, particularly those with a face value applicable at some point in the future, the present market value is established as the face value discounted to the present by the market interest rate. In principle, therefore, if a reasonably robust estimate of the stream of future earnings to come from an asset can be made, along with a suitable discount rate, this allows an estimate of the present value to be established. However, because it may be difficult to determine the future earnings with the appropriate degree of certainty, and given that assumptions are also needed about the asset's life length and the discount factor to be applied, the other possible sources of valuation described in the preceding paragraphs should be exhausted before resorting to this method. Further, if this method is used, some sensitivity testing of the assumptions made may be appropriate. In fact, the method most commonly used to derive estimates of consumption of fixed capital and the capital stock of fixed assets associates a stream of future earnings with the decline in value of a fixed asset in use in production. (This method, the perpetual inventory method, is described further in chapters 13 and 20.)

3.138 Although the net present value method depends on making projections of future earnings and discount rates, it is theoretically sound as can often be verified for a number of financial assets. If it is used for non-financial assets, some sensitivity testing of the assumptions made may be appropriate.

3.139 In conformity with the general rule, provision of assets, services, labour or capital in exchange for foreign cash is recorded at the actual exchange value agreed upon by the two parties to the transaction. Flows and stocks concerning foreign currency are converted to their value in national currency at the rate prevailing at the moment they are entered in the accounts, that is, the moment the transaction or other flow takes place or the moment to which the balance sheet applies. The midpoint between the buying and selling rate should be used so that any service charge is excluded.

Business accounting valuation

3.140 Business accounts, tax returns and other administrative records are main sources of data for drawing up the national accounts. One should be aware, however, that none of these necessarily satisfies the valuation requirements of the SNA and that accordingly adjustments may have to be made. In particular, in the interest of prudence, business accounting often adopts valuations that are not appropriate for the national accounts. Similarly, valuations for tax purposes often serve objectives that differ from those of macroeconomic analysis. For example, the depreciation methods favoured in business accounting and those prescribed by tax authorities almost invariably deviate from the concept of consumption of fixed capital employed in the SNA. Valuation of partitioned flows

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Services of owner-occupied dwellings

6.117 Households that own the dwellings they occupy are formally treated as owners of unincorporated enterprises that produce housing services consumed by those same households. When well-organized markets for rented housing exist, the output of own-account housing services can be valued using the prices of the same kinds of services sold on the market in line with the general valuation rules adopted for goods or services produced on own account. In other words, the output of the housing services produced by owner occupiers is valued at the estimated rental that a tenant would pay for the same accommodation, taking into account factors such as location, neighbourhood amenities, etc. as well as the size and quality of the dwelling itself. The same figure is recorded under household final consumption expenditures. In many instances, no well-organized markets exist and other means of estimating the value of housing services must be developed.

Valuation of output for own final use

6.124 Output for own final use should be valued at the basic prices at which the goods and services could be sold if offered for sale on the market. In order to value them in this way, goods or services of the same kind must actually be bought and sold in sufficient quantities on the market to enable reliable market prices to be calculated for use for valuation purposes. The expression “on the market” means the price that would prevail between a willing buyer and willing seller at the time and place that the goods and services are produced. In the case of agricultural produce, for example, this does not necessarily equate to the prices in the local market where transportation costs and possibly wholesale margins may be included. The nearest equivalent price is likely to be the so-called “farm-gate” price; that is, the price that the grower could receive by selling the produce to a purchaser who comes to the farm to collect the produce.

6.125 When reliable market prices cannot be obtained, a second best procedure must be used in which the value of the output of the goods or services produced for own final use is deemed to be equal to the sum of their costs of production: that is, as the sum of:
a. Intermediate consumption;
b. Compensation of employees;
c. Consumption of fixed capital;
d. A net return to fixed capital;
e. Other taxes (less subsidies) on production.
By convention, no net return to capital is included when own-account production is undertaken by non-market producers.

6.126 For unincorporated enterprises, it may not be possible to estimate compensation of employees, consumption of fixed capital and a return to capital separately in which case an estimate of mixed income, covering all these items, should be made.

6.127 It will usually be necessary to value the output of own-account construction on the basis of costs as it is likely to be difficult to make a direct valuation of an individual and specific construction project that is not offered for sale. When the construction is undertaken for itself by an enterprise, the requisite information on costs may be easily ascertained, but not in the case of the construction of dwellings by households or communal construction for the benefit of the community undertaken by informal associations or groups of households. Most of the inputs into communal construction projects, including labour inputs, are likely to be provided free so that even the valuation of the inputs may pose problems. As unpaid labour may account for a large part of the inputs, it is important to make some estimate of its value using wage rates paid for similar kinds of work on local labour markets. While it may be difficult to find an appropriate rate, it is likely to be less difficult than trying to make a direct valuation of a specific construction project itself. The fact that an imputation is made for the value of labour input is a means to approximate the market price for the construction. It does not imply that these labour costs should also be treated as compensation of employees. As explained in chapter 7, when labour is provided on a voluntary basis to a producer unit other than the labourer's own household, no imputation for compensation of employees is made. If labour is provided for a nominal payment, only the nominal payment is recorded as compensation of employees. The other labour costs are treated as mixed income.

Non-market output

6.128 Non-market output consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole. Although this output is shown as being acquired by government and NPISHs in the use of income account, it should not be confused with production for own use. The expenditure is made by government and by NPISHs but the use of individual goods and services is by households, and the use of collective services by households or other resident institutional units. Thus non-market output should never be confused with output for own use where the producer unit not only has imputed expenditure on the output but also actually uses the output. Chapter 9 discusses the difference between expenditure and use in more detail.

6.129 As explained above, government units or NPISHs may engage in non-market production because of market failure or as a matter of deliberate economic or social policy. Such output is recorded at the time it is produced, which is also the time of delivery in the case of non-market services. In general, however, it cannot be valued in the same way as goods or services produced for own final consumption or own capital formation that are also produced in large quantities for sale on the market. There are no markets for collective services such as public administration and defence, but even in the case of non-market education, health or other services provided to individual households, suitable prices may not be available. It is not uncommon for similar kinds of services to be produced on a market basis and sold alongside the non-market services but there are usually important differences between the types and quality of services provided. In most cases it is not possible to find enough market services that are sufficiently similar to the corresponding non-market services to enable their prices to be used to value the latter, especially when the non-market services are produced in very large quantities.

6.130 The value of the non-market output provided without charge to households is estimated as the sum of costs of production, as follows:
a. Intermediate consumption;
b. Compensation of employees;
c. Consumption of fixed capital;
d. Other taxes (less subsidies) on production.

6.131 If the output is made available at nominal cost, the prices are not economically significant prices and may reflect neither relative production costs nor relative consumer preferences. They therefore do not provide a suitable basis for valuing the outputs of the goods or services concerned. The non-market output of goods or services sold at these prices is valued in the same way as goods or services provided free, that is, by their costs of production. Part of this output is purchased by households, the remainder constituting final consumption expenditures by government units or NPISHs.

6.132 Government units and NPISHs may be engaged in both market and non-market production. Whenever possible, separate establishments should be distinguished for these two types of activities, but this may not always be feasible. Thus, a non-market establishment may have some receipts from sales of market output produced by a secondary activity: for example, sales of reproductions by a non-market museum. However, even though a non-market establishment may have sales receipts, its total output covering both its market and its non-market output is still valued by the production costs. The value of its market output is given by its receipts from sales of market products, the value of its non-market output being obtained residually as the difference between the values of its total output and its market output. The value of receipts from the sale of non-market goods or services at prices that are not economically significant remains as part of the value of its non-market output.