

Chapter 34: Measuring well-being

(new chapter)

A. Introduction

34.1 Improving and sustaining the well-being of people and communities is the key focus across the majority of policy areas of government. As introduced in Chapter 2, in terms of the role of the SNA in assessing well-being, 'well-being' refers to the current material well-being of households. Within the scope of material well-being are measures of household income, consumption and wealth, labour and work (including unpaid household service work), education, health care and housing. The measurement of the sustainability of material well-being, including the extent to which the needs of current and future generations are satisfied is discussed in Chapter 35.

~~34.1~~34.2 As introduced in Chapter 2, there are four aspects of most relevance in framing the measurement of the well-being of present and future generations may be considered in a number of ways. Three aspects are of most relevance. First, the goods and services consumed by people as recorded in measures of household actual final consumption¹, including the consumption of goods produced for own-use and from the informal economy. Second, the goods and services consumed by people that are outside the scope of the SNA production boundary. These will include unpaid household service work, ~~and non-market goods and ecosystem~~ services sourced from the environment, ~~and as well as~~ the connections and relationships people hold with each other ~~and with the environment~~. Third, people's functioning and capabilities – i.e., the freedom and possibilities they have to satisfy their needs. Fourth, the distribution of well-being across different groups within the population.

34.3 The links between these aspects of well-being are depicted in Figure 34.1. The ~~inner circle~~first column concerns measures related to material well-being that are fully within scope of the SNA sequence of economic accounts, including its production and asset boundary, in particular net national income (NNI), household disposable income (HDI), and household actual final consumption, and including also data on the distribution of household income, consumption and wealth.

34.4 The ~~middle circle~~second column focuses on those ~~measures aspects of material well-being whose measurement that are incorporates extended accounting treatments using data from~~ outside the scope of the SNA sequence of economic accounts, but ~~which often have direct for which extended accounting treatments have been developed such that connections to data within the the~~ sequence of economic accounts ~~can be made. These aspects is set of measures includes~~ unpaid household service work and ecosystem services. ~~Collectively these two circles are described in the SNA as reflecting economic well-being.~~

~~34.2~~34.5 The ~~outer circle~~third column lists ~~includes~~ a range of other ~~measures aspects~~ which are commonly considered in the assessment of well-being, but which are out of scope of the discussion of material well-being within the context of national accounts. This includes measures of health outcomes such as life-expectancy and quality adjusted life years, measures of social cohesion, crime and justice, and measures of subjective well-being.

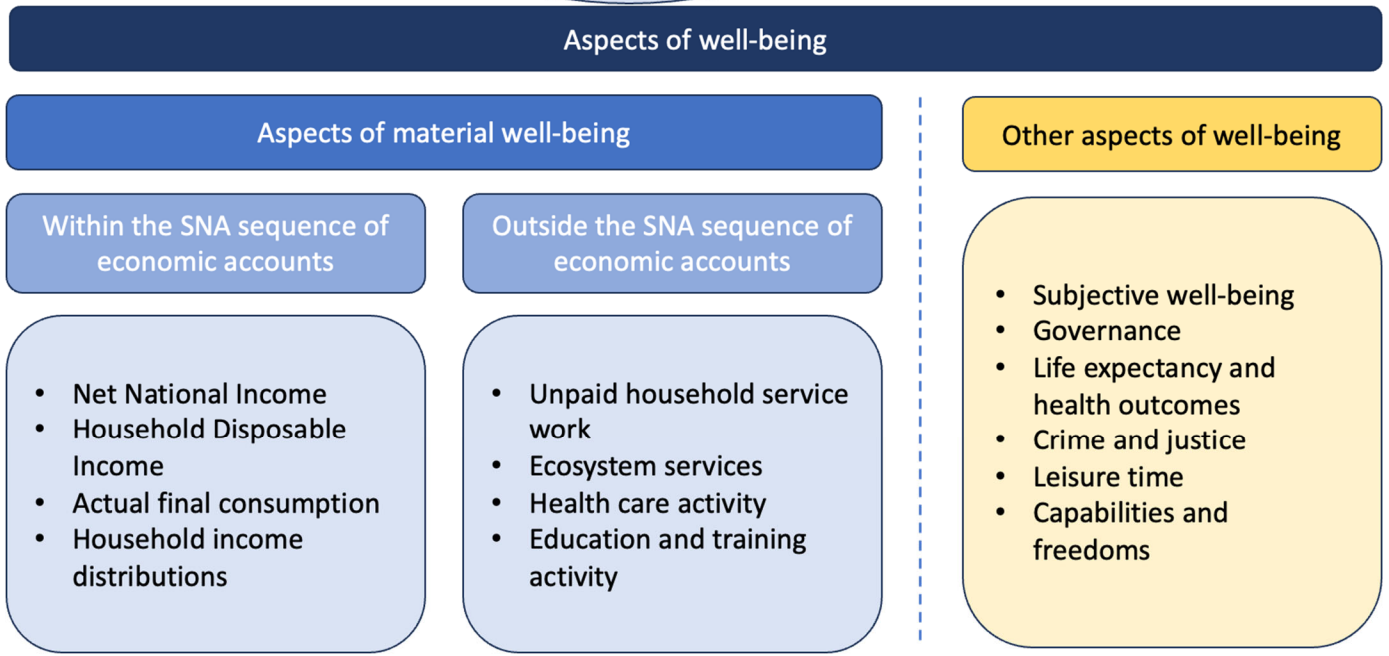
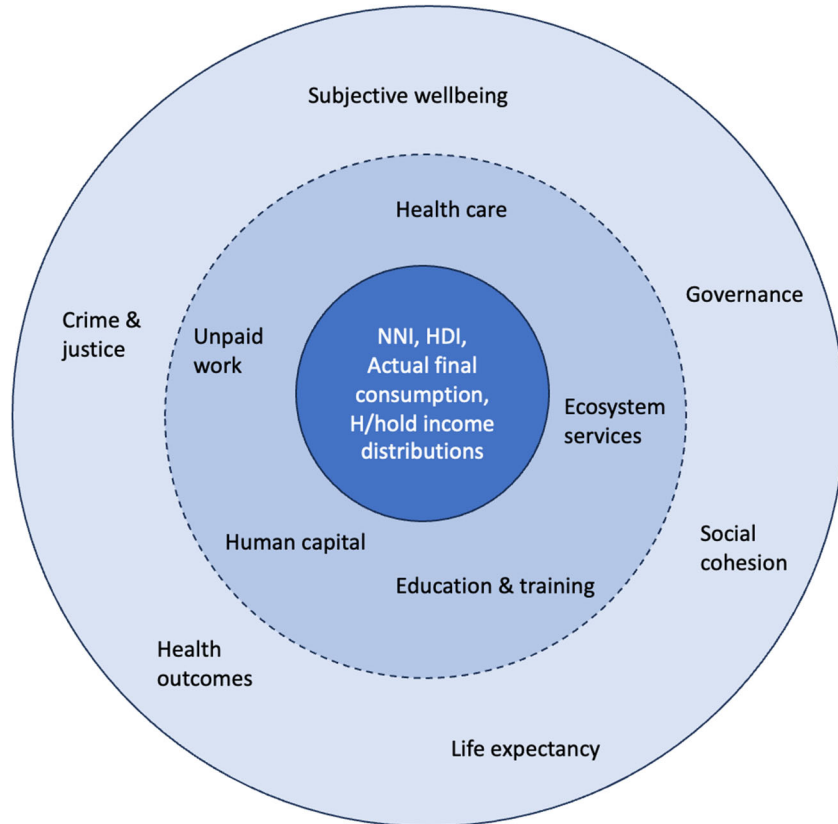
34.6 The boundary between the ~~second and third middle and outer~~ columns ~~is a circle portrayed shown~~ as a dashed line ~~s~~ to indicate that ~~t(a)~~ a definitive measurement boundary on economic-material well-being has not been established. At the same time, it is recalled that the SNA has a focus on the measurement of outputs from economic activity rather than outcomes. As a result, the SNA does not organize data that supports direct measurement of, for example, the quality of life of households.

~~34.3~~34.7 The depiction in Figure 34.1 reflects that the measurement of well-being described in this chapter does not provide a single overarching framework. Further, ~~In effect, the aspects measures included in the first and second columns middle circle and described in this chapter~~ are those that have been most developed in ~~statistical and~~ accounting terms. ~~It is acknowledged that there are examples of statistical development for~~

¹ Household actual final consumption comprises household final consumption expenditure and social transfers in kind received by households (para ref)

aspects of well-being included in the third column -and the SNA framework remains open to the possibility of further extension and application of accounting approaches concerning other aspects of well-being in the future.

Figure 34.1: Aspects of well-being



~~34.4 For the measurement of material well-being, From a measurement perspective, well-being encompasses data about a number of elements, including health, education, income, employment, care, consumption and leisure, that collectively support assessment of the progress of people and communities and the extent to which the needs of current generations are satisfied.~~

~~34.5 The SNA sequence of economic accounts provides a range of relevant data to support reporting on well-being, particularly at the economy wide and institutional sector level. However, there are many aspects of well-being that are not quantified within the sequence of economic accounts. As introduced in Chapter 2, the 2025 SNA provides a broadened and enhanced framing for the measurement of well-being in which macro-economic measures, such as GDP, are complemented by other measures, while recognizing the relevance of accounting approaches in providing robust and comparable data to support policy development and assessment.~~

~~34.634.8 The broader and enhanced framing in Chapter 2 describes two primary avenues through which the SNA can contribute to the discussion of well-being. The first avenue recognizes that in addition to, other than GDP, there is a very wide range of data and aggregate measures contained within the SNA's sequence of economic accounts that can be used as inputs to the analysis of well-being. These include measures of household disposable income, consumption, saving and net worth. The Further, it is possible to supplement the national level information presented in the sequence of economic accounts can also be supplemented with data on the distribution of these economic measures across groups of economic units. For example, measures of household income and wealth may be disaggregated by standard of living, type of household and other characteristics. This additional detail provides a richer body of data to support discussion of well-being.~~

~~34.9 The second avenue recognizes that a significant part of the development of frameworks and approaches to the measurement of material well-being has involved taking a more detailed focus on specific topics and, in a number of cases, extending and adapting the accounting rules and structures presented in the SNA to organize data on the various dimensions aspects of well-being. Examples of these accounting based approaches cover topics including unpaid household service work, health care expenditure, education and training, and environmental flows, including ecosystem services. These developments of these frameworks recognize the potential of accounting-based approaches and the advantages of ensuring that data about the environmental and social dimensions can be readily connected to data from the SNA's sequence of economic accounts.~~

~~34.734.10 Chapter 2, Section B.4, provides a description of the links between accounting-based measures of well-being and measures of economic welfare. It explains that the position of the SNA is that while the change in GDP in volume (or real) terms is often taken as a measure of changes in material well-being or economic welfare, the SNA makes no claim that this is a preferred or appropriate measure. There are a number of conceptual matters and accounting conventions that are adopted in the SNA that are detailed in that section that are relevant to understanding the role of the SNA and extended accounts in supporting the analysis of economic welfare. These issues are not discussed further in this chapter.~~

~~Further, As introduced in Chapter 2 and noted elsewhere, the SNA has a focus on the measurement of outputs from economic activity rather than outcomes. As a result, the SNA does not organize data within the sequence of economic accounts that supports measurement of, for example, the quality of life of households. Further, as noted in Chapter 2, the measurement of well-being discussed here concerns objective rather than subjective measures.~~

~~34.11 In measuring these aspects of material well-being, the distinction between objective and subjective measurement is relevant. Objective measures of material well-being concern measures of various elements of people's lives such as income and consumption, health, knowledge and skills, use of time, and social connections. Subjective measures of well-being concern self-reported well-being, i.e., evaluations, both positive and negative, that people make about their lives and people's affective reactions to and reflections on their own experiences. This chapter focuses on the organization of data using accounting approaches to support objective measures of material well-being. The development of subjective measures of well-being is certainly relevant more broadly but is outside the scope of the SNA this chapter.~~

~~34.834.12 It is common for the measurement of well-being to focus on the development of a set of indicators~~

and sometimes the indicators are aggregated to derive composite indicators. Where indicator-based approaches to measuring well-being are applied, the data organized using accounting-based approaches can readily support the organization of data for the derivation of indicators. This chapter does not discuss the content or derivation of composite indicators.

34.934.13 The discussion of objective measures of material well-being is presented across five-four sections. In Section B, the measurement of material well-being in terms of income, consumption and wealth is considered commencing with an overview of the range of macro-aggregate economic measures of income, consumption and wealth available in the SNA sequence of economic accounts and introducing alternative measures of income and wealth that apply different concepts to those applied in the SNA.

34.1034.14 Section C discusses the distribution of income, consumption and wealth across households. To support this discussion, an overview of the scope and definition of households and household groups is provided. Detail on these and other aspects of measuring the household sector are elaborated in Chapter 32 on Households.

34.1134.15 In Section D, the measurement of well-being from the perspective of households as consumers and producers is considered, including the potential to extend the production boundary to incorporate flows that are not recorded in the sequence of accounts. From a consumption perspective, the discussion highlights the range of goods and services consumed by households that contribute to material well-being both within and beyond the SNA production boundary. From a production perspective, the discussion is framed in relation to the different forms of work that people undertake, including paid employment and unpaid household service work. By placing these various forms of work in a common context, a significant range of information can be organized including both labour input within the SNA production boundary and contributions of households beyond the production boundary.

34.16 In Sections E-and-F, the discussion focuses on two specific aspects of well-being, namely health and education. The discussion of these aspects can be significantly supported by rich, accounting-based data sets. Measuring well-being associated with education is considered through both accounting for human capital and accounting for expenditures on education and training activity. Measuring well-being associated with health focuses on accounting for health care systems. Accounting for both of these areas can be directly linked to accounting for human capital which is discussed in Chapter 35.

34.1234.17 The discussion of accounting for health and education in Section E here does not cover the measurement of the outcomes arising from consumption, for example, the measurement of health outcomes using measures of the quality of life (see also Chapter 2, para xx). Further discussion on the measurement of the quality, and the impact on outcomes, of outputs supplied in activities such as health and education is included in Chapter 18 on the measurement of prices and volumes.

34.1334.18 The cChapter demonstrates the potential of accounting-based approaches to support the organization of relevant data, to build linkages between macro and micro perspectives on economic-material well-being (e.g., through the measures of household distributions of income and wealth and the measures of unpaid household service work) and to identify stronger connections between measurement in the economic and social dimensions of overall well-being. Nonetheless, as highlighted in Figure 34.1, the topics-aspects of material well-being discussed in this Chapter cover many, but by no means all, aspects relevant in the discussion of well-being. For example, there is no discussion of the measurement of health outcomes, trust and governance, civic engagement, crime, safety or accessibility, all of which will be relevant considerations.

34.1434.19 The descriptions of measurement and accounting in this chapter generally represent extensions beyond the SNA sequence of economic accounts. These extensions have been developed such that they can be implemented as individual accounts or used in a more-combination with other accounts and data, ed fashion. The SNA provides conceptual guidance to facilitate international comparability and with the ambition aim that the SNA and its extensions # will be implemented followed by as many countries as possible. H, to facilitate international comparability; however, the SNA does not set expectations or provide direct recommendations on the accounts that should be compiled and it is recognized that it is not possible identify some extensions as "mandatory" in contrast to others that are "optional". Not all countries will be able to provide the suggested degree of detail, but those countries that can implement the various accounts should follow these recommendations-descriptions provided in this chapter to support ensure comparability of data and methods. The choice of what to implement should take into consideration a country's economic,

social and environmental context, the current and future priority policy issues, and resources available for data collection and account compilation.

B. Economy-wide Aggregate economic measures of well-being

34.1534.20 This section considers the measurement of well-being in terms of income, consumption and wealth in line with the SNA definitions of these concepts. There is a focus on economy-wide aggregate measures of income, consumption and wealth that can be derived from the sequence of economic accounts, and the discussion identifies a wide range of indicators other than the most common GDP per capita. The section also summarizes a number of alternative measures of income and wealth that apply different conceptual scopes.

1. Economy-wide Aggregate and institutional sector measures of income, consumption and wealth

34.1634.21 As ~~recognized in the introduction to this chapter, while not designed for this purpose,~~ the headline economic growth measure that is produced from the national accounts, GDP, is often used to represent societal progress or the economic-material well-being of the population. However, GDP is one of a number of economy-wide aggregate and institutional sector measures of economic performance that are contained in the sequence of economic accounts. This section describes a range of relevant measures and related issues.

34.1734.22 GDP is a measure of the value added through production by resident economic units. While this focus encompasses a number of elements of income, in particular the returns to capital and labour used in the production process, it does not incorporate reflect a other range of items commonly considered in the discussion of income such as interest, dividends, taxes, ~~and~~ social insurance contributions and benefits, and social transfers in kind. The sequence of economic accounts has a place entries for all of these items and hence, depending on the income concept that is preferred, different measures of income can be derived.

34.23 The sequence of economic accounts is described fully in Chapter 3. In summary, the sequence represents a series of accounts each concerned with recording different parts of the economic activity involving all economic units. Each account is structured such that a balancing item is derived. By way of example, the first account in the sequence, the production account, records entries for output and intermediate consumption and the balancing item or position derived from this account is value added (i.e. output less intermediate consumption). The balancing item from one account serves as a starting point for the next account in the sequence. Table 34.1 provides a selection of stylized summary of economy-wide aggregate and institutional sector measures entries and balancing items from the sequence of economic accounts with balancing items highlighted in bold italics. Connected using balancing items that “carry over” from one account to the next in the sequence. Balancing items are derived from aggregates within each account. For example, GDP is a balancing item from the production account derived by subtracting intermediate consumption from output. The sequence is described fully in Chapter 3.

34.24 For the purposes of assessing material well-being a number of different entries and balancing items are relevant. In relation to measuring measuring income, the recommended balancing items and associated aggregates entries are primary-earned income and adjusted disposable income adjusted for social transfers in kind. ~~For the measurement of~~ In relation to consumption, the recommended entries aggregates are final consumption expenditure and and actual final consumption. ~~In relation to~~ For the measurement of wealth, and changes in wealth, the relevant balancing items are net lending, net worth and net financial worth. The connection between income and wealth is reflected in measures of net saving.

34.1834.25 Definitions of these variables entries and balancing items are provided in Chapter 3 and discussed in detail in chapters 7 – 14 on the sequence of economic accounts. Importantly, all of these measures are also established for individual institutional sectors, including corporations, general government and households. The range of different measures points to the relevance of compiling a full sequence of economic accounts and hence support a wide range of analysis across income, consumption and wealth, including the derivation

of multivariate indicators. Table 34.1 provides a stylized summary of economy-wide and institutional sector measures from the sequence of economic accounts.

Table 34.1 ~~Selected aggregate Economy-wide~~ and institutional sector measures from the sequence of economic accounts

| | Institutional sectors | | | | | |
|--|----------------------------|------------------------|--------------------|------------|-------|---------------|
| | Non-financial corporations | Financial corporations | General government | Households | NPISH | Total economy |
| Production account | | | | | | |
| Output | | | | | | |
| Intermediate consumption | | | | | | |
| Value added / GDP | | | | | | |
| Distribution of income accounts | | | | | | |
| Remuneration of employees | | | | | | |
| Operating surplus / Mixed income | | | | | | |
| Property income | | | | | | |
| Earned income | | | | | | |
| Social transfers in Kind (STIK) | | | | | | |
| Current transfers other than STIK | | | | | | |
| Disposable income | | | | | | |
| Disposable income adjusted for STIK | | | | | | |
| Final consumption expenditure | | | | | | |
| Actual final consumption | | | | | | |
| Saving | | | | | | |
| Capital account | | | | | | |
| Gross capital formation | | | | | | |
| Depreciation | | | | | | |
| Depletion | | | | | | |
| Net lending | | | | | | |
| Financial account | | | | | | |
| Net acquisition of financial assets | | | | | | |
| Net acquisition of liabilities | | | | | | |
| Net lending | | | | | | |
| Balance sheet | | | | | | |
| Produced assets (excl. biological resources) | | | | | | |
| Natural resources | | | | | | |
| Non-produced assets (excl natural resources) | | | | | | |
| Financial assets | | | | | | |
| Liabilities | | | | | | |
| Net financial worth | | | | | | |
| Net worth | | | | | | |

34.1934.26 For many balancing items the preferred measurement is in net terms, i.e. after deducting the depreciation of fixed assets and the depletion of natural resources. Measurement in net terms provides the most appropriate measures of income and wealth for the purposes of assessing well-being since they take into consideration the decline in the value of capital over an accounting period that will influence the capacity of an economy to generate income and sustain well-being into the future. A longer discussion on the use of gross and net measures is presented in [Chapter 19].

34.2034.27 At a ~~national~~~~n-economy-wide~~ level, it is particularly evident that flows to and from the rest of the world need to be considered when measuring income and wealth. In measuring GDP, the connection to the rest of the world is reflected in the inclusion of exports and the deduction of imports. However, there are other flows that should be adjusted for to find an appropriate measure of national disposable income. This will include flows of property income (interest, dividends and other property income), flows of remittances and other transfers vis-à-vis the rest of the world.

34.2134.28 For the measurement of trends in material well-being over time and for comparisons across countries a number of adjustments to aggregate economic measures are appropriate. First, the effects of price changes must be removed. Thus, the focus is on volume measures of GDP and real measures of national income (elaborated in Chapter 18). Second, In addition, it is usual to express these measures in terms of the size of the population to which they relate, i.e. per capita. This can be particularly relevant in making comparisons across countries. International cSuch comparisons of material well-being will also be aided by making adjustments for (i) differences in purchasing power through the calculation and application of purchasing

power parities (PPPs) (elaborated in Chapter 18); (ii) differences in hours worked (elaborated in Chapter 16); and (iii) ~~It will also be relevant to address~~ the impact of changes in the terms of trade (i.e. the difference between changes in export and import prices) ~~on well-being~~ (elaborated in Chapter 18). ~~In summary, when a country's export prices rise more quickly than the prices of its imports (an improvement of the country's terms of trade), the country's citizens are better off and vice versa. The measurement of the terms of trade, including the measurement of trading gains and losses from changes in the terms of trade, is explained in chapter 18 on price and volume measures.~~

~~34.29~~ Bringing all of these considerations together enables a number of different ~~yet SNA consistent~~ measures to be derived reflecting ~~the various different~~ adjustments ~~described in the previous paragraph. for (a) the costs of capital, (b) the effects of price changes, (c) the differences in population and (d) the variations in purchasing power.~~ Examples of the range of measures start from GDP and GDP per capita and include net domestic product, net national income, real net national income, and real net national disposable income per capita. ~~Each of these measures will provide insights into a country's level of material well-being and changes over time, primarily in terms of the total income available to support consumption and future investment. Section C (below) considers the distribution of income and wealth across population groups within a country.~~

~~34.22~~ ~~In addition, m~~Many of the ~~aggregate~~ measures of income and wealth described ~~in this section~~ here are also compiled for institutional sectors within the sequence of economic accounts, including for non-financial and financial corporations, general government and households. These different aggregate and sectoral measures and the relationships between them are described in [Chapter 3].

~~34.30~~ ~~Importantly, a~~All of these calculations can be undertaken within the context of the sequence of economic accounts described in the SNA and the associated methods for making the adjustments ~~just listed.~~

~~34.23~~~~34.31~~ Generally, ~~however,~~ the sequence of economic accounts is compiled only at ~~the~~ national level. In many countries there will also be interest in understanding variation within a country, for example across states, provinces or regions. For this purpose, regional (~~sub-national~~) accounts can be compiled noting that generally these accounts will focus on measures of production and value added rather than providing a sequence of accounts at regional scale, although more countries have started to compile regional estimates for households covering a broader range of accounts and indicators. The compilation of regional accounts is described in Chapter 20 ~~Elaborating the accounts.~~ For the purposes of assessing ~~material~~ well-being at the regional level, it is desirable to measure per capita household income and consumption ~~sincerecognizing that~~ measures of regional gross value added on a per capita basis will ~~often~~ be affected by variations in economic structure, ~~prices~~ and environmental context ~~that do not align with differences in well-being of residents in the regions.~~

2. Alternative measures of income and wealth

~~34.24~~~~34.32~~ ~~To this point, t~~The discussion of measures of income, consumption and wealth ~~in this section~~ has been based on the application of the concepts, definitions and measurement boundaries of the SNA. For some purposes, other measurement boundaries and definitions may be applied, often involving adjustments to the SNA definition and scope rather than being unconnected. For example, an alternative income concept ~~that~~ could be used that comes closer to what an individual household would normally consider as 'income', such as the income concept ~~as developed~~ ~~used~~ by the Canberra Group (UNECE, 2011). This income ~~measure~~ ~~concept~~ states that "household income consists of all receipts whether monetary or in kind (goods and services) that are received by the household or individual members of the household at annual or more frequent intervals but excludes windfall gains and other such irregular and typically one-time receipts". ~~From an SNA perspective, t~~This alternative income concept is equal to adjusted disposable income as defined in the SNA minus non-life insurance benefits and winnings from lotteries. Further, the Canberra Group definition excludes specific national accounts related items such as imputed social contributions, investment income disbursements and the adjustment for FISIM.

~~34.25~~~~34.33~~ A broader income concept defines income as the maximum amount that can be consumed in a given period while keeping real wealth unchanged. This means that, in addition to income as defined in the SNA, the measure of income ~~is adjusted for~~ ~~includes~~ holding gains and losses related to the holding of non-financial and financial assets and liabilities. This measure ~~could~~ ~~can~~ be derived using data from the SNA's

accumulation accounts by incorporating revaluations. However, for this purpose a distinction between realized and unrealized holding gains may be necessary.

[34.26](#)[34.34](#) A broader wealth concept for households could also be measured to include social security pension entitlements as discussed in [Chapter xx]. These entitlements are not included within the asset boundary as defined in the SNA (para ref), but constitute an important resource for households when going into retirement. Data on these entitlements is captured in a supplementary table on social insurance pensions (table ref). While the government may have the ability to change the entitlements, by including these projected entitlements in household income analysis additional insights are provided about the resources that households expect to have available for their retirement and which may influence their current consumption decisions. The data can also support analysis of the impacts resulting from policy changes in relation to the aging society and explicitly accounting for the accrual of these entitlements will provide insight into the impact of re-distributional policies of government.

[34.35](#) Using these alternative measures of income and wealth ~~is~~are relevant in ~~measuring-assessing material~~ well-being ~~since~~as standard SNA measurements are designed to ensure aligned treatments across all sectors, and may not best reflect the perspectives of individual sectors or groups, particularly in relation to the behaviours and expectations of households.

C. Accounting for the distribution of income, consumption and wealth across households

[34.27](#)[34.36](#) ~~Economy-wide~~Aggregate economic measures are most useful for comparisons across countries but for the assessment of material well-being within a country a more targeted approach should be applied. In the first instance, it is appropriate to focus directly on measures of income, consumption and wealth for the household sector as a whole and then to consider the distribution of income, consumption and wealth across different households.

[34.28](#)[34.37](#) Accounting for the distribution of household income, consumption and wealth supports the presentation of coherent and consistent data on these various entry points to the measurement of well-being. The accounting process facilitates the organization of data that are (i) coherent with macroeconomic aggregates, (ii) consistent across accounts within the household sector; ~~and~~(iii) comparable over time and across countries; and (iv) consistent with the accounts of the other sectors due to adherence to quadruple entry accounting principles. To these ends, it requires that the compilation of distributional accounts takes into consideration the joint relationships between income, consumption and wealth. This in turn supports the computation of multivariate indicators (such as consumption-to-income, debt-to-income or wealth-to-income ratios) for the various breakdowns of the household sector.

[34.29](#)[34.38](#) The discussion of the distribution of income, consumption and wealth has been of increasing interest in many policy areas and there is substantive measurement experience and guidance available to support work in this area. This section summarizes key aspects of the definition and scope of households in the SNA and lists the different groupings of households that will be relevant in distributional measurement and analysis. The section then ~~introduces the measurement of household income, consumption and wealth and~~ summarizes key points in measuring the distribution of household income, consumption and wealth.

[34.39](#) Although distributional accounts use households as the unit of analysis, and while individuals are not distinct institutional units in the SNA, for a number of topics in the measurement of well-being, the collection and organization of data by type of individual is appropriate and necessary. For example, the measurement of labour input and human capital is associated with the skills, experience and earnings of individuals; the measurement of time use is undertaken by recording the activities of individuals, and in the assessment of health and education it is individuals who benefit in the first instance. Since the total number of individuals in the resident population must align with the total number of individuals within households, in aggregate there is no conceptual difference in scope whether individuals or households as the unit of analysis. The choice of unit of analysis should therefore be made on the basis of relevance and data availability.

[34.30](#)[34.40](#) A more detailed elaboration of households and household distributions is presented in Chapter 32 on Households. Chapter 32 provides an introduction to a number of measurement considerations including

the potential, via a national accounting framework, to integrate and reconcile data about household income, consumption and wealth from both macro and micro based data sources. Generally speaking, measures of household distributions will require micro data as a fundamental input, for example from household surveys or administrative data sources (e.g. taxation statistics). However, there are often differences in measurement approach at the micro level that require adjustment to allow integration with macro data from the national accounts. A detailed explanation of compilation and reconciliation issues is described in the Handbook on Compiling Distributional Results on Household Income, Consumption and Saving (OECD, et al, forthcoming).

1. The scope of households

[34.3134.41](#) For consistent measurement and analysis, it is necessary to define the set of households within the scope of measurement for distributional accounting and analysis. The definition, measurement scope and associated considerations concerning households is articulated in Chapter 6 and Chapter 32 and the same definition and treatments are applied in this chapter. The key aspects are summarized below.

[34.3234.42](#) Chapter 6 recognizes two main types of units that may qualify as institutional units, namely persons or groups of persons in the form of households, and legal or social entities. In the SNA, *a household is a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.*

[34.3334.43](#) In distributional accounts, the individual members of multi-person households are not treated as separate institutional units, i.e. the unit of analysis is a household. This treatment recognizes that many assets are owned, or liabilities incurred, jointly by two or more members of the same household, while some or all of the income received by individual members of the same household may be pooled for the benefit of all members. Moreover, many expenditure decisions, especially those relating to the consumption of food, or housing, may be made collectively for the household as a whole. For these reasons, the household as a whole rather than the individual persons in it are treated as the institutional unit.

[34.3434.44](#) A household unit may coincide with the concept of a family, but members of the same household do not necessarily have to belong to the same family so long as there is some sharing of resources and consumption. Households may be of any size and take a wide variety of different forms in different societies or cultures depending on tradition, religion, education, climate, geography, history and other socio-economic factors. The definition of a household that is adopted by survey statisticians familiar with the socio-economic conditions within a given country is likely to approximate closely to the concept of a household as defined in the SNA, although survey statisticians may add more precise, or operational, criteria within a particular country.

[34.3534.45](#) The definition of families can vary in different societies and cultures but it may be a useful unit of analysis in some contexts. In many instances, families will encompass multiple household units as defined in the SNA. Thus, it may be the case that in the collection and analysis of time-use survey data, the scope of unpaid household service work encompasses services provided to people considered family members but who are outside the household unit defined by the SNA. This is discussed further in Section D.3.

[34.3634.46](#) As described in Chapter 5, the residence of individual persons is determined by the location (principal residence) of the household of which they form part and not by their place of work. All members of the same household have the same residence as the household itself, even though they may cross borders to work or otherwise spend periods of time abroad. If they work and reside abroad for sufficient time such that they acquire a centre of economic interest abroad, they cease to be members of their original households.

[34.3734.47](#) As well as private households, there are units described as institutional households that comprise groups of persons residing in hospitals, retirement homes, convents, prisons, etc. for long periods of time, usually interpreted as one year. These people are treated as belonging to a single institutional household when they have little or no autonomy of action or decision in economic matters. On the other hand, people who enter hospitals, clinics, convalescent homes, religious retreats, or similar institutions for short periods, who attend residential schools, colleges or universities, or who serve short prison sentences should be treated as members of the private households to which they normally belong.

[34.3834.48](#) Conceptually, the measurement of economic well-being of households for a country should encompass all resident households including institutional households. In practice, the collection of data on

institutional households may be difficult but estimates can be made using household survey data, census data, administrative data, counter-party data or other methods to ensure as complete a picture as possible is developed of the household sector.

~~34.39~~34.49 While the household constitutes the unit of analysis, households may differ in size and composition, and as a consequence they will have different consumption needs. Thus, for some aspects in the measurement of well-being, such as in the analysis of data on income and consumption at the household level, it is recommended to focus on 'equivalized' results, using equivalence scales that take into account differences in size and composition of households, to arrive at comparable results across households, recalculating results according to the number of consumption units in each household. The use of equivalence scales for wealth is also relevant but since wealth may not benefit all current household members, (i.e. it may provide benefits in the future) there is less consensus on which equivalence scales are appropriate and different types of scales may be needed compared to those used for income and consumption. Further discussion of household equivalence is presented in Chapter 32 on Households.

~~34.40~~34.50 More generally, there are many different types of households such that a focus on the well-being of all households "on average" presents a far more limited description of current and past trends in (material) well-being than data presented according to different typologies of households. A range of typologies may be used depending on the analytical question and the availability of data. The main criteria for grouping households ~~Primary types of households~~ are:

- ~~Ranking households into relative e~~Current income or wealth groups, for example, quintiles, deciles, percentiles or more granular groups (e.g. top 0.1% of income) on the basis of equivalized disposable income or net worth.
- ~~Ranking on the basis of r~~Regular income taking into account ~~lifeeyele~~ (stage of life) effects and business cycle effects, into groups such as quintiles, deciles, etc.
- ~~Grouping households according to their m~~Main source (i.e. highest share) of income; e.g. according to wages and salaries, gross mixed income from household unincorporated enterprises, net property income receivable and net current transfers receivable (potentially further separating pension benefits receivable).
- ~~Grouping according to the n~~Number and age of members of the household. For example, the following eight household compositions could be used: single less than 65 years old; single 65 and older; single with children living at home; two adults less than 65 without children living at home; two adults at least one 65 or older without children living at home; two adults with less than 3 children living at home; two adults with at least 3 children living at home; and other.
- ~~Grouping according to the e~~Characteristics of a reference person within the household (e.g. according to age, sex, labour market status, educational attainment, disability status).²
- ~~Grouping by g~~Geographic region and degree of urbanization (e.g. rural, remote, urban).
- ~~Grouping by h~~Housing status (e.g. rental, owner-occupied).

~~34.41~~34.51 In presenting data according to these household types, it is relevant to ~~also record~~ complementary information on the relevant socio-demographic ~~characteristics of information about~~ all individuals within members of the households (e.g., their age, sex, income, employment status, educational attainment). This information supports a richer understanding of the household sector given that households are generally composed of a variety of individuals with different characteristics. As a specific example, grouping households ~~types~~ based on the characteristics of a reference person may lead to results that are not always ~~be~~ representative of the full population since as the measurement reflects only the socio-demographic characteristics of the reference person. Thus, when considering analysis by sex, the distributions will not reflect differences between men and women in general, but rather will reflect differences between households

² The use of a reference person approach to household groupings should be undertaken with care as the set of reference persons may not be representative of the wider population. See para ~~34.51~~40 for additional comment.

where a man is the reference person and those where a woman is the reference person.³

~~34.42 Although distributional accounts use households as the unit of analysis, and while individuals are not distinct institutional units in the SNA, for a number of topics in the measurement of well-being, the collection and organization of data by type of individual is appropriate and necessary. For example, the measurement of labour input and human capital is associated with the skills, experience and earnings of individuals; the measurement of time use is undertaken by recording the activities of individuals, and in the assessment of health and education it is individuals who benefit in the first instance. Since the total number of individuals in the resident population must align with the total number of individuals within households, in aggregate there is no conceptual difference in scope whether individuals or households as the unit of analysis. The choice of unit of analysis should therefore be made on the basis of relevance and data availability.~~

2. **Compiling ~~distributional~~ accounts for the distribution of household income, consumption and wealths**

~~34.43~~34.52 The compilation of accounts showing the distribution of household income, consumption and wealth ~~distributional results~~ entails breaking down results for various accounts of the household sector as defined within the SNA, into more granular subsectors consisting of specific groups of households. Ideally, this should be done for the whole sequence of interconnected household sector accounts representing different types of economic activity occurring within a period of time, including balance sheets that record stocks of assets and liabilities held by the household sector at the start and end of that period. Table 34.2 provides ~~selected measures a stylized summary of the potential from the sequence of economic accounts for the household sector distributed range of measures~~ using income deciles to define the types groups of households as recommended in Chapter 5. This focus for measurement leads to a consistent and comprehensive description of different groups of households across the various accounts.

Table 34.2. Selected measures for the household sector from the sequence of economic accounts by household type income decile

³ Sex is recognized as a core demographic variable about which data are regularly collected in censuses and household surveys. This variable may also be referred to as gender and sometimes these terms are used interchangeably. In data collection, some countries allow for respondents to provide a more nuanced expression of their identity beyond traditional binary response options. [For more resources see https://data.unwomen.org/resources.](https://data.unwomen.org/resources)

| | Household type (income decile) | | | | | | | | | | | Total households |
|--|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|--|------------------|
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th | | |
| Production account | | | | | | | | | | | | |
| Output | | | | | | | | | | | | |
| Intermediate consumption | | | | | | | | | | | | |
| Value added / GDP | | | | | | | | | | | | |
| Distribution of income accounts | | | | | | | | | | | | |
| Remuneration of employees | | | | | | | | | | | | |
| Operating surplus / Mixed income | | | | | | | | | | | | |
| Property income | | | | | | | | | | | | |
| Earned income | | | | | | | | | | | | |
| Social transfers in Kind (STIK) | | | | | | | | | | | | |
| Current transfers other than STIK | | | | | | | | | | | | |
| Disposable income | | | | | | | | | | | | |
| Disposable income adjusted for STIK | | | | | | | | | | | | |
| Final consumption expenditure | | | | | | | | | | | | |
| Actual final consumption | | | | | | | | | | | | |
| Saving | | | | | | | | | | | | |
| Capital account | | | | | | | | | | | | |
| Gross capital formation | | | | | | | | | | | | |
| Depreciation | | | | | | | | | | | | |
| Depletion | | | | | | | | | | | | |
| Net lending | | | | | | | | | | | | |
| Financial account | | | | | | | | | | | | |
| Net acquisition of financial assets | | | | | | | | | | | | |
| Net acquisition of liabilities | | | | | | | | | | | | |
| Net lending | | | | | | | | | | | | |
| Balance sheet | | | | | | | | | | | | |
| Produced assets (excl. biological resources) | | | | | | | | | | | | |
| Natural resources | | | | | | | | | | | | |
| Non-produced assets (excl natural resources) | | | | | | | | | | | | |
| Financial assets | | | | | | | | | | | | |
| Liabilities | | | | | | | | | | | | |
| Net financial worth | | | | | | | | | | | | |
| Net worth | | | | | | | | | | | | |

34.4434.53 The sequence of economic accounts presents accounting entries that are ~~is~~ connected through balancing items. ~~with T~~ the full sequence is described in Chapter 3. For distributional analysis, it is recommended that focus is placed on the following balancing items, entries and balancing items from the accounts for the household sector ~~be the focus~~:

- For analysing the distribution of household income, the relevant balancing items are ‘primary earned income’, ‘disposable income’ and ‘~~adjusted~~ disposable income adjusted for social transfers in kind’.
- For analysing the distribution of household consumption, the relevant balancing items are ‘final consumption expenditure’ and ‘actual final consumption’.
- For analysing the distribution of household wealth, the relevant balancing items are ‘net worth’ and ‘net financial worth’.

34.4534.54 While the starting point is the household sector as defined in the SNA, with the household as the unit of observation, the focus for analysis should be on equalized results, i.e. using equivalence scales to arrive at comparable results accounting for differences in household size and composition. Further, results for institutional households should be presented separately because of the large heterogeneity of this group and their different behaviours compared to private households. It is recommended to present results for the total of institutional households, accompanied by information on the total number of persons and consumption units included in institutional households.

34.4634.55 As described above, there are different groupings of households that may be relevant for the assessment of well-being and hence of interest in distributional analysis. Depending on analytical interest and data availability, all of the groupings proposed above may be considered. To support international

comparability, it is recommended that compilers provide breakdowns by standard of living based on (current) disposable income and based on wealth, showing income and wealth decile groups, a median and, if possible, results for the top 5% and the top 1%. Alternative breakdowns by main source of income, household type, housing status and by age of the reference person are also encouraged.

34.4734.56 There is a range of challenges in the compilation of distributional accounts. These include the measurement of inter-household flows and stocks, including inter-generational transfers; determining the equivalence of households, including over time; the allocation to individual households of items for which household level (micro) data are lacking (e.g. measures of the non-observed economy, disbursements of investment income and FISIM); the challenge of linking data across different data sources using statistical matching techniques; breaking down changes in wealth into underlying flows; and compiling price indices for different household groups. These and other measurement challenges are discussed further in Chapter 32.

34.4834.57 The well-being of different household groups will also be affected by different levels of ownership of consumer durables. ~~Although it is not recommended to remove the expenditure on consumer durables from the final consumption measure in the SNA, f~~For the purpose of compiling distributional results, it is recommended that countries show separate estimates of expenditure on consumer durables and associated measures of depreciation as memorandum items. ~~This is particularly relevant in supporting the analysis, particularly as they may significantly affect measures~~ of household saving. ~~Further, e~~Estimates of the value of the stock of consumer durables will ~~also~~ be relevant in the analysis of household wealth. The treatment and measurement of consumer durables is discussed in Chapter 10.

34.58 The focus of household distributions in this section has been on entries concerning income, consumption and wealth within the scope of the sequence of economic accounts. However, distributional analysis should not be confined to these ~~variables~~ entries and analysis of many of the topics discussed in the following sections, including unpaid household service work, health care, and education and training, will be substantially enhanced through the provision of household distributions for relevant variables.

34.4934.59 In addition, measures of the distribution of household income and consumption as described above may be extended to incorporate data on income and consumption beyond the SNA production boundary, in particular concerning unpaid household service work. It is likely that flows of unpaid work will vary considerably across household types and thus change the relative distributions of income and consumption, for example across income deciles.

D. Measures of household consumption and production

34.60 This section describes how the measurement of the economic well-being of households can be supported by measuring household consumption and production, including through the extension of measures of consumption and production beyond the SNA production boundary. The section commences with a discussion on household consumption since this is a common entry point to the discussion of household well-being, i.e. material well-being is commonly considered in terms of the set of goods, services and other benefits enjoyed by people.

34.5034.61 The discussion of household consumption here recognizes that a focus only on those goods and services within the scope of the SNA production boundary is ~~necessary but~~ not sufficient for the assessment of material-well-being. It is also noted that there will be a range of complementary indicators, for example, concerning population and housing density, housing and rental costs, and access to transport facilities, that will be relevant in assessing material well-being. While some of the data to underpin the derivation of such indicators can be derived from accounting based data sets, this section does not document the indicators that might be selected for assessment of well-being.

34.62 From a household production perspective, the measurement of well-being requires bringing into view a broader range of activities that people undertake including unpaid household service work. To provide a statistical basis for the measurement of these activities, the section uses the forms of work framework. By placing these forms of work in context, a significant range of information can be organized including both labour input within the SNA production boundary and contributions of households beyond the production boundary, for example in volunteering, and most broadly to the wider measurement of time-use. Connections can then be made to data concerning unemployment and working conditions, thus supporting the integrated

assessment of economic and social issues.

34.63 Note that in the SNA there is no equivalence between total household consumption and total household contribution to production. Thus, measures of household consumption will include goods and services that are produced by other economic units including goods and services imported from the rest of the world. As well, the contribution of households to production will extend beyond the operation of their own households and include labour inputs to the production of goods and services used by other economic units.

~~34.51~~

1. Sources of household consumption

34.5234.64 Within the SNA ~~sequence of economic accounts~~~~production boundary~~, household expenditures on ~~relevant~~ goods and services include consumption of food, clothing, energy, water, housing, transport, recreation, education and health. Expenditure on these items is included in the measure of **household final consumption expenditure**. In aggregate, and in real, per capita terms, data about the level of and changes in household final consumption expenditure, ~~i.e. household consumption of goods and services within the SNA production boundary~~, is of considerable relevance in the assessment of ~~economic material~~ well-being and in particular for comparisons across countries. The relevant considerations for the measurement of expenditure by type of good and service ~~– classified using COICOP –~~ are detailed in Chapter 10.

34.65 ~~The measurement of household final consumption expenditure~~ ~~The SNA production boundary~~ explicitly includes ~~the production of~~ goods produced by households that are subsequently consumed by those same households, i.e. household output for own final use [Chapter 7.xx]. In the context of assessing material well-being within and across countries, the level of this consumption is of significant policy interest, in particular concerning subsistence production and consumption of food, water and fuel. Subsistence producers, which may include indigenous and First Nations peoples, constitute an important group in relation to own-use production of goods. Subsistence producers are defined as all those who produce and/or process for storage agricultural, fishing, hunting and gathering products that contribute to the livelihood of the household or family.

~~34.53~~ ~~Data on the number and types of households that undertake own use production and consumption of goods may provide important insights into the distribution of income and consumption. Further, information on the quantity of production (e.g. tonnes) classified by type of economic activity (e.g. agriculture) and product (e.g. rice) will be relevant in both understanding the economic well being of households and supporting the derivation of good measures of the monetary value of this activity for inclusion in wider measures of economic activity for a country. Additional information on the nutritional value (e.g., kJ) of food consumed through subsistence production may also be of relevance in certain analysis.~~

34.5434.66 Another specific area of policy interest is the own-use production and consumption of energy by households particularly as it concerns the wider response to the challenges of mitigating the effects of climate change, but also in the context of volatility in the cost of energy. Depending on the economic context, own-use production of energy extends from the collection of firewood or other biological resources for combustion, to the installation of infrastructure to capture energy from renewable sources, for example, solar panels and windmills.

34.67 ~~The sequence of economic accounts complements the measures of household final consumption expenditure with measures of household actual final consumption. Measures of actual final consumption are of particular relevance in international comparisons since they allow for variations in the extent to which household consumption is paid for by general government and NPISHs via their provision of non-market goods and services to households and their procurement of market goods and services on behalf of households. Important examples include government expenditure on health and education. In the sequence of economic accounts, there are corresponding entries for social transfers in kind to ensure that the relevant~~financial ~~transactions balance appropriately. Chapter 10 explains these issues in detail.~~

34.68 ~~The analysis of economic well-being is also supported by the organization of data on the collective consumption of government which, on the whole, corresponds to the supply of public goods. For example, data on levels of government expenditure on health care infrastructure, education and training facilities,~~

public infrastructure for transport and roads, national parks and sporting facilities provide important insights into the level of well-being of a community. Often, interest is in measures commonly associated with public infrastructure and the assessment of the trends in gross fixed capital formation on these items is relevant.

34.55—To support understanding the relationship between employment and own-use production of goods, it is also beneficial to organize data on the number of people and their hours of work engaged in these activities. For example, data on time spent collecting water and firewood.

34.5634.69 For all components of household consumption, measures of the relative shares of expenditure on different goods and services, for example, the share spent on food or energy, are of high interest, particularly in situations where relative price movements for different products are diverging. Consequently, measurement of consumption expenditure in volume terms is also important for analysis. Relevant measurement advice concerning prices and volumes is described in Chapter 18.

34.57—The preceding discussion focused on consumption within the sequence of economic accounts. There are a number of types of household consumption outside this scope that are relevant in assessing material well-being. First, it is noted that In addition to the derivation of price and volume indexes, complementary tables presenting non-monetary data can be compiled for selected goods and services. For example, estimates of consumption for various food products in terms of weight or nutritional content can be derived. The FAO food balance sheets provide an indication of what is possible in this direction. Similarly, estimates of energy consumption in joules and transport activity in kilometres can support richer analysis of expenditure data. Data on consumption in physical terms can be linked or taken from physical supply and use tables compiled following the SEEA Central Framework. A more complete mapping of physical flows for selected products can directly support analysis of solid waste, recycling and reuse as part of understanding the circular economy.

34.5834.70 The sequence of economic accounts treats household purchases of **consumer durables** such as cars and washing machines, as consumption expenditure. As recognized in Chapter 10, since this expenditure concerns items which provide services to households over an extended period of time, it is recommended that the expenditure ~~on these items~~ be separately identified and recorded as memorandum items. Analysis of ~~this expenditure~~ on consumer durables relative to total household consumption expenditure gives important insights to economic-material well-being, especially for different household types.

34.59—~~The sequence of economic accounts complements the measures of household final consumption expenditure with measures of household actual final consumption. Measures of actual consumption are of particular relevance in international comparisons since they allow for variations in the extent to which household consumption is paid for by general government and NPISH via their provision of non-market goods and services to households and their procurement of market goods and services on behalf of households. Important examples include government expenditure on health and education. In the sequence of economic accounts, there are corresponding entries for social transfers in kind to ensure that the financial transactions balance appropriately. Chapter 10 explains these issues in detail.~~

34.60—~~The analysis of economic well-being is also supported by the organization of data on the collective consumption of government which, on the whole, corresponds to the supply of public goods. For example, data on levels of government expenditure on health care infrastructure, education and training facilities, public transport and roads, national parks and sporting facilities provide important insights into the level of well-being of a community. Often, interest is in measures commonly associated with public infrastructure and the assessment of the trends in gross fixed capital formation on these items is relevant.~~

34.6134.71 To support measurement of well-being, the measurement of household consumption can be extended to include benefits obtained by households from production that is ~~are~~ outside the SNA production boundary. Of high importance are the benefits arising from **unpaid household service work**. The measurement of this activity is described in detailed in section D.3. While this activity is outside the SNA production boundary, it is within the general production boundary described in Chapter 7. The general production ~~boundary is a broader concept than the SNA production boundary that~~ includes all economic production, i.e. activity carried out under the control and responsibility of institutional units that use inputs of labour, capital, and goods and services to produce outputs of goods and services.

34.6234.72 Outside the general production boundary but of significant ~~ce t~~ relevance for assessing well-being are **non-productive activities undertaken by individuals**. These activities include basic human activities such

as eating, drinking, sleeping, leisure, exercising, etc. They are considered non-productive since it is not possible for one person to employ another person to perform the activity for them. Commonly, this is referred to as the “third party criterion”. While these activities may be non-productive in an economic sense, the benefits they generate clearly contribute to well-being and in particular to health outcomes. From an accounting perspective there is no monetary value that is placed on the benefits arising from these activities. However, the organization of data on the time spent undertaking these activities, particularly sleeping, leisure and exercise, may be of particular interest. A complete accounting of time-use, as discussed in section C.4, is the appropriate approach for organizing the relevant information.

34.73 Also outside of the general production boundary, households benefit from a wide range of **ecosystem services**. Following the SEEA Ecosystem Accounting (SEEA EA), *ecosystem services are the contributions of ecosystems to the benefits that are used in economic and other human activity*. Examples of ecosystem services of benefit to households include provisioning services embodied in crops, livestock and timber products that are ultimately consumed by households; cultural services such as those related to recreation and amenity values and amenity; and regulating and maintenance services such as air filtration, water regulation and purification, flood mitigation, soil erosion control, noise attenuation and global climate regulation.

~~34.63~~ Generally, the flows of provisioning and cultural services are more readily observed in connection with the day-to-day activity of households and commonly the monetary value of these services is embodied in the values of goods and services ultimately purchased by households such as food, clothing and recreation services. For regulating services, the situation is different and most of these services reflect ongoing natural processes and ecological functions that households are largely unaware of. Indeed, in many cases they reflect a form of collective consumption following the definition in the SNA.

~~34.64~~34.74 ~~The organization of data on flows of ecosystem services, and other data related to ecosystems, for example on water quality and the condition of forests, can be undertaken using the accounting framework described in the SEEA EA. The SEEA EA is an international statistical standard for recording data about ecosystems in non-monetary terms. It also provides internationally recognized statistical principles and recommendations for their measurement in monetary terms, recognizing the general challenges of valuation for non-market services. In different locations and under different economic structures, the dependence on and connection to ecosystems exhibited by households will vary. It will also vary by type of household. Thus, data about the flows of ecosystem services, including recording which population groups use and benefit from these services,~~ will be relevant in both understanding the full breadth of household consumption and in understanding the sustainability of that consumption in relation to the extent and condition of the underlying natural capital. This latter topic is discussed further in Chapter 35.

~~34.65~~34.75 Beyond the ecosystem services recorded in the SEEA EA, the environment provides benefits related to the more general appreciation that people hold for ecosystems and species. In environmental economics, these benefits are commonly referred to as non-use values. While methods to measure non-use values are available, for example, using choice experiments and contingent valuations, these valuations are considered inconsistent with the ~~valuation~~ concept of exchange values applied in the SNA and SEEA. As part of its description of applications and extensions of ecosystem accounting, SEEA EA Chapter 12 outlines ways in which data about non-use values may be placed in context with accounting-based data to provide wider measures of consumption and well-being. ~~support discussion of multiple value perspectives.~~

~~34.66~~34.76 Table 34.3 provides a summary structure for recording selected data on ~~the sources of~~ household consumption by type of household differentiating consumption by source of consumption.

Table 34.3: Sources of Selected data on household consumption by type of household by source of consumption

| | Household type (income decile) | | | | | | | | | | | Total households |
|---|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|--|------------------|
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th | | |
| Sources of household consumption | | | | | | | | | | | | |
| Household final consumption expenditure | | | | | | | | | | | | |
| by COICOP | | | | | | | | | | | | |
| Social transfers in kind | | | | | | | | | | | | |
| Household actual final consumption | | | | | | | | | | | | |
| Unpaid household service work | | | | | | | | | | | | |
| by type of service | | | | | | | | | | | | |
| Ecosystem services | | | | | | | | | | | | |

34.77 In addition to data in monetary terms, a range of non-monetary data can be used to support analysis of material well-being, recognizing that these data cannot fully inform the assessment of the trade-offs in consumption made by households over time. As an example of non-monetary data, data on the number and types of households that undertake own-use production and consumption of goods may provide important insights into the distribution of income and consumption. For example, data on time spent collecting water and firewood. Also, in addition to the derivation of price and volume indexes for all goods and services, complementary tables presenting non-monetary data can be compiled for selected goods and services following an accounting based approach, such as reflected in the physical flow accounts of the SEEA Central Framework. For example, estimates of consumption for various food products in terms of weight or nutritional content can be derived. The Food and Agriculture Organization of the UN (FAO) food balance sheets provide an indication of what is possible in this direction. Similarly, estimates of energy consumption in joules and transport activity in kilometres can support richer analysis of household expenditure data. A more complete mapping of physical flows for selected products can directly support analysis of solid waste, recycling and reuse as part of understanding the circular economy.

~~To support understanding the relationship between employment and own use production of goods, it is also beneficial to organize data on the number of people and their hours of work engaged in these activities. For example, data on time spent collecting water and firewood.~~

2. Forms of work

34.78 ~~While a~~ focus on household consumption and the range of benefits that people enjoy is a relevant entry point to the measurement of material well-being. ~~A complementary, a~~ focus on the activities that people undertake, both economic and non-economic, also provides important information on people's well-being. This section discusses the various forms of work that individuals engage in while section D.4 introduces approaches to accounting for all uses of time, including leisure.

34.6734.79 The appropriate standard for recording data on people's economic activities, defined as those activities within the general production boundary (see Chapter 7), is the international statistical standard definition of employment from the 19th ICLS *Resolution concerning statistics of work, employment and labour underutilization* adopted in 2013⁴. This Resolution provides the standard definition of the concept of work and describes the forms of work framework in which employment work is the key reference concept. The Resolution establishes that the concept of work "comprises any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own use."

34.6834.80 The Resolution identifies five forms of work which are distinguished by the intended destination of

⁴ https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_230304.pdf

the production (for own final use; or for use by others, i.e., other economic units) and the nature of the transaction (i.e., monetary or non-monetary transactions, and transfers):

- a. *own-use production work* comprising production of goods and services for own final use;
- b. *employment work* comprising work performed for others in exchange for pay or profit;
- c. *unpaid trainee work comprising work* performed for others without pay to acquire workplace experience or skills;
- d. *volunteer work* comprising non-compulsory work performed for others without pay; and
- e. *other work activities*.⁵

[34.6934.81](#) From the perspective of the activities within the SNA production boundary, the most important form of work is employment with the most significant portion of this component relating to the contribution of employees. From the perspective of household well-being, employment related data are of high relevance including measures of remuneration of employees, number of employees, and hours worked. Such data can be used to derive indicators such as mean and median earnings. These employment related data also underpin accounting for human capital as described in Section E. The organization of these data in an accounting context is described in Chapter 16 on Labour tables. In addition, organizing these data by type of household following the groupings listed in Section C.1 and in terms of characteristics of individuals such as age and sex is relevant. Of particular note is the measurement of the distribution of income for which the distribution of remuneration of employees will be a core element (see Chapter 32 on Households).

[34.7034.82](#) Chapter 16 on Labour tables provides a richer description of the relationships between these five forms of work, the SNA production boundary, as applied in the sequence of economic accounts, and the general production boundary. The core message is that while employment as a form of work is important, there is also a range of other ways in which people contribute to activities within the general production boundary. Measurement of these non-employment contributions provides important insights into household well-being.

[34.7134.83](#) In terms of non-employment contributions, of most significance in the measurement of well-being is the activity associated with unpaid household service work. In the forms of work framing, unpaid household service work includes both services produced for own-final use and services produced for other economic units through volunteer work. The measurement of unpaid household service work is discussed in detail in the following section.

[34.7234.84](#) A related perspective on the forms of work listed above concerns the distinction between the formal and informal economy. As defined in Chapter 39, the informal economy refers to the productive activities carried out by persons or economic units that are not covered by formal arrangements established by regulations and laws and includes all informal productive activities carried within the general production boundary. The overarching concept of the informal economy is defined as constituting all informal productive activities carried out by workers or economic units within the general production boundary. In the same vein, the measurement of the non-observed and illegal economy is relevant in assessment of household well-being in many countries. Chapter 39 provides a description of accounting approaches to the measurement of the informal economy. The measurement considerations outlined in Chapter 39 can be linked to the discussion in this chapter on well-being recognizing that the key connecting concepts are the SNA production boundary and the general production boundary.

[34.7334.85](#) Table 34.4 provides a summary structure for recording information on the activity of individuals across the different forms of work.

⁵ These “other work activities” include such activities as unpaid community service and unpaid work by prisoners, when ordered by a court or similar authority, and unpaid military or alternative civilian service, which may be treated as a distinct form of work for measurement (such as compulsory work performed without pay for others) (ICLS Resolution, page 3).

Table 34.4: Forms of work by individual characteristics

| | Forms of work | | | | | | of which: Unpaid household service work |
|------------------------------|--|-----------------|---------------------|----------------|------------|-------|--|
| | Own-use production work | Employment work | Unpaid trainee work | Volunteer work | Other work | Total | |
| | of which: Unpaid household service work | | | | | | |
| Number of people / Hours | | | | | | | |
| Total | | | | | | | |
| By individual characteristic | | | | | | | |
| Age | | | | | | | |
| Sex | | | | | | | |
| Educational attainment | | | | | | | |

3. Unpaid household service work

[34.74](#)[34.86](#) Chapter 7 recognizes that there are many activities undertaken by households that satisfy the general production boundary involving the use of labour and capital for the production of goods and services. However, the SNA production boundary applied in practice only includes those household activities that produce goods (as discussed above) and the activities of the production for own final use of housing services by owner-occupiers and the production of domestic and personal services by employing paid domestic staff. Chapter 7 [para xx-xx] provides a full explanation of this treatment. The exclusion of unpaid household service work from the SNA production boundary is seen as a significant limitation in using GDP as a measure of well-being since it omits a significant volume of production and consumption undertaken by households that relates directly to the health, education and general well-being of people. Given this limitation, accounting for unpaid household service work provides important insights into economic well-being and a range of data can be organized following accounting principles to support extended analysis.

[34.75](#)—In making the connection to well-being, unpaid household service work is thought of as an input that, together with market goods and services, is transformed into household goods and services (i.e. caring, cooking, cleaning, maintenance) that are consumed by household members and benefit individual well-being. This process operates through intermediate stages involving intra-household production, cooperation and distribution activities. The relationship between inputs (purchased goods and services and unpaid work) and well-being is not direct and immediate, and the household plays an important role within this process.

[34.87](#) The progression from the initial stage (market goods and services) to the final stage of this process (individual well-being) creates added value in society, so that individual and social well-being is greater than the value of the available goods purchased on the market.

[34.88](#) To completely reflect the activity of unpaid household service work within a sequence of economic accounts, there are a number of implications for current entries in addition to recording additional output by households. Of particular note is that by extending the production boundary to include this activity, a range of expenditures treated as household final consumption expenditure, for example food, would become intermediate consumption as inputs to the unpaid household service work. Also, expenditure on consumer durables, such as refrigerators, that are also treated as household final consumption expenditure, would become gross fixed capital formation as produced assets providing capital services as inputs to the unpaid household service work. A description of the range of adjustments that would be required to the current SNA sequence of economic accounts is provided in the UNECE Guide on Valuing Unpaid Household Service Work.

[34.89](#) While methods can be applied to estimate the monetary value of unpaid household service work, analysis

restricted to monetary values is unlikely to completely capture all the contributions to well-being of unpaid work at the individual, household and social level. In particular, unpaid household service work activities, just as with paid forms of work, not only affect significantly and contribute directly to the determination of personal capabilities and well-being outcomes, such as education and health, but unpaid household service work activities such as volunteering can also enhance people's opportunities to participate in social life. For that reason, a parallel physical time accounting method is also proposed as a better 'catch all' solution to measuring the household experience.

34.7634.90 The UN Guidance for the Valuation of Unpaid Household Work (UNECE, 2017) defines unpaid household service work as 'those economic services produced in the household and outside the market, but which could be produced by a third person hired on the market without changing their utility to the members of the household'. The definition excludes activities people can only perform on their own behalf, such as sleeping, other forms of personal care, and leisure. These activities lie outside the general production boundary. In the forms of work framework described above, unpaid household service work includes both services produced for own-final use and services produced for other economic units through volunteer work.

34.91 Accounting for unpaid household service work is focused on the measurement of various services. The table below provides a list of key groups of services. For each group there are additional details and specifications concerning the measurement boundaries and relevant treatments that must be considered which are described in relevant guidance material. Importantly, all of these services can have equivalent production activity that is undertaken as part of economic activity recorded in the sequence of economic accounts. Thus, it is not only the measurement of the volume of services produced at home that is of interest but also changes in the share of these services which is either produced for own-final use or purchased from other economic units.

34.7734.92 An important advance supporting the development of this list of services has been the adoption of the International Classification of Activities for Time-Use Statistics (ICATUS) 2016. ICATUS 2016 is consistent with the SNA to allow the derivation of aggregates for supplementary tables and is comparable with other existing national and regional time-use classifications. It was also aligned with the resolution concerning statistics of work, employment and labour underutilization, adopted by the 19th ICLS (2013). Although ICATUS codes are provided in table 34.5, it should be noted that time-use data may not always be the preferred data source. This is particularly true for infrequent activities such as forms of volunteering, where a longer reference period may be required to capture the activity effectively.

Table 34.5: Types of unpaid household service work

| Area | ICATUS codes | Categories, descriptions and considerations |
|---|---|---|
| Childcare for own household or family | Division 41: <i>Childcare and instruction.</i> including Group 442. | Unpaid childcare captures the time provided by care givers caring for children within their own household or family. This can range from helping with homework to feeding, washing or dressing children. Meal production is excluded and would fall under the nutrition category. Unpaid childcare can be distinguished in many ways (such as active vs. supervisory, or physical vs developmental). |
| Adult care for own household or family | Divisions 42 <i>Care for dependent adults</i> and 43 <i>Help to non-dependent adult household and family members,</i> including Group 443 and Group 444. | Unpaid adult care captures activities where individuals are providing healthcare services, assistance with daily tasks, emotional support, or supervisory care to an adult within their own household or family, for example changing bandages or dressings or other medical assistance. Unpaid adult care may be provided on a temporary basis and to those who are potentially terminally ill and need long-term care. |
| Nutrition for own household or family | Division 31 <i>Food and meals management and preparation.</i> | Unpaid nutrition services include meal or drink production time, where it may be reasonable to expect that you could choose to order an alternative meal or drink from a market service. |
| Transport for own household or family | All activities under the following groups covering many purposes and modes of transport except walking (refer to ICATUS for details): Group 182, Group 250, Group 380, Group 441, Group 540, Group 640, Group 750, Group 860, Group 950 | Transport associated with any other activity (paid work, leisure, personal care or unpaid work) but where the producer of those services was not paid for that time. Transportation services can include transport provided to others free of charge such as giving another person within the household of family a lift but can also include time where an individual transports themselves as opposed to paying for transport. |
| Household management services for own household or family | Divisions 32 <i>'Cleaning and maintaining of own dwelling and surroundings'</i> , 33 <i>'Do-it-yourself decoration, maintenance and repair'</i> , 35 <i>'Household management for own final use'</i> and 36 <i>'Pet care'</i> | This includes activities such as cleaning the household, sorting out the household administration or bills, DIY repairs of the household, pet care and gardening. This category also includes the management of tasks classified under leisure activities, for example the time that a household member has invested in arranging/organizing a tourism trip/holiday travel or accommodation , but only when the activity meets the third-party criterion (i.e. that another person could have performed the task and obtained the same outcome). |
| Laundry and clothing services for own household or family | Division 34 <i>Care and maintenance of textiles and footwear.</i> | Unpaid laundry services involve the cleaning, ironing and drying of clothes, while the category can be extended to also include the unpaid repair of clothing. |
| Shopping for own household or family | Division 37 <i>Shopping for own household and family members.</i> | Shopping is an activity that can easily be contracted out, i.e., it meets the third-party criterion. Part of the labour involved in shopping involves the transportation of goods from the shop to the household. Internet shopping means online delivery services are displacing some of the household labour involved in shopping. |
| Information services for own household or family | This category is likely to be more challenging to capture effectively using the current time-use classification framework | With the expansion of the internet, there is now more scope than before for households to produce information for other households through digital platforms. These services do not have to be used by the consuming household to then produce another form of unpaid household production but could also be used as part of household leisure activities. The key criteria which defines whether the information produced is of value is whether the consumers of the information could have used a paid service for similar information. |

| | | |
|--|--|--|
| Other unpaid household production not elsewhere classified for own household or family | Divisions 39 <i>Other unpaid domestic services for household and family members</i> ; 49 <i>Other activities related to unpaid caregiving services for household and family members</i> ; 59 <i>Other unpaid work activities</i> | An 'other' category is recommended to ensure that a complete accounting of unpaid household service work. |
| Organisation-based volunteering | Division 52 <i>Unpaid community- and organization-based volunteering</i> . | When households engage in volunteering through or for a charity of a not-for-profit organisation it is classified as organisation-based volunteering. Organisation-based volunteering may also be further split into different types of unpaid household service work. |
| Direct volunteering | Division 51 <i>Unpaid direct volunteering for other households</i> . | Where no organisation is involved, households providing voluntary services to other households are performing direct volunteering. Direct volunteering may also be further split into different types of unpaid household service work. |

34.7834.93 Key variables of interest for each of the services listed above include: the time spent on each activity, the monetary value of production and the costs of goods and services used as inputs to production. An important connection in undertaking this accounting work is the ability to compare estimates of these variables with related entries in the sequence of economic accounts. Thus, for example, measures of time spent on these activities can be compared with measures of employment and other work on the same activities within the production boundary. To support comparisons, the valuation of unpaid household service work should apply the same exchange value ~~valuation~~ concepts as applied for non-market production within the SNA production boundary (see Chapter xx) and the costs incurred as inputs to production should be the same as those recorded as household final consumption expenditure (e.g. purchases of food, electricity, gasoline).

34.94 In addition to ensuring connection to the recording of activities within the SNA production boundary, the compilation of estimates on unpaid household services work should also ensure appropriate connection to work on other aspects outside the production boundary for which separate measurement might be undertaken. Examples include the measurement of health care activity, education and training activity (both discussed later in this Chapter) and free digital services (discussed in Chapter 22 on digitalization). In these cases, consistent treatment of expenditures, time-use and measurement scope will be of benefit in the compilation of accounts in terms of focusing measurement on common definitions and measurement boundaries and in improving the consistency in the interpretation of data by users.

34.95 The discussion above implicitly focuses on services produced by, and supplied to, members of the same household. However, in some instances it is relevant to measure the provision of unpaid services from one household to another. For example, the service flows between household units that are part of a wider family unit; or the service flows between households associated with direct and organization-based volunteering. The adjustments required to account for these flows between households will depend on the analytical focus and the scope of the underlying data.

34.96 In the case of organization-based volunteering, the output is measured at cost within the ~~core~~SNA production boundary. In accordance with the *Handbook of National Accounting: Satellite Account on Non-profit and Related Institutions and Volunteer Work* (UN, 2018) volunteer output that exists outside of the ~~SNA~~~~core~~ production boundary can be valued using a replacement cost or generalist cost method for the volunteer's labour time. However, to avoid double counting estimates of the value of volunteering organizations contained within the ~~core~~SNA production boundary, these estimates must exclude the value of any expenses or minor payments they receive in compensation.

34.97 Further, in accordance with SNA principles if ~~volunteer~~ voluntary labour were valued, the following accounting entries would also be necessary:

- remuneration of employees of the unit employing the volunteer labour;
- income for the household to which the volunteer belongs;

- a transfer of the same amount by the volunteer to the employing unit;
- final consumption expenditure of the employing unit;
- in relevant cases social transfers in kind from the producing unit to the households benefiting from the produced services, with a concomitant decrease of final consumption of the producing unit and an increase of final consumption by households.

34.7934.98 For a number of the services there are direct connections to other accounting-based approaches used for specific aspects of well-being. In the case of accounting for education and training and health care (Sections E and F), the accounts described can be extended to incorporate the production of the same services through unpaid household service work alongside the production through activities within the SNA production boundary. Thus, accounts for education and training can be extended to incorporate the unpaid household service work of childcare and accounts for health care can be extended to incorporate the unpaid household service work of adult care.

34.8034.99 Measures of unpaid household service work can also be used to extend the distributional analysis of income and consumption described in Section C. Thus, the measures of unpaid work can be broken down into different household groupings as proposed in that section – for example by income decile. Differences in the extent of unpaid household service work across household types will depend on the capacity of a household to pay for the same services on the market. Note that in an accounting approach, the measures of unpaid household service work will equally affect measures of household income and consumption since the supply and use of the services must balance.

34.8134.100 The development of accounts for unpaid household service work has been a long-standing field of national accounting. There are two sources of international guidance of particular importance for the measurement of unpaid household service work, the Guide on Valuing Unpaid Household Work (UNECE, 2017)⁶, and the UN Guide to Producing Statistics on Time-Use (UN, 2024). The first is of importance in providing an important step toward a harmonised international platform for measuring unpaid household service work. The second is of importance as it sets out best practice for the production of time-use surveys, which are typically the primary data source for the compilation of accounts for unpaid household service work.

34.8234.101 In broad terms two approaches have been developed for the measurement of unpaid household service work: the input approach and the output approach. The input approach brings together data on time use, wage rates and other inputs, while the output approach uses data on observed transactions and market prices for similar services purchased on the market. Details on applying these approaches are provided in the UNECE Guide on Valuing Unpaid Household Service Work (2017).

34.8334.102 In addition to measures in monetary terms, the accounting framing supports the presentation of non-monetary data about unpaid household service work including time spent. Additional insights into well-being are likely to be gained by disaggregating data by the socio-demographic characteristics of those people undertaking unpaid household service work, for example in terms of age (e.g. to support recording of the contribution of children to this work) and sex. In particular, it is highlighted that the production of unpaid household service work exhibits a distinctly gendered pattern in most countries due to prevailing social norms, with women undertaking the largest share of most unpaid domestic and care work. This in turn can significantly affect their overall well-being. Consequently, the compilation of accounts for unpaid household service work by sex is recommended.

34.8434.103 To support a general understanding of the potential organization of data on unpaid household service work, two tables are presented, one in monetary terms and one using time as the unit of measurement. Two basic decisions need to be made in relation to the granularity of the information on unpaid household service work. The first decision concerns the details on the characteristics of the people involved: sex, age category and/or level of education. This decision also depends on the granularity of data on paid employment, a topic discussed in Chapter 16 on the compilation of labour tables. This level of granularity is not reflected in the

⁶ The work through the SNA update process has seen further advances in the compilation of unpaid household service work measures and an updated reference to best practice will be incorporated as it is finalised building on the content of the Guidance Note WS.3.

table below.

[34.8534.104](#) The second decision relates to the allocation of the unpaid household service work to industries, and the detail of the industrial breakdown. The connection to industries allows investigation of the balance of production between unpaid household service work and that recorded in the sequence of economic accounts and changes in that balance over time, for example in response to changes in labour force participation leading to greater demand for child-care services. For this analysis, it is necessary to consider the level of industry detail used in the regular compilation of national accounts. The following high-level industry classes are considered most relevant in relation to unpaid household service work. The related unpaid household service activities are given in brackets and apply to both services for own use and volunteering where similar activities are being carried out⁷:

- Wholesale and retail trade; repair of motor vehicles and motorcycles (Unpaid household shopping services; Unpaid household vehicle maintenance services)
- Transportation and storage (Unpaid household transport services)
- Accommodation and food service activities (Unpaid household nutrition services)
- Information service activities (Unpaid household information services)
- Administrative and support service activities (Unpaid household management services)
- Education (Unpaid household developmental childcare or adult care)⁸
- Human health and social work activities (Unpaid household physical childcare or adult care)
- Other service activities (Unpaid household laundry services)
- Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use⁹ (Unpaid household service work not elsewhere classified)

[34.8634.105](#) Table 34.6 presents an extended use table for unpaid household service work that highlights the key standard products of relevance that are recorded in use tables as well as additional unpaid services arising from unpaid household service work for own-use and from organization based and direct volunteering. The columns show the activities using unpaid household service work (which is shown as an “of which” amount) together with entries for final consumption expenditure and gross fixed capital formation. More detailed proposals and associated extensions are described in compilation guidance on unpaid household service work (reference to be finalized), recognizing that for certain entries data may not be available directly and assumptions and modelling will be required.

⁷ Note that similar considerations need to be thought through regarding the breakdown of products represented in the rows of the use table.

⁸ If developmental care cannot be differentiated then all adult and childcare can be aligned to ‘Human health and social work activities’.

⁹ Although this category is described as ‘for own-use’, if there is volunteering that can’t be allocated to a particular type of unpaid household service work, then it may also need to be allocated to this category even though it would technically be better described as ‘for use by others’. If deemed preferable, an alternative might be to create another activity category to allocate volunteering activity that is not defined elsewhere.

4. Other uses of time

[34.8734.106](#) Time-based accounting provides a more complete measure of how people's time is spent. Time based accounting is focused on how households allocate their time, including across the various forms of work, but also in activities outside of the general production boundary. Time based accounting is relevant because technical and organizational innovations shift economic activity, sometimes into, sometimes out of, the market (e.g., by substituting streaming services for cinema, private cars for public transport or vice versa, domestic washing machines for laundries, on-line flight booking services for travel agents, etc.) in a variety of ways.

[34.8834.107](#) To aid in measuring unpaid household service work, the UNSD has developed the International Classification of Activities for Time-Use Statistics (ICATUS) 2016, which provides a classification of all activities on which a person may spend their time over a 24 hour period. It is the standard classification of all economic and non-economic human activities, providing standardized concepts and definitions to support dissemination of internationally comparable time-use statistics.

[34.8934.108](#) A properly designed, nationally representative time-use survey (TUS), comprehensively covers all the daily activities of the population. A core feature of time-based accounting is the capability to map the activities of daily life to economic activity defined following the general production boundary. In addition, activities of people beyond the general production boundary, in particular non-productive activities undertaken by individuals, can be recorded. These activities include basic human activities such as eating, drinking, sleeping, leisure, exercising, etc.

[34.9034.109](#) There are some challenging conceptual aspects to reconcile in time-use measurement. For example, it can be difficult to differentiate the effects on well-being of unpaid household service work and leisure. Also, in some occupations at least, paid work has many of the affectively positive characteristics—challenge, sociability, enjoyment—often found in leisure pursuits. Further, it may be difficult in some instances to differentiate the primary use of time where people are, in effect, multi-tasking, for example when working from home and caring for children.

E. Accounting for human capital, education and training activity and health care activity

1. Introduction

[34.9134.110](#) The idea of viewing human knowledge and abilities as an asset – as human capital - and to estimate its value is not new, but has gained prominence in recent years, especially in the context of measuring sustainable development. Policymakers are calling for ways to understand and quantify human capital, in order to better understand what drives economic growth and the functioning of labour markets, to assess the long-term sustainability of a country's development path, and to measure the output and productivity performance of the education sector. Devising a robust methodology for the monetary valuation of the stock of human capital is important since studies, such as the World Bank Changing Wealth of Nations, suggest indicate that human capital is a significant component of extended measures of national net worth in many economies.

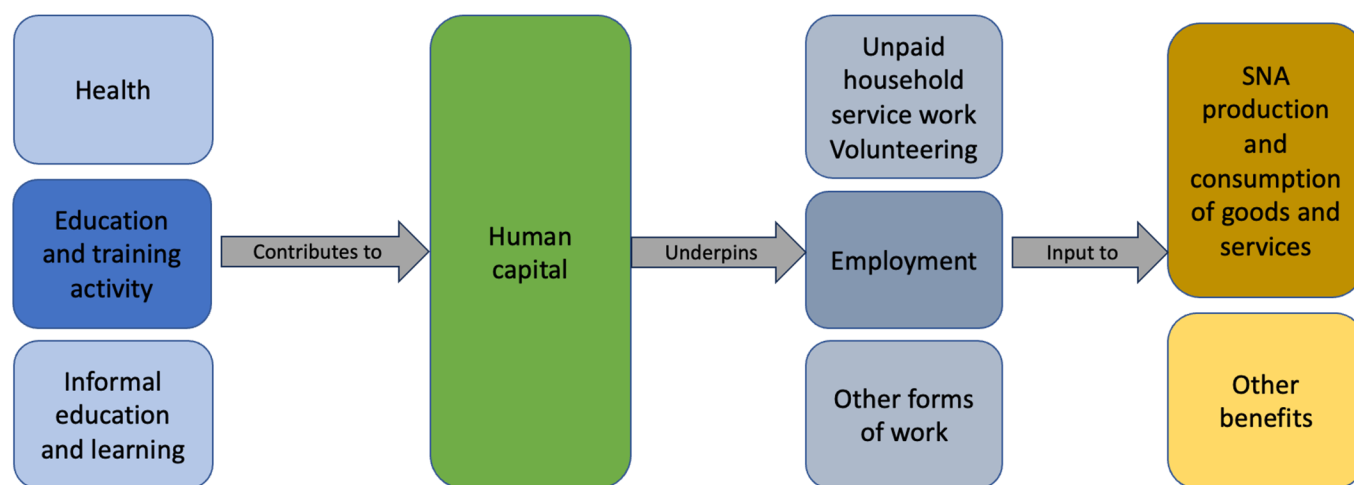
[34.9234.111](#) As well, there is considerable relevance of measures of human capital from the perspective of understanding the distribution of income and wealth, documenting the effects of changes in the age composition of the population on economic activity, understanding the implication for labour markets in light of ongoing changes in the economy through digitalization and globalization, and identifying the non-monetary benefits that may be obtained by society more generally from higher levels of human capital. Finally, in addition to measuring the stock and changes in stock of human capital, it is also relevant to organize data on investments in human capital, in particular, activity and expenditure on education and training.

[34.93](#)—The range of core connections and dependencies between human capital, education, labour and production, and other elements including health and unpaid household service work are depicted in the figure below. A key feature of this figure is that human capital is a core concept that underpins a range of aspects of well-

being. With this framing in mind, accounting for human capital is described in more detail in Chapter 35 alongside the other capitals that underpin the sustainability of well-being. This section describes approaches to account for two important contributors to human capital, education and training activity and health care activity. The measurement of other aspects in Figure 34.2 is discussed in Section D above concerning the contributions of unpaid household service work and other forms of work and in Chapter 16 concerning Labour market tables. provide a conceptual framework through which labour market data from diverse sources can be confronted and integrated, with the aim of producing a coherent and consistent set of labour market statistics. Broadly, labour tables consist of four quadrant tables: jobs, persons (both employees and self employed), volume (i.e. hours worked) and payments. Chapter 16 provides a thorough overview of labour tables.

34.112

Figure 34.2: Linking education, human capital, employment and production



34.94 This section describes the potential to connect data on labour, human capital and education. Labour tables provide a conceptual framework through which labour market data from diverse sources can be confronted and integrated, with the aim of producing a coherent and consistent set of labour market statistics. Broadly, labour tables consist of four quadrant tables: jobs, persons (both employees and self employed), volume (i.e. hours worked) and payments. Chapter 16 provides a thorough overview of labour tables. The following two sub-sections present approaches to accounting for human capital and accounting for education and training.

1. Accounting for human capital

34.95 A general definition of human capital is “the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being”.¹⁰ This definition provides a clear foundation that incorporates both economic and non-economic benefits arising from the use of human capital by individuals. From an economic perspective, the creation of human capital, or put differently, the acquisition of knowledge, skills, competencies and attributes, increases the productive potential of the individuals in an economy and is a source of future economic benefit to them. Critical inputs to the creation of human capital are education and training but the consumption of these inputs is not sufficient. In addition, creating human capital requires the assembly and processing of these inputs by the individuals consuming them with the result that each individual creates a unique set of capabilities.

34.96 From an SNA perspective, there has been a long-standing discussion on the potential to capitalize education and training expenditures within the sequence of economic accounts and recognize human capital as an economic asset on the balance sheet. Thus, although human capital has not been included in the sequence of

¹⁰ OECD, 2004

economic accounts, the discussion here is of high relevance for extending and broadening the sequence of economic accounts. This section provides a description of ways in which the sequence of economic accounts can be connected to additional data on human capital.

34.97—Considering human capital as an economic asset leads to two approaches by which human capital may be valued in monetary terms. The first approach is a cost-based approach which sums the costs of generating human capital, principally expenditures on education and training. To apply this approach, the extended accounts for education and training described in the next section organize the relevant input data. The second approach is the lifetime labour earnings approach which estimates the value of human capital by calculating the net present value of future earnings of individuals within an economy. Both of these approaches inherently have a focus on the economic benefits arising from human capital, i.e. the contribution of labour to production within the SNA production boundary. While not elaborated here, a broader focus is possible incorporating the contributions of human capital to unpaid household service work, including volunteering, and the non-economic individual and societal benefits of human capital, e.g. in terms of civic engagement and participation.

34.98—The UNECE Guide on Measuring Human Capital (2016) provides a thorough description of these two approaches and the discussion here summarizes the key aspects. From a theoretical point of view, the net present value based approach is the most appropriate, as it incorporates all future economic benefits that can be allocated to the relevant asset, thus replicating a market equivalent valuation. However, its measurement requires a number of assumptions on the future development of the (active) population and the future pattern of economic benefits. The total values can also be significantly affected by the discount rate that is applied. To complement estimates from the net present value approach, a cost-based approach can be applied using the perpetual inventory method (PIM). In this approach, the investment costs for creating human capital are summed to obtain an estimate of the value of the human capital. These costs do not only relate to formal education, but also include training and courses provided by employers; time spent on learning and studying at home; and other expenditures on, for example, school books and other training material. This method also requires several assumptions, for example on the distinction between expenditures that are current nature and expenditures which add to the stock of human capital. Also, assumptions are needed to measure and to value any unpaid activities and concerning the service lives and the depreciation pattern of human capital.

34.99—Table 34.7 provides a structure for presenting data on human capital and related variables.

Table 34.7 Summary human capital table

| | | Employment by ISIC | Hours worked by ISIC | Remuneration of employees by ISIC | Human capital - Lifetime labour earnings by ISIC | Human capital - Cost-based PIM by ISIC |
|-------------------------------------|------------------|-----------------------------------|--------------------------------|--|--|--|
| | | Number people employed | Hours | Monetary | Monetary | Monetary |
| Total | | | | | | |
| By individual characteristic | | | | | | |
| | Age | | | | | |
| | Sex | | | | | |
| | Education status | | | | | |

34.100—In applying both approaches there are a number of measurement challenges described below which must be considered by compilers.

- The development of human capital takes place over a long but varying length of time, indeed, potentially over a life time, which complicates the determination of the timing of investment (and the contribution of individual years).
- The development of human capital relates to the input of education and training provided by other economic units but will also be built through personal experiences and unpaid inputs (unpaid household service work) of family and friends.
- The use of human capital in production is limited by the amount of time that a person provides labour input but the precise pattern of that use varies over time and hence the way in which human capital depreciates needs to be considered. The variation in the pattern of use will also affect the determination of asset lives.
- Depending on wider economic and social conditions, certain skills and knowledge may become obsolete from an economic perspective, for example through changes in technology.
- There is a very large heterogeneity in individual's combination of skills and experience and how these align to particular occupations and industries.
- The quality of educational experiences and the impact of education on the development of human capital varies across individuals and may not be directly related to the volume or cost of education.
- There are additional benefits (known as spillover effects) when knowledge and experience is shared among employees in a work place which in turn challenges the ability to use the sum of measures of human capital of individuals to reflect the aggregate contribution of human capital.

34.101—These challenges are real but also exist for many assets within scope of the SNA sequence of accounts. The primary issue for compilation is therefore the extent to which appropriate assumptions can be determined to provide reasonable estimates of human capital to support discussion and analysis. In this context, while the focus of discussion here is on the estimation of a monetary value of human capital, it is essential to collect a substantial range of non-monetary data to support measurement and the testing of assumptions. Relevant non-monetary data include data on years of education, the number of people in different professions, and the levels of skills and experience. In that regard, accounting for human capital provides a framework for the organization of an array of data building on the labour tables (Chapter 16) and the extended accounts for education and training described below.

34.102—While there are challenges in the measurement of human capital and ongoing research is encouraged, these practical concerns are not the primary reason for exclusion of human capital from the SNA sequence of economic accounts. One long-standing conceptual concern is that although the treatment of expenditure on education and training as analogous to gross fixed capital formation is possible, the nature of the acquisition of the benefits of education and training is such that they are activities that cannot be undertaken by anyone else on behalf of the student. Thus, the acquisition of knowledge is not a process of production in and of itself, even though the instruction conveyed by education services is. The consequence is that human capital cannot be considered produced. The more recent investigation into knowledge products and the capitalization of intangibles such as marketing assets suggests that this concern about whether human capital can be produced merits further investigation.

34.103—Another conceptual concern has been the question of ownership rights and the extent to which human capital is capable of bringing economic benefits to its owner, as required to satisfy the definition of economic assets. This concern connects the question of ownership of human capital to the problematic idea that people are "owned". However, an alternative framing is that human capital is embodied in individuals who in effect own their skills, knowledge and experience and utilize these capabilities to secure future economic benefits for themselves. Again, there is merit in further investigation.

34.104—Notwithstanding these specific conceptual concerns, it must be recognized that establishing human capital as an asset within the sequence of economic accounts would have substantial implications for the structure of the accounts and the interpretation of traditional measures of consumption, income, investment and saving, especially for the household sector but also more broadly. Resolving these implications requires determining the appropriate accounting entries to show that those paying for the development of human capital (e.g. governments, corporations) transfer the accumulation of benefits to the individuals whose human capital is

enhanced. The interpretation of remuneration of employees also needs consideration since in a human capital framing this flow would represent a payment for services. While accounting solutions to these types of changes have been developed, a wider discussion of the potential changes to the sequence of economic accounts and the implications for key economic measures and their interpretation is required.

~~34.105~~ Finally, the measurement of human capital allows for connection to a range of other topics that are important for individual human capital accumulation. These include health, parental and family engagement, cultural and social engagement and wider work related human capital accumulation beyond in-work training.

~~34.106~~ Health is a key aspect of an individual's human capital. This includes, for example, the effect of the lack of various diseases, illnesses and disabilities providing a higher level of physical and cognitive skills directly, as well as enabling further development into the future. Conversely, lack of good health can be seen as an impairment of an individual's opportunity to develop, while also having a detrimental impact on an individual's human capital today. Better health can also support the longer use of an individual's human capital, whether in the marketplace or in wider economic activity.

~~34.107~~ Similarly, people's family situation, and the cultural and social activities people engage in both as children and adults (e.g. attending museums, participating in social clubs, undertaking personal projects) are known to influence people's cognitive, physical, social and emotional development. While all of these factors will influence the development of people's human capital, the mechanisms by which this occurs is an area of active research (e.g. determining the relative role of parental income versus the opportunities such income provides). In addition, incorporating these issues within either an income based or cost based approach requires further discussion both in terms of valuation concepts and regarding data sources to support international comparability.

~~34.108~~ Lastly, beyond the wider social aspects feeding into human capital investment, it is known that there are other mechanisms that influence a person's development in the workplace. In particular, support networks, mentorship opportunities, and the quality and quantity of feedback on a person's work allow them to improve their skills and knowledge, and hence their potential human capital. There are also aspects of the extent to which employees are encouraged and extended in their work, while also being supported, so that they are able to improve their marginal productivity. All of these concepts are clearly important in the aggregate, but due to measurement issues, such as how to convert such opportunities above as intangible 'investment' when there is no market transaction, and what the imputed transaction may need to be, mean this is still an active research area.

~~34.109~~ Collectively, all of the topics introduced in the paragraphs above describe a large research agenda. Thus, notwithstanding the significant progress on accounting for human capital that provides a strong foundation for measurement, there remain many areas in which additional investigation and testing should be undertaken to more fully harmonize and integrate the accounting required for the development and contribution of people's knowledge, skills and experience.

2. Accounting for education and training activity

~~34.110~~34.113 There have been a number of projects undertaken to develop international guidelines on accounting for education and training activity. Examples include the UNESCO Methodology of National Education Accounts (NEA), the UNESCO-OECD-Eurostat (UOE) Manual for data collection on formal education and the OECD publication "Education at a Glance". The NEA framework and the UOE data collection on formal education support compilation of coherent and internationally comparable data. However, they both have elements that differ in several ways from SNA principles and measurement boundaries.

~~34.111~~34.114 To support SNA consistent compilation, the UNECE Satellite Account for Education and Training (SAET): Compilation Guide can be used. This extended account uses the national accounts and the relevant data input and classification systems (e.g., education statistics, government finance statistics, COFOG and COICOP statistics, trade-in-services statistics) as a starting point with the supply and use tables acting as a framework for ensuring consistency. In addition, the extended account incorporates a detailed classification of education and training activities by purpose based on International Standard Classification of Education, 2011 (ISCED).

34.11234.115 The scope of the extended account for education and training activities, as described in the SAET, covers all public and private expenditure for formal education and vocational training. Thus, the expenditure for education and training activities includes the following items:

- Teaching, administrative and other activities in formal education and vocational training services;
- Non-formal cultural, recreational, sport and vocational education and training activities (also including free courses and e-learning);
- In-house training by employers;
- Associated goods and services directly related to the delivery of education and training services;
- Gross fixed capital formation in the education industry.

34.11334.116 The extended account includes the expenditures on education and training for all residents of a country, as required for the measurement of investment in human capital. In line with this intention, the accounts encompass expenditures related to domestically produced education and training, as well as imported services (i.e., resident students studying in other countries). Expenditures of non-resident students within a reference country contribute to the human capital of another country and are recognized as exports.

34.11434.117 The extended account on education and training uses the supply and use framework as the starting point for the organization of data. Compiling data from both supply and use perspectives allows confrontation of the alternative data sources and improves the quality of the account. Four core tables can be distinguished (add reference):

- Education and training output, by provider and education and training purpose
- Education and training expenditure, by purchaser and education and training purpose
- Financing, by sector and education and training purpose
- Cost structure, by education and training purpose

34.11534.118 These four tables present monetary data in current prices focusing on the production aspects of the education system. They are intended to reconcile with relevant aggregate entries in the sequence of economic accounts given that the expenditures incurred by the different economic units within the activity of education and training are part of their production costs and are linked to their activities as providers of educational goods and services. Depending on country circumstances and data availability more detailed breakdowns can be compiled. Table 34.8 provides a basic supply and use table showing types of education and training services. Total supply is categorized in terms of different institutional sectors with a key distinction between non-market (general government and NPISH) and market producers. Total use is categorized by users of final consumption and intermediate consumption.

~~34.116~~34.119 Where possible, estimates of output, expenditure and costs should be presented in volume terms using appropriate methods and consistent with the advice on price and volume measurement in Chapter 18. While the extended accounts for education and training largely respect the SNA production boundary for education and training, compilers of these accounts are encouraged to expand the production boundary to include the output from enterprise's internal expenses on in-house training (own account training). The aim of this extension is to provide policy makers with additional data on the expenditures on education and training, and the financing of these expenditures.

~~34.117~~34.120 The monetary data presented in the main tables should be supplemented with non-monetary data concerning: population, the number of enrolled students (by ISCED level), the number of adults in continuing vocational training and in lifelong learning (broken down by sex and age group), the number of (and hours worked by) teachers/staff (by ISCED level) and the number of employed persons in education and training by educational attainment. Combining monetary and non-monetary data sets supports cross-sectional analysis of expenditure per capita or per student which in turn provide important insights for policy measures. Examples of non-monetary tables are presented in SAET Section 3.6.

~~34.118~~34.121 A final extension concerns data on the provision of early childhood education which will commonly involve unpaid household service work and hence is outside the ~~scope of the~~ SNA production boundary. An extension to consider the role of unpaid household service work might also extend to recognize the contribution of other unpaid household service work activities that support the development of human capital such as those relating to childcare, nutrition and information services. Estimates concerning these activities can be incorporated in the SAET framework recognizing the challenges involved in measuring and valuing unpaid household service work as described in Section C.

3. Accounting for health care activity

~~34.119~~34.122 Since health is a fundamental aspect of people's well-being, and can be directly connected to the development and enhancement of human capital (see Figure 34.2), it is important to have detailed insights concerning the production and outputs of the health care systems in countries, the economic units involved, and how health care activity being financed. While there is a range of data in the sequence of economic accounts related to health care activity, for example expenditure data classified using COFOG and COICOP, ~~t~~The development and implementation of health accounts has been a long-standing activity for this wider purpose. It is recommended that to support integrated decision making, countries compile a series of extended accounts that present data on the functions, providers and financing of health care systems. The standard for accounting for health care is described in the *System of Health Accounts 2011 (SHA)*. The SHA is a well-developed framework for classifying health expenditures on these different aspects of the health care system.

~~34.120—As introduced in Chapter 2 and noted elsewhere, the SNA has a focus on the measurement of outputs from economic activity rather than outcomes. As a result, the SNA does not organize data within the sequence of economic accounts that supports measurement of, for example, the quality of life of households. Further, as noted in Chapter 2, the measurement of well-being discussed here concerns objective rather than subjective measures.~~

~~34.121~~34.123 The extended accounts for health are organized around a tri-axial system, defining (i) consumption of health care goods and services by function; (ii) provision of health care services by industry; and (iii) financing of health care (i.e., sources of funding). What is consumed must be produced, meaning that setting up the system within a supply and use framework is a useful tool for ensuring consistency and completeness. As well, what is produced and consumed must be financed and hence a clear link and consistency can be established among the three axes.

~~34.122~~34.124 The three axes each have their own classifications. The three key classifications in the extended accounts for health are the classification of health care functions (HC), the classification of health care providers (HP), and the classification of health care financing schemes (HF). Classifying the consumption of goods and services according to health care functions is the starting point for compilation and defines the boundaries of the health accounts.

~~34.123~~34.125 Health care functions relate to “what is the purpose” or “the type of need a transaction or group of transactions aims to satisfy”. This is the most fundamental classification within the extended account for

health and defines what is in and out of scope for “health care”. There will always be borderline cases between health care and social care especially concerning long-term care (LTC). The extended accounts for health distinguish two elements of LTC: (i) health: medical or nursing care including the management of symptoms involving medical, paramedical and nursing care services, such as relieving pains or other symptoms, administering medication, performing medical diagnosis and minor surgery, dressing wounds, etc, as well as personal care services provided in response to limitations in self-care primarily due to disability and illness; and (ii) social: assistance services related to care that enables a person to live independently in a house or apartment, i.e. lower-level social care services to assist with instrumental activities of daily living. The extended accounts for health include LTC (health) within its scope of health expenditures but it is also recommended to measure the expenditures related to long-term care (social) to complement the health data.

[34.12434.126](#) The extended accounts for health also provide a framework for the classification of health care goods and services, as described in Annex E of SHA 2011. The primary use of the product classification is to facilitate applying the measurement boundary and to select the products for estimating health care expenditures. The product classification in the extended accounts is linked to the Central Product Classification (CPC) and thus to the supply and use framework in the national accounts.

[34.12534.127](#) Table 34.9 provides a basic supply and use table for recording health care output and expenditure according to classes of health care functions (HC) and classifying supply in terms of health care providers (HP) and use in terms types of users.

Table 34.9 Basic Health care expenditures supply and use table

| Supply table | | | | | | | | | | | | | |
|---|--|--|--------------------------------|---------------------------------------|-------------------------------------|----------------------------------|---|--------------------------------|--|---------------------------------------|---------|----------------------------------|--------------|
| | | | Hospitals | Residential long-term care facilities | Providers of ambulatory health care | Providers of ancilliary services | Retailers and other market producers of medical goods | Providers of preventative care | Providers of health care systems and financing | Other secondary health care providers | Imports | Taxes less subsidies on products | TOTAL SUPPLY |
| | | | HP1 | HP2 | HP3 | HP4 | HP5 | HP6 | HP7 | HP8 | | | |
| Health & social care functions | | | | | | | | | | | | | |
| HC1 | Curative care | | | | | | | | | | | | |
| HC2 | Rehabilitative care | | | | | | | | | | | | |
| HC3 | Long term care (Health) | | | | | | | | | | | | |
| HC4 | Ancilliary services | | | | | | | | | | | | |
| HC5 | Medical goods nsf | | | | | | | | | | | | |
| HC6 | Preventative care | | | | | | | | | | | | |
| HC7 | Governance and health systems & financing administration | | | | | | | | | | | | |
| HC9 | Other health care services nec | | | | | | | | | | | | |
| HCR1 | Long term care (Social) | | | | | | | | | | | | |
| TOTAL OUTPUT | | | | | | | | | | | | | |
| R&D production of Health industry | | | | | | | | | | | | | |
| Use table | | | | | | | | | | | | | |
| | | | Final consumption expenditures | | | | Intermediate consumption - market producers | Exports | TOTAL USE | | | | |
| | | | Government | | NPISH | Households | | | | | | | |
| | | | Central | State | Local | | | | | | | | |
| Health & social care functions | | | | | | | | | | | | | |
| HC1 | Curative care | | | | | | | | | | | | |
| HC2 | Rehabilitative care | | | | | | | | | | | | |
| HC3 | Long term care (Health) | | | | | | | | | | | | |
| HC4 | Ancilliary services | | | | | | | | | | | | |
| HC5 | Medical goods nsf | | | | | | | | | | | | |
| HC6 | Preventative care | | | | | | | | | | | | |
| HC7 | Governance and health systems & financing administration | | | | | | | | | | | | |
| HC9 | Other health care services nec | | | | | | | | | | | | |
| HCR1 | Long term care (Social) | | | | | | | | | | | | |
| TOTAL OUTPUT | | | | | | | | | | | | | |

34.12634.128 Household production of health care can be included in extended accounts. In the SHA this inclusion is limited to those health services whose costs are partially or completely covered by dependency allowances. The associated transfers are treated as a quasi-salary and a corresponding “output value” is calculated. The wider literature supports the view that unpaid household care has a significant role in understanding health and social conditions and individuals’ well-being. Thus, it is recommended that all unpaid household production of health and social care, and not limited to what is already recorded in the SHA, is included in the extended accounts. This work should be undertaken in line with the discussion in Section C.3 on the measurement of unpaid household service work, noting the importance of distinguishing between health care and other care activities and also clarifying the role of supervisory care.

34.129 To support the reporting on and discussion of well-being, indicators for health and social care can be built from the expenditure flow data in the health care accounts. These indicators include individual final consumption expenditures of health and social care with various breakdowns defined mainly by health care function, provider, and financing scheme. ~~In “Final” consumption expenditure in~~ the extended accounts, the relevant expenditures also includes intermediate consumption related to occupational health care. Where possible, measures in volume terms should be derived consistent with best practice described in Chapter 18. Data can also be cross tabulated according to different variables (e.g. household type) to support a range of analyses of household well-being.

34.12734.130 In monetary terms a core set of indicators includes health expenditures as a share of GDP, per capita health expenditures, expenditure by health care function, expenditure by age and gender of beneficiaries, and expenditure by income group of beneficiaries. In non-monetary terms indicators include employment in health and social care with breakdowns by age, sex, employment status and other characteristics. Employment data classified by occupation can be compiled following the International Standard Classification of Occupations (ISCO-08) noting the most relevant ISCO groups for health are sub-major group 22 (health professionals) and 32 (health associate professionals). Physical indicators of assets used in the production of health service can also be presented (e.g., number of hospital beds available).