



Household Production and Consumption

Proposal for a Methodology of Household Satellite Accounts



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HOUSEHOLD PRODUCTION AND CONSUMPTION

**Proposal for a Methodology of Household Satellite
Accounts**

Task force report for Eurostat, Unit E1

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Preface

This report is a follow-up to the 1999 report "Proposal for a Satellite Account of Household Production" which had been made available as Eurostat working paper 9/1999/A4/11.

Since then, a new round of time use surveys has been conducted, this time within the methodological framework of the Harmonised European Time Use Survey (HETUS). Thus, a harmonised and up-to-date source, can be used now to compile an input-based satellite account of household production. Furthermore, The Office for National Statistics (UK) launched a major innovative project to produce household satellite accounts based on the output approach.

Eurostat felt that, in the light of these recent developments, the time had come to continue the discussion in a new task force in order to further clarify methodological issues, to improve concepts and to exchange practical experience. The task force was set up in 2001 and was composed of both national accountants and TUS specialists from European countries and Eurostat.

While the Task Force made substantial progress a number of issues still are highly controversial. For this reason, the Task Force report, which again is made available as a Eurostat working paper, still presents work in progress. Its nature is that of a stage report. It presents neither Eurostat's position nor a common EU position. The report presents the points on which agreement was found and, at the same time, highlights issues on which there continue to be diverging views.

We have the pleasure to present this work, which is the result of a joint effort of the participants in the Task Force. The Task Force felt that their results are interesting enough to share them with a wider forum of interested experts in order to stimulate the on-going discussion at the international level.



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1. Introduction

1. Household production results from the combination of unpaid labour, goods, services and capital. The output of households' productive activities is not transacted in the market, and therefore carries no monetary value. Most of it is not recorded in national accounts. As a result, the size of household production has been largely unknown.
2. Time use surveys carried out by several countries since the 1960's have shown the considerable amount of unpaid labour not recorded in labour force statistics. In order to achieve comparable results on time use between countries, researchers within the International Association of Time Use Research (IATUR) started to co-ordinate and harmonise time use methodology. The major step was taken by Eurostat when the Harmonised European Time Use Survey (HETUS) was developed (Guidelines ... 2000).
3. Numerous attempts to value unpaid household labour in monetary terms have been made during the past decades (among the latest, e.g. Australia 2000, Canada 2000, New Zealand 2001, Republic of Korea 2001, South Africa 2002)¹. A few studies also included intermediate consumption and capital consumption in the calculations (e.g. Schäfer and Schwarz 1994, Vihavainen 1995, Ironmonger 1996, Prado Valle 2000, Holloway et al. 2002).
4. The results have been experimental, and, because of methodological differences, not comparable between countries, but orders of magnitude have gradually become apparent. In developed economies, the value added of household production is equivalent to about half the GDP. The difference between production recorded in national accounts and total economic production had now become patent (e.g. Goldschmidt-Clermont and Pagnossin-Aligisakis 1995). Two basic methods have been used to impute a monetary value of household production: hourly market wages on labour inputs plus other costs of production (input approach) or market prices to output of goods and services (output approach).
5. The 1993 revision of the SNA opened a door for the integration of household production in the national accounts framework. It introduced the concept of satellite accounts, which allow for the use of complementary or alternative concepts when needed to bring additional dimensions to the conceptual framework of national accounts (SNA 21.4 b). The production boundary itself may be enlarged, for example, by including services rendered by persons to other members of their household or voluntary work. (SNA 21.18)
6. In 1996, Eurostat had commissioned a first study on a proposal for a satellite account of household production (Varjonen et. al. 1999). In October 2000, Eurostat then set up a task force composed of experts from Member States to continue the work on the methodological issues, and exchange experiences, with the aim of achieving further harmonisation of the methodology. (The members of the Task Force, see Annex 1.) The present document is the result of the work of this Task Force. Its nature is that of a stage report reflecting work in progress. It does not give final recommendations. The report presents the points on which the Members of the Task Force agreed, and, at the same time highlights issues on which there continue to be diverging views. The recent innovative work by the United Kingdom on the output approach (Holloway et al. 2002) provided the stimulus to focus also on the output approach. The report aims

¹ Trewin 2000, Statistics Canada 2000, Statistics New Zealand 2001, Kim & Moon 2001, Budlender & Brathaug 2002.

to share the results of the Task Force work with a wider forum of statisticians and interested experts and invites their contributions to the on-going discussion.

7. The two approaches will be discussed and described: the input approach and the output approach. The focus is on measuring households' production activities in monetary terms. Measurement in terms of physical units is also briefly addressed.
8. The input approach is the most standardised method. It has traditionally been used to estimate the value of unpaid work in households or household production. Time use surveys provide an important data source for this method.
9. In national accounts valuation of outputs is the preferred method for the measurement of production. The discussion on this approach for the purposes of household satellite accounts has greatly benefited from the experimental household satellite accounts produced by UK Office for National Statistics (Holloway et al, 2002)

Terminology

Household production

10. The term household production is used to refer to goods and services produced within the household by its members by combining their unpaid labour with purchases of durable and non-durable consumption goods (OECD 1995). This output is used by the household without undergoing a market transaction. Hence it is called household non-market production. The household non-market production includes also unpaid, informal help to other households, and own-account capital formation where a typical case is the own-account construction of houses. *SNA household production* is that part of the production mentioned above that is included in national accounts (because it is within the SNA production boundary, see chapter 3). *Non-SNA household production* is the part of it that is excluded from national accounts (but is within the general production boundary). For simplicity, the term "household production" is used to mean "household non-market production".

Household market production

11. Household market production refers to the production of goods and services by households for the market, e.g. households providing 'bed and breakfast' services for tourists. This production is also included in national accounts and is not covered by the household satellite account.

Household satellite account (HHSA)

12. The household satellite account belongs to the family of satellite accounts that are described by the SNA and ESA²: "Satellite accounts are accounting statements that are separate from, but conceptually consistent, with the core national accounts. The main purpose of satellite accounts is to give an integrated picture of a given field of economic activities, flexibly expanding the analytical capacity of national accounting without overburdening or disrupting the central system." (ESA 1.18)
13. "In satellite accounts, more importance is attached to alternative concepts and classifications... For example, the production of domestic services by members of households for their own final consumption may be brought within the production boundary. ... It experiments with new concepts and methodologies, with a much

² The ESA is consistent with SNA93 as regards definitions, accounting rules and classifications.

wider margin of freedom than in core national accounts. It provides useful results for economic analysis.” (SNA 2.247; 21.47).

2. Purposes and uses of HHSA

14. The HHSA is based on the expansion of the SNA production boundary to include **all** non-market household production. The HHSA focuses first on the non-SNA part. It then proceeds to integrate it with the core national accounts, thus extending the coverage of production activities. The sum of SNA and non-SNA household production is referred to as “extended production” (the term used by Goldschmidt-Clermont and Pagnossin-Aligisakis 1995; 1999).

15. HHSA presents data in such a way that they can be aggregated across the various categories of household production activities, and that they are compatible with national accounts data in order to describe and analyse the extended economy.

16. Examples of analyses that can be done with HHSA:

Determining the respective orders of magnitude of household production and of the market sectors of the economy.

Comparing the share of the market and of households in supplying given goods and services, and respectively, determining the shares of market production and household production in extended private consumption.

Comparing the share of market-generated income and of income generated by own-account production of households.

Analysing the trade-off between household production and market production, and the impact of the one on the other (e.g. which market products become available or disappear from the market and how this is reflected in the composition of goods and services that households produce, the dynamics of this impact over time and across different socio-economic groups).

Increasing the comparability of measures of extended production within a country at different points in time, also enabling the analysis in the perspective of long-term growth, productivity, distribution, and capital formation.

Improving the comparability of the size of the economy across different countries by including both market and all non-market production. This calls for developing transparent methods that are harmonised to a sufficient degree – which is a desirable long-term goal.

17. Other uses of HHSA:

Policy makers can benefit from information provided by HHSA and its integration into extended economic analysis.

HHSA draws attention to unpaid work and may constitute a first step to a modified and wider concept of labour.
(See also Landefeld and McCulla 2000)

3. Production boundaries in national accounts and in the HHSA

3.1 General production boundary

18. The general production boundary, is defined by the SNA as follows: "Economic production may be defined as an activity carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital and goods and services to produce outputs of goods and services. There must be an institutional unit that assumes responsibility for the process, and owns any goods produced as outputs or is entitled to be paid or otherwise compensated, for the services provided." (SNA 6.15) "Activities that are not productive in an economic sense include basic human activities such as eating, drinking, sleeping, taking exercise, etc. that is impossible for one person to obtain another person to perform instead. On the other hand, activities such as washing, preparing meals, caring for children, the sick or aged are all activities that can be provided by other units and, therefore, fall within the general production boundary" (SNA 6.16).
19. The general production boundary definition implicitly includes a "third party criterion", and this is how productive household activities are separated from other household activities. The criterion says: "the activity is productive if it can be delegated to someone else", in other words, if it is possible to have somebody else to do it for you. The criterion that was first presented by Margaret Reid (1934) is widely referred to in the household production literature (and implicitly mentioned in SNA 6.16).
20. The household is an institutional unit which is responsible for and which manages the production of goods and services. In the production process it uses its labour and capital and market goods (as intermediate consumption). In this sense, household production can be compared to production in the market. As an institutional unit, a household may also be engaged in market production (household unincorporated market enterprises; referred to in SNA 4.144). This type of production is included in national accounts and it is not dealt with in this report.

3.2 SNA production boundary

21. The SNA production boundary is more restricted than the general production boundary. Production accounts are not compiled for household activities that produce domestic or personal services for own final consumption within the same household, except for services produced by employing paid domestic staff (SNA 6.17).
22. Activities that fall within the production boundary may be summarised as follows (SNA 6.18):
 - a) The production of all goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods and services used up in the process of producing such goods and services;
 - b) The own account production of all goods that are retained by their producers for their own final consumption or gross capital formation³ (ESA 3.08).

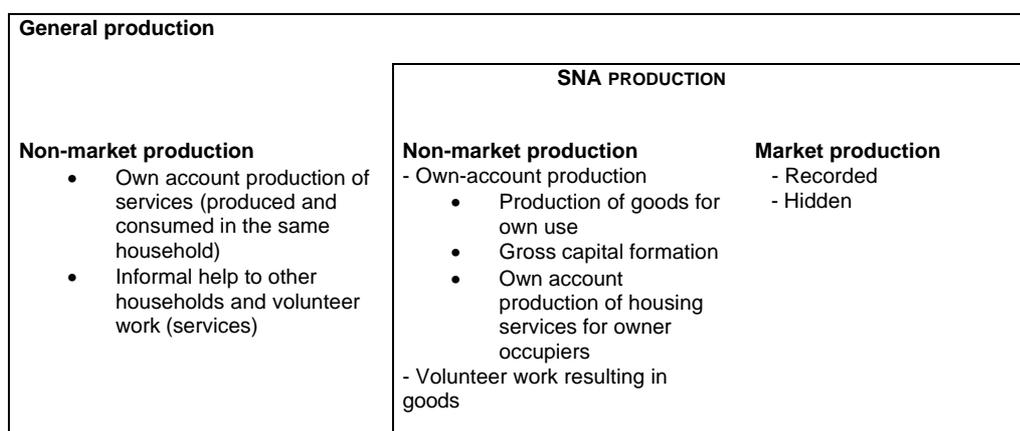
³ By convention, in the ESA, only own-account construction of dwellings and the production, storage and processing of agricultural products is included; all other own-account production of goods by households are deemed to be insignificant for EU countries. (ESA3.08)

- c) The own account production of housing services by owner-occupiers and of domestic and personal services produced by employing paid domestic staff (SNA 6.18).
- d) Volunteer activities that result in goods (ESA 3.08)

Applying the more restricted SNA production boundary leads to the exclusion of major parts of household non-market production (ESA 3.09).

The general production boundary and its relation to the SNA production boundary are presented in Figure 1.

Figure 1. Production boundaries



Note: Domestic and personal services by paid domestic staff belong to the market production.

3.3 Production covered by the HHSA

23. For the HHSA the general production boundary is relevant, but it focuses on non-market household production, both SNA and non-SNA. It is supplemented by household market production when it comes to the sequence of accounts. For the sequence of accounts also household market production is included due to the fact that e.g. distributive transactions are related to the whole households as institutional unit. In Figure 2 the scope of the satellite account of household production is described. When integrating household production with the core accounts the core accounts have to be modified in order to avoid double counting. This is dealt in detail in section 7.4.

Figure 2. Scope of the household satellite account

		Satellite account of household production			
SNA production			Non-SNA production		
Market production	Volunteer production (goods)	Household production for own use			Volunteer production (services)
		Housing services produced by owner occupiers	Own account production (goods), in particular, own-account construction of dwellings	Other services produced for own use	

4. The scope of the HHSA

4.1 Definition of the household and the household sector

4.1.1 Household

24. The SNA defines a household as a small 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. (SNA 4.132) The individual members of multi-person households are not treated as separate institutional units, because many assets are owned and liabilities incurred jointly. Moreover, many expenditure decisions, e.g. relating to the consumption of food or housing, may be made collectively. This is why the household must be treated as an institutional unit (SNA 4.4). A person living alone may also constitute a household.

25. Households may be of any size and they may assume a wide variety of different forms. Servants or other paid domestic employees who live on the same premises as their employer do not form part of their employer's household even though they may be provided with accommodation and meals as remuneration in kind (SNA 4.135). The SNA concept of household as an institutional unit is valid in the HHSA.

4.1.2 Household sector

26. In national accounts the household sector consists of all resident households. These include institutional households made up of persons living in hospitals, retirement homes, convents, prisons, etc. for long periods of time. Institutional households may cause problems in the household satellite accounts, because data on their productive activities are not usually available. Therefore, for practical reasons, it is proposed not to cover institutional households in the HHSA. This will not cause a serious bias in the results because the amount of household production or voluntary work done in these institutions is unlikely to be significant. (Schäfer and Schwarz 1994).

27. The household satellite accounts include, in principle, the non-market production of resident households, either produced in the country where they are living or in another country, for example, during tourist trips. The NA classification used for final consumption (COICOP) refers to domestic consumption. What would be needed is the consumption of resident households by COICOP. The transition is a problem with regard to the COICOP breakdown. The importance of the transition from domestic to national consumption varies between countries.

4.2 The basic options

28. SNA gives a wider range of freedom in producing satellite accounts than what is possible in the core national accounts (SNA 21.47). The household production can be measured and analysed in different ways and consequently, different satellite accounts may be developed. Household production can be measured using physical units such as time used for productive activities, or number and type of goods and services produced, or it can be measured by imputing monetary values to services produced. There are also options for extending the satellite accounts: only the value of household labour can be estimated, or the production and income generation accounts can be compiled. It is possible to go further and produce a full sequence of accounts where household production is integrated with the market production. An option may be chosen according to the purposes of the satellite account.

4.2.1 Physical data in the HNSA system

29. Key elements of household non-market production (output, labour input) can only be observed in physical units, because there are no underlying market transactions to provide monetary value. This means that the first step has to be a measurement in physical terms even if eventually monetary valuation is intended. Measurement of output in physical terms must necessarily be based on a variety of measurement units: for example, the number of meals prepared, transportation distance, the volume of the laundry, and the time a service is provided (e.g. hours of childcare). However, these measures are not commensurable. The labour input, on the other hand, is measured mostly by the labour time. For the other inputs to the production process (e.g. intermediate consumption, fixed capital) measurement in physical units is not common but is, in most cases, feasible.
30. The kind of information a satellite account of household production should contain depends on its purposes. The main purposes of a satellite account of household production have been described in section 2. Although often implicitly suggested as the ultimate objective, the production of the full sequence of monetary accounts (as presented in the SNA and ESA) for households is not necessarily the only option to serve all the purposes of a satellite account of household production. For example, a full sequence of accounts is not necessarily needed to analyse transitions between market and non-market production. The two sectors can also be compared on the basis of working hours. Analyses in terms of physical data do not involve the difficulties and potential statistical inaccuracies of a monetary valuation of household production, but give transparent information on the substitution between market and non-market production. Therefore physical data should be preferred as long as the aims can be achieved on this basis (i.e. division of work by gender). But it is clear that this means that no aggregation on the output side or the input side is possible (except for labour input in terms of time units). Obviously, this constraint sets limits to analyses based on physical data. In view of the different aims to be achieved, the physical and monetary parts should therefore complement each other in the satellite system.
31. The physical measures allow us to present indicators of and information about household production, which, although not being expressed in monetary terms, nonetheless provide valuable additional insight in households' productive activities. They comprise information on the use of time, on outputs and other quantitative data (e.g. household production-related characteristics recorded in time use surveys, such as information on irregular informal help to other households, number of meals

prepared, numbers of children and adults cared for in the home) can provide important information about changes in household behaviour over time.

32. Time use information firstly shows the total time used by households and persons and recorded in time use diaries. Thus the user has an opportunity to define household production in a way different from the one proposed for the third-party criterion. In addition, those activities where applying the third-party criterion constitutes a considerable problem could be presented separately in order to indicate the degree of uncertainty in delimiting household production to the best possible extent. One example of this is "hair washing". Using the third party criterion it is productive, because a third person can do it, but it is excluded from HHSA (for practical reasons, see text in section 4.3.1.1). Using physical measures the amount of it could be shown to give an idea of how much "production" is left out.
33. Apart from total time use, it is possible to show the time spent on productive activities in more detail and with a greater socio-economic breakdown than monetary measures. This allows us to establish links to the computation of the labour volume in national accounts. Simple links can be established by comparing spheres of activity of household production and the corresponding economic sectors of national accounts (e.g. time spent on motor vehicle repair and maintenance). More complex and also time-consuming analysis could be based on social time budgets which would, by means of input-output models, allow us to determine time spent in gainful work (production of market commodities), housework and consumption bound up by such needs as nutrition (see e.g. Gershuny and Jones 1986, Gans and Liebe 1982). An interesting recent work is the development of time input-output tables in connection with extended monetary and physical input-output tables by Stahmer (2001).
34. It is possible to construct an "account" of household production containing only physical data, which could serve some purposes. It is flexible and it does not involve the difficulties and the potential statistical inaccuracy of monetary valuation of output or input data and has an extended analytical capacity in combination with monetary data. Such an account does not allow for aggregation of different components of the production function (output and non-labour inputs), neither is it possible to compile a full sequence of accounts. The decision on the respective importance of volume and monetary parts of the satellite account has to be taken in the light of the specific objectives of work.

4.2.2 Output approach vs. input approach

35. The valuation of household production is inevitable if the purpose is to show the monetary value of household production in the economy or to fully integrate it with the national accounts framework.
36. In the national accounts market prices are the basic reference for the valuation of the production. In the absence of market transactions, valuation is made according to costs incurred (non-market services produced by government) or by reference to market prices for analogous goods or services (SNA 2.68). The latter two have been used to value household non-market production. The input approach is analogous to the approach for other non-market production: sum of costs. The output approach is in line with the requirements for valuation of own account production. But the valuation problem is aggravated compared to the core national accounts: the labour input is not bought from the market (input method) and none of the products is sold on the market (output method). Therefore, prices and wages of their market

equivalents must be used (labour costs, prices of products). This is, in practice, the core problem in HHSA.

37. The input approach values household production as the sum of the values of all its inputs: labour input, intermediate consumption, and capital costs. The output approach values household production at its imputed output value, in the same way that household own account production is valued in the core national accounts. The gross output is valued by multiplying the volume of household output for different activities by market-equivalent prices for each type of service. Under the output method, the gross value added in household production is equal to the value of gross output less intermediate inputs. The output and input approaches use some of the same elements – intermediate consumption, capital consumption, taxes and subsidies. The calculation for each approach is presented below.

Output-based method

Value of outputs (quantity x price) at market equivalent prices

- intermediate consumption
- = gross value added
- consumption of capital
- other taxes on production
- + other subsidies on production
- = mixed income (residual, includes compensation of labour and capital)

Input-based method

Value of labour (units of time valued at suitable wages/time)

- + other taxes on production
- other subsidies on production
- + consumption of capital
- = gross value added
- + intermediate consumption
- = value of total output (sum of costs)

38. Even if the elements of the two methods were almost the same, it cannot be concluded that they would lead to the same result. In the output-based method the starting-point is the market value of the products. The costs of production (intermediate consumption, consumption of capital, taxes on production minus subsidies) are subtracted. The residual is known as mixed income, which comprises labour compensation and net operating surplus.
39. In the input-based method gross value-added is the sum of the value of labour plus the consumption of capital and taxes less subsidies on production. Value added derived from the input approach does not include profits, in contrast to the output approach (mixed income), which does.
40. In the core national accounts market output and output for own final use are valued at basic prices of similar products sold in the market. Other non-market output (products provided for free by government or NPISH is valued at costs incurred (see ESA 3.53), where taxes/ subsidies on products are absent. In the output approach to HHSA the market prices of equivalent goods and services include VAT and taxes/subsidies on products (which means that the price concept is actually purchaser's price), and thus, the use of the same valuation as in the input approach would require that VAT etc. including the profit margin be peeled off. However, the "forgone expenses" approach of the output method (including VAT and taxes/subsidies on products) provides important information, too.

Due to the imputed nature of valuation in HHSA the same price concept of valuation must be used for output and final consumption.

41. The advantages and disadvantages of both methods have been extensively discussed in the literature. Characteristic features of each approach are listed in the following:

Output approach

- Is consistent with general national accounting recommended practice.
- Productivity of household production possible to measure (but in order to do this there is a need to know the hours spent on production).
- Avoids the need to consider the treatment of simultaneous activities by simply taking all outputs into account. There may be a problem, though. Treating each output separately, e.g. the care for each child, and ,at the same time, allocating the full working time to each of the simultaneous activities , means that returns to labour derived from the calculations may be difficult to interpret. The return to labour by activity can then be much lower in the case of activities that are often performed simultaneously. In these cases a low return to labour does not mean low productivity. To overcome this, we may have to split inputs relating to simultaneous outputs. –
- Produces aggregate estimates. Breakdown by socio-economic criteria may be more difficult. (This would not be a problem if the data were gathered from the households.)
- Definitions of outputs, in practice, depend on the data sources available. This may lead to variations between countries.
- Finding the appropriate market equivalent and price may be difficult. There is no general agreement on appropriate and internationally comparable market equivalents e.g. for passive childcare and longer distance transport, and more work needs to be done on what types of market provision are available and/or likely to be used in different countries.
- Additionally, the results depend on the level of aggregation chosen (see chapter 6, example of housing). Some household internal activities may be difficult to disentangle in order to produce an output valuation (e.g. how to measure and to allocate household management to outputs). Further research may clarify these issues.
- So far, there is only limited experience with the output approach.

Input approach

- Relies on time use data, harmonised guidelines by EU for time use surveys available.
- Few additional data sources are needed (national accounts and wage data) that are already available in official statistics in many countries for other purposes.
- A great deal of research has been done using this method; its strengths and weaknesses and their sources are well recognised.
- It is possible to produce disaggregated results by household type, gender, income level, etc.
- Value depends heavily on which wage rate is used and what working time concept is used as a basis for the hourly wages (actual working hours, paid hours).
- Value depends on what time concept for measuring activities is used (Only time of primary activities may be taken into calculations, or also time for simultaneous activities, one or more, may be counted and included).
- Productivity measures cannot be calculated.

4.2.3 Options for the extent of the HHSA

42. There are three main options when it comes to the extent of HHSA. They will be described in increasing order of ambition. The possibilities of analysis are systematically extended by going from the most restricted approach to the fully elaborated one. The most restricted option is valuing the unpaid labour only, and the option giving widest range of possibilities for analysis consists of compiling the sequence of accounts.

4.2.3.1 Unpaid labour only

43. Valuation of unpaid labour is the method used most frequently to date. The value of labour input is regarded as an approximation of the net value-added of household production. With this option the other elements of the production function, e.g. intermediate consumption or capital consumption, are left aside. The lack of these latter elements restricts the use of the results mainly to labour market issues rather than broader economic issues. Examples of the latest of such studies are Budlender and Brathaug (2002, South Africa), Fontainha (2002, Portugal), Kim and Moon (2001, the Republic of Korea) and Statistics New Zealand (2001).
44. Different methods of valuation of the labour input are used. The working time spent on household productive activities has been valued using economy-wide average wages, housekeeper's wages or specialist's wages. Available studies show no convergence towards to one or the other wage concept for valuing labour input. The wage issue is further discussed in section 5.1.2.

4.2.3.2 Production and generation of income account for households

45. The production and generation of income accounts include output, intermediate consumption, gross value added and its components, capital consumption and taxes/subsidies on production. For these accounts, either the input approach or the output approach can be used. SNA Table A.V.6 presents the scheme of production and income generation account with hypothetical values as follows⁴:

I: Production account

Uses	Resources
P.2 Intermediate consumption 694	P.1 Output 1 269
B.1g Value Added, gross 575	P.11 Market output 1 129
K.1 Consumption of fixed capital 42	P.12 Output for own final use 140

⁴ The hypothetical values for SNA production are showed here to clarify the counting rule. These values and the modifications which are needed when integrating NON-SNA household production with SNA household production are presented in section 7.4.

B.1n Value Added, net 533	
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II.1.1: Generation of income account

<p><u>Uses</u></p> <p>D.1 Compensation of employees 39 D.11 Wages and salaries 39 D.12 Employers' social contributions D.29 Other taxes on production 3 D. 39 Other subsidies on production -1 B.2 Operating surplus 60 B.3 Mixed income 432</p>	<p><u>Resources</u></p> <p>B.1n Value added, net 533</p>
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4.2.3.3 Sequence of accounts

46. The production and generation of income accounts in the HHSA provide estimates of the value of goods and services produced and consumed in households, as well as showing net and gross value-added and its components. The production and generation of income accounts are the core for the system of household satellite accounts. They are the starting-point for all other accounts.

In the sequence of accounts, household market income and consumption must also be shown (separately) to enable the calculation of estimates for the extended household disposable income and the extended consumption.

47. Main aggregates of the full sequence of accounts for households are presented according the SNA Table A.V.6.

Table 1. Full sequence of accounts

ACCOUNTS	USES	RESOURCES
I: Production account	<u>Uses</u> P.2 Intermediate consumption 694 B.1g Value Added, gross 575 K.1 Consumption of fixed capital 42 B.1n Value Added, net 533	<u>Resources</u> P.1 Output 1 269 P.11 Market output 1 129 P.12 Output for own final use 140
II.1.1: Generation of income account	<u>Uses</u> D.1 Compensation of employees 39 D.29 Other taxes on production 3 D. 39 Other subsidies on production -1 B.2 Operating surplus 60 B.3 Mixed income 432	<u>Resources</u> B.1n Value added, net 533
II.1.2: Allocation of primary income account	<u>Uses</u> D.4 Property income 41 B.5 Balance of primary incomes 1 367	<u>Resources</u> B.2 Operating surplus 60 B.3 Mixed income 432 D.1. Compensation of employees 766 D.4 Property income 150
II.2. Secondary distribution of income account	<u>Uses</u> D.5 Current taxes on income, wealth, etc. 178 D.61 Social contribution 322 D.62 Social benefits other than social transfers in kind 0 D.7 Other current transfers 71 B.6 Disposable income 1 164	<u>Resources</u> B.5 Balance of primary incomes 1 367 D.61 Social contribution 0 D.62 Social benefits other than social transfers in kind 332 D.7 Other current transfers 36
II.3 Redistribution of income in kind account	<u>Uses</u> B.7 Adjusted disposable income 1 392	<u>Resources</u> B.6 Disposable income 1 164 D.63 Social transfers in kind 228
II.4.1: Use of disposable income account	<u>Uses</u> P.3 Final consumption expenditure 1015 B.8 Saving 160	<u>Resources</u> B.6 Disposable income 1 164 D.8 Adjustment for the change in net equity of households in pension funds reserves 11
II.4.2: Use of adjusted disposable income account	<u>Uses</u> P.4 Actual final consumption 1 243 B.8 Saving 160	<u>Resources</u> B.7 Adjusted disposable income 1 392 D.8 Adjustment for the change in net equity of households in pension funds reserves 11
III.1: Capital account	<u>Changes in assets</u> P.51 Gross fixed capital formation 61 K.1 Consumption of fixed capital -42 P.52 Changes in inventories 2 P.53 Acquisitions less disposals of valuables 5 K.2 Acquisitions less disposals of non-produced non-financial assets 4 B.9 Net lending (+)/ net borrowing (-) 148	<u>Changes in liabilities and net worth</u> B.8n Saving, net 160 D.9 Capital transfers, receivable 23 D.9 Capital transfers, payable -5 <i>B.10.1 Changes in net worth due to saving and capital transfers 178</i>

4.3 Households as producers

4.3.1 Households' productive activities

4.3.1.1 Third party criterion

48. The third party criterion is used to distinguish non-productive activities from productive activities. Activities are productive if they can be delegated to another person. In some cases a pragmatic application of the criterion is needed. For example, washing oneself and dressing are excluded, even though they, in principle, can be delegated. The same applies, for practical reasons, to hairdressing which is also occasionally bought from the market. Production of leisure services for own use (playing music, home videos, etc.) is excluded as a pragmatic implementation of the third party criterion.
49. Production of leisure services for own use may become topical in the future as this field of activity is developing rapidly in households and many kinds of equipment are sold in the market for this purpose. In this report, however, production of leisure for own use is not dealt with.

4.3.1.2 Special issues: the cases of transport and childcare

50. There are some differences in conceptualising travel and transport. Different preferences can be seen depending on whether people have background in the time use surveys or national accounts. There have also been difficulties to measure childcare in time use surveys as it is mostly done as a secondary, or even tertiary, activity. These issues are discussed below.

Travel/ transport

51. Transport of other people (or goods) is always productive (transporting children to hobbies, etc.) and travel as an end itself is not productive (driving for pleasure). This definition is relevant for both approaches, input and output. However, there are diverging views with regard to travel/transport of one-self and consensus in favour of one over the other could not be reached within the Task Force.
52. In the (time use survey based) input approach travel has traditionally been regarded as supporting the main activity⁵. Therefore travel (and transport of one-self) to productive household activities is seen as productive but travel (and transport of one-self) to a non-productive activity, e.g. driving to cinema, is not productive. As a consequence, all travel time related to productive activities is taken into account: the travel time of a person delivering the transport service (e.g. car driver) and the travel time of passengers (other people travelling in the car).
53. The UK output approach follows the *transport* rather than the *travel* concept: all transport activities are considered productive, except when they are an end themselves. For example, transport of one-self to work or to leisure activities is productive, as is the transport of others.
54. We present the two different views to encourage further debate and discussion:

⁵ In the harmonised European Time Use Survey the purpose of travel is defined by the following activity until the cutting point is reached - the activity taking most time (workplace, a friend's home, market place etc). The return trips from the cutting point are defined by the preceding activities.

- (a) travel (incl. transport of oneself) is productive if it supports a household productive activity; transport of other persons to non-productive household activities (leisure; and to work as a productive activity in the market context) is productive only if transport is the main purpose (e.g. Driving my spouse to work and return home)
- (b) all transport activities are considered productive.

Childcare

- 55. There are also differing views about how childcare should be measured. Time use research distinguishes three categories in childcare. Childcare as (a) a primary activity, (b) a secondary activity, and (c) time spent with children, which has been defined excluding the time when children are sleeping. Being on call when a child is sleeping or playing nearby at home yard is called “passive childcare”. Time spent with children (including passive childcare) constitutes most of the time allocated to childcare. People may have widely differing perceptions of what is a primary activity and what is a secondary activity when they are caring for children. Results from time use surveys have to be interpreted accordingly. The decision to include some or all of this time will have a big impact on the valuation. Is time spent with children of less value than active care? If it is, what is the difference? Market services may provide some information on this.
- 56. In the input approach, traditionally, only childcare as a primary activity has been valued. Care as a secondary activity and time spent with the child may be shown separately in time units. Time spent with children during sleeping has not so far been included in the valuation, but in principle, it should be possible.
- 57. In the output approach all childcare activities were included in UK’s experimental HHSA, where the output was a “cared for child”. However, because of the absence of a separate market equivalent for time children are sleeping, all childcare was valued at the same rate. Further work on this is needed.
- 58. If different values could be found and given to active care (care as a primary and a secondary activity), and the time spent with children, the same concept of childcare could be used in both approaches. However, possible differences between the concepts used in childcare should be born in mind when comparing results of studies.

4.3.2 Complexity of household production

4.3.2.1 Main outputs / principal functions

- 59. The purpose of the satellite accounts is to give an integrated picture of a given field of economic activities and to describe it in a purposeful way (ESA 1.18). What would be a purposeful way of describing the household production? What are the services it produces? Household production consists of a large variety of different activities. These have been classified in time use surveys in a certain way. For example, there are categories such as meal preparation that is an input to the output of a meal service. There are other activities such as shopping whose output is used as an input to meal preparation, clothing, etc. Using the basic time use categories as such would result in a very fragmented picture. Therefore some grouping of activities is needed.
- 60. The purpose of the HHSA is to show the interaction between the market and household production. This interaction occurs in labour shifts but more and more also in the shifts of producing and outsourcing services. The grouping of household productive activities should therefore reflect the types of services households

produce or outsource. Production of the types of services may be seen as principal functions of the households and the products respectively as main outputs. There are preferences internationally on what should be the main outputs/principal function but no consensus yet. The functions suggested in the Finnish report (Varjonen et al. 1999) with additional "Transport" function (the UK's HHSa) are presented in the following:

61. Main outputs / principal functions:
- Providing housing /accommodation
 - Providing meals and nutrition
 - Providing clothing and laundry services
 - Providing care
 - Providing transport
 - Volunteer work and informal help

Whether to use a separate transport function or to allocate travel and transport activities as supporting activities under the function travel is related to, depends on the decision of the travel/transport concept (see table 1).

62. Also other groupings have been used, such as:
- The housing/accommodation concept has been grouped together with meals and clothing or other type of disaggregation has been used.
 - Household management and shopping have been shown as separate main outputs.
63. In the main output / principal function grouping inputs contributing to the production of a given output are grouped under it. These inputs: intermediate consumption, capital consumption and labour, are classified by TUS and COICOP categories⁶ (labour in terms of TUS and the rest with reference to COICOP categories). It is not always the case that the categories can be allocated totally to one function. In such cases they should be divided between the relevant functions using some objective criteria. For example, household management (TUS category 371) needs to be allocated to all main outputs/principal functions. More research /empirical work is needed to test the availability of objective and internationally comparable criteria.

4.3.2.2 Internal supply-use relations in household production

64. Sometimes the output of one activity is used as an input to another. There can be problems defining what is an "input" and what is the corresponding "output". Dwelling services and transport services are used as inputs to other main functions, e.g. to care and nutrition. The output of driving a car is transport. This output may be used as an input to childcare or adult care when transporting a child or other family member. There may be longer chains of outputs and inputs. For example, the output of transport may be an input to shopping which in turn may be an input to meal preparation. The question is, how to measure and how to allocate these "chains" in calculations. These I-O-relationships in household production, in general level, are illustrated in Table 1.

⁶ TUS: Time use categories, see Guidelines on harmonised European time use surveys. European Commission Eurostat Unit E2. Luxembourg 2000.
COICOP: Classification of individual consumption by purpose.
<http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5>

Table 1. Internal supply-use relations of household production

Principal functions/ main outputs		USE					
		Housing	Nutrition	Clothing	Care	Transport	Volunteer work
SUPPLY	Product						
	Housing						
	Providing accommodation i.e. a furnished flat for the productive and non-productive activities and its maintenance	x	x	x	x	x	
	Cleaning services	x					
	Gardening	x	x				
	Repairs, maintenance	x					
	Goods related to the house and its maintenance	x					
	Removals	x					
	Nutrition						
	Meals, snacks, drinks for the members of households.		x		x		
Homegrown food and home-preserved food, home-baked bread, cakes, etc.		x					
Clothing							
Garments and textiles produced by the households.	x		x				
Maintenance and laundry services for clothing and textiles.	x		x				
Care							
Child care				x			
Adult care				x			
Pet care				x			
Transport							
Transportation services by a car, motor bike, bicycle, etc.	x	x	x	x	x	x	
Maintenance of the vehicles					x		
Volunteer work							
Goods and services for other institutions						x	

65. Housing produces inputs to other functions, as the kitchen is used for nutrition, living rooms and bedrooms for childcare and adult care, and space is also provided for washing and ironing. Clothing care produces an output of clean textiles (bed linens, curtains, etc.) which is an input to housing, etc.
66. The interconnection between functions has to be taken into account to avoid double counting. This is important particularly in the output approach.
67. The output of transport is used mainly as an input to other main outputs. Therefore it is also possible to describe transport only under each function it is related to (transport of children under care-function, etc.) as a supporting activity .
68. More detailed grouping of activities using time use classification (TUS) is presented in table 2. The more detailed elaboration of TUS categories that are allocated partly to more than one function is presented in Annex 2.

Table 2. TUS categories by main output / principal function

	Housing	Nutrition	Clothing and clothing care	Care	Volunteer work	Transport
TUS	<p>TUS 32 Household upkeep:</p> <p>321 Cleaning dwelling</p> <p>322 Cleaning yard</p> <p>323 Heating and water</p> <p>324 Various arrangements</p> <p>329 Other specified household upkeep</p> <p>320 Unspecified household upkeep</p> <p>TUS 35 Construction and repairs:</p> <p>351 House construction and renovation</p> <p>352 Repairs of dwelling</p> <p>353 Making and repairing equipment</p> <p>359 Other specified construction and repairs</p> <p>350 Unspecified construction and repairs</p> <p>300 Unspecified household and family care</p>	<p>TUS 31 Food management:</p> <p>311 Food preparation</p> <p>312 Baking</p> <p>313 Dish washing</p> <p>314 Preserving</p> <p>319 Other specified food preparation</p> <p>310 Unspecified food management</p> <p>TUS 34 Gardening (and pet care):</p> <p>341 Gardening (partly)</p> <p>342 Tending domestic animals.</p> <p>349 Other specified gardening [and pet care]</p> <p>340 Unspecified gardening [and pet care]</p> <p>TUS 62 Productive exercise:</p> <p>621 Hunting and fishing</p>	<p>TUS 33 Making and care for textiles:</p> <p>333 Handicrafts and producing textiles</p> <p>331 Laundry</p> <p>332 Ironing</p> <p>339 Other specified making and care for textiles</p> <p>330 Unspecified making and care for textiles</p>	<p>TUS 38 Childcare:</p> <p>381 Physical care and supervision</p> <p>382 Teaching the child</p> <p>383 Reading, playing and talking with child</p> <p>384 Accompanying child</p> <p>389 Other specified childcare</p> <p>380 Unspecified childcare</p> <p>TUS 39 Adult care:</p> <p>391 Help to an adult family member</p> <p>TUS 34 [Gardening and] pet care:</p> <p>343 Caring for pets</p> <p>344 Walking the dog</p> <p>349 Other specified [gardening and] pet care</p> <p>340 Unspecified [gardening and] pet care</p>	<p>TUS 41 Organisational work:</p> <p>411 Work for an organisation</p> <p>412 Volunteer work through an organisation</p> <p>419 Other specified organisational work</p> <p>410 Unspecified organisational work</p> <p>42 Informal help to other households:</p> <p>421 Food management as help</p> <p>422 Household upkeep as help</p> <p>423 Gardening and pet care as help</p> <p>424 Construction and repairs as help</p> <p>426 Help in employment and farming</p> <p>427 Childcare as help</p> <p>428 Help to an adult of another household</p> <p>429 Other specified informal help</p>	<p>Transport of oneself to activities not related to household production: TUS</p> <p>901 personal care</p> <p>913 to/from work</p> <p>921 to/from school or university</p> <p>922 free time study</p> <p>943 participatory activities</p> <p>951 social life</p> <p>952 entertainment and culture</p> <p>961 sports and outdoor activities</p> <p>971 hobbies</p> <p>981 changing locality</p> <p>900 unspecified travel</p> <p>Transport of oneself to activities related to household production: TUS:</p> <p>931 household care</p> <p>941 organisational work</p>

	TUS 34 Gardening [and pet care] partly:	622 Picking berries, mushrooms and herbs			420 Unspecified informal help	942 informal help
	341 Gardening (partly)	629 Other specified productive exercise				938 Transport of a child
	349 Other specified gardening [and pet care]	620 Unspecified productive exercise				939 Transport of an adult family member
	340 Unspecified gardening [and pet care]					354 Vehicle maintenance
	300 Unspecified household and family care, (partly)	300 Unspecified household and family care (partly)	300 Unspecified household and family car (partly)	300 Unspecified household and family care (partly)		
TUS 36 Shopping and services	361 Shopping (partly)	361 Shopping (partly)	361 Shopping (partly)	361 Shopping (partly)	425 Shopping and services as help	936 Transport related to shopping and services
	362 Commercial and administrative services (partly)					
	369 Other specified shopping and services (partly)					
	360 Unspecified shopping and services (partly)	360 Unspecified shopping and services (partly)	360 Unspecified shopping and service (partly)	360 Unspecified shopping and services (partly)		
TUS 37 Household management	371 Household management (partly)					

TUS categories that have been divided between main outputs/principal functions:
 341 Gardening: includes kitchen gardening and also decorative gardening: to housing and nutrition
 349 Other specified gardening [and pet care]: to housing, nutrition and care of pets
 340 Unspecified gardening [and pet care]: to housing, nutrition and care of pets
 361 Shopping: to housing, nutrition, clothing and care
 362 Commercial and administrative services: to housing, nutrition, clothing and care
 360 Unspecified shopping and services: to housing, nutrition, clothing and care
 371 Household management: to housing, nutrition, clothing and care
 300 Unspecified household and family care: to housing, nutrition, clothing and care

How to do this may have country specific features. In some cases information on a deeper level of disaggregation than the four-digit level is useful, if it is available (e.g. TUS 349, 340, 361). See Annex 2.

69. Volunteer work and informal help are presented as a separate output or principal function. This may be preferred in some countries as it provides information for social policy purposes. But it can also be allocated under each relevant function according to purpose. For example, food management as help goes under “nutrition”, etc.

5. Production and generation of income accounts: the input approach

70. This report aims to present and discuss several options of producing household satellite accounts rather than giving a unique set of rules to be followed. This reflects the current state of the discussion on household production which has not yet led to fully agreed guidelines. However, a great deal of research has been done on the input approach, particularly regarding the valuation of labour. Therefore the TF is able to suggest that some solutions are preferable to others in the input approach.

Production account	
<p><u>Uses</u> Intermediate consumption Value Added, gross Consumption of fixed capital Value Added, net</p>	<p><u>Resources</u> Output (SNA and NON-SNA own account production)</p>
Generation of income account	
<p><u>Uses</u> Compensation of employees Wages and salaries Employers' social contributions Other taxes on production Other subsidies on production Operating surplus / Mixed income</p>	<p><u>Resources</u> Value added, net</p>

71. Deriving the value of output using input costs does not include a return to any capital element according to SNA. (SNA 6.85, 6.91) In the output approach the return to capital is included in the market prices of the products used to value household production. In the household production literature there has been a discussion about whether it should or should not be added to capital consumption estimates when deriving the value of outputs from the costs of inputs (e.g. Ironmonger 1996, Landefeld & Culla 2000). However, the TF suggests it should not be added. This is in line with current practice in the core accounts when production is measured purely from the input side.

5.1 Value of labour input to household production

72. This section refers only to those parts of household production that are not included in the core accounts. Research has shown that the value of labour is highly dependent on the valuation method. This is not a disadvantage as such. Different valuation methods can be chosen for different objectives of the analysis. E.g. gross wages show what the total costs to households would be of employing others to produce goods and services, net wages reflect the real conditions of housework (no taxes paid, no social security contributions gained). However, to enable international comparisons some conventions are needed on key questions. This does not rule out the possibility of using additional methods.
73. Household labour refers to the unpaid work that household members expend in producing goods and services for their own consumption and informal help to other households. Time spent in housework can be estimated fairly accurately from time use surveys, but the way in which this time is valued has crucial implications for the total value of household production when using the input approach. As long as the objective of the analysis is not fixed, any method of valuation can be disputed. Key questions that need to be addressed in choosing the valuation method are:

- 1) which wage or whose wage should be used to value time;

- 2) which is the most appropriate concept of working time, and
- 3) should net or gross wages be used?

These issues are discussed below.

5.1.1 Which wage /whose wage?

74. There are two ways of looking at the "which wage" issue: One is based on the assumption that the time spent on unpaid work reduces the time spent on paid work. Therefore time spent on unpaid work is a cost and the valuing method is called the opportunity cost method (based on Becker's model 1965). Another method is based on the assumption that households save money by doing housework themselves instead of buying market goods and services or hiring someone else to perform the required tasks. This valuing method is called the market replacement cost method.

Opportunity cost

75. The most apparent problems with this method are that it yields different values for similar products depending on who performed the task. Additionally, people in real life situations are often not free to choose the number of their working hours. Many researchers have argued that this method should not be used for purposes of measuring household production. (E.g. Goldschmidt-Clermont 1994, Blades 1997, Chadeau 1992) The method may be relevant for studying utility maximisation at the micro-level of decision-making but the opportunity cost concept is not consistent with macro-level concepts of the national accounts.

Replacement cost

The replacement cost method provides three options:

76. The first option is to use the wages of specialised workers in market enterprises. It can be reasoned that specialised workers in certain occupations perform similar activities to those done in households, e.g. a cook in a restaurant, a nurse at a day care centre, a manager at a bank, etc. The difficulties begin when we consider the working conditions in market enterprises, which are different from those prevailing in the household: capital investment is higher and production is organised differently (mass production, specialisation of tasks and skills). These circumstances have an impact on productivity. It is also difficult to choose the adequate level of qualification of the jobs in the market (variety is large e.g. from the chef de cuisine to the kitchen maid). In housework several tasks are performed simultaneously, whereas in enterprises work may be more like line production (Goldschmidt-Clermont 1994). On the other hand, housework may be combined with leisure activities, resulting in less intensive working.
77. The second possibility is to use the wages of specialised workers at home. One can buy the services of a specialised worker who comes to work in a household as a cleaner, window cleaner, nurse, gardener, private teacher, plumber, etc. Workers who come to the home may use tools and materials of their own or those available in the household. The working conditions come closer to those in housework, except that these specialised workers focus on one task at a time. The payments by households to these specialised workers, however, are higher than the wages for workers in enterprises because the former include also other costs than just wages. This fact must be taken into account. These kinds of specialised workers are generally available only for a limited number of activities performed by households.
78. The third option is to use the wages of generalist workers. One can hire a person who is working in the household to do all the tasks that the normal running of the

household requires. In some countries there are institutionalised household substitutes who do most of the tasks required to manage a household. These are workers who may or may not have received a special qualification for their job and who are most often responsible for visiting elderly people or helping when a parent caring for home and children is ill. (Goldschmidt-Clermont 1994) However, domestic employees usually do not undertake all household tasks, particularly those related to management as well as volunteer and community work.

Concluding the discussion on the valuation method of labour

79. The opportunity cost method has been widely rejected by researchers. Closely related to this method is the use of average wages, which by contrast has not been criticised.
- The market replacement cost method using the wages of a specialised worker is more complicated because several wages and wage levels have to be examined in order to find an appropriate combination of wages for different tasks. There are some activities for which no specialised market substitute can be found.
80. The market replacement cost method with a polyvalent substitute's or generalist's wage seems to be the most appropriate basis for valuing household labour. The advantages of this method are as follows:
- The working conditions are similar to those of household work, including the simultaneity of activities, the quality of capital goods, the amount of intermediate consumption, etc.; this means that productivity is similar to that of housework in general.
 - The content of the work is similar to housework.
 - The valuation method is simple and straightforward.
81. On the other hand, there are some potential problems:
- Even a generalist worker does not perform all the tasks occurring in households. In general, money management, planning and co-ordinating activities, maintaining and repairing the dwelling, servicing vehicles and volunteering are performed only in limited amounts.
 - Wages for housekeepers/municipal home-helpers are not always available because of problems related to the compilation of statistics on these occupations. This became evident in the inquiry sent to the EU countries by the project group in summer 1997 (Varjonen et al. 1999, Appendix 2). The International Standard Classification of Occupations (ISCO-88), which is in use in most European Union countries, could be useful in defining the wages of housekeepers. The work of generalists may be included in categories 3231, 5133 or 5121. Many housekeepers are employed by private households and this affects the quality of the information available. Part of the work may also be done as "black market activities".
 - Assuming a hypothetical wage for valuing household labour causes legitimacy problems if actual wages of a tiny market segment is used to value a huge amount of labour input. (This is also a problem in other non-market production, e.g. in finding market value to dwelling services in SNA.)
 - Volunteer work as informal help to other households can be valued using the housekeeper wage but it is not appropriate for valuing volunteer work in organisations. Here wages based on occupations in the community or social services have been used. An alternative could be to use the average wages of the employees of the organisations that use volunteer workers.

5.1.2 Which concept of working time?

82. Paid working time is usually used as the basis for hourly wages. Paid working time includes holidays, sick leaves, and daily coffee breaks. Data from time use surveys includes only actual working time without times for meals and without sick leave, not to mention holidays. Therefore, hours actually worked would be a more preferable basis for calculating hourly wages. Again, the choice depends on the purpose of the analysis: if you want to know how much it would cost to substitute household production by market alternatives, actual working time is better (the hourly wage is higher and reflects payment for holidays, sick leave, etc.) If your analysis takes the real conditions of housework into account paid working time is more realistic. Paid working time gives lower wages, with no allowance for sick leaves or holidays. In Germany, 1992 the hourly net wage of a housekeeper was 25 % higher if it was calculated per hours actually worked instead of hours of normal working time (Lützel 1996, Schäfer and Schwarz Doc. E2/TUS/5/2001)

5.1.3 Gross or net?

83. Gross wages include income tax and social security contributions paid by the employer and employee. The choice of either gross or net wage for the purpose of determining the value of household production has significant implications. Taxes and social security contributions may amount to up to half the wages, depending on the country and the welfare system. Researchers remain divided on this issue, and calculations have been done using both gross and net wages.
84. Two basic assumptions lie behind the choice. If households were to buy the service from the market, they would have to pay the gross wage. On the other hand, if it is thought that households earn the money by producing the services themselves, then the net wage would obviously be more appropriate because the household would not have to pay taxes or social security contributions for themselves.
85. The choice depends again on the purpose of the analysis. If the purpose of the analysis is to describe "expenses forgone" gross wages should be used. When households buy products from the market the price includes all labour cost (unless bought on the black market, where net wages are paid).
86. If the purpose of the analysis is to calculate "total disposable income" for household (including the value of household production) the net wage could be used, because household disposable income does not include social contributions and taxes paid. The other possibility is to use gross wages and to deduct the imputed social contributions and taxes on the way down the sequence of accounts.
87. Difficulty to get data on net wages may also cause a problem. Wage statistics are based on gross wages and comparable figures for net wages are not generally available. Another problem with the net wages occurs due to the application of individual and therefore varied tax rates.
88. Also, when the output of non-market services of general government and of non-profit institutions serving households (NPISH) is measured in terms of costs (i.e. the input approach is used to value non-market output), labour inputs are valued as compensation of employees, they are gross of income tax and other charges and include employers' contributions to social security schemes. According to this household production could be valued using gross wages (Blades 1997). But unlike in household production, in this case, taxes are actually paid and imputed social contributions reflect entitlements to future pensions.

89. Research results from the output approach will shed more light on the valuation problem. The value of labour is calculated by residual in the output approach. It, then, includes compensation of labour and return to capital. These figures can be compared to the appropriate wages in each of the main functions of household production if data on time use is also available (see Holloway 2002). The underlying hypothesis would then be that the output approach gives the benchmark and the value of labour in the input approach would have to be adjusted to the return of labour as indicated by the output approach. At the moment, comparisons are difficult due to the differences in concepts and definitions of outputs between the approaches. More research is needed in this area.

5.2 Final consumption, intermediate consumption and consumption of fixed capital in the SNA and the HHSA

90. Consumption is an activity in which households and other institutional units use up goods and services. There are two quite different kinds of consumption – final and intermediate. HH final consumption consists of goods and services used by individual households or the community to satisfy their individual or collective needs or wants without effecting any changes to the products acquired before their consumption. Intermediate consumption consists of inputs into processes of production that are used up or transformed within the accounting period. (SNA 1.49) For instance, eating bread is final consumption of the bread. Flour and water are inputs to bread production and are therefore intermediate consumption goods in this process.
91. The production of bread also requires some capital goods, such as a place to work and an oven. In the SNA, ovens and rooms owned by enterprises are called fixed assets. Fixed assets are produced assets, mostly machinery, equipment and buildings that are used repeatedly or continuously in production over several years. The acquisition of these fixed assets is called gross fixed capital formation (SNA 6.147)
92. In the core accounts household final consumption expenditure is categorised by purpose (COICOP classification). In the household satellite accounts households produce goods and services for their own use using goods and services as inputs which in the core accounts are classified as final consumption. Therefore, adaptation is needed. The goods consumed or transformed during the production process are considered as intermediate consumption. In addition, household durables are to be treated as fixed assets and consumption of fixed capital on household durables used for production has to be taken into account as input costs. It follows that the SNA classification of final individual consumption has to be modified. Final individual consumption will be divided into three parts: fixed assets, intermediate consumption, and final consumption of goods and services. This treatment only relates to households in their capacity as own-account producers (and to the extent that the production boundary in the HHSA is extended compared to the SNA). The reclassification is based on the purpose for which the goods or services are used.

Dividing SNA final consumption into final and intermediate consumption and into acquisition of capital goods

93. The Classification of Individual Consumption by Purpose (COICOP) is a useful tool for dividing up final consumption. Each category may be allocated to final or intermediate consumption or to fixed assets according to its use in household production. Many categories can be allocated to a single use, but some categories are such that they can be used partly in production as intermediate consumption goods and partly in final consumption. Water and electricity are examples of products that are used both in productive and in non-productive activities.
94. In these cases, the proportions of the expenses that should be allocated to either final or intermediate consumption can be decided on the basis of the results of time use or family budget surveys, or other special studies (e.g. on energy).
95. Table 3 shows as an example how goods and services could be allocated to final or intermediate consumption or to capital goods. A table including all COICOP categories⁷ is presented in the appendix. The cases of UK's HNSA and of Germany are presented in Appendices 3 and 4.

⁷ COICOP categories are classified additionally by durability:
(ND) non-durable goods, (SD) semi-durable goods, (D) durable goods, and (S) services.

Table 3. HHSA: Breakdown of SNA household final consumption expenditure into intermediate consumption, final consumption and acquisition of fixed assets, an example

COICOP	Commodity	Intermediate consumption	Final consumption	Household capital
1	FOOD AND NON-ALCOHOLIC BEVERAGES			
01.1.1	Bread and cereals (ND)	X	X	
01.1.2	Meat (ND)	X		
0.1.1.3	Fish (ND)	X		
01.1.4	Milk, cheese and eggs (ND)	X		
01.1.5	Oils and fats (ND)	X		
01.1.6	Fruit (ND)	X		
01.1.7	Vegetables (ND)	X		
01.1.8	Sugar, jam, honey, syrups, chocolate and confection (ND)	X	X	
01.1.8.1	<i>Sugar</i>	X		
01.1.8.2	<i>Jams, marmalades</i>	X		
01.1.8.3	<i>Chocolate</i>		X	
01.1.8.4	<i>Confectionery products</i>		X	
01.1.8.5	<i>Edible ices and ice cream</i>		X	
01.1.8.6	<i>Other sugar products</i>	X		
01.1.9	Food products n.e.c. (ND)	X		
01.2.1	Coffee, tea and cocoa (ND)	X		
01.2.2	Mineral waters, soft drinks and juices (ND)			
:	:			
:	:			
:	:			
etc.	etc.		X	

5.2.1 Intermediate consumption

96. According to the SNA the intermediate consumption (SNA 1.49, ESA 3.69):
- consists of goods and services consumed as inputs by a process of production;
 - goods and services may be either transformed or used up by the production process.
97. Not all allocations to intermediate or final consumption are easy and straightforward. The allocation may differ from country to country due to culture-bound habits of production. In some countries more ready-to-eat food may be used than in other countries, for instance. When starting the allocation decisions, countries face questions such as:
- what are the production processes like in our country?
 - what sort of products are in supply?
 - what kind of the data sources are available? Some countries can use 4-digit level COICOP data and very detailed level time use data, some countries have much less detailed data available.
98. Therefore, it is not possible to give a detailed list of the allocation applicable for any country to use. Each country has to go through the items of COICOP and decide on the allocation. People doing housework are an important source of tacit knowledge on materials used up or transformed in the production processes. Household budget

data (in the detailed level) and 4-digit level COICOP give information of the quantities and value of these products.

99. Allocation of products to intermediate consumption by main output/ principal function is presented in Table 4 (This is an example taken from Holloway et al. 2002).

Table 4. Allocation of intermediate consumption to main outputs/principal functions

Allocation of intermediate consumption to principal functions

COICOP Classification	Commodity	Housing / Owner occupiers Tenants	Nutrition	Clothing	Care	Transport
1	FOOD AND NON-ALCOHOLIC BEVERAGES					
01.1.1	Bread and cereals (ND)		X			
01.1.2	Meat (ND)		X			
0.1.1.3	Fish (ND)		X			
01.1.4	Milk, cheese and eggs (ND)		X			
01.1.5	Oils and fats (ND)		X			
01.1.6	Fruit (ND)		X			
01.1.7	Vegetables (ND)		X			
01.1.8	Sugar, jam, honey, syrups, chocolate and confection (ND)		X			
01.1.9	Food products n.e.c. (ND)		X			
01.2.1	Coffee, tea and cocoa (ND)		X			
3	CLOTHING AND FOOTWEAR					
03.1.1	Clothing materials (SD)			X		
03.1.3	Other articles of clothing and clothing accessories (SD)			X		
4	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS					
04.1.1	Actual rentals paid by tenants (S)	X (tenants)				
04.3.1	Materials for the maintenance and repair of the dwelling (ND)	X				
04.3.2	Services for the maintenance and repair of the dwelling (S)	X (owner-o)				
04.4.1	Water supply (ND)	X				
04.4.2	Refuse collection (S)	X				
04.4.3	Sewerage collection (S)	X				
04.4.4	Other services relating to the dwelling n.e.c.	X				
04.5.1	Electricity (ND)	X				
04.5.2	Gas (ND)	X				
04.5.3	Liquid fuels (ND)	X				
04.5.4	Solid fuels (ND)	X				
04.5.5	Heat energy (ND)	X				
	FURNISHING, HOUSEHOLD EQUIPEMENT AND ROUTINE MAINTENANCE OF THE HOUSE					
5						
05.1.3	Repair of furniture, furnishings and floor coverings (S)	X				
05.2.0	Household textiles (SD)	X				
05.3.2	Small electric household appliances (SD)	X				
05.3.3	Repair of household appliances (S)	X	X	X		
05.4.0	Glassware, tableware and household utensils (SD)	X				
05.5.2	Small tools and miscellaneous accessories (SD)		X			
05.6.1	Non-durable household goods (ND)	X	X	X		
05.6.2	Domestic services and household services (S)	X	X	X	X	
7	TRANSPORT					
07.2.1	Spare parts and accessories for personal transport equipment (SD)					X
07.2.2	Fuels and lubricants for personal transport equipment (ND)					X
07.2.3	Maintenance and repair of personal transport equipment (S)					X
07.2.4	Other services in respect of personal transport equipment (S)					X
9	RECREATION AND CULTURE					
09.3.3	Gardens, plants and flowers (ND)	X				
12	MISCELLANEOUS GOODS AND SERVICES					
12.1.3	Other appliances, articles and products for personal care (ND)				X	
12.3.2	Other personal effects (SD)				X	
12.5.2	Insurance connected with the dwelling (S)	X				
12.5.4	Insurance connected with transport (S)					X

100. Depending on whether transport is regarded as a main output or as a supporting activity, expenditures on transport may be allocated to transport or to other main outputs.
101. The question of whether or not market services used by households should be included in intermediate consumption needs to be considered more closely. In the COICOP domestic services include paid domestic staff, i.e. services produced by persons employed to work as gardeners, baby-sitters, butlers, cleaners, etc. These are included in household production as intermediate consumption. Services purchased for the maintenance of fixed assets, such as car service, washing machine repairs, etc. are also included in intermediate consumption. Other services, e.g. children's day care outside home or dry cleaner or shoemaker's services, are allocated to final consumption. For analytical purposes, though, it would be important to be able to compare the volumes of services purchased by households with the services that they produce themselves. This would require a grouping of services in final consumption according to the principal functions of households.
102. In order to analyse the national household production, national final consumption data are needed. In some countries domestic consumption data are available by COICOP categories and only one overall adjustment is made to arrive at national consumption. In this case information gained from a tourism satellite account may help to estimate the adjustment – the addition of residents' consumption abroad – less non-residents' consumption by COICOP categories.
103. Final consumption in the core national accounts also includes the consumption of institutional households. If we accept that people living in institutions are left out of the HHSA, as their household production would be considered insignificant, their consumption should remain in final consumption, and should not be divided between intermediate and final consumption.

5.2.2 Fixed capital formation

104. According to the general definition, fixed capital consists mostly of fixed assets such as machinery, equipment, buildings or other structures that are used repeatedly or continuously in production over several accounting periods and at least for more than one year. For consumer durables, classified as such by COICOP, service life is normally much longer than 1 year. Hence, in a household production perspective they will have to be considered as fixed assets.
105. 106. In households the following types of fixed assets may be distinguished: dwellings; other buildings; machinery and equipment. Sometimes cultivated assets, e.g. trees and livestock, may also have to be taken into account.
106. Fixed capital in households is an important factor in understanding changes in the productivity of household work. As in enterprises, an increase in the amount of capital goods in households means a potential increase in productivity. Some machines have had a greater impact on productivity than others because they are in common use in almost all households. Automatic washing machines, dishwashers and microwave ovens are examples of domestic appliances that have clearly reduced the amount of time people spend in housework, while the output has remained unchanged or even increased.

Fixed capital used in household production

107. The boundary line between fixed assets and intermediate consumption is clarified in the SNA, which says that "small tools, inexpensive and used to perform relatively simple operations may be treated as intermediate consumption when such expenditures are made regularly and are very small compared with expenditures of machinery and equipment. However, in countries where such tools account a significant part of the stock of providers' durable goods, they may be treated as fixed assets." (SNA 6.158) The ESA sets a value threshold of 500 ECU (in 1995 prices) for fixed assets. Whether this threshold should be lowered in the case of HH production is a question open for discussion.
108. Households have a large number of appliances and utensils that they typically use as fixed assets, such as saucepans, cutlery, tableware, household linen, garden tools, hammers, saws, etc. Their service life is several years, even decades. These appliances and utensils are purchased little by little so that a single purchase at any given time will usually be quite small in value and number, even though the aggregate value is considerable. According to the SNA guidelines, these appliances and utensils might be regarded as intermediate consumption goods.
109. The TF proposes to use consumer durables as defined by COICOP as a starting point for the decision on what to include as fixed assets for the purpose of household production, irrespective of the price of the asset. The list of durables and their allocation to main outputs are presented in Table 5. Also listed are those consumer durables excluded from HHS.

Table 5. Household durables

COICOP Classification	HOUSEHOLD DURABLES	% allocated to household production	Housing / Owner occupiers Tenants	Nutrition	Clothing	Care	Transport
5	FURNISHING, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE						
05.1.1.	Furniture and furnishings (D)	*	X				
05.1.2.	Carpets and other coverings (D)	*	X				
05.3.1	Major household appliances whether electric or not (D)						
05.3.1.1.	Refrigerators, freezers and fridge-freezers (D)	100		X			
05.3.1.2.	Clothes washing machines, clothes drying machine (D)	100			X		
05.3.1.3.	Cookers (D)	100		X			
05.3.1.4.	Heaters, air conditioners	100	X				
05.3.1.5.	Cleaning equipment (D)	100	X				
05.3.1.6.	Sewing and knitting machines (D)	100			X		
05.5.1.	Major tools and equipment (D)	100					
06.1.3	Therapeutic appliances and equipment (D)	*					
7	TRANSPORT						
07.1.1.	Motor cars (D)	**					X
07.1.2.	Motor cycles (D)	**					X
07.1.3.	Bicycles (D)	**					X
07.1.4.	Animal drawn vehicles (D)	*					
8	COMMUNICATIONS						
08.1.2.	Telephone and telefax equipment (D)	*	X	X	X	X	
9	RECREATION AND CULTURE						
09.1.1.	Equipment for the reception, recording and reproduction of sound and pictures (D)	0					
09.1.2.	Photographic and cinematographic equipment and optical instruments (D)	0					
09.1.3.	Information processing equipment (D)	*	X	X	X	X	
09.2.1.	Major durables for outdoor recreation (D)	0					
09.2.2.	Musical instruments and major durables for indoor recreation (D)						
12	MISCELLANEOUS GOODS AND SERVICES						
12.2.1.	Jewellery, clocks and watches (D)	0					

*) Percentage of these goods allocated to household production may depend on the country.

**) If transport is defined as a supporting activity to housing, nutrition, clothing, care and volunteer work, cars and other vehicles should be allocated partly to all of these functions.

110. Household durables that are not allocated to household production will be classified to final consumption. The durables used both to household production and to non-productive activities (boats, etc. for leisure) should be split between fixed capital and final consumption expenditure, so that consumption of fixed capital will be calculated to the extent that durables are used for household production and the rest of the original expenditure will be allocated to final consumption. This is in line with the SNA practice (SNA 9.48).
111. An alternative way would be to calculate the consumption of fixed capital for the totality of household durables, allocate the relevant part to household production and the rest of consumption of fixed capital to final consumption. The reason for this practice would be to get closer to the “real” consumption measure for households. However, the TF is not in favour of this practice because it is not in line with the SNA.

5.2.3 Consumption of fixed capital

112. The consumption of fixed capital is a cost of production. In general terms it may be defined as a reduction in the current value of the stock of fixed assets during the course of the accounting period. The decline in value may be a result of physical deterioration, normal obsolescence or normal accidental damage. (SNA 6.179)
113. The "Perpetual Inventory Method" or PIM is in widespread international use for purposes of estimating the value of consumption of fixed capital. (It is presented in detail in the OECD manual on Measuring Capital.) The PIM has also been used and recommended in the context of household production (Schäfer and Schwarz 1994, Blades 1997)
114. Dwellings are the only fixed assets of consumer households relating to the production of output for own final use that have been included in the SNA and the ESA. For households as entrepreneurs there can be other fixed assets. Therefore the following discussion does not concern dwellings, as national accounts estimates should be used.
115. In order that the PIM be applied to household durables that are regarded as fixed assets, the following information is required: the value of capital formation each year, length of service life and changes in the prices of fixed assets.
116. Capital formation each year: Identification of fixed assets is needed. A list should be drawn up of the goods that are used totally or partly in household production. The share of the value of those that are used only partly should be indicated. Our suggestion is presented in Table 5. Data on the purchases of goods included in the list can be found in the national accounts which use the COICOP classification. Additional information may be obtained from household budget surveys that are carried out regularly in most European countries.
117. Length of service life: Information on service lives can be obtained from various sources: research institutes, producers of equipment, wholesale dealers, and firms, which repair household equipment. Changes in the prices of fixed assets may be obtained by using the relevant items of the consumer price index or appropriate price indices from national accounts. Models for capital consumption describe how the value of assets deteriorates during service life.
118. Two models commonly used in calculating the depreciation of economic value are the geometric and the straight-line depreciation model. In the geometric model the value declines in absolute terms more sharply during the early part of the service life and then the decline slows down, but the whole initial value of the asset is never exhausted. In the straight-line model, a constant amount of value is deducted each year so that goods have no value left when they are withdrawn from the stock. For household durables the latter model may be more appropriate, because household goods usually serve in full capacity until they get broken and are replaced.
119. The models used in most countries have started out from the assumption that service life is constant over time, but recently the assumption of a decreasing service life (0.5 % per year) has also been applied in some countries.

5.3 Taxes and subsidies

5.3.1 Taxes on production

120. Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to governmental units. They are described as unrequited because the government provides nothing in return to the individual unit making the payment, although governments may use the funds raised in taxes to provide goods or services to other units, either individually or collectively, or to the community as a whole. (SNA 7.48)
121. In national accounts taxes paid by households are recorded under current taxes on income, wealth, etc. because households are not treated as producers. In the context of HH production, however, some of these taxes can be considered as taxes on production. However, these seem not to be particularly significant in the case of household production.
122. Taxes on production and imports consist of taxes on products and other taxes on production. Taxes on products are not relevant because the output of household production is not sold. Other taxes on production consist of all taxes that enterprises incur as a result of engaging in production, regardless of the quantity or value of the goods and services produced or sold. (ESA 4.22) They include, in particular, the following: a) taxes on the ownership or use of land, buildings, or other structures utilised by enterprises in production (including owner-occupiers of dwellings); and b) taxes on the use of fixed assets (vehicles, machinery, equipment) for purposes of production, whether such assets are owned or rented. (ESA 4.23) It is necessary to identify those current taxes paid by HH which in the HHSAs are considered as other taxes on HH production.
123. Miscellaneous current taxes (SNA 8.54) include payments by households to obtain certain licences: payments by persons or households for licences to own or use vehicles, boats or aircraft and for licences to hunt, shoot or fish are treated as current taxes. Again, it might be necessary to check which of these taxes need to be reclassified as other taxes on production for the purposes of HHSAs.

5.3.2 Subsidies on production

124. Subsidies are current unrequited payments made by a government or the Institutions of the European Union to resident producers in an attempt to influence their levels of production, their prices or the remuneration of the factors of production. (ESA 4.30) Subsidies are equivalent to negative taxes on production in so far as their impact on the operating surplus is in the opposite direction to that of taxes on production. (SNA 7.71).
125. Subsidies are classified into subsidies on products and other subsidies on production. Subsidies on products do not concern household production. Other subsidies on production consist of subsidies which resident producer units may receive as a consequence of engaging in production. (ESA 4.36)
126. In the core accounts, subsidies are not payable to final consumers, and current transfers made directly by governments to households as consumers are treated as social benefits. When households are treated as producers in household satellite accounts, social transfers that correspond to subsidies received by a producer as a consequence of engaging in production, should be recorded as subsidies. These include social transfers that are paid to families for caring for children and the elderly, sick, disabled, etc. at home instead of taking them to institutions. These should not

be mixed with the social transfers that are paid without connection to production, for example child allowances paid according to the number of children does not belong subsidies described above. Subsidies have to be related to the actual production. This is the case, for instance, in some countries where families who do not use the government-provided childcare opportunities are paid for taking care of their children at home. This is because government pays most of the expenses of the childcare and parents pay only a part.

6. Production and generation of income accounts: the output approach

127. The Task Force did not have the time for an in-depth discussion of the details of the output approach. But it is convinced that the first attempt of producing HHSA using the output approach, which was made in the United Kingdom, will be the starting point for any further debate. This pilot exercise provided a lot of valuable insights into theoretical and practical aspects of the output approach and allowed to identify a number of problems that need now to be discussed at international level in order to make further progress. A full description of the methodology can be found in Holloway et al. (2002, <http://www.statistics.gov.uk/hhsa/downloads>).
128. In the output approach the first step is to define what households produce under each principal function. The level of aggregation used for this exercise will depend to a large extent on the data sources available for each area. For example, provision of housing services may be defined according to the type of house/ apartment, or, if the information is not available in such detail, by using averages from housing and expenditure surveys – e.g. average number of rooms multiplied by total number of dwellings. Likewise it may be possible to define different types of care of both adults and children, or it may only be possible to measure the numbers of children and adults cared for, without specifying what type of care they receive.
129. The nature of home produced goods and services is intrinsically different from the nature of market-produced goods and services. The use of average market prices, which reflect a variety of qualities in the market, to value household production implicitly assumes that the range of quality found in the market is the same as the range of quality found in the household. The UK HHSA has made no attempt to adjust for quality, as this would be an extremely data-intensive exercise. Neither does it attempt to value the non-economic reasons for choosing household production.
130. The goal should be to find the nearest market equivalent. The greater the disaggregation of the output and price information, the more finely tuned valuation. The output approach allows the products of joint production activities to be valued separately (e.g. ironing while taking care of children). This is because there are two distinct products – garments which have been ironed and children who have been looked after, each of which would be charged for separately if supplied by the market.
131. The sources of output data are crucial and will vary considerably from country to country, depending on the range of existing surveys or the willingness to undertake additional surveys. It is also possible to use episode information from time use data, particularly if it is collected for the whole household (see Harvey and Mukhopadhyay, 1996). This is a fruitful area for further research, to assess the possibilities in different countries. The latter option would seem the most likely to be able to be applied internationally, irrespective of the availability of alternative data sources.
132. Further areas of research include the use of market research data, which often addresses the questions household accountants are interested in, but may use

sampling methodologies that are not readily accepted by statisticians and national accountants. Investigation is also needed into the relationship between outputs and inputs for different household types. This would allow the disaggregation of results obtained by the output method, and may also point to further methods of obtaining output data from time use surveys.

7. Other accounts

133. Production and generation of income accounts are crucial for the system of household satellite accounts. For the purposes of the satellite account a number of modifications have been made to the concepts of the central SNA framework: the production boundary has been broadened, the value of labour has been imputed directly or by residual, and concepts of consumption have been modified. All this yields a value for household production, which in itself is an important achievement. However, the production account is not an isolated island in the accounting system, but a source and starting-point for other accounts in the sequence of accounts. It follows that the changes made to the production account necessitate corresponding changes in other accounts in the system. These changes are most clearly reflected in accounts for consumption, disposable income and wealth. The discussion below considers the changes to be made to these accounts.
134. To date, only the Basque Country has compiled the sequence of accounts and reported extended final consumption of households and gross fixed capital formation for households (Prado Valle 2000). See also calculations made on Bulgarian data for the extended private consumption (Goldschmidt-Clermont 2000.)

7.1 Total disposable income of households

135. In national accounts, disposable income is defined as the sum of a sector's primary income + the net balance of current transfers. Households may consume all of their disposable income or put away part of their income in savings. Consumption may also exceed the household's disposable income, in which case the household will have to borrow money or sell assets for cash.
136. Disposable income does not only consist of cash. Since the imputed value of goods and services produced for own use is included in the account, this means that the value of these goods and services is also counted as income. Likewise, the value of goods and services acquired either by means of barter or through social transfers in kind, is also included in disposable income. By convention, this income shall be treated as imputed consumption, as if the transfers of goods and services concerned had been made by using cash. However, in these cases there are restrictions on how the income may be used for consumption, i.e. households may only consume those goods and services produced for own consumption and have no choice to consume other commodities and in a sense spend the income on these particular commodities. (SNA 8.13) These restrictions apply to all of the outputs produced by households for own final use.
137. On the basis of the above, the imputed value of household production may be considered to increase the household's disposable income, even though the income concerned is spent on the very goods and services that the household has produced for itself. It follows that this income equals the net value added of household

production⁸, excepting the share of volunteer work. In principle the value of volunteer work should be subtracted from disposable income in that the household does not purchase the products concerned for itself, but they benefit other institutional units and households. However, since the calculations concern the whole national economy, it may be assumed that it is indeed precisely households that benefit from volunteering, even though the benefit comes in part through non-profit institutions. At the individual level, the benefits are not reaped by the same households that do the volunteer work. The above items can be summarised in tabular form as follows: (Lützel 1996)

Definition of disposable income in the SNA:

Operating surplus/mixed income
+ compensation of employees
+ property income
+ current transfer income
= Income received
– current taxes on income, wealth, etc.
– employers' social security contributions
– employees' social security contributions
– other current transfers paid
= Disposable income
+ social transfers in kind
= Adjusted disposable income

In the satellite account:

Adjusted disposable income
+ net value added of household production (as far as not included in national accounts)
= Extended disposable income

138. In the use of disposable income account, social transfers in kinds include, for example, the value of services produced by hospitals or schools to households. Total disposable income is obtained by adding to the adjusted disposable income the net value added of household production.

7.2 Total final consumption of households

139. Household production is a source of output of products for final consumption. In national accounts the household final consumption covers only part of the output: the SNA covered own-account production. In order to include also the missing part of output, adjustments are needed because of the reclassification of final consumption. The sequence below describes the revised formula for household final consumption⁹

Consumption in the SNA:

Final consumption expenditure of households
+ individual consumption expenditure of general government
+ final consumption expenditure of NPISHs
= Actual final consumption of households

In the satellite account:

⁸ Money spent on intermediate consumption and capital consumption has to be subtracted from the total output.

⁹ Adapted from Lützel (1996) by excluding the share of durables other than those used in household production.

Actual final consumption of households
– expenditure on consumer durables in household production
– expenditure on intermediate consumption
+ output of household production for own final use (as far as not included in national accounts)
= Extended final consumption of households

140. The SNA concept of final consumption also includes the intermediate consumption of goods and services and capital goods used in household production (with the exception of dwellings). In the satellite account expenditure on these are subtracted from final consumption, and the total output of household production is added, in so far as the latter is not already covered by the national accounts. This yields the value of total final consumption of households.
141. Another possibility would be to follow Lützel's original concept, and include the consumption of "leisure" household durables into final consumption instead of their expenditure. This would give a more meaningful aggregate of extended household consumption that is closer to the consumption and not to the expenditure concept. But this is not a procedure used in the SNA.

7.3 Saving of households

142. Saving is a residual category which remains when final consumption is subtracted from disposable income. In the HHSA the amount of money spent on capital goods is excluded from household final consumption, which pushes up the share of saving.

Uses:

Total actual final consumption (from HHSA)

Saving (residual)

Resources:

Total adjusted disposable income (from HHSA)

Adjustment for the change in net equity of households in pension funds reserves

143. The wealth of households is presented in balance sheets at the beginning of the year and at year-end. Household durables used in household production or in final consumption are not included in these SNA accounts. In the household satellite account the changes would show up in the capital accounts as follows.

Capital account

Changes in assets:

P.51. Gross fixed capital formation

P.511 Acquisitions less disposals of tangible fixed assets

Acquisition less disposals of household durables used in household production (from HHSA)

P.512 Acquisitions less disposals of intangible fixed assets

P.513 Additions to the value of non-produced non-financial assets

K1 Consumption of fixed capital

Consumption of household durables used in household production (from HHSA)

P.52 Changes in inventories

P.53 Acquisitions less disposals of valuables

K2 Acquisitions less disposals of non-produced non-financial assets

B9 Net lending/net borrowing

Changes in liabilities and net worth:
Saving, net (from HHSA)
D.9 Capital transfers, receivable
D.9 Capital transfers, payable

7.4 Presentation of accounts

7.4.1 Production and generation of income accounts

144. The presentation of the production account depends on the valuation approach. The components of household production are listed in the table 6 with hypothetical values assigned to each component to clarify the accounting rules. Table 6 illustrates the components of the input approach. An example of the output approach can be seen in the household satellite account by ONS, UK, as described in Holloway et al. (2002).
145. The components of household production are labour costs, taxes less subsidies on production, consumption of fixed capital and intermediate consumption, i.e. production costs. The top row indicates the labour cost incurred from housework. The following rows indicate the production of items belonging to the accounts according to SNA/ESA (housing services produced by owner-occupiers, house construction, agricultural production and hunting, fishing, etc. for own use). Since these are valued on the basis of market prices, the figures also include mixed income from operations.
146. The sum of these costs and taxes less subsidies on production is the net value added. When capital consumption is added to this figure, this yields the gross value added. This is the figure that can be compared to the key indicator of national accounts, i.e. GDP, which will then allow us to determine the size of household production as a proportion of GDP.
147. The output row indicates the value of total production by principal function, which is obtained by adding to gross value added the share of intermediate consumption, for instance the costs incurred by the consumption of raw materials. The columns indicate households' own-account production by principal function as well as volunteer work. Each principal function comprises both SNA and non-SNA productive activities which are shown in separate columns.
148. Dwellings require special treatment in the satellite. The 'providing housing' function is divided into three parts, because housing services produced by owner-occupiers have been separated from other activities. Value added by this production is different from other housing services, because of the large component which is the return to capital.
149. Investments in dwellings are included in the SNA as one item, which covers both rented accommodation and owner-occupied dwellings. For people who live in an owner-occupied dwelling, that dwelling is an investment, a capital asset; for those who live in rented accommodation it is not (it is the result of capital formation by the owner). The rent paid by the tenants is a housing cost, i.e. a production cost in so far as it is used for household production. People who live in an owner-occupied dwelling do not have to pay a rent and, therefore, for purposes of national accounts, an income is imputed to them that corresponds to their estimated rent. They produce housing services for themselves. In the household satellite account, rents and imputed rents must be treated in the same way, i.e. both must be counted as production costs in different functions of household production. Otherwise, the differences in the numbers of rented and owner-occupied dwellings would cause differences in the volume of production between different countries.

Table 6. COMPONENTS OF HOUSEHOLD PRODUCTION AND GENERATION OF INCOME ACCOUNTS

Specification	Providing housing			Providing meals		Providing clothing		Providing care		Volunteer work		Total		
	Services of owner-o. dwellings SNA	Other SNA	NON-SNA	SNA	NON-SNA	SNA	NON-SNA	SNA	NON-SNA	SNA	NON-SNA	SNA	NON-SNA	Total
Value of labour			100		500		300		200	0	10	0	1,110	1,110
Compensation of employees		12		0		0		0				12	0	12
Services of owner occupied dwelling	60											60	0	60
House construction		0										0	0	0
Agricultural production, fishing, hunting, etc. for own use				3								3	0	3
Taxes on production		0	1	0								0	1	1
Subsidies on production									-2			0	-2	-2
Value added, net	60	12	101	3	500	0	300	0	198	0	10	75	1,109	1,184
Consumption of fixed capital	20	0	10	2	25		10		10		2	22	57	79
Value added, gross	80	12	111	5	525	0	310	0	208	0	12	97	1,166	1,263
Domestic services			7		3		1		2			0	13	13
Other intermediate consumption	15	24	25	6	180	0	10	5	20		5	50	240	290
Intermediate consumption	15	24	32	6	183	0	11	5	22	0	5	50	253	303
Output	95	36	143	11	708	0	321	5	230	0	17	147	1,419	1,566
Gross fixed capital formation	35	5	10	3	30	0	15	0	15	0	3	43	73	116

7.4.2 Sequence of extended household accounts

150. Tables 7 and 8 show the sequence for household production and how it links up with SNA household accounts. The structure of the tables is well applicable to both the input and output approaches, even though the hypothetical values are linked to table 6 (input approach based production and income generation accounts).
151. In table 7, satellite accounts for household production have been integrated in the sequence of household accounts as presented in SNA. The figures in columns "Household accounts by SNA" correspond to figures in Table A.V.6 in the SNA publication.
152. The table shows household production divided by function but only for the production account, the generation of income account and the capital account. Because household production makes up only a part of household economic activity as an institutional unit, it is not meaningful to present income and outlay accounts by function. A column 'Adjustments' is included to show how much individual transactions in the sequence of accounts would change when the production boundary is extended to cover household production.
153. In the Production account and the Generation of income account the Adjustments column shows non-market production of households as defined in SNA. The figures in the column are negative because these activities have been reclassified to be a part of household production. As in table 6 Housing services produced by owner-occupiers are presented separately from other "Providing housing" activities.
154. The output of household production is measured as a sum of costs in the example presented here. For own-account production of agricultural products and house construction, market prices are used. Income from these activities and housing services produced by owner-occupiers are recorded in the row Operating surplus/mixed income in the Generation of income account.
155. Some taxes paid by households are regarded as taxes on production. They are recorded as taxes on production in the Generation of income account. The balancing item is recorded as a negative adjustment of Current transfers on the use side of the Secondary distribution of income account. Correspondingly, some benefits received by households are reclassified as subsidies, and the corresponding adjustment appears on the resource side of the Secondary distribution of income account.
156. The figures in the accounts above the Use of adjusted disposable income account are mechanically derived from the figures in the Production account and Generation of income account. What is worth noting is that, in the Use of disposable income account, the adjustment for individual consumption expenditure consists of the output of household production minus the part of household consumption expenditure which has been reclassified to intermediate consumption and fixed capital formation.
157. The resulting increase of (net) saving equals the increase of the difference between Gross fixed capital formation and Consumption of fixed capital. The integration of household production leaves net lending of households unchanged.

Table 8 simply summarises the table 7 showing an SNA – NON-SNA distinction for household production and SNA household accounts.

7.4.3 Household production as a part of total economy: Supply-Use table

158. The interaction between household production for own use and market production is illustrated in the supply–use table (table 9). The table shows in the same framework the supply and use of the market products and products for own use, market products by the CPC classification and the products for own use by main output/principal function. The table follows the structure of SNA Table 15.1, and the hypothetical values for market production and production for own final use, are taken from it with some modifications (e.g. part of the final consumption of households is allocated to non-SNA intermediate production and gross capital formation). The values are linked to values in tables 6, 7 and 8. The internal intermediate inputs (illustrated in table 2 in this report) are assumed to be zero and all household products (HH1-6) are assumed to be used to final consumption. The column for “Household own account production” shows production account of households. It could be sub-divided into principal functions to show the share of intermediate consumption and value-added by function.

Table 7. SEQUENCE OF EXTENDED HOUSEHOLD ACCOUNTS

Total, extended household accounts	USES								RESOURCES								Total, extended household accounts				
	Household production							Adjustments	Household accounts by SNA	Transactions and balancing items	Household accounts by SNA	Adjustments	Household production								
	Total	Providing housing	Services of owner occupied dwellings	Other housing services	Providing meals	Providing clothing	Providing care						Volunteer work	Volunteer work	Providing care	Providing clothing		Providing meals	Providing housing	Other housing services	Services of owner occupied dwellings
Production account											Output	1269	-147	17	235	321	719	179	95	1566	2688
	947	303	15	56	189	11	27	5	-50	694	Intermediate consumption										
	1,741	1,263	80	123	530	310	208	12	-97	575	Value added, gross										
	99	79	20	10	27	10	10	2	-22	42	Consumption of fixed capital										
	1,642	1,184	60	113	503	300	198	10	-75	533	Value added, net										
Generation of income account											Value added, net	533	-75	10	198	300	503	113	60	1184	1642
	1,149	1,122	0	112	500	300	200	10	-12	39	Compensation of employees										
	4	1	0	1	0	0	0	0	0	3	Taxes on production and imports										
	-3	-2	0	0	0	0	-2	0	0	-1	Subsidies										
	492	63	60	0	3	0	0	0	-63	492	Operating surplus/Mixed income										
Allocation of primary income account											Operating surplus/Mixed income	492	0								492
											Compensation of employees	766	1110								1876
	41									41	Property income	150									150
	2,477								1,110	1,367	Balance of primary incomes										
Secondary distribution of income account											Balance of primary incomes	1367	1110								2477
	570								-1	571	Current transfers	368	-2								366
	2,273								1,109	1,164	Disposable income										
Redistribution of income in kind account											Disposable income	1164	1109								2273
											Social transfers in kind	228									228
	2,501								1,109	1,392	Adjusted disposable income										
Use of disposable income account											Disposable income	1164	1109								2273
											Individual consumption expenditure										
	2,108								1,093	1,015	Adjustments for the change in net equity of households on pension funds										11
											Saving										
	176								16	160											
Use of adjusted disposable income account											Adjusted disposable income	1392	1109								2501
											Actual individual consumption										
	2,336								1,093	1,243	Adjustments for the change in net equity of households on pension funds										11
											Saving										
	176								16	160											
Capital account											Saving	160	16								176
	134	116	35	15	33	15	15	3	-43	61	Gross fixed capital formation										
	-99	-79	-20	-10	-27	-10	-10	-2	22	-42	Consumption of fixed capital										
	2									2	Changes in inventories										
	5									5	Acquisitions less disposals of valuables										

Table 8. SEQUENCE OF EXTENDED HOUSEHOLD ACCOUNTS

	USES								RESOURCES								
	Total, extended household accounts	Household production					Adjustment s	Household accounts by SNA	Transactions and balancing items	Household accounts by SNA	Adjustment s	Household production					Total, extended household accounts
		Total	Services of owner occupied dwellings, SNA	Other own-account production, SNA	Household production, NON-SNA	Volunteer work, NON-SNA						Volunteer work, NON-SNA	Household production, NON-SNA	Other own-account production, SNA	Services of owner occupied dwellings, SNA	Total	
Production account																	
	947	303	15	35	248	5	-50	694	Output	1,269	-147	17	1,402	52	95	1,566	2,688
	1,741	1,263	80	17	1,154	12	-97	575	Intermediate consumption								
	99	79	20	2	55	2	-22	42	Value added, gross								
	1,642	1,184	60	15	1,099	10	-75	533	Consumption of fixed capital								
									Value added, net								
Generation of income account									Value added, net	533	-75	10	1,099	15	60	1,184	1,642
	1,149	1,122	0	12	1,100	10	-12	39	Compensation of employees								
	4	1	0	0	1	0	0	3	Taxes on production and imports								
	-3	-2	0	0	-2	0	0	-1	Subsidies								
	492	63	60	3	0	0	-63	492	Operating surplus/Mixed income								
Allocation of primary income account									Operating surplus/Mixed income	492	0						492
									Compensation of employees	766	1,110						1,876
	41							41	Property income	150							150
	2,477						1,110	1,367	Balance of primary incomes								
Secondary distribution of income account									Balance of primary incomes	1,367	1,110						2,477
	570						-1	571	Current transfers	368	-2						366
	2,273						1,109	1,164	Disposable income								
Redistribution of income in kind account									Disposable income	1,164	1,109						2,273
	2,501						1,109	1,392	Social transfers in kind	228							228
									Adjusted disposable income								
Use of disposable income account									Disposable income	1,164	1,109						2,273
	2,108						1,093	1,015	Individual consumption expenditure								
									Adjustments for the change in net equity of households on pension funds	11							11
	176						16	160	Saving								
Use of adjusted disposable income account									Adjusted disposable income	1,392	1,109						2,501
	2,336						1,093	1,243	Actual individual consumption								
									Adjustments for the change in net equity of households on pension funds	11							11
	176						16	160	Saving								
Capital account									Saving	160	16						176
	134	116	35	8	70	3	-43	61	Gross fixed capital formation								
	-99	-79	-20	-2	-55	-2	22	-42	Consumption of fixed capital								
	2							2	Changes in inventories								
	5							5	Acquisitions less disposals of valuables								
	4							4	Acquisitions less disposals of non-produced non-financial assets								
									Capital transfers, receivable	23							23
									Capital transfers, payable	-5							-5
	148	-37					37	148	Net lending(+)/net borrowing (-)								

Table 9. SUPPLY AND USE OF PRODUCTS

SUPPLY		Total supply at purchaser's prices	Trade and transport margins	Taxes on products, net	SNA production excl. non-market production by households	Households, own account production		Imports				
						SNA	non SNA					
CPC 0	Agriculture, forestry and fishery products	128	2	2	78	9		37				
CPC 1	Ores and mineral, electricity, gas, and water	263	2	5	195	0		61				
CPC 21-25	Food products, beverages and tobacco	297	20	25	200	2		50				
CPC 26-29	Textiles, apparel and leather products	113	10	13	70	0		20				
CPC 3	Other transportable goods except metal products, machinery and equipment	860	25	30	700	5		120				
CPC 4	Metal products, machinery and equipment	870	19	21	737	0		93				
CPC 5	Construction services	262	0	17	213	31		1				
CPC 6	Distributive trade services; transport services; utilities distribution services	216	-78	8	231			55				
CPC 63	Lodging, food and beverage serving services	31		0	30			1				
CPC 7	Financial and related services; real estate services; and rental and leasing services	300		1	200	95		4				
CPC 8	Business and production services	290		7	274			9				
CPC 9, excl. 98	Community, social and personal services, excl. Domestic services	530		4	516	5		5				
CPC 98	Domestic services	13			13							
	Direct purchases abroad by residents	43						43				
CPC 0-9	Total supply of SNA products	4,236	0	133	3,457	147		499				
HH 1	Housing (market equivalent e.g. CPA 55.1)	143				143						
HH 2	Nutrition (m.e. CPA 65.3-5, 15.3, 1.1)	708				708						
HH 3	Clothing and clothing care (m.e. e.g. CPA 18.2, 93.01)	321				321						
HH 4	Care (m.e. e.g. CPA 85.32)	230				230						
HH 5	Volunteer work	17				17						
HH 6	Transport (m.e. e.g. CPA 60.22, 50.20)	0				0						
HH 1-6	Total supply of non-SNA products	1,419				1,419						
CPC+HH	Total supply of products	5,655	0	133	3,457	147	1,419	499				
USE		Total use at purchaser's prices		Taxes on products, net	Intermediate consumption in SNA production	Households, own account production, intermediate		Final consumption of households	Final consumption of government and NPISHs	Gross capital formation		Exports
						SNA	non SNA			SNA	Household durables	
CPC 0	Agriculture, forestry and fishery products	128			87	1	2	26	2	3	0	7
CPC 1	Ores and mineral, electricity, gas, and water	263			219	0	10	28	0	-1	0	7
CPC 21-25	Food products, beverages and tobacco	297			50	10	144	72	1	0	0	20
CPC 26-29	Textiles, apparel and leather products	115			19	5	13	66	1	1	0	10
CPC 3	Other transportable goods except metal products, machinery and equipment	878			798	10	28	28	1	0	4	10
CPC 4	Metal products, machinery and equipment	870			93	7	8	135	0	175	69	382
CPC 5	Construction services	262			40	0	3	0	0	213	0	6
CPC 6	Distributive trade services; transport services; utilities distribution services	216			118	0	9	32	0	0	0	57
CPC 63	Lodging, food and beverage serving services	31			21	0	0	10	0	0	0	0
CPC 7	Financial and related services; real estate services; and rental and leasing services	300			43	10	23	212	0	10	0	2
CPC 8	Business and production services	290			249	7	0	15	0	13	0	6
CPC 9, excl. 98	Community, social and personal services, excl. Domestic services	530			96	0	0	51	379	0	0	4
CPC 98	Domestic services	13					13	0			0	
	Dir. purchases by non-residents	43						14				29
CPC 0-9	Total use of SNA products	4,236			1,833	50	253	689	384	414	73	540
HH 1	Housing	143						143				
HH 2	Nutrition	708						708				
HH 3	Clothing and clothing care	321						321				
HH 4	Care	230						230				
HH 5	Volunteer work	17						17				
HH 6	Transport	0						0				
HH 1-6	Total use of non-SNA products	1,419						1,419				
CPC+HH	Total use of products	5,655			1,833	50	253	2,108	384	414	73	540
	Gross value added	3,020		133	1,624	97	1,166					
	Total output	5,156		133	3,457	147	1,419					

8. Conclusions and suggestions

159. The main objective of the work of the Task Force was to make further progress towards a proposal for an EU methodology of Household Satellite Accounts. In addition, issues in relation to actual compilation of the accounts should be addressed.
160. The Task Force discussed the various methodological options and took into account both the input and output approaches. The main focus was on monetary measures of household production but the possibility of using physical measures was also addressed.
161. This report gives guidelines on how to compile a satellite account of household production. It presents the definitions of the scope of the satellite account, and of the household productive activities. It gives options for the extent of the accounts and highlights the implications of each option. It also presents options for grouping the household productive activities into main outputs / principal functions, and makes recommendations on the calculation of intermediate consumption and consumption of fixed capital. Finally, the report makes a proposal on how the accounts can be presented, how the integration with the core national accounts can be shown in the full sequence of accounts and how the interconnections between market production and household production can be demonstrated using a supply-use table.
162. In presenting the guidelines alternative options are given in cases where Task Force members held diverging views and a consensus could not be reached yet. Therefore the results of the Task Force work cannot be called final recommendations. While progress has been made further research and experiences by countries are needed in the process towards more harmonised methods for the compilation of household satellite accounts.
163. The Task Force suggests to continue the work on the household satellite accounts as the current result is still work in progress. This future work should be done under the co-ordination of Eurostat.

Concluding remarks on methods

- Different methods, the input approach, output approach and physical measures are seen as complementary to each other as they give different views on the same social/economic phenomenon. Most benefits can be drawn and insights gained by the implementation and comparison of all approaches.
- At this stage of method development the results from the output and input approaches should be compared with utmost care (differences in valuation, travel vs. transport concepts, treatment of simultaneous activities, problem with reliability of output prices).
- Depending on the analytical interest and the resources available in a country the degree of ambition can vary. For example, valuing only unpaid labour does not allow calculating the extended consumption of households. A lot of work can be done using existing surveys on the national and international level (harmonised TUS, other surveys harmonised at EU level) without additional survey costs.

Research suggestions

- More research and experience is needed with regard to output-based valuations for household production.
- Quality of output and its measurement in the output approach is a large and fairly untouched area that needs research and development of methods. The development of a methodology for assessing how close the selected market equivalents are to the average quality of household products and the development of harmonised measurement of outputs is an urgent need.
- The sources of output data are crucial and will vary considerably from country to country, depending on the range of existing surveys or the willingness to undertake additional surveys. A fruitful area for further research is the possibility to use episode information from time use data, particularly if it is collected for the whole household (see Harvey and Mukhopadhyay, 1996). Another source of data that should be investigated more closely, is the market research data, which often addresses the questions household accountants are interested in, but may use sampling methodologies that are not readily accepted by statisticians and national accountants.
- Investigation is needed into the relationship between outputs and inputs for different household types. This would allow the disaggregation of results obtained by the output method, and may also point to further methods of obtaining output data from time use surveys.
- Comparative research on the valuation of household production by the output vs. input-based method should be increased. The UK work is a first and important step in this direction.
- Research is needed to clarify the complexity of household production, particularly the simultaneous activities in relation to the productivity and quality of output.
- Further research is needed for the development of objective and internationally feasible rules for allocation the intermediate consumption to main outputs / principal functions.
- Production of leisure and recreation for own use may be the next field where the satellite account of households will be created. This is an area that is developing rapidly and has market equivalents.

References

Becker, Gary. S. (1965) A Theory of the allocation of time. The Economic Journal. September 1965. 493-517.

Blades, Derek (1997) A proposal for the measurement of non-market household production. Session paper. IATUR. Stockholm 8-10 October 1997

Budlender, Debbie & Brathaug, Ann Lisbeth (2002) Calculating the value of unpaid labour: a discussion document. Statistics South Africa. Working paper 2002/1. www.statssa.gov.za

Chadeau, Ann (1992) What is Households' Non-Market Production worth? 85-93, OECD Economic Studies No 18, Spring 1992.

COICOP. Classification of individual consumption by purpose. United Nations, Department of Economic and Social Affairs, Statistics Division.
<http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5>

Eurostat (1996) European System of Accounts ESA 1995.

Fontainha, Elsa (2002) Household production – The Portuguese Case. Paper presented in the IATUR Annual Conference, ISEG Technical University of Lisbon, Oct 15-18, Lisbon, Portugal.

Gans, E. and S. Liebe (1982): Proportionen des Zeitaufwandes der sozialistischen Gesellschaft im Gesamtprozeß der Reproduktion in der DDR. Research Report No. 37 of the Central Institute of Economics of the Academy of Sciences of the GDR. Berlin (East).

Guidelines on harmonised European time use surveys. European Commission Eurostat Unit E2. Luxembourg 2000.

Gershuny, Jonathan and Jones, S. (1986): Time Use in Seven Countries 1961 to 1984, University of Bath, Working Paper, Bath.

Goldschmidt-Clermont, Luisella (1994) Monetary Valuation of Unpaid Work. pp.67-77 in Proceedings of the International Conference on the Measurement and Valuation of Unpaid Work. Ottawa, April 28-30, 1993. Statistics Canada and the Status of Women in Canada. Catalogue No 89-532E.

Goldschmidt-Clermont, Luisella (2000) Household production and income: Some preliminary issues. Bulletin of labour statistics 2000-2. ILO. Geneva.

Goldschmidt-Clermont, Luisella & Pagnossin-Aligisakis, Elisabetta (1995) Measures of unrecorded economic activities in fourteen countries. Occasional papers 20. Human Development Report Office. UNDP.

Goldschmidt-Clermont, Luisella & Pagnossin-Aligisakis, Elisabetta (1999) Households' NON-SNA Production: Labour time, Value of Labour and of Product, and contribution to Extended Private Consumption. Review of Income and Wealth, 45 (4) December, 519-529.

Harvey, Andrew & Mukhopadhyay, Arun (1996) The Role of Time Use Studies in Measuring Household Outputs. Paper presented in the IARIW Conference. Lillehammer, Norway, August 1996.

Holloway, Sue (2002) Using time use data to calculate an hourly effective return to labour: results from the UK Household Satellite Account (experimental) 2000. Paper presented in IATUR Annual Conference, ISEG Technical University of Lisbon, Oct 15-18, Lisbon, Portugal.

Holloway, Sue, Short, Sandra & Tamplin, Sarah (2002) Household satellite account (experimental). Methodology, UK Office for National Statistics at <http://www.statistics.gov.uk/hhsa/downloads>

Ironmonger, Duncan (1996) Time Use and Satellite Accounts for Modelling the Household Economy. Paper presented in the IARIW 24th General Conference. Lillehammer, Norway, August 1996.

ISCO-88. International Standard Classification of Occupations. (1990) ILO: Geneva.

Kim, Taehong & Moon, Youkyoung (2001) Economic Evaluation of Unpaid Work and Development of Policy Options in the Republic of Korea. Korean Women's development Institute KWDI. United Nations development programme UNDP.

Landefeld, J. Steven & McCulla, Stephanie, H. (2000) Accounting for Nonmarket Household Production Within a National Accounts Framework. Review of Income and Wealth, Series 46, No 3, September 2000.

Lützel, Heinrich (1996) Household Sector Income, Consumption and Wealth, 121-139, in The New System of National Accounts (ed.) John W. Kendrick Kluwer Academic Publishers: Boston/ Dordrecht / London.

Measuring Capital. A manual on the Measurement of Capital Stocks, Consumption of fixed Capital and Capital Services. OECD: Paris.

OECD (1995) Household Production in OECD Countries. Data Sources and Measurement Methods. OECD: Paris

Prado Valle, Cristina (2000) Household Production Satellite Account for the autonomous community of the Basque Country. Instituto Vasco de Estadística. Eustat.

Reid, Margaret (1934) Economics of Household Production. New York: John Wiley

Schäfer, Dieter & Schwarz, Norbert (1994) Wert der Haushaltsproduktion 1992. (The Value of Household Production in the Federal Republic of Germany 1992). Wirtschaft und Statistik 8/1994. 597-612. Wiesbaden: Statistisches Bundesamt. (In English also: Doc.E2/TUS/5/2001)

Stahmer, Carsten (2001): The Magic Triangle of I-O Tables, presented to the Task Force „Household Satellite Accounts“ on 22-23 Februar 2001, published in: Sandrine Simon, John Proops (eds.), *Greening the Accounts*, Edward Elger, Cheltenham (UK), Northampton, MA (USA), pp.123 - 154.

Statistics Canada (2000) Measurement and Valuation of Households' Unpaid Work in Canada. Paper submitted for the Conference of Commonwealth Statisticians – Session on Measuring the Household Sector – Including the Informal Sector. Botswana, 1-5 May 2000.

Statistics New Zealand (2001) Measuring Unpaid Work in New Zealand 1999. Statistics New Zealand. Te Tari Tatau. Wellington, New Zealand.

Trewin, Dennis (2000) Unpaid work and the Australian Economy 1997. Australian bureau of statistics. ABS Catalogue No. 5240.0. Commonwealth of Australia

United Nations, Inter-Secretariat Working Group on National Accounts. (1993) System of National Accounts 1993. Brussels/Luxembourg, New York, Paris, Washington, DC: Commissions of the European Communities-Eurostat, International Monetary Fund, Organization for Economic Co-operation and Development, United Nations, World Bank.

Varjonen, J., Niemi, I., Hamunen, E. Pääkkönen, H., Sandström, T. (1999) Proposal for a Satellite Account of Household Production. Eurostat Working Papers 9/1999/A4/11

Vihavainen, Marjut (1995) Calculating the value of household production in Finland in 1990.
The Input-output table. Working Papers No 6. Statistics Finland.

Appendices

Appendix 1

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Appendix 2

Elaboration of the disaggregations of the TUS categories related to Table 2. Examples refer mainly to the Finnish time use survey. Each country may use its own data for the elaboration.

- TUS 341 Gardening: In the pilot study of European harmonised time use survey (Niemi and Pääkkönen, in Varjonen et al.1999) splitting this activity was examined. It was suggested to divide Gardening into housing (flower garden, trimming hedges, cutting the lawn) and nutrition (growing vegetables) by 50:50.

- TUS 340 Unspecified gardening and pet care and 349 Other specified gardening and pet care could be treated in the same way. Time use study in Finland shows that pet care takes about 1/2 and gardening 1/2 of the time used to TUS 344, 349 and 340. It is also possible to leave out TUS 344 Walking the dog, if it is considered as an exercise of the person walking the dog.

- TUS 361 Shopping: In time use survey (HETUS) shopping is separated by coding to *purchasing consumer good* (daily groceries, etc.) and *purchasing capital goods* (dwelling, car, furniture, household appliances). The Finnish time use survey indicated that about a half of the time was used to each of these. The split can be done by deeper analysis of the time use data. In the study by Statistics New Zealand shopping had been split as follows: 15 % to housing, 40 % to nutrition, 30 % to clothing, and 10 % to care.

- TUS 360 Unspecified shopping could be treated like 361. Amount of time used to this is marginal.

- TUS 362 Commercial and administrative services. Analysis of time use data will give advice how to split this. In the Finnish time use survey four minutes per day was used to this category, it included going places such as bank, dry cleaner, gas station, etc.

- TUS 371 Household management includes paying bills, planning food purchases, meals. This could be divided between housing and nutrition, 50:50. Household management took two minutes per day in Finland.

- TUS 300 Unspecified household and family care, could be divided evenly between housing, nutrition and clothing. According to the Finnish time use survey one minute per day was coded to this category.

Appendix 3

Allocation used in the UK's HHS (Holloway et al. 2002)

Table 3. Household final consumption expenditure in the household satellite account

COICOP classification	Commodity	Intermediate consumption	Final consumption	Household capital
1	FOOD AND NON-ALCOHOLIC BEVERAGES			
01.1.1	Bread and cereals (ND)	X	X	
01.1.2	Meat (ND)	X		
0.1.1.3	Fish (ND)	X		
01.1.4	Milk, cheese and eggs (ND)	X		
01.1.5	Oils and fats (ND)	X		
01.1.6	Fruit (ND)	X		
01.1.7	Vegetables (ND)	X	X	
01.1.8	Sugar, jam, honey, syrups, chocolate and confectionery (ND)	X	X	
01.1.9	Food products n.e.c. (ND)	X		
01.2.1	Coffee, tea and cocoa (ND)	X		
01.2.2	Mineral waters, soft drinks and juices (ND)		X	
2	ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS			
02.1.2	Spirits (ND)		X	
02.1.2	Wine (ND)		X	
02.1.3	Beer (ND)		X	
02.2.0	Tobacco (ND)		X	
02.3.0	Narcotics (ND)		X	
3	CLOTHING AND FOOTWEAR			
03.1.1	Clothing materials (SD)	X		
03.1.2	Garments (SD)		X	
03.1.3	Other articles of clothing and clothing accessories (SD)	X	X	
03.1.4	Cleaning, repair and hire of clothing (S)		X	
03.2.1	Shoes and other footwear (SD)		X	
03.2.2	Repair and hire of footwear (S)		X	
4	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS			
04.1.1	Actual rentals paid by tenants (S)	X		
04.1.2	Other actual rentals (S)		X	
04.2.1	Imputed rentals of owner-occupiers (S)			
04.2.2	Other imputed rentals (S)			
04.3.1	Materials for the maintenance and repair of the dwelling (ND)	X		
04.3.2	Services for the maintenance and repair of the dwelling (S)	X		
04.4.1	Water supply (ND)	X		
04.4.2	Refuse collection (S)	X		
04.4.3	Sewerage collection (S)	X		
04.4.4	Other services relating to the dwelling n.e.c.	X		
04.5.1	Electricity (ND)	X		
04.5.2	Gas (ND)	X		
04.5.3	Liquid fuels (ND)	X		
04.5.4	Solid fuels (ND)	X		
04.5.5	Heat energy (ND)	x		

COICOP classification	Commodity	Intermediate consumption	Final consumption	Household capital
5	FURNISHING, HOUSEHOLD EQUIPEMENT AND ROUTINE MAINTENANCE OF THE HOUSE			
05.1.1	Furniture and furnishings (D)			X
05.1.2	Carpets and other coverings (D)			X
05.1.3	Repair of furniture, furnishings and floor coverings (S)	X		
05.2.0	Household textiles (SD)	X		
05.3.1	Major household appliances whether electric or not (D)			X
05.3.2	Small electric household appliances (SD)	X		
05.3.3	Repair of household appliances (S)	X		
05.4.0	Glassware, tableware and household utensils (SD)	X		
05.5.1	Major tools and equipment (D)			X
05.5.2.	Small tools and miscellaneous accessories (SD)	X		
05.6.1	Non-durable household goods (ND)	X		
05.6.2	Domestic services and household services (S)	X		
6	HEALTH			
06.1.1	Pharmaceutical products (ND)		X	
06.1.2	Other medical products (ND)		X	
06.1.3	Therapeutic appliances and equipment (D)		X	
06.2.1	Medical services (S)		X	
06.2.2	Dental services (S)		X	
06.2.3	Paramedical services (S)		X	
06.3.0	Hospital services (S)		X	
7	TRANSPORT			
07.1.1	Motor cars (D)			X
07.1.2	Motor cycles (D)			X
07.1.3	Bicycles (D)			X
07.1.4	Animal drawn vehicles (D)			X
07.2.1	Spare parts and accessories for personal transport equipment (SD)	X		
07.2.2	Fuels and lubricants for personal transport equipment (ND)	X		
07.2.3	Maintenance and repair of personal transport equipment (S)	X		
07.2.4	Other services in respect of personal transport equipment (S)	X		
07.3.1	Passenger transport by railway (S)		X	
07.3.2	Passenger transport by road (S)		X	
07.3.3	Passenger transport by air (S)		X	
07.3.4	Passenger transport by sea and inland waterway (S)		X	
07.3.5	Combined passenger transport (S)		X	
07.3.6	Other purchased transport services (S)		X	
8	COMMUNICATIONS			
08.1.1	Postal services (S)		X	
08.1.2	Telephone and telefax equipment (D)		X	
08.1.3	Telephone and telefax services (S)		X	
9	RECREATION AND CULTURE			
09.1.1	Equipment for the reception, recording and reproduction of sound and pictures. (D)		X	
09.1.2	Photographic and cinematographic equipment and optical instruments (D)		X	
09.1.3	Information processing equipment (D)		X	X
09.1.4	Recording media (SD)		X	

COICOP classification	Commodity	Intermediate consumption	Final consumption	Household capital
09.1.5	Repair of audio-visual, photographic and information processing equipment (S)		X	
09.2.1	Major durables for outdoor recreation (D)		X	
09.2.2	Musical instruments and major durables for indoor recreation (D)		X	
09.2.3	Maintenance and repair of other major durables for recreations and culture (S)		X	
09.3.1	Games, toys and hobbies (SD)		X	
09.3.2	Equipment for sport, camping and open-air recreation (SD)		X	
09.3.3	Gardens, plants and flowers (ND)	X		
09.3.4	Pets and related products (ND)		X	
09.3.5	Veterinary and other services for pets (S)		X	
09.4.1	Recreational services (S)		X	
09.4.2	Cultural services (S)		X	
09.4.3	Games of chance (S)		X	
09.5.1	Books (SD)		X	
09.5.2	Newspapers and periodicals (ND)		X	
09.5.3	Miscellaneous printed matter (ND)		X	
09.5.4	Stationery and drawing materials (ND)		X	
09.6.0	Package holidays (S)		X	
10	EDUCATION			
10.1.1	Pre-primary and primary education (S)		X	
10.1.2	Secondary education (S)		X	
10.1.3	Tertiary education (S)		X	
10.1.4	Education not definable by level (S)		X	
11	RESTAURANTS AND HOTELS			
11.1.1	Restaurants, cafés and the like (S)		X	
11.1.2	Canteens (S)		X	
11.2.0	Accommodation services (S)		X	
12	MISCELLANEOUS GOODS AND SERVICES			
12.1.1	Hairdressing salons and personal grooming establishments (S)		X	
12.1.2	Electrical appliances for personal care (SD)		X	
12.1.3	Other appliances, articles and products for personal care (ND)	X	X	
12.2.0	Prostitution (S)		X	
12.3.1	Jewellery, clocks and watches (D)		X	
12.3.2	Other personal effects (SD)	X	X	
12.4.0	Social protection (S)		X	
12.5.1	Life insurance (S)		X	
12.5.2	Insurance connected with the dwelling (S)	X		
12.5.3	Insurance connected with health (S)		X	
12.5.4	Insurance connected with transport (S)	X	X	
12.5.5	Other insurance (S)		X	
12.6.1	FISIM (S)		X	
12.6.2	Other financial services n.e.c. (S)		X	
12.7.0	Other services n.e.c. (S)		X	

Appendix 4

Allocation suggested by Germany (Dieter Schäfer)

COICOP Classification	Commodity	Intermediate consumption	Final consumption	Household capital
1	FOOD AND NON-ALCOHOLIC BEVERAGES			
01.1.1	Bread and cereals (ND)	X	X	
01.1.2	Meat (ND)	X		
01.1.3	Fish (ND)	X		
01.1.4	Milk, cheese and eggs (ND)	X		
01.1.5	Oils and fats (ND)	X		
01.1.6	Fruit (ND)	X		
01.1.7	Vegetables (ND)	X	X	
01.1.8	Sugar, jam, honey, syrups, chocolate and confection (ND)	X	X	
01.1.8.1	<i>Sugar</i>	X		
01.1.8.2	<i>Jams, marmalades</i>	X		
01.1.8.3	<i>Chocolate</i>		X	
01.1.8.4	<i>Confectionery products</i>		X	
01.1.8.5	<i>Edible ices and ice cream</i>		X	
01.1.8.6	<i>Other sugar products</i>	X		
01.1.9	Food products n.e.c. (ND)	X		
01.2.1	Coffee, tea and cocoa (ND)	X		
01.2.2	Mineral waters, soft drinks and juices (ND)		X	
2	ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS			
02.1.2	Spirits (ND)		X	
02.1.2	Wine (ND)		X	
02.1.3	Beer (ND)		X	
02.2.0	Tobacco (ND)		X	
02.3.0	Narcotics (ND)		X	
3	CLOTHING AND FOOTWEAR			
03.1.1	Clothing materials (SD)	X		
03.1.2	Garments (SD)	X	X	
03.1.3	Other articles of clothing and clothing accessories (SD)	X	X	
03.1.4	Cleaning, repair and hire of clothing (S)		X	
03.2.1	Shoes and other footwear (SD)		X	
03.2.2	Repair and hire of footwear (S)		X	
4	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS			
04.1.1	Actual rentals paid by tenants (S)	X	X	
04.1.2	Other actual rentals (S)	X	X	
04.2.1	Imputed rentals of owner-occupiers (S)	X	X	
04.2.2	Other imputed rentals (S)	X	X	
04.3.1	Materials for the maintenance and repair of the dwelling (ND)	X		
04.3.2	Services for the maintenance and repair of the dwelling (S)	X		
04.4.1	Water supply (ND)	X	X	
04.4.2	Refuse collection (S)	X	X	
04.4.3	Sewerage collection (S)	X	X	
04.4.4	Other services relating to the dwelling n.e.c.	X	X	
04.5.1	Electricity (ND)	X	X	
04.5.2	Gas (ND)	X	X	
04.5.3	Liquid fuels (ND)	X	X	
04.5.4	Solid fuels (ND)	X	X	

COICOP Classification	Commodity	Intermediate consumption	Final consumption	Household capital
04.5.5	Heat energy (ND)	X	X	
5	FURNISHING, HOUSEHOLD EQUIPEMENT AND ROUTINE MAINTENANCE OF THE HOUSE			
05.1.1	Furniture and furnishings (D)			X
05.1.2	Carpets and other coverings (D)			X
05.1.3	Repair of furniture, furnishings and floor coverings (S)	X	X	
05.2.0	Household textiles (SD)	X	X	
05.03.1	Major household appliances whether electric or not (D)			X
05.3.1.1	Refrigerators, freezers and fridge-freezers (D)			X
05.3.1.2	Clothes washing machines, clothes drying machine (D)			X
05.3.1.3	Cookers (D)			X
05.3.1.4	Heaters, air conditioners (D)			X
05.3.1.5	Cleaning equipment (D)			X
05.3.1.6	Sewing and knitting machines (D)			X
05.3.1.7	Other major household appliances (D)			X
05.3.2	Small electric household appliances (SD)	X		
5.3.3	Repair of household appliances (S)	X	X	
05.4.0	Glassware, tableware and household utensils (SD)	X		
05.5.1	Major tools and equipment (D)			X
05.5.2	Small tools and miscellaneous accessories (SD)	X	X	
05.6.1	Non-durable household goods (ND)	X		
05.6.2	Domestic services and household services (S)	X	X	
6	HEALTH			
06.1.1	Pharmaceutical products (ND)		X	
06.1.2	Other medical products (ND)		X	
06.1.3	Therapeutic appliances and equipment (D)		X	
06.2.1	Medical services (S)		X	
06.2.2	Dental services (S)		X	
06.2.3	Paramedical services (S)		X	
06.3.0	Hospital services (S)		X	
7	TRANSPORT			
07.1.1	Motor cars (D)			X
07.1.2	Motor cycles (D)			X
07.1.3	Bicycles (D)			X
07.1.4	Animal drawn vehicles (D)			X
07.2.1	Spare parts and accessories for personal transport equipment (SD)	X	X	
07.2.2	Fuels and lubricants for personal transport equipment (ND)	X	X	
07.2.3	Maintenance and repair of personal transport equipment (S)	X	X	
07.2.4	Other services in respect of personal transport equipment (S)	X	X	
07.3.1	Passenger transport by railway (S)	X	X	
07.3.2	Passenger transport by road (S)	X	X	
07.3.3	Passenger transport by air (S)		X	
07.3.4	Passenger transport by sea and inland waterway (S)	X	X	
07.3.5	Combined passenger transport (S)	X	X	
07.3.6	Other purchased transport services (S)	X	X	
8	COMMUNICATIONS			
08.1.1	Postal services (S)	X	X	
08.1.2	Telephone and telefax equipment (D)	X	X	
08.1.3	Telephone and telefax services (S)	X	X	

COICOP Classification	Commodity	Intermediate consumption	Final consumption	Household capital
9	RECREATION AND CULTURE			
09.1.1	Equipment for the reception, recording and reproduction of sound and pictures. (D)		X	
09.1.2	Photographic and cinematographic equipment and optical instruments (D)		X	
09.1.3	Information processing equipment (D)			X
09.1.4	Recording media (SD)		X	
09.1.5	Repair of audio-visual, photographic and information processing equipment (S)		X	
09.2.1	Major durables for outdoor recreation (D)		X	
09.2.2	Musical instruments and major durables for indoor recreation (D)		X	
09.2.3	Maintenance and repair of other major durables for recreations and culture (S)		X	
09.3.1	Games, toys and hobbies (SD)		X	
09.3.2	Equipment for sport, camping and open-air recreation (SD)	X	X	
09.3.3	Gardens, plants and flowers (ND)	X	X	
09.3.4	Pets and related products (ND)	X	X	
09.3.5	Veterinary and other services for pets (S)		X	
09.4.1	Recreational services (S)		X	
09.4.2	Cultural services (S)		X	
09.4.3	Games of chance (S)		X	
09.5.1	Books (SD)		X	
09.5.2	Newspapers and periodicals (ND)		X	
09.5.3	Miscellaneous printed matter (ND)	X	X	
09.5.4	Stationery and drawing materials (ND)		X	
09.6.0	Package holidays (S)		X	
10	EDUCATION			
10.1.1	Pre-primary and primary education (S)		X	
10.1.2	Secondary education (S)		X	
10.1.3	Tertiary education (S)		X	
10.1.4	Education not definable by level (S)		X	
11	RESTAURANTS AND HOTELS			
11.1.1	Restaurants, cafés and the like (S)		X	
11.1.2	Canteens (S)		X	
11.2.0	Accommodation services (S)	X	X	
12	MISCELLANEOUS GOODS AND SERVICES			
12.1.1	Hairdressing salons and personal grooming establishments (S)		X	
12.1.2	Electrical appliances for personal care (SD)		X	
12.1.3	Other appliances, articles and products for personal care (ND)	X	X	
12.2.0	Prostitution (S)		X	
12.3.1	Jewellery, clocks and watches (D)		X	
12.3.2	Other personal effects (SD)	X	X	
12.4.0	Social protection (S)		X	
12.5.1	Life insurance (S)		X	
12.5.2	Insurance connected with the dwelling (S)	X	X	
12.5.3	Insurance connected with health (S)		X	
12.5.4	Insurance connected with transport (S)	X	X	
12.5.5	Other insurance (S)	X	X	
12.6.1	FISIM (S)	X	X	
12.6.2	Other financial services n.e.c. (S)	X	X	
12.7.0	Other services n.e.c. (S)	X	X	