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PROPOSAL FOR A SATELLITE ACCOUNT OF HOUSEHOLD PRODUCTION

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PROPOSAL FOR A SATELLITE ACCOUNT OF HOUSEHOLD PRODUCTION

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Summary

1. Statistics Finland obtained Eurostat funding for the project in which the aim was to develop a harmonised satellite system of household production and evaluate the quality and applicability of data from the Eurostat Time Use Pilot Survey for the calculation of unpaid household labour. The report of the project was published by Eurostat in June 1999¹. In this paper, a short overview of the report is provided.
2. A household production satellite account is a useful tool for the purposes of demonstrating the productive role of households alongside the market economy and the public sector. The Finnish report has addressed several key questions relating to the compilation of a satellite account and made a number of recommendations as to how these questions could be resolved. The recommendations have been made by taking into account both existing information needs and feasibility.
3. The purpose of a satellite account is to bring into a single integrated accounting system the goods and services produced by households for their own use: both those that are already included in the current accounting system and those that remain excluded from it. In addition, the satellite account takes in the volunteer work done by households for other institutional units without compensation, which is also largely excluded from the system of national accounts. Including all these items of household production into the satellite account provides a picture of the overall role of household production in the national economy. The inclusion of production both outside and within the ESA will ensure that the data are also comparable with countries which do not apply the European System of Accounts and which may use a different definition of production boundary.
4. It is recommended that household production is valued on the basis of production costs (using the input-based method). This recommendation is based primarily on the availability of the data needed for the satellite accounts and on the adequacy of the data provided by time use studies to measure work related to household production.
5. The biggest problems in compiling a production account relate to the valuation of work time. More comparative research is needed on the ratio of inputs and outputs in different domains of household production so that the right hourly wage to be used for valuing purposes can be determined. In the meantime, it is thought that the best option is to value labour on the basis of wages of housekeepers or other generalist household workers.

¹ 29/07/99 Proposal for a Satellite Account of Household Production, Eurostat Working Papers, 9/1999/A4/11 21/05/1999 SC96L09

Defintion of concepts

6. **Production** is defined in keeping with the **general definition of production boundary** of the SNA. In it, all production of goods and services is included within the boundary of general production. Generally, “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 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. A purely natural process without any human involvement or direction is not production in an economic sense.” (SNA 6.15)
7. A household is an institutional unit which is responsible for, and manages, the production of goods and services. In the production process it uses its labour, capital and market goods. In this sense, household production can be compared to production in the market.

The satellite account of household production

8. The household production satellite account comprises all household production intended for the household's own use, as well as volunteer work undertaken by a household. In other word, the satellite comprises:
9. ESA production for own use:
- housing services produced by owner-occupiers
 - house construction or renovation
 - agricultural production
 - hunting, fishing, picking berries and mushrooms (if they are included in ESA national accounts)
 - volunteer work in so far as goods are produced

and

services of paid domestic staff

and

Non-ESA production:

- goods and services produced by households for their own use
- volunteer work (services).

10. Though the SNA and ESA are equal in principle, there can be slight practical differences between the production boundaries of these systems: own-account production of goods which, due to its significance, could be included in the SNA production boundary in developing countries, is left outside in the European system (weaving cloth, production of pottery, for instance). This point of view has been taken into account in the used activity categories.
11. **Activity categories** are based on the activity classification of the European Time Use Survey. The list is presented in annex 1.
12. In borderline cases the distinction between productive activities and non-productive activities is based on a third party criterion. The following lists some of such cases:

- Self-education is excluded from the household satellite account: the third party criterion is not met.
 - Personal hygiene, dressing and make-up are excluded: the third party criterion is not met according to the social norm.
 - Gardening and taking care of pets are covered by the satellite account: at least a part of the activity is productive.
 - Shopping is covered by the satellite - it meets the third party criterion, but the acquisition of personal services (e.g. medical services, hair dressing) is not - it does not meet this criterion.
 - Whether or not travel is included in productive activities depends on the purpose of the trip. If travel is related to a productive activity, then it is included in the satellite. However, travel to and from work is excluded because it is not related to non-market household production.
13. Volunteering may be either informal help given to other households or an organised activity arranged by some association or organisation. To be included, the activity should be unpaid and satisfy the third party criterion.
14. Services produced in households for own use are certain functions, like services produced by general government in the ESA. Household services are intended for the satisfaction of household members' basic needs. Output of household production can be divided into the following **principal functions**:
- provision of housing
 - provision of nutrition
 - provision of clothing
 - provision of care and education
 - volunteer work.
15. In addition, a number of ancillary activities are distinguished and grouped under these principal functions. Ancillary activities include such activities as transportation, cleaning, shopping, gardening and management.

Method for valuing household production

16. In general, production is valued in national accounts on the basis of output. Analogically, household production should also be valued on the basis of output, i.e. the goods and services produced. This is not easy, however, because the definition of these goods and services is not as clear-cut as in the case of market goods.
17. There is no price tag on these goods and services, because they are usually consumed by the same unit that has produced them. They have to be valued by reference to the prices of similar products available on the market. This can be done on the condition there are similar products available on the market.
18. The absence of established definitions of outputs means there are also no databases for these outputs. Studies with comprehensive data sets have been carried out in very few countries. The methods employed need to be improved and developed so that firm conclusions can be drawn from the results.
19. In most studies the value of household production has been estimated on the basis of the costs of production. It means that household production has been defined in the same

way as the non-market activities of general government and non-profit institutions. The difference between the two methods in deriving the value of production is as follows:

Output-based method

Value of outputs (quantity x price)
 - intermediate consumption
 = gross value added
 - consumption of capital
 - taxes on production
 + subsidies on production
 = mixed income (residual, including compensation of labour and capital)

Input-based method

Value of labour (time unit from time use studies valued at suitable wages/ time)
 + taxes on production
 - subsidies on production
 + consumption of capital
 = gross value added
 + intermediate consumption
 = total output

20. These two methods do not necessarily lead to the same result. The output-based method has the advantage that it measures real products, is compatible with the main body of the SNA, and reflects the household production situations. On the other hand, the identification of the products and the collection of the data are very time-consuming and, therefore, expensive. It is also not possible to find market counterparts for all the services provided by households, particularly in developing countries.
21. The input-based method is simpler and requires less data, provided the data for time inputs are available. Time use surveys are expensive, too, but the data produced in these surveys can be used for multiple purposes. The disadvantages of the method have to do with labour inputs. In most cases only primary activities are taken into account and other simultaneous activities are disregarded. Further problems include the inability of the method to measure productivity changes and the fact that the value of production is highly dependent on the wage rate adopted for purposes of valuing working hours.
22. The recommendations of the report are based on the costs of inputs. The main reasons are that the Eurostat Time Use Survey will provide comparable data on the time used in household production among European countries, and the output-based method clearly needs to be further improved and developed. However, it does not mean that outputs could not be used in the future, if the data on them were available.
23. Bearing in mind that the two methods do not produce the same results it could be asked if an element for compensation of capital should be included in calculating the production costs according to the input-based method. This kind of return to capital element would make the methods conceptually alike. However, measuring return to capital in practice may be difficult.

Value of household labour

24. Time spent in housework can be estimated fairly accurately by time use surveys, but the way in which this time is valued has crucial implications with regard to the value of household production as a whole. Earlier studies have used different wages and have consequently produced very different values for production. As far as the estimate has no direct connection to the value of the product, any method of valuation can be disputed. For the time being, however, the valuing of time is the only feasible way of getting a monetary value for household labour.
25. The key questions that need to be addressed in choosing the valuation method are:
- 1) which, or whose, wage should be used to value time; and
 - 2) should net or gross wage be used?

Which wage

26. 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. 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.
27. In the **opportunity cost method** the value of housework time equals the market wage rate of that person, it is his or her opportunity cost of time. Average wages have also been used for valuing the opportunity cost. The most apparent problem with this method is that it yields different values for similar products depending on who performed the task. Therefore, the method has been widely rejected by researchers. However, the alternative use of average wages has not been denounced.
28. The **replacement cost method** provides three options:
- A. The first option is to use the wages of specialised workers in market enterprises. Specialised workers in certain occupations perform similar activities as are done in households, e.g. a cook in a restaurant. The problem is that working conditions differ between households and market enterprises: capital investment is higher and production is organised differently (e.g. specialisation of tasks and skills). These circumstances have an impact on productivity. In housework, several tasks are performed simultaneously, whereas in enterprises the work may resemble line production. On the other hand, housework may be combined with leisure activities, resulting in less intensive working.
 - B. The second possibility is to use the wages of specialised workers at home. One can buy services of a specialised worker, e.g. a cleaner or a nurse, who comes to work in a household. These workers may use tools and materials of their own or those available in the household. These specialised workers focus on one task at a time. These kinds of specialised workers are generally available only for a limited number of activities performed by households.
 - C. The third alternative is to use the wages of generalist workers (polyvalent substitutes). One can hire a person to work in the household doing 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. Most often they are responsible for visiting elderly people or helping when the mother is ill. However, domestic employees do not usually undertake all

household tasks, particularly those related to management, as well as volunteer and community work.

29. The market replacement cost method with a specialised worker is quite 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.
30. **The market replacement cost method with a generalist's wage** seems to be the most appropriate basis for valuing household labour. The advantages of this method are as follows:
- 1) 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.
 - 2) The contents of the work are rather similar to the contents of housework.
 - 3) The method of valuation is simple and straightforward.

Gross or net wage

31. Gross wages include income tax and employer's social security contributions. 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 of the wages depending on the country and the welfare system.
32. Two basic assumptions lie behind the choice of gross or net wages. 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 do not have to pay taxes or social security contributions for themselves.
33. The recommendation is to use gross wages for valuation purposes for the following main reasons:
- 1) The solution is consistent with the method used for non-market services of general government and non-profit institutions serving households.
 - 2) If households sold their services on the market, or if the services had to be purchased on the market, the price would cover all costs of production, including social security costs.
 - 3) Wage statistics are based on gross wages. Comparable figures for net wages are not generally available.

Compiling the satellite account

Production and generation of income account

Compensation of employees = Labour costs

34. Labour input is determined by the results of time use studies. Operational definitions of labour are based on the activity classification of the Eurostat Time Use Survey.

35. The time invested in work is valued on the basis of the wage of a generalist housekeeper. The generalist's wage can be determined on the basis of the ISCO² categories 5121 or 9131, or ISCO 51, if statistics are not available at the detailed level of accuracy.
36. Wages are calculated on the basis of gross wages, inclusive of social security contributions. If hourly wages are used, these must also be inclusive of holiday remuneration, social security contributions and other similar expenses.

Reclassification of consumption for intermediate consumption and gross fixed capital formation

37. In national accounts, all households are defined as consumers, but entrepreneur-households are also producers. In the household satellite account, the household's consumer role is expanded to include a producer role. Therefore, part of the ESA households' final consumption is used as intermediate consumption (e.g. food items and energy for meal preparation) or fixed capital formation (e.g. washing machines, refrigerators) in household production. Reclassification is based on the COICOP³. Some products are used as both final consumption and intermediate consumption goods or as capital goods and have to be allocated to more than one category. In order to determine the proportion of the product value to be allocated to each category, it is possible to refer to data obtained from time use, household budget or other surveys. Examples are cars and their use, furniture, etc.

Consumption of fixed capital

38. The consumption of fixed capital constitutes a cost of production. It can be calculated using the Perpetual Inventory Method (PIM). The stock of fixed assets used in household production can be defined on the basis of data on household durables in national accounts and household budget surveys. A straight-line model of depreciation may be used, with the assumption that the service lives of goods remain constant.

Taxes less subsidies

39. Taxes on production and subsidies are to be treated in the same way in household production as they are in national accounts. Taxes on production may include taxes on residential dwellings, vehicle registration tax, tax on motor vehicles, etc. Subsidies on production may include subsidies granted to owner-occupiers of dwellings as well as those paid for care provided at home, such as home care allowance, allowances for the care of dependants, etc.

Other accounts

40. In addition to production and generation of income accounts, it is recommended that disposable income and capital accounts be modified in the ESA according to the changes caused by household production. These accounts are reasonably easy and straightforward to compile once the production account is available, but they add considerably to the utility of the results. (See annex 2.)

² ISCO-88. International Standard Classification of Occupations. ILO

³ Classification of Individual Consumption by Purpose

Intervals in compiling a satellite account

41. In order to make the best possible use of the results of a household production satellite account; it should be compiled regularly, at intervals of no more than five years. In the longer term, the aim is to compile the accounts on a yearly basis. This will help the production of time series and facilitate the use of the time series for analyses of the national economy, social policy and business economy. To this end, steps should now be taken toward the adoption of light diary methods in time use research so that time use data can be updated on a yearly basis. All other data are already available on a yearly basis.

Use of results

42. The utility of the results depends on their quality, i.e. on such factors as how frequently the satellites are produced and on how much attention is devoted to their reliability and comparability over time and between different countries.
43. The production accounts will indicate the volume of household production as a proportion of total production in the national economy. In order to gain a deeper understanding of the dynamics of interaction between the three main sectors of production, i.e. household production, the public sector and the market economy, we need to monitor changes in production closely. This, in turn, means that the household satellite account should, preferably, be compiled on a yearly basis because changes in the market economy may occur rapidly.
44. The time series will provide information on the volume of household production as a proportion of total household consumption. Changes in this proportion will allow estimates to be made of shifts occurring in the production of services from households to markets and vice versa. Further, the results of different principal functions will allow us to identify which services are particularly susceptible to such changes and which services are clearly dominated by either market or household production. The figures will also be useful in the analysis of the impacts of technological development on shifts in production.
45. There may be much variation across different types of households on all the issues discussed. Therefore, it would be useful to compile production accounts separately for different types of households: people living alone, couples with no children and families with children. This would allow for a more effective use of the results of the household satellite account for the purposes of targeting social policy, particularly social transfers.

Questions:

1. Would it be better to develop output and input methods separately as parallel methods or should both methods be used in calculating the value of household production depending on the available data? For instance, providing nutrition and providing clothing might be based on the outputs and other functions based on inputs?
2. Should return to capital be taken into account in calculating production costs; or should there be an element comparable to operating surplus included in inputs?
3. Should travel to work be regarded as a productive activity and included in the household satellite account, when provided by the household itself?
4. Do you prefer gross or net wages and why?
5. Should all capital goods of households be included in the capital stock, even if they are used in providing recreation or rest?

Annex 1:***Activity list of Time Use Survey of Eurostat and the Production Boundary***

S = Activities belonging to SNA production boundary;
 S* = Activities, in practice, excluded from ESA production boundary;
 G= Activities belonging to general production boundary, not to ESA;
 O = non-productive activities

Activities belonging to the household production are bold typed

0 PERSONAL CARE	O
1 EMPLOYMENT	S
2 STUDY	O
3 HOUSEHOLD AND FAMILY CARE	
31 FOOD PREPARATION	
311 Meal/snacks	G
312 Baking	G
313 Dish washing	G
314 Preserving	S*
319 Other food preparation	G
32 HOUSEHOLD UPKEEP	
321 Cleaning dwelling, cellar, garage	G
322 Cleaning yard	G
323 Disposal waste	G
324 Heating and water	S*
325 Various arrangements	G
329 Other household upkeep	G
33 MAKING AND CARE OF TEXTILES	
331 Laundry	G
332 Ironing	G
333 Care of clothes and shoes	G
334 Producing textiles	S*
335 Handicrafts	S*
339 Other making/caring textiles	G
34 GARDENING AND PET CARE	
341 Tending plants	
3411 Tending edible plants	S
3412 Tending ornamental plants	G
342 Tending animals	
3421 Tending domestic animals	S
3422 Caring for pets	G
343 Walking the dog	G
349 Other gardening or pet care	G

35 CONSTRUCTION AND REPAIRS	
351 House construction, repair	
3511 House construction and renovation	S
3512 Repairs to dwelling	G
(partly S)	
352 Repairing equipment, furniture, household goods	G
353 Vehicle maintenance	G
354 Production of household goods	S*
359 Other construction and repairs	G
36 SHOPPING AND SERVICES	
361 Purchases	
3611 Consumer goods	G
3612 Capital goods	G
362 Commercial services	G
363 Administrative services	G
364 Vehicle services	G
365 Medical services	O
366 Other personal services	O
367 Veterinary services for pets	G
369 Other shopping and services	G
37 HOUSEHOLD MANAGEMENT	G
3701 Computing for hh management	G
379 Other household management	G
38 CHILD CARE	
381 Physical care	G
382 Supervision	G
383 Reading or playing	G
384 Talking with the child	G
385 Teaching the child	G
386 Accompanying child	G
387 Visiting school/nursery	G
389 Other activities of child care	G
39 ADULT CARE	G
4 CIVIC AND RELIGIOUS ACTIVITIES	
41 ORGANISATIONAL WORK OR SERVICES	
411 Organisational work	G
(partly S)	
412 Caring for people via an organisation as voluntary service	G
413 Environmental and animal protection	G
419 Other organisational work or services	G
42 PARTICIPATIVE ACTIVITIES	O
5 SOCIAL LIFE AND ENTERTAINMENT	O
6 SPORTS PARTICIPATION	
61 PHYSICAL EXERCISE	O
62 PRODUCTIVE EXERCISE	
621 Hunting, fishing	S
622 Picking berries, mushrooms	S
629 Other productive activities	S
63 SPORTS RELATED ACTIVITIES	O
7 HOBBIES AND GAMES	O
8 MASS MEDIA	O

9 TRAVEL (BY PURPOSE)

901 Personal care	O
911 During work	S
912 To/from work	O
921 School/university	O
922 Additional study	O
932 Household care	G
934 Gardening/pets	G
935 Repairs	G
936 Shopping and services	G
938 Child care	G
939 Adult care	G
941 Organisational work	G
942 Participative activities	O
951 Socialising	O
952 Entertainment and culture	O
960 Sports	O
970 Arts, hobbies and games	O
991 Changing base	O
992 Travel as its own purpose	O
900 Unspecified travel	O

Annex 2. Sequence of extended household accounts, summary table

	USES							RESOURCES								Total, extended household accounts	
	Total, extended household accounts	Household production					Household accounts by ESA	Transactions and balancing items	Household accounts by ESA	Adjustments	Household production						
		Total	Services of owner occupied dwellings, ESA	Other own-account production, ESA	Household production, NON-ESA	Volunteer work, NON-ESA					Adjustments	Volunteer work, NON-ESA	Household production, NON-ESA	Other own-account production, ESA	Services of owner occupied dwellings, ESA		Total
Production account	934	295	20	35	235	5	-55	694	Output	1,269	-308	17	1,389	158	150	1,714	2,675
	1,741	1,419	130	123	1,154	12	-253	575	Intermediate consumption								
	99	97	30	10	55	2	-40	42	Value added, gross								
	1,642	1,322	100	113	1,099	10	-213	533	Consumption of fixed capital								
									Value added, net								
Generation of income account	1,149	1,161	0	51	1,100	10	-51	39	Value added, net	533	-213	10	1,099	113	100	1,322	1,642
	4	3	0	2	1	0	-2	3	Compensation of employees								
	-3	-2	0	0	-2	0	0	-1	Taxes on production and imports								
	492	160	100	60	0	0	-160	492	Subsidies								
									Operating surplus/Mixed income								
Allocation of primary income account	44							44	Operating surplus/Mixed income	492	0						492
	2,458							1,110	Compensation of employees	766	1,110						1,876
									Property income	134							134
									Balance of primary incomes								
Secondary distribution of income account	570							571	Balance of primary incomes	1,348	1,110						2,458
	2,254							1,109	Current transfers	368	-2						366
									Disposable income								
Redistribution of income in kind account	2,473							1,109	Disposable income	1,145	1,109						2,254
									Social transfers in kind	219							219
									Adjusted disposable income								
Use of disposable income account	2,089							1,093	Disposable income	1,145	1,109						2,254
									Individual consumption expenditure								
	176							16	Adjustments for the change in net equity of households on pension funds	11							11
									Saving								
Use of adjusted disposable income account	2,308							1,093	Adjusted disposable income	1,364	1,109						2,473
									Actual individual consumption								
	176							16	Adjustments for the change in net equity of households on pension funds	11							11
									Saving								
Capital account	134	120	35	12	70	3	-47	61	Saving	160	16						176
	-99	-97					40	-42	Gross fixed capital formation								
									Consumption of fixed capital								
	4							4	Acquisitions less disposals of land and other tangible non-produced assets								
	2							2	Changes in inventories								
	5							5	Acquisitions less disposals of valuables								
									Capital transfers, receivable	23							23
									Capital transfers, payable	-5							-5
	148	-23					23	148	Net lending(+)/net borrowing (-)								