

**CONFERENCE OF EUROPEAN
STATISTICIANS**

**Joint ECE/INSTRAW/UNSD Work
Session on Gender Statistics**
(Geneva, 20-22 April 1998)

Working Paper No. 18

PROPOSAL FOR A EUROPEAN SATELLITE SYSTEM OF HOUSEHOLD PRODUCTION

Paper submitted by Statistics Finland¹

Introduction

1. Statistics Finland has obtained Eurostat SUP.COM96 funding for this project in which the aim is to develop a harmonised satellite system of household production and to evaluate the quality and applicability of data from the Time Use Pilot Survey for the calculation of unpaid household labour. The final report of our project will be delivered to Eurostat in June 1998.

2. With all the research that has been done on the measurement of housework and household production and all the debate that has been waged on the issue, we should by now have all the ingredients we need for an integrated proposal for a satellite system of household production. The recommendations set out in this paper should allow for reliable comparisons of the volume of household production in different countries.

National accounts and satellites

3. The System of National Accounts (SNA) is a strict set of accounting guidelines designed primarily to facilitate international statistical comparisons. Given the rigidity of the system it is not feasible to try to introduce in it new items that do not necessarily fit in comfortably with the existing guidelines. However, the 1993 guidelines allow for the creation of satellite accounts for such purposes. Satellite accounts are compatible with the logic of national accounting, yet completely separate from national accounts. Satellite accounts are the recommended option in situations where an overall picture needs to be formed of productive activities in a given area of the economy.

4. There are two different types of satellite account: The first type of satellite account is one which sums up and reorganises all the data available on a certain area in existing accounts. A case in point is tourism: this kind of satellite will help to provide a clearer picture of the complex economic impacts of tourism. The second type is represented by a satellite account in which SNA concepts and classifications are modified. These satellites are obviously subject to greater controversy than the former type, but they also generate more new information on areas that otherwise would remain excluded from accounts. The household satellite represents this latter category. The household satellite applies a broader concept of production than the SNA.

5. The European System of Accounts ESA is consistent with the SNA guidelines, but at certain points it has been necessary to apply more stringent definitions and rules that are more in line with its use within

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the European Union. Our proposal for a household satellite is based, in the final analysis, on ESA guidelines.

Definition of household production

6. Our efforts to create a satellite account for household production have been motivated by the aim to gain an overall picture of productive activities undertaken in households and to identify how large a proportion of this production is covered by national accounts and how large a proportion is excluded. Looking at the SNA and ESA production boundaries, we observed that they differ in terms of their definitions of household production. The SNA comprises a larger number of activities than the ESA.

7. The SNA defines production "in general" 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." Household production meets this definition of production. However, with certain exceptions, the SNA definition of production only covers "production of goods and services that are supplied to units other than their producers". This means that household production is excluded from the accounts because the outcome of production is consumed in the same unit where it is produced, i.e. within the household.

8. There are, however, certain cases within the SNA where production for own use is included in the accounts; in these cases the term used is own-account production. The ESA and the SNA deal with these exceptions differently. According to the SNA goods produced in households shall be included in the accounts if the production is believed to be quantitatively important in relation to the total supply of that good in the country concerned. The ESA for its part says that household production of goods in Europe is not significant in relation to total production and excludes it with the exception of own-account construction of dwellings, services produced by owner-occupied dwellings, production, storage and processing of agricultural products and volunteer activities that result in goods. This means that the volume of household production included in the accounts may vary from country to country depending on the national definition of the significance of goods production. The inclusion in the household satellite of both production outside national accounts and production falling within the scope of national accounts, will guarantee that the data are also comparable with non-ESA countries.

Principal functions of household production

9. Household production can be divided into principal functions which describe the various aspects of basic need satisfaction. In order to survive people need to have a place to live, food to eat, clothes and basic care. In producing these services households may apply different standards in quantity and in quality. The same applies to services bought in the market: standards may vary.

10. The principal functions of household production are shown in Table 1. Under each principal function there are a number of activities which are ultimately aimed at realising the principal function. For example, the principal function of housing services comprises interior decoration and cleaning in their various forms. In order to prepare meals households have to buy raw materials and semi-finished products from the shop, possibly grow vegetables in the garden, preserve foods, etc. Clothing requires that clothes are purchased, washed and repaired. Child care may involve taking the children to their hobbies and to school. Like shopping, transportation and travel in general are functions that occur under all principal functions; they are called ancillary activities. Volunteering is production that is done without pay and can be considered equal to household production, even if it does not benefit one's own but another household or institutional unit.

Operationalisation of household production

11. Housework is a key element of household production. The most important sources for purposes of defining and measuring housework are represented by time use studies. One of the aims of our project was

to evaluate the applicability of the activity classification used in the European Time Use Pilot Survey 1996/97. Pilot studies were carried out in 18 countries. Four of these countries - Italy, Finland, Luxembourg and Slovenia - were chosen for the evaluation.

12. The sample comprised household members aged over 10 years. Time use data were collected using diaries in which all activities during two days, one weekday and one weekend day, were reported. The time slot was a 10-minute interval. Main activity, simultaneous activity, location and social company were measured. An extra column on helping other households was included. Background information was gathered by individual and household questionnaires. The general quality of the pilot survey has been analysed by Statistics Sweden².

13. Time use data were collected in a harmonised way, using similar diaries and coding lists in all countries. The aim of our project was to analyse the quality of diary-keeping for the measurement of unpaid household labour. For conceptual purposes we analysed whether it was possible to distinguish activities falling within different production boundaries from each other and from non-productive activities (Table 2).

14. We observed that kitchen gardening was not distinguished from other gardening and propose that half of the amount of time be allocated to each of these categories. Additional items need to be included in the questionnaire to make it easier to distinguish between the caring of domestic animals vs. pets and between major and minor repairs. There were no other major distinction problems.

15. We propose that trips related to household activities are included in the satellite account. In the coding list trips (2-digit level) were not separated at the same level of accuracy as the activities proper (3-digit level). Trips should be classified on the basis of the predominant type of time expenditure within the activity category.

16. The SNA definition requires that volunteer work in which goods are produced should be distinguished from volunteer work producing services, but this is not essential because of the minor frequency of volunteer work. We propose that this whole category be classified as non-SNA productive activity.

17. We also looked at the relevance of including simultaneous activities in the satellite accounts. The additional time spent on housework was insignificant when only activities simultaneous with non-productive activities were counted. Given that there are considerable cross-national differences, it is clear that there are reliability problems in this variable. We propose that simultaneous activities should not be included in the satellite account.

18. Time use surveys should cover the whole year because of seasonal variations in household production.

Household production is valued through costs

19. There has been much debate on the question of how household production should be valued; should it be valued on the basis of an input-based or an output-based method? We suggest the former, i.e. an input-based method for the simple reason that this is currently more feasible. Production costs consist of labour costs and capital costs as well as the goods and services purchased for use in the production process. There exists more research that has applied this method and consequently there is more experience to fall back on for purposes of making recommendations. The biggest problem with the method is that there exists no realistic foundation for the valuation of labour: no data are available on the value of the products so that the ratio of inputs and outputs could be determined. Another shortcoming is that the method can tell us nothing about changes in productivity.

² Klas Rydenstam and Anders Wadeskog, Evaluation Preliminary Report, Part II, DOC E2/TUS/Pilot/13.2/97

20. If the valuation of working time is a problem in the input-based method, so too would be the valuation of the outputs. If outputs were used it would be necessary to establish both the quality and quantity of the services and to find equivalents in the market. Given the wide variation in the quality of household services, how should the corresponding good be chosen in the market? When costs are used for the calculation, the amount of time invested in work can be ascertained quite accurately; all that needs to be done is to establish the basis for valuing labour. To find out the value of labour it is necessary to do case studies that can shed light on the ratio of inputs to outputs. This will yield wages that can be compared, for instance, with the wages of housekeepers; this should provide some indication as to whether the figure is too low or too high to be used as a basis for valuation.

Gross wages of housekeeper as a basis for valuing labour

21. In the absence of suitable wages for purposes of comparisons, we recommend that the valuation be based on the housekeeper's wage because the job description and the working conditions are both similar to the situation in households. There has been some debate on this choice; some feel that the wage is too low, other insist it is too high. The fact of the matter is that in most countries the housekeeper's wage is only 50 - 70 % of the average wage (although it has to be added that there are problems with the statistics). Those who argue that the wage is too low do not want to see women's low pay levels (relative to men's pay) be carried over into the valuation of household production; those who say the wage is too high argue their case by reference to the low level of productivity and the lack of professional competencies in household production.

22. We also propose that gross wages rather than net wages be used. This is based on the national accounting recommendation that production for own use shall be valued at the rate that would have to be paid if the product or service were purchased on the market. If household production were purchased on the market, the price paid for the products would include all employer expenses.

Intermediate consumption distinguished from final consumption

23. The next step in the valuation of production is to determine the share and value of goods and services used in the production process, i.e. the value of intermediate consumption. In national accounts all products purchased by households in their capacity as consumers are classified as final consumption. We propose that the reclassification is based on the purpose of the good or service according to COICOP categories. (COICOP is the classification of individual consumption by purpose.) That means that it is not individual goods but rather whole product categories that are classified as final or intermediate consumption goods or capital goods in household production. This simplifies the task of reclassification.

24. In some categories there are goods that can be used in several activities, both as intermediate consumption goods and as final consumption goods. Ice cream, for instance, can either be eaten as such, or it can be used in desserts. In these cases we recommend that the category is allocated according to the purpose of the majority of goods. Ice cream is thus classified as a finished product because most of it is consumed as such without it having a role in household production. However, there are some categories that have to be broken down. An example is provided by consumer durables related to housing and transportation. We propose that they are divided by time use between productive and non-productive activities. Only those allocated to productive activities shall be included in household production.

Formation and consumption of fixed capital

25. For purposes of calculating capital consumption we need to have data on capital stock and on changes in it. In national accounts all household durables from cars to refrigerators are classified as final consumption. The only good recorded as an investment is the household's dwelling. Goods used as capital goods in households must be distinguished from those used in final consumption. A useful tool for this purpose (as in the case of intermediate production) is the COICOP, which has separate categories for

household durables and semi-durables. Out of these we have chosen goods that are used in household production: these are typically refrigerators, washing machines and other smaller household appliances used exclusively for productive purposes.

26. There are also goods that are used for both productive and non-productive activities; cars are a case in point. Cars must be treated partly as capital goods and partly as final consumption goods, depending on their productive vs. non-productive use. This can be done on the basis of time use studies. Furniture and textiles in the dwelling are also divided into productive and non-productive categories according to time use. Although this sort of classifying exercise may seem illogical, this is the procedure that is also followed in national accounts.

27. Dwellings require special treatment in the satellite. Investments in dwellings are included in the ESA as one item which includes 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 people who live in rented accommodation it is not. The rent paid by the tenant is a housing cost, i.e. a production cost in so far as it is used for productive activities. People who live in an owner-occupied dwelling do not have to pay a rent and therefore for purposes of national accounts an imputed income is credited to them that corresponds to their estimated rent. They produce housing services for themselves (services produced by owner-occupied dwellings). In the household satellite rents and imputed rents must be treated in the same way, i.e. both must be counted as production costs in so far as the dwelling is used for productive activity. Otherwise differences in the numbers of rented and owner-occupied dwellings would cause differences in the volume of production.

28. In national accounts figures for capital consumption are commonly calculated by the Perpetual Inventory Method (PIM). For this model data are needed on the capital stock, the service life of capital goods and on the depreciation of the value of capital goods. Data on household durables' service lives can be obtained from research studies, wholesalers and manufacturers. We propose that the model of straight line depreciation is applied with the PIM so that the value of the appliance is zero when it is taken out of use. Household appliances are normally in use until such time as they break down and have to be replaced.

Taxes and subsidies

29. Some of the taxes paid by households are clearly related to household production; examples are provided by taxes related to housing and vehicle use. These shall be treated in the same way as production costs as in market companies. Accordingly, households receive certain social transfers that can be regarded as subsidies, such as home care allowances and disability allowances, which are paid out on the grounds that relatives look after the elderly or disabled patient themselves rather than sending them to an institution or nursing home.

30. Above we have discussed the production costs through which the value of household production is determined. The Table below summarises these costs, with hypothetical values given to illustrate the situation.

31. The columns in the Table 3 show the breakdown of households' own-account production by function as well as volunteer work and the sum total of both. Production by function is divided into two categories according to the proportion of production outside the ESA (NON-ESA) and the proportion of production that is included in the ESA (ESA). On the left hand side there is a separate column for housing services produced by owner-occupiers, because this production differs from all other categories in terms of both contents and method of valuation.

32. The figures on each line indicate production costs. The top line indicates the labour cost incurred from housework, which is calculated by valuing the working time obtained from time use studies on the basis of the housekeeper's wage. The following lines indicate the production of items belonging to national accounting (compensation of domestic staff, 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 profits from operations.

33. The sum of these costs 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. the GDP, which will then allow us to determine the volume of household production as a proportion of total economic production.

34. The output line indicates the value of total production, which is obtained by adding to gross valued added the share of intermediate consumption, for instance the costs caused by raw material, electricity and water in preparing meals.

Uses of the satellite

35. It is in itself an important achievement to be able to present an overall estimate of the value of household production. In the absence of a concrete figure, awareness of its presence and role has been weak among ordinary people and, importantly, among political decision-makers. As one of the sources for the statistics is represented by time use studies, which produce data separately for men and women, we can now estimate the role that women play in the production of housing services, meals, clothing and care services as well as in volunteer work.

36. When these figures are examined together with household accounts based on ESA guidelines, we can also demonstrate the impact of household production on households' disposable income. When the net value added of household production is added to household disposable income, we get the extended disposable income for households. Accordingly, when we add it to household consumption, we get a figure for extended individual consumption, which can be considered to describe the level of households' welfare more accurately than current final consumption.

37. Both extended disposable income and extended final consumption varies between different types of household. Therefore it would be useful to compile household satellite accounts separately for people living alone, households with no children, and families with children. In the interpretation of the results it should be borne in mind that imputed income and final consumption are more restricted than "normal" income and consumption in that the income can only be used for the "acquisition" of services produced within the household. However, this does not mean to say that the income has no significance: the money that the household saves by preparing its own meals, for instance, can be spent on whatever they choose to.

38. In order to make the best possible use of the results of the household production satellite account, it should be compiled often enough so that changes occurring in the structure and volume of production can be reliably compared. We propose that the satellite be compiled regularly at intervals of no more than five years; in the longer term the aim should be to compile the accounts on a yearly basis so that we can monitor the interactions of household production with other aspects of the economy. International comparability of the data produced is an important priority, and therefore it is crucial to have a set of guidelines and recommendations that are universally accepted.

Table 1.

Household production by principal functions

| Principal functions | Providing housing | Providing meals | Providing clothing | Providing care | Volunteer work |
|---|---|---|---|---|--|
| Outputs (Products) | Accommodation for members of hh Services produced by owner-occupied dwellings | Meals, snacks, drinks for the members of hh | Clothes and their care for the members of hh | Children, the sick, and the elderly | Goods and services for other institutions |
| Activities | | Food preparation (31) | | Physical care (381) | Organisational work (411) |
| Codes in parentheses refer to Eurostat time use pilot survey activity | House construction and renovation (3511) | Meals/snacks (311) Baking (312) Preserving (314) | Producing textiles (334) Handicrafts (335) | Supervision (382) Reading or playing (383) Teaching child (385) | Caring for people via an organisation as voluntary service (412) |
| Categories | | Hunting, fishing (621) Picking berries, mushrooms, etc. (622) | | Accompanying child (386) Adult care (39) | Environmental and animal protection (413) Informal helping |
| Ancillary activities | | | | | |
| Shopping | Buying a dwelling (361) Renting a dwelling (362) Furniture, carpets and equipment for dwelling (361) Household textiles (361) etc. | Appliances for cooking, cooling, freezing and storing food (361) Groceries (361) etc. | Clothing materials (361) Garments (361) Shoes (361) etc. | Toys, books, etc. (361) Baby carriages, strollers etc. | |
| Maintenance | Repairs to dwelling (3512) Repairing equipment, furniture and household goods (352) Heating and water (324) Various arrangements (325) | | Care of clothes and shoes (333) | Caring for pets (3422) Walking the dog and other pets (343) | |
| Gardening | Tending ornamental plants (3412) | Tending edible plants (3411) Tending domestic animals (3421) | | | |
| Cleaning | Cleaning dwelling, cellar, garage (321) Cleaning yard (322) | Dish washing (313) | Laundry (331) Ironing (332) | | |
| Transportation | Travels related to Household care (932) Vehicle maintenance (353) | Shopping and services (936) | | Child care (938) Adult care (939) | Organisational work (941) |
| Management | Paying bills, decision making, etc. (37) | Planning meals and groceries, etc. (37) | Planning and decision making, etc. (37) | Coordinating children's activities, etc. (37) | |
| Activities by paid | Cleaning etc. | Preparing meals | Laundry, ironing | Child care, babysitting | |

| | | |
|------------------------|--------------|--|
| Domestic labour | baking, etc. | |
|------------------------|--------------|--|

| | |
|--|--|
| | Activities included in general production boundary |
|--|--|

| | |
|--|-----------------------------|
| | Included in SNA, not in ESA |
|--|-----------------------------|

| | |
|--|-------------------------|
| | Included in SNA and ESA |
|--|-------------------------|

Table 2.

Activity list in Eurostat's Time Use Survey and Production Boundary

E = Activities belonging to ESA production boundary;
S = Activities belonging to SNA production boundary;
G= Activities belonging to general production boundary, not to ESA;
O = non-productive activities
Activities belonging to household production are printed in boldface

| | |
|--|--------------|
| 0 PERSONAL CARE | O |
| 1 EMPLOYMENT | S, E |
| 2 STUDY | O |
| 3 HOUSEHOLD AND FAMILY CARE | |
| 31 FOOD PREPARATION | |
| 311 Meal/snacks | G |
| 312 Baking | G |
| 313 Dish washing | G |
| 314 Preserving | G (S, not E) |
| 319 Other food preparation | G |
| 32 HOUSEHOLD UPKEEP | |
| 321 Cleaning dwelling, cellar, garage | G |
| 322 Cleaning yard | G |
| 323 Waste disposal | G |
| 324 Heating and water | G (S, not E) |
| 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 | G (S, not E) |
| 335 Handicrafts | G (S, not E) |
| 339 Other making/caring textiles | G |
| 34 GARDENING AND PET CARE | |
| 341 Tending plants | |
| 3411 Tending edible plants | S, E |
| 3412 Tending ornamental plants | G |
| 342 Tending animals | |
| 3421 Tending domestic animals | S, E |
| 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, E |

| | |
|---|--------------|
| 3512 Repairs to dwelling | G (partly S) |
| 352 Repairing equipment, furniture, household goods | G |
| 353 Vehicle maintenance | G |
| 354 Production of household goods | G (S, not E) |
| 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, E |
| 622 Picking berries, mushrooms | S, E |
| 629 Other productive activities | S, E |
| 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, E |
| 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 | |

Table 3. Components of household production by principal functions of households

| Specification | | | | | | | | | | | | Household production, total | | Total |
|---|---|--------------|---------|-----------------|---------|--------------------|---------|----------------|---------|----------------|---------|-----------------------------|---------|-------|
| | Providing housing | | | Providing meals | | Providing clothing | | Providing care | | Volunteer work | | ESA | NON-ESA | |
| | Services of owner-occupied dwellings ESA | Other ESA | NON-ESA | ESA | NON-ESA | ESA | NON-ESA | ESA | NON-ESA | ESA | NON-ESA | | | |
| Valued working time | | | 100 | | 500 | | 300 | | 200 | 1 | 10 | 1 | 1110 | 1111 |
| Compensation of paid domestic staff | | 10 | | 20 | | 10 | | 10 | | | | 50 | | 50 |
| Housing services produced by owner-occupied dwellings | 100 | | | | | | | | | | | 100 | | 100 |
| House construction | | 30 | | | | | | | | | | 30 | | 30 |
| Agricultural production | | | | 30 | | | | | | | | 30 | | 30 |
| Fishing, hunting for own use | | | | | | | | | | | | | | |
| Taxes on production | | 1 | 1 | 1 | | | | | | | | 2 | 1 | 3 |
| Subsidies on production | | | | | | | | | -2 | | | | -2 | -2 |
| Value added, net | 100 | 41 | 101 | 51 | 500 | 10 | 300 | 10 | 198 | 1 | 10 | 213 | 1109 | 1322 |
| Consumption of fixed capital | 30 | 5 | 10 | 5 | 25 | | 10 | | 10 | | 2 | 40 | 57 | 97 |
| Value added, gross | 130 | 116 | 121 | 56 | 525 | 10 | 310 | 10 | 208 | 1 | 12 | 253 | 1166 | 1419 |
| Intermediate consumption | 20 | 15 | 25 | 20 | 180 | | 10 | | 20 | | 5 | 55 | 260 | 315 |
| Output | 150 | 131 | 146 | 76 | 705 | 10 | 320 | 10 | 228 | 1 | 17 | 308 | 1426 | 1734 |
| Gross fixed capital formation | 35 | 5 | 10 | 7 | 30 | 0 | 15 | 0 | 15 | 0 | 3 | 47 | 73 | 120 |
