

Income from households' non-SNA production: A review¹

by A. Sylvester Young²

1. Introduction

The objective is to introduce the reader to issues relating to households' non-SNA production especially in connection with the analysis of the distribution of income and poverty.

2. Identification of Household Production

The production of goods and services by households can be split into production intended to be sold or exchanged (market production) and that to be consumed by the household itself or given free of charge to another party (non-market production). The former is within the ambit of the System of National Accounts (SNA)³ economic production boundary (para. 6.18 (a)) and called 'SNA market production'. The latter can be further divided into the production of goods, the production of paid domestic services and owner-occupied housing services and the production of other services. The first two also are almost wholly⁴ included in the SNA economic production boundary (paras. 6.17, 6.18 (b)) and referred to as 'SNA non-market production'. The third type of household production consists of formal and informal unpaid volunteer services and those other domestic and personal services that are consumed within the household, both of which are explicitly excluded from the SNA economic production boundary (paras. 6.17, 6.19).

Among the latter, we further distinguish between 'personal activities' (mainly physiological and recreational such as eating, sleeping, exercising, etc.) and the rest. 'Personal activities' are defined as those services consumed by an individual that cannot be performed by anyone else other than that individual. Such activities are not considered to be 'productive in an economic sense' (para 6.16) and are therefore excluded even from the general production boundary of the SNA. We refer to them as 'non-productive activities'.

The remaining domestic and personal services, such as doing the laundry, preparing meals, caring for adults and children, managing and upkeep of the household, etc., as well as unpaid volunteer services are taken as productive in an economic sense and fall within the SNA general production boundary but outside its economic production boundary (para. 6.16). Such services are referred to as

¹ A version of this paper was written as an input to a proposed manual of The Canberra Group on Household Income Statistics.

² Bureau of Statistics, International Labour Office, Geneva.

³ SNA (1993).

⁴ Provided the amount of such goods is 'quantitatively important' with respect to its national supply (para. 6.25).

‘non-SNA production’ while the combination of SNA market production and SNA non-market production makes up ‘SNA production’.

The criterion used for deciding which personal and domestic services should be included in non-SNA production is called the ‘third-person criterion.’ It was first introduced by Margaret Reid (1934) as follows:

“... Household production ... consists of those unpaid activities which are carried on, by and for the members, which activities might be replaced by market goods, or paid services, if circumstances such as income, market conditions, and personal inclinations permit the service being delegated to someone outside the household group.”⁵

An alternative way of defining it is that an unpaid household activity is productive if it could be delegated to someone else while achieving the desired result,⁶ or again as in the SNA:

“It is also possible for a unit to produce a service for its own consumption provided that the type of activity is such that it could have been carried out by another unit.” (Para. 6.9)

Some difficult points arise out of the above considerations for identifying household production. The first is that the distinction between goods and services produced by households, as proposed in the SNA, is blurred. For example, fetching firewood is considered as production of goods, while cooking a meal is a service on the grounds that the meal is consumed immediately while the firewood can be stored and so has the potential of being sold in the market. The meal however can also be stored. Goldschmidt-Clermont (2000) has argued that, even on operational grounds, all non-market household production of goods and services should be treated together and not ‘artificially’ separated as in the SNA. One advantage of adopting this is that it will then be less likely for household production to be omitted during data collection to the extent that it is done at present.

Another grey area is in the use of the ‘third person’ criterion to identify productive unpaid household services⁷. Some activities, e.g. bathing oneself, can in theory be performed by a third person, and indeed in certain times this was the case for certain persons. Yet in many societies it is not usually considered as productive. In short, social norms can affect the application of this criterion. On the other hand, gardening, playing with children satisfy the third person criterion but some would consider them leisure and not necessarily productive⁸. Self-education is also difficult in the sense that as no one else can learn for you it is supposed to be personal, but there is still some debate about its

⁵Reid, 1934, p11, first quoted in Goldschmidt-Clermont, 1982.

⁶Joyce et al, 1999.

⁷See Goldschmidt-Clermont, 1993 and Chadeau, 1992 for further discussion.

⁸Jackson, 1997.

exclusion from non-SNA production⁹. There are also some activities, like baking a cake for your child's birthday, which include some element of a direct inter-personal relationship that a 'third person' cannot produce and yet this activity also has some productive element. Again, it has also been argued that for the output-based valuation method described below what is important is the existence of an output with a market value and not the reason why the corresponding activity was carried out. If so, it should then also be unimportant who carries out the activity and how it is carried out which would expand the acceptable activities beyond those satisfying the third person criterion.

Goldschmidt-Clermont (2000) argued that, as currently stated, this criterion does not require that an equivalent market activity exist. It may however be useful to incorporate the notion of 'significance of the non-market production of a service for the national economy', similar to the one used for SNA non-market production of goods, for two reasons. If a service is hardly transacted in the market because it is socially unacceptable or too esoteric, valuation at market prices will become a problem. For example, valuing adult care in a society in which care of the elderly by non-household members (market institutions) is virtually non-existent. On the other hand, if a service is almost wholly transacted in the market then valuing the rare instances of non-market occurrence may not be worth the while. An example of this is that in a society where pipe-borne water to households is the norm, fetching water from a stream will be a rare activity which may not be worth pursuing. In short, it is necessary to take account of the implication in Reid's definition of the third person criterion that corresponding market goods and services should exist.

The blurring at the boundary between non-SNA production and non-productive activities is however not unusual for boundaries in statistical practice. It therefore does not detract from the use of this criterion for identifying non-SNA productive activities. Some arbitrary decisions have to be taken by countries on inclusion of the affected activities. The risk of creating non-comparable statistics could be minimized by having an accepted international classification of all activities.

As stated earlier, formal and informal volunteer services are non-SNA production activities. Informal volunteer services are those activities performed by household members, mainly on their own initiative, helping neighbours, friends and other non-household persons. Formal volunteer services are those performed through organized institutions, i.e. Non-Profit Institutions Serving Households (NPISH)¹⁰.

3. The Importance of Household Production

It has been recognized in many fora¹¹ that there is a need to take account of non-SNA

⁹Varjonen, 1998; Goldschmidt-Clermont, 2000; Ironmonger, 1997, 1999.

¹⁰Varjonen, 1998.

¹¹World Summit on Social Development, Copenhagen 1995; UN Report on the Decade for Women, 1985 quoted in Jackson, 1997; UN 4th World Conference on Women, Beijing 1995 quoted in Joyce et al, Aug 1999.

production in national policies as well as of its implications for development planning and programming. This is particularly important in making visible the work of women especially, but also of men, and their contribution to economic and social well-being.

The point at issue is that the household economy is an economy in the same sense as the market economy and that these two systems, while running in parallel, complement each other. All the traditional analysis carried out in the latter can also be used in the former to analyse its internal structure. In addition, the analysis of the interactions between them and of their complementarity gives a more complete picture of the economy as a whole and the method of utilization of all available resources. Ironmonger (1999) has argued for the measurement of household non-market production of goods and services separately from market production as these are in reality two different production systems.

In recognizing the economic importance of household production, SNA 1993 proposes that this production be measured in a set of satellite accounts (paras. 21.4, 21.18, 21.46 and 21.47). Such accounts, while consistent with the core system, are separate from it and greatly contribute to a better understanding of the total economic system.

The final goods and services consumed by households come from those purchased from the market, from their subsistence production and from their non-market production. The chosen mix of these sources of consumption products depends on monetary income level and the self-evaluation by households of their own production (in qualitative terms) as contributing to their quality of life¹². An example is the choice made by some parents to take a lower income from a part-time job in order to spend more time caring for their children rather than hire someone to do so. An examination of this parent's status purely on monetary terms from the part-time job could misinform the analysis.

Statistics of household production could be used for various analytic purposes¹³:

- S** the relative importance of unpaid work (visibility of unpaid work): the contribution of unpaid work to 'extended GDP', its evolution and its relationship to the amount of paid work; extended consumption and extended income of sub-groups of the population;
- S** the interactions between the market and non-market sectors: dynamics of production transfers between these systems; relative shares of market/non-market production in extended GDP;
- S** the dynamics of the household economy: relative shares of different household activities in non-market production; examination of the household activities, the goods and services produced, at what cost, by whom and for whom or for what purpose; analysis of household consumption and extent of utilization of all resources;
- S** income inequality and poverty: achieving a 'more' complete measure of income and well-being by taking account of non-market production and its possible substitution for reduced market income in some instances;

¹²Goldschmidt-Clermont, 2000.

¹³ See Goldschmidt-Clermont, 1993; Ironmonger, 1997; Varjonen, 1998; Varjonen et al., 1998.

- S formulation of social and economic policies: for example, institutional cost of adult care relative to home cost for formulating a policy on adult care; and
- S response to policy changes by households of different economic size, structure, family composition and social responsibilities: for example, during recession the shift from restaurant meals to home meals or from purchased laundry services to own laundry.

Work to assess the economic importance of this production started as far back as in the 1920's although for a long time it was mostly done in academic circles¹⁴. Activities are being planned or have been executed in many countries to integrate the collection of relevant statistics, particularly through time use surveys, into national statistics programmes¹⁵. Recently, an International Seminar on Time Use Studies was organized by the Ministry of Statistics and Programme Implementation, India, in which preliminary results of their time use surveys were presented. Goldschmidt-Clermont (2000) gave examples of such surveys conducted in some other developing countries while Horrigan (1999) described proposals for doing so at the national level in the USA.

The importance of household production statistics can be demonstrated not only by assessing its value but sometimes through measures of volume of this production or the amount of labour time involved in it. For example, to assess the amount of paid work relative to unpaid work, time is enough. Hussmanns (1999) discussed the importance of time use surveys for labour statistics both in terms of better measurement of these statistics as well as their analysis vis-a-vis unpaid work. Also, examining the contribution of specific household activities to extended consumption can be done using physical quantities; for example, comparing the passenger-kilometres of home transportation with that of the market¹⁶.

Time is a resource over which many households have control. Their choice in apportioning this resource between market activities, non-market productive activities and other activities such as leisure and self-education affects their well-being and quality of life. Horrigan (1999) observed, '... it is time to cast the light ... away from purely monetary measures of well being and societal change and towards measures that also consider time as a critical resource.' Ironmonger's¹⁷ proposal for the construction of National Time Accounts could address this need effectively. Such a tool will be useful for the analysis of income distribution and poverty as it would present a complete picture of time allocation to market work, non-market work and leisure by different types of households. It could even be more preferable than an analysis based only on market and home production. In addition, as he observed, time use data can show the amount of drudgery and time spent on subsistence activities by poor households which could be used for assessing their training and employment creation needs.

¹⁴Goldschmidt-Clermont, 2000.

¹⁵ Ironmonger, 1999; UNESCAP, 1999.

¹⁶Goldschmidt-Clermont, 1993.

¹⁷Ironmonger, 1999.

In another context, Chamie et al (1998) asserted with respect to social production, i.e. that deriving from social arrangements, that its goods and services are ‘... required for healthy survival and well-being of people, and for the maintenance and sustenance of their environment.’ Social production is wider than non-SNA production as it includes productive activities of interpersonal relationships such as romantic or physical intimacy. Nevertheless, this observation also reflects to some extent the importance of household production for the well-being of households.

De Wreede (1999) has questioned all non-SNA production activities, except possibly do-it-yourself activities. He argued that ‘As each household has a standard package of chores, we think it is unnecessary to add the economic value (if ever an economic value could be assessed) to income.’ Indeed, even for do-it-yourself activities he suggested the exclusion of those relating to the unnecessary embellishment of the dwelling or garden. The issue however is not whether all households have standard chores but how these chores are carried out. Some households, who can afford it, hire domestic help to carry out some or all of these chores or purchase these services from the market while others have to do these chores themselves. In the present market system, the former would have these services recorded as consumption while it goes completely unrecorded for the latter even though they too have ‘consumed’ similar services.

4 The Valuation of Income from Households’ Non-SNA Production

Our primary interest is in the ‘income’, i.e. ‘return to labour’, that can be attributed to household production. Following SNA recommendations, the best way of doing this is to determine the market value of the household production and then derive the mixed income from this value. This method is referred to as the output-based approach. The method that is however more widely used is the input-based approach with a direct imputation of the labour input and the valuation of the production as costs of inputs.

4.1 Input-Based Method

In the input-based approach, the amount of labour time going into non-SNA production is assessed and then multiplied by some wage rate to determine the ‘income’ from this production. This ‘income’ is also referred to as the value of unpaid work. Sometimes it is mistakenly described and used as the value of the production itself. Labour time is usually determined through time use surveys which are described in the next section. Several methods however exist for the determination of appropriate wage rates, to wit: opportunity cost of time, specialist wage rates and generalist wage rates. The last two are called replacement cost rates and the use of a combination of these is proposed by some authors.

Opportunity cost of time is the wage rate the person performing the non-SNA productive activity would have earned in the labour market based on his personal characteristics such as training, education, experience, age, sex and location. That is, the market income the person foregoes in carrying out the non-SNA productive activity. The value of the unpaid work therefore depends on who is doing it. Thus preparing a meal at home would have one value when done by a computer specialist and a different (lower?) value when done by a messenger. Apart from everything else, this would introduce large and volatile variations in the value assigned to an activity. Moreover the method presupposes that

there is demand for the person's characteristics in the market. If not, what rate do we use for those involuntarily unemployed, zero or the unemployment benefits? The proposal to use average wages of all market workers or subsets of market workers (e.g. women, services sector) as proxy for the opportunity cost wage rate will simply transfer market differences into household activities to which they bear no relationship. For all of these reasons, this method is widely acknowledged to be inappropriate.

The next proposal is to use the market wage rate of a specialist who performs in the market a task similar to that involved in the non-SNA production. This method ignores the differences in productivity and efficiency between market and non-market production. For example, an experienced employee who assembles wardrobes in a furniture store commands the due market rate for this task. To apply that rate to a do-it-yourself household member without equivalent skills assembling the same wardrobe will grossly overvalue that person's unpaid work as his labour time will far exceed that of the specialist. The method also requires keeping track of a large number of wage rates which could pose serious problems for data collection.

The third proposal is to use the wage rate of a polyvalent housekeeper or a general purpose domestic employee since their level of productivity and the tasks they perform are similar to many of those in non-SNA production. There are however certain tasks performed in non-SNA production that are specialized in nature, for example servicing a vehicle, and whose value would thus be underestimated by this method. Also data on the market wage rate for this category of workers is not easy to collect and may not be reliable as such workers are mostly employed in private households. It is however the most widely accepted method for assigning market wage rates to labour time from non-SNA production.

Blades (1998) proposed dividing non-SNA household production activities into two classes: Type I and Type II. The former are those that are rarely performed by market producers such as food related activities, cleaning of dwellings, house management, shopping, gardening and pet care. Type II activities, usually provided to households by market producers, could include adult care and maintenance of the house (decorating, painting, plumbing, electrical systems, etc.), of vehicles and of household appliances. The distinction between these two types would depend on the social, cultural and economic factors prevailing in the country. Valuation of Type I activities should be on the wage rates of a generalist while that of Type II should be a percentage (between 50 and 70%) of the relevant specialist wage rate. This suggestion suffers from the fact that there is no way to objectively determine the discount factor to apply to the specialist wage rate. Besides, the division into Type I and Type II activities may change over time in the same country or between countries.

Other variations exist. Jackson (1997) referred to the Canadian situation in which the generalist approach consists of matching household work except child care with personal service occupations, child care with child care occupations and volunteer work with the corresponding specialist occupation. Goldschmidt-Clermont (1993) had suggested using household workers' wages for domestic activities and general handymen's wages for household repairs, but the difficulties she experienced with the latter in their Geneva¹⁸ study showed that this was not practical.

¹⁸ Goldschmidt-Clermont et al., 1998.

Irrespective of the wage rates used we have to decide whether they should be gross or net. While there is reasonable agreement that net wages should be net of taxes and employees' social contributions and gross wages should include taxes, the treatment of employers' social contributions and other labour costs differs. Some or all of them are variously included in gross wages. The choice can make a difference, between 3% and 23% in the studies reported in Goldschmidt-Clermont et al, 1999. There is also no clear decision as to which to use. Gross value of production would reflect the foregone market expenses of households while net reflect the economic flows actually generated by these activities. Thus the former would be more suitable for analysis at household level while the latter for national accounting. If, however, we follow SNA accounting rules for compensation of employees, gross wage rates should always be used. The difference between gross and net rate could be substantial¹⁹.

There are conceptual and practical problems in measuring time use. One such is apportioning time spent on multiple activities, e.g. caring for children whilst ironing (both productive) or caring for children whilst watching television (only one productive). Again time spent by multiple persons on a single activity, e.g. an adult and a child preparing a meal together, has to be apportioned to each of them if analysis at person level is to be carried out. The very concept of time is differently understood in some countries²⁰.

The basic problem is that assessing income through labour time ignores the skills of the person performing that task, the technology available to carry out the task and the kind of household where the task is being carried out depending on which method is chosen. For example, consider the activity of laundering clothes and the time and inconvenience involved if this is done in a stream compared to doing so at one's home using a washing machine or in a launderette. What wage rate should be used for this activity in a poor household without access to a washing machine or launderette? If the same time is used in both situations, would using the same rate not overvalue or undervalue one or the other labour time? Should we not consider the ability of the household to access these market services, e.g. hiring different specialists or even a domestic worker?

Time spent is not necessarily a good indicator of the value of labour even in many market situations. Time spent to assemble a furniture item in a household will depend on the expertise of the person doing it although the end result, the furniture item, is the same. Also the time taken to carry out an activity in household production can be deliberately stretched out for reasons totally unconnected with the production process.

Goldschmidt-Clermont (2000) also levied another criticism against the input-based method that the 'imputed wages do not reflect the actual returns accruing to the household for its production activity.' She argued that these wages are tied to market characteristics, in particular to the availability of cheap female labour, and demonstrated this with a comparative analysis of market wages and returns to labour for household production in some African and Asian studies.

¹⁹Goldschmidt-Clermont, 1993.

²⁰ Floro, 1997, quoted in Benería, 1999.

4.2 *Output-Based Method*

For the output-based approach, labour ‘income’ is derived as mixed income from non-SNA production. Thus, the outputs of this process are valued at equivalent market prices and then the value of intermediate inputs, of capital consumption and, in theory, of net indirect taxes are subtracted from the output value to determine the income. Intermediate inputs are the goods and services purchased from the market or own produced goods used in the non-SNA production process, for example the rice used in preparing a meal. The process may also involve the use of capital goods such as fridges, freezers and vehicles.

This method requires the identification and quantification of the outputs, for example number and kinds of meals prepared, number of children taken care of, weight of laundry washed, etc. and then their valuation at the prices the household sold part of it or at the prices which the household can buy an equivalent market product. The identification and quantification of the goods and services, although not altogether simple, can be done as has been demonstrated by some authors²¹. The valuation can however be more problematic in some cases.

One such problem experienced by Goldschmidt-Clermont et al. (1998) in a study of some households in the Canton of Geneva was the difficulty of matching some of the household output measures with market counterparts. For example

- S availability of market prices for ironing-only to value those items of home laundry which are ironed;
- S commercial prices for house-cleaning, gardening and repairs (plumbing, carpentry and electricity) are based on labour time usually costed high for commercial users as households do not regularly use these services;
- S pricing of transportation: public transport (cheapest), semi-public or private taxis (most expensive but closest in type of service provided).

This problem will be even more difficult in developing countries, although a few of these countries have in fact used the output approach²².

The valuation of intermediate services and capital consumption could pose practical difficulties. A fridge is used to keep goods used in the production process but it also, at the same time, keeps other goods such as drinks. Similarly a car used to transport children to school could at the same time be taking the driver to a sporting event. Another problem will be the allocation of mixed income between household members involved in multi-person activities (ILO, 1998). Allocation problems will also come from a single activity producing multiple outputs, such as transporting children to school and for shopping. These allocation difficulties are however not insurmountable as conventions could be made

²¹Goldschmidt-Clermont et al., 1998; Ironmonger 1999.

²²Goldschmidt-Clermont (2000) quotes these examples.

on the method of allocating the value between the different uses, activities or persons.

The output-based approach although recommended by many²³ has not received much attention in the work done so far on non-SNA production. This is due more to the difficulties in identifying and quantifying outputs and intermediate inputs than in their valuation. Apart from the study carried out by Goldschmidt-Clermont et al referred to earlier, only a few other surveys of outputs of household production have been carried out²⁴ and none by any national statistical office²⁵.

On the contrary, despite the short-comings of the input-based approach it is very popular probably due to the increasingly widespread availability of time use surveys. When the input-based approach is used, the value of the production itself can be obtained by adding intermediate consumption, fixed capital consumption and net indirect taxes to the value of the unpaid labour. This is however valuation by cost of inputs which is not recommended in the SNA except for collective services provided to households at none or negligible prices by governments and NPISHs (SNA, paras. 6.41f, 6.90 and 6.91). Even then, such a valuation of outputs is hardly ever carried out in many studies because of the same difficulties faced by the output-based approach.

Keuning (1999) argued that output should be valued at actual cost and not on the basis of 'opportunity pricing' as both the quantities consumed and the prices of these and other products could change if these goods or services were actually marketed. Since non-SNA production is not sold and involves no outlays other than the intermediate goods that go into its production and since these costs have already been included in household consumption expenditure the net value of these services, which should be properly treated as output within the SNA, will be zero. This is too radical a position which is not consistent with his suggestion for the treatment of owner-occupied housing services. In this case he proposed including the fixed capital consumption of the house as well as mortgage interest. In non-SNA production there are also capital consumption of fridges, cookers, etc. which go into this production as well hire purchase or credit interest from purchasing these items.

According to Shivakumar (1998), from the current acceptable theory of economic value, i.e. the value of a product is the exchange someone is willing to make for it, valuing of non-SNA production using either method is flawed. The input method is based on the out-dated labour theory of value while the output method, at a fundamental level, 'does not recognize value as something realized through the exchange process.' Furthermore, as a consequence of this exchange theory of value, these values cannot be aggregated. This radical approach would however also rule out the aggregation done in the

²³Goldschmidt-Clermont et al., 1999; Ironmonger, 1999; Blades, 1998; Varjonen, 1998.

²⁴Goldschmidt-Clermont (1998) quoted a study by Finland (1980-1986) in which outputs of all activities were measured, but not valued.

---- Blades (1998) refers to studies in France and the United Kingdom quoted in Chadeau (1992).

²⁵Ironmonger, 1999.

SNA and so is, in some sense, nihilist. He suggested that the importance of non-SNA production vis-à-vis that of SNA production should be analysed, if at all, only on the basis of the relative time spent on these activities. For further rebuttal of his argument, see Benería (1999).

5. Data Sources

In theory data on household production could be collected from all household members but in practice there is a lower age limit, usually that used to collect market statistics. In Canada²⁶ a limit of 15 years is used while in India²⁷ a limit of 6 years was chosen for their time use survey in order to look at the incidence of child labour. Using so low an age limit could pose some difficulties in using the diary method described below for collecting time use data. Some European studies have used 10 years²⁸.

For the input-based method, data required to measure the value of unpaid work are activity times and wage rates while, to value the output, data are also needed on intermediate inputs, capital consumption and net indirect taxes. The output-based approach needs data on the type and quantity of household outputs and market rates for equivalent market outputs to determine the value of household production. In addition data on intermediate inputs and capital consumption are required to compute the value of unpaid work. Data on net taxes on market enterprises would also be required.

Household Time Use Surveys usually provide data on activity times while Household Expenditure Surveys do so for intermediate inputs and give the basic elements for estimating household capital. Household Output Surveys measure the volume of household outputs and give details of their modes of production. Wage rates and market output prices can be obtained from traditional statistical sources such as occupational wage surveys, census/survey data on employment earnings, weeks of work and weekly hours as well as prices surveys.

It is now generally accepted that the best method for collecting data on activity times is through time use surveys, preferably using the diary approach. A sample of the population fill in diaries over a 24 hour period, indicating at intervals (e.g. 5-, 10-, 15-minute), all their activities. Alternatively the diaries are open and respondents put in the time they spend on each activity. The diaries can be filled in arrears, e.g. activities yesterday, or the diaries are left behind for respondents to fill out with tomorrow's activities. In this case the diaries can be filled for several days or just one day. Some diaries also ask for secondary or more activities carried out during the same interval or at the same time. Other details usually requested are the person(s) with whom the activity is done, the exact place where the activity is carried out and for what purpose or for whom. The diary can be self-administered or done by telephone or personal interviews. The diary method is used in surveys conducted in Canada, Australia, Europe and proposed by the Time Use Surveys Working Group for the USA²⁹.

²⁶Jackson, 1997.

²⁷Rajivan, 1999.

²⁸Varjonen et al., 1998.

²⁹Jackson, 1997; Varjonen et al., 1998; Horrigan, 1999; Stinson, 1999.

An alternative to the diary method is retrospective inquiry. Respondents are requested to describe the activities they carried out during a previous time period in their own words and the time spent on them. Alternatively but less preferably, they are asked directly how much time they spent on specific pre-coded activities. This is the method used in the India time use survey³⁰.

To cater for weekly variations and seasonality, the survey is designed so that data is collected for weekdays as well as weekends and for different seasons. In some instances, the form used for a week day differs from that for a week-end or that for a very atypical day, e.g. arrival of a visitor.

Socio-demographic information and other background information, including SNA income, should be collected. There is now strong advocacy that information on the corresponding volume of outputs should also be collected along with the details on the activities, at least for the major outputs³¹. If successful, time use surveys will then also generate some output details.

These surveys are now becoming regular items in national statistics programmes but its potential for providing data for a wide array of subjects is not yet fully realized. For example, Hussmanns (1999) discussed its potential for labour force statistics.

The input method requires data on wage rates. No matter the method of valuation adopted, there is need to decide the population and time coverage to be used in obtaining these rates. Should the wage rates be based on all workers in the category of interest or only those employed full-time, full-year? Should the rates be at regional or national level? Are they hourly rates or deduced from monthly rates using usual hours, actual hours or hours paid for? The point is that, unlike hourly rates, monthly rates could include hours not actually worked but paid for. Goldschmidt-Clermont et al. (1999) indicated that the differences from these choices could be non-negligible.

Household expenditure surveys have been a part of national statistics programmes for a long time and, increasingly, more and more countries are carrying out annual surveys. If they include full details on consumption of all household production, they could then also give some information on outputs.

The same cannot be said for household output surveys. As stated earlier, very few of such surveys have been conducted with the exception of Finland, France, United Kingdom, a limited study of the Canton of Geneva and some others mentioned in Goldschmidt-Clermont (2000).

6. Classification Schemes for Time Use Activities

A good classification scheme for non-SNA activities would greatly aid not only in the clear and consistent identification of these activities but also in their analysis. While there is an established

³⁰Rajivan, 1999.

³¹Ironmonger, 1999; Blades, 1998.

international classification system for household outputs and intermediate inputs, i.e. COICOP, there is as yet no internationally accepted classification of all household activities. EUROSTAT has a classification scheme for the 'Harmonised European Time Use Survey' which has been used up to the 2-digit level by 18 countries for their national surveys. Following a 1997 experts meeting, the United Nations Statistics Division produced an 'International Trial Classification System for Time Use' in all different societies which is consistent with the basic framework of the SNA. It has however not yet been tested. The International Labour Organization has proposed an alternative called 'Alternative Classification of Time Use Activities' based on type of activity and the context (for what purpose/for whom, where and with whom) under which the activity was carried out. This has also not yet been tested although it aims at being exhaustive and avoiding the duplications which exist in the other proposed classifications³².

Some countries have developed their own systems, notably Australia which has tested theirs since 1992 and revised it in 1997. It is close in spirit to that of EUROSTAT. Stinson (1999) described the Australian scheme as an 'analytically cohesive and theoretically strong "explanation" of time use.' She said that the EUROSTAT scheme 'benefits from the breadth and scope of its application' while the UN scheme 'is appealing because of the economic foundation on which it rests.' India³³ has also recently presented their own system.

Varjonen et al. (1998) gave a useful table associating activities with principal and ancillary functions and their related outputs as well as with the classification group to which they belong, based on the EUROSTAT classification scheme. Another useful analytic tool is the association of occupations with unpaid activities given in Jackson (1997). This can be used to determine appropriate market wage rates for use in the input-based method.

7. Income Analysis

The analytic uses of household production statistics both at the macro and micro economic levels were discussed earlier in Section 3.

One of the major uses to which statistics on household production has been put is in the construction and analysis of satellite accounts³⁴. To construct such accounts, the principal functions of households in the household economy are taken as: providing housing, providing clothing, providing meals and providing care. These functions and their ancillary activities lead to the production of goods and services that are consumed by the household itself. Volunteer work is also productive activity by households though its output is consumed elsewhere. The values of these goods and services, preferably computed directly but more usually computed as a sum of cost of inputs, are used to construct satellite accounts of household production.

³²Hoffmann et al., 1998; Hussmanns, 1999.

³³Rajivan, 1999.

³⁴See Ironmonger, 1997; Varjonen et al., 1998; Blades, 1998 for further details.

These accounts have been produced and published for six countries - Australia, Canada, Finland, Sweden, Norway and United States³⁵. Ironmonger (1997) has proposed a set of input-output tables for a national accounts of household production, using data from Australia and the USA to demonstrate how this could be done.

The statistics generated from household production could be analysed on their own: for example, following Ironmonger's (1999) terminology of 'gross household product (GHP)', the growth rate of GHP could be analysed. They could also be analysed conjointly with those of the core account by creating 'extended' statistics obtained by adding corresponding statistics from the two systems in such a way as to avoid double counting. Thus for example, an analysis of the growth rates of GHP, GDP and extended gross domestic product (extended GDP) or of the proportion of GHP in extended GDP could be carried out. Similar analysis could be done for extended consumption, extended income, extended labour time, extended employment, etc.

Some studies reported in Goldschmidt-Clermont et al (1999) have revealed that non-SNA production can amount to the equivalent of from 30% to 70% of GDP, non-SNA work roughly 50% of work performed by both sexes, with that of women rated at over 65% and about 25% for men³⁶. A comparative analysis of the value of unpaid labour and its output (to a lesser extent) with those from SNA production in 14 countries³⁷ was presented in Goldschmidt-Clermont et al.(1995). Using the input-based method for valuing labour at generalist wage rates, the results were that the median value of non-SNA labour relative to GDP was 45%, 39% or 26% for labour costs, gross and net wage rates respectively. Although stated with reservation, the output value from non-SNA production obtained using labour costs was close to 50% of GDP for the three lower bound estimates.

Jackson (1997) quoted figures for Canada which showed that the value of unpaid labour in 1992, at generalist market wage rates, amounted to the equivalent of up to 34% of GDP, 39% of GDP at factor cost, 60% of wages and salaries and 56% of personal expenditure on goods and services. As observed by the author, it would have been more appropriate to have used measures of output instead of labour for the GDP comparisons.

An important area that has not yet been seriously analysed is the distribution of household production among categories of households and/or population within the context of national accounts. Some authors³⁸ have carried out some gender analysis but only with respect to the volume of the labour input. In an as yet unpublished work, Ironmonger has done some income distribution analysis for Australia.

³⁵Ironmonger, 1997.

³⁶Ironmonger, 1999.

³⁷Australia, Austria, Bulgaria, Canada, Denmark, Finland, France, Germany, Great Britain, Israel, Italy, Netherlands, Norway and United States.

³⁸Ironmonger (1999), Goldschmidt-Clermont (1999) and Jackson (1997).

Goldschmidt-Clermont (1998) described extended private consumption of households as ‘what they buy and consume without further processing plus what they produce themselves and consume directly.’ It is computed as the sum of SNA ‘modified private consumption’ and non-SNA output, where SNA modified private consumption is SNA private consumption less intermediate inputs into non-SNA production and productive durables. Using data from Bulgaria, she observed that extended per capita private consumption had decreased by 22% from 1971 to 1988 as a result of both a decrease in SNA consumption and an even larger decrease in non-SNA consumption. Thus there was no sign of the hypothesized compensation for the loss in market production by a gain in non-market production. This unexpected direction of the market/non-market interaction could indicate that the relationship is symbiotic.

In order to take account of differences in the labour required for achieving this consumption, she suggested that comparisons should be based on ‘standardized extended private consumption.’ This is obtained as

$$[(\text{Extended Private Consumption})/(\text{Total Labour Time})] * \text{Constant no. of hours}$$

Using the Bulgaria data with 8 hours as the constant, she showed that standardized extended private consumption decreased by only 3 % as compared to the 22% decrease in extended private consumption. This was due to the decrease in labour time between 1971 and 1988, thus indicating that the fall in consumption was due largely to that of economic working time.

A conceptual issue in this approach is that whilst the production relationship between non-SNA consumption and non-SNA labour is direct that between SNA consumption and SNA labour at the household level is not direct. So while this approach may make sense at the aggregate macro level, it may not be appropriate at the household level. This may be less of a problem for standardized extended private income, but as the article rightly observed time use based valuations of unpaid labour would be inappropriate in this case. Unless there was a particular justification for 8 hours, the author could just as well have used 1 hour, in which case it would simply be a comparison of the hourly extended consumption rate.

The value of unpaid labour can be analysed on its own at the household level. One possibility³⁹ is to compare hourly returns to unpaid labour (actual VUW) with returns to market labour adjusted for time spent in connection with work such as travelling to and from work. Hourly returns is net value of output (mixed income) divided by hours of work (labour time). This is a useful analysis for assessing the relative importance of unpaid work valued using the output-based method. However in some instances there may be operational difficulties in apportioning the mixed income to individuals.

Also the analysis of the distribution of the value of unpaid labour, however evaluated, across and within households, population sub-groups, regions etc. would in itself yield interesting results. It would also be useful to see the interactions between this distribution and the distribution of monetary income by analysing their joint bivariate distribution.

³⁹Goldschmidt-Clermont, 2000.

Joyce et al. (1999) have argued that the assessment of change in quality of life must take account of not only changes in market production but should take account of corresponding changes in non-market production and leisure: for example an individual giving up a time-consuming high-paying job for a lower paying job with less hours. In the same way changes in poverty and income distribution should bring these same factors into play through a 'broader income measure' and the 'broader set of resources' available to households. These measures could also be used to assess the impact of policy changes on a wider basis than just the labour market, to determine the effect of the changing business cycle on household consumption decisions as well as to derive estimates for compensation issues. It should be noted that the discussion assumed that leisure time is incorporated into these measures, while in our context, leisure is excluded as a non-SNA production activity.

Can we then use 'extended income', that is the sum of monetary income and value of unpaid labour, as the proposed broader measure of income? Varjonen (1998) argued logically that the value of goods and services produced for own use should be counted as part of disposable income. The Australian Bureau of Statistics⁴⁰ in their definition of household income states that 'Income also includes the value of services provided from within the household via the use of an owner-occupied dwelling, other consumable durables owned by the household and **unpaid household work.**' (Emphasis mine). Thus, in their framework, the value of unpaid work is treated as 'other non-monetary income' and included as part of household income.

Issues arise however in trying to use 'extended income' at household level for the analysis of income distribution and poverty.

Returns to labour from input-based valuation methods will overcompensate the poor for the relatively long hours they spend on household production without taking into account their complementary loss of leisure time. Moreover, non-SNA labour time is more elastic than monetary income and households with low monetary incomes have to use their unpaid labour to save on expenditures, even at very low hourly rates of return. As the input-based method does not take account of these diminishing returns nor the loss of leisure, the use of extended income based on this valuation method could lead to poorer households being seemingly better off as well as to a distortion of the income distribution⁴¹.

Although output-based methods are preferable, the mixed income derived does not also take account of loss of leisure time. Again, above a certain level of monetary income, households can choose to purchase their household services in the market and so for these households their value of household production would be reduced relative to those households who cannot go to the market for such services. This could again lead to a distortion of the income distribution. It could be argued however that the value of such services could increase with monetary income due to the availability of improved technology to households at the upper end of monetary income distribution and their choice to engage

⁴⁰ ABS (1995).

⁴¹ Kusnic et al. (1980) quoted in Goldschmidt-Clermont, 2000; Goldschmidt-Clermont et al., 1999.

only in activities with high returns to labour.

A key issue is that non-SNA production is not flexible as it is not tradable. In a similar context, Franz et al. (1998) asserted that as in-kind transfers restrict freedom of choice, its aggregation into income could ‘... obscure and confuse policy choices ..., for example poverty alleviation.’ As noted in Benería (1999), unpaid work is not evenly distributed across class, social groups and women with different levels of monetary income. In a study in Barcelona⁴² quoted by her, women in middle-level income households spend the most time on unpaid work, followed by those in lower-level income households with the high-level income households spending the least time on it. If the values of the unpaid work follow the same pattern and they are aggregated into ‘total’ household income, one may have a situation where some high-level monetary income households are lower down the income distribution than some middle-level or even low-level monetary income households - thus completely distorting the picture from the monetary income distribution. In an as yet unpublished work, Ironmonger has shown using time use data and a flat wage rate for Australia that the Gini coefficient can reduce by as much as 37% when the value of unpaid work is added to monetary income. As has been noted before, for the output-based valuation method, returns to labour may actually go up with income and so worsen distribution.

It is also worth noting that household production is carried out for many reasons: traditional reasons, as signs of inter-personal relationships, as required by societal traditions, to forego expenses, to improve quality of life, to sustain life. It may therefore be necessary to consider discounting the value of its labour input before adding it to monetary income.⁴³ The issue as always is by how much?

8. Conclusions

Household production is undeniably important in order to get a complete picture of the economy and to understand the socio-economic dynamics of households and its likely impact on the economy. Statistics on the volume and value of the labour input going into it are useful not only for the analysis of income distribution and poverty but also for the measurement and analysis of the labour force, underemployment, child labour and working time. While the volume is determined through time use surveys, the value is best derived as a residual from the value of the production at market prices, i.e. mixed income.

A useful criterion exists for identifying activities associated with this production which is necessary for determining the volume of the labour input. There are also reasonable methods of identifying the products and measuring their value and that of the labour input. The valuation of the products at market prices, the acknowledged proper way of doing this, has proved difficult for various reasons. Resort is therefore often made to the less-preferred costs of inputs approach.

Satellite accounts for household production can be produced and analysed internally as well as

⁴²Carrasco, 1992 quoted by Benería, 1999.

⁴³de Wreede, 1999.

conjointly with the corresponding market statistics. The value of unpaid work can also be analysed at the household level independently of market income. Again, analysis of the interactions between the value of unpaid work and market income could give useful insights for policy formulation and monitoring.

The use of extended income at household level for analysis of income distribution or poverty may however be problematic and more research and case studies are required. It is therefore being suggested by Goldschmidt-Clermont (2000) that at the household level, it may be better using extended consumption for poverty and 'income' distribution analyses. Even then, as she put it, 'Economists concerned with the measurement of poverty (and income distribution) need to find a way for assessing a level of consumption consisting of apples and pears which, although they cannot be added, are both fruit contributing to quench human hunger.' At least, in the case of the fruits, a common denominator can be found in their nutritional value. In our case, we are yet to find any acceptable common denominator.

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