

# MEASURING HOUSEHOLD ACTIVITIES: SOME INTERNATIONAL COMPARISONS

BY ANN CHADEAU

*University of Paris V, France*

This paper focusses on macroeconomic approaches to the measurement of non-market household work or production in industrialised countries. It details the variety of parameters involved, the choice of which depends on the specific aim pursued by authors. A review of different aims pursued, parameters chosen, concepts used, alternative methods applied, and available statistical data is presented and results of evaluations are then compared. The money value of household activities is given in percentage of GNP and comparisons are made within the framework of similar approaches. Under this condition, results are remarkably consistent. At the same time, the paper shows how sensitive results are to the method used; it also puts emphasis on the lack of adequate statistical data which may be held responsible for a gap between the theoretical model of evaluation and its practical implementation. In the present state of knowledge, no definite assertion can be made on the time trend of household work and its money value as percentage of GNP or national income. The paper stresses the importance availability of data on the volume and nature of non-market household output would have for future research on the economic contribution of households in industrialised as well as in developing countries. Such data permitting an output approach to measurement would lead to better understanding of the interrelation between market and household sectors and would therefore improve economic analysis and forecasting. Adequate statistical data could possibly be collected through a process similar to that used for time use data in national surveys.

## INTRODUCTION

This paper was written for the International Association for Research in Income and Wealth and presented at its 18th General Conference in Luxemburg in August 1983. It follows a study financed and published by the Institut National de la Statistique et des Etudes Economiques on the money value of household work in France.<sup>1</sup>

Unpaid labour performed by and for the benefit of household members is unquestionably a source of economic values and a condition for social survival. Though universal, its nature varies through time and space as one shifts from tribal or feudal to market economies. Its content reflects culture, mode of social organisation and level of economic development. Its measurement involves a multiplicity of parameters.

This international comparison is restricted to western industrialised countries and to macroeconomic approaches. The following five parameters have been singled out and their modalities reviewed in order to build up a basis for comparability:

- Aims pursued
- Reference population
- Field of activities covered
- Methods used
- Statistical data.

<sup>1</sup>Chadeau, A. and Fouquet, A., Peut-on mesurer le travail domestique, in *Economie et Statistique*, No. 136, September 1981, INSEE, Paris. Fouquet, A. and Chadeau, A., Le travail domestique: un essai de quantification, *Archives et Documents*, No. 32, August 1981, INSEE, Paris.

These parameters are not necessarily independent and one needs bear this fact in mind when interpreting results quoted by different studies.

#### AIMS PURSUED

##### A. *To improve National Accounts Aggregates*

###### a. To Measure with Greater Accuracy Total Economic Wealth Produced

The first authors to put a money value on unpaid household work were concerned by the definition and limits of basic concepts used in national accounts to evaluate aggregate flows of economic wealth: Mitchell in 1921, Kuznets in 1941 in the United States. Both contended that from a conceptual standpoint non-market productive activities should be taken into account when assessing total flows of national income generated during a given period of time in a given country. The same aim was pursued in Sweden (Lindahl, 1937), Hungary (Matolcsky, 1938), Finland (Lindberg, 1943), Denmark (1948), Norway (Norge, 1948), Germany (Fürst, 1956), United Kingdom (Colin Clark, 1958), and Belgium (Chaput-Auquier, 1959). The authors of these early estimations stress the point that given the quality of available data they should be considered only as indicators of an order of magnitude.

###### b. To Measure Welfare

Aggregates which only take into account market output are not accurate indicators of economic growth and overall standard of living in any one country. Nordhaus and Tobin introduce the concept of “welfare” for which they provide measurement in monetary terms. A certain number of elements which contribute to increasing (or decreasing) total welfare are added to (or subtracted from) measured GNP; amongst them unpaid household services are a positive component of welfare which should be added to measured GNP, and it is in this context that the authors proceed to assess their money value.

In France, Pierre Kende (1975) introduced the concept of “real” consumption; to derive it from final consumption as defined in national accounts a certain number of corrections are required amongst which is the taking into account of goods and services produced by unpaid household labour.

###### c. To Measure Growth

The exclusion of non-market household production from official aggregates of the national accounting system results in a computed rate of growth higher than the real rate of growth of GNP or national income. The rise in the rate of employment of women over a given period of time increases market output, but at the same time, reduces household production. Total real output (market and household) therefore grows less fast than measured market output suggests. Maurice Weinrobe’s study (1974) is focussed on a more accurate measure of growth and raises the issue of the effect a shift of activities from the household to the market sector has on the official rate of growth of GNP.

## B. To compare Productive Activities in the Household and Market Sectors

The measurement of productive household activities in monetary terms becomes a field of study *per se*. Emphasis is put on the definition of the concepts of household production or work, and on various methodological approaches to evaluating them. The development of time use surveys and the data they yield induce thought on the splitting of time between different kinds of activities and lead authors (Szalai) to classify them into categories which help to clarify the concept of household work, or throw light on the economic and social role of women in and out of the market sector (Andrée Michel).

### a. Non Monetary Measures of Household Work

Measuring household work in numbers of hours presents certain advantages and corresponds to specific aims. It allows direct comparison between total quantities of work supplied in the market and household sectors, obviating the need for fictitious imputation of money values to the latter, since the unit of measure, the hour of work, is common to both (Fourastié). Such time based studies were done in France in the 1950s by Jean Stoetzel and Alain Girard. More sociologically biased, they provide improved knowledge of living conditions, of amounts of household work performed respectively by women engaged in the market labour force and full time housewives. They also lead to more detailed analysis by providing evidence of the main factors which bear on the volume of household work performed.

At a microeconomic level authors have identified the main variables which determine the amount of household work done in families with different structures (K. Walker), and assessed the contribution of the wife to the household's total income (Gronau). Time use studies carried out in different countries (Canada, United States, Finland, France, Great Britain) all show that the greatest part of household work is done by women, and that its amount varies according to their status (in the labour force or not, wage earners or independently employed), to the number of children and the age of the youngest child.

### b. Monetary Measurements of Household Work

Adler and Hawrylyshyn (1976), Murphy (1978), Chadeau and Fouquet (1981), Suviranta (1982) make systematic use of time budget surveys. In their studies, emphasis is put on the methodological issues. It may undoubtedly be argued that imputing a money value to unpaid household labour masks the specificity of such work; it is nonetheless a procedure to render this form of human activity comparable to officially measured market activities, and a means to give it an order of magnitude. None of these authors suggests that money measures of household work be purely and simply added to national accounting aggregates. When different evaluation methods are applied to the same set of data, the studies show how sensitive results are to the method used, and therefore how hazardous it would be to sum up market and non-market aggregates, since no one method can be proved to be definitely superior. This point is developed further on.

## REFERENCE POPULATION

The reference population used to measure household work differs from one author to another. Some, like Mitchell, Weinrobe, and Kuznets, only take full time housewives into consideration, the first two by deliberate choice because it is they who illustrate Pigou's famous paradox as they shift in and out of the market labour force and thus show how very conventional the official definition of national aggregates remains. In their case the choice of their reference population is determined by the purpose of their study. In Kuznets' case the choice is not so free: though he argues that from a theoretical standpoint the total population performing household work should be taken into consideration, the nature of statistical data available compels him to restrict the population to full time housewives. For Nordhaus and Tobin assessment of total welfare should include all household productive activities of men as well as women whether or not they are engaged in the market labour force. Their study refers to total population aged 14 and over. In order to give a money value to total household work in France, Chadeau and Fouquet refer to persons aged 18 and over which is the reference population of the time use survey used in their study. A. Suviranta for Finland refers to time spent on unpaid housework by the entire population aged 10 and over. Others still refer to more restricted populations: families of at least three persons with a young child (Girard), couples with or without children (Walker and Woods).

These examples show that the reference population is not an independent parameter: the choice is made according to the aims pursued and to available statistical data. Measurement of housework gains in accuracy when studies refer to time spent on household productive activities rather than to number of persons involved.

The expanding interest in time budget surveys in many countries proves the need for more detailed data on how different members of households spend their time throughout their life span. Such surveys yield a host of valuable information and in particular, serve as a basis for identifying those activities which should be considered as "work" and therefore valued.

## FIELD OF ACTIVITIES COVERED

Not all activities performed within the household are to be taken into account when attempting to put a money value on household work or output. There are two alternative approaches to the selection of which activities should be valued: the starting point may either be the concept of "work" or else the concept of "production."

### *The concept of "work"*

One approach to this concept consists in dividing activities performed in the home into categories according to their nature (Szalai, 1971) and then defining operational criteria to separate unpaid "work" from all other activities. Hawrylyshyn refers to the "third person" criterion coupled with that of direct or indirect utility: thus housework is restricted to those activities performed within the

household by one of its members for the others producing indirect utility and which could be done for pay by someone not belonging to the household. This approach draws a distinction between:

1. work and leisure, by referring to the notion of direct and indirect utility;
2. work and biological needs, by referring to the possibility or not of being able to delegate the act to someone else;
3. housework and market work, by referring to whether the work is unpaid or not.

Thus housework includes meal preparation, cleaning, washing (there is general agreement on the fact that this is undoubtedly work); it also includes infant care and bringing up of children, and supervision of homework. All these activities may certainly be performed by someone else, yet one may wonder whether the separation between work and leisure is all that obvious. How much does the drawing of the boundary depend solely on the subjectivity of each individual? A similar issue is raised when dealing with personal care. Adults, in particular, usually perform these acts for themselves in western countries (washing, dressing for example) but these acts could be delegated. The criterion on which the classification is based is then the social norm. Another example could illustrate the difficulties encountered when establishing a list of household activities to be classified as "work"; is washing and setting one's hair work (since this service can certainly be bought on the market), leisure for the direct utility it produces or a biological need? It probably belongs, to a greater or lesser degree, to all three categories. Here again how great a part do social norms play in classification?

### *The concept of "production"*

The definition of productive activities given by T. P. Hill widens the field of acts performed within the home which should be taken into account when dealing with household production. A productive act is one which can be performed by a unit distinct from the one who consumes the end result. However vital eating and sleeping may be they are not productive acts in an economic sense; no one can eat or sleep for someone else. On the other hand, when measuring welfare, or real consumption which includes household output, one should take into account all activities which could be performed by a unit other than the household itself, though of course in this case the producing and consuming unit are the same by definition. Hill and Hawrylyshyn agree on the necessity to take into consideration only those acts which can be performed by someone else, but seem to diverge on the necessity of distinguishing work from leisure when measuring household output. Yet, though "production for own account" may be a more comprehensive concept than unpaid household work for assessing the contribution of the household sector to economic wealth, in practice its implementation is problematic: lack of data on the nature and volume of household output makes the criterion of the "alternative market good or service" a difficult one to apply, particularly in the case of home-produced services. What is the most suitable way of pricing their intrinsic quality? The changes some services bring about in household members through their emotional

content have no market substitute, and therefore no market price. In the present state of statistical and sociological knowledge the value of household productive activities remains entirely dependent on the data time use surveys provide. Nonetheless, further research and thought on the nature of production for own account appear as a challenging and fruitful field of investigation (1) for better understanding of the incidence economic and social change have on household productive activities, and (2) to avoid concealing behind figures the specific role these activities play in countries with different cultures and levels of development. The first point concerns industrialised countries where time spent at market work is decreasing, retirement age being lowered, monetary income progressing at a slower rate and unemployment increasing. How do and will these factors affect non-market activities? The second point concerns developing countries where the greater part of subsistence commodities are produced outside the market.

#### METHODS USED

The various methods used to confer a money value on unpaid household labour proceed from two kinds of approaches. The first consists in evaluating what it would cost to hire and pay someone else to do the work: one thus measures a *foregone expense*. The second measures the loss of income incurred by the person involved in unpaid domestic work instead of devoting an equivalent amount of time to paid work: this approach measures a *foregone wage*.

*Foregone expense* measures expenditures saved by performing the work oneself. This foregone expense may be valued directly by multiplying time spent on housework by an observed market wage rate. Two alternatives are possible:

- the wage rate may be that of a housekeeper performing all household tasks: “an overall substitute” which we shall refer to as *method A*. It corresponds to Hawrylyshyn’s Market Alternative = Housekeeper Cost (MAHC).
- wage rates may be differentiated according to tasks accomplished. Households would hire specialised personnel (cook, child nurse, garage mechanic . . .) This method of “*specialised substitutes*” will be referred to here as *method B* (Harwrylyshyn’s Market Alternative = Individual Function Cost or MAIFC).

Both methods A and B confer a direct money value to housework.

An alternative approach to foregone expense is to value household output at the price of equivalent goods and services available on the market (hotels, restaurants, laundries, boarding schools). The household in this case is considered as a full scale producing unit and not limited to a source of labour input (as in methods A and B). From household output, intermediate consumption is subtracted (i.e. households’ actual expenditure on food, heating, lighting, etc.) as well as fixed capital consumption (household durable equipment). A net added value by unpaid household labour is thus derived and it measures the “imputed income of unpaid household work”: *method C*.<sup>2</sup>

*Foregone wage*. This second approach to the measurement of household work consists in evaluating the money income each person would have earned

<sup>2</sup>An implementation of this method for France is described further on.

if, instead of spending a certain number of hours on unpaid household work he/she had spent the same amount of time working on the market for a wage. Here again two alternatives are possible:

- the wage rate may be that of a domestic servant, *method D*.<sup>3</sup> It differs from methods A and B in so far as the money value is net of taxes and compulsory social security contributions.
- the wage rate may be the one the person engaged in housework is entitled to expect on the market considering his/her qualifications (doctor, shop-keeper, locksmith...): the potential wage rates are usually observed average wages for equivalent age groups, sex and diploma level. This method, referred to as “opportunity cost” in Anglo-Saxon microeconomic literature when values are net of taxes and social security contributions (Hawrylyshyn’s Wage equals Opportunity cost of Time or WOCT) is named here *method E*.

If one considers that at the macroeconomic level the value of time<sup>4</sup> also includes social security contributions since they open up a right to benefits which will sooner or later be paid out, then the measurement of potential earnings must include them too: *method F* is based on this assumption.

Amongst these various methods none may definitely be singled out as superior. They all have their drawbacks.

### *Limits*

#### a. To the Methods

The scenario all of these methods stage is quite unrealistic from a macroeconomic point of view: it is quite implausible to propose that all household work be transferred to the market. Methods A and B lead to a situation where half the population of working age would be paid to produce household services. Such a terrific extension of the market sector would necessarily entail deep change in actual observed prices and wages. One may even wonder whether the countries to which these methods are applied would be able to produce sufficient labour willing to perform these tasks.

The potential earnings method, method E, justified in microeconomic analysis, raises problems when used for macroeconomic purposes. It leads to well known paradoxes:

- The higher the qualification of the person engaged in housework, the greater is the money value of the tasks he/she accomplishes. Moreover this method transfers to the household sector the wage differential between men and women observed on the market. Most of all, this method rests on assumptions quite removed from reality:
- It presumes that time spent on market activities can be decided at will, whereas, in general, especially where wage earners are concerned, a contract stipulates the number of hours due per week by the employee to the employer.

<sup>3</sup>Some studies refer to the wage rate of domestic servants employed by households, others to wage rates of personnel employed by private firms or by local authorities to perform on the market tasks similar to those performed in the household.

<sup>4</sup>Taxes included.

- It also presumes that persons out of the labour force, full time housewives, old age pensioners, rent owners, would be able to find a job in keeping with their qualifications. The improbability of this assumption is enhanced when economic growth is slowed down, and unemployment high. In such a context the opportunity wage tends towards zero.

b. To International Comparisons

All these methods present disadvantages which restrict the possibility of international comparisons. In particular, they are based on existing price systems, prevalent standards of production and social protection which differ from one country to another.

- In France, for instance, the price of labour for the employer is 40 percent higher than for the wage earner, due to social security contributions the former is compelled to pay. Yet, this 40 percent of income drawn by the social protection system does undoubtedly come back to households in the form of social benefits of one kind or another and contributes to welfare.
- The choice of the market substitute depends on the degree to which the economy is socialised. Wage rates differ according to the employer which may be the State, private competitive firms or households.
- In method C, where output is assessed, there is an added complication due to the fact that the price of the substitute includes an element of profit and indirect taxes (VAT) if services produced by the private sector of the economy are chosen; these two elements are excluded if the method refers to the cost of similar services produced by the State or local authorities (Finland, United Kingdom).

TABLE 1  
DIFFERENT METHODS OF ASSESSING THE MONEY VALUE OF UNPAID HOUSEHOLD LABOUR

		Global Substitute	Specialised Substitutes	Imputed Income by Output Approach	Potential Earnings Based on Individuals' Qualifications
Foregone expense	Including social security contributions	A	B	C	F
		↓	↓	↓	↑
Foregone wage	Net of taxes and social security contributions	D <sub>A</sub>	D <sub>B</sub>	D <sub>C</sub>	E

The arrows show the logical link between methods

*Results*

The following tables show the results of major macroeconomic studies carried out in different countries at different dates. Money values are presented as percentage of national aggregates (GNP or National Income) so as to render them directly comparable and independent of exchange rates. They remain nonetheless dependent on prevailing price systems in each country. Studies are



classified by method and results are those quoted by the authors themselves without adjustment. Given the variety of modalities chosen for parameters by authors, any form of adjustment of results appears as a vain attempt to improve comparability.

TABLE 2  
METHOD A. GLOBAL SUBSTITUTE INCLUDING TAXES AND SOCIAL SECURITY CONTRIBUTIONS  
Men and Women

Author and Date of Study	Country	Reference Year	%	
			GNP	
Chadeau and Fouquet (1981)	France	1975	44	
Suviranta (1982)	Finland	1980	42	

TABLE 3  
METHOD D<sub>A</sub> (MAHC). GLOBAL SUBSTITUTE NET OF TAXES AND SOCIAL SECURITY CONTRIBUTIONS

Author and Date of Study	Country	Reference Year	%	
			GNP	National Income
<i>A. Men and Women</i>				
Murphy (1982)	U.S.A	1976	32	
Chadeau and Fouquet (1981)	France	1975	31	35
Suviranta (1982)	Finland	1980	32	
<i>B. Women Only</i>				
Mitchell (1921)	U.S.A.	1909		31
		1918		25
Kuznets (1944)	U.S.A	1929		26
Murphy (1982)	U.S.A	1976	23	
Chadeau and Fouquet (1981)	France	1975	24	27

TABLE 4  
METHOD D<sub>B</sub> (MAIFC). SPECIALISED SUBSTITUTES NET OF TAXES AND SOCIAL SECURITY CONTRIBUTIONS

Author and Date of Study	Country	Reference Year	%	
			GNP	
<i>A. Men and Women</i>				
Murphy (1978, 1982)	U.S.A	1960	37	
		1970	34	
		1976	44	
Adler and Hawrylyshyn (1978)	Canada	1961	39	
		1971	41	
<i>B. Women Only</i>				
Murphy (1978, 1982)	U.S.A	1960	35	
		1970	32	
		1976	30	
Adler and Hawrylyshyn (1978)	Canada	1961	27	
		1971	28	

TABLE 5  
METHOD D<sub>C</sub>: IMPUTED INCOME TO UNPAID HOUSEHOLD LABOUR BY THE "OUTPUT  
APPROACH" NET OF TAXES AND SOCIAL SECURITY CONTRIBUTIONS  
Men and Women

Author and Date of Study	Country	Reference Year	%	
			GNP	
Clark (1958)	United Kingdom	1956	44 <sup>1,2</sup>	
Chadeau and Fouquet (1981)	France	1975	37 <sup>3</sup>	
Sviranta and Mynttinen (1982)	Finland	1980	12 <sup>4</sup>	

<sup>1</sup>Expressed as a percentage of Net National Product.

<sup>2</sup>Refers to total running cost of institutions providing full board and lodging for adults and children.

<sup>3</sup>Refers to price of alternative goods and services produced by private sector.

<sup>4</sup>Takes into account 3 household activities:

- Cleaning of premises: refers to cost of cleaning child care centers.
- Food preparation: refers to price of meals served in state-run cafeterias.
- Laundering: refers to prices set by the Laundry and Dry-Cleaners' Federation.

TABLE 6  
METHOD E. POTENTIAL EARNINGS NET OF TAXES AND SOCIAL SECURITY CONTRIBUTIONS  
(WOCT)

Author and Date of Study	Country	Reference Year	%	
			GNP	National Income
<i>A. Men and Women</i>				
Murphy (1978, 1982)	U.S.A	1960	38 <sup>1</sup>	
		1970	37 <sup>1</sup>	
		1976	51 <sup>1</sup> , 44 <sup>2</sup>	
Nordhaus and Tobin (1972)	U.S.A	1929	42	
		1965	48	
		1975	44	
Chadeau and Fouquet (1981)	France	1975	44	
Adler and Hawrylyshyn (1978)	Canada	1961	44	
		1971	40	
<i>B. Women Only</i>				
Chadeau and Fouquet (1981)	France	1975	30	34
Weinrobe (1974)	U.S.A	1960	20, 34 <sup>3</sup>	41 <sup>4</sup>
		1970	17, 31 <sup>3</sup>	38 <sup>4</sup>
Adler and Hawrylyshyn (1978)	Canada	1961	29	
		1971	27	

<sup>1</sup>Net of taxes only.

<sup>2</sup>Net of taxes and work related costs.

<sup>3</sup>Different results for the same year, obtained through two different sets of assumptions.

<sup>4</sup>The set of assumptions used here provides the highest money values.

### *Comparison of Results*

#### a. Relative Magnitude

The results show that in all cases the money value of unpaid housework is considerable. The lowest value quoted, reached by Weinrobe taking only married

women into account, represents one fifth of GNP; the highest value, reached by Murphy taking all men and women into account, represents half of GNP.<sup>5</sup>

#### b. Sensitivity of Results to the Method

The range within which results fall varies according to the method used. Method  $D_A$ , the overall substitute, yields virtually identical percentage values when the reference population includes men as well as women. The three studies quoted using this method are all based on recent time budget surveys, but refer to different categories of overall substitutes. The relative magnitude of housework done by women alone ranges from 26–31 percent of National Income.

The range of results is widest for method E (potential earnings net of taxes). They are arrived at by Murphy applying variants of the same method to different years. His results range from 37–51 percent of GNP.

If comparison is based on the method employed, then method  $D_A$ , the overall substitute, leads to the lowest values and method E, potential earnings, yields the highest values. This is consistently true whether one compares separate studies or results reached in single studies when different methods are applied. This classification shows that in industrialised countries the wage rate of domestic servants is well below the average wage rate of all wage earners.

Methods D all value housework lower than methods A, B and C since they are derived from the latter by subtracting taxes and social security contributions (cf. Table 1).

The overall substitute (method A or  $D_A$ ) costs less than specialised substitutes (method B or  $D_B$ ):

$$A < B \quad \text{and} \quad D_A < D_B.$$

The imputed value of household work derived from measurement of output (method C) is greater still. The prices of market services equivalent to those produced at home make allowance for capital consumption and profit:

$$A < B < C \quad \text{and} \quad D_A < D_B < D_C.$$

Finally, the market value of unused skills is far greater than the price of paid housework.

$$D_A < D_B < D_C < E.$$

#### c. Time Trends

Some studies show a decline in the relative magnitude of household work (Mitchell, Murphy); Kuznets assumes a secular downward trend of household activities expressed as a percentage of market activities since an increasing number of time-consuming tasks traditionally carried out in the home (baking of bread, for example) have been transferred to the market. Others such as Fourastié contend that increasing standards of comfort, of cleanliness, and improved quality

<sup>5</sup>Method F implemented by Chadeau and Fouquet for France yields an estimation representing two-thirds of GNP.

of child care lead to an increase in time spent on household work in spite of improved material conditions and technological progress which make a number of tasks so much easier to perform. The measures created by Nordhaus and Tobin show an increase of household work as percentage of GNP. Those of Adler and Hawrylyshyn show a decline when they apply the potential earnings method (method E), and an increase when they apply the specialised substitute method (method B). The time trend of household work therefore remains an issue open to debate. Urbanisation, household equipment, the fall in fertility rates, and the rise in women's employment rates in western countries plead in favour of a reduction of time spent on household work. On the other hand, changing ways of life, shorter working hours in the market sector, earlier retirement age, increasing unemployment, slower economic growth are factors which could each contribute to the development of household productive activities.

Moreover, studying the time trend of household versus market productive activities raises the very controversial issue of levels of productivity in the two sectors. The third person criterion implies that productivity gains in the market sector are the same as in the household sector since market wage rates serve as the reference for measuring the money value of housework. This point is by no means solidly established and further investigation is required before any definite assertion can be made on time trends. Deeper understanding of household non-market behaviour and improved economic analysis and forecasting in the market sector depend on the availability of adequate statistical data.

#### STATISTICAL DATA

In a large majority of studies household productive activities are measured by setting a money value on time inputs. To date, time use studies are the most valuable source of information on household activities. Their development in many countries has led to a finer definition of concepts, and to more sophisticated measures. They have contributed to reducing the gap between the theoretical approach and its practical implementation, and promoted comparability between countries in spite of technical differences in investigating procedures. Yet statistical data on the nature and volume of household output remain scarce. In the few countries where this kind of data exists, surveys cover only a limited number of services. This explains why so few studies measure home production although the output approach may appear superior to time input approaches for the more comprehensive representation it gives of economic interaction between market and household sectors in developing as well as in industrialised countries.

#### *In Developing Countries*

Non-market activities take on particular importance in these countries since a good part of, if not most, subsistence commodities are produced by unpaid labour outside the market. If national accounting systems which are being set up in these countries are to yield a reliable description of economic mechanisms at work they must take non-market output into consideration. Salaried jobs are relatively scarce and the majority of the population does not hold a wage earner

status as in industrialised countries and the geographic separation between home and work often does not exist. Consciousness of an individual's 24 hour day being shared between different categories of activities is not necessarily acute, nor is the classification of activities used in western time use studies necessarily relevant. One may even wonder whether attempting to put a money value on time has any meaning at all outside a market economy. On the other hand, physical quantities of goods produced are an every day concern and their measurement appears more relevant, differentiating and characterising the impact of culture and economic development on the nature of household productive activities.

### *In Industrialised Countries*

Surveys yielding data on what and how much households produce for their own use would lead to viewing them as producing units (which they undoubtedly are) combining time, fixed capital and intermediate consumption, and could throw some light on productivity within this non-market sector. Recognising households' double economic function as producers as well as consumers could lead to clearer definition of the boundary between market and household sectors and better understanding of how and why it shifts over time. The impact of economic and social changes and of technical progress on the share of productive activities between the market and the household could be more comprehensively taken into account, and economic analysis and forecasting would gain in accuracy.

Two recent studies develop different methodological frameworks to measure the money value of household output. For Finland, Suviranta and Mynttinen estimate the money value of output for three categories of activities: cooking, laundering and housecleaning; the starting point is respectively number of meals produced, weight of laundry washed and number of square meters cleaned. Reference prices of market substitutes are given in Table 5. Chadeau and Fouquet for France attempt to give a money value to total household output and refer to substitute goods and services available on the market produced by the private sector of the economy. The theoretical approach may be described as follows.

### *Conceptual Framework*

The household is considered as a productive unit which combines intermediate goods (non- or semi-durable goods bought on the market), fixed capital (durable equipment including dwellings) and unpaid housework to produce commodities of economic value in the sense that there does exist a market alternative. Household output is valued at the market price of the substitute. By subtracting actual household expenditure on intermediate consumption and capital consumption, one derives the net value added by unpaid household labour. This value added is then analysed as "imputed income" generated by unpaid labour.<sup>6</sup>

<sup>6</sup>This imputed income may be analysed either as wages or profit.

Choice of a market substitute for household output	→	Evaluation of household output at market price
minus		
Actual household expenditure incurred by the productive process (non- or semi-durable market goods or services)	→	Evaluation of intermediate consumption
minus		
Net interest paid out on loans contracted to acquire dwellings and durable equipment	→	Treated here as a production cost <sup>7</sup>
minus		
Capital consumption of household equipment	→	Depreciation of capital goods
equals		
Imputed income of unpaid household labour	} ←	Estimation of net value added by unpaid household labour
including		
Fictitious VAT which would be levied on equivalent market transactions		

Net value added estimates the total market value of unpaid household labour under the assumption that all actual household output of goods and services is supplied by the market.

Table 7 shows how household activities and market substitutes are matched. For sets of activities concerning meal preparation and house cleaning and upkeep (activities 1 and 2) output is valued at the market price of the chosen substitute (meals in restaurants and hotel rooms respectively), and value added by unpaid labour is computed as described above. Unfortunately, for lack of data on volume and nature of other home produced services (activities 3 to 10) time inputs only are valued at the market wage of the specialised substitute. Together these activities represent less than 25 percent of total housework time.<sup>8</sup> Output and production costs are given including VAT and net of VAT; thus estimating “foregone tax receipts” for the State due to non-market household production.

## CONCLUSION

This international comparison leads to the formulation of some concluding remarks.

<sup>7</sup>This differs from the way household interest charges are treated in the French national accounting systems.

<sup>8</sup>For detailed implementaton of method see Chadeau and Fouquet, *Le travail domestique: Essai de quantification*, August 1981, INSEE, pp. 46-60.

TABLE 7  
MATCHING HOUSEHOLD ACTIVITIES AND MARKET SUBSTITUTES

Household activities	Market alternative
1. Cooking, washing up, shopping including transport, queueing up and putting purchases away	Meals in restaurants, snacks in cafés
2. Cleaning, indoors and outdoors. Washing and ironing house linen. Gardening. Heating. Purchasing household durables. Home repairs and maintenance, tidying up	Hotel room
3. Sewing and mending garments	Services of a dressmaker
4. Washing and ironing small items	Services of a home helper
5. Car repair and maintenance	Services of a garage mechanic
6. Care of infants	Services of a day care centre; nurse for infants
7. Care of children aged 1 to 14. Medical care outside the home. Other maternal care. Indoor & outdoor games. Outings. Transport of children. Care of animals	Services of a child nurse or qualified leisure centre worker
8. Nursing at home. Nursing adults	Services of a trained nurse or assistant nurse
9. Supervision of lessons and homework. Reading aloud from books other than school books	Services of a private tutor
10. Miscellaneous: accounts, filing, letter writing, dealing with administrative questions (including time spent waiting)	Services of a private secretary

Putting a money value on unpaid household work is a way of showing its economic importance, and also of expressing this part of human activity in terms which enable comparison with market activities. Reference to the money unit nonetheless allows for no qualitative assessment of home-produced services.

The more recent studies do not attempt addition of market and household aggregates; they go no further than comparing orders of magnitude. Development of time use surveys in industrialised countries has led to increased detail and standardisation of methods in measuring the money value of unpaid household labour. They yield remarkably consistent results which are maybe due to fairly similar economic and social organisation: working hours, family size, urbanization, standards of living and of hygiene, wage hierarchy.

What, how and how much is produced is at least as relevant for economic analysis as the amount of unpaid labour supplied to keep up the family unit. Comparing the household to a productive unit and not restricting it to a consuming unit is conceptually founded. Households do, and have at all times combined labour, capital goods (land or reproducible fixed assets) and intermediate goods to produce what is required to satisfy their needs when the "market" fails to do so. In times of crisis, when markets are disrupted, household production largely substitutes for organised market output.

In developing countries, most subsistence commodities are produced by the household. Moreover, in these countries where salaried jobs are few and far

between, the very notion of sharing time between productive market work and household work is not easy to grasp.

In Western countries total time inputs may not have changed all that much but industrialisation, urbanisation, mass production and technical advance have certainly changed living conditions in the home. Electricity, running water, central heating, and sophisticated household equipment have made some household tasks easier and quicker to perform entailing productivity gains and therefore freeing time for other activities. What is produced at home depends largely on what is available on the market. If technical advance changes market output, it, in turn, undoubtedly changes household output. Also, fewer working hours on the market and shorter working life free time that could lead to increased household output, and cause a shift of activity from the market to the home. Identifying which activities shift from the market to the household, or vice versa, is an important issue when analysing the economic value of household production or trying to forecast which market sectors are bound to expand (or decline).

In the future, would it not be possible for time budget surveys, which are carried out in many industrialised countries and beginning to exist in some developing countries, to also gather data on the nature and volume of household output? The discussion of this issue is beyond the scope of this paper, but should such data be made available, it would open up a vast and challenging field for further research and economic thought.

#### REFERENCES

- Adler, Hans J. and Hawrylyshyn, Oli, Estimates of the Value of Household Work, Canada, 1961 and 1971, *Review of Income and Wealth*, Dec. 1978.
- Chadeau, Ann and Fouquet, Annie, Peut-on mesurer le travail domestique?, *Economie et Statistique*, No. 136, INSEE, France, September 1981.
- , Le travail domestique, essai de quantification, *Archives et Documents*, No. 32, INSEE, France, August 1981.
- Chaput-Auquier, G., La valeur économique du travail ménager, *Cahiers Economiques de Bruxelles*, July 1959, in Goldschmidt-Clermont.
- Clark, Colin, The Economics of Housework, *Bulletin of the Oxford Institute of Statistics*, May 1958.
- Danmark Statistiske Departement, Nationalproduktet og Nationalindkomsten 1946–1949, *Statistiske Meddelelser*, 1951, in Goldschmidt-Clermont.
- Fourastié, J., *Les 40.000 heures*, Laffont, Paris, 1965.
- Fürst, H., *Einkommen, Nachfrage, Produktion und Konsum des Privaten Haushalts in der Volkswirtschaft*, Kohlhammer, Stuttgart, 1956, in Goldschmidt-Clermont.
- Goldschmidt-Clermont, Luisella, *Unpaid Work in the Household*, International Labour Office, Geneva, 1982.
- Girard, A., Le budget temps de la femme mariée dans les agglomérations urbaines, *Population*, Paris, October–December 1958.
- de Grazia, S., *Of Time, Work and Leisure*.
- Gronau, Reuben, Home Production, a Forgotten Industry, *Review of Economics and Statistics*, Cambridge, Mass., August 1980.
- Hawrylyshyn, Oli, The Value of Household Services: A Survey of Empirical Estimates, *Review of Income and Wealth*, June 1976.
- , Towards a Definition of Non-Market Activities, *Review of Income and Wealth*, March 1977.
- Hill, T. P., Do it Yourself and G.D.P., *Review of Income and Wealth*, March 1979.
- Kende, Paul, Vers une évaluation de la consommation réelle des ménages, *Revue Consommation*, No. 2, CREDOC, Paris, 1975.
- , Les biens et les services autoproduits dans la consommation des ménages français, *Rapport de synthèse CORDES*, No. 76–76, Commissariat Général au Plan, Paris, 1978.
- Kuznets, Simon, *National Income and its Composition, 1919–1938*, National Bureau of Economic Research, 1944.



- Linberg, V., Helsinki, 1943, in Goldschmidt-Clermont.
- Matolsky, M. and Varga, S., 1938, *The National Income of Hungary 1924/25-1936/37*, King and Son, London, in Goldschmidt-Clermont.
- Michel, Andrée, *Les femmes dans la société marchande*, Presses Universitaires de France, 1978.
- Mitchell, W., King, W. I., Macaulay, F. R., and Knauth, C. W., *Income in the United States: its amount and distribution, 1909-1919*, National Bureau of Economic Research, 1921.
- Murphy, Martin, The Value of Non-Market Household Production: Opportunity Cost Versus Market Cost Estimates, *Review of Income and Wealth*, September 1978.
- , Comparative Estimates of the Value of Household Work in the United States for 1976, *Review of Income and Wealth*, March 1982.
- Nordhaus, William and Tobin, James, *Is Growth Obsolete?*, National Bureau of Economic Research, 1972.
- Norge, Oslo, 1948, in Goldschmidt-Clermont.
- Stoetzel, Jean, Les budgets temps de la femme dans les agglomérations urbaines, *Population*, Paris, January-March 1948.
- Suviranta, Annikki, *Housework Study*, Ministry of Social Affairs and Health, Helsinki, Finland, 1982.
- Szalai, Alexander, *The Use of Time*, Mouton Press, The Hague and Paris, 1972.
- Walker, Kathryn and Gauger, W. H., *The Dollar Value of Household Work*, Cornell University, New York State College of Human Ecology, Information Bulletin No. 60, Ithaca, New York, 1973.
- Weinrobe, Maurice, Household Production and National Production, An Improvement of the Record, *Review of Income and Wealth*, March 1974.