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NATIONAL ACCOUNTING AND SUBSISTENCE
ACTIVITIES IN DEVELOPING COUNTRIES:
A REVIEW OF SOME MAJOR ISSUES

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WORKING PAPERS

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Introduction

Subsistence activities are characterised by the fact that they relate to the production of goods and services for own use rather than being meant for exchange with others. These activities can be found in both developing and industrialised economies, although the underlying factors that explain the presence of subsistence activities and their development over time in each type of economy may be entirely different ones. As far as the industrialised countries is concerned it may be noted that during the last decade or so there has been a steady increase in certain types of subsistence activities, like the (re)construction and renovation of dwellings, as well as maintenance and repairs activities of diverse nature (painting, plumbing, etc.). This recent development can be explained by the fact that there has been a shift from having these rather labour-intensive activities carried out by professionals to carrying them out by one self. This shift is largely the consequence of a steady increase in the prices charged by the professionals for their services, this being in turn related to the developments in wage rates.

The presence of subsistence activities in developing countries, should on the other hand mainly be seen as rooted in the ways of living that characterise traditional societies. In spite of the many ways in which modernisation infiltrates into the rural areas in the developing countries, these traditional ways of living can to a more or lesser extent still be found in most of these countries, where a relatively low degree of specialisation of economic activities could be said to be interrelated to these ways of living. As such, a relatively large part of the productive activities carried out by those

who live within the traditional structures meant for own use, is in other words of a subsistence nature. Although the share of the subsistence activities in the total of economic activities in the developing countries is gradually declining because of progressively specialisation and increasing production for the market, it is for the majority of the developing countries true that the size of subsistence activities and their contribution to the economy is still quite significant. In order to obtain an idea of the relative importance of subsistence activities in the economies in developing countries, reference may be made to Table I below. From this table it can be concluded that in 68% of the countries concerned subsistence production accounts for 10% or more of total GDP, and in 39% of the countries it accounts for even 20% or more. It should be realised however, that the percentages as presented in Table I are based on existing estimation procedures which, as we shall discuss in more detail below, sometimes results in underestimation, for which reason the actual share of subsistence activities in GDP might even be considerably larger. Although the data in Table I relate to the situation around 1975, it can safely be assumed that the picture it presents is still representative for the present situation in most of the developing countries.

As is well known, the incorporation in the national accounts of subsistence activities gives rise to a number of questions. Since subsistence products are used by the producer instead of being sold in the market, it will not be possible to measure the value of these goods and services by making reference to the money flows involved in their sales and purchases, since sales and purchases do not take place and hence no money flows are involved. It also implies that these products are priceless, i.e. there is no sales price directly related to them. These factors, which are related to the nature of subsistence production, create a situation in which one on one hand has to make estimates of the quantities of the goods

TABLE I
 FREQUENCY DISTRIBUTION OF 48 DEVELOPING COUNTRIES
 according to Percentage Share of
 Subsistence Value-added in total GDP

Subsistence value-added as percent of GDP(1)	Countries	Frequencies	
		No.	%
40% or more	Ethiopia, Niger, Rwanda	3	6
30 to 39%	Mali, Upper Volta, Malawi, Uganda	4	8
25 to 29%	Tanzania, Mauritania	2	4
20 to 24%	India, Korea, Malaysia, Dahomey, Botswana, Kenya, Sierra Leone, Togo, Angola, Mozambique	10	21
15 to 19%	Cameroon, Madagascar, Rhodesia, Swaziland, Taiwan	5	10
10 to 14%	Iran, Sri Lanka, Philippines, Vietnam Thailand, Dominican Republic, Ivory Coast, Zaire, Senegal	9	19
5 to 9%	Greece, Jordan, Nicaragua, Venezuela, Mauritius, Zambia, Hong Kong, Ecuador, Iraq	9	19
Under 5%	Cyprus, Malta, Mexico, Argentina, Guyana, Jamaica	6	13
		48	100

1) GDP at factor cost for a recent year.

Source: D.W. Blades, 1975, P 11 (terminology slightly adjusted)

and services involved, while on the other hand one has to look for appropriate prices in order to arrive eventually at aggregate expressions for the value of the various kinds of commodities which have been produced for subsistence purposes. The selection and application of suitable techniques for estimating quantities is not without problems, while also the adoption of prices for valuation purposes raises various problems. However, these problems are often preceded by questions concerning the types of subsistence activities that should be covered for estimating the value of the subsistence output, since it is from a theoretical point of view not always clear which types of activities should be considered of an economic nature.

The need to pay due attention to the estimation of subsistence activities, and to the problems which accompany their estimation and valuation stems not only from the fact that these activities are still relatively large in size per se. Also the fact that the subsistence production gradually declines, i.e. makes place for production for the market, makes this necessary, because this may prevent making the error that output that was formerly produced for subsistence purposes and as such not accurately accounted for, is dealt with differently when it is marketed, this leading among other things to improper estimates of growth rates.

But a proper treatment is furthermore required in view of the fact that subsistence activities as carried out in developing countries are carried out by people who to a large extent belong to the poorer sections of society, and who as such form part of the target groups towards whom development policies should be geared. It goes without saying that adequate information on the economic activities of these groups will be preconditional for a proper design and execution of policies which are directed towards them.

In the present paper we will present a brief review of the major issues playing a role in relation to the measurement

and valuation of subsistence activities for national accounting purposes, while adding some comments of our own. In this respect we will structure our presentation around the three main problem areas referred to above, namely (i) that re the types of subsistence activities to be covered; (ii) that re the procedures for estimating quantities; (iii) that re the prices to be adopted for valuation purposes.

Before entering into the actual issues, it seems useful to conclude this section by pointing to the fact that the terms 'subsistence' and 'non-monetary' are sometimes used as more or less synonymous. Indeed, it may be argued that the two concepts overlap to a larger extent, although the two are not quite the same, since 'non-monetary' activities may refer to barter trade in addition to production for own use, (i.e. subsistence production). However, because barter trade seems to be relatively unimportant for most of the developing countries, while at the same time the problems involved in dealing with barter trade activities are to a larger extent similar to those which one faces when dealing with subsistence activities, no harm is done in using the two terms interchangeably, as we will sometimes do below.

1. The Coverage Issue

This issue relates to the question which types of activities of a subsistence nature should be paid attention to in connection with the national accounts. More specifically, it deals with the question, to which types of subsistence activities the measurement and valuation of outputs for national accounting purposes would apply.

The issue has theoretical as well as practical aspects. Beginning with the former ones, it may in the first place be asked which types of activities should in principle be covered, when dealing with estimation and valuation. Various theoretical positions might be adopted in this respect, these positions depending on the view one has with regard to the function and

uses of a national accounting system. One position is that which argues that such a system is supposed to record in principle all activities which are of an economic nature. This implies that - at least in principle - any type of economic activities should be included, irrespective of whether it is of a monetary or of a non-monetary character. However, this raises immediately the subsequent question of what is to be understood by 'economic' activities in this connection.

Although there exists no perfect agreement in literature on this point, there nevertheless seems to emerge a certain convergence in the views that are expressed more recently on it. From these views it can be concluded that activities are considered as economic if the goods and services that are to be associated with them can be produced by somebody else than by the person who uses or consumes them, or in other words when transfer of these goods and services between people is possible, at least in principle. Since it is clear that goods will generally speaking almost by definition satisfy this criterion, it seems in practical circumstances of a particular use in connection with services. T.P. Hill (1979, p.34) remarks in this connection: 'Goods can be easily recognized in practice, and the problem is to have an operational criterion which enables the production of services to be distinguished from other activities around the home or elsewhere. The fact that a services must be capable of being produced by another economic unit than the consumer of the services provides that criterion.' This criterion, which has also been advocated by O. Hawrylyshyn (1977) who calls it the 'third person' criterion, is evidently to a large extent equivalent to a criterion which refers to the possibilities for the service (or good) in question to be at least in principle subject to purchase. The latter criterion is referred to for example by J.W. Kendrick (1979, p. 350) who remarks: 'I define as economic those activities undertaken primarily for the sake of the resulting income or product, while non-economic activities are undertaken

primarily for their own sake - social, recreational, and other leisure-time pursuits. This is consistent with the criterion that non-market services could as well be purchased under favourable supply conditions, but not the non-economic activities'. Finally, D. Usher (1980, p.129) proposes in a similar vein, and within the same context, to include in the national accounts 'the value of goods and services acquired outside the market sector but that might have been purchased with money under a different but plausible form of economic organization'.

Thus, although the 'third person-transfer-purchase' criterion is perhaps an arbitrary one, it may nevertheless guide us in concrete situations to determine in most cases which kind of activities should be considered as economic, and as non-economic. It tells us that, apart from all monetary activities, all those subsistence activities associated with the production and use of goods and services which lend themselves in principle for transfer or purchase by third persons should be considered as economic. It goes without saying that when this criterion is applied, a wide range of subsistence activities can be defined as economic. When moreover the view is held that the accounting system should in principle include all economic activities, a very wide coverage of many types of subsistence activities should ideally speaking be aimed at.

However, the position may also be adopted that national accounting systems in concrete situations may serve different purposes, and that the coverage of non-monetary activities should therefore depend on the purposes for which the accounting system is actually used. This is not the proper place to go deeply into the question of the different uses of the national accounting systems in developing countries in order to derive for each case what exact position should be adopted as far as coverage of subsistence activities is concerned. But a few pertinent points re the uses of national accounts and the implications for coverage are in order.

In the first place it may be noted that national accounts are almost universally used for determining the growth of output, income and expenditure. In order to show growth adequately, the coverage of non-monetary activities should in view of the possible occurrence of the monetization phenomenon (i.e. the change from subsistence-production to production for the market) in developing countries preferably be fairly wide. This, in order to avoid the error that output that was formerly of a subsistence nature and as such was not covered, incidentally becomes covered when it is marketed, and this will lead to a situation of an overstated growth rate. Consequently, it seems logical in the light of this reasoning to cover at least those non-monetary activities which are likely to be replaced by monetary ones when an economy becomes more specialized, i.e. more monetised. According to Blades (1975 p. 54) the prime candidates here include subsistence agriculture, food-processing, handicraft and building, while in some cases forestry activities, water collecting and crop storage will need to be covered also.

Another important purpose for which the national accounts should be able to provide production, income and expenditure data is that of analysing the situation of, and the formulation of plans for, special target groups in the economy, particularly the poor, many of whose activities are largely of a subsistence character. As far as this purpose is concerned, Blades (1975, p 55) argues that by implication the coverage of subsistence activities may relate to fairly minor activities like firewood collection, foraging for bush products, water carrying etc., even though such activities may not make a substantial contribution to total output.

The justification for this would be that those activities are important for a key group of the population, both in terms of the contribution these activities make to the group's total output, as well as in terms of the labour inputs involved.

From what has been said so far about the desirable coverage of non-monetary activities from a more theoretical point of view, more specifically with regard to certain objectives of the national accounts, it can be concluded that a relatively wide coverage should be aimed at, generally speaking. However, the desirability of this is in contrast with the various practical problems which will be encountered in the actual estimation of quantities and values of subsistence output, and which often hamper the realisation of a wide coverage. These practical problems relate in the first place to the fact, that subsistence output is not marketed, for which reason no records on turnover, sales or purchases exist, as a consequence of which estimation methods using such records cannot be applied. In fact, since subsistence producers are mainly small-scale producers and in many cases illiterate, they normally keep no records or accounts at all, not even of quantities produced and used, for which reason one has for the estimation of quantities involved e.g. the statistical office, unlike the cases in which records exist. Furthermore, the collection of data by means of alternative estimation and valuation methods suffers often from an additional drawback, namely the fact that the majority of the subsistence producers lives in rural areas which has often implications for their accessibility by surveying teams. All in all no favourable conditions for implementing a wide and accurate coverage.

It can be assumed that mainly due to these practical problems many types of non-monetary activities in many countries are not covered at all, or perhaps only partly, by the national accounts of these countries. Clear evidence on the existence of non-coverage is present in the

findings of a survey held by the OECD Development Centre among a large number of developing countries about their treatment of subsistence activities in their national accounts. Table II below summarises some of the evidence. From this Table we cannot only conclude that many important subsistence activities that are clearly of an economic nature have not been covered by considerable number of countries, but also that there exists a wide variety of coverage patterns among the countries reporting.

Table II

NON-MONETARY ACTIVITIES COVERED IN THE NATIONAL
ACCOUNTS OF 70 DEVELOPING COUNTRIES: SUMMARY
BY REGION

REGION (Number of Countries responding)	Agriculture, etc.							Building & Construction				Imputed rents		Other Activities
	Crops	Livestock	Forestry	Hunting	Fishing	Food Processing	Handicrafts	Dwellings	Other Buildings	Construction	Urban	Rural	Water Carrying	
AFRICA: Francophone (1) (13 Countries)	No. 13 % 100	13 100	11 85	8 62	11 85	7 54	9 69	10 77	2 15	1 8	9 69	8 62	1 8	0 -
AFRICA: Other (20 Countries)	No. 19 % 95	19 95	17 85	10 50	16 80	9 45	10 50	16 80	10 50	4 20	15 75	15 75	4 20	4 20
AMERICA: (15 countries)	No. 15 % 100	15 100	6 40	2 13	9 60	1 7	4 27	7 47	6 40	4 27	15 100	13 87	0 -	0 -
ASIA: (19 Countries)	No. 19 % 100	17 89	14 74	2 11	15 79	10 53	12 63	11 58	9 47	6 32	18 95	18 95	0 -	2 11
ALL Countries (70 Countries)	No. 69 % 99	67 96	50 71	24 34	53 76	27 39	35 50	45 64	28 40	15 21	60 86	57 81	5 7	6 9

1) i.e. Cameroon, Cong-Brazzaville, Dahomey, Ivory Coast, Madagascar, Mali, Mauritania, Morocco, Niger, Senegal, Togo, Tunisia, Upper Volta.
2) Including 3 European Countries: Greece, Cyprus and Malta.

It is indeed in the light of the various practical problems mentioned, that most of the actual recommendations which have been made re coverage of subsistence activities try to combine theoretical desirability with practical feasibility. These recommendations often boil down to a coverage pattern which is wider than those as actually found in most cases, while at the same time they do certainly not include all types of economic activity that could be thought of for inclusion.

In this connection we may refer to the set of recommendations presented by the United Nations in its System of National Accounts (SNA). This revised SNA (1968, p 96) recommends the coverage of the following non-monetary activities:

- (i) production of monetary products, i.e. the characteristic products of agriculture, fishing, forestry, mining and quarryings;
- (ii) imputed rental incomes of owner-occupiers;
- (iii) building and construction ;
- (iv) processing of primary commodities by the producers of these items in order to make goods such as butter, cheese, flour, wine, oil, cloth, or furniture for their own use, whether or not any of these manufacturers are offered for sale;
- (v) production of other commodities which producers consume in their households and which they also produce for the market (UN 1968, p 96).

This revised set of U.N. recommendations certainly seems to be more appropriate than the original one, according to which for primary producers, i.e. those engaged in agriculture and related activities and in mining and quarrying, only their primary production for own-use was to be included, while for the non-

primary producers all primary production for own-use was to be included plus production for own-use in the producers' own trade. This old set led to the exclusion of potentially large amounts of non-monetary activities of a clearly economic nature, as has been shown by Blades (1975 p. 48-50).

Several authors have commented on these recommendations, and some have observed that they are rather limited re the types to be covered. Webster (1974 p. 48), for example, points to the fact that the U.N. recommendations apparently exclude important tasks such as collecting and transporting water and the milling of grain. However he is at the same time of the opinion that this should not be considered regrettable, since a wider coverage would in his opinion increase the problems of obtaining reliable data, and may result in the inclusion of more statistics of dubious reliability in the national accounts.

Furthermore Seers (1977 p.8) mentions the following subsistence activities of which he considers the apparent exclusion from coverage a serious weakness of the U.N. recommendations:

- the collection of primary products other than food, e.g. water, firewood, flowers, hides and skins, etc.,
- certain processing activities like hand-crushing of rice and maize or the making of cloth and ornaments.
- services of various kinds within the household which in a more commercial economy would be paid for (hair cutting and dressing, pulling teeth, nursing, childminding, sending messages, wedding and funeral ceremonies), or supplied by

government (education, religion and medicine), but are provided by relatives and neighbours without payment on the basis of informal barter or customary obligations (which may vary greatly between tribes, districts, etc., especially between urban and rural areas and also over time).

These comments illustrate that the U.N. recommendations, perhaps regrettably, exclude certain types of activities from coverage, while at the same time, however, good practical reasons can be advanced for this being done. We would like to note here, though, that certain types of subsistence activities may be more important in some countries than in others, for which reason the exclusion of some of these activities according to U.N. recommendations may be more serious in the former cases than in the latter ones. On these grounds we would advocate that the U.N. recommendations should be treated with a certain flexibility.

From the various theoretical and practical considerations as presented above we then come to the conclusion that it would be desirable to follow in principle the recommendations re coverage as laid down in the revised SNA of the U.N., since this might among other things contribute to international comparison. At the same time however, their application should be dealt with flexibility in view of possible differences in importance of certain types of subsistence-activities between countries. An adequate coverage of the more important types of these activities will after all contribute to an adequate comparison of monetary and non-monetary activities, and as such also to proper estimation of growth rates.

2. Estimation of Quantities

The inclusion in the national accounts of estimates of the aggregate values of subsistence output requires on the one hand the making of estimates of the quantities involved, and on the other hand the adaption of unit values which are appropriate for this purpose. Both the estimation of quantities, and the selection of unit-values can be approached in certain alternative ways, each of which has distinct advantages and disadvantages, while raising at the same time certain problems as well. The present section focusses on some of the issues related to the approaches that may be adopted for the estimation of quantities.

One way of classifying the different methods and approaches used in estimation is by distinguishing between direct and indirect methods. In the case of direct methods, the data on the output in a particular period are of a primary nature, and are obtained by means of a survey, which may be a census survey or a sample survey. In the case of a census survey, data on subsistence activities may be collected as a by-product of a survey which is wider in scope, covering also elementary activities; e.g. agricultural census survey. Because of the costs involved, census surveys are normally held only once in a five or ten years period, so that such information about subsistence activities is not frequently available. To a large extent this is also true for sample surveys. In the case of a sample survey the estimates of the total quantities involved are obtained by applying a blowing-up procedure.

When a census survey is conducted, data are normally obtained by means of the production approach, which implies the collection of data from point of view of the producers concerning the destination of their output. Although in sample surveys the production approach is also made use of, a so-called consumption approach is even more frequently applied in these cases. In this latter type of approach subsistence production

and consumption is estimated through information collected from point of view of consumption or use (e.g. in household surveys) about quantities consumed or used.

One question which arises at this point concerns the kind of approach which is preferable. Blades (1975, p. 56) is in this connection of the opinion that a consumption approach is - generally speaking - to be preferred to a production approach, not only in the case of estimation of agricultural crops but also in the case of estimation of other subsistence output. In his view, it is clearly better to measure the consumption of own products at the time this actually takes place, than to ask producers to forecast the eventual disposal of their output. This preference for the consumption approach is shared by Fisk who, in referring to crop production, argues that in many cases the total quantity of a crop grown and the quantity of that crop which will be used for own consumption are difficult to estimate accurately over a reasonable period of time and at reasonable cost, because both are subject to fluctuations caused by changes in seasonal conditions and other factors (Fisk 1975, pp. 260-261). However, we would like to add here, that also in the cases where the consumption approach is adopted it should always be realised that the consumption patterns observed may be subject to seasonal fluctuations, especially re food items. Thus, when an adequate picture is to be obtained on subsistence consumption for a year's period, the survey should be designed in such a way, that it takes account of changes in quantities of products consumed as a result of seasonal fluctuation. This requires as a matter of fact sample observations during different times of the year.

For a number of years now the United Nations is active in promoting and supporting the development of household survey capabilities in developing countries through its National Households Survey Capability Programme (NHSCP). The objective of this programme is to build national capabilities to carry out continuous household surveys carefully planned to

yield up-to-date and integrated statistics in a diversity of subject matter fields reflecting national priorities and concerns. This is done in the recognition that the household plays a key role in development in developing countries. In this connection it is argued that it is not only in the household that the impact of development on living conditions must be measured, but it is there that much productive activity is organised which is, at least in a large number of countries, to an important extent of a subsistence character, especially in the rural areas. As such, the only systematic way to investigate the household as a complex economic and social unit and to measure, its role in national activities is believed to be the presence of national household survey capability.

Whenever such a capability exists in a certain country, it seems obvious that its potential is, among other things, used for the measurement of subsistence activities and the outputs to be associated with it. The kind of household survey that may be conducted on this basis will enable the combining of possible advantages of production surveys on the one hand and of consumer surveys on the other, since it, through its approach, touches simultaneously on the productive and the consumptive aspects of the subsistence activities.

Considering this it is recommended to exploit to the fullest extent possible a national household survey capability in connection with subsistence activities and their measurement. The relatively reliable and accurate kind of surveys based on it will reduce the necessity to rely on other kinds of direct or indirect methods. Provided the capability has been set up in an effective and efficient manner, it may moreover be expected so that the cost of each subsequent survey will decline gradually, while the quality of the data output of each successive survey can be expected to improve on the other hand.

Since as yet both census and sample surveys of whatever nature

are in most cases still organised rather infrequently, the majority of the annual estimates is still made in an indirect manner, for example, through extrapolation of the latest survey information. In many cases this is done by relating the survey information proportionally to the estimated increase in rural population or rural household. In its simplest form, this procedure may be algebraically presented by the following relationships

$$Q_t^i = a_i^* P_t \quad ; \quad \text{while } a_i^* = Q_0^i / P_0$$

The quantity of a product i produced or consumed in period t , (Q_t^i), is supposed to be equal to a constant a_i^* times the population in period t , (P_t). The value of the constant represents the per capita production or consumption as calculated from survey data collected in a previous period.

Given an estimate for P_t , Q_t^i may thus be calculated. It stands to reason that the appropriateness of this type of procedures depends on the validity of the assumptions implicit in them, like the one of constant per-capita production or consumption in the formula above. Unfortunately, many examples may be given of extrapolations in this connection, of which the underlying assumptions are questionable.

However, the situation is even worse, if the annual estimates do not relate to any previous survey information at all. Cases can be cited in which estimates for all years are based only upon knowledge about technical or biological ratios such as the (assumed) lifespan of buildings, the milk-yield of cows or the laying ratios of hens, etc., which are then related to census data on population, household, number of livestock, etc. If these ratios have not been obtained from reliable, representative surveys but, for example, from government officials in the Public Works Department or the Ministry of Agriculture who rely on their general experience (Webster 1974, p. 47), the reliability of estimates based on such ratios may be subject to considerable doubt.

For this reason, any possibility to check the ratios through a reliable sample survey, even of the smallest dimensions, should be welcomed. When this is not feasible, it will in some cases be useful to compare the ratios with data from surveys concerning other areas or countries. Although this should be done with care, it may shed some further light on their plausibility.

In a number of cases use is made of ratios for arriving at estimates of the value added given estimates of the gross output. These ratios assume fixed proportions between the gross output on one hand and of the intermediate inputs on the other. Although in principle the use of such ratios may be quite acceptable, care should be taken that these ratios do adequately reflect the actual relationships between intermediate input and gross output in subsistence production.

More in particular we are referring here to the danger of using ratios which have been derived from survey data which do not relate explicitly or uniquely apply to subsistence production, and as such may relate to monetary activities as well. It should be realised however, that the input structure of goods and services produced for the market usually differ significantly from those for own use, rendering different input-output ratios. In view of this, the adoption of ratios should be done in a critical manner.

Valuation

In order to express subsistence output in terms of monetary aggregates, certain values have to be imputed to the quantities involved. With the objective to discuss some of the theoretical and practical problems which are involved in the selection and application of values that are appropriate in this connection, we will refer to diagram I below.

This indicates which kind of valuation procedure is, for national accounting purposes, generally adopted for different kinds of output.

Kind of output	Valuation procedure	
	market prices	value/cost of inputs
Marketed output	X	
non-marketed output With marketed equivalent ⁺	X	
non-marketed output having no market equivalent		X

DIAGRAM I

Marketed output is normally valued, implicitly or explicitly, at market prices of one kind or the other. A similar valuation procedure is followed in the case of non-marketed (i.e. subsistence) output which has marketed equivalents, meaning that identical or similar goods and services also pass through the market. The market prices to be adopted in this connection are as much as possible the same as those used in the valuation of the marketed parallels. If the nature of the subsistence output is such that no market equivalents exist - as is in particular the case with many kinds of services that are rendered in more traditional societies, but also, for example with government services rendered to the general public - it is normally attempted to value this kind of output on the basis of the value or costs of the inputs used in producing it, because no market prices related to marketed parallel output can be referred to.

One well-known question of principle concerns the point of the correctness of borrowing existing market prices for the valuation of subsistence output with marketed equivalents. It is argued that if these goods or services had passed through the market, the market prices might have been different,

in particular if the quantities of subsistence output involved are relatively large. However, this argument is of a hypothetical character, since it is generally speaking not possible to indicate whether, and by how much, the existing market prices would have changed, unless one would make use perhaps of very complex, sophisticated market simulation models. The practical problems involved in the latter kind of approach do not make it a very feasible one, for which reason one is left with accepting the existing market prices for valuation, at least if one wishes to maintain an element of comparability between marketed output on the one hand, and more or less identical subsistence output on the other. This reasoning seems to be followed very widely, considering the fact that in almost all actual instances subsistence output with market equivalent is valued on the basis of existing market prices of one or the other.

Given the fact that one accepts the valuation convention referred to in the above context, a subsequent issue to be faced concerns that of the kind of market price to be used. This issue related in the first place to the choice between producers prices on the one hand, and retail prices on the other. The answer to the question which kind is the more appropriate one will largely depend on the view one holds about the meaning of the national accounting aggregates, and the main purposes of the accounting system. Actually, the possibility that the valuation of goods and services in any accounting system may require the use of more than a simple set of values was already acknowledged quite some time ago by J. Hicks, who wrote '...it seems to transpire that the right system of weights to be used for valuing the National Income depends upon the purpose for which the calculation is to be used. As National Income calculations are used for all sorts of purposes, we may have to be prepared to use more than one system of weights. It is not at all obvious without examination that the same system of weights which is

appropriate for comparing real income over time is also appropriate for studying questions of distribution. There may be more than one Money Value of the Social Income, each corresponding to a different purpose of calculation.' (Hicks, 1940, p. 106). Without going too deep into the matter, it may be said however, that when the opinion is held -as seems to be the common case nowadays among the national accounting practitioners - that the aggregates should be seen as an expression of the amounts of goods and services produced during a certain period, and not so much as an expression of the general level of welfare, producer prices will be more appropriate because they reflect better the value of the inputs actually sacrificed in the production of the commodities in question. Although this reasoning is a straight forward one, it may be observed that its application to the valuation of subsistence output implies that it may impair to some extent the comparability between subsistence output and marketed output, since the latter is in many cases valued at retail prices, certainly if it is of a final character. In the light of this problem it might be worthwhile to reconsider the suggestion once made by G.C. Billington (1963, pp. 9-16) who recommended subsistence output to be valued at retail prices in the income and outlays account of the households, and at producer prices in the production accounts. He conceived of the differences that results from the simultaneous use of these two kinds of prices as value added generated in rural household services. Although this approach, which is also not entirely without problems (cf. Blades, 1975, p. 61) has received support from a number of experts, it has been applied in a very limited number of cases only. The Revised SNA recommends that 'Producer's' values should, as far as is practicable, be assigned to commodities in terms of market prices at the producing unit of identical items at the moment the commodities are produced (1968, 0. 95, para 6.16). In many developing countries, however, the situation is such that (agricultural)

products are not sold at the site of production (the farm) but at certain centrally-located buying points such as smaller or larger markets. Hence, the prices received by the producer (farmer) may be said to contain certain elements of trade and transport costs. The question whether such prices - when used for the valuation of subsistence output - should be adjusted to an ex-farm basis by deducting implicit transport and distribution costs seems generally to be answered in the negative. Blades (1975, p. 62) argues in this connection that the prices concerned are already producer prices by any common sense definition, since they are received by the producer. Moreover, they reflect accurately the cost involved in production even though some of them include marketing cost because in the traditional marketing system the producer can often sell certain of his products only if he is prepared to perform transport and distribution functions.

There are however more problems. In many countries, the main or sole buyer of certain cash crops is the state which buys crops through so-called marketing boards, (e.g. the Cocoa Marketing Boards in Ghana, Nigeria, etc.). This more or less monopolistic market structure allows the government to pay prices to the farmers which are not necessarily related to the production costs (including a reasonable remuneration of the entrepreneurial activities of the farmer) of the produce sold. When the prices received by the producer are below the cost of production, the negative difference may be interpreted as reflecting an element of taxation which is levied on the farmers output; evidently such prices are less suitable for valuation purposes, per se. A situation that is similar to some extent is encountered when prices received by producers from traders are reduced in order to balance with the payment of interest charges on credits supplied by the traders to the producer, as is the case in certain countries. Here, too, such an affected price is not appropriate for valuation purposes since it does not

adequately reflect the production costs of the commodity in question. It may be concluded from these examples that before a certain kind of (producer) price is adopted for valuation purposes, insight should be gained in the way the prices are formed. If price formation takes place along the lines indicated here, they should be corrected for the distorting effect if alternative, not affected prices cannot be obtained.

A point which is somewhat related, concerns the way in which the collection and the processing of the prices to be used for imputational purposes should be done. Prices may vary considerably over time and between different regions for the accounting period in question. The reasons for these fluctuations over time may be seasonal variation in supply given a certain level of demand (in the case of agricultural products), shifts in demand, etc., while variation between regions simply reflects the differences in supply and demand conditions in general, as they exist between regions. It will be clear that these variations and fluctuations should be taken into account as much as possible when prices are collected.

If an average figure is used to represent the price of a certain commodity over the accounting period, sufficient information should be available about the price of the product in various regions and at various time intervals; a weighted average is then constructed with the help of this information and the appropriate weights applied. A straightforward application of a weighted price average of a marketed product for purposes of valuation of subsistence output may not always be correct. The reason for this is that usually the weights applied in calculating the average are the proportioned quantities sold; in general there is no reason to believe that the proportion in which quantities of a certain product are sold over time or among regions during the accounting period is the same as that in which quantities of the same product have been used for own consumption over time or

among regions. Hence we would like to emphasize here, as we did also elsewhere (cf. van Heemst, 1979, p. 23), that for valuation purposes price weights should be used which reflect the patterns of subsistence consumption as much as possible.

We will now turn to the case when the nature of the subsistence output is such that no marketed equivalents do exist, for which reason no prices can be borrowed for valuation. Apart from many traditional services a well-known example often referred to is that of hut construction in rural areas. The construction of this kind of dwelling takes place for own account and for own use; it is moreover hardly comparable to any other type of dwelling that is constructed for sale in the economies concerned. As a consequence it is difficult, if not impossible to make use of a market price for valuation of the rural huts that have been constructed during the accounting period. As a consequence it is difficult, if not impossible, to make use of a market price for valuation of the rural huts that have been constructed during the accounting period. As indicated above, the valuation procedure normally applied under these circumstances is that of taking the value or cost of the major inputs used in the production. Since labour time seems to be the only major scarce input in the example of hut construction, the value of the labour used is frequently taken as a proxy for the value of the hut. This implies the use of a certain wage rate, which is then multiplied by the number of working hours involved in hut construction. The aggregate value estimate of total hut production is then obtained by multiplying the value per hut by the total number constructed.

One problem in connection with the approach as outlined here concerns the selection of an appropriate wage rate for this purpose. In most circumstances the solution adopted is that of using an average wage rate for unskilled labour as prevailing in the area concerned, the implicit assumption

being that such a wage rate would be a reasonable reflection of the opportunity cost of the labour involved in the hut construction exercise. Various authors, like for example S.G. Tiwari (1977, p.12) have expressed hesitations re the validity of this kind of reasoning, since in their view in many instances no real alternative avenues for employment do exist, for which reason reference to any particular wage rate seems an arbitrary and meaningless thing. Perhaps the only real way to account in comparative terms for labour inputs put into a particular subsistence activity is by referring to the time devoted to that activity, since this is the only unit which enables a comparison with other subsistence activities as they are also carried out by the household in question. (Cf. K. Ewusi and C. O'Loughlin, 1972, p. 385) and Blades, 1975, p. 63). However, it is clear that this latter way of accounting for subsistence activities will rule out the possibility of arriving of monetary aggregates, as a consequence which linking up with estimates in monetary terms as applied to market transactions cannot be realised any more. If the latter situation is to be avoided, there seems to exist no other alternative but accepting the use of a wage rate which has in some cases been selected on questionable grounds.

A somewhat different procedure, also involving however the use of wage rates borrowed from monetary spheres, is the one which aims at obtaining an aggregate value estimate of output - especially in the cases no marketed equivalents do exist - by basing itself on estimates of quantities (and values) relating to inputs only, ignoring entirely quantity estimates of output. Sticking to our example of hut construction, this procedure would boil down to the making of an estimate of the average time spent by the household on hut construction, after which this estimate is multiplied by a certain wage rate and by the total number of households concerned. The problem with this procedure is that although it renders an aggregate value estimate, this estimate does not involve a direct

quantity estimate of the output (huts in this example), for which reason it may be less accurate, in particular if the relationship between labour-input and output is not a stable one, but subject to variations. On these grounds preference should be expressed for use of the earlier mentioned method, which involves a quantity estimate of the output together with a value estimate of the inputs per unit of output. Above we suggested that in many cases labour will be the only scarce input playing a role. However, to the extent that other input also play a role in this connection, estimates for their value may be included as well. Thus the sum of the value estimates for the various inputs may render an expression for the total value of the item concerned.

5. Final Remarks

We will conclude this paper by summarizing some of the recommendations which have emerged from our discussions above, and by making a few points about the way in which the various kinds of estimates on subsistence activities should preferably be presented in the national accounts.

Concerning coverage of various kinds of subsistence activities it is recommended that :

- at least those referred to by the Revised SNA of the UN are included.
- in addition those which are likely to become (more) monetised are included;
- in some cases also those relating to the activities of certain target groups are included;

When these recommendations are followed, and if in addition the practice is adopted to indicate in the accounts which kinds of subsistence activities have actually been covered, one creates conditions which will enable (a) an adequate comparison between monetary and non-monetary activities; (b) an adequate insight into the soci-economic situation of particular target groups; (c) a certain degree of international comparison.

Concerning the estimation of quantities it is recommended that:

- a consumer approach rather than a producer approach should be adopted;
- when existing in a country, as much as possible use should be made of a household survey capability;
- if use is made of ratio's, proportions etc. which have not been derived from present or previous surveys, their reliability should be checked, if possible, with similar parameters as derived from surveys applying to other areas of countries.

Concerning valuation of quantities it is recommended that:

- an attempt is made, in the case of output having marketed equivalents, to value subsistence output not only at producer prices, but also at retail prices, in order to enhance the comparability with marketed output;
- if use is made of average figures to represent the price of a certain item over the accounting period, it is attempted to use price weights, which reflect as much as possible the actual pattern of subsistence production.
- an attempt is made, in the case of output having no marketed equivalent to obtain aggregate value estimates of such output by means of direct methods, i.e. involving also quantity estimates of that output.

With regard to the presentation of subsistence activities in the accounts, we would finally remark the following:

In the first place we would like to stress the importance of showing separately in the accounts the estimates of monetary activities on one hand, and those of subsistence activities on the other. This, because estimates of subsistence activities are generally less reliable than those of monetary activities, and hence have different margins of error, for which reason the former kind of estimates have to be treated more carefully than those of the latter kind. (Cf. Barkay, 1975, P. 360). Of course, this can only be done if the estimates are shown separately. Moreover, there are other good reasons as well for doing so, as has been pointed out by various writers (Cf. Blades, 1975 p. 73).

One is, that from an analytical point of view this is useful, since the determinants of the subsistence aggregates are often different from those of the monetary ones. But also policy formulation requires an explicit showing of each of the aggregates.

In our opinion, the recommendation above - which is regularly made, but seemingly not too often followed as yet - could easily be extended by what has already been suggested above, namely that an indication is given of the main types of subsistence activities of which the subsistence aggregate is composed. Such an indication of coverage may in the first place be useful for making proper intertemporal comparisons, especially when coverage changes over time. In the light of the great variation in coverage patterns between countries already earlier referred to, such an indication seems however also a necessity in the cases in which international comparisons of national account aggregates are to be made. e.g. by international agencies. A more meaningful comparison will be possible when this kind of indication is given, while giving it should in principle create no problems.

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