

Distr.
GENERAL

CES/AC.61/1999/4
30 March 1999

Original: ENGLISH

STATISTICAL COMMISSION and
ECONOMIC COMMISSION FOR EUROPE

CONFERENCE OF EUROPEAN STATISTICIANS

COMMISSION OF THE EUROPEAN
COMMUNITIES (EUROSTAT)

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT
(OECD)

FOOD AND AGRICULTURAL
ORGANISATION (FAO)

Meeting on Food and Agricultural
Statistics in Europe

(Geneva, 23-25 June 1999)

HOW TO INTEGRATE ECONOMIC ASPECTS OF AGRICULTURE WITH OTHER ECONOMIC
ACTIVITIES OF HOUSEHOLDS: FARM PLUS NON-FARM INCOME

Invited paper submitted by the Food and Agricultural Organisation*

Summary

As agriculture is a seasonal activity, agricultural and other economic activities go hand-in-hand for agricultural households. Thus to study various economic aspects for plan formulation and taking policy decision relating to the levels of living of agricultural households, it is essential to study both types of activities in one integrated frame. This need has been recognised by the 1993 System of National Accounts.

* Prepared by Mr. P. Narain, Statistical Analysis Service, Statistics Division, FAO.

This paper highlights relevant aspects of the SNA and practical considerations that need to be understood by statisticians for generating the essential data.**

1. The agriculture sector has been traditionally monitored to study (a) its contribution to the overall economic growth, (b) its impact on food consumption levels, (c) the sound use of agricultural inputs and technology of production, (d) targets for future production, and (e) export and import policies. These issues are straight-forward and data to study these aspects are generally available from agricultural censuses and surveys which refer to agricultural holdings. However, these data are limited to the agricultural activity and in all these studies the issue of the income levels of the producers of agricultural products has been left in the background. In order to study the latter it is necessary to resort to data on the economic aspects of agriculture in relation to other economic activities of the agricultural households. Some of the policy issues which could be addressed by these data would be related to the level of living of the population dependent on agriculture, the terms of trade between the agricultural and non-agricultural households, the price behaviour of agricultural products vis-à-vis taxes and subsidies, etc. Such issues are relevant not only for developing countries but also for developed countries.

2. In most countries, issues like taxes, subsidies, price control and programs related to poverty alleviation are being decided in isolation without studying their direct and indirect effects on different sectors of the economy. As agriculture is a primary activity, the "inter-relationship" of the agricultural activity with non-agricultural activities is important not only for the successful implementation of plans but also to assess the impact of governmental policies on various segments of the population dependent on agriculture. The 1993 System of National Accounts (SNA) does take into account this comprehensive need of policy makers in a more explicit

** Let me confess at the very beginning that the title of the paper gave me a tough time (although I agreed to it at an earlier stage). Economic activities, in general consist of production (and income), consumption and accumulation. It is in fact not possible consider all the economic activities of households in a short paper like this one. Therefore, taking the clue given by the second part of the title, I have made an attempt to consider the integration of farm and non-farm incomes. In practice, non-agricultural households can also have farm income, but assuming that the focus of the meeting would be on "Development and improvement of economic statistics for food and agriculture", I have further restricted the coverage of the paper to agricultural households. Thus a more appropriate title of the paper would be "How to integrate economic aspects of agriculture with other economic activities of agricultural households to study farm plus non-farm income". The author would like to acknowledge the guidance and support provided by Mr. L. Naiken, Chief, Statistical Analysis Service in refining the draft from the point of view of a practical statistician.

manner. Moreover, the 1993 SNA puts greater emphasis on the use of the accounting framework for organising the database (paragraph 1.1 of the SNA) rather only as a tool for compiling macro-economic aggregates. The advantage of this approach is that it identifies each set of the relevant databases and their interrelationships in a mutually exclusive framework. However, for the present purpose, where the focus is on agricultural households, it is necessary to go beyond the macro-framework given by the SNA. In addition recognising that the efforts of integration of farming and non-farming activities of agricultural households would have also to be directed to wards the collection of the required data through household surveys, one need to take a closer look at concepts and definitions being used for collection of data. The present paper, while enumerating alternative measures of income at a more disaggregated level within the framework of the SNA (to demonstrate the role of farm and non-farm income of the agricultural households), concentrates primarily on two conceptual issues, viz., the agricultural household and farm/non-farm income. The paper, apart from this introduction, has been divided into three parts: the first presents the practical issues in defining agricultural households; the second discusses alternative concepts of income; and the third goes into the details of farm and non-farm income aggregates.

Defining the Agricultural household

3. The 1993 System of National Accounts (SNA) has recognised that an "institutional" unit is the only economic entity that is capable, in its own right, of owning assets, incurring liabilities, engaging in economic activities and entering in transaction with other entities. A household, in the SNA, is an institutional unit by its social status. The SNA attaches great importance to the analysis of the household sector for many analytical reasons. To provide a real life situation, the SNA has integrated various activities in which a household is generally involved. This has made the sector a complex one. A household plays two different roles: first, as a final consumer of goods and services (some of which are available free of charge or at a subsidised rate) produced by other households and institutional units including the government and non-profit institutions serving households; second, as a producer of goods and services. In this capacity the household carries out various economic transactions in connection with production activities like any other institutional unit, e.g. the sale and purchase of goods and services that are produced by the household or required for carrying out production activities. The households also create assets and incur liabilities. These can be either for production or consumption related activities. One important feature of this unit of study is that unlike other institutional units which are created by the legal system, it does not maintain a strict distinction between transactions made for consumption or production purposes. Households, in most of the cases, have no legal compulsion to keep and submit returns providing details of their expenditure. Thus for in-depth analysis of economic aspects of

agriculture with other economic activities of household it would be appropriate to study agricultural households.

4. Most households include several individuals who differ in many respects including their economic status (e.g. whether they are economically active or not, and if so, in which kind of production activity or in what capacity: employer, employee or own-account worker). For this reason and to clearly understand the combination of agricultural and non-agricultural activities, it is necessary to study the agricultural households separately and in more homogeneous groups within the agricultural sector¹. Thus for the agricultural households having employers and own-account workers engaged in the agricultural activity, it may be convenient to introduce additional criteria to distinguish them, e.g., in relation to the size and type of the enterprise, holding size, the number of cattle, etc., or a distinction commonly referred to as the formal and informal activities. Although a certain degree of informal activity may exist in the developed countries, this distinction is particularly relevant for developing countries. In many of the latter countries it is crucial due to the number of people involved generally as own-account workers or employers. In general, it is not necessary to study the integration of farming and non-farming economic activities for households whose members are working as employees in any agricultural establishment for need of information for decision making. This is mainly because: (a) they have the option to go either to agricultural activity or non-agricultural activity, and (b) they are not directly affected by government plans and policies for development of agriculture. However, this sub-sector also has been included in defining the agricultural household.

5. Sub-sectoring of the household sector is one area in which the 1993 SNA recommends that the System be implemented flexibly. In the present context interest is focused on households whose resources are derived primarily from their own agricultural production. It is entirely in the spirit of the 1993 SNA to define a sub-sector of this kind. Thus following the same criteria as used in SNA an agricultural household may be defined as a household whose largest source of income is derived from the agricultural² activity. In paragraph 4 153, the 1993 SNA distinguishes three types of household income: (a) mixed incomes; (b) compensation of employees and (c) property and transfer incomes. An agricultural household is one in which the total mixed income from agriculture is larger than the total incomes received under (b) or (c) or the mixed income received from non-agricultural production. Although this approach suggested by the SNA is consistent with the suggestion made by the International Standard Industrial Classification of all Economic Activities (ISIC) for the classification of statistical units it is not feasible to use this concept for collection of data (as it would involve detailed calculations to arrive at the decision). ISIC Revision 3, realising this difficulty, states that:

"Ideally, the principal product of the unit should be determined by reference to the value added to the goods sold or services rendered. In practice it is generally not possible to obtain this information for individual products. It is therefore recommended that in such cases, the principal kind of activity be determined by the proportion of gross output of the unit that is attributable to the goods or services associated with these kinds of activity. Where this method is not applicable, the principal kinds of activity should be determined from the proportion of employed in these activities."

6. The practical suggestion made by the ISIC, which is useful for determining whether a household is an agricultural or not, could be extended further to take a more analytical approach in the collection and tabulation of data on agricultural households by taking into account agricultural holdings. In this extended approach an agricultural household can be defined in four ways - (i) taking the economic activity of the head of the household (i.e. whether operating an agricultural holding), (ii) taking the major source of income of the household, (iii) considering if any member of the household is operating an agricultural holding, or (iv) considering if any member of the household is engaged in the agricultural activity irrespective of whether he is operating an agricultural holding. All these approaches, excluding the second one, can be used without any complication for identifying an agricultural household for collection and tabulation of the required data.

7. The four approaches listed above in paragraph 7 lead to different measures of the population dependent on agriculture and serve different analytical objectives. The first approach assumes that the head of the household normally operates the holding (as it is the case in many developing countries) and by convention the household is an agricultural household. This concept is also important as the head of a household has an important role in taking decisions about the current and future (investment related) activities of the household. The second approach limits the area of study to those households who depend on agriculture to earn their livelihood. Although this group is important for many practical considerations, it has its limitation concerning data collection. In the third approach all the households operating agricultural holdings are covered. One can assume that by and large this will cover the total area under agriculture operated by households. In the fourth approach all the households dependent (fully or partially) on agriculture are included. This concept provides a comprehensive coverage of the population dependent on agriculture. A detailed discussion on this issue and related concepts is given in FAO [1978 & 1997]. However, it may be mentioned that the total output and value added produced by all agricultural households may diverge significantly from the total output and value added of all agricultural establishments, even in developing countries where most of the agricultural production is carried out by households. For example, part of the production may be carried out in the establishments owned by corporate enterprises, or even by non-agricultural

households. Conversely agricultural households may have significant non-agricultural output.

Income in the national accounting structure

8. Income from any activity, in the most common sense, is the difference between the incoming and outgoing related to the activity. However, the concept of income as it is generally understood in economics, is equivalent to disposable income as measured in the SNA. The household disposable income is the maximum amount that a household can afford to spend on the consumption of goods or services during an accounting period without having to finance its expenditures by reducing its cash balances (which it had at the beginning of the accounting period), or by disposing of its other financial or non-financial assets or by increasing its liabilities. The total of the cash balances and net value of assets (i.e. assets minus liabilities) is taken as the 'net worth' of the unit. According to the concept of disposable income used in the SNA, the net worth that needs to be maintained intact is that at the beginning of the accounting period, adjusted for the value of any capital transfers received or paid, for other changes in the volume of assets and for any real holding gains or losses accrued during the accounting period. This concept is equivalent to the economic theoretic concept only when the net worth at the beginning of the period is not changed by capital transfers or by any other changes in the volume of assets or real holding gains or losses. However, the real net worth of a unit may be changed as a result of the receipt or payment of capital transfers and as a result of real holding gains or losses that accrue on its assets or liabilities. It may also be changed by events such as natural disasters that change the volume of assets.

9. The revised SNA has put major emphasis on the analysis of income. To support various analytical needs, the accounting structure of the System is designed to provide several alternative estimates of income to clearly highlight the functioning of the economic process. It provides five alternative estimates of income to monitor the process of income generation and its distribution and redistribution:

(a) Value Added (net/gross) - a balancing item of the 'Production account' providing an estimate of income originating from the production activity of the (household) unit.

(b) Operating surplus/mixed income of the self-employed - components of primary income as obtained in the "Generation of income account" of the unit. These components provide an estimate of income accruing to the employer of the unit from the production activity of the unit.

(c) Net property income received and balances of primary income - components of primary income³ derived in the "Allocation of primary income account". The SNA has recommended the compilation of this account for

institutional units (and not for establishments). Property incomes are received as well as paid by the households and include the payment of rent on their land and interest on loans (whether to finance production or household consumption). The balance of primary income which is a balancing item of the account is the sum of three kinds of primary incomes (compensation of employees, operating surplus/mixed income and net property income) accrued to the unit (household) for its total economic activity performed during the year.

(d) Disposable income - a balancing item of the 'Secondary distribution of income account'. It is measured after allowing for current taxes on income, wealth, etc., net social contributions/benefits and other current transfers, excluding social transfers in kind.

(e) Adjusted disposable income - balancing item of the "Redistribution of income in kind account"⁴, measured after allowing for social transfers in kind.

10. The first three measures are based on the "income originating concept" and provide indicators to monitor the economic activity of the unit while the last two are based on "income accrual concept" and are useful for analysing the final consumption as well as saving and investment aspects of the unit. The magnitude of these concepts of income may differ widely at the level of the overall household sector. The differences between them are even greater for some types of households. This means that in principle it is necessary to take all of them into account to give a correct picture of the income redistribution. The SNA recommends that for depicting the complete process of income generation and distribution all accounts may be compiled.

Farm and non-farm income

11. The concept of farm (and non-farm) income depends on two factors: (a) definition of farming activity, and (b) purpose of the study. The farming activity which is directly related to the agricultural activity has been defined by the ISIC under division 01 Agriculture, hunting and related service activities and covers the growing of crops, maintaining of animal (animal farming) either singly or in a combination of the two, as well as agricultural and animal husbandry service activities. However, while studying the economic aspects of an institutional unit or an establishment it is rarely feasible to find a unit that is solely devoted to the farm activity as defined in the ISIC. In order to deal with such real life situation, ISIC has provided guidelines (discussed above) to select a unit whose principal activity is farming. In any case, if one does not artificially compile the data, income of the unit will cover both farming income as well as non-farming income. This is mainly because often it is not feasible to separate inputs, labour and assets according to the individual economic activity. However, the extent to which non-farming income is included in an estimate

depends on the stage of the analysis (reference paragraph 10 above) one is looking at.

12. The primary distribution of income account shows how the gross value added is distributed to factors of labour and capital and to government. In fact the account is subdivided between sub-accounts, in order to demonstrate the structure of the economic activity. The production and generation of income accounts records various transactions from the point of view of the unit's production activity and thus include non-farming income of those activities which are secondary and ancillary (such as making of wine, cheese, etc.) of the production process of the institutional unit. To study and make an in-depth analysis of the production process and understand the role of non-farming activities (using ISIC classification) associated with different type of main activities undertaken by the producer, the SNA has recommended the compilation of similar accounts for establishments by making uniform groups.

13. The allocation of the primary income account shows the remaining part of the primary distribution of income. It records property income receivable and payable, and compensation of employees and taxes, less subsidies, on production and imports receivable. The primary income account covers income in wider senses because it includes, apart from operating surplus/mixed income, also net property income, compensation of employees and taxes less subsidies, and production and imports receivable which are either related to the on-farm activity or any other economic activity (which may include non-farm activities also) in which members of the households are involved. Thus it takes into account the off-farm property income as well as the income of the members of the household who may be employed with other institutional units.

14. The allocation of primary income account provides an estimate of total income originating from the economic activities of the household. However, this is not the income which a household can use for meeting its needs. Households also get income by way of transfers (either in cash or in kind). In order to distinguish the two kinds of transfers in the income redistribution process, i.e., the transfers in cash and the transfers in kind, the SNA has proposed two different accounts. This distinction is made in relation to transfers between households on one side, general government and non-profit institutions serving households (NPISHs) on the other. The secondary distribution of income account covers in principle redistribution of income through transfers in cash only, while the redistribution of the income-in-kind account take into account social transfers in kind. In order to get a comprehensive look on the level of living of households (taking into account non-farm benefits including transfers which a household derives from the general government and the NPISHs) one has to compile this last set of account.

15. The above discussion indicates different forms of non-farming incomes that a household receives and the stages at which these incomes enter into the economic process. An overview of various alternative measures has been summarised in the table below. Depending upon the purpose of the study one can decide which estimate of income needs to be studied. For example, to formulate plans for the development of production technologies by improving mechanisation, the study needs to concentrate on the production and generation of income accounts while to formulate tax/subsidy related policies one needs to look at the allocation of primary income account. If the study focuses on investment related issues or the level of living of the agricultural households it would be necessary to concentrate on the secondary distribution of income account.

Account/Indicator	Data required to derive the indicator	Remarks
<u>Production and generation of income account</u> Value added (net/gross) Operating surplus/mixed income of self-employed (net/gross)	Value of output Value of inputs being used in the production process Consumption of fixed capital Taxes on production and imports	Includes non-farm income which is secondary to the production activity of the household. This mainly includes on-farm processing of agricultural products
<u>Allocation of primary income account</u> Net property income received Balance of primary income	Compensation of employees Interest received and paid Rent received and paid Other property income like dividend	Includes non-farm income of members of households employed as employees or as an owner non-agricultural establishment well as the property income (including imputed value of rent for owner occupied dwellings) of the household.
<u>Secondary distribution of income account</u> Disposable income	Current taxes on income, wealth, etc. Social contributions, Social benefits in kind Other current transfers	Measures total income in cash or kind from the production, employment or the benefits received from within the household sector.
<u>Redistribution of income in kind account</u> Adjusted disposable income	Social transfers in kind from government and NPISHs	Measures the level of living of households for intra and international comparisons.

16. This study of farming and non-farming income looks only at one side of the picture, as it does not include households whose principal activity is of non-farming type. A look at the second column shows that for analysing the impact of different economic activities of agricultural households on their levels of income etc., one needs a comprehensive data on a number of items which can be obtained only in a carefully designed household survey. The issues involved in collection of these data have been discussed in detail in Kabat et. al. (1998) with respect to the developing countries. However, some of the issues like concepts and definitions, micro-macro linkages discussed in the paper are equally important for the developed countries also.

References

1. FAO (1978), Collecting statistics on agricultural population and employment, Rome.
2. FAO (1996), A System of Economic Accounts for Food and Agriculture, FAO Statistical Development Series No. 8.
3. FAO (1997), Programme for the World Census of Agriculture 2000 : Additional Guidelines on Employment, FAO Statistical Development Series 5a.
4. Kabat et. al. (1998), Issues and Concerns for Developing Countries - by L. Kabat, L. Naiken, A. D. Marshall, and P. Narain, Paper presented at "Agricultural Statistics, 2000: an International Conference on Agricultural 18-20, 1998.
5. UN et. al. (1993), System of National Accounts, Series F No. 2 Rev. 4.
6. UN (1990), International Standard Industrial Classification of all Economic Activities, Series M No. 4 Rev.3.

END NOTES

¹ The SEAFA has already recognised the need to study "Establishments cross-classified by sector of ownership and type of production activity".

² Agriculture being defined as in the Division 01 of ISIC, Rev. 3.

³ The 1993 SNA makes a provision for another income concept or balancing item between the mixed income of the generation of income account and the balance of primary incomes. It is called entrepreneurial income and is only applicable to an institutional unit in its capacity as a producer (corporate, quasi-corporate or unincorporated enterprise). Entrepreneurial income is explained in Annex 2 4 of the SEAFA. However, the SEAFA does not recommend the calculation of entrepreneurial income as a normal rule because of the practical difficulty of measuring it properly although it was included in FAO's 1974 Handbook of Economic Accounts for Agriculture.

⁴ The SNA has recommended two more accounts, viz., use of disposable account and use of adjusted disposable account, under the structure of "Current Account". The balancing item of these accounts is saving. This one is carried forward into the capital account, the first in the System's sequence of accumulation accounts.
