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AGRICULTURAL ACCOUNTING, ITS RELATIONS TO SNA-93 AND ITS IMPLEMENTATION IN TRANSITION ECONOMIES

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1. Introduction

The agricultural policy needs a specific group of statistics which could support the decisions and observe the evolution of agriculture.

In order to measure, describe and analyse the production and the formation of income from agricultural economic activity, it was decided to develop a system of economic accounts for agriculture, providing a common methodology for all Member States.

This paper concentrates on the description of the EAA (Economic Accounts for Agriculture) compilation as a tool for elaborating information needed for the management of the Common Agricultural Policy (CAP) with particular emphasis on the necessity in developing compatible methodologies to achieve a higher degree of comparability and consistency between and inside databases.

2. Update on recent developments

a) *Needs for comparability*

From the earlier estimates of national income in 17th century up to the present, a major purpose of compiling national accounting figures has been international comparison. Comparisons are frequently made of e.g. growth rates of Domestic Product, National Income per capita and the relative size of industries in terms of value added. Comparing national economies is relevant in itself, but it also serves to put figures on a national economy in an international perspective. For example, a 5% growth rate of real net value added in agriculture can be regarded as high when referring to national growth rates in the past as well as to growth rates in other countries.

International comparability of agricultural accounting figures is also important for many specific analytical and policy purposes. For example, the European Union (EU) attributes economic aid which is frequently (partly) related to economic indicators like real net value added. Agricultural accounts figures are also used for international coordination of economic policy, e.g. trade negotiations.

b) *Present accounting rules*

At present, all over the world national accounts figures are being compiled following the international guidelines on national accounting. For analysis and policy, these national accounts figures are the central statistics on the national economy: they show the structure, level of development and changes of the national economy and put them also in an international perspective as similar figures are available for many other countries.

A new generation of international guidelines will be implemented in the forthcoming years:

- The System of National Accounts published in 1993 (the 1993 SNA);
- the European System of National and Regional Accounts published in 1996 (1995 ESA);
- and the Manual on Economic Accounts for Agriculture and Forestry (Rev. 1) published in 1997 (1997 EAA/EAF).

The 1993 SNA has been drawn up under the joint responsibility of five international organisations: the United Nations, the IMF, the World Bank, the OECD and the European Union. The 1993 SNA will apply to all countries.

The 1995 ESA and the 1997 EAA/EAF is intended in first instance for the Member States of the European Union. These are highly consistent between each other and with the 1993 SNA but much more concise and focused in particular on the circumstances in the European Union.

The standardisations and wide acceptance of accounts figures is a remarkable achievement, because it implies that a statistical framework has been developed that is relevant, applicable and comparable all over the world.

This has been achieved in various ways:

- By presenting a very general accounting structure with exhaustive and detailed classifications, e.g. of industries, products, etc.;
- by choosing a production boundary which is relevant to developed and developing countries alike, e.g., including also many types of production for own final use;
- by choosing a sector classification which shows explicitly major types of institutions relevant all over the world, e.g., the government, etc.;
- by choosing a classification of transactions which explicitly reveals many institutional differences.

c) *Globalisation*

Globalisation refers to the increasing interactions between countries and regions all over the world: Goods, services, financial flows, information (faxes, phone-calls, TV-news and communication via internet), pollution and people (tourism, etc.). The influence of globalisation on the accounting rules is evident in many respects:

- More attention is devoted to environmental consequences: This reflects an increased attention for one of the most typical global problem;
- the SNA is now also applied in CEEC/NIS countries; previously a fundamentally different system of national accounts (the Material Product System) was applied;
- differences between the national system of accounts and the international standard are considered to be less desirable and acceptable;
- the explicit requirement in revising the European guidelines on accounting (ESA 1995, 1997 EAA/EAF) was consistency with the SNA 1993. So despite having guidelines of their own, the EU Member States fully accept the SNA 1993 as a world and European standard.

3. Main consequences of the revision of the EAA

In 1997, the revision of the methodology of the Economic Accounts for Agriculture (EAA), a consequence of the revision of the European System of Accounts (ESA), has been concluded. The principal changes made to the basic methodology of the EAA published in 1989¹ are outlined in the following paragraphs. These changes related to the following elements:

- The basic unit;
- output;
- intermediate consumption;
- distributive transactions;
- gross fixed capital formation
- classification.

a) *Basic unit*

Under the revised EAA, the “local kind-of-activity unit (LKAU or local KAU)” replaces the “unit of homogenous production” as basic unit for the description of the production process, the primary income deriving therefrom and the technical and economic relations between units. By grouping and classifying all local KAUs according to their principal activity, the economy is broken down into branches of activity or “industries”. The agricultural holding is the most appropriate local KAU for the agricultural “industry”.

As the agricultural holding, used as local KAU, can have non-agricultural secondary activities which are not separable from agricultural activities, the main consequence of the use of the LKAU as the basic unit is the inclusion of these secondary activities (the processing of agricultural products, rural tourism, forestry and fishing, etc.).

¹ EUROSTAT: Manual on Economic Accounts for Agriculture and Forestry, Theme 5 Series E, Luxembourg, 1992.

b) *Output from agricultural activity*

Besides the inclusion of the output of certain non-agricultural secondary activities, there is another important consequence for the measurement of the agricultural “industry’s” output resulting from the change in the basic unit and the change from the homogenous branch to the agricultural “industry”. This is the inclusion of transfers of agricultural output between agricultural units (farms) for intermediate consumption purposes (i.e. intra-”industry” consumption). This means that the concept of the national farm, which was used as the conventional measure of output, has been dropped.

It has been replaced by a measure of output adapted from the ESA 95 rule, this adaptation being justified by the special character of the agricultural “industry”. In addition the total output of the “industry” must include the output used as intermediate consumption within the same unit (intra-unit consumption) during the same accounting year, as long as the following criteria are met: (i) this output concerns two different basic activities (e.g. grain for feedingstuffs), (ii) the agricultural product should have a significant economic value for a significant number of farmers, and (iii) data on prices and quantities must be available without too much difficulty.

Output, whether intended for sale or some other use, is valued at the basic price, which is defined as the price received by the producer after deduction of any taxes on the products but including any subsidies on products (this applies particularly for the new CAP reform subsidies, i.e. compensatory payments for arable crops and premiums for livestock, which are considered as product-specific). Valuation of seasonal output and changes in stocks has been adapted in accordance with the general principles of the ESA 95.

Income from the renting of intangible non-produced assets (i.e. of production rights such as milk quotas) has to be recorded as output of agricultural activity.

c) *Intermediate consumption*

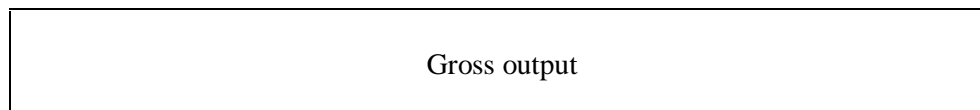
Intermediate consumption represents the value of all goods and services used as inputs in the production process, excluding fixed assets whose consumption is recorded as fixed capital consumption. The goods and services concerned are either transformed or used up in the production process. In a detailed classification by different categories of items, intermediate consumption shows the interlocking of agriculture with other branches of the economy brought about by inputs. Intermediate consumption is also a good indicator of the intensity of production in agriculture.

The following components are also included in intermediate consumption:

- Trade in agricultural products between agricultural holdings (with the exception of livestock and standing timber as well as services linked to such trade);
- certain agricultural products used as intermediate consumption items within the same unit (when they concern two different basic activities and are recorded in the measurement of output);
- payments for the use of intangible non-produced assets (i.e. production rights such as milk quotas).

Excluded from intermediate consumption are payments for the use of fixed assets acquired by financial leasing and imports of livestock (serving as stocks), the latter being deducted directly from output.

Schematic representation of resources and uses of agricultural products



Losses	Usable output					Initial stocks (IS)
Total available resources						
Intra-unit consumption	Processing by producers	Own consumption	Total sales	S(*)	Final stocks (FS)	
					FS-IS (**)	

(*) S = Own-account produced fixed capital goods

(**) FS-IS = Change in stocks. In the above diagram, the final stocks are assumed to be greater than the initial stocks

d) *Distributive transactions*

The new method of output valuation means that a fundamental distinction has to be made between taxes/subsidies on products and other taxes/subsidies on production. All distributive transactions are recorded on the basis of rights and obligations (i.e. at the date when a claim or an account payable is created, converted or paid off) and no longer on the basis of the “payment criterion” (i.e. no longer at the date of payment).

e) *Gross fixed capital formation*

The scope of gross fixed capital formation (GFCF) has been expanded to include intangible assets (mainly agricultural computer software) and assets acquired by financial leasing.

f) *The classification*

The Economic Accounts for Agriculture and Forestry are an integral part of the European System of Accounts and therefore for their compilation, use is made of the SOEC’s General Classification of Economic Activities, NACE Rev. 1.

NACE Rev. 1 is a 4-level nomenclature of activities which was compiled in 1990. It is in fact a revision of the General Industrial Classification of Economic Activities within the European Communities, or NACE, which was first published by the SOEC in 1970.

NACE Rev. 1 is a more detailed version of ISIC Rev. 3², adapted to specifically European circumstances. NACE Rev. 1 is also directly linked to the Statistical Classification of Products by Activity, within the European Economic Community (CPA), which in turn is based on the United Nations’ Central Product Classification (CPC).

4. Agricultural Income Indicators

² ISIC Rev. 3: United Nations International Standard Industrial Classification of all Economic Activities

One of the principal objectives of the economic accounts for agriculture is to measure agricultural income and changes therein.

a) *Definition of measure and balancing items*

Income can be defined as the maximum amount which the beneficiary can consume over a given period without reducing the volume of his/her assets. It can also be defined as being the total of the consumption and change in value of assets held over a given period, all other things being equal, as income represents what *could have been* consumed. The distinction made in the ESA 95 between current accounts and the capital account enables maximum potential consumption to be studied using the measure of consumption and saving in the current accounts and that of the change in the value of assets in the capital account.

The sequence of accounts of the agricultural “industry” makes it possible to calculate three balancing items which can be used as an income aggregate for the agricultural “industry”: net value added, net operating surplus (net mixed income) and net entrepreneurial income. The relationship between these items is set out in the following:

Production account income	Generation of income account	Entrepreneurial account
P.1 Output P.2 - intermediate consumption K.1 - consumption of fixed capital	B.1n Net value added D.1 - compensation of employees D.29 - other taxes on production D.39 + other subsidies on production	B.2n Net operating surplus D.41 + interest received* D.41 - interest paid D.45 - rent paid
B.1n = net value added	B.2n/ B.3n = net operating surplus (net mixed income)	B.4n = “net entrepreneurial income”
D.29 - other taxes on production D.39 + other subsidies on production		
Net value added at factor cost Factor income		

* Only interest received by agricultural units organised as companies

Net value added of the “industry” measures the value created by all the agricultural LKAUs, after the consumption of fixed capital. Given that output is valued at basic prices and intermediate consumption is valued at purchaser prices, net value added contains subsidies on products less taxes on products. **Net value added at factor cost** (defined as net value added at basic prices less other taxes on production plus other subsidies on production) measures the remuneration of all factors of production (land, capital, labour) and can be termed “factor income”, as it represents all the value generated by a unit engaged in a production activity.

Net operating surplus measures the yield from land, capital and unpaid labour. It is the balance of the generation of income account which indicates the distribution of income between the factors of

production and the general government sector. The net value added and net operating surplus are calculated for the “industries”.

Net entrepreneurial income, obtained by adding the interest received by agricultural units organised as companies to the net operating surplus and then deducting rent (i.e. farm and land rents) and interest payments, measures the compensation of unpaid labour, remuneration from land belonging to units and the yield arising from the use of capital. It is similar to the corporate-accounting concept of current profit before distribution and taxes on income. Although net entrepreneurial income is not always calculated for “industries”, it can generally be evaluated for the agricultural “industry” as it is possible to determine the components of interest and rents linked exclusively to agricultural activity (and to secondary, non-agricultural activities).

It has to be borne in mind that the income aggregates, obtained as balancing items of the sequence of accounts of the “industry”, are not indicators of total income or of the disposable income of households employed in agriculture, because the latter, in addition to their purely agricultural income, may also have income from other sources (non-agricultural activities, remuneration, social benefits, income from property). In other words, agricultural income must not be regarded as farmers’ income. Moreover, this measure of income relates to the income generated by agricultural activities (as well as secondary, non-agricultural activities) over a given accounting period, even though in certain cases the corresponding revenues will not be received until a later date. It does not, therefore, constitute the income effectively received in the course of the accounting period itself.

b) *Definition of the agricultural income indicators*

The three agricultural income indicators can be described as follows:

- **Indicator A. Index of the real income of factors in agriculture per annual work unit**
This yardstick corresponds to the real net value added at factor cost of agriculture per total annual work unit³.
- **Indicator B: Index of real net agricultural entrepreneurial income, per unpaid annual work unit**
This indicator presents the changes in net entrepreneurial income over time, per unpaid annual work unit. Converted into the form of an index for each Member State, it provides information on trends rather than on income levels. It is most useful in those countries where agriculture is organised in the form of sole proprietorships. On the other hand, in view of the existence of “conventional” companies which generate entrepreneurial income exclusively with paid labour, Indicator B is overestimated in comparison with a notion of individual income. This drawback may prevent a comparison of income levels between Member States if the proportions of “conventional” companies differ very much.

³ In order to take into account part-time and seasonal work, agricultural employment or changes therein are measured in annual work units (AWUs). One AWU corresponds to the input, measured in working time, of one person who is engaged in agricultural activities in an agricultural unit on a full-time basis over an entire year. A distinction is drawn between unpaid and paid AWUs, which together make up total AWUs.)

- **Indicator C: Net entrepreneurial income of agriculture**

This income aggregate is presented as an absolute value⁴ (or in the form of an index in real terms). It allows comparability over time of the income of the agricultural “industry” between Member States.

5. Future work

- Member countries of the European Union will be able to implement the revised methodology in 1999 and calculate the described income indicators;
- Member States of the European Union will transmit in 1999 for the first time the revised Standard Data Transmission Table;
- development of a common revised EAA questionnaire for EU Member States and transition economies ensuring consistency and a balanced approach with respect to the accounting rules and recommendations;
- extension of the EAA framework through investigations on adding capital stock measures/net worth;
- establishment of an inventory of the procedures and basic statistic used to calculate value added in agriculture and its components;
- in early 1998, Eurostat has drawn up a work programme to assist Central and East European Countries for the implementation of the revised EAA methodology.

6. Conclusions

In this paper we have investigated the future of the agricultural accounts in view of four general trends: globalisation, European unification as an example of regionalisation, automation and more market oriented-governments.

Agricultural accounts statistics will continue their role as a central overview-statistic on agricultural income situation on the macro-economic level.

Globalisation and regionalisation will increase the potential use of agricultural accounts figures. This reinforces requirements on international comparability and standardisation as evidence by the European experiences.

The major challenges for the agricultural accountants are to clarify the need for good-quality agricultural accounts statistics, to make agricultural accounts statistics more attractive, to improve compilation methods and concepts, to give guideline on the proper use and misuse of agricultural accounts statistics and to find the proper balance between the standardisation required for international comparability and credibility and the heterogeneity required to meet specific purposes and circumstances.

⁴ This measure of income corresponds to the former measure “net income from family agricultural activity” for sole proprietorships.