

PART II

AGRICULTURE HOUSEHOLD INCOME AND WEALTH

VIII CONCEPTUAL FRAMEWORK – INTRODUCTION

VIII.1 Matching indicators to policy needs in countries at different levels of economic development

Indicators of household income and wealth in the agricultural sector must be seen in context. A guiding principle in the design of statistical systems of countries, irrespective of their level of economic development, is that indicators should reflect the policy purposes for which they are needed. Writers on statistics typically identify many of the same features of “good” quality, though the terms used may vary (see, for example, Brackstone, 1999; de Vries, 1998; Elvers and Rosen, 1998; Holt and Jones, 1998). Accuracy, coherence, consistency, continuity, timeliness, accessibility, presentation and comparability over time and space are normally mentioned. All these may be classed as “intrinsic” properties of statistics. “Relevance” is another key characteristic, although this differs in nature from the other “intrinsic” characteristics, in that it is dependent on the validity of the link between what decision makers get and what they need in order to make appropriate policy decisions.

The relevance of indicators of income and wealth for agricultural households comes in large part from the aims of agricultural policy. Though they only represent one component of the population of rural areas, and in many industrialized countries a small and declining one, they are the focus of substantial government interest. In addition, within the public sector, policies on deprivation, economic development, sustainability, trade liberalization and environmental quality would find such statistics useful if their aims are to be properly serviced and the performance of policy interventions to be assessed. Others groups also needing the information include academics and commercial firms, such as those in the industries upstream and downstream from farming.

Among the policies directed at agriculture, two groups are encountered. Firstly, there are the government interventions concerned directly with the well-being of people in the agricultural sector. In less developed economies the emphasis is on poverty. Some industrialized countries express aims in a generalised way (such as the EU’s Common Agricultural Policy objective of ensuring a “fair standard of living for the agricultural community”), some have had explicit targets for the incomes of their farm operators, while yet others are more concerned with creating the economic conditions in which competitive firms can generate a satisfactory income (for a review see Hill, 2000).

Secondly, there are other policies that have indirect links with the incomes of farmers. Enhanced rewards have been used as a way of encouraging a range of responses from farm operators, such as to expand the supply of farm commodities for reasons of food security or trade enhancement or, more recently in heavily populated industrialized countries, to provide more environmental services. A common result of such incentives has been to increase the personal incomes of farmers, something that makes difficult the removal of the incentives if circumstances change and policy aims shift.

Income and wealth are only partial indicators of well-being. In industrialized countries other factors to consider are the ability to control one’s own environment, quality of working conditions, independence etc. and in less developed ones these include the more fundamental issues such as life expectancy, food

security and health.¹ Here we are concerned primarily with *economic welfare* - those economic causes of utility in the form of goods and services and the command over their consumption that income and wealth provides. Other causes of satisfaction - so-called “psychic income” - are beyond our present consideration but should not be ignored. For example, the general lack of success of various publicly funded schemes aimed at encouraging farmers to retire by compensating them for the money income they would forego can be explained in part by their failure to recognize the importance of the loss of non-pecuniary rewards from farming.

Agricultural income problems

Observation of the documentation, rhetoric and practice of policy suggests that farmers and their households are caught up in income problems that are widespread and characterize the agriculture industry, at least in periods of relative peace in international relations. While these are expressed here in relation primarily to the agricultures of industrialized market economies, there is much in common between countries at all stages of economic development. These income problems are as follows:

- (a) The particularly low-incomes in certain regions or sizes of farm (the *poverty issue*). At the same time the occupiers of other farms may have high incomes, so that the heterogeneity of the income situation presents a problem in describing the (income) poverty issue in agriculture as a whole and in designing policy to address it. Poverty is of particular relevance in less developed economies.
- (b) The variations of income experienced by the individual unit (farm household) over time (the *instability issue*). Again this may vary between region, type and size of farm and will be a more pressing issue among low-income farmers, where periods in poverty may result. While incomes from agricultural activity are inherently unstable, the presence of other income may dampen the impact on total household income.
- (c) The general levels of rewards of those engaged in farming compared with earnings in other sectors (termed the *parity issue*). This is often expressed in terms of the incomes of people working in agriculture compared with those in other groups in society or the national average. However, for self-employed farmers these incomes are a mix of rewards to labour, capital and land and the issue of parity includes the return to investments in land and capital assets as well as to labour. A major factor in explaining the apparently low reward to land is that its value is determined in a market, typically very small in relation to the total stock, that is often dominated, on the demand side, by existing farmers trying to expand. By spreading fixed costs, a possibility often opened up by technical advances that require larger-scale production, they can reap the benefits of lowering average costs. However, expanding farmers bid up land prices to levels that are determined by their margins over variable costs, not by total costs, and thus land appears very expensive in relation to average profits.
- (d) Partly as a result of this last point, and because in market economies public support to farm incomes tends to be capitalized into higher land prices, income problems are often seen among farm occupiers that are often also owners of substantial amounts of wealth. Wealth is even more unequally distributed than are incomes, and farmers who own land are likely to have a markedly different economic status from those who are tenants or where land rights are poorly defined. It is perhaps worth noting that the wealth of farm

¹ The OECD has developed a list of social indicators.

households is usually ignored when discussing the need for policy intervention to tackle income problems.

The first three of these points are the same trio of central components of “the farm problem” that have been identified in the United States and summarized by Gardner (1992).

Parity and poverty are concerned essentially with the welfare of farmers and their dependants. Instability is somewhat different. A low farm income in a single year may not immediately throw the recipients into the poverty category. Reserves will be drawn on or borrowings made to maintain living standards through times of temporary financial setback. Thus in industrialized countries it is important to distinguish between those farm households that have to contend with occasional periods of low-income and those that suffer hardship from incomes that are persistently low. However, when year-to-year fluctuations are anticipated, the level of consumption by farmers and their households may have to be curtailed in order to set aside reserves for years of low-incomes or to pay for past borrowing in lean years. Farmers may have to be content with generating a safer but lower income, with consequences both for consumption possibilities and the potential for the business to grow. However, the implications for farm families of sudden falls in income may be far more serious in a low-income country than in a developed one, so the issue of instability is likely to be viewed differently.

Secondary to these three main strands are other issues, some of great importance, which are believed to be related to a significant extent to incomes from farming. Among the most prominent of these are beliefs that incomes of farming households have a substantial impact on the following:

- (i) The level of general economic activity and employment in rural areas, especially in those suffering from unfavourable natural conditions, such as hill and mountain areas, where alternative employment opportunities also tend to be limited. Support for farming in these areas is seen as a way of promoting the viability of the rural economy. In less developed countries this line of reasoning is stronger than in many industrialized ones where farming now often accounts for only a small part of the economy, even in rural areas.
- (ii) The pursuit of practices to conserve the natural environment, with the assumption that adequate incomes are a prerequisite for conservation at the farm level. While it might be expected that this income would come from farming, situations can arise in which the ability to undertake environmentally beneficial actions comes from off-farm sources.
- (iii) The rate of technological advance. Though not an argument heard so loudly in industrialized countries in times of agricultural surpluses, the notion that a prosperous agriculture was necessary to encourage the development of new technology and its uptake through rising levels of investment and capital stocks was built into the thinking of post-war agricultural policy in the UK and in Europe more generally. A prosperous farming sector produced thriving support industries, with more jobs and income arising from exports of modern machinery and chemicals. But again there is evidence that the on-farm investments can be funded by resources earned in other sectors.

With each of these three income-related issues there are alternative ways of bringing about the desired ends other than through changing the incomes of farm operators. There may be superior ways of stimulating rural employment or of conservation than by using farming and farm operators as vehicles.

In addition, the implementation of policy may throw up situations where income information is important. By no means the least significant of these is to facilitate policy reform. If, as an operational objective resulting from budgetary constraint or international agreements on world trade, it is necessary to change the present pattern of support to agriculture, the reforms will carry implications for the economic situation of people operating agricultural businesses and others working in this industry. To get changes accepted within the political system it may be necessary to consider the provision of compensation for income forgone or to introduce adjustment assistance (such as diversification grants, training schemes, creation of other jobs for farmers and their families etc.).

VIII.1.1 Types of income and wealth statistics needed

To service such aspects of policy mentioned in the previous sections, statistics on agricultural household income and wealth are required. A more specific guide as to what is needed, at least in a European context, is provided in the methodology handbook of Eurostat's Income of the Agricultural Household Sector (IAHS) (Eurostat, 1995) which states that the objective of its sector-level statistics was to generate an aggregate income measure, using harmonized methodology, in order to:

- (i) Monitor the year-to-year changes in the total income of agricultural households at aggregate level in Member States.
- (ii) Monitor the changing composition of income, especially income from the agricultural holding, from other gainful activities, from property and from welfare transfers.
- (iii) Enable comparisons to be made in the development of total incomes of agricultural households per unit (household, household member, consumer unit) with those of other socio-professional groups.
- (iv) Enable comparisons to be made between the absolute incomes of farmers and other socio-professional groups, on a per unit basis (Eurostat, 1995):

To this list can be added objectives that relate to the distribution of incomes and wealth that only microeconomic results can furnish:

- (v) Describe the distribution of the above in terms of policy-relevant breakdowns, including by size and type of farm, by region, by socio-economic composition of household, by professional nature of the household, by income and level of wealth and other parameters of the farm and the agricultural household the need for which may become apparent. This will include, for example, households deemed to be operators of commercial farms, of subsistence producers, hobby farmers etc.
- (vi) As a subset of the above, to provide information on cases whose low-incomes can be deemed to place them in poverty (the criterion for which may be determined in various ways).
- (vii) Provide information on the levels and distributions of the wealth of farm households (assets, liabilities, net worths) and how these relate to the income situation of the same households.

Whatever the particular policy aim, from the statistical perspective of quality of information, it is important to ensure that statistics on income are linked with the appropriate institutional unit. As the United States AAEA Committee on Economic Statistics stated in 1972:

“Only when the basic economic structure of the industry can be described accurately by our data system will analytical accuracy be possible in dealing with the performance and behavioural characteristics that are the focus of most economic analyses.” (AAEA, 1972)

VIII.2 Households as economic, social and cultural units and as agents for environmental change and conservation – controllers of resources and users of services

The focus of this part of the Handbook is on the income and wealth of agricultural households, in most countries the most numerous type of producing unit of agricultural commodities. Their response to economic signals is critical to supply and to the use of factors of production, including land. Households, however, are more than units of production, which may be combined with other forms of economic activity between which the boundaries are permeable. They are also units of consumption. Offutt (2002) points out that, while taking an overall view of the household when modelling its behaviours has appeal in the setting of farm policy analysis, the agricultural household is a special and complex case because decisions have to be made on how to allocate time and resources among the farm business producing marketable output, off-farm wage labour, and the time devoted to leisure and to all other household activities (e.g., child rearing, hobbies, vacuuming). The household may produce food for its own consumption as well. Moreover, there is a somewhat hazy margin between production and consumption, exemplified by the use of the farm dwelling as both a business and a domestic asset.

As noted above, the standard of living of the agricultural community is a matter of central concern within agricultural policy, though precisely which households form this community has rarely been set out explicitly and is thus capable of various interpretations. The standard of living is, essentially, associated with the level of consumption that takes place. The household is a prime unit, and income a key determinant, in the measurement of potential consumption.

Agricultural households are also social units and are important to the cultural identity of rural areas. The “family farm” is a potent if imprecise concept that shapes the direction of much policy aimed at agriculture. Different countries have their own ideas of what comprises a family farm. While family operation and management is a central feature, farm size, the opportunity for family members to work together and continuity of succession are also used. Certainly the desire to pass on a farm business to the next generation is a major aim of a substantial share of farmers, particularly where its size allows it to be a viable business. While the precise nature of the sort of society that policy is intended to promote and preserve is not often clearly articulated, it is clear nevertheless that in many countries there is a belief that conserving an agriculture structure dominated by household-firms is an effective way of protecting the social fabric. Often this extends to the cultural attributes that are associated with small-scale farming, such as local traditions and languages, especially in the more remote rural regions. Thus there is often political will to support the incomes of farm families as a way of achieving cultural aims. In the EU this forms part of the rationale of rural development policy and the subsidies provided to farmers, especially in disadvantaged areas (mostly hill and mountain regions), with the incomes of farms seen as a key indicator. Many industrialized countries also have special legislation in place, especially on taxation, to facilitate inter-generational transfer of land.

Agricultural households, through their occupancy of land, and frequently their ownership of it, are also important agents of environmental character and change. As a major category of land user, the management decisions taken by agricultural households can affect the appearance of the countryside, biodiversity and environmental quality. Financial incentives are commonly offered to manage land in particular ways, such as agri-environmental agreements. These will feed through to the income situation of the household, providing a link between its functions as an environmental and an economic unit. There are also strong links between the social and environmental functions, in that major land use changes are often associated with the period when control of the farm passes from one generation to the next.

In developing statistics on agricultural households care has to be taken to acknowledge its complex nature. The notion of a “triple bottom line” may be helpful in this respect – meaning that, when dealing with households, their economic, social and environmental significance must be borne in mind. The income and wealth of farmers and their families certainly have links to all three.

VIII.3 Concepts of income and wealth and related indicators

Statistics on the income and wealth of agricultural households are the end-point of an information system. Before the data on which the statistics are based can be collected, there are the crucial stages of “conceptualization” and “operationalization”. “Conceptualization” involves developing concepts that are “capable of portraying and reducing the nearly infinite complexity of the real world in a manner that can be grasped by the human mind” (Bonnen, 1975). As concepts cannot be measured directly, “operationalization” involves defining variables that are as highly correlated as possible with the aspect of reality that is being examined. In the United States, Bonnen has stressed the significance of adequate conceptualization if the agricultural information system is to perform satisfactorily (Bonnen, 1975; 1977). In the UK this concern has been expressed in relation to national accounts, Holt and Jones (1998) pointing out that “It is rare for the concepts that we strive to measure to be driven by a well defined theoretical construct”. However, only if this first step is reliable can “operationalization” be undertaken adequately; “.. no matter how well one manipulates the numbers, one may still be measuring the wrong thing” (Bonnen, 1975). “Conceptualization” is the responsibility of both statisticians (who constitute a major part of the “data system”) and of members of the “inquiry system”, outsiders who are not involved in the routine of actual statistics production and who therefore can contribute a more detached view (for example, consultants, academics etc.).

Conceptualization is not easy even in static conditions. In the dynamic economic and technical environment of the 21st Century, the changing nature of agriculture has presented a moving target, opening a gap between the conceptual basis of existing statistics and reality. Such shortcomings in statistics can be more insidious than failure in the “intrinsic” characteristics (inaccuracy because of poor response rates etc.) because conceptual obsolescence is not readily quantified and because it usually a gradual process. The need to generate statistics on a regular basis may divert attention from any widening gap, while the protection of institutional interests and human capital in existing concepts and systems of measurement will tend to marginalize any gaps that are allowed to surface. This Handbook represents an attempt to fill an important gap in the existing statistics on agriculture by facilitating the development of statistics on the wealth and income of agricultural households.

Several indicators of income and of wealth are pertinent to the purposes for which they are needed, outlined in the previous section. The two most obvious income measures are *total income* and *disposable income*. The details of both are considered later (Chapter X), but they can be introduced here in general terms. **Total income** would be used to describe the composition of the resources flowing towards household from their engagement in agriculture and from a range of other sources and how these resources differ over

time, place and among different groups of agricultural households. These resources comprise both income in money terms (profits, cash wages, interest received, social benefits etc.) and in kind (goods and services).

Disposable income bears a more direct relationship with economic welfare as it relates to command in the market over goods and services, what is left over being saved. Certain deductions take place from total income over which the individual or household has no short-term influence. Examples include income tax and social insurance payments. Only after these have been met is the household able to spend on consumption. Disposable income is thus of particular interest to analysts concerned with poverty and the distribution of incomes available for consumption and saving. It may be adjusted to take into consideration items that the state often provides in kind, such as education and health care, thereby permitting an improved comparison between countries that differ in the level of public provision of these benefits.

Comparison between farm households and those of other socio-professional groups is an important step in meeting the common policy requirement that farm families should have a standard of living comparable to other groups. This comparison would be expected to be on the basis of disposable income but with the precaution that the different types of income that the groups receive are treated fairly. Examples include the adequate identification and valuation of income in kind that farm households can enjoy by being occupiers of land (such as cheaper food that they produce themselves) and, in the other direction, the extra costs of consumer goods, higher travel costs and reduced availability of goods and services that are (sometimes) faced in rural areas.

However, as will become clear in Chapter X, the details of both income concepts are by no means straightforward. For example, are the costs of travel to work to be treated as a negative item when calculating disposable income, as without them no earning would take place? Farmers generally avoid this cost but it can be important to people who do not work at home. In addition, the availability of data may be a serious handicap. Thus there may be difficulties in making satisfactory comparisons, particularly between the households of farmers and other socio-professional groups, and between farm households in different countries. Sometimes a trade-off will be required between what is in theory a preferable basis for making comparisons and the practicalities of measurement.

Among the indicators relating to wealth, primacy is usually given to the stock measure of **net worth** (the value of assets less borrowings) of the household. Again, there are many issues of detail and these are discussed in Chapter XII. For example, among the assets, while private property presents some problems of valuation, difficulties extend to other things like pension entitlements. Where farms are partnerships, or where the land is owned by different people from those who own the farm business, the idea of the net worth of a single household may be difficult to establish.

A further major issue, that links (current) incomes and net worth, concerns changes in the real values of assets and liabilities. These can be very important in agriculture. While accumulation of capital can come from savings out of disposable income, and things like gifts and inheritance can play a part, changes in value of assets can also come from (real) capital gains and losses. Moreover, reductions in the real value of liabilities (in times of inflation) can achieve a similar result. Accounts for income and capital are linked, and it is sometimes a matter of choice whether, for example, a capital gain is included or excluded from the measures of income or whether non-regular items in the resources flowing towards households, such as bequests of money or lottery wins, should be seen as income or as capital transfer. In theory, a measure of "**economic status**" is available that combines income and wealth into a single measure that represents the combined potential command over goods and services, but this has rarely been used in an agricultural context. These issues are explored further later in this Handbook and some practical recommendations are made.

VIII.4 Households and other forms of institutional units within accounting and statistical systems

A distinction central to this Handbook is that between the activity of agricultural production and the institutional units that are responsible for it, of which the agricultural household is the most numerous example in the agricultural industries of many countries (though they often account for a smaller share of overall production). This distinction between the activity and the institutional unit is critical to the accounting framework within which income statistics are generated.

VIII.4.1 Accounting frameworks

To be internationally comparable, statistics on the income and wealth of agricultural households have to share a common conceptual framework. Departures from this base are possible for reasons of circumstance, which may be both theoretical and practical, but the framework nevertheless can act as a reference to which these variations may be reconciled by bridges.

Two possible types of accounting framework are encountered that affect many aspects of the methodology encountered in this Handbook – **aggregate accounting** as represented by national accounts, and **microeconomic accounting**, as seen in farm or household accounts. The alternative approaches are reflected in definitions that, while being similar, differ in matters of detail that are often important to the way the results are interpreted. This is well expressed in a passage relating to income concepts from the report of the Canberra Group of international experts on household income measurement (Canberra Group (2002) section 2.2.1).

“The macro-analyst is interested in the aggregate of household income as it fits into the macroeconomy as a whole, and approaches its construction in a top-down manner.Exhaustiveness of the definition is also very important to the macro-analyst, as is its consistency with the definitions of income of the other institutional sectors: no theoretical gaps can be left unfilled, even if in practical terms imputations and estimations have to be widely employed when actually compiling the statistics.

The micro-analyst on the other hand is primarily interested in the measurement of income distribution. Conceptually, this means that the definitions are driven mainly by what the individual perceives to be an income receipt of direct benefit to him or herself, which results in a bottom-up approach to the construction of a definition. The means of payment is a major discriminatory factor and the rationale behind the payment is subsidiary. Practically, definitions have also to be constrained by what it is feasible to collect in household surveys or what is available at the household level in relevant administrative sources. In fact these two considerations – the conceptual and the practical – will usually result in the same choices, since if individuals perceive a receipt to be of direct benefit to them they are much more likely to be able to provide reliable data on it.”

The UN's System of National Accounts (SNA), in its latest (1993) versions (hereafter referred to as SNA93) is probably the most universally accepted set of international accounting conventions (UN, 1993). It forms the basis of much of the economic statistics that already exist for agriculture in countries at all levels of economic development. The FAO's *System of Economic Accounts for Food and Agriculture* of 1996 (SEAF96) is based on it. The SNA93, though aggregate in nature, also commonly acts as a benchmark for microeconomic accounting and thus constitutes the starting point for this section of the Handbook. Attention is also drawn to other frameworks, mainly microeconomic ones, where necessary.

The SNA93 contains guidelines relevant to the development of statistics on households. However, the central focus of the SNA is on national accounting and economic aggregates. For many purposes to do with agricultural policy and rural development the prime concern is with what happens at the level of the individual agricultural household. The concepts and approach of the SNA93 need modification before they can be applied in the context of microeconomic statistics. For example, the concept of disposable income viewed at sector level contains items (both positive and negative) that would not be included in household-level studies or would be treated differently. (The definition of income is taken up in detail in Chapter X.) Reconciliation is possible given the information on the definitions used, though the existence of what are apparently different figures may be confusing for the non-expert.

Another example of macro-micro disparity, which is a common feature of official statistics, occurs with the interpretation of what is a household. Some large institutional social units (such as religious communities) are treated in the SNA93 as being within the households sector, though they would not normally be seen by policymakers as typical targets for agricultural income support, nor are they usually included in household budget surveys.

It should be noted that the SNA93 does not make recommendations specific to agricultural households and the measurement of their income and wealth. Rather, it gives general recommendations by which the households sector might be broken down into sub-sectors, of which agricultural households could form one. In practice few countries attempted to do this (Germany and France being exceptions) before Eurostat took an initiative in the late 1980s to encourage a general disaggregation of household sector accounts as a means to develop income statistics for the agricultural household (sub)sector in a manner that automatically generated comparable results for a range of other socio-professional groups (Eurostat, 1995).

The alternative to the SNA93 as an accounting framework for calculating income is to adopt a microeconomic approach. Within the EU there is a network of family budget surveys and Eurostat has published multinational tables of results. While a fully harmonized methodology has not been developed and published (along the lines, for example, of the EU Farm Accountancy Data Network for the results of farm businesses in the EU), nevertheless inventories have been compiled of how Member States interpret key elements in the methodology and recommendations have been laid down (Eurostat 1980, 1981, 1990, 1993). Countries were found to adopt differing approaches to details (such as whether domestic servants living with their employers were treated as part of the household or as a separate household) while maintaining broad conformity to the main concept. Indeed, it might be argued that such flexibility of detail is needed to reflect differing socio-economic conditions.

A recent major step in developing a methodology for use at household level has been the *Final Report and Recommendations* from the Expert Group on Household Income Statistics (the Canberra Group), published in 2001 (Canberra Group, 2001). This group contained representation from the statistical offices of some sixteen countries and many international organizations, including Eurostat, the International Labour Office, the OECD and the World Bank. Experience of existing projects to improve and use household-level statistics were included, notably the Luxembourg Income Study (LIS); this is not an EU project although Eurostat and the OECD are partners in it. The Canberra Group's recommendations acknowledge the SNA93. They are likely to set international standards in the areas to which they apply, and in particular for assessing how the distribution of income is changing over time and, in particular, the issue of poverty.

The issue of sub-sectoring is not tackled by the Canberra Group, though household budget surveys (the main data source for microeconomic work) have commonly grouped households by the occupation of the head of household, as have other microeconomic studies based on tax data. No specific treatment of agricultural households is mentioned. This is perhaps surprising given the overlap between a main driver of the Canberra Groups' activities (income distribution and poverty) and the aim of agricultural policy. The

issue of sub-sectoring is clearly a central one in the development of this Handbook, as this involves determining what is an agricultural household is. So too are the particular problems associated with income and wealth measurement of this group, such as the potential for consumption from own production and the high amounts of capital involved because of the significance of land as an input. Nevertheless the Canberra Group recommendations are highly pertinent to the guidelines of good practice that this Handbook aims to establish.

VIII.4.2 Accounts for activities and for institutional units

Two main approaches towards accounting for agriculture can be found within the SNA93 conceptual framework:

- Accounts for the activity of producing commodities (goods and services) deemed to be agricultural, together with their residual “income” concepts;
- Accounts for institutional units that engage in agricultural production.

Of course, as these are part of a single system, they relate to each other. Figure VIII.1.1 illustrates this relationship in an agricultural context. It shows that agricultural activity (represented by the operating surplus arising from this activity, which will be described later) is divided between the various types of institutional units that are involved in entrepreneurial activity. These fall into three main types:

- (i) **Households** in their role as units of production (household-firms), and for which agricultural activity is one (possibly the only one) form of independent activity (self-employment) that the household members engage in. The household may also engage in dependent activity (its members work as employees) and may also receive resources in other ways (for example, from welfare transfers, property income, etc.). The independent agricultural activity may account for various shares of the total resources available to the household.
- (ii) **Corporations**, at least part of whose activity involves agricultural production. (Strictly these are non-financial corporations, as the SNA93 also provides for financial corporations as a separate category).
- (iii) **Other types** (including government and Non-Profit Institutions).

This Handbook is primarily concerned with the first of these forms of institutional unit - households. The nature of what constitutes an agricultural household (or an agricultural corporation) is critical to the generation of statistics and can affect both the numbers of households and the income levels and compositions relating to them. The concept of a household (which may take a variety of forms) and the basis used to classify them as agricultural or non-agricultural (for which several possibilities exist) receive detailed attention in Chapter IX.

The SNA93 described a full sequence of accounts for households as institutional units, including not only current accounts for production but also capital accounts and balance sheets. This sequence is set out in a slightly simplified form in Figure VIII.1.2. Though conceived within the framework of national accounts, the sequence can be applied at microeconomic level with some modifications to the coverage of items. When applied to agricultural households, this sequence allows for the calculation of many items that are relevant to agricultural policy, including *inter alia* their:

- Value added from production;
- Operating surplus from production;

- Residual entrepreneurial income from production;
- Income from all sources, including entrepreneurial income; wages, property in its various forms, social transfers etc.;
- Disposable income, after the deduction of non-optional payments (such as direct taxes and social contributions);
- Consumption spending and saving;
- Investment;
- Balance sheets - stocks of assets, liabilities and net worth.

While the complete sequence can, in theory and given adequate data, be drawn up for agricultural households as institutional units, activity accounts are strictly only applicable down to the level of operating surplus. To go further in the sequence requires assumptions about the extent to which the institutional unit (household) is mono-active in agriculture and on the separability of consumption activity and production, both of which are increasingly subject to question, although such assumptions are often made by the array of indicators commonly in use. In some countries many different business arrangements and households may be engaged in a single farm operation. This means that a household may not earn all of the entrepreneurial income from production. Dissatisfaction with assumptions that have to be made regarding the role of the household in operating a farm and its income from self-employment constitutes one reason why it is necessary to develop indicators that relate to the household as an institutional unit, along with other institutions, which is the aim of this part of the Handbook.

Figure VIII.1.1
The relationship between agricultural activity
and the institutional units that generate it

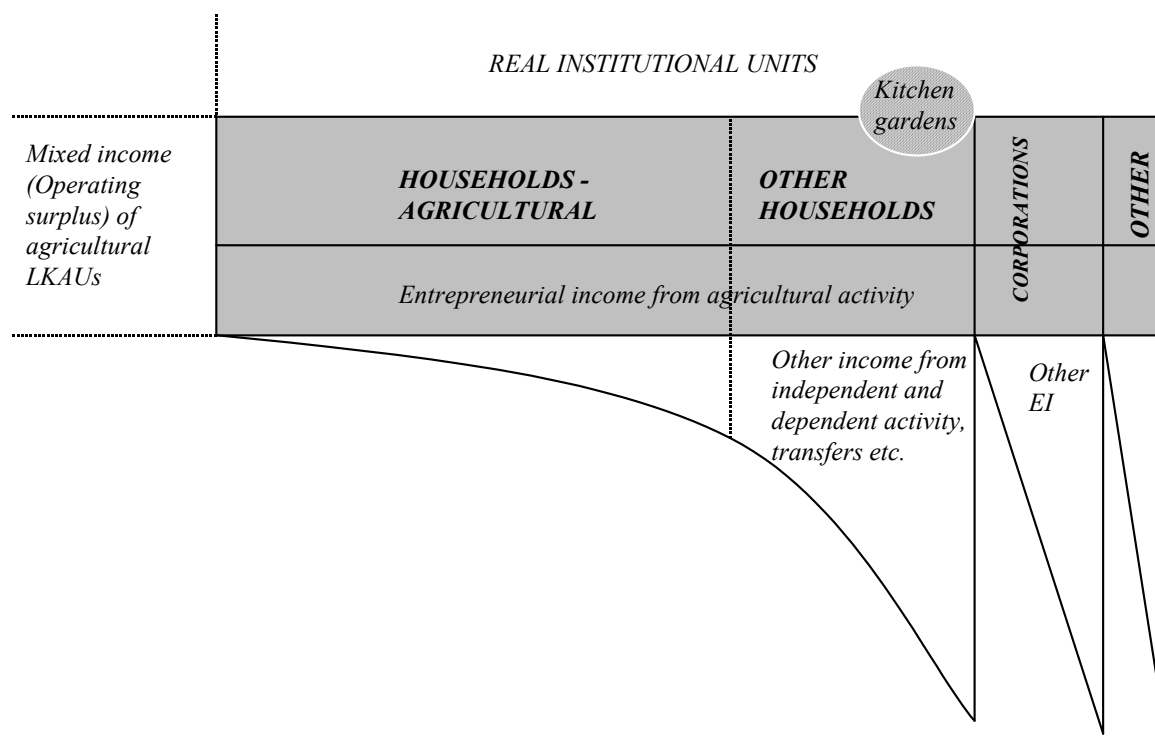


Figure VIII.1.2
The full sequence of accounts for households in the System of National Accounts
(from SNA93 Table A.V.6)

I. Production account

Uses		Resources	
P.2	Intermediate consumption	P.1	Output
		P.11	Market output
		P.12	Output for own final use
B.1g	<i>Value added gross</i>		
K.1	Consumption of fixed capital		
B.1n	<i>Value added net</i>		

II. Distribution and use of income accounts

II.1 Primary distribution of income account

II.1.1 Generation of income account

Uses		Resources	
D.1	Compensation of employees	B.1	Value added
D.11	Wages and salaries		
D.12	Employers social contributions		
D.12 1	Employers' actual social contributions		
D.29	Employers' imputed social contributions		
D.29	Other taxes on production		
D.39	Other subsidies on production		
B.2	<i>Operating surplus</i>		
B.3	<i>Mixed income</i>		

II.2 Allocation of primary income account (which can be subdivided into two)

II.2.1 Entrepreneurial income account

Uses		Resources	
D.4	Property income (connected with market activities)	B.2	<i>Operating surplus</i>
D.41	Interest	B.3	<i>Mixed income</i>
D.45	Rent		
		D.4	Property income (connected with market activities)
		D.41	Interest
		D.42	Distributed income of corporations
		D.421	Dividends
		D.422	Withdrawals from income of quasi-corporations
		D.44	Property income attributed to insurance policyholders
B.4	<i>Entrepreneurial income</i>		

II.2.2 Allocation of other primary income account

Uses		Resources	
D.4	Property income (not connected with market activities)	B.4	<i>Entrepreneurial income</i>
D.41	Interest		
D.42	Rent	D.1	Compensation of employees
		D.11	Wages and salaries
		D.12	Employers' social contributions
		D.121	Employers' actual social contributions
		D.122	Employers' imputed social contributions
		D.4	Property income (not connected with market activities)
		D.41	Interest
		D.42	Distributed income of corporations
		D.421	Dividends
		D.422	Withdrawals from income of quasi-corporations
		D.43	Reinvested earnings on direct foreign investments
		D.44	Property income attributed to insurance policyholders
		D.45	Rent
B.5	<i>Balance of primary income</i>		

II.3 Secondary distribution of income account (simplified)

Uses		Resources	
D5	Current taxes on income, wealth etc.	B.5	<i>Balance of primary income</i>
D.61	Social contributions	D.61	Social contributions
D.61 1	Actual social contributions		
D.61 2	Imputed social contributions		
D.62	Social benefits other than social transfers in kind	D.62	Social benefits other than social transfers in kind
D.7	Other current transfers	D.7	Other current transfers
D.71	Net non-life insurance premiums	D.72	Non-life insurance claims
D.75	Miscellaneous current transfers	D.75	Miscellaneous current transfers
B.6	<i>Disposable income</i>		

II.4 Redistribution of income in kind account

Uses		Resources	
		B.6	<i>Disposable income</i>
		D.63	Social transfers in kind
		D.631	Social benefits in kind
		D.6311	Social security benefits, reimbursements
		D.6312	Other social security benefits in kind
		D.6313	Social assistance benefits in kind
		D.632	Transfers of individual non-market goods and services
B.7	<i>Adjusted disposable income</i>		

II.5 Use of income account

II.5.1 Use of disposable income account

Uses		Resources	
P.3	Final consumption expenditure	B.6	<i>Disposable income</i>
P.31	Individual consumption expenditure		
		D.8	Adjustment for the change in net equity of households on pension funds
B.8	<i>Saving</i>		

II.5.2 Use of adjusted disposable income account

Uses		Resources	
P.3	Actual final consumption	B.6	<i>Adjusted disposable income</i>
P.31	Actual individual consumption		
		D.8	Adjustment for the change in net equity of households on pension funds
B.8	<i>Saving</i>		

III. Accumulation accounts

III.1 Capital account (simplified)

Changes in assets		Changes in liabilities and net worth	
P.51	Gross fixed capital formation	B.8n	<i>Saving, net</i>
K.1	Consumption of fixed capital	D.9	Capital transfers, receivable
		D.92	Investment grants
P.52	Changes in inventories	D.99	Other capital transfers
P.53	Acquisitions less disposals of valuables		
		D.9	Capital transfers, payable
K.2	Acquisitions less disposable of non-produced non-financial assets (land etc.)	D.91	Capital taxes, payable
		D.99	Other capital transfers, payable
B.9	<i>Net lending / borrowing</i>	B.10.1	<i>Changes in net worth due to saving and capital transfers (Total of the above)</i>

The other accounts (not detailed here are as follows):

- III.2 Financial account
- III.3 Other changes in assets accounts
 - III.3.1 Other changes in volume of assets account
 - III.3.2 Revaluation account
 - III.3.2.1 Neutral holding gains/losses account
 - III.3.2.2 Real holding gains/losses account

IV. Balance sheets

- IV.1 Opening balance sheet
- IV.2 Changes in balance sheet (within which the change in net worth is attributed to savings and capital transfers, other changes in volume of assets, and nominal holding gains/losses)
- IV.3 Closing balance sheet

VIII.4.3 Activity accounts – agriculture as an activity

Before moving to statistics based on accounts for agricultural households and their related methodology it is necessary to describe briefly the activity accounts that form the basis of most of the current indicators used internationally to monitor the economic situation in agriculture. Activity accounts are commonly calculated at both the level of the entire agricultural industry and the level of the individual farm business. The basic methodologies of each level were established in the 1930s, though some elements of farm-level studies go back further (Hill, 2000). Historical precedent is important in explaining the present form of this approach and its dominance hitherto.

Many industrialized countries construct industry-level accounts for the activity of producing agricultural commodities, as does Eurostat for the EU as a whole. Known in the EU as the Economic Accounts for Agriculture (EAA), they and their associated industry-level income indicators have long been used to guide policy. The OECD has used the EAA methodology as the basis for its collection of comparable statistics for a wider range of countries. The aggregate activity accounts are complemented by accounting systems at the microeconomic level (farm or holding). For an outline of activity accounts in the EU see Box VIII.1.

Box VIII.1
Activity accounts in the EU

The EU publishes aggregate (industry-level) activity accounts for the EU using data provided by the individual Member States. Eurostat has established an agreed methodology (Eurostat, 1997 and updates) and harmonized results are published annually for the EU and for individual countries. Though based in National Accounts methodology (SNA93), the EAA depart in a number of ways to put them more in line with the perceived needs of policymakers in terms of the coverage of commodities (small adjustments are made, for example, to include Christmas trees, the production of which would otherwise be classed as forestry) and units of production (in effect, output from hobby gardening is no longer included). Since the revised version of the methodology was introduced (EAA97) to be compatible with the revised SNA93 (and its European manifestation, the ESA95), the nature of these departures has been made transparent, with a bridge table provided in the methodology (though not always actually calculated) between the ESA and the SNA. Many individual governments apply this EAA97 methodology (sometimes with small variations) in the creation of accounts and indicators for national purposes.

The industry-level activity accounts are complemented by accounting systems at the microeconomic level (farm or holding). Again, many industrialized countries carry out surveys of the accounts of individual farm businesses, including the income generated from production, to inform policymaking. In the EU, the survey is known as the Farm Accountancy Data Network (FADN, or the French acronym RICA) and is made up of national surveys that supply data to the European Commission which acts as a coordinating and regulating agent. Again, the methodology is agreed by Member States and thus the results are harmonized and comparable (Commission, 1989 and updates). Farm-level data is needed to study issues such as distribution of rewards, of productivity, of stability etc.

Activity accounts at the aggregate level have a major advantage that in industrialized countries they can often be built-up from national level data, without the need to carry out representative surveys of farm accounts. For example, the value of crop output may be estimated from censuses or surveys of crop areas multiplied by average yields and prices. Their results can therefore be produced in a timely and relatively economical way, important features of statistical quality. However, some important drawbacks of (current) activity accounts are that:

- In their traditional form at both industry and farm levels they may relate only to the production of a list of agricultural commodities. The list of what constitutes an agricultural commodity, and therefore agricultural production, is agreed as the International Standard Industrial Classification of all Economic Activities (ISIC Rev 3) and its EU equivalent, the Classification of Economic Activities in the European Community (NACE Rev 1.1). While this is not highly contentious, there are some difficulties at the margin. However, with the broadening of activities undertaken by farmers (such as the provision of agri-tourist accommodation and adding value in food processing) there are increasing problems in separating the value of output into agricultural and non-agricultural. Particularly difficult is the isolation of the inputs used in agricultural production where these are shared, such as the use of a tractor for agricultural production and for forestry or for snow clearing. In the United States, for example, the output accounts include estimates of revenue from services and forestry, such as the hiring out of farm machinery and equipment or the undertaking of custom work for other households or firms. Inclusion of these additional sources of earnings in the estimate of the value of agricultural sector production requires explicit attention to

questions focused on these non-crop or livestock production activities in data collection activities. When data are drawn from microeconomic sources, accounts for agricultural production have to be carved out from transactions of real businesses by separating off any non-agricultural activities, something that is increasingly difficult.²

- In accounts for activities care has to be used in going beyond the calculation of NVA or Operating Surplus to achieve an indicator that corresponds to what would be regarded as the profit from farming (for example, Entrepreneurial Income in the EAA or Family Farm Income in FADN/RICA). Interest and rent relate strictly not to activities but to institutional units, in agriculture mostly households and their members. Interest paid will relate to the entire borrowing of a household and will encompass borrowing for consumption and to facilitate production (of all types). This means that careful attention has to be given to estimates of debt that are used in farm activities, including debt used for seasonal loans and other intra-year farm activities. Some even view the partitioning of interest into agricultural and other purposes as theoretically objectionable (because of the fungible nature of loans) and impractical. Rent paid may suffer from similar problems where there is a degree of combined consumption and production or several forms of production on the same real estate. Labour also presents an issue for measurement since households may pay selected members a wage charged as a labour expense to the farming activity. This wage would be an income to the household. The combining of payment of employee compensation (wages), rents, and interest out of net value added to arrive at an estimate of an operator's surplus is clearly a challenge to data collection activities. This challenge, in many countries, is made even more difficult by the presence of multiple households (for example a multiple generation farm) and by the increased use of a variety of business arrangements that bring outside entities into a household's farming activities. An example is the production of poultry or pigs under some contractual agreement.
- Particular difficulties arise with the inclusion in accounts for agricultural activity of payments for non-production. Normally payments are in the nature of a transaction, and a flow of goods and services can be identified that correspond with the money flow. While something of this nature could be argued in the case of payments for undertaking production in particular ways that result in a flow of environmental services, there are some financial flows (such as the "compensatory payments" associated with the 1992 and subsequent reforms to the EU's Common Agricultural Policy) for which no obvious corresponding flow of goods and services exists.
- The 'income' concepts of activity accounts are (in essence) factor rewards and do not correspond with the personal incomes of their operators. These concepts are difficult to interpret by non-specialist users (especially when divided by labour input, which is only one of the contributing factors). The outcome is that the indicators are often used as a proxy for the standard of living of the agricultural community, a purpose for which they are manifestly ill-suited.
- The activity accounts exclude capital gains and losses on most assets (including real estate and liabilities), items that should appear later in the sequence among the capital accounts. By not taking these gains and losses into account, items are being left out that form a component of the longer-term personal rewards of farm operators and that may be important in influencing decisions to stay or leave the industry.

² In aggregate activity accounts the basic unit of production is the fictional agricultural Local Kind of Activity Unit (LKAU – equivalent to the *Establishment* in SNA93 terminology).

- Capital balance sheets and net worth cannot, strictly, be calculated for the activity of agricultural production. Balance sheets only apply to institutional units, such as households or other bodies with legal status that can enter into contracts, obtain loans etc. It is possible to classify capital assets as agricultural and thus build up a partial picture on that side of the balance sheet. The nature of liabilities means that careful attention must be paid to attempts to develop estimates of debt associated with farming activities. Even if balance sheets can be developed for agriculture, these are open to criticism for their coverage and potential bias at the household level.

VIII.4.4 Accounts for institutional units – accounts for farm household-firms

The essential features of a system of accounts based on institutional units (in the case of agriculture, unincorporated household-firms, with other accounts for corporations etc.) are as follows:

- They are based on complete units, without need to separate off activities.
- Complete series of current and capital accounts are possible (dependent on data availability) for households down to disaggregation of disposable income into consumption and saving.
- The series potentially extends to capital accounts and balance sheets (equivalent to the net worth of households).
- The accounts cover all flows of resources; for households this includes those from independent activity in agriculture and other industry groupings, dependent activity (wages), property income, welfare transfers etc. It should be noted that public payments for the supply of (non-marketed) environmental services and compensation for non-production (the latter a particular problem for activity accounts) are accommodated without difficulty in the institution / household unit approach.
- The inclusion of the flows are not dependent on classification by function (e.g. from production of goods and services), though the origins may be used to divide up the total flow.
- Sector and income concepts are more easily understood by users, as they apply to real units and do not involve assumptions about the separation off of the agricultural components in outputs and inputs.
- Integration of sector and micro levels accounts and indicators is better, as the sector is taken as comprising collections of complete institutional units.
- A possibility exists of sub-accounts for selected groups of institutional units, such as:
 - Corporation;
 - Other non-household forms (cooperatives etc.);
 - Households, with (for example):
 - some agricultural production;
 - agricultural production above a given level (which might be that deemed to comprise subsistence production in contrast to hobby gardening, or some other threshold that is deemed to be the lower limit of ‘serious’ or ‘commercial’ or ‘professional’ production, for which holding size might be the criterion);

- agriculture-dependent for current income, which may be assessed in terms of the entire household or of a reference person, such as the head of household;
- regionally disaggregated, or divided into those that are in rural and in non-rural parts of the country.

Despite these positive attributes, this approach has the drawback that it requires detailed accounting data to be collected at the level of the institutional unit - the household-firm or corporation – something that may be avoided for major elements in aggregate activity accounting. This may be expensive.

In OECD countries, setting up accounting based on complete institutional units may be particularly problematic where farm surveys are the main data source and, as in many EU Member States, these do not currently ask questions that go beyond the agricultural activity. It is feared that farmers might be unwilling to reveal their other economic activities and interests, with possible implications for their cooperation rates in what are usually voluntary surveys. Clearly an adequate explanation by the collecting authority as to why this information is required should be available. This would include the fact that on-farm behaviour (land use, investments etc.) is influenced by the full range of economic activities and interests of the household-firm, not just those relating to agriculture.

The advantages of accounting and income measurement on the basis of institutional units are not confined to relatively developed countries. The FAO's 1996 *System of Economic Accounts for Food and Agriculture*, which has general applicability but is directed especially at less developed economies, recommends that accounts based on institutional units (in effect, households) is the preferred approach. A major additional reason is that this also corresponds with the way that statistics are built-up in less developed countries, which relies heavily on surveys of households.

VIII.5 Where we are in the provision of income indicators taken from institution-based accounts for household-firms

Activity accounts (current) and related income indicators at aggregate and microeconomic levels are long-established at the EU level and can be found in many other OECD countries. In contrast, accounts and indicators for agricultural households and other forms of institution are far less well-developed. Commentators on agricultural policy (summarized in Hill, 2000) have concluded that the lack of institution-based accounts is a major gap in statistics needed to assess its performance. A recent report by the European Court of Auditors found that the aggregate and microeconomic activity accounts in use in the EU (the EAA and FADN/RICA) “do not provide sufficiently exhaustive information on the disposable incomes of agricultural households and do not allow an assessment of the living standard of the agricultural community to be made” (Court of Auditors, 2003; para. 79). Some possible explanations for the poor availability of statistics based on the agricultural household are given in Box VIII.2.

Statistics that take the agricultural household as the basic institutional unit, while being less well-developed than activity accounts, nevertheless exist to some extent. At sector level, the EU Eurostat's IAHS statistics partially fills this gap. A methodology has been devised, based in national accounts and incorporating ideas on disaggregation of the households sector taken from France and Germany, but when applied there have been rising problems in maintaining the calculation of results because of data availability and quality (Eurostat, 2002). Nevertheless the development of the methodology has tackled a number of issues of definition that have proved valuable when applied in other circumstances and levels of aggregation. At the microlevel, there is no workable EU system in place for measuring the income of agricultural

households on a harmonized basis, constituting a large gap in the coverage of agricultural statistics and a potent stimulant for the methodology set out in this Handbook.

The OECD has collated a large number of studies of the income situation of agricultural households, many of which are microeconomic in nature (various reports summarized in OECD, 2002). However, the results contain data that involve a range of definitions. Generalizations of findings and comparisons across countries are hazardous. In particular, the results (both in terms of numbers of cases in the sector and the average level and composition of income) are sensitive to the definition of what constitutes an agricultural household. The need to develop basic recommendations for a methodology is self-evident.

The consequences of this imbalance between accounts for agricultural activity and for agricultural institutions are that activity accounts are being stretched beyond what can be justified by the present structure of the agricultural industry. The indicators derived from them appear to be put to inappropriate uses and hence policy decisions are likely to be based on inappropriate statistics (OECD 1997, 2002). The implication is that costly policy mistakes may have been made, and may still continue to be made, unless the information gaps are filled. This concern, though perhaps felt most strongly in the 21st Century, is by no means a recent phenomenon. As long ago as 1933 there were warning about using inappropriate indicators (Peterson, 1933) and the debate resurfaced in the 1970s, particularly in the United States (AAEA, 1972).

In many countries the main limiting factor in generating statistics on the income and wealth of agricultural households is the availability of suitable basic data. Such data comes in three main forms:

- Surveys of farms that take a broad, household approach and collect data on more than just the output and inputs used in the farming process, covering other income and other assets and liabilities. An example of “good practice” is the United States farm accounts survey (the Agricultural Resource Management Survey – ARMS), the latest report of which demonstrates how useful such information can be in revealing the nature of the problems facing agricultural households (Mishra *et al.*, 2002).
- General surveys of households that cover income and expenditure, that have a sufficient number of cases that turn out to be agricultural households, and where the income data is of sufficient quality. In many OECD countries such surveys are ruled out for one or both of these reasons.
- Taxation records, where self-employed farmers can be identified as a trade group within the industrial classification. These records may be combined with other administrative records to construct an income statistics register. However, their usefulness is hampered in many countries by farmers not being taxed on their actual incomes but according to some standard - typically dependent on farm area - or by their falling below the tax threshold (OECD, 2004).

In reality, it is found that some countries have several good sources, while others have none. In view of the fundamental importance of the data system to the development of statistics on agricultural household income and wealth, this Handbook provides a detailed country-by-country review of data sources and the income statistics for agricultural households to which they give rise. Chapter XIII contains this material.

Box VIII.2**Some explanations for the lack of statistics for agricultural households (based on Hill, 2000)**

Given that indicators relating to the income situation of agricultural households are generally seen now as being of importance, how is it that they have received so little attention from statisticians in the past? Why in those relatively few countries, including the United States, where data have existed for a considerable time, has information on the income and wealth position of farmers as a group not made the substantial impact on domestic policy that might be expected, especially when their income and wealth situations are good compared with other groups in society? In the EU (and in many individual OECD countries) there seems to be a number of explanatory factors:

Lack of political demand. Politicians have not requested this information, perhaps because of a too-simple perception of the agricultural industry, or a fear of the electoral consequences of drawing attention to it.

Historical precedent. Activity accounts, at both aggregate and farm levels, and their related "income" indicators are long-established, having been set up when there were stronger grounds for assuming that the only source of incomes of farm households was from farming. In the EU, the EAA adopted the 'Branch' concept at its outset in 1964; as did the FADN basic legislation of 1965.

Operational requirement. The fact is that agricultural policy (including the EU's CAP) has operated apparently successfully for many years in many countries without information on the incomes of agricultural households. The administration of income support systems has rarely if ever required the data (though some tests of eligibility have been applied within individual structural schemes).

'Rational ignorance' among many users. There is a tendency among users, especially non-specialists, to adopt satisfying behaviour. That is, they take the first available indicator that appears to meet their needs, so that measure of the income from agricultural activity may be assumed to show the income of farmers. Among some users there may be a suspicion that the information revealed by household-firm data could be against their political and/or bureaucratic interests.

Self-interest of bureaucracies. Government departments for agriculture have often taken a pro-farmer stance and might therefore not wish to draw attention to anything that might lead to a reduction in support for the industry, as might be revealed by statistics on household income. There is also an understandable aim of wishing to maintain continuity with long-established systems of activity accounting.

Data availability. Lack of basic data of suitable quality in some countries is a major constraint in the development of statistics on the complete activities of farm businesses and their households. In countries where it has not been conventional to ask questions on non-farm income, agencies that collect data have been reluctant to ask new questions about non-farm income for fear of harming response rates.

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