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.\textsuperscript{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.

\textit{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

\textsuperscript{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 (SEAFA96) 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-optimal 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

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

II. Distribution and use of income accounts

II.1 Primary distribution of income account

II.1.1 Generation of income account

<table>
<thead>
<tr>
<th>Uses</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.1 Compensation of employees</td>
<td>B.1 Value added</td>
</tr>
<tr>
<td>D.11 Wages and salaries</td>
<td></td>
</tr>
<tr>
<td>D.12 Employers social contributions</td>
<td></td>
</tr>
<tr>
<td>D.121 Employers’ actual social contributions</td>
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<td>B.2 Operating surplus</td>
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<td>B.3 Mixed income</td>
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II.2 Allocation of primary income account (which can be subdivided into two)

II.2.1 Entrepreneurial income account

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<td>D.422 Withdrawals from income of quasi-corporations</td>
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<td>D.43 Reinvested earnings on direct foreign investments</td>
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<td>D.61 Social contributions</td>
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<td>D.71 Net non-life insurance premiums</td>
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<tr>
<td>D.75 Miscellaneous current transfers</td>
<td>D.75 Miscellaneous current transfers</td>
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<table>
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II.5 Use of income account

II.5.1 Use of disposable income account

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II.5.2 Use of adjusted disposable income account

<table>
<thead>
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<th>Uses</th>
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<tbody>
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<td>P.31 Actual individual consumption</td>
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III. Accumulation accounts

III.1 Capital account (simplified)

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<td>K.1 Consumption of fixed capital</td>
<td>D.9 Capital transfers, receivable</td>
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<td>P.53 Acquisitions less disposals of valuables</td>
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<td></td>
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<td>D.91 Capital taxes, payable</td>
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<tr>
<td></td>
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<td>B.10.1 Changes in net worth due to saving and capital transfers (Total of the above)</td>
</tr>
</tbody>
</table>
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.
References


Eurostat (1995). “Manual of the Total Income of Agricultural Households (Rev.1)” Theme 5 Series E, Eurostat, Luxembourg. This is packaged on a CD together with publications on results and other studies as Eurostat (2002).


IX THE AGRICULTURAL HOUSEHOLD – CONCEPTS AND DEFINITIONS

The household, rather than the individual, is commonly adopted as the basic unit of analysis when considering the economic situation of society (though data for individuals may be collected separately). The household is recommended by the Canberra Group of experts for use in studying income distributions and is the basic unit in household budget surveys, the main purpose of which is to assist in the creation of retail price indices (cost-of-living indices). In an agricultural context, it is adopted by the FAO as the foundation for its System of Economic Accounts for Food and Agriculture (SEAFA), intended for use by countries at all levels of economic development (FAO, 1996). Within the EU, Eurostat measures the total income of agricultural households. In the United States, incomes for farm occupier households are calculated by the United States Department of Agriculture’s Agriculture Resources Management Survey (ARMS) (the forerunner of which was the Farm Costs and Returns Survey).

A central feature of the household is that there is a high degree of pooling of income and expenditure. This means that assessment at the level of the household is more meaningful in representing the potential command over goods and services than would be the case if the incomes of the individual members were treated separately. This is not to deny that, for example, farmer’s wives may have some source of income which they regard as their own (such as from providing bed-and-breakfast accommodation in the farmhouse), or that the pocket money which a farmer spends is the result of a collective decision and is approved as a necessary line of expenditure by the household. In many countries spouses work off the farm operation at a wide variety of occupations. When asked, they commonly report that their earnings go to increase the overall household income.

While in such circumstances it clearly makes more sense to take the household as a convenient basis for income measurement, it must be borne in mind that for some analytical purposes it is necessary to have figures that relate to individuals, as these are the fundamental units that experience utility (this issue is explored when the definition of income is considered in Chapter X).

A detailed consideration of what constitutes an agricultural household can be broken down into two elements:

- The definition of a household;
- The characteristics that distinguish an agricultural household from any other.

Both ‘household’ and ‘agricultural household’ (or ‘farm household’) are familiar terms. However, behind this common usage lie a variety of meanings that must be clarified and used with discrimination when generating statistics. Some of the general issues were introduced in Chapter VIII. Here the intention is to review the details.

IX.1 Definition of the household appropriate to accounting and statistics

The starting point for the definition of a household is the System of National Accounts 1993 (SNA93) (UN, 1993). The following definition uses the SNA93 (para 4.132) but adds a phrase that appears in the version of the SNA that is applied in the EU by the European System of Accounts (ESA) (Eurostat, 1996).
For the purpose of the System, a household may be defined as:

A small group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. [The criteria of the existence of family or emotional ties may be added].

The predominant view of households in the SNA93 and ESA95 is that they are units of consumption whose main resources come from wages (compensation of employees), property income or transfers. However, it is clear that households can also have a production activity, something that is of particular importance when considering agricultural households. The ESA describes the households sector as follows:

ESA 2.76 The households sector includes:

- Individuals or groups of individuals whose principal function is consumption;
- Persons living permanently in institutions who have little or no autonomy of action or decision in economic matters (e.g. members of religious orders living in monasteries, long-term patients in hospitals, prisoners serving long sentences, old persons living permanently in retirement homes). Such people are treated as comprising, together, a single institutional unit, that is, a single household.
- Individuals or groups of individuals whose principal function is consumption and that produce goods and non-financial services for exclusively own final use; only two categories of services produced for own final consumption are included within the system: services of owner-occupied dwellings and domestic services provided by paid employees.
- Sole proprietorships and partnerships without independent legal status - other than those treated as quasi-corporations - which are market producers.
- Non-profit institutions serving households, which do not have independent legal status or those which do but are of only minor importance (see ESA 2.88).

Hence the SNA/ESA definition of the households sector includes private households but also some units which do not form part of the coverage of household budget surveys. Examples include both communal living units (hostels and monasteries) and other institutions such as universities. However, these units are unlikely to correspond with the notion of the target group for agricultural policy and are probably better omitted from statistics on agricultural households. In any event, where households are selected for special study that are mainly dependent on agriculture for their incomes, such non-family forms are unlikely to be included.

As noted above, the SNA/ESA definition encompasses both the consumption and production activities of households. However, it defines households from a national accounts standpoint, which may not be universally appropriate. For insights into the microeconomic approach it is useful to turn to the series of household budget surveys, such as those found in the EU and that form the basis of much international work on poverty and income distributions. The official definitions of households that exist for use in the separate national household budget surveys are broadly similar but differ in detail. For the United Kingdom a household was described thus:

A household comprises one person living alone or a group of people living at the same address, sharing their meals and the household, and having sole use of at least one room. All persons in a household must receive from the same person at least one meal a day and spend at least four nights
a week (one, if they are married) in the household. The household includes staff, paying guests and tenants, and also anyone living in the household during the period in which expenditure is recorded. Persons who normally live in the household, but who are absent for a period of more than one month, are excluded (Eurostat, 1985).

The condition of living at the same address and sharing catering arrangements is common among the definitions adopted by all the EU Member States, though differences occur in the way that live-in domestic staff and temporary residents, such as students, are treated. However, such differences are peripheral to the main thrust of the definition of the household for the purpose of income studies. Of far greater import is the role played by adult family members, additional to the farmer and spouse, who may live in the farm dwelling - usually grown-up children, parents, brothers and sisters. These multigenerational and extended households are thought to be a particular feature of the social structure of agriculture, even in many industrialized countries. While there would be little dispute over treating a cohabiting couple with dependent children as a single household unit for the purpose of income assessment, there are problems if other adults also live in the same dwelling. Things are made complex because of the fact that many farms are run by family members working together and many different forms of financial arrangements, formal or informal, may exist between them. For example, family labour working on the farm may be unpaid, paid as hired workers, or be self-employed business partners.

Where grown-up children receive a wage, though they may make some payment to the farm household for their keep, they probably regard their independently-earned income to be under their own control as far as spending is concerned. The case for not including these additional adults in the household unit is particularly strong where they have full-time jobs off the farm and are treated within national tax systems as separate units. To include them in the larger household unit of measurement, when they are clearly financially independent, introduces a degree of artificiality that can undermine the validity of the income statistics. However, even if such grown-up children do not contribute labour to the farm on a regular basis, it seems highly unlikely that they would not help out at seasonal labour peaks; to some extent they still form part of the agricultural labour force. Much the same problem is faced when retired parents live with their farmer-children or when other groups of relatives live in the same house. The notion of personal income implies the freedom to dispose at will, and it is far from certain that, for example, the old-age pension of a retired relative living in the same residence can be regarded as at the general disposal of the household.

In developing countries the concept of the household can be rather different from that applicable among OECD Members. This is reflected in the UN in its guidelines for population and housing censuses, taken over into the draft methodological recommendations for the World Programme of Agricultural Censuses scheduled for 2010. These describe a household as follows:

"The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either (a) a one-person household, that is to say, a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of a multi-person household, or (b) a multi-person household, that is to say, a group of two or more persons living together who make common provision for food or other essentials for living. The persons in the group may pool their incomes and may, to a greater or lesser extent, have a common budget; they may be related or unrelated persons or constitute a combination of persons both related and unrelated" (UN, 1998).

The guidelines stress the criterion of household members sharing the means for living, and do not mention the need to live at the same address (that is, in the same dwelling). They point out that when viewed in this way, households may occupy the whole of a housing unit (dwelling), part of one or several units. There
may be more than one household living in a housing unit. Some households consist of extended families making common provision for food and may occupy more than one housing unit. In other cases, different family units live in separate housing units, but have a common head, such as in polygamous unions. A “family” is more readily understood than a “household”, but it is not the same thing; a family may include people living in other households in other places.

Consequently, when designing statistics on the income situation of agricultural households, a distinction should be drawn between the household as a social unit for domestic budgeting and consumption (the housekeeping unit, or single budget household, comprising only those people who pool income and expenditure) and the household unit in the domiciliary sense (the accommodation or dwelling household, consisting of the people living under the same roof). Of course, any one farm may have more than one household associated with it; this applies whichever approach is taken.

In the absence of firm information on intra-household financial integration and the diverse forms it takes, a case exists for calculating household incomes using both concepts. This would imply data collection for all people living in the same dwelling, but only including the incomes of some of them when using the single budget household concept. Some balance could then be struck between the overstating of income at the disposal of the household incurred by including the income of additional adults and the understatement which would doubtless result from their being excluded. What is appropriate treatment for one country may not apply elsewhere because of differences in degrees of financial integration that will reflect, inter alia, social norms and systems of direct taxation. However, the boundaries of the single budget household are not simple to define. In reality, family budget surveys differ in their approaches, but usually conform to dwelling household (Eurostat, 1993). In contrast, taxation statistics that use the fiscal household approximate to the single budget household (though the move to independent taxation of individuals in some countries, including the United Kingdom, has eroded this).

The Canberra Group (2001) approaches the definition of a household from a microeconomic standpoint. The Group’s formulation of the several tiers of units involving household statistics are set out in Figure IX.1. Its recommendation is that the household (as shown in this figure) is adopted as the basic statistical unit for income distribution analysis, with other units taken as alternatives for particular purposes. The Group’s preference for the household (dwelling concept) is a reflection of the importance of household budget surveys as a main data source and of its particular interests – income distribution statistics. In the present context a somewhat different view is appropriate, in which the comparative position of agricultural households in relation to other socio-professional groups is of concern. Of particular importance is the comparison of agricultural households to other households that have a role in production activities. These might constitute one of the “particular purposes” postulated by the Canberra Group.

In the absence of an internationally applied definition of a household, Eurostat has recommended that, for its Income of the Agricultural Households Sector (IAHS) statistics, the definition of a household should accord with that used in national household budget surveys. This will normally be based on the single dwelling concept. However, a consensus is building that, for the purpose of constructing income statistics for agricultural households, the narrower single (housekeeping) budget concept is preferable for both theoretical and practical reasons. This Handbook therefore recognizes the single budget household concept as the preferred household measure. But it is equally clear that, for comparisons to be drawn with other socio-professional groups, an equivalent treatment must apply there too. If this is not possible, the single dwelling household may have to be used.
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Figure IX.1
Canberra Group recommendations for harmonized statistical units

Dwelling
A structurally separate set of living premises with a private entrance from outside the building or from a common hallway or stairway inside. Eurostat definition is: a structurally separate set of living premises and the principal usual residence of at least one person.

Household (dwelling concept)
A person or group of people who reside together in the same dwelling. This is virtually identical to the Eurostat definition of a private household - household dwelling concept.

Family (housekeeping concept)
Two or more people sharing a common dwelling unit and related by blood, marriage (including same sex couples and de facto or Common Law relationships) or adoption. The proposal here is that all relatives living together at the time of the data collection should be considered to comprise a single family regardless of the nature of kinship. This is virtually identical to the Eurostat definition of a private household – housekeeping concept.

Unattached Individuals
An unattached individual is a person living alone or in a household where he/she is not related to other household members.

Income Units
One person or group of related persons, within a household, whose command over income is shared.

Source: Adapted from Table 3.1 of the Canberra Group (2001).

This Handbook recognizes that a flexible but transparent approach should be taken to the definition of a household. While income measurement on the basis of the complete dwelling household should be undertaken to facilitate comparisons, both internationally and with national data sources, data should also be available to allow the application of the concept of the single budget household which in some circumstances may be preferable.

IX.2 Households of different sizes and compositions

Households differ in size and composition. A given level of income for a large family may represent a much lower standard of living per member than for a smaller family. In particular, comparing the income level and distribution in this income between, say, households headed by active farmers with the all-households average is likely to be misleading, as the latter will reflect the large numbers of low-income single-person households, mainly containing elderly individuals, that typify many industrialized countries. Simply dividing income by the number of individuals in the household may not be satisfactory, as the requirements of child household members are likely to be different from those of adults. Basing the analysis of incomes on particular sizes of household (for example, comparing the incomes of households of two adults and two children across socio-professional groups) is likely to be to restricting in terms of numbers of
cases. Some equivalence scale needs to be applied which puts incomes on a common base. This is a recommendation of the Canberra Group (for a review of approaches see Hagenaars and Van Praag, 1985). It is preferable that different coefficients be applied at different levels of income, though this is not usually done. The choice of scales and equivalence figures will reflect differences in social conditions, and these are likely to change over time.

Hill (2000) reports that in the United States, though the scales used were otherwise similar to the British coefficients, the figure applied for late teenagers was substantially higher. This suggests that American families at the time may have been required to support their near-adults more than in the United Kingdom. It is likely that the coefficients that should apply to agricultural households will differ from those for other socio-professional groups, reflecting the particular social conditions found there, including the unusually large households found in some countries. This point is related to, but separate from, the issue of the proper measurement of household income where opportunities for the consumption of own production are offered, as in farming. However, it appears that whatever equivalence scales are adopted, arbitrary judgements are inevitable. In this case, countries should report the equivalence scale used to facilitate comparisons.

It is obvious that the use of equivalence scales is made less critical if a single budget definition of a household is adopted, in effect narrowing coverage to the couple and dependent children.

Eurostat recommends that, where equivalence scales are used in the estimation of incomes of agricultural households, that these are the same as scales currently employed within national household budget surveys. When calculating income results, Eurostat further requests that these are calculated on the basis of three different measures:

- Income per household;
- Income per household member (that is, divided by the number of people in the household);
- Income per consumer unit (that is, after applying an equivalence scale).

The use of an average income per household member or an equivalence scale when applied to income implies a particular distribution of income within the household; averaging implies equal division of incomes. In reality this may not happen, and the spending power may be exercised by particular individuals, others having much reduced levels and, possibly, thereby suffering economic deprivation. The issue of intra-household distribution is considered in more detail in Chapter X. However, reservations that should be borne in mind when interpreting income statistics do not alter the desirability of taking the size and composition of the household into account when reporting them.

This Handbook recognizes that both of these practices (the calculation of income per household member and per consumer unit, and the use of national equivalence scales) should be followed. Details of Equivalence Scales should be made available as metadata.

**IX.3 The rural and urban household enterprise**

The problems of defining what is meant by rural and urban have been considered elsewhere in this Handbook and will not be repeated here. Under most definitions of rural, agricultural households will be considered as operating within the rural space and using land in ways that typify rurality. An ability to
classify households, both in their role as consumers and as producers, into rural and non-rural is of considerable importance to a range of public policies.

However, it should be borne in mind that, in many industrialized countries, the households found in rural areas are not necessarily involved in agricultural production, even in a minor way. Some indication of the situation in the EU comes from an analysis of the features of rural areas published by the European Commission in preparation for its programme of rural development post 2006 (European Commission, 2004) and based on the OECD typology of municipalities (communes). In 2000, the proportion of the labour force working in agriculture, hunting, forestry and fisheries was only 13.1% in regions of the EU-25 classified as “predominantly rural” (that is with over 50% of the population living in rural communes, with less than 150 inhabitants per square km), falling to 6.6% in “significantly rural” regions (15-50% of the population in such communes) and 2.0% in “urban” regions. The structure of agriculture means that, at least in most countries, the labour would have been predominantly self-employed in farming. These figures are based on the main occupation of individuals in the labour force, so will underestimate the proportions that have some involvement with agriculture. A consequence of these findings is that, while the large majority of agricultural households are likely to be found in rural areas, not all are. In these areas most of the households, even those with self-employment as their main income source, will be non-agricultural in terms of their predominant economic activity.

In developing countries, however, the rural population is relatively more important and agriculture accounts for a far higher proportion of the labour force. According to FAO statistics for 2001 (taken from its website), in developing countries 59% of the population was classed as rural (62% in the developing countries of Africa and Asia), in contrast with 37% in transition economies and 22% in industrialized countries. While the proportion of the population that is rural has been in decline since 1980 in each of these categories, the fall in absolute numbers in developing countries has been the most substantial. Agriculture, which accounted for only 6% of the labour force in developed industrialized countries in 2001, was the main occupation of 22% in countries in transition and 43% in developing countries (48% in East and Southeast Asia).

Many of the people who live on farms may not regard the farm as their main activity. Residence on an agricultural holding is of little meaning as a basis of classification in many parts of Europe where distances are often small enough for people to commute from farms (often little more than rural houses with particularly large gardens) to their regular place of work in urban areas. Conversely, it is quite possible, though less common for farmers to live in towns and for them to commute to their farms. In this case the location of the household’s dwelling may not be where the farmed land is situated. Up to 1983, the USDA produced income statistics for ‘farm residents’; a farm was (and still is) defined as an establishment from which a given minimum value ($1,000) of agricultural products was sold or would normally have been sold in a year. A set of objections similar to those in Europe led to the discontinuation of the USDA series after almost fifty years, though analysis of farms is still made on this basis (see Banks et al., 1989). Residence does, of course, cover both self-employed and hired workers and thus extends to households that are not agricultural, in the sense that they receive income from self-employment in agriculture.

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1 A special report to the Countryside Agency in the UK (Self-employment in rural England by Elaine Kempson and Michael White, 2001) drew on the Family Resources Survey of 1998-1999 and 1999-2000 to analyse the personal characteristics and incomes of self-employed people and employees in agriculture and forestry and to contrast them with the self-employed and employees in urban households. Reference is made to gaps in responses to income questions and the under-estimation of incomes of self-employed (with correction factors of 1.2 to 1.5 mentioned but not applied to the results). Agriculture/forestry accounted for 10% of the self-employed people in rural areas.
IX.4 Definition of the agricultural household-firm (enterprise) and those belonging to other socio-professional groups

Neither the SNA93 nor the Canberra Group explicitly considers what characteristics should cause a household to be classified as being an agricultural household rather than one belonging to some other socio-professional group. Yet the manner in which the agricultural community is defined has a strong relationship with the utility of statistics to assist in policymaking decision (their relevance to users) because it carries important implications for the results, both in terms of the numbers of households that qualify and the income results that emerge.

Several criteria can be used to qualify those households as agricultural, and the one which is appropriate will depend on the purpose for which these have to be distinguished from other households. The issue for the EU has been discussed in the context of which households comprise the agricultural community (Hill, 1990). Meanwhile, a longer history of studies in the United States has been particularly concerned with the recipients of the rewards from farming (Banks et al 1989). Residence on a farm, already dealt with above, is problematic. Ownership of agricultural land is another possible criterion, perhaps with a minimum size qualification (such as the threshold for inclusion in the EU’s Farm Structure Survey) to eliminate large gardens. However, we are here mainly concerned with the operators of agricultural holdings (holders) and their households, not landowners (although there are good economic arguments for believing that the ultimate beneficiaries of income support are the owners of land - land being the factor of production in least elastic supply). Some, but not all, of these owners will be farmers, with the share of owner-occupation varying widely between countries.

A more plausible approach in the present context is to define an agricultural household in terms of its dependency on self-employment in farming for the household’s livelihood. One way is to look at the pattern of working time; an agricultural household might be taken as those households in which at least one member spends some time working in agricultural production. However, this would include every one who grows some of their own vegetables in their gardens for hobby purposes as well as those for which this is a subsistence activity (that is, it substitutes for income-generating activity that could be used to purchase these commodities). These domestic producers, while not normally considered as part of the agricultural industry in many industrialized market economies, may be seen in a different light in countries with a history of collectivized agriculture or at lower levels of economic developement where their production contributes significantly to overall output. If it is desirable to exclude these households, some cut-off might be used below which producers would not be considered as “real” farmers. Examples include minimum labour input (in days), a minimum area, or a minimum amount of output. Similar cut-offs are used in agricultural statistics to set the bottom limits of what constitutes a farm (or agricultural holding). In the United States, for example, the definition of farm applies to operations with $1,000 of agricultural sales or the potential to generate such sales. A variant of this would be to include only those households where the members spend the majority of their time working on their farms. Box IX.1 illustrates some of these combinations.

At the level of the individual it may be relatively easy to collect data on what the respondent declares as his or her “main occupation.” This is often a subjective judgement but is usually consistent and relatively stable. However, the use of a time allocation method at the household level is far more difficult in practice, requiring the labour records of each household member. These are rarely available in a reliable form. Another drawback of this labour input approach is that the notion of work may be too restricting. It is simplistic to treat only physical labour as work. On many larger farms physical labour may form only a small part of the operator’s activities and it may be difficult or impossible to separate out time spent on managing the farm from that spent managing other activities. The two may even be complementary.
Box IX.1
Possible ways of selecting agricultural household on the basis of proportions and levels of agricultural activity

The “broad” and “narrow” ways of defining agricultural households, applicable when using either a labour input or an income criterion, are explored further in the Figure below (from Hill, 2000). Agricultural activity (time or income) is shown on the horizontal axis and non-agricultural activity on the vertical. On both margins there is a level of activity which can be treated as irrelevant (kitchen garden production, hobby furniture repairing etc.). Only households which are within A or A’ are unambiguously agricultural: those in B are similarly non-agricultural. Those which lie in C or C’ use the majority of their labour for agriculture or derive most of their income from it, and could reasonably be labelled as agricultural. The division between A and A’ (and C and C’) might result from the imposition of some size qualification. If only a small amount of labour was spent in agriculture, even if little or none was used elsewhere, the household might fail to be regarded as agricultural and might be classed as non-economically active. Qualification tests outside this framework could also be employed; minimum holding areas or output values could be imposed before a household entered the frame.

**Combinations of agricultural and non-agricultural activity**

Probably a better basis of classification in the context of industrialized countries is *income dependency*. This is the system proposed for the disaggregation of the households sector of national accounts in the SNA93/ESA95. At its broadest, the agricultural household could be defined as one in which anyone makes some income from self-employed farming activity. This coverage of households containing self-employed (independent) individuals would cover a wide diversity of types, spanning both those for which farming was a commercial activity and the main source of livelihood and many others earning only very small amounts from farming and whose main income came from other sources. Although constituting part of the agricultural community when defined in the “broad” way, this latter group could not be considered as being dependent on farming for their livelihoods.
IX.4.1 Selecting from the “broad” definition of an agricultural household

Following on from the above, it would be possible to define an agricultural household in a very broad way to include all those that derived any income, however minor, from agriculture or contributed some labour input to agricultural production. The next step then becomes one of selecting cases from this broad coverage in ways that would be policy-relevant. One relatively straightforward approach would be to apply a “narrow” definition and include only those households that were mainly dependent on farming for their livelihoods. This would include those who derived half or more of their total income from self-employment in agriculture or where it was the largest single source of income (which is not quite the same). The basis of this classification is compatible with the complete allocation of all households into socio-professional groups, of which agricultural households could form one. Because a comparison between the incomes of agricultural households and other socio-professional groups is an explicit or implied aim of agricultural policy in many countries, the ability to compare on this common income-dependency basis has attractions.

If, on the other hand, environmental policy is the issue, the broader group may be more relevant. This is based on the potential for large amounts of environmentally sensitive land to be controlled by those earning only very small amounts from farming and whose main income is derived from other sources.

Using this simple binary classification, it is possible to derive results for both the “broad” and “narrow” definitions of an agricultural household. Moreover, it should also be possible to obtain information on those “marginal” households in which farming generates some income but where it is not the main income source by using a process of subtraction.

Though income dependency is attractive as a basis for defining the agricultural community in a “narrow” sense, it is possible that the interest may be in households that use labour input to agriculture, or who use some combination of income dependency and labour input. These are combined in Box IX.2, which shows the percentage of income derived from, and the percentage of time used for, agriculture, together with situations where the combinations might have policy relevance (from Hill, 2000). A similar approach combining income and occupation (of the operator) has been applied in the United States by Ahearn and Lee (1991).

IX.4.2 Some practicalities of classification

Reference person system: In practice, classification systems based on the characteristics of whole households (income composition or labour input) often prove difficult to implement because of data problems. The alternative, which has gained ground in the EU, is the reference person system (where this person is typically the head of the household). Under this system, the whole household is allocated to the agricultural group if the reference person satisfies the criteria for inclusion. A reference person system carries with it the possibility that the nature of the total household may be poorly represented. For example, an elderly head-of-household farmer may have living in his household many younger people whose main occupations and income sources are off the farm.

While the household may be classed as agricultural using a reference person occupation system, it might be non-agricultural in terms of its overall income composition or labour allocation. Such situations can be reduced by imposing criteria to determine who is taken as the reference person; it could the member with the highest income. Anomalies have to be accepted in the interest of practicality. Such a system is used in all the Family (Household) Budget Surveys in the EU, though there are differences in the rules determining who is regarded as the reference person and how his/her occupation group is determined. Within Eurostat’s IAHS statistics, in many Member States (most notably France, but also including Spain, Portugal, Italy, Greece, and Belgium) classification is determined not by income composition but to the
reference person’s declared main occupation. Typically this is interpreted subjectively by the respondent and can be a mixture of income composition and time allocation, or predominantly time. However, evidence from Ireland suggests that the difference in results between using income composition and time allocation can be substantial.

**Variation of income for classification purposes.** An important caveat must be borne in mind when applying criteria that involve the selection of households according to their position on a continuum. This is that there must be some degree of stability in the variable used for classification purposes. In this respect labour input, or a self-declared subjective judgement of the head of household’s main occupation, are superior to income composition. This is especially true of farming with its inherent income instability. Not only will the number of agricultural households where farming is the main income source change, but also the average income levels of those remaining in the group will alter. Evidence from Germany (Cordts et al., 1984) and Norway (Hill et al., 2001) suggests that taking a three-year period removes most of the unpredictable variation in incomes, an approach supported by analysis in France (Brangeon et al., 1991). Using longer periods gives more stability but there is an increasing danger that changing farm structure (changes in the size distribution of the farms concerned) will affect the long-term trend in income variability. There is a tendency for the classification system to respond to changes in the numbers of households in ways which hide the cases in certain categories, and sometimes these are the ones of greatest interest. For example, while the number of holdings deriving some income from farming may be declining in a stable and predictable way, if falls in income from farming are concentrated among the small, low-income farms, this may disproportionately affect the numbers whose main income comes from farming.

Many of those with the severest income problems will be declassified as agricultural households. This is seen in an extreme form when incomes from farming fluctuate and reclassification (on the basis of income composition) takes place each year. Empirical evidence from Denmark, reported to Eurostat’s IAHS statistics, demonstrates that it is quite possible for the residue of households left in the agricultural group in years of low farm profitability to be occupiers of the larger, more successful farms. On the smaller farms, the low farm profits shifts the balance in income composition to the extent that they no longer fall into the agricultural group. In consequence, the average total incomes of the remaining agricultural households are seen to increase when the general prosperity of agriculture falls. Thus it may be necessary to pay attention to both what is happening to numbers and income levels among agricultural households defined in the “narrow” way, and to what is happening in the “marginal” group where farming is not the main income source.

**Falling household numbers over time.** Even if short-term instability can be eliminated, the households that are labelled as agricultural will not form a constant group over time. In the long term, agricultural household numbers will decline, in line with the historic trend. Agricultural policy reform is likely to accelerate this decline. For example, the households which are most successful in diversifying into non-agricultural activities can be expected to eventually fall outside the agricultural group as defined in the “narrow” sense, and to join some other. Even farmers who face a fall in their income from farming without developing other earnings will eventually be excluded from the agricultural category as their welfare transfers grow in relative importance. Thus when commenting on income developments over time, changes in the composition of the group of agricultural households must be borne in mind.
On the assumption that a 50 per cent line can be used to divide the agricultural from the non-agricultural, cases falling into quadrant B may be confidently treated as agricultural since they satisfy both criteria. Similarly those in quadrant D could be classed as non-agricultural, though they operate holdings and are therefore beneficiaries of any price-support regimes for agricultural commodities which might exist. However, D might also include some households which might be regarded as legitimate targets of agricultural policy; households on farms too small to absorb all the available labour (yet too large to be dismissed as not really being farms at all), where there currently are no other opportunities for alternative employment, and where there is major dependence on welfare transfers as a source of income. Policies of farm modernization or the promotion of rural diversification may offer hope for some of these. Also covered here would be high-income households whose farms may be large but whose non-agricultural activities may generate even larger non-farm incomes and where little household labour is spent on the farm, operations being carried out by hired managers and workers. Quadrants A and C contain further complex mixes of farming situations. For example, C would cover, on the one hand, the semi-retired businessmen, filling his time on the farm carrying out unnecessary tasks while receiving a high income from his former business in the form of director’s remuneration and dividends on his investments and, on the other, a low-income farm household struggling against severe natural production conditions which absorb most of its available labour but yet which leave it primarily dependent on other sources of income. Quadrant A would include the large-scale farmer who arranges his farm so that he can spend large amounts of time off the holding doing, for example, unpaid political work, or in leisure pursuits.

Given the above, it is desirable to have data that enables a study to be made longitudinally through time, that is, a panel approach. If the policy interest is to trace the development of income of people who started any given period as members of agricultural households, some attempt should be made to retain these
in the group. Income averaging over a short run of years for the purpose of classification also requires individual cases to be maintained and identified in the data system. This represents a major challenge to the way that official statistics are organized (typically as a snapshot at a particular moment), since longitudinal analysis of a constant sample is at present very rare and data are not organized in ways that makes this easy. The need for this demographic approach is, of course, something that is shared by studies of businesses in other sectors.

This Handbook recognizes that, as good practice, data should be available to develop estimates of income for households defined as agricultural in alternative ways. This flexible approach should permit a coverage of all households that earn any income from self-employed farming activity. However, it should also permit the selection of households where agriculture is the main income of the household (smoothed to take into account the year-to-year variation anticipated by farmers, for which averaging over three years is advised). Secondary criteria may also be applied, such as farm size. Where it is not possible to use household income composition for classification, the Handbook recognizes the use of a reference person system, where the person is normally the main income earner. Studies should be undertaken to assess the significance of adopting alternative bases of classification.

IX.4.3 Choice of other socio-professional groups with which to compare agricultural households

Frequently, users wish to compare the economic situation of agricultural households with that of other socio-professional groups or with all non-agricultural groups or with the national average.

Caution is advised on making such comparisons. It should be remembered that:

- The income of agricultural households often includes entrepreneurial income. In conventional accounting systems entrepreneurial income comprises a hybrid of rewards, including not only the reward to unpaid labour but also to the capital and land owned by the entrepreneur. In contrast, the national average is dominated by households whose main income comes from wages or social benefits. While the nature of the income composition is not relevant for short-term comparisons of the ability to spend or save (the main issue being the funds that are available to consumption or saving), this may not be valid in longer-term exercises.

- As noted above, the national household average will often be dominated by single-person households (comprising mainly the young and old), so adequate steps have to taken to respect differences in size and nature of households in the groups to be compared. In addition to income per household, the use of income per household member and income per consumer unit (calculated using equivalence scales) is recommended. Alternatively, comparisons can be made only using households of the same demographic characteristics (such as households containing two adults and no children).

- There is often special interest in comparing the income of farm households with those of other business people with enterprises of similar size in rural areas.

- The accounting systems used to generate income figures may not capture adequately all the elements of income that should be included in comparisons. For example, the output of food that is consumed by the farm household, or costs of private living that are treated as business costs, will need adequate identification and evaluation before satisfactory comparisons can
be drawn. In some regards, comparisons between agricultural households and the operators of other small businesses avoid some of these difficulties.

- Capital gain may be an important source of income for agricultural households that own land that is not available to other groups in society and consequently is not normally covered in measures of current income.

- Income variation, and the way in which it is viewed, including any countermeasures taken, can vary between socio-professional groups. Thus income averaging may be appropriate where this is feasible.

These issues relating to the definition of income are examined in greater detail in Chapter X.

For use within its IAHS statistics, Eurostat has developed a typology of other socio-professional groups that is recommended for use in comparisons (see section IX.7 below).

This Handbook recognizes that steps should be taken to avoid misrepresentations when drawing comparisons between the income situation of agricultural households and other socio-professional groups. At the least, this should include income comparisons per household member and per consumer unit.

IX. 5 Households containing hired labour working in agriculture

Hired (dependent) workers are not usually considered to be agricultural households. Within the EU, they have not been treated as being within the agricultural community for which the CAP aims to provide a “fair standard of living.” Indicators of the residual rewards from farming (entrepreneurial income) exclude the costs of hired labour. Policies have been primarily directed towards assisting the self-employed members of the agricultural labour force, not the hired ones. Income problems among the households of hired workers have been subject to the normal provisions for poverty alleviation, in the same way as for other employees. Some countries where there are substantial numbers of hired workers in agriculture have a special system for monitoring the wages and conditions of service. In the UK, there is a special legal mechanism to set minimum wages and to avoid exploitation that may result from the fragmented and small-scale nature of agricultural employment. Nevertheless, a range of studies has shown that low-income and household poverty are commonly found among the hired section of the labour force, a particular problem when this is associated with low wealth, as is often the situation.

At this point it is necessary to mention farms that have their own legal status (companies or similar forms). Where a family farm takes the legal form of a company the farmer-directors are not, from a legal perspective, self-employed (as they would be as sole traders or as partners) but rather are salaried employees of their own companies. Similarly, any dividends they may receive are not strictly income from self-employment. According to the definition of an agricultural household as one where the head (or the entire household) has self-employment as their main income source, the households headed by hired workers are not included. Applying this rule strictly would mean that the households of the operators of company farms would also not be included. This is the current approach used in the United States where non-family farms and farms run by hired managers are excluded from the calculation of farm household income.

In reality, most company farms are family owned and operated businesses that adopt this particular business form primarily for taxation reasons or for other conveniences (such as distributing ownership of a
family business among members who do not wish to farm). In most respects they are indistinguishable from unincorporated businesses. Indeed, in the EU’s Farm Structure Survey, some Member States record family farms run as companies as if they were sole traders or partnerships. A common-sense view would clearly include the households of such farmers as agricultural households and as a part of the agricultural community. In practice these farms will often be large and there may be several directors, in which case there is likely to be more than one agricultural household per business.

The lack of statistical attention given to the households of hired agricultural workers can be expected to change following the EU’s enlargement to the east. This enlargement has brought into statistical coverage large numbers of people working on farms arranged as forms of cooperative or joint stock companies that are very different in nature from the traditional family farm. This point is developed in the next section.

This Handbook recognizes that:

Households found on family farms that are arranged as corporations, but that function as unincorporated businesses should be treated as if they were sole-proprietorships or partnerships, and thus be classed as agricultural households. Income results should be shown separately for the households on these quasi-unincorporated farms if possible, which would enable exclusion or inclusion with other agricultural households according the user needs.

The income situation of the households of hired agricultural workers should be assessed as a separate and supplementary exercise (a recommendation to be taken with that of the next section). An ability to analyse by the type of business on which they are employed should be incorporated (family farm, corporate farm etc.).

IX.6 Relevance for countries with large-scale agricultural enterprises with separate legal status

The statistical treatment of hired agricultural workers, their households and their incomes has been thrown into prominence by the enlargement of the EU and the associated introduction into the sector of significant numbers of large-scale agricultural units that have their own legal status and that have a considerable number of employees. These are far removed from the “family farm model” that underlies many agricultural statistics. Many large-scale agricultural units with their own legal status are already found in the unified Germany where they are thought to be responsible for some 15% of the agricultural Net Value Added of the entire (enlarged) country (Eurostat, personal communication). The accession of a further 10 Member States in 2004 has raised these units and their hired workers to much greater prominence. For example, in Hungary in 2000, corporate units constituted only 0.9% of total farms but these occupied 41% of the area.

Replies to a Circular Note from Eurostat have shown that a range of organizational forms are encountered – agricultural enterprises arranged as joint stock companies, limited liability companies, cooperatives, partnerships etc., though in some countries the business structure is not yet stable. Several countries have explicitly stated that the households that work on these large units are considered as part of the agricultural community and are seen as intended beneficiaries of agricultural policy. Furthermore, these households also commonly operate private plots that generate a significant share of their own food supply and contribute a substantial proportion of the aggregate output of some commodities. However, such plots may also be operated by households that are not associated with large-scale units.
There are implications for both the “narrow” and “broad” views of what constitutes an agricultural household, the statistical responses to which have not yet been fully worked out. As an interim solution, Eurostat has proposed that it will provide for the inclusion of income estimates for households found on large-scale enterprises as an “add-on.” This add-on will constitute a supplementary category of households that, in the interest of simplicity and clarity, will cover the households of employees working on all large-scale agricultural enterprises, irrespective of the form of legal structure that these units take. To be included, the household’s reference person must work on a large agricultural unit and that job must be their principal occupation (in terms of income or, failing that, of time). It is assumed that this will be the case for most reference persons.

This “add-on” provision applies to statistics for agricultural households defined in the “narrow” way. The solution appropriate to the “broad” definition of an agricultural household is more problematic and needs further methodological consideration. While the “broad” coverage should obviously include the households of private farmers (deemed to be all those selling to the market and thus generating some income from this activity) and of all workers on large units (to be consistent with the above treatment of reference persons found on them), the issue is complicated by the significant amounts of agricultural production of a subsistence nature that takes place on private plots. This has been accommodated by a proposal to include subsistence producers within the “broad” definition of an agricultural household, while still excluding hobby producers, a distinction that is hard to make but which is intended to be consistent with the (activity) Economic Accounts for Agriculture (EAA). However, this solution on household classification should only be regarded as provisional. Another problem is posed by the valuation of the output from private plots and the contribution this makes to any measure of disposable income, though this issue is also faced by the EAA and national accounts.

This Handbook recognizes that the income situation of the households of hired agricultural workers on all large-scale agricultural units should be assessed as a separate and supplementary exercise, including a breakdown of the type of unit on which they are found and the forms of income they receive (wages, profit share etc.).

IX.7 Households in less developed countries

Up to this point the discussion of agricultural households and how they may be defined has taken place mainly in the context of the social institutions normal in developed countries, and especially those of the OECD members. It has been acknowledged that even among these there are variations in norms in terms of issues such as extended and multigenerational households that pose problems in establishing methodologies that can generate comparable results. It is necessary to note that, when the spectrum of countries is extended to less developed economies, problems of this sort multiply considerably. As Box IX.3 makes clear, in an African context the household, whether defined in terms of a dwelling or single budget unit, may be irrelevant for statistical purposes or in explaining behaviour. Solutions to methodological problems should be sought that are appropriate to local social norms, and what is suitable for Africa may not apply elsewhere. Later versions of this Handbook are likely to elaborate on this crucial issue if the material it contains is to find greater application among less developed countries.

2 In 2001 in Estonia, there were some 176,000 household plots (1.6% of agricultural area) in contrast with 85,300 agricultural holdings (98.4% or the area). Of the 32,400 ha occupied by household plots, which averaged 0.18 ha each, some 2,300 ha were used for potatoes.
IX.8  Typologies of farm households

Finally, three examples are given of typologies of farm households relevant to the generation of statistics that are suitable for policy analysis and that incorporate the structure of total household income. Two also involve other socio-economic characteristics.

IX.8.1 European Union: Eurostat’s IAHS statistics typology

The first example is the pioneering typology of farm households developed by Eurostat in its Income of the Agricultural Households (IAHS) statistics for EU Member States (drafted before the enlargement of 2004), to which reference has already been made. In brief, this is a binary classification that divides households with some income from farming (a “broad” coverage) into those that are narrowly “agricultural” and those that are “marginal”.

- For its “broad” coverage all households are included that derive some income from independent activity in agriculture (other than income solely in kind that is of a “hobby” nature). This income can arise from the activity of the head of the household or any other member.

- For its “narrow” coverage the IAHS applies a classification system based on the main income source of the household’s reference person (Eurostat, 1996), a more practical approach than one that looks at the composition of the entire household’s income. This reference person is intended to be the household’s highest income earner, who will also usually be the one regarded as the head of the household. How this person is designated varies from country to country, and may be selected by self-declaration or more complex algorithms. Countries where an income-based classification is not feasible (for example, France) have been allowed to apply a system based on the reference person’s main time allocation or on a more subjectively determined occupation or trade group label. It is recognized that some producers of significant volumes of agricultural commodities may be excluded from the “narrow” agricultural group if they have even larger incomes from elsewhere.

- Subtracting the “narrow” coverage from the “broad” results in a “marginal” group of households that engage in independent agricultural activity but where the main income is from some other (non-agricultural) source.

The “narrow” definition takes precedence in the generation of IAHS statistics because it produces a group that appears to correspond more closely with the “agricultural community” whose incomes the CAP is intended to support. Of course, whichever definition is being used, the incomes of all household members are summed to achieve a total for the household.
Box IX.3
Difficulties in using the household as the unit for analysis

A number of criteria can be used to define the household. Those commonly employed include: members have a common source of major income; they share a common source of food; and they sleep under the same roof or within the same compound. But the criteria used to identify households must be relevant to the local situation, since their size and characteristics show wide variations by principal occupation, locality and country. The household may consist of a single family, but in Africa households commonly comprise several families, kin, and even persons with no kin relationship. It is possible for families to be spread among several households, either temporarily or permanently. For example, a married woman while young may continue to live in her father’s household, while her husband lives under a separate roof.

The household is an important social unit because within it many of the decisions concerning individual members’ activities and their consumption (and thus their welfare) are made and its physical properties – that it is a collection of individuals with an identifiable location – makes it a useful sample unit in survey work. It must be emphasized, however, that households are embedded in wider social networks, their lineage group for example, whose actions partly determine their members’ welfare. Given the importance of the household as a decision-making unit, we need a conceptual framework to analyse its decisions over the allocation of resources. Two key issues are raised in the analysis of the household. The first is the role of the household as both the producing and consuming institutional unit. Whereas in much of orthodox economic theory the firm is assumed to be the producing unit and the household the consuming unit, quite different institutional arrangements must be assumed for developing countries. This is especially the case in Africa given the predominance of agricultural activities in total employment and the limited share of formal employment in most countries.

The second issue that has been addressed concerns how household decisions are made – are they reached collectively or does one individual or group dominate the process? A related issue is whether we can speak of a ‘household welfare function’, since there may be conflicts of interest within the household. In theoretical work, individuals are aggregated into households on the assumption that they possess identical preferences based on identical tastes. Household decisions are then analysed in the same way as those for a single individual. Why people should group themselves in a household is usually analysed as a secondary problem, but it is generally assumed that they make up a family. Sen … calls this arrangement the ‘glued-together family’. Alternatively, a ‘despotic family’ is one in which the head of the family takes all the decisions, so the family behaviour is simply a reflection of the head’s choice function. These are polar cases – in the former, members of the household are assumed to share the same preferences; in the latter, the preferences of the household head alone are relevant.

Major problems exist, however, in using either the concept of the ‘glued-together’ or the ‘despotic’ family. Preferences, particularly those that arise from age and sex differences, can differ widely among family members so that they will allocate family resources in different ways. The eventual allocation of resources will differ, perhaps substantially from that under ‘glued-together’ or ‘despotic’ families. These difficulties apply with equal force to the unit of the household because large numbers of people can be involved in decisions about its collective resources. In such circumstances, assuming a single-household utility function is even less valid than making such an assumption for a single family unit.

Some idea of the implication of this typology for the numbers of households and income levels can be gained from the seven EU15 countries where this calculation is possible (though spread across several years). The “marginal” households are shown to be present in substantial quantities and in some countries are more numerous than “narrow” agricultural households (see Box IX.4). This may present difficulties of acceptance amongst some users if they feel that large numbers of the households they regard as farmers are being excluded and that the results relate to a small sector of the industry that is, in some sense, atypical. This has proved a particular problem in Denmark and Ireland because of their socio-economic traditions (see comments in Box IX.4). Though highly heterogeneous, the “marginals” share the characteristic that agriculture is typically of less importance to them from the perspective of total household income (for example, generating only some 5% of household income in Germany in 1983 and 14% in Ireland in 1987) (Eurostat, 2002 and earlier reports).

Though attention here has focussed on households, a parallel classification of other institutional units (corporations etc.) might also be envisaged. By summation, a picture could be presented of all units engaged in production or for which it is the major activity or income source.

Eurostat has also developed a draft typology of other socio-professional groups, based on national accounts guidelines, to be used for comparative purposes within IAHS statistics (see Box IX.5). Some commentators see the ability to compare the incomes of agricultural households with others in society as important to the achievement of the objectives of agricultural policy, in particular of ensuring the “fair standards of living for the agricultural community” which is a prime aim of the EU’s CAP. Categories shown in **bold** constitute a "minimum" list proposed by Eurostat. Member States that wish to use a more detailed breakdown may do so. In reality, where results are calculated, Member States largely use the bolded categories.

Among agricultural households defined in a “broad” way, alternative and more detailed ways of disaggregating the data are, of course, possible (for example, by size of farm, by type of rural location, by age of principal farm operator). However, in Europe there is no systematic and harmonized approach; what is done is usually determined by national data availability. An interesting example is provided by Ireland, where the combination of the annual national farm survey and the periodic household budget survey enables a flexible and detailed analysis to be carried out, though only in the base years of the household survey (typically every 6 or 7 years). This enables, at least in theory, the comparison of incomes of farm households defined in various ways with other socio-professional groups. Denmark publishes household income results (total income and disposable income per farm) by size of farm (area and economic size). Germany also breaks down the results of total and disposable income from its farm accounts survey into averages for “full-time” (subdivided by size), “part-time” and “spare time” farms. (For a review of these and other country breakdowns see Hill, 2000). These breakdowns use conventional categories and are not explicitly policy-orientated.
Box IX.4
Implications of using “broad” or “narrow” definitions of an agricultural household

The following numbers of agricultural households and average incomes are contained in Eurostat’s reports from its IAHS statistics. They come from a number of national sources, some routine annual exercises but many others from special studies, some of which are now quite historic.

Number of households and levels of average net disposable income for three groups of agricultural households, in selected Member States:

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<tbody>
<tr>
<td>No. agricultural households (x 1 000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;broad&quot;</td>
<td>57</td>
<td>613</td>
<td>615</td>
<td>207</td>
<td>136</td>
<td>139</td>
<td>94</td>
</tr>
<tr>
<td>&quot;narrow&quot;</td>
<td>16</td>
<td>353</td>
<td>398</td>
<td>85</td>
<td>87</td>
<td>73</td>
<td>54</td>
</tr>
<tr>
<td>&quot;marginal&quot;</td>
<td>41</td>
<td>260</td>
<td>217</td>
<td>122</td>
<td>49</td>
<td>65</td>
<td>41</td>
</tr>
<tr>
<td>Disposable income per household (All households = 100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;broad&quot;</td>
<td>99</td>
<td>110</td>
<td>114</td>
<td>105</td>
<td>210</td>
<td>124</td>
<td>81</td>
</tr>
<tr>
<td>&quot;narrow&quot;</td>
<td>105</td>
<td>101</td>
<td>86</td>
<td>127</td>
<td>267</td>
<td>131</td>
<td>79</td>
</tr>
<tr>
<td>&quot;marginal&quot;</td>
<td>92</td>
<td>123</td>
<td>166</td>
<td>89</td>
<td>108</td>
<td>116</td>
<td>85</td>
</tr>
</tbody>
</table>

The relationship between numbers of households in the three categories reflects real differences in national socio-economic conditions. For example, in Denmark the transfer of land between generations typically takes the form of sales between parents and children, something that is not usual elsewhere in the EU. Specialist lending institutions grant loans for this purpose. To meet interest charges it is common for one or more members of the successor’s household to take a non-agricultural job, something that can influence the choice of enterprise on the farm. Interest charges also reduce the profit from the farm business. The result is farming that appears unprofitable (in the short term) because of a high debt burden and relatively few households where the farm forms the main income source. In the longer term, the death of parents implies the release of capital to the succeeding generation. In Ireland demographic conditions appear to have produced relatively large numbers of household comprising single older males who are dependent on social benefits.

### Box IX.5
Typology of socio-professional groups for use within IAHS statistics
(a disaggregation of the households sector account)

(a) Employers and own-account workers
   
   (i) Farmers (This group should not include forestry or fishery households. Where it is not possible to exclude them, this should be made explicit)
   
   (ii) Others

   (x) Retail and wholesale distribution; accommodation and catering
   (y) Services (including professions operating as own-account workers)
   (z) Others (including manufacturing industry)

   (iii) All self-employed [(a)(i) + (a)(ii)]

(b) Employees

   (i) Manual workers in agriculture, industry and services
   (ii) Non-manual workers
   (iii) All employees [(b)(i) + (b)(ii)]

(c) Others

   (i) Recipients of property income
   (ii) Recipients of pensions
   (iii) Recipients of other current transfers
   (iv) All others

(d) All households except farmers [(e) minus (a)(i)]

(e) All households [(a) + (b) + (c)]

### IX.8.2 Economic Research Service farm typology for the United States

The second example of a typology applied to agricultural households comes from the United States, where the Economic Research Service (ERS) (2001) of the Department of Agriculture has developed a classification that appears to be more focussed on the needs of policymakers. It is based on a combination of the occupation of the operator and the sales class of the farm (Offutt, 2002). It identifies five groups of small family farms (sales less than $250,000).

- **Limited resource.** Any small farm with gross sales less than $100,000, total farm assets less than $150,000, and total operator household income less than $20,000. Limited resource farmers may report farming, a non-farm occupation, or retirement as their major occupation.
- **Retirement.** Small farms whose operators’ report they are retired (excludes limited resource farms operated by retired farmers).

- **Residential/lifestyle.** Small farms whose operators report a major occupation other than farming (excludes limited resource farms with operators reporting a non-farm major occupation).

- **Farming occupation/lower-sales.** Small farms with sales less than $100,000, whose operators report farming as their major occupation (excludes limited resource farms whose operators report farming as their major occupation).

- **Farming occupation/higher-sales.** Small farms with sales between $100,000 and $249,000 whose operators report farming as their major occupation.

In addition, there are three categories of farms that are considered large in that their sales exceed $250,000. This threshold is admittedly arbitrary, with the ERS choosing $250,000 at the suggestion of the National Commission on Small Farms.

- **Large family farms.** Farms with sales between $250,000 and $499,999;

- **Very large family farms.** Farms with sales of $500,000 or more;

- **Non-family farms.** Farms organized as non-family corporations or cooperatives, as well as farms operated by hired managers.

This typology now forms the basis for disaggregating ERS reporting on farm household and business performance and will be used to evaluate the impacts of changes in agricultural legislation. According to Offutt (2002), disaggregation using the typology shows very clearly how dependence on farm income varies by farm type. In 1999, only households operating very large farms acquired more than 80% of their total income from their farm business.

For large farms, farm income accounted for 60 per cent of total income while for higher-sales small farms, half of total income came from farming. The remaining small farm households derived virtually all their income from off-farm sources. Off-farm income, therefore, is as important, or more important, than farm income to the well-being of most of America’s farm families. The data on household income also show distinct differences in levels compared to United States average household income (more detailed comparisons with separate socio-professional groups are not offered in the USDA-ERS publication). As noted, the average farm household income in 1999 was about a third higher than the average for all United States households. But, again, this average masks significant variation.

For example, the average household income for limited resource farms lay below the poverty level while the average household income for the very large family farms was more than three times the national average. On smaller farms where the operator’s main occupation was farming, the higher-sales group’s total income was just above the national average while the lower-sales group lay just below it. In addition, total income from retirement farms lay just below the national average.

Residential/lifestyle farms had negligible or negative income from their farm but had overall household incomes above the national average. These comparisons of farm household income across typology groups demonstrate the value of survey data in presenting a cross-sectional view. In addition, it emphasizes the value of using the household as the basic unit of observation.
IX.8.3 Italy: the ISMEA survey

The third example of a farm household typology comes from Italy and is based on analysis of 1995 ISMEA survey data which used a sample drawn from the 1992 Agricultural Census (Napoletano et al., 2001; Castagnini et al., 2003). This survey collected data on farm budgets, household and farm characteristics, time use, off-farm money income, governmental and intra-household transfers, consumption, and information about the degree of autonomy in decision-making by household members. A farm size threshold of four European Size Units was applied to exclude households where agricultural activity was negligible or marginal. Rather than starting from categories that were primarily determined by policy requirement (as in the United States), groupings were developed by statistical techniques from a socio-economic survey of Italian agriculture that was based on general equilibrium household theory for those engaged in entrepreneurial activities. The main thrust of the work was to establish links between the micro- and macroeconomic levels of economic and policy analysis.

The outcome was a typology of seven categories that bears a striking resemblance to the ERS system for the United States (see Figure IX.2). The breakdown by type, and their geographical location, enabled some key conclusions to be drawn. For example, limited resources farms contribute only two per cent to agricultural output but 70% of them are concentrated in the Mezzogiorno, an area suffering from structural disadvantages and where there are currently very few alternatives to agriculture. This finding suggests that, for this part of Italy, policymakers should focus their attention on programmes of economic and rural development rather than on agricultural support.

The three examples cited above illustrate the usefulness of being able to disaggregate the income results, especially in ways that may be of relevance to agricultural and other policies. The similarity of the system devised for the United States and the empirical results of analysis in Italy suggests that there may be virtue in adopting the basic typology they contain for application elsewhere among OECD countries.

This Handbook recognizes the value of the typologies of agricultural households that reflect the needs of users and encourages their development. The basis of the typology should be flexible so that different needs can be met. Consideration should be given to the international application of a classification similar to that used by the USDA-ERS.

<table>
<thead>
<tr>
<th>Farm type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited Resource</td>
<td>Any small farm with global family income, gross sales and total farm asset less than the first quartile of the respective distribution.</td>
</tr>
<tr>
<td>Retirement</td>
<td>Small farms whose operators report that they are retired.</td>
</tr>
<tr>
<td>Residential</td>
<td>Small farms whose operators are not retired and report a major occupation other than farming.</td>
</tr>
<tr>
<td>Small family farms</td>
<td>Small farms with gross sales less than the first quartile of the distribution and whose operators report farming as their major occupation.</td>
</tr>
<tr>
<td>Medium family farms</td>
<td>Any farm with gross sales less than the third quartile of the distribution and whose operators report farming as their major occupation.</td>
</tr>
<tr>
<td>Large family farms</td>
<td>Any farm with gross sales over the third quartile of the distribution.</td>
</tr>
<tr>
<td>Non-family farms</td>
<td>Any farm organized as non-family corporations or cooperatives, or operated by hired managers.</td>
</tr>
</tbody>
</table>

Source: Napoletano et al. (2001).
**References**


X DEFINITIONS OF INCOME

X.1 Income as factor rewards and as source of consumption spending

A distinction has already been made (Chapter VIII) between drawing up accounts relating to an activity and accounts relating to institutions, of which households are of particular interest here. This is reflected in two approaches to income in agriculture. One approach sees income as a reward that the owners of fixed factors of production receive as a result of allowing their land, capital and labour to take part in production. The other sees income as the flow of resources that households receive that may be spent on consumption and on saving.

The traditional way of monitoring the economic situation in agriculture has been by means of indicators of factor reward. These can relate to all the fixed factors (land, labour and capital) irrespective of who owns them (as reflected in Net Value Added). Alternatively, by deducting charges for hired labour, borrowed capital and rented land, only those factor rewards belonging to the farmer and other family labour are revealed. This residual is often taken to be the income accruing to farmers and the unpaid members of their households for working in agriculture and using their land and capital in this industry.

However, households that operate farms often receive, in addition to their rewards from farming, income from running non-agricultural businesses, from waged employment, from social transfers etc. It is important when assessing the welfare of agricultural households not to assume that these other sources are unimportant. Empirical evidence suggests that they can be of great significance in many countries at all levels of development (OECD, 2003). For example, in the United States over four fifths of the household income of farm operator households regularly comes from non-farm sources and in 2000 this was over 95 per cent (Mishra et al., 2002). In 2000, on only 11 per cent of United States farms did the occupiers make more than half of their household income from farming. Evidence over time suggests that these other forms of income are becoming more important in many countries. However, the relative dependency on the farm for income varies widely among agricultural households, reflecting a number of factors including farm size. However, it is particularly sensitive to the definition of what constitutes an agricultural household.

Not all the resources flowing towards farm households are available for spending or saving. Some allowance has to be made for maintaining the stock of productive capital by reinvestment. In addition, some payments have to be made that are not optional or discretionary, such as direct taxation and contributions to social insurance schemes.

X.2 Relationship between household resources, income and expenditure

In considering the economic situation of agricultural households it is instructive to first take an overall view of the resources flowing to these households and the way in which these resources are used for acquiring the means for living. Figure X.1, adapted from Cecora (1986) comprehensively demonstrates the resources used to support the “subsistence” of private households.
DEFINITIONS OF INCOME

Figure X.1
The “subsistence” of private households

Note: This figure has been redrawn and modified from Cecora (1986).
Resources take both monetary and material forms and are derived from a variety of sources (from work, from property, from private or public transfers etc.). Resources are also used in several ways, including the acquisition of consumption goods and services. It follows that this flow can be measured at various points and with various degrees of completeness. Most practical income measurement concerns that part of the flow that comprises “nominal goods” in Figure X.1. However, as will be demonstrated, some forms of income in real goods are normally included (especially the housing services provided by owned dwellings). Having said this, there is also a need to consider other activities that might be deemed to constitute part of income, such as what happens in the home, and whether resources that arrive irregularly, such as inheritances of money or assets, should be treated in the same way as regular earnings from economic activities and social benefits. It is important to remember that the assessment of income usually involves the drawing of rather arbitrary boundaries in the overall flow of resources, the suitability of which will depend on the particular circumstances.

The measurement of personal income constitutes a subset of this flow. A widely accepted definition of personal income is that given by Simons:

*Personal income may be defined as the sum of (1) the market value of rights exercised in consumption and (2) the change in the store of property rights between the beginning and end of the period (Simons, 1938).*

It is important to note that these consumption rights include those that could be exercised in addition to those which are actually used; otherwise a high earner who spent little might be grouped with a low earner who spent everything.

Income is only numerically identical to consumption when the store of rights, in the form of savings, remains constant. We would expect the low spending high earner to accumulate savings over the period.

This notion of personal income also corresponds to that put forwards by John Hicks (1946), who described an individual’s income as the maximum value he could consume during a period and still be as well off at the end of the period as he was at the beginning. The concept of income set out in the System of National Accounts 1993 (SNA93)(UN, 1993) is closely aligned with that described in Hicks. In the SNA93, the theoretical view of disposable income is defined as “*the maximum amount that a household or other unit can afford to spend on consumption goods or services during the accounting period without having to finance its expenditure by reducing its cash, by disposing of other financial or non-financial assets or by increasing its liabilities.*” (SNA93, para 8.15). It follows that increases in “the store of property rights” arising from capital gains constitute positive contributions to personal income while losses are negative items.

**X.2.1 Income from self-employment**

When measuring income according to the approach to personal income outlined above, the flow of resources towards households comes in three main forms:

- from gainful activities (mainly employment and self-employment);
- from the ownership of property (rent from land, interest from financial assets); and
- from transfers (mostly social transfers organized by government but also private ones, such as from family members working abroad).

Each has its own set of technical issues and it is not possible in this Handbook to explore every one in detail. However, of particular concern is the measurement of income from self-employment as, by
DEFINITIONS OF INCOME

definition, agricultural households are involved with self-employment (independent activity) in operating a business. Depending on which definition of an agricultural household is applied, the farm business may be the only source of self-employment income, the main source or a minor source (see Chapter IX) but it will always contribute a part of the total.

For self-employed operators of unincorporated businesses income is measured by the net surplus accruing from the production process. This may be labeled Entrepreneurial Income. It can be formulated at its simplest as follows, based on the SNA93 (UN, 1993):

\[
\text{Value of output (sales plus own consumption)} \quad \text{Minus} \quad \text{Cost of intermediate consumption (inputs purchased)} \\
\text{Equals} \quad \text{Gross Value Added} \\
\text{Minus} \quad \text{Capital consumption} \\
\text{Equals} \quad \text{Gross Value Added} \\
\text{Minus} \quad \text{Cost of paid labour (wages and other costs)} \\
\text{Equals} \quad \text{Operating Surplus}\footnote{SNA93 describes Operating Surplus of unincorporated businesses as “mixed income”. Operating Surplus is not a concept often used at the microeconomic level.} \\
\text{Less} \quad \text{Interest paid and rent paid} \\
\text{Equals} \quad \text{Entrepreneurial Income}
\]

Similar formulations are used in aggregate (industry-level) and microeconomic (farm-level) accounting systems. However, there are differences of detail, such as the treatment of subsidies and the basis of valuation (market prices or basic prices). At the microeconomic level, Entrepreneurial Income corresponds to the residual profit generated by the business from its outputs after the costs of production have been met (including both the purchase of variable inputs and the rents, interest charges and hired labour costs relating to the “fixed” factors).

- Income from self-employment has some characteristics that set it apart from income from employment (after ILO, 1997). As noted above, for self-employed people who operate businesses that use assets (in contrast with those who only supply services), Entrepreneurial Income comprises a mix of returns to the fixed factors (land and capital owned by the operators and both their manual and managerial labour input). This prevents simple comparison with the income of employees, which does not contain any elements of return to capital or land.

- It is a residual, not determined in advance, which depends on the profits of the production activity. This may have implications for the practicality of measurement and data collection, as calculation is only secure once the accounting process is complete. This may be some time after the end of the period to which the income relates.

- By definition, Entrepreneurial Income includes the rewards to any unpaid labour, which in agriculture often comprises members of the farm family. The implication is that there will be some financial reward received by these unpaid workers. However, in microeconomic accounting in agriculture, a wage is sometimes imputed for non-paid labour other than the farmer and spouse (for example, a wage is deducted for sons or daughters working on the farm, even when no wage is paid or where only a nominal payment is made). This provides for greater comparability between farms operating with different proportions of hired to family labour.
Calculating the profit from the farm business is not without areas of contention. For example, the valuation of biological assets that last beyond one accounting period (such as dairy cows or plantations) is an issue that may impact the residual income. Similarly, the estimation of capital consumption is possible in various ways (for example, valuation at historic cost, replacement cost, different assets lives etc.). When appraising investments, an *ex ante* view of capital consumption may take a different approach from that appropriate to the *ex post* calculation of income. Another approach is that an operator might be allowed to deduct from income that which is viewed as necessary for business reinvestment to maintain viability. In a dynamic environment this might be more than the estimate of capital consumption based on the existing stock and asset lives (ILO, 1997). The treatment of capital consumption (depreciation) and other conventions used in the measurement of business profits for the purpose of taxation may well differ from those that would be adopted in an economic measurement. Although accounting on an accrual basis may be the norm, some tax systems allow farmers to calculate their incomes on a cash basis (OECD, 2003). Such issues have been a concern in the development of an International Accounting Standard for agriculture (IAS 41) which is now in the process of being adopted in many countries. 

In estimating the residual income from farming activity for the purpose of assessing agricultural household income, a valuable resource exists in the form of the methodology developed in existing farm accounting systems. For the EU, the European Commission, in association with Member States, has developed an accounting methodology for its Farm Accountancy Data Network (FADN/RICA). Evolving since the mid-1960s, its details are now readily available. A research network (PACIOLI) has developed in association with FADN/RICA (see, for example, PACIOLI (2004)). The FADN/RICA methodology includes a list of the items that lead to various income indicators, of which Farm Family Income is the most relevant in the present context; it describes the residual as “remuneration to fixed factors of production of the family (work, land and capital) and remuneration to the entrepreneur’s risks (loss/profit) in the accounting year” (European Commission, 2002). Family Farm Income is similar to (but not identical with) the Entrepreneurial Income of the SNA93. As the harmonized basis for microeconomic accounting for farming, including income indicators, in 25 European countries, FADN/RICA will be influential in any international system of farm household income measurement. The equivalent survey in the United States (the Agricultural Resource Management Survey – see Chapter XII.4.1) uses a similar approach but calls its residual concept Net Farm Income.

### X.2.2 Income in kind

Income in kind is a part of the rewards from self-employment. In agriculture, this issue is especially problematic because of the enhanced opportunities that farm households have to consume from the outputs or inputs of the business. In attempting to express income as a magnitude of money, it will be necessary to attach monetary values to these goods and services, the relevant question being “How much would the farm family have to pay to consume these items if they did not come in a physical income form?” The problem involves, first, identifying the non-monetary income and, second, choosing an appropriate method of valuation. Some examples of income in kind are straightforward. If a farmer’s wife is given eggs in exchange for working on a neighbour’s holding for a few hours each week, then these eggs clearly form part of her household’s income. The method of valuing them may be open to argument, but there would be little doubt that the eggs should be included. The use of petrol paid for by the farm business but used for private

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2 IAS 41 was approved by the International Accounting Standards Committee (IASC) in December 2000 and became effective on 1 January 2003. The objective of IAS 41 was “to establish standards of accounting for agricultural activity - the management of the biological transformation of biological assets (living plants and animals) into agricultural produce (harvested product of the enterprise’s biological assets).” It is anticipated that IAS 41 will become IFRS 41 under the revised framework of International Financial Reporting Standards issued by the International Accounting Standards Board (IASB). The IASB superseded the IASC in 2001. (www.iasplus.com/standard/ias41.htm)

3 http://europa.eu.int/comm/agriculture/rica/index_en.cfm
outings would also qualify. These are both items that can be substituted by articles bought in the marketplace - shop bought eggs and petrol bought at the pumps. Others, however, are far more problematic.

Income in kind is of particular importance in an agricultural context because of the fringe benefits associated with farming. The description “fringe” is perhaps unfortunate since it gives the impression that these benefits are unimportant and might be ignored, yet it is precisely these “fringe” elements in the rewards enjoyed by farmers and landowners that those outside the industry frequently find the most attractive. Benefits such as domestic environments divorced from unwanted encroachments by noisy people and traffic, the ability to pursue space demanding activities like horse riding and the opportunity for direct involvement in the protection and conservation of wildlife seem to be precisely the attributes of farming which potential new entrants with adequate fortunes made in other businesses are keenest to secure. They are also those that are protected most vigorously when some external change, such as a motorway development, threatens them.

In an agricultural context there are two important examples of income in kind where some valuation by imputation is required. The first is the farm household consumption of food materials produced on the home farm (often termed own consumption). Food consumed by farm families which they grow themselves involves costs of production borne by the business (fertilizer, tractor fuel, machinery hire purchase charges and so on) which are debit items in calculating income from self-employment. In assessing the total income to the farmer from his business the value of all these own-consumption goods have to be accounted for. A way of looking at home consumption of farm production is that, in the case of any other household, the food would have to be bought for cash, so the real value of the farm household income is greater than it appears nominally by the extent of the household’s own consumption. Consequently, farm families would be expected to spend less on purchased meat, milk, eggs etc. than other types of households. Choices have to be made on the method of valuation, the options being to use retail prices, wholesale (or farm gate) prices, or some estimate of the costs of production. A retail valuation was adopted by Bellerby (1956; p.57) in his seminal work on the relative income position of the agriculture and non-agriculture sectors. However, the practice in the European System of Accounts (Eurostat, 1979, 1995) in its household sector account has been to use farm gate prices, with the justification that on farms the foods consumed from own production do not receive the benefits of packaging, processing and presentation, all of which are reflected in the retail price. Though this particular income adjustment is probably of little importance when comparing the incomes of one group of farmers with other farmers, there could be a substantial impact when ranking farmer incomes against those of other groups in society.

The second example concerns the services provided by owner-occupied dwellings. Typically the buildings on a farm include a domestic house for the farm family. Sometimes there is more than one such building. If the house were let it could command a rent, and by occupying the house the family is in effect receiving the benefit in kind. Consequently, an imputed rental value should be added to the income of the farm household. Similar reasoning would apply, of course, to housing of other socio-professional groups who have accommodation which goes with the job or business, including clergy. Indeed, all owner-occupiers of domestic houses are receiving a flow of services in kind from their property, and a full assessment of their income should take the value of these services into account.

In addition to these two examples of income in kind that are particularly relevant in the agriculture context, a third type, applicable more generally, should be mentioned. These are social benefits in kind. These are the goods and services consumed by individuals that are provided in kind by the state and financed from taxation, such as health care and education. As will be seen later, the disposable income of households is sometimes adjusted by these benefits (to form “adjusted disposable income”). While for some items (dental treatment, perhaps) evaluation of these benefits is relatively straightforward because a market price exists for similar services (for example, the costs of private dentists), for others there may be no parallel market from which values can be taken, or the markets may be so marginal that the prices in them are not
satisfactorily representative of the whole. In such cases the average cost of providing these items may have to be substituted as values. Though there are practical problems of identification and valuation, these forms of income in kind should not be ignored, especially where comparisons of household income are made between countries that have different levels of state activity in the health and education sectors or over time when changes in the level of state provision take place.

X.2.3 Living costs

When comparing levels of disposable income between agricultural households and other groups, and in particular when implying that these can be used as an indicator of potential consumption, it may be important to note differences in the amount that farmers and their families have to pay for certain goods and services. Food produced on the home farm and consumed by the farm family may be (net) less expensive than if purchased from off-farm sources, and this may also apply to fuel and some land-demanding recreational activities. On the other hand the costs of other goods and services may be greater in rural areas than in urban ones, reflecting remoteness and sparseness of population. Transport costs are a particular issue; some farm households (and other self-employed people) may be able to spread vehicle expenses between production and consumption activities, whereas this may be denied to others, including both urban and rural dwellers. Thus, caution has to be exercised when drawing comparisons based on disposable income.

X.3 Individual and household incomes

The focus of the second part of this Handbook is the income of the household, which is assumed to relate to the well-being of its members. While for both practical and theoretical reasons this Handbook assumes the predominance of the household as the basic measurement unit, this section draws attention to the limitation of the whole household approach and the need for caution when using income indicators for this multiperson unit.

It is necessary to explore briefly the relationship between the household and the individuals of which it is constituted, something that bears on the validity of measuring income at the household level and, by extension, the usefulness of the resulting statistics. Much of this discussion could have as easily fitted into Chapter IX, where the definition of the household was considered.

In Chapter IX the concept of the household was based on the assumption of income pooling and shared expenditure within this unit (especially in its single budget household form). A feature of agricultural household incomes is that they are usually only meaningfully defined at the household level because, typically, they comprise rewards that are earned, at least in part, by members working as self-employed labour on the farm operated by the household.

However, for some purposes, it is important to know more about the economic situation of the individuals. For example, a fundamental welfare question involves knowing how much money is needed to make each household member as well off as they were before a change in living conditions. Compensations should be defined on the basis of individual rather than household welfare. The measure of individual income sought here corresponds to individual welfare after the redistribution of both monetary and non-monetary resources has taken place within the family.

In general, income surveys report individual measures of income. But incomes of individuals can only be measured directly when household members are the employees (i.e. not self-employed) of some third party institutional unit and provide their time to their employer at an objective market wage. Clearly, the
derivation of the incomes of individuals within farm households presents challenges because of the nature of the family operation of the income generating activity. Reconstructing the incomes of household members and consequently revealing associated individual welfare requires knowledge of individual utilities that are only derivable from the identification of the rules governing the intra-household allocation of resources.

Asking how household endowments of both goods and time are allocated within the household is an interesting behavioural question. It is also a crucial welfare issue, since measures of poverty and inequality, based on the assumption of equal treatment of family members, may grossly underestimate reality. Some members of the household may be relatively more or less poor depending on the allocation rule. Knowledge of how resources are shared within the household may be relevant, for example, to the devising of eligibility rules for benefit schemes or to ranking households in terms of the equality of the intra-household distribution process. The definition of the consumer unit (discussed in Chapter IX) is founded on the notion of including all individuals pooling a given total income. According to Seneca and Taussig (1971), determining the income unit is the most intractable problem that must be resolved in estimating equivalence scales appropriate for tax policies.

When looking at how far models of household behaviour take us in our understanding of the behaviour of households, a particular difficulty arises from the general assumption that the household acts as one entity (Imperial College, undated). Theories such as the profit-maximizing peasant (based on neo-classical theory); the risk-averse peasant; the drudgery-averse peasant (Chayanov and Nakajima models); and the farm household peasant (Barnum-Squire, and Low models) have two common assumptions, namely that the household acts as one decision-making entity, and that its objective is to maximize something, whether profit or utility. In other words these theories assume that the household has a single utility function and that the utility of each individual household member is integrated into this single function. This assumption poses a number of problems. Traditional models describing household decisions in a unitary fashion are inadequate to properly describe the intra-household decision process.

On the other hand, the collective models of household behaviour, which try to take account of the objectives and behaviour of individual members of the household by relaxing the assumption that the household acts as one decision-making entity, enable a discussion of intra-household relations and gender issues to take place (Imperial College, undated). The collective representation of family behaviour (Chiappori, 1992), where each family member is characterized by a utility function and decisions are assumed to be Pareto efficient outcomes, is appropriate since it makes the intra-household decision process endogenous. Chiappori’s “collective approach” permits the estimation of individual incomes and the associated utility levels of individual household members. In welfare terms it would be possible to determine how much money is needed to make each household member, be it an adult or a child, as well off as they were before the change. It would then be appropriate to refer to inter-personal rather than inter-household comparisons. Further, the knowledge of the welfare levels of individual household members makes it possible to account for gender and inter-generational differences in the evaluation of policy impacts. Ultimately, it would be possible to answer fundamental questions such as whether it is better to be a poor child in a rich household or a rich child in a poor household.

Income statistics are usually computed without using knowledge about the intra-household allocation of goods and power and without giving special consideration to the fact that goods that are private at the aggregate household level are public within the household (Gronau, 1988, 1997). This knowledge, though deducible (Deaton, 1988; Gronau, 1988; Chiappori, 1992), is usually constrained by the fact that only information at the household level is available in expenditure surveys. The neglect of intra-household inequality may have consequences for the measurement of society’s level of poverty and inequality (Haddad and Kanbur, 1990), or it may generate paradoxical results of the type reported by Glewwe (1991) according to which transfers from the poor to the rich could decrease inequality.
In this regard, Sen (1983) points out that “A much more articulate family welfare function is needed to relate the collection of unequaled levels of well-being of family members to an aggregate measure for the family as a whole. This will, of course, involve a “mini social choice problem...”. The approach of “equivalence scales” “…has to be integrated more fully with intra-family allocation and theories of aggregation of unequal well-beings.” Gronau (1997) reinforces this point by asserting that “… the effect of children on consumption patterns depends on the intra-household redistribution of resources and consumption technology, and that in discussing “children welfare indices” (which adult equivalence scales presume to be) one has to ask: whose welfare do we have in mind?”.

In general, the households living in poverty have a single income earner. These households often live in disadvantaged areas where job opportunities are scarce, especially for low skill workers. The degree of dependency of the household upon the resources brought home by the primary breadwinner, generally a male, varies with the life cycle of the family and across social strata. In these households, the dependency upon the income received by the single worker implies that the welfare of the members depends upon the man’s allocation rule of his wage among personal expenses and expenses for the care of the dependent members of the household and the housekeeping budget, generally handled by his wife. This is not always either a smooth or a fair division.

Because the distribution patterns of wages within the family is an informal matter that has not been adequately studied, it is difficult to know which pattern of wage allocation prevails across the households of different societies. According to Seccombe (1993), three broad variants may be distinguished: 1) altruistic, 2) fair, and 3) egoistic and despotic. In the altruistic model, men hand the salary in its entirety to their wives while keeping a modest amount for personal needs at their spouses’ discretion or by mutual agreement. Within the fair model, probably the dominant pattern, the working men hand over a housekeeping allowance, colloquially known as the wife’s ‘wage.’ In poor households, in a relative sense, when the allowance barely covered the regular weekly expenses of food and rent, it was almost impossible to set aside funds for children’s boots, new clothes or unexpected medical bills. In the egoistic and despotic variant, extremely pernicious but not uncommon, the cash wives obtained was a random residual corresponding to the amount left over after their callous husbands had satisfied their wants: visiting the pub or betting shop. Working men who ‘drank their pay’ caused serious negative externalities to the other members of the household.

Finally, in this section we turn to the implications of the relationship between individual and household incomes for data systems. The implementation of the collective approach to the analysis of the household enterprise, permitting the recovery of individual behaviour and welfare levels, requires the collection of information about the private consumption of goods and time use. This information is crucial when the policy analyst is interested in gender issues or the well-being of children. Social accounting matrices, both at the household and society level, can maintain the gender or adult/children differentiation, thus permitting the analysis of intra-household distributive issues. The researcher responsible for the questionnaire design should therefore ensure that the information outlined in Box X.1 is included. On a practical level, the degree of detail and the recovery of incomes of individuals to which it gives rise can enable datasets to be linked where, for example, some are on an individual basis and other use the household as the basic unit.
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Box X.1
Recommendations to data systems for implementing a collective approach

The questionnaire design should provide for the following information to be collected:

Consumption spending and Labour
- Clothing for male, female and children, toys, school material and other education expenses, baby food, personal care items, alcohol, tobacco.
- Individual specific time-use.
- Off-farm work opportunities and wages.

Income and wealth
- The sources of non-labour income should be assigned, when possible, to each household member.

Production
- Who does what in the farm and in the household, distinguishing, when possible, the activities undertaken by the father, mother, children, other adult members of the household and hired labour.

X.4 Shadow wage and the non-observed economy

Income of agricultural households, in the sense used so far, is a hybrid of factor rewards (to physical and intellectual labour input, to the other fixed factors – land and capital – owned by the farm household) and transfers of various kinds. In conventional accounting systems, “unpaid” family labour does not usually appear as an explicit cost of production. Consequently there is no explicit “wage” paid to the labour that the farmer and his family for their contribution to production. Yet the decisions made at household level on how to allocate labour to agriculture and other activities will reflect the implicit reward (“wage” or “income”) in alternative uses and from using time for leisure.

The shadow evaluation of family labour can be estimated using three different approaches.

Accounting approach: the value of family income can be obtained as a residual, subtracting from net income the remuneration of all other factors of production. The remuneration of land can be taken as either its rental value or it can be imputed adopting an interest rate (typically greater than 2%). The cost of using owned operating capital could be evaluated by applying the prevailing rate in the credit market. Individual labour implicit wage income is then obtained by dividing the residual by the number of household labour units. Note that this criterion compensates both the physical and intellectual labor. Furthermore, labour is evaluated uniformly across working family members.

Objective market wage under competitive conditions: this approach evaluates an hour of household labour at the prevailing market wage supposing that the labor market is at a competitive equilibrium and the farmer is indifferent between working in the farm and in the off-farm market. In this situation, the subjective evaluation (by the farmer) and the objective evaluation (from the market) of the opportunity cost of working inside or outside the household coincide. This “opportunity cost” approach may differentiate the contribution of the different working household members when accounting for the individual characteristics such as age, sex, education, and location of the farm as a proxy for off-farm market conditions within an econometric estimation (Huffman, 1996). The derived wage corresponds to the
potential compensation that a farmer endowed with a specific level of skills could have potentially obtained if he/she had found off-farm employment.

Shadow wage: when labour markets are not competitive, as it is often the case in both developed and developing countries, the family “unpaid” labour can be evaluated as the marginal product of labour, corresponding to the subjective evaluation of the disutility associated with an extra hour of work. This approach requires the estimation of a production or a cost function from which the marginal productivity can be evaluated. It is important to realize that the application of this approach implies the following assumptions:

**Assumption 1.** The farm household economy is non-separable.

**Assumption 2.** Adult (and child) family labour are quasi-fixed factors in the short run.

The knowledge of shadow wages is fundamental in order to explain individual labour choices. Farmers decide to work on the farm by comparing the shadow wage with the market objective wage, when the subjective perception of the probability of finding a job, either in agriculture or in other sectors, and the objective probability of being hired are equal to 1. If subjective and objective probabilities diverge, then the proper wage comparison is between shadow wages and expected market wages which thus incorporates information about the probability of finding a job conditional on the level of education, age, experience and, more generally, skills of the farmers.

Shadow wages from agricultural activities can be estimated on an individual basis if data are collected about who does what in the farm. Still, the derivation of individual incomes incorporating also an assessment of the change in the household’s net worth during the accounting period requires that non-labour income is assigned to each household member given the knowledge of the rule governing the allocation of resources within the household. Note that the shadow wage approach is often the only one available when evaluating child labor.

In developing countries child labour may represent an important component of the input to the production of agricultural commodities and a source of income to the household as a whole. There may be a requirement to estimate the shadow wages of this child labour. This is a specialist issue that later versions of this Handbook may wish to develop.

### X.5 Various income concepts and relationships between them

The accounting frameworks in which income measurement normally takes place, described in Chapter XIII, draw a somewhat arbitrary border around the items that are included. Flows from market activities are included, whereas non-market ones (including unpaid domestic work by household members) is not. This was also apparent from Figure X.1 (from Cecora, 1986) where it was clear that only some flows of resources towards households are measured. The definitions of income that are recommended in this

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4 Under separability, the general equilibrium program of the household is recursive. Production decisions are not affected by the household’s endowments, preferences, characteristics or decision processes. On the other hand, consumption decisions are affected by production choices since profits are part of the budget constraint. However, under non-separability implies jointness in decision-making. This can happen when the same input, such as time, is shared across the household and home production processes, and in the presence of home consumption of the household marketable product. Under these conditions, farm production and household consumption decisions are non-separable and leisure/labour demand on the household is not independent from the on-farm demand of family labour.
Handbook do, for practical reasons, mainly respect conventional accounting boundaries. For agricultural households this flow of resources will come not only from independent (self-employed) activity on the farm, but also from other types of self-employment, from wages, from property (rents and interest) and in other money (or near-money) forms. Some imputed items are within the conventional boundary (especially the imputed rental value of owner-occupied dwellings). Various formulations of these flows are possible (for example, cash flow, total household income, disposable income etc.). This will be dealt with later in this Chapter. Information about off-farm paid employment permits the derivation of total and disposable farm household income (Hill, 2000; Eurostat, 2002; OECD, 2003; Smeeding, 1997; Smeeding and Weinberg, 1998).

However, it is worth noting that other concepts of income exist that, in some circumstances, may be preferable. This section illustrates the methodology used in computing extended income and full income, both at the household and individual level, for a sample of Italian farm households and compares the distribution of these incomes across genders.

### X.5.1 Extended and full incomes

The notion of extended and full incomes is important both to understand differences in family organization and to describe how households respond to policy changes by reallocating labour among the farm, the home, and the off-farm opportunities.

The family portfolio of labour choices includes not only gainful activities but also employment in domestic activities. This form of self-employment is valued at the “unpaid” equilibrium shadow wage, and, if a competitive environment is assumed, corresponds to the opportunity cost of time. The incorporation of this implicit source of income in the computation of household incomes gives the extended income (Lazear and Michael, 1988; Jenkins and O’Leary, 1996; International Research and Training Institute for the Advancement of Women (INSTRAW), 1996). The sum of extended income and the value of leisure time forms the Beckerian notion of full income (Becker, 1981).

According to Becker’s (1965) definition of full income, there is no distinction between an hour spent on pure leisure and an hour spent looking for job opportunities. Jenkins and O’Leary (1996) suggest that this may be a problem if one considers the case of involuntary unemployed people as well. As a consequence, most of the studies on full income restrict the estimation to extended income by setting the value of leisure to zero. However, because the members of farm households can allocate their working time with certainty on the farm, it is plausible to assume that there is no involuntary unemployment. Therefore, pure leisure of farm households can be taken as genuine leisure (Wales and Woodland, 1977). In view of the certainty of being able to work on one’s own farm, the opportunity cost of time devoted to pure leisure can assumed to be equal to the implicit on-farm earnings. Jenkins and O’Leary (1996) stress that it is implausible to set the value of leisure time equal to the market wage rate.

A more detailed consideration of extended and full income is given in Annex 7.

### X.5.2 The importance of time to income measurement

Income is a flow concept rather than a stock. The notion of a time period over which income is received and measured is integral to the concept and is explicit in the Simons definition of personal income. However, there is no specific period over which income must be measured. By convention, a year is commonly taken as the relevant accounting period; this is not sacrosanct and there may well be other lengths of time which are more appropriate for particular circumstances. Importantly, it is unlikely that a detailed
definition of income which is appropriate for one length of time will be equally appropriate for a shorter or longer period.

Looking back over a lifetime and assessing the personal income of a farmer, a full assessment of the personal income could take a very broad view. Not only would the income in cash and kind be covered, but also any capital gains or losses would need to be ascertained. This ex post view of income is related to the notion that consumers, in this case farmer households, can have a longer-term expectation of their income, which would encompass all income forms, and on which their consumption pattern is determined - the “Life Cycle - Permanent Income Hypothesis” put forwards by Freidman (1957). This is dealt with in greater detail in the following section. Here it is sufficient to note that, while little work has been done on the relationship between spending and perceived incomes of a longer-term nature in agriculture, evidence on the personal expenditure of farmers (using data from Denmark and Norway, referred to in Hill (2000), suggests that they do not substantially adjust their annual consumption to accommodate shifts in the profits generated by their farms, at least not within the same accounting period.

There are well-established empirical links for the population as a whole between age and income. Low yearly incomes are found particularly among the young and elderly, and higher levels somewhere in the middle. Farmers as a group tend to be relatively old compared with the rest of society. On an annual basis some of these older farmers would have a low-income, but in former times their earnings may well have been substantial. Their present position might simply reflect changed priorities and the assurance of accumulated savings and other forms of wealth. In other words, their ability to consume may be quite adequate. Taking a longer view would reduce the inequality of incomes within the farming community. This is a conclusion applicable to many occupations but it is particularly appropriate in farming where quite large year-to-year variations are regarded as normal (Atkinson, 1975).

The longer the period chosen, and the more disparate the groups for which comparison is required, the broader the income concept needed for a satisfactory outcome. In the shorter term it may be appropriate to narrow the definition of income to suit the problems in hand. Much of the purpose for income policy, and therefore of income measurement, hinges on poverty (an issue tackled in more detail in Chapter XI). In this situation it may be satisfactory to put on one side those constituents of income that do not, in the short run, impinge significantly on the amount of cash a household has to meet its immediate needs. Thus capital gains and imputed rental values might be excluded.

Another aspect of time and income measurement, even when the conventional period of a year is used, concerns the way that transactions relate to the period in question. Financial years covering twelve months may, in principle, start at any point in the calendar, though surveys of accounts (such as the EU’s Farm Accountancy Data Network - FADN/RICA) would clearly prefer their cases to share a common year-end (or a narrow band of year-ends) as a wide spread makes interpretation more difficult. In agriculture, the production cycle has often led to a crop-year being used. However, adjusting across different crop-years to fit the calendar years used by national accounts can be a source of rather arbitrary year-on-year variation. Data for the different types of income received by agricultural households may not be available on a consistent basis. Perhaps more significant is the preference, both within the SNA93 for national accounts and the recommendations of the Canberra Group for microeconomic measurement, for income accounting to be undertaken on an accrual basis (that is, when payments become due) rather than on a cash basis (that is, when the payment actually arrives). The difference in results for a particular year can be quite significant. However, in practice it is likely that data on many items are only available on an actual receipts (and payments) basis and thus not in accord with the accruals rule. Estimates of both total income and disposable income are likely to contain both accrual based and cash based income and be unavoidably hybrid in nature, something that must be borne in mind when interpreting them.
**X.5.3 Lifetime income and permanent income hypothesis**

While *life cycle theory* centres more on the explanation of the relationship between age, saving and the creation of wealth, *permanent income theory* is more concerned with the dynamic behaviour of consumption, particularly in relation to average or expected incomes. In this framework, consumption is the annuity value of current financial and human wealth. The dynamic features of consumption captured by the Life Cycle Permanent Income hypotheses, framed within the economic theory of the household (Becker 1981; Kooreman and S. Wunderink, 1997), are very useful in understanding the trade-off between current and future benefits or costs, with a special emphasis on the cultural and socio-economic determinants of subjective discount rates.

The relatively stable consumption of farmers in the face of fluctuating incomes, noted in the previous section, can be expressed more formally within the Life Cycle Permanent Income Hypothesis. This can be formulated as an observation that the farmers’ marginal propensity to consume is high in relation to the level of permanent income and negligible in relation to the level of transitory income because individuals tend to smooth consumption uniformly during the life cycle. In other words, consumption choices are based on the possibilities available according to the personal income stream and level of wealth expected over the whole life cycle.

In general, current consumption is affected by the personal rate of inter-temporal preferences (which leads to anticipated consumption when high), and the interest rate that can be earned from savings (which makes an individual more patient and less prone to consume today rather than tomorrow). The price of consumption tomorrow relative to consumption today is the discount factor, which can also vary subjectively according to the personal degree of impatience.

According to the life cycle theory, saving behaviour and the evolution of the stock of assets depends on personal tastes, life cycle needs and the value of lifetime resources, but is not determined by the temporal pattern of life cycle labour income. If young households’ income is low, but is anticipated to be higher later, it is not rational to stop higher consumption, because this is facilitated by the ability to borrow.

In general, the accumulation of savings is also strongly motivated by precautionary motives (both against ageing and uncertain prospects) and bequest motives (Deaton, 1992). Cautious households tend to save more in early life than would be predicted by the permanent income hypothesis. Economic uncertainty and unanticipated shocks affect the consumption plan of individuals differently depending upon the myopic or forward-looking attitude of consumers and the presence of liquidity constraints (Hall, 1978; Flavin, 1985; Zeldes, 1989). The more binding the borrowing restriction, the closer consumption follows the income path. Younger cohorts especially feel the stringency of this constraint when they are forced to limit borrowing designed to sustain current consumption even when they have the prospect of high future incomes.

For the Life Cycle Permanent Income Hypothesis to work in developing countries, credit markets needs to be sufficiently developed and must function properly. Consumption credit is especially important where access to capital markets is rationed (Eswaran and Kotwal, 1989). The existence of credit rationing that is proportionate to the land endowment of the farm household results in unequal access to the credit market. This fact explains why access to credit can be an important factor both in determining the levels of permanent incomes and in shaping the process of formation and differentiation of rural classes. These processes manifest themselves differently according to the economic, social and institutional situations specific to each society. For example, in societies where private property is a well-established institution but land redistribution is a central to agrarian reform, such as in many Latin America countries (including Peru, Nicaragua, Ecuador, Chile and Brazil), the differentiation of rural classes dominates the process that leads to the formation of new classes. On the other hand, in former socialist economies that are in transition (many in
Eastern Europe, Syria and Tanzania), it is more likely to observe the formation ex novo of rural classes. These aspects are not trivial, because for every class (characterized by specific combinations of wage incomes and wealth) there is a particular pattern of accumulation and formation of permanent incomes throughout the life cycle and highly differentiated behaviour with respect to precautionary motives and liquidity constraints.

Under conditions of uncertainty and credit rationing, risk-averse farmers are exposed to a higher volatility of production and household incomes. Farm households need to smooth consumption through time, using consumption credit as a form of insurance to assure the sustainability of the household. They may also use this credit to invest in new technologies that promote the growth of both production and household incomes as a consequence of the fact that production and consumption decisions are not separable within a farm household. The poorest farm households, experiencing difficulties in managing the farm and household risks because of lack of access to consumption credit and, consequently, to new technologies, are often forced to over-exploit local natural resources. These households are often compelled to move towards marginal lands with high ecological vulnerability or to extend the arable frontier at the expense of forest, causing land degradation and other ecological problems.

Interestingly, consumption can be “financed” both through the credit market and the labour market. In the latter case, this takes place through the “lending” of the farmers’ time to take advantage of off-farm job opportunities. Since wealth influences the access to the credit market, this in turn affects the participation in the off-farm labour market and investments in the farming business (Serra et al., 2003). Recent evidence shows that off-farm labour can be negatively associated with the accumulation of farm capital and the relative importance of farm incomes in the formation of the permanent income of the household (Ahituv and Kimhi, 2001). Interestingly, more educated farmers are able to work off the farm and still maintain a capital-intensive farm enterprise by enjoying easier access to the credit market.

X.6 Subsidies, preferential tax treatments, and income measures

Agricultural households in developed economies are the recipients of major amounts of what are commonly called “subsidies.” These encompass both direct payments by the government (financed by taxpayers) and market interventions (involving transfers from consumers). In less developed countries transfers may flow in the other direction. When assessing income it is important that these resource flows are adequately captured. Transfers in the form of monetary payments made direct to agricultural households, or where they are reflected in enhanced market prices of outputs and lowered costs of inputs, are reflected in the measures of income produced by conventional accounting systems. Where they take the form of concessions in direct taxation, these tax “expenditures” will be reflected in lower deductions and thus in the level of disposable income. There remains the possibility that benefits are given that fall outside the accounting system, and these may be important when attempting to compare the economic well-being of agricultural households with those of other socio-professional groups, or between farm households in different countries.

The System of National Accounts (SNA93), which provides the conceptual framework for much of this Handbook, takes a somewhat narrow approach to what is considered to be a subsidy, and this is carried over to accounting for agricultural activity and for agricultural households. The SNA93 defines subsidies (D.3), as “current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services which they produce, sell or import” (para 7.71). Payments linked to capital (such as grants to encourage investment) are not taken into account when measuring income in the household sector of national accounts, though they are in some microeconomic systems (such as the EU’s FADN/RICA survey
DEFINITIONS OF INCOME

of farm businesses). The treatment of social benefits in kind provided free or at reduced costs to agricultural households (for example, special education for farm families) may not be satisfactorily identified or evaluated. While concessions on current taxation will be reflected in disposable income, special treatment on the taxation of transfers of agricultural land, particularly, between generations, may be important to the assessment of income measured over the longer term but will not show up in current accounting and residual income indicators (OECD, 2004).

The measurement of income should take into account the possibility that elements of this type may exist, and consideration should be given to whether steps need to be taken to include them.

X.7 Definitions in use

In considering the definition of income to be used in analysing the income situation of agricultural households it is useful to review existing practice. Examples can be found at both the level of national accounts and at the microeconomic levels. The differences of approach towards accounting and income measurement result in differences in definition. This is well expressed in a passage from Section 2.2.1 of the Report and Recommendation by the Canberra Expert Group on Household Income Statistics (Canberra Group, 2001).

"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. Previous attempts to update the existing international guidelines on income distribution (UN, 1977) to bring them into line with the 1993 SNA have categorised income according to the type of transaction which gives rise to the flow without regard to the medium in which payment is made. The sequence is basically to measure first income generated in the course of production, then to allow for distribution of property income thus arriving at a concept called “primary income.” The next stage is to account for current transfers, widely interpreted, and thus arrive at “disposable income.” This is either spent on consumption or saved. Saving is used either to finance investment or leads to net borrowing or lending.

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."

As part of its plan to harmonize methodology across the EU Member States, Eurostat has developed the Income of the Agricultural Households Sector (IAHS) statistics. This provides a definition of income to be used when estimating the incomes of agricultural households (Eurostat, 1996). However, this definition is based on national accounts methodology and consequently contains some facets that are
inappropriate when applied at the farm household level. In contrast, the methodology recommended by the Canberra Group for microeconomic work using household-level data is primarily intended for application in the study of income distribution, including poverty, and the emphasis is on income as a means of improving current economic well-being, as reflected in the ability “today” to consume goods and services. Resource flows that result in the ability to consume “tomorrow”, such as employer contributions to pension funds, interest accumulated by these funds, and capital gains, are not usually seen by households as affecting their ability to consume “today” (indeed, they may be unaware of them) and are thus of less concern to microeconomic statisticians. Moreover the Canberra Group’s income definition is not specifically designed to suit the rather special characteristics of agricultural households. Households whose principal income source is wages dominate the households sector in industrialized countries in terms of numbers, and the Canberra Group’s approach reflects this. In contrast, agricultural households by definition are involved with income from self-employment, heavily so when a narrow definition of what constitutes an agricultural household is adopted. Income in kind is particularly significant to farm households and, while being of special importance to farmers in less developed countries, is by no means insignificant in richer countries, especially to those occupiers whose main purpose is orientated towards lifestyle or hobby agriculture. The subsistence production on private household plots of workers in large-scale agricultural enterprises in some of the countries with formerly collectivised (socialized) agriculture practices are another example of the importance of output for own consumption and income in kind.

The headings of the various items of the IAHS definition of disposable income are shown in Figure X.2. For a detailed treatment of each item, reference should be made to the IAHS Manual of Methodology (Eurostat, 1996). An equivalent outline of the definition adopted by the Canberra Group in microeconomic (household level) studies is shown in Figure X.3, slightly rearranged from the source document to ease comparison and to reflect the importance of income from independent activity (self-employment) in the present context. Detailed descriptions of the various components in this definition appear in Appendix 1 of the Canberra Group’s report. It should be noted that some items appear in the IAHS definition under unexpected labels. A good example is where, following the sequence of accounts for the households sector in national accounts, the resources from agricultural and other independent (self-employed) activity are shown as Operating Surplus (NVA less the costs of hired labour) rather than Entrepreneurial Income or profit from the unincorporated business (which also deducts rent and interest paid). In the strict national accounts/IAHS definition rents and interest are deducted under a later item (negative property income), which includes interest for private consumption loans as well as for agricultural purposes.
The concept which forms the centre of the IAHS sector-level income measure for agricultural households is **net disposable income**. It is defined as follows:

1. **Net operating surplus (mixed income)** from independent activity:
   a. From agricultural activity
   b. From non-agricultural activity
   c. From imputed rental value of owner-occupied dwellings

2. Compensation to members of agricultural households as employees, from agricultural and non-agricultural activity

3. Property income received (rent, interest, dividends etc.)

4. Non-life insurance claims (personal and material damage)

5. Social benefits (other than Social benefits in kind)

6. Miscellaneous inward current transfers

7. Total resources (sum of 1 - 6)

8. Property income paid

9. Net non-life insurance premiums

10. Current taxes on income and wealth

11. Social contributions

12. Miscellaneous outgoing current transfers

13. **Net disposable income** (7 minus 8 - 12)

14. Social transfers in kind

15. Net adjusted disposable income (13 plus 14)

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5 Under the new SNA (1993)/ESA (1995), operating surplus and mixed income are alternative names for the same balancing item. Mixed income is the term used in the context of unincorporated enterprises owned by members of households in which the owners or other members of their households may work without receiving any wage or salary. Though farms are usually of this form, for the purpose of the TIAH methodology the term operating surplus is used for this item; this is done to avoid potential confusion between mixed income and other microeconomic income concepts in which interest and rents have already been deducted.
2 Income from self-employment  
Cash or near cash  
2.1 Profit/loss from unincorporated enterprise  
2.2 Royalties  
In kind, imputed  
2.3 Goods and services produced for barter, less cost of inputs  
2.4 Goods produced for home consumption, less cost of inputs  
2.5 Income less expenses from owner-occupied dwellings  

1 Employee income  
Cash or near cash  
1.1 Cash wages and salaries  
1.2 Tips and bonuses  
1.3 Profit sharing including stock options  
1.4 Severance and termination pay  
1.5 Allowances payable for working in remote locations etc, where part of conditions of employment  
Cash value of ‘fringe benefits’  
1.6 Employers’ social insurance contributions  
1.7 Goods and services provided to employee as part of employment package  

3 Rentals  
3.1 Income less expenses from rentals, except rent of land  

4 Property income  
4.1 Interest received less interest paid  
4.2 Dividends  
4.3 Rent from land  

5 Current transfers received  
5.1 Social insurance benefits from employers’ schemes  
5.2 Social insurance benefits in cash from government schemes  
5.3 Universal social assistance benefits in cash from government  
5.4 Means-tested social assistance benefits in cash from government  
5.5 Regular inter-household cash transfers received  
5.6 Regular support received from non-profit making institutions such as charities  

6 Total income (sum of 1 to 5)  

7 Current transfers paid 2.4.3.1  
7.1 Employers’ social insurance contributions  
7.2 Employees’ social insurance contributions  
7.3 Taxes on income  
7.4 Regular taxes on wealth  
7.5 Regular inter-household cash transfers  
7.6 Regular cash transfers to charities  

8 Disposable income (6 less 7)  
9 Social transfers in kind (STIK) received  

10 Adjusted disposable income (8 plus 9)
DEFINITIONS OF INCOME

In contrast, the Canberra Group’s microeconomic definition deducts such payments at an early stage to reach the profit/loss from the unincorporated business run by the household. Within this income from self-employment there are some non-cash elements identified separately in the microeconomic measure that are already subsumed in the aggregate approach in the calculation of operating surplus. The main examples of unexpected items in this current account are the receipt of (non-life) insurance claims as a resource and the payment of insurance premiums as a negative item. In microeconomic accounting the former (for example, compensation for the loss by fire of a tractor) would normally be placed among the capital accounts, and the cost of insurance premiums would be treated as a cost in reaching the profit (income) from the business operated by the self-employed person. Some sub-items (not apparent from the headings in IAHS definition) are included in the national accounting approach to maintain the integrity of inter-sectoral transfers; non-cash benefits imputed to holders of insurance policies because of the performance of invested funds are an example. Similarly some items in the miscellaneous transfers category (on both the positive and negative sides) contain elements that would be regarded in microeconomic accounting as payments out of disposable income rather than items to be deducted in its calculation. As already noted, the national accounting framework requires transfers from households to charities and other non-profit institutions such as churches to be seen as leaving the households sector, so leading to their treatment as negative items. A different view is taken in microeconomic accounting, where such payments may be deemed to be made out of disposable income rather than to be deducted. A key issue seems to be the extent to which these payments are regarded as voluntary or non-voluntary. The latter might include trade union dues where membership is required (formally or de facto) in order to undertake a particular line of business.

Despite such differences there are broad similarities between the two in the general structure of what constitutes income, both in total and disposable forms. Both include cash (or near-cash) payments and non-cash elements. Non-cash elements pose difficulties of identification and valuation and, in particular, there is often a lack of suitable basic data by which quantification can take place. Both include the value of the services provided by owner-occupied dwellings, a particular example of a non-cash form of income. Both provide for two types of disposable income (unadjusted and adjusted). The adjustment factor is ‘social transfers in kind’, such as education and health services that the state finances and provides free at the point of delivery to individuals and households.

Neither the IAHS nor microeconomic definitions are entirely suitable for practical use in their complete forms. Bearing in mind both the conceptual problems associated with some of the items and the practicalities of attempting to make international comparisons in income distributions, accumulated through the work of the Luxembourg Income Study (LIS), the Canberra Group recommends a somewhat simplified form of disposable income for use in studies of income distribution where different data sources are used and international comparisons are required (see Figure X.4). This simplified approach omits some of the imputed components and some that are of an ambiguous nature. In particular, it omits the value of Social Benefits in Kind (SBIK), and thus does not attempt to estimate an adjusted net disposable income. Imputed items are much reduced, including the removal of the value of owned dwellings. The list of miscellaneous transfers is much simplified, only retaining those benefits that are obvious transfers from the state and those which constitute regular receipts from other households and charitable institutions. Among the payments, only those that are wholly or largely non-voluntary remain in the coverage; regular inter-household negative transfers are left out.
### Figure X.4
Canberra Group recommended components of a simplified definition of disposable income

<table>
<thead>
<tr>
<th>1</th>
<th>Employee income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Cash wages and salaries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Income from self-employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Profit/loss from unincorporated enterprise</td>
</tr>
</tbody>
</table>

**Inputed income from self-employment**

| 2.4 | Goods and services produced for barter, less cost of inputs * |
| 2.5 | Goods produced for home consumption, less cost of inputs * |

| 3 | Income less expenses from rentals, except rent of land ** |

<table>
<thead>
<tr>
<th>4</th>
<th>Property income</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Interest received less interest paid</td>
</tr>
<tr>
<td>4.2</td>
<td>Dividends</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Current transfers received</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Social insurance benefits from employers’ schemes</td>
</tr>
<tr>
<td>5.2</td>
<td>Social insurance benefits in cash from government schemes</td>
</tr>
<tr>
<td>5.3</td>
<td>Universal social assistance benefits in cash from government</td>
</tr>
<tr>
<td>5.4</td>
<td>Means-tested social assistance benefits in cash from government</td>
</tr>
<tr>
<td>5.5</td>
<td>Regular inter-household cash transfers received</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Total income (sum of 1 to 5)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>Current transfers paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2</td>
<td>Employees’ social insurance contributions</td>
</tr>
<tr>
<td>7.3</td>
<td>Taxes on income</td>
</tr>
</tbody>
</table>

| 8 | Disposable income (6 less 7) |

---

* Not included in LIS DPI.
** Included in property income in LIS DPI.

Source: Canberra Group (2001) Table 4.1.

This Canberra Group’s simplified list forms a useful template for estimating the income of agricultural households. Most of the simplifications are helpful when applied to agricultural households as a subsector. For example, experience in the IAHS statistics suggests that very few countries are able to estimate SBIK for agricultural households other than to distribute the aggregate for the entire households sector in a rather arbitrary way, such as per head, something for which there is little empirical support. The removal of many inter-sectoral transfers accord with what many Member States have done when supplying IAHS results to Eurostat. So too is the reduction of items in the miscellaneous inward transfers category to state payments and other regular transfers. Nevertheless, certain modifications to the Canberra Group’s simplified definition seem appropriate to suit the special circumstances found in agriculture. A revised definition is proposed in Figure X.5. The main differences are shown in *italics*. However, where the amplification is simply a disaggregation of a total, this is not flagged.

Two changes to the Canberra Group’s simplified list are introduced. The first relates to the inclusion of an imputed rental value of the farm dwelling (and equivalent treatments of the dwellings of other socio-professional groups if comparisons are to be made). The reasons for including this item are that (a) empirical evidence shows that it can be important in some countries to the overall level of income; (b) in some farm accounts surveys provision already exists for its calculation, so many countries will already have
experience in making the estimates; (c) most EU Member States have made calculations as part of their submissions of IAHS results to Eurostat. The second change is a more specific mention of the value of income in kind from self-employment. It should be noted that income in kind from employment is not covered; only cash income is included in the form of wages and salaries. The fact that some countries may find it difficult to provide data for one or other of these items is a handicap but not an insurmountable one. The Canberra Group notes that, as long as items are detailed separately, it is possible to make comparisons between countries or sub-sectors by omitting items for which there is poor coverage.

A third change was considered but has not been implemented. This was the deduction in reaching net disposable income of other regular negative transfers (in addition to taxes and social contributions) by the members of agricultural households as self-employed people or as employees of other businesses. This mirrored the treatment of regular outward transfers and maintains a degree of symmetry. However, this item was ruled out because of impracticality over identification and measurement.

This Handbook recognizes the simplified definition of disposable income shown in Figure X.5 for application to income measurement of agricultural households. When presenting results, information should be available for the separate items shown in this definition.
Figure X.5
Recommended definition of net disposable income for application to agricultural households

<table>
<thead>
<tr>
<th>Net income from self-employment (money income and in kind)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income from self-employment (operation of unincorporated businesses, or incorporated businesses that can be treated as quasi unincorporated because of family operation and ownership) after deduction of intermediate consumption items, interest on business loans, rents on land and business property, and a depreciation allowance for capital consumption. This will include net profit or loss in money form and the value of other income in kind, such as the value of output used for barter and for own-consumption, net of cost of inputs used in their production.</td>
</tr>
</tbody>
</table>

Of which:

(a) Self-employment in agriculture (money income and in kind)
(b) Self-employment in other industries (money income and in kind)
(c) **Imputed rental value of owned dwelling**

+ **Cash wages and salaries**, earned from dependent activity in enterprises (institutional units) that may be agricultural or non-agricultural in nature

(= Primary income)

+ **Rent received**

(a) Net rents from the letting of property other than land
(b) Net rents from the letting of land

+ **Other property income**

(a) Net interest received (interest received less interest paid, though payments should not include interest already deducted in calculating profits)
(b) Dividends received

+ **Social transfers received**

(a) Social insurance benefits from employers’ schemes
(b) Social insurance benefits in cash from government schemes
(c) Universal social assistance benefits in cash from government
(d) Means-tested social assistance benefits in cash from government

+ **Other current inflows**

Regular inter-household cash transfers received such as transfers from relatives living and working abroad)

= **TOTAL INCOME**

- **Current taxes on income and wealth**

- **Non-discretionary social contributions (payments to social security schemes)**

(a) By members of agricultural households as self-employed person
(b) Employee social contributions (only) relating to income from employment

= **NET DISPOSABLE INCOME** (note: this is not adjusted for the receipt of social benefits in kind)


References


Imperial College London (undated). “Socio-Economics of Rural Livelihood, Unit 5. Looking Inside Peasant Households”.

DEFINITIONS OF INCOME


XI INCOME LEVELS, DISTRIBUTION AND POVERTY

XI. 1 The assessment of poverty

A major reason for requiring statistics on the income of agricultural households is to explore whether there is a problem that requires government intervention. Particular attention is paid within policy planning circles to the problems associated with low-incomes. In less developed countries this may manifest itself in a lack of ability to meet basic needs (food, shelter etc.). In more developed economies these needs may be met but there may still be disparities between groups that raise concern on the grounds of equity. While basic needs may be met, low-income households could still be regarded as suffering deprivation.

What is meant by the term “deprivation” depends on the context (Bradley et al., 1986) but it is, nevertheless, a potent concept in justifying policy action. Within the agricultural sector of industrialized countries it is commonly found that various forms of deprivation are connected - an inadequate income will tend to be associated with isolation on a small farm, where the family is locked into a restricted set of social contacts and has only a narrow range of access to the facilities provided for society in general. The problem is therefore multifaceted. Nevertheless, these additional forms of deprivation (social, cultural, etc.) are separate from (but may be linked to) what can be described as economic deprivation or income poverty. Economic deprivation may be described as situations where people have an insufficient command over the resources needed for living and are excluded from the socio-economic system.

In order to turn this inexact notion of insufficiency into a measure which can be used to guide practical policy, some standards have to be set for what is deemed sufficient. One way of doing this is to establish a poverty line. This has two distinct roles (Ravallion, 1998). One is to determine what the minimum level of living is before a person is no longer deemed to be “poor.” The other is to make comparisons between families in order to inform observers of what expenditures are needed in each set of circumstances to ensure that the minimum level of living needed to escape poverty is reached. It is possible to establish a poverty level in terms of a combination of characteristics. An example would be income plus leisure where two people of identical income might be classified differently if one has more leisure time than the other. In this situation the term poverty boundary is more appropriate than poverty line. However, it is more usual to simplify the relevant variables to one - that of income. When tackling low-incomes in agriculture, a monetary poverty line can be a very useful yardstick against which the circumstances of agricultural households, families or individuals can be compared.

XI.1.1 Social exclusion

While social exclusion is a concern for society in general, it is of special interest in an agricultural society. For individuals in particular groups, social exclusion is a form of marginalization leading to economic deprivation in terms of limitations of functionings of living standards (the term “functionings” in the literature, following Sen, means what a person succeeds in doing and being) and various forms of social and cultural disadvantage. Social exclusion in a rural environment, where self-employed work is “unpaid,” may be disguised in that it may not manifest itself in unemployment per se but in low-income and low wealth farm households.

Social exclusion is related to both inequallity and poverty and may be expressed in terms of both the number and quality of functionings from which the person is excluded. Its multifaceted nature can be captured by reporting the proportions of households having financial difficulties, not having access to basic
necessities, living in bad housing conditions, having infrequent social contacts, dissatisfied with the work or living conditions, etc.

In order to capture the multidimensionality of inequality and poverty a comprehensive measure of poverty which pools indicators such as the headcount, the income gap, the difference in income between social groups, and the within-group Gini (see below) into a single poverty ratio is required (Dagum and Costa, 2003). Dagum and Costa also propose a methodology to develop a multivariate analysis of poverty, which also includes elements of social exclusion and limitations in the space of functionings and capabilities.

**XI.2 Ways of measuring the incidence of poverty among households**

Of course, poverty is associated with one end of the income distribution. The distribution of incomes is important because an otherwise satisfactory level of average or median income can nevertheless contain cases where incomes are sufficiently low as to constitute a policy problem. Thus when considering poverty among households it is necessary to put this in the more general context of the spread of incomes. The Canberra Group report (2001), which is a major foundation of the methodology outlined in this Handbook, is quite reticent in its treatment of how income distributions should be described, lacking a specific section dealing with them as a tool in economic and social analysis. However, before dealing with the distribution of incomes it is first necessary to set out the basis on which poverty lines might be established. Later some of the practical issues in the application of poverty lines will be described.

Poverty lines are by their nature impossible to set without involving value judgements. These may be explicit or hidden in the assumptions behind what may appear to be objective methodologies. A variety of approaches to defining a poverty line have been used or proposed. Two polar positions can be taken. The first position assumes that the poverty line can be set in absolute terms, in which case it would be possible to totally eliminate poverty if every one could be lifted above the poverty line. The second position assumes that poverty is a relative phenomenon, in which case poverty will never be removed (Hagenaars and Van Praag, 1985; Hagenaars et al, 1994; Ravallion, 1998).

At its most extreme, an absolutist view of poverty would be a situation of deprivation of certain basic goods and services necessary for maintaining physical subsistence. This makes no reference to the well-being of the rest of society. In these circumstances, a poverty line would correspond to the income required to allow the acquisition of these basic means. This was basically the approach of the seminal work on UK poverty by Rowntree (1901) and Booth (1902). It is particularly suited to the circumstances of less developed countries. Of course, if income (rather than consumption) is used as the criterion on which the line is drawn, then it becomes important to ensure that income is adequately measured, especially income taken in kind from own production of food and other domestic requirements.

A less rigid attitude might set a poverty line somewhat above this subsistence-consumption level. This higher level will reflect society’s view of what constitutes a minimum acceptable income for its members. Both are absolute figures, though in the latter case the level takes into account more than physical necessities. As Atkinson (1975) points out: “It is misleading to suggest that poverty may be seen in terms of an absolute standard which may be applied to all countries and at all times, independent of the social structure and level of development. A poverty line is necessarily defined in relation to social conventions and the contemporary living standards of a particular society.” Though a subsistence poverty line may have the appearance of objectivity, the choice of defining poverty in this way is as subjective as any other based on less clear physical requirements (see also Atkinson, 1980).
The other extreme in poverty line definitions is represented by those which set the line at some percentage of the society’s average personal income or at some point in the distribution of incomes, for example, at some percentage of the median income or the lowest decile. Expressed in such a way, poverty will never be eliminated. But this too imposes the judgement of the observer on the measure of poverty. In an attempt to strive for greater objectivity, exercises have been conducted to extract from a representative cross-section of people, using surveys, society’s assessment of where the poverty line lies (Hagenaars and Van Praag, 1985).

While different respondents perceive poverty differently according to their circumstances, suitable weighting can be employed to achieve poverty levels that reflect the mix of views in society. This has been termed a “subjective” view of poverty (Forster, 1994), and constitutes a third approach for establishing poverty lines. However, adopting a poverty line derived in this way presupposes that society in general is the best assessor of poverty; this is not self-evident. Table XI.1 summarizes the three approaches to establishing poverty lines.

Table XI.1
Three different approaches to defining low-income (poverty lines implied)

<table>
<thead>
<tr>
<th>Method</th>
<th>Absolute approach</th>
<th>Relative approach</th>
<th>Subjective approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples</td>
<td>- Define an absolute subsistence minimum in terms of basic needs.</td>
<td>- Define low-income as a fraction of average or median income (e.g. 50% of median)</td>
<td>- Incorporate a minimum income question in household surveys</td>
</tr>
<tr>
<td>Method</td>
<td>The aggregate cost constitutes the low-income line</td>
<td>- International comparative studies often use this method</td>
<td>- Very few regular surveys adopt this approach</td>
</tr>
<tr>
<td>Advantages</td>
<td>- U.S. Social Security Administration Poverty Index</td>
<td>- Allow cross-country comparisons because of its independence of a specific country’s definition of basic needs</td>
<td>- Can avoid the problem of the arbitrary choice of basic needs</td>
</tr>
<tr>
<td>Difficulties</td>
<td>- Arbitrary nature of the choice as to what constitute basic needs</td>
<td>- Relationship between low-income and poverty is less clear</td>
<td>- Cross-country comparison is extremely difficult</td>
</tr>
</tbody>
</table>


In its work on low-incomes in agriculture the OECD (2001) has outlined ways of measuring poverty among agricultural households in its Member Countries. The OECD’s methodology is based on international practice and uses evidence from the Luxembourg Income Study (LIS) database for the mid-1990s to compare the degree of “low-income” in agricultural households to other households in the different countries. Twenty-one countries provided data, including thirteen of the EU-15; Portugal and Greece were unfortunate omissions. This is regrettable as, arguably, low-incomes among agricultural households are particularly problematic in these two countries. Both the “broad” and “narrow” definitions of an agricultural household were applied.1 The sources of data for the LIS database are principally household (family) budget

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1 In the broad definition, a farm household is “a household whose farm self-employment income is not zero.” In the narrow definition a farm household is “a household whose farm self-employment income is more than 50% of total household income.” For the purpose of income measurement at the household level, disposable income was used, adjusted for household size (equivalence elasticity = 0.55) (see Förster, 1994). The low-income threshold was 50% of the median (disposable) income of all households.
surveys or panel surveys. Unfortunately, such general surveys have well-known deficiencies; they usually have few agricultural cases and the quality of income data is sometimes suspect, particularly where gaps in coverage of the components of income prevent full comparability between agricultural and other households. For these reasons Eurostat has so far declined to use them to generate microeconomic statistics on agricultural households. The desire to improve this data situation is, of course, one reason for assembling this Handbook. Having said this, the OECD’s descriptions of statistical presentations of low-incomes are entirely valid and can form a template for application in situations where suitable data exist.

XI.2.1 Low-income rate (Cumulative proportions below percentiles of the median)

The first method of presenting low-income often adopted in international comparisons is to ask what proportion of the population is below specified percentages of the median income. This proportion is often called the low-income rate. Though the results must be treated with caution (because of the quality of the basic data), some of the main features of the OECD/LIS analysis are worth noting. If the standard of low-income was taken as 50% of the median income of all households, and if the “broad” definition of an agricultural household was adopted, the incidence of low-incomes was much higher in agricultural households than in other households in nine countries (Australia, Denmark, France, Hungary, Ireland, Italy, Netherlands, Poland, Spain). The highest incidences of low-income were recorded in Hungary (33.8%), Australia (25.4%) and Ireland (24.6%). The largest differences in the percentage of low-income agricultural households and low-income non-agricultural households were recorded in Hungary, Poland, Ireland and Australia. The smallest differences were recorded in the Czech republic, Canada and Finland. However, if the “narrow” definition of an agricultural household was taken, the results were different. With the exception of Hungary, the Netherlands and the UK, the low-income rate among agricultural households was higher. Moreover (again when using the “narrow” definition), the number of countries where the incidence of low-income was higher among agricultural households than among non-agricultural households increased from nine to thirteen. These examples illustrate the importance of the choice of definition of an agricultural household to the outcome of the analysis.

XI.2.2 The low-income gap

The cumulative proportions below given percentiles of the median (i.e. the low-income rate described above), provides useful information on the incidence of low-income. However, it does not capture the intensity of low-income. That is, it does not show how far the low-income households fall below a given cut-off line. The average low-income gap (ALG) is commonly used as an indicator of this intensity, and it is defined as the difference between the average income of the low-income households and the low-income line, as a percentage of that low-income line:

\[
\text{ALG} = \frac{z - \bar{y}_q}{z}
\]

where

\[z = \text{low-income threshold}\]
\[\bar{y}_q = \text{average income of the low-income population}\]

Using this methodology, the OECD analysis found that the low-income gap was bigger in agricultural households than in non-agricultural households in all the countries where data were available. This means the intensity of poverty was higher among agricultural households. Comparisons between the
income gaps calculated using the two definitions of an agricultural household found that the “narrow” definition produced a bigger low-income gap in all countries, although the extent of the widening of this gap varied amongst countries.

**XI.2.3 Relative income level by percentile**

Low-income rates indicate the share of the population below specified percentages of the median. An alternative way to examine a distribution of income is to compare the income of households at selected percentiles with the median income.

For example, in Australia in 1994-1995 the median income (adjusted by household size) per household for all households was AU$16,708. Agricultural households in the lower quartile, i.e. 25% up from the bottom, had a medium income of AU$8,282 and expressed as a percentage of the median, was 49.6%. The corresponding figure for non-agricultural households was 59.3%. These results can be interpreted as follows; the agricultural household income at its lower quartile was about half of the median income of all households and about 10% below that of non-agricultural households at the same quartile.

In the OECD/LIS analysis, if the lower quartile of both agricultural households and non-agricultural households were compared, seven of the countries had agricultural household income below that of non-agricultural households. If the “narrow” definition was taken, the number of countries which had inferior agricultural household incomes at the lower quartile increased to eleven.

**XI.2.4 Cumulative decile shares - Lorenz curve**

*Relative income level per percentile* reveals relative income levels of households at certain percentiles compared to the median income. In order to understand the concentration of incomes, it is useful to know cumulative shares of total income. The Lorenz curve is a familiar construction to illustrate graphically the concentration of incomes. It plots cumulative proportions of the population, from the poorest upwards, against the cumulative shares of income that they receive. If all incomes were identical, this would trace a diagonal 45 degree line (“line of perfect equality”). In the other extreme case - if the richest unit received all the income - the Lorenz curve would lie along the horizontal axis, and then along the vertical axis at the 100% income share (“line of perfect inequality”).

The Lorenz curve allows for an unambiguous comparison of the relative distribution in cases where the curves do not intersect. One distribution is unambiguously more equal than the other if every point on its Lorenz curve lies inside (upper-left) the other (the first has Lorenz superiority to the second). If two Lorenz curve cross, it is not possible to say which curve represents a more equal distribution of income.

In the OECD/LIS analysis, unambiguous comparisons between agricultural households and non-agricultural households were not always possible because the curves crossed. However, where this problem was not encountered, there were some interesting and mixed results. With both the “broad” and “narrow” definitions, non-agricultural households had Lorenz superiority over agricultural households in most countries, but with exceptions. When comparisons were made between the two ways of defining the

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2 This figure represents the upper bound value of the lower quartile.

3 When drawing Lorenz curves, “bottom coding” may be necessary in order to avoid bias. If the adjusted disposable income of a household is negative, its income is adjusted to zero, and if the income is lower than 10 per cent of the upper bound value of the first decile, it is adjusted to that value (10 per cent of the upper bound value of the first decile). For example, if the upper bound value of the first decile in a country (adjusted disposable income basis) were $2,000, all the adjusted disposable incomes lower than $200 (10% of $2,000) would be adjusted to $200 (Atkinson et al., 1995). The same adjustment is done for the Gini coefficients in the next section.
agricultural household, in most countries the “broad” definition produced a Lorenz superior result, though in Finland and Norway the “narrow” approach was superior.

**XI.2.5 Gini coefficient**

A derived summary statistic used to characterize the distribution of incomes is the Gini coefficient. The Gini coefficient is defined as the area between the Lorenz curve and the 45 degree line as a ratio to the area of whole triangle. The Gini coefficient is 0 when all incomes are distributed equally and 1 (or 100 if expressed in a form more comparable with other indices) when there is perfect inequality. The Gini coefficient may be calculated from the formula:

\[
G = \frac{2}{n^2} \sum_{i=1}^{n} iy_i - \bar{y}
\]

where

\[
\begin{align*}
    n & = \text{total population} \\
    \bar{y} & = \text{average income} \\
    y_i & = \text{income of the } i^{\text{th}} \text{ household}
\end{align*}
\]

In the OECD/LIS analysis a mixed pattern emerged, both between countries and when using the “broad” and “narrow” definitions of an agricultural household. In some countries the Gini coefficient was lower in agricultural households than in non-agricultural households, i.e. incomes were distributed more equally in agricultural households. For others, the reverse was true. If the results from the “broad” and the “narrow” definitions were compared, the Gini coefficient was higher when using the narrow definition in most countries, suggesting that the distribution is more equal when all households having some income from agriculture are included (see Appendix D of Ashok et al. (2002) for making adjustments to Gini coefficient calculations to allow for negative incomes).

**XI.2.6 Sen index**

Finally, as an alternative summary measure, the Sen index can be considered. This was developed by Sen to combine the three indicators described above into a single indicator of poverty for a given poverty line. To recap, the three indicators of low-income are:

- Low-income rate - Cumulative proportions below percentiles of median: a proportion of the population is below specified percentages of the median;
- The average low-income gap: the difference between the average income of the low-income households and the low-income line (specified percentages of the median), as a percentage of that low-income line;
- Gini coefficient: area between the Lorenz curve and the 45 degree line as a ratio of the whole triangle that represents a degree of inequality in the distribution of income.
The Sen index consists of the head-count ratio multiplied by the income-gap ratio augmented by the Gini coefficient of the poor weighted by the ratio of the mean income of the poor to the poverty-line income level, and multiplied by 100 to be in a form comparable with other indicators. The Sen index is thus defined in the following way (Förster, 1994; p.21):

\[
S = LIR \left[ ALG + \frac{\bar{y}_q}{z} G_p \right]
\]

\[
= LIR[ALG + (1 - ALG)G_p]
\]

where

- \(LIR\) = low-income rate (head-count ratio)
- \(ALG\) = average low-income gap
- \(\bar{y}_q\) = average income of the low-income population
- \(z\) = poverty line
- \(G_p\) = Gini coefficient of income inequality among the low-income population

In short, the Sen index can be interpreted as a weighted sum of poverty gaps of the poor. The values for the Sen index lie in the closed interval, with \(S = 0\) if everyone has an income above the poverty line, and \(S = 1\) (or 100) if everyone has zero income. The Sen index is useful for cross-country comparisons of poverty, because it combines the incidence, the intensity and the distribution of low-incomes in a single indicator.4

According to the OECD/LIS analysis, if the Sen indices of agricultural households (using the “broad” definition of agricultural household) and non-agricultural households that had less than 50% of the median income were compared, the Sen index was generally higher for agricultural households, i.e. the degree of poverty was greater. If the “narrow” definition of agricultural household was taken, the Sen index was also higher in agricultural households in all the countries where the data were available. However, for most of the countries, the Sen index was lower using the “broad” definition than it was when the “narrow” definition was used. That is, the degree of poverty among agricultural households was higher when using the “narrow” definition of an agricultural household.

**XI.2.7 Warning in the interpretation of coefficients**

Though the Canberra Group (2001) report does not offer much detailed advice on the use of the different ways of measuring poverty or inequality, it makes some valuable comments on the care with which changes in coefficients over time (such as the Gini coefficient) have to be treated. The problems that may arise when attempting to identify trends include:

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4 Unfortunately because of a problem of sample size, a Sen index could not be calculated for several countries.
- **Two point trends.** Comparable household income microdata may only be available for two periods. Having two periods permits the user to estimate the change between them, but it may convey a misleading impression of the underlying trend. There is considerable danger in taking a very small number of years to extrapolate long-run trends.

- **Business cycle effects.** Because of cyclical variations in inequality, trends based on an arbitrary time period (e.g., 1980 to 1995) might produce misleading comparisons if its “fit” with the business cycle differs between nations. If trends in inequality are pro-cyclical - as is the case in the United States - peak (year) to trough (year) trend estimates are biased downwards while trough to peak trends are biased upwards. The opposite holds if inequality trends are counter-cyclical. Comparing peak-to-peak or trough-to-trough provides the least biased estimates and this requires a lengthy time series of estimates.

- **Mixing datasets and definitions.** The only ‘time series’ available may have been constructed using several income definitions and/or several datasets over time. In general, mixing cursorily different datasets to form a single trend is not recommended as the trend will reflect both the “real” inequality change and differences across datasets.

### XI.3 Poverty lines and inequality measures in practice in agriculture

All poverty lines are arbitrary. The choice of method of their determination depends essentially on the problem at hand and the dominant social values. The absolutist approach is now less in favour because of rising general levels of consumption and changed public perceptions of poverty. Bare physical subsistence criteria have been replaced by criteria relating to the ability to participate acceptably in the social system (Van Slooten and Coverdale, 1977). Another set of value judgements is involved when equivalence scales are used to apply poverty lines to families of different sizes and compositions. If the marginal needs of additional household members are given a low rating, then poverty among (often elderly) single-person households is emphasised more and family poverty is emphasised less. On the other hand, a high rating will make poverty appear more “rural” and, in the European context, more “southern.” Ultimately the setting of a poverty line is not an economic decision but a political one (Madden, 1975).

For practical purposes many countries utilize a poverty line in their general welfare policies, though it may not be labelled bluntly as such. Its practical implementation may involve measuring the cost of some single parameter, such as the necessary family expenditure on food, and extrapolating from this to the total income required to cover all purposes at the poverty level. The United States has used a poverty line developed from the USDA’s Low Cost Food Plan, the poverty line income being three times this on the grounds that average food expenditure comprised about one third of the typical family’s budget (the Orshansky index) (Orshansky, 1963). This was clearly inappropriate for farm families which produced more of their own food than the typical United States family, so the poverty line for farm families was set initially at 60% of the standard line (Bryant et al., 1981). Criticism that, while food costs of farmers were lower, this did not necessarily apply to the other components in family budgets, resulted in the gradual narrowing of the farm/non-farm poverty lines to 85% in 1969 and its total elimination in 1981 (see Fisher, 1997a, 1997b and 1992). In Australia, the 1973 Henderson Poverty Enquiry used a farmer poverty line 20% below that for all families (Vincent, 1976). In Canada, the similar “low-income cut-off” is defined differently for rural and non-rural households (OECD, 1995).

There are problems associated with using an income base that is too narrow when assessing the extent of poverty, especially rural poverty. This is illustrated by the impact on the numbers of United States rural families classed as poor when the concept of income was widened to include unrealized capital gains and the value of non-market services provided by owner-occupied housing, home-grown food and
do-it-yourself activities in addition to annual money income (which is used in official United States statistics). All of these additional forms of income are probably more important for agricultural households than for non-agricultural ones and especially for poor ones (Gardner, 1975). This “full income” approach attempted to estimate the purchasing power available for consumption and saving in a normal year. In the absence of reliable data by which piecemeal corrections could be made to income data, Gardner used an intricate method based on rates of return on the factors (land, capital and human) used on farms. Because of this, substantial errors were probably involved, but the methodology gives a first approximation of the importance of taking a wider income view. In 1969, 20% of rural farm families were below the poverty line when using conventional income measurement. Taking a full income approach reduced this to the range 5% to 14%, depending on certain assumptions. Seven to eight percentage points of this reduction was attributable to a more equal distribution of farm incomes and a further five percentage points was due to a higher average income.

Poor lines are easier to use where incomes are stable. The random variation in agricultural incomes from year to year, principally weather-related, means that in some years a farm family could fall below the line and in other years be above it. Classification on a single year’s income, as is common in income distribution statistics, would be foolish. Evidence from Australia, Denmark and Germany (see Chapter IX.5) suggests that a distinction should be drawn between the core of farm households that are in a persistent low-income situation and those who suffer temporary low-incomes. While the former are likely to constitute a welfare problem requiring intervention with public funds, the latter are not. How far low-incomes have to fall, and for how long, before government action is justified is, of course, a matter of political judgement.

Despite methodological difficulties, one might have supposed that the importance of low-incomes to agricultural policy would have engendered a substantial effort by official statisticians to assess the number of farm families who fall below poverty lines. This is not the case. Only in the United States have figures for farmers who are in poverty been published regularly (though this has now ceased), and even these do not seem to have been of major importance in shaping agricultural policy. Other countries have occasional studies or pieces of research, though these are not numerous. The use of a poverty line for farm families in Australia, referred to above, was part of a special investigation that has not been repeated. The OECD study of low-incomes in agriculture (OECD, 2001) mentions only Belgium, Canada, Czech Republic, Ireland, New Zealand and Turkey as having national studies that have considered the distribution of incomes (household or individual). Even here, poverty lines do not often form part of the methodology. In most of the EU Member States the information by which such an exercise could be carried out is either not coordinated or simply not collected. One of the exceptions is Ireland where there are not only periodic studies of income distributions for farmers based on the household budget survey (which links with the National Farms Survey to improve data quality) but also special welfare payments for landholders whose incomes fall below specified thresholds (the Farm Assist Scheme, which is a means-tested social insurance scheme). Some 20% to 25% of landholders seemed to qualify in the 1980s.

In the absence of basic data, the matter of how best to calculate and use the poverty line and measures of inequality that may be of policy interest shrink to irrelevance. So too do the more modest ways outlined by the Canberra Group report (using graphical presentations, medians, quartiles and Gini coefficients). Nevertheless, it is to be hoped that further developments in this direction will be possible once data sources are in a more satisfactory state.
This Handbook recognizes the usefulness of calculating the basic statistical characteristics of the distribution of incomes of agricultural households, including medians and quartiles, and measures of inequality and of poverty based on them.

The use of Lorenz curves, low-income rates etc. is encouraged, with comparisons drawn over time, geographically and between agricultural households (variously defined) and other socio-professional group, suitable attention being given to hazards in these comparisons. When setting income poverty lines no particular methodology is preferred, though accounts of the methods used should accompany results.
References


XII MEASUREMENT AND COMPOSITION OF FARM HOUSEHOLD WEALTH

XII.1 Introduction

Wealth is a potent component in the factors which determine the position of the agricultural community within society. Wealth is important because it gives rise not only to income in a variety of forms but because it also provides security, freedom of manoeuvre, and economic and political power. Within society as a whole, wealth seems to be much more unequally distributed than income and has a major influence on the overall degree of inequality (Atkinson, 1980). A political economy comparison of income and wealth distributions among farmers and the rest of society through time would be of great policy relevance in ways such as understanding the evolution of the accumulation of wealth through the life cycle of the household statistical unit, identifying important causes of wealth inequality specific to different social groups, and proposing methods for lessening the recent increase in the concentration of wealth (Juster and Kuester 1991; Juster et al., 1999). How property ownership is regarded is an important part of any study of social inequality. “This is not only in the obvious sense that the distribution of material resources will in large part determine the character of that society’s economic and political life, but also in the sense that such conceptions serve as important legitimising ideologies buttressing the stability of social life” (Newby et al., 1978).1

In developing countries there is striking evidence about the large negative impact of assets (especially land), rather than inequality in wage incomes, on future growth (Deininger and Squire, 1998; Deininger and Olinto, 2002). They also point out that the unequal distribution of assets also affects the equal distribution of opportunities for building both physical and human capital assets in the future. In general, the distribution of assets is the key determinant of the income distribution (Alesina and Rodrik, 1994).

The importance of wealth as a contributor to the economic welfare of farm households in OECD Countries is well established. Attempts by governments to support the incomes of farmers tend to be capitalised into land values (the factor of production least elastic in supply), a phenomenon which results in landowning farmers and landlords often benefiting through capital gains (though this is probably not the intention) but with little improvement in incomes accruing to those without owned land. Changes in the value of assets (real capital gains) have been briefly mentioned as a component of personal income (Chapter X) for which measurement may be required.

However, the absolute value of wealth is also of interest. A common phenomenon in developed countries is for cases of low current income to be combined with substantial wealth, suggesting that the potential power of the household to consume will be misrepresented if only income is taken into consideration. A familiar pattern in developed countries is for the wealth of farmers to increase with age up to a plateau; in contrast, incomes first rise and then decline as old age is reached. Agricultural land is usually the main component among the assets. In part this wealth may represent provision for retirement. However, much of it is passed to succeeding generations, with important consequences for the distribution of assets in society. Succession in a family farm is an especially significant issue because, besides the transmission of

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1 It should be noted that a multinational Luxembourg Wealth Study (LWS) now exists, forming a parallel to the Luxembourg Income Study (LIS), referred to at various points in this Handbook. The LIS, which began in 1983, has a database drawn primarily from household budget/income surveys and covers some 25 countries. The LWS, initiated in 2003, covers a smaller number of countries; publications of comparative studies of wealth distribution were intended to appear in 2005 (www.lisproject.org).
assets, it involves the transfer of knowledge and management skills to the next generation, which may contribute towards maintaining farm household viability through time.

In developed countries statistics on the wealth of agricultural households are rarely available at present. In contrast, many countries have surveys of farm accounts, and these usually collect data on the value of assets used by the agricultural holding (farm business) and associated liabilities, enabling estimates to be made of their net worth. An important example is the EU’s Farm Accountancy Data Network – FADN/RICA – that comprises individual national surveys in Member States using a harmonized methodology. Some countries (such as the United Kingdom) estimate aggregate balance sheets for their agricultural industries. There is some concern on both theoretical and practical grounds about the validity of balance sheets drawn up for such “fictional” units as the holding (Hill, 2000a). This centres on what an agricultural asset is (a particular problem when these serve both production and consumption functions, such as cars) and whether liabilities (which can only be transacted by real people or other legal entities) can be deemed to be attributable to the “holding.” There is also the issue of valuation of capital items, which will usually be according to market price, though, where no market exists or in some other circumstances, may be taken as use value or cost of production (Hill, 2000b). The valuation of farmland is a particular problem in countries in which there is public intervention in the land market, such as by restricting who can purchase or by applying differential rates of capital taxation according to the status of the new owner (OECD, 1998, 2004).

Many of these problems (though not that of valuation) are eased considerably if the complete household-firm is the unit for which the balance sheet is drawn up. Unlike the “holding,” the household is an institutional unit, and its net worth (wealth) will cover all its assets and liabilities. Though it will be important to be able to group the individual items by type and use, overall the picture will be more reliable as an indicator of the economic situation of the household and is likely to be a superior explanatory variable for behaviour, such as the decision to invest or to leave farming.

Any picture of the wealth of agricultural households will reflect the definitions chosen for the household and the classification system used to distinguish an agricultural household from one belonging to some other socio-professional group. These issues were discussed at length in the context of income measurement in Chapter IX and repetition here is not necessary. Consistency between the definitions used for the measurement of incomes and of wealth is obviously important when the two are to be combined to describe the economic situation of farm operators. However, it should be borne in mind that the complex patterns of asset ownership within families may mean that a definition of household that embraces a range of owners may be preferable and influence the decision about the appropriate unit for income measurement. For example, in a two-generation household where land belongs to the parents but farming operations are carried out by their children (who are the nominal earners of the entrepreneurial income), it may make sense to use the dwelling household as the basic unit for measuring both income and wealth.

One of the few developed countries capable of quantifying the household wealth of its farm operators, covering not only assets and liabilities associated with farming but also those held outside agriculture, is the United States. Much of this chapter focuses on this example, which this Handbook regards as an illustration of “good practice.” Further details about the main data source used (the ARMS farm accounts survey) are given in Chapter XIII.3.1.1. Later the situation of statistics on the wealth of farm households in a range of developing countries is reviewed. The state of information there is often surprisingly good because the basic data are collected as part of general Living Standards Measurement Study (LSMS) questionnaires.

Another is Italy, though the number of agricultural cases in the Bank of Italy household survey is small. Some other countries, notably in Scandinavia, appear to have the necessary basic data but do not make estimates of wealth for their agricultural households.
XII.1.1 Wealth of farm households in the United States

In the United States, wealth and the means by which farmers accumulate it have been of interest to policy officials, farmers, lenders, academics, and those with an interest in farming and rural affairs for many decades. In a 1923 American Economic Review paper, Gray reported an estimate of the net worth of farmers (Gray, 1923). This paper, prepared over eight decades ago, employed the traditional balance sheet accounting formulation: assets equal liabilities plus owner equity. Gray prepared an assessment of farm assets and liabilities to estimate net worth as the difference between assets and debt. Included in the measurement of assets were farm real estate, livestock, implements, crops on hand on January 1, the value of growing crops, and other items of farm capital such as supplies on hand and cash needed to run the farm. Farmer liabilities included the farm mortgage and debts other than those secured by real estate. Making this paper relevant to current considerations of household wealth measurement, Gray recognized that a complete accounting of wealth required an estimate of non-farm assets, and personal loans for such items as food and clothing. To estimate the net worth of farmers, Gray moved beyond the farm business to recognize personal and household assets and liabilities.

In the United States, balance sheet accounts were established for the farm sector in 1945 (USDA, 1945). Like Gray, the USDA balance sheet highlighted the need to include information for both farms and farm households. Thus, a consolidated balance sheet that included both farm and household items was developed. In 1980, the USDA created a new balance sheet account that separated the farm business and operator households. The balance sheet created in the 1940’s treated the household and the farm business as a single entity. By 1980, the USDA recognized that many farmers were less dependent on farm income than previously. Likewise, household assets and income were influenced by factors outside the farm sector.

In this chapter, the uses made of wealth measures for farms and farm households are discussed. The reasons why estimates of net worth for farms are not synonymous with estimates of net worth for households that control farms are then highlighted. This is followed by a discussion of what is included in wealth measures developed for farm households. The chapter continues with a discussion of some added insights gained from wealth measurement as a companion indicator to household and business income statistics in the United States. The chapter concludes by looking at the measurement and composition of farm household wealth in developing countries.

XII.2 Selected uses of farm and household wealth measures

With wealth estimates for farmers dating to the early 1900’s, a key question becomes “why the long-standing interest in the development of measures of wealth for both the farm business and the farm household?” A summary of uses made of wealth measures for farms and farm households helps respond to this question.

There are at least three main uses of farm-level net worth information. The first addresses questions about asset ownership and management. Who owns the physical assets, particularly land, and who is farming the land? This reflects the issue of who owns or controls agricultural resources and is important to assessing changes in farm structure. A variety of public policy issues may arise from trends in asset ownership, including potential barriers to entry for farmers. Many of the benefits and costs of government policies are tied to asset ownership or control. Links between public programs and asset ownership raise issues about the distributive effects of government policies. A second use centres on the financial position, or solvency, of businesses and, when combined with income, establishing measures of business profitability and liquidity. When farms confront eroded asset values relative to debts or when they have insufficient funds to meet debt service commitments, farm failures may arise and erode the quality of lender portfolios.
Spillover of farm problems into the lending sector can affect rural communities more broadly, especially if banks begin to close or if they are unable to meet commitments to non-farm customers. A third use of farm wealth data focuses on access to credit. Of interest in the United States is the availability of credit and financial services to small and beginning farm businesses. Information about the farm balance sheet, particularly lender market shares among different sizes of farming operations, and net worth helps inform this issue.

Measures of farm household net worth have several uses in the estimation and analyses of household economic status and wealth management issues. These include: (1) providing information about assets which are an income source and debt which requires an expenditure from the household; (2) giving a measure of economic resiliency or the ability to withstand unanticipated financial shocks, including a potential source of funds to support consumption; (3) providing insight, based on the composition and accumulation of holdings, into how farmers build wealth; (4) establishing a capital stock to underpin decisions about retirement, financial security in later life, and the transfer of assets to a new generation of farmers; and (5) giving a basis for deriving more comprehensive measures of household economic well-being than can be attained through use of an income indicator alone.

As a source of income and expenditure of the household, assets and debts affect both the credit and debit sides of the household income statement. Assets are a source of property income in the form of interest, dividends, and rents. Assets may also be a source of service-related earnings of the farm holding that are in addition to income from production of agricultural commodities. Interest paid on debt is an expense, which may belong to the farm or to the household depending upon where debt is held. Taking into account the debt position and income level of the household may dramatically alter perspectives about the debt service capability of a farm business. Off-farm incomes of households, including property income, may make debt service commitments look less problematic than they would if made on the basis of farm earnings alone (McElroy et al., 2002). But, household debt for non-farm purposes may also expose farm businesses to potential financial difficulty. Moreover, if a large share of household income is devoted to debt service, households have fewer resources for purchasing goods and services (Dynan et al., 2003). Knowledge of the full set of assets and debts at both the farm and household levels, and total income from all sources, is necessary to accurately evaluate business and household solvency and to assess the ability of each to meet its financial commitments.

In addition to providing a potential source of property income and influencing debt status, measures of net worth provide a portrait of the economic resources available to households at a given point in time (Bureau of the Census (U.S.), 2003; Bureau of the Census (U.S.), 1994).

| Wealth is a measure of the level of financial or economic resources that a household and its members have available at a given point in time. |

Wealth provides a capacity to draw down assets to generate an infusion of funds to sustain consumption when faced with an unanticipated economic or financial shock or to respond to a new business opportunity. Given that farm households, on average, spend a large portion of available work time and other resources participating in off-farm activities, shocks can emanate from either the non-farm or farm sectors of the economy, as well as from a wide variety of household events. The ability of a household to adjust to a financial or economic shock may be enhanced by the ability to sell, lease, or redeploy assets such as land or other capital.
The composition of a household’s portfolio may affect how it responds to changes in government policy or some other event. For example, a household that owns only machinery and equipment and leases land would not benefit from rising land values. In fact, if rents rise because of higher land values, the household may face higher costs and lower incomes. Meanwhile, households that own land may see their net worth rise. Of course, it is also possible, as the widespread United States farm financial crisis of the 1980’s illustrated, for land values to erode. This left farms and their controlling or ownership households in a difficult financial position, if not bankrupt. Knowledge of the composition of household net worth provides a basis for evaluating how effects of public policy or changes in the farm economy may be transmitted throughout the farm sector and rural areas.

In addition to accumulating wealth as a precaution against financial shocks, households also save to support financial security in retirement. Information about net worth and its composition may help identify segments of the farm community that may encounter difficulty in sustaining consumption and meeting basic needs without significant ongoing sources of income from earnings or from transfers from government or other sources.

Wealth measures are also important to understand household economic well-being. Aside from using assets or wealth in current production or to generate income in the form of interest, dividends or rents, a household can also realize gains or losses from the sale of assets. Even if not sold, household wealth could be converted to an annuity value and combined with income to provide a more robust estimate of consumption that household resources could support if assets were converted to cash. Hathaway makes this point by noting that, “changes in real wealth due to changes in asset values have much the same characteristics as current income in that they can be saved (i.e., used to increase net worth) or they can be consumed (via sale or borrowing) without decreasing net worth (Hathaway, 1963). Whether taking stock of performance or debt service capability, examining the ability to sustain consumption and provide for basic living needs, or deriving indicators of economic well-being, household wealth measures improve the perspective (gained solely from the use of income measures or farm business measures) of the economic status of farm households and their members.

**XII.3 Differences in wealth measurement for farms and farm operator households**

Farm households can be defined in a wide variety of ways. For example, in the United States, a farm household is defined as the domicile of the primary operator of the surveyed farm establishment. This includes individuals living in the operator’s residence who share the financial resources of the farm operator. A shortcoming of the United States’ farm household wealth collection through the Agricultural Resource Management Survey (ARMS) is that data are collected only for the primary operators of United States farms and their households. Ideally, data used to construct household wealth estimates would provide coverage for all households contributing assets and sharing in production risks. To provide the flexibility needed to classify households, data regarding the characteristics of households, household members, and the farms they operate are also collected. This enables households to be categorized into groups needed to address specific questions.

**XII.4 Connection between farms and households in wealth measurement**

Farm households accumulate wealth through a variety of avenues. One way is to consume less than is earned over a period of time. Another is through increasing asset values, due to changes in the conditions
governing supply and demand for the asset and changes in the services associated directly or indirectly with the asset. A third way is through gifts, transfers or inheritances. The concept underlying the collection of data to measure wealth and wealth accumulation of farm households is that the farm can be separated from the households associated with farming. The farm business is viewed as an establishment, or an economic unit, that produces agricultural output or other goods and services. Operators of farms use assets acquired from households and other legal entities to generate output and contribute to value added within the economy (see Figure XII.1). As business establishments, farms utilize assets provided by multiple legal entities, including households and other businesses. Likewise, farm households may decide to allocate their assets in a variety of outlets. The farm business may be only one component of the household portfolio.

Business linkages are not only important in establishing the flow of resources to the farm, but are also valuable in helping understand the distribution of farm income and wealth. For example, of the 2.1 million U.S. farms in 2002, 209,000 rented land under a share-rent arrangement. Under typical share-rent arrangements, landlords provide a share of operating inputs in addition to land. Yet, other farms are organized as partnerships or family corporations and over 50,000 grew commodities under a contract arrangement with another entity. The variety of business organizations and arrangements being used by farmers suggests that the net worth of either the farm sector or farm businesses cannot be assumed to belong entirely to farm households. Data collection must discern whether all farm assets and liabilities accrue to a single, or primary operator’s household (see Figure XII.2). Meanwhile, households allocate their own resources to multiple uses. This means that measures of farm household wealth need to reflect portfolio decisions that take into account assets and/or liabilities outside the farm (see Figure XII.3).

XII.5 Data to support estimates of household net worth

Farm households use a wide variety of livelihood strategies, saving, and investment choices. This means that both farm and non-farm sources of wealth should be considered in constructing estimates of household net worth. Each segment of the household balance sheet has its own challenges and can be inherently difficult to measure. Work with data for all United States households has demonstrated that wealth is not simple to measure (Bowles and Bosworth, 2001). Households typically have a list of assets and multiple sources of both business and personal debt (see Table XII.1).

The Handbook recognizes that farm households may have multiple sources of farm and non-farm assets and/or liabilities. To help ensure accuracy and completeness of estimates, net worth measures should take into account both farm and non-farm sources of wealth. Estimates of net worth should also recognize that farm wealth may not be entirely owned by farm households.

Estimates of net worth for United States farm households can be developed from two major surveys: The Survey of Consumer Finances (SCF) and the Agricultural Resource Management Survey (ARMS). The SCF is a cross-section survey conducted every three years by the Federal Reserve (Kennickell, 2000). Since the focus of the SCF is on household wealth, it contains detailed questions on financial assets, non-financial assets, and debts. The SCF contains limited information about linkages between farm businesses and their households. Sample size also limits its use in examining wealth for farm households. In 2001, the latest year available, fewer than 300 farm households were included.
### Table XII.1
Average wealth of farm operator households by farm typology group, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Limited-resources</th>
<th>Retirement /lifestyle</th>
<th>Farming occupation /lower-sales</th>
<th>Farming occupation /higher-sales</th>
<th>Large</th>
<th>Very large</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farms</td>
<td>127,738</td>
<td>297,566</td>
<td>931,259</td>
<td>479,925</td>
<td>175,370</td>
<td>77,314</td>
<td>58,403</td>
</tr>
<tr>
<td>Per cent of farms</td>
<td>5.9</td>
<td>13.9</td>
<td>43.4</td>
<td>22.3</td>
<td>8.2</td>
<td>3.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Farm total assets</td>
<td>84,147</td>
<td>347,772</td>
<td>299,934</td>
<td>512,282</td>
<td>810,706</td>
<td>1,230,336</td>
<td>2,212,028</td>
</tr>
<tr>
<td>Farm total debt</td>
<td>6,590</td>
<td>7,002</td>
<td>28,398</td>
<td>32,561</td>
<td>109,313</td>
<td>205,558</td>
<td>442,800</td>
</tr>
<tr>
<td>Farm net worth</td>
<td>77,557</td>
<td>340,770</td>
<td>271,536</td>
<td>479,720</td>
<td>701,392</td>
<td>1,024,778</td>
<td>1,769,229</td>
</tr>
<tr>
<td>Operator household share of farm assets</td>
<td>83,600</td>
<td>336,644</td>
<td>290,023</td>
<td>485,049</td>
<td>747,020</td>
<td>1,103,458</td>
<td>1,799,418</td>
</tr>
<tr>
<td>Operator household share of farm debt</td>
<td>6,534</td>
<td>6,913</td>
<td>27,938</td>
<td>31,683</td>
<td>104,470</td>
<td>190,427</td>
<td>368,129</td>
</tr>
<tr>
<td>Operator household share of farm net worth</td>
<td>77,066</td>
<td>329,731</td>
<td>262,085</td>
<td>453,366</td>
<td>642,551</td>
<td>913,031</td>
<td>1,431,288</td>
</tr>
<tr>
<td>Operator household off-farm assets</td>
<td>66,752</td>
<td>218,860</td>
<td>236,907</td>
<td>161,769</td>
<td>132,167</td>
<td>199,793</td>
<td>259,502</td>
</tr>
<tr>
<td>Cash, money market accounts, etc</td>
<td>17,542</td>
<td>61,028</td>
<td>36,898</td>
<td>46,193</td>
<td>32,556</td>
<td>38,343</td>
<td>49,228</td>
</tr>
<tr>
<td>IRAs, Keough, 401K, etc</td>
<td>11,969</td>
<td>50,939</td>
<td>67,447</td>
<td>38,539</td>
<td>27,555</td>
<td>39,439</td>
<td>50,138</td>
</tr>
<tr>
<td>Corporate stock, mutual funds, etc</td>
<td>12,590</td>
<td>50,838</td>
<td>48,774</td>
<td>36,126</td>
<td>35,830</td>
<td>61,065</td>
<td>70,145</td>
</tr>
<tr>
<td>Other nonfarm assets</td>
<td>*24,650</td>
<td>56,055</td>
<td>83,788</td>
<td>40,912</td>
<td>36,225</td>
<td>60,945</td>
<td>89,993</td>
</tr>
<tr>
<td>Operator household off-farm debt</td>
<td>5,872</td>
<td>12,151</td>
<td>37,248</td>
<td>17,558</td>
<td>13,004</td>
<td>27,464</td>
<td>32,919</td>
</tr>
<tr>
<td>Operator household off-farm net worth</td>
<td>60,880</td>
<td>206,709</td>
<td>199,659</td>
<td>144,212</td>
<td>119,162</td>
<td>172,149</td>
<td>226,584</td>
</tr>
<tr>
<td>Operator household net worth</td>
<td>137,945</td>
<td>536,440</td>
<td>461,744</td>
<td>597,577</td>
<td>761,713</td>
<td>1,085,180</td>
<td>1,657,872</td>
</tr>
</tbody>
</table>


* indicates that the standard error of the estimate is greater than 25 per cent and less than or equal to 50 per cent.
The ARMS is an annual cross-section survey that contains information about the farm, the farm operator and his or her household. Income, consumption, and wealth are collected concurrently from the same sample unit. Estimates of farm household wealth produced by the USDA rely on the ARMS since all types and sizes of business operations are included along with the households of the primary or senior farm operator. SCF results provide a basis for comparing estimates of wealth for farm households derived from ARMS with estimates for all United States households.

To construct estimates of household net worth, data collection starts with the farm business. The goal is to measure the value of business assets by component, to identify liabilities, and to establish ownership and control of assets used in production. The largest and most important component of farm business assets, land, is valued by asking for the values of component parts. This is done for two reasons. First, dwelling values, especially the operator dwelling, are used to impute an annual rental value that becomes a part of the estimates of income. Second, the value of land and buildings rented to, and rented from, others helps determine the amount of assets controlled in the business operation. The farm business balance sheet is completed by asking about other assets used in the business. Beginning and end of year values are determined for crops, livestock, production inputs, costs sunk into growing crops, and accounts owed to the business. End of year values are collected for items such as tractors, machinery, trucks and cars owned by the operation. For trucks and cars, an effort is made to obtain the share of their value that is associated with the farm. End of year values of assets are used in constructing the business balance sheet. Change in value from beginning to end of year contributes to value added and to the development of an accrual based measure of business income.

Farm debt is collected next, following the organization of a standard balance sheet. First, inquiries are made about loans taken and repaid during a calendar year. Not all farms have loan balances. Many do use loan funds during the year, but repay them by year-end. Collecting information about intra-year production loans helps put interest expense reported for the farm into perspective. For the five largest loans, sufficient data are collected to estimate the amount of debt service on the loan. Details about the purpose of the loan are established, including the per cent for farm purposes. These questions help align the estimate of farm debt with asset values and with business net income.

Once farm asset values and debt have been established, farm net worth is calculated by subtracting debt owed by the farm from total farm assets. When there are multiple farm households associated with a business, farm net worth is allocated among households to avoid overstating wealth estimates for any one household.

To complete an estimate of net worth for the household, the value of non-farm assets and debts are collected. As with the farm business, the ARMS is designed to inquire about household non-farm assets first. Non-farm assets are grouped into four categories: financial assets, business holdings, real estate, and other assets not reported elsewhere.

Asset values are followed by household debt owed outside the business. Like assets, debt is collected in four parts. The ARMS obtains information about mortgages on the operator’s dwelling. Dwelling values are included in the farm balance sheet if the dwelling is owned by the farm. If it is not a part of the farm, the dwelling is included in household assets and debt is reported as a part of household debt. The remaining debt questions ask about other real estate loans, debt associated with other businesses that are not part of the farm, and personal loans such as credit cards, automobile loans, or any other household debts. Non-farm asset values combined with non-farm debt give an estimate of farm household net worth from non-farm sources. Household net worth is the summation of farm and non-farm components.
Figure XII.1
Modern Farms Use Inputs from a Variety of Sources who in return share in Output and Income

<table>
<thead>
<tr>
<th>Inputs Acquired from Multiple Sources:</th>
<th>Households With an Ownership Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Labor</td>
<td>- Landlord</td>
</tr>
<tr>
<td>- Management</td>
<td>- Supplier</td>
</tr>
<tr>
<td>- Physical Assets</td>
<td>- Purchaser</td>
</tr>
<tr>
<td>- Financial Assets</td>
<td>- Contractor</td>
</tr>
<tr>
<td>- Entrepreneurial Capacity</td>
<td>- Partners</td>
</tr>
</tbody>
</table>

Support Links
- Financial Institutions
- Financial Markets
- Hired Managers
- Cooperatives
- Governments

Households May
- Operate Another Farm
- Have a Non-Farm Business
- Work Off-Farm
- Save/Invest in Off-Farm

Contractor May be
- Farmer
- Supplier
- Processor
- Broker
- Integrator
- Vertical Link
- Other

Financial Institutions
- Farm Credit
- USDA/Govt
- Banks
- Individuals
- Suppliers

Figure XII.2
Households Share Farm Net Worth with other providing Inputs

Operator Household

Other Legal Entities

Farm Assets

Farm Debt

Farm Net Worth

Farm Net Worth To Operator Household

Farm Net Worth To Other Legal Entities
To facilitate collection of non-farm assets and debt, the respondent is not asked to report specific dollar amounts. Instead, respondents are asked to select from among 31 codes that reflect a dollar range. Codes for dollar categories have been used to report off-farm income, assets and debt, and consumption expenditures in the ARMS since 1986. Experience suggests that reporting codes have made questions viewed as personal less intrusive to respondents and enumerators. As a result, there is little non-response on these items. Refusal codes also help distinguish between a valid zero and a known positive (but missing) value thereby improving estimates of household wealth. Codes for dollar categories have also been used in other data collections to help facilitate reporting of household wealth data (Jappelli and Pistaferri, 2000).

The Handbook recognizes that household net worth is the summation of farm net worth (assets minus debts) and non-farm net worth (assets minus debts).

XII.6 Extending analyses of household economic status and well-being

Measures of wealth can complement use of money or other income measures for evaluating business or household economic or financial performance. This section discusses how household wealth estimates can help extend analyses of household economic well-being based on income measures.

Capital gains as income. Households may include income from property and transfers. Realized property income has typically been included in measures of household income as interest and dividends. Household assets, whether associated with their farm or in other forms, may be subject to gains
or losses in value from a variety of macro- and microeconomic events, policies, or programs. Whether or how capital gains should be considered in the measurement of farm or household income is open to discussion (see Chapter X of this Handbook, and Hotell and Gardner, 1983; Brinkman, 1980; Hill, 2000b, 2002; Canberra Group, 2001).

At the household level, if net worth increases during an accounting period, the increase results from household savings, receipt of transfers, or changes in the marketable value of holdings. Given a similar starting point, households with increases in net worth are likely to be in a better longer-term financial position than are households with static or declining net worth. In examining the well-being or longer-term viability of households, it may also be helpful to know whether any drawdown in wealth levels was planned (making use of resources accumulated in an earlier period) or involuntary (the result of some shock).

While the Canberra Group did not include the value of unrealized asset gains in either the ideal or practical measure of disposable income advanced in its report and recommendations, it did recognize that such gains could have a significant impact on household economic well-being. The Canberra Group noted that including an imputed income stream from these gains would provide additional perspective of the household’s command over resources. The group also noted, however, that if the focus is on whether a household can meet its everyday needs, the relevant approach is to include only realized gains and losses on holdings. The Group recognized that collecting data needed to estimate capital gains through surveys would be difficult and would increase respondent burden. They recommended the use of a satellite account to report income estimates that included measures of capital gain (Canberra Group, 2001).

The United States Census Bureau recently released a satellite account that extends money estimates of income for all households in the United States to include realized gains and losses (Denavas et al., 2002). The Census Bureau has also begun to recognize the effect of including unrealized capital gains in measures of income, at least to the extent that including an annuity based on equity held in home ownership is reflective of property holdings.

**Household savings.** Farming, as largely a self-employment industry, faces a variety of business and financial risks. Business risk arises from changes in production or prices, while financial risk emerges from the fixed financial commitments of the farm. Savings help add to household wealth and provide a buffer or cushion to manage either planned expenditures, such as educating children, or unplanned events, such as crop failure or a medical problem confronting a household member. For both planned and unplanned events, savings provide a source of household liquidity. In addition, accumulated savings provide a source of financial security in later life when earned income is typically lower.

Savings are a measure of flow over a defined period. In contrast, wealth is a measure of stock defined at a point in time. Savings can be measured in several ways (Juster et al., 1999; Mishra and Morehart, 1998). One way is to take the difference between household income and expenditures, establishing a direct link between household earnings and wealth accumulation (see Chapter X). A second method is to sum new funds put into household assets with the amount of debt that has been repaid. Or, alternatively, savings can be measured as the difference in net worth during a period of time, revised to reflect gains or losses in asset values and transfers received by the household. Considerable difficulties with respect to survey use have been recognized for the last two measurement methods (Juster et al., 1999).

**Measures of household well-being.** An individual’s economic status has been defined as command over the potential to consume goods and services (Hill, 2000b, 2002). Measures of economic well-being that include all potential sources of income from the use of labour and owned assets have been calculated for households (Chase and Lerohl, 1981; Carlin and Reinsel, 1973; Wolfe et al., 2004a; Wolfe et al., 2004b; Salant et al., 1986). In this case, the ability to acquire goods and services is viewed as being reflected not
only in the money income available to the household but also by the money that could be raised by converting the household’s stock of assets to income. This could be accomplished in a variety of ways, including drawing down savings, selling assets, or borrowing using assets as collateral.

The ARMS has been used to jointly consider income and wealth in assessing the economic well-being of farm households in the United States. One approach involves qualitative categorizing of household income and wealth based on median non-farm household levels of income and wealth (McElroy et al., 2002; Mishra et al., 2002). Farm households were grouped depending on whether they had higher or lower amounts of income and wealth when compared with the median for non-farm households.

Another approach yields a quantitative measure whereby estimates of wealth are converted to an annuity and the annual equivalents of annuity payments are summed with estimates of annual money income. Challenges in determining an annuity value of wealth include decisions about the length of life expectancy, rate of interest, and measure of net worth. A particular problem in determining life expectancy for households occurs when assets are owned by operators and another person or persons. In these cases it is difficult to decide whose life expectancy to use. For example, in the United States, information about farm household money income and wealth has been used to produce an index based on a two-dimensional measure of economic well-being. This is achieved through use of a formula such as the following:

\[
\text{Economic Well-Being Indicator} = \text{Household Income} + \text{Annuity Value of Net Worth}
\]

Formulas used to generate an annuity typically require the choice of a finite time horizon. One option is to assume that no household would consume assets at a rate that would leave household members in an impoverished state. The measure of net worth to use is also an important consideration. Farm households, like other self-employed households, own assets that provide the basis for generating current money income. To avoid double counting, farm production assets and household durable goods are generally excluded from measures of net worth used in constructing composite indicators of well-being.

Farm household portfolio composition and liquidity. Liquidity is concerned with the ability of households to generate enough funds to meet financial obligations as they come due. It is measured by examining the farm and household balance sheets to determine whether current assets, if sold, would be sufficient to pay current liabilities. Financial analysts usually use the term “current” to mean some relatively short period of time of up to a year. The relationship between current assets and liabilities provides an indication of the amount of internal capital farm households have available for business and household operation. With households allocating financial resources to farm and non-farm uses, an accurate perspective of the amount of funds available for the business to acquire a needed input, to handle an emergency, or to repay a short-term debt may require information about both farm and household sources of assets and liabilities.

Farm households maintain a varied portfolio of assets, however, farm assets, and particularly farmland, still dominate their balance sheets. With diversified household portfolios, the degree of solvency of farm businesses that can draw on household assets or liquidity may be under estimated by looking solely at farm business balance sheets. Non-farm net worth may be used to relieve farm liquidity constraints. The opposite situation can arise when farm equity is used as collateral for consumption or to fund non-farm enterprises. Moving from a business to a household perspective, composition of the portfolio indicates household’s use of funds and funding priorities, particularly as they move through stages of the farm-family lifecycle.
XII.7 Measurement and composition of household wealth in developing countries

Measurement of household wealth in developing countries utilizes the same financial concept implemented in other countries. Household wealth is the difference between the value of all assets, farm and non-farm, owned by the household and liabilities owed by the household to any of a variety of lenders. Differences in estimation may lie mainly in the types of assets owned by households and the sources of debt utilized. Information on household wealth for developing countries comes principally from separate modules within their Living Standards Measurement Study (LSMS) questionnaires, in particular those covering their (non-agricultural) household enterprises, agriculture, savings, and credit. This subsection presents a brief description of the existing measurement of rural household assets and liabilities, as captured by multitopic LSMS household surveys in a small sample of developing countries.

XII.7.1 Household enterprises module

Among developing countries LSMS questionnaires mostly contain a module exploring the dynamics and activities of non-agricultural household enterprises (which, for simplicity, are referred to in Chapter 18 in Grosh and Glewwe (2000) as “household enterprises”). These modules gather information on the portion of a household’s income and employment derived from non-agricultural self-employment. More extensive versions have also collected information on the involvement of household enterprises with credit (Vijverberg and Mead, 2000). Most household enterprises fall into one of two major categories: Many, probably the majority, of these enterprises generate only minimal income that is barely sufficient to enable their owners to survive; examples are food preparation, sewing, shoe shining, and street vending. Other household enterprises, sometimes referred to as microenterprises, generate incomes that are substantially higher. In contrast with survivalist enterprises that rely almost exclusively on unpaid family members (and often consist of one person working alone), microenterprises are more likely to use hired workers. Examples of microenterprises are furniture making, manufacturing, and wholesaling (Vijverberg and Mead, 2000).

Business assets are an important determinant of the performance of an enterprise. Enterprise performance can be measured not only by labour productivity or by the absolute amount of income generated but also in terms of the percentage return to investments in the enterprise. And an enterprise’s start-up and subsequent performance depend heavily on the entrepreneur’s ability to acquire the assets needed to be competitive in the sector. If one of the purposes of a particular survey is to investigate the credit needs of small-scale private enterprises, it is important to collect information about business assets.

Business assets come in two forms: fixed assets and inventories. Fixed assets include land, buildings, tools, machinery, furniture, and vehicles used by the labour force. Inventories consist of raw materials, intermediate goods that need to be further processed, and finished products ready for sale. While recent enterprise income can be analyzed using the current value of business assets, in order to analyze income over 12 months, additional information on sales and purchases of assets is needed. For land and buildings, any expenditure on improvements may be counted as assets purchased. The “normal” quantity of inventories is difficult if not impossible to measure, hence the LSMS questionnaires ask only for current values. Asking for current market value of assets is a common practice in preparing balance sheet estimates for businesses and households.

3 Assuming that transactions took place on average a half year ago, the typical value of business assets in use over the past 12 months can be approximated by the following:

\[ \frac{[\text{current value of assets}] + [\text{value of assets sold}]}{2} - \frac{[\text{value of assets purchased}]}{2}. \]
For many purposes, the most important question about fixed assets is not so much what assets are **owned** by the enterprise but rather what assets it **uses**. An entrepreneur may rent, own, or borrow assets from a neighbour or relative or from another enterprise operating in the household. Experience with previous LSMS data sets indicates that a significant proportion (about one fourth) of household enterprise owners report owning no assets, and those that do own assets often share them with household members or with other household enterprises; this is particularly the case with vehicles. If an asset is shared, it contributes not only to the income of the enterprise that owns it but also to the income of other enterprises that use it or to general household welfare. In light of this fact, it is necessary to devise a way to account for the complex sources and uses of business assets (Vijverberg and Mead 2000).

**Box XII.1**

**Modules on (non-agricultural) household enterprises**

The China Living Standard Survey (CLSS), 1995-1997, gathers data on household non-farm businesses for the three most important enterprises operated by the household. It collects data on the ownership, type of business, investment and its sources for each enterprise. It also records information on assets and inventory.

The Côte d’Ivoire Living Standards Survey (CILSS), 1985-1988, collects information on the three most important businesses per household. Information on the value of productive assets and stocks is also recorded.

The Ghana Living Standards Survey round four (GLSS 4) 1998-1999 gathers information on assets of the non-farm enterprise and solicits information on ‘net income and inventory of enterprise’.

The Morocco Living Standards Survey (MLSS), 1990-1991, provides information on the identification of home enterprises; on fixed-place (home or shop) enterprises expenses; ambulatory enterprises expenses; enterprises with formal accounting procedures receipts; enterprises without formal accounting procedures receipts; capital and loans.

The South Africa Integrated Household Survey (SAIHS), 1994, asks about whether any member of the household owns other property or a share of other property (e.g. business property); how much it is worth; and whether any rent is being received.

The Vietnam Living Standards Survey (VLSS), 1997-1998, collects information on ownership, sales and purchases of assets and other durable goods.

The Zambia Living Conditions Monitoring Survey (ZLCMS), 1996, asks about what assets the household owns. This refers to **household assets** that are in good working condition and are used by the household in the production of goods and services. In the event an individual is running more than three activities the respondent is asked to specify up to three of the most important business activities.

**XII.7.2 Agriculture module**

The agriculture module in LSMS surveys includes only the activities of the farm that involve crop (annuals and perennials) and livestock production. It omits hunting, fishing, and gathering activities as well as the processing of agricultural products. Those activities can be treated as non-farm enterprise activities and should be included in the household enterprise module of an LSMS.

The agricultural module has generally had several objectives: measuring net income from the household’s production of crops and livestock; and measuring the value of household agricultural assets such as land, animals, and equipment etc. (Reardon and Glewwe, 2000).
Box XII.2
Modules on agriculture – selected developing countries

China records information on different agricultural inputs and agricultural assets, e.g., farm machines and equipment.

Côte d’Ivoire records for each type of livestock the number of and value of livestock currently owned and the number of and value of livestock sold, purchased and lost over the past year. It asks for a list of the main small tools used and owned by Ivorian farmers. It also asks about the value of the current stock of each type of farm equipment (not tools) such as tractors, carts, vehicles and draft animals.

Ghana covers agricultural assets such as land, livestock and equipment. The land referred to covers all land owned by the household whether for agricultural or non-agricultural purpose, including land rented out to other persons.

The India – Uttar Pradesh and Bihar – Survey of Living Conditions (ISLC), 1997-1998, seeks information on livestock owned and farming assets owned.

Morocco asks about the size and current value of the land plots; the ownership and income of livestock; and agricultural equipment and loans.

Peru asks about the market value of any agricultural equipment that is owned.

South Africa asks about the persons in the household having the right to use (having access to) any land for arable farming or for stock farming. It also asks whether the household owns, or farms with, any animals and seeks information on the presence of poultry of any kind. Furthermore, it asks whether the household owns mechanized farm equipment or non-mechanical farm tools.

Vietnam collects information on household’s control over different plots of land of different tenures. It collects information on livestock, poultry and other animals that are either consumed by a household or generate income. It collects information on hand tools, and information on implements and farm machinery owned by the household, and any rental revenues obtained from them.

XII.7.3 Savings module

The savings module is an essential part of a multitopic household survey like the LSMS. This module gathers data on the value of the household’s stock of financial assets. Such data are necessary to accurately estimate household wealth. And the savings module can collect information on both the types of financial assets held by households and recent transactions in such assets during the period of the survey, providing information that is directly relevant for analysing household savings (Kochar, 2000).

The savings modules in most multipurpose household surveys (including many LSMS surveys) typically collect information only on financial assets and liabilities. The data set generally includes information on the household’s non-financial assets in other modules of the survey (Kochar, 2000).

It is widely believed that the low return on assets in developing economies partly reflects the fragmented nature of capital markets and, hence, the inability of households to hold assets that yield the highest rates of return. The levels and (especially) the forms in which households save affect household incomes, particularly in countries where agricultural or non-farm enterprises constitute a major source of household income (as is the case in most developing economies).

Income from agricultural or non-farm enterprises reflects, in part, the household’s ownership of physical capital or “productive” assets such as the machinery and tools used in such enterprises.
Investment in such assets represents an act of saving, thereby linking savings and portfolio choices to household income (Kochar, 2000).

As noted above, there are alternative ways to measure savings: two of these are by subtracting consumption from household income or by observing changes in stocks of individual assets. For this reason, data on financial assets are best collected in the savings module. There are difficulties inherent in each of the two ways of measuring savings. A lack of data on important assets is a problem when measuring savings using data on asset transactions. And the difference between income and consumption does not always provide a reasonable estimate of savings, often because of weaknesses in the design of the income and consumption modules (Kochar, 2000).

Data on stocks of assets are also necessary to estimate household wealth. Experience has shown that the accuracy of estimates of household wealth can be improved if households are asked about the value of different types of assets rather than being asked to provide an estimate of their total wealth (Kochar, 2000).

**Box XII.3 Savings modules**

China asks the household to list different places (e.g., banks, credit union, loan to enterprises) to put away money which will not be used for a while, and to estimate the maximum amount of money that could be taken from own assets when faced with, for example, some kind of disaster or the need to build a new house.

Côte d’Ivoire records the total value of all savings.

Ghana collects information on loans, assets and savings information about the household’s savings account and the current value of savings is collected.

The Jamaica Survey of Living Conditions (JSJC), 1997, included questions about how often the respondent saved, financial assets, and other assets.

Vietnam asks households to list different types of savings, if any. The respondent is also asked to total the current value of all the different forms of savings that he/she has.

**XII.7.4 Credit modules**

Not covering all of the sources and types of credit in a multitopic household survey can lead to serious mis-measurement of credit use. Thus it is essential for surveys to ask questions about every conceivable source and variety of credit to ensure that the full extent of credit use is accurately measured. While basic information on borrowing has been collected in many past LSMS surveys, few surveys have included detailed questions about credit sources or even general questions about using supplier credit for productive purposes. Questions on the use of supplier credit have most frequently been found in inquiries about agricultural enterprises, but even in these cases very few questions were included (Scott, 2000).

Analysis of the data from the few surveys that have addressed this issue in depth have shown that it is vital to include explicit questions about the sources and types of credit and about the purposes to which it is put (see Table XII.2). Only when these questions are included will surveys yield enough data to give an accurate picture of total credit use (Scott, 2000).
**Table XII.2**

Types of Credit Information Obtained by Selected LSMS Surveys

<table>
<thead>
<tr>
<th>Country</th>
<th>Mortgage</th>
<th>All loans</th>
<th>Specific loans</th>
<th>Non-agricultural</th>
<th>Agriculture enterprises</th>
<th>Food</th>
<th>Other</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecuador 1994</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libya 1993/94</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ivory Coast 1985</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyrgyz Rep. 1996</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru 1985</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan 1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa 1994</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vietnam 1992/93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This table only shows whether each questionnaire included questions asking if the household had obtained credit of a specific type. The table does not show whether the design of the questionnaire would yield the data necessary to calculate the size of the loan, the total cost of credit, or other loan terms.

Source: Relevant LSMS questionnaires.

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**Box XII.4**

Credit modules

**China** collects general information on the number of different sources the household has ever borrowed money from. Information on the amount of the loan, interest, collateral requirement, repayment schedule and reason for borrowing is requested for each instance of borrowing. The survey also gathers information on enterprise debt and its structure (e.g., bank loan, loan from collective or cooperative foundation, and private loan).

**Côte d’Ivoire** records the total amount of loans provided by the household to others, total amount borrowed from institutions or from other people.

**Ghana** obtains information on loans contracted or negotiated by the household in terms of money or goods.

**India** aims at ascertaining the net debt position of the household. The total amount currently outstanding that the household owes to others is also recorded.

**Morocco** asks questions about borrowing, lending and savings.

**Peru** asks about any financial transaction undertaken in the last 12 months; the amount of the loan remaining to be paid.

**South Africa** asks whether any member of the household owes cash or goods to any institution or to an individual who is not a household member; the amount owed; and the monthly payment.

**Vietnam** collects information on the amount of indebtedness of household members to people or institutions outside of the household. If money or goods have been borrowed, or borrowed and repaid by any household member in the last 12 months, information is collected on those loans, including the source and amount of loan, interest, side payments, collateral, repayment schedule, reason for borrowing, and number of loans from the same source. It also collects similar information on the amount household members have lent to people outside of the household.
XII.8 Conclusions

In developed countries, while balance sheets for farm businesses are frequently encountered in association with surveys of farm accounts, information on the wider assets, liabilities and net worth of the households that operate farms is confined to a very few. This represents a substantial gap in knowledge about the economic situation of farm household-firms and one which is of significance both to agricultural policy in OECD Members and to explaining behavioural responses and adjustment patterns. The importance of agricultural land to the asset mix and the relevance of changes in its value to the longer-term rewards earned by its owners, in turn a reflection of the support policies applied to agriculture, makes the present information lacuna particularly worrying.

The results that are obtained for household wealth are dependent on the definitions adopted for a household and the basis of classifying them into agricultural or non-agricultural. This parallels the situation experienced when measuring incomes, and there is no need to repeat the issues covered in Chapters IX and X. A range of specific issues relates to asset identification and valuation, but a detailed exploration of these must await a subsequent edition of this Handbook. It is anticipated that the Luxembourg Wealth Study may be useful in pointing to a harmonized wealth methodology for agricultural households, performing a role similar to that of the Canberra Group in household income measurement (see Chapter X). Another similarity with income statistics is that data sources vary between countries. The extension of farm accounts surveys to cover household wealth (in addition to agricultural assets and liabilities) has attractions for some countries, though there are well-known difficulties in securing information about households from a survey based on farms (see Chapter XIII). Some countries may prefer other types of microeconomic data sources, such as administrative registers or household surveys. A detailed review of potential data is an obvious next step which a later Handbook should consider.

In developing countries, notwithstanding some non-sampling measurement error problems, the work done in the countries cited in this chapter suggests that it is already feasible to construct balance sheets for the agricultural households found there. A possible format is provided in Annex 8.

Despite the relatively limited state of development of wealth statistics compared with income statistics (though household incomes are by no means yet at a satisfactory state in many countries), it is possible to make a clear statement of the desirability of having them.

This Handbook recognizes that the wealth situation of the households that operate farms should be assessed. This includes, in addition to the assets and liabilities directly related to agriculture, those that household members hold outside the farm business.
References


The following is a complete list of references for the Developing Countries referred to in the Boxes of this chapter:

**China**
Documentation for the China - Heibei and Liaoning Living Standards Survey
http://www4.worldbank.org
http://www4.worldbank.org
http://www4.worldbank.org
http://www4.worldbank.org

**Côte d'Ivoire**
Documentation for the 1988 Cote d'Ivoire Living Standards Survey

**Ghana**

**India (Uttar Pradesh and Bihar)**
Documentation for the 1997-98 Uttar Pradesh and Bihar Survey of Living Conditions.

Jamaica

Morocco
“Morocco Living Standards Survey (MLSS) 1990/91. Household Questionnaire (Enquête nationale sur le niveau de vie des ménages)”. [In French Only] (winzipped).

Peru

South Africa
“South Africa Integrated Household Survey. Household Questionnaire”.

Vietnam
“Documentation for the 1997/98 Viet Nam Living Standards Survey”.
Zambia
http://www4.worldbank.org
Central Statistical Office “LCMS96 - Enumerator's Instruction Manual”.
Central Statistical Office “LCMS96 - Household Questionnaire”.
http://www4.worldbank.org
XIII INVENTORY OF METHODOLOGIES USED: AGRICULTURAL INCOME AND WEALTH STATISTICS

This chapter reviews the existing methodologies used to generate income and wealth statistics for agricultural households. First there is a review of the sorts of basic data sources that may be available, with their respective strengths and weaknesses. This is followed by an account of the definitions applied and data used in a range of countries. This is in two parts. The first describes the situation in developed countries (Members of the OECD and/or UNECE). The second deals with a sample of developing countries. Both parts draw on information gathered by the UNECE especially for this Handbook.

XIII.1 Data sources for agricultural income statistics – generic sources

The lack of basic data has for long been a problem in establishing statistics on the economic situation of agricultural households. In 1964, the OECD examined the issue of low-incomes in agriculture. As part of this investigation, the OECD attempted to collect information from 22 countries on the incomes farmers received from other sources and which might compensate for low earnings from farming. To its concern it found that:

...In most countries, the information available does not give a precise indication of the farm income situation. Farm families cannot be accurately classified according to their level of income; data on income received from non-farm sources are particularly deficient. These limitations are a serious handicap in devising suitable policies and in assessing the results of measures taken; attention should be given to improving the situation (OECD, 1964, p. 7).

Although scraps of information about off-farm activities could be found for most countries, comprehensive sets of microeconomic income data that permitted the identification of farms with low total incomes were only encountered in the Scandinavian countries, Austria, Germany, Canada and United States.

Slattery (1966) reviewed what was known on the relative income of farmers up to the mid-1960s in seven countries where data on personal incomes could be found (Denmark, Germany, Sweden, United States, Canada, Australia, and New Zealand – the latter two not covered by the OECD work above). Tax records formed the prime source except for Germany where farm accounts were used. Slattery’s analysis related to the average incomes of farm and non-farm sectors and did not explore the distributional issues for which such data are particularly suited. In 1989, Hill noted that in the EU, despite the passing of three decades during which the CAP, with its increasingly important income objective, had come to dominate the agricultural policies of Western Europe, the list of Member States with satisfactory microdata on the overall income of their farming households was almost unchanged from that found by the OECD in the 1960s. Only Ireland and the Netherlands had been added to Slattery’s list. The absence of countries of such major importance to the CAP as France, Italy and United Kingdom was particularly regrettable. By 2000, virtually no progress had been made in putting what patchy data existed at the national level on to a common methodological basis that would permit comparison and aggregation (Hill, 2000).

A review of the current situation concerning data sources on a country-by-country basis is given in the next section. First, however, it is useful to describe the main data sources and their various strengths and weaknesses. It must be remembered, however, that while the existence of data is a prerequisite for the creation of statistics, it does not necessarily mean that they can be used for this. There may be practical or
legal impediments that must be overcome and, even when these can be circumvented, resource costs are involved.

XIII.1.1 Types of data sources

Microeconomic information on the personal incomes of farmers and their households in industrialized countries comes from data gathered in three main ways - from surveys of farm accounts, from family (household) budget surveys in which farmers form one of several socio-professional groups, and from taxation records where self-employed farmers can be identified as a trade group within the industrial classification. In addition, there are various other sources. Some are regular, as in the annual microcensus in Germany or claims for income support under welfare programmes in Ireland and France, while others are occasional, like the investigation of farming households in Luxembourg in 1978 by the Centre for Population and Policy Studies (CEPS) (Hill, 1988) and the special studies in France by the Centre d’étude des revenus et des coûts (CERC) for 1978 (Brangeon et al., 1991; Jégouzo et al., 1998) and for 1997 by the National Institute for Statistics and Economic Studies (known by its French acronym - INSEE) (Berthier, 2004). Occasional data also come from special studies that involve looking at the incomes of farmers, such as surveys of farm business structure, of part-time farmers and the large-scale multi-country study of farm household adjustment in Europe undertaken by the Arkleton Trust (Bryden et al., 1992) and its national offshoots. Here emphasis is given to the regular sources.

Farm accounts surveys are important for policy purposes because they are mostly undertaken either by or for governments and form part of the official data set on agriculture. However, not all farms in developed countries draw up accounts. According to the Farm Structure Survey less than one third of holdings kept accounts in 2000 (31% in 2000 for ten Member States, though this was up from 15% for nine countries two decades earlier). In some countries it was virtually universal (including Denmark, the Netherlands and the United Kingdom), whereas in Greece only 1% of holdings kept accounts; in Austria it was 5% and in Spain 11%. However, bookkeeping has been encouraged to the extent that each EU15 country has at least one survey of farm accounts using a harmonized methodology that contributes to the European Commission’s Farm Accountancy Data Network (FADN, also known by its French acronym RICA). The quality of the information is generally high because of the ways in which the sample is selected and the data collected. However, as suppliers of data on the total income of farm households, such surveys are of limited potential. First, the sample is designed to be representative of agricultural activity, not of farming households. Hence there may be a concentration on the larger “commercial” producers and relatively poor coverage of small “non-commercial” farms, even if the occupiers of such holdings are mainly dependent on the farm for their livelihood. A minimum size of farm may be used that cuts off a substantial proportion of farm operators.1 This has led to criticism of the EU’s FADN/RICA for its limitations with regard to exploring issues that relate to people engaged in agriculture (see views reported in Hill, 1988).

In addition to the above, farm accounting is often restricted to inputs and outputs of agricultural activity. For example, FADN/RICA does not require information beyond that related to the farm business. Whatever their relevance to the problems of farming at the time they were set up, such a narrow perspective restricts the capacity of the survey in providing answers to many of today’s policy questions. A few national surveys in the EU go further and regularly collect additional data on the farm household’s non-farm income, though there may be a problem in achieving high data quality across the various sources; among the EU 15 countries this list includes Denmark, Germany, Netherlands, Austria, Finland and, since 1989, the United Kingdom. In the United States, the Agricultural Resources Management Survey (ARMS) covers both the farm and non-farm income and wealth of operators. Data from the ARMS have proved highly

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1 In the FADN/RICA, coverage of about 98% of activity but only about 50% of operators is achieved.
valuable in analyses of the economic conditions of operator households (the ARMS is treated as a case study in Chapter XIV).

A final aspect of farm account surveys is that, by virtue of being purely farm surveys, they do not generate data on other socio-professional groups with which comparisons of the economic situation of farm households could be drawn. This means that alternative data sets may have to be used to provide results for the population in general or subsets of it (such as households headed by other self-employed persons), with the possibility that full comparability may not be achievable.

Nevertheless, where information is lacking, farm accounts surveys appear to be an attractive option for development by adding questions related to off-farm income, non-farm wealth and other aspects of the household that are of increasing relevance in explaining farm decisions and establishing the economic well-being of farm households.

Family (household) budget surveys and related panel studies are a second potential source of data. These take place in OECD Countries, including all EU Member States. Household budget surveys cover all households, including agricultural households. As a result, comparisons should be possible between agricultural households and other types of household. There have been moves towards a common methodology both within the EU and internationally (Canberra Group, 2001; Eurostat, 1993; 2003). The primary purpose of household budget surveys is to provide information for the weighting of price indices, and emphasis has traditionally fallen on the expenditure side. Despite this, the amount of information collected on incomes has gradually been expanding, though there is variation in the amount of detail among countries. This flows from the fact that income data are collected primarily to obtain a classifier for the study of patterns of consumption rather than to study income in its own right (Eurostat, 1993). Nevertheless, in countries with a substantial proportion of their population still engaged in agriculture, these surveys are a potentially valuable source of information on the total income of farmer households. The OECD used data from household budget surveys in 25 countries stored in the database of the Luxembourg Income Study as the basis for its study of low-income in agriculture (OECD, 2001).

There are three main disadvantages of household budget surveys. First, because agricultural households constitute a small proportion of the population in most OECD Countries, few agricultural cases turn up in the surveys. As a result, the data are often insufficient for any statistical significance to be attached.

Second, they are expensive to carry out, with the result that they are conducted only occasionally - typically at five to seven year-intervals. This creates the problem of how their findings should be updated in non-survey years. In addition, results from the analysis of the mass of data also tend to be rather dated by the time they are published. These surveys are therefore best at providing detailed information when time is not of the essence.

Third, the reliability of data on incomes is not high (see, for example, the case of Greece in Sarri (1996)). Not all items leading to income may be collected (such as imputed items and rental values of owned dwellings) and there may be no coverage of assets, liabilities and net worth. The problem with the quality of income estimates comes from the underrepresentation of self-employed households in voluntary

2 The Luxembourg Income Study (LIS) project began in 1983 under the joint sponsorship of the government of Luxembourg and the Centre for Population, Poverty and Public Policy Studies (CEPS). The main objective of the LIS project was to create a database containing social and economic data collected via household-based surveys in different countries. The LIS database contained information for 25 countries by the end of 2000, of which 22 are OECD countries.
surveys (there may be difficulty in making contact and a high non-cooperation rate), and also from the
understatement of real income levels from self-employment. This may not be deliberate but can arise from
the uncertainty which households have about the amounts they are earning from farming and even of what
constitutes income (Martin et al., 1996; van der Laan, 1999). Ireland has attempted to circumvent the
problem by integrating their household survey with the annual farm accounts survey (the National Farm
Survey) that contributes to FADN/RICA, selecting as agricultural households cases that were already
cooperating in the National Farm Survey (Hill, 1988). In Germany, incomes are estimated indirectly by
summing consumption spending with the level of savings.

Longitudinal studies using a panel of households are needed where the main interest is the way in
which income varies over time and the way in which various components change. The pattern by which
many agricultural households diversify their income sources as a response to the pressure on the rewards
from farming would be expected to be revealed by the use of constant samples. In reality, general surveys of
households that use a panel approach often appear to suffer from the problem of small numbers of
agricultural households. Box XIII.1 contains details of panel surveys for the EU.

**Box XIII.1**
The European Community Household Panel (ECHP) and European Union Statistics on Income and Living Conditions (EU-SILC)

The European Community Household Panel (ECHP) was initiated in 1993 with the intention of
establishing a European database of comparable statistical information for all Member States (EU 12) on
the income and living conditions of households. Details were collected on the incomes of individual
household members, which then could be aggregated to the household level in various ways (for example,
by using a dwelling or a single budget concept of the household). The first main survey took place in 1994,
with a sample of some 60,500 cases. It was anticipated that about 3,300 would turn out to be agricultural
households; in the United Kingdom the sample of 5,000 households was expected to yield about 100 farm
households. In reality, the first round of the ECHP threw up fewer than 2,661 cases in which the head of
household (or the reference person) was returned as self-employed and had agriculture as their broad
industry group. In Germany there were 25 households with such a reference person and in United
Kingdom 61 households; only in Greece, Ireland and Portugal were there more than 300 such households
(Eurostat, personal correspondence). The number of cases corresponded to less than 1% of agricultural
households estimated in Eurostat’s sector-level Income of the Agricultural Households Sector (IAHS)
statistics, and less than 0.5% in countries other than Ireland and Luxembourg. Over time the numbers were
expected to become even smaller. By way of contrast, the EU’s Farm Structure Survey aims for a
minimum sample of 10% in order to catch the diversity found in this industry, although in practice this
sometimes falls to 3%. In addition to the number of agricultural cases in the ECHP sample being too small
to be usable, it may be expected to suffer from the same well-known problems as household budget surveys
in its attempts to gather reliable income data from self-employed people, especially those in agriculture.

The ECHP has been replaced by the European Union Statistics on Income and Living Conditions (EU-
SILC) survey, which has a cross-sectional sample size of 121,000 households for EU-25 (91,000 for the
longitudinal study). A “full-scale pilot” survey took place in 2003 and the “true” EU-SILC survey was
conducted in 2004. While full implementation is not expected until 2007, the first cross-sectional data will
be available in 2006. However, in view of the sample size, it is likely that the EU-SILC will suffer from
the same problem of a small number of agricultural households as did the ECHP.
As will become clear later in this chapter, in developing countries household surveys have become a dominant form for collecting data on incomes and consumption, supplementing or sometimes even replacing other data collection programmes and civil registration systems (UN, 2005).

*Taxation records* form the third main potential data source on the total personal incomes of farmers and their households. In countries that have income taxes for individuals or groups of people (such as couples, who may form a fiscal household), an advantage of using taxation records is that taxes are not voluntary, so records of the income on which tax is based should exist for all taxpayers. Data may be drawn from the whole universe or just a sample depending on the number of cases and degree of disaggregation required. Because there are usually penalties for illegal tax avoidance, some degree of quality assurance is built in, though there may be bias towards the underreporting of income. Assuming that taxpayers are identified by trade group, of which agriculture could be one, it should be possible to compare the situation of farmers with other classes of taxpayer.

However, there are many substantial drawbacks. First, tax records relate to concepts of income (and assets in some situations) used by tax authorities, and these may differ from those used by economic statisticians. For example, some forms of income may be deemed to be exempt from tax and are thus likely not to appear in income registers. In addition, rules on matters like capital allowances, offsetting losses and so on may not accord with the treatment appropriate for assessing personal incomes in the context of agricultural policy.

Second, low-income farmers may fall below the tax threshold and thus not be represented in statistics based on taxes (Ireland is a case in point - see Hill, 1988). This will complicate comparisons of income with other socio-professional groups.

Third, the system of taxation of agriculture may be different from the rest of the national system, so that income data may not be available. For example, in many OECD Countries (including no less than seven of the EU 15) at least some farmers (typically the smaller ones) are not taxed on their actual incomes but according to some standard - usually dependent on farm area or numbers of animals (OECD, 2004). Assessment on an actual income basis can only happen if the farmers keep accounts for their businesses. As was noted above, for the EU as a whole this seems to be still very much the exception.

Fourth, there may be a problem of timing. Where tax is assessed on the basis of an accounting profit this may be done in arrears, unlike other forms of income that are taxed in the year in which they are earned. Consequently there may be problems of aligning information on self-employment income with statistics on other income.

Fifth, there may be implications with respect to the institutional form the farm business takes; arranging a business as a company rather than as a partnership or sole trader will impact the way that income is reported and taxed.

Sixth, there may be practical or legal reasons why tax data are not available or appropriate. These range from technical difficulties, such as matching up the income declarations of individuals to create data for households, to legal restrictions in some countries on access to tax data for non-taxation purposes, even by statistical authorities.

Nevertheless, in situations where it is possible to combine tax data for individuals with other administrative and survey data, the outcome is a valuable and powerful tool for studying socio-economic problems and monitoring the performance of policy directed at solving these problems. This is the case in
some Scandinavian countries where the combination of tax data and other forms of data constitutes their
Income Statistics Registers.

The discussion of alternative data sources so far has been relevant for OECD Countries. In
developing countries farm accounts surveys and taxation may not exist. The main (perhaps the only) source
of data for statistics on the income of agricultural households, and many other aspects of agriculture, may be
household surveys.

XIII.2 Survey on definitions and measurement issues in selected countries

XIII.2.1 Predominately developed countries (UNECE and OECD countries)

XIII.2.1.1 Background

In March 2004, the UNECE contacted UNECE Member Countries and those OECD countries that
are not UNECE Members to ask for information on definitions, data sources and other information
concerning the collection of statistics on the income of agricultural households. The emphasis was on what
was already used in available statistics rather than what might be possible within national data systems

Since Eurostat had already collected information for EU Member States, these countries were only
asked to update the information already held and provide any information on changes that had taken place
since the 2001 Inventories of Income of the Agriculture Households Sector (IAHS) report¹ (Eurostat, 2002)
was put together. Non-EU countries were sent a questionnaire (see Annex A at the end of the present
chapter) and were asked to provide any further information available concerning agricultural household
income. Replies have been received from 20 EU countries and 25 Non-EU countries (see Annex B at the
end of the present chapter).

The replies varied in the amount of information supplied. The Czech Republic and Malta indicated
that there is no information available yet and are excluded from the tables. Switzerland pointed out that
‘agricultural households economic accounts’ were removed from their statistical programme in autumn 2003
without giving any information on the activities recorded before 2003. Switzerland is also excluded from the
tables. Luxembourg also indicated that there was no information available and that there is no intention to
collect data on agricultural household income. Luxembourg is nevertheless included in the tables since some
information is available in the 2001 IAHS report. For the same reason, Austria, Greece, Netherlands and
Spain are included in the tables even though no reply has yet been received from them.

This report provides a short summary of the areas covered in the questionnaire. The questionnaire
and tables with more detailed information of the survey can be found in Annex 9 at the end of this
Handbook.

¹ An inventory of Income of the Agricultural Households Sector (IAHS) statistics covering EU Member States was first
undertaken in 1990 (Eurostat working paper F/LG/187) and a second (in two stages) in 1996 (F/LG/320, 324, 350 and
366). The consolidated inventory, covering all the main elements of the methodology, was published as part of the
XIII.2.1.2 Definition of household

The way the household is defined is important because it influences the survey’s coverage of the population and the analysis of the data, in particular when cross-country comparisons are made (see Chapter IX in this Handbook). The most commonly used criteria in the definition of a household are co-residence (living together in the same dwelling unit), a pooling of income and resources, the sharing of expenditures (including joint provision of the essentials of living such as food) and, finally, the existence of family or emotional ties.

EU countries

Table XIII.1 shows that 11 out of the 22 EU countries for which data are available use the target definition of a household as specified in paragraphs 2.1 to 2.5 of the revised Manual that Eurostat published, after discussion with Member States, for its Total Income of Agricultural Households (TIAH) statistics (Eurostat, 1995). These statistics subsequently were renamed the Income of the Agricultural Households Sector (IAHS) statistics, and the two acronyms are used interchangeably in this Handbook. Eurostat’s TIAH/IAHS target household definition was based on that of the European System of Accounts (ESA) (itself being rooted in the UN System of National Accounts - SNA). This definition refers to people living in the same accommodation, with a shared budget and who consume certain types of goods and services such as food collectively. People do not have to have a family link. Four other countries (Estonia, Latvia, Slovenia and Sweden) provided a definition very close to the one stated in the ESA.

Table XIII.1

<table>
<thead>
<tr>
<th>Country</th>
<th>common dwelling</th>
<th>shared budget</th>
<th>shared food/meals</th>
<th>family link necessary</th>
<th>students/temporarily absent</th>
<th>Source: UNECE survey on agricultural household income statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Not mentioned</td>
<td>Not applicable since based on tax returns of individuals</td>
</tr>
<tr>
<td>Belgium</td>
<td>(Yes.)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
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<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Yes, but seamen and workers abroad included</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Slovakian</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In practice the definitions used deviate to different degrees from the TIAH/IAHS target definition, the UK’s definition being the most dissimilar. This stems from the fact that the UK’s statistics are based on the tax records of individuals. Finally, it should be pointed out that the family link criterion is used only in Austria, Belgium and Denmark.

**Non-EU countries**

Out of the 25 non-EU countries that replied to the questionnaire, 18 provided a definition of household (see Table XIII.2). All the countries use the co-residence criterion with the only exception being Andorra. In addition, Andorra is the only country to require members of the household to be part of the same family.

The definitions used in Canada, Norway and the United States do not refer to shared budgets but only refer to sharing a dwelling unit. The wording of the definition of household provided by the Republic of Korea does not refer to sharing a dwelling unit but it seems to be implied. Reference to shared meals and/or common provision of food can be found in the definition of household in 10 countries.

**Table XIII.2**

Definition of household in Non-EU

<table>
<thead>
<tr>
<th>Country</th>
<th>Reference to</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>common dwelling</td>
<td>shared budget</td>
<td>shared food/meals</td>
<td>family link necessary</td>
<td>students/temporarily absent</td>
</tr>
<tr>
<td>Albania</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Andorra</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Armenia</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Australia</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Belarus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Included</td>
</tr>
<tr>
<td>Canada</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Included</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Georgia</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Japan</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Mexico</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Norway</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>N/A</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Romania</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No but the definition is generally relatives</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>The former Yugoslav Republic of Macedonia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>1/</td>
<td>2/</td>
</tr>
<tr>
<td>Turkey</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Ukraine</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>United States of America</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not mentioned</td>
</tr>
</tbody>
</table>

Source: UNECE survey on agricultural household income statistics.

1/ Not necessary but non-family members need to work, eat and reside in the house community.
2/ Students always included, other people absent for more than 45 days in last three months are excluded.
XIII.2.1.3 Definition of agricultural household

EU countries

The two definitions of agricultural household most commonly applied in the EU countries are the “narrow” and the “broad” ones (see Table XIII.3). According to the “narrow” definition “agricultural households are those where the income from independent agricultural activity, net of capital consumption, constitutes the main source of the total income of the reference person” (TIAH Manual, Rev.1, paragraph 2.7.3). This approach forms part of a complete disaggregation of households into socio-professional groups, permitting income results to be compared on a consistent basis. In contrast, agricultural households, in the “broad” sense, are those that derive some income from independent activity in agriculture (other than income solely in kind). This income can arise from activity of the head of household or any other member” (TIAH Manual, Rev.1, paragraph 2.10.1). The use of the “broad” definition does not allow comparisons of agricultural household income to be made, except with the “all households” average (or “all other households”). See Chapter IX of this Handbook for a full discussion of the concepts and definitions of agricultural households. There the use of both definitions was proposed to cater for different policy contexts, with additional possibilities (such as being linked with farm size) also considered.

Table XIII.3

Definition of agricultural household (narrow or broad) and inclusion of fishery/forestry in EU countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>Narrow/Broad</th>
<th>Fishery/Forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Narrower than IAHS target.</td>
<td>Included.</td>
</tr>
<tr>
<td>Belgium</td>
<td>No information on definition used.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Denmark</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Not in use.</td>
<td>Included.</td>
</tr>
<tr>
<td>Finland</td>
<td>Broad.</td>
<td>Not included.</td>
</tr>
<tr>
<td>France</td>
<td>Not in use.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Germany</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Greece</td>
<td>Narrow.</td>
<td>Included.</td>
</tr>
<tr>
<td>Hungary</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Italy</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Latvia</td>
<td>Not in use.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>Not in use.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Poland</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Portugal</td>
<td>Not in use.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Not in use.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Broad.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Spain</td>
<td>Between the IAHS “narrow” and “broad” definitions.</td>
<td>Not included.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Narrow.</td>
<td>Not included.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Between the IAHS “narrow” and “broad” definitions.</td>
<td>Not included.</td>
</tr>
</tbody>
</table>

Source: UNECE survey on agricultural household income statistics.

Ten countries (Denmark, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland and Sweden) replied to the UNECE survey that they use a “narrow” definition of an agricultural household in their published statistics. Finland and Slovenia replied that a “broad” definition of the agricultural household is used. Austria replied that the definition is based on a farm size criterion, while in Spain
agriculture has to be the main income source of at least one member of the household, not necessarily the household head. Six countries stated explicitly that no definition of agricultural household is used (Estonia, France, Latvia, Luxembourg, Portugal and Slovakia). These replies are not fully in accord with other information sources. It is known from the IAHS report (Eurostat, 2002) Spain, France, and Finland have used “narrow” definitions when sending results to Eurostat and that seven EU Member States (Denmark, Germany, Greece, Ireland, Netherlands, Finland and Sweden) have generated results for both the “narrow” and “broad” definitions for at least one year for comparative purposes, with some striking findings in terms of numbers of households and income levels (see Box IX.4 of Chapter IX of this Handbook).

Following the indications given in the TIAH Manual, forestry and fishing are usually excluded from agricultural households in published statistics.

In the EU countries there is usually no shortage of data on farm income, these data are collected by the FADN/RICA survey. More problems arise when the farm household global income has to be calculated. The main statistical sources that can be used are farm account surveys, administrative data (taxation), national Household Budget Surveys and the Statistics on Income and Living Conditions (EU-SILC). In some countries farm account surveys have been expanded in order to collect data on non-agricultural incomes of farm households. The taxation source is not always exploitable and in addition, the available information does not always allow the agricultural household income to be reconstructed, due to the special taxation regime applied to small farms (estimated agricultural income). This is the case in France and, to a lesser extent, in Hungary.

Household Budget Surveys and EU-SILC surveys do contain data on the global income of agricultural households; the problem is that the coverage of farm households is too low to produce a statistically significant sample. This is, for instance, the case of the Belgium SILC survey that contains data on only about 90 agricultural households, which accounts for 0.15% of the total number of farm households. Similar problems are reported for Hungary and France. For example, the French Family Budget survey collects data on only 237 agricultural farm households and the number falls to about 150 in the Income and Living Conditions Survey (ERCV). The National Institute for Statistics and Economic Studies (INSEE) is presently working on a project based on the joint utilization of the FADN/RICA data and those collected by the survey on taxable income.

Non-EU countries

Out of the 23 non-EU countries, 12 gave a definition of agricultural household (see Table XIII.4). The majority gave a definition closer to the broad target definition in the IAHS Manual than to the narrow definition, in the sense that reference is made to the household or any household member rather than to the reference person who is involved in agricultural activities. It then depends on the size of the thresholds whether the activity is likely to give rise to a large share of the household’s income or not. No reference is usually made to the share of income coming from agricultural activities. In the former Yugoslav Republic of Macedonia, a household is only classified as agricultural if all members of the household are engaged on the agricultural holding. If one or more members receive income from other sources then the household is classed as “mixed.” In the Republic of Korea it is also necessary that all members be mainly engaged in farm work to be classified as full-time farm households.
Table XIII.4

Definition of agricultural household (narrow or broad) and inclusion of fishery/forestry in non-EU countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>Narrow/Broad</th>
<th>Fishery/Forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Andorra</td>
<td>No definition provided. However, in the survey of family budgets the category ‘worker in agriculture’ is one of the ten socio-professional groups based on the main source of income of the household reference person.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Armenia</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Australia</td>
<td>N/A.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>No information on definition provided. However, the Household Budget Survey has information on main source of income of household head of which one is 'hired workers in agriculture' and one is 'work in household production'.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Belarus</td>
<td>Not in use.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Broad.</td>
<td>Excluded.</td>
</tr>
<tr>
<td>Canada</td>
<td>Broad. 1/</td>
<td>Excluded, unless household is also involved in agricultural activity.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Broad. 2/</td>
<td>Included.</td>
</tr>
<tr>
<td>Georgia</td>
<td>N/A.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Japan</td>
<td>Household having cultivated land of 30 acres or over, or whose annual sales of agricultural products amounts to 500,000 Yen and over. Excluded.</td>
<td>Excluded.</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>N/A</td>
<td>N/A.</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>An agricultural household is a household in a rural area (according to the Territorial Classification of the Kyrgyz Republic SAOTO) and produce agricultural produce. Excluded.</td>
<td>Excluded.</td>
</tr>
<tr>
<td>Mexico</td>
<td>Households in which agriculture is the main income source. Excluded.</td>
<td>Excluded.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Not currently applied.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Norway</td>
<td>Households having agricultural land or livestock. An agricultural household may have zero or negative income from agricultural activity and still be included in the statistics.</td>
<td>Households solely engaged in forestry and/or fisheries are not included.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Households with 10 acres or more, or which raises livestock and sells products. Excluded.</td>
<td>Excluded.</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>Household category 'farmers': households whose heads have their main source of income from individual agricultural activity. Household category ‘Employees in agricultural sector’: households whose heads have their main source of income from remunerated agricultural activity. N/A:</td>
<td>N/A.</td>
</tr>
<tr>
<td>Romania</td>
<td>A farmer household is a household where the head of household has the occupational status of being self-employed in agriculture or is a member of an agricultural association.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Switzerland</td>
<td>N/A.</td>
<td>N/A.</td>
</tr>
<tr>
<td>The former Yugoslav Rep. of Macedonia</td>
<td>See 3/</td>
<td>Included.</td>
</tr>
<tr>
<td>Turkey</td>
<td>Not in use.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>Not in use.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Ukraine</td>
<td>Not in use.</td>
<td>But information on types of activities is available so that households with income from agriculture, fisheries, forestry could be identified.</td>
</tr>
<tr>
<td>United States of America</td>
<td>A subset of households engaged in the operation of a farm business establishment (land under operating arrangement on which there are or could be sales of at least $1,000 annual worth of agricultural products). For purposes of the U.S. Department of Agriculture's Agricultural Resource Management Survey (ARMS), the definition refers to a household as 'The operator, spouse and all individuals living in the operators residence who share the financial resources of the farm operator. Students living away from home who are dependent upon the operator's household for support are included.' Excluded.</td>
<td>Excluded.</td>
</tr>
</tbody>
</table>

Source: UNECE survey on agricultural household income statistics.

1/ One of the residents of the household must be a farm operator, as identified on the Census of Agriculture.
2/ An agricultural household is every household that has an agricultural estate (over 10 ha) and whose members are involved in agricultural production.
3/ A household with its own agricultural holding and all its members able to work are engaged on the holding as agricultural workers. None of the household members is officially employed outside the holding, none of them owns a store for trade and none of them is a pensioner, but one or more of its members can occasionally work outside the holding in order to earn some additional income. It also includes agricultural workers with no land who work regularly on the holdings of other private agricultural workers; agricultural households with elderly members who own a holding, but are not capable of working, regardless of whether they pay for the cultivation of land, lease their land or give it to sharecroppers since their income comes from the holding and they do not have any other income; households whose members have acquired the right to receive agricultural pension on the basis of the Law on Retirement and Disability Insurance; agricultural households whose members are temporarily working abroad.
Of the remaining countries, four explicitly stated that a definition for agricultural household did not exist (Albania, Belarus, New Zealand and Ukraine). The countries that did not provide a definition, but did not state explicitly that no definition of agricultural household was used, most probably do not use an official definition of agricultural household. Three countries that did not provide a definition gave detailed information on the socio-economic classification of households according to the main source of income of the reference person and had ‘agricultural workers’ as one of the categories (Andorra, Azerbaijan and the Republic of Moldova). However, only the Republic of Moldova has a separate category for income from independent agricultural activity.

**XIII.2.1.4 Definition of rural household**

_EU countries and non-EU countries_

The survey also asked for information on the definition of rural households. This was done primarily to complement statistics on rural areas covered in Part One of this Handbook. It is recognized that, especially in developed countries, farm operators are only one component in the makeup of rural communities. The information provided is sketchy. For some countries, more information is available from the UNECE survey on rural development statistics; see Chapter III of this Handbook.

**XIII.2.1.5 Treatment of special institutions**

_EU countries_

All the EU countries that provided information on this point follow the TIAH Manual and exclude religious houses, farming cooperatives and similar institutions from the agricultural households sector when generating statistics.

_Non-EU countries_

With the exception of Belarus, the thirteen countries that provided information on this point declared that they do not include special institutions in the agricultural households sector.

**XIII.2.1.6 Classification into socio-economic groups when using the “narrow” definition of an agricultural household**

_EU Countries_

The TIAH Manual (Rev.1,) is primarily concerned with the use of the “narrow” definition for generating results because this enables comparisons to be made between socio-professional groups drawn up in a consistent manner. In paragraph 2.7.3 it states that: “The basis for classifying households into socio-professional groups within the TIAH is the main source of income of the household's reference person.” When generating results using the “narrow” definition most EU countries have a classification that is close to this target definition. In the Netherlands and Poland the income of the whole household is considered. In France and Italy the classification is based on what the reference person declares to be his/her main activity, taking different factors into account. In Finland and Sweden, reference is made to the main activity of the reference person without any details of how to determine what the main activity is. Luxembourg and Belgium base their classification on both income and time spent by the reference person.
Non-EU countries

Six countries explicitly stated that they do not use socio-professional classification of households. A further nine countries did not provide any information on socio-professional classifications. Of the remaining, Andorra and Croatia use the main source of income of the reference person/head of household to classify households into socio-professional groups. Belarus and the United States also use income in the classification but from the information provided it is not evident if it is the income of the household or of the reference person. In the Republic of Korea the main source of income of all household members is used.

XIII.2.1.7 Short-term stability mechanism

EU countries and non-EU countries

Four EU countries make use of smoothing to improve the stability of the number of households deemed to be agricultural. None of the non-EU countries make use of short-term stability mechanisms.

XIII.2.1.8 Equivalence scales

EU countries

Thirteen countries use equivalence scales to convert the number of household members into consumer unit equivalent (see Table XIII.5). With the exception of Luxembourg, the same coefficients are used for both adult men and adult women. The coefficient for the head of household is in general 1.0 in all countries for which data are available. In Hungary, a smaller coefficient (0.9) is used if the head of household is a pensioner. In Luxembourg, the coefficient depends on whether the head of household is male (1.0) or female (0.8) and, if the head of household is male, also on whether he is over or under 60 (0.8 if he is over 60). Coefficients for additional adults vary between 0.8 and 0.65. The coefficient for additional adults used in the majority of countries is 0.7.

In nine countries, the coefficient for children is 0.5 regardless of the age of the children. However, in Hungary, Portugal and Luxembourg the coefficient for children is age dependent (ranging from 0.2 to 0.8 in Luxembourg and Portugal and from 0.4 to 0.65 in Hungary). In most countries persons of age 14 and above are classified as adults. The exceptions are Denmark (17 years) and Italy (15 years).

Non-EU countries

Eight of the countries that replied to the questionnaire gave details on the equivalence scales used (see Table XIII.6). In general, a coefficient of 1.0 is used for the first adult. In Armenia, the coefficient for the first adult is 1.0 if male and 0.8 if female. In Georgia, the coefficient depends both on the sex of the first adult and age, with people over 60 getting a lower coefficient. The coefficient used for additional adults varies between 0.5 in Croatia and 1.0 for males in Armenia. With the exception of Georgia, countries use just one coefficient for children, regardless of age. In most countries this coefficient for children is 0.5. Countries that do not use 0.5 include Croatia (0.3), Kazakhstan (0.8) and Ukraine (0.7). Only five countries provided information on the age from which persons are classified as adult. Two use a threshold of 14 years (Azerbaijan and Belarus), one uses 15 years (Armenia) and two use 16 years (Georgia and Republic of Moldova).
Table XIII.5
Equivalence scale used to give consumer units in EU countries

<table>
<thead>
<tr>
<th>Country</th>
<th>First adult/head of household</th>
<th>Other adults</th>
<th>Children</th>
<th>Threshold age child/adult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td>male</td>
<td>female</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>1</td>
<td>1</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Denmark</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Estonia</td>
<td>1</td>
<td>1</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Finland</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Germany</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Greece</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.0; 0.9 if pensioner household.</td>
<td>0.75; 0.65 if pensioner household.</td>
<td>0.65; 0.5; 0.4</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Italy</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Latvia</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1.0; 0.8 if 60 and over.</td>
<td>0.8</td>
<td>0.8</td>
<td>Seven age dependent coefficients ranging from 0.2 to 0.8.</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1.0; 0.8 if 60 and over.</td>
<td>0.8</td>
<td>0.8</td>
<td>Seven age dependent coefficients ranging from 0.2 to 0.8.</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Portugal</td>
<td>1</td>
<td>1</td>
<td>1.0; 0.8 if aged 60 and over.</td>
<td>0.8</td>
</tr>
<tr>
<td>Slovakia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Sweden</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: UNECE survey on agricultural household income statistics.
Table XIII.6

Equivalence scale used to give consumer units in non-EU countries

<table>
<thead>
<tr>
<th>Country</th>
<th>First adult/head of household</th>
<th>Other adults</th>
<th>Children</th>
<th>Threshold age child/adult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td>male</td>
<td>female</td>
</tr>
<tr>
<td>Albania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andorra</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia</td>
<td>1</td>
<td>0.8</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Belarus</td>
<td>1</td>
<td>1</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td>Bulgaria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Georgia</td>
<td>1.0 if between 16 and 60; 0.88 if over 60.</td>
<td>0.84 if between 16 and 60; 0.76 if over 60.</td>
<td>1.0 if between 16 and 60; 0.88 if over 60.</td>
<td>0.84 if between 16 and 60; 0.76 if over 60.</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>1</td>
<td>1</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Republic of Korea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FYROM a/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkmenistan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ukraine</td>
<td>1</td>
<td>1</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>United States of America</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: UNECE survey on agricultural household

a/ The former Yugoslav Republic of Macedonia

XIII.2.1.9 Own consumption

EU countries

The TIAH Manual (3.4.2) states that own consumption should be valued “at the basic price of similar goods sold on the market.” Almost all of the EU countries estimate own consumption; the only exception is Finland that stopped producing such estimates in 2000. In Estonia and Lithuania the value is a self-reported estimation by survey respondents at markets prices. Most of the countries declared that own consumption is valued at market price without specifying exactly what kind of price is used. Germany, Greece and Ireland make use of the producer/farm gate price, while in Spain the retail price is used.
Non-EU countries

Canada and Kyrgyzstan do not provide any estimation of own consumption value. The United States and Norway make use of self-reported estimations made by survey respondents. With the exception of Japan, that uses farm gate prices, the value of own consumption is usually obtained by using market price.

XIII.2.1.10 Imputed rent

EU countries

Out of the 19 countries that replied to this question, four countries do not calculate an imputed rental value of dwellings. Of the remaining 15 countries, the imputed rental value of owned dwellings is usually measured on the basis of the value of actual rents of similar dwellings. In Estonia, Greece, Lithuania and Slovenia the value is a self-reported estimation by survey respondents.

Non-EU countries

Six countries, out of the seventeen that replied to this question, do not impute the rental value of owned dwellings.

The U.S. Department of Agriculture measures the rental value of operator dwelling by using direct reported values of the operator dwelling and rent to value ratios obtained from the U.S. Department of Commerce. The product of these two items gives a measure of gross space rent. Survey respondents report expenses on their dwellings except for depreciation, which is imputed. Gross rents and expenses are used to calculate an estimate of net rent for operator. In Japan, the imputed rent is valued on the basis of the purchase value of “own dwellings” less depreciation. In Norway, the value is included in the tax return data, though the stipulated taxation value of “own dwellings” is much lower than the real market value.

XIII.2.1.11 Calculation of net disposable income of agriculture households – items covered

Countries were asked to indicate from a list of items, based on the Eurostat IAHS Manual’s definition of disposable income (see Chapter X of this Handbook), which elements were included in their national statistics on agricultural household income. Because of the large number of individual items and differences between countries in what they cover, it is not proposed to make a detailed report here. Rather, reference should be made to Annex 9 of this Handbook.

Nevertheless, a general observation can be made about one aspect of the definition of income – the use of “adjustment.” As was described in Chapter X, disposable income can be interpreted as measuring the maximum value of the final consumption of goods and services (used to satisfy the needs and wants of its members) that a household can afford to consume in the current period without having to reduce its cash, dispose of other assets or increase its liabilities. However, the consumption possibilities of a household are also affected by the value of consumption goods and services received from the government as social transfers in kind. When these latter items are taken into consideration, the result is referred to as the “adjusted” disposable income.

EU countries

Nearly all EU countries calculate, or have calculated in the past, net disposable income of agricultural households, though the regularity and up-to-dateness of published statistics varies widely. Those
with no published estimates available are Hungary, Latvia, Slovakia, Slovenia and the United Kingdom. Most published results do not take social benefits in kind into account; only three countries (Lithuania, Spain and Estonia) calculate the “adjusted” disposable income.

Non-EU countries

Only nine non-EU countries reported that they calculate net disposable income of agricultural households. Japan, Mexico and Republic of Moldavia calculate the “adjusted” disposable income by allowing for social transfers in kind. Australia reported that it deducts imputed social transfers in kind. In addition, Albania reported that implied data are covered elsewhere.

XIII.2.1.12 Conclusions

The results of the survey on agricultural household income statistics undertaken by UNECE show that there are many differences in the concepts, definitions and coverage used by countries in defining the income of agricultural households. It might be argued that such flexibility of detail is needed in order to reflect differing socio-economic conditions. However, these differences make cross-country comparisons difficult. This Handbook may be able to improve this situation by pointing to good practice in terms of definitions and their use.

XIII.2.2 Selected developing countries

XIII.2.2.1 Background

The UNECE survey on agricultural household income statistics detailed in the preceding section (XIII.2.1) was repeated in March 2005, when the UNECE sent out exactly the same survey questionnaire to a group of developing countries. It is recognized that such countries face problems of a conceptual and practical nature that are different from those of OECD Members, requiring a separate treatment in this part of the Handbook that deals with what happens in practice. The group of developing countries was selected mainly on the basis of two criteria: The country should have conducted at least one Living Standards Measurement Study (LSMS) household survey and/or conducted a census of agriculture within the FAO’s decennial World Census of Agriculture Programmes (WCAP)(see Box XIII.1); and the government in question should have a data access policy, which preferably requires no prior permission from the respective government to use the data.4 Whereas the first criteria was based on purely methodologically grounds, the second criteria was rooted in the realization that a lot of the needed information had to be extracted from online Internet resources, due to the low response rate amongst the survey recipients. The ten countries that formed the basis of this analysis are Brazil, China, Ghana, India, Jamaica, Morocco, Peru, South Africa, Vietnam, and Zambia (see Annexes C and D at the end of this chapter).

Household surveys have become a dominant form for collecting socio-economic data in developing countries, supplementing or sometimes even replacing other data collection programmes and civil registration systems (UN, 2005). Important indicators to inform and monitor development policies are often derived from such surveys. Since 1970, several major international programmes have been organized to support the collection of household survey data in developing countries. Among the largest such

4 Many countries have alternative sources for some of the information they need on persons working in or dependent on agriculture (for instance, population census or sample survey evidence) and therefore may be inclined to collect only selected data instead of conducting a full agricultural census.
programmes have been the United Nations Household Survey Capability Programme (UN, 2005), and the World Bank’s Living Standards Measurement Study (LSMS). The LSMS is a multitopic survey.

A series of over 60 Living Standards Measurement Study (LSMS) surveys has been carried out under the aegis of the World Bank in over 40 countries. The methodology of the LSMS surveys, which gather data on many aspects of household welfare, was developed by the World Bank in order to provide policy relevant, household level data for evaluating the effect of a variety of government policies on the living conditions of the population. Because of the substantial variation in the contents of the surveys it is important to scrutinise the LSMS Information Table. The Basic Information Documents contain information on the purpose of the survey, sample design, organization of the survey team, names of original and constructed data files, and codes not contained in the questionnaires. Over time, LSMS surveys have become increasingly customized to fit specific country circumstances, including policy issues, social and economic characteristics, and local household survey traditions (Grosh and Glewwe, 2000a). The principal implementing agency is usually the national statistical office (NSO) which takes the lead in questionnaire design, sample design, and fieldwork methodology using the techniques found by the LSMS to be most effective (Scott et al., 2005).

Box XIII.2
The World Census of Agriculture Programme (WCAP)

Since 1950 the FAO has been assisting countries in planning and conducting censuses of agriculture. The agricultural census is of particular importance to countries in which significant segments of the population depend on agriculture for their livelihood. From a strictly statistical viewpoint, the census data represent one of the most important components of the information system in a country and can serve as the basis for many other statistical activities related to food and agriculture, such as conducting various agricultural sample surveys.

Each decennial WCAP, promoted first by the International Institute of Agriculture and then prepared by the FAO, has provided methodological guidelines for organizing national agricultural censuses. The six decennial Programmes - centred on 1950, 1960, 1970, 1980, 1990 and 2000 - gradually expanded the census scope while keeping structural aspects of the agricultural production sector as the central theme (Stloukal, 1999). Today, there are more than 100 countries participating in the WCAP at set periods. The publication “Programme for the World Census of Agriculture 2000,” (Vol. 5), is intended to assist countries by providing definitions, concepts, standards and guidelines for censuses in the decade 1996-2005. The FAO’s Statistics Division is currently developing the Programme for the 2010 round of agricultural censuses, covering the period from 2005 to 2014. The programme is expected to be finalized in 2005.

Each WCAP has attempted, in one way or another, to cover some of the basic demographic and economic characteristics of persons belonging to the population of the holders’ households. The FAO recommendations have typically been decided on the basis of extensive consultations with statistical offices in individual countries. Their evolution thus mirrors the collective experience of national and international organizations with regard to the collection of agricultural information.

Recognizing that countries differ in their capacity to carry out a census of agriculture, FAO WCAPs have always included a recommendation that countries should tailor the agricultural census to their unique situation. Countries with poor statistical systems have been advised to restrict the scope to essential items, whereas statistically more developed countries have been invited to broaden their census objectives. Ultimately, however, it is up to the national authorities to choose the statistical topics to be monitored, and the classifications to be used, in the agricultural census in their country (Stloukal, 1999).

LSMS surveys have several characteristics that distinguish them from other surveys. First, and perhaps the most important, is that they use several questionnaires to collect information about different aspects of household welfare and behaviour. Second, they typically have nationally representative, but relatively small, samples - usually between 2,000 and 5,000 households. This only yields accurate descriptive statistics for the country as a whole and for large sub-areas (such as a division into rural and urban areas) (Grosh and Glewwe, 2000a). Third, because of the complexity of most LSMS surveys, they have rigorous quality control procedures to ensure that the data they gather are of high quality. These procedures are generally difficult to implement on larger samples (Grosh and Glewwe, 2000a).

Despite the success of the LSMS programme, several challenges remain for LSMS surveys and other multitopic household surveys. First and most obviously, many developing countries still have inadequate household survey data. This is true even for some of the countries that have recently fielded new surveys. Ideally, all governments should collect data on a regular, ongoing basis in order to monitor poverty trends over time. However, survey efforts are still sporadic in many developing countries today, and many surveys have serious deficiencies such as limited questionnaires, samples that exclude rural areas, and long delays in processing the data after completing the fieldwork.

Second, improvements are needed in the process of adapting the LSMS approach to countries that have not yet implemented LSMS-type surveys.

Third, the data gathered from some parts of LSMS survey questionnaires have been disappointing. Two particularly difficult problems entail the measuring of household income from agriculture and non-agricultural self-employment and the measuring of savings and financial assets (see Chapter XII of this Handbook).

Fourth, new issues have emerged since the first LSMS surveys were implemented. The economics profession has increasingly discounted the notion of the household as a unified decision-making body, trying instead to understand how goods, services, and power are allocated among the different members of a given household (Grosh and Glewwe, 2000a).

XIII.2.2.2 Definition of household

There is no uniformity in the definition of the household across different surveys, although all involve some form of living and eating together (see Table XIII.7). Some definitions incorporate the pooling of funds. Unfortunately, different criteria are often in conflict, and household arrangements are often not constant over time. Many of the problems are associated with the complex structure of living arrangements in developing countries. As noted in Chapter IX of this Handbook, when men have several wives, each wife often runs what is effectively a separate household within a larger compound presided over by the husband. Even without polyandry, several generations of the families of siblings may live in a single compound, sometimes eating together and sometimes not, and with the group breaking up and reforming in response to economic conditions. In some countries, there are lineages to which groups of households belong, and the head of the lineage may have power to command labour, to order migration, to tax and reward individuals, and to control communal assets. Even so, members of the lineage will typically live in separate households, which may not be the appropriate units for the analysis of at least some decisions (Deaton, 1997). An overall view of the characteristics of the definitions is given in Table XIII.8.

A decision to separate previously pooled households should not affect estimates of average consumption or income per head, but will increase measures of inequality, since the previous single estimate for the pooled household is replaced by multiple estimates for each of the sub-households. Splitting
households has the same effect on the distribution of income or consumption as an increase in dispersion with no change in mean, and so must increase measures of inequality (Deaton, 1997).

From Table XIII.7 it appears that all the (non-randomly) selected developing countries in the sample use common dwelling as the main criteria in their definition of household, while de-emphasizing the necessity of a family link. Moreover, most of the sampled developing countries do make reference either explicitly or implicitly to shared budget and food/meals in their definition of a household within the framework of the Living Conditions Surveys.

<table>
<thead>
<tr>
<th>Country</th>
<th>Definition of household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>A household is defined as the person or collection of persons, whether related or not, that habitually live in the same private dwelling, occupying it in part or in whole, and that tend to their life needs together.</td>
</tr>
<tr>
<td>China</td>
<td>Household members were defined to include &quot;all the people who normally live and eat their meals together in this dwelling.&quot; Those who were absent more than nine of the last twelve months were excluded, except for the head of household.</td>
</tr>
<tr>
<td>Ghana</td>
<td>A household was defined as a group of people who have usually slept in the same dwelling and taken their meals together for at least 9 of the 12 months preceding the interview.</td>
</tr>
<tr>
<td>India</td>
<td>A household is defined as a group of people who normally live and eat their meals together. For the purposes of this survey, &quot;normally&quot; is taken to mean that the person concerned has lived in the household for at least 3 of the past 12 months.</td>
</tr>
<tr>
<td>Jamaica</td>
<td>A household consists of one person who lives alone or a group of persons, who, as a unit, jointly occupy the whole or part of a dwelling unit, who have common arrangements for housekeeping, and who generally share at least one meal. The household may be composed of related persons only, of unrelated persons, or of a combination of both.</td>
</tr>
<tr>
<td>Morocco</td>
<td>A household is defined as all those individuals for whom the household is their primary residence, and who are economically dependent on the household. Household members also include: individuals who are not physically present but whose absence has been for less than one month.</td>
</tr>
<tr>
<td>Peru</td>
<td>The household is defined as the person or collection of persons, whether related or not, that habitually live in the same private dwelling, occupying it in part or in whole, and that tend to their life needs together.</td>
</tr>
<tr>
<td>South Africa</td>
<td>The first definition of the household comprises individuals who: (I) Live under this 'roof' or within the same compound/homestead/stand at least 15 days out of the past year; and (II) When they are together they share food from a common source (i.e. they cook and eat together); and (III) Contribute to or share in, a common resource pool (i.e. they contribute to the household through wages and salaries or other cash and in-kind income or they may be benefiting from this income but not contributing to it, e.g. children, and other non-economically active people in the household. Visitors were excluded from this definition. The second definition of the household includes only those members who had lived &quot;under this roof for more than 15 days of the last 30 days&quot;. This definition was derived to eliminate double-counting of individuals.</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Household members were defined generally to include &quot;all people who normally live and eat their meals together in this house and have done so for 6 or more months out of the past year&quot; which is the same as in 1992-93. However, specific cases to include as members or exclude as non-members differ slightly from 1992-93 and are listed in the questionnaire.</td>
</tr>
<tr>
<td>Zambia</td>
<td>A household is defined as a group of persons who normally live and eat together. These people may or may not be related by blood, but more common provision for food or other essential living, and they have only one person whom they all regard as the head of household. A household may comprise several members and in some cases may have only one member. Usual Member of the household - The de jure approach was adopted for collecting data on household composition. It relies on the concept of usual residence. A usual member of household was considered to be one who had been living with a household for at least 6 months. Newly married couples were regarded as usual members of the household even if one or both of them had been in the household for less than 6 months. Newly born babies of usual members were also considered as usual members of the household. Members of the household who were at boarding schools or temporarily away from the household, e.g. away on seasonal work, in hospital, away to give birth, visiting relatives of friends, but who normally live and eat together, were included in the list of usual members of the household.</td>
</tr>
</tbody>
</table>


In certain provinces of Zambia households are characterized by being polygamous, e.g. a man living in a village with several wives each living with her children in a separate hut or group of huts should be regarded as separate households if each wife cooks and eats meals separately. In this case, even if they sometimes eat together, the fact remains that the wives are running separate households. Therefore, they are treated as different households. On the other hand, a man living in a village with several wives, each living with her children in a separate hut or group of huts, is regarded as one household if all those wives cook and eat together.
Table XIII.8
Definition of household in selected developing countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Definition of household</th>
<th>Reference to students/temporarily absent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>common dwelling</td>
<td>shared budget</td>
</tr>
<tr>
<td>Target definition (from TiAH Manual, Rev.1, para 2.4.1)</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Brazil</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>China</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>Ghana</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>India</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>Jamaica</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Morocco</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>Peru</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>South Africa</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Vietnam</td>
<td>yes</td>
<td>(yes)</td>
</tr>
<tr>
<td>Zambia</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

Note: Information extracted from official websites.

The Zambian Living Conditions Monitoring Survey uses the *de jure* (“usual”) system of enumeration as opposed to *de facto* (“as of previous night”) system. A “usual” member of household is defined as one who has been living with a household for at least six months. He/she may or may not be related to the other household members by blood or marriage, and may be a house helper or labourer. A usual household member normally lives together with other household members in one house or closely related premises and takes his/her meals from the same kitchen. Newly married couples are to be regarded as usual members of the households even if one of them has been in the household for less than six months.

Members of the household who are at boarding schools or any other persons temporarily away from the household who normally live and eat there such as persons temporarily away for seasonal work, because of illness, giving birth, visiting relatives or friends have to be included in the list of usual members of the household. Any other persons such as visitors who have spent at least six months with the household also have to be included as usual members of the household. Other persons such as servants and lodgers who are part of this household must be taken as usual members (CSO, 1996).

In Ghana Living Standards Survey IV a household is defined as a group of people who have usually slept in the same dwelling and taken their meals together for at least 9 of the 12 months preceding the interview. All listed persons who have been away from the household for more than three months are not considered to be household members except, (1) the person identified as the head of household even if he/she has not been with the household for 9 months or more; (2) newly born children; (3) students and seasonal workers who have not been living in or as part of another household.5

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5 In full, the Ghana Living Standards Survey includes the following as part of the household: All the persons not present but who normally live, sleep and eat together with the household, i.e. those who are temporarily away for schooling, temporarily left for marriage, vacation, seasonal work, illness, giving birth, military training, prisons etc.
In the South Africa “Baseline Household Statistics” methodological report, the household concept definition was drawn up in such a way as to avoid double counting of individuals who may live in more than one place. Hence, two definitions were used. The first definition was used only in the first section of the questionnaire, i.e. the Household Roster and the second was used for the rest of the questionnaire. The first definition of the household comprised all individuals who: (i) live under this roof or within the same compound/homestead/stand at least 15 days out of the past year; and (ii) when they are together they share food from a common source; (iii) contribute to or share in, a common resource pool. Visitors were excluded from this definition.6

The second definition of the household only included those members who had lived “under this roof for more than 15 days of the last 30 days.” This definition was derived to avoid double counting of individuals.

The Brazil LSMS survey, 1996-1997, defines a resident as a person for whom the dwelling unit is his/her place of habitual residence. The following are also considered as residents of the dwelling unit: the person present on the date of the interview and who does not have another place of habitual residence; the person for whom the dwelling is his/her place of habitual residence but who is temporarily absent on the date of the interview for a period of not more than 12 months, as a result of, for example, boarding at a school.7

The China Living Standards Survey (CLSS), which consists of one household survey and one community (village) survey, was conducted in Hebei and Liaoning Provinces (northern and north-east China) in July 1995 and July 1997, respectively. In this CLSS, household members were defined as “all the people who normally live and eat their meals together in this dwelling.” Those who were absent more than nine of the last twelve months were excluded, except for the head of household.

The India Survey of Living Conditions in Uttar Pradesh and Bihar, 1997-1998, defines a household as a group of people who normally live and eat their meals together. For the purposes of that survey, “normally” is taken to mean that the person concerned has lived in the household for at least 3 of the past 12 months.8 People who live in the same dwelling, but do not share food expenses or eat meals together, are not members of the same household. For example, if two brothers, each having his own family, live in the same house but maintain separate food budgets and cooking facilities, they would constitute two separate households. Likewise, people who eat together but do not sleep in the same dwelling are not members of the same household. However, exception to this rule may be made in the case of those persons who normally take their meals together and for all purposes live together, but may sometimes sleep in other places for security reasons (e.g. with livestock, or in shop or other place of business).

For the 1982 Jamaica Population Census, the following definition of household was adopted and has been used for all household surveys conducted since: a household consists of one person who lives alone

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6 The South Africa Integrated Household Survey is a nationally representative, multi-purpose household survey, which was undertaken in the nine months prior to the country’s first democratic elections in April 1994.
7 The following criteria are applied to define the dwelling in which a person is to be considered a resident when more than one dwelling is occupied by that person. The first criterion found to be applicable will determine the dwelling: (1) the person is considered a resident of the dwelling unit in which that person’s family resides; (2) the person is considered a resident at the dwelling unit in which that person spends the major part of the year; (3) the person is considered a resident of the dwelling unit in which that person has resided for the longest period of time.
8 The only exceptions to be made to this rule should be for (i) persons who are the main provider for the household, (ii) infants who are less than 3 months old, and (iii) newly weds who have been living together for less than 3 months. Servants, lodgers, farm-workers, and other such individuals who live and take meals with the household are to be counted as household members, even though they may have no blood relation to the household head.
or a group of persons, who, as a unit, jointly occupy the whole or part of a dwelling unit, who have common arrangements for housekeeping, and who generally share at least one meal. The household may be composed of related persons only, of unrelated persons, or of a combination of both. The same definition was adopted for the 1991 Population Census.

The first **Morocco** Living Standards Survey (MLSS) was conducted between October 1990 and October 1991 and provides data for a sample of 3,323 households and 19,577 individuals. The MLSS 1990-1991 survey covers all household members, defined to include all those individuals for whom the household is their primary residence, and who are economically dependent on the household. Household members also include: individuals who are not physically present but whose absence has been for less than one month (or in the case of those hospitalized, less than six months), lodgers who share at least one meal with the household, and servants who reside at and share meals with the household.

The first **Vietnam** Living Standards Survey (VLSS) was conducted in 1992-1993 by the State Planning Committee (now the Ministry of Planning and Investment), together with the General Statistical Office. The second round of the VLSS was conducted between December 1997 and December 1998. This survey defines the household members as “all people who normally live and eat their meals together in this house and have done so for 6 or more months out of the past year.” While this is the same definition as used in 1992-1993, there are some differences with respect to specific cases about who to include and who to exclude from the household.

**XIII.2.2.3 Definition of agricultural household**

When constructing statistics for agricultural households in developing countries the primary unit of enumeration is the agricultural holding, which may be briefly defined as a techno-economic unit comprising all land and livestock used for agricultural purposes and operated under a single management, without regard to title or legal form. The census should, in principle, cover all holdings in the country. For practical reasons, however, the census enumeration is usually limited to those holdings above prescribed limits of size and do not include land solely used for communal grazing, etc. A holder is defined as a person who exercises management control over the operations of the agricultural holding. Usually there is one holder in an agricultural household, who may or may not be the head of the household. In developing countries, a one-to-one correspondence between a household and a holding is quite usual, but it is certainly not universal. A single agricultural holding can include several agricultural households, and one agricultural household can operate on several agricultural holdings.

When using agricultural census data, one has to remember that in some contexts it is common that the demographic data collected in a census of agriculture refers only to persons attached to agricultural holdings and that there may be no coverage of other persons belonging to the holders’ household, and hired

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9 The Jamaica Survey of Living Conditions (JSLC), first conducted in 1988, was originally conceived to be a semi-annual survey. In 1990, an annual survey was deemed to be sufficient and an annual schedule was adopted. Fourteen rounds of the survey were completed from August 1988 to July 2000. The JSLC differs from other LSMS surveys in its relatively narrow focus and greater emphasis on immediate policy impact. The JSLC is linked to the ongoing quarterly Labour Force Survey.

10 Survey fieldwork began on October 15, 1990, and ended on October 30, 1991. Fieldwork was organized into four-week periods (survey “months”), but there were some breaks during this time so that the survey itself took about 54 weeks to complete.

11 The second round of the VLSS used 5 questionnaires: commune, price, school, clinic, and household. The household questionnaire contained 15 sections each of which covered a separate aspect of household activity.

workers who either permanently or occasionally work on the holding. Thus, agricultural censuses do not cover all persons associated with agriculture (Stloukal, 1999). Many of these problems also are faced by surveys of holdings in developed countries.

An agricultural household is defined as a household in which at least one member is carrying out some agricultural activity on the holding belonging to the household (excluding the growing of vegetables meant for home consumption). Table XIII.9 describes the relationship between the holding and the agricultural household for a number of developing countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Definition of agricultural households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>The definition of holding matches with the one suggested in the FAO Programme for the World Census of Agriculture (WCA) 2000.</td>
</tr>
<tr>
<td>China</td>
<td>Agricultural household: refers to rural household whose members are either engaged in purely agricultural activities, or in a combination of agricultural and non-agricultural activities.</td>
</tr>
<tr>
<td>India</td>
<td>Operational Holding (the statistical unit for census) is defined as all land wholly or partly used for agricultural production and operated as one technical unit by one person, alone or with others, without regard to title, legal form, size or location. Operational Holder is the person who takes all managerial decisions regarding cultivation of land. He may be the legal owner or a lessee or a tenant farmer.</td>
</tr>
<tr>
<td>Jamaica</td>
<td>Farmers that possessed a total area of under 25 acres (the definition of small farmer used by ACB).</td>
</tr>
<tr>
<td>Morocco</td>
<td>Agricultural holding was defined as an economic unit of agricultural production under single management, comprising all livestock kept and all land used for agricultural production purposes, regardless to title or legal form.</td>
</tr>
<tr>
<td>Peru</td>
<td>The selected statistical unit is the Agricultural Unit defined as any piece of land consisting of one or more parcels, totally or partially used for agricultural production, carried out as a technical-economic unit by the agricultural holder, without regard to size, tenure or legal status.</td>
</tr>
<tr>
<td>South Africa</td>
<td>If the household members are engaged 50% in agricultural and 50% in non-agricultural activities, the category is defined by the household’s income.</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Agriculture, forestry, fishery households are households with all or most of labourers regularly participating, directly or indirectly, in agricultural, forestry or fishery production and these activities are the principal source of their income.</td>
</tr>
<tr>
<td>Zambia</td>
<td>Agricultural Household: Is a household in which at least one member is carrying out some agricultural activity on the holding belonging to the household (excluding the growing of vegetables meant for home consumption). Preliminary testing showed that there was almost one-to-one relationship between the agricultural household and holding. The terms holding and agricultural household are therefore used interchangeably.</td>
</tr>
</tbody>
</table>


XIII.2.2.4 Classification into socio-economic groups

The basis of classifying households into socio-professional groups in developing countries is usually the use of their labour. The China Living Standards Survey (CLSS), 1995-1997, asked all individuals age thirteen and above to respond to the employment activity questions. The CLSS collected general information on farm and non-farm employment, such as, for example, whether or not the household member worked on a household owned farm in 1994, number of work days and number of hours worked during the busy season, occupation and sector codes of the major, second, and the third non-farm jobs, and the number of days worked on, and total income derived from, these non-farm jobs. Furthermore, detailed information on the major and the second non-farm job is collected.

http://www.fao.org/sd/wpdirect/wpan0041.htm
The Ghana Living Standards Survey round four (GLSS 4) 1998-1999 was designed to gather information on employment, time use and the different sources of income for household members aged seven years and over. GLSS 4 provided information on the characteristics of main occupation for the previous 12 months by detailing the kind of work or industry a respondent was mainly engaged in.

Individuals in Jamaica Survey of Living Conditions (JSLC) can be linked to the data from the Jamaican Labour Force Survey. Each member of the household older than 14 years of age is asked questions regarding his or her employment status. In the 1997 JSLC, a module was included to obtain an in-depth picture of earnings in the country. This module was based on the employment and earnings portion of the 1993 Time Use module that was found to be superior in its response rate for earnings data compared to other attempts including the Labour Force Surveys. The information collected included details on the main occupation, allowances received in addition to or as part of salary, income, additional employment, information on the unemployed, and household enterprises.

The Morocco Living Standard Survey, 1990-1991, provided, for example, information on current principal employment for individuals aged seven or more; characteristics of salaried employees; current secondary employment; principal employment in the previous 12 months; salary earnings; and secondary employment in the past 12 months.

The Peru Living Standards Survey (LSS) asked questions on the economic activity of those six years and older and provides a description and code of occupation and a description and code of establishment. The Peruvian LSS also provides a description and code of secondary occupation at which most hours were spent in last 7 days and a description and code of Establishment.

The South Africa Integrated Household Survey, 1994, asked questions about what job the household members did and in which sector they were employed. These questions were repeated for a second casual or temporary job.

The Vietnam Living Standards Survey asked all individuals age six and older to respond to the economic activity questions. These began with questions on the nature of their work in the last seven days. For work in the last seven days, information was collected on, for example, length of employment, type of employer and money and in kind compensation and benefits. Similar questions were asked of any secondary job in the last seven days. If the main work in the past twelve months was different from the main or secondary job in the past seven days, the complete set of questions was answered for that work as well. For those in self-employed agricultural work, a different series of questions was asked on hours worked in peak and non-peak weeks in the past 12 months for six different agricultural-related work activities. Occupation and industry of employment codes are printed directly in the household questionnaire. In addition, this survey gathered data on household businesses for up to the four most important enterprises operated by the household.

14 In this survey, main occupation is defined as: the work to which most time is devoted when a respondent has several jobs. For instance, the main occupation for the past 12 months of a respondent who farms mostly but often goes fishing during the dry season is farming.
15 The Labour Force Survey contains much less detail than the standard LSMS employment and job search modules. Moreover, the Labour Force Survey income data are of dubious quality.
16 Principal Economic Activity was defined as the activity on which most hours were spent (NOT which provided the most earned income).
XIII.2.2.5 Short-term stability mechanism

None of the surveyed developing countries make use of short-term stability mechanisms.

XIII.2.2.6 Equivalence Scale

As noted in Chapter IX, equivalence scales are designed to account for the varying requirements of families of differing sizes and age compositions, and an extensive literature exists on their conceptual bases and estimation. A feature of developing countries is that nutritional requirements play a far more significant role than among OECD Members. Tables XIII.10 and XIII.11 give basic calorie requirements and calorie equivalence scales.

There are two major approaches to the construction of equivalence scales. The first can be termed the subjective method and is based on personal assessment using survey data. This survey approach attempts to measure a minimum standard of living for alternative family structures. Jane Xi Pan et al. (2004) used the subjective-qualitative method to estimate household equivalence scales for their study of urban Chinese poverty in 1988 and 1995. To avoid the problem that persons in rich regions tend to have higher perceived needs they incorporate objectively determined cost-of-living indices to adjust for regional differences in purchasing power. Minimum needs thresholds were constructed for seven family types and converted into equivalence scales. They found that a two-person family composed of two adults with the age of the household’s head greater than or equal to 60 years old would need 1.54 times as much as a single adult, and three-person family without children would need 1.99 times as much as a single person. Three persons with one child would need a little less, 1.77 times that of a single person. Finally, four or more person households with children (D4+_K) and without children have equivalence factors of 2.00 and 2.38. Pan et al. (2004) went on to construct minimum needs thresholds for four different regions.

The second major approach is to use expert-based equivalence scales. Gustafsson and Li (2001) provide a set of expert based equivalence scales, which they use to measure inequality in Chinese incomes.\(^\text{17}\)

An interesting observation is drawn from Burgess (2001). In China the land equivalence scales for children 0-14 are 0.567 and 0.507 in Sichuan and Jiangsu respectively which are almost directly in line with the calorie equivalence scales, 0.576 and 0.522. This, according to Burgess (2001), serves as preliminary evidence that land is being allocated in line with nutritional needs. If the nutritional hypothesis holds then land allocation should be done mainly on the basis of the number of adult equivalents in a given household as determined by the calorie share method.\(^\text{18}\)

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\(^\text{17}\) Gustafsson and Li (2001) indicate that one person = 1.0, two persons = 1.88, three persons = 2.66, four persons = 3.54 and five-plus persons = 5.0.

\(^\text{18}\) Calorie based equivalence scales are thus closer to the notion of physiological or nutritional welfare which motivated the earliest work on equivalence scales though the method is not prescriptive and behavioural responses are taken into account. Based on a 0-4, 5-9, 10-14, 15-55+ age breakdown there are 138 household types in Sichuan and 117 household types in Jiangsu each of which was assigned a unique equivalence scale. A 0001 household containing one adult was set as the numeraire and had a scale equal to unity. Scales calculated for other households are thus interpretable as adult equivalents.
Although income and wealth are what enable people to obtain goods and services, it is those goods and services themselves that directly generate economic well-being. The consumption module of the LSMS survey is designed to measure the consumption of these items in some detail and in the aggregate (with the aggregate being the total value of consumption at suitable prices). At its simplest, the module collects data on how much people spend on various goods and services (Deaton and Grosh, 2000).

Past LSMS surveys have used a range of lengths of time to which the questions on consumption relate (recall periods), depending on both the item and the survey. Data on the value of home-produced food are collected in a separate set of questions that ask how often the home-produced food is consumed; the recall period for these questions has varied from country to country in previous surveys, ranging from “each time the home-produced food is consumed” to each day in a typical month (Deaton and Grosh, 2000).

In nearly all LSMS surveys, calculating a comprehensive measure of consumption will require at least some imputations. Not all consumption is obtained through market purchases; if analysts want to calculate consumption in monetary units, they must find some way of pricing its non-marketed components. In many of the poorest countries, and especially for the poorest people, a large share of food comes from home production or from hunting, fishing, or collecting wild foodstuffs. These imputations for food are likely to be those that are most important for the totals (Deaton and Grosh, 2000).

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**Table XIII.10**  
Daily calorific requirements and calorie equivalence scales

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Equivalence scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>820</td>
<td>820</td>
<td>0.273</td>
</tr>
<tr>
<td>1-2</td>
<td>1150</td>
<td>1150</td>
<td>0.383</td>
</tr>
<tr>
<td>2-3</td>
<td>1350</td>
<td>1350</td>
<td>0.450</td>
</tr>
<tr>
<td>3-5</td>
<td>1550</td>
<td>1750</td>
<td>0.517</td>
</tr>
<tr>
<td>5-7</td>
<td>1850</td>
<td>1750</td>
<td>0.617</td>
</tr>
<tr>
<td>7-10</td>
<td>2100</td>
<td>1800</td>
<td>0.700</td>
</tr>
<tr>
<td>10-12</td>
<td>2200</td>
<td>1950</td>
<td>0.733</td>
</tr>
<tr>
<td>12-14</td>
<td>2400</td>
<td>2100</td>
<td>0.800</td>
</tr>
<tr>
<td>14-16</td>
<td>2650</td>
<td>2150</td>
<td>0.883</td>
</tr>
<tr>
<td>16-18</td>
<td>2850</td>
<td>2150</td>
<td>0.950</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of work</th>
<th>Light</th>
<th>Medium</th>
<th>Heavy</th>
<th>Light</th>
<th>Medium</th>
<th>Heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>2600</td>
<td>3000</td>
<td>3500</td>
<td>2000</td>
<td>2100</td>
<td>2350</td>
</tr>
<tr>
<td>30-60</td>
<td>2500</td>
<td>2900</td>
<td>3400</td>
<td>2050</td>
<td>2150</td>
<td>2400</td>
</tr>
<tr>
<td>&gt;60</td>
<td>2100</td>
<td>2450</td>
<td>2850</td>
<td>1850</td>
<td>1950</td>
<td>2150</td>
</tr>
</tbody>
</table>

*Source: WHO (1985) referred to in (Appleton et al., 1999).*

Note: equivalence scales are gained by dividing male calorific requirements by 3000.

**XIII.2.2.7 Own consumption**

Although income and wealth are what enable people to obtain goods and services, it is those goods and services themselves that directly generate economic well-being. The consumption module of the LSMS survey is designed to measure the consumption of these items in some detail and in the aggregate (with the aggregate being the total value of consumption at suitable prices). At its simplest, the module collects data on how much people spend on various goods and services (Deaton and Grosh, 2000).

Past LSMS surveys have used a range of lengths of time to which the questions on consumption relate (recall periods), depending on both the item and the survey. Data on the value of home-produced food are collected in a separate set of questions that ask how often the home-produced food is consumed; the recall period for these questions has varied from country to country in previous surveys, ranging from “each time the home-produced food is consumed” to each day in a typical month (Deaton and Grosh, 2000).

In nearly all LSMS surveys, calculating a comprehensive measure of consumption will require at least some imputations. Not all consumption is obtained through market purchases; if analysts want to calculate consumption in monetary units, they must find some way of pricing its non-marketed components. In many of the poorest countries, and especially for the poorest people, a large share of food comes from home production or from hunting, fishing, or collecting wild foodstuffs. These imputations for food are likely to be those that are most important for the totals (Deaton and Grosh, 2000).
Table XIII.11  
Nutrition (calorie) based adult equivalence scales

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male Weight</th>
<th>Female Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>1</td>
<td>0.46</td>
<td>0.46</td>
</tr>
<tr>
<td>2</td>
<td>0.54</td>
<td>0.54</td>
</tr>
<tr>
<td>3-4</td>
<td>0.62</td>
<td>0.62</td>
</tr>
<tr>
<td>5-6</td>
<td>0.74</td>
<td>0.70</td>
</tr>
<tr>
<td>7-9</td>
<td>0.84</td>
<td>0.72</td>
</tr>
<tr>
<td>10-11</td>
<td>0.88</td>
<td>0.78</td>
</tr>
<tr>
<td>12-13</td>
<td>0.96</td>
<td>0.84</td>
</tr>
<tr>
<td>14-15</td>
<td>1.06</td>
<td>0.86</td>
</tr>
<tr>
<td>16-17</td>
<td>1.14</td>
<td>0.86</td>
</tr>
<tr>
<td>18-29</td>
<td>1.04</td>
<td>0.80</td>
</tr>
<tr>
<td>30-59</td>
<td>1.00</td>
<td>0.82</td>
</tr>
<tr>
<td>60+</td>
<td>0.84</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Source: Dercon (1998).
Note: Calculated from World Health Organization data.

It should first be noted that imputation is an inherently difficult and error-ridden process. Imputation is likely to work best where there is relatively little need for it - when the economy is highly monetized but there is a relatively small amount of own production (such as vegetable gardens) involving goods that have clear market equivalents. Imputation works badly in economies in which a large share of transactions do not pass through the market.

Food that is either home-produced or received as gifts or payment in kind has been the most important imputed item in LSMS surveys to date. In principle, the calculations are straightforward. The respondent is asked to report the values of any home-produced food items consumed by the household during the reference period, and the sum of these values is added to the consumption total. Given the seasonality of production, the recall period probably has to be a year, or at least a typical month over the last year. It may be possible to do better than this when there is a multiple-visit agricultural module in the survey. However, the major difficulties are with valuation, since the respondent is being asked a purely hypothetical question about the sale or purchase of an item that is rarely traded or that may have been traded some time ago (Deaton and Grosh, 2000).

The value of the physical quantities of goods consumed observed by the respondent can be obtained in several ways. As noted in Chapter X, farm-gate prices set a lower bound on valuation, since it is usually presumed that consumption is evidence that the good is valued beyond what it would fetch, whereas market
prices, are likely to be too high because they include transport and distribution margins and because the commodity traded is often of higher quality than its home-grown counterpart. However, once the quantity has been obtained, the respondent could be asked to report one or both of these two prices or simply to estimate the value of the commodity directly. Some degree of cross-checking is possible from the quantities and prices of purchases reported in the agricultural module or from the prices gathered in the community questionnaire (Deaton and Grosh, 2000).

The China Living Standards Survey (CLSS), 1995-1997, provides information on household consumption expenditure. The CLSS collects detailed expenditure information on thirty-four items of market purchased food (including expenditure in restaurants) in the previous year. Besides market purchases (including barter), the CLSS gathers information on consumption from home-produced food (total thirty-two items) over the previous year.

The India Survey of Living Conditions Uttar Pradesh and Bihar, 1997-1998, on food expenses and home production, collects information on the household’s total expenditure on food of various types, including an estimate of the value of home-produced or home-grown food consumed by the household. It also provides an estimate of food consumed that was received as payment in kind, i.e. as remuneration for work done on someone else’s farm, as gifts, or as presents from relatives and/or friends.

The Jamaica Survey of Living Conditions asks the respondent if there was any expenditure in the previous twelve months on 43 categories of food items. For each item that had been purchased in the last year, the amounts spent during the past seven days and the amount spent during the past 30 days/4 weeks was recorded. In 1992 through 2000, the value of home production and gift food was integrated into the food expense module. Thus the number of items for which this information was collected was expanded from 43 to 55.

In the JSLC surveys from 1988 through 1991, for sixteen food items, the respondent was asked if the household had eaten any food that was home-produced or that was received as a gift. The respondent was asked how much it would cost to buy the amount of home-produced food consumed during the past seven days and the amount consumed during the past 30 days/4 weeks, and the amount it would cost to buy the amount received as gift during the past 30 days/4 weeks. Starting in 1992, the value of home production and gift food was integrated into the food expense module.

The Morocco Living Standards Survey provides information on individual expenditures in the past 30 days; individual expenditures in the past seven days; daily (over four days) expenditures on food and household items; and home production and consumption of food.

The Peru Living Standards Survey asks questions such as: Does the household produce any food for business or home use; did the household purchase or use self-produced products in past 15 days; how the food item was obtained (for example, self-supplied); and total amount of purchases or self-production in the past 15 days.

The South Africa Integrated Household Survey looks at the patterns of food consumption for all the people in the household. It inquires as to whether any of those foods were received in the form of a gift or as payment for work that any member of the household did. It elicits information about whether the household was able to consume any of the foods listed as a result of its being produced by the household. It also asks about what crops, if any, the household was harvesting in the past year.

The Vietnam Living Standards Survey, 1997-1998, collects detailed information on market purchases and consumption from home production for 45 food items. Thus, besides market purchases
(including barter), information is also collected on consumption from home production. Again data is obtained on the number of months each item was consumed, but unlike market purchases, the information on the quantity and value of consumption is obtained by asking a single question on the total amount for the previous 12 months (as opposed to asking how often the item was purchased each month and the quantity purchased each time).

The Zambia Living Conditions Monitoring Survey I (1996) asked about how much was spent on and consumed from own produce from a list of food items during the previous two weeks.

### XIII.2.2.8 Imputed rent

For housing, the largest of the durable goods, the imputation approach again starts from the rental equivalent. Unlike the value of most other durable goods, rents can sometimes be observed directly, and these are the correct numbers to add into the consumption aggregate. For households that do not report rents, the standard procedure is to impute a rent based on the characteristics of the house, as reported in the housing module. One approach is through “hedonic” regressions in which reported rent is regressed on the house’s characteristics (such as size, number of rooms, construction material, and location) and the results are used to calculate rents for other properties where rents are not reported.

The credibility of these regressions is compromised if only a small fraction of the sample reports rents and, more generally, if those who report rents are unrepresentative of the population as a whole. While it is possible to make mechanical corrections for the selection, these corrections usually require arbitrary and untestable assumptions that further compromise the credibility of the process. This is a difficult area. In general, survey analysts should make sure that indefensible imputations are not dominating welfare comparisons. The data required for rent imputations are gathered in the LSMS housing module (and to some extent in the community questionnaire) (Deaton and Grosh, 2000).

The China Living Standards Survey (CLSS), 1995-1997, contains basic information on housing from all the 880 farm households interviewed and selected from a total of thirty-one sample villages for the household survey. However, no information was collected on housing rent.19

The Ghana Living Standards Survey round four (GLSS 4) 1998-1999 seeks information on the type of dwelling, occupancy status, number of rooms and room space, expenditures, utilities and amenities as well as the physical characteristics of the dwelling. GLSS 4 seeks information on rent payment(s), either cash or in kind.

The India Survey of Living Conditions Uttar Pradesh and Bihar, 1997-1998, on housing and access to facilities, collects information in three areas: the type of dwelling occupied by the household, access to basic services (water, sanitation, and electricity), and access to various facilities providing services. However, no information is collected on rent, despite the fact that certain questions are for renters only.

In Jamaica Survey of Living Conditions, questions on housing are designed to characterize the type of dwelling occupied by the household and to determine the amount spent on housing, including rent, water, electricity, and other expenses. Expenses include the amount paid for water and electricity. Information on ownership, rent, mortgage and taxes is also collected.

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19 Several rounds of pilot surveys for preparing the CLSS questionnaire showed that there are almost no households living in dwellings they do not own. Therefore, in the housing section of the formal questionnaire, there are no questions about house renting activities. To see which method was used to get the house depreciation rate and eventually to obtain the “use value” of dwellings see Appendix D: Household Expenditure Calculation, section 2.3 in: [http://www.worldbank.org/lsms/country/china/docs/chnbinfo.pdf](http://www.worldbank.org/lsms/country/china/docs/chnbinfo.pdf)
The **Morocco** Living Standard Survey, 1990-1991, collects information on the status of ownership or rental arrangement; physical characteristics of dwelling; services (water, sewage, etc.); and expenditures on housing.

**Peru** National Survey of Households Living Standards Measurement, May - July 1994, provides information on Ownership Status of Dwelling. For example, rented in exchange for in kind services or money, and asks follow-up questions such as “if rented, from whom rented; if you had to rent, estimated rental value in Soles per month?”

**Vietnam** Living Standards Survey, 1997-1998, contains information on the type of dwelling, housing expenses, and housing characteristics for all households interviewed. Information was collected on ownership status and rental cost if rented.

The **Zambia** Living Conditions Monitoring Survey I (1996) asks about the basis upon which the household occupies the dwelling; how the rent is paid; and how much the household pays in rent per month.

### XIII.2.2.9 Calculation of net disposable income of agriculture households

As was noted in Chapter X, income and consumption are different but related concepts. Though the focus of this Handbook is the income of agricultural households, the purpose of measuring income is very much linked to the ability that income gives to consume and thus be reflected in the livelihood of the household. Some economists prefer income as a measure of living standards because they follow a “rights” approach. According to this approach, income, together with assets, measures the potential claims on the economy of a person or family. Other economists prefer to use consumption data as these show the level of living by measuring what people acquire.

Another consideration when deciding whether to use income (including income from assets) or consumption is the time period over which living standards are to be measured. There is a good deal of empirical evidence that even people in poor agricultural societies and people without the ability to borrow much can smooth their incomes within a particular year and perhaps over a series of years, so that consumption will reflect living standards at least throughout one year and perhaps over a series of years (for a review see for instance Deaton, 1997, Chapter 4).

Most people do not receive income every day, and many do not receive income every season - or at least not an equal amount every season. So while consumption over a week, two weeks, or a month is likely to be a reasonable indicator of living standards over a year or over a few years, income will not be. If analysts are interested in measuring averages, income variation will not matter much if the survey itself is spread over a year, since some people’s zero incomes will balance out others’ high seasonal incomes. However, analysts are usually interested not only in means (LSMS surveys are rarely the instrument of choice for estimating mean income or consumption) but also in inequality and poverty, which are sensitive to the tails of the distribution, especially the lower tail. Gathering data on the previous month’s income will overestimate inequality in annual living standards and, provided the poverty line is below the mode of the distribution, will overstate the fraction of people below the line. Although there are also random irregularities and seasonal patterns in consumption, they are typically smaller than those in income, because consumption is less tied to seasonal and weather-related patterns in agriculture than is income. Even so, consumption measured over a reference period of less than a year is likely to overstate poverty and inequality. In addition, the overstatement may not be constant over time if seasonal patterns change with time, because one year is different from another - or over the long run, because agriculture accounts for a shrinking share of household income as economies become richer (Deaton and Grosh, 2000).
These arguments provide a persuasive case that, given the choice, (perfectly measured) consumption is a more useful and accurate measure of living standards than is (perfectly measured) income. These theoretical advantages of consumption are likely to decrease as the period over which it is feasible to gather data gets longer. If it is feasible to visit households on many occasions throughout the year this will clearly capture any seasonality in the household’s income. Moreover, if the survey has a panel element so that income can be averaged over a series of years, it makes little difference whether income or consumption is measured, if one can be measured as accurately and as cheaply as the other (Deaton and Grosh, 2000).

The income of many households - particularly but not exclusively agricultural households - varies seasonally throughout the year. In these circumstances, measuring households’ annual income (which is the minimum amount of data needed to adequately determine poverty and distribution) would require many visits to the household or reliance on the ability of household respondents to remember their income from many months earlier. However, if consumption is smoothed over the seasons - and much of the literature already cited suggests that this is done in most households - consumption will vary less by season than income does. It may also be possible to collect useful data on annual consumption without making multiple visits (Deaton and Grosh, 2000).

It is generally thought that respondents are more reluctant to share information about their income and (to an even greater degree) their assets than about their consumption. Thus, they are more likely to lie about their income than about their consumption. In many countries income is taxable, at least in principle, and it may be hard for the survey interviewers to persuade respondents that the information they give will not be passed on to tax authorities.

Income from assets is likely to be particularly hard to capture because the ownership of assets is highly unequal, and the wealthy, who own the most assets, are typically thought to be the least likely to cooperate. Given that most of the survey interviews in developing countries must be conducted in a semi-public place, respondents are often reluctant to state their wealth in the presence of relatives and friends. These problems of measuring assets and asset income are likely more severe for measuring inequality than for measuring poverty, since households below the poverty line typically have few assets (Deaton and Grosh, 2000).

The Ghana Living Standards Survey round four (GLSS 4) 1998-1999 collects data on the household’s agricultural activities. It provides data on agricultural production, technology, processing, marketing, income and consumption patterns. The GLSS 4 was also designed to obtain information on income for the household specifically from non-farm enterprises. It identifies which household members are responsible for each non-farm enterprise in terms of decision-making and the allocation of income it generates. Non-farm enterprises that are currently operating and those that were operational some time in the past 12 months but currently not operating are considered.

The GLSS 4 1998-1999 obtains information on income transfers, that is all incomes of members of the household other than that from paid employment. Transfers to the household are considered as income where as transfers from the household constitute expenditures, thereby completing the income and expenditure current accounts of the household. Furthermore, the GLSS 4 1998-1999 is designed to collect information on loans, assets and savings.

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20 Included in these transfers are remittances. Remittances are regular or irregular contributions in terms of money or goods and food made to person(s) living abroad or elsewhere. For example, any money, food or goods sent out or received by the household to/from a household member or relative staying abroad or elsewhere is a remittance.
The **India** Survey of Living Conditions Uttar Pradesh and Bihar, 1997-1998, also aims to capture the flow of remittances and transfers into the household.\(^{21}\)

According to the **Jamaica** Living Standards Measurement Survey, theoretically, all the elements of a household provide the following equation:

\[
\text{Household income} = \text{household consumption expenditure} + \text{non-consumption expenditure} + \text{savings} - \text{net debt (net repayments of principal and interest on debts contracted by the household)} - \text{net repayments of principal and interest on money lent by the household)}.
\]

**Jamaica** Survey of Living Conditions records the value of all miscellaneous income received by household members during the past twelve months. Income sources include: remittances from relatives or friends that live abroad, rental payments for land or property, social security and other pensions and interest from loans.

The **Morocco** Living Standards Survey, 1990-1991, asked questions to identify home enterprises.

The **Peru** Living Standards Survey, 1994-1995, asks whether the household received non-labour income in the previous 12 months and about the source of other income received. It also inquires as to whether the household took a loan or other source of credit.

The **South Africa** Integrated Household Survey solicits information about income received from absent members of the household or from any other person from the list of people who make contributions to the household. It also talks about any money or any form of assistance that members of the household may have received from sources which do not involve employment of some kind. There are many ways in which the household can receive money without being employed. For example, pension payments, charity, unemployment insurance fund, government disability grants, and other forms like that.

The **Vietnam** Living Standards Survey, 1997-1998, collects data on money and goods that come into the household as remittances or from other sources unrelated to employment such as social security, pension, poverty alleviation funds, interest on savings or investments, insurance payments, gifts, inheritance, lottery winnings, renting out of equipment or buildings and the sale of vehicles or durable goods.

---

\(^{21}\) These do not include payments for work or purchases of goods or services in this section, and do not include transactions, which are clearly loans. Also, transfers between household members are not included. However, payments received from any person not considered to be a household member according to the survey definition are included.
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ANNEX A

UNECE questionnaire concerning income of agriculture households

Please provide notes for your country concerning the issues below:

1. Definition of a household, agriculture household and rural household.
2. Criteria for classification of households into socio-professional groups (“narrow” target definition), e.g. based on the main source of income of the household’s reference person.
3. Mechanism used to introduce short-term stability in numbers of agricultural households, e.g., the use of average incomes over several years.
4. Treatment of forestry and/or fishery households. Are they included in agricultural households?
5. “Broad” definition of an agricultural household, e.g. households that derive some income from independent activity in agriculture. If such a definition is used please indicate thresholds.
6. Treatment of non-personal form of institution in the household sector (religious houses, farming cooperatives and similar institutions).
7. Treatment of holdings operated as corporate institutions but de facto run as family businesses.
8. The equivalence scale used to give consumer units. There are differences in the age at which the coefficient for children or elderly persons is replaced by that for additional adults. Please give details on the equivalence scale used to estimate numbers of consumer units.
9. The basis of estimating the value of own-consumption (of agricultural and non-agricultural goods and services), e.g. valued at the basic price of similar goods sold on the market.
10. The basis of calculating the imputed rental value of own dwellings, e.g. the estimated value of rental that a tenant would pay for the same accommodation.
Please indicate in the table below with the following symbols:
y = yes, explicit data   * = implied data covered elsewhere
(y) and (*) = covered in part   @ = gross of capital consumption

<table>
<thead>
<tr>
<th>Please indicate with symbols above</th>
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</thead>
<tbody>
<tr>
<td>No. households</td>
</tr>
<tr>
<td>No. persons</td>
</tr>
<tr>
<td>No. consumer units</td>
</tr>
<tr>
<td>1 FROM INDEPENDENT ACTIVITY</td>
</tr>
<tr>
<td>1a From independent agricultural activity</td>
</tr>
<tr>
<td>Net Operating Surplus</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>1b From independent non-agricultural activity</td>
</tr>
<tr>
<td>Net Operating Surplus</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>1c Net Operating Surplus from imputed rental value of owner-dwellings</td>
</tr>
<tr>
<td>2 DEPENDENT ACTIVITY of which</td>
</tr>
<tr>
<td>2a Wages and salaries</td>
</tr>
<tr>
<td>2b Employers’ actual social contributions</td>
</tr>
<tr>
<td>2c Imputed social contributions</td>
</tr>
<tr>
<td>3 PROPERTY INCOME RECEIVED of which</td>
</tr>
<tr>
<td>3a Interest</td>
</tr>
<tr>
<td>3b Dividends</td>
</tr>
<tr>
<td>3c Withdrawals from quasi-corporations</td>
</tr>
<tr>
<td>3d Property income attributed to insurance policy holders</td>
</tr>
<tr>
<td>3e Rents on land and subsoil assets</td>
</tr>
<tr>
<td>4 NON-LIFE INSURANCE CLAIMS</td>
</tr>
<tr>
<td>4a Claims on capital items</td>
</tr>
<tr>
<td>4b claims on personal accident</td>
</tr>
<tr>
<td>5 SOCIAL BENEFITS received (other than social transfers in kind)</td>
</tr>
<tr>
<td>6 MISCELLANEOUS INWARD CURRENT TRANSFERS</td>
</tr>
<tr>
<td>7 CURRENT RECEIPTS Sum of 1-6</td>
</tr>
<tr>
<td>8 PROPERTY INCOME PAID of which</td>
</tr>
<tr>
<td>8a Interest on loans for</td>
</tr>
<tr>
<td>(i) farming purposes</td>
</tr>
<tr>
<td>(ii) purchase of agr. Land and buildings</td>
</tr>
<tr>
<td>(iii) other business purposes</td>
</tr>
<tr>
<td>(iv) private and other credit</td>
</tr>
<tr>
<td>8b Rents on</td>
</tr>
<tr>
<td>(i) agricultural land and buildings</td>
</tr>
<tr>
<td>(ii) other business land and buildings</td>
</tr>
<tr>
<td>9 NET NON-LIFE INSURANCE PREMIUMS</td>
</tr>
<tr>
<td>10 CURRENT TAXES ON INCOMES AND WEALTH of which</td>
</tr>
<tr>
<td>10a on income</td>
</tr>
<tr>
<td>10b on capital gains</td>
</tr>
<tr>
<td>10c on capital or wealth</td>
</tr>
<tr>
<td></td>
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<tr>
<td>---</td>
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<tr>
<td>10d</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>11a</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>11b</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>12a</td>
</tr>
<tr>
<td>12b</td>
</tr>
<tr>
<td>12c</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>14</td>
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<tr>
<td>15</td>
</tr>
</tbody>
</table>
ANNEX B

Replies to the UNECE questionnaire concerning income of agriculture households

The following EU Countries have replied:
Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovakia, Slovenia, Sweden and United Kingdom.

Replies have not yet been received from the following EU Countries:
Austria, Cyprus, Greece, Netherlands and Spain.

The following countries that are Member States of the UNECE and/or OECD but not of the EU have replied:
Albania, Andorra, Armenia, Australia, Azerbaijan, Belarus, Bulgaria, Canada, Croatia, Georgia, Japan, Kazakhstan, Kyrgyzstan, Mexico, New Zealand, Norway, Republic of Korea, Republic of Moldova, Romania, Switzerland, the former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine and United States of America.

Replies have not yet been received from:
Bosnia and Herzegovina, Iceland, Israel, Russian Federation, Serbia and Montenegro, Tajikistan and Uzbekistan.

References

An inventory of Income of the Agricultural Households Sector (IAHS) statistics covering EU Member States undertaken by Eurostat as part of its IAHS statistics project. The first was in 1990 (Eurostat working paper F/LG/187) and the second (in two stages) in 1996 (F/LG/320, 324, 350 and 366). The consolidated inventory drawn from these papers and covering all the main elements of the methodology was published as part of the Income of the Agricultural Households Sector 2001 Report (issued in CD form in 2002).
## ANNEX C

A Sample of LSMS Surveys

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Household count</th>
<th>Questionnaire</th>
<th>Additional Metadata Documentation on the web</th>
<th>Access Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1988-1989</td>
<td>3,200</td>
<td>Household Questionnaire Part B PDF (117 KB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1991-1992</td>
<td>4,565</td>
<td>Community, PDF - (73 KB) Price, PDF - (89 KB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1998-1999</td>
<td>5,998</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>India (Uttar Pradesh and Bihar)</td>
<td>1997-1998</td>
<td>2,250</td>
<td>Household Questionnaire, PDF 276 KB Village Questionnaire, PDF (132KB)</td>
<td>Documentation for the 1997-1998 Uttar Pradesh and Bihar Survey of Living Conditions <a href="http://www.worldbank.org/lsms/country/india/upbhdocs.html">http://www.worldbank.org/lsms/country/india/upbhdocs.html</a></td>
<td>No prior permission from government is required to use the data.</td>
</tr>
<tr>
<td></td>
<td>(annual)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td>1985</td>
<td>5,120</td>
<td>Household questionnaire; Community questionnaire</td>
<td>Basic Information Peru: Living Standards Measurement Survey (PLSS) 1991 <a href="http://www.worldbank.org/lsms/country/p91/docs/p91_e.pdf">http://www.worldbank.org/lsms/country/p91/docs/p91_e.pdf</a></td>
<td>No prior permission from government is required to use the data.</td>
</tr>
<tr>
<td></td>
<td>1991</td>
<td>2,200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>3,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>1993</td>
<td>9,000</td>
<td>Household questionnaire, Community questionnaire</td>
<td>Documentation for the South Africa Integrated Household Survey <a href="http://www.worldbank.org/lsms/country/gs91/gs91docs.html">http://www.worldbank.org/lsms/country/gs91/gs91docs.html</a></td>
<td>No prior permission from government is required to use the data.</td>
</tr>
<tr>
<td></td>
<td>1997-1998</td>
<td>5,994</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1993*</td>
<td>10,121 (PS II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>11,752 (LCMS I)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1998</td>
<td>16,710 (LCMS II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>1993</td>
<td>9,000</td>
<td>Household questionnaire, Community questionnaire</td>
<td>Documentation for the South Africa Integrated Household Survey <a href="http://www.worldbank.org/lsms/country/gs91/gs91docs.html">http://www.worldbank.org/lsms/country/gs91/gs91docs.html</a></td>
<td>No prior permission from government is required to use the data.</td>
</tr>
</tbody>
</table>

Notes: * Priority survey I (1991) and Priority Survey II (1993), which subsequently were replaced by LCMSI-III. During 1985-1999 the following countries implemented full-size LSMS surveys: Algeria, Brazil, Côte d’Ivoire, Ecuador, Ghana, the Kyrgyz Republic, Mauritania, Morocco, Nepal, Pakistan, Panama, Peru (1985-1986, 1991, and 1994), Turkmenistan, and Vietnam. Scaled-down LSMS Surveys have been carried out, with World Bank support in Albania, Azerbaijan, Bolivia, Bulgaria, Pakistan (1995-1996 and 1996-1997), Peru (1990) and Tanzania (Grosh and Glewwe, 2000b).
**ANNEX D**

Sample of Developing Countries conducting Agriculture Censuses

<table>
<thead>
<tr>
<th>Countries</th>
<th>On Web</th>
<th>1980 round</th>
<th>1990 round</th>
<th>2000 Round</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>Yes</td>
<td>1980-1985</td>
<td></td>
<td>1996</td>
</tr>
<tr>
<td>China</td>
<td>Yes</td>
<td></td>
<td></td>
<td>1997</td>
</tr>
<tr>
<td>Ghana</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamaica</td>
<td>No</td>
<td>1978-1979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td>Yes</td>
<td></td>
<td></td>
<td>1994</td>
</tr>
<tr>
<td>South Africa</td>
<td>Yes</td>
<td>1993</td>
<td>2002</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>No</td>
<td>1994</td>
<td>2001</td>
<td></td>
</tr>
</tbody>
</table>

XIV INCOME AND WEALTH STATISTICS FOR SELECTED COUNTRIES

This chapter provides illustrations of methodologies currently used to generate statistics on the income and wealth of agricultural households in a range of OECD countries and outlines their main findings. The examples are the United States (the Agricultural Resource Management Survey), Italy (three surveys), Denmark and Sweden (both of which utilise administrative registers that combine several datasets), Canada (results only), Eurostat’s Income of the Agricultural Households Sector (IAHS) statistics that contain income estimates for all EU-15 Member States other than the United Kingdom, and Australia. Various forms of data systems are encountered, singly or in combination, including farm accounts surveys, household surveys in which farm families form only one socio-professional group, and taxation records. They also display a wide variety of definitions, particularly of what constitutes an agricultural household and how income is measured, that are important to the results obtained. The lack of comparability between countries is a handicap and demonstrates the potential usefulness of the present Handbook. Nevertheless, some common features can be found that transcend methodological disparities and which are of importance in understanding the economic position of households that operate farms. Attention will be drawn to these in Chapter XV.

The nature of the material means that each country (and the EU) is best treated as a stand-alone section, with its own set of references. Tables and figures are grouped at the end of each section (though they are numbered consecutively throughout the chapter). This structure should also facilitate the incorporation of other country examples in later versions of this Handbook.

XIV.1 United States

XIV.1.1 The Agricultural Resource Management Survey (ARMS)

The Agricultural Resource Management Survey (ARMS) is essential to the research and analysis mission of the Economic Research Service (ERS), and is a key input to economic statistics produced by the United States Department of Agriculture and other agencies. It provides the information base for sector estimates of value added, income for farms by type of commodity specialization, costs of producing major crop and livestock commodities, indices of prices paid by farmers for production inputs, and a report on the status of family farms. The ARMS also supports the Department’s estimates of household income and wealth, and is used in a variety of applied farm production, management, technology adoption, resource use, and household well-being research applications. While the ARMS became a stand-alone survey beginning with the 1996 calendar year survey, it retained and built upon features of survey activities that date to the 1970s. This paper provides a synopsis of events that contributed to the development of the ARMS, gives an overview of purposes served by the survey, discusses survey design and content, highlights research program activities, and closes by giving a perspective about the ARMS as an evolving survey instrument.


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XIV.1.1.1 Origin of the ARMS as a principal USDA survey

In 1974, the United States Congress wrote legislation that required the United States Department of Agriculture (USDA) to “conduct a study of the costs of producing wheat, feed grains, cotton, and milk and to produce annual estimates of costs that were representative of the sizes and types of farms engaged in production, and the range of technologies in use.” The requirement to produce cost estimates was followed by funding to conduct commodity surveys.

Meanwhile, funding was also provided in the mid-1970s to survey farm business establishments about production expenses, capital expenditure, and other general economic information. This survey became the Farm Production Expenditure Survey, which the ERS and the National Agricultural Statistics Service (NASS) shared jointly in developing and funding. This collaborative effort was facilitated since both the research agency and statistical agency were in the same mission area of the Department.

The Farm Production Expenditure Survey contained detailed questions about production practices and input use in crop and livestock production, and about expenditures for the business as an establishment. Information for sales, inventories, assets, or liabilities of the business was incomplete or non-existent in surveys conducted during the late 1970s and into the early 1980s. Inadequate survey content prevented analysts from developing estimates of income for business establishments, producing firm-level balance sheets, or putting into context costs incurred in the production of crop or livestock commodities.

Extending survey activity for farms and households of farm operators

Three events provided motivation to change the survey content and sample design of the Costs of Production and Farm Production Expenditure Surveys. One involved ERS efforts to re-examine economic information produced for the United States farm sector, and a growing recognition of the inadequacy of the “one farm, one farmer, and one farm household concept.” Second, was recognition of the need to collect data that more accurately reflected the relationship of households to their farm business. The third major event that crystallized need for improved business-household income and finance data was the farm financial crisis that spanned the United States in the 1980s. The ERS and the NASS were responsible for measuring the extent of financial difficulty in farming and rural communities, and financial institutions, in the United States but existing survey instruments were not suited to this task.

Economic accounts and estimation systems built in the early part of the twentieth century were not very effective in providing information about different groups of farms or households that made up the farm sector a half-century later. The agricultural economic and finance literature was evolving to present a case for thinking about farming in terms of households as well as business establishments (Schertz, 1982). Key questions raised by this work included: To what extent was resource ownership and use separated in farm production? What was the distribution of farms among different household models, ranging from those that owned all resources and retained earnings to those that provided entrepreneurial resources, but only some of the other resources used in production? What was the distribution of income and wealth among different household groups? To what extent did households that provided resources to farming also provide resources to other activities? A system of data that included information on both farms as business establishments and on households offered a solution to address these questions (Schertz, 1982). Microeconomic indicators were needed to test economic hypotheses and to extend the knowledge base for farms and farm households, especially with regard to analyses of income and wealth (Johnson, 1984; Johnson & Baum, 1986; Baum & Johnson, 1986; Gardner, 1975; Ahearn, 1986). These articles pointed to conceptual shortcomings in farm and farm household data and made recommendations for improvement in survey content.
Meanwhile, farm financial difficulties had become an agenda item for the United States farm sector at the beginning of the 1980s. The USDA and the public had only incomplete information and anecdotal evidence with which to assess the scope, intensity, and nature of the problem. ERS analysts had started to revise content of farm business surveys to support estimates of business establishment cash operating margins and to fortify revised farm sector accounts. However, these actions by themselves were insufficient to address debt levels, farm business solvency, and the debt service capability of institutions that operated farms, including farm households. Moreover, the data were not sufficient to address whether household sources of income and equity altered the perspective about farm business vulnerability.

The ERS and the NASS concluded that a new survey design was needed, while recognizing that the agencies faced time and funding constraints. The solution was to merge the independent Costs of Production and Farm Production Expenditure Surveys into an integrated survey of farm businesses. The goal was to meet data needs for specific farm enterprises, farms as business establishments, and for farm operator households, from the perspective of a rudimentary measure of “non-farm” income. These objectives were achieved by developing a new enterprise farm household based survey. The integrated survey established for 1984, called the Farm Costs and Returns Survey (FCRS), consisted of a sample drawn from a list frame of medium to large farms and a complimentary area frame for completeness that covered new entrants and smaller farms. The FCRS used multiple questionnaire versions in a modular design. Each questionnaire version contained common, global questions that permitted collection of data items for farms and households across the entire survey sample.

Improvements in survey design and content resulting from the 1984 merger enabled the USDA to generate estimates of net cash income for business establishments, a measure of net cash income for operator households, and measures of business solvency and debt repayment ability. Information for farms, including debt owed to specific lender groups, allowed ERS analysts to assess the extent of potential loan losses of farmers and lenders and to examine how potential financial problems varied among farms and households by size of business operation, location of farm, and by lender group (Hanson, 1987; Hanson et al., 1991; Jolly et al., 1985; Johnson et al., 1985; Johnson et al., 1987). The collaborative nature of work needed to develop the FCRS under tight time constraints and using available resources drew heavily on the ERS and the NASS being in the same mission area of the USDA.

Recognizing that cash based measures of financial indicators were incomplete, survey questionnaires were revised to enable more complete specification of the income statement and balance sheets prepared for farm businesses. New questions measured depreciation and changes in inventory value, providing the basis to move from cash based measures of income to an accrual basis. Other important data improvements also occurred during the mid-1980s. For example, the use of contract arrangements in commodity production was explicitly measured. This was important because it allowed assignment of income and expenses to the appropriate entity. As a result, both the income statement and balance sheet produced for a farm not only reflected economic and accounting standards and concepts, but that their components were partitioned among farms, landlords, and contractors.

Surveys conducted for 1986 and 1987 were the first attempts to collect more substantial information for farm operator households. Information was collected for four components of off-farm income: non-farm related business income, wages and salaries, interest and dividends, and all other non-farm sources of income. Demographic and other information, such as primary occupation, operator age, and education level, which put farm and household income into a broader context that extended beyond the association with a
business, were also collected. Off-farm income data collected during this period provided the first opportunity to develop a perspective about the ability of households to service debt out of total income. Moving to this level of analysis raised issues for further refinement, such as the existence of non-farm assets and liabilities and the level of household consumption expenditures. This set the stage for modifying the FCRS to allow a more explicit focus on the household.

The survey developed for the 1988 calendar year marked the first extensive collection of data for the operator’s household. Innovations that focused on the household included information on household sharing of income with other entities enabling a determination to be made of what portion of the farm business net income was earned by the farm operator household. The survey also gathered information necessary to prepare farm operator household balance sheets. Information on household assets by component of asset, such as cash, chequeing account, money market account, corporate stock, surrender value of life insurance and other financial assets, trucks, cars, and other assets was gathered. Detailed information on household assets was accompanied by questions focused on household debt and more explicit accounting of off-farm income. Hours of off-farm work by the farm operator and spouse were also enumerated along with their on-farm work hours. The survey also collected data on consumption expenditures, and goals and attitudes about the farm operation.

While the 1988 survey could be characterized as the first concerted household data collection, the instrument developed for 1991 was designed to enable estimation of a household model while supporting the development and reporting of estimates of household income and wealth. This was accomplished by extending questions pertaining to household economics to include questions related to operator and spouse labour allocation and employment decisions. The specific types of information included: the number of household members, age and education, commuting distance, years worked at a particular job, how long the household had operated a farm, whether the operator or spouse were raised on a farm, years worked at any off-farm job, benefits from off-farm work, consumption expenditures, and household assets and liabilities. The 1991 survey also contained questions needed to support estimation of farm business and household income and wealth, to establish a relationship between the household and the farm it controlled, and to support assessments of the financial status of farm households drawing on both income and wealth attributes.

The collection of household-farm linked data was enhanced by adding modules of questions focused on the business as an establishment, the household as an institutional unit, and members of the household to an existing survey that was national in scope. While the content and sample design of the ongoing survey were changed, existing funds were used for data collection.

**Agricultural Resource Management Survey (ARMS) emerges from ongoing survey activity**

In 1996, the ERS and the NASS undertook a second merger of independent survey activities. This merger combined the FCRS and Cropping Practices surveys conducted by the USDA. The Cropping Practices survey focused on collection of yield, production practices, and input use data at a field level. Advantages of this merger were to link household and farm economic data to field-level chemical use and production practice data and to expand information available for assessing cost distributions and technology and practice adoption.

Merger of independent surveys into the ARMS set the stage for further integration of the ARMS into NASS’ ongoing Census and national survey programs. Integration with the Census of Agriculture was accomplished in 1997 by including questions in the ARMS survey instrument that were needed to complete a Census questionnaire. The practical result of the Census-ARMS integration was to strengthen the ARMS sample, edit, and summary programs and procedures by drawing from routines created for the Census.

beyond this, the integration of the ARMS and the Census provides a direct link from the ARMS to the Census.

XIV.1.1.2 ARMS design characteristics

The ARMS is designed as a multiple phase, multiple version survey. The first phase of the survey is a screening sample to identify operations that are “eligible” or “in-scope” business operations for the ARMS (see Figure XIV.1). The second and third phases of the ARMS collect information to underpin USDA estimation and research responsibilities. The ARMS supports estimation of household income and wealth, business income and performance measures, sector farm income and value added, production costs for crop and livestock enterprises, and chemical use by farmers in the production of crop and livestock commodities. The survey is personally enumerated over several months (from July to April) using multiple survey forms (see Figure XIV.1). Samples qualified in the Phase I screening activities for a cost and return survey are contacted in late fall to obtain field-level information about practices and inputs used in the production of the commodity of interest. Those that respond in Phase II are contacted again for a follow-up interview as part of Phase III, to obtain information about their farms and households. This link enables analysts to not only establish estimates of costs of producing commodities, but to examine adoption and uses of technology, use of conservation and environmental practices, and participation in government programs.

The largest portion of the total sample is focused on farms and households, not commodity production. This portion of the survey is conducted during the winter to collect information from operators about their farm operation and the economic and financial status of their households, along with socio-economic and demographic information used in classification and analysis. Questions are asked about the prior calendar year. Given the sample design, Phase III interviews for commodity producers can be combined with general purpose phase III farm household interviews to achieve greater statistical reliability associated with the larger sample.

ARMS samples are stratified by size of operation, type of industry classification, and commodity acres. For the farm household phase III version of the survey, strata size groups for each state include farms over $1,000,000 in sales, farms with $500,000 to $1,000,000, farms with $250,000 to $500,000, farms with $100,000 to $250,000, and farms with $1,000 to $100,000 in farm value of sales. Farms are further stratified to reflect industry groups such as oilseeds, grains, beans, cotton, milk, or cattle and calves. The farm type classification follows the major industry groups classified in the North American Industry Classification System.

The phase II sample reflects the presence and level of targeted commodity production activities for the reference year. Since the USDA is charged with reporting production costs and returns and chemical use for selected commodities (principally those for which farm programs have traditionally been developed), a portion of the sample has to reflect acreage of major crops. Thus, the sample is stratified to ensure representation of a range of acreage classes. For example in 2004, the sample strata included producers of cotton that had over 1,500 acres, from 1,000 to 1,499 acres, from 500 to 999 acres, from 200 to 499 acres, and from 1 to 200 acres.

XIV.1.1.3 Content of current ARMS survey questionnaires

The ARMS uses a modular questionnaire design, much like the overall design of the survey itself. All but a few modules are oriented towards collecting information needed to implement the sector-household income links illustrated in Figure XIV.2. Remaining modules collect information required to estimate business and household wealth, to measure household labour allocation and sources of off-farm income, to
classify farms and households by structure and demographic attribute, and to support analyses of performance and well-being.

Production characteristics of the farm

The initial section of the questionnaire obtains information about rents paid and received that are used in construction of the farm income account and asks the respondent to identify the type of farm operation based on which commodity (or group) represents the largest portion of gross income. The remainder of the first section contains questions that establish the amount of acreage operated, land ownership, and the commodities produced by the farm (see Figure XIV.3). While focused largely on physical attributes of the farm, information is collected to account for the physical quantities of crops produced, the amount owed a share-rent landlord, and the quantity used on farms as an input in further production activities.

Business income sources

Information needed to estimate a farm’s gross revenue is gathered prior to collecting input expenditures (see Figure XIV.4). This follows the organization of typical income statements. Use of contract arrangements is fairly common among larger farm businesses. It is important to establish the presence of, and collect information on, production contracts, since the farm typically does not own the commodity produced under such contracts. As a result, only a fee for service is counted as part of farm earnings. Marketing contracts are different since farms own the commodity. Payment for commodities delivered under a marketing contract may stretch over multiple years. Thus, the presence of contracts affects accounting for income. This is particularly the case at the farm and household level and is a major reason why we cannot assume that operator households earn all of the income generated by farm businesses.

The income account is completed by collecting cash sales and earnings of the farm from other sources. These other earnings generally arise from government payments or from income earned from use of the farm’s resources in gainful activity other than production of crops or livestock. Insurance payments that arise from weather damage or some other source, which may vary over time and among farms, are also included in other farm related income.

Purchased inputs

The ARMS accounts for the operating and capital expenditures of operators, their landlords, and any contracting entities that may be participating in the business. All major input categories are covered and are set up to enable development of both a standard business income statement and an estimate of a farm’s value added (see Figure XIV.5). The ARMS accounts for employee compensation, real estate and non-real estate interest, and capital consumption. These items are needed to move from an estimate of gross value added to net value added and from net value added to net income. Employee compensation is of special interest to the measurement of household income. While wages paid to the operator or household members are expenses to the farm, they are sources of income to the household. Questioning is set up to support this difference between the farm and the household.

Measurement of household income from farming

Household income from farming draws on output, revenue, and expense data collected to provide estimates of value added, net farm income, and net cash income for the farm (see Figure XIV.6). Cash income for the business is derived by eliminating measures of non-cash income and expenses from estimates of net farm income. This is achieved by collecting information on change in the market value of inventory.
for crops, livestock, production inputs, and accounts receivable. In addition to depreciation, data are also collected for non-cash expenses and income items such as unpaid benefits to labour, home consumption of farm produced goods, and imputed rents for operator occupied housing owned by the farm operation. These rents, like other non-cash items, are excluded from net farm income to arrive at a cash based estimate of income from farming.

In the United States, about 300,000 households, in addition to farm operator households, share in the net income of farm businesses. The ARMS explicitly accounts for income accruing to the operator’s household by collecting data on the share of farm income received by the operator. To go from this correctly portioned farm business net cash income to an estimate of household income from farming, other sources of farm related earnings such as wages paid to household members by the farm are added. This last measurement step illustrates that, as self-employed farm operators, households may decide to pay themselves a wage, increase farm expenses, and reduce farm income, but when the household is viewed as the measurement unit, farm wages constitute earned income.

Measurement of household income from farm and off-farm sources

Estimates of household income consist of a household’s earnings from its farming activities and from its off-farm sources. Based on experience, ERS collects off-farm income data in a series of questions focused on how the household may choose to allocate its resources (labour, entrepreneurial capabilities, financial assets, and physical capital) outside the farm business (see Figure XIV.7). The household may be entrepreneurial and operate another business or a second farm. Or, household members may work off-farm for a wage or salary. For all income except wages and salaries, data are usually collected as a total for the household from each source. For wages and salaries, questions ask about wages earned by the operator and the spouse which, when combined with information on the allocation of labour hours, helps support estimation of household models. In addition to earned income from wages, salaries or self-employment and property income such as interest, dividends or rents, the ARMS asks for transfer income along with any other cash sources of income earned by the household.

Measurement of business and household net worth

Data are collected to develop a current market value basis balance sheet at a point in time, which for the ARMS is the last day of the calendar year. The ARMS’ treatment of the balance sheet has made collection of data to improve measurement at all levels of aggregation from sector to farm and household more explicit. For example, the ARMS asks for each component of land and building assets (operator’s dwelling, other dwellings, other farm buildings and structure, orchards, trees and vines and land) and sums these to reach a total land and building value (see Figure XIV.8). This approach provides information that supports the income account as well as the balance sheet. Remaining questions for farm assets focus on establishing value levels for crops stored, livestock (including separate estimates for breeding and non-breeding livestock), production inputs (including separate estimates for inputs on hand and inputs used for crops destined to be fed to livestock), trucks, cars, machinery, tools, equipment, stock in farm cooperatives (which may be required to contain business loans, purchase inputs, or sale outputs), money owed the operation for sale or production of agricultural commodities or products, and other assets owned by the operation. For crops, livestock, production inputs and money owed the farm for sales of production, beginning and end of year values are collected. Year over year change in the value of inventory for these items is used in developing farm level estimates of net income and value added. In contrast with the approach used in the sector accounts, physical quantities of crops and livestock on hand at points in time are not collected so that they could be valued with an average price. A more general approach is used to lessen respondent burden.
Information about farm debt is collected to support calculation of net worth, with net worth being equal to total value of assets minus total debt. Specific information for up to the five largest loans is obtained along with the total for any debt owed on additional loans. For each loan, information on the balance at year-end, interest rate, year it was obtained, portion for farm purposes, purpose of the loan (such as refinancing) and whether or not the loan was guaranteed by some government entity is requested. These data are used to produce an estimate of the farm’s debt service commitment.

In addition to debt repayment capacity measures, the ARMS business balance sheets are used with farm-level income statements to produce indicators of profitability, solvency, liquidity, and financial efficiency for the farm.

Moving beyond the farm business to the household, the ARMS explicitly measures sources of household non-farm assets and debts on a more frequent basis (see Figure XIV.9). Annual estimates of household assets and liabilities are obtained to combine with detailed farm business asset and debt measures. Detailed components of non-farm assets and debt are collected periodically in the ARMS. These data are used to gauge household participation in a variety of financial markets and to examine savings and investment behaviour in the context of a portfolio that reflects households’ goals and objectives, and to compute extended measures of well-being that incorporate both income and wealth measures into the analysis.

Classification and analysis

The ARMS is developed to recognize a long-standing interest in characterizing farms and households using a variety of size, organization, vocation, work status, and income dimensions. This work recognizes farm and household diversity. Recently, emphasis on households and individuals that operate farms has expanded. This expansion has resulted from dual career, multiple job holding experiences becoming more common among farm households and from farms being organized or reorganized so that, in some cases, the operator’s household and its members neither provide all assets nor earn all farm income.

Placing these changes into context along with traditional information needs requires data for firms, households, and individuals engaged in farming. The ARMS has been designed to collect data at each level of measurement — farm, household, and individual. For the farm, the focus is on identifying the number of operators engaged in the business, structure of the farm’s management team, the legal status of the business, number of households sharing in business income, and the number and types of claimants on farm income. These farm business data help measure how total income produced by the farm is shared among a variety of stakeholders and provides a perspective about the diverse nature of farms in the United States.

Operator, spouse, and household data are intermingled. From an individual perspective data that traditionally have been collected for operators such as age, education, gender, race, occupation, and off-farm work hours have been extended to the primary operator’s spouse and for most items, excluding off-farm work, to a second or third operator if present on the farm. Each of these individuals is asked to provide a response to questions about who performs selected managerial or production tasks for the farm. Farm-based questions are expanded by asking respondents about their farm or off-farm occupation and their allocation of work time to off-farm jobs. In addition, the ARMS collects information about years of experience with farm and off-farm jobs, reasons for off-farm work, timing of farm and off-farm work decisions, and type of work performed. These data help put on-farm and off-farm work decisions into perspective. To further characterize differences among households that operate farms, a variety of goal, attitude, managerial choice, and policy response questions are asked. For example, in recent years, questions have been asked about retirement and succession plans, timing of input purchases, and response to changes in input prices.
Information about how farmers generally allocate fixed direct payments received from government programs between farm and household uses has also been requested.

Household questions are designed to provide information about the structure and economic situation of the household. Income, asset, and debt data are extended with a series of questions about the household’s estimate of basic needs, living expenditures, prior year levels of income and expenditures, and the size and composition of the household as measured by the number and age of household members.

**XIV.1.1.4 ARMS: An evolving survey**

The ARMS is an evolving survey instrument. The ERS and the NASS have made many substantive changes to help ensure that survey results more accurately align with official estimates from all parts of the United States farm economy. Likewise, close attention has been paid to survey content from two major vantage points. First, care is taken to make sure that the ARMS provides data to implement economic and accounting concepts ingrained in estimates of income and wealth. Second, the ARMS is used to assist research focused on issues of importance to the USDA and the farm sector. Issues change over time. Likewise, the organization of farms and the households that control them change and adjust to a variety of policy, economic, and personal stimuli. These adjustments in the various target populations (individuals, households, and farm businesses) indicate that the ARMS will continue to adapt. New methods and ways of collecting data, both to be more effective in reaching farmers and in reducing their burden, will be tested. The ERS and the NASS will continue to examine content requirements to meet new data needs while ensuring that up-to-date concepts are used in the measurement of household, business, and sector income and wealth. Taken together these steps will refresh the ARMS and increase the likelihood that it will remain a valuable instrument that adequately represents United States farms and farm households.

**Figure XIV.1 ARMS Has a Modular Design to Reflect Complex Farm-Household Production, Financial Structure and Organization**

- **Phase 1**
  - July-August
  - Of Reference Year
  - Screening—Initial phase of the annual ARMS survey. Used to update information about crop production, livestock, and value of sales
  - Screening data are used to help design sample for Phase 2 and Phase 3

- **Phase 2**
  - October-December
  - Of Reference Year
  - Production Practices and Costs Report—Collects enterprise production practices, technology use, commodity-specific costs and returns data

- **Phase 3**
  - February-April
  - Following Reference Year
  - Costs and Returns Report Version—Collects data on farm & household income, wealth, & characteristics

- **Core Version—Household Estimates—State Level**

- **Follow Up To Fall Practice Interview**

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Figure XIV.2 Aggregate Farm Sector-Household Link in Income Estimation

Crop Output
Livestock Output
Services & Forestry
Government Transactions
Purchased Inputs

Gross Value Added
Net Value Added
Capital Consumption
Net Farm Income
Employee Compensation
Net Rent
Interest Paid

Operator Households
Other Households
Contractors
Other Legal Entities

Figure XIV.3 Land Use, Tenure, Crop and Livestock Production

Land Owned
Land rented from others
Land rented to others

Land operated
Livestock Production by species
Crop land use, Government commodity and environmental programs
Type of farm (NAICS Code)
Size of farm (acreage)

Varieties
Acres harvested By Crop

Production
On-farm use
Sale or storage
Landlord shares

Establishes Tenure:
- Owner
- Part Owner
- Tenant
- Cash
- Share Rent

Rent paid
Rent Received

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Figure XIV.4 ARMS– Farm Business Income Sources

Figure XIV.5 ARMS– Farm Business Expenses
Figure XIV.6 Measurement of Household Income From Farm Activity

Household Income

Farm Business Net Cash Income to Household

Household Share of Net Farm Income (Multiple Households)

Farm Business Net Cash Income

Gross Cash Income
Livestock Receipts
Crop Receipts
Government Payments
Other Farm Related Income
Cash Expenses

Net Farm Income

Farm Net Value Added

Equals Adjusted Farm Business Income
Plus Wages Paid to Operator
Plus Net Income from Farm land Rental
Equals Farm Self-Employment Income
Plus Other Farm Related Earnings (e.g. wages paid other household members)
Equals Household Income from Farm Activities

Figure XIV.7 Measurement of Household Income From Farm and Off-Farm Sources

Household Income

Farm Sources

Household income from farm activity

Off-Farm Sources

➢ Off farm wages & salaries
➢ Net-cash income from another farm
➢ Net-cash income from another business
➢ Net income from land rentals
➢ Interest and dividends
➢ Disability, retirement, social services
➢ Other non-farm sources
Figure XIV.8  Net Worth of Farm Businesses Operated by Households

Assets
- Land and buildings
- Machinery and equipment
- Crop inventory
- Livestock inventory
- Breeding Animals
- Accounts receivable
- Investments in growing crops
- Other assets (cash, checking accounts, etc.)

Far Business Worth

Share
- Operator households (% of assets and debt)

Other Owners
- Farm

Household of
- Farm Net

Liabilities
- Outstanding balance
- Interest rate
- Term of loan
- Per cent for farm use

Figure XIV.9  Household Assets, Debt and Net Worth

Household Net Worth

Farm

Non-Farm

Household Share of Farm Business Net Worth

Non-Farm Assets Owned by Operator Household
- Cash, checking, savings account, etc.
- Certificates of deposit, savings bonds, etc.
- Stock, mutual funds, life insurance, etc.
- IRA, Keogh, 401K, other retirement
- Dwelling if not owned by farm business
- Real estate
- Business not part of the farm
- Other assets

Non-Farm Debt Owed by Operator Household
- Mortgage on dwelling, if not part of farm
- Mortgages on other real estate
- Loans to businesses
- Personal loans, credit cards, etc.
XIV.1.2 Agriculture household income and wealth statistics

XIV.1.2.1 Introduction

Income from the farm business is now shared among many parties, and farm household income from off-farm work, investment, and other sources has increased dramatically. Returns from farm production activities center on the farm business. However, assessment of farm household well-being must focus on the household as the unit of analysis, or risk drawing incomplete or incorrect conclusions about farmers’ income and households’ economic well-being. In addition, sector-wide income estimates can obscure structural changes that have occurred in farming and in household labour and investment decisions, and thereby provide incomplete information about the distribution of income among farm households. For these reasons, the farm household is used as the unit of analysis for considering both income and wealth relative to non-farm households, and for considering the distribution of income and wealth, including the ability of income to meet household consumption needs.

The data and analysis below are extracted from *Income, Wealth, and the Economic Well-Being of Farm Households* prepared by the Economic Research Service of U.S. Department of Agriculture. The data for 1999 reported in this publication have been supplemented on a selected basis with data for 2003.

XIV.1.2.2 Income and well-being of farm households

Off-farm work by farm operators and their spouses has increased steadily since the mid 1960s. In 1969, total net income earned by farm households from farming and off-farm earned income was roughly comparable at $15 billion, with off-farm wages and salaries providing $9 billion of the total. By 1999, total off-farm income in the agriculture sector had increased to $120 billion, compared to $44.3 billion in net income earned from farming (see Figure XIV.10). In 2003, off-farm earnings totalled $122.6 billion and net farm income was $59.2 billion, which continues to underscore the importance of off-farm earnings to the total incomes of farm households.

XIV.1.2.3 Income and expenditures by household size

Figure XIV.11 gives details about income and expenditures by three size classes of households in 1999 and 2003. Total expenditures were highest in farm households with five or more people in 2003. This group spent an average of $43,000, compared with $34,000 for households of one or two members. This is expected since households with two or fewer persons have lower average household income, whether farm or non-farm. It is interesting to note that while income rose only marginally between 1999 and 2003 (and, indeed, fell slightly in households with five or more people), expenditures increased substantially for each size class of households. This implied that the non-consumed part of income (income less expenditure as a percentage of income) fell. For households with five or more members the share was almost halved, reaching 36%. For households with three or more members it fell from 56% to 41% and for households with one or two members from 63% to 47%.

As a figure for comparison, in 1999 the average expenditures of all American households amounted to about $37,000.

XIV.1.2.4 Farm households working more off the farm and accumulating wealth

The average money income of farm households in the United States first exceeded that of all United States households starting in 1972. Incomes of farm households periodically exceeded the incomes of all United States households from that time until the mid 1990s. Income of farm households has consistently been
higher since the mid 1990s (see Figure XIV.12). Average farm household income in 2003 was about $68,500, compared with $59,100 for the average non-farm household. Median income for farm households has also been roughly on par with the median income of all United States households in recent years.

What accounts for the closing of the income gap for farm households? Since 1964, earnings from off-farm sources have grown from about $10 billion to $123 billion (in nominal terms). Meanwhile, sector-wide net cash farm income has only increased by a factor of five (see Figure XIV.13). Thus, the increase in farm household earnings has been driven by the increase in off-farm earnings. In fact, net cash farm income has fallen as a percentage of total income from farm and non-farm sources, from 58% in 1964 to 36% in 2003.

Wages and salaries make up a significant proportion of off-farm earnings, even though they declined from 65% in 1964 to about 56% in 2003.

**XIV.1.2.5 Largest farms have most income, wealth and debt**

Over 90% of United States farms are classified as small farms. However, large and very large family farms, which made up only 8% of all farms in 1999, accounted for 57% of production. Households operating very large farms had the highest average household income, $201,000, about four times the average for all United States households. These farms received only 18% of their income from off-farm sources. In 2003, the income for this group of households had risen to $227,000 (see Figures XIV.14 and XIV.15).

Households operating residential/lifestyle farms or large family farms also had average income above the United States average, but the sources of income differed between the two groups. Residential/lifestyle households received virtually all of their income from off-farm sources, while large farms received just 40% from off the farm. Households operating higher sales small farms had an average income very near the United States average, and half came from off-farm sources.

Limited resource, retirement, and lower sales farm households had average household incomes below the United States average and relied heavily on off-farm income. In fact, income from farming was negative (see Figures XIV.14 and XIV.15). The 2003 income of households with retirement farms also had a negative contribution from farming. In 1999, the Conservation Reserve Program (CRP) was the primary source of farm income for 21% of retirement farms.

Farm size and wealth are positively related. In 1999, the value of farm assets increases from about $77,000 for limited resource farms to about $1,431,000 for very large farms. Limited resource, retirement, and residential/lifestyle farms have farm assets below the level of the average farm household (about $389,000). Farm debt follows a similar pattern, increasing from about $6,600 for limited resource farms to about $368,000 for very large farms. Households operating very large farms had the highest wealth, both farm and non-farm. Interestingly, the wealth of residential/lifestyle farm households is equally divided into farm and non-farm sources, reflecting the importance of non-farm assets to these households.

**XIV.1.2.6 Location influences household income and wealth**

Since off-farm income is a major source of income to farm households, location of the farm relative to off-farm employment opportunities is vital. Many studies have investigated the potential effects of the availability and accessibility of off-farm jobs. Farmers near urban areas are likely to have access to more active labour markets, and would be expected to supply more labour hours off the farm, all else being equal.
Two thirds of all United States farms are located in non-metro counties. About three fourths of small farms (farming-occupation) and large family farms are in non-metro countries. In addition, about two fifths of higher sales (small) farms and large family farms are in rural counties not adjacent to a metro area, compared with one third of all farms.

On average, about one fifth of the total income of farm households located in rural areas (both adjacent and non-adjacent) came from farming in 2003, indicating a high level of dependence (85%) on off-farm work even here (see Figure XIV.16). The total household incomes of these farms are on par with all United States households. It is also interesting to note that between 1999 and 2003 the increase of $10,000 in total average income was attributed solely to off-farm sources of income.

Farm households in metro areas (central city, fringe, medium metro, and small metro) have the highest level of income ($74,000) among farms by location, and 89% of this income is derived through off-farm sources (mostly wages and salaries). In these households, both the farm operator and the spouse tend to work off-farm.

Farm households located in urban (adjacent and non-adjacent) areas tend to be similar - they have some income from farming but off-farm income again is the major contributor to total household income (see Figure XIV.16). These results reaffirm that location and composition of income in a farm household are related. Still, farm households in remote rural areas depend heavily on off-farm employment.

Wealth for farm households in different locations follows the same pattern as income. Farm households in or near a metro area had the highest level of wealth (a net worth of $650,120 in 1999), one third from non-farm sources. These farm households also had the highest farm assets and lowest farm debt. This suggests they may be full-owners renting land and machinery to part-owners and tenants. At the other extreme, farm households in rural areas have one fourth of their net worth in off-farm assets. Rural farm households had the highest farm debt and considerable farm assets ($378,665) in 1999.

XIV.1.2.7 Comparing farm and non-farm income and wealth

In general, farm and non-farm household income are similar at several points within the overall distribution. Average incomes are similar for non-farm and farm households, though farm household income is more dispersed - larger shares of farm households have negative income and have incomes above $200,000. On the other hand, average wealth for farm households is substantially greater than for non-farm households, and is less dispersed.

XIV.1.2.8 Farm households save more, spend less than non-farm households

Expenditure levels represent an alternative indicator of economic well-being. While household income and wealth measured in any particular year are affected by contemporary economic conditions, the level of household expenditures is affected by the household's beliefs about total income and wealth over a lifetime. Household spending can exceed income by borrowing or liquidating financial capital. One would expect this to occur most at very low levels of income.

For both farm and non-farm households, spending tended to increase with income level, over much of the income distribution. However, the data show that farm household expenditures tend to be lower than non-farm household expenditures, even when controlling for differences in income, age, location, and size of population. Data for 2003 show that the exception was at low levels of income (below $15,000), where farm households tended to consume more than non-farm households (see Table XIV.1). It is likely that
many farms in this category had experienced temporary dips in their incomes to particularly low levels due to weather or other factors, and used their assets to support consumptions at their “normal,” higher level.

Expenditures for farm and non-farm households increase with age through the age group 45-54, and then decline, tracking the earnings profile among farm households. Income exceeds expenditures by the most for the 45-54 age group.

Farm and non-farm households had comparable expenditure profiles across the different household sizes. In general, households with more members had greater expenditures, although a plateau was reached at about four members for non-farm households and was still rising at five members for farm households.

The trend for farm household expenditures to be lower than non-farm household expenditures is sustained by simple summary analysis. For example, farm households may more readily categorize their expenses as business versus personal household expenses. As such, non-farm households may be required to assume more transportation and work-related expenses directly relative to farm households, whose expenses are often commingled with the business. Farm households may also be able to spend less by providing a portion of their own consumption from their farm. Although food is the most obvious savings, in some parts of the country a farm’s oil and gas expenses are waived in return for resource extraction agreements with utilities. Or perhaps farm households choose to save, rather than consume, a greater portion of their income as a form of self-insurance against greater income variability, to service their debt, or for inter-generational transfers to help their son or daughter get a start in farming. The greater savings may be invested into the farm or some other business, or saved in more liquid accounts.

**XIV.1.2.9 Main findings and policy implications**

The data above draw a picture of farmers’ well-being in the context of income, wealth, and consumption at the household level. They also compare the economic status and well-being of farm operator households within the farm sector and relative to all United States households. The main findings of this analysis are:

- Farm households are no different from other households in being pluriactive, pursuing multiple careers and diversifying earnings.

- The farm business as a source of income has become increasingly less important to farm households, especially among farms with sales of less than $250,000 per year, which make up over 90% of all farms.

- For most non-farm proprietorship households, the business is the main source of income; in contrast, for most farm proprietorship households, the farm detracts from total household income.

- While farm income exhibits considerable variability, farm household income is more stable.

- The average wealth of farm households has increased, and farm households have broadened their investment portfolio to include more non-farm components.

- While the life cycle is a dominant influence on differences in the level and source of household income and wealth, other contributing factors include farm type and size, operator education, farm tenure, and household size.
- Average incomes are similar for farm and non-farm households, but farm household income is more dispersed.
- Farm household wealth is considerably greater on average than non-farm household wealth, and is less dispersed.
- The conventional wisdom that farm households are financially disadvantaged compared with other United States households does not hold.

Results of the joint income and wealth analyses, comparing farm households to the median of all United States households, revealed that in 1999:

- 2.6% had higher incomes and lesser wealth;
- 6.0% had both lower income and wealth;
- 42.6% had lower income but higher wealth;
- 48.7% had both higher income and wealth.

On average, farm households have higher incomes, greater wealth, and lower consumption expenditures than all United States households. Incomes of farm households are, on average, sufficient to support a standard of living (defined as meeting consumption and basic household needs) that either is comparable to or exceeds that for all United States households. No longer do farm households inhabit one all-defining group that is considered either disadvantaged or without problems.

Figure XIV.10

Sources of income in the agriculture sector

<table>
<thead>
<tr>
<th>Year</th>
<th>Net farm income</th>
<th>Total off farm income</th>
<th>Net farm income as a percentage of total income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>14.3</td>
<td>15.1</td>
<td>48.6</td>
</tr>
<tr>
<td>1979</td>
<td>27.4</td>
<td>32.8</td>
<td>45.5</td>
</tr>
<tr>
<td>1987</td>
<td>37.4</td>
<td>26.2</td>
<td>58.8</td>
</tr>
<tr>
<td>1999</td>
<td>44.3</td>
<td>120.1</td>
<td>26.9</td>
</tr>
<tr>
<td>2003</td>
<td>59.2</td>
<td>122.6</td>
<td>32.6</td>
</tr>
</tbody>
</table>
Figure XIV.11

Total income and expenditures per operator household, by household size, 1999 and 2003

<table>
<thead>
<tr>
<th>Household size</th>
<th>Total Income, 1999</th>
<th>Total expenditures, 1999</th>
<th>Net diff. 1999</th>
<th>% of income 1999</th>
<th>Net diff. 2003</th>
<th>% of income 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or fewer</td>
<td>60</td>
<td>22</td>
<td>34</td>
<td>38</td>
<td>63.3</td>
<td>30</td>
</tr>
<tr>
<td>Three to five</td>
<td>70</td>
<td>31</td>
<td>42</td>
<td>39</td>
<td>55.7</td>
<td>29</td>
</tr>
<tr>
<td>Five or more</td>
<td>68</td>
<td>23</td>
<td>43</td>
<td>45</td>
<td>66.2</td>
<td>24</td>
</tr>
</tbody>
</table>

INCOME AND WEALTH STATISTICS FOR SELECTED COUNTRIES

Figure XIV.12

Average income of farm and nonfarm households, 1967-2003, in $1,000 current prices

$1,000 current prices

|------|------|------|------|------|------|------|------|------|------|------|

$1,000 current prices

|------|------|------|------|------|------|------|------|------|------|------|

$1,000 current prices

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm</td>
<td>29.822</td>
<td>31.155</td>
<td>34.156</td>
<td>39.269</td>
<td>36.839</td>
<td>42.911</td>
<td>40.223</td>
<td>42.469</td>
<td>44.392</td>
<td>50.361</td>
</tr>
<tr>
<td>Non-farm</td>
<td>32.144</td>
<td>34.017</td>
<td>36.52</td>
<td>37.103</td>
<td>37.922</td>
<td>38.84</td>
<td>41.428</td>
<td>43.133</td>
<td>44.938</td>
<td>47.123</td>
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$1,000 current prices

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<tr>
<th>Year</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
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</thead>
<tbody>
<tr>
<td>Farm</td>
<td>52.562</td>
<td>59.734</td>
<td>64.347</td>
<td>62.223</td>
<td>63.983</td>
<td>65.761</td>
<td>68.506</td>
</tr>
<tr>
<td>Non-farm</td>
<td>49.693</td>
<td>51.855</td>
<td>54.842</td>
<td>57.135</td>
<td>58.208</td>
<td>57.852</td>
<td>59.067</td>
</tr>
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</table>

Figure XIV.13

Farm sector net cash income and income of farm households from off-farm sources, 1964-2003, in $ billion, current prices

<table>
<thead>
<tr>
<th>Year</th>
<th>Net cash farm income</th>
<th>Off-farm income</th>
<th>of which: Wages and salaries</th>
<th>1 in % of (1+2)</th>
<th>3 in % of 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>13.6</td>
<td>10.0</td>
<td>6.5</td>
<td>57.6</td>
<td>65.0</td>
</tr>
<tr>
<td>1969</td>
<td>17.8</td>
<td>15.1</td>
<td>8.8</td>
<td>54.1</td>
<td>58.3</td>
</tr>
<tr>
<td>1979</td>
<td>32.6</td>
<td>32.8</td>
<td>22.3</td>
<td>49.8</td>
<td>68.0</td>
</tr>
<tr>
<td>1987</td>
<td>52.6</td>
<td>56.3</td>
<td>28.2</td>
<td>48.3</td>
<td>46.5</td>
</tr>
<tr>
<td>1997</td>
<td>60.9</td>
<td>93.3</td>
<td>56.7</td>
<td>39.5</td>
<td>60.8</td>
</tr>
<tr>
<td>1998</td>
<td>57.3</td>
<td>106.4</td>
<td>65.2</td>
<td>35.0</td>
<td>61.3</td>
</tr>
<tr>
<td>1999</td>
<td>57.8</td>
<td>120.1</td>
<td>62.5</td>
<td>32.5</td>
<td>52.0</td>
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<tr>
<td>2000</td>
<td>56.7</td>
<td>113.9</td>
<td>63.9</td>
<td>33.2</td>
<td>56.1</td>
</tr>
<tr>
<td>2001</td>
<td>59.5</td>
<td>121.7</td>
<td>68.0</td>
<td>32.8</td>
<td>55.9</td>
</tr>
<tr>
<td>2002</td>
<td>50.7</td>
<td>131.6</td>
<td>80.8</td>
<td>27.8</td>
<td>61.4</td>
</tr>
<tr>
<td>2003</td>
<td>68.6</td>
<td>122.6</td>
<td>67.0</td>
<td>35.9</td>
<td>54.6</td>
</tr>
</tbody>
</table>

Figure XIV.14
Total, farm-related and off-farm income per household, by farm typology group, 2003, in $1,000


Figure XIV.15
Total, farm-related and off-farm income per household, by farm typology group, difference between 2003 and 1999, in $1,000


<table>
<thead>
<tr>
<th>$1,000</th>
<th>2003</th>
<th>Difference 2003 - 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Household Income</td>
<td>Earnings from Farm</td>
</tr>
<tr>
<td>All operator households</td>
<td>66</td>
<td>7</td>
</tr>
<tr>
<td>Limited-resource</td>
<td>9</td>
<td>-7</td>
</tr>
<tr>
<td>Retirement</td>
<td>43</td>
<td>-1</td>
</tr>
<tr>
<td>Residential</td>
<td>79</td>
<td>-6</td>
</tr>
<tr>
<td>Lower-sales</td>
<td>41</td>
<td>-1</td>
</tr>
<tr>
<td>Higher-sales</td>
<td>61</td>
<td>32</td>
</tr>
<tr>
<td>Large</td>
<td>100</td>
<td>61</td>
</tr>
<tr>
<td>Very large</td>
<td>227</td>
<td>183</td>
</tr>
</tbody>
</table>
Total, farm-related and off-farm income per household, by farm location, 2003 and increase 1999-2003, in $1,000

### Table XIV.1

Income and expenditures for farm and non-farm households by income class, 1999 and 2003, $

<table>
<thead>
<tr>
<th>Year</th>
<th>Income less expenditures</th>
<th>Nonfarm household income</th>
<th>Income minus expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>$20,611 13,345 13,294 15,215 19,093 20,781 21,930 24,464 35,178</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>$25,534 20,781 22,467 22,610 25,991 31,223 31,844 37,428 54,827</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Difference 2003 - 1999</th>
<th>Nonfarm household expenditures</th>
<th>Income minus expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>$5,927 7,436 9,173 7,395 6,898 10,442 9,914 12,964 19,649</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>$10,720 12,740 12,642 17,349 8,828</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Table XIV.2

Income and expenditures for farm and non-farm households by age class, 1999 and 2003, $

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Class</th>
<th>Farm household expenditures</th>
<th>Nonfarm household expenditures</th>
<th>Income less expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>Under 35</td>
<td>21,965 25,864 28,112 24,744 18,895</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Under 35</td>
<td>32,685 38,604 38,104 40,754 27,723</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difference 2003-1999</td>
<td>Under 35</td>
<td>$10,720 12,740 12,642 17,349 8,828</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

XIV.2 Italy

This section on income and wealth statistics for Italy covers three sources, the Ismea survey (directed specifically at agricultural households), the REA survey and the RICA-REA project (a business survey for the agricultural sector integrated with the Italian component of the European Commission’s farm accounts survey), and the Bank of Italy’s general survey of household income and wealth that includes agricultural cases.

XIV.2.1 The ISMEA survey

XIV.2.1.1 Overview

The Institute for Services in Agriculture and Agro-food Markets (Ismea) survey not only provides data on production practices and resource use in agriculture, but also the information needed to model farm household behaviour. The survey undertaken in 1996 was designed in collaboration with the Microsimulation-Unit of the University of Verona and fulfilled the mandate under which Ismea had to build an agri-food Input-Output (I/O) table. In addition, the data provided essential information to policymakers (at the regional, national and Communitarian level) and agricultural organizations for designing and judging various policies and programs that touch the farm sector or affect farm families. The provision of this information was also part of the policy mandate of Ismea. The aim of this section is to provide a detailed description of the Ismea survey and to discuss its utility with regard to monitoring the living conditions of the rural and farm population.

XIV.2.1.2 The survey

The Ismea survey was designed to collect statistical information on the behaviour of each member of the agricultural household and on the way that public and private resources were shared within the household. This would permit an empirical analysis of the household decision-making process with regard to these resources. In general, production, consumption and labour supply decisions are usually analysed separately in terms of the behaviour of producers, consumers, and workers, respectively. Agricultural households integrate all these usually separate decision-making units within a single institution. Therefore, it makes sense to analyse the linkage between income, consumption and labour supply within farm households.

XIV.2.1.3 The sample design

The Ismea survey was a probability weighted, stratified survey (by European Size Unit (ESU) and Farm Type) that collected information from 1,881 farms, 1,777 of which were household-farms. Appropriate sample weights (expansion factors) were available so that estimates for the entire population could be determined from the survey results.

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2 http://pilar.univr.it
3 The European Size Unit (ESU) is the indicator used by FADN to measure the economic dimension of a farm. It is based on the standard gross margins (SGM) attributed to the farm, that is on the potential gross margins producible in a farm with given structural characteristics. In 1995: 1ESU = 1200 ecu = 920.95 euro.
4 The classification of farms into types is based on the financial potential of the various agricultural activities of the farm and the combination of these activities.
5 The size of the Ismea survey is in line with the indications given by the Living Standards Measurement Study (LSMS) of the World Bank. The LSMS surveys tend to use small samples, often in the order of 1,600 to 3,200 households and rarely more than 5,000 households. Although larger samples would have smaller sampling error, it was judged by survey designers that non-sampling errors would increase more than concomitantly.
The collection units were the farms, defined in official statistics as the economical-technical unit composed of land (even if not contiguous), plant and tools, and where agricultural, animal and forestry production is undertaken by a person, company or agency which bears the risks.

Sampling was based on the Agricultural Census conducted in 1991 by the Italian National Statistical Institute (ISTAT). Farms below an economic size of 4 ESU were excluded. This removed those enterprises where the agricultural activity was either marginal or negligible. The universe was divided into 15 main farm types and three ESU classes on the basis of the census results. The sample was statistically representative at the macroregional level (north, center and south).

XIV.2.1.4 The questionnaire

The objective of the Ismea survey was to gather data about both the farm and the household that could be used to assess both the structure and the behaviour of the farm. Further, it was designed to evaluate the effects that various agricultural and rural policies had on household behaviour and welfare by using a collective household approach. A multi-topic questionnaire was designed to collect data on several dimensions of farm and household well-being, including consumption at the individual level, income, savings, financial wealth, governmental and intra-household transfers, education and housing (see Table XIV.3).

The design of the Ismea questionnaire was inspired by the questionnaires in use for farm production data collection (for example that used by the FADN/RICA-farm production), those on the consumption of household members (such as the one used by ISTAT), by the EU time budget and by the questionnaire used by the Bank of Italy to collect data on household incomes. The final result was a set of questions very close to those suggested by the LSMS to assess the welfare of rural households.

XIV.2.1.5 Production and factor use information are structured by activity

A peculiarity of the Ismea survey was that, in contrast to the questionnaire used by the FADN/RICA, the sections on production and on factor use were structured by activity. This level of detail was needed to build the Input-Output table of the agricultural sector.

XIV.2.1.6 From the farm operation to the farm household-firm unit perspective

Another important characteristic of the Ismea questionnaire was that the attention shifted from a traditional farm operation perspective to a farm household-firm unit perspective. For example, information on the social characteristics (gender, age, level of education, professional characteristics, etc.) not only of the farm operator but of all family members was collected. In addition, the questionnaire contained a stylized time sheet describing how much time each family member devoted to activities such as on- and off-farm work, household work, child care and pure leisure time. This type of information was very useful when the work roles and off-farm labour participation of different members of the family were analysed. In addition, the data gathered in the time budgets were also essential for estimating the full and extended household income (see Chapter X for a discussion of these concepts).

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6 That is, using models that explicitly take into account differing resource allocation decisions amongst the individuals of the same household.
7 The Living Standards Measurement Study, which was established by the World Bank in 1980.
8 The time sheet is comparable to that used by ISTAT in the “Multiscopo survey” and in the Communitarian survey on time budgets conducted by Eurisko.
XIV.2.1.7 An agricultural standard of living survey

The Ismea survey was designed to provide the information needed to assess not only the economic impact of policy programmes at the farm level, but also the socioeconomic impact at the farm household level. In other words, the survey was designed to assess the impact policy programmes had on the standard of living and economic welfare of farm households. In order to facilitate this, a module of questions gathering information on the quality of life and on other characteristics of farm households was added.

The first group of questions concerned housing characteristics. The responses to these questions were used to infer the standard of living of the agricultural household. The second group of questions collected detailed information on household consumption: the consumption of food, either bought from the market (recording both quantity and price) or grown on the farm, and the consumption of both semi-durable and durable goods (distinguishing between children and adult goods). Measurement of consumption was emphasized in the questionnaires because this kind of information allows a better estimate of household economic welfare than does information on income.

The first part of the questionnaire was complemented by a module containing questions on the intra-household decision-making process for both farm and household decisions with regard to household goods, intra-household transfers, subjective measures about the risk associated with future investments in agriculture and intentions about the future development of the farm. This information, not usually available in the traditional agricultural statistics, proved to be very useful, for example, in addressing problems such as modelling the intergenerational succession of household-farms, or the on- and off-farm labour decisions within the farm household.

The collection of data on household welfare was completed by a group of questions on household income (comparable to the survey on household income conducted by the Bank of Italy and by the European Community Household Panel), savings and financial investments of the family.

Table XIV.3 shows that the Ismea survey incorporates much of the information on the household that was suggested by the LSMS to analyse the quality of life of households. Annex 10 gives further details about the coverage of various types of surveys. The information gathered by the Ismea survey allows analysis of the standard of living of agricultural households. It is easy to see that information on non-farm enterprises run by the household members and on the services that they use is required to facilitate the study of living standards, not only of agricultural households but of all rural households.

XIV.2.1.8 From an agricultural to a rural living standard survey

Ismea is now planning a new socioeconomic survey, which will take place during 2006. The new survey intends to broaden its focus from an agricultural living standard to a rural living standard. The survey will be based on a double sampling, incorporating both agricultural and rural households, with between 9,000 and 10,000 units. The household data collected by the survey will be combined with detailed territorial statistics drawn from the GeoStarter database.
### Table XIV.3

**Modules in the Ismea survey**

<table>
<thead>
<tr>
<th>Module</th>
<th>Respondent</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section I</strong>: «General information about the household»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure, legal status, structural and other characteristics of the farm</td>
<td>Best informed farm member</td>
<td>Tenure, owned and rented land, physical size, altitude, etc.</td>
</tr>
<tr>
<td><strong>Section II</strong>: «Characteristics of the households and labour organization»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information on the family</td>
<td>Best informed family member</td>
<td>Social characteristics (gender, age, level of education, professional characteristics, etc.) and hours of labour worked by the household members</td>
</tr>
<tr>
<td>Information on wage workers (fixed and temporary)</td>
<td>Best informed farm member</td>
<td>Gender, hours of labour worked in high and low season, gross monthly wage by qualification?</td>
</tr>
<tr>
<td><strong>Section III</strong>: «Commercialization»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase of inputs and sales of farm products</td>
<td>Best informed farm member</td>
<td>Product marketing and institutional arrangements</td>
</tr>
<tr>
<td><strong>Section IV</strong>: «Production»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crops, livestock and products of livestock</td>
<td>Best informed farm member</td>
<td>Quantities produced, self-employed and processed products, stocks, sales and prices, premiums and subsidies</td>
</tr>
<tr>
<td>Other farm revenues</td>
<td>Best informed farm member</td>
<td>It collects information on farm revenues different from the sale of agric. products (machine hiring, custom work, land rents, production contracts, agri-tourism, insurance payments, etc.)</td>
</tr>
<tr>
<td><strong>Section V</strong>: «Factor use»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inputs and labour used for crops and livestock</td>
<td>Best informed farm member</td>
<td>Cash expenditure for inputs (fertilizers, other chemicals, seeds, feeds, water, oil and insurances) by activity and number of hours worked by family members, waged workers and machines.</td>
</tr>
<tr>
<td>Labour cost</td>
<td>Best informed farm member</td>
<td>Salaries paid</td>
</tr>
<tr>
<td>Other expenses</td>
<td>Best informed farm member</td>
<td>Overheads, environmental, etc.</td>
</tr>
<tr>
<td><strong>Section VI</strong>: «Investments and financial activities»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land and investments</td>
<td>Best informed farm member</td>
<td>Value of land capital and investments</td>
</tr>
<tr>
<td>Credits</td>
<td>Best informed farm member</td>
<td>Farm credits by type</td>
</tr>
<tr>
<td>Debts</td>
<td>Best informed farm member</td>
<td>Debts and loans by type</td>
</tr>
<tr>
<td><strong>Section VII</strong>: «The Household»</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing characteristics</td>
<td>Best informed household member</td>
<td>Type of dwelling. Durable goods owned (cars, televisions, bicycles, sewing machines, etc.) and percentage of use in the farm and in the household.</td>
</tr>
<tr>
<td>Time use</td>
<td>Head of household/principal respondent</td>
<td>On- and off-farm labour time per member of the household and time spent to reach the workplace by means of transportation. Sector of activity and expected reserve wage in agriculture or in other sectors.</td>
</tr>
</tbody>
</table>
### Module | Respondent | Subject
---|---|---
Household consumption | Best-informed household member | Annual consumption: List (value of durable goods distinguishing between children and adult goods)
| | Monthly consumption: List (value of semi durables goods)
| | Weekly consumption: Food quantity and prices of bought food and self-consumption
Responsibilities and intra-household decision | Best-informed household member | Who decide in farm, in family and out of farm. Separated income between wife and husband
Household goods | Best-informed household member | Hh header growths in farm. Time spent in family. Sons in farm. Farm inheritance and farm legacy
Intra-household transfers | Best-informed household member | Gifts, inheritance, familiar loans
Other information about the farm and the household | Best-informed farm member | Technology, bookkeeping. Subjective measures of risk, intentions about the future development of the farm
Income and savings | Best-informed household member | Monthly global household income and wife's income contribution; number of pensions preceptors and range of perceived pension; annual savings and investment in accounts, bonds, shares, financial funds

### XIV.2.2 The REA survey and the RICA-REA project

#### XIV.2.2.1 Overview

The REA survey is the Business survey for the agricultural sector in Italy that investigates the economic results of farms and the off-farm income of households involved in agricultural production. The survey, managed by Istat since 1997, is part of a general project (RICA-REA) within the National Statistical System (SISTAN). The RICA-REA is the result of the integration of the Italian FADN/RICA, conducted by the National Institute for Agricultural Economics (INEA), with the REA survey. As a result of an agreement sponsored by the Ministry of Agriculture that involves Regions and Autonomous Provinces in 2003, just one national survey is now conducted.

The survey produces statistical information that meets the needs of the National Accounts unit in Istat to satisfy the requirements of the European System of Accounts (ESA95) and to estimate agricultural household income. Economic aggregates of the agricultural sector have been directly estimated on a farm basis for the first time, paving the way for a comparison with economic results of industrial and services firms. Moreover, since the present survey is harmonized with the Farm Structure Survey (FSS), it is possible to integrate physical and monetary variables at the microeconomic level and to analyse farm performance in relation to their structural characteristics. Finally, with the microdata it is possible to investigate, for the first time, the multifunctionality of farms and their socioeconomic and environmental sustainability.

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9 [www.istat.it/strumenti/rispondenti/indagini/rea/indice_rea.html](http://www.istat.it/strumenti/rispondenti/indagini/rea/indice_rea.html)

[www.istat.it/strumenti/rispondenti/indagini/ricarea/ricarea02.htm](http://www.istat.it/strumenti/rispondenti/indagini/ricarea/ricarea02.htm)
This survey is an example of how official needs for information at the macrosector level can be combined with the increasing demand for statistical data at the microfarm level. The result has been achieved through an institutional agreement inside the Italian public administration, and has involved those public research institutes with interest in the subject.

**XIV.2.2.2 Survey characteristics**

REA is an annual survey, carried out through face-to-face interviews on a random sample of farms. Data are collected at the regional level by FADN/RICA, under the statistical responsibility of Istat.

The reference population, for estimation purposes, is the national population of farms of any typology and size, including exclusively zoo-technical farms. Since the 2002 reference period, the observation field has been restricted to the so-called European Union (EC) field, that excludes microfarms with less than € 2,066 of sales or farms with under one hectare of Agricultural Area Utilised (AAU).

The sample in the 2004 reference year contains about 25,000 farms and, following a panel criteria, is partially renewed over time. It is extracted from the database generated by the General Census of Agriculture which is updated by annual sample surveys.

**XIV.2.2.3 The questionnaire**

An innovative questionnaire has been introduced for the REA survey. Information is collected on the main economic phenomena going on inside the farm and the holder’s household using only a limited number of questions. Data are collected on:

1. Costs;
2. Revenues of the farm by kind of activity (principal and secondary activities);
3. Self-consumption by the household of the holder;
4. Consumption of farm products as inputs;
5. Stocks at the start and at the end of the reference year;
6. Buying and selling of capital goods;
7. Public and Common Agricultural Policy (CAP) subsides;
8. Labour force and costs of employees;
9. Holder and the holder’s household;
10. Off-farm income of the household members.

The REA questionnaire is just four pages long with the first page restricted to the analysis of costs: inputs for cultivation, animal breeding, energy consumption, administrative and functioning costs, interests and direct taxes on goods and production. In this respect, it includes a specific survey on costs necessary to compile the Italian Input-Output table.

An important section of the questionnaire is dedicated to the structure of the holder’s household and the income sources of its components. The overlapping of a unit of economic activity (the farm) and a unit of consumption (the household) allows a double level analysis: the farms’ economic performance coupled with the income distribution within households that are involved in agricultural production and have direct management of the farm.
XIV.2.2.4 From micro to macro estimates

Data on sampled farms allows estimations at different levels of aggregation: from typologies of farms and households (by dimensional classes, kind of activity, geographical location, income sources, types of farming, etc.) to the whole agricultural sector.

An example of national accounts aggregates estimated for the 2002 reference year, is shown in Tables XIV.4. Tables XIV.5(a) and XIV.5(b) are examples of analyses at the farm level of the income structure of the household and the opportunity for income brought about by multiple activities.

### Table XIV.4
Farms economic results (a) – Years 2002

<table>
<thead>
<tr>
<th>ECONOMIC VARIABLES</th>
<th>Farms</th>
<th>Farms with more than 5 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute values</td>
<td>%</td>
</tr>
<tr>
<td><strong>Absolute values (thousand of units)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farms (b)</td>
<td>1 838</td>
<td>459</td>
</tr>
<tr>
<td>ULA (c)</td>
<td>1 295</td>
<td>641</td>
</tr>
<tr>
<td>Dependent ULA (d)</td>
<td>164</td>
<td>126</td>
</tr>
<tr>
<td><strong>Absolute values (millions euro)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production (c)</td>
<td>32 095</td>
<td>24 383</td>
</tr>
<tr>
<td>- Turnover</td>
<td>27 232</td>
<td>20 542</td>
</tr>
<tr>
<td>Intermediate costs</td>
<td>13 772</td>
<td>10 479</td>
</tr>
<tr>
<td>Value added (c)</td>
<td>18 323</td>
<td>13 904</td>
</tr>
<tr>
<td>Labour cost</td>
<td>2 412</td>
<td>1 935</td>
</tr>
<tr>
<td>Gross operative margin (GOM)</td>
<td>14 911</td>
<td>11 969</td>
</tr>
<tr>
<td>Other net profits</td>
<td>619</td>
<td>317</td>
</tr>
<tr>
<td>Social contributions due by operators and families</td>
<td>1 333</td>
<td>833</td>
</tr>
<tr>
<td>Gross management result (GMR)</td>
<td>15 197</td>
<td>11 453</td>
</tr>
<tr>
<td><strong>Average farm values</strong></td>
<td></td>
<td>Ratios</td>
</tr>
<tr>
<td></td>
<td>(units)</td>
<td></td>
</tr>
<tr>
<td>ULA (b)</td>
<td>0.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Dependent ULA (d)</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>(euro)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production (c)</td>
<td>17 474</td>
<td>53 090</td>
</tr>
<tr>
<td>- Turnover</td>
<td>14 826</td>
<td>44 727</td>
</tr>
<tr>
<td>Intermediate costs</td>
<td>7 498</td>
<td>22 817</td>
</tr>
<tr>
<td>Value added (c)</td>
<td>9 976</td>
<td>30 272</td>
</tr>
<tr>
<td>Labour cost</td>
<td>1 313</td>
<td>4 214</td>
</tr>
<tr>
<td>Gross operative margin (GOM)</td>
<td>8 663</td>
<td>26 059</td>
</tr>
<tr>
<td>Other net revenues</td>
<td>337</td>
<td>691</td>
</tr>
<tr>
<td>Social contributions due by operators and families</td>
<td>726</td>
<td>1 813</td>
</tr>
<tr>
<td>Gross management result (GMR)</td>
<td>7 274</td>
<td>24 937</td>
</tr>
</tbody>
</table>

(a) Only individual farms and corporate farms.
(b) Unit of labour.
(c) Basic prices values.
Source: Istat – Business Survey on Farms (REA).
### Table XIV.5(a)

**Income and labour force employed in farms directly managed by households by classes of AAU – 2002**

<table>
<thead>
<tr>
<th>Classes of AAU (hectares)</th>
<th>Households with a directly managed on a farm and with off-farm incomes (%)</th>
<th>Number of household members working in farm (average by farm)</th>
<th>GOM per household member working in farm (euro)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total with independ. work</td>
<td>With dependent work</td>
<td>With pensions</td>
</tr>
<tr>
<td>Less and equal 1</td>
<td>84.2</td>
<td>18.8</td>
<td>36.9</td>
</tr>
<tr>
<td>1-5</td>
<td>74.4</td>
<td>16.5</td>
<td>29.5</td>
</tr>
<tr>
<td>5-20</td>
<td>59.5</td>
<td>14.3</td>
<td>21.4</td>
</tr>
<tr>
<td>20-50</td>
<td>49.1</td>
<td>15.8</td>
<td>15.4</td>
</tr>
<tr>
<td>More than 50</td>
<td>32.2</td>
<td>7.8</td>
<td>11.0</td>
</tr>
<tr>
<td>Total</td>
<td>72.9</td>
<td>16.7</td>
<td>29.5</td>
</tr>
</tbody>
</table>

*Source: Istat – Business Survey on Farms (REA).*

### Table XIV.5(b)

**Composition of total income of households managing mono- and multiactive farms by income source and by classes of AAU – 2002 (%)**

<table>
<thead>
<tr>
<th>Classes of AAU (hectares)</th>
<th>Income source</th>
<th>Household managing mono-active farms</th>
<th>Household managing multi-active farms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Strict agricultural activity</td>
<td>Secondary activities connected to agriculture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less and equal 1</td>
<td>21.8</td>
<td>-</td>
<td>14.9</td>
</tr>
<tr>
<td>1-5</td>
<td>37.6</td>
<td>-</td>
<td>10.8</td>
</tr>
<tr>
<td>5-20</td>
<td>71.5</td>
<td>-</td>
<td>5.9</td>
</tr>
<tr>
<td>20-50</td>
<td>91.2</td>
<td>-</td>
<td>2.1</td>
</tr>
<tr>
<td>More than 50</td>
<td>96.9</td>
<td>-</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>57.6</td>
<td>-</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Source: Istat – Business Survey on Farms (REA).*
XIV.2.2.5 Conclusions and final recommendations

The examples used in this section have suggested some potential uses of the REA survey microdata. A business survey, similar to REA, for the agricultural sector can be a suitable tool, at least in the European context, for micro and macroanalysis applied to agriculture. Nevertheless, some conditions have to be satisfied in order to establish a reliable and useful database without significantly increasing the response burden for agricultural holders:

- business surveys should include farms without a relevant amount of agriculture production but important for rural development monitoring;
- business surveys should be carried out on a random sample to avoid significant bias due to voluntary sample designs;
- business and structural surveys should be coherent with respect to the definitions of statistical units and common structural variables used to obtain consistent estimates;
- in the case of non-overlapping samples, the business survey must collect a minimum set of structural variables useful for calibration to the structural survey results and for microeconomic analysis.

XIV.2.3 Survey of Household Income and Wealth

The microdata collected in national Surveys of Household Income and Wealth or in Household Budget Surveys can be of help in analysing the economic well-being of rural and agricultural households. Moreover, this microdata can help to identify those individuals or households groups, within the rural community, which have a low enough standard of living to be potential beneficiaries of rural and agricultural policies aimed at alleviating poverty.

In this section, a distributive analysis of income, consumption and wealth of Italian agricultural and rural households is presented.

XIV.2.3.1 The data

The following analysis relies on data from the Historical Archive (HA) of the Survey of Household Income and Wealth (SHIW) conducted by the Bank of Italy, covering the years 1995, 1998, 2000 and 2002. The survey was originally designed to collect data on incomes and savings. However, over the years the range of collected data expanded to the extent that wealth (both in terms of real assets and financial assets) and other information relevant for analysing the economic and financial behaviour of Italian households became available. Presently the sample covers more than 8,000 households and 21,000 individuals.

The variables used to analyse the economic situation of the households are income, consumption and wealth. Household income comprises income from work (whether as an employee or self-employed), pensions, public assistance, private transfers, income from real properties, the imputed rental income from owner-occupied dwellings, and interest on financial assets net of interest paid on mortgages. All components are recorded net of taxes and social security contributions. Household consumption is given by the sum of expenditures on durables (transport equipment, furniture, etc.) and non-durables goods. Household wealth is calculated from the sum of real (property, companies, and valuables) and financial assets (deposits, government securities, equity, etc.), net of financial liabilities (mortgages and other debts).

In the following analysis, all the economic variables are expressed in constant 2000 prices, using the consumer price index as the deflator. Observations are weighted by using adjusted weights, available in the...
HA, obtained by post-stratifying the samples to re-establish the marginal distributions of components by sex, age group, type of job, geographical area and the demographic size of the municipality of residence, as registered in population and labour force statistics. These weights provide greater stability when comparing results from different years.

Rural and agricultural households

So far a common concept of what constitutes a rural area has not been developed at the EU level. To collect statistics on the main economic, social and environmental features of rural areas, though, we need to have an approximation of the area defined as rural and which may, therefore, be the recipient of rural policy. Following the example recently given by the European Commission, the OECD definition that identifies local areas (municipalities) as rural if the population density is below 150 inhabitants per square kilometre was applied. This definition has proven to be useful in making international comparisons of rural conditions and trends. Unfortunately, this information on the population density of the municipality in which households in the SHIW reside is available only for the year 2002. For the purposes of this section, this group is called the Rural Household Group.

In addition to this rural household group, two other groups of households have been identified. Both of these have strong agricultural involvement.

The first group encompasses those households that are identified by applying the so-called “broad” definition of an agricultural household. These are those households that derive some income from independent activity in agriculture (other than income solely in kind). This income can arise from activity of the head of household or any other member (see Chapter IX of this Handbook for a fuller discussion of the definition of the agricultural household-firm). For simplicity, this group is called the Farm Household Group.

In Italy, around 40% of the total agricultural workforce is composed of salaried workers. In countries with a high share of salaried workers in agriculture, like Italy, it is important to monitor not only the economic situation of the farm households but also that of the agricultural wage worker households. As a consequence, a second group of agricultural households has been identified, comprising those households that derive some income from salaried activity in agriculture. This group is termed the Agricultural Dependent Household Group.

XIV.2.3.2 Economic conditions of rural and agricultural households

The sample sizes of the three groups of households identified above (the farm household, the agricultural dependent household and the rural household) is shown in Table XIV.6.

The top three charts in Figure XIV.17 show the evolution from 1995-2002 of the levels of three variables (income, consumption and wealth) for five groups of Italian households. These household groups are:

- Total households;
- Total self-employed households;
- Rural households;

On average, the share of salaried workers within the total agricultural workforce in the EU25 is around 24%. Apart from Italy, EU countries in which salaried work is particularly important are the Czech Republic (78%), Finland (78%) and Slovakia (55%). In addition, in Denmark, Germany, Spain and the Netherlands salaried workers constitute more than one third of the total labour input to agriculture.
- Farm households;
- Agricultural dependent households.

The last three are those groups previously defined. By combining these household groups into one chart, visual comparisons can easily be made. Note that data for rural households are only available for the year 2002.

It can be seen that the agricultural dependent households are disadvantaged relative to the other household groups. They record the lowest values on all three variables of income, consumption and wealth for every year of the study period. Conversely, farm households are better off than the Italian average household on all variables, with the largest difference being in the wealth category. This confirms the results of previous analysis (ISTAT, 1998; Eurostat, 1998). It is interesting to note that farm households appear to be better off even than the Italian self-employed group for some years of the study period (and for wealth they are better off in every year). An additional characteristic of the farm households is that they have a higher variability than in the rest of the household groups for all the variables. This is mainly due to unpredictable weather and the biological risks inherent in agricultural production. A final feature of farm households, mentioned earlier, that should be emphasised is that they show levels of wealth much higher than the rest of the Italian households. This is mainly due to the ownership of physical farm assets, the most important of which is the ownership of land.

The 2002 data of rural non-agricultural household type shows results that are very close to the average Italian household for all the variables.

The last two charts in Figure XIV.17 show the results for the income and consumption variables in adult equivalents. In order to perform inter-household comparisons, as it is usually done when a poverty analysis is undertaken, we need to convert households differing in size and composition into adult equivalents (see Chapter IX). This conversion has been done by applying the OECD modified equivalence scale. Distribution is thus measured across adult equivalents, attributing to each person the equivalent income and consumption of the household to which he or she belongs.

It is interesting to note that when the differences in household size and composition are taken into account, the differentials among income and consumption levels of the farm and non-farm household types tend to shrink.

However, the relative disadvantage of the agricultural dependent households observed previously is confirmed even when differences in household size and composition are accounted for. Conversely, the relative position of the rural household type worsens both in terms of income and consumption. Finally, it is interesting to note that in terms of both income and consumption, farm households are no longer better off than the self-employed household group in most years.

Inequality and poverty

A summary statistic that can be used to characterise the distribution of incomes within a group is the Gini coefficient (or index) (see Chapter XI for a fuller explanation of the Gini coefficient). The higher the Gini index, the more unequal (or more concentrated) is the distribution. In this section, the Gini index is used to analyse the distribution of the three economic variables within each household group.

---

11 This scale assigns value 1 to the first adult, 0.5 to any other person aged 14 or older and 0.3 to any person younger than 14.
The data reported in Figure XIV.18 show that the large variability previously observed in the levels of income and consumption in the farm household group is matched by a large variability in the distribution of these variables. Due to the extreme fluctuations it is difficult to define the relative position of farm households in distributive terms. For example, the concentration of their income is approximately equal to the other household groups in 1998 and 2000 but is much higher in 1995 and 2002. In terms of consumption, the concentration of distribution is higher in the farm household group than all others for every year of the study period. This pattern is even more pronounced when the size and composition of households is taken into account (as shown in the “Equivalent consumption” chart). Apart from 1998, farm households’ wealth concentration is lower than in the rest of the household groups. Finally rural households present a lower concentration of both equivalent income and equivalent consumption (i.e. when the size and composition of households are taken into account) relative to the rest of the population.

In order to measure the incidence of poverty a poverty line must first be established. A poverty line is the minimum standard of living achieved before a person or household is no longer deemed to be “poor.” For the purposes of this section, the poverty line has been set at 50% of the median equivalent income.

Figure XIV.19 shows the proportion of households in each household group that fall below the poverty line. Apart from the agricultural dependant household group, the data show that the incidence of poverty is more or less the same across the different household groups. Moreover, the incidence of poverty tends to decrease over the study period. Over the period, the proportion of the agricultural dependant household group below the poverty line appears to have been higher than the rest of the groups under analysis, in some years more than double. However, this finding should be treated with caution, as the costs of some important consumption items may be lower for farm households (though for others it may be higher).

The effect of relatively high income variability in the farm household group can even be seen in this index. In 2000, the fall in farm household income, mainly due to the fall in farm net income, manifested itself in a rise in the poverty rate amongst this household group to 23.4%.

**XIV.2.3.3 Conclusion**

This section has demonstrated how the data collected in national Household Budget Surveys can be used to perform distributive analyses of the rural and agricultural population. By making use of data on income, consumption and wealth, the relative position in terms of economic well-being of different household groups can be assessed and the possible presence of poverty or low-income detected.

An advantage of Household Budget Surveys in regard to activity-specific data sets is that the economic situation of rural and agricultural dependent households can be studied and monitored and directly compared to that of farm households. This is particularly important for Italy with its relatively high share of agricultural dependent households.

There are, however, some limitations imposed by the use of Household Budget Surveys. The most important limitation is that Household Budget Surveys do not provide information on the type of farm business run by the household. As a consequence, while the overall economic well-being of farm households can be monitored, it is not possible to detect the impact that specific farm business types have, for example, on low-income or poverty among that group.
Table XIV.6
Italian households and individuals by household type

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hholds %</td>
<td>Individ. Hholds %</td>
<td>Hholds %</td>
<td>Individ. Hholds %</td>
</tr>
<tr>
<td>Farm</td>
<td>144 1.77</td>
<td>557 78 1.09</td>
<td>290 124 1.55</td>
<td>441 113 1.41</td>
</tr>
<tr>
<td>Agr. dependent</td>
<td>132 1.62</td>
<td>495 155 2.17</td>
<td>589 192 2.40</td>
<td>691 192 2.40</td>
</tr>
<tr>
<td>Rural non-agricultural</td>
<td>1,111 13.9</td>
<td>3,049 7147 100</td>
<td>20901 8,001 100</td>
<td>22,268 8,011 100</td>
</tr>
<tr>
<td>Total population</td>
<td>8,135 100</td>
<td>23,924 7147</td>
<td>20901 8,001</td>
<td>22,268 8,011</td>
</tr>
</tbody>
</table>


Figure XIV.17
Household and equivalent income, consumption and wealth, Italy, 1995 to 2002

Source: Salvioni and Colazilli, 2005.
Figure XIV.18
Gini index on household and equivalent income, consumption and wealth, Italy, 1995 to 2002


Figure XIV.19
Headcount ratio on household and equivalent income and consumption, Italy, 1995 to 2002

XIV.3 Denmark – register based agricultural income statistics

[Editor’s note: Readers should be aware that interest payments in Denmark represent a uniquely large share of the cost faced by farmers among the Member States of the European Union. This is linked to the way in which agricultural assets are transferred between generations that, typically, involve sales from parents to children. In order to support the high interest burden that results from the credit taken to purchase these assets by family successors there is a tendency for the spouses of Danish farmers, and frequently the farmers also, to work full-time or part-time outside agriculture, particularly in the early years of succession. This in turn has some impact on the choice of farming enterprise, since some forms of production (such as cereals) are more compatible with part-time activity than others (such as dairying). The high burden of interest payments (which often leads to negative profits from the farm business) and the treatment of interest in the taxation system of Denmark means that there is an emphasis on measuring income before interest charges. It also means that when households are classified according to their main income source (which, for farming, would normally be after deducting interest charges associated with the business), numbers of agricultural households appear to be disproportionately small. Further discussion is contained in Eurostat (2002).]

XIV.3.1 Introduction

For many years, Statistics Denmark has compiled agricultural household income statistics, partly to accord with an agreement with Eurostat for EU statistics and partly to provide domestic information. A main objective for Eurostat’s Income of the Agricultural Households Sector (IAHS) statistics is to compare agricultural household income with the income of other socio-professional households, while the main objective for the domestic statistics is to show differences between different types of farming.

The household income statistics are based on a combination of registers of persons, households, income and agricultural holdings. The methodology is further described in section XIV.3.2 below. The statistics for Eurostat are presented in section XIV.3.3. In section XIV.3.4 the income situation for different types of agricultural holdings and other subgroups of farms is presented. Finally, the issue of wealth is introduced with the presentation of figures from the Danish Farm Accountancy Data Network (FADN) statistics. The FADN statistics include information on the assets and debts of family farms.

XIV.3.2 Combining of registers and income information

The statistics introduced here are based on registers of agriculture, households and income. The income register is basically information from tax authorities, which provide Statistics Denmark with data on different kinds of income of all relevant inhabitants. Furthermore, there is information on tax, interest and social contributions. Information on disposable income can be calculated from these data.

The income register contains information on the kind of economic activity undertaken by the individual, for example, whether the individual is an employer (broken down by line of business) or an employee.

The household register records information on individuals belonging to a household unit. From these data the number of households and the number of consumer units (CU) can be calculated. The principal, or head, of the household unit counts as 1 CU, other adults within the household count as 0.7 CU

---

and children in the household count as 0.5 CU. The key to the income register is the personal ID-number of the individual.

The agricultural register is the Farm Structure Survey (FSS) register. This contains the annual sample of approximately 50,000 farms in Denmark that have more than five hectares of land or are of similar economic size in terms of production. The register includes, for example, information on the type of farming, standard labour hours, farm location and the age of the farmer. As a result, several subgroups can be delineated.

Almost all farms in the FSS (more than 98%) are associated with an individual owner who has a Danish ID-number. It is the presence of this ID-number that facilitates linkage to the other registers. Using the sample to represent the whole population of farm holdings, a specific income statistic on farmers can be compiled. Moreover, farm income can be broken down by subgroup.

In the full dataset, the following variables are compiled:

A. Income from agriculture (calculated according to tax regulations)
B. Income from other enterprises (calculated according to tax regulations)
C. Remuneration of owner-occupied dwellings
D. Wages and salaries
E. Property income (including interest from financial assets)
F. Social benefits received (including pensions)
G. Total income (A+B+C+D+E+F)
H. Interest on loans
I. Tax on income and capital
J. Social contributions, including savings for retirement
K. Disposal income (G-H-I-J)

In cases where farmers (known from the farm register) have other businesses in addition to farming, the allocation of income is based on the most important business.

In addition, the remuneration from owner-occupied dwellings, calculated as a percentage of the value assessed by the public authority, is not taken into account in the specific Danish statistics as almost all farmers own their dwelling. Therefore, the artificial calculation used to improve comparability between owned and rented dwellings is not relevant.

Finally, it should be mentioned, that the variables do not include all the specifications listed in the questionnaire from Eurostat. However, it generally covers the overall framework.

XIV.3.3 Comparison between farmers and other professional groups

One of the main reasons for compiling agricultural household income statistics is to analyse the situation in terms of the targets set out in the EU’s Common Agricultural Policy (CAP), namely to ensure a fair income among farmers and their families. To make any assessment of this kind a comparison with other groups is necessary. In Table XIV.7, figures comparing farmers to other socio-professional groups within Denmark are presented.

It is important to note, that the definition of farmers in this context is the “narrow” definition, where only families whose main income comes from farming are included (see Chapter IX of this Handbook). This number (approximately 15,000 in 2002) represents only about 30 per cent of the total
number of “farmers” in Denmark. It should be further noted, that the number of farms defined as “full-time” farms in 2002 was approximately 23,000. The discrepancy in the numbers indicates that about one third of full-time farm could not fulfil the income criteria of the “narrow” definition that year.

Looking at the results, it is difficult to make comparisons of the income composition on all the variables. In particular, because profit from agriculture and other businesses do not include a deduction for interest related to the business. However, looking at the bottom line, the farmers’ net disposable income (202,000 DKK per household in 2002) is among the lowest of all the groups. This is particularly important in light of the fact that farm households had the highest consumer units per household.

Looking at the composition of income, it can be seen that households with employers as the main person providing income still have a relatively high income from wages and salaries. This suggests that the spouse of the employer often works for wages outside of the family business. Furthermore, the figures show that, amongst all employers and own-account workers, farmers have the highest level of interest payments. This indicates that debts (probably related to high capital input) are very high for farm households.

**XIV.3.4 Comparison between different types of farms**

In the Danish context, the compilation of agricultural household income is seen as an important supplement to the Economic Accounts of Agriculture, because agricultural activity is very rarely the only income generating activity for the farm family. In fact, part-time farmers (where the standard labour input to the farm is less than one work unit), account for more than half of all farmers in Denmark. In 2002, part-time farms constituted 53% of all farms in the Farm Structure Survey.

Figure XIV.20 shows disposable income broken down by full-time and part-time farms. It can be seen that part-time farmers, in general, have a higher disposable income than full-time farmers. Furthermore, there was a steep decrease in the disposable income for full-time farms in 2002. The figures are in the Annex to this section (Tables 1-3).

The disposable income for all farms in 2002 is 176,000 DKK. However, it was seen in the previous section that farms, using the “narrow” definition, had an income of 202,000 DKK. Corrected for the remuneration of own dwelling this figure is reduced to 191,000 DKK, still 15,000 DKK higher than for all farms.

Figure XIV.21 shows the composition of total income for agricultural households. It can be seen that less than the half of total income is derived from agricultural activity. Income from wages and salaries is as important as agriculture – even before agricultural income has been reduced by any interest related to farming activities. This is a significant result.

However, it is very important to distinguish between full-time and part-time farms when analysing the composition of income. With full-time farms, almost 60% of total income in 2002 was derived from agricultural profit whereas it was only 7% for part-time farms. However, the portion from wages and salaries was 21% for full-time farms and 65% for part-time farms. Social benefits counted more for part-time farming households where the number of pensioners is relatively high.
Table XIV.7
Income and income composition by socio-professional group

<table>
<thead>
<tr>
<th></th>
<th>Farmers</th>
<th>Other employers</th>
<th>All employers</th>
<th>Manual employees</th>
<th>Non-manual employees</th>
<th>All others</th>
<th>All except farmers</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 DKK per household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit, agriculture</td>
<td>481</td>
<td>0</td>
<td>65</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Profit, other enterprises</td>
<td>3</td>
<td>420</td>
<td>364</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Remuneration of own dwelling</td>
<td>11</td>
<td>18</td>
<td>17</td>
<td>7</td>
<td>16</td>
<td>2</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>123</td>
<td>122</td>
<td>122</td>
<td>321</td>
<td>516</td>
<td>8</td>
<td>232</td>
<td>231</td>
</tr>
<tr>
<td>Property income</td>
<td>18</td>
<td>15</td>
<td>15</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Social benefits received</td>
<td>34</td>
<td>33</td>
<td>33</td>
<td>34</td>
<td>30</td>
<td>165</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Gross income</td>
<td>669</td>
<td>608</td>
<td>616</td>
<td>368</td>
<td>576</td>
<td>182</td>
<td>349</td>
<td>351</td>
</tr>
<tr>
<td>Interest on loans</td>
<td>264</td>
<td>99</td>
<td>121</td>
<td>29</td>
<td>48</td>
<td>7</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>Taxes on income and capital</td>
<td>124</td>
<td>171</td>
<td>165</td>
<td>96</td>
<td>176</td>
<td>47</td>
<td>97</td>
<td>97</td>
</tr>
<tr>
<td>Social contributions</td>
<td>79</td>
<td>89</td>
<td>88</td>
<td>46</td>
<td>69</td>
<td>4</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Net disposal income</td>
<td>202</td>
<td>248</td>
<td>242</td>
<td>197</td>
<td>283</td>
<td>125</td>
<td>189</td>
<td>189</td>
</tr>
</tbody>
</table>

Numbers, 1,000

| Households | 15 | 95 | 109 | 857 | 547 | 988 | 2486 | 2501 |
| Households members | 39 | 225 | 263 | 1,746 | 1,309 | 1,383 | 4,663 | 4,702 |
| Consumer units | 29 | 174 | 203 | 1,399 | 1,007 | 1,246 | 3,826 | 3,855 |

Per household

| Household members | 2.65 | 2.38 | 2.41 | 2.04 | 2.39 | 1.40 | 1.88 | 1.88 |
| Consumer units    | 1.99 | 1.84 | 1.86 | 1.63 | 1.84 | 1.26 | 1.54 | 1.54 |


Figure XIV.20
Disposable income for agricultural households, all farms

The main costs paid out of total income is shown in Figure XIV.22. It is obvious that interest is the most important element. In fact, interest is twice as high as taxes for all agricultural households. Looking at full-time farms, however, the interest is 3.4 times the taxes, while the taxes on a part-time farm are 25% higher than the interest. This difference is mainly explained by differences in debt which is, in turn, related to the farm capital input.
Looking at farms broken down by age of farmer (see Tables 4-6 in the Annex), there is a tendency for older farmers (up to 60 years) to have a slightly decreasing portion of their total income derived from agriculture and an increasing portion of their income derived from wages and salaries and from property income. On the expenditure side, it is significant that interest payments lower with age while taxes increase.

These patterns hold for both full-time and part-time agricultural households. However, when comparing income composition by age groups, it should be noted, that the family size of the agricultural households in the youngest and oldest groups is much smaller than in the other groups.

**XIV.3.5 Development of wealth in agricultural households**

Statistics Denmark has no specific statistics on wealth among agricultural households. However, The Danish Institute of Food Economics is compiling Farm Account Data Network (FADN) statistics on Denmark. This FADN framework means that some information on wealth by household will be available even though it will not be possible to get full information on all farms.

**Table XIV.8**

*Assets and liabilities: Age groups, full-time farms, 2003*

<table>
<thead>
<tr>
<th>Farmer's age, years</th>
<th>-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance in the end of the year</td>
<td>1,000 DKK per farm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural assets</td>
<td>11,071</td>
<td>10,981</td>
<td>10,480</td>
<td>8,890</td>
<td>9,005</td>
</tr>
<tr>
<td>Other physical assets</td>
<td>1,313</td>
<td>1,654</td>
<td>1,865</td>
<td>1,588</td>
<td>1,656</td>
</tr>
<tr>
<td>Financial assets</td>
<td>649</td>
<td>756</td>
<td>1,060</td>
<td>971</td>
<td>1,662</td>
</tr>
<tr>
<td>Assets Total</td>
<td>13,033</td>
<td>13,394</td>
<td>13,405</td>
<td>11,449</td>
<td>12,322</td>
</tr>
<tr>
<td>Bond loans</td>
<td>7,728</td>
<td>6,872</td>
<td>5,688</td>
<td>4,310</td>
<td>3,282</td>
</tr>
<tr>
<td>Bank loans</td>
<td>1,944</td>
<td>1,476</td>
<td>1,402</td>
<td>1,059</td>
<td>701</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>873</td>
<td>738</td>
<td>620</td>
<td>504</td>
<td>518</td>
</tr>
<tr>
<td>Debt capital, total</td>
<td>10,545</td>
<td>9,086</td>
<td>7,710</td>
<td>5,873</td>
<td>4,501</td>
</tr>
<tr>
<td>Net capital</td>
<td>2,487</td>
<td>4,308</td>
<td>5,695</td>
<td>5,576</td>
<td>7,821</td>
</tr>
<tr>
<td>Ratio of debts</td>
<td>80.9</td>
<td>67.8</td>
<td>57.5</td>
<td>51.3</td>
<td>36.5</td>
</tr>
</tbody>
</table>

*Source: Agricultural Account Statistics 2003, Danish Institute of Food Economics*

However, statistics on the assets and debts of full-time farms are available. The assets and debts of full-time farms, for five age groups, are shown in Table XIV.8. It is important to note that the market value of the farm is based on public assessment and can be over- or underestimated. Nevertheless, the figures in the table clearly indicate that there is a consistent gain of net capital during the life of the farmer, with an increase in net capital from approximately 2.5 million DKK for young farmers to 7.8 million DKK in the oldest group, even though they have broadly similar total assets. From a lifetime income perspective this substantial gain of capital is important, particularly when comparing income in the agricultural sector with the income in other groups.
XIV.4 Sweden – another example of register based statistics

XIV.4.1 Introduction

Sweden provides another example of how registers can be used for calculating agriculture household income. Data are extracted from the following three registers:

- **The Farm Register (LBR)** which changed somewhat in 2000, resulting in a slight reduction in the number of operators per farm and a sharp reduction in the number of old operators.

- **The Register of Total Income Statistics (IoT)**, which contains information for the whole Swedish population, with unique personal identifiers, about income, deductions, taxes and social transfers.

- **The Register of the Total Population (RTB)**. As of 1999, the household concept was changed for the calculation of IAHS. Previously, only the operators and the spouse were included. In the new concept a maximum of two generations are included provided they are related to each other and are registered at the same address.13

XIV.4.2 Agriculture household income 1999-2002

In 2002, the average agriculture household income, before transfers, amounted to about 314,000 SEK, of which net income from self-employment (including interest adjustment for the self-employed) amounted to 23% (see Table XIV.9). This share was only slightly above the corresponding share in 2000 when the new family concept was adopted. While net disposable income increased by 18% in the period 1999-2002, the household income before transfers only rose by 11%. Wages and salaries rose by 14% while income from self-employment surged by 29%. This was partly offset by a fall of 35% in net capital income.

Average net disposable income for agricultural households amounted to just over 90% of average net disposable income for all households. Its share rose, however, by about three percentage points in the period 1999-2000.

XIV.4.3 Agriculture household income according to IAHS – comparison between socio-economic groups

IAHS data for Sweden are available for 1999 and 2000. Of a total population of 75,281 agricultural households (“broad” definition) (or about 1.6% of all households in Sweden), 18,339, or 24% of all agriculture household and 0.4% of all households, fulfilled the IAHS criteria for the “narrow” definition.

In 2000, the average agricultural household (“narrow” definition) net disposable income amounted to about 213,000 SEK. This compares with 203,000 SEK for other self-employed, 233,000 SEK for employees, 220,000 SEK for all farm households (“broad” definition) and 189,000 SEK for all households (see Table XIV.10 and Figure XIV.23). Households with only employees thus had 23% higher net disposable income than the average of all households, the category all farm households were 16% better off, farmers (“narrow definition”) +13% and other self-employed +7%. On the other hand, the growth in net income

---

13 There is no information about couples living together but not having common children. This results in an overestimation of single-person households.
disposable income between 1999 and 2000 was, compared with all households, twice as large or more for farmers (both “broad” and “narrow” categories) and other self-employed.

Of total resources received, net operating surplus from independent activity, but excluding owner-occupied housing, amounted to 60% for farmers with the “narrow” definition, 62% for other self-employed and 18% for all farmers.

Looking at the distribution of average farm household (“narrow” definition) income by the three major regions of Sweden, there are rather marginal differences (see Figure XIV.24). However, when household income distribution is broken down by farm size it is a different story. Average household income for farms with 200 or more hectares is twice that of households with farm size of 5-10 hectares and of 10-20 hectares (see Figure XIV.25).

As would be expected average household income peaks for operators in the age group 40-49 years and is lowest in the age group 30-39 years (see Figure XIV.26).

Statistics Sweden and the Swedish Board of Agriculture have not published IAHS statistics for the years 2001 and 2002 as the calculations of owner-occupied housing, with the method applied, is considered to be misleading. This is mainly due to the evolving differences in the tax evaluations of houses on farms, compared with other houses.

Table XIV.9

Agriculture household income after transfers, 1999-2002. Average per household in Swedish kronor

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2001</th>
<th>2000</th>
<th>1999</th>
<th>%, 99-02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wages and salaries</strong></td>
<td>246,100</td>
<td>235,200</td>
<td>226,400</td>
<td>215,300</td>
<td>14.3</td>
</tr>
<tr>
<td><strong>General deductions</strong></td>
<td>4,300</td>
<td>4,300</td>
<td>4,200</td>
<td>3,600</td>
<td></td>
</tr>
<tr>
<td><strong>Net income from self-employment</strong> (including agriculture)</td>
<td>52,400</td>
<td>51,200</td>
<td>45,900</td>
<td>40,600</td>
<td>29.1</td>
</tr>
<tr>
<td>Changes in expansion capital</td>
<td>20</td>
<td>1,200</td>
<td>1,700</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td><strong>Net capital income</strong></td>
<td>19,700</td>
<td>22,900</td>
<td>29,000</td>
<td>30,400</td>
<td>-35.2</td>
</tr>
<tr>
<td><strong>of which Net interest adjustment for self-employed</strong></td>
<td>19,700</td>
<td>19,700</td>
<td>18,600</td>
<td>16,300</td>
<td></td>
</tr>
</tbody>
</table>

**Household income before transfers**

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2001</th>
<th>2000</th>
<th>1999</th>
<th>%, 99-02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net income from self-employment</strong> (incl. of which Net interest adjustment for self-employed) as a percentage of household income before transfers</td>
<td>23.0</td>
<td>23.2</td>
<td>21.6</td>
<td>20.1</td>
<td></td>
</tr>
</tbody>
</table>

**Positive transfers**

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2001</th>
<th>2000</th>
<th>1999</th>
<th>%, 99-02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net disposable income</strong></td>
<td>225,520</td>
<td>216,000</td>
<td>205,500</td>
<td>190,400</td>
<td>18.4</td>
</tr>
</tbody>
</table>

**Net disposable income for all household with members of 18 years and over**

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2001</th>
<th>2000</th>
<th>1999</th>
<th>%, 99-02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Farm households as a percentage of all households</strong></td>
<td>91.2</td>
<td>89.8</td>
<td>86.0</td>
<td>88.6</td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0401.

Note: Data for all households (source: Statistics Sweden: Disponibel inkomst för samtliga hushåll 18-år, medelvärde, löpande priser, kr, efter hushållstyp, ålder och tid) are calculated from a different survey than farm households. Only a rough comparison can be made between the two sets of data.

*/ Net interest adjustment can be used by farmers and other self-employed in order to get corresponding taxation as other enterprises.
## Table XIV.10

Income for socio economic groups in 2000 according to IAHS definitions. Average per household in Swedish kronor

| Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0201. |
|---|---|---|---|---|---|---|
| 1a | Net operating surplus (mixed income) from independent agricultural and non-agricultural activities | Farmers (narrow definition) | Other self-employed | Employees | All other | Total | All farmers (wide definition) |
| 1b | From imputed rental value of owner-occupied dwellings | 26,900 | 19,600 | 16,000 | 4,200 | 13,100 | 26,300 |
| 1c | Compensation to members of agricultural households as employees, from agricultural and non-agricultural activity, i.e. wages and salaries | 52,000 | 67,600 | 315,800 | 10,400 | 186,900 | 169,800 |
| 2a | Imputed social contributions | 21,800 | 28,500 | 132,800 | 4,200 | 78,500 | 71,200 |
| 2b | Compensation to members of agricultural households as employees, from agricultural and non-agricultural activity, i.e. wages and salaries | 52,000 | 67,600 | 315,800 | 10,400 | 186,900 | 169,800 |
| 2c | Imputed social contributions | 21,800 | 28,500 | 132,800 | 4,200 | 78,500 | 71,200 |
| 3 | Net operating surplus (mixed income) from independent agricultural and non-agricultural activities | 227,500 | 291,600 | 4,200 | 1,300 | 11,600 | 79,100 |
| 4 | Current taxes on income and wealth | 78,800 | 150,000 | 106,300 | 53,600 | 86,400 | 86,900 |
| 5 | Social contributions | 76,800 | 95,700 | 161,300 | 7,700 | 98,200 | 106,100 |
| 6 | Miscellaneous inward current transfers | 2,700 | 5,200 | 2,700 | 1,800 | 2,400 | 3,000 |
| 7 | Total resources (sum of 1 - 6) | 380,600 | 472,900 | 520,200 | 192,900 | 388,400 | 428,900 |
| 8 | Net disposable income | 195,000 | 182,700 | 222,000 | 125,000 | 181,500 | 203,800 |
| 9 | Net disposable income | 195,000 | 182,700 | 222,000 | 125,000 | 181,500 | 203,800 |
| 10 | Net disposable income | 195,000 | 182,700 | 222,000 | 125,000 | 181,500 | 203,800 |
| 11 | Net disposable income | 195,000 | 182,700 | 222,000 | 125,000 | 181,500 | 203,800 |
| 12 | Net disposable income | 195,000 | 182,700 | 222,000 | 125,000 | 181,500 | 203,800 |
| 13 | Net disposable income | 195,000 | 182,700 | 222,000 | 125,000 | 181,500 | 203,800 |
| Percentage change 1999/2000 | 9.4 | 10.9 | 4.9 | 0.2 | 4.2 | 7.8 |
| Number of: | | | | | | |
| persons in the households | 47,364 | 272,925 | 5,845,825 | 2,705,462 | 8,871,576 | 194,223 |
| households | 10,400 | 11,900 | 5,800 | 9,700 | 7,500 | 10,300 |
| persons per household | 2.58 | 2.20 | 2.19 | 1.46 | 1.90 | 2.58 |

Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0201.

## Figure XIV.23

Index of net disposable household income 2000 by socio-economic groups, total households = 100.

Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0201.
Figure XIV.24
Index of average farm household net disposable income (narrow definition) by type of region in 2000. All farm households (narrow definition) = 100

Source: Ibid.
Region 1: Mainly farm land areas.
Region 2: Mainly forest areas.
Region 3: North Sweden.

Figure XIV.25
Index of average farm household net disposable income (narrow definition) by size of arable land in hectare in 2000. All farm households (narrow definition) = 100

Source: Ibid.

Figure XIV.26
Index of average farm household net disposable income (narrow definition) by the age of the operator in 2000. All farm households (narrow definition) = 100

Source: Ibid.
XIV.5 Canada

XIV.5.1 Gross and net revenues per farm – medium-sized farms have the highest operating margin

In 1996, almost half of all farms in Canada (234,390) reported net cash operating revenue of less than $10,000 and half of these reported losses. Table XIV.11 and Figure XIV.27 show the distribution of the number of farms, gross farm revenues and net cash operating revenue by size class of gross revenue in 1996 and 2001. It is interesting to note that while farms in the gross revenue class of $10,000-$49,999 increased their average net operating income from $1,541 to $2,297, an increase of 49%, farms in all the other revenue classes saw their income increase only by between 1% and 3.1%.

In 2001, farms with gross revenues of $500,000 or more, which made up 6.5% of all farms, accounted for almost 51% of aggregate gross revenues but for only 37% of aggregate net cash operating revenue. It is also interesting to note that their operating margin is lower than farms in all other gross revenue classes, except for that of the $10,000-$49,999 class. In fact, the highest operating margin, whether measured before or after capital cost allowance, is found among medium-sized farms, that is those with gross revenues of $100,000-$249,999.

XIV.5.2 Farm operators’ off-farm income exceeds net cash farm operating revenue

In the period 1993-2001, average net cash operating revenue from the farm and average off-farm income per operator have steadily increased (see Table XIV.12 and Figure XIV.28). Between 1993 and 1999, off-farm income for operators increased its share from 52% of total operator income (before capital cost allowance) to 58%. By 2001, however, it had dropped to just below 55%. While average off-farm income rose by almost 48%, average net cash farm operating revenue increased by only 34%, indicating that operators of farms with over $10,000 in gross revenue are getting increasingly dependent on off-farm income opportunities for their living.

Wages and salaries are the most important source of off-farm income

Wages and salaries are the most important source of off-farm income. In 2001, they accounted for 31% of total operator income (before capital cost allowance) and 56% of off-farm income. Wages and salaries are followed by investment income and pension income at 9% and 8% of total operator income (16% and 14.5% of off-farm income), respectively (see Table XIV.13 and Figure XIV.29).

Off-farm income as a share of total operator income (before capital cost allowance) is smaller for operators of larger farms

In general, off-farm income as a share of total operator income (before depreciation) is smaller for operators of larger farms. Operators of the smallest farms tend to use off-farm income to cover losses from the farm or, equally likely, operators of the smallest farms began with an off-farm job and have started a small hobby farm on the side. In 2001, off-farm income represented about 94% of total operator income.

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14 “Farms”, as published in Statistics Canada (1998) Economic Overview of Farm Incomes: All Farms, 1996 (Ottawa: Statistics Canada, Catalogue no. 21-005) (www.statcan.ca:8096/bsolc/english/bsolc?catno=21-005-X&CHROPG=1) refers to unincorporated farms with gross revenues of $10,000 or more plus incorporated farms with gross revenues of $25,000 or more (if 51% of more of their sales are generated by agricultural activities) plus communal farming operations such as Hutterite colonies.
The highest dollar amount from wages and salaries was earned by operators of very large farms followed by the smallest farms

The highest dollar amount from wages and salaries (about $24,600 in 2001, or about 63% of their reported total off-farm income) was earned by operators of larger farms (see Table XIV.13 and Figure XIV.29). This may be attributed to the fact that many farms in this size class are likely to be incorporated farms. Operators of incorporated farms receive the income from their farms in the form of wages and salaries or as dividends. The wage and salary expense reduces net operating revenue of the farm enterprise, while the wage and salary income increases the reported off-farm income of the farm operator. Note also the high amount of investment income (which includes the dividends paid by the corporate farm) received by operators of larger farms.

Operators of the smallest farms also receive a large amount in wages and salaries – about $17,400, or 57% of their total off-farm income. The lowest average earned level of wages and salaries was recorded by operators of farms with gross revenues of $100,000 to $249,999 - about $8,200, or 48% of their total off-farm income. The farmers in this category spend relatively more effort on their farms than other categories, which, as was seen above, also results in the highest operating margin.15

Investment income as a percentage of total off-farm income tends to increase by revenue size – for pension income it is the reverse

Investment income as a percentage of total off-farm income tends to be higher for operators of larger farms - 12% for the smallest category rising to 22% for operators of farms with revenues of $500,000 or more (see Figure XIV.29). As noted above, investment income of operators of larger farms would be expected to be higher, in part due to the dividends flowing from an incorporated farm to the operator. For pension income it is the reverse. For the largest farms, pension income represents only 5% of total off-farm income while it constitutes as much as 19% for the operators in the smallest farm category.

Non-farm self-employment income is fairly stable at between 5% to 7% of total income for operators in all farm categories.

XIV.5.3 Total farm family income increases steadily as a result of increasing off-farm income

Between 1996 and 2000, the total number of families associated with unincorporated farms (with gross revenue of $10,000 or more) declined continuously by almost 9% to just below 148,000 (see Table XIV.14). In the same period, the average operating income per farm family fell by 0.4% while the average off-farm income surged by over 24%. This resulted in an increase in average total income per farm family of almost 17%, reaching about $66,300 ($54,500 after deduction for capital costs). The share of total income represented by off-farm income rose from 69% in 1996 to 73.5% in 2000.

15 Note that the operating margins reported here are gross revenues minus cash expenses, including the wages paid to the operator and other family members. If these wages were classified as income, rather than an expense, then the calculated margins of the larger farms would be expected to be higher.
Increased payments from farm aid programs, as well as higher livestock and product revenues as a result of strong demand, limited the losses in average net farm operating income. The rise in average off-farm income was largely driven by a surge in labour income.

**Off-farm income exceeds 70% of total family income**

On average, farm families received 26.5% of their total income from farming activities and 73.5% from off-farm income. Wages and salaries and non-farm self-employment income taken together accounted for 67% of total off-farm income (see Table XIV.15). Pension income represented 12.6% and investment income 10.5%.

**Average total family income varied greatly**

Table XIV.15 introduces a further breakdown of unincorporated Canadian farms into those that are business-focused and those that are non-business-focused (or “lifestyle”) farms. Average total family income varied greatly across these different farm typology groups, from about $16,500 for the families associated with large unincorporated farms that are low-income non-business-oriented farms to $117,600 for families associated with unincorporated very large business-focused farms.

**The contribution from off-farm income varied from 32% to 102% of total income**

The contribution from off-farm income also varied considerably - from 32% for families associated with unincorporated very large business-focused farms to 102% for families operating farms classified as medium-sized lifestyle farms. In the latter case, off-farm income is thus used not only for the totality of the families’ living but also the operation of a small hobby farm holding (see Table XIV.15 and Figure XIV.30).

For small non-business focused farms, the share of off-farm income is 77% and of this amount the share from wages and salaries and non-farm self-employment income account for only 24%. Investment income and pension income was, not surprisingly, high at 22% and 46.5%, respectively. The income of families with very large business-focused farms was 32% from off-farm income and of this source about 68% originated from wages, salaries and non-farm self-employment income. Investment income had a share of 16%.

Families operating farms in the categories of small, medium and large business-focused farms as well as the medium-sized lifestyle farms all had a very large share of wages, salaries and non-farm self-employment income as a share of total off-farm income - between 72% and 88%. Investment income and pension income were less than 10% for these groups of farms.

**XIV.5.4 Steady increase in wealth accumulation**

The economic well-being of the farm family is not only dependent of total family income but also on their wealth. In the period 1996-2000, average total income per farm family operating an unincorporated farm increased by almost 17% (see Table XIV.14). In the same period, equity in the agriculture sector increased by almost 16%. For the period 1995-2003, the increase amounted to 30.5% (see Table XIV.16 and Figure XIV.31).

In 2003, farm real estate accounted for almost 60% of total farm sector assets, of which land accounted for 44%. Machinery had a share of 14% followed by “quota”, which essentially is a licence to sell a certain amount of a specific product, with 10%. The value of this item increased by 119% in the period
1995-2003. The value of farm real estate increased by 37%, of which service buildings and homes had the highest growth, 42% and 48%, respectively.

With respect to the debt structure of Canadian farms, Figure XIV.31 shows that current liabilities in relation to total liabilities increased from about 17% in 1997 to about 23% in 2003. Return of equity shows rather large fluctuations - almost halving between 1996 and 1997 after which it slowly increased or was flat until 2001. It then dropped between 2001 and 2002 before immediately recovering in 2003 to the trend level of 1997-2001.

XIV.5.5 Notes to the data and the data sources

- The average net income measures do not include any income in kind such as the value of goods produced for home consumption, less cost of inputs.

- The value of owner-occupied housing is not imputed for any of the data on total incomes for the “operator,” “family” or the “household” associated with farms.

- Tables XIV.11 to XIV.13 relate to the operators of unincorporated and incorporated farms. Tables XIV.14 and XIV.15 represent only for unincorporated farms.

- If nothing else is mentioned, net operating income refers to income before capital cost allowance. When income is measured after capital cost allowance, the capital cost allowance is obtained from the income tax returns. This does not correspond to the economic depreciation used in the farm income accounts (in aggregate, they are somewhat similar in magnitude, however).

- Farm family refers to a married couple or a common-law couple with or without children at home; or a lone parent of any marital status, with at least one child living at home. There is no restriction on the age of the children. Children must report a marital status other than married or living common-law and have no children in the household. The concept of farm family thus differs somewhat from the concept of household.

- Within Statistics Canada, the division responsible for generating statistical data from the income tax records of individuals (the Small Area and Administrative Data Division (SAADD)) assembles a “family file” (for families as defined above) using the information on the individual income tax records that indicate the Social Insurance Number of the spouse and the number of dependent children. For the total income of “farming families”, the detailed information on farm revenues by item and farm expenses by item from the farm taxation record is linked, via the Social Insurance Number of the operator, to the SAADD “family file.”
Table XIV.11

Operating revenues and expenses by revenue classes in Canada, 1996 and 2001

<table>
<thead>
<tr>
<th>Revenue classes</th>
<th>$10,000 - $49,999</th>
<th>$50,000 - $99,999</th>
<th>$100,000 - $249,999</th>
<th>$100,000 - $49,999</th>
<th>$500,000 - and over</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1996</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farms</td>
<td>103,475</td>
<td>45,770</td>
<td>55,045</td>
<td>20,310</td>
<td>9,805</td>
<td>234,390</td>
</tr>
<tr>
<td>Average total revenues per farm, C$</td>
<td>25,036</td>
<td>72,330</td>
<td>158,704</td>
<td>341,451</td>
<td>1,285,967</td>
<td>145,837</td>
</tr>
<tr>
<td>Average net operating income per farm, C$</td>
<td>1,541</td>
<td>13,818</td>
<td>34,031</td>
<td>67,835</td>
<td>160,801</td>
<td>23,977</td>
</tr>
<tr>
<td><strong>2001</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farms</td>
<td>97,220</td>
<td>40,010</td>
<td>49,590</td>
<td>23,310</td>
<td>14,545</td>
<td>224,670</td>
</tr>
<tr>
<td>Average total revenues per farm, C$</td>
<td>25,322</td>
<td>72,167</td>
<td>160,633</td>
<td>344,071</td>
<td>1,519,559</td>
<td>193,329</td>
</tr>
<tr>
<td>Average net operating income per farm, C$</td>
<td>2,297</td>
<td>14,043</td>
<td>34,713</td>
<td>68,544</td>
<td>165,751</td>
<td>28,998</td>
</tr>
<tr>
<td>Percentage change 1996-2001</td>
<td>49.0</td>
<td>1.6</td>
<td>2.0</td>
<td>1.0</td>
<td>3.1</td>
<td>20.9</td>
</tr>
<tr>
<td>Average net operating income per farm after capital cost allowance, C$</td>
<td>-1,438</td>
<td>5,097</td>
<td>16,282</td>
<td>31,382</td>
<td>70,177</td>
<td>11,725</td>
</tr>
<tr>
<td>Operating margin</td>
<td>0.09</td>
<td>0.19</td>
<td>0.22</td>
<td>0.20</td>
<td>0.11</td>
<td>0.15</td>
</tr>
<tr>
<td>Operating margin after capital cost allowance</td>
<td>-0.06</td>
<td>0.07</td>
<td>0.10</td>
<td>0.09</td>
<td>0.05</td>
<td>0.06</td>
</tr>
</tbody>
</table>


Figure XIV.27

Percentage distribution of revenues, operating income and number of farms by revenue classes in Canada in 2001
### Table XIV.12

Average total income per operator in Canada, 1993-2001, current C$

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average total income per operator, C$ */</td>
<td>33,334</td>
<td>37,220</td>
<td>39,976</td>
<td>40,009</td>
<td>43,558</td>
<td>46,998</td>
<td>41.0</td>
</tr>
<tr>
<td>Average off-farm income per operator, C$ **/</td>
<td>17,434</td>
<td>19,206</td>
<td>22,220</td>
<td>23,210</td>
<td>24,455</td>
<td>25,729</td>
<td>47.6</td>
</tr>
<tr>
<td>Average net operating income per operator, C$ ***/</td>
<td>15,900</td>
<td>18,014</td>
<td>17,757</td>
<td>16,800</td>
<td>19,103</td>
<td>21,269</td>
<td>33.8</td>
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<tr>
<td>Off-farm income per operator, % **/</td>
<td>52.3</td>
<td>51.6</td>
<td>55.6</td>
<td>58.0</td>
<td>56.1</td>
<td>54.7</td>
<td></td>
</tr>
<tr>
<td>Net operating income per operator, % ***/</td>
<td>47.7</td>
<td>48.4</td>
<td>44.4</td>
<td>42.0</td>
<td>43.9</td>
<td>45.3</td>
<td></td>
</tr>
</tbody>
</table>

*/ Excludes communal farming operations.  **/ Excludes taxable capital gains.  ***/ Before capital cost allowance.

### Figure XIV.28

Percentage share of net farm income and off-farm income per operator in Canada, 1993-2001
Table XIV.13

Total income of farm operators by revenues classes, unincorporated and incorporated sectors, Canada, 1998 and 2001.
Average per operator, $C$

<table>
<thead>
<tr>
<th>Revenue classes</th>
<th>$10,000 - $49,999</th>
<th>$50,000 - $99,999</th>
<th>$100,000 - $249,999</th>
<th>$250,000 - $499,999</th>
<th>$500,000 and over</th>
<th>All</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1998</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of operators</td>
<td>118,150</td>
<td>54,330</td>
<td>71,670</td>
<td>33,720</td>
<td>18,890</td>
<td>296,760</td>
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</tr>
<tr>
<td>Number of farms</td>
<td>101,480</td>
<td>45,140</td>
<td>52,650</td>
<td>20,310</td>
<td>10,390</td>
<td>229,970</td>
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<tr>
<td><strong>FARM INCOME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total revenues</td>
<td>21,594</td>
<td>59,807</td>
<td>117,497</td>
<td>206,114</td>
<td>717,126</td>
<td>116,962</td>
<td></td>
</tr>
<tr>
<td>Total expenses</td>
<td>20,107</td>
<td>48,057</td>
<td>92,591</td>
<td>166,618</td>
<td>646,205</td>
<td>99,205</td>
<td></td>
</tr>
<tr>
<td>Net operating income</td>
<td>1,487</td>
<td>11,750</td>
<td>24,906</td>
<td>39,496</td>
<td>70,921</td>
<td>17,757</td>
<td>44.4</td>
</tr>
<tr>
<td><strong>OFF-FARM INCOME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>15,881</td>
<td>10,760</td>
<td>6,671</td>
<td>9,834</td>
<td>22,282</td>
<td>12,426</td>
<td>31.1</td>
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<tr>
<td>Net non-farm self-employment income</td>
<td>1,847</td>
<td>1,182</td>
<td>1,056</td>
<td>1,033</td>
<td>1,611</td>
<td>1,427</td>
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<td>Investment income</td>
<td>3,212</td>
<td>2,853</td>
<td>2,745</td>
<td>4,749</td>
<td>7,691</td>
<td>3,494</td>
<td>8.7</td>
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<tr>
<td>Pension income</td>
<td>4,593</td>
<td>3,238</td>
<td>1,685</td>
<td>1,308</td>
<td>1,621</td>
<td>3,080</td>
<td>7.7</td>
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<tr>
<td>Government social transfer</td>
<td>715</td>
<td>503</td>
<td>465</td>
<td>468</td>
<td>396</td>
<td>567</td>
<td>1.4</td>
</tr>
<tr>
<td>Other off-farm income</td>
<td>700</td>
<td>1,027</td>
<td>1,012</td>
<td>1,083</td>
<td>1,026</td>
<td>899</td>
<td>2.2</td>
</tr>
<tr>
<td>Retirement savings plan income</td>
<td>420</td>
<td>330</td>
<td>318</td>
<td>354</td>
<td>371</td>
<td>368</td>
<td>0.9</td>
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<tr>
<td>Total off-farm income (excluding taxable capital gains)</td>
<td>27,366</td>
<td>19,882</td>
<td>13,845</td>
<td>18,687</td>
<td>34,828</td>
<td>22,220</td>
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<tr>
<td>Total operator income</td>
<td>28,853</td>
<td>31,632</td>
<td>38,751</td>
<td>58,183</td>
<td>105,749</td>
<td>39,977</td>
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<td>Off-farm income as a share of total income (%)</td>
<td>94.8</td>
<td>62.9</td>
<td>35.7</td>
<td>32.1</td>
<td>32.9</td>
<td>55.6</td>
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<tr>
<td><strong>2001</strong></td>
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<tr>
<td>Number of operators</td>
<td>114,020</td>
<td>49,060</td>
<td>66,380</td>
<td>37,910</td>
<td>26,630</td>
<td>293,990</td>
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<td>97,215</td>
<td>40,005</td>
<td>49,590</td>
<td>23,310</td>
<td>14,265</td>
<td>224,380</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total revenues</td>
<td>21,594</td>
<td>59,807</td>
<td>117,497</td>
<td>206,114</td>
<td>717,126</td>
<td>116,962</td>
<td></td>
</tr>
<tr>
<td>Total expenses</td>
<td>20,107</td>
<td>48,057</td>
<td>92,591</td>
<td>166,618</td>
<td>646,205</td>
<td>99,205</td>
<td></td>
</tr>
<tr>
<td>Net operating income</td>
<td>1,487</td>
<td>11,750</td>
<td>24,906</td>
<td>39,496</td>
<td>70,921</td>
<td>17,757</td>
<td>44.4</td>
</tr>
<tr>
<td><strong>OFF-FARM INCOME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>17,389</td>
<td>13,720</td>
<td>8,217</td>
<td>10,213</td>
<td>24,663</td>
<td>14,431</td>
<td>30.7</td>
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<tr>
<td>Net non-farm self-employment income</td>
<td>1,679</td>
<td>1,677</td>
<td>1,154</td>
<td>1,157</td>
<td>1,926</td>
<td>1,515</td>
<td>3.2</td>
</tr>
<tr>
<td>Investment income</td>
<td>3,756</td>
<td>3,657</td>
<td>3,414</td>
<td>3,936</td>
<td>8,734</td>
<td>4,137</td>
<td>8.8</td>
</tr>
<tr>
<td>Pension income</td>
<td>5,673</td>
<td>3,680</td>
<td>2,357</td>
<td>1,551</td>
<td>1,929</td>
<td>3,721</td>
<td>7.9</td>
</tr>
<tr>
<td>Government social transfer</td>
<td>691</td>
<td>546</td>
<td>524</td>
<td>595</td>
<td>512</td>
<td>601</td>
<td>1.3</td>
</tr>
<tr>
<td>Other off-farm income</td>
<td>700</td>
<td>1,027</td>
<td>1,012</td>
<td>1,083</td>
<td>1,026</td>
<td>899</td>
<td>2.2</td>
</tr>
<tr>
<td>Retirement savings plan income</td>
<td>1,099</td>
<td>1,125</td>
<td>1,635</td>
<td>1,585</td>
<td>1,516</td>
<td>1,325</td>
<td>2.8</td>
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<tr>
<td>Total off-farm income (excluding taxable capital gains)</td>
<td>30,287</td>
<td>24,405</td>
<td>17,301</td>
<td>19,037</td>
<td>39,180</td>
<td>25,730</td>
<td>54.7</td>
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<tr>
<td>Total operator income</td>
<td>32,245</td>
<td>35,856</td>
<td>43,235</td>
<td>61,201</td>
<td>119,853</td>
<td>46,999</td>
<td>100.0</td>
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<tr>
<td>Off-farm income as a share of total income (%)</td>
<td>93.9</td>
<td>68.1</td>
<td>40.0</td>
<td>31.1</td>
<td>32.7</td>
<td>54.7</td>
<td></td>
</tr>
</tbody>
</table>

| % change 1998-2001 |                    |                    |                     |                    |                  |     |    |
| Number of operators | -3.5               | -9.7               | -7.4                | 12.4               | 41.0             | -0.9 |
| Number of farms  | -4.2               | -11.4              | -5.8                | 14.8               | 37.3             | -2.4 |
| **FARM INCOME** |                    |                    |                     |                    |                  |     |    |
| Total revenues  |                    |                    |                     |                    |                  |     |    |
| Total expenses  |                    |                    |                     |                    |                  |     |    |
| Net operating income | 31.7               | -2.5               | 4.1                 | 6.8                | 13.8             | 19.8 |
| **OFF-FARM INCOME** |                  |                    |                     |                    |                  |     |    |
| Wages and salaries | 9.5                | 27.5               | 23.2                | 3.9                | 10.2             | 16.1 |
| Net non-farm self-employment income | -9.1 | 41.9 | 9.3 | 12.0 | 19.6 | 6.2 |
| Investment income | 16.9               | 28.2               | 24.4                | -17.1              | 13.6             | 18.4 |
| Pension income | 23.5               | 13.7               | 39.9                | 18.6               | 19.0             | 20.8 |
| Government social transfer | -3.4 | 8.5 | 12.7 | 27.1 | 32.6 | 6.0 |
| Retirement savings plan income | 161.5 | 240.9 | 414.2 | 347.7 | 308.6 | 260.1 |
| Total off-farm income (excluding taxable capital gains) | 10.7 | 22.7 | 25.0 | 1.9 | 12.5 | 15.8 |
| Total operator income | 11.8 | 13.4 | 11.6 | 5.2 | 13.3 | 17.6 |

Figure XIV.29

Sources of off-farm income as a percentage of total off-farm income

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages and salaries; non-farm self-employment income</td>
<td>57.4</td>
<td>56.2</td>
<td>47.5</td>
<td>53.6</td>
<td>62.7</td>
<td>56.1</td>
</tr>
<tr>
<td>Net non-farm self-employment income</td>
<td>5.5</td>
<td>6.9</td>
<td>6.7</td>
<td>6.1</td>
<td>4.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Investment income</td>
<td>12.4</td>
<td>15.0</td>
<td>19.7</td>
<td>20.7</td>
<td>22.3</td>
<td>16.1</td>
</tr>
<tr>
<td>Pension income</td>
<td>18.7</td>
<td>15.1</td>
<td>13.6</td>
<td>8.1</td>
<td>4.9</td>
<td>14.5</td>
</tr>
<tr>
<td>Government social transfer</td>
<td>2.3</td>
<td>2.2</td>
<td>3.0</td>
<td>3.1</td>
<td>1.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Retirement savings plan income</td>
<td>3.6</td>
<td>4.6</td>
<td>9.5</td>
<td>8.3</td>
<td>3.9</td>
<td>5.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Table XIV.14

Off-farm and net operating income per farm family, unincorporated sector, Canada, 1996-2000

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farm families</td>
<td>161,580</td>
<td>162,450</td>
<td>154,970</td>
<td>151,840</td>
<td>147,680</td>
<td>-8.6</td>
</tr>
<tr>
<td>Number of farms</td>
<td>157,810</td>
<td>159,060</td>
<td>152,980</td>
<td>150,500</td>
<td>146,400</td>
<td>-7.2</td>
</tr>
<tr>
<td>Average off-farm income per farm family</td>
<td>39,131</td>
<td>41,165</td>
<td>43,677</td>
<td>45,419</td>
<td>48,682</td>
<td>24.4</td>
</tr>
<tr>
<td>Average operating income per farm family</td>
<td>17,658</td>
<td>18,029</td>
<td>17,432</td>
<td>16,803</td>
<td>17,588</td>
<td>-0.4</td>
</tr>
<tr>
<td>Average total income per farm family</td>
<td>56,789</td>
<td>59,194</td>
<td>61,109</td>
<td>62,222</td>
<td>66,270</td>
<td>16.7</td>
</tr>
<tr>
<td>Off-farm income as a percentage of total income</td>
<td>68.9</td>
<td>69.5</td>
<td>71.5</td>
<td>73.0</td>
<td>73.5</td>
<td></td>
</tr>
<tr>
<td>Average total income per farm family after capital cost allowance</td>
<td>46,290</td>
<td>48,178</td>
<td>49,586</td>
<td>50,328</td>
<td>54,545</td>
<td>17.8</td>
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</tbody>
</table>

### Table XIV.15
Average off-farm income by source and average net operating income of farm families by farm typology group, unincorporated sector, in Canada in 2000, C$
$
<table>
<thead>
<tr>
<th></th>
<th>Business-focused farms</th>
<th>Non-business focused farms</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small farms</td>
<td>Medium farms</td>
<td>Large farms</td>
</tr>
<tr>
<td>Number of farm families</td>
<td>13,970</td>
<td>17,340</td>
<td>40,220</td>
</tr>
<tr>
<td>Number of farms</td>
<td>14,020</td>
<td>17,550</td>
<td>39,340</td>
</tr>
<tr>
<td><strong>OFF-FARM INCOME</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>23,837</td>
<td>42,210</td>
<td>22,680</td>
</tr>
<tr>
<td>Net non-farm self-employment income</td>
<td>2,401</td>
<td>3,731</td>
<td>2,459</td>
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<tr>
<td>Investment income</td>
<td>2,121</td>
<td>4,198</td>
<td>3,395</td>
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<td>Pension income</td>
<td>2,040</td>
<td>1,809</td>
<td>751</td>
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<td>Government social transfer</td>
<td>3,317</td>
<td>2,382</td>
<td>2,536</td>
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<tr>
<td>Other off-farm income</td>
<td>1,046</td>
<td>2,522</td>
<td>3,213</td>
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<tr>
<td><strong>Total off-farm income</strong></td>
<td>34,762</td>
<td>56,852</td>
<td>35,034</td>
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<tr>
<td>Net program income</td>
<td>1,616</td>
<td>5,073</td>
<td>10,627</td>
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<td>Market income</td>
<td>2,052</td>
<td>7,288</td>
<td>29,071</td>
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<td><strong>Net operating income</strong></td>
<td>3,668</td>
<td>12,361</td>
<td>39,698</td>
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<td>Total income of farm families</td>
<td>38,430</td>
<td>69,213</td>
<td>74,732</td>
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<td>Percentage share off-farm income</td>
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<td><strong>Percentage of total off-farm income:</strong></td>
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<tr>
<td>Wages and salaries + non-farm self empl.</td>
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<td>80.8</td>
<td>71.8</td>
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<td>Investment income</td>
<td>6.1</td>
<td>7.4</td>
<td>9.7</td>
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<tr>
<td>Pension income</td>
<td>5.9</td>
<td>3.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Other</td>
<td>12.6</td>
<td>8.6</td>
<td>16.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
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### Figure XIV.30
Average off-farm income and net operating income per farm family by farm typology in Canada in 2000, C$
$
### Table XIV.16

Balance sheet of the agriculture sector, including non-operator landlords and excluding personal shares of households, current C$ million

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>% 95</th>
<th>% share 2003</th>
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<td>of which:</td>
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</tr>
<tr>
<td>Inventories</td>
<td>14,300</td>
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<td>Quota</td>
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<td>18,200</td>
<td>18,800</td>
<td>22,100</td>
<td>23,000</td>
<td>119.0</td>
<td>10.0</td>
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<td>Breading livestock</td>
<td>7,600</td>
<td>9,800</td>
<td>9,900</td>
<td>9,600</td>
<td>9,900</td>
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<td>4.3</td>
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<tr>
<td>Machinery</td>
<td>25,600</td>
<td>30,900</td>
<td>31,600</td>
<td>31,700</td>
<td>31,900</td>
<td>24.6</td>
<td>13.8</td>
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<td>Farm real estate</td>
<td>100,200</td>
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<td>134,300</td>
<td>137,600</td>
<td>37.3</td>
<td>59.6</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Land</td>
<td>75,500</td>
<td>95,000</td>
<td>97,600</td>
<td>99,900</td>
<td>102,400</td>
<td>35.6</td>
<td>44.3</td>
</tr>
<tr>
<td>Service buildings</td>
<td>18,500</td>
<td>24,000</td>
<td>24,900</td>
<td>25,600</td>
<td>26,200</td>
<td>41.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Homes</td>
<td>6,100</td>
<td>7,700</td>
<td>7,900</td>
<td>8,800</td>
<td>9,000</td>
<td>47.5</td>
<td>3.9</td>
</tr>
<tr>
<td>Other long-term assets</td>
<td>5,800</td>
<td>6,600</td>
<td>6,400</td>
<td>7,600</td>
<td>7,400</td>
<td>27.6</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Total assets (TA)</strong></td>
<td>166,900</td>
<td>211,400</td>
<td>217,000</td>
<td>225,400</td>
<td>230,900</td>
<td>38.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Current liabilities (CL)</strong></td>
<td>4,300</td>
<td>7,500</td>
<td>8,200</td>
<td>8,500</td>
<td>9,900</td>
<td>130.2</td>
<td></td>
</tr>
<tr>
<td><strong>Long-term liabilities</strong></td>
<td>19,200</td>
<td>28,300</td>
<td>29,300</td>
<td>32,300</td>
<td>34,000</td>
<td>77.1</td>
<td></td>
</tr>
<tr>
<td><strong>Total liabilities (TL)</strong></td>
<td>23,500</td>
<td>35,700</td>
<td>37,600</td>
<td>40,800</td>
<td>43,900</td>
<td>86.8</td>
<td></td>
</tr>
<tr>
<td><strong>Equity (E)</strong></td>
<td>143,400</td>
<td>175,700</td>
<td>179,400</td>
<td>184,600</td>
<td>187,100</td>
<td>30.5</td>
<td></td>
</tr>
<tr>
<td><strong>Current liquidity ratio (CA/CL)</strong></td>
<td>3.991</td>
<td>2.569</td>
<td>2.404</td>
<td>2.368</td>
<td>2.133</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Debt structure (CL/TL)</strong></td>
<td>0.182</td>
<td>0.209</td>
<td>0.219</td>
<td>0.208</td>
<td>0.226</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Return on equity</strong></td>
<td>0.029</td>
<td>0.021</td>
<td>0.022</td>
<td>0.014</td>
<td>0.020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table XIV.17

Net farm income in Canada, 1995-2003, current C$ million

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net cash income */</td>
<td>5,590</td>
<td>6,360</td>
<td>8,090</td>
<td>7,290</td>
<td>4,440</td>
</tr>
<tr>
<td>Depreciation charges</td>
<td>3,460</td>
<td>4,330</td>
<td>4,460</td>
<td>4,520</td>
<td>4,590</td>
</tr>
<tr>
<td>Value of inventory change</td>
<td>710</td>
<td>280</td>
<td>-1,030</td>
<td>-1,580</td>
<td>2,660</td>
</tr>
<tr>
<td><strong>Total net income</strong></td>
<td><strong>2,990</strong></td>
<td><strong>2,460</strong></td>
<td><strong>2,720</strong></td>
<td><strong>1,330</strong></td>
<td><strong>2,630</strong></td>
</tr>
</tbody>
</table>


*/ Net cash income = total cash receipts - operating expenses after rebates

/** Total net income = net cash income + income in kind - depreciation charges + value of inventory change

Figure XIV.31

Equity, debt structure (current liabilities in relation to total liabilities) and return on equity in Canada, 1995-2003
XIV.6 European Union

XIV.6.1 Introduction

In the European Union, Eurostat, besides measuring income from agriculture production, has set up a methodology for measuring the income of agricultural households. These Income from Agriculture Household Sector (IAHS) statistics were established with the objectives of:

- Monitoring the year-on-year changes in the total income of agricultural households at the aggregate level in Member States;
- Monitoring the changing composition of income, especially the proportions of income from the agricultural holding and from other gainful activities, from property and from welfare transfers;
- Comparing the trends in the total income of agricultural households per unit (household, household member, consumer unit) with that of other socio-professional groups;
- Comparing the absolute income of farmers with that of other socio-professional groups, on a per unit basis.

The main concepts in the IAHS methodology are described in the box below.

The main aggregate income concept used in the IAHS project is net disposable income, adapted from national accounts methodology (see also Chapter IX). This concept includes not only income from farming and from other gainful activities, but also from pensions and other forms of transfer. The value of farm-produced goods consumed by agricultural households and the rental value of the farmhouse are treated as positive components of income. Elements deducted include current taxes and social contributions. Provision exists within the methodology to use adjusted net disposable income that also takes into account social benefits received in kind (such as state-provided education and health care); this has advantages in terms of drawing comparisons between countries and over time but is not yet a practical measure in most Member States.

<table>
<thead>
<tr>
<th>Income and households: Concepts and definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income</strong>: the main concept is household net disposable income, that includes all income from independent activity (self-employment), dependent activity (employment), property, social and other transfers, and is after the deduction of items such as current taxes, social contributions and other payments. It is expressed in aggregate, per household, per household member and per consumer unit.</td>
</tr>
<tr>
<td><strong>Household</strong>: the household includes all members living together (this varies in detail between Member States), and includes, in agricultural households, both those who work on the agricultural holding and those who do not.</td>
</tr>
<tr>
<td><strong>An agricultural household</strong> (&quot;narrow&quot; definition) is one where the main income of the household reference person (typically the head of household) is from independent activity in agriculture (farming). A range of other socio-professional groups can be established on the same basis for the purpose of comparison. A second, supplementary, &quot;broad&quot; definition of an agricultural household includes all households where any member has some income from independent activity in agriculture.</td>
</tr>
</tbody>
</table>
For the purpose of measuring net disposable income, the most appropriate institutional unit is the household, so the aggregate income relates to that received by a sector made up of households. The logic for preferring the household as the basic unit rather than the individual is that members of households, and especially married couples and their dependent children, usually pool their incomes and spend on behalf of the members jointly. This is not to deny that there may be some differentiation and individual control of personal incomes. However, in general, it makes much more sense to measure across the whole household. In the IAHS methodology, a household is defined as in national Family Budget Surveys. Although there are small differences between Member States these definitions typically include all members who live under the same roof and share meals. Consideration has also been given to an alternative household concept - the single budget household - that excludes persons who are financially independent, such as grown-up children of the farmer and spouse who still live at home but who work full-time off the farm. However, it has not yet been possible to make income estimates on this basis because of data problems in many Member States.

In order that households of different sizes and compositions can be brought together for income analysis purposes, it is convenient to express incomes per household member and per consumer unit. While the former is simply the result of a count of the number of persons within households, the latter uses coefficients (in the form of an equivalence scale) to express children and additional adults in terms of consumer units. Small variations in the scales used are found between Member States (which may reflect real differences in socio-economic conditions between countries), but in practice most Member States adopt a standard set of coefficients; typically the head of the household counts as 1 unit, additional adults 0.7 units, and children as 0.5 units. It is important to note that households of farmers, defined in this way, may include persons who contribute no labour input to the agricultural holding.

The most significant part of the IAHS methodology, and one which can have a substantial effect on the results, is the system used for classifying households as agricultural or belonging to some other socio-professional group. Reflecting both theoretical and practical considerations, for the purpose of classification in IAHS statistics, households are allocated to socio-professional groups on the basis of the main source of income of the reference person (typically the head of household or the largest contributor to the household budget). This system allows a complete and consistent allocation of households to occupational groups. Thus an agricultural household is one in which the main source of income of the reference person is from independent activity in agriculture.16 Some Member States, that cannot at present use an income criterion, substitute the main declared occupation of the reference person.

In the context of the IAHS statistics this definition of an agricultural household is sometimes labelled "narrow" since it excludes those households which operate a holding but where farming is not the main income of the reference person (or the person's main occupation). Of course, when measuring household income the incomes of all members are summed, but these additional incomes are not considered at the classification stage.

It should be noted that households headed by hired workers in the agricultural industry are not included within the agricultural household group when defined in this way. In practice, only farmer households are covered in the IAHS results. This situation may need to be revised on a future occasion to allow for the coverage of households found on the large-scale agricultural units of some of the new Member States.

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16 Where possible, the group of agricultural households should not include forestry or fishing households.
XIV.6.2 An overview of results

<table>
<thead>
<tr>
<th>Summary of selected IAHS findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The number of agricultural households (where the main income of the reference person comes from farming) is substantially smaller than the number of households where there is some income from farming, and generally smaller than the number of agricultural holdings.</td>
</tr>
<tr>
<td>2. Where data exist over time, absolute numbers of agricultural households have been falling, in some instances very rapidly. The fact that results do not relate to a constant set of households must be borne in mind when interpreting changes in incomes per household over time.</td>
</tr>
<tr>
<td>3. Agricultural households (defined as above) in all countries are recipients of substantial amounts of income from outside agriculture. Though typically about a half to two thirds of the total comes from farming, there are large differences between Member States and some differences between years.</td>
</tr>
<tr>
<td>4. The total income of agricultural households is more stable than their income from farming alone. Non-agricultural income (taken together) is less variable from year to year than is farming income. Disposable income seems to be less stable than total income, but the relationship between the two depends on a variety of factors, including the way that taxation is levied.</td>
</tr>
<tr>
<td>5. Agricultural households have average disposable incomes per household that are typically similar to, or higher than, the all-household average, although the relative position is eroded or reversed when income per household member or per consumer unit is examined.</td>
</tr>
<tr>
<td>6. On average, households with an agricultural holding but where farming is not the main income source of the reference person appear to derive little income from farming; their average disposable income can be greater or smaller than incomes of agricultural households, depending on the country in question.</td>
</tr>
</tbody>
</table>

The IAHS statistics are not at the same level of development throughout the European Union. Any consideration must, at this stage, bear in mind that full harmonization in the methodology has not yet been achieved and that gaps in the data exist. Results should therefore be regarded as indicative and, in the case of some countries, experimental.

XIV.6.3 Availability of results

IAHS results are available for all Member States of the EU-15 using the “narrow” definition of an agricultural household. However, countries differ widely in the number of years covered, the most recent year for which results are available, the degree of disaggregation of the households sector and the extent to which results are integrated with national accounts. In terms of length of series, at one extreme is Germany, where annual figures for the period 1972-1993 are held in Eurostat’s IAHS database, broken down within the framework of national accounts into socio-professional groups, of which agricultural households form one. At the other are countries for which only a single year is currently represented in the database, such as Ireland (1987 - though data from later surveys should be available soon) and Luxembourg (1989), or a larger
number where comparable figures for non-agricultural households are not broken down into their constituent socio-professional groups.

There is a commitment by all Member States to (i) expand the number of years for which results are available, carrying the series forwards to year t-2, (ii) to apply universally the “minimum” list of socio-professional groups, thereby enabling a more detailed comparison of the incomes of agricultural households, and (iii) to make other improvements in the methodology and quality of results. However, difficulties in providing resources for IAHS work in the face of competing priorities means that progress since the 2001 IAHS report was published has been limited, with only a minority of countries generating annual results. Furthermore, IAHS statistics which are at the sector level cannot throw light onto the distributional issues that may be important (such as the numbers of low-income farm households). Data may not be readily available for the calculation of net disposable income as defined in IAHS statistics, which corresponds to National Accounts methodology. Furthermore, the definition adopted for household surveys is (arguably) more relevant to the objectives for which IAHS results were intended. This has led to pressure to develop statistics on a microeconomic basis to set aside, and perhaps replace, the sector-level IAHS ones.

XIV.6.4 Main findings

Despite the lack of complete harmonization in IAHS statistics, gaps in the years covered and the general criticisms of their sector-level approach, some preliminary findings can be drawn from them that are of general interest to decision-making under the CAP and other EU policies. A summary was given in the box above; some are based on results from all Member States while others depend on the greater quantity of information available in a minority of countries but which, nevertheless, are likely to be found throughout the EU.

This overview concentrates on four of the possible areas of analysis - the implications of applying the IAHS definition of what constitutes an agricultural household on the numbers of households covered, the composition of the total income of these agricultural households, the relative stability over time of the income from farming and total income, and comparisons of average disposable income between agricultural households and the entire households sector.

XIV.6.5 Numbers of agricultural households

In most countries, the number of households that satisfy the IAHS definition of an agricultural household is much smaller than the number of holdings shown in the Community survey on the structure of agricultural holdings. In 1987, the number of agricultural households for the European Union as a whole (EU-12) appeared to be less than half the number of holdings. In some countries (notably Italy, Spain, Portugal and Denmark) the number of agricultural households was particularly low in relation to the number of holdings, implying that on two thirds or more of holdings there were no households whose reference person (head) had farming as the main income source (or occupation). However, on some (typically large) holdings there could be more than one agricultural household. This and other technical factors helped explain why in the United Kingdom the numbers of holdings and agricultural households were almost the same, despite the known existence of many smaller holdings where no household could satisfy the definition of being an agricultural one.

Due to the non-corrrespondence between agricultural holdings and households, a preferable approach is to compare the numbers of households that satisfy the target “narrow” definition with those of households where at least one member of the household has some income from farming (that is, the target “broad” definition). This also throws some light onto the households that are outside the former definition but inside the latter, which might be called “marginal” agricultural households. Only seven countries can
provide such information at present (Denmark, Germany, Greece, Ireland, Netherlands, Finland and Sweden), and mostly for only one year, so caution must be exercised in interpreting the findings. In each country, whilst the use of the “narrow” definition reduced the number of agricultural households compared with the numbers which qualified under the “broad” definition, the extent varied substantially; the number of “narrow” households as a percentage of “broad” households ranged (in ascending order) from 33% in Denmark (1996), 41% in Ireland (1987), 53% in Finland (1992), 57% in Sweden (1992), 58% in Germany (1983), 60% in the Netherlands (1988), and 65% in Greece (1994). Further consideration of the “marginal” agricultural households is given later in this section (figures for later years may now be available for the Scandinavian countries and Ireland, but these are unlikely to change the general picture).

In countries where IAHS results are available for a run of years on a comparable basis, it is clear that the number of agricultural households has been in decline. In Germany (as constituted before October 1990) the fall was from 349,000 households in 1984 to 261,000 in 1993 (25%, or an annual average decline of 3.2%) against an overall rise (13%) in the total number of private households. In France, farm household numbers fell even faster, with a fall of 27% (or 3.9% annually) in the number of agricultural households in the seven-year period 1984-1990. This was against a background of a 7% increase in the total number of households. In the following five years, the disparities were even greater; the number of agricultural households fell by another 25% (or 5.5% annually) whilst the number of households as a whole increased 7%. In Portugal, the fall in agricultural household numbers between 1980 and 1989 was 37% (or an average decline of 4.9% per year). Interpretations of income movements over time must recognize that the agricultural households group is not of a constant composition but is changing and contracting.

**XIV.6.6 Composition of income of agricultural households, and deductions**

IAHS statistics show that, in all countries, agricultural households (“narrow” definition) are recipients of substantial amounts of income from outside agriculture. Typically only about a half to two thirds of the households’ total income comes from farming, though there are substantial differences between Member States (see Figure XIV.32) and for individual countries over time. In the periods shown (three-year averages ending in the latest available year or, where this is not possible, single years), countries in which substantially less than half of the total household income came from farming were Germany, Finland and, most notably, Sweden (where only a quarter of total income came from farming in the three years centred on 1996). At the other end of the spectrum, with more than three quarters (78%) coming from farming but still with a substantial minority of their income coming from other sources, was the Netherlands. There is substantial variation between years for some countries, reflecting, in particular, changes in the income from farming. For example, in Germany the share of the total coming from farming declined from 43% in 1991 through 39% in 1992 to 30% in 1993, a change clearly linked to the drop in earnings from farming. On the other hand, a fall in Finland from 41% in 1993 to 33% in 1994 was largely explained by an almost threefold increase in income from other independent activity (largely forestry); in subsequent years this fell back somewhat and income from farming increased (the share coming from farming stabilizing around 34%). Such sharp short-term changes, however, do not significantly affect the validity of the general conclusion.

The second most important source of income of agricultural households was usually wages or social receipts; in the United Kingdom it was property income. Income from other forms of independent (self-employed) activity, such as operating other (non-agricultural) businesses, was generally unimportant, except in Finland where farm-forestry appears to provide the explanation. However, there may have been some underrepresentation of other forms of independent activity because data sources (such as taxation

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17 Some other countries (Spain and Austria) do have definitions for the household that are broader than the “narrow” definition but are not the target “broad” definition.
statistics) may not reflect the extent to which they are carried out within the framework of what is primarily a farm business.

Countries also differed in the amounts of household income taken in taxation and other deductions, so that the same average total income figure can imply different levels of disposable income in different Member States. At one extreme were Denmark, Germany and Sweden where a quarter or more (on average) of an agricultural household’s income was taken as taxes and social contributions in the latest period for which results are available. At the other extreme were Portugal and Greece, where less than 5% was taken.

Of course, these differences reflect national policies on taxation for which there may be a counter-provision of goods and services provided in the form of social benefits. Only some of these are at present captured in the measurement of net disposable income. For example, the provision of individual non-market goods or services (such as education and health services) is not currently covered (though they are in the concept of net adjusted disposable income). Consequently, the net effect on consumption is impossible to assess without more detailed information.

Another general finding was that, in many countries, the proportion of total income taken by current taxes and social contributions was lower (often much lower) among agricultural households than among households in general. Denmark, Germany and Sweden are the exceptions, where agricultural households have shares taken which are above or very close to the national averages. However, no conclusions can be drawn as to the relative burdens of taxation without much more information on the levels and distributions of income, and details of the tax regimes applied to income from self-employment in general and agriculture in particular vis-à-vis income from employment and other sources.

XIV.6.7 Stability of income of agricultural households

There is evidence from several Member States that the total household income for agricultural households is more stable than their income from farming alone. Non-agricultural income (taken all together) is less variable from year to year than is farming income (though this is not a necessary condition for total income to be more stable). Disposable income seems to be less stable than total income; a variety of factors seem to be operating here, including the way that taxation is levied. The implication is that the year-to-year movements in indicators of the income from agricultural activity should not be taken to imply movements of the same proportion in the total income of agricultural households. These are likely to be smaller.

Figure XIV.33 shows the change in income (from farming and total income) between the beginning and end of similar periods. For all countries other than Finland and Sweden, the percentage change in total income was smaller than the percentage change in income from farming alone and the change was always in the same direction. In Finland and Sweden, the falls in farming income were more than offset by rises in other sources, so total income rose. This pattern is consistent with the above observation, and again illustrates the point that changes in farming income are not necessarily a good guide to changes in overall household income.

XIV.6.8 Comparisons of the income of agricultural households with the all-households average

The latest available IAHS results, taking three-year averages where possible (see Figure XIV.34), indicate that, for most Member States, the average net disposable income of agricultural households was close to or higher than the all-households average (comparisons are not possible for all countries). The main exception was Portugal, where it was much less (less than half). Somewhat lower levels were also found in
Greece (86%) and Italy (90%). The relative position was eroded when income per household member or per consumer unit was examined. Nevertheless, on all three measures (per household, per household member and per consumer unit) agricultural households had incomes at or above the national averages in France, Ireland, Luxembourg and (most notably) the Netherlands. However, agricultural households on average usually had incomes lower than households headed by other self-employed reference persons in the same Member State.

Again, some large short-term fluctuations can be observed. The relatively low-income position of agricultural households in Germany (not including the area of the former GDR) in 1993 reflected a sharp decline in incomes from farming compared to 1992 (when the disposable income per household had been 99% of the all-households average); 1992 was itself the end of a four-year period in which agricultural households had disposable incomes substantially above the national all-households average. Finland, in contrast, saw a rise in the relative position of agricultural households (from 131% of the all-households average in 1992 to 170% in 1994), the result of a growth in income not from agriculture but, in this case, from other forms of self-employment. In subsequent years this has fallen back somewhat (to between 141% and 152%). Only in Greece, Italy and, in particular, Portugal were farmer households consistently and substantially below the all-households average.

These results do not suggest that agricultural households are a particularly disadvantaged group in terms of their average disposable incomes, a major finding in the light of the objectives of agricultural policy in the European Union. In investigating whether there is a low-income problem, other factors need to be considered, including the distribution of incomes around the group mean. And it should be recalled that, despite the stabilising influence of income from sources other than farming, the relative position of agricultural households can be subject to quite large short-term variations.

### XIV.6.9 Comparison with other socio-economic groups

Table XIV.18 shows that although agricultural households, in some countries, have net disposable income that exceeds that of the average household in general, they quite substantially trail the “other self-employed” group in all countries (except the Netherlands). Moreover, with the exception of Finland and the Netherlands, agricultural households have a lower average disposable income than the “employee” household group in all countries.

The extraordinary level of disposable income among farm households in the Netherlands should be noted. It is more than three times that of the average households and 2.6 times that of all other self-employed households. This is likely to reflect the fact that agricultural and horticultural businesses in the Netherlands are typically large and represent very substantial capital sums. Hence, the income received will be a hybrid of rewards to the farmer’s entrepreneurial and physical labour and to the capital and land that he/she owns. Therefore it is not surprising that, where net worths are high, the total income generated by the business is also high. It is not unreasonable to measure such income as it will be at the disposal of the farm household to spend on consumption, to save or invest in the business or in other ways.

Another result to be noted is that of Finland where agricultural households have 50% higher disposable income than the average household and almost at the same level as other self-employed households. Compared with neighbouring countries like Denmark and Sweden, the result in Finland is striking. There may be fundamental differences that help explain the differences between Finland and Denmark and Sweden, including the rather unusual (by international standards) practice in Denmark of

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18 Data for Greece is not included in the table.
19 Income per household member for Luxembourg is not available.
transferring farms between generations by means of sales using credit facilities set up with this in mind. The exceptionally high interest charges faced by younger farmers has for long been a feature in Denmark, and this may feed though to lower disposable incomes.

However, there are also likely to be small but by accumulation significant differences in definitions. For example, the definition of a household used in Sweden relates only to the core of a couple and dependent children, whereas in Finland it covers all persons resident at the same dwelling, which results in a higher income per household. In countries where single-person households may be significant in determining the national average household income, these differences in the definition of household when applied to the agricultural sector may result in the sorts of situation described. Clearly there is a need to exercise caution when using any statistics and not to go beyond their capacity to inform. This is particularly the case in drawing international comparisons where harmonization is less than complete.

XIV.6.10 Income situation of "marginal" households

Reference has already been made to households where some member of the household has an income from independent activity in agriculture (that is, from farming) but where farming is not the main income source of the household reference person. As mentioned previously, this group is formed by subtracting those agricultural households defined as “narrow” from those agricultural households that are defined as “broad.” Among the Member States where information is available these “marginal” agricultural households accounted for more than a half of all the households with some farming income in Denmark and Ireland (72% in 1999 and 59% in 1987, respectively), and between about 40% and 50% in Germany, Greece, the Netherlands, Finland and Sweden. Despite their numerical importance, they accounted for only a relatively small proportion of the aggregate income derived from farming by agricultural households as a whole (see Figure XIV.35). For most countries only between a fifth and a tenth of the entire sector’s income from independent activity was generated by “marginal” households. The figure was very small in Germany (8% in 1983) but rather higher under the unique circumstances found in Denmark (26% in 1999). Perhaps of even greater importance are the income characteristics of these “marginal” households and the impacts that they have on average income levels when a “broad” definition of an agricultural household is adopted (see Table XIV.19).

In Denmark, Ireland, the Netherlands and Finland the average incomes per household of the “marginal” households were smaller than those of the agricultural households defined in the IAHS “narrow” way. In the first two countries they appeared to be a relatively low-income group, with incomes below the all-households average; in the Netherlands and Finland they were above it. However, in Germany and Greece the “marginal” households appeared to be a relatively high-income group. They had an average disposable income per household that was not only larger than that of agricultural households defined in the “narrow” way but was also substantially above the all-households average. In Sweden there was little difference among the various agricultural groups on a per household basis but they were all below the national all-households average.

When incomes were expressed per household member and per consumer unit, the income position of the “marginal” households deteriorated relative to the all-households average in Denmark, Greece, the Netherlands, Finland and (household members only) in Ireland (data on this basis are not available for Germany and Sweden). In Finland the somewhat smaller sizes of the “marginal” households improved their incomes per household member and per consumer unit compared with the “narrow” group.

Such diversity among only seven countries points to the need for sets of income results to be available for both “narrow” and “broad” (and “marginal”) agricultural household groups in each Member State. Differing social, economic and agricultural structures will likely mean that countries need to be
considered individually and quick generalizations avoided, at least until more comprehensive information is available.

However, a characteristic shared by all the countries from which evidence is available is that only a small proportion of the total income of “marginal” households comes from farming. In Germany only 5% of “marginal” households income came from farming. Comparable figures are the Netherlands 8% (not updated since the special study of 1988), Finland 11%, Ireland 14%, Greece 17% and Denmark 12% (1999). It follows that changes in the income from independent agricultural activity are of relatively little significance to the total income of these households; their overall position is more likely to be affected by changes in the economy in general (as these impact wages, often the major source of income) and policy on social benefits (another major source of income). Policies supporting farming incomes (for example, through instruments which raise the market prices of agricultural commodities) will therefore not likely significantly improve the income situation of these households.

XIV.6.11 Farm households “broad” definition compared to all households

In Figure XIV.36 the average disposable income per farm household, according to the “broad” definition (that is, all those with some non-zero income from farming), and per household member, is compared with the income of the average household and household member. Unfortunately, the year for comparison is not only somewhat outdated but differs among the countries.

In all countries, except Sweden, the net disposable income per farm household was either on the same level (Denmark, 1999) or higher than the average for all households. In Sweden the farm household had an income of about 90% of the average household. Again, it can be seen that agricultural households in the Netherlands and Finland were much better off than the average household.

The picture changes when looking at disposable income per household member. Only in the Netherlands did the average farm household member have a disposable income that was higher than the average member of all households. However, in Greece and Ireland, members of agricultural households had more or less the same income level as members of all households.
Figure XIV.32

Composition of the total income of agricultural households by source, for selected Member States. Per cent.


Notes:
(i) In Spain, Portugal and Sweden there is no subdivision of income from independent activity in agriculture and elsewhere.
(ii) Results for the Netherlands are based on the household as the unit of classification (rather than the reference person).
(iii) In France problems of comparability arise because of the way in which social contributions are treated.
(iv) In the UK the current data source does not cover households with holdings arranged as corporate businesses, and there are other statistical problems that should preclude direct comparisons with other Member States.
(v) "Other" includes income from property, imputed value of domestic dwelling, and other miscellaneous current transfers.

Figure XIV.33

The development of agricultural household incomes in selected Member States (in real terms and %).

INCOME AND WEALTH STATISTICS FOR SELECTED COUNTRIES

Figure XIV.34

Average disposable income of agricultural households relative to the all-household average.
Selected Member States

Figure XIV.35

Income generated from agriculture by agricultural households (narrowly defined) and the „marginal“ agricultural households, as a share of the total income generated from agricultural


Note: For Luxembourg, in the absence of a comparison being generated within the IAHS statistics, interim figures taken from a survey of living standards have been substituted.

### Table XIV.18

Average disposable income of per agriculture household (narrow definition) and per household member relative to all households (=100)

<table>
<thead>
<tr>
<th></th>
<th>Employers and own-account workers</th>
<th>All employees</th>
<th>All others</th>
<th>All except farmers</th>
<th>All households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Farmers &quot;narrow&quot;</td>
<td>All other</td>
<td>All self-empl.</td>
<td>a 1</td>
<td>a 2</td>
</tr>
<tr>
<td><strong>BELGIUM (1999 p)</strong></td>
<td></td>
<td></td>
<td></td>
<td>111.9</td>
<td>99.9</td>
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<tr>
<td><strong>DENMARK (1999)</strong></td>
<td></td>
<td></td>
<td></td>
<td>104.9</td>
<td>132.8</td>
</tr>
<tr>
<td></td>
<td>Net disposable income/household</td>
<td></td>
<td></td>
<td>75.8</td>
<td>104.4</td>
</tr>
<tr>
<td></td>
<td>Net disposable income/household member</td>
<td></td>
<td></td>
<td>81.7</td>
<td>250.6</td>
</tr>
<tr>
<td><strong>GERMANY (1993)</strong></td>
<td></td>
<td></td>
<td></td>
<td>78.7</td>
<td>235.9</td>
</tr>
<tr>
<td></td>
<td>Net disposable income/household</td>
<td></td>
<td></td>
<td>61.7</td>
<td>273.8</td>
</tr>
<tr>
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<td>Net disposable income/household member</td>
<td></td>
<td></td>
<td>84.5</td>
<td>156.2</td>
</tr>
<tr>
<td><strong>GREECE (1998)</strong></td>
<td></td>
<td></td>
<td></td>
<td>73.3</td>
<td>177.1</td>
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<tr>
<td></td>
<td>Net disposable income/household</td>
<td></td>
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<td>97.0</td>
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<td>84.5</td>
<td>102.0</td>
</tr>
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<td><strong>SPAIN (1990)</strong></td>
<td></td>
<td></td>
<td></td>
<td>103.4</td>
<td>109.2</td>
</tr>
<tr>
<td></td>
<td>Net adjusted disposable income/household</td>
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<td></td>
<td>90.1</td>
<td>93.8</td>
</tr>
<tr>
<td><strong>IRELAND (1987)</strong></td>
<td></td>
<td></td>
<td></td>
<td>127.3</td>
<td>97.4</td>
</tr>
<tr>
<td><strong>ITALY (1995)</strong></td>
<td></td>
<td></td>
<td></td>
<td>96.7</td>
<td>100.1</td>
</tr>
<tr>
<td><strong>NETHERLANDS (1997)</strong></td>
<td></td>
<td></td>
<td></td>
<td>328.8</td>
<td>128.6</td>
</tr>
<tr>
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<td>Net disposable income/household</td>
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<td></td>
<td>39.6</td>
<td>147.5</td>
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<tr>
<td><strong>PORTUGAL (1989)</strong></td>
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<td>43.8</td>
<td>159.7</td>
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<td><strong>FINLAND (1999)</strong></td>
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<td>152.4</td>
<td>163.4</td>
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<tr>
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<td>Net disposable income/household</td>
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<td></td>
<td>96.5</td>
<td>125.1</td>
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<tr>
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<td>Net disposable income/household member</td>
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<td></td>
<td>97.1</td>
<td>116.1</td>
</tr>
<tr>
<td><strong>SWEDEN (1997)</strong></td>
<td></td>
<td></td>
<td></td>
<td>76.6</td>
<td>90.4</td>
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</table>

### Table XIV.19

Number of households and levels of average net disposable income for three groups of agricultural households, in selected Member States

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of agricultural households (1,000)</strong></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>&quot;Broad&quot;</td>
<td>57</td>
<td>613</td>
<td>615</td>
<td>207</td>
<td>136</td>
<td>139</td>
<td>94</td>
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<tr>
<td>&quot;Narrow&quot;</td>
<td>18</td>
<td>353</td>
<td>398</td>
<td>85</td>
<td>87</td>
<td>73</td>
<td>54</td>
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<tr>
<td>&quot;Marginal&quot;</td>
<td>41</td>
<td>260</td>
<td>217</td>
<td>122</td>
<td>49</td>
<td>65</td>
<td>41</td>
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<td>All households</td>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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<td>Agricultural households</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Broad&quot;</td>
<td>99</td>
<td>110</td>
<td>114</td>
<td>105</td>
<td>210</td>
<td>124</td>
<td>81</td>
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<tr>
<td>&quot;Narrow&quot;</td>
<td><strong>105</strong></td>
<td>101</td>
<td>86</td>
<td>127</td>
<td>287</td>
<td>131</td>
<td>79</td>
</tr>
<tr>
<td>&quot;Marginal&quot;</td>
<td>96</td>
<td>123</td>
<td>166</td>
<td>89</td>
<td>108</td>
<td>116</td>
<td>85</td>
</tr>
<tr>
<td><strong>Disposable income per household member</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Broad&quot;</td>
<td>71</td>
<td><strong>100</strong></td>
<td>98</td>
<td>138</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Narrow&quot;</td>
<td>76</td>
<td>78</td>
<td><strong>113</strong></td>
<td>175</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Marginal&quot;</td>
<td>70</td>
<td>147</td>
<td>87</td>
<td>75</td>
<td><strong>101</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Disposable income per consumer unit</strong></td>
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<td>100</td>
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<tr>
<td>Agricultural households</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Broad&quot;</td>
<td>77</td>
<td><strong>101</strong></td>
<td><strong>101</strong></td>
<td>167</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Narrow&quot;</td>
<td>83</td>
<td>76</td>
<td><strong>117</strong></td>
<td>211</td>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Marginal&quot;</td>
<td>76</td>
<td>149</td>
<td>89</td>
<td>85</td>
<td><strong>102</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Income of the agriculture household sector, 2001 report. Eurostat.

**Notes:**
A special study was conducted by the CBS, Netherlands, to calculate results according to the broad definition of an agricultural household. The results that were derived have not been updated since 1988 unlike results derived for the narrow definition. Therefore, so that there is consistency in the comparison between broad and narrow results, the narrow results that were available at the same time as the study results for the broad definition have been taken. This means, however, that the narrow results appearing for 1988 are not the most up-to-date figures that Eurostat has received.

The definitions of the three groups of agricultural household are:

- "narrow" - main source of income of the reference person is independent activity in agriculture.
- "broad" - where any member of the household has some income from independent activity in agriculture.
- "marginal" - households which satisfy the "broad" definition but not the "narrow" definition.
Figure XIV.36

Average disposable income of per agriculture household (wide defintion) and per household member relative to all households (=100)

In Australia in 2001, households that contained at least one person whose main income comes from agriculture had a mean income of about 90% of those households where no person was employed in agriculture (see Table XIV.20 and Figure XIV.37). However, average incomes vary widely depending on the degree to which income from agriculture contributes to the total income of the agricultural household. If income from agriculture contributes less than one quarter of total income the mean income of the agricultural household is only 87% of that of non-farm households. Where income from agriculture constitutes between one quarter and one half of total income then the total income of the agricultural household jumps to 114% of non-agriculture households. If agriculture income accounts for between one half and three quarters of total income the agricultural household income drops to 97% of non-agricultural households. Where more than three quarters of income comes from agriculture the income falls to 76% of the non-farm income.
Table XIV.20

<table>
<thead>
<tr>
<th>Household description</th>
<th>Estimated number of households</th>
<th>Sample count of households</th>
<th>Mean agricultural income (a) ($A per week)</th>
<th>RSE of mean agricultural income (%)</th>
<th>Mean total income ($A per week)</th>
<th>RSE of mean total income (%)</th>
<th>Agric. Income as % of total income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25%</td>
<td>88,704</td>
<td>75</td>
<td>77</td>
<td>48.8</td>
<td>849</td>
<td>18.9</td>
<td>9.0</td>
</tr>
<tr>
<td>25% to less than 50%</td>
<td>40,415</td>
<td>35</td>
<td>424</td>
<td>9.7</td>
<td>1,110</td>
<td>9.2</td>
<td>38.2</td>
</tr>
<tr>
<td>50% to less than 75%</td>
<td>58,635</td>
<td>52</td>
<td>594</td>
<td>15.5</td>
<td>945</td>
<td>14.5</td>
<td>62.8</td>
</tr>
<tr>
<td>75% or more</td>
<td>78,201</td>
<td>77</td>
<td>673</td>
<td>13.2</td>
<td>743</td>
<td>13.2</td>
<td>90.5</td>
</tr>
<tr>
<td>Total</td>
<td>265,955</td>
<td>239</td>
<td>419</td>
<td>10.1</td>
<td>879</td>
<td>8.0</td>
<td>47.7</td>
</tr>
</tbody>
</table>

Household contains at least 1 person whose main job is in the agriculture industry, where the contribution of agricultural income to total income is:

- Less than 25%
- 25% to less than 50%
- 50% to less than 75%
- 75% or more

Total:

- 7,048,965 households with no person employed in the agriculture industry
- 7,314,920 total households


(a) Income from wages and salaries from main job plus own unincorporated business income where industry of main job is agriculture.

Figure XIV.37

Income of agriculture households compared to non-agriculture households (= 100) for different levels of contribution of income from agriculture, 2001

References


INCOME AND WEALTH STATISTICS FOR SELECTED COUNTRIES


Statistics Denmark (various years) “Income of Agricultural Households Statistics”. SE 204:11.


ANNEX

Results from Income of Agricultural Households Statistics, Statistics Denmark

Table 1
Income for agricultural households, all farms

<table>
<thead>
<tr>
<th>Year</th>
<th>1998 1,000 Dkk.</th>
<th>1999 1,000 Dkk.</th>
<th>2000 1,000 Dkk.</th>
<th>2001 1,000 Dkk.</th>
<th>2002 1,000 Dkk.</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Income from agriculture</td>
<td>184</td>
<td>173</td>
<td>217</td>
<td>240</td>
<td>218</td>
</tr>
<tr>
<td>+ Income from other enterprises</td>
<td>33</td>
<td>29</td>
<td>36</td>
<td>39</td>
<td>34</td>
</tr>
<tr>
<td>+ Wages and salaries</td>
<td>178</td>
<td>202</td>
<td>207</td>
<td>220</td>
<td>236</td>
</tr>
<tr>
<td>+ Property income</td>
<td>44</td>
<td>39</td>
<td>47</td>
<td>59</td>
<td>56</td>
</tr>
<tr>
<td>+ Social benefits</td>
<td>54</td>
<td>58</td>
<td>52</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>= Total income</td>
<td><strong>492</strong></td>
<td><strong>501</strong></td>
<td><strong>560</strong></td>
<td><strong>612</strong></td>
<td><strong>598</strong></td>
</tr>
<tr>
<td>+ Interest and rent</td>
<td>195</td>
<td>188</td>
<td>218</td>
<td>244</td>
<td>236</td>
</tr>
<tr>
<td>+ Taxes</td>
<td>90</td>
<td>93</td>
<td>100</td>
<td>110</td>
<td>117</td>
</tr>
<tr>
<td>+ Social contributions</td>
<td>50</td>
<td>53</td>
<td>58</td>
<td>65</td>
<td>69</td>
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<tr>
<td>= Net disposal income</td>
<td><strong>156</strong></td>
<td><strong>168</strong></td>
<td><strong>183</strong></td>
<td><strong>193</strong></td>
<td><strong>176</strong></td>
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<table>
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<th>Year</th>
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<td>1998</td>
<td>59,166</td>
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<tr>
<td>1999</td>
<td>57,314</td>
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<tr>
<td>2000</td>
<td>53,904</td>
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<tr>
<td>2001</td>
<td>52,815</td>
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<tr>
<td>2002</td>
<td>49,769</td>
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</table>

Table 2
Income for agricultural households, full-time farms

<table>
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<tr>
<th>Year</th>
<th>1998 1,000 Dkk.</th>
<th>1999 1,000 Dkk.</th>
<th>2000 1,000 Dkk.</th>
<th>2001 1,000 Dkk.</th>
<th>2002 1,000 Dkk.</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Income from agriculture</td>
<td>353</td>
<td>349</td>
<td>422</td>
<td>464</td>
<td>425</td>
</tr>
<tr>
<td>+ Income from other enterprises</td>
<td>34</td>
<td>30</td>
<td>46</td>
<td>47</td>
<td>44</td>
</tr>
<tr>
<td>+ Wages and salaries</td>
<td>118</td>
<td>139</td>
<td>145</td>
<td>153</td>
<td>158</td>
</tr>
<tr>
<td>+ Property income</td>
<td>55</td>
<td>47</td>
<td>56</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>+ Social benefits</td>
<td>38</td>
<td>42</td>
<td>38</td>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>= Total income</td>
<td><strong>579</strong></td>
<td><strong>606</strong></td>
<td><strong>707</strong></td>
<td><strong>785</strong></td>
<td><strong>759</strong></td>
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<td>+ Interest and rent</td>
<td>317</td>
<td>313</td>
<td>365</td>
<td>411</td>
<td>399</td>
</tr>
<tr>
<td>+ Taxes</td>
<td>87</td>
<td>88</td>
<td>100</td>
<td>112</td>
<td>118</td>
</tr>
<tr>
<td>+ Social contributions</td>
<td>56</td>
<td>58</td>
<td>65</td>
<td>75</td>
<td>74</td>
</tr>
<tr>
<td>= Net disposal income</td>
<td><strong>138</strong></td>
<td><strong>148</strong></td>
<td><strong>177</strong></td>
<td><strong>188</strong></td>
<td><strong>148</strong></td>
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</tbody>
</table>

<table>
<thead>
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<tr>
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<td>28,292</td>
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<tr>
<td>1999</td>
<td>26,173</td>
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<tr>
<td>2000</td>
<td>25,235</td>
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<td>2001</td>
<td>24,839</td>
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### Table 3
**Income for agricultural households, part-time farms**

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<th>2000</th>
<th>2001</th>
<th>2002</th>
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</thead>
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<td>30</td>
<td>26</td>
<td>37</td>
<td>41</td>
<td>34</td>
</tr>
<tr>
<td>Income, other enterprises</td>
<td>33</td>
<td>29</td>
<td>28</td>
<td>31</td>
<td>25</td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>231</td>
<td>255</td>
<td>262</td>
<td>280</td>
<td>306</td>
</tr>
<tr>
<td>Property income</td>
<td>35</td>
<td>32</td>
<td>40</td>
<td>41</td>
<td>43</td>
</tr>
<tr>
<td>Social benefits</td>
<td>67</td>
<td>71</td>
<td>65</td>
<td>66</td>
<td>65</td>
</tr>
<tr>
<td><strong>Total income</strong></td>
<td>395</td>
<td>413</td>
<td>431</td>
<td>459</td>
<td>473</td>
</tr>
<tr>
<td>Interest and rent</td>
<td>84</td>
<td>83</td>
<td>90</td>
<td>96</td>
<td>92</td>
</tr>
<tr>
<td>Taxes</td>
<td>92</td>
<td>97</td>
<td>101</td>
<td>109</td>
<td>116</td>
</tr>
<tr>
<td>Social contributions</td>
<td>45</td>
<td>48</td>
<td>53</td>
<td>56</td>
<td>64</td>
</tr>
<tr>
<td><strong>Net disposal income</strong></td>
<td>174</td>
<td>185</td>
<td>189</td>
<td>198</td>
<td>201</td>
</tr>
</tbody>
</table>

| Farms | 30,874 | 31,141 | 28,669 | 27,976 | 26,410 |

### Table 4
**Income for agricultural households, all farms by age of farmer**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Under 30 years</th>
<th>30-39 years</th>
<th>40-49 years</th>
<th>50-59 years</th>
<th>Over 60 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income from agriculture</td>
<td>260</td>
<td>265</td>
<td>246</td>
<td>237</td>
<td>129</td>
</tr>
<tr>
<td>Income, other enterprises</td>
<td>25</td>
<td>27</td>
<td>31</td>
<td>43</td>
<td>35</td>
</tr>
<tr>
<td>Wages and salaries</td>
<td>208</td>
<td>269</td>
<td>321</td>
<td>278</td>
<td>86</td>
</tr>
<tr>
<td>Property income</td>
<td>32</td>
<td>25</td>
<td>37</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Social benefits</td>
<td>39</td>
<td>45</td>
<td>32</td>
<td>27</td>
<td>114</td>
</tr>
<tr>
<td><strong>Total income</strong></td>
<td>565</td>
<td>629</td>
<td>667</td>
<td>664</td>
<td>442</td>
</tr>
<tr>
<td>Interest and rent</td>
<td>356</td>
<td>314</td>
<td>282</td>
<td>240</td>
<td>114</td>
</tr>
<tr>
<td>Taxes</td>
<td>70</td>
<td>97</td>
<td>119</td>
<td>145</td>
<td>106</td>
</tr>
<tr>
<td>Social contributions</td>
<td>39</td>
<td>59</td>
<td>74</td>
<td>87</td>
<td>56</td>
</tr>
<tr>
<td><strong>Net disposal income</strong></td>
<td>100</td>
<td>160</td>
<td>192</td>
<td>191</td>
<td>166</td>
</tr>
</tbody>
</table>

| Farms | 1,661 | 9,069 | 13,211 | 13,067 | 12,761 |
Table 5
Income for agricultural households, all full-time farms by age of farmer

<table>
<thead>
<tr>
<th></th>
<th>Under 30 years</th>
<th>30-39 years</th>
<th>40-49 years</th>
<th>50-59 years</th>
<th>Over 60 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Income from agriculture</td>
<td>405</td>
<td>477</td>
<td>462</td>
<td>435</td>
<td>296</td>
</tr>
<tr>
<td>+ Income, other enterprises</td>
<td>38</td>
<td>29</td>
<td>42</td>
<td>39</td>
<td>73</td>
</tr>
<tr>
<td>+ Wages and salaries</td>
<td>135</td>
<td>153</td>
<td>201</td>
<td>163</td>
<td>92</td>
</tr>
<tr>
<td>+ Property income</td>
<td>54</td>
<td>36</td>
<td>47</td>
<td>85</td>
<td>124</td>
</tr>
<tr>
<td>+ Social benefits</td>
<td>37</td>
<td>44</td>
<td>34</td>
<td>23</td>
<td>86</td>
</tr>
<tr>
<td>= Total income</td>
<td>669</td>
<td>739</td>
<td>787</td>
<td>745</td>
<td>671</td>
</tr>
<tr>
<td>+ Interest and rent</td>
<td>526</td>
<td>486</td>
<td>447</td>
<td>365</td>
<td>254</td>
</tr>
<tr>
<td>+ Taxes</td>
<td>61</td>
<td>85</td>
<td>111</td>
<td>134</td>
<td>153</td>
</tr>
<tr>
<td>+ Social contributions</td>
<td>32</td>
<td>56</td>
<td>75</td>
<td>90</td>
<td>77</td>
</tr>
<tr>
<td>= Net disposal income</td>
<td>50</td>
<td>112</td>
<td>154</td>
<td>156</td>
<td>188</td>
</tr>
</tbody>
</table>

Farms: 966, 4,719, 6,685, 6,746, 4,244

Table 6
Income for agricultural households, all part-time farms by age of farmer

<table>
<thead>
<tr>
<th></th>
<th>Under 30 years</th>
<th>30-39 years</th>
<th>40-49 years</th>
<th>50-59 years</th>
<th>Over 60 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Income from agriculture</td>
<td>57</td>
<td>34</td>
<td>25</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>+ Income, other enterprises</td>
<td>8</td>
<td>24</td>
<td>20</td>
<td>47</td>
<td>16</td>
</tr>
<tr>
<td>+ Wages and salaries</td>
<td>310</td>
<td>395</td>
<td>443</td>
<td>401</td>
<td>83</td>
</tr>
<tr>
<td>+ Property income</td>
<td>3</td>
<td>12</td>
<td>26</td>
<td>71</td>
<td>55</td>
</tr>
<tr>
<td>+ Social benefits</td>
<td>43</td>
<td>46</td>
<td>30</td>
<td>32</td>
<td>128</td>
</tr>
<tr>
<td>= Total income</td>
<td>420</td>
<td>511</td>
<td>544</td>
<td>577</td>
<td>327</td>
</tr>
<tr>
<td>+ Interest and rent</td>
<td>119</td>
<td>127</td>
<td>113</td>
<td>106</td>
<td>45</td>
</tr>
<tr>
<td>+ Taxes</td>
<td>83</td>
<td>109</td>
<td>127</td>
<td>158</td>
<td>82</td>
</tr>
<tr>
<td>+ Social contributions</td>
<td>48</td>
<td>62</td>
<td>72</td>
<td>85</td>
<td>45</td>
</tr>
<tr>
<td>= Net disposal income</td>
<td>170</td>
<td>212</td>
<td>232</td>
<td>228</td>
<td>155</td>
</tr>
</tbody>
</table>

Farms: 695, 4,350, 6,526, 6,321, 8,517
XV FINDINGS AND GOOD PRACTICES IN STATISTICS ON RURAL DEVELOPMENT AND AGRICULTURAL HOUSEHOLD INCOME

XV.1 Introduction

This chapter brings together the central issues in the methodologies of rural statistics and the measurement of agricultural household income and wealth. It points to good practice in each of these areas.

As was described at the outset (Chapter I) the purpose of compiling the Handbook was not to produce a detailed and prescriptive manual on how these statistics should be produced, something that applies particularly to the sections on rural statistics. Rather, it was to inform both suppliers and users in these relatively new areas of statistics of the issues that have to be confronted, alternative approaches, data sources utilized etc. by drawing on the experiences gained in international organizations and national statistical offices. Nevertheless, one general lesson to be learned is that a lack of harmonization hinders in a very substantial way the ability to synthesise findings and draw comparisons between countries, valuable information in understanding the economic and other changes taking place. Therefore, particularly in the section on agricultural household income measurement, it is possible to suggest certain definitions and approaches that responsible officials might adopt. Of course, in groups of countries like the European Union harmonization can be carried a step further within the framework of community institutions.

Statistical indicators are tools that assist in the formulation of policies and the monitoring of changes/development/progress of those policies. Various overlapping sets of desirable characteristics of indicators are encountered in this Handbook. Bringing these together suggests that indicators should be:

- **Problem-oriented and relevant**, which will also include **timeliness**.
- **Reliable** in the sense that they are analytically sound and based on scientific evidence of their links with the problem in hand.
- Capable of establishing **levels, dispersions** and **trends** in the characteristics they attempt to measure.
- Capable of providing a **reference value** which can act as a benchmark against which change can be measured.
- Capable, within the bounds of suitability to different circumstances, of permitting **comparisons in space**, especially between countries, and bearing in mind the increasing interest in international comparisons.
- Capable of **reacting rapidly** to changing situations, including the interventions used to implement policies.
- Easily **understandable**, in the sense that they are **clearly defined** and capable of providing **conclusions easily communicated** to policymakers.
- Where formed by combining or comparing datasets, the elements should be based on the **same statistical units**.
However, the selection of indicators will always be a compromise because:

- Data collection is usually an expensive activity, especially where a new or additional survey has to be developed. Indicators are often restricted to exploiting existing datasets and sources or those to which commitments have already been made, adding value to the source. Thus realizability is also a desirable characteristic of an indicator.

- The cost/benefit ratio of an indicator is significant in its development, particularly in economically poor countries. The benefits come in many forms, and at times political and administrative factors may outweigh the potential efficiency gains of better policy decisions.

- Priority is often given to indicators that are capable of assisting in the routine monitoring of policies. For example, policies addressing rural development for a whole country have to describe problems/targets common to all rural areas of that country, that is, generality is a significantly desirable quality in an indicator. Indicators addressing specific problems for particular rural areas are less likely to be developed.

XV.2 Statistics for rural development

Statistics should be policy-determined, that is, they should be available to assist with the formulation of policies and assessing the performance of interventions. The aims of rural development policies are not always articulated clearly or in a timely way, and statisticians may have to anticipate the demand for indicators.

Looking at the “typical” problems of rural areas in the past decades, rural development policies normally aim to make rural places economically, socially, culturally and environmentally healthy. In broad terms, a successful rural development policy may be seen as one that allows rural areas to:

- Be able to at least maintain their population and within it a viable population age structure.
- Diversify their economic base beyond the primary sector, maintaining or even increasing employment rates to absorb the loss of jobs in the primary sector.
- Be able to keep poverty rates and unemployment rates on a level not worse than those in urban areas. They should also aim at offering job opportunities for women and young people.
- Be as easily accessible as possible and provide a minimum set of services. This means they should be well connected with neighbouring areas, which is the basis of tourism/recreation related industries. The provision of easy access to education, health care etc. for the local population is also required to maintain the attractiveness of living in the local area.
- Keep property ownership as wide spread as possible. The rate of locally financed and initiated new small enterprise start-ups should be relatively high.
- Keep the physical and mental health of the rural population as good as it is elsewhere.
- Make their key players work together towards common goals with an agreed value basis. The goals and values are set using a bottom-up approach. The local government should be empowered with reasonable fiscal and decision-making autonomy.
- Be responsible for their own development and not have it done by others.
XV.2.1 Key issues in rural statistics

Key issues for rural statistics are the definition of rural, the type of geographical unit to which it is to be applied, and the nature of the indicators that are employed to reflect aspects of concern in these areas.

There is more than one “correct” definition of rural and what is most appropriate will depend on the policy problem being considered. National definitions are continuously under debate and are in fact adjusted from time to time, reflecting, for example, changes in socio-economic and administrative structures or in mobility and communication. Similarly the level at which classifications are applied (that is, the size of the territorial units and the level of geographical hierarchy) will depend on the analytical purpose or on the policy problems that have to be solved. Within Member Countries, the OECD scheme distinguishes two hierarchical levels of geographic detail: local community level (small, though not necessarily the smallest possible, basic administrative or statistical units) and regional level. This Handbook recognizes that a hierarchical system (not necessarily just two-level) is good practice (Chapter VII).

The choice of what constitutes a rural area can have a marked effect on the results shown in statistics, such as the proportions of the population of a country who live there. As the demand for internationally comparable information rises, some kind of standard both for the definition of rural and for a set of indicators is desirable. In an increasingly globalized world, policymakers, researchers and the general public are not only interested in statistics showing what is going on in their country but also statistics on how their country compares to others such as neighbouring countries or countries with similar environmental, climate, social or political conditions.

Comparisons between countries rely on a commonality in statistical methodology. Certain bases of classification and typologies of rural areas have gained predominance at international level. The OECD system, based on population density, is widely used at regional level. This Handbook recognizes the value of countries having the capacity to generate rural statistics on this standardized OECD basis, though they should not ignore the advantages flowing from more detailed or complex bases of classification for national purposes.

Whichever level of geographical unit is selected, there are good reasons for covering the entire territory (that is, both rural and non-rural areas). Rural analysis relies on the ability to describe the differences and the interrelationships between the rural areas and the other parts of the country. Only if data is available for all parts can consistency of results be confirmed. This Handbook recognizes the value of classifications that cover all geographical areas and encourages their use as good practice.

In terms of what data should be collected, it is widely accepted in OECD countries that statistics for agriculture only relate to a small (and usually shrinking) sector of the economy and society, though this is not necessarily true for some developing countries. In most circumstances, rural statistics have to cover a broad range of economic, social and environmental issues. Various lists of indicators exist for OECD and EU countries and for the developing world (World Bank, FAO). While there is some overlap between indicator sets, there are differences that reflect the priorities of the institutions that drew them up. To take just one example, Eurostat has proposed that all Member States collect data on the following themes.

- Demography - Migration;
- Economy - Human capital;
- Economic structure and performance (primary sector);
- Accessibility to services - Infrastructure;
- Social well-being.
This Handbook recognizes the value of a set of “core” indicators for international use. In addition to those currently put forwards by international organizations (Chapter V), a further set has been proposed as part of Chapter VII. It is not felt appropriate at this stage to make a firm recommendation of a preferred list.

Each theme and related indicators has its own methodological questions that must be addressed, too numerous to be detailed here. Some overlap with material in the second part of the Handbook, such as the definition of a household and the use of equivalence scales when assessing poverty. Nevertheless, there are common sources of weakness that statisticians should take steps to minimize, such as the dangers of using data from different sources that are not entirely compatible in order to construct indicators. A general warning can be made about the use of a particular type of indicator - composite indices. Because of the multitude of indicators, it might be tempting to construct a rural composite of indices for international benchmarking. This Handbook strongly advises against such a practise, for statistical reasons set out in Chapter III.5.

It is possible to be more prescriptive about recommending that methodological details are made available to users. For practical reasons rural development statistics must be based on a multitude of statistical sources, sometimes rather disparate in nature. This Handbook strongly endorses, as good practice, the publication, together with the statistics, of a detailed analysis of the sources and methods used, adequate meta data for the individual data cells, and a readers’ guide, advising how the results should be interpreted and with what precision.

For international benchmarking the above methodological information should be recorded for each country. If incompatibilities exist, these must be clearly indicated, together with a guide to what extent data indicator levels can in fact be compared. If they cannot, only changes in levels of indicators should be recorded.

However sophisticated the methodology put forwards for rural statistics, a crucial factor in their development is the availability of data. The Handbook considers the generic sources (Chapter VI) and their relative advantages and drawbacks. Sources are more varied in OECD Member Countries (censuses and surveys of various kinds, administrative records etc.) than in developing countries, where household surveys are predominant. Any new system for data collection is likely to demand substantial resources, and surveys should to be set within a proper statistical framework for efficient operation. There will be obvious interest in making use of what already exists by adding value, though the warnings of mixing disparate sources will have to be heeded.

Despite such dangers, when assembling statistics for rural areas it is often useful to gather (secondary) data from more than one source, when available, in order to cope with potential problems of reliability and validity. It is in the discrepancies that lessons can often be learned about the shortcomings of one data source or another and pointers to improvements found.

Some countries are able to link existing datasets in a reliable way, typically using personal identifier labels – Scandinavia leads the way in this respect. As a case study, experience in Canada (Chapter IV) demonstrates good practice in which a flexible dataset can in provide a wealth of information relevant for many aspects of rural policy. The statistics show the extent of changes over time in key indicators (on migration, employment, incomes, consumption spending, health, education etc.) and help identify those that are associated with successful development strategies.
XV.2.2 Rural measurement problems

Statistics on rural development are problematic in several ways. They are largely based on national censuses and surveys, which, in most industrialized countries at least, were not designed with rural areas in mind. As a consequence, many statistics used routinely at the national level or in urban regions need to be treated with caution when applied to rural areas. And, statistics that might pertain largely to rural areas, on land use, for instance, are often not part of national or regional data sets.

One central problem is that, because they are delineated on the basis of density and/or size of place, rural areas do not remain constant over time and their boundaries are porous. Rural areas that gain population become at some point urban areas and are then classified as such. This makes it difficult to track changes over time. Thus, looking at historical population trends using a current delineation of rural-urban is likely to underestimate overall rural population growth and overestimate urban growth. Without a careful presentation of the data, it is easy to conclude that areas have not grown because they are rural, forgetting that areas remain rural because they have not grown.

Rural boundaries not only change over time, they also become increasingly porous as commuting increases. By definition, rural areas lack large centres. Many residents, particularly in areas proximate to cities, may commute outside of the rural area to work. If regions are defined in part on the basis of a commuting threshold, the problem is minimized, but, even here, until that threshold is reached, there will be some discontinuity between jobs in the region and the jobs held by residents. This affects urban as well as rural statistics, but rural statistics are impacted more because commuters constitute a larger proportion of the rural work force.

A second issue is that statistics developed at the national level to reflect livelihood and well-being may be less valid in rural settings than urban settings. For instance, while censuses and surveys typically ascertain a single occupation, many rural people may hold more than one job. In some rural areas, for instance, a substantial proportion of people with income from farming may not consider farming as their principal occupation. The number of farmers identified in an agricultural census may far exceed the number of farmers found in a population census of the same area.

Another related example is unemployment, a key national and international indicator. This measure works well in urban areas, where the vast majority of people employed are wage and salary workers. In some rural settings, however, particularly agricultural settings, many people are self-employed. In this case, economic hardship is more apt to be marked by underemployment than by unemployment. Farm household members, for example, may have farm work, but have a desire to work off the farm and be able to do so without substantial loss in farm income. Whether they have off-farm work is not likely to be reflected in unemployment statistics.

A final example: rural employment is more likely to be seasonal than urban employment and estimates of labour market conditions can vary considerably depending on when a census or survey is taken. These examples point to the importance of using household budget and related surveys to supplement census data in understanding rural development conditions.

A third issue is a lack of measures that pertain particularly to the development of rural areas, such as natural amenities. Measures of urban assets tend to be a by-product of business and other surveys and administrative data. Thus, the presence of transportation hubs, research universities, and substantial high-end business services sectors have all been linked to urban growth in industrialized countries. By these standards, rural regions are clearly disadvantaged. However, rural areas can have their own advantages: pleasant landscapes and climate, lakes or ocean, mountains and streams, and unique picturesque or historical
settings. These assets are important for tourism and second home development, but they can also serve to attract entrepreneurs and others who prefer to reside in natural rather than urban environments. A study of rural United States counties found population and employment growth to be more highly correlated with natural amenities than with the economic base (McGranahan, 1999).

The potential importance of these natural assets is included in the concept of farm “multifunctionality,” where farms and farmland are recognized as having environmental, recreational, and scenic outputs in addition to agricultural productivity. However, the actual measures of rural amenities - what attracts people to rural areas - have not been developed. One reason is that the measures cannot be derived easily from existing statistical systems. More important is the current lack of any clear basis for ascribing amenity value. When it comes to attractive rural settings, “more” is not always “better.” Landscape preference research has found, for instance, that people most like varied landscapes (and even then, only up to a point).

The absence of official measures of these rural amenities does not mean they are irrelevant for rural well-being. Families may be willing to “pay” considerably for these amenities, by accepting lower earnings and/or paying a higher proportion of income for housing. The result may be rural anomalies from a strictly economic perspective, such as population shifts from areas of apparently high real earnings to areas of lower real earnings. Annex 6 gives further details about the importance of natural amenities.

The fourth issue is the relatively small size of rural regions. Tabulations of income, occupation, and other socioeconomic measures that are used nationally or in urban regions may be inappropriate for rural areas because of issues of data confidentiality. Statistical Disclosure Limitation (SDL) has become a major concern for statistical agencies as reasonable response rates depend on the belief that respondents have that their answers will be kept in confidence. (Methods of overcoming this problem were touched on in Chapter VI).

Small size also affects the reliability of statistics estimated on the basis of administrative records. National statistical agencies are increasingly called on to develop local area estimates for various measures where the costs of censuses or major surveys are prohibitive. For instance, in years outside of censuses, area populations may be estimated on the basis of births, deaths, school enrolments, telephone hook-ups, and other measures. Regional income or domestic product may be estimated from establishment data on employment and wages and other information. Typically, estimates are made first at the national and perhaps regional levels, where there are extensive data, and then allocated downward, based on local statistics. In rural areas, these estimates must be treated cautiously. Estimates are inherently more unreliable where territorial units are small. Moreover, the assumptions and methods that are used in making these estimates may fit urban areas better than rural areas. It is, for instance, typically much more difficult to estimate self-employment income than wage and salary income.

The small size of rural regions can also affect the reliability of estimates from surveys and, since they frequently ask complete sets of questions only for a proportion of respondents, population and other censuses. One way to overcome this problem is by over-sampling in rural regions or at least those rural regions of particular interest, such as agricultural regions or declining regions. Of course, over-sampling in one type of area means under-sampling in another. More precise regional estimates come at the expense of precision in estimates for other national subpopulations such as ethnic groups. Bayesian techniques are available to estimate the sample size necessary to obtain estimates of a given precision.

The fifth issue relates to the interpretation of rural statistics. To the extent possible, well-being outcomes (earnings, employment, health etc.) need to be standardized for the composition of the population. This is most obvious in the case of mortality rates, which are highly related to age and sex, but it extends to
other areas as well. Comparisons between rural and urban regions or localities almost inevitably find rural areas have lower incomes than urban areas. This does not necessarily mean that rural areas are somehow lagging, however, or that an explicitly regional policy is called for. As noted elsewhere, according to conventional methodology the cost of living is typically lower in rural areas than in urban. But, adjusting for cost of living may not be enough.

The residents of rural regions also tend to have relatively low levels of educational attainment and to be older than their urban counterparts. Since lower levels of educational attainment are generally associated with lower incomes at the individual level, lower rural incomes may reflect the educational characteristics of the rural population rather than any drawback to rural residence. By the same token, if income disparities increase or decrease nationally across educational attainment levels, this will be reflected in increasing or decreasing disparities between rural and urban areas. This tendency of divergence is also found between industrially advanced countries with a highly educated labour force and less developed countries characterized by a predominantly rural economy.

XV.3 Statistics on the incomes and wealth of agricultural households

In OECD countries 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, farm households and their livelihoods are the focus of substantial government interest. Concern is not usually well-focused, but is often to do with the level of income and how this affects consumption possibilities and poverty (an aspect of particular concern in developing countries). In addition, within the public sector, policies on deprivation, economic development, sustainability, trade liberalisation 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. In developing countries the prime concern is poverty.

The main way in which incomes in agriculture are currently described by official statistics in most countries (and in the European Union as a whole) is by measures of the return to the factors used in the activity of agricultural production. While this approach is appropriate for some circumstances, it is clearly not capable of providing information on the non-agricultural sources of income in which farm operators and their households frequently engage, especially in developed countries. For this a household perspective is needed. The combination of farming with other income-generating activities is a common and increasing phenomenon. Non-agricultural incomes from gainful activities together with the returns from property ownership and transfers from government are necessary inputs to explaining the consumption and savings opportunities of farm households and to their on-farm decisions, such as the choice of enterprise mix, intensity of land use, investment level etc.

To continue to monitor the income situation of farm operators using only indicators based on agricultural activity carries the danger that such figures will be misused to draw implications for agricultural households. This would break a fundamental principle in the choice, design and use of indicators which lays

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1 According to the ILO, unemployment is quite evenly distributed between men and women with a secondary education in most economies, but at the tertiary level of education greater country-level diversity is apparent. In all the economies shown, females with higher education levels are more often unemployed than males of the same education group. On the other hand, with the exception of Peru, men with low education levels have higher unemployment rates than females in all economies (ILO, KILM 11). Source: http://www.ilo.org/public/english/employment/strat/kilm/kilm11.htm
emphasis the selection of indicators that match the problem in hand. What would be needed in developed
countries are indicators of household total and/or disposable income. The same principle might indicate that
consumption is preferable to income as a measure of well-being in less developed economies.

At present there is no internationally agreed system for generating statistics on income and
wealth for agricultural households that parallels the OECD coordination of a set of aggregate Economic
Accounts for Agriculture (activity accounts) and associated indicators for its Member Countries based on
methodology established by Eurostat for use in the European Union. What exists at national level is patchy,
contains large gaps and uses different methodologies, a factor that hampers comparisons between countries.
Typically the surveys on which most evidence is based relates to a non-constant sample that is shrinking over
time, with the snapshots at single points in time hiding a considerable amount of contrary short-term
movements (“churning”).

Nevertheless, some broad generalizations are possible from existing results (Chapters VIII and XIV)
that support the need for better information on agricultural household incomes that cover more than just the
income from agricultural activity. These include the following:

- The income from farming alone substantially understates the overall income that agricultural
  households receive, so judging their economic situation only on the basis of agricultural
  income will overstate the problem of low-incomes and associated poverty. The relative
  importance of non-farm income seems to have been increasing over time (though the
  non-constant nature of most samples makes this conclusion. Multiple income sources are
  found not only in OECD countries but also in less developed ones and economies in
  transition.

- The stability of total household income over time is greater than that from farming alone, so
  judging the instability problem will be overstated if only farm income is considered.

- Consumption spending is more stable over time than income, suggesting that farm
  households save and dis-save to cushion income variations. This is compatible with the
  permanent income hypothesis in which consumption is sensitive to long-term income
  prospects and relatively insensitive to short-term movements. In developing countries
  access to credit is a key factor in allowing consumption to depart from income.

- The distribution of incomes among farm household in OECD countries is generally made
  less unequal when total income is considered rather than the income from farming alone.

- In many developed countries the disposable income of farm operator households compare
  favourably with the national average, suggesting that farmers and their families as a group
  do not form a particularly disadvantaged group in society. The position is somewhat eroded
  when incomes are measured per household member or per consumer unit.

- Wealth and income are linked, especially in agriculture where land prices reflect inter alia
  the profitability of farming. In the few OECD countries where wealth statistics are
  available, farm households are typically more wealthy (and substantially so) than the rest of
  the population. While some agricultural households have both low-income and low wealth,
  far commoner situations are where low-income is found combined with high wealth, or
  where both wealth and income are large.

- These findings on relative income and wealth positions of farm households have
  implications for countries (including the European Union) that have policies aimed at
  ensuring a fair standard of living for the agricultural community.
XV.3.1 Methodological issues in measuring agricultural household income and wealth

The second section of this Handbook is largely concerned with discussion of methodological issues that have to be confronted when developing statistics for agricultural households and in reviewing what countries actually do when attempting measurement. The choices made reflect the purposes for which the statistics are required; within a single country there may be a range of uses that, in an ideal world, would be met by using different concepts. For the sake of international comparability the same methodology needs to be applied across a range of countries, but this risks imposing definitions on circumstances for which they are not entirely appropriate. Methodology also has to take into account the practicality of being put into operation, which will be usually determined by available data sources. In reality the methodology usually turns out to be a compromise. This is why it is valuable to understand the background against which decisions on methodology took place and the process by which choices have been made.

The main methodological issues concern the following:

- Definition of a household (dwelling and single budget units).
- Method of measuring household size and use of equivalence scale.
- Classification of households into agricultural and other; employee households, subsistence producer households. This, combined with the definition of a household, essentially results in a definition for an agricultural household.
- Measure of income, including the coverage of both money income and income in kind, imputed flows, disposable income (after the deduction of non-optional deductions such as taxes), and broader approaches that take into account in-household activities.
- Measures of wealth, and economic status.
- Distribution of incomes, indicators of inequallity, and the measurement of poverty.

Though this Handbook stops short of making recommendations, it does indicate good practice in approaching each of these issues. It recognizes the following:

- Definitions of a household, an agricultural household and related matters (Chapters IX to XII):
  - A flexible but transparent approach should be taken to the definition of a household. While income measurement on the basis of the complete dwelling household should be undertaken to facilitate comparisons, both internationally and with national data sources, data should also be available to allow the application of the concept of the single budget household which in some circumstances may be preferable (Chapter IX). However, the concept of a household applicable in OECD Members may require modification for use in developing countries.
  - In addition to income per households, the calculation of income per household member and per consumer unit (using national equivalence scales) should be undertaken. Details of Equivalence Scales should be made available as metadata. The basis of these scales may vary between countries at different stages of economic development.
  - Data should be available to develop estimates of income for households defined as agriculture in a number of ways, as no one definition will suit all purposes. This flexible approach should permit a coverage of all households that earn any income.
from self-employed farming activity. However, for many of these farming will be only a very minor activity. Particular policy interest focuses on a more narrowly defined sub-group, where agriculture is the main income of the household (smoothed to take into account the year-to-year variation anticipated by farmers, for which averaging over three years is advised). This “narrow” approach facilitates comparisons with other socio-professional groups selected in a consistent manner. Where it is not possible to classify using the household’s main income source, the Handbook recognizes the use of a reference person system, where the person is normally the main income earner and households are classified as agricultural or as belonging to some other socio-professional group according to that person’s main income (or occupation). For other purposes, selecting from the “broad” coverage by farm size (and other criteria) may be undertaken. Studies should be made to assess the significance of adopting alternative bases of classification and different coverages.

- Steps should be taken to avoid misrepresentations when drawing comparisons between the income situation of agricultural households and other socio-professional groups. At the least, this should include income comparisons per household member and per consumer unit.

- The income of households that operate family farms as corporations requires special attention, as income comes not as self-employment income but from employment and from property. They may be treated as quasi unincorporated. Results should be shown separately for the households, which would enable exclusion or inclusion with other agricultural households according the user needs.

- The income situation of the households of hired agricultural workers (that is, those that do not have entrepreneurial responsibility) should be assessed as a separate and supplementary exercise. An ability to analyse by the type of business on which they are employed should be incorporated (family farm, corporate farm etc.). In developing countries this category will include landless workers in agriculture.

- As a special case of the above, in countries that previously operated socialised forms of production, the income situation of the households of hired workers on all large-scale agricultural units (whether arranged as cooperatives, other forms in which there is some entrepreneurial responsibility, or corporations) should be assessed as a separate and supplementary exercise, including a breakdown of the type of unit on which they are found and the forms of income they receive (wages, profit share etc.). These households may also be subsistence producers. How they should be treated is a matter for further discussion.

- There is value using flexible typologies of agricultural households that reflect the needs of users, and their development is encouraged. Consideration should be given to the international application of a classification similar to that used by the USDA-ERS.

- Definitions of income and related matters:

- Bearing in mind the methodologies of national accounts and the recommendations of the Canberra Group of Experts relating to general household income statistics (Chapter X), the Handbook recognizes the value of applying a simplified definition of disposable income when measuring the income of agricultural households, as
shown in Figure XV.1. When presenting results, information should be available for the separate items shown in this definition.

- Basic statistical characteristics of the distribution of incomes of agricultural households should be calculated, including medians and quartiles, and measures of inequality and of poverty based on them (Chapter XI). In developing countries the measurement of consumption may be superior to that of income in the assessment of living standards and poverty.

- The use of Lorenz curves, low-income rates etc. is encouraged, with comparisons drawn over time, geographically and between agricultural households (variously defined) and other socio-professional group, suitable attention being given to hazards in these comparisons. When setting income poverty lines no particular methodology is preferred, though metadata on the methods used should accompany results.

- Household net worth is the summation of farm net worth (assets minus debts) and non-farm net worth (assets minus debts) (Chapter XII). Farm households may have multiple sources of farm and non-farm assets and/or liabilities. To help ensure accuracy and completeness of estimates, net worth measures should take into account both farm and non-farm sources of wealth. Estimates of net worth should also recognize that farm wealth may not be entirely owned by farm households.

- Indicators that combine income and wealth in a single indicator should be explored (such as estimates of Economic Status). Comparisons between agricultural households and other socio-professional groups must be done with care over the issue of assets used in production.

The review of current methodological practice in measuring the income of agricultural households in OECD countries (Chapter XIII) shows a range of definitions in use and mixed treatment of elements in income (such as imputed flows) and the use of equivalence scales. Of particular significance are the differing approaches used to the coverage of agricultural households in the statistics.

Countries fall into two main groups in this respect. First there are those that take a “broad” approach and include among agricultural households all those that operate a farm (usually defined in terms of an agricultural producing unit whose size is above some threshold that separates it from a domestic garden or hobby production). Examples are found mainly where agricultural household statistics are based on censuses or surveys of farms (or agricultural holdings). Second are those countries that apply a more selective approach designed to include only those households that have agriculture as their main source of income or activity, with the assumption that these are the main target of support by agricultural policy. In the European Union, Eurostat’s IAHS statistics have given priority to this “narrow” approach (an important factor being that this facilitates comparisons to be made with other socio-professional groups) and its influence is clearly observed among Member States. Other examples can be found that fall between these approaches or select in different ways.

Only rarely are results presented using alternative definitions in the same country. When this happens within a single dataset, or other means of drawing comparisons are possible (such as with agricultural censuses), it is clear that the choice of definition often has a major influence not only on the number of households classed as agricultural but also on the results in terms of income level, composition and comparison with other socio-professional groups. This finding points to a need for caution when using unharmonized results and the desirability of agreeing on key elements of methodology for international studies.
Figure XV.1
Recommended definition of net disposable income for application to agricultural households

Net income from self-employment (money income and in kind)

Net income from self-employment (operation of unincorporated businesses, or incorporated businesses that can be treated as quasi unincorporated because of family operation and ownership) after deduction of intermediate consumption items, interest on business loans, rents on land and business property, and a depreciation allowance for capital consumption. This will include net profit or loss in money form and the value of other income in kind, such as the value of output used for barter and for own-consumption, net of cost of inputs used in their production.

*Of which:*

(a) self-employment in agriculture (money income and in kind)
(b) self-employment in other industries (money income and in kind)
(c) imputed rental value of owned dwelling

+ **Cash wages and salaries,** earned from dependent activity in enterprises (institutional units) that may be agricultural or non-agricultural in nature

(= Primary income)

+ **Rent received**
  (a) net rents from the letting of property other than land
  (b) net rents from the letting of land

+ **Other property income**
  (a) net interest received (interest received less interest paid, though payments should not include interest already deducted in calculating profits)
  (b) dividends received

+ **Social transfers received**
  (a) Social insurance benefits from employers’ schemes
  (b) Social insurance benefits in cash from government schemes
  (c) Universal social assistance benefits in cash from government
  (d) Means-tested social assistance benefits in cash from government

+ **Other current inflows**
  Regular inter-household cash transfers received such as transfers from relatives living and working abroad

= **TOTAL INCOME**

- **Current taxes on income and wealth**

- **Non-discernment social contributions (payments to social security schemes)**
  a) by members of agricultural households as self-employed person
  b) employee social contributions (only) relating to income from employment

= **NET DISPOSABLE INCOME** (note: this is not adjusted for the receipt of social benefits in kind)
XV.3.2 Provision of data – the data system for agricultural household income measurement

The provision of data is, in practice, the most fundamental problem facing the development of statistics on the income and wealth of agricultural households. As in the case of rural statistics, without data the discussion of methodological issues and identification of good practice loses much of its relevance.

Reviews of data sources in developed countries have been published by Hill (2000) and the OECD (1995, 1999). This Handbook has not attempted to update this work, which mainly took place in the later 1990s. Rather, it has concentrated on cases studies where data are robust enough to enable patterns in the results to be identified (Chapter XIV).

Among OECD countries the three main generic sources of agricultural household income are farm accounts surveys, general household expenditure surveys (which increasingly also cover incomes), and taxation records. Each has well-known advantages and disadvantages (Chapter XIII). In developing countries household surveys (Living Standards Measurement Study (LSMS) surveys) are the principal method of data collection.

Though there is some information on agricultural household incomes in all OECD countries, wide variations are found in the availability and quality of data. A few countries have several good data sources on which to base statistics, sometimes having the ability to link datasets to provide a powerful and flexible tool of analysis. Examples are the Scandinavian countries with their income registers. Elsewhere a single survey may provide a sufficiently robust base (for example, the ARMS survey of farms in the United States). However, many countries do not have a single satisfactory microeconomic data source, a group that contains several EU Member States. Situations occur in which simultaneously the national farm accounts survey does not include questions on other sources of income that are necessary to establish household income, where the taxation of farmers does not yield information on actual incomes, and where the household budget survey either generates too few agricultural household cases for the results to be reliable or where the quality of income data is unacceptably poor. This gap in was one factor that led Eurostat’s IAHS statistics, initiated in the late 1980s, to take a sector-level approach based in national accounts, one which is less dependent on good quality microeconomic data though these are usually still needed as distribution agents for economic aggregates (Eurostat, 2002). In the more recent discussions on the need for statistics on agricultural household incomes emphasis has once more switched to microeconomic data as a primary source, as it is acknowledged that in many respects only microeconomic data can provide answers to many of the important policy questions.

Developing the data systems of OECD countries so that they are capable of servicing statistics on agricultural household incomes are matters for national governments and their statistical authorities. Making use of existing regular farm surveys for which there a continuing commitment by extending coverage to household income and wealth has obvious attractions. Adding value to tax data by modifying the ways that they are processed and accessed in order to provide economic information may be relatively low-cost. Boosting sample sizes of agricultural cases in general household surveys and improving quality of income data, perhaps by establishing links with farm accounts surveys, may be another possibility. Sometimes only a completely new survey is adequate. Each of these advances implies costs, not only in terms of resources used by the data system but politically and in the potential impact on the rest of the statistical system (such as by affecting response rates among cooperators in existing voluntary surveys). Countries will need to appraise their particular opportunities and costs and the routes chosen by which to provide data will probably differ.
By establishing the main elements in the methodology of statistics on agricultural household incomes, it is hoped that Handbook will assist in identifying the **direction in which data systems should be moving**, if not the exact path by which they should get there.
References


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