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Income statistics for the agricultural household sector

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This publication comprises the proceedings of the Eurostat international seminar 'Income statistics for the agricultural household sector', held in Luxembourg on 10 and 11 January 1996.

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Income statistics for the agricultural household sector

Edited by
B. Hill

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INTRODUCTION AND SUMMARY

INTRODUCTION TO THE EUROSTAT INTERNATIONAL SEMINAR ON INCOME STATISTICS FOR THE AGRICULTURAL HOUSEHOLD SECTOR AND A SUMMARY OF ITS OUTCOME

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SUMMARY

Information on the overall income situation of farmers and their families is increasingly necessary as a background to decision-making in agricultural and other policies. Until recently, statistics of this type had not been widely available, attention being confined to the incomes arising only from agricultural production; though the gap is now being filled by such developments as Eurostat's Total Income of Agricultural Households (TIAH) statistics. The purpose of the Eurostat Seminar was to bring together three groups (statisticians from a wide variety of backgrounds, policy-makers, and independent observers such as academics) for an interchange of ideas on methodology and to comment on results. From the papers contributed and discussions, a number of themes emerged that are of relevance to the way that income problems in agriculture are perceived. Major among these is the important contribution that other sources of income make to the overall income situation of households that operate holdings.

1 BACKGROUND AND RATIONALE OF THE SEMINAR

Statistics on the overall income situation of the agricultural community reflect a central concern of the European Union's (EU's) Common Agricultural Policy (CAP), and of the national policies of almost all OECD countries, with the living standards of farmers and their families. Reform of policy has often been opposed on the grounds of the implied negative impact changes would have on the incomes of farmers.

Income from sources outside farming are often important to agricultural households. About one third of EU farmers have some other gainful activity as self-employed persons or as waged employees; many farmers receive income from property, pensions and other welfare transfers. Spouses and other members of the family may also have non-farm incomes that reduce the dependency of the household as a whole on agriculture. Non-farm income sources have implications not only for the income levels of agricultural households, but also for their land-use decisions, for their investment behaviour on and off the farm, and on farm viability. Hence, an adequate description of the income situation of farmers throughout history has required some attention to both their income from farming and from other sources.

Taking a long-term view suggests that multiple sources of income is the normal experience for households that operate agricultural holdings. The paradigm of farmers and their families being solely engaged in agriculture and solely dependent on it for their

income, though commonly held as valid in the decades of post-war recovery, is far from reality and was probably always an over-simplification. Increasingly, farming families have been encouraged to develop alternative income sources as a way of adapting to the changing economic situation that faces agriculture. The 1988 reform of the Structural Funds and the publication of *The Future of Rural Society* marked a recognition that the support of agriculture was an integral part of the support to rural areas in general, though this role varied greatly across the EU according to the diverse types of problems faced. Diversification of the rural economy and of on-farm activities into non-agricultural forms were part of this strategy; more income from non-farming sources to households that operate holdings is a consequence of this broadening of the economic base. The CAP reforms of 1992 are likely to cause farm households to further restructure their activities, with a greater participation in the non-agricultural economy. Alongside these changes is the continuing role played by pensions and other social transfers that contribute to the well-being of farm families. These forms of income call into question the very definition of what is an agricultural household and who are the intended beneficiaries of support under the EU's agricultural policy.

However, for largely historical reasons, in practice official data systems monitoring incomes in agriculture have tended to concentrate exclusively on income from independent activity in agriculture. This is the case with income monitoring within the European Union's macroeconomic and microeconomic data systems (Eurostat's aggregate indicators derived from the Economic Accounts for Agriculture, and the Farm Accountancy Data Network, supervised by the Commission's Directorate-General for Agriculture, DG VI) and is a feature of many national systems. Statistics on farmers' household incomes have not been available in most Member States. In order to fill this information gap, Eurostat has developed a harmonised methodology for estimating, at aggregate level, the total income of agricultural households in EU Member States. TIAH statistics are designed to throw light on issues such as the composition of household income, how the components of income (including that coming from farming) change over time, and the how the level of disposable income of agricultural households compares with that of households in other socio-professional groups.

In developing the TIAH statistics, many important questions relating to both statistics and policy have been raised. Most of these are not unique to the particular circumstances of the TIAH statistics. Statisticians working with farm accounts surveys, household budget surveys and other microeconomic data sources are likely to encounter similar questions. Experience in the USA and Canada suggests that they are universal. Because the income of farmers and their households is measured with the intent of facilitating decisions in agricultural and other policies, many of the questions require an input from policy-makers before satisfactory answers can be reached.

Eurostat felt that early 1996 was an appropriate time at which to hold an International Seminar on income statistics for the agricultural household sector. A report on TIAH statistics had just been published (4) and covered, for the first time, all 15 Member States. A revised Manual of Methodology had been issued (3). Developments were taking place in related data sources that needed to be acknowledged, such as a review by the OECD of farm- and household-level data on total incomes, attempts by the European Commission Farm Accountancy Data Network (FADN / RICA) to extend survey questions

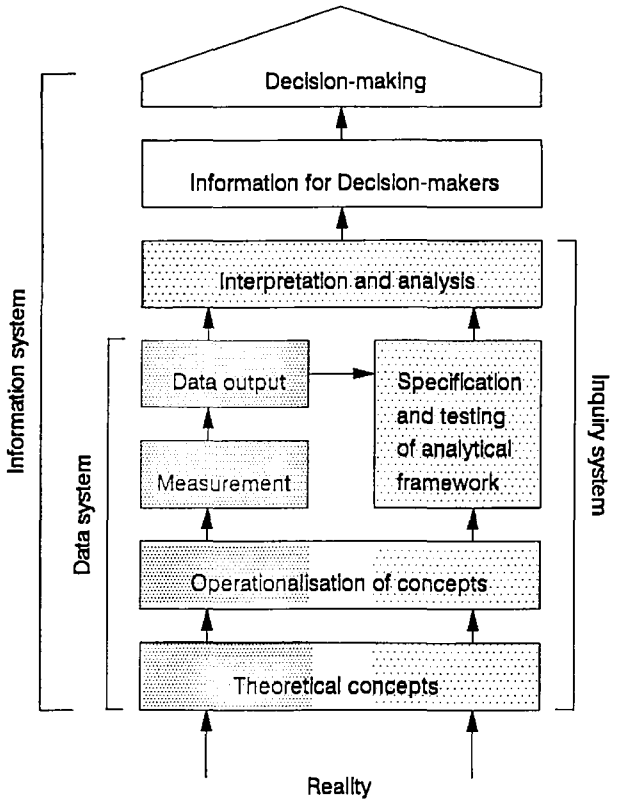
to non-farm income, and the first full survey by the European Community Household Panel, a large-scale exercise designed to cover all categories of household and in which some farmer-households cases are expected to appear.

A main purpose of the Seminar was to achieve a better contact and exchange of ideas between the various parts of the agricultural information system. Three distinct groups of institutions and individuals were identified, each with their own set of objectives and interests. The first consisted of the providers of data on incomes (in the context of the EU these were Eurostat and the FADN) and the second of the users of data (policy-makers in the Commission, national governments, interest groups, academics etc.). These two groups are divided rather hazily by the step of interpretation of results, by which data are turned into information; both may perform this task, but from their own perspectives and with their own limitations. These correspond to the left and top parts of the diagram of the agricultural information system shown in Figure 1. It is commonly found that communication between these two groups is often less than ideal because of their separation within public administrations. Providers run the danger that, once a data system is established, they will become preoccupied with simply generating results on an annual basis and improving the quality of those results, thereby failing to respond adequately to changing policy requirements. On the other hand, policy-makers may not appreciate the need by statisticians for their input into the process of defining the concepts which lie behind data (such as the agricultural household) and of turning these concepts into measurable entities ("operationalisation"). Without this input it will be difficult for statisticians to provide adequate data that assists in policy-making.

A third group whose involvement is vital for an efficient and responsive statistical system are those individuals and institutions concerned with the "inquiry system" part of the larger information system (see Figure 1). These are (usually) found in the university and research institute sector. It is rare for statisticians concerned with producing series of results to have a great deal of time to ask themselves fundamental questions such as the following:

- what are the most appropriate concepts to use (such as, what is really meant by the terms "fair standard of living" and "agricultural community" that appear in the Treaty of Rome)?;
- what are the most appropriate measures to use as an approach to these concepts (which forms of income to employ, which ways of defining the agricultural household to adopt)?

Figure 1 An agricultural information system



After Brinkman, G. L. (1983) "Agricultural policy formation and farm income needs" In: Loyns et al.(5)

Discussion among statisticians of the faults in statistical systems tend to concentrate on measurement deficiencies (inadequate sample sizes, poor quality data collection etc.). However, perhaps even more important is the failure to collect the appropriate statistics (that is, to use the appropriate concepts made practical in the best way). These are the sorts of questions that the "inquiry system" group will typically be concerned with. Their input is particularly important when policy requirements are changing, since they add to the pressure on data systems to respond to the new policy *milieu*.

2 OBJECTIVES OF THE SEMINAR

It is through an internationally shared experience that benefit can emerge from bringing these three groups together, especially at times when changes in statistical needs are evident. A number of specialist seminars or "task-force" workshops covering income measurement in agriculture can be found in literature (especially in north America)(1)(2)(5).

The Eurostat International Seminar on Income Statistics for the Agricultural Household Sector was designed to reap benefits from such an interchange of perspectives and experiences. The Seminar's objectives were:

a) to give providers of EU data on the total income of farmers and their households a policy context for their work, which should enable them to devise statistics that serve needs better. This group consisted of statisticians working at macroeconomic and microeconomic levels in Member States and European Union institutions.

b) to bring EU users of data, principally comprising policy-makers in the public sector but also academics and others, into direct contact with the problems of generating reliable statistics that provide the sort of information they require, thereby enabling users to be more precise in stating these requirements;

c) to place the issue of total income measurement of agricultural households in the EU in an international context, to expose its strengths and weaknesses and to suggest lines of development;

d) as a result of the above, to enable the EU's statistical system to be more efficient in both the static sense (whereby current needs are met) and in the dynamic sense (in that better contacts lead to a system that is more responsive as policy evolves).

3 PROGRAMME

The programme took the form of four sessions, spread over two days.

The first (*Income Statistics and Policies*) dealt with policy issues requiring income information from the standpoint of official policy-makers, taking the cases of the CAP, agricultural policy in Canada, and the national policy of Germany.

The second (*Methodological Issues*) looked at the conceptual, operational and measurement problems of providing information from official sources to aid policy-makers (see the Figure above). The methodology of Eurostat's aggregate TIAH statistics formed the starting point. As a contrast, the microeconomic approach used in the USA (the USDA's *Farm Costs and Returns Survey)* was described. The methodologies of two EU microeconomic sources covering all Member States were outlined - the Farm Accountancy Data Network (co-ordinated by DG VI) and the household budget surveys and European Community Household Panel (co-ordinated by Eurostat). An additional paper looked at a typology of agricultural household employed within a study of pluriactivity that covered many Member States.

The third (*Results*) gave an overview of findings based on both aggregate and micro-level results. Again, Eurostat's TIAH statistics formed the starting point, having the advantage

of a harmonised methodology and coverage of all EU Member States. These appear to be of great importance to the way that the income problem faced by agriculture is perceived. The findings were complemented by the OECD survey of microeconomic data that emphasised distributional aspects (frequency of low income households, variations by size and type of farm etc.), making a strong case for sets of statistics at the two levels that can complement each other. As an example, a study in Germany traced income differences further by looking for and quantifying explanatory factors.

The fourth (*Policy and statistics: implications of results)* was more wide-ranging, with contributions mainly from people outside the system of official statistics (academics and a farmer representative). Aspects covered included whether there was still an income problem in agriculture and the way that income results could be interpreted. In some southern Member States, the family structure and problems with data collection posed particular conceptual and practical problems. The perceived need for information on the total income of agricultural households depended heavily on the perception of the CAP as being primarily a social policy, but this view was challenged. For other purposes (such as protecting the environment) this information was not relevant.

Details of the individual papers are given later. Within each session time was set aside for discussion; a summary of the main points raised is included with the published papers.

Responsibilities and administration

The programme was designed by a team consisting of Fritz Pfähler and Edward Cook (Eurostat, Unit F-1) and Berkeley Hill (Wye College, University of London - external expert). Approval was given by Member States through the Working Party of the Agricultural Statistics Committee on the Economic Accounts for Agriculture, which has overseen the development of the TIAH statistics. The Seminar was seen as an extension of the work on TIAH statistics.

Financial support was provided by Eurostat. Administration was undertaken by DG IX/BOCC (Liette Eisen)

4 EVALUATION OF THE SEMINAR

In that the function of the Seminar was to bring statisticians, policy-makers and other experts into closer contact and improve their communications, the main intended benefits will only emerge with the passage of time. However, some intermediate indicators point to a successful outcome.

- Some 150 participants attended, drawn from EU Institutions, Member States, other European countries (including several in eastern and central Europe that are prospective Members), the USA and Canada. Groups represented included all three of the targets previously identified (policy-makers, statisticians, academics etc.). The statisticians present came from many backgrounds (including national accounts - both general and agricultural, microeconomic surveys of farms and of households). The academics were similarly varied (including policy analysts, household behaviour analysts, farm management specialists etc.). This revealed a high level of interest in the Seminar's topic and, hopefully, the prospects of beneficial interaction.

- The responses expressed by participants have been entirely positive, both to the contents of the programme and to the organisational details. This was seen as a clearly-focused event, from which identifiable benefits flowed to participants, and one that was organised in a highly professional manner.
- There has been a substantial media interest in the outcome of the Seminar, with requests for papers.
- There were some obvious themes emerging from the papers and discussion that can form the basis of future development in agricultural statistics.

Main themes emerging from the Seminar

It is worth articulating the main themes that emerged from the Seminar. These appear to be as follows:

- Statistics on total incomes of agricultural households were widely recognised, by many groups of users of statistics represented at the Seminar, as being of importance to agricultural and other policies, both in the EU and elsewhere and to monitoring and explaining change in the agricultural community. They provide useful information not otherwise available from income measures that relate solely to the residual rewards from agricultural activity (such as Eurostat's Indicators 1, 2 and 3 or FADN's Farm Net Value Added or Family Farm Income). Therefore there is a need for official statistical systems to be active in this area. Within the Commission TIAH statistics are seen as part of a basket of data that provides background information for different policies. As far as Eurostat is concerned, this underlines the continuing need for a portion of its resources to be devoted to its TIAH statistics.
- Macroeconomic statistics can only provide part of the picture of the income situation of agricultural households, though TIAH results have the advantage (within the EU) of a harmonised methodology which can facilitate comparisons. It is obvious that complementary microeconomic information is also required to throw light onto the many important issues that concern the distribution of incomes, such as the numbers and location of agricultural households whose total incomes fall below some socially-acceptable minimum (there is evidence to suggest that incomes in agriculture are more unequally distributed that among other groups). Others include the disparities between farms of different sizes and types. This gap in statistics for the EU represents a major problem that participants at the Seminar felt should be addressed.
- The provision of statistics based on households (in contrast to the agriculture branch of the economy, or the farm business or holding) presents conceptual and practical challenges to statisticians. These include the choices of the appropriate definition of an agricultural household and of the most suitable definition of income. From a practical standpoint, data sources may have to be drawn upon that are outside the experience of statisticians used to generating production-based agricultural income indicators, involving greater co-operation with non-agricultural institutions.
- A recurring theme at the Seminar was that, in order to facilitate the provision of statistics in an efficient way, policy-makers should be encouraged to make their requirements for information more explicit. Though a spectrum of views about policy objectives (such as the role of income support) is inevitable in a EU that contains a

number of countries with various types of agriculture, a more precise indication of statistical requirements would assist the planning and provision of this information.

- Results presented at the Seminar demonstrated that the assumption that operators of farms and their families are solely dependent on farming for their livelihoods and use all their resources on agriculture is no longer tenable. The explanation of farm behaviour needs to acknowledge that farm families allocate their resources between the farm, other gainful activities, maintaining the household and leisure. A narrow approach risks serious error in the interpretation of observed behaviour (such as the productivity of labour used on the farm) and constrains the ability to making predictions. Similarly, the common simplifying assumption that each holding has only one farmer and one household is clearly invalid in the context of measuring the income of households who are mainly dependent on farming for their livelihoods.
- Taking all income sources into account transforms the income situation of farmer households, which has an impact on the way that the income problem of the agricultural community is perceived. According to the TIAH statistics, on average, agricultural households (those where the reference person has farming as their main income source) have total incomes that in most EU Member States are near or above the national all-households average. Non-farm incomes add a degree of stability to household incomes, and farmer-households tend to cope with variations in income by saving or dis-saving rather than by altering the amounts they spend on consumption.
- The heterogeneity of households that operate holdings was underlined in the results given in several papers at the Seminar. TIAH statistics demonstrated that among groups of households where the head is *not* primarily dependent on farming for a livelihood - and these account for more than half the holdings in the EU - the household as a whole receives very little of its income from farming. Changes in the prosperity of farming make little difference to total income. Other, more complex typologies of agricultural households may be appropriate for studying, for example, response to policy reform.
- A conclusion drawn by several commentators on policy at the Seminar was that for many farmers there seems to be no real income problem. Where it exists, it is likely to be confined to particular sets of circumstances. Blanket forms of income support are unlikely to provide an appropriate way of tackling these problem cases and are inefficient as a means of welfare transfer. A divergence of views existed as to whether *agricultural* policies are suitable as mechanisms for achieving income-distribution (*social*) policy aims, though participants agreed that, in practice, the CAP has important social connotations in many Member States.
- The more complex pattern of income sources presents a greater challenge to statisticians in describing the income situation in agriculture and to policy-makers in their decisions on the need for policy action and the most appropriate alternative means to achieve goals.

These points carry implications for the ways in which incomes are seen within the context of agricultural policy and for the official information system in the EU. They are likely to form the basis of further discussion among and between the three groups of participants at the Seminar - the policy-makers who use income statistics to form decisions, the providers of official statistics, and independent observers and researchers. In particular,

they will be considered by the representatives of the statistical authorities that form the Working Party on the Economic Accounts for Agriculture and who have been responsible for the direction of the development of Eurostat's TIAH statistics.

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PROCEEDINGS OF THE SEMINAR

WELCOMING ADDRESS

Fernand BODEN
Minister of Agriculture, Viticulture and Rural Development
of the Grand Duchy of Luxembourg

Director-General (Yves FRANCHET)
Chairpersons for the different sections of the Seminar,
Speakers,
Ladies and Gentlemen,

I have the honour and the pleasure of welcoming you all to Luxembourg-Kirchberg on the occasion of the International Seminar on Income Statistics for the Agricultural Household Sector organised by Eurostat, the Statistical Office of the Commission of the European Union. I am particularly pleased that the Seminar is being held on the Kirchberg plateau, where I hope you will all be highly satisfied with the working conditions.

Over the next two days, your attention will be focused on the statistical, methodological, political and practical aspects of Incomes in the Agricultural Household Sector. Agricultural incomes are a constant preoccupation for a Minister of Agriculture and the improvement of the incomes of everyone working in the agricultural sector is something I regard as an everyday challenge. The economic and social roles of agriculture transcend the simple production of foodstuffs. The multiplicity of its tasks is generally recognised and the need for adequate remuneration for their accomplishment is generally accepted.

And yet, the income situation of farmers in my country leaves much to be desired. In spite of the major efforts that have been made to restructure and rationalise this sector, the incomes and social conditions of the farming population in Luxembourg have deteriorated since the beginning of the nineties to such an extent that they have lagged further and further behind the other socio-professional categories, and this economic leeway will be very difficult to make up for some years to come. Things are not very different, I think, in a considerable number of other countries not only within the European Union but also in the world beyond. Hence the need to find ways of improving this situation and establishing firmer foundations for agricultural incomes so as to reduce their exposure to the vagaries of short-term economic trends.

The Seminar covers more than the question of agricultural incomes to include not only the extra-agricultural incomes of the persons employed in the agricultural sector but also the incomes of those persons who are not actively employed in the agricultural sector but are members of agricultural households.

From the purely scientific standpoint, such an approach would seem to be useful and would obviously help to improve the transparency of the financial situation of our farmers. From the political standpoint, however, one has to ensure that incomes in the agricultural household sector are protected from the adverse impact of such analyses by taking due account of the multiplicity of its functions which consist in providing the population with high-quality foodstuffs, preserving the countryside and protecting the natural environment. It is also essential, from the scientific standpoint, to be able to compare the data on the

global income of agricultural households, obtained in this way, with comparable data for the other socio-professional categories.

In Luxembourg, the collection of data on incomes in the agricultural household sector is in its infancy; in other countries, and especially in North America, a more substantial supply of more precise data has been available for some time now.

I am sure this two-day seminar will enable the enrichment of our existing knowledge, the discovery of new aspects and even the creation of a new platform extending beyond the boundaries of the statistical domain for use by the political decision-makers and the various economic actors.

The gathering together, in a single forum, of the widest possible range of experience and interests is obviously one of the main objectives of the organisers of this Seminar. I believe, Director-General, that you and your staff have certainly attained that objective. We have with us today, and I would like to greet them all in passing, not only the representatives of the 15 Member States of the European Union but also the delegates from the United States and Canada and the twelve representatives from the Countries of Central and Eastern Europe, to whom I would like to extend a particularly hearty welcome. I hardly need to remind you that a large number of the Countries of Central and Eastern Europe are currently engaged, at the institutional level and in the domain of international trade, in a very important process of "rapprochement" with the European Union.

I would like to close my short welcoming address by wishing you two days of fruitful activity from which we will all be able, not only in our respective countries but also at the level of the competent international organisations, to derive the maximum possible benefit.

OPENING SPEECH

Yves FRANCHET
Director General EUROSTAT, European Commission

Minister, colleagues

Welcome to the Seminar on Income Statistics for the Agricultural Household Sector, to which we have the pleasure of welcoming representatives from the EU, Eastern Europe, the Baltic countries, the United States and Canada.

Summary of the historical background to the Seminar

The CAP has greatly changed, and will continue to do so, under the strong and increasing influence of the liberalisation of world trade. We are gradually passing from a price support system to an income support system.

The principle remains the provision of adequate support for the *standard of living* of the *agricultural community*. But we have to know exactly what is meant by:

- the agricultural community
- standard of living
- adequate.

In the course of recent decades, agricultural producers have diversified their way of living and their patterns of production, and their sources of income have also become diversified. In a growing number of cases, the overall income of an agricultural household has increased, whereas its income from agriculture has declined. The basket of economic indicators used for monitoring the impact of agricultural policy was initially concentrated in the part of agricultural household income which was derived from agricultural production, and no attention was paid to the various other sources of income in this sector. In 1985, the Green Paper on the future of the CAP highlighted the need for measures to remedy this shortcoming and for new and more global statistics on agricultural incomes.

To meet this need, Eurostat has launched a series of studies of the Total Income of Agricultural Households. Two of the many such studies which have already been carried out will be presented at this Seminar and will focus, in particular, on the methodological problems which have been successfully tackled and the results which have been obtained. These activities have raised a large number of questions (which have also had implications for other types of studies) pertaining to the use of statistics in the field of economic policy.

Eurostat's mission within the European Union consists in providing its users with a high quality statistical information service. In the case of agriculture, that involves the provision of support for the departments responsible for the CAP in the form of high quality statistics which are as up-to-date and as harmonised as possible. These statistics must not only enable a global overview of the problems studied but also serve as a basis for the more

detailed analysis of certain aspects. Should we not, therefore, approach the question of the non-agricultural incomes of agricultural households in two different ways, so that the global aspect of the problem is covered by the macro-economic statistics of national accounts, while the other aspects relating, *inter alia*, to distribution, are covered by access to micro-economic sources enabling an analysis of the extent to which certain groups of households suffer from declining incomes?

It is essential to discuss these questions and the ways in which they can be solved by obtaining statistical series which are comparable across time and space.

A seminar which can profit from the experience acquired at an international level is an excellent platform for carrying the discussion forward and enabling the comparison of the different solutions. Hence the four objectives of our seminar are:

- to improve the definition of the needs of the CAP
- to present the methodologies used and to identify the problems encountered
- to present the results obtained and the corresponding analyses
- to reflect on the implications of these analyses.

Some of the speakers have come from far away, and I am particularly indebted to Dr Mary Ahearn and Mr Brian Davey for crossing the Atlantic to help us; but I would also like to thank all the other speakers for their generous contribution to our work, together with the leaders of the four working sessions, as well as you, Minister, for opening our Seminar, and all the participants who are here today.

I wish you all an excellent seminar.

SESSION 1
INCOME STATISTICS AND POLICIES

Chairman: D. W. Heath, Eurostat

AGRICULTURAL INCOMES AND THEIR RELEVANCE IN THE CONTEXT OF THE COMMON AGRICULTURAL POLICY, RURAL DEVELOPMENT POLICY AND OTHER POLICIES

Andreas KORAKAS
European Commission, Directorate-General for Agriculture (DG VI)

I would like to start by thanking Eurostat for organising this seminar and for the efforts it has been making, for many years now, to improve the collection of statistics on the incomes derived not only from farming but also from non-farm sources in the agricultural household sector. Further work remains to be done on certain aspects of this question; but I can safely say that agricultural household incomes are not only one of the most effectively monitored statistical domains in the European Union but also the one in which the statistical information comes closest to meeting the users' needs at both the macro-economic and micro-economic levels.

I would like to remind you, in this connection, that the data to be found in the Economic Accounts for Agriculture and the Provisional Accounts established by Eurostat have long been supplemented by the those collected by the Farm Accountancy Data Network which was established by the Commission in 1965 with the principal aim of monitoring farm incomes and the economic situation in this branch of activity. These are two independent and complementary sources of information which have always played a vital role in the implementation and evaluation of the impact of the CAP. This stands to reason, since the main objective of the agricultural policy applied in most countries is essentially to keep the incomes of farmers and agricultural workers at an adequate level. This is particularly true of the CAP whose objective under the Treaty of Rome was defined, *inter alia*, as that of ensuring "a fair standard of living for the agricultural community", in particular "by increasing the individual earnings of persons engaged in agriculture".

Over the years since its formulation and progressive implementation, the pursuit of this objective has been the constant preoccupation of the CAP, although the resources and instruments for its realisation have been remoulded in response to the transformation of European agriculture which started in the 1960s and the new concerns which have emerged in the realm of agricultural policy and rural development.

For a long time, however, in spite of all these changes, the provision of support for the prices of agricultural products remained the central pillar of the CAP and consequently the privileged instrument for improving agricultural incomes in the European Union. Hence, in particular, the fixing of guaranteed producer prices and the application of various intervention mechanisms not only in the internal market but also on the external trading front with the direct or indirect aim of ensuring that the incomes of agricultural households were kept at an adequate level. For a limited number of products, the pursuit of this policy was based on alternative solutions (such as area-payments, etc.). But the price and market policies adopted in the agricultural domain have never been intended to provide farmers with a guaranteed minimum income or to enable the attainment of any other precisely quantified objective; and that would never have been a viable proposition in any

case in view of the diversity of the socio-economic situation of the over 800 million farmers of the European Union.

On the other hand, the aim of ensuring the comparability of agricultural incomes with the average wages of workers in other domains was pursued for many years under the terms of Directive 159/79 on the modernisation of agricultural holdings. For various reason, however, and especially with the aim of making it easier for farmers to qualify for the aid for investments available under the Directive, the income parity objective was practically abandoned in favour of the far more flexible objective of maintaining or consolidating the economic viability of the holdings which were eligible for the payment of the aid in question.

The socio-structural policy measure which was intended, for many years, to have a more direct impact on agricultural incomes was the Directive on farming in mountain areas and other less favoured areas of the Community. In these regions agriculture plays a fundamental role in the preservation of the natural environment and the maintenance of a minimum population. Hence the establishment, as from 1975, of a system designed to ensure the maintenance of agricultural activity via payments to compensate for the natural handicaps faced by farmers in these regions. The system covered approximately half the territory of the Community and made a very positive contribution to the effort to avoid the abandonment of farming activity and the depopulation of these less-favoured areas of the Community with all their harmful consequences for the natural environment and the economies of a considerable number of rural regions.

In spite of their weaknesses and limitations, all these measures and instruments had a very positive impact on the evolution of agricultural incomes in the European Union.

Thanks also to the pursuit of an ambitious restructuring process in the European agricultural domain, which greatly reduced the numbers of agricultural workers, the early years of application of the CAP were marked by a substantial rise in the level of income per production unit, at a rate which more than matched the uptrend for the economy as a whole. This positive development, which continued until the end of the 70s, was linked with the onset (or the aggravation) of the excess production of a number of agricultural products.

The 80s were marked by growing imbalances in the agricultural markets, both at the level of the Community and world-wide and by a slowdown in the agricultural market restructuring process witnin the Community due to the development of a generally less favourable economic environment, by an explosion of costs in the agricultural domain without any compensatory rise in farmers' incomes, and by the public authorities' increasing awareness of the adverse impacts of the abandonment of farming and all other forms of economic activity in many rural regions. The obvious conclusion, in the face of all these changes, was that the aim of improving incomes in the agricultural domain could no longer be realised by the price policy alone, especially as the re-establishment of the desirable degree of equilibrium in the agricultural markets would require its application in a far more restrictive form than hitherto.

The 80s also saw the extension of the range of CAP instruments to include many new mechanisms for controlling production and expenditure in the agricultural domain. These

may have had a negative impact on farmers' incomes in the short term but were nevertheless an absolutely essential part of the longer-term effort to get agriculture back on a more healthy economic footing. The adverse impact of these measures on incomes was partly alleviated, in any case, by the application of a series of accompanying measures with the aim of facilitating the adjustment process and minimising its negative socio-economic repercussions in the rural areas.

The most innovative of these measures was undoubtedly the introduction, in 1988, of a Community system of aid for agricultural incomes for the express purpose of providing direct and selective income support for the farmers who were most adversely affected by the adjustments that were underway without, however, providing any incentive for production which would only have added to the existing surpluses. Even the introduction of a voluntary set-aside system was regarded, at least initially, more as an accompanying measure than an instrument to be used for controlling production.

The reform of the CAP which got off the ground in 1993 was a major turning point in its history. It consisted, essentially, in the changeover from a policy founded on the principle of income support based on guaranteed prices to a policy placing more emphasis on the principle of direct aid for producers while at the same time taking account of the increasing degree of concern for the preservation of the environment and the socio-economic development of the rural regions.

The core of this reform consisted in the provision of support for agricultural incomes and their redistribution, to some extent, in favour of the holdings which needed them most, while at the same time not encouraging any increase in production or penalising the most efficient holdings. In fact, in addition to the achievement of a substantial reduction in the price support for certain products, such as cereals and beef, and the introduction of new and more effective measures for managing the supply side of the agricultural markets, such as the new set-aside scheme for arable land, the reform of the CAP involved the introduction of a system of compensatory payments designed to neutralise the negative impact of falling prices and the non-cultivation of arable land. An additional incentive for the adoption of more extensive methods of agricultural production was also provided by the severance of the links between compensatory payments and levels of production. The pursuit of this aim was furthermore supported by the establishment of an ambitious agro-environmental programme including, in particular, the introduction of a system of aid with the aim of encouraging farmers to adopt methods of production which are less harmful to the environment and another system of aid with the aim of ensuring the conservation of natural resources and the maintenance of the rural environment.

These changes reflect our changing attitudes to the role played by farmers in society and in the economy as a whole. In the past, in fact, the main if not the only role of farmers was considered to be the production of foodstuffs; but they are now increasingly seen as multifunctional actors in such vast domains as the protection of the environment and the maintenance of our rural areas. Hence the need to ensure their remuneration not only for their production of primary goods but also for the tasks they carry out in the fields of environmental protection and rural development.

It is still too early to establish a complete account of the impact of the reform of the CAP on incomes in the agricultural domain. Too many factors have been involved, and some of

them, such as the measures taken to improve the situation in the agricultural markets by the massive disposal of the stocks accumulated in the past, monetary fluctuations and adjustment of the green rates in various Member States, improvements in the general economic situation and the revival of world market prices, have contributed to certain rather spectacular improvements in farmers' incomes in the past three years. In spite of these reservations, the results achieved since the entry into force of the reform of the CAP bear witness to the attainment of its objectives as far as the level and security of incomes in the agricultural domain are concerned. Significant advances have also been made in the redistribution of support, although the process has not yet been carried as far as the Commission initially intended.

The main challenges to be met by the CAP of tomorrow are likely to consist, essentially, in the consolidation of the progress that has been made and the continuation of the effort to improve the efficiency and selectivity of the measures designed to provide support for agricultural incomes.

The Commission has already indicated, moreover, in a recent report to the Heads of State or of Government what it considers should be the major orientations of the CAP for the next ten years, in anticipation of a new cycle of multilateral negotiations and the enlargement of the EU to include the countries of Central and Eastern Europe. These orientations can be summarised as follows:

a) single-minded continuation of the reform of the CAP, on the lines which are already being pursued and which imply, in particular, the reduction in due course of the degree of dependence on price support for which compensation can be provided, if necessary, in the form of direct payments;

b) closer linkage of direct aid with the social and environmental objectives;

c) establishment of an integrated rural policy with the aim of ensuring a more even geographical distribution of economic activity, maintaining a critical level of rural employment and sustaining the viability of rural zones wherever it is justified;

d) simplification of the existing rules and regulations and the adoption of an approach designed to give more latitude to the Member States and the regional authorities in their implementation of the decisions taken at a Community level.

These are likely to be the main lines of development of the CAP over the next ten years. Hence the conclusion that the primary concerns of the CAP of the year 2000 will be the evolution of agricultural incomes, the further integration of the various aspects of agricultural market policy, the provision of support for rural development and the environmental policy aspect. The original aim of ensuring a "fair standard of living for the agricultural community" is therefore destined to remain a major preoccupation in the run-up to the end of the century, in spite of all the changes the CAP has seen in the course of the past thirty years.

In this context, the diversification of rural economies and the promotion of new farming and non-farming activities in the rural areas with the aim of replacing or supplementing the existing sources of agricultural household incomes will become increasingly essential in the course of the next few decades. But in order to take all these changes into account in the management and modulation of regional development policy, it is essential to have

an adequate statistical knowledge of these phenomena and their evolution as times goes by. Hence our unswerving support for Eurostat's efforts to keep a closer eye not only on the agricultural household incomes derived from farming but also on the role and evolution of the other sources of income of holders and their families. The information collected in this way will not be used for the modulation of agricultural policy measures in the light of the global income of agricultural households or to deprive certain households of the subsidies paid under the heading of market support in the framework of the CAP: it will simply give us a better idea of the socio-economic importance of the extra-agricultural activities of the members of holders' households, the diversification of the sources of employment and income that is currently underway in the rural areas, the impact of the rural development policies which have been followed up to the present time, etc.

It is no longer possible, in these days of ever-increasing pressure on farmers to play the role of heads of rural enterprises, on a broader stage than that of agricultural activity alone, in a domain in which a determined effort is being made not only to formulate and introduce an integrated rural policy that is worthy of the name but also to encourage the development, in the rural regions, of other agricultural activities with the capacity to supplement or serve as an alternative to agriculture, to restrict our observation, in this domain, to the part of the global income of agricultural householders and their families which is derived from agricultural activity alone. Eurostat's project for the collection of data on the global incomes of households in the agricultural sector is a significant step in that direction and goes at least some way towards meeting this need, in spite of its limitations and the numerous obstacles with which it is confronted. I am convinced that this seminar will give us considerable food for thought with regard to future work on this statistical front.

INCOME STATISTICS IN COUNTRIES OUTSIDE THE EU AND THEIR RELEVANCE TO AGRICULTURAL AND RURAL DEVELOPMENT POLICIES IN THE 1990s: LESSONS FROM CANADA

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SUMMARY

Micro farm family income data have a wide range of uses in policy and program analysis, development and evaluation in Canada. They are particularly useful in improving the understanding of farm family income situations and in determining the need, if any, for targetted policies and programs which recognize the diverse nature of farm family circumstances.

1 INTRODUCTION

The objective of this paper is to illustrate how micro-level data on the incomes of farm families help to inform the agricultural policy analysis, development and evaluation process in Canada. The paper has five parts. Following this brief introduction, sources of Canadian farm family income statistics are described. Next, an overview of the incomes of Canadian farm families is provided. The fourth section discusses the use of farm family income statistics in the agricultural policy process. The paper ends with a brief summary and a concluding comment drawn from the previous discussion.

2 SOURCES OF FARM FAMILY INCOME STATISTICS

There are several sources of farm family income statistics in Canada. This paper draws on two of them, namely the Consumer Finances Survey and the Taxation Data Program.

The Consumer Finances Survey (CFS) is an annual survey of households, designed to measure the distribution of income and provide other indicators of the well-being of Canadian families and individuals. The survey collects information on wages and salaries and other sources of income, as well as selected family and personal characteristics. The CFS is the source of comparative information on the incomes of Canadian families where farm income is the major source of income and all other families in Canada.

The Taxation Data Program (TDP) samples on an annual basis unincorporated and incorporated farm taxfiler records to obtain estimates for a range of agricultural financial variables including detailed farm revenues and expenses, and the off-farm income of farm operators and farm families. The farm family income estimates refer to the income of

[1] The views expressed in this paper are those of the author and do not necessarily represent the views of Agriculture and Agri-Food Canada or the Government of Canada.

families, including family members other than husband and wife, involved in a single unincorporated farming operation with a total farm revenue of $C10 000 and over. In the TDP, off-farm income is the sum of employment income (wages and salaries, and net self-employment income excluding farming income), investment income, pension income, and other off-farm income such as unemployment insurance benefits, workers' compensation payments, social assistance payments, etc. Off-farm employment income includes wages and salaries paid to family members for work on the farm. Net farm operating income refers to the profit (or loss) from the farm operation, based on total operating revenues including government program payments, less total operating expenses before deducting depreciation.

3 FARM FAMILY INCOMES IN CANADA

Relative incomes of farm families

Since the early 1970s, average farm family income in Canada has been on a par with average Canadian family income, except in the late 1980s when farm family incomes were negatively affected by lower grains and oilseeds prices and a slowdown in industry growth (Table 1). A major reason for the continuing comparability of farm family and all family incomes is the increasing importance of off-farm income in farm family income over the past twenty years.

Table 1 Average income of farm family units and all Canadian families

Year	Average farm family income ($C) (after depreciation)			Average income of all Canadian families ($C) (current dollars)	Income of farm families as % of Canadian families
	Net Farm Income	Off-farm Income	Total income		
1965	2 694	1 440	4 134	5 779	71.5
1971	3 791	2 607	6 398	8 845	72.3
1975	9 894	5 079	14 973	13 805	108.5
1981	15 481	12 327	27 808	25 641	108.5
1985	15 784	16 294	32 078	31 959	100.4
1988	16 173	20 573	36 746	38 007	96.7
1989	17 219	20 528	37 747	41 083	91.9
1990	15 707	21 251	36 958	42 525	86.9

Source: Consumer Finance Survey (CFS), special tabulations.

When interpreting these comparisons, it should be borne in mind that living costs are lower in rural areas, that farmers have tax advantages which are not available to other Canadians, and that the higher wealth of farmers relative to other Canadians is not reflected in income comparisons.

Farm family incomes by farm type

The information in the rest of this section is based primarily on taxfiler data for 1992 (5). As noted earlier, taxfiler data refer to the income of families involved in a single unincorporated farming operation with a total farm revenue of $C10 000 and over. In 1992, these families operated 163 050 farms, accounting for almost 80 per cent of the total number of unincorporated farms in Canada reporting a revenue of $C10 000 and over.

In 1992, farm families had an average total income of $C49 981, of which $C16 511 was derived from farming operations and $C33 470 from off-farm sources including wages and salaries paid to family members for work on the farm. However, average total farm family income varied quite significantly between farm types (Table 2). Tobacco farms followed by poultry and egg farms, potato farms, dairy farms, grain and oilseed farms, fruit and vegetable farms, greenhouse and nursery farms all had family incomes above the national average, while hog and cattle farms had incomes below the national average. The composition of farm family income also varied significantly by farm type. Families operating fruit and vegetable and cattle farms relied on off-farm income for almost 80 per cent of their total income.

Table 2 Average farm family income by type of farm, Canada, 1992

Farm type	Net Farm Operating Income ($C) (before depreciation)	Off-farm income ($C)	Total income ($C)	Off-farm income as % of total income
Tobacco	46 320	29 812	76 132	39.2
Poultry & Eggs	29 703	29 501	59 204	49.8
Potato	24 467	30 282	54 749	55.3
Dairy	36 003	17 422	53 424	32.6
Grain & Oilseed	15 366	36 686	52 051	70.5
Fruit & Vegetable	10 818	40 854	51 672	79.1
Greenhouse & Nursery	17 145	33 367	50 511	66.1
Hogs	20 324	25 719	46 043	55.9
Cattle	9 484	36 239	45 723	79.3
All Types	16 511	33 470	49 981	67.0

Source: Taxation Data Program.

Off-farm income accounted for about two-thirds of total family income on grain and oilseeds and greenhouse and nursery farms. On the other hand, only tobacco and dairy farms depended on net farm operating income to provide more than 60 per cent of total family income.

Farm family income by farm size

Information on average farm family incomes in 1992 for three farm sizes is presented in Table 3. These sizes correspond to small, medium and large farms. On average farm families with farm revenues of less than $C50 000 had lower incomes than families

operating large farms. However, their total income, of which 94 per cent was derived from off-farm sources, was similar to that of farm families operating medium size farms. Only in the large farm group did farm families generate the bulk (61.5 per cent) of their total income from farming operations.

Table 3 Average farm family income by farm size, 1992

Farm revenues	Net Farm Operating Income (before depreciation)	Off-farm income	Total income
Less than $C50 000	2 467	41 725	44 193
$C50 000 - $C99 999	16 077	28 713	44 790
$C100 000 and over	38 800	24 283	63 083
All revenue classes	16 511	33 470	49 981

Source: Taxation Data Program.

The composition of off-farm family income

On average, Canadian farm families derived only one-third of their total income from farming operations in 1992, with the remainder coming from off-farm sources. Further information on the composition of off-farm family incomes is given in Table 4.

Table 4 Composition of average off-farm family incomes by source, Canada, 1992.

Income source	$C	% of total off-farm income
Wages and salaries	19 786	59.1
Net non-farm self- employment income	1 510	4.5
Total off-farm employment income	21 296	63.6
Investment income	4 942	14.8
Pension income	3 303	9.9
Other off-farm income	3 930	11.7
Total off-farm income	33 470	100.0

Source: Taxation Data Program.

Almost two-thirds of total off-farm family income was generated by off-farm employment, and by wages and salaries in particular. The second most important source of off-farm income was investment income at 15 per cent. Pension income and other sources of off-farm income represented 10 and 12 per cent respectively of total off-farm family income in 1992.

Two comments must be made about the source of off-farm family income. Although wages and salaries account for about 60 per cent of total off-farm family income, this includes wages and salaries paid to family members for work on the farm. Evidence from the 1993 Farm Financial Survey indicates that on average across all farm types in Canada, family wages from the farm account for almost 25 per cent of total income from wages and salaries. Second, for large farms, most of the off-farm income is obtained from investment

income, pensions and other non-employment income. It is only on small farms where off-farm employment is the predominant source of income.

The distribution of farm family incomes

Information on the number of Canadian families by total income class is given in Table 5.

Table 5 Distribution of farm families by total income class, Canada, 1992

Total family income	Number of families	Percentage of total
Under $C10 000	9 500	5.6
$C10 000 - 19 999	15 950	9.5
$C20 000 - 29 999	25 250	15.0
$C30 000 - 39 999	26 220	15.6
$C40 000 - 49 999	23 320	13.8
$C50 000 - 99 999	56 550	33.6
$C100 000 and over	11 630	6.9
Total	168 420	100.0

Source: Taxation Data Program.

In 1992, there were 76 920 farm families in Canada, representing 45.7 per cent of the total number of farm families, with total incomes under $C40 000. Of these, one-third had total family incomes of under $C20 000. Off-farm income accounted for the bulk of the income of these low income families. In contrast, over 40 per cent of farm families reported total family incomes of $C50 000 and over in 1992. On average, these families reported significant incomes from both farm and off-farm sources.

4 THE USE OF MICRO FARM FAMILY INCOME DATA FOR POLICY PURPOSES

A major benefit of micro-level farm family income data has been to legitimize the place of off-farm income in the total incomes of Canadian farm families. In the past, the argument was often made that farm families had the "right" to derive their income mainly, if not solely, from the farm business, that dependence on off-farm income was "wrong", and that farmers and their families only resorted to off-farm income because they were forced to take off-farm employment to supplement the inadequate incomes they derived from their farming activities. The evidence suggests, however, that farm families are no different from other Canadians and that the trend in farm families to off-farm sources of income reflects the general societal trend towards multiple income earners in a family. In particular, farmers and their families are in a similar situation to other independent businessmen in terms of multiple income sources. Analysis of taxfiler data has shown that farmers, fishermen, foresters, and the self-employed operators of construction, manufacturing and transportation businesses all receive non-business income (2).

Second, it is now recognized that reliance on aggregate farm family income data, and particularly on aggregate farm income data, is a misleading indicator of the well-being of farm families. Reliance on aggregate data could lead to inappropriate policy responses,

because they ignore both an important source of total farm family income and the distribution of income between and within different sizes of farms. An example will serve to illustrate the point. A few years ago, the Canadian government received a request for direct income support from a farm organization in a certain region of the country. The request was based on the argument that farm families received an average income of about $C6 000 which placed them well below the poverty line. This figure was calculated by dividing aggregate farm income by the total number of farmers in the region. In responding to this request, the government was able to show that the average income of farm families in the region was much higher than $C6 000, that the estimate of $C6 000 was in any case highly skewed through the inclusion of large numbers of very small farmers who derived little net income from their farming activities, and that medium and large commercial farmers received total incomes which could not be regarded as inadequate. The government was thus able to turn away a request for assistance which might otherwise have placed a burden on an already depleted Treasury.

A third use of disaggregated farm family income data is in monitoring the achievement of public policy goals. In Canada, an albeit implicit objective of agricultural policy is that farm families should receive incomes which are comparable to those of all other Canadians. An important performance measure for the sector is a comparison between the incomes of farm families and other Canadian families. Micro-level family income data are the source of this comparison (Table 1).

Perhaps the most important use of micro-level farm family income data in the policy process is in improving understanding of the nature and scope of farm family income situations. In many countries, including Canada, the typical policy response to perceived farm income problems has been to introduce income support and/or stabilization programs which operate on a commodity basis with the payout or benefit determined by the units of output produced by each producer. In other words, there has been a single policy response, notwithstanding the different income situations of different groups of producers. It is clear, from Table 3 that the *farm* income situation of small farmers is quite different from that of large farmers, and also that small farmers may not have a *total* income problem at all. It is also clear that programs which operate on a unit of output basis have a limited impact on the incomes of small farmers.

Analysis of farm family income data demonstrates that there are a range of income situations among farm families, and moreover that average income statistics tell only part of the story - it is their ability to delineate the distribution of income within and between farm types and sizes that makes these data so useful in the policy process because policy makers are thus able to distinguish between different income situations and to develop appropriate policy responses for each situation.

A framework which can be used to guide farm income policy is outlined in Table 6 (3). According to this framework, farms are divided into two broad categories, those for which the farm resource base is adequate and those for which the resource base is inadequate. Farms with an adequate resource base have the potential to generate a substantial part of the farm family income from within the farm business - these are the full-time commercial farms. Commercial farms may have farm incomes which are adequate or inadequate to support the family. Farms with an inadequate resource base do not have the potential to achieve what would be regarded as an adequate family income mainly or solely from the

farm business - they must rely on off-farm income to supplement the income from the farm. These are the part-time, or limited resource farmers and they may have total family incomes which are adequate or inadequate. What this shows is that there is not one farm income "problem", but rather a range of farm family income situations which differ depending on the circumstances of individual farm operators and their families.

Table 6 A framework for farm income policy

Farm resource base	Farm income		Total income inadequate
	Adequate	Inadequate	
Adequate (commercial farmers)	Farm income safety net programs to stabilize farm incomes Farm business management training and extension for farms not realizing their full potential	Farm income safety net programs Farm business management training to improve efficiency of resource use	Seek off-farm income opportunities during transition period while farm income is increasing to adequate level.
Inadequate	Resource base is too small to generate adequate family income from the farm alone. These families must depend on off-farm incomes.	Farm business management training may not be achieving full potential but farm income can never be adequate unless resource base is enlarged. Programs to encourage farm enlargement / amalgamation.	Off-farm income not sufficient to raise total income to adequate level - training for off-farm employment - assistance to start-up off-farm business - income supplements or social welfare payments - exit farming

It follows that there are different policy responses to the different income situations identified in the framework. For commercial farms, a combination of farm income safety net programs to stabilize farm incomes and farm business management training and extension programs to improve farm performance may be appropriate. For part-time farmers, the appropriate policy response would concentrate on encouraging structural change through farm expansion and amalgamation and on the provision of assistance to enable these farmers and their families to earn off-farm income. Alternatively, the policy response could be to ensure these families have access to society-wide social safety net programs. In Canada, current and proposed farm income programs include whole-farm and commodity specific safety net programs, a Canadian farm business management program and programs to prepare farmers for off-farm income opportunities.

The fifth use of micro-level farm family income data is to determine the extent of these different income problems. The data can be used to estimate how many farm families fall into the various categories outlined in the framework, their characteristics in terms of age, education and family size and their location. They can also provide the basis for the preparation of ex ante estimates of program costs as determined by the eligibility criteria

for particular programs, for example a program designed to train part-time farm family members for off-farm employment or to assist the start-up of an off-farm business to supplement the income from the farm. In summary, micro farm family income data can have a major application in better targetting farm income policies and programs to the specific needs of farmers and their families.

In addition to the ex ante assessment of program costs, micro farm family income data will be used to evaluate the effectiveness of income programs in meeting their objectives. This will be done by comparing the economic performance of those farm families who participate in the program(s) with those who do not. One of the primary reasons for the funding in 1991 of Agriculture and Agriculture-Food Canada's farm level data project (FLDP), of which farm family income data are an integral part, was to facilitate the evaluation of programs operating under the authority of the Farm Income Protection Act. Other reasons for funding the FLDP included the ability to examine the impacts of changes in policies, programs and financial conditions on the financial health of farm family businesses and to enhance the capability of the Canadian government to monitor, understand and react to the economic realities faced by farm families.

Seventh, farm family income data can be used to analyse the distribution of government program payments and associated equity issues (6). Table 7 shows that in 1991, Canadian farm families operating unincorporated farms earned an average of $C16 081 from farming, of which $C5 089 were net government program payments. In addition, the average farm family earned $33 313 from off-farm sources, bringing total farm family income to $49 394 before depreciation. Net government program payments contributed an average of 31.6 per cent to net farm operating income and 10.3 per cent to total farm family income. It is interesting to note, however, that average payments and the contribution of government payments to total income both increase with size of farm, reaching $C18 248 and 18.3 per cent respectively in the largest revenue class.

Table 7 Contribution of Net Program Payments to total family income. Unincorporated farms, Canada, 1991

	Revenue class ($C)						
	$10 000-$24 999	$25 000-$49 999	$50 000-$99 999	$100 000-$249 999	$250 000-$499 999	$500 000 and over	All classes
Number of families	42 840	35 370	39 380	38 900	8 440	2 010	166 950
	$C per farm family						
Net government payments	761	2 504	5 720	9 266	12 571	18 248	5 089
Net Operating Income	- 372	4 890	16 274	33 596	52 141	69 598	16 081
Off-farm income	44 583	38 725	27 790	23 512	25 091	30 336	33 313
Total income	44 211	43 616	44 065	57 108	77 233	99 934	49 394
% contribution of government payments to total	1.7	5.7	13.0	16.2	16.3	18.3	10.3

Source: Taxation Data Program

In terms of the distribution of net program payments to farm families by total income class, Table 8 shows that in 1991 almost 50 per cent of government program payments were made to the 40 per cent of families with total incomes of $C50 000 and over. The average payment per family also increased as total family income increased, with families in the over $C100 000 total income class receiving an average payment of almost $C7 500.

Table 8 Distribution of Net Program Payments to farm families by total income class, Canada, 1991

Total income per family	No. of farm families	%	Total Program Payments ($CM)	%	Average payment per family ($C)
Below $0	4 380	2.6	23.8	2.8	5 434
$0-$9 999	7 360	4.4	21.4	2.5	2 908
$10 000-$24 999	28 750	17.2	94.0	11.1	3 270
$25 000-$49 999	61 000	36.5	296.6	34.9	4 862
$50 000-$99 999	53 400	32.0	324.4	38.2	6 075
Over $100 000	12 040	7.2	89.8	10.6	7 458
All income classes	166 950	100.0	849.9	100.0	5 091

Source: Taxation Data Program.

This analysis suggests that if the objectives are purely social (and they may not be), large government program payments are being made to farm families who do not need them from the point of view of ensuring an adequate income on which to live. Generally speaking, families operating larger farms received higher program payments than those operating smaller farms. This pattern of distribution is due in part to the design of income support programs which use the unit of production or sale as the basis of payment.

Another use for micro farm family income data is in international comparisons of farm financial performance. These comparisons can provide useful background information for bilateral policy discussions and analyses. For example, AAFC and USDA's Economic Research Service (ERS) have embarked on a program of joint research to provide Canadian and American trade negotiators with a common and, hopefully, agreed set of policy analyses and information on a range of current bilateral commodity trade issues. The information will include economic and financial profiles of farms in the two countries, including farm family income comparisons, drawn from AAFC's Farm Financial Survey and ERS's Farm Costs and Returns Survey.

Finally, analysis of farm family income data over time shows how the structure of agriculture has changed so dramatically over the last 30 or 40 years. With the change in structure has come the need for a change in agricultural policy, as pointed out recently by Drabenstott and Barkema (4). Although their analysis refers to agricultural policy in the United States, the arguments they make are just as applicable in Canada. The structure of agriculture has changed as farming as a way of life has been replaced by farming as a business. Farm businesses are now bigger in size and fewer in number and the incomes of farm families are comparable to those of other families. The distribution of government payments is skewed towards bigger and financially stronger farm families. This puts into

question the need to support all farm family incomes and the means of achieving this goal. If the public wishes to assist farm families with low incomes, emphasis should be put on initiatives to encourage rural economic growth rather than traditional commodity price support programs. While governments may wish to stabilize farm incomes to guard against the production and market risks inherent in agricultural production, crop insurance and market mechanisms which farmers can use to hedge against price risk are measures which can help to achieve this goal.

While the recent changes in Canadian agricultural policy were undoubtedly driven primarily by the need to reduce program expenditures to help address Canada's serious government deficit and national debt problems, they also recognize the arguments outlined above. The focus of Canadian policy is moving away from a reliance on traditional price and income support programs to an emphasis on trade and market development, resource and environmental sustainability, sectoral adaptation and rural community economic development (1).

5 SUMMARY AND CONCLUSIONS

Analysis of farm family income data shows that average farm family income in Canada is broadly similar to average Canadian family income as a whole. According to farm taxation data average total farm family income varies quite significantly between farm types, but there is less diversity in farm family income between farm sizes. On average, Canadian farm families derive about one-third of their total income from farming operations with the rest coming from off-farm sources. The main source of off-farm income is employment income, including wages and salaries paid to family members for work on the farm.

Micro level farm family income data have a wide range of applications for policy purposes. In Canada, these applications include: to gain acceptance of off-farm activities as a legitimate source of income for farm families; the use of total income data both as an indicator of the well-being of farm families and to monitor the achievement of public policy goals; to improve understanding of the nature and scope of farm family income situations, distinguish between the income performance of full-time commercial and part-time or hobby farmers, and develop appropriate policy resources for a range of situations; the use of farm family income data in the ex ante development and ex post evaluation of policies and programs; the analysis of equity issues related to the distribution of government program payments to farm families with widely different economic circumstances; and to provide comparisons of farm financial performance in Canada and the United States for use in bilateral trade discussions and analyses. Farm family income data can also be used to analyse changes in the structure of agriculture over time which, in turn, point to the need for a shift in the emphasis in policy away from traditional commodity-based income support programs towards a policy package which encourages increased competitiveness, adaptation and resource sustainability.

A concluding comment about farm family income statistics is probably appropriate. Just as the structure of agriculture and the focus of policy change over time, so does the need for and content of farm family income statistics. Twenty or thirty years ago the primary interest in farm family income data was on farm income; little attention was paid to off-farm income. The major goal of policy was to improve the level and stability of farm income and

the economic data sets available to analysts and policy makers were directly related to this goal. With the shift in policy emphasis which is now occurring, there is a need to re-examine and re-define the concepts underlying the data sets including farm family income statistics. As the agricultural sector diversifies, what will probably be required is a move away from the standard farm/off-farm dichotomy in data collection and analysis to a comprehensive approach which views the different activities on the farm in an integrated way. This approach would regard farms as enterprise centres responsible for a range of farm, off-farm and non-farm activities, including crop and livestock production, value-added processing for local or niche markets and self-employment in farm-based non-farm businesses. This means that the concept of what constitutes a "farm" and the data required to monitor "farm" family well-being and analyse the impact of policy and program changes must change.

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AGRICULTURAL HOUSEHOLD INCOMES AND OTHER INCOME MEASURES AND THEIR RELEVANCE TO AGRICULTURAL POLICY OBJECTIVES AND MEASURES IN GERMANY

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SUMMARY

Statistics on agricultural income have a long tradition in Germany. Under the Agricultural Law of 1955, the Federal Government is specifically obliged to carry out annual assessments of the agricultural situation to form a basis for agricultural policy measures. Originally, the surveys in Germany focused on determining income from agricultural activities on the basis of accounting data (test farms). These data served - and still do even today - as a basis for a functional income comparison. The entire household income was subsequently determined, firstly at sectoral level and then on the basis of the test farm data, thus allowing for personal income comparisons as a measure of the social situation of agricultural families. The need for this arose partly from the increasing importance of non-agricultural earned income and other sources of income in agricultural households and also from policy programmes more oriented towards the social situation of agricultural households. Both functional and personal measures of income will, given their specific objectives, continue to be necessary in the future for the development and assessment of agricultural policy (e.g. measures of income by function for policy instruments aimed at increasing efficiency, such as the promotion of investment by individual holdings, and person-based measures for social policy in agriculture). Efforts to calculate the relevant data should therefore be continued at sectoral and, in particular, intrasectoral (holding) level, with the aim of better comparability - at least at EU level - also to be taken into account in this connection.

1 THE AGRICULTURAL LAW OF 1955

Guaranteeing adequate incomes in agriculture is one of the main aims of agricultural policy (7) in virtually all industrialised countries and is often even enshrined in law in the form of a declaration of intent; this is the case, for instance, with the CAP in Article 39 of the EEC Treaty.

In Germany, too, the participation of people engaged in agriculture and forestry in the general development of incomes and prosperity is traditionally one of the main aims of agricultural policy. A corresponding declaration of intent on the part of the Federal Government is, for example, contained in the annual agricultural reports (2), which are examined in more detail below.

The legal basis for this is provided by the *Agricultural Law* of 1955 (6). Item 1 of the Law runs as follows: "In order to ensure that agriculture shares in the continuing development of the German economy and in order to secure the best possible supply of foodstuffs for

the population, agriculture is to be enabled via the instruments of general economic and agricultural policy - and in particular trade, tax, lending and prices policy - to compensate for its existing natural and economic disadvantages *vis-à-vis* other economic sectors and to increase its productivity. The social situation of people working in agriculture is thereby to be brought into line with that of comparable professional groups at the same time."

The special feature of this law is that, over and above the formulation of objectives and the specification of priorities for action, it also sets out specific tasks for the Federal Government:

- firstly, to perform annual surveys on the situation of agriculture, to carry out a comparison of incomes with other professional groups and to set this out in the form of a report, and
- secondly, to report - again annually - on planned measures pursuant to Item 1, with specific reference being made to the above-mentioned comparison of incomes and the ensuing need, if any, for action.

A few comments are in order. Under the terms of the Agricultural Law, the accounting results of selected farms recorded in connection with the so-called test farm network (corresponds at EU level to the Farm Accountancy Data Network - FADN or RICA) form the essential basis for assessing the profits situation. In addition, however, the Federal Government is expressly bound to make use also of economic statistics documents in order to assess the situation of agriculture. Lastly, the Federal Government is required each year to undertake a comparison with the wages of comparable professional and wage groups, taking account of a managerial supplement and also an appropriate rate of interest on the fixed working capital (so-called "comparative calculation").

The Agricultural Law thus caters in a consistent way for the fact that statistical information on incomes within and outside agriculture is needed in order to assess the need for action on agricultural policy with reference to the "incomes objective" and also to evaluate agricultural policy measures which have been taken. Even during preliminary work on the Law, however, the intensive discussion on suitable measurement concepts and the statistical data needed demonstrated the methodological and empirical problems associated with an approach of this kind (1, 8).

In the version finally adopted, the Law clearly shows the scope of income measures which are possible and which must be considered alongside each other: On the one hand, the improvement of the social situation in agriculture is specified as an agricultural policy objective in the Law; this undoubtedly implies the need for *personal* income measures and comparisons on the basis of household incomes to provide information for determining the need for action on agricultural policy. On the other hand, the so-called "comparative calculation" essentially involves a *functional* comparison of incomes which, in principle, compares remuneration for the factors of production used within agriculture (broken down according to forms and sizes of farms and economic areas) with the factor remuneration achievable in the case of non-agricultural use.

All in all, the Law provides the basis on which statistical information on agricultural incomes has been collected and systematically evaluated in Germany from a very early stage and in a highly differentiated way.

2 TRENDS SINCE 1955

Importance of income statistics for agricultural policy

On the basis of this Law, the Federal Government has since 1956 been reporting annually on the situation of agriculture and the measures taken (so-called "Green Report", now called the "Agricultural Report"). The income results and comparisons presented in the annual reports (2) have since formed an important decision-making basis for undertaking agricultural policy measures; in addition, they provide important information on their evaluation.

However, this link is by no means as stringent now as it was immediately after the Law came into force. The reasons for this are diverse; the increasing shift in agricultural policy decision-making powers to EU level was of course entirely decisive in this. Various changes in basic conditions, such as the increasingly overstretched situation of public budgets, have also contributed to this development. Nevertheless, annual income results and comparisons continue to play a central role in public discussion of agricultural policy, particularly within the profession itself.

The intensive examination of suitable income measures and the continuous efforts to achieve methodological and qualitative improvements in the determination of incomes are also justified against this background.

Conceptional changes and additions to the survey concept

The surveys carried out in connection with the test farm network were initially confined to *main occupation farms* and the determination of income from agricultural activities. The "comparative calculation" based on these data, which has already been mentioned above, stood at the forefront of agricultural policy discussions.

It is well known that income combinations and, as a result, non-agricultural earned income and other forms of income have since then increasingly gained in importance in many farms. In order to take account of this development, *total income* was recorded from the beginning of the seventies onwards in connection with test accounting, but restricted to the married farm-owning couple and initially without consideration of person-related transfer payments. Partly on account of their growing share of farms as a whole, *secondary occupation farms* were also included in the test farm network.

Lastly, the available fund of data was supplemented at the beginning of the eighties with person-related transfer payments and also private taxes, social security contributions, other private insurance contributions and farm annuity charges, so that it has since become possible to calculate the available (disposable) income of a married farm-owning couple.

At macroeconomic level, the available incomes of agricultural households and other population groups have been determined by the Federal Statistical Office since 1972. Other macroeconomic income indicators (e.g. net product per worker) are derived from the integrated agricultural accounts.

Interim result

Germany thus has a highly differentiated fund of data for assessing the agricultural incomes situation. The results are not only presented every year in detailed form in the Federal Government's Agricultural Report but are also given appropriate consideration in public discussion of agricultural policy.

However, the variety of sources of data and methodological approaches with differing objectives and also the sometimes unclear aim of existing income measures and comparisons (examined in further detail in the following section) also open up a variety of "scopes for interpretation" in relation to the income situation of agriculture (1); this also applies with reference to the central question of the existence of an "agricultural incomes disparity" or a "factor remuneration disparity" (9, 11).

3 ASSESSMENT OF VARIOUS SOURCES OF DATA AND INCOME MEASURES FROM THE POINT OF VIEW OF AGRICULTURAL POLICY

Personal income measures and comparisons are needed to assess the social situation of agricultural families. Statistical information in this regard is, among other things, required in order to assess the need for and effectiveness of agricultural policy instruments which contribute or are intended to contribute directly (e.g. transfer payments, social security payments) or indirectly (e.g. via the income efficiency of measures to increase productivity, see below) to improving the social situation in agriculture.

The household incomes by socio-economic household groups determined by the Federal Statistical Office in connection with the National Accounts provide important information in this context. The overall disposable income of agricultural households cannot at the present time be derived from any other source of data. In addition, only this data base provides the information on incomes of non-agricultural households which is needed for comparative purposes. The EU-wide determination of relevant data currently being expedited within the framework of the TIAH (Total Incomes of Agricultural Households) project (5) is therefore logically consistent and important.

Apart from certain problems associated with the determination of data which currently enable the figures to be qualified only as "results of model calculations" (10), a significant limitation of this approach is, however, that differentiated findings on the basis of farm types and sizes, regions and socio-economic groups within agriculture are not possible. However, it is precisely information of this kind which is needed to be able to determine "problem groups" in a targeted way and to derive proper agricultural policy measures.

A significant differentiated data base on disposable incomes is provided by the test farm network, although this is confined to the married farm-owning couple and does not cover the entire household. Inclusion of the income of other household members, which would in principle be desirable, would probably - at least in Germany - not be achievable in view of the data collection problems which are considered to be practically insurmountable (for a discussion of a pragmatic approach to improving the current information base, see for example (11)).

In addition, it should be pointed out that including the incomes of all household members in full - depending on the issue involved - may also have drawbacks. Thus, for instance, it may create problems if the income of a child living in the household but working outside the farm is assigned in its entirety to the household's income. This income is often largely used to set up and finance a new household. The contributions made by the child to housekeeping and also the services rendered by the household to this member of the household may be relevant when assessing the household. This example alone shows that a substantial need for research still exists with regard to suitable household definitions and delimitation criteria (based for instance on "consumer units") and also measurement concepts,.

The evidential value of test farm data is in principle limited by the fact that information is not differentiated in this way for non-agricultural households. Evaluations for the annual agricultural report by the Federal Government are therefore confined to a comparison of the social situation within the individual groups of agriculture, particularly between main and secondary occupation farms.

Functional income measures and comparisons are needed to assess the economic efficiency of factor use in agriculture. These data form an important source of information for the possible substantiation and evaluation of agricultural policy programmes to increase production efficiency (e.g. single-farm investment promotion) or to decrease disparities in remuneration by promoting the structural adaptation process (e.g. retraining grants or early retirement schemes).

At sectoral level, the data of the integrated agricultural accounts are in principle available for this, although - at least up to now - they have not been systematically used for this purpose. Instead, only certain income indicators are calculated from them at EU level, e.g. so-called indicators 1, 2 and 3 (3). These indicators are clearly neither functional nor personal income measures; they can therefore be interpreted only with difficulty (5). It would be quite possible to develop these sectoral indicators further to provide a functional income measure.

From the agricultural policy point of view, however, there exists above all an interest in data differentiated on a regional basis and according to socio-economic criteria in order to be able to determine any need for action in a targeted way (see above). Here, too, the test farm network forms a suitable source of data.

However, the "comparative calculation" specified by the Agricultural Law on the basis of these data is, for various reasons (e.g. comparison of gross incomes, problems in laying down the opportunity costs of factor use), of only limited evidential value as a functional income measure (1(1995), 4, 9, 11). It is currently being examined whether more information of significance can be achieved by further methodological developments.

Nevertheless, the reservation still remains that considerations on the basis of average factor remuneration provide only limited evidence on the optimum value of factor use since information on marginal factor remuneration is actually required for this (11). From the point of view of agricultural policy, too, it may be necessary to fall back on the results of appropriate (e.g. econometrically based) special analyses.

4 PROSPECTS FOR THE FUTURE AND CONCLUSIONS FOR STATISTICS

Both functional and personal income measures will, in view of their specific objective, continue to be necessary in future for the development and assessment of agricultural policy. There is much to indicate that, in view of the "income objective", programmes will in future be even more "target group-oriented" than in the past, while globally acting instruments will possibly become less important.

This results in a tendency for an increasing need for data on the following, differentiated where possible on a regional basis and according to farm types and socio-economic criteria:

- household incomes of agricultural families and also of comparable professional groups (as a basis for personal income comparisons) and
- factor incomes in agriculture and also non-agriculturally achievable factor incomes (as a basis for functional income comparisons).

At EU level, previous efforts within the framework of the TIAH project to determine sectoral data should therefore be continued, if possible broken down according to main and secondary occupation farms. In addition, it would be a good idea to consolidate the existing microeconomic data base drawn from agricultural accounting results at EU level; the trends outlined using Germany as an example could provide a possible starting point for this.

In addition, further methodological developments appear necessary

- to allow adequate use for the various (functional or personal) "measurement objectives" (as already referred to above), and
- to allow for better comparability (international, intersectoral, intrasectoral) of the data determined at the various levels (with regard to problems which still exist at the present time, cf. for example 2, 5, 7).

The latter appears to be a matter of urgency for the EU level in particular in the light of the Common Agricultural Policy.

However, one thing should not be forgotten in connection with all desires for improvement which appear justified: the importance of agriculture - gauged by its contribution to the gross national product - is steadily waning. At the same time, the difficult situation as regards public budgets means that statistical surveys must be increasingly limited in scale to what is absolutely essential. In this light, it is sometimes critically asked whether differentiated income analyses are to be maintained in the long run for a shrinking sector when they are not carried out for any other sector. Agricultural policy and agricultural statistics will thus in future be faced with the difficult task of developing workable solutions in an area of conflict between a tendency for a growing need for data on the one hand and (expected) savings constraints on the other.

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DISCUSSION

First session *Income statistics and policies*

Following the paper by Mr Korakas (European Commission, DGVI) on *Agricultural incomes and their relevance in the context of the CAP, rural development and other policies*, and his outline of the role of income measurement as the CAP was further reformed, a participant expressed the view that there was serious doubt about the income support role of agricultural policy as had just been stated, at least from the UK perspective. This disparity in the perceived aims of policy required serious debate as it had implications for the statistics needed to support policy decisions. Why should the incomes of farmers be given special attention, cutting them off from the signals of the market, in contrast to other groups whose fortunes were let rise and fall? And if any measurement is to take place, surely a fairer system would try to encompass all the benefits of farming, not just income. Against this, a participant from Austria stated that there the social consensus was that all groups required to adapt to changed condition should be given an element of protection, and this was provided for groups such as miners and the army as well as farmers.

In reply, representatives of the Commission pointed out that agriculture was seen as being different from other industries. The CAP still accounted for a large share of the EU Budget (though in terms of GDP this spending was not large), agricultural supply was subject to unpredictable variation and therefore there was a potential for food shortage, and if agriculture was not supported there was a possibility of much agricultural production shifting abroad, perhaps presenting strategic problems.

Following the paper from Mr Davey (*Income statistics in countries outside the EU and their relevance to agricultural and rural development policies in the 1990s: lessons from Canada),* it was pointed out in the discussion that the databanks there, based largely on tax records, were valuable in that they enabled the distribution of incomes to be studied. Comments were made on the important difference between Canada and the EU in the potential use of data on the total income of agricultural households for policy purposes. In the EU, the Commission had described such information as only providing a background against which policy decisions were taken. In Canada it appeared to be seen much more as a means by which support could be targeted, and therefore the collection and use of total income information was not neutral with respect to policy. Was this a case of the Commission being excessively reassuring to forestall resistance from farmer organisations to questions on non-farm income?

In response to these questions (and others of a more technical nature) Mr Davey reported that the distribution of (total) incomes of Canada's farmer households seemed to place proportionally fewer of them in low income classes than non-farm household (a situation that differed from that of the USA), though it was not yet possible to judge how this may be changing over time. At present households with farms arranged as corporations (companies) were not covered by the statistics, but it was hoped that the tax records could be scrutinised so that they could be included. With regard to the use of total income data for proactive policy purposes, in contrast with its use as a background, this was increasingly the case. It was recognised in Canada that much of the transfer of income to

the agriculture sector goes to the un-needy (in income terms) and to farmers who on average are wealthier than the taxpayers who provide the transfers. This feature of the present support system was becoming subject to close scrutiny because the Government budget was under pressure.

The paper *Agricultural household incomes and other income measures and their relevance to agricultural policy objectives and measures in Germany* (H Wolfgarten) paid attention to the explicit comparison of farmers' incomes with other groups provided for in national legislation and the special "comparison account" drawn up for this purpose. In the discussion that followed it was pointed out that this comparison exercise had come under strong criticism within Germany. Other comments were that this highlighted the conceptual difference between, on the one hand, personal income and, on the other, income as the reward for the services provided by factors of production ("functional" income). However, the collection and use of non-farm income information (to give an overall picture of incomes) need not be confined to the social aspects of agricultural policy. It could also be justified if the interest was solely that of explaining the behaviour of farm businesses; in the Netherlands non-farm income was seen as important in contributing to investment and as a determinant of cash-flow.

SESSION 2
METHODOLOGICAL ISSUES

Chairman: P. Muller, SCEES, Paris

EUROSTAT'S STATISTICS ON THE TOTAL INCOME OF AGRICULTURAL HOUSEHOLDS (TIAH STATISTICS): PRINCIPAL METHODOLOGICAL ISSUES

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SUMMARY

Eurostat's TIAH statistics were conceived within the framework of national accounts and take the form of a disaggregation of the distribution of income account for the households sector. This shows resource flows to and from households and has, as its balancing item, Net Disposable Income. Agricultural households are one of the socio-professional groups into which the sector can be divided. Key concepts are Net Disposable Income, the household and, in particular, the definition of an agricultural household. The diversity of data sources found in Member States has meant that, though target definitions are harmonised, the way in which estimates are actually created vary from country to country. The definitions and procedures used in the harmonised methodology reflect the macroeconomic origins of the statistics, and these may not be ideal for some policy purposes or suit countries that rely on microeconomic data sources for making national estimates.

1 BACKGROUND

The objective of ensuring a fair standard of living for the agricultural community, set out in Article 39 of the Treaty of Rome, is central to the Common Agricultural Policy (CAP). Though alternatives are possible, the conventional way to approach this issue has been through the measurement and monitoring of farmers' incomes. From the outset, links between farming and the rest of the economy have been acknowledged. The greater amount of spending committed to the Community's Structural Funds for the support of rural areas since 1988 is intended to increase the diversity of economic activities taking place there, with implications for the income and employment patterns of farmers and their families. As CAP reform proceeds, it is to be expected that the activities of farmers and their families will involve greater amounts of enterprises that are not strictly agricultural, as defined by the conventional industrial classification. These include the results of diversification on the farm (such as tourism, food processing and other small and medium enterprises) and off-farm gainful activities.

Income measurement in the context of the CAP has conventionally involved only that arising from agricultural production (22). The European Union (EU) has well-established data systems at both macro- and microeconomic levels for this purpose. Eurostat calculates and publishes a range of aggregate indicators (Indicators 1, 2 and 3) derived from the economic accounts for the agricultural branch of the economy. These accounts relate, in essence, to the total production of agricultural goods irrespective of the nature of the operators who produce them, so the agricultural branch's production is the combination of output from full-time farmers, part-time farmers with various degrees of off-

farm activity, from corporate bodies and so on. At microeconomic level the European Commission's Farm Accountancy Data Network (FADN) annually collects data from some 60 000 farms using a sample that, by imposing minimum size thresholds, covers the great majority of agricultural production but only about half the number of holdings in the EU (23). Its income measures (the main ones being Farm Net Value Added (FNVA), and Family Farm Income (FFI), both of which are expressed per farm and per unit of labour input) again are confined to the income arising from agricultural activity.

These production-based income indicators play an important role in providing a background to decisions in the CAP. They have been interpreted, for policy purposes, as showing the changing income situation of the agricultural community (20). However, it is self-evident that, except in very particular circumstances, they represent concepts which are far removed from the personal income of farmers and their households; this applies especially to measures based on Net Value Added (Eurostat's Indicator 1 and FADN's FNVA). They ignore any income accruing to farmers and their families from sources other than farming. They make no allowance for the amounts taken by taxation and other forms of involuntary spending. It would be wrong therefore to interpret them as representing levels of personal incomes; even using them as proxies for *developments* in personal incomes over time is suspect, since the existence of multiple income sources means that it is possible for the total income situation of farmers and their households to be improving while their incomes from farming are declining, and vice versa. Nevertheless these Indicators *have* been misused as a proxy for personal incomes, probably because they were published and no other measure nearer the policy needs was available.

Criticism of the inability of the official statistical systems in the EU and its Member States to provide information on the overall incomes of farmers and their families has come from several sources (15, 16, 17, 19, 20, 29, 30), and this parallels earlier discussions in north America involving academics and statisticians on the inadequacy of the information system. (1, 4, 5, 6, 25, 26). Comment has mainly concentrated on the need for household income statistics to better service the CAP's income objective of ensuring a fair standard of living; an income measure which aims to be a proxy for the standard of living of the agricultural community, though clearly not an exact one, will need to cover income from all sources, not just that from farming activity and should focus on the household or family unit rather than the farmer (agricultural holder) alone or the farm business. However, other uses are evident; for example, the satisfactory explanation of land-use patterns, efficiency of labour use and investment behaviour on farms all require a complete picture of the resources commanded by households.

For statistical progress to be made at EU level, such information (a) needed to be officially recognised as necessary for desired policy developments for the EU as a whole and (b) had to receive support by Member States The lacuna of official statistics was exposed in the preparation of the 1985 Green Paper (9). One official described the need to fill the gap as urgent (3). Since then the need has probably increased.

Anticipating the emerging need for additional income information, in 1985 Eurostat proposed the Total Income of Agricultural Households (TIAH) project. This was supported by the European Community's Agricultural Statistics Committee (ASC). The intention was that statistics on farmers' aggregate disposable income should be developed to stand eventually alongside Eurostat's existing production indicators. Though summary statistics

on disposable income cannot, of course, reveal the distribution of incomes among agricultural households, estimates at Member State level were seen as representing a necessary and important advance in knowledge. It was anticipated that similar responses might be made by FADN at farm level, although this was and is outside the control of Eurostat. However, such measures of aggregate disposable income marked a substantial departure in thinking from that usually adopted within the CAP and, indeed, within most national agricultural policies. Consequently, the information systems in most Member States were not capable of enabling estimates to be made. It was recognised that substantial effort would be required to achieve results on a comparable basis for each country, and that this would take several years.

The ASC gave some general guidelines which subsequently have proved very important. These were that (a) the definition of agricultural households used in TIAH statistics should be in line with the methodology of the European System of Integrated Economic Accounts (ESA), the Community's national accounting system to which all Member States subscribe (b) the coverage should be restricted to the households of holders (i.e. farmers, and not households of hired workers), and (c) that provision should be made for comparison with non-agricultural occupation groups.

A main task was to *develop an agreed methodology* by which harmonised statistics could be generated for each Member State. One vital step in this process was the clarification of the aims of the TIAH project; these are reproduced in Figure 1.

Figure 1 Objectives of the TIAH statistics

A harmonised methodology is to be used to generate an aggregate income measure for the following purposes:

- monitoring the year-on-year changes in the total income of agricultural households at 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 social benefits;
- 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 unit basis.

Source: (12)

2 THE NATIONAL ACCOUNTS FRAMEWORK

Eurostat adopted a national accounts framework for the TIAH statistics. This orientation reflected:

- the view that these were a development from the Economic Accounts for Agriculture (EAA) and should be handled by the Working Party dealing with the EAA;

- the existence of an account within the harmonised system of national accounting that could be used as a starting point (the ESA's *Distribution of Income Account* for the households sector);
- the desire that economic aggregates in the TIAH statistics should be compatible with other parts of national accounting;
- the background of the staff who were responsible for taking the Eurostat initiative.

The conceptual starting point was the Distribution of Income Account for the entire households sector (11, 14). On one side of the account are the resources flowing towards households (from independent and dependent activity, from property income, welfare transfers and so on) and on the other are the payments which households are required to make (including taxes and social security contributions). No separation is made between the two roles of households as units of consumption and of production; the combination can be of importance to households, such as farmer households, where the main income comes from independent activity. The residual in this account after all claims on income are met is Net Disposable Income.

Within the ESA there is provision for a further sub-division of households into socio-professional groups, of which agricultural households could form one. However, this has not as yet been developed by most Member States; only Germany and France regularly break down their households sector in this way, and more recently the Netherlands has developed its related Socio-Economic Accounts (24). The TIAH statistics represent, in effect, an anticipation of a more general disaggregation of the households sector account. The TIAH aim is to construct for each country a Distribution of Income Account for agricultural households, and for other groups where possible, in order to estimate aggregate Net Disposable Income for these households, which can be expressed per household, per household member and per consumer unit. The account also allows the composition and distribution of agricultural households' total income to be examined.

The full methodology of TIAH statistics is presented in the Manual on the Total Income of Agricultural Households (12), revised in 1995. Here, only an outline of the most important features can be given. Attention is focused on three issues; the definition of disposable income, the definition of a household, and the classification system used to distinguish agricultural households from those belonging to other socio-professional groups.

3 KEY DEFINITIONS

Definition of disposable income

The main income concept used in the TIAH project is Net Disposable Income. The way that this is defined is shown in Figure 2, which is a simplification of the Primary and Secondary Distribution of Income Accounts shown in the ESA 1995. It should be noted that this concept includes not only income 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. When sending figures to Eurostat, Member States are requested to supply details of each

item and sub-item in order to facilitate harmonisation and to permit the use of alternative income concepts.

Some features of the definition are worthy of note since they reflect the macroeconomic origins of the methodology. First, in the flow of resources to agricultural households in Figure 2, the reward from independent activity (self-employment) is shown in the form of operating surplus (value of output minus costs of hired labour). Rent and interest costs (property and entrepreneurial income paid) are deducted later, among the list of negative items. However, in practice many Member States deduct these two at the level of Item 1, showing what is in effect an income figure. The end result is the same, but there are implications when looking at the composition of total income.

Figure 2 Definition of Net disposable income

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
(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 current transfers
(13)	Net disposable income (7 minus 8 - 12)
(14)	Social transfers in kind
(15)	Net adjusted disposable income (13 plus 14)

Source: (12)

Second, some items are treated in a way than would be thought appropriate in household-level studies. For example, accident insurance claims (receipts) and premiums are shown as separate items. This is explained by the fact that the Distribution of Income Account for households, as part of the ESA, has to record flows between all the various sectors; one of these is the Insurance Enterprises sector. At the individual household level receipts from insurance claims, especially for the replacement of assets destroyed by accident,

probably would not be regarded as income. Again, in the macroeconomic approach, payments to trades unions and churches (as transfers to non-profit institutions) should be deducted before calculating disposable income, whereas in a household survey they would normally be considered as ways of using disposable income. However, the extent to which such macro/micro disparities impact on levels of disposable income should not be exaggerated. Some sets of aggregate accounts have been drawn up nationally that bridge the gap (such as the Socio-Economic Accounts for the Netherlands) but the TIAH statistics adopt the conventional households sector approach.

Third, in the TIAH methodology all interest charges are treated as negative items, whether the borrowing is for business purposes or to finance consumption goods. This reflects the dual role of agricultural households within the ESA as both production and consumption units. Again, a family budget approach might accept the former as being a cost associated with independent activity, but would probably claim that payment of interest on consumer borrowing should be made out of disposable income, and not treated as a cost in its determination. However, even if the methodology required a distinction between the two, for agricultural households it may be impossible in practice for surveys to separate them in any meaningful way because of the close association of business and personal wealth.

Net disposable income should not be interpreted as bearing a direct relationship with standards of living for reasons that include the following:

No account is taken (at present) of the consumption of goods and service provided by the state without direct cost to the individual, such as public health care or education. In the revised version of the TIAH methodology, following changes in the 1995 ESA, there is provision for the concept of Net adjusted disposable income, the nature of the adjustment being social transfers in kind, which include *inter alia* publicly provided education and health services. This concept is intended to improve the comparability of disposable income figures over time and space, such as between countries, between socio-professional groups and between time periods that include changes in the extent of public sector activity. However, results are not yet on the new basis.

While there is an attempt within the existing Net Disposable Income concept to cover goods and services taken from farms by their operators in non-money forms (farmhouse consumption of farm products, the rental value of owned accommodation), it is by no means certain that these are either adequately captured or correctly valued.

Net Disposable Income is only a measure of current flows, and no account is taken of capital gains which, according to some conventions, could form a part of personal income[2]. Capital gains can be realised in many ways other than by sale, and it has been found that farmers with capital gains can adjust their consumption spending (or sums set aside for pensions) to reflect these gains.

Wealth, which represents a potential source of purchasing power and therefore of economic status, is also ignored.

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[2] For a discussion of the definition of personal income, and the relevance of different form of income measurement to agricultural policy, see (20).

Hence Net Disposable Income must be regarded only as a partial measure of the command which agricultural households have over goods and services. Particular care must be taken when drawing comparisons between the income levels of agricultural households and those of other socio-professional groups. Here the coverage of income in kind taken from the farm is a particularly sensitive issue. Farmers have a greater opportunity than household in general to consume directly the output from their productive activities (food, fuel), and to treat some items of personal consumption as business expenses. Often farmers live in houses which would command substantial rental values; there is an impression among the statistical authorities of Member States that, where this item is included as a form of income, the value of owner-housing on farms is often understated. On the other hand, the costs of consumer goods are often higher in rural than urban areas, so that a given disposable income could indicate lower physical consumption[3].

Definition of a household

For the purpose of measuring Net Disposable Income, the most appropriate unit is that of the household. This is the practice in Family Budget Surveys (FBSs) and the TIAH methodology adopts national FBS conventions in this respect. Though not completely harmonised, the definitions of household employed in Member States typically include all members who live under the same roof and share meals. The logic for preferring the household rather than the individual as the income unit 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; a wife may consider part of her income, perhaps some minor sums coming from outside the farm, as her own to do with as she wishes. However, in general it makes much more sense to use the household as the unit. A more major problem occurs with additional, financially independent, adults who live in the household, especially where their main income comes from off-farm activity. They may make some contribution to household expenses but would not regard their entire income as being at the disposal of the household as a whole. Some studies differentiate between the "accommodation household" (which would include such people) and the "house-keeping household" (which would exclude them). The TIAH statistics adopts the former, primarily because data are more frequently in this form, although some Member States use the "fiscal household" adopted by some tax data sources, which is near the latter.

In order that households of different sizes and compositions can be brought together for income measurement 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 in households, the latter uses coefficients (in the form of an equivalence scale) to express children and additional adults in terms of consumer units. A variety of approaches can be used to calculate these coefficients (reviewed in (7)). However it appears that, whatever scales are chosen, arbitrary judgements are inevitable.

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[3] In practice it seems that the net effect of these factors is to lower the cost of living of farmers as a group, requiring a correction factor to applied to their income when attempting to comparisons with other members of society. In the USA the official poverty income for farmer households is set at 85 per cent of the non-farm level. In Australia the 1973 Henderson Poverty Enquiry used a farmer poverty line 20 per cent below that for all families.

Scales devised for general application may not necessarily be suitable for application in agriculture, though they may be accepted as being the only ones available. The use of such scales is nevertheless important to any comparison between farmers and non-farmers, since agricultural households are on average larger than households in general in all Member States.

It is important to note that agricultural households, defined in this way for TIAH statistics, may include persons who contribute no labour input to the agricultural holding, though in practice, it is unlikely family members in the household would contribute zero labour input to the farm at times of labour shortage, such as harvest, even if they held full-time jobs off the farm. Their treatment reflects the aim of TIAH statistics to provide information on the *overall* income position of agricultural households, not fractions of them, which can be used for consumption and saving. This does not exclude the use of other approaches in other circumstances, such as aids directed at those who work in agriculture[4].

Bases for classifying households into agricultural and non-agricultural groups - "narrow" approach

The most significant part of the target 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. At the time when the TIAH methodology was being drawn up, the national accounts methodology for the European Union as a whole (ESA) had not developed such a classification system. Nevertheless, it was clear that it would have to be capable of allocating all households in a systematic way using the same basic criterion.

After consultation with Eurostat staff responsible for developments in the ESA, the proposed basis for household classification within the TIAH project was initially based on the income composition of the entire household. However, many Member States found that this was impractical. Consequently TIAH statistics have adopted one of the alternatives put forward in the ESA - a system of classification based on the household's reference person. For the purpose of classification in TIAH 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 family budget). This system allows a complete and consistent allocation of households to occupation groups for the purpose of drawing comparisons. Thus an agricultural household is one in which *the main source of income of the reference person is from independent activity in agriculture*[5]. Many households that occupy agricultural holdings will be excluded by this definition, so the term "narrow" is applied to this concept of an agricultural household. This system can also result in some households (typically large ones with several additional adults working off the farm) being classed as agricultural

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[4] For example, in applying income tests to the "Transitional aids to agricultural income" (Regulations (EEC) Nos 768/89, 3813/89, 1279/90) income was measured only for the farmer and those members of his family working on the holding, though it captured all forms of income for these persons. Early retirement aids (Regulation (EEC) No 1096/88) only consider the income from the applicant (that is, the one person).

[5] Where possible the group of agricultural (farmer) households should not include forestry or fishery households.

where farming contributes only a minor part of the household's total income, but such cases have to be accepted as a price of the greater practicality of such a system. Some Member States, that cannot at present use an income criterion, substitute the main declared *occupation* of the reference person. Of course, when measuring household income the incomes of all members are summed, but these additional incomes are not considered at the classification stage.

There is the possibility, under a "narrow" definition of an agricultural household, of substantial year-to-year changes taking place in the numbers of households, and this could make income results difficult to interpret. An income-based system which only looks at figures for a single year is likely to result in many temporary reclassifications at the margin due to the fluctuating nature of farm incomes. Not only will the number of agricultural households change, their average income will be affected, though it is not clear if this results in an overstatement or an understatement of the position relative to that of a more consistent group of households; both situations are conceivable. Averaging incomes over a run of years would present the basis for a more stable classification; analysis of farm-level data in Germany suggests that taking a three year period removes most of the unpredictable variation in incomes. Taking 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 (10). Classification according to the main occupation (defined according to time spent) of the reference person may show more stability, but this system has other major disadvantages; there is plenty of evidence to show that the proportion of time spent on farming is not a satisfactory guide to the proportion of income derived from it, especially among small farmers. In addition, time allocation does not correspond to the ESA 1995 methodology as a basis for allocating households to socio-professional groups.

Even if the effects of short-term fluctuations in the income of farming on the numbers of agricultural households are smoothed out, the households which are covered will not form a constant group over time. In the long-term numbers will be expected to fall, in line with the historic pattern. If the policy interest were to be to trace the development of income of people who started any given period as members of agricultural households, some attempt would have to be made to retain these in the group. Households which are most successful in diversification into non-agricultural activities can be expected sooner of later to fall outside the agricultural group (defined in the "narrow" sense) and to join some other. Under the present arrangement, farmers who face a fall in their income from farming 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.

The use of a "broad" concept of an agricultural household

The definition of an agricultural household used here is consistent with the background and aims of TIAH statistics. However, the nature of the households that comprise the CAP's "agricultural community" has never been precisely stated (20, 21). In the opinion of the Commission's DG VI (a major potential user of the results) there are particular policy situations where information on the incomes of all households that operate agricultural holdings might be useful. By subtraction it should also be possible to throw light on the

income situation of those households with agricultural holdings which are not primarily dependent on farming for their livelihood (those households which fall outside the "narrow" but inside the "broad" approaches). Consequently, in the TIAH methodology a supplementary "broad" definition has been developed; a household is included if any member of the household has some income from farming *(other than income solely in kind)*.

4 THE METHODS USED TO GENERATE RESULTS

The diversity of data sources found in Member States has meant that, though target definitions are harmonised, the way in which TIAH statistics are actually created must be allowed to vary from country to country. These represent points on a spectrum between macroeconomic and microeconomic methodology.

Subdivision of the household sector account (macroeconomic approach)

This consists of subdividing the economic aggregates found in the household sector Distribution of Income Accounts to form separate accounts for agricultural households and for other socio-professional groups. In practice macroeconomic data sources rarely distinguish between payments or receipts involving people who are members of agricultural households and those from other households. Often a distribution agent is used to allocate an economic aggregate between classes of recipient, frequently taken from similar entities in family budget surveys or tax records; for example, data on income from self-employment from such a source, though perhaps underestimating the level of income, might be used to distribute the equivalent income figure taken from national accounts. The overall quality of this approach will depend on both the quality of the aggregate (which will reflect the sources used in its construction and the existence of means of checking and reconciling them) and that of the distribution agent. In the present context the latter poses the bigger problem. Member States using this approach include Belgium, Germany, Spain, France, Italy, the Netherlands and Portugal.

Grossing-up microeconomic data

Estimates of the disposable income of the agricultural household sector could be obtained by grossing-up microeconomic data, as collected in household budget surveys, taxation records (total or samples) or farm accounts surveys. The first two typically also generate estimates for non-agricultural households using the same methodologies, though for purposes of comparison this may not be ideal (for example, the way that own-production is valued may be inappropriate). The main problems of this approach are data availability and quality. Among farm accounts surveys there is no requirement in FADN to cover information on income from outside the farm business, though this may be collected for national purposes; countries where this is regularly undertaken include Denmark, Germany, Netherlands, Austria, Finland and the United Kingdom. The administrative requirement that these surveys should achieve a high coverage of national production in an economic way means that they leave out many small farms which fall below some imposed minimum size threshold and which contribute relatively little to total output. Nevertheless, these small farms may be the main source of livelihood or occupation of their holders and may form a substantial element of "the farm income problem".

All countries also undertake family (household) budget surveys, co-ordinated by Eurostat. The methodology is not yet completely harmonised, but similar approaches are taken by Member States (13, 31). However, these surveys are often widely spaced in time (with intervals of up to seven years between surveys), are frequently weak in terms of income data, especially from self-employment (independent activity) since they were not set up with income measurement primarily in mind (their focus was expenditure information needed to construct indices), and the number of cases formed by farmer households is, at least in the northern countries, often too small to be statistically reliable. In Ireland, where the household budget survey is the main source for TIAH statistics, special steps are taken to improve income data quality (including, in the 1987 survey, a link with the sample of the farm accounts survey).

Among the other sources encountered, taxation records are hampered by incomplete coverage of agricultural households and, in many Member States, by regimes that levy tax at a flat rate per hectare (the "forfait" approach) rather than on actual income. However, these are a major source of primary data in Denmark, Finland, Sweden and the United Kingdom. Other information sources found in a few countries included social security schemes and occasional surveys. Perhaps not unexpectedly, some Member States have several good microeconomic data sources while others have none. Member States taking this approach include Denmark, Ireland, Austria, Finland, Sweden and the United Kingdom.

Some countries use an explicitly hybrid approach, deriving the income of agricultural households from the aggregate economic accounts for agriculture, and achieving other items from grossing up survey data (Greece and Luxembourg).

5 CONCLUDING COMMENTS

Several areas of constructive tension exist within the TIAH methodology that have not been entirely resolved. In large part these reflect the different statistical systems in place at national level and the institutions from which the personnel involved in the development of TIAH statistics come.

There is no single accepted definition of what constitutes an agricultural household. That appropriate for the general disaggregation of the households sector within national accounts, adopted by TIAH statistics, is not necessarily satisfactory for the purposes of agricultural policy, although the difficulty of obtaining from policy-makers a preferred definition has been a brake on the development of the TIAH statistics.

The use of a macroeconomic conceptual framework causes difficulties for Member States that attempt to make estimates by grossing up survey data. Some items are not available from surveys or are subsumed in others; income rather than operating surplus is the form in which the rewards flow to households from independent activity. This reduces comparability between countries. Micro/macro disparities are familiar to national accountants dealing with the households sector (28)

National statistical authorities differ in their willingness to apply methodologies that start from the households sector account and to attempt a disaggregation in which agricultural

households are shown as a separate socio-professional group. They prefer a microeconomic approach.

Initial lack of clarity about how the statistics would be used has hampered the choice of methodology and obscured the priority that should be given to the development of TIAH statistics. In some cases it may even have provided an opportunity to slow progress in the application of the methodology.

Finally, the development of TIAH methodology, which was a Eurostat initiative, can only go part way in providing information on the overall income situation of agricultural households. Some of the most important policy questions relate to distributional issues; if light is to be shed on these, microeconomic data are needed (2, 8, 20, 27). While the TIAH statistics might be considered to be in advance of national accounts practice in the USA and Canada, these countries are better equipped with household-level results. So far, in the EU's official information system, the development of methodology at farm household level and, in particular, its application has been substantially slower. However, it would be highly desirable that ultimately there should be distributional information that uses a methodology that is compatible with TIAH statistics, enabling the two to be complementary in describing the income situation of agricultural households.

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METHODOLOGICAL ISSUES IN THE MEASUREMENT OF THE INCOME OF FARM HOUSEHOLDS IN THE USA

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SUMMARY

Beginning with 1988, the USA has developed new estimates of the income of farm operator households. These estimates refine the underlying population and income concepts. They replace a variety of indicators of the income of farm people, which were largely developed as secondary to other data collection activities.

1 INTRODUCTION

The availability of accurate indicators of the economic well-being of farm households is critical to understanding agriculture, whether one is interested in agriculture from an economic, cultural, or public policy viewpoint. A variety of measurement approaches have historically abounded in the U.S. statistical system, some of which yield differing conclusions. This is generally because estimates used as indicators of the well-being of farm operator households were often originally constructed from data collected and organized for other purposes, so that the underlying concepts of the available data were inconsistent with the appropriate concepts for measuring the well-being of farm people. The U.S. Department of Agriculture (USDA) has a new approach for estimating the income of farm operator households which is based on a survey of the farm operator population. The purpose of this paper is to explore the alternative concepts of income and population that have been used historically relative to the current approach. A review of the past is not only useful for placing the current concepts in perspective, but is essential if one is interested in trends in income levels over time, given the short life of the current series, that is, from 1988 forward.

A perspective on the incomes of farm people should provide information in two basic areas. First, what are the levels and changes of income of farm people over time? How many farm households have incomes above some minimally acceptable level, such as a poverty threshold? Secondly, how do the incomes of farm people compare to the incomes of nonfarm people? The latter issue is central to the concept of parity--a dominant agricultural policy concept throughout most of this century in the USA. The parity concept has come to mean economic equity for agriculture. The applied definition of parity has varied over time, but is generally viewed through the prices farmers receive for the products they produce or through their incomes. Parity income was defined in the 1936 U.S. legislation (and redefined in 1938) to focus on a comparison of the average money incomes of farmers with those of nonfarmers (11). Critics were quick to point out problems

with such a simple comparison, especially the omission of the value of farm home-produced items, the differing distributions of income of farmers and nonfarmers, and the differences in the cost of living (2,3,6). Nevertheless, the appeal of simple comparisons of money income between farmers and nonfarmers remains strong.

2 CURRENT CONCEPTS

About 9 million individuals in the USA are directly associated with farming as one or more of the following: farm operators, hired farm workers, unpaid workers, or farmland owners. Of these, about 7.7 million individuals work on farms, mostly for less than half of the year (9). Other individuals do not operate or work on farms, but simply rent out the farmland they own to farming businesses. In 1988, there were about 1.3 million of these farmland owners (14). In addition, some households may simply live in farm dwellings, without being actively engaged in agricultural production activities. Individuals and the members of their households who operate farms may also work as farm laborers or may rent farmland to other farmers.

Farm operator household concept

The U.S. Department of Agriculture (USDA) generally focuses on the farm operator group because they are the major entrepreneurs and receive most of the residual income from the agricultural production process, making them the most affected by market and policy shifts. The USDA definition of a farm operator household is tied to the definition of a farm. In the USA, a farm is defined as a place which sold or would normally have sold $1 000 in agricultural products. This is an extremely liberal definition of a farm. In fact, the $1 000 floor is the most liberal definition in real dollars since the USA started defining a farm. Changing the definition of an official farm to one that excludes many of the smallest farms is the subject of a continuing debate. One of the reasons it is maintained is because Federal funding for many programs to the various states is tied to the number of farms. In addition, it is culturally important in many areas of the USA to continue to be viewed by the larger society as farming areas. Redefining what a farm is would significantly shift the distribution of "official" farms. (The interest in redefining the farm definition to a more restrictive one has greatly increased recently for a pragmatic reason--to decrease the data collection costs associated with including small farms which account for such a small share of production.)

It could be argued that the farm operator household could exclude some households that operate some farms, for example, either very small or large farms. In the case of small farms, their motivation for farming is often simply to consume the lifestyle amenities associated with farming. It is not unusual in farm data collection for a household associated with a small farm in official terms to insist that they are not a farming operation at all, that they just have a few animals or a roadside vegetable stand. Similarly, some might argue that the very large farms should also be excluded if they require management by more than one individual or where the hired labor input is sizable. Because any size cut-off is arbitrary and in order to bring consistency to the agricultural statistical system, the USDA has, to this point, decided to tie its farm operator household concept to the official definition of a farm. If the official farm definition changes, the farm operator household definition will change accordingly.

The survey instrument currently used to collect information from farm operators is the Farm Costs and Returns Survey (FCRS). The FCRS was begun in USDA in 1985, collecting data for calendar year 1984. The target population of the FCRS is all farms. By definition, all farms have operators. However, the operator household concept is not meaningful for most purposes for the minority of farms that are clearly not closely held by the operator and members of his or her household. The FCRS farm operator household income series eliminates those farms from inclusion. More specifically, the following farms are excluded: (a) Those that are organized as nonfamily corporations or cooperatives, or the operator does not receive any of the net income of the business. These excluded operators accounted for only 1 per cent of all operators. (b) For farms operated by more than one household, only one operator household, that of the senior operator, is included in the population. Others who are considered to be junior operators are not included, due to current data collection conventions. In 1990, 130 382 farm operators reported that the income of their farm business was split with others outside of their household. On average, these operators reported that 1.5 other households shared the net income of their business (1). In this case, the household income from the farm business is adjusted to reflect the distribution of income from the farm business to the farm operator household. It should be noted that excluding this small group of farm operator households that are not the senior partners is not the preferred option, but is necessitated by the current farm data collection system. However, any effect on national statistics is likely insignificant.

Income concept

The current USDA income concept is conceptually similar to the one the U.S. Bureau of the Census uses to report the income of all U.S. households. This income definition is a money income concept, except depreciation is included as an expense for those who are self-employed, such as farmers. No other non-money items are included, such as the income value of food stamps (government-provided certificates for "buying" food) or an imputation for the rental value of the owner-occupied farm dwelling. Because the FCRS data base is a farm establishment-based survey, we collect complete financial data on a farming business, but household data for only one operator's household. The farm operator's household does not always receive all of the net income of the business (for example, in the case of partnership). In this case, we have adjusted the household income from the farm business to reflect this distribution of income from the farm business.

3 PAST CONCEPTS

The earliest approach to measuring the income of farm operator households was based on the assumption that the farm business and farm household finances were the same. Net income of farm businesses on a per farm basis was probably a good indicator of the income of farm operator households when comprehensive agricultural economics data were first collected in the early part of this century. In the early part of the century, most of the households (sometimes extended) that operated farms received virtually all of the net income of the farm business, received minimal income form other sources, lived on their farms, and provided most of the necessary labor and capital. Historically, measurement of the income of farm operator households by the USDA has been considered as secondary to the measurement of farm business income in most data collection efforts. Treatment of the issue in those terms has meant that estimation of the income of farm operator

households has been based on indirect approaches that require assumptions about the relationship of the farm household to farm business.

At different times, at least nine different historical series have been developed by U.S. government agencies as indicators of the income of farm people. Besides the differences in the definitions of the farm population and the definitions of the income concepts, they also differ in the approach used to construct the estimate, that is, whether the estimate is constructed from aggregated secondary data or built directly from individual population data.[6] The different indicators can be classified into two major groups of estimates: (a) those with a basis in the annual estimates of the income of the agricultural sector or (b) those derived from the annual U.S. survey of households.

Series with a basis in the USDA sector Net Farm Income estimates

USDA first estimated the net income of the farm sector in 1913 (12). The estimates are the official U.S. estimates and are included in a slightly adjusted form in the U.S. estimate of the gross domestic product. These estimates are constructed from individually aggregated income and expense items which come from a variety of primary data sources. (That is, net incomes of individual farms are not computed and then summed across farms.) Estimates of the total income of the farm population which are based on these official farm income estimates have the advantage of being consistent with other indicators in the agricultural statistical system.

One of the most widely referenced series on the income of farm people is based on official net farm income estimates, the so-called, Per-Capita Disposable Income of the Farm Population (10). The series begins with 1910. The chosen income concept, disposable personal income, was of interest because it was consistent with standard accounting concepts. Farm people were defined as people who lived on farms. During this period most farm operators and their households did live on their farms. Farm residents were likely chosen as the farm household of interest for a pragmatic reason, as well: a population series on farm residents, and hence nonfarm residents, already existed. The 1920 Census of Population is viewed as the beginning of the official series on the farm resident population. However, estimates have been developed dating back to 1880 (8). The early estimates of the income of the farm population did not include their income from nonfarm sources; in fact, the nonfarm income of the farm population was included in the income of the nonfarm population because there was no means of separating it out from the secondary data available at the time. Beginning with 1934, "rough approximations" of the nonfarm income of the farm population were made and incorporated into the series (10).

This long historical series had two major disadvantages. First, it is constructed from aggregated secondary data, some components of which are not defined to exactly match

[6] Another example of data sometimes reported for farmers is Internal Revenue Service (IRS) data on those who file schedule F's for tax purposes. This population would not include all of farm operator households since only sole proprietors must file Schedule F's; but would include others not included in the farm operator household population, such as share rent landlords. More importantly, the income definition would be that defined for tax purposes, and would vary depending on the options of reporting for income and expenses, e.g., cash versus accrual accounting.

the definition of interest, but instead are used as proxies for this estimate. Secondly, the income series was generally used to represent the income of farm operator households, rather than the income of people who lived on farms. At the inception of the series, most operators lived on their farms, but over time a larger share of farm operators have been taking up a nonfarm residence. For example in 1950, only 5 per cent of farm operator households did not reside on their farms, compared with 23 per cent of farm operators who did not live on their farms in 1992 (17,13).[7] Therefore, the ability of the series to capture the population of interest has changed. There is no means for determining which changes in income levels are due to the true changing income levels of farm operator households and which effects are due to the declining ability of the resident population to represent farm operator households. Almost 40 years ago, USDA researchers were issuing warnings about assuming complete consistency between the farm operator household population and farm (resident) population:

> "... in many other parts of the world and even in some parts of the United States the typical farm-family settlement pattern is a village or cluster of homes not on, but surrounded by, farmland. For example, in 1950, roughly 19 per cent of the farm operators in Utah did not live on farms.In addition to problems relating to the residence and degree of dependence on agriculture of farm-operator families, there are problems in classifying other groups. These include such groups as farm laborers or farm-laborer families residing on farms, farm-laborer families not residing on farms, and families or single individuals renting farm houses but not renting any of the farmland in the property" (17, p.48).

In 1984, the USDA dropped this series because of its conceptual obsolescence and because of the lack of high-quality data available to construct the estimate. Many still refer to the income series, however, because, despite its flaws, it represents the longest time series on farm residents' income from all sources.

Another popular series which was based on the net farm income estimates was called the Total Income of Farm Operator Households. From the 1970's to the late 1980's, the USDA provided this series in an annual financial publication. This statistical series summed the net farm income of the sector plus the off-farm income of farm operator households. The total income series was based on the assumption that farm households who operated farms received all of the income of the farm business. This assumption was problematic because the farm sector, as defined in the historical farm-income series, includes households other than traditional farm operator households, such as those who contract with farmers to produce agricultural commodities (7). Another more readily recognized problem was the assumption that all farms had only one household receiving the net income. Some farms have several households sharing in the net income of the business, after landlords, contractors, and others receive their shares. For example, more than 10 per cent of farms were organized as partnerships or corporations and generally had more than one household that shared in the net income of the farm business in 1990 (1). Both

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[7] In addition, some hired farm workers not in farm operator households also live on farms. And others who are not in farm operator or farm worker households may live on farms. However, they are likely a small percent of all farm residents because we know that 1.36 million farm residents have a nonfarm major occupation (4), but that over 40 per cent of farm operators have a nonfarm major occupation and more than 600 000 spouses of farm operators work off the farm in a nonfarm major occupation (1).

of these facts meant that the series on total income of farm operator households, as constructed during this period, overestimated the income of that population. In 1989, the USDA discontinued the practice of adding together the series on the net farm income of the sector and the series on off-farm income of farm operator households.

Series based on the Current Population Survey

The U.S. Bureau of the Census conducts an annual, national survey of households, the Current Population Survey (CPS), to determine indicators of labor force activity and household money income. A clear advantage to these data are that the estimates are produced directly from the responses of individuals about their households, in contrast to estimates being constructed from secondary aggregated data series from a variety of sources. Another advantage to estimates from the CPS for parity-type comparisons is that the farm and nonfarm estimates being compared are from the same data source. This minimizes the possibilities that differences in income estimates between farm and nonfarm populations will be due to differences in data collection methods.

One disadvantage to the CPS for farm analysis is that the sample size for farm people is relatively small. The conceptual disadvantage of income estimates of the farm population based on the CPS is in the definition of the farm population, in particular, it does not have a pure identifier for farm operators and their households. The CPS uses three major definitions of farm people: people who live on farms, people whose major occupation is operating a farm, and people who receive farm self-employment income. (In addition, the USDA has devised a farm population, called the farm entrepreneurial population, based on a combination of the last two of these identifiers.) The longest of the series based on the CPS is the Money Income of Farm Residents series. The disadvantage to this series is that not all operator households live on farms, and other households besides those of farm operators live on farms. The drawback to the major occupation-based concept is that close to half (44 per cent) of farm operators have a nonfarm major occupation. Finally, identification based on farm self-employment income identifies farm operators of farms which are not incorporated. But it would also include other individuals not in the traditional farm operator definition, namely, landlords who rent farmland on a share basis and individuals who consider themselves as secondary operators. This definition also excludes the operators of incorporated farms.

4 CURRENT STATUS OF FARM OPERATOR HOUSEHOLDS IN THE USA

Farming households historically were financially disadvantaged compared with other households in the United States. This is generally no longer true. In part, this is because technological advances have allowed farms to consolidate over time so that, even in real dollar terms, farm income per-farm has increased. The number of farms in the United States is approximately 2 million, down from the peak of 6.8 million in 1935, although land in farms has changed little over this period.

Farming households have more diversified economic interests than in the past. They make production decisions about their farm businesses jointly with decisions about other household interests, such as allocation of household resources to nonfarm activities and investments. Nearly all farm operator households receive income from off-farm sources

today, and farm income is no longer a major source of income for most farm operator households. The new data indicate that off-farm income is significantly more important than farm income for the average farm household and that farm households have average incomes on par with nonfarm households. More than 40 per cent of farm operator households lose money on their farm on a cash basis in a typical year, but the majority of farm households who lose money on their farms earn adequate income from off their farms to bring their total household incomes to at least above-poverty levels.

A large percentage of farm operators are elderly or near-elderly compared with the whole U.S. population. This is understandable, in part, because the farm is usually the family home for most farmers, and they very gradually exit from farming. Farmers are less likely than the general population to have completed college. Despite this difference, farmers have significantly closed the educational gap that once existed in the U.S. between farmers and the rest of the population. Farm operators who have earned a college education are more likely to have a nonfarm major occupation and to have increased farm profitability compared to farmers with less education. Spouses of farm operators are less involved with the farming operation than are operators, although about 20 per cent of spouses in the U.S. report that they jointly operate their farms with the major operator. Spouses work less on the farm, but their off-farm work is important to the household finances.

In spite of the gains, a significant proportion of farm operator households have household incomes below the official poverty threshold; farm operator households are twice as likely as the U.S. population to have below poverty incomes. In 1990, 21.9 per cent had incomes below the poverty level, compared with 10.7 per cent for all U.S. families (1, 15, 16).[8] However, even many farm operator households whose incomes remain below the poverty level after considering all sources of household income have healthy net worths. For example, in 1990, farm operator households who had incomes below the official poverty threshold had an average net worth (from farm and off-farm holdings) of almost $300 000. This is considerably higher than the average net worth of about $90 000 in 1988 for all U.S. households (5).

5 CONCLUSIONS

Measurement of the income of farm operator households in the U.S. has historically been considered as secondary to the measurement of farm business income in most data collection efforts. Consequently, concepts underlying the data did not always match the

[8] Families are defined as groups of two persons or more related by birth, marriage, or adoption and residing together. Households consist of all persons who occupy a housing unit, including those who live alone and regardless of the family relationships of its members. The U.S. Department of Commerce does not provide estimates of the proportion of households below the poverty threshold, which would be the most comparable to our estimate for farm operator households. Besides estimates for families, they do have estimates for households with a householder below the poverty threshold and estimates for all persons. Most farm operator households are also families, so the best comparison to be made to farm operator households is to U.S. families. Regardless of the definition of the U.S. population, the point that a higher percentage of farm operator households have incomes below the official poverty threshold is valid. For example, for households with a householder below the poverty rate in 1990, the estimated poverty rate was 13.0 per cent (16). In 1990, the poverty rate for U.S. persons was 13.5 per cent (15).

needed concepts for measurement of the incomes of farm operator households. Treatment of the issue in those terms has meant that estimation of the income of farm operator households has been based on indirect approaches that require assumptions about the relationship of the farm household to the farm business. Several differing historical series have been constructed as indicators of the income of farm operator households. The differing series have lead to some consistent conclusions, such as that the gap in income between the farm population and the U.S. population as a whole has narrowed considerably, especially between 1934 and the 1970s. However, the U.S. experience has been that this indirect approach to measuring the incomes of farm people, has also led to a great deal of confusion and misinformation which is especially troubling in the policy arena. For example, the longest running series, the disposable personal income series, shows that the farm population income was 39 per cent of the U.S. population's income in 1934. At the time the series was discontinued in 1983, that comparison had risen to 69 per cent. USDA's estimate of total income of farm operator households, based on net farm income, was much higher than the other series, and showed incomes of farm people to exceed those of all U.S. households from 1966 forward. As a result of these problems, the USDA now develops a single estimate of income for farm people. The population concept is the farm operator household and the income concept is a money income concept, consistent with other income concepts in the U.S. statistical system.

The new income series has heightened new policy concerns. Income parity issues were paramount during the 1930s. Comparisons between average incomes of the farm and U.S. population are still of interest today, however, they are much less important than in the past. The income gap has closed and farm people as a group are no longer the relatively disadvantaged group they once were. However, if their net worths are considered, farm people have very strong financial positions relative to the general U.S. population, although they experience a higher incidence of very low, or poverty, incomes. Contemporary issues affecting the well-being of farm people relate more to these types of issues associated with the distribution of income and wealth, as well as the following: access to nonfarm opportunities; farm economy adjustments, especially farm asset adjustments, as a result of decreasing levels of government support; adjustments to changing external forces, such as international trade flows; the trend towards the industrialization of agriculture, which often means farmers lose control over various aspects of the production process; and access to benefits commonly provided by employers of wage and salary workers, such as health insurance.

In the development of meaningful economic statistics for agriculture in the U.S., several challenges have emerged. First, our concepts are based on traditional agricultural production organization and those organizational patterns are changing rapidly for those operations that produce the bulk of our commodities. It is becoming increasingly difficult to develop survey instruments that will accurately capture the flow of costs and returns in an industry with a myriad of evolving financial arrangements. These complex arrangements may, some time in the future, make the concept of a farmer as the single individual who makes input decisions and controls agricultural resources totally obsolete. We are already faced with the need to interview more than just the farmer in some production regions in order to know the complete set of inputs used in production. In some cases, the farmer has become like a general contractor who subcontracts out for farm services. In other

cases, the farmer has been hired only for his or her labor and capital and makes little or none of the production decisions. Secondly, it is more difficult to get cooperation from farmers to provide financial information. This is true for a number of reasons: as production is concentrated on fewer farms, the frequency and length of interviews for the larger farms is increasing; the increased concentration in production produces disincentives to provide the information in order to protect competitive strategies; there is heightened sensitivity to providing information that may be perceived as important to the debate on agriculture's effect on the environment or food safety; and as government curtails its support to agriculture, farmers may be less willing to share information. Finally, farmers may be less willing to provide, and certainly local area enumerators are less willing to inquire about, information on the increasingly important income and assets from outside farming. How we are able to address these and, undoubtedly, other challenges will determine how accurately we reflect the economic well-being of agriculture and the people associated with agriculture in the future.

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Note: Dr Ahearn was delayed in Washington at the last moment and therefore was unable to deliver her paper in person. It was read in summarised form by Mr Cook (Eurostat). Questions raised by participants were passed subsequently to Dr Ahearn for comment.

Responses to questions from the floor:

Professor G. Schmitt (Gottingen): *With which other household groups could the average incomes of farmer households be suitably compared (given the differences in household characteristics like size, age composition etc.)?*

Dr Ahearn:

> The preferred reference household group depends on the purpose of the comparison. Many times the purpose of making such a comparison is simply to see if the farm operator household group is a disadvantaged group in American society. This question is often asked in the policy arena in an equity context because of the direct subsidy payments paid to farmers. For this purpose, the comparison is made to all households in the USA. Clearly, there are other valid reasons for making comparisons. For example, researchers in ERS have also compared the incomes of farmer households to the incomes of all other self-employed households, arguing that they were interested in a comparison to a group that faced similar resource issues, such as the need to provide your own capital. Using 1990 data, ERS researchers found that incomes between those self-employed in farming were generally on par with those self-employed in nonfarm businesses, although there were differences in the size distribution of income for these two groups (Holmes, Carlin, and Butler: "Self-Employment: How Do Farmers Stack Up," AIFSO, Dec. 1991, USDA, ERS.)

Mr. Sturgass (Cambridge, UK): *Why are farm worker households seemingly not taken into account in these type of statistics?*

Dr Ahearn:

The USA does provide income statistics for farm worker households. The U.S. Bureau of the Census develops estimates of income annually that are disaggregated by major employment groups. This system includes estimates of income for individuals that receive farm self-employment income and farm wages and salaries. Traditionally, USDA has supplemented the Bureau of the Census estimates, both for farm operator households and farm worker households, but in differing ways. As described in the paper, a separate USDA administered data collection and analysis program exists for farm operator households. In the case of farm worker households, USDA has supported the U.S. Bureau of the Census estimates by adding funds to their existing surveys to allow for additional survey questions, greater coverage, or additional analysis of the data. USDA prepares a biennial report, based on this information, on the status of farm workers. (The latest report is by Jack Runyan: "Profile of Hired Farm Workers, 1992," AER 693, July 1994, USDA, ERS.) It is likely true that more USDA resources are devoted to the development of intelligence on farm operator households, than to the development of intelligence on farm worker households. The most obvious reason for this is because taxpayers are providing subsidies to the farm operator group, and hence there is a greater need to monitor the financial well-being of this group for equity considerations.

PRACTICAL AND LEGAL CHALLENGES OF DEVELOPING PLURIACTIVITY AND NON-FARM INCOMES DATA USING THE EU'S FARM ACCOUNTANCY DATA NETWORK

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SUMMARY

The EU's Farm Accountancy Data Network (FADN, or RICA), set up to service the CAP, has hitherto confined itself primarily to data relating to the farm business. The potential for collecting data on pluriactivity and non-farm incomes through its Farm Return is examined. A number of Member States are found to already collect such data within national surveys. An informal proposal to expand the Farm Return to cover non-farm income met a mixed response that, in effect, has blocked development in this direction.

1 INTRODUCTION TO THE FARM ACCOUNTANCY DATA NETWORK (FADN)

The European Commission's Farm Accountancy Data Network (FADN) was established in 1965. Its purpose, as set out by its governing Council Regulation (79/65/EEC) is to collect data for "an annual determination of incomes on agricultural holdings " and for the "a business analysis of agricultural holdings". The FADN Unit of the Commission's DG VI does not directly collect the data itself. This is the responsibility of a liaison agency in each Member State and data collection is either undertaken by the agency or by other bodies nominated by it. The agencies are responsible for completing a Farm Return (Commission Regulation 2237/77/EEC) which describes the data[9] that should be gathered on the individual commercial farms for transmission to Brussels. These data pertain mainly to the farm business and the incomes earned from farming. However, data on tourism and forestry are collected as long as these activities are connected with farming.

The driving force behind the Farm Return is the CAP. The Commission Regulation setting up the Farm Return begins with the preamble:

> 'Whereas it is now time for the 10 years' experience of the farm accountancy data network to be applied to revise the provisions concerning the farm return so as to make the accountancy data more comparab le and to adapt them to the developing needs of the CAP'

[9] The Farm Return contains a table for each of these items:(A). general information on the farm (B).Type of Occupation (tenure) (C) Labour input (D) Number and value of livestock (E) Livestock purchases and sales (F) Costs (G) Land and Buildings, deadstock and circulating capital (H) Debts (I) Value added tax (J) Grants and subsidies and (K) Production.

Recently the Farm Return was modified to cope with the effects of the CAP-reform.[10] The latest CAP reforms also point to the need for developing new statistics for policy-making. The main thrust of the CAP reforms has been to switch from a price support policy to one geared more towards direct aid for producers and to speed up adjustment of agriculture. In this regard, stress has been put on improving the competitive position of farms, improving working conditions on farms, and also on diversification of farm activities, mainly tourism and farm-based crafts. The latter in particular reflects a concern with improving the incomes situation of farmers or their families through other gainful activities. This concern has been articulated in several Commission documents. For example, in the "Future of Rural Society" (COM(88)601 final) it was recognised that outside activities could be instrumental in providing income for the agricultural population. In "The Development and Future of the CAP" (Commission 1991) the Commission stated that "as far as agriculture is concerned the aim is to support the incomes of farm families not only through the traditional instruments of market support but through non-market measures".

Improving the incomes situation of farmers and their families will pose a major challenge to EU's agricultural and rural development policy-makers. This is primarily because policy-makers do not have access to the necessary microeconomic data for formulating, monitoring and implementing appropriate policies - data pertaining to the time farmers and their families spend on other gainful activities and the incomes generated from such activities, which may include incomes from on-farm diversification, off-farm businesses, off-farm employment, etc. At present such data are not available at the EU level.

The Farm Return is potentially a very useful source of data on the pluriactivity and the total incomes of farm households. We would like to see this potential turned into reality and for this reason in 1994 the Unit prepared a consultation document regarding the integration of questions on the pluriactivity and non-farm incomes (farm income data are already collected) within the framework of the Farm Return.

2 THE POTENTIAL OF THE FARM RETURN

Several reasons may be given as to why the Farm Return is potentially a good source of information on the pluriactivity and total incomes of farm households;

a) The survey sample consists of commercial farmers who are the targets of agricultural and rural development policy. Additionally, each holding in the sample will be operated by one or more households. What this means is that the sample already consists of at least 60 000 "farm" households, a fairly large sample. While it would be preferable to conduct an actual farm household survey with a larger and more comprehensive sample, the excessive expense of such an undertaking rule out such an option;

[10] Published as Regulation No. 2940/93, of 25 October 1993, O.J. L 265, 26.10,1993. Changes were made to the following tables. Table A: a code for the type of the region regarding the Structural Funds, Table G: officially including the value of quota, Table J: adapting codes for subsidies to include subsidies for the environment and forestry, Table K: giving rules to code the set-aside areas. New tables have also been introduced: Table L: data on quota (buying and leasing) and Table M: data on compensations in arable farming (MacSharry-payments)

b) There are low start-up costs in using the Farm Return to collect pluriactivity and non-farm income data;

c) The Farm Return offers the possibility of annual data collection on pluriactivity and non-farm incomes;

d) The sample is large enough to provide a good coverage of farms households, according to the principal farm types and farm sizes;

e) There is the possibility of establishing a farm typology which would incorporate "farm business" as well as "farm household" characteristics;

f) Several Member States have been very successful in using their national surveys to collect pluriactivity and/or non-farm income data for policy and other purposes.

The Farm Return thus offers the least-cost alternative for the collection of information on both the "economic structure of the farm" (presently collected) and the "economic structure of the farm household", as each holding in the current sample will be operated by one or more households.

Collection of pluriactivity and/ or total income data by the Member States

Presently, 7 of the 15 EU Member States, including Austria, Denmark, Germany, Finland, Ireland, The Netherlands, and the United Kingdom collect pluriactivity and/or total incomes information to varying degree of detail (prior to 1991, Sweden was also collecting such information[11]). Many of these Member States collect the data in conjunction with their national surveys, using differing concepts and methodologies. Table 1, below, provides details on the income indicators developed, the unit of observation and the items collected.

Table 1 makes clear that many Member states, with the exception of the UK, are giving priority to developing indicators of *total incomes of farm households*. In many Member States the "household" serves as the unit of observation, however, differing definitions of household are used. In some Member States the collection of total income data has formed an integral part of the collection of farm data. For example, in Denmark farm household data have been collected since 1922 and in Germany and the Netherlands, since 1975. The UK has recently (1989) started collecting non-farm incomes information, but only for the farmer and spouse.

Despite the sensitivity of collecting incomes information, farmers for the most part participate in the surveys conducted by the Member States. The rate of refusal is less than 1% in Denmark and 5% in the Netherlands. In the UK, however, almost 15% of the farmers refuse to participate in the non-farm incomes survey. According to the UK data collectors the non-participation is largely due to the fact that the farmers feel that the information may be used against them, i.e. for tax purposes. It is quite possible that

[11] The data pertained to the total incomes, taxable income and disposable income of the household. The items collected were: (1) employment income (2) property income (3) financial asset income (4) business income (5) social transfer income (6) federal tax (7) municipal tax (8) property tax, see OECD, Working Party on Agricultural Policies and Markets of the Committee for Agriculture, *A Review of Farm Household Incomes in OECD Countries*, AGR/DAA(93)11/REV1, 22-June-1994,

participation may increase in due course as farm households come to realise that the information is strictly confidential and is to be used only for policy purposes.

The positive experiences of the Member States in the collection of pluriactivity and/or non-farm incomes information point to the fact that such information may be forthcoming from farm households. Further details on the sample methodology and the concepts and definitions used in the Member States (Denmark, Germany, the Netherlands and the United Kingdom) may be found in Table 2.

Table 1 Type of pluriactivity and non-farm income information collected by the Member States

Member State	*Income indicator*	*Unit of observation*	*Items collected*
Austria	total income	household	- wages - business income - property income - social transfers
Denmark	total income disposable income	household	total of 17 items on income and taxes
Germany	total income	household	- business income - self-employment - employment income - capital assets - rental income - other taxable income - private insurance - private taxation
Finland	total income net income	household	- wages - pensions - property income - income tax - property tax
Ireland	total income	household	income data not disaggregated
Netherlands	total income disposable income	household	- non-farm asset income - non-farm labour income - social security income - other non-farm income - savings - taxes paid
United Kingdom	non-farm income	farmer + spouse	- tourist and catering - rural craft - farm retailing - other on-farm income - employment income - investment income - pension income - social payments - other income

Note: Information for Austria, and Finland was taken from OECD, Working Party on Agricultural Policies and Markets of the Committee for Agriculture, A Review of Farm Household Incomes in OECD Countries, AGR/DAA(93)11/REV1, 22-June-1994, and the data for other Member States come from a special survey conducted by the FADN Unit.

Table 2 Sample methodology and concepts and definitions employed in the collection of non-farm incomes information by the Member States

		Denmark	*Germany*	*The Netherlands*	*United Kingdom*
1	Sample coverage	Same as FADN	Test farm network and FADN	FADN minus 5%	Same as FADN
2	Sample size	2 300	10 000	1 400	3 900
3	Percentage of sample rotated	25%	15%	24%	10%
4	Sample stratification	More stratified than FADN	By state, type of farm, size	Same as FADN + age	Same as FADN
5	Weighting method	More detailed than FADN	As per stratification	Same as FADN	Same as FADN
6	Household definition	Family of farmer: adults+children; parents of farmer excluded	Persons who belong to a household, i.e. who live together and keep house, regardless of whether or not they are related.	Farmer + spouse + children + other members	Household not defined; data collected only for farmer and spouse
7	Farm household definition	Families who live on FADN farms are farm households	No classification*	Families who live on FADN farms are farm households	Not applicable
8	Problems encountered with farm household definition	None	None	None	Not applicable
9	Data collected in partnership situations	In equal partnership, household of the farmer with the highest labour is chosen	Data are only collected from individual holdings	In equal partnerships, data are for all the households	Data are collected from the partner answering the "main" part of the form
10	Method of recording data	Actual figures	Actual figures	Actual figures	Income ranges
11	Method of recording self-employment income	Income before tax and pensions	Income before tax and national insurance	Income less expenses	Income before tax and national insurance
12	Imputed items	Rental value of buildings	None	Depreciation for cars and houses	None
13	Data quality	Good	Good at regional level	Good for research purposes; possible der-estimation	Possible under-estimation of income

Note: This information is derived from a special survey conducted by the FADN Unit in 1993. Ireland is excluded as detailed non-farm income information is not collected

* Only agriculture businesses are classified, i.e. according to income and work time criteria. The income criteria is defined as the relationship between farm and non-farm income. The work time criteria serves as a specific minimum requirement for agricultural labour contributed by the farm owner.

3 FADN COLLECTION OF INFORMATION ON PLURIACTIVITY AND NON-FARM INCOMES

Objectives

As set up, Commission Regulation 2237/77/EEC (the Farm Return) does not empower the FADN to collect pluriactivity and non-farm income data, although the farm return does ask for information on tourism activities when it overlaps agricultural activity on the holding (code 179). This meant that Commission Regulation 2237/77/EEC had to be amended to extend the farm return to include questions on the pluriactivity and non-farm incomes of agricultural households. Further, the amendments would have to be presented to the FADN Community Committee and passed by a qualified majority (45 votes).

The work on the amendment to Commission Regulation 2237/77/EEC and the formulation of questionnaires and the accompanying definitions and instructions began in October 1993. The FADN Unit, however, felt that before presenting a "formal" proposal to the FADN Community Committee for voting, as required by article 19 of Council Regulation 79/65/EEC, the Member States should be given an opportunity to express their views more "informally" on this issue. For this reason, a consultation document was prepared which provided the Member States with the details on the Commission's objectives in the collection of the data, and a draft of the pluriactivity and non-farm income questionnaire and the accompanying definitions and instructions.

The FADN Unit had two main objectives in setting up a harmonised system for the collection of annual statistics on the pluriactivity and non-farm incomes of farm households;

a) The first objective was to contribute to the statistical information necessary to improve agricultural and rural policy formulation, particularly those measures which may require a knowledge of the *total income of farmers* (art. 5 of Council Regulation No. 2328/91 and art. 2(1) of Council Regulation No. 3808/89) or *overall family income* (art. 4 of Council Regulation No. 768/89 --income aid scheme), for calculating the level of support and targeting of aid. In the foreseeable future measures of a similar nature may be introduced to avoid disequilibrium in the process of agricultural adjustment. Microeconomic farm household data will be valuable in the formulation, targeting, and monitoring of such proposals.

b) The second objective was to contribute to the statistical information necessary to permit sound economic analysis of the effects of changes in support policies. CAP reforms have both structural and social implications. Therefore, any assessment of the reforms should be done at two levels:(1) production adjustment and (2) labour and/or household adjustment. Farms on the margin will utilise surplus labour for other gainful activities. A knowledge of the nature and type of other gainful activities at the regional level will be valuable in projecting the response of the farm households in that region to policy changes, particularly those which will free labour from agricultural work. A knowledge of the farm household adjustment, therefore, is valuable in assessing the impact of CAP reforms. This is particularly true given the increasing recognition in academic circles that a 'farm household' approach has greater advantages than a 'farm business' approach in explaining the adjustment process in agriculture.

The draft pluriactivity and non-farm incomes questionnaire

The draft pluriactivity and non-farm income questionnaire was presented to Member States, along with the accompanying instructions and definitions. It was left to the Member States to design their own questionnaire to collect the required information for up to nine members of the farm household.

The draft pluriactivity and non-farm income questionnaire is designed in two parts, because we considered it important to collect statistics both on the forms of pluriactivity (type of work, hours worked, etc.) and the non-farm incomes of farm households. Pluriactivity information is potentially useful information for policy purposes. For example, the information on the 'incidence' of pluriactivity will permit the classification of farms as full-time farms or part-time farms. This knowledge will be useful for devising different policies according to whether the farms are run on a full-time or part-time basis. In addition, where respondents refuse to answer questions on non-farm incomes, a knowledge of the type of pluriactivity and the hours worked at such activity will permit, at minimum, a crude approximation of the income from such an activity, using regional wage rate data. Some of the more important key concepts and definitions employed in the pluriactivity and non-farm income questionnaire are identified in Table 3, below.

Practical and legal problems with the integration of pluriactivity and non-farm income questions within the framework of the Farm Return

A special two-day meeting of a Working Group of the FADN Community Committee was held in Brussels in June 1994 to discuss the methodology for the collection of data on the pluriactivity and non-farm incomes of farm households. The more important conclusions are listed below. These are being highlighted as they have a direct bearing on the future possibility of developing pluriactivity and non-farm incomes data, within the framework of the Farm Return.

(1) While a majority of the Member States recognised the need for developing, farm-level data on both the pluriactivity and non-farm incomes; they felt that such data should only be collected for the farmer and spouse;

(2) A majority of the Member States also felt that there would be too many conceptual and practical difficulties in collecting information on income taxes and other deductions to justify the development of data on disposable incomes of farm households. Problems are also raised by the fact that tax data on farm income are not available;

(3) Three Member States were vehemently opposed to the collection of the non-farm incomes and related deductions data via the Farm Return. They felt that additional questions will jeopardise the collection of existing FADN data (i.e., farmers will leave the FADN survey). These Member States would like the Commission to conduct an incomes of farm households survey which is not affiliated with the Farm Return.

(4) There was difference of opinion among the Member States as to the legal instrument to be modified (Regulation 2237/77/EEC or Council Regulation 79/65/EEC) for the purposes of collection of pluriactivity and non-farm incomes data:

(4.1) Ten of the twelve Member States felt that the Commission had competence with regards to the collection of only *pluriactivity* data (hence a modification of

Commission Regulation 2237/77/EEC was sufficient to incorporate pluriactivity questions within the framework of the Community Farm Return);

(4.2) Six of the twelve Member States, however, felt that the Commission did not have the competence with regards the collection of non-farm incomes and deductions information. These Member States felt that this decision should be taken by the Council. This would mean modification of Council Regulation 79/65/EEC. These Member States felt that the collection of non-farm incomes and related deductions information was too sensitive politically to be handled at the management level.

At the end of June 1994 a report was prepared for the DG VI hierarchy, asking for guidance on the above matter, i.e. whether or not a modification of Council Regulation 79/65/EEC should in fact be pursued, or whether some other options should be explored for the development of non-farm incomes data. One such option is the reinforcement of the European Community Household Panel (ECHP) survey.

At the time of the finalising of the consultant's report (late November 1994), the FADN Unit had not received guidance on the above matter and, as a result, no effort was made to convert the Commission consultation document of 9.12.93 into a formal Commission proposal.

Table 3 Pluriactivity and non-farm incomes questionnaire: key concepts and definitions

(1) *data limitations;*

The pluriactivity and non-farm income questionnaires apply only to farmers and members of the farm household who engage in "agricultural " work on the holding on a regular (8 hours or more) basis. This is a legal constraint. In the opinion of the Commission Legal Services the pluriactivity information may only be collected from those members of the farm household "who work regularly on the holding". The continuous reference in Council Regulation 79/65/EEC to *holdings* ,i.e.,"data must reflect technical, economic and social conditions on the holdings.incomes on agricultural holdings.business analysis of agricultural holdings", suggests *that there should be a close link between the household member and his or her work on the* holding. What the above means is that the pluriactivity and non-farm incomes information will not pertain to the *household per se* While ideally, for policy and analytical purposes it is desirable to have the data on the whole household, significant use may still be made of the collected data, as in many instances it will identify the pluriactivity and non-farm incomes of the farmer and the spouse.

(2) *members of the farm household include;*

Dependent persons temporarily absent, children living at home with their own income, other persons living permanently in the home, persons normally residing under the same roof but who, for professional reasons, temporarily live outside the dwelling For inclusion as member of the household such persons must be economically dependent on the budget the household

(3) *household definition;*

A single person or group of people , irrespective of whether they are related or not, living under the same roof, sharing meals together and sharing the common expenses and income

(4) *farm household;*

In most cases, each holding in the survey sample will be affiliated with one main household. However, households of the following category of operators are excluded: households of landlords, households of hired managers, households operating farms organised as non-family corporations and households operating farms as co-operatives

(5) *choice of household where two or more households are associated with a holding;*

the household of the individual contributing the highest labour input in the running the farm is to be chosen for surveying. If the labour input is equal, the highest capital input criteria is to be applied

(6) *partnership situations;*

The household of the holder with the highest labour input is to be chosen. If the labour input is equal, highest capital criteria is to be used.

(7) *incomes and deductions;*

For the most part the concepts and definitions come from the TIAH project.

MICRO-ECONOMIC METHODS FOR MEASURING THE INCOME OF AGRICULTURAL HOUSEHOLDS

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SUMMARY

This article examines the methodologies of the European Community Households Panel (ECHP) and the network of Household Budget Surveys (HBS) and their potentials as sources of microeconomic data on the incomes of agricultural households. Results from the ECHP have potential as information, though the number of agricultural household cases is likely to be only 3 000 for the entire EU. Income figures from the HBS are already available but the quality of the data is not high. The measurement of income from self-employment using surveys has known problems. with under-estimates by households and gaps in the data. Nevertheless, some observations about poverty are possible.

In the field of social statistics, Eurostat has two surveys for measuring agricultural income in which agricultural households form part of the sample and can be identified. These surveys are described below.

1 USE OF THE ECHP TO MEASURE THE INCOME OF AGRICULTURAL HOUSEHOLDS

What is the European Community Household Panel?

The Eurostat project to launch a survey on the income of households dates back to 1989/90, when requests for Community data on the distribution of income and social exclusion were numerous but could seldom be met by available information sources. The two household surveys that then existed - the Labour Force Survey, which is a Community survey, and the Household Budget Survey, which is subsequently co-ordinated at Community level - both have major shortcomings in this field.

Once the need for a Community survey on the income of households became apparent, it was decided that a survey of this kind should go beyond the conventional cross-sectional "snapshot" and provide longitudinal information. Compared with a cross-sectional survey, the main advantage of the European Community Household panel (ECHP) is that it allows income trends to be studied, whether these are due to single market policy measures or to major events in the lives of the parties concerned, such as loss of employment, migration, change in the composition of the household (marriage or re-marriage, divorce, death of spouse or children leaving home). More specifically, the ECHP charts certain transitions: education-training-employment, employment-retirement, unemployment-employment.

The ECHP is an annual survey that was launched in 1994 for a period of between three and six years. It is a panel survey, i.e. all individuals in the initial households (surveyed

during the first year, i.e. 1994, the first wave) are followed up and interviewed the following years (subsequent waves).

The main survey was launched in the then twelve Member States, though it is gradually being extended to the new countries. After a pilot survey in 1994/95, Austria made a start on its main survey in September 1995, and Finland will joint the project in 1996 (after a pilot survey in 1995). Sweden is the only country that has still not taken part, although it plans to forward the relevant data (which exist at national level) by means of the survey on the distribution of income or via administrative registers.

However, even though the ECHP is a highly co-ordinated "household" survey, data being collected by 12 countries (14 as from 1995), each country has been given a certain amount of leeway to adapt the survey to its own system (particularly the questionnaire, sampling and concepts).

Sampling and the reference period

The final total sample for the European Union as a whole for the first wave (survey carried out in 1994) should be just over 60 000 households. The breakdown by Member State is shown in the following table. The size of the sample in each Member State reflects not just the size of the country, but also a number of other factors - there is a minimum number of 1 000 households per country, and account is taken of legal restrictions (for example, it was not possible to interview more than 5 000 households in Germany owing to the lack of a Community Directive or Regulation) and national collection costs.

Table 1 Size of final sample for the 1994 ECHP

Country	Size of final sample (number of households)
Belgium	4 192
Denmark	3 482
Germany	5 000
Greece	5 523
Spain	7 448
France	7 400
Ireland	4 091
Italy	7 115
Luxembourg	1 010
Netherlands	5 187
Portugal	4 879
United Kingdom	5 779
European Union (12)	61 106

Owing to the schedule imposed by Commission users in Brussels and current national restrictions, it was not possible to apply a uniform schedule in all Member States. Thus,

during the first (1994) wave, countries were divided into two groups for data collection purposes.

- Data collection began in spring and finished in September/October 1994 in half the Member States (Belgium, Denmark, Ireland, Italy, the Netherlands and Portugal);
- In five other Member States (Greece, Spain, France, Luxembourg and the United Kingdom), the survey was carried out during the last quarter of 1994.

Germany fell into both of the above groups in that collection started in spring in six of the sixteen Länder, and in September in the remaining ten.

The ECHP concept of income

One of the strengths of the ECHP is that it provides detailed data on the income for the preceding calendar year (1993 for the first wave of the ECHP). In the individual questionnaire, each adult member of the household is asked to give data on all sources of income. Furthermore, the "household" questionnaire collects data on certain types of income specific to the household (social assistance, housing allowance and income from property rental). By combining these data, a picture can be built up of the household's net income.

In order to obtain the net income of the household for 1993, all individual income for each adult in the same household must be aggregated and then added to the household-specific components. Net income for 1993 should be calculated as follows:

net salaries (sum of all adults in household)
+ overtime, tips (sum of all adults in the household)
+ paid leave (sum of all adults in the household)
+ income from a secondary activity (sum of all adults in the household)
+ income from an independent activity (sum of all adults in the household)
+ net income from capital (sum of all adults in the household)
+ net income from property rental (household questionnaire) (sum of all adults in the household)
+ unemployment benefit (sum of all adults in the household)
+ survival pension (sum of all adults in the household)
+ retirement (sum of all adults in the household)
+ family allowances (sum of all adults in the household)
+ sickness benefits (sum of all adults in the household)
+ education/other allowances (sum of all adults in the household)
+ transfers from other households (sum of all adults in the household)
+ state housing allowances (household questionnaire)
+ social assistance (household questionnaire)

One problem with calculating net income is that, for self-employed persons, the ECHP currently shows only pre-tax income . It would not be easy to devise a taxation model to convert gross income into net. Furthermore, the net income of households can be calculated for 1993, not disposable income. Deductions are only made for income taxed at

source, not for tax paid annually on the basis of the annual income return (which takes account of the individual's personal situation and effectively standardises the amount of tax).

In addition to the detailed income components for the preceding calendar year, the ECHP furnishes data on the current situation (at the time of the interview). This primarily means an estimate of the total net income of the household obtained via a single question on the household questionnaire. In the event of non-response, this is followed by a question that allows the household to specify an income bracket. For salaried employees, details of gross and net earnings are requested in the individual questionnaire.

Identification of agricultural income in the ECHP

The ECHP was not specifically designed to analyse the farming sector. When investigating the possibilities of using the ECHP to analyse agricultural income, care must first be taken to define the field. This can be done in two ways:

a) select as agricultural households those households in which the reference person has his or her principal activity in the agricultural sector. This approach is not entirely satisfactory, as definitions of the reference person vary from one Member State to the next;

b) select all households in which at least one member is employed in the agricultural sector. This approach brings in all households in which agriculture is a secondary source of income.

If the first approach is adopted, a sample of around 3 000 households can be expected for the twelve countries covered by the survey, assuming a distribution similar to that of the Household Budget Survey. The second approach, by contrast, might increase the size of the sample, given that a secondary activity in agriculture is fairly common in some countries of the Union.

Farmers can be identified using the "sector of activity" question (NACE two-digit code, in which 01 = Agriculture, hunting and related service activities, and 02 = Forestry, logging and related service activities). This question is asked in connection with primary activity of all those who work at least one hour per week at the time of the interview. For those working more than 15 hours a week, it is also ascertained whether they are salaried workers or self-employed. Once agricultural households have been identified, the ECHP is used to calculate the average income for the previous year, for both salaried workers and farm operators.

Note should be taken of Ireland where, faced with a major agricultural sector, the collection institute thought it preferable to add specific questions to improve identification of farmers' sources of income.

Identification of farmers' income is thus possible. This means that farm income can be evaluated within the broader context of other sources of household income. Furthermore, the living conditions of agricultural households could be studied by taking characteristics other than income into account. However, although it will be possible to analyse the living conditions of farmers in relation to the rest of the population, more targeted analyses of

sub-groups will be difficult owing to the small number of farmers in the overall ECHP sample.

2 HOUSEHOLD BUDGET SURVEYS: MAIN SURVEY CHARACTERISTICS AND LIVING STANDARDS OF FARMERS

The first part of this section contains general information about the Household Budget Survey. The problems of measuring income and defining disposable income are then tackled. Finally, in part three, the living standards of agricultural households are presented, notwithstanding possible reservations about the accuracy of estimates (regarding income in particular).

General information

Frequency

Although the frequency of Household Budget Surveys (HBS) varies from Member State to Member State, the general trend is towards annual surveys. Of the 15 Member States of the European Union, eight - Belgium, Denmark, Spain, Italy, the Netherlands, the United Kingdom, Finland and Sweden - currently conduct annual surveys.

The information from this survey managed by Eurostat brings together individual data for a common reference year. The most recent publications are based on data from the 1988 survey. Data currently being processed relate to the surveys carried out between 1993 and 1995 (the reference year being 1994), and data from the next wave of surveys are scheduled to be collected around 1998.

Objectives

There are three main objectives to this survey, viz.:

- *Analysis of the living conditions of households.* This highlights various consumption patterns according to a set of variables such as socio-economic category, type of household, etc. Poverty studies have also been carried out using the 1988 micro-data.
- The HBS generally make a major contribution to the calculation of *consumer price index* weightings.
- The HBS are used in the *national accounts* to facilitate the calculation of macro-economic aggregates - to be more precise, to determine the final consumption of households.

Some Member States add a number of secondary objectives, e.g. to study household durables or to describe the housing stock. More rarely, nutritional analyses can be carried out when surveys provide reliable data on food.

Main variables

To meet these objectives, the main variable studied is consumption expenditure[12] broken down by function (cf. COICOP-HBS). This is joined by qualitative or classification-related variables such as:

- basic geographical characteristics (sex, age, marital status);
- activity of individuals or the head of household (socio-economic category, number of economically active persons in the household, etc.);
- type of household;
- description of the dwelling (owner-occupied or rented, number of rooms, facilities, etc.);
- rates of ownership for certain consumer durables (cars, TVs, washing machines, etc.).

Income variables are also essential. These are examined in greater detail below.

Income data in the HBS

Classification variable or independent analysis variable?

As can be seen from the large number of data missing from the 1988 wave of surveys, collection of household income data is not exactly problem-free in the HBS. However, this information is crucially important, even if the principal aim of income analysis is to provide a classification basis for studying consumption structures rather than investigate income as such.

As a means of classifying households (e.g. in deciles), the income variable provides an accurate picture of the economic situation of the entire household (from the poorest to the richest members). As such, it is often better suited to presenting results for this type of survey than a household classification based on the characteristics of a reference person, where a single person is supposed to represent the living standard of the entire household. This is sometimes quite arbitrary.

As an independent analysis variable, opinions are divided as to how the HBS should be used. However, this is the premier harmonised survey giving a snapshot view of income in all countries, and it seems necessary to improve the quality of this sort of information in future.

Definition of disposable income

In a bid to improve the comparability of income data, Eurostat has proposed a common definition that should become operational for the 1998 wave of surveys. For the HBS, the definition of income must be consistent with that of consumption expenditure (see Table 2). This is why taxes that are not recorded as consumption must be deducted from gross income. Equally, the non-monetary portion of consumption (imputed rent, benefits in kind,

[12] Consumption expenditure is defined as the sum of monetary expenditure on consumption (excluding tax and investment) plus certain non-monetary expenditure such as internal production expenditure, owners' imputed rent and certain benefits in kind granted in connection with professional activity.

internal production) must generally be recorded as income in order to maintain the balance between consumption and income.

Table 2 Income components in the HBS

Main income	- income from employment	- net salary (including other cash income from employment such as bonuses and tips) - income in kind (benefits in kind from paid employment, excluding imputed rent)
	- income from unpaid employment	- gross and net income of the self-employed; - income in kind (including produce from the individual's own garden, holding or enterprise for the household's private consumption)
Income from property	- net income from property; - imputed rent for the dwelling	
Social pensions and income	- old-age and retirement pensions - net unemployment benefit	
	- other regular benefits (net amount)	- widow's and orphan's pensions - family income (family allowance, maternity benefit, single-parent allowance, etc.) - allowances for illness or disability - housing allowances - other benefits (e.g. study grants, minimum income, etc.)
Other income	- total net private transfers (regular) - other income (in kind)	

The United Nations plan to update recommendations on the income of households. It is thus possible that amendments will be made to the above list in the medium term.

Agricultural households and the HBS

As with all other socio-economic categories, households whose reference person is a farmer can be identified. In 1988, the proportion of the HBS samples accounted for by such persons varied considerably from one country to the next.

Table 3 Size of samples (total households/farmers and farm workers) and portion of the HBS accounted for by agricultural households in 1988

B	DK	D	GR	E	F	IRL	I	L	NL	P	UK
No of households (gross sample) ('000)											
3.3	2.2	43.8	6.4	3.2	9.0	7.7	34.4	2.7	1.9	10.6	7.3
No of agricultural households (gross sample)											
162	nd	746	747	240	387	nd	1 855	37	66	1 143	113
% of agricultural households											
1.5	5.0	1.3	10.5	6.4	3.9	12.4	5.3	1.0	5.8	11.4	1.6

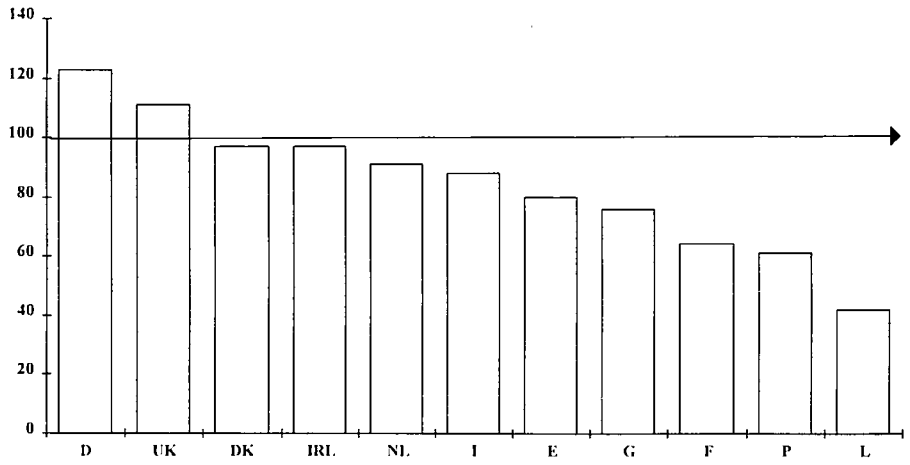
The standard of living of these households can be investigated from two different points of view:

- income;
- consumption expenditure

Farmers' income

As stated above, income data must be interpreted with great caution owing to under-estimates by households or incomplete data. This phenomenon is even more marked in the case of the income of self-employed farmers who do not receive a fixed salary. Furthermore, this type of household can be fairly heterogeneous, including both small subsistence holdings and major commercial enterprises. The interpretation of average data is thus tricky.

Figure 1 **Average income of farmers in relation to mean income (total households) by country, 1988 HBS**
Base 100 = average income of all households in the country (adult equivalent)



NB: This graph should be read separately for each country, as the base (100) is specific to a given country. No data are available for Belgium.

A few major trends are nevertheless discernible. With the exception of Germany and the United Kingdom, the average income (adult equivalent[13]) of a household having a farmer

[13] The "adult equivalent" concept involves allocating weighting coefficients to members of the household according to their demographic characteristics. Given the major differences in the size and structure of households, comparability can be improved by using expenditure or resources per adult equivalent. The OECD scale allocates the following weightings to individuals when calculating the "size of equivalent household". First adult in household = 1.0, each subsequent person over the age of 13 = 0.7, child aged 13 or under = 0.3.

as a reference person is in all cases below the average income calculated for households as a whole. This is less noticeable in the case of Denmark, Ireland, the Netherlands and Italy, but more marked in the case of Spain, Greece, France, Portugal and Luxembourg.

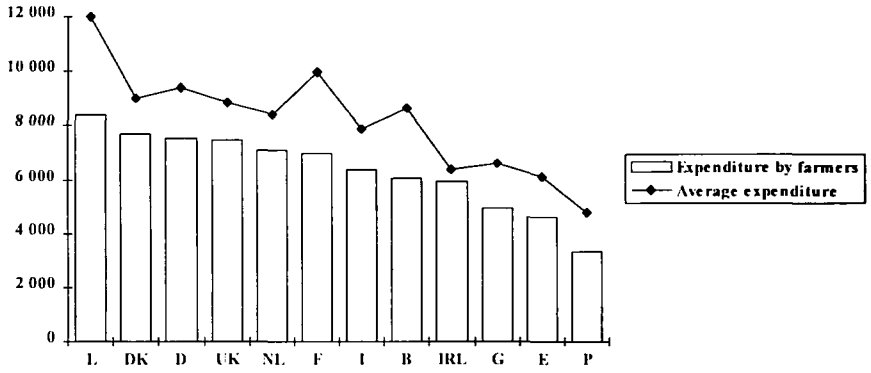
Although we did not have detailed results in this field, it is likely that a fair portion of farmers' income comes from internal production of the household and from owner's imputed rents. With the exception of the United Kingdom, the portion of households owning their dwellings is greater amongst farmers than for the average household.

Farmers' consumption expenditure

Some studies take the consumption expenditure of households to be an approximation of income, or at least a satisfactory measure of the living standard of households. The quality of this type of information is generally considered far superior to income data, owing to the greater stability of consumption over time and to systematic underestimation of income data.

As the Figure 2 shows, results calculated using consumption corroborate the preceding graph on income, the average consumption of agricultural households in all countries being below that of other employment categories and thus below that of an average household.

Figure 2 **Average expenditure of farmers in relation to the average expenditure of households as a whole, HBS 1988**
Unit PPS (expressed in ECUs) per equivalent adult



Farmers and poverty

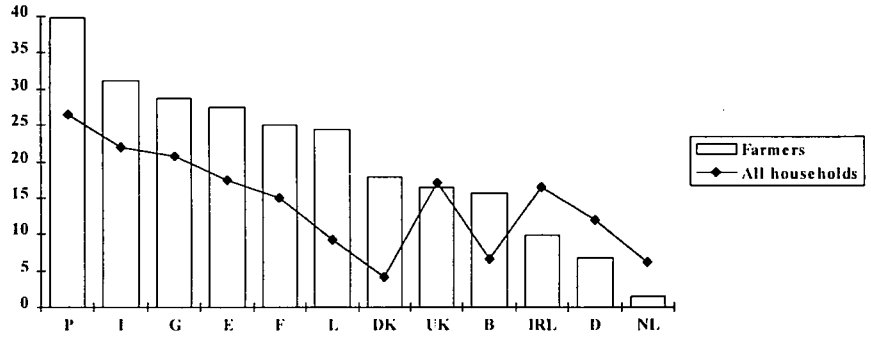
The study carried out by the Erasmus University of Rotterdam (1) on behalf of Eurostat shows that farmers belong to risk groups in terms of poverty: in 6 out of 12 countries, the number of farmers living beneath the poverty threshold is around - or higher than - 1 in 4. The situation is most critical in the countries of the southern European Union, France and Luxembourg. In Portugal, Italy, Greece and Spain, this is probably due to the small size of agricultural holdings - the portion of holdings covering more than 10 ha ranges from 10.5%

(Greece) and 28% (Spain) to as much as 82% in Denmark and 74% in the United Kingdom (2). The average for the Union as a whole is 34%.

Calculation of poverty rates in Figure 3 below is based on the following statistical method:

- the poverty threshold is set at 50% of average expenditure
- the equivalence scale used is the modified OECD (first adult = 1.0, each subsequent person over 13 years old = 0.5, children aged 13 or under = 0.3).

Figure 3 **Poverty ratios (%) for farmers and the population as a whole, HBS 1988**



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(2) Eurostat *Basic statistics of the Community*; Table: Agricultural holdings of 1 ha [sic] and over, by size groups - 1987.

FARM HOUSEHOLD INCOME, WORK AND PLURIACTIVITY

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SUMMARY

The leading idea of this paper is that treating income only in macroeconomic terms hides important microeconomic differences between agricultural households, which must be taken into account and described carefully. An effective policy can be assured only by an accurate knowledge of differential features of farms and families. Research is reported that uses a typology of households developed using data collected by surveys carried out in three different areas of Italy. The conceptual framework and methodological tools used are briefly described. For each type of farm household the income characteristics are presented, together with the composition and features of recipients of this income. Comments are offered on the implication of these results, with an eye to the theme of poverty and to the labour market. A structural change in policies is advocated, including the use of programmes to supplement income for services that farmers provide for the community as a whole in their role as wardens of the land and the environment.

1 CONTEXT AND METHODOLOGY OF THE RESEARCH

The Arkleton Trust Research Programme on Farm Structures and Household Pluriactivity in Europe, financially supported by the EC Commission (DG VI), among other international and national institutions of the 12 European countries involved, lasted more than 5 years and produced a huge amount of data, information and publications. Among them, the Reports to the EC Commission, especially the Final Report, contain essential summaries of the main findings (1). The project consisted of a diversified set of methodological instruments, jointly used in 24 European areas (20 areas in 9 EC countries, 4 in 3 non-EC countries). The most important research instruments have been:

- context analyses;
- a baseline survey, with 300 interviews in each area, held in 1987; it provided a large amount of quantitative data;
- three panel surveys, on a sub-set of units (70 in each area), which provided in-depth qualitative information;
- the final survey, repeated in 1991 on the same units already interviewed for the baseline survey; it provided crucial information on dynamic features of household families, their persistence or exit.

The data used here were collected during the Baseline Survey (1987) in three areas located respectively in Northern, Central and Southern Italy. Each of them represents a different stage and pattern of development: the province of Udine, in Friuli (North), is where industry developed earliest; in southern Lazio (Center), industrialisation was

induced in the second post-war period by state intervention, while in Sila Greca (South) social change was mainly produced by a process of income transfers and of infrastructural public intervention, without a significant presence of industry. In this paper, however, data from the three areas will be discussed as a whole, leaving aside any but occasional reference to the relationship between different contexts and strategies enacted, which is the subject of a previous paper (5).

The questionnaire of the Baseline Survey took farm households as units of observation, complex entities that perform functions of production, consumption and reproduction. The household combines internal and external resources in order to meet the goals of the family members. The ability to take advantage of opportunities plays an important role in the decision process concerning actions, practices and behaviour. Guided by a strategy, these actions result in achievements; among them, our attention will be focused on persistence and viability, and on pluriactivity as an important form of adaptation of the farm household to change.

Persistence, viability and pluriactivity are mainly represented, in this work, by income level and composition[14]. This paper will describe and analyse differences in the actual and prospective viability of farm households, starting from a typological grid established in order to read better their heterogeneity.

Retaining people in rural areas relies on the maintenance of an "adequate", if not "comparable" level of income. As we have found and stated throughout this project, the income of farm households depends not only on returns to agricultural labour and investment but also on the ability of households to diversify income sources using farm resources, to find work in the labour market or to make use of social transfers. (1)

The heterogeneity of farm families and of their dynamic processes is then linked to:

- structural endowments:
- internal - pertaining to farm and family;
- external - pertaining to context;
- family goals;
- ability to take advantage of opportunities;
- practices and behaviour, representing a strategy;
- achievement.

When attempts are made to apply this grid to empirical data, in order to explain the emergence of heterogeneous features and to control them through political action, we can

[14] Income was computed using a combination of subjective and objective information from the baseline questionnaire. The survey provided data useful in order to compute marketable output. Net farm income was calculated through deduction of expenses and depreciation (using Standard Gross Margin coefficients, according to type of farming and area), wages, rents and interests on loans, from the questionnaire (I wish to thank Franco Mantino of INEA for providing me with these data). Net farm income was then applied to the income composition given by respondents, in order to estimate total household income. In all the cases when respondents declared that agricultural income was less then 5% of total family income, 5% was assumed as the correct percentage.

see that some factors can be perceived and quantified - structural endowments, actions, results - while other can not. But if there is a systemic link between the factors, and this is the hypothesis on which this work is built, then we may process together all "perceptible" data, and their synthesis will represent also the heterogeneity pertaining to such "invisible" factors as goals, ability to take advantage of opportunities, strategies.

The main task was, then, to build a matrix of data - exhaustive, complete and well balanced in all relevant aspects. The basic information covers farm and family structural endowments, and their relationship, choices pertaining to farming procedures (farm type, marketing, use of non-family work, use of policy and credit), allocation of family labour force, on and off farm, life styles, dynamic prospects, presence and prospects of successors, previous changes in use of resources.

This synthesis of basic data generated - by means of multiple correspondence and cluster analyses[15] - a typological grid that can be used as a classificatory variable, and cross-related with data on income and on personal features of family members.

2 THE TYPOLOGY

Three main groups of farm families (in turn, articulated in sub-groups) are defined according to their position in terms of: a) resources and constraints imposed on their activity; b) stage in the life cycle; c) goals and habits of family members that suggest direction of action.

Group A: PROFESSIONAL FARMING HOUSEHOLDS, defined as those for which the family has a central function in terms of work, income, and labour allocation.

Traditional conservative farming households (ESC) can be considered as the classical "farm family", in which operators and all family members work only on their holdings. A solid cultural and social network allows the perpetuation of life styles and modes of production that can be basically assimilated to the goal of simple reproduction.

Profit-oriented farming households (ACC) regard their comparatively large holdings as economic enterprises and attain, on the average, the best economic results, also making extensive use of paid non-family labour. Family members are often engaged in off-farm activities and professions, including, at times, high status jobs.

In *multiple-job holding farm households (PTF),* at least one person is able to devote all his or her labour to farming, while other members provide additional income, often combining on-farm with off-farm jobs.

Group B: SUPPLEMENTARY HOUSEHOLDS, defined as those in which the farm has a marginal role in family strategies, either because it is too small for the family's needs, or because the family's social identification is no longer connected to farming.

[15] A comprehensive version of the whole analysis of data, with all the methodological information is in Eboli (4). Multiple correspondence analysis and cluster analysis were performed using Spad (7, 6 and 8).

Units with the *farmer engaged in multiple-job holding (PTS)*, instead of the family, retain a strong cultural and professional link with their agricultural background, but their efforts to reconcile farm and non-farm activities are often frustrated by the scarcity of farm resources and family labour. Multiple-job holding, therefore, is both a means of survival as farmers, and a limit to the possibility of changes that might make the farm more viable.

Low-input units (DIS) are the fulfillment of rent-seeking strategy. Their operators are often middle age or beyond. Farm activity is minimal, but extensive cultivation and contracting make reproduction possible, and highly profitable in terms of gross margin per hectare.

Residential units (RES) minimise productive activity, practically to the extent to which is necessary only for the sole consumption of the unit itself (often intended in a broader sense than the nucleus living on the farm). The farm, always very small, is only the place of residence of people working almost totally off-farm.

Group C: ELDERLY UNITS, households that have reached the final stage of the life cycle. This group includes two sub-groups, depending on whether they previously belonged to the professional or the supplementary group. This different background is reflected in the degree to which farm production is distributed between marketing and self-consumption.

Market-oriented elderly units (FTAm) are former professional units, and retain their productive characteristics, although age-related decline reduces labour potential.

Subsistence elderly units (FTAa) reproduce, in the final stage of the life cycle, the supplementary nature of the farm, which is most frequently used mainly as the residence of retired persons of non-agricultural or multiple-job holding background.

Leaving context aside, and assuming that economic and demographic size are the expression, at a given point in time, of the results of historically developed actions and strategies, strongly influenced by the attitude toward the farm as either a goal in itself or a means toward other goals, we may classify forms of behavior in a grid originated by the variables mentioned above (see Figure 1).

Figure 1 **Types of farming families by farm size, age and attitude towards farming**

	Farming as supplementary livelihood of the household		Farming as a professional commitment	
Farm size	Young family	Old family	Young family	Old family
Big farms		*Low input units*	*Profit orientated farming households*	*Traditional conservative farming households*
Medium farms		*Market-orientated elderly units*		*Multiple-job holding farming households*
Small farms	*Residential units*	*Subsistence elderly units*	*Farmer engaged in multiple-job holding*	

The smaller units (in physical and economic terms) carry out mainly a residential function, both in the early and in the elderly phase of the life cycle. When production is the main function, their small size does not guarantee full remuneration of labour, a part of which therefore must necessarily be allocated outside. This condition may not be stable or long-lasting, especially if the operator turns to multiple-job holding from necessity rather than choice. This explains the fact that the slot that ought to be filled by small farms on which live elderly families with a professional commitment to farming is empty.

Other empty slots are the ones concerning residential function for mid-sized or large farms with young families, since larger endowments are usually connected with a productive use of the farm - except in the case of elderly units whose options are limited to rent collecting and to farming even after retirement.

Larger units are more oriented toward accumulation or simple reproduction, according mainly to the weight of rural tradition and culture or to the desire to expand the scale of production independent of family labour resources, relying therefore on non-family paid labour. Among professional families in a more advanced stage of the life cycle, finally, the solution that best reconciles the need for increased income with that of farm productivity may be one of specialisation of functions, so that multiple-job holding results from the presence of some members employed on the farm, and others off the farm.

3 STYLES OF PRODUCTION

Figures 2 and 3 show the different use and productivity of farm resources by different typological groups. Though the charts are based on the aggregation of all the areas studied, and therefore on a mix of different organizations of agricultural production, yet differences between types are evident. First of all, we can recognise very different attitudes toward the intensity of labour per unit area according to whether we are dealing with: a) residential units; b) "peasant" units (monoactive and pluriactive); c) profit-oriented and rent units.

The first group shows a very high ratio of labour to land area: it is composed mainly of orchards, requiring constant attention and offering small remuneration. The same happens among subsistence elderly units, differing from the previous group only in terms of age.

Rent-seeking, or low-input units, show the opposite picture: a low intensity of labour, highly remunerated, with a low productivity per hectare. Profit-oriented farming households share with low-input units a very high productivity of labour, but show also the highest productivity of land; definitely farm families belonging to this group are very different from all others, and their goal is well perceived in their use of resources, and in their good productive performance.

Among peasant units, the more professional ones invest a much higher quota of work to farming, both globally and per hectare, but its productivity is lower than in units that have chosen multiple-job holding in order to make up for limited structural endowments: here the farmer, engaged on- and off-farm, is forced to make the better use of his labour - a

factor even scarcer than land. At the same time these units achieve a land productivity comparable to that of full-time farm families

Figure 2 **Land and labour use in different farm family types**

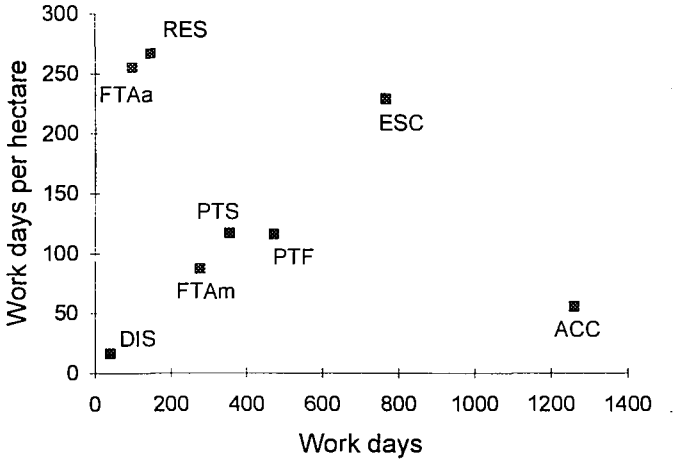
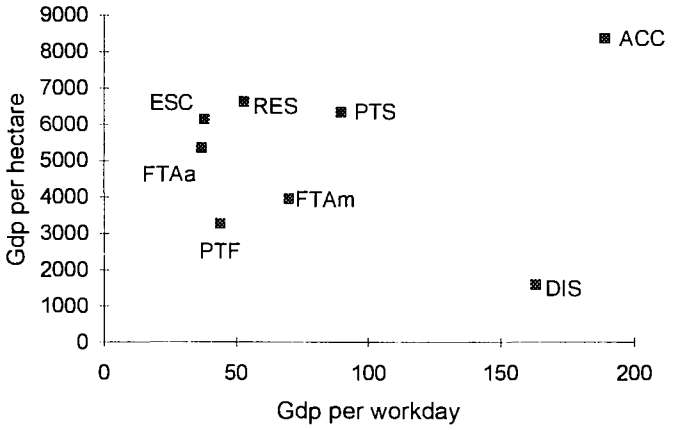


Figure 3 **Land and labour productivity in different farm family types**

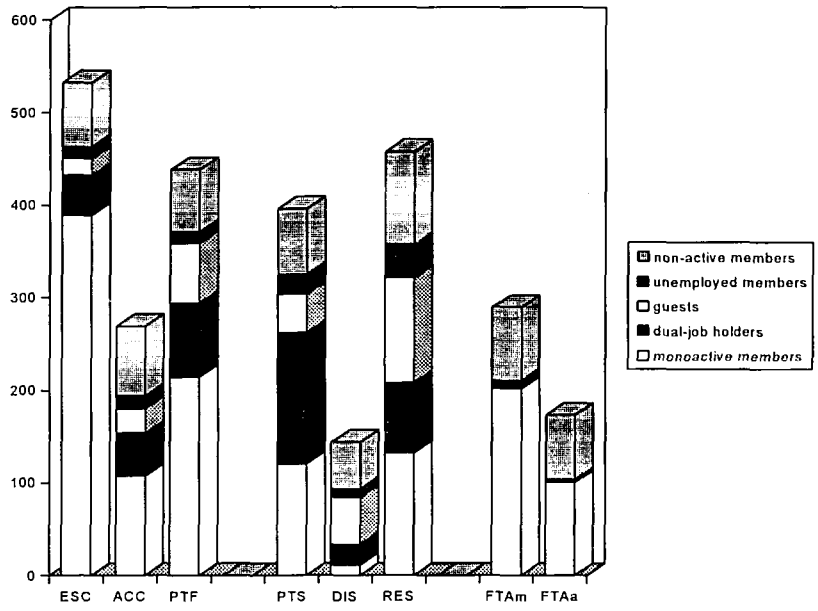


4 TYPOLOGICAL HETEROGENEITY, INCOME AND LABOUR MARKETS

Next the extent and the ways in which family members in the different types of farm families earn their income, both on- and off-farm, will be examined. The amount and composition of family income will then be related to the demographic characteristics of the family in order to discern whether persistence in farming may be endangered, and how policies can face the potential dynamics of family members.

Figure 4 connects the demographic composition the family in the types described above with the relationship of family members to the labour market. Non-active, unemployed and employed members are classified according to whether their labour is deployed entirely off-farm (guests), or alternatively on the farm and off (dual-job holders), or entirely on the farm (monoactive).[16]

Figure 4 Characteristics of family members in different farm family types (1987)



What can be seen immediately is that age is the trait that has most bearing on labour-market position. Thus, elderly units of course are only made up of non-active or monoactive members, whose labour, however, contributes to the creation of a significant amount of production, thanks to the more professional component.

In supplementary units, which are the least interested in farming as economic activity, we find, with a few exceptions, a higher number of "guests", that is, family members who do no farm work at all.

The highest intensity of dual-job holders is found in supplementary pluriactive households, whose operator is often engaged on- and off-farm, due both to the small size of the family, which makes dual-job holding necessary, and to their strenuous effort to resist being driven off farming altogether.

[16] The height of the bars is in proportion to the size of the family population employed in the farms included in the survey, always classified according to the typology described above.

However, while the chart shows the present position of family members on the labour market, as dual-job holders and guests, we also need to ask what portion of the available labour force represents a supply that permanently satisfies the farm's labour needs, and what portion instead constitutes a potential supply awaiting off-farm demand. Until recently, this question was answered by identifying part-time labour and multiple-job holding as intermediate steps in the process of exit from the farm of from agriculture altogether. Recent literature, however, has underscored the fact that multiple-job holding is not a transitional reality, but may actually contribute to retaining in farming, albeit with dual employment, at least a portion of the labour force that would otherwise leave the sector. Monoactive units in weaker farms are in fact likely in time to increase the rate of exit from farming, unless economic and income conditions improve. The composition and amount of family income must therefore be ascertained before formulating hypotheses on the use of labour resources in the future.

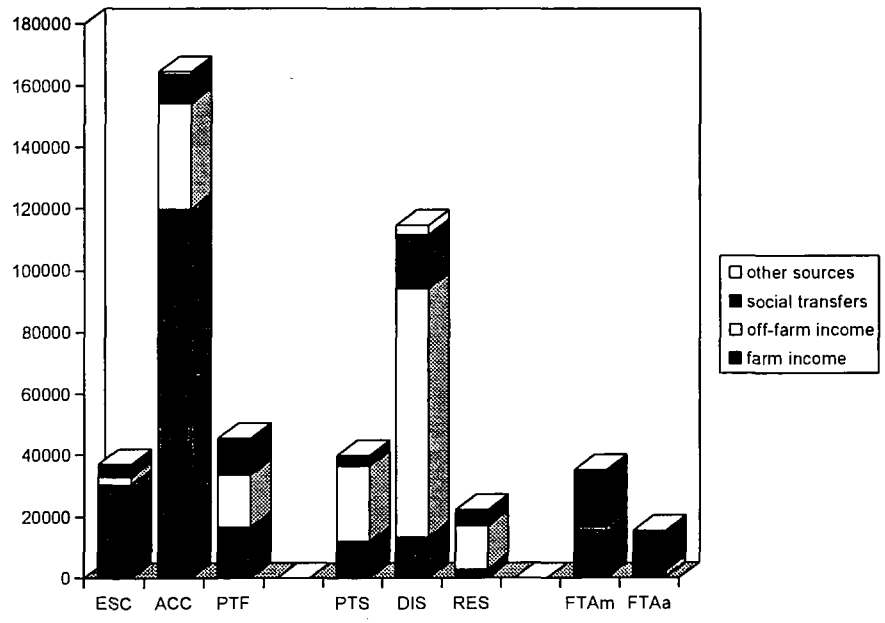
Figure 5 and Table 1 show the total and per capita level of family income and the percentages contributed by farm income, off-farm employment, social transfers, and other sources. These data show a significant difference between profit-oriented and low-inputs units on one hand, and all the rest on the other. This difference is a clear indication of the two groups' different social position.

Table 1 Level and composition of income in different farm family types (1987, Italian lire; ECU=1495 lire)

	Average family income	Average per capita family income	% farm income	% off farm income	% social transfers	% other sources of income
ESC	37115	8435	81.9	6.7	11.2	0.2
ACC	164538	37395	72.9	20.9	5.7	0.5
PTF	45454	11087	36.8	36.9	26.1	0.2
PTS	39859	9270	30.3	61.2	7.9	0.6
DIS	114684	38228	11.7	70.6	15.1	2.6
RES	22259	5858	12.7	64.5	21.4	1.4
FTAm	35255	17627	47.7	1.6	49.2	1.5
FTAa	15607	8214	15.6	0.7	82.4	1.3

We can also see that, in per capita terms, formerly professional elderly units are relatively "well-off". This favoured economic position derives mainly from the limited size of the family, but also from the combination of social transfers, such as pensions, with income from farming that is continued past retirement age, with a small presence of other sources of income (treasury bills, rents, etc.). Leaving residential units aside, the most economically "deprived" group, on the other hand, is that of the traditional conservative units, which receive no income contribution from off-farm activities and only limited benefit from pensions. The difference among these monoactive and pluriactive units appears smaller than it could have been supposed.

Figure 5 **Family income level and composition in different farm family types (1987)**



5 PROSPECTS ON THE LABOUR MARKET

The data enable the formulation of hypotheses concerning prospects of exit from farming by associating the typology of family farms with the occupational position of the families' labour force.

The goal of profit-oriented farming households is to maximize their "profit" or to achieve an income that may be assimilated to profit. As this goal is generally achieved, we may suppose that their labour force is adequately rewarded by farming and will stay in the sector.

Low-input units also deploy peculiar strategies, and seem to have no income problems, although what they maximise is the productivity of labour rather than that of the land, which they use in extensive fashion. Also, current policies (e. g., set-aside policies) tend to favour low-input or extensification strategies. The labour force in these units is almost entirely in the elderly stage, or already active only off-farm. They are also not likely to exit.

As for elderly units, the main concern is succession strategies. Research has shown that a number of farmers in these units, especially among those who retain a presence in the market, expect that in the future an heir, currently not employed in farming, will take on the operation of the farm, probably when the demise of the current operator will give him a

free hand (4). If this is true, then governments ought to consider enacting policies to facilitate generational transition.

The members of residential units cannot be strictly considered to be farmers. Their interests are concentrated off-farm, and even the few who are monoactive are only so by way of a hobby. Microunits under one hectare, indeed, ought not even to be considered in agricultural censuses; their inclusion is a distortion that obfuscates the reality of agricultural structures and dynamics (3).

The cases that are left to consider, therefore, are: traditional monoactive farming households; multiple-job holding farm households; and households with the farmer engaged on- and off-farm, due to structural inadequacy. This final group practices farming mainly as a supplementary activity, less because of a lack of motivation (that may indeed be high) than because the farm, though larger than residential units, is still too small to allow adequate modernisation. Though they endeavour to stay on the land, most family members display a high degree of off-farm activity, and are unlikely to resume a full-time productive function in farming unless they are helped by incentives to farm fidelity, remuneration for services in environmental conservation and protection, or a keener regard for biological productions that allow a better valorisation of limited physical resources.

The income of multiple-job holding families is in an intermediate position among others, as it combines the work of older members active exclusively on the farm and the income generated by the younger members' dual or entirely off-farm employment. In this case, pluriactivity seems able to keep a part of the labour force on the farm, but the future depends also on the overall tendencies of the economy.

Monoactive units are the most vulnerable in dynamic terms. As we have seen, their income is the lowest in our typology, except for elderly and residential units. In spite of the labour devoted to farming, the income produced by these units does not equal that of pluriactive ones supported by off-farm income. The fate of monoactive units, therefore, will depend on strategies for the valorisation of available resources, and especially on the ability to perform the new functions that may accrue to the agricultural sector. Policies might direct these units toward environmental care; or, the multiple-job holding of younger members in the future may supply necessary income integration, at least in areas where overall economic conditions offer employment opportunities.

6 A FEW FINAL REMARKS

This paper has tried to show how heterogeneity can and should be considered as a social resource. Policies therefore must be suggested in order to use heterogeneity to deal with the many problems in our time of dramatic change. One of the most serious of these problems is, no doubt, unemployment, both for the waste of resources it causes, and for the individual and social consequences of the scarcity of work and, therefore, income. Labour- saving technologies can only make the problem worse. On the other hand, the paths of technology are not predetermined, and should rather be designed with an eye to the specific resources available. For instance, one of Italy's most precious resources is the beauty of the landscape; however, the intensification of productive activities, both

non-agricultural and agricultural, has caused serious damage to this natural heritage. The increasingly frequent hydro-geological catastrophes indicate that the ecological system has reached a point of vulnerability such that it can only be preserved if a sharp change is effected to grant the environment a higher priority in public policies. Agriculture can supply not only goods, but also services, that may be remunerated through the sources newly created by the European Union in order to save the natural heritage for future generations.

Environmental and landscape protection also holds a central role in the current debate on socially useful work. A keener environmental concern, finally, may promote the production and local marketing of leisure and quality products, labour intensive activities that may also provide occupational outlets.

What is called for, therefore, is a mix of policies toward a better remuneration of socially useful forms of activity and behaviour rather than indiscriminate income integration. Such policies ought to include, for instance, provisions to facilitate generational transition policies, so as to alleviate youth unemployment and to anticipate generational inheritance before the operator's death. Rural development policies may generate a context that make pluriactivity possible, thus allowing sections of the rural labour force to retain rural residence and preventing exit. Finally, environmental policies are needed to regulate the use of pollutants and reduce the environmental impact of productive activities, as well as to promote the activities of environmental care that farmers often perform in spite of the market's entire disregard. Internationally, there seems to be a heightened concern for the above-mentioned approaches in European Community regulations, which are however only slowly and partially adopted by Italian legislation. In Italy, indeed, the different organs that are in charge of the territory still hold on to their discretional powers so as to prevent real change in spite of modifications in procedures and funding.

In conclusion, the public sector bears a high responsibility for the preservation of a social, cultural, and environmental heritage, the loss of which would bear negative consequences not only on the rural population but also on the community as a whole, present and future. Time is running out. As Daly and Cobb put it: "The global system will change during the next forty years, because it will be physically forced to change. But if humanity waits until it is physically compelled to change, its options will be few indeed. None of them will be attractive" (2).

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DISCUSSION

Second session *Methodological Issues*

In discussing the paper on *Eurostat's statistics on the Total Income of Agricultural Households (TIAH statistics): methodological issues* (Hill and Cook), attention was drawn to the problems in Greece that could emerge from using the TIAH typology for agricultural households or that recommended in the ESA 1995 for the disaggregation of the households sector. Classification using the same variable as was being measured (composition of income, and income) was likely to suffer from instability. Income was a *flow* concept, and it would be preferable to employ a *stock* concept (such as assets) as the basis for classification.

A separate issue concerned the exclusion of household headed by hired workers in agriculture from the definition of an agricultural household. Were these not also part of the agricultural community that the CAP was intended to benefit, as set out in the Treaty of Rome? Other comments related to the changing numbers of agricultural households with time and the difficulty this caused in interpreting results per household over a run of years. One approach might be to follow a cohort through time; though in practice this might be difficult. Results generated using the "broad" definition of an agricultural household provided for in the TIAH methodology suffered less in this respect than did results using the "narrow" definition; this was therefore one argument in favour of the "broad" definition.

In connection with the TIAH definition of disposable income, attention was drawn to the differences between the macroeconomic approach and that of household budget and farm-level surveys, with receipts from non-life insurance premiums being a case in point. While statisticians might be aware of the reasons behind the chosen definition, and be capable of applying the necessary caveats when interpreting results, this did not necessarily apply to non-specialists. A microeconomic version seemed to be preferable in a policy context.

In reply, Mr Hill assured the Seminar participants that all of these matters had been considered when drawing up the TIAH methodology. Household headed by hired agricultural workers had been excluded on the advice of the Agricultural Statistics Committee; this seemed reasonable in that support spending under the CAP seems to be directed almost exclusively at the self-employed section of the workforce. Choice of income definitions were in part a reflection of the origins of the TIAH statistics, within the framework of national accounts that had already been agreed by Member States, and the backgrounds of the instigators within Eurostat. Nevertheless, macro-micro differences were treated seriously within the TIAH methodology and a flexible approach to data reporting had been designed to minimise problems of disparity between countries using different approaches when constructing TIAH results. Such differences were familiar to national accountants (work by Ruggles and Ruggles could be cited in this context[17]).

[17] Ruggles, R. and Ruggles, N. D. (1986), 'The integration of macro and micro data for the household sector', *Review of Income and Wealth*, 32, 245-76

Capital gains and losses (and wealth) were excluded from consideration by the income definition adopted. The problem of short-term instability in classification to socio-professional groups had been handled by encouraging Member States to adopt procedures such as income averaging (formal or informal); those who used a classification based on the self-declared main occupation of the reference person (head of household) also found it provided stability, though there was evidence from at least one country that the numbers and characteristics of households included when applying the occupation criterion was substantially different from that when applying the income criterion. Though the changing numbers of agricultural households over time, even when short-term fluctuations were removed, remained a problem for interpretation of results.

Mary Ahearn (USDA) was prevented from delivering her paper in person by travel dislocation. The key points drawn from her *Methodological issues in the measurement of the economic well-being of farm households in the USA* were presented by Edward Cook. In the absence of the author, discussion was rather constrained. However, points were made, in particular with regard to the comparison of incomes of the farm population with those of the non-farm population, a prominent feature of the use to which data have been put in the US. One view was that these two groups differed in many ways, not least in their investments in human capital, and that comparisons between household of differing sizes could be misleading. It was recognised that politics played a heavy role in the choices relating to comparisons.

Comments on Nigel Robson's paper on the methodology of the *Farm Accountancy Data Network* supported the attempts by DGVI to extend its coverage to questions to income sources beyond the farm business. It was felt that these were necessary as long as the agriculture sector is closely allied with the public sector, and that a responsible statistics system should provide information on total incomes of farmers. However, practical problems of data collection had to be faced. One approach might be to not add questions on non-farm income to the FADN questionnaire, but rather to start from the household budget survey (which is already equipped to take a broad view of income) and add to it the detailed questions on the farm account taken from FADN. The link between the Household Budget Survey and the National Farm Survey in Ireland is an example of this approach. Another comment related to the lack of a firm theoretical base to such survey work. It should not be forgotten that agricultural households, in addition to their gainful activities on and off the farm, are also engaged in the production of household goods and services and leisure. These other activities should be taken into account when explaining household behaviour In addition, the measurement of income should not ignore the concept of lifetime income, which might alter the way that results for single years are interpreted, particularly if farmers tend to be elderly.

Questions to W. Knüppel on the methodology of the EU's *Household budget surveys and the EC Household Panel* were largely of a technical nature, covering the treatment of revenue from the sale of assets, the relative accuracy of income and consumption expenditure data for households headed by self-employed persons, the use of tax statistics and systems of household classification. In reply it was stated that sales of property were treated as a separate category in both surveys, that consumption data were preferable to income data for self-employed households (incomes were generally understated), and that tax data were often not reliable as indicators of income. One

feature of the recent EC Household Panel that might be useful in future analysis (results from the first round are not yet available) is that each type of income is indicated separately for each member of the household.

Following the additional contributed paper on *Farm Household Incomes, Work and Pluriactivity* (M. G. Eboli) attention was drawn to the confused terminology that surrounded pluriactivity (multiple activity; part-time farming etc.). A person who was less than full-time on his/her agricultural holding did not necessarily have another gainful activity. In particular, there was a need to keep quite distinct the terms that applied to people (farmers and their families) from those that applied to the farm business. The term "part-time farm" had been used, in some circumstances, to denote farms that were too small to fully occupy one person (given normal conditions of efficiency), that is, as a measure of size. However, it should not be assumed that farms below this size threshold are only occupied by persons who are part-time in agriculture. Some may be the only source of income and occupation of the farmer Conversely, larger ("full-time") farms may be operated by individuals who have other occupations and incomes.

SESSION 3
RESULTS

Chairman: G. Barbero, University of Rome "La Sapienza"

EUROSTAT'S STATISTICS ON THE TOTAL INCOME OF AGRICULTURAL HOUSEHOLDS (TIAH STATISTICS): MAIN RESULTS AND THEIR INTERPRETATION

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and
Edward COOK (Eurostat, Unit F-1)

SUMMARY

The main findings from the TIAH statistics are that:

- The number of agricultural households ("narrow" definition - 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, in most Member States, smaller than the number of agricultural holdings. Where data exist over time, absolute numbers of agricultural households (defined as above) have been falling, in some countries very rapidly.
- Agricultural households (defined as above) in all countries are recipients of substantial amounts of income from outside agriculture; typically about a third to a half of their total income comes from outside agriculture.
- Non-agricultural income (taken together) is less variable from year to year than is farming income and provides a stabilising influence on total income.
- Countries differ in the share of income taken from agricultural households by taxation and other deductions, so that the same average total income figure can imply different levels of disposable income in different Member States.
- Agricultural households appear to pay a smaller proportion of their total income as tax and social contributions than do households in general.
- Agricultural households have average disposable incomes per household that are typically higher than the all-household average. The relative position is eroded or reversed when income per household member or per consumer unit is examined. Agricultural households do not appear to be a particularly disadvantaged group overall, a finding that suggests that, if income problems exist, they are to be found on particular sizes and types of farms or in particular locations.
- On average, among the "marginal" agricultural households (those where farming is *not* the main income source of the reference person but where, nonetheless, some income from farming is received by the household) farming appears to contribute very little to their total income.

These findings carry implications for the way that the income problem in agriculture is perceived and highlight the need to take a broad view when assessing the incomes of agricultural households. They also throw into question which households constitute the agricultural community whose standard of living is ensured under the objectives of the

CAP as stated in the Treaty of Rome. For a more comprehensive overview, the need for complementary microeconomic information is also highlighted.

1 INTRODUCTION

Results for the TIAH project are not at the same level of development throughout the European Union, and for several countries there are large gaps. Methodological differences remain between Member States, and therefore the interpretation of results must be made with caution. Nevertheless, some broad observations are possible. Even in an incomplete form, the new information demonstrates the value of TIAH statistics in terms of an ability to cast additional light on the income situation of the agricultural community in ways not possible using Eurostat's production branch Indicators 1 to 3.

Preliminary findings on existing information on the total income of agricultural households in EUR 12 Member States, at both macro and microeconomic levels, were published in 1988, together with a review of potential data sources (2). Application of the TIAH methodology led to the TIAH 1992 Report which described results and the methods of calculating them for eleven countries (no results being available for Belgium), though the amount of quantitative information published was limited and reflected the experimental nature of the TIAH statistics in many countries (3). A second (1995) TIAH report is published (in preliminary form) to coincide with this seminar, containing (a) updated and revised results for all EUR 12 Member States and (b) first results for the three countries that joined the EU in January 1995.

Coverage

TIAH results have been supplied to Eurostat by all Member States of EUR 15 using a "narrow" definition of an agricultural household, although countries differ widely in the number of years covered, degree of disaggregation of the households sector and the extent to which results are integrated with national accounts. A description of the situation in November 1995 is given in the Annex. At one extreme is Germany, where annual figures for the period 1972-1993 are held in the TIAH database, broken down within the framework of national accounts into socio-professional groups of which agricultural households form one. At the other are those countries for which only a single year is currently represented, such as Ireland (1987) and Luxembourg (1989), or a larger number where comparable figures for non-agricultural households are not broken down into their composite socio-professional groups.

There is a commitment by all Member States to (i) expand the number of years for which results are available; (ii) to apply a harmonised "minimum" list of socio-professional groups, thereby enabling a more detailed comparison of the incomes of agricultural households, and (iii) to make improvements in the methodology and quality of results. Part of this involves reducing disparities between the TIAH "target" methodology and what is actually carried out. Special analyses have shown that departures from the TIAH target methodology can influence results. In particular this concerns the basis on which households are classified into agricultural and other groups. For example, in Ireland it has been shown that the use of a system based on the main *occupation* of the reference person can give very different results (in terms of numbers of households and income

levels) from one using the reference person's *main income*, and that classification according to the main income of the *entire* household produces even smaller numbers and higher incomes (4). However, different patterns emerge from using alternative classifications in other countries (Denmark, Germany, the Netherlands), suggesting that the national socio-economic conditions of household sizes and compositions, traditions of extended families and other factors, are at work and prevent easy and simple generalisations. Some attempts at studying the implications of classifying households on the basis of incomes over a run of years, using Denmark as an example, are underway. In practice, most Member States use mechanisms that prevent the potentially confusing impact of an annual reclassification of households.

2 MAIN FINDINGS

The *TIAH 1995 Report* gives results for individual Member States in a series of fifteen chapters. The degree of detail in the analysis is matched to the state of development in TIAH statistics in each country and attention is drawn to the disparities which remain between Member States in the methodologies they employ. Nevertheless, there are some preliminary general findings that are of direct importance to decision-making under the CAP and other EU policies. 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 TIAH definition of what constitutes an agricultural household on the numbers of households covered, the composition of the total income of these agricultural household (at this stage concentrating on figures for a single year), 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.

Numbers of agricultural households

It is clear that the number of households that satisfy the TIAH definition of an agricultural household is much smaller, in most countries, than the number of holdings shown in the Farm Structure Survey. This is apparent from Table 1, where a common year has been chosen (1987). For the EUR 12 as a whole, the number of agricultural households was 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, the correspondence between holding and household is not exact, and on some (typically large) holdings there may be more than one agricultural household. This and other technical factors help 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 there was no household that satisfied the definition of being an agricultural one.

Table 1 Comparison of the numbers of agricultural holdings in Eurostat's Farm Structure Survey with the numbers of agricultural households in Eurostat's TIAH statistics ("narrow" definition), for 1987

Member State	No. agricultural holdings x 1 000	No. agricultural households x 1 000	No. agricultural households as % of no. holdings
Belgium	93	66	71
Denmark	*81	*28	35
Germany	705	319	45
Greece	953	393	41
Spain	1 792	505	28
France	982	660	67
Ireland	217	85	39
Italy	2 784	646	23
Luxembourg	*4.0	*2.7	67
Netherlands	132	92	70
Portugal	636	191	30
United Kingdom	260	261	100
Sum of the above	8 639	3 249	38

* 1989

Notes:

(i) Not all Member States are fully harmonised on the TIAH definition of an agricultural household. For example, France classifies according to the self-declared main occupation of the reference person (rather than main income), which is a subjective judgement that may include both time and income components. In the Netherlands, an agricultural household is one in which the main income of the entire family is from independent agricultural activity.

(ii) An agricultural holding may have no agricultural household associated with it, one or more than one (such as on large farms where there are several households headed by self-employed farmers, who may be partners).

(iii) The UK is unusual in that its number of holdings and agricultural households coincide; though there are many holdings (mainly small) without an agricultural household, there are many others (usually larger holdings) with more than one. The number of agricultural households in the UK is taken from the Survey of Personal Incomes. This probably under-estimates the real number because it does not cover farmers whose farms are arranged as companies.

Source: Eurostat's Farm Structure Survey and Eurostat's TIAH database.

Due to the non-correspondence between agricultural holdings and households, a preferable approach is to compare the numbers of households that satisfy the "narrow" definition with those of households where least one member of that household has *some* income from farming (that is, the target "broad" definition in the TIAH statistics). This also throws some light on the households that are outside the former definition but inside the latter, which might be called "marginal" agricultural households. Only five countries can provide such information at present (Denmark, Germany, Ireland, the Netherlands and

Finland), though mostly for only one year, so caution must be exercised when 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 31% in Denmark (1991), 41% in Ireland (1987), 58% in Germany (1983), 64% in the Netherlands (1988), to 63% in Finland (1992). Further consideration of the "marginal" agricultural households is given below.

In countries where TIAH results are available for a run of years, it is clear that the number of agricultural households has been in decline. In Germany, the fall was from 349 000 households in 1984 to 267 000 in 1992 (-23%) against an overall rise (+12%) in the total number of private households. In France, farm household numbers fell even faster, with a fall of more than a quarter (-27%) in the seven-year period 1984-90 against a background of a 7% increase in the total number of households. In Portugal the fall in agricultural household numbers between 1980 and 1989 was 37%[18]. Therefore, interpretations of income movements over time must recognise that the agricultural households group is not of a constant composition but is changing and contracting.

Composition of income of agricultural households, and deductions

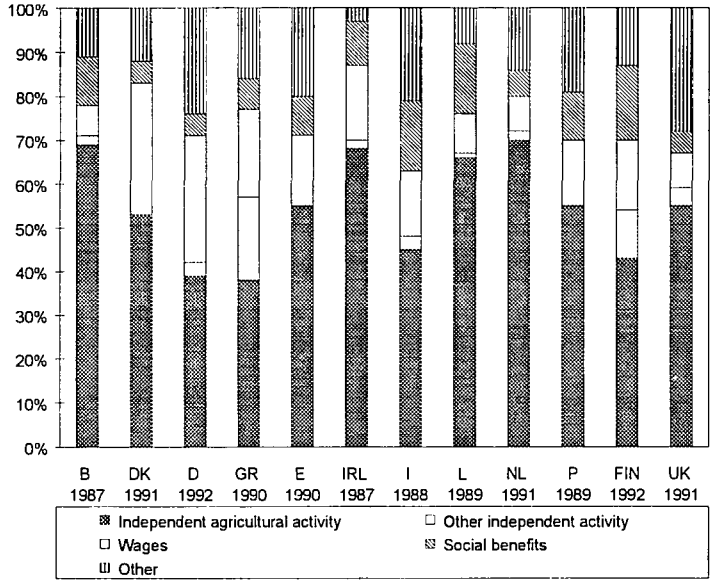
Any consideration of TIAH income results must, at this stage, bear in mind that full harmonisation in methodology has not yet been achieved among Member States and that gaps in the data exist. To bring analysis to a common base, data from countries that use an Operating Surplus concept for the resources flowing towards households from independent activity (self-employment) have to be converted to an income concept by deducting interest and rent payments; sometimes these are not separately attributed in primary sources between activities in agriculture and in other industries, so allocations have to be made (on the basis of the proportion of operating surplus from agricultural and non-agricultural independent activity). Results should therefore be regarded as indicative and, in the case of some countries, experimental. Nevertheless they 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 (see Figure 1), though there are substantial differences between Member States and resulting from using alternative systems of household classification. For the years and countries shown, those in which less than half of the total household income came from farming included Germany, Greece, Italy and Finland. At the other end of the spectrum, with more than two thirds coming from farming but still with a substantial minority of their income coming from other sources, were Belgium, Ireland, Luxembourg and the Netherlands.

The second most important source of income of agricultural households was usually wages or social receipts, although in the United Kingdom (1991) it was property income. Income from other forms of independent (self-employed) activity, such as operating other (non-agricultural) businesses, was generally unimportant, though there may have been

[18] By way of comparison, over the same periods the declines in the volume of total agricultural labour input (measured in Annual Work Units) were France -20%, Germany -26% and Portugal -30%.

some under-representation because data sources (such as taxation statistics) may not reflect the extent to which other activities are carried out within the framework of what is primarily a farm business.

Figure 1 **Composition of the total income of agricultural households by source (selected Member States), in per cent**



Notes:

(i) Results for the Netherlands and Greece are based on the household as the unit of classification (rather than the reference person).

(ii) In France, problems of comparability arise because of the way in which social contributions are treated.

(iii) 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.

(iv) "Other" includes income from property, imputed value of domestic dwelling, and other miscellaneous current transfers.

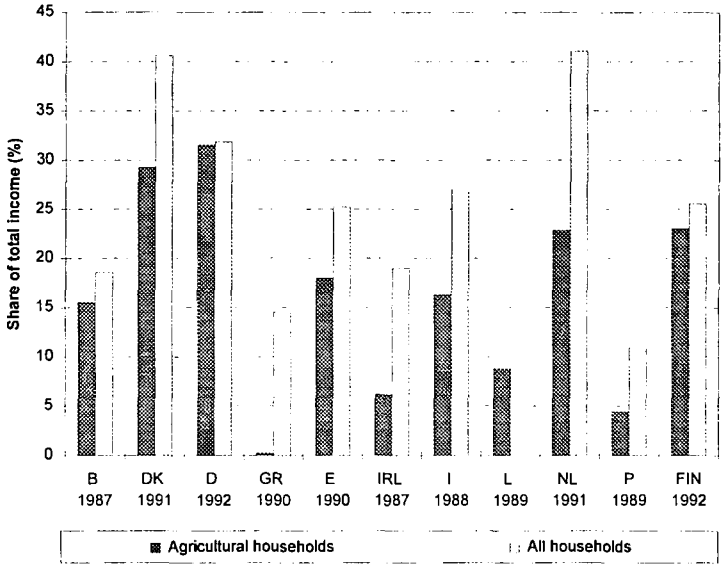
(v) For Germany figures for 1992 are taken; although 1993 results are available, they could be subject to substantial revision.

Stability of income of agricultural households

There is evidence from several Member States that the total household income of 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. This implies that annual fluctuations in agricultural income should not be taken to imply a similar movement in the total incomes accruing to agricultural households or which they have at their disposal.

These are likely to be more smaller. At present, the use of disposable income is not covered within TIAH statistics, though where countries trace its allocation between consumption spending and saving (such as Denmark) there is evidence that consumption remains quite steady in the face of movements in disposable income, the slack being taken up by sharp fluctuations in saving and dis-saving (1).

Figure 2 **Proportion of total income taken by taxation and social contributions, agricultural households and all households (selected Member States)**



Note:

(i) In Greece, less than 1% of total income was taken by these items among agricultural households.

(ii) France and the United Kingdom are not included, for reasons already outlined.

Countries also differ 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 and Germany, where more than a quarter (on average) of an agricultural households' income was taken as taxes and social contributions in the latest year for which results are available. At the other were Portugal and Greece, where less than 5% was taken (see Figure 2 above). 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 disposable income. For example, the provision of individual non-market goods or services (such as education and health services) are not currently covered, though they will be if the concept of *Net adjusted disposable income* (provided for in the *ESA 1995)* is adopted. Consequently the net effect on consumption is impossible to assess without more detailed information. Differences in the taxation load may carry implications for the competitiveness

of farmers from different countries in a single market, and have longer-term impacts on income, for example by influencing farmers' abilities to reinvest in modern technology. However, these issues go beyond the scope of the TIAH statistics, which simply establish that differences exist within the European Union in the shares of income taken by these items.

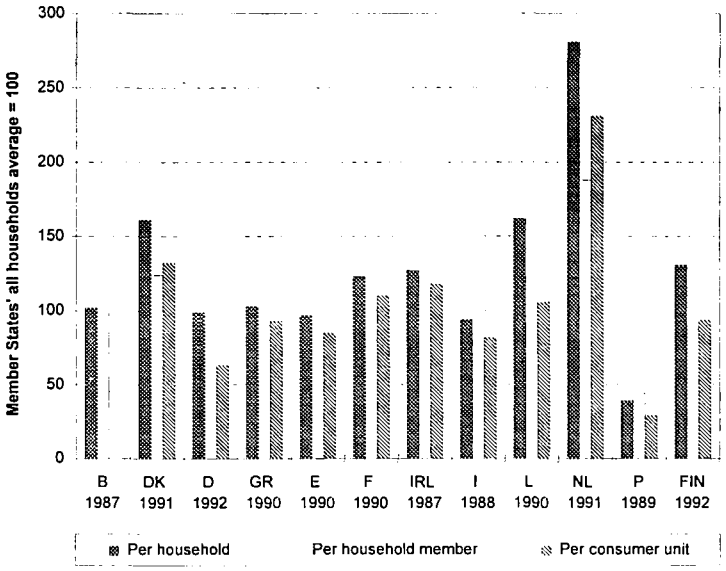
Another general finding was that the proportion of total income taken by current taxes and social contributions was lower (often much lower) among agricultural households than among households in general in each country. However, no conclusions can be drawn as to the relative burdens of taxation without 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.

Comparisons of the income of agricultural households with the all-households average

Agricultural households appear to compare favourably with the rest of society in terms of their average disposable income per household (comparisons are not possible for every Member State). Looking at results for the latest available year (Figure 3), their incomes were typically *close to or higher than* the all-household average, with the single exception of Portugal where incomes were far lower. 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 above the national averages in Denmark, France, Ireland, Luxembourg and (most notably) the Netherlands. More detailed comparisons (not reported in detail here but given in the TIAH 1995 Report) show that agricultural households on average usually had incomes lower than households headed by other self-employed reference persons, but in addition to owner-managers of other small businesses this category frequently included the operators of quite large enterprises, which would have demanded substantial management skills, and self-employed professionals.

In Germany, which has information extending over several decades, the relative disposable income situation of agricultural households seems to have been deteriorating over time. The average disposable income per household of agricultural households was above the all-household average in all years from 1972 until 1991, but by a margin that was narrowing. In 1992 their income dipped below the all-household average. In France a decline from 1970 is suggested (though there have been changes in methodology that dictate caution in drawing this conclusion). However, in the comparable series from 1984 there was a strong recovery in the relative income position of agricultural households in the last two years for which results are available (1989 and 1990) to a level 23% above the national average, very similar to the position indicated in 1970.

Figure 3 **Average disposable income of agricultural households relative to the all-household average (selected Member States)**



Note: For Luxembourg, in the absence of a comparison being generated within the TIAH statistics, interim figures taken from a survey of living standards have been substituted.

Income situation of "marginal" households

Reference has already been made to the substantial numbers of households where some member has an income from independent activity in agriculture (that is, from farming) but where farming is not the main income source of the household's reference person. Among the Member States where information is available, such "marginal" households account for more than a half of all the households with some farming income in Denmark and Ireland (69% in 1991 and 59% in 1987 respectively), about 40% in Germany and the Netherlands (42% in 1983 and 36% in 1988 respectively) and about one third in Finland (36% in 1992). 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 (Table 2).

In Denmark, Ireland and the Netherlands the average incomes per household of the "marginal" households were smaller than those of the agricultural households defined in the TIAH "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 they were still a little above it. However, in Germany 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 Finland there was little difference between the groups on a per household basis.

When incomes were expressed per household member and per consumer, the income position of the "marginal" households was reduced relative to the all-households average in the Netherlands and Finland, though only for comparisons per household member in the case of Ireland (data on this basis are not available for Denmark and Germany). The difference between the incomes of the "marginal" households relative to the "narrow" agricultural households expanded in Finland, the result of the smaller household sizes of the former.

Table 2 Number of households and levels of average disposable income for three groups of agricultural households. Denmark, Germany, Ireland, Netherlands, Finland

	Denmark (1991)	Germany (1983)	Ireland (1988)	Netherlands (1988)	Finland (1992)
No. agricultural households (000)					
"broad"	77	613	207	136	115
"narrow"	24	353	84	87	73
"marginal	53	260	122	49	42
Disposable income per household					
All households	100	100	100	100	100
Agricultural households					
"broad"	114	110	105	210	130
"narrow"	161	101	127	267	131
"marginal"	91	123	90	108	128
Disposable income per household member					
All households					
"broad"			98	138	91
"narrow"			113	175	88
"marginal"			87	75	99
Disposable income per consumer unit					
All households			100	100	100
Agricultural households					
"broad"			101	167	97
"narrow"			117	211	94
"marginal"			89	85	104

Note: 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.

Such diversity among only five 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. The differing social, economic and agricultural structures seem likely to require countries to be considered individually and quick generalisations are to be avoided, at least until more comprehensive information is available.

However, a characteristic shared by all the countries from which evidence is available so far is that only a small proportion of the total income of these "marginal" households comes from farming. In Germany only 5% of their income came from farming, in Ireland 14%, in the Netherlands 8% (original study figure) and in Finland 9%. In Denmark (1991) these households had no positive income, once interest payments had been met. Low dependency of these "marginal" households on income from agriculture is also reflected in their small contribution to the aggregate household income from farming. Compared with their numerical proportions of all agricultural households covered by the "broad" definition (given above), "marginal" households were responsible for a much lower share of total farming income; Germany 5% (1983), Ireland 19% (1987), Netherlands 5% (1988) (of operating surplus), Finland 11% (1992). In Denmark they were not associated with a positive post-interest income; though they generated 43% of the income before interest charges were deducted that "broad" agricultural households generated, they faced higher levels of interest per household than agricultural households that satisfied the "narrow" definition

3 IMPLICATIONS OF THE RESULTS

Though still undergoing development in some countries, the TIAH statistics carry some important messages for the providers and users of statistics on incomes in agriculture.

First, statisticians who attempt to measure the income of people in agricultural households, in contrast to the income generated by units of agricultural production (farms or holdings), must expect to face particular conceptual and practical problems. One concerns the basic unit over which measurement takes place. For administrative purposes it is often easiest to assume that each holding has one household and one farmer-manager, but when looking at the income situation of agricultural households the acceptance of this "myth" (5,6) is no longer tenable. While among smaller holdings there is likely to be only one household receiving some entrepreneurial income from each farm, among larger holdings there will be many with more than one such household. In reaching estimates of household income, decisions have to be made on issues such as whether financially independent adults who happen to live under the same roof should be included in the unit of measurement, and whether the concept of Net Disposable Income should correspond strictly to that of the households sector account within national accounts or be reformulated to be more in line with household-level perceptions of income. Among the more practical problems are the difficulties of assembling reliable data on income flows that come from numerous economic activities and transfers, many of which are outside the field of experience of agricultural statisticians

Second, the TIAH results underline the heterogeneity of the households that are associated with agricultural holdings and the ambiguity within agricultural policy about which form the target group should take (the "agricultural community" referred to in the

Treaty of Rome whose living standard is to be assured as "fair"). Applying a "narrow" definition to what constitutes an agricultural household (in the case of the TIAH statistics, based on the main source of income of the reference person) excludes large numbers of households that occupy holdings. The finding that on average these "marginal" agricultural households depend only to a very small extent on their income from farming implies that changes in the profitability of agriculture make only a relatively minor impact on 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 on wages, often the major source of income) and policy on social benefits (another major source). Conversely, support of farming incomes through instruments such as raising the market prices of agricultural commodities is not likely to be an appropriate way of improving the income situation of these households. While some instruments of agricultural policy (such as incentives for the extensification of land use to achieve environmental goals) are unlikely to need to take into account the income composition of the occupiers of agricultural land, when the aim is primarily of a social nature (such as is income support), the efficiency, economy and effectiveness of public spending would probably be much improved by a clearer idea of which households constituted the target group, as would also the process of measuring and monitoring incomes at the household level. The low dependency of the "marginal" households shown by TIAH statistics suggests that they might be excluded from the "agricultural community".

Third, even among the households that qualify under the TIAH definition of an agricultural household, income from non-farm sources plays important roles in contributing to the level of household income and to adding to the stability of income over time. It follows that the overall income situation of agricultural households cannot be described satisfactorily by considering only their income from farming. Thus Eurostat's Indicators 1 to 3 relating to the branch agriculture, and the FADN measures at the farm level which are confined to farm business activity, are clearly shown by the TIAH statistics to be inappropriate for representing the *overall* income position of agricultural households; they cover only the part of income coming from farming, which in some countries was less than half the total. These measures are even less appropriate for showing the personal income situation of all households that operate holdings (approximating to the "broad" definition of an agricultural household) since this brings in the "marginal" households where the overwhelming majority of income comes from non-farming sources. There is clearly a need for the additional information that TIAH statistics provide.

Fourth, 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 most countries the Net Disposable Income per household is above the national all-households average. It could be argued that this satisfactory situation is in part the result of the aid that is currently given, but it could also be argued that as a result there is less of a reason for continuing the present level of support on the grounds of general low incomes. However, 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, so caution must be exercised when considering the results for single years.

Fifth, while the TIAH statistics represent a major advance in knowledge at EU level, they can provide only limited answers to many important policy questions; more questions are likely to be thrown up when the general patterns in TIAH statistics are demonstrated. For example, in investigating whether there is a low income problem in agriculture despite what appears to be a generally satisfactory picture overall, other factors need to be considered, including the distribution of incomes by size and type of farm and by region, and links need to be made with the characteristics of the operators (ages, education etc.). Another issue is to what extent low incomes in individual years are a transitory phenomenon, and whether it is possible to separate that core of households suffering permanent income difficulties from those that are experiencing occasional low incomes, for which no public action may be required. The general implication is that microeconomic data should be available to complement these important TIAH statistics in providing background information for EU policy purposes; this implies that it should be collected on a harmonised basis that is compatible with the TIAH methodology.

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ANNEX

Summary of the state of TIAH information from Member States held in the database. Situation at November 1995

Member State	Years covered in TIAH database, and summary of items
Belgium	1987: disposable income and Items leading to it, for agricultural households and non-agricultural households (not subdivided). Results in aggregate and data to calculate per household and per household member; numbers of consumer units not provided. No results using a "broad" definition.
Denmark	1985, 1988, on an earlier basis. 1989 to 1991; disposable income and Items leading to it, by socio-professional group. Results in aggregate, with data to calculate per household, per household member (indirectly) and per consumer unit. (Also data for another "narrow" definition of agricultural households). 1989 to 1991; results using the target "broad" definition. (Also data for another "broad" definition for a number of socio-professional groups).
Germany	1972 to 1993; disposable income and items leading to it, by socio-professional group. Results per household, per household member and per consumer unit. 1983: results using a "broad" definition from a special study.
Greece	1982 to 1988; provisional results of disposable income and items leading to it using two definitions of an agricultural household and two bases of household classification, for agricultural households, all households and non-agricultural households (not subdivided). Aggregate figures, and data to calculate results per household, per household member and per consumer unit. 1982 to 1990; revised figures for agricultural households and all households using the TIAH target definition of a household and classified according to the main income of the entire household.
Spain	1980 to 1993; adjusted disposable income and items leading to it, by socio-professional group (minimum list). Aggregate figures and per household. Within this time series, the results for 1980 and 1990 are also available per household member and per consumer unit and according to a greater breakdown by socio-professional group. 1990; results also for a "broad" definition for all households, agricultural households and non-agricultural households (derived and not subdivided) in aggregate and per units.
France	1984 to 1990 (on a comparable basis); disposable income and components leading to it (but not corresponding exactly to those in the TIAH methodology), by socio-professional group. Figures per household, per household member and per consumer unit. No results using a "broad" definition.
Ireland	1987; result for a range of "narrow" and "broad" definitions. Some division by socio-professional group.

Italy	1984 to 1988; disposable income and items leading to it for agricultural and non-agricultural households (not subdivided by socio-professional group) in aggregate and per units. Provisional net disposable income figures for other socio-professional groups. No results using a "broad" definition.
Luxembourg	1989; disposable income and items leading to it in aggregate, per household, per household member and per consumer unit, but only for "professional agricultural holdings" and not for any other socio-professional group.
Netherlands	1981 (not comparable with later set of figures), 1983, 1985, 1987 and 1988; disposable income and items leading to it for agricultural households and all households; aggregate results, per household and per household member. Revised series: 1988 (overlap year) to 1991 on a fully comparable basis broken down by socio-professional group, in aggregate and per household, with data to calculate per household member and per consumer unit. 1988 (special study); breakdown by socio-professional group, and consumer units introduced, and results using the "broad" definition.
Austria	1985 to 1993; disposable income and components leading to it, for a "narrow" and "broad" definition of an agricultural household, taken from the farm accounts survey (LBZ). 1991 to 1993: disposable income and components leading to it for a "broad" definition of an agricultural household. All results (income per holding and per person) refer only to agricultural households; no comparable figures for other socio-professional groups.
Portugal	1980 to 1989; disposable income and items leading to it, for agricultural households, defined in a "narrow" way; aggregate results and per household. 1980 and 1989; disposable income and items leading to it by socio-professional group; aggregate results, per household, per household member, per consumer unit.
Finland	1987 to 1992; average disposable income figures per agricultural household and per (all) households. 1992, disposable income and items leading to it by socio-professional group. Numbers of households, household members and consumer units. 1992 "Broad" and "narrow" approach.
Sweden	1989; disposable income and items leading to it, by main socio-professional groups but not for all households. 1977-90; total income and components, for agricultural households only (separate series, now discontinued).
United Kingdom	1980 - 1991 (1989 onwards are not comparable with earlier years). The coverage (tax cases with incomes from agricultural and horticulture) does not correspond closely with either the "narrow" or "broad" TIAH definitions of an agricultural household. Income figures are only for aggregates; not shown per household, per household member or per consumer unit. Results do not show estimates for non-agricultural households.

OVERVIEW OF MICROECONOMIC RESULTS IN OECD COUNTRIES AND POLICY INTERESTS: CHARACTERISTICS OF INCOMES IN AGRICULTURE AND THE IDENTIFICATION OF HOUSEHOLDS WITH LOW INCOMES

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SUMMARY

Concern for the income situation of farmers and their families is an important element in the articulated agricultural policy objectives of virtually all OECD Member countries. While this concern may be expressed in a variety of ways, the income level (or alternatively the standard of living) of farmers, the variability of farm incomes, and the incidence of poverty among farmers and their families feature prominently in official policy statements. Using microeconomic survey data for 21 of the 25 countries of the OECD, this paper surveys the income situation of agricultural households in Member countries and seeks to identify how agricultural households compare with other households.[20] Where data permit, structural, socio-economic and regional characteristics are summarised. Finally, the policy implications of the information are assessed.

1 INTRODUCTION

OECD Member countries typically frame their farm income objectives in terms of distributional, or equity, criteria. That is, the government assumes a role in ensuring that the incomes of farm households are comparable to other groups in society. A number of countries express the joint objective of income comparability and reduced variability. While many countries make the "standard of living" of farm households an explicit policy objective, few frame the income objective formally in terms of the alleviation of poverty. Nevertheless, such a goal can be inferred from the language used in many policy statements.

Despite the prominence of the income objective in statements of agricultural policy aims, specific goals are seldom well-defined, either in terms of the income variable being targeted, or the intended recipients. What should be included in the measure of income, and where should the line be drawn on what constitutes an agricultural household? The vagueness of policy statements, alternative interpretations given by different countries, and ambiguities concerning what is "operational," naturally make it difficult to measure performance relative to objectives.

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[19] This paper draws extensively on work done by colleagues in the Directorate for Food, Agriculture and Fisheries at the OECD. The opinions expressed in this paper should not be attributed to the OECD or to its member governments.

[20] The countries considered are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany (excluding eastern Germany), Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

OECD Member countries use different methodologies in collecting data on incomes (1). Substantial differences exist in what is measured as income from farming, and how off-farm income is treated. Some countries use a very narrow definition of income, ignoring off-farm income. Yet there is substantial evidence that this is becoming increasingly important for farm households. Ignoring this source of income can seriously bias the assessment position of farm relative to other households, and the effects of agricultural support policies.

Similar uncertainties surround the definition of an "agricultural household." The logic for measuring the household income is that households, particularly couples with dependent children, usually pool their income and expenses. National household budget surveys generally include as household members those who live under the same roof and share meals. However, differing conventions are adopted in considering additional adults - a factor which further complicates cross-country comparisons.

The distinction between agricultural and non-agricultural households is made difficult by the widespread practice of part time farming, and by income from other gainful activities, as well as pensions and transfers. Three criteria which have been used by OECD countries to define a farm household are income source; labour input; and farm size. Some countries classify agricultural households according to a "reference person" system. Under this system, a household is deemed to be agricultural if the reference person satisfies the eligibility criteria. Such a system may misrepresent the overall nature of a household's economic activity. About half of the OECD countries use a "broad" definition of a farm, in which a minimum area or sales requirement is the most common criterion. Where a more restrictive definition is applied, income source requirements generally dominate. Details on the criteria adopted by Member countries are given in (1).

Farm accounts surveys are the most common source of information on the incomes of farmers and their households. However, these surveys generally suffer from limitations relating to timeliness, a tendency to under-report income (particularly non-farm income), and the exclusion of small holdings. Estimates of disposable income are only available for Denmark, Finland, Germany, Japan, and Norway. Coverage and conventions vary a great deal among countries, even within the European Union.

Household budget surveys are an additional source of information. These surveys typically categorise households into socio-professional groups on the basis of the occupation of a reference person. Their main drawback is that they are expensive to conduct and are thus only undertaken at infrequent intervals - in the case of the European Union every 5-7 years. Moreover, in a number of countries, such as Belgium and the United Kingdom, the number of agricultural households surveyed is too small to yield reliable income estimates. Nevertheless, such surveys can be a valuable source of information, as in the case of Ireland.

Taxation records may also be an important source of information, although their ability to provide meaningful income estimates varies across countries. Taxation records are used in Finland, France, Norway and Sweden. Problems arise because of difficulties in determining the extent of allowances against income, and because of the convention of assessing tax on the basis of accounting profits, which may differ considerably from actual income. Comparisons between farm household incomes and those in other sectors based

on tax records may also be misleading to the extent that not all households are covered by the tax net.

2 THE NATURE OF FARM HOUSEHOLD INCOME

The variety of definitions of household income in general, and of farm household income in particular, combined with disparities in data availability, make cross-country comparisons difficult. Nevertheless, some common threads stand out from the data available in OECD countries.

The composition of farm household income varies across countries. To some extent, differences are due to income and household definitions. Yet it is clear that non-agricultural (off-farm) income is important in all the countries included (Table 1). Indeed, the share of agricultural income in total income rarely exceeds 65 per cent, despite the fact that agricultural incomes can fluctuate from year to year and sometimes only the income of the operator and spouse are included. Exceptions to this generalisation are Switzerland, where only full-time farmers are surveyed, and Belgium and the Netherlands, where only main occupation farms are included (the data for Belgium are provisional). The share of agricultural income in total income is particularly low in the United States, where a broad definition of a farm household is adopted, and Japan, where holdings are very small and the farm households tend to be large.

For 15 of the 21 countries studied, earned income, principally wages and salaries, constitutes the main source of non-agricultural income (see Table 2). For six of the 15 countries, investment income is the next most important source, while for seven countries, transfers are the second most important. Social transfers are the most important source of off-farm income for four countries, and investment income is the most important source for one (the United Kingdom). In terms of the various definitions used, the share of earned income in off-farm income is higher when part-time farmers (whose major source of income derives from outside farming) are included, and when the incomes of household members other than the operator and spouse are included. In general, the share of earned income in off-farm income depends on off-farm employment opportunities and the extent of female participation in the labour force.

Table 1 The share of agricultural income in total income

Country	Year	Agricultural income share	Comments: type of farms and incomes included [(a)].
Australia	1989/90-1991/92	26 to 70	Very variable farm income -- surveys of dairy and broadacre agriculture -- operator and spouse's income
Austria	1991/92	67	All farms (up to a max. size) -- household income
Belgium	1987	73	Main occupation farms -- household income
Canada	1988-90	44	All farms -- family income
Denmark	1989/90-1991/92	50	All farms -- operator and spouse's income
Finland	1990	51	All farms -- operator and spouse's income
France	1987-89	67	Main occupation farms -- household income
Germany (ex-FRG only)	1989-91	46	Main occupation farms -- operator and spouse's income
Greece	1985	57	Main occupation farms -- household income
Ireland	1987	49	All farms -- household income
Italy	1988	31	Main occupation farms -- household income
Japan	1992	16	Commercial farms -- household income
Netherlands	1985, 87, 88	75	Independent activities -- main occupation farms - household income
New Zealand		n.c.	Partial agricultural sector
Norway	1988-90	37	All farms -- operator and spouse's income
Portugal	1989	60	Independent activities -- main occupation farms - household income
Spain	1981	45	Main occupation farms -- household income
Sweden	1988-90	27	All farms -- operator and spouse's income
Switzerland	1991-93	87	Full time farms -- income of those working on the farm is taken into account
United Kingdom	1989/90-1991/92	53	Main occupation farms -- operator and spouse's income
United States	1989-91	15	All farms -- household income

Notes:

n.c. Not computable.

(a) Main occupation farms are defined as farms in which the household's main source of income is agricultural activity, or the operator devotes most of his/her time to agriculture.

Source :

(2): *A Review of Farm Household Incomes in OECD Countries: Notes by Country.* (OECD, 1995b).

Table 2 Main sources of non farm income

Country	Year	First source	Second source	Comments: type of farms and incomes included [a].
Australia	1991/92	Labour income	Property	Very variable farm income -- partial agricultural sector -- operator and spouse's income
Austria	1992	Labour income	Social transfers	All farms (up to a max. size) -- household income
Belgium	1987	Social transfers	Wages and salaries	Main occupation farms -- household income
Canada	1990	Wages and salaries	Property	All farms -- family income
Denmark	1991/92	Wages and salaries	Property	All farms -- operator and spouse's income
Finland	1990	Wages and salaries	Pensions	All farms -- operator and spouse's income
France	1989	Social transfers	Property	Main occupation farms -- household income
Germany (ex-FRG only)	1991	Wages and salaries	Property	All farms -- operator and spouse's income
Greece	1985	Wages and salaries	Property	Main occupation farms -- household income
Ireland	1987	Wages and salaries	Social transfers	All farms -- household income
Italy	1988	Social transfers	Wages and salaries	Main occupation farms -- household income
Japan	1992	Wages and salaries	Social transfers	All farms -- household income
Netherlands	1988	Wages and salaries	Social transfers	Main occupation farms -- household income
New Zealand	n.a.	n.a.	n.a.	Partial agricultural sector
Norway	1990	Wages and salaries	Other	All farms -- operator and spouse's income
Portugal	1989	Wages and salaries	Property	Independent activities -- main occupation farms -- household income
Spain	1981	Social transfers	Labour income	Main occupation farms -- household income
Sweden	1990	Labour income	Pensions	All farms -- operator and spouse's income
Switzerland	1991-93	Wages and salaries	Social transfers	Full-time farms -- income of those working on the farm is taken into account

United Kingdom	1989	Investment	Wages and salaries	Independent activities -- main occupation farms -- household income
United States	1990	Wages and salaries	Indep. activity	All farms -- household income

Notes:

n.a. Not available.

(a) Main occupation farms are defined as farms in which the household's main source of income is agricultural activity, or the operator devotes most of his/her time to agriculture.

Source : see Table 1

The evolution of non-agricultural incomes, and the extent to which they have been able to substitute for farm income, is of particular interest because it provides an insight into the effects of structural change on overall income sources. The details, which are published elsewhere may be summarised briefly (2). Despite differences in the availability of time series data across countries and considerable variability, there was only a slight tendency for agricultural incomes to rise in the 1980s. On the other hand, non-agricultural incomes tended to increase steadily over time, with the trend being clearer the longer the time series available. In so far as some countries only include full-time or main-occupation farms in their samples, a number of farms drop out of the sample as they diversify their income sources. This leads to an underestimation of the degree to which off-farm income has cushioned the process of structural change on farm households.

For most countries, the methodology adopted to measure income is sufficiently similar to allow the comparison of total income levels between farm and non-farm households. In most cases the comparison is made with respect to all households, but in some cases it is made with non-agricultural households (Belgium and Denmark), or to a specific category of household (Finland, Japan, Sweden). In some cases comparisons are not possible, because data are not available on a comparable basis (Austria, New Zealand, Switzerland, the United Kingdom), or are unreliable (Spain). Since agricultural incomes may vary considerably from year to year, particularly in countries not providing guaranteed prices, averages are computed using the most recent three years' data where possible.

For most of the countries for which comparisons are possible, farm households have total incomes that appear to be close to, or higher, than those of other households (Table 3). The notable exceptions are Australia, Finland, and Sweden. In Finland and Sweden - where taxation data are used - the income shortfall may be offset by taking a fuller account of income-in-kind, differences in tax treatment and the possibility that revenues may be stored as wealth rather than declared as income (disposable incomes in Finland are actually higher for farm households). In Australia, farm household incomes fell from 70 per cent higher than those of other households in 1988/89, to almost 50 per cent lower between 1989/90 and 1991/92. This was largely a consequence of weak commodity prices, particularly for wool, and severe drought.

Table 3 Income comparison between agricultural households and other households

Ratio agricultural households / other households		Total income		Disposable income		Comments : household type to which agricultural households are compared
Country	Year	Per household	Per member (a)	Per household	Per member (a)	
Australia	1989/90-1991/92	0.52	n.a.	n.a.	n.a.	All households
Austria		n.a.	n.a.	n.a.	n.a.	No comparable data
Belgium	1987	1.15	1.12	1.03	0.99	Non agricultural households
Canada	1988-90	0.97	n.a.	n.a.	n.a.	All families
Denmark	1988	1.47	1.06	1.21	0.86	Non agricultural households
Finland	1991	0.80	0.63	1.16	0.92	Industrial workers' households (property income excluded)
France	1987-89	1.14	0.89	1.15	0.89	All households
Germany (ex-FRG only)	1989-91	1.16	0.68	1.22		All households
Greece	1985	n.a.	n.a.	> 1	1	All households
Ireland	1987	0.98	0.88	1.12	1.00	All households
Italy	1988	n.a.	n.a.	1.45	1.19	All households
Japan	1992	1.30	1.18 (0.93)	1.29	1.13 (0.92)	Workers' households (per earner)
Netherlands	1985, 87, 88	1.81	1.17	2.25	1.44	All households
New Zealand		n.a.	n.a.	n.a.	n.a.	
Norway	1988-90	1.50	n.a.	1.54	n.a.	All households
Portugal	1980	n.a.	n.a.	0.81	0.71	All households
Spain		n.a.	n.a.	n.a.	n.a.	Not published by Eurostat
Sweden	1989	0.74	(0.66)	0.80	(0.71)	Workers' households (per consumption unit)
Switzerland		n.a.	n.a.	n.a.	n.a.	
United Kingdom		n.a.	n.a.	n.a.	n.a.	
United States	1989-91	0.96	0.86	n.a.	n.a.	All households

Notes:

n.a. Not available.

(a) Otherwise specified.

Source : see Table 1

The relative income position of agricultural households usually improves when comparisons are made of disposable income, but deteriorates when a per household member or consumption unit basis is used. Farm households tend to contain more members than other households, either because they have more children, or because several generations live together. Of the 11 countries for which total income per household member is calculated, only in three (Italy, Japan, and the Netherlands) is the average higher in farm households than non-farm households. In Japan, the comparison is with the households of wage and salary earners, and farm households are worse off on a per earner basis. For several countries, incomes per household member are about the same (Belgium, Greece, Ireland) or slightly lower (Denmark, Finland, France). Only in Germany, Portugal and Sweden are incomes per household member lower for farm households than for other households.

Where it is possible to compare the incomes of agricultural households with alternative socio-professional categories (Finland, France, and Germany), agricultural households tend to fare worse than other self-employed households in terms of both total and disposable incomes, but better than wage-earning households. This reflects the broad range of activities included in the "self-employed" category, from self-employed tradesmen to heads of companies. Finland is the only country for which it is possible to compare incomes with the most appropriate socio-professional category; that is, self-employed individuals. In this case, per household incomes were about equal between 1987 and 1992.

The goal of alleviating farm household poverty is implicit in commitments to "fair", "equitable" or "reasonable" incomes for farmers and their families. Yet, available data only permit us to gauge the incidence of relatively low incomes rather than the broader characteristics of poverty. Moreover, it is difficult to establish a threshold income level, below which a farm household might be considered "poor" in an absolute sense; not least because the methodological and practical problems in accounting for non-pecuniary effects are likely to be acute. Accordingly, we focus on the general structural and demographic characteristics associated with lower income farm households.

The problem of low income farm households appears to have two main facets. One arises from structural and demographic characteristics, such as the type of farming, the size of farm, the age and education of the operator and the availability of off-farm employment. These affect the ability of the farm household to diversify its income sources. The other facet arises through cyclical economic factors (which may for example, place strains on the finances of younger farmers) and unforeseen events, such as drought or natural disasters.

A further complication arises from the fact that when income deficiencies exist they are likely to extend beyond the farm level to the rural community in general. This has implications for both the level at which data should be collected, and the sorts of policy measures which might be used to address the problem. Indeed Mexico, where the incomes of rural households are less than 40 per cent of those of urban households, explicitly collects data at the rural, as opposed to the farm, level.

The reduction of the variability of the incomes of farm households is often a prominent policy goal among OECD Member countries. However, it is important to note that the total

income of agricultural households tends to show greater stability than that derived from farming alone. This reflects not only the greater inherent stability of off-farm incomes, but also the fact that, even when market price supports are in place, fluctuations in input and output prices and quantities may have an offsetting effect on the stability of income from farming.

3 STRUCTURAL CHARACTERISTICS OF FARM HOUSEHOLDS

As indicated previously, structural or microeconomic data on the total income situation of farm households can only be obtained from surveys. When surveys which include non-agricultural incomes exist, they are usually available more regularly and tend to be more comprehensive. For six out of the 21 countries studied no structural data whatsoever are available for the last 10 years. These are all members of the European Union (Belgium, France, Greece, Italy, Portugal and Spain). This naturally limits coverage of the structural characteristics of farm household income in the European Union, although certain countries such as Denmark and Germany provide comprehensive data. On the other hand, structural data exist for all the non-EU members of the OECD, although the coverage is sometimes partial. For example, the surveys carried out in Australia and New Zealand cover only the main product sub-sectors; aggregates for the agricultural sector as a whole are not available.

Let us comment briefly on the total income of farm households with respect to the following set of structural factors:

- degree of pluriactivity of the household;
- age of the farm operator;
- area or the economic size of the farm;
- farm enterprise type; and
- region, administrative or topographical.

Although information is frequently available on pluriactivity, this is only linked to data on total household income in three countries (Finland, Germany and Japan). Austria ceased to make the distinction between pluriactive and full-time farms in 1992. Moreover, the categories of pluriactivity are defined differently in each country. In Germany and Japan a distinction is made between full-time farms and two types of part-time farms - according to whether farm income is higher (Type I) or lower (Type II) than off-farm income. In Finland farms are divided into four categories, depending on whether off-farm income accounts for up to a quarter of total income; between a quarter and a half of total income; between a half and three-quarters of total income; or more than three-quarters of total income. Finally, Switzerland reports data for a narrowly defined category of full-time farms.

In the three countries for which analysis is possible, the highest incomes occur on farms in the Type I part-time category. In Germany and Japan, the next highest incomes are recorded for Type II part time farms (on which the share of farm income is negligible) whereas in Finland full-time farms rank second in terms of total income. As might be expected the share of farm income in the total income of full-time farms is generally high - over 80 per cent in Finland, Germany and Switzerland, but only 50 per cent in Japan. The

latter figure is partly explained by the definition of a full-time farm, which relates to the amount of time devoted to different activities rather than any specific income share. On Type I part time farms in Japan, the share of farm income in the total, at 56 per cent, is close to the minimum specified in the definition. For Type II part time farms, the share averages just 5 per cent.

Five countries report total income according to the age of the operator or reference person. These countries are Denmark, Germany, Norway, Sweden and the United States. Japan also distinguishes between farms on the basis of the age of the operator, but the data are not disaggregated in a comparable way. The data indicate that, up to a certain age, total income rises with age of the reference person, peaking between the age of 40 and 50 in Germany, Norway and Sweden, a little earlier in Denmark (35-45 years) and a little later in the United States (45-55 years). Thereafter, total income declines. The range of incomes observed across the different age classes is wider in Denmark and the United States than in Germany or Sweden. In Norway the situation is somewhat misrepresented because investment income, retirement pensions and social transfers are not included in total income.

Almost half of the countries covered indicate total income by size of farm. In most countries size is measured by physical area. However, some countries classify farms according to their economic size, measured by total gross margin as in Denmark and Germany or by gross sales revenue as in Canada (where direct payments are included), and in the United States. Whichever classification system is used, both farm and total income tend to increase in accordance with farm size. However, the smallest farms do not always have the smallest total incomes, reflecting the importance of off-farm incomes. This is the case for Canada where the non-agricultural incomes of the smallest farms are large enough to bring total income to levels in excess of those on middle sized farms.

In most countries, the disparities in income are significantly reduced when total rather than farm income is considered. The importance of non-farm income in Japan is such that disparities among the different size classes virtually disappear when total income is taken into account. Finally, with respect to total income, the maximum gap is less than one for 7 out of the 11 countries, is close to 2 in Denmark, Finland, and the United States and also in Germany where the size classes are defined by area.

Data on farm household income are available by farm enterprise type for 13 countries. The categories identified vary in scope and detail from country to country. They do not, in general, cover the entire agricultural sector and in some countries only the specialisations which occur most frequently are reported. The classification is typically based on a definition relating to the share of a given commodity in the total gross margin of the enterprise. Where a precise definition is not given, the classification is generally according to which commodity accounts for the largest share of the value of production or the value-added of the farm.

Although the results can vary from year to year, the available data suggest that the lowest agricultural incomes are found among extensive livestock producers, including beef and sheep. This is the case in Australia, Austria, Canada, Germany, Switzerland, the United Kingdom and the United States. The highest agricultural incomes are often found among intensive pig and poultry producers (Austria, Denmark, Germany, the Netherlands and the

United Kingdom). These distinctions are carried through into total income. Dairy production is something of an exception in that it is sometimes associated with the highest farm incomes but not the highest total incomes. This occurs in Australia, Sweden and the United States. Because dairy production is relatively labour intensive, the total income of households operating dairy farms may even be relatively low in spite of relatively high farm income. Large crop farms do not necessarily feature amongst the highest agricultural income earners, but because other activities can be carried out in parallel, they often rank high in total income terms. The situation is reversed somewhat in Japan where rice cultivation yields the lowest agricultural incomes and beef production the highest agricultural and total incomes. Beef production in Japan is carried out intensively.

If we examine the maximum income gap relative to the average between enterprise types, this tends to be much reduced when total income, rather than just income from farming, is taken into account. Canada is the only exception to this rule. The gaps are often not very wide, especially in Sweden and Switzerland, and exceed 1 only in the case of Australia, Denmark and the United Kingdom. The differences in income between enterprise types depend on the profitability of the commodity, which is a function of input and output prices, which are in turn influenced by the level of assistance granted to the commodity and by the structure of the farm. With respect to non-agricultural income, differences between enterprise types can be partly explained by the labour intensity of the agricultural enterprise.

Regional differences in income levels are largely explained by the profitability of different enterprises and by the opportunities for non-agricultural employment on and off the farm. The tourist potential of a region, the degree of urbanisation and the presence of non-agricultural economic activity each affect the development of off-farm sources of income. The choice of farm enterprise depends on its potential profitability, which is determined largely by the climate and other physical characteristics, by the structural characteristics of primary factors (e.g. availability of land and labour), and the nature of government assistance. available data do not allow an analysis of enterprise type by region except in a few countries (e.g. Germany).

Some countries report farm household income data on the basis of administrative regions, while others report it on the basis of geographical criteria such as altitude, and the type of natural or cultivated vegetation in a region. The data for the OECD countries again suggest that the gap between the lowest and the highest incomes is reduced when total income is taken into account, although regional differences are generally less pronounced than differences between different types of farms. The only exception is Australia where geographical differences are so large that the resulting differences in agricultural income are too important to be completely offset by off-farm income. It might have been expected that regional diversity would be less pronounced in smaller countries but, as shown by Ireland, this is not always the case. It should also be noted that the amount of regional diversity in Japan is less if the island of Hokkaido is excluded from the data.

4 CONCLUSIONS

Considerable difficulties arise in attempting to compile information about the farm and non-farm incomes of agricultural households. These difficulties relate to the definitions of

the target variables and to the methodology used for the collection of data. Information is derived from different sources ranging from taxation, farm and household budget surveys or may be derived from the household sector of the National Income Accounts. Coverage differs with respect to potentially important variables such as own consumption, implicit rental value of owner occupied housing, and social security entitlements. Households and farm households may be broadly or narrowly defined. There may, therefore, be particular difficulties in attempting to make comparisons among the incomes of different groups or in making comparisons across countries. In some countries, the only data available are in the form of national indicators, whose usefulness is limited in the absence of any supplementary information concerning the distribution of income according to structural or socio-economic characteristics of households and farms. In other countries, extensive and detailed data are available allowing more precise conclusions to be drawn concerning the total income situation of farm households.

In most of the OECD Member countries discussed in this study, farm households manage, on average, to achieve income levels that are comparable with those attained in the rest of society. Moreover, in several countries (e.g. Belgium, Denmark, France, Germany, Japan, the Netherlands and Norway) farm households appear to achieve incomes that are higher than those attained on average by other households. In countries where the incomes of farm households appear to be relatively low (e.g. Finland and Sweden), the shortfall maybe accounted for by the fact that taxation data are used. These data generally fail to take a proper account of income-in-kind, differences in tax treatment, or the possibility that revenues may be stored as wealth rather than counted as income.

At a minimum, the data suggest that the problem of low incomes in the agricultural sector is not pervasive. In the case of many countries, it seems that such income deficiencies as exist are specific and localised. This observation is borne out by the structural data, which show considerable variability in total incomes for many OECD countries. These data suggest, for example, that farm household incomes generally increase with farm size. Yet the smallest farms are not always associated with the lowest incomes. In Canada, for example, the importance of off-farm activity is such that the households operating the smallest farms earn incomes that are higher than those achieved by households operating medium-sized farms. By way of another example, older farmers tend to earn less than young or middle-aged ones in most OECD countries. Yet the income shortfall is more pronounced in some countries (e.g. Denmark and Norway) than in others (Germany, Sweden and the United States).

Since it cannot be shown that incomes in the agricultural sector are universally deficient, general policy measures - such as output-based price support - are likely to be less efficient than more targeted forms of assistance in ensuring comparability with other sectors. Moreover, because of the importance of off-farm income, such generalised assistance focuses only on part of the problem.

The drawback with many forms of assistance to farmers is that they may impede their ability to respond to market signals, by diversifying their income sources, changing the structure of their operations, or exiting the farm sector. Yet, structural or demographic rigidities may exist, for example with elderly farmers, for which policy interventions are indeed appropriate. Structural data on farm household incomes may then be used to guide policies designed to facilitate entry/exit from the farm sector, assist with farm

restructuring or enhance the potential for income diversification, and to pinpoint where assistance may be required.

Direct income payments may address income objectives in a less economically distorting and better targeted manner than output-related support measures. However, such schemes need not be organised within the domain of agricultural policy. If the objective for any such assistance is to establish the same minimum living standards for farm households as for households elsewhere in society - as the policy statements of many countries would suggest - then payments may more reasonably be provided in the context of economy-wide social provisions.

Since the total income situation of farm households can vary a great deal according to structural and demographic characteristics, some types of farm household are more likely to be in need of assistance than others. Insofar as countries choose to target these particular households, there are considerable gains to be realised from improving the coverage, timeliness and consistency of national data.

At present, the quality of the data and the methodological problems associated with defining farm household income are such that it is difficult to attach any degree of confidence to relative income estimates, or even to pinpoint those farm households failing to achieve comparable incomes. Improvements in the data would enable policy makers to respond to specifically identified problems, with an appropriate amount of assistance. In the longer term they may also make a cross-country harmonisation of methodologies possible.

Flexible information systems may be an important source of improvement. The dynamics of structural change are such that informational needs with respect to household income are likely to change over time. A flexible approach would enable information to be obtained on those particular households requiring policy attention at a given point in time.

Finally, a major problem in identifying income problems and designing appropriate policy responses arises because statements of policy goals are generally formulated in vague language. The issue of farm household income is inherently measurable. A re-articulation of policy goals in terms of nationally recognised measures - specifying which farmers are to be the focus of policy attention, what is to be included in income, and exactly what the income objective is to be - would enable a clearer assessment of problems requiring a policy response. It would also provide clearer directives on the priorities for data collection.

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FACTORS DETERMINING AGRICULTURAL HOUSEHOLD INCOMES: A CASE STUDY FOR THE FEDERAL REPUBLIC OF GERMANY

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SUMMARY

Farmer households which exhibit a low income per consumer unit are characterised in the case of two rural areas in the Federal Republic of Germany. Household size and structure, below-average training of the farm manager and below-average production capacities turn out to be characteristic features of lower income groups. These and other potential factors determining the income situation are subsequently tested in multivariate regression analyses. According to the results of this case study, household income increases if the farm manager has completed higher-level agricultural training, if the farm manager or other persons have gainful off-farm employment and as a function of farm size. In addition, it was possible to show what effect the composition of the households surveyed has on income levels.

1 INTRODUCTION

One of the four main aims of agricultural policy in the Federal Republic of Germany is to enable those who work in agriculture and forestry to benefit from improvements in the general level of income and prosperity (1). According to the EEC Treaty, the Common Agricultural Policy, too, must aim to ensure that the agricultural community has a fair standard of living. The main indicator studied when living standards are analysed, and the keystone for the design of policy programmes, is income. Older studies on this topic have mainly dealt with the factors determining agricultural income or profit. When summarising the results of previous investigations, Hanf *et al.* (7) come to the conclusion that the scatter of agricultural incomes is mainly attributable to the abilities of the farm manager and the provision of factors of production (farm size). Area-related natural differences between production sites are, in contrast, allotted only slight importance as a factor determining agricultural incomes.

However, analysis of the income situation and income development in agricultural households is inadequate if only the contribution from agricultural income (farming) is examined. It is well known from agricultural statistics that off-farm income is now larger than farm income for the majority of married farm-owning couples in Germany. Adaptations to influences for change thus do not take place purely within the agricultural sector, or result in the complete abandonment of production, and they have also helped increase the relative importance of instances where there is a combination of agricultural and other income sources. If the perspective is switched from the farm to the household, which represents the customary unit of analysis for the income situation outside

agriculture, the income of other household members should also be catered for in addition to that of the farm-owning couple.

The aim of this study is to present empirical findings on factors determining household incomes, over and above those known to determine agricultural income. If success is achieved in identifying the specific features of those households whose factor provision must be described as inadequate or which have so far not managed to adapt their factor inputs to income opportunities to a satisfactory extent, conclusions can be derived from this for a targeted income policy.

The data underlying the study are first described. By subdividing the study households into income groups (quartiles), it becomes possible to bring out the characteristic features of the lower income groups. After the variables used have been explained and their potential impact on income levels has been substantiated, an attempt is made using regression analyses to account for the distribution of household incomes. An investigation of income mobility cannot be carried out with the set of data available; nevertheless, a few conclusions may be drawn from the results of the cross-sectional analysis.

2 UNDERLYING DATA AND REMARKS ON METHODOLOGY

An empirical basis for this study is provided by information from 680 agricultural households in the administrative district of Emsland (Lower Saxony) and the district of Werra-Meißner (Hessen)(13). A regionally stratified random method was used to select farms with at least 5 hectares of utilised agricultural area (UAA). The sets of data were collected in spring 1991 and contain details on the structure of the households, individual household members and the structure of the farms. The interviews were in the main conducted with the person who managed the farm, who also delimited the individuals belonging to their households. The underlying survey was conducted in co-operation with other research projects which, while allowing for synergic effects to be exploited, was nevertheless associated with certain limitations on all those involved in terms of survey capacity.

Income details represent a highly delicate form of personal information which may lead to high non-response rates in surveys. In order to determine the income situation, an approach was therefore adopted which, having regard to the low survey capacities, was to allow for as adequate as possible an overview of the various types of income and their levels. Agricultural profit (for the 1989/90 farm year) was surveyed as the first income element. If the farm's manager was unable or unwilling to provide information on profit, the latter was estimated on the basis of specific standard farm incomes taking account of coefficients identified in the agricultural report (1) for individual farm types and regions. In the case of all household members aged 15 years upwards, it was asked whether they were gainfully employed off the farm and what their current net monthly earnings were. In addition, the most important sources of transfer incomes were explicitly asked about in the case of each household member so as to obtain the fullest possible information on this form of income. The details relating to one month were extrapolated to yield annual incomes. Respondents were also required to specify the household's level of annual income from property and other assets. It was not possible to collect information on income use in connection with this survey.

The fact that longer-term records were not used, that interviewees were generally drawn only from among farm managers, and that a comparatively small number of questions were asked without more in-depth scope for checking, have without doubt led to inaccuracies in the recording of the income situation. Experience shows that incomes are underestimated in surveys of this type (3). Nevertheless, the existing set of data makes it possible for the scatter of agricultural household incomes to be investigated more precisely than has happened in the past. If it is assumed that the empirical errors described above are randomly dispersed among the households surveyed, an undistorted estimate of distribution is possible, but the absolute level of income information should be considered only in a qualified way. Although it was also possible to obtain retrospective information on other questions, the income questions had to be confined to a time-related cross-sectional survey. Annual income fluctuations, which may be of considerable importance in connection with agricultural incomes in particular, also had to be ignored for this reason.

3 CHARACTERISTICS OF LOW-INCOME FAMILIES

The study areas are highly rural regions which, however, exhibit major differences in terms of natural area and agricultural structure (13). The average size of the households investigated also differs markedly (5.4 persons in the administrative district of Emsland as compared with 4.5 in the district of Werra-Meißner). Therefore, the survey results will be described on the basis of income per consumer unit[21] and not on the basis of total income, which is dependent on household size. The average annual income per consumer unit is DM 19 572 in Emsland and DM 17 958 in Werra-Meißner. If the two samples are subdivided into quartiles on the basis of income, the lower quartile in the district of Emsland will include all households with less than DM 12 720 per consumer unit; in Werra-Meißner, this limit is DM 11 612. By comparing various characteristic values, pointers should be obtained in what follows on the features of low-income households in the lower quartile as compared with households in the upper quartile.

No special features of the lower income groups with reference to the average age or sex of farm managers can be gauged from the characteristic values compiled in Table 1. In contrast, the level of education status of farm managers exhibits clear differences between income groups. In the lower quartile of both administrative districts, the proportion of farm managers who have completed secondary school education or passed the school-leaving examination is on average lower than for the reference groups. More farm managers in the lower income groups have completed non-agricultural vocational training than in the upper income groups; in the district of Werra-Meißner, however, this difference is not significant. Whereas an uneven picture emerges for simple agricultural professional examinations, farm managers with higher-level agricultural vocational training (examination for master craftsman's certificate or agricultural college) crop up more rarely in the lower income groups than in the upper ones. The proportion of farm

[21] The head of the household is included in the calculation with a factor of 1.0, with other household members from the age of 14 up being given a factor of 0.7 and children under the age of 14 being given a factor of 0.5. Schmitt (10) criticises the use of income per consumer unit and per head in connection with intersectoral comparisons and instead proposes comparing households of the same size (and structure). Cf. also (6).

managers gainfully employed off the farm is higher in the lower quartile than in the upper one; however, this cannot be considered as representing a statistically significant deviation.

Farm sizes in the case of low-income households are in both regions clearly lower than in the upper quartile. The less successful households also exhibit a smaller proportion of leasehold land than households in the upper quartile. Labour input into farms is almost exclusively carried out by family members and in neither region exhibits any significant differences between farms in the lower and the upper quartiles. Low-income households in the administrative district of Emsland hardly differ in terms of farm type from the average for all farm households surveyed there. However, successful households often run processing farms and, more rarely, fodder plant-growing farms. In the district of Werra-Meißner, the proportion of fodder plant-growing farms is above average in the case of low-income households. Only one fifth of these farms are run as commercial fruit farms, while this proportion is more than a third among households in the upper quartile.

Owing to variable earning capacity and occupational structure, incomes also have quite a variable make-up. In the case of low-income households in the Emsland district, less than half the household income comes from agriculture; in the case of the Werra-Meißner district, this proportion is in fact only just over a third. Off-farm earned income contributes just under 40% of gross household income in Emsland, and close on 60% in the district of Werra-Meißner. Transfer income also makes up part of the total budget, which in the lower quartile is higher than on average for the survey households in the regions in question.

According to the results of this simple evaluation, income problems may most frequently be expected

- in larger households that have above-average numbers of children or people of retirement age;
- if farm managers have had only ordinary school education and vocational training or none at all;
- where found among farms of above-average production capacities, to be associated with a restriction to fodder plant-growing. particularly in the district of Werra-Meißner

These characteristics of lower income groups corroborate the results of previous case studies (12) and are presumably plausible without further substantiation.

Table 1: Characteristic values of agricultural households according to groups of household income per consumer unit

Characteristic value	Unit	Administrative district of Emsland				of Werra-Meißner-Kreis			
		Lower quartile 1)		all households	upper quartile	lower quartile 1)		all households	upper quartile
Income									
per consumer unit	DM/year	8 928	***	19 572	31 926	7 898	***	17 958	30 632
per household	DM/year	37 603	***	74 720	112 538	27 757	***	58 273	89 318
of which agricultural	%	46.65	***	57.66	64.49	34.99	***	45.46	60.62
off-farm earnings	%	39.74		34.47	29.67	58.49	***	49.71	35.26
transfers	%	12.18	***	5.71	2.91	5.32	***	2.28	1.30
property	%	1.43		2.17	2.93	1.19		2.55	2.83
Household size and structure									
Persons per household	number	5.74	***	5.42	4.93	4.68	**	4.58	4.03
of which under 15 years	number	1.44	***	1.00	0.68	0.89	**	0.75	0.48
15 and under 65 years	number	3.18	***	3.65	3.71	2.84		3.08	3.14
65 years and over	number	1.12	***	0.76	0.53	0.92	***	0.73	0.35
Information on farm managers									
Age	Age	43.29		43.70	42.92	44.37		45.99	46.44
Females	%	0.93		0.93	0.00	3.17		3.57	1.59
With secondary school education	%	11.21		12.38	17.76	14.29		16.67	20.63
Who passed school leaving exam	%	0.00	**	1.87	4.67	7.94		5.16	7.94
Who received non-agricultural training	%	12.15	**	9.81	4.67	41.27		41.67	34.92
Who served agricultural apprenticeship		48.60		46.73	41.12	36.51		39.29	39.68
Who attended technical college	%	23.36	**	15.65	10.28	19.05		11.51	9.52
With master craftsman certificate	%	8.41	***	18.22	30.84	1.59	***	8.33	15.87
Who studied agriculture	%	0.00		0.47	1.87	0.00	*	1.19	4.76
With off-farm gainful employment	%	27.10		25.70	21.49	53.97		57.14	49.21
Farm size and factor input									
Standar farm income	DM	48 726	***	65 768	83 336	33 755	***	46 258	79 904
Utilized agricultural area	ha	27.58	***	35.44	45.07	26.41	***	36.60	66.04
of which leased	%	17.83	***	21.68	26.25	32.68	**	35.62	42.94
Livestock	CU	30.04	**	34.24	45.68	6.11		7.27	10.81
Labour input	Workers	1.51		1.66	1.65	1.72		1.63	1.83
of wich family members	Workers	1.51		1.63	1.60	1.67		1.56	1.61
non-family members	Workers	0.00		0.03	0.05	0.05		0.07	0.22
Farm type on the basis of standard gross margins									
Fodder plant-growing	%	44.86		47.20	37.38	63.49		55.16	50.79
Commercial fruit	%	6.54		5.84	6.54	19.05	**	26.98	34.92
Processing	%	33.64		33.64	39.25	3.17		3.57	4.76

1) Probability of different mean value for the lower as opposed to the upper quartile (t-Test): *** p>0,99; ** p>0,95; * p>0,9.

4 FACTORS DETERMINING HOUSEHOLD INCOME

Income per household in logarithmic form, and not income per consumer unit, is now used as a dependent variable in the following regressions that explore the factors determining household income. This household-level approach has the advantage of allowing for an easier interpretation of parameter estimates in terms of their income effects. However, allowance must be made for household size and structure via separate variables.

The human capital theory assumes that personal earned income is crucially determined by the training and professional experience of the individual under consideration (2; 5; 9). If it is assumed that the largest part of a household's income is realised by the head of the household, i.e. in this case the farm manager, the farm manager's human capital must also show an effect on the level of household income. A further effect can be deduced from the observation that the training received by parents is very important for the choices made by their offspring as regards training and occupations (4; 8) and thus for the earned income of younger household members. In order to characterise the training status of farm managers, three dummy variables were used as regressors, which are explained in Table 2. A positive coefficient is expected for all three variables since, on the basis of higher-level training, income potential rises within agriculture or in an off-farm activity.

Irrespective of training, typical age-earnings profiles should appear when plotted in graph form (5), although these must not be interpreted as illustrating individual earnings development in connection with cross-sectional analyses. "The incomes of older people tend to grow at a slower rate than those of younger people, and so the earnings of a particular age group turn out to be comparatively lower over time than those of younger age groups ." (5, p92). The human capital theory accounts for this observation by a fall in the profitability of human capital investments on account of the constantly contracting payback period, i.e. the remaining duration of future gainful activity. Investments in fixed capital accordingly decrease on farms as a function of increasing age (11).

If the farm manager is still at the training stage (on account of college studies, agricultural or other vocational training), it can be assumed that the human capital-related income potential has not yet been fully utilised. A minus sign can thus be expected for the variable FMTRAIN. An off-farm gainful activity for the farm manager is denoted by the variable FMGEOF. It is known from agricultural statistics that managers of farms with a low level of earning capacity attempt more frequently to improve their income, and hence the household income, by off-farm activities. Should they manage on average to make good the income disadvantages in comparison with (main-occupation) farmers with larger farms, the variable FMGEOF should not show any effect on household income. According to the results of the German agricultural reports (1) which, however, relate only to the married farm-owning couple, secondary occupation farms have on average achieved even higher total incomes than main occupation farms. Should this phenomenon also be confirmed for household income overall, a plus sign would be expected.

Table 2 Mean values and standard deviations for the regression variables

Variable		Mean value	Standard deviation
AGE	of the farm manager (in years)	44.781	13.069
DAS	farm manager has completed secondary school education of taken school-leaving exam (1 = yes)	0.181	0.431
DANA	farm manager has passed non-agricultural professional examination (1 = yes)	0.258	0.490
DAL34	farm manager has passed agricultural professional examination	0.142	0.391
FMTRAIN	farm manager currently training	0.00868	0.104
FMGEOF	farm manager gainfully employed off-farm (1 = yes)	0.410	0.551
PZCHI	number of children under 15	0.883	1.261
OTHTRA	number of other household members undergoing training	0.575	0.985
OTHEROF	number of other household members with off-farm gainful employment	0.732	1.033
NUDOTH	number of other persons (15 to less than 65 years old)	2.065	0.885
NUMELD	number of persons aged 65 and upwards	0.731	0.872
HALF	farm size in hectares of UAA	36.097	42.477
CU90	1990 livestock units	20.890	41.323
DISTRICT	administrative district (1 = administrative district of Emsland, 2 = district of Werra-Meißner)	1.496	0.560
JEKGSSUM	Household income in DM per person	66 799	38 232

Source: Own calculations based on data from the Rural Regions Project Group, 1991 survey

Household size and structure are closely bound up with the age of the head of the household. Thus, a typical correlation is apparent between the family cycle phase, household size and the scale of off-farm occupational participation (13). This effect on household income is separately checked by taking account of the number and occupational participation of the other household members. The number of children living in the household (up to 15 years of age) is represented by the variable PZCHI. The higher this number, the higher should be the time that must be spent on child-minding and housework by one or more household members. This ties up working time which might otherwise have made an income contribution, perhaps on the farm or in some other gainful activity. On the other hand, State transfer benefits such as child benefit exist which help increase household income in line with the number of children. Older children may, particularly on family farms, also contribute to agricultural income by undertaking minor tasks. The empirical analysis must show whether and in what way the combination of effects mentioned influences the level of household income.

If older household members (aged 15 upwards) are still training, their number is indicated by the variable OTHTRA. A certain element of individually available time is in the case of these household members tied up with training and further training, which may be regarded as an investment in human capital. Nevertheless, income contributions to household income may also be expected from these persons, with these contributions possibly consisting of State transfer payments (e.g. grant) or a training allowance. Income contributions may also arise if some of the available time is spent on farm work. An increase in household income is usually associated with the number of people gainfully employed off-farm (OTHEROF) A plus sign is therefore anticipated for parameter estimates. The number of other people living in the household (aged between 15 and 65) covers those who are neither training nor gainfully employed off the farm. People active within the household are chiefly concerned. However, these individuals are in many cases also employed as family members to help out on the farm and thus contribute to an increase in household income. A plus sign may therefore also be expected for the variable NUDOTH. The number of elderly household members (aged 65 upwards) is covered by the variable NUMELD. Here, too, a positive impact on household income is expected as a result of help on the farm and transfer payments (old age pensions).

The farm situation is characterised by only two variables. Although other farm-related variables were considered in earlier studies, they were unable to contribute significantly to clarifying the income scatter. If conditions otherwise remain the same, positive effects on household income are expected from the envisaged variables of farm size in hectares of UAA (HALF) and number of livestock units (CU90).

Affiliation to the administrative district of Emsland or to the district of Werra-Meißner is characterised by the variable DISTRICT. In order to take account of both study regions in a balanced way in spite of the varying number of households surveyed, the observations in the district of Werra-Meißner were given a weighting factor in the regressions and when calculating the mean values. The variables used are again summarised in Table 2 and described by the (weighted) means and standard deviations.

Various functional forms were tested in order to clarify the level of household income (Table 3). Models 1 - 3 which are described here use the natural logarithm of household income as a regressand. Logarithmising household income offers the advantage of being able to read off directly the percentage response of income to a change in the exogenous magnitudes. All the variables explained in the text were included in model 1, the variables AGE and AGE2 were dispensed with in model 2, while model 3 contains merely those clarifying elements which exhibit a level of significance of less than 10%. The regression calculations exhibit R^2 values of 0.4, which may be regarded as satisfactory for the income estimates. The parameters estimated have also proved to be comparatively robust with respect to various functional forms.

Table 3: Results of regression calculations (parameter estimates and, underneath, t values)

Variable	Model 1	Model 2	Model 3
AGE	0.033516 2.167**		0.036590 2.429**
AGE2	-0.000424 -2.468**		-0.000456 -2.704***
DAS	-0.008411 -0.138	0.007433 0.129	
DANA	-0.051090 -0.885	-0.047761 -0.830	
DAL34	0.286566 4.290***	0.317902 4.799***	0.295360 4.534***
FMTRAIN	-0.725263 -3.141***	-0.740657 -3.269***	-0.726533 -3.173***
FMGEOF	0.149601 2.838***	0.187779 3.641***	0.125149 2.565**
PZCHI	0.059682 2.892***	0.078469 3.966***	0.060016 2.913***
OTHTRA	0.184707 7.154***	0.185633 7.405***	0.187818 7.314***
OTHEROF	0.359017 15.220***	0.349222 14.880***	0.358073 15.203***
NUDOTH	0.187842 6.628***	0.185651 6.667***	0.191053 6.789***
NUMELD	0.048778 1.653*	0.071211 2.482**	0.048774 1.666*
HALF	0.004108 6.616***	0.004176 6.709***	0.004138 6.803***
CU90	0.000671 1.106	0.000870 1.434	
DISTRICT	-0105563 -2.111**	-0.108267 -2.207**	-0.131674 -2.853***
Constant	9.416536 27.735***	9.961212 86.015***	9.385744 28.575***
F-value	29.661***	33.050***	36.966***
R-squared	0.4019	0.3929	0.4001
Corr. R-squared	0.3884	0.3810	0.3893

The coefficients of the age variables show the expected signs in connection with the estimates of household income carried out here and prove to be significant. According to the regression results, the variables denoting a higher-level school education (DAS) and non-agricultural professional examination for farm managers show no significant effect on the level of household income. In contrast, higher-level agricultural training (DAL34)

proves a significantly positive determinant of household income. Survey households in which the farm manager has completed training of this kind achieve a roughly 30% higher annual income under otherwise identical conditions. The farm manager's occupational status also exhibits a significant impact on household income. If the farm manager completes another course of vocational training or general education, it must be assumed that a markedly reduced household income will be observed. In contrast, an off-farm gainful activity increases household income by approximately 12.5% (model 3) per annum.

Annual income also rises by about. 6% per child in the estimates according to the number of children under 15 (PZCHI). This amount cannot be attributed purely to child-related transfer payments (child allowance), but must also be interpreted in the context of the entire family group. The number of people of working age (15 to under 65) has also been considered in accordance with employment status. For an additional person who is still training or not gainfully employed, household income rises by on average 19%, and by as much as 36% in the case of persons gainfully employed. The number of persons over 65 exhibits a positive, albeit fairly modest, impact on the level of household income in the models.

Farm size (HALF) proves to be a highly significant determinant of household income in all the estimates, whereas no significant impact could be proved for the number of livestock units in the study farms. An increase in production capacities by 1 hectare leads on average to an income rise of 0.4% in the households studied.

The DISTRICT variable shows a universally significant impact on household income. In the district of Werra-Meißner, household income is also on average 13% lower than in the district of Emsland under otherwise identical conditions. This difference can be attributed only to regional peculiarities which could not be reflected in the variables studied. The constant shows a significant value in all the models. Irrespective of the variables considered, it must therefore be assumed that significant influences on household income could not be recorded here.

5 CONCLUSIONS

The capacity of the farms, as measured in hectares of utilised agricultural area, affects not only income from agriculture (7) but also, as expected, household income. In addition, however, household structure, occupational structure and the training status of the farm manager also prove to be significant determinants of household income. Nevertheless, it should also be pointed out here that just over half the income variation could not be explained by the regression variables included. However, the results for the variables included already allow a number of conclusions to be drawn on policy aids to improve the income situation.

Measures to improve the income situation of needy agricultural households call first of all for sufficiently precise identification of the target group. The identification of such households may in this context also be affected by the use of equivalence scales like the consumer units used here. Assessing the social situation of particular household groups therefore calls for far more information on household size and composition or on the age

and occupational structure of household members than has so far been found in the agricultural report or the agricultural statistics.

One possibility for improving the income of a target group of agricultural households - however such a group is defined - is farm growth, which may be supported by agricultural policy programmes. However, extending farm income capacities is not the only possible way of increasing household income. The training status of the farm manager in the agricultural sphere also proves to be an important determinant of the income situation. However, good general education and vocational training also make it easier to find employment outside agriculture and have a positive impact on the wages or salaries to be expected. Areas to be addressed by a policy to improve income thus embrace the provision of an adequate range of training and further training schemes that not only covers the agricultural sphere but also allows for first-class non-agricultural vocational training. The results of the study show that household income in the households surveyed is positively affected when the farm manager or other household members are gainfully employed off the farm. Income improvements for agricultural households as well may therefore be expected from policy measures to promote jobs in rural areas. These effects are even reinforced in that, if activities shift to the off-farm sphere, production capacities (land) can be made available for those farms remaining.

Although a large number of the households studied have clearly managed to compensate for deficient or declining farm income capacities by means of off-farm activities or transfer income, because of the low incomes per consumer unit it must be assumed that a certain proportion of the survey households are suffering income problems. The policy actions specified will in this connection not be able to help resolve these problems in every individual case. To this end, other social policy measures such as income support or housing benefit have therefore been conceived which are intended - even for agricultural households - to guarantee a minimum level of provision irrespective of the cause of the low income.

Although the results presented here retain the nature of a case study on account of their being confined to two survey regions, it may be assumed that the determining factors investigated also exert a crucial influence on household income levels in other regions of Germany. In particular, the significant results for the district variable indicate that region-specific effects, which, however, could not be recorded here, are important for the income of agricultural households.

Further studies of the income situation in agriculture on the basis of representative cross sections or time series nonetheless call for much more extensive sets of data than have been available up to now. The findings which could be inferred from such sets of data would, however, probably be of great use for agroeconomic research and above all for practical agricultural policy.

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DISCUSSION

Third session *Results*

Berkeley Hill and Edward Cook presented the paper *TIAH statistics: main results and their interpretation.* In the discussion the view was expressed (taking up a point made in the paper) that the statistics, relating to a shrinking number of households over time, understate the degree of diversification that farmers have been undertaking. A cohort (panel) study was needed to reveal the true extent of this phenomenon. Another comment referred to the decline in the relative superiority of agricultural households in Germany seen in the series of income results from 1972 onwards; this could be expected for economic reasons quite separate from the impact of policy. Other points in the discussion raised issues that for which the aggregate TIAH statistics were incapable of providing an answer (such as the relationship of income level and composition to the educational standards of farmers).

In response Mr Hill stated that TIAH statistics represented an important step in agricultural statistics, and Eurostat should be congratulated on its decision to develop them. They were still the only harmonised source of information covering all Member States. Nevertheless, the statistics had known limitations, which had been pointed out in this paper and in the one dealing with TIAH methodology. The sorts of policy questions that concerned the distribution of incomes required suitable microeconomic information, and where possible this should be complementary to the TIAH statistics in terms of definitions. However, the EU was a long way from having this sort of household-level data available.

Following the *Overview of microeconomic results in OECD countries and OECD policy interests: characteristics of incomes in agriculture and the identification of low incomes* by David Blandford (OECD), attention was drawn in the discussion to the differences between the sources of data and methodologies used by the various OECD Members represented in the tables. This raised doubts about the robustness of some of the conclusions drawn. Comparisons between the incomes of agricultural households (whose definition varied widely between countries) and other households should acknowledge, *inter alia,* differences in ages of the people involved and the amounts of human capital they represented. Observed differences might need quite a complex explanation. However, it was also noted that where farm families are involved in non-farm occupations, this should not be interpreted simply as their response to pressures on their incomes from farming. The paths leading to pluriactivity are many and varied, and the combination of agriculture with some other activity in many cases is a stable relationship, with no intention either to become full-time farmers or to leave farming altogether.

Mr Blandford's view was that a household-centred approach was now required. Viewing agricultural incomes solely in terms of the production branch or the theory of the firm was inadequate and outdated. He agreed that there was a need for microeconomic data that was comparable internationally. OECD and Eurostat were already co-operating in the production of aggregate Economic Accounts for Agriculture that covered both EU Member States and the other countries in the OECD, and this might form a model for developments in microeconomic statistics. OECD's need for and use of such income statistics needed to be put in context. It was inappropriate for OECD to judge the

correctness of equity issues that form part of policy; its role was confined to analysing the outcomes of what governments (and the EU) actually do. On this basis, supporting the prices of agricultural products was clearly inefficient at achieving declared policy aims. Similarly, regional problems exist, but evidence points to the ineffectiveness of supporting the incomes of farmers as a way of achieving them.

SESSION 4
POLICY AND STATISTICS - IMPLICATIONS OF RESULTS

Chairman: A. Larsen, Institute of Agricultural Economics, Copenhagen

WHAT ABOUT THE "INCOME PROBLEM" OF AGRICULTURE IN DEVELOPED ECONOMIES?

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SUMMARY

The view that agricultural incomes systematically lag behind non-agricultural incomes is disproved by the finding that agricultural households have non-agricultural incomes and that these are steadily increasing. These incomes are empirically verified, theoretically explained and examined in terms of their consequences.

1 INTRODUCTION

Apart from safeguarding supplies of foodstuffs for the population, the predominant aim of systematically developed agricultural policies in most (Western) industrialised countries in the wake of the world economic crisis and particularly after the Second World War is still to eliminate the income gap between people working in agriculture and others in gainful employment (OECD, 13). Although the individual countries differ in terms of the nature, format and intensity of the agricultural policy instruments devoted to solving this "income problem" and also with regard to the yardsticks and the scale of the agricultural "income disparity" measured with such yardsticks, there is a general consensus that there exists a systematic and persistent gap, albeit one of variable size, in remuneration between agricultural factors of production and those used outside agriculture, that this "income problem" is socially undesirable and that State intervention is therefore needed to iron out the agricultural income problem.

Extensive "agreement" also exists on the main causes of the income gap in agriculture: this gap is chiefly seen as resulting from agriculture's lack of ability or opportunity to adapt structurally to the economic parameters which constantly change in the course of economic development in such a way that balanced factor remuneration is achieved. Increasing wages bring about a continuing substitution of labour by capital, a process made possible by new labour-saving but capital-intensive production techniques. In addition to constant progress in agricultural technology, the supply of agricultural products which is thus increased is, however, matched by only slight growth in demand (Engel's Law), which is why the agricultural terms of trade steadily deteriorate in the longer term and thus intensify price and incomes pressure on agriculture[22].

[22] A very vivid, though highly problematic, description of these agroeconomic links has of course been provided by Cochrane (5) in his theory of the agricultural "treadmill".

However, the general view is that considerable impediments to mobility stand in the way of this necessary adaptation of the agricultural structure in the form of a rapid migration of workers. These impediments are seen as consisting chiefly of the absence of non-agricultural employment opportunities in rural areas, the necessity for agricultural workers to have professional qualifications, the rise in the ratio of older workers to the total population and their high mobility costs, and not least of all in a lack of willingness to move. Thus, even a fairly recent OECD study concludes its quantitative research (14, p69) by stating that "although these analyses do not exclude the possibility that more narrowly defined categories of farm labour supply and demand are sensitive to events in the rest of the economy, it does indicate that aggregate hired and family labour do not show consistent evidence of being sensitive to macroeconomic and general labour market conditions over the short run".

Virtually as the necessary consequence of the inadequate structural adaptability of agriculture, disparate factor remuneration arises with respect to the rest of the economy. This is empirically confirmed in the finding by the OECD (13, p57 *et seq.*) for virtually all Member States that "the evolution of agricultural sector income per head as a percentage of income per head in the economy as a whole (one measure of relative income) . demonstrates that over a long period since 1960 and with very few exceptions, relative incomes in agriculture have declined or remained stable" and consequently "the narrowing of income disparities within agriculture has not been achieved".

Disparity in factor remuneration

This conclusion of a persistent disparity in agricultural income is reached by the OECD by comparing the individual gross value added achieved per person gainfully employed in agriculture with the gross value added per employee on average in the economy as a whole. However, the OECD then notes (13, p57) that "a considerable number of farm households in all OECD countries benefit from off-farm sources of income. This means that many farmers can continue to survive in the sector despite very low, or even negative incomes from farming". Particularly in its most recent 1994 study (14, p21), it highlights "the view of the pluriactive farm household as having adopted an income-generating strategy which is rather successful". It justifies this assertion by stating that "the plurality of incomes enables the family to enjoy a level of income and savings greater than that of the neighbour who emigrated to a distant city and went to work in a modern firm, in spite of the latter's high wages".

It can first of all be concluded from this observation by the OECD that it is normal for people employed in agriculture to find non-agricultural work and income opportunities in rural areas to supplement their low agricultural incomes in this way. However, it could also be concluded from this that a comparison of agricultural value added per person gainfully employed in agriculture with the value added achieved per person gainfully employed in the economy as a whole represents a largely unsuitable yardstick for gauging the "income disparity" which exists between sectors. After all, reference to the multiple employment which is frequently to be found for workers statistically allocated to agriculture certainly signifies that the value added of people employed in agriculture is underestimated and that that of non-agricultural employees is consequently overestimated, since the non-agricultural value added of workers partly employed in agriculture is allocated not to the

latter but to non-agricultural employees. The results of an intersectoral income comparison of this kind are thus correspondingly distorted[23].

2 AGRICULTURAL HOUSEHOLD THEORY

This "importance of part-time farming and pluriactive farm households" which has been emphasised by the OECD (14, p29) and which is observable in many industrialised countries has in recent years attracted the increasing attention of agroeconomists and agrostatisticians. Statisticians have endeavoured to arrive at a proper definition and delimitation of secondary and full-time occupation farms in order to quantify the importance of agriculture carried on as a secondary trade[24]. By contrast, agroeconomists have sought a theoretical explanation for the pluriactive farm household.

This explanation was found in the form of the agricultural household theory, which exists in an extension of the (neoclassic) household labour supply model developed chiefly by Gary Becker (3)[25]. According to this theory, a non-agricultural household strives in the same way as an agricultural household for an efficient allocation of the time available to it such as to maximise the total utility. This is achieved as soon as the marginal utility (marginal pay) of the working hours used to realise income matches the marginal utility of the leisure time. If the working hours which are usable on the farm are competing in terms of use with a non-agricultural application, the farm work is extended until the marginal income from the work which can be realised in this connection has achieved the marginal income (wage rate) from a non-agricultural gainful activity. In Figure 1, this is the case with farm working hours of H^L_3, which leads to an agricultural income Y^L_3[26]. If the wage rate exceeds the marginal agricultural earned income in the area of the working hours offered, it will combine both activities (which may also occur as a result of intra-familial

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[23] Schmitt gives this point detailed treatment (16). A similar false estimation of the income disparity ensues from the frequently undertaken comparison of the proportion of the national product accounted for by agriculture with the (higher) proportion of agricultural workers in the entire pool of those gainfully employed. A false estimation of this kind also results from the so-called "comparative accounts" which, under the German Agricultural Law of 1955, are submitted by the Federal Government each year for so-called full occupation farms. Their agricultural income is in this connection compared with the notional income whichresults if the factors of production used in the farm are assessed with non-agricultural factor prices (industrial workers' wages and market interest). Above all, the non-agricultural income achieved by the other family members is ignored in this connection (18).

[24] The relevant definitions of agricultural main and secondary income holdings frequently diverge sharply from one another. For example, in the Federal Republic alone full income holdings are sometimes differentiated from secondary income holdings on the basis of the overwhelming proportion of the income of the married farm-owning couple being farm income (as opposed to non-farm income), at other times on the basis of a specific proportion of agricultural income in the total income of the farm-owning couple, and also at times on the basis of whether the farm owner is fully or only partially employed on the farm. However, these estimates all show that the proportion of farms managed as a sideline has increased and is currently more than 50% (20). According to information from Eurostat, 43.4% of farm owners, 10.5% of spouses and 31.0% of other family members carried on a non-agricultural gainful activity in 1989/1990 in the Federal Republic. In France, the corresponding proportions were conversely 27.3%, 18.2% and 21.8%.

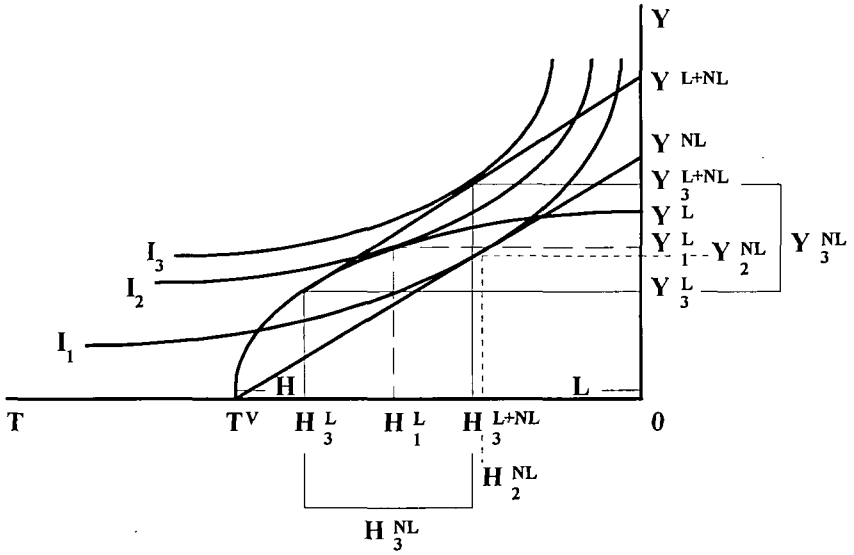
[25] This theory of the agricultural household is actually attributable to Alexander Chayanov (24) and his theory of the rural family economy (17).

[26] This study has to confine itself to reproducing the basic model of the household theory and dispenses with any modifications and additions. For more detailed descriptions, see inter alia Schmitt (15) and Witzke (25) and the literature quoted therein.

division of labour), and, with a non-agricultural labour input H^{L+NL}_3 (total working hours) - $H^{L}_3 = H^{NL}_3$, achieve a total income Y^{L+NL}_3.

On the basis of Figure 1, it is easy to understand that this income combination of agricultural and non-agricultural gainful activity leads to a higher household income than just agricultural gainful activity, and also than just non-agricultural gainful activity. With gainful activity (working hours) H^{L}_1 restricted purely to the farm, only an income Y^{L}_1 would be realised; with purely non-agricultural working hours H^{NL}_2, only an income Y^{NL}_2 would be realised. The occupational combination thus proves not only to be efficient but also to be economically more advantageous than a use of working hours that is restricted merely to agricultural production or to non-agricultural aspects, a fact which is borne out by the above-mentioned finding by the OECD (14, p21).

Figure 1 Basic model of the income combination of agricultural households



Legend:

Y	Income	H	Working hours
Y^{L}	Income from agricultural gainful activity	H^{L}	Working hours for agricultural gainful activity
Y^{NL}	Income from non-agricultural gainful activity	H^{NL}	Working hours for non-agricultural gainful activity
Y^{L+NL}	Income from agricultural and non-agricultural gainful activity	H^{L+NL}	Working hours for agricultural and non-agricultural gainful activity
T	Time	L	Leisure time
T^{V}	Available working hours and leisure time	I	Indifference curve

However, this theory of the agricultural household can claim to be empirically relevant only if farms are managed by an agricultural household. The overwhelming majority of farms in developed industrialised countries are actually organised as "family farms"[27].

[27] Although quite varied criteria are presented for family farms, most definitions tally in highlighting the dominance of employment of family workers vis-à-vis that of non-family (wage-earning) workers. According to information from Eurostat (7), 22% of agricultural workers calculated in annual work units in EUR 12 were wage-earners in 1972 and also in 1992. There likewise existed major differences in changes over time in the individual Member States (21).

Thus, almost 99% of all farms in the USA are regarded as family farms (3, 1993), while 98.6% of all farms in EUR 12 are designated as "being under the responsibility of a natural person", i.e. as family businesses (6, p37 *et seq.)*.

Merely from these references to the empirical relevance of the theory of the agricultural household, it follows first of all that the customarily supported theory of the farm as an enterprise specialising in the production of agricultural produce ("the farm as a firm") is not suited to clarifying the economics of agriculture[28]. It also follows that the distinction frequently drawn between full and secondary occupation farms is merely a formal and thus an arbitrary one, particularly as probably all agricultural households derive non-agricultural income from property and in the form of social transfers and in many cases from non-agricultural gainful activity as well[29].

3 EMPIRICAL RELEVANCE OF THE THEORY

The empirical relevance of the theory of the agricultural household and the significance of non-agricultural gainful activity and the non-agricultural income gained in consequence on the part of members of these households which is to be accounted for using this theory has in the meantime been confirmed by numerous empirical analyses, admittedly almost without exception on the basis of statistical information on secondary occupation farms[30]. This comment needs to be made here, as the distinction between secondary and full-time occupation farms (part-time and full-time farming) would convey the misleading impression that only secondary occupation farms would have non-agricultural (earned) income, but not full-time occupation farms, an impression which is in many cases also further reinforced by agricultural statistics which differentiate between farms in this way[31].

It is true, on the other hand, that virtually all agricultural households have non-agricultural income, and not just in the form of transfer and property income. Ahearn, Perry and El-Osta (2, p.vii) have recently determined for all 1.7 million American farmer households that on average during 1988-1990 "nationally 44 per cent of farm operators have a nonfarm occupation as their major occupation" and that "off-farm income is the major source of income of most farm operator households". Corresponding estimates by the Federal Statistical Office which had been projected for 1983 revealed that only 27.2% of the gross income realised by all agricultural households was realised from agricultural wages and salaries, whereas 42.2% was realised from non-agricultural wages and salaries and 15.6% from transfers received (19, p184).

These references to the great and increasing importance of non-agricultural income in agricultural households do not yet of course answer the question whether the total income

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[28] This thesis of the "farm as a firm" also implicitly underlies the estimates of agricultural income disparity referred to above. The main reasons why agricultural production is mainly organised by family farms are to be seen as being the slightly pronounced "economies of scale and scope" and also the comparatively higher transaction costs for the employment of wage-earning staff instead of family workers (17).

[29] Cf. in particular Ahearn et al. (2), according to whom "in about 60 per cent of farm operator households, either or both the farm operator or spouse earned off-farm wage and salary income" in 1990.

[30] See inter alia Lass, Findeis and Hallberg (11) and Schulz-Greve (22) and the literature quoted therein.

[31] Cf. footnote 3.

realised reaches the level of comparable non-agricultural households[32]. Ahearn et al. (2, p. vii) state that "the average income of farm operator households was $39 007 in 1990. Only $5 742 of that was from their farms" and "most off-farm income comes in the form of wages and salaries ($17 174). The average off-farm income in 1990 was $33 265, or 85 per cent of their total household income". And: "The average household income of farm operators is similar to that of the average U.S. household". Gardner (8, p81) has recently drawn attention to the "rapid convergence of farm and non-farm income in the 1960s" which has been observable in the USA and to the fact that "in the last half of the 1980s farm income was substantially higher than nonfarm income". Gardner infers from this that "it is hard to conclude that a sector-wide farm income problem exists any longer" (p82) and in particular that "yet while the farm problem disappeared during the post-war decades, the interventions . in order to control supplies and increase farm prices . did not, and indeed increased" (p85). The latter certainly also applies to European industrialised countries. However, the alignment of agricultural with non-agricultural income which was observed in the USA was not observed in European industrialised countries, admittedly only because corresponding statistics on income realised by agricultural households are with few exceptions not available in these countries[33]. As a result, agropoliticians and most agroeconomists refer to statistics on agricultural income realised per farm or per worker in order, by comparing such income with the income realised per non-agricultural worker, to relate the size and permanence of the income gap in agriculture to the need for income-related agropolicy measures[34].

Empirical evidence in Germany

However, one of these exceptions is the Federal Republic of Germany, where the Federal Statistical Office (cf. (23)) has since 1972 annually presented estimates of the income of private households in the various socio-economic household groups, i.e. those comprising manual workers, non-manual workers, civil servants, the self-employed including farmers, and various people not gainfully employed. These "farmer households" are households in which the "reference person" (generally the person who makes the greatest contribution to supporting the household) derives the main income from an agricultural occupation, i.e. essentially full or main occupation farms identified in the Federal Government's agricultural reports (17). Figures 2 and 3 are derived from this source.

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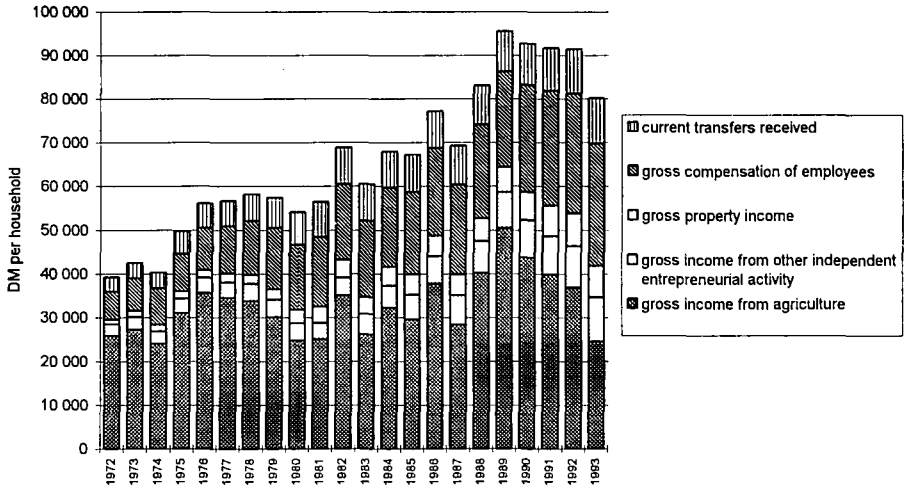
[32] Figure 1 reveals that the total income of a household that carries on an agricultural occupation is always above that of "comparable" households if the same wage rates (opportunity costs) and an identical size and structure for the households are assumed.

[33] A summary of information currently available on this in the EU is provided by Hill (10).

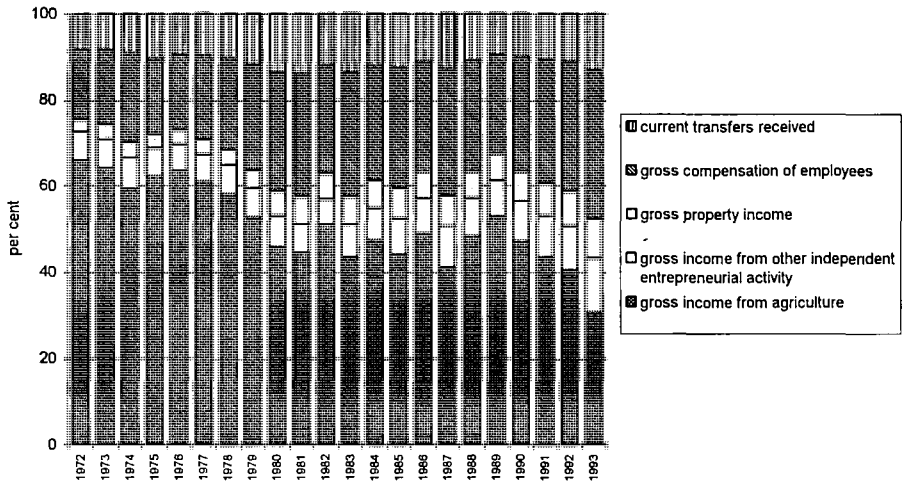
[34] See footnote 2.

Figure 2 Composition of the gross income of farmer households



Source: Federal Statistical Office

Figure 3 Percentage composition of the gross income of farmer households



Source: Federal Statistical Office

The incomes of farmer households which are determined by the Federal Office reveal the following in comparison with other comparable household groups;

(1) Over the period 1972 - 1993, the disposable household income of these farmers rose by 65% (based on the three-year averages for 1972/74 and 1991/93). This rise was accompanied by a continuous change in the composition of household income since, in addition to agricultural earned income, farmer households derive income from property, social transfers, non-agricultural independent activities and above all from dependent employed work. Income from agriculture has increased by 31.5%, while income from non-agricultural (independent and dependent employed) gainful activity has increased by 236.9% and 269.3% respectively, that from property has risen by 437.6% and that from social transfers has risen by 192.3%. The income percentage of gross income accounted for by agricultural gainful activity correspondingly fell from 63.2 to 38.2%, while the percentage from non-agricultural gainful activity rose from 18.1 to 31.2%[35].

(2) As confirmed by corresponding econometric analyses (4), this change in the cross-distribution of income is the consequence of a corresponding reallocation of factor use which has been induced and controlled by the rise in the industrial wage rate (as an indicator for the opportunity costs of family work), the labour market situation on the one hand and the development of labour productivity in agriculture and the agricultural terms of trade on the other[36]. It is precisely this which the theory of the agricultural household leads one to expect. The theory of the agricultural household thus also proves a suitable tool for analysing households and full-time farming, including larger farms which employ not only family workers but also wage-earning staff.

(3) According to the theory of households engaged in agriculture (as both a secondary and a full-time occupation), the total income achieved must necessarily be higher than that for comparable non-agricultural households since, according to this theory, an agricultural gainful activity is practised only in so far as and until the value marginal product of the work (still) achieved in this connection exceeds its opportunity costs. Figure 4 in fact shows that the disposable income of farmer households is above that of manual worker households and is roughly on a par with that of non-manual worker households (even though the absolute and relative lead has shrunk in recent years)[37]. It is accordingly not possible to speak of an income disparity in agriculture. This is particularly to be stressed with regard to the Federal Republic; however, it is

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[35] In 1983 this proportion of income from agricultural activity still amounted to 63.5% of gross income and that from dependent non-agricultural gainful activity amounted to 26.3%. For 1983, the Federal Office has also estimated the income of agricultural households which carry out farming as a secondary occupation (260 000 secondary occupation households as compared with 353 000 farmer households). The proportion of total household income accounted for by agricultural income in these households was 4.9%, whereas that from non-agricultural gainful activity was 62.2%. It is also noteworthy that the gross income of farmer households, namely DM 58 441 per household, was lower than that of the other agricultural households (DM 63 000). However, disposable income was DM 41 241 as compared with DM 46 173 (19).

[36] The results of these estimates are reproduced in Table 1 in the annex.

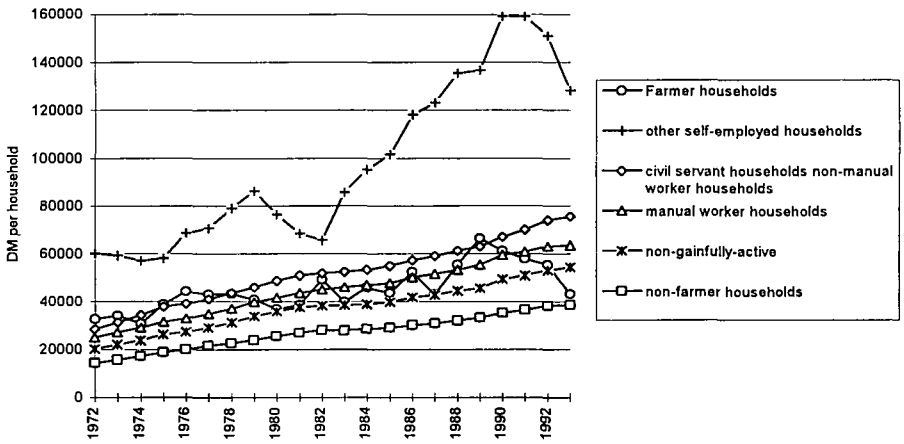
[37] On the basis of Figure 1, it can easily be understood that with non-agricultural income accounting for a rising proportion of the household's total income, the lead over comparable non-agricultural households must shrink.

particularly the case with this country that agriculture is "structurally" particularly "disadvantaged" in comparison with other western European countries and is consequently characterised as suffering from a particularly marked "income problem" - especially as the non-agricultural wage and income level is comparatively very high[38].

Comparisons of household income

With regard to a comparison of farmer households with manual and non-manual worker households, the question of course arises whether and to what extent the latter are actually suitable to serve as a relevant reference group. This question cannot be examined in further detail here for reasons of space. It should merely be mentioned that such a comparison is more justifiable with manual worker households, as the (average) level of professional qualifications of farmer households comes very close to that of manual worker households, although the mostly disparate size and structure of the households should be allowed for when carrying out a comparison: farmer households are as a rule larger than non-agricultural ones and also differ in terms of the age structure of household members, two facts which, as is well known, cannot help but influence the level (and structure) of the household income concerned[39].

Figure 4 Disposable annual income of private households



Source: Federal Statistical Office

If such factors are taken into account, it is even more clearly confirmed that it is not possible to talk of a more or less marked income disparity to the disadvantage of

[38] As a reason for the supposedly "overall less favourable income situation of German farms in comparison with the Benelux countries, Denmark, France and the United Kingdom", the Federal Government's agricultural report (1) on the agricultural situation refers chiefly to "the poor equipping" of German farms "with factors of production".

[39] Cf. (19).

agriculture as a whole or, consequently, of an agricultural income problem. The non-existence of this income problem, which had previously been regarded as being virtually characteristic of agriculture, is primarily attributable to the fact that "agriculture" in developed economies has been integrated in a varied and systematic way into the overall economy and has in any case lost its previous "special position". This economic integration means that the opportunities for adaptation that a functioning market economy offers to all trading parties are thus open to agriculture, and the arguments and views presented merely confirm that those engaged in agriculture generally make use of these opportunities for adaptation in a highly successful way by virtue of their pursuit of profit[40].

However, this finding is not (as might be concluded from this study) confined to the Federal Republic of Germany. It is confirmed wherever agricultural statistics provide information which is not just confined to the income opportunities of the farm but also covers the total incomes of agricultural households and their characteristics and structures. This is shown by the few relevant estimates carried out in various EU Member States (10), and in this respect Eurostat's endeavours to produce corresponding standardised statistics at EU level are not only to be warmly welcomed but also to be described as particularly urgent. For it is on the basis of such statistical information, which has largely been lacking up to now, that a rational agricultural policy can be shaped and its impact on the aim of achieving parity of income in agriculture can be monitored.

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[40] The integration of agriculture in the rest of the economy is, on the basis of the considerable adaptability of agricultural households, evident from the changing basic economic conditions. Accordingly, the change in the structure of the incomes of these households in the Federal Republic of Germany, as they have been depicted in Figure 3, could on the one hand largely be explained by the rise in industrial wages, the change in the labour market, the agricultural terms of trade and the development of labour productivity, as is shown by Table 1 (in the Annex). On the other hand, it was possible to find a close match between marginal factor productivity levels in farms and the opportunity costs of factors, as is to be expected from the theory of the household (9, 12).

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Table 1 Estimated multiple regression results to explain the percentage share of the gross income (total) of farmer households accounted for by gross income from agriculture

Independent variables	Households (total)	Households (total)	Households (total)	One-person households	Two-person households	Three-person households	Four-person households	Households comprising five or more people
	1	2	3	4	5	6	7	8
Constant	+ 2,77E+01	+ 2,16E+01	+ 2,74E+01	+ 5,38E+01	- 3,37E+01	- 3,20E+01	- 3,62E+01	- 2,54E+01
t.o.t.	+ 1,16E+01***	+ 8,71E+00**	+ 1,19E+01***	+ 7,48E+00***	+ 1,11E+01***	+ 1,16E+01***	+ 1,08E+01***	+ 1,23E+01***
GNP	+ 2,06E-03***	+ 1,89E-03***	+ 2,21E-03***	+ 2,09E-03***	+ 1,98E-03***	+ 1,91E-03***	+ 2,11E-03***	+ 2,23E-03***
OPK	- 7,57E+00***	- 1,01E-01***	- 6,90E-01***	- 6,20E-01*	- 5,89E-01***	- 6,00E-01***	- 7,09E-01***	- 7,32E-01***
AM	- 5,42E-01**	- 3,92E-01**	- 3,74E-01**	- 2,09E-03***	- 4,53E-01**	- 4,88E-01**	- 3,61E-01**	- 3,54E-01**
SP	+ 1,84E-06							
HHS		- 3,48E-01						
n	20	20	20	20	20	20	20	20
F-value	48,6***	51,7***	59,7***	39,0***	36,9***	38,4***	64,6***	78,4***
Corrected R^2	0,926	0,930	0,925	0,889	0,883	0,887	0,931	0,942
Durbin-Watson factor	1,99	2,23	1,93	1,91	1,87	1,67	1,97	1,94

Significance level *=10% **=5% ***=1% (not identified for the constant)

t.o.t. = agricultural terms of trade, GNP = Gross Net Product per person gainfully employed in agriculture (1991 prices), OPK = Index of agreed hourly wages for manual workers, AM = number of vacancies per 1 000 employed people, SP = State payments for agriculture, HHS= Household size

Source: Burose, C., 1994

AGRICULTURAL INCOME STATISTICS AND POLICY: A VIEW FROM SOUTHERN EUROPE

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SUMMARY

The paper suggests that a key aspect of the farm adjustment problem that has been neglected thus far is the distribution of income and assets within agriculture. Using data from Greece it is shown that income distribution within farm households is much more skewed compared with income distribution of non-farm households, and the pattern has not changed over time. It is suggested that current forms of farm support might have worsened the farm adjustment problem. Suggestions for further empirical analyses are made on the basis of relating asset ownership and non-economic issues with those of traditional income and consumption analysis.

1 INTRODUCTION

Agricultural policies in developed countries around the world have been largely conditioned by the farm adjustment problem. This refers to the problem of rapid decline in the farming population in response to declines in farm incomes relative to non-farm incomes. In the EUR 12 farm employment (measured by the volume of total labour input to agriculture in annual work units (AWU)) has declined by an average of 3% per year during the last 20 years. The volume of family labour input has also declined in the same period by an average of 2% per year. The normal measure that is utilised to support the argument of declining relative farm incomes is gross value added per person employed in agriculture relative to the same measure for non-agriculture. The logic behind this measure is that most farms are organised on a family basis, and own the bulk of their primary factors of production (land, capital, labour). Hence gross value added is a good proxy for the income of farm operators. In all OECD countries this measure is considerably lower than one. In EUR 12 it is approximately 38%.

Apart from the relative income problem, politicians have justified support to agriculture by a variety of other arguments. One concerns the issue of food security, namely the notion that a country should not be too dependent on imports for its domestic food consumption. Another relates to the perception that the farm population has a worse income situation than non-farmers. A third has to do with regional development objectives, agriculture being a major income source in some regions. Another relates to excess income instability of farm incomes due to the nature of agricultural markets. Others relate to rural social objectives, environmental objectives, etc. Nevertheless, the relative income argument has been the major force behind continued maintenance of supportive agricultural policies.

Support to agriculture in OECD countries has been substantial, with producer subsidy equivalents (PSE), namely the transfers to producers relative to the gross farm gate value

of agricultural production, averaging 45% in EUR 12, with the levels in the three new EU entrants being higher than that (1990 values). The support has been mostly in the form of maintenance of market prices, and much less in the form of direct payments to producers. In the course of the last 20 years the result has been a very rapid increase in labour as well as total factor productivity. In fact a recent OECD survey found that increases in average labour productivities in agriculture over the period 1973-1989 have been much larger than increases in the labour productivities of non-agriculture for all of the current EU 15 countries (OECD (8)). In EUR 12, the index of real net value added per AWU has increased from an average of 87.3 for the period 1980-83 to an average of 102.4 for the period 1992-94. Similarly the index of real net agricultural income per family AWU has risen from an average of 88.7 in 1980-82 to 96.8 in 1990-92 (Eurostat, (3)).

The research in the context of the TIAH project, however, has shown that the assumption behind the relative income argument in favour of agricultural support is not valid. The initial results (Eurostat, (4)) show that the total disposable incomes of agricultural households in almost all EUR 12 countries for which data is available are higher than the average disposable incomes of all households, by amounts that range from 8% (France, Greece) to 43-45% (Luxembourg, Italy), and as high as 128% (Netherlands), with Portugal being the sole exception to the rule where the difference is -19%.

While the TIAH project has raised doubts concerning the relative income argument for agricultural support, its results have concerned average incomes. The distributional issues in the context of agricultural adjustment, however, are equally important, and are likely to become more so in the future. It is the purpose of this paper to highlight some of these issues in the context of Greece, the country with the largest share of agriculture in GDP in the EU.

2 MEASUREMENT AND DISTRIBUTIONAL ASPECTS OF GREEK AGRICULTURAL INCOMES

Countries in southern Europe like Greece are characterised by weak fiscal systems. A consequence of that is that a major part of income goes unreported. In Greece the income declared by households for tax purposes is less than half of the national income as estimated by the national accounts. However, even the official national income is heavily underestimated, because of the existence of underground economic activities. Estimates of the underground economy in Greece range from 25-30% of reported official GDP (Pavlopoulos, (9), Negreponti-Delivani, (7)). This has two consequences. First estimates of incomes on the basis of macroeconomic magnitudes, such as the ones of TIAH are underestimates of true incomes. Second, microeconomic estimates of household incomes, based on household surveys, are also quite biased, as households tend to underreport incomes that they do not declare for tax purposes.

Table 1 compares different components of aggregate incomes, as derived from the official national account (NA) statistics and the household budget surveys (HBS) for 1982 and 1988. The comparison reveals that agricultural incomes and entrepreneurial and property incomes are heavily under-reported in the HBS. These in fact are the incomes that are least taxed in Greece. The table also reveals that the total private consumption expenditures are also heavily underestimated by the NA, in fact by amounts that are in

line with the estimates of the underground economy. This suggests that the TIAH procedure in Greece, that utilises the agricultural income from the national accounts is well justified.

The under-reporting of income by households in Greece, however, is not uniform among the various income classes, with the richer households being larger under-reporters than poorer ones. Figure 1 exhibits the ratio of the declared (in the HBS) total per capita income to the declared total per capita consumption expenditure (both including consumption out of own production and imputed rent), as a function of declared total per capita consumption expenditures for agricultural and non-agricultural households from the four available HBSs 1974, 1981/82, 1987/88, and 1993/94). Agricultural households are classified according to the main occupation of the reference person (the head of the household). The expected ratios are larger than one, as normally gross income should be larger than consumption expenditures. The figure, however, illustrates that this occurs only for poorer households. For the wealthiest households (both agricultural and non-agricultural) the ratios are lower than 0.6 suggesting that over half of the total income of these households is not reported in the HBSs. The pattern is quite similar for all HBSs.

Table 1 National aggregate income components in Greece from different sources (figures in billion current Drachmas, except as noted)

	1981/1982			1987/1988		
	HBS	NA	HBS/NA	HBS	NA	HBS/NA
Wages and salaries	958.3	950.4	1.008	2 844.6	2 689.9	1.058
Income from agriculture	161.7	359.8	0.449	426.7	912.8	0.470
Income from enterprise, property or profession	378.7	635.3	0.610	1 288.3	2 041.0	0.631
Pensions	261.3	272.6	0.959	1 214.3	1 015.5	1.196
Total disposable income	1 761.8	1 961.9	0.898	5 806.4	5 780.4	1.004
Consumption expenditure	2 169.3	1 558.7	1.392	6 444.9	4 724.2	1.364
Ratio of disposable income / consumption expenditure	0.612	1.259		0.901	1.224	

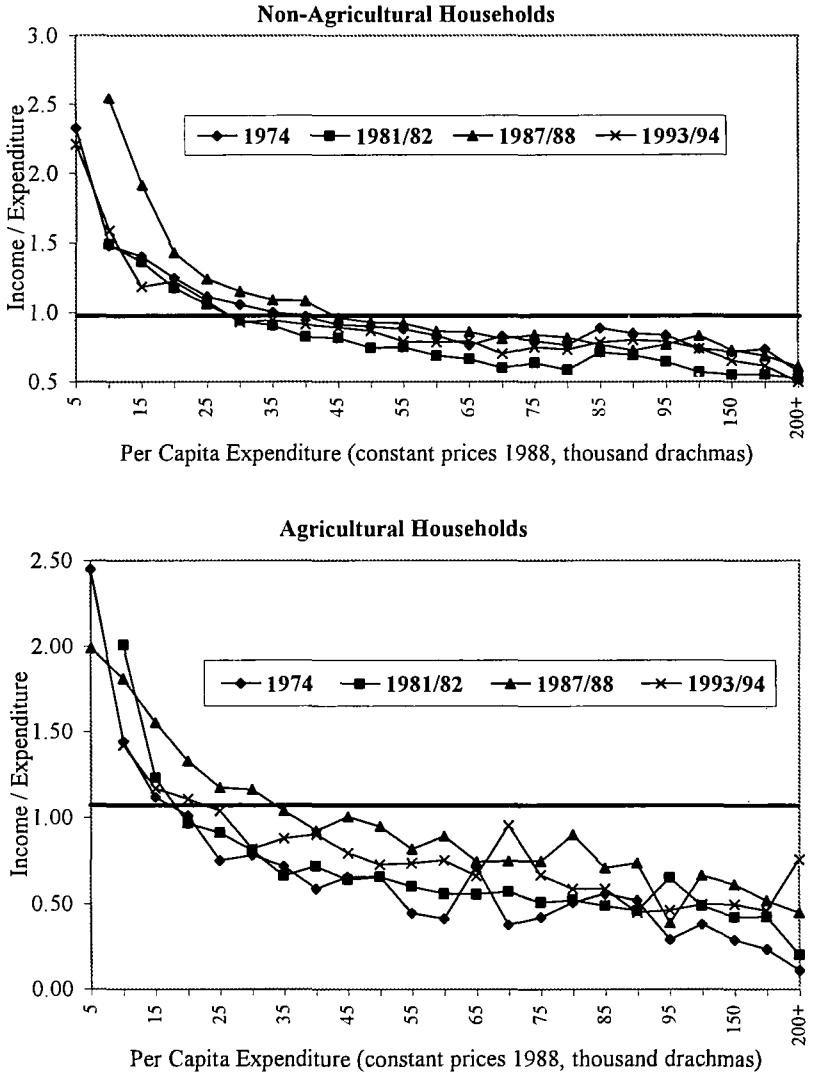
Notes: HBS - Household Budget Survey; NA - National Accounts

Source: Authors' estimates

The above observation leads to two conclusions. First, reported income is not a good proxy for doing distributional or poverty analysis in Greece with the use of HBSs, as it seems to be heavily biased. It is better to use expenditure figures. Secondly, the bias in income reporting might influence considerably the definition of agricultural households in TIAH, according to the income definition. Consider for instance a household that has under-reported its income significantly in the HBS. If this household has under-reported mainly its agricultural income, then it could be classified as non-agricultural while in fact it is agricultural by the income definition. The opposite would be the case if the household has under-reported mainly its non-agricultural income. As it is impossible to assess the degree of under-reporting by household types, the conclusion is that the TIAH definition of

agricultural households in Greece should be based largely on the reference person occupation.

Figure 1 **Relation of the Ratio of Reported Income to Reported Expenditure to per capita Expenditure**



The results of Table 1 leave one wondering about the way in which the HBS based income shares from diverse sources of various types of households can be reconciled with the national totals. One promising way to do this is in the context of constructing a Social Accounting Matrix (SAM) that involves various income groups. This tool by its

nature requires reconciliation between macro and macro data. The experience from constructing a SAM for Greece (Sarris, Anastasakou and Zografakis (11)) suggests that such reconciliation is possible.

3 INCOME AND POVERTY ANALYSIS OF AGRICULTURAL HOUSEHOLDS

Table 2 presents an analysis of the structure of incomes of three types of agricultural and non-agricultural households, namely poor middle and rich, as reported in the 1981/82 and 1987/88 HBSs. Total per capita monetary expenditure is used as the variable according by which to classify households. This is because consumption from own production, which consists largely of imputed rent, seems heavily under-reported, and furthermore, is very closely correlated with monetary consumption expenditures. Following widely accepted practice in developed countries, poor households are defined as those that exhibit per capita monetary consumption expenditures equal to half the average per capita consumption expenditures for all households. Rich ones are those that have per capita consumption expenditures larger than double the average. Middle ones are the rest.

Using the published consumer price deflators we have found that the average per capita consumption expenditure for all households in Greece in 1987/88 is only 2.3 percent higher than that of 1981/82. Hence the respective poverty lines in 1981/82 and 1987/88 are roughly the same, and the intervals classifying households are almost unchanged between the periods.

In 1981/82 agricultural households comprised 15.6% of all households and 18.3% of all people. By 1987/88 agricultural households comprised 11.9 percent of all Greek households and 14 percent of the Greek population. Given that the population of Greece hardly changed during the period (from 9.8 to 10 million) this suggests a rapid decline in the number of people living in agricultural households. By 1993/94, using a preliminary analysis of the most recent HBS, the agricultural households constituted only 9.4% of all households and 10.1% of all people living in Greece. In other words, by 1994 there were only about 332 000 agricultural households comprising about 1 049 150 people. These figures suggest a very rapid adjustment of the Greek agricultural population. This can be contrasted with the number of commercial farms as estimated from the farm structure surveys and that are the object of sampling of the Farm Accountancy Data Network (FADN), which for Greece in 1992/93 is 561 000. Thus it seems that a large share of commercial farmers have another occupation as their main one.

The second observation from the table is that for all types of agricultural households the share of (declared) income that comes from agriculture is less than 55%. In 1981/82 the share of agricultural income is larger for the richer agricultural households, but by 1987/88 this pattern is reversed, with the poorer agricultural households exhibiting a much larger share of agricultural income compared to the rich ones. It is not clear whether this result is the outcome of any increase in under-reporting of agricultural incomes.

From the table it appears that the share of agricultural income in total income has declined between 1982 and 1988 for all classes; this is consistent with the TIAH results that rely on aggregate data and which find that 1n 1982-84 the share of farm income was 52% while by 1988-90 it was only 41%. It also appears from the table that while the

average per capita real expenditure of the middle and rich agricultural households is only slightly less than that of non-agricultural households, there is rough parity between poor agricultural and poor non-agricultural households. This holds for both 1981/82 and 1987/88.

Table 2 Structure of reported income of households in Greece, 1981/82 and 1987/88

1981/82

	1981/82 Agricultural households			1981/82 Non-agricultural households		
	Poor	Middle	Rich	Poor	Middle	Rich
Per cent of all households	7.14	8.09	0.36	20.15	56.66	7.59
Per cent of all people	9.24	8.80	0.28	21.11	55.51	5.06
Per capita total expenditure (000 DR /month, 1987/88 prices)	22.05	50.60	167.67	22.23	54.17	153.16
Per capita total reported income (000 DR / month at 1987/88 prices)	25.90	38.35	72.59	26.66	43.73	87.62
Ratio income/expenditure	1.17	0.76	0.43	1.20	0.81	0.57
Per cent of reported income of group from						
1 Salaries	12.98	12.95	7.96	37.17	44.23	42.43
2 Enterprise and profession	1.99	5.06	1.91	17.32	19.28	24.54
3 Agriculture including subsidies	51.08	55.16	54.98	4.63	2.19	0.60
4 Monetary rents, interest, dividends	0.72	1.53	12.82	2.38	4.36	6.15
5 Pensions	6.17	3.81	2.40	15.60	12.73	12.68
6 Relatives and state aid	0.35	1.46	0.00	2.64	3.75	3.53
7 Auto consumption	27.71	20.03	19.93	20.25	13.46	10.06

1987/88

	1987/88 Agricultural households			1987/88 Non-agricultural households		
	Poor	Middle	Rich	Poor	Middle	Rich
Per cent of all households	5.13	6.46	0.34	20.19	59.59	8.29
Per cent of all people	6.56	7.17	0.28	20.17	59.93	5.88
Per capita total expenditure (000 DR /month, 1987/88 prices)	22.85	52.09	150.67	23.09	56.26	165.20
Per capita total reported income (000 DR / month at 1987/88 prices)	28.88	42.63	82.14	31.57	51.50	102.11
Ratio income/expenditure	1.26	0.82	0.55	1.37	0.92	0.62
Per cent of reported income of group from						
1 Salaries	7.36	12.15	10.96	22.82	35.45	33.96
2 Enterprise and profession	3.43	5.79	11.16	11.50	13.75	19.73
3 Agriculture including subsidies	48.46	50.82	36.92	4.83	2.16	0.75
4 Monetary rents, interest, dividends	5.01	4.59	14.56	6.32	6.82	11.71
5 Pensions	8.36	5.19	7.32	30.47	22.63	14.45
6 Relatives and state aid	1.92	1.24	3.23	3.71	4.45	5.59
7 Auto consumption	25.44	20.20	15.82	20.36	14.74	13.81

Source: Authors' computations

Table 3 exhibits a more detailed poverty analysis over time of agricultural households in Greece compared to non-agricultural households. In 1974 people living in agricultural households comprised 29.4% of the whole population. By 1988 this share had declined to 14.5%. Of people living in agricultural households in 1974 52.2% were poor. This poverty incidence was the highest among all other family classifications by profession in 1974, and much higher than the national incidence which was 27.9%. By 1988 the poverty incidence among agricultural households had dropped to 41.7%, but it was still the highest among all other professional groups, and still much higher than the national average, which was 22.5% .

While, however, in 1974 the poor in agriculture constituted 41.9% of all the poor in Greece, by 1988 it was households with inactive heads (these are mostly the retired) that constituted the bulk of the poor (32.4%) while agricultural poor constituted 26.8% of all the poor. It is interesting that while both the incidence of poverty as well as the share of poor in the total number of poor has increased for most types of households, it has declined for agricultural households. Therefore, we can conclude that in relative terms agricultural households in Greece have been narrowing the difference with other households over

time. Of course these changes could be due to the fact that poor agricultural households have been transformed through rural-urban migration or occupation change or retirement to poor non-agricultural households, but it is not easy to discern this from the existing data

Table 3 Poverty analysis of Greek households over time on the basis of the main occupation of the head of household (all figures are in percentage terms)

		Scientists, profes-sionals	Office workers	Service workers	Farmers	Manual workers	Looking for work	Inactive	All
Share of People in Total	1988	9.8	6.9	14.4	14.5	25.5	1.9	27.0	100.0
	1982	8.6	5.9	13.6	18.3	29.7	1.4	21.9	100.0
	1974	6.2	6.4	14.9	22.4	29.4	1.2	18.9	100.0
Share of Poor in Class	1988	6.9	10.9	16.1	41.7	18.9	31.9	27.0	22.5
	1982	5.3	10.2	15.8	40.5	20.3	23.3	24.1	22.3
	1974	3.4	7.5	22.4	52.2	20.9	36.1	29.6	27.9
Share of Poor in All Poor	1988	3.0	3.3	10.3	26.8	21.4	2.7	32.4	100.0
	1982	2.0	2.7	9.6	33.4	27.1	1.5	23.7	100.0
	1974	0.8	1.7	11.9	41.9	22.1	1.6	20.0	100.0
P1 Measu-re of Inequality	1988	0.018	0.023	0.049	0.149	0.053	0.090	0.089	0.071
	1982	0.013	0.016	0.047	0.144	0.051	0.091	0.077	0.068
	1974	0.073	0.011	0.071	0.214	0.059	0.150	0.109	0.099

Source: Author's computations

The final observation from the table concerns the distribution of real per capita consumption expenditures among the various classes. The measure used is the additively decomposable measure P_1 (Foster, Greer, and Thorbecke, (5)), which is the product of the headcount ratio (exhibited in the second sets of rows in table 3) and the income gap ratio. It can be noticed that agricultural households have been and still are the most unequally distributed group of households in Greece, with the P_1 measure in 1988 being more than double its value for the whole population (0.149 versus 0.071) .

The above poverty pattern of agricultural households could be accounted for by the asset structure and the educational level of households. There is no data concerning the amount of agricultural assets owned by different types of agricultural households. However, there is information in the HBSs concerning the educational levels of all households. Table 4 gives some relevant information from the 1988 HBS. It can be clearly seen that 96.6% of agricultural households are headed by uneducated or poorly educated (only primary school) heads. The same proportion for non-agricultural households is 70.4%. The incidence of poor education is quite uniform among agricultural income classes, while quite non-uniform among non-agricultural ones. This suggests that education is not as important a determinant of income of agricultural households as for non-agricultural ones. This would then leave the ownership of other factors of production, such as land and other agricultural capital as the main determinants of agricultural incomes.

Table 4 Educational level of different types of farm household heads in 1988 (figures are percentages of total households in class)

		Without Education	Primary School	12 Year Secondary School	All
Agricultural	Poor	34.2	63.4	2.4	100.0
Households	Middle	27.5	68.2	4.3	100.0
	Rich	28.0	72.0	0.0	100.0
	All	30.4	66.2	3.4	100.0
Non-agricultural	Poor	30.1	57.6	12.3	100.0
Households	Middle	14.3	55.3	30.4	100.0
	Rich	3.7	29.2	67.1	100.0
	All	17.2	53.2	29.6	100.0

Source: Authors' computations

4 ADJUSTMENT ISSUES AND AGRICULTURAL POLICY

Current patterns of support to agriculture based on raising producer prices are well known to have been very inequitable. Brown (1) found that the average support to the largest farms in EUR 10 in 1984-86 was more than 35 times the support to the smallest ones. Hence this type of support tends to accentuate income differences among farmers. It is interesting to speculate whether this type of support, rather than slowing down the "flight from the land" has in fact accelerated it. We shall review several aspects of this issue.

Before farmers or their family members leave the location of the farm entirely, they tend to engage in other types of employment. Pluriactivity is substantial all over the EU, but much more pronounced in the four countries of the "South" (Greece, Italy, Portugal, and Spain), where only 17.5% of farmers devote 100% of their time in agriculture, and 64.7% devote less than 50% of their time to it. The corresponding figures for the 8 countries of the pre-1995 "North" are 54.1% and 32.7% (Sarris (10))). A recent survey in Greece found that the factors that influence the amount of work done off-farm are the off farm wage (positive), the gross farm value added (negative), the amount of other non-farm income (positive), and the age of the operator (negative at younger age and positive at older ages) (Damianos, et. al. (2)). The influence of the off-farm wage was particularly strong, with a 10% increase in the off-farm wage leading to an increase in the work devoted off-farm by 14%. As agricultural market support intensifies farm income differences, it might make small farmers more amenable to enter other activities.

The engagement in other non-farm activities by small farmers is expected as a response to a widening income differential. One such activity has been wage labour on larger farms. In recent years, however, the collapse of the former communist regimes in Eastern Europe has led to waves of illegal immigrants to EU countries. One of their major areas of occupation is agriculture. A recent survey in northern Greece (Lianos, Sarris, and Katseli (6)) found that illegal immigrants make up 31% of all farm hired labour, and that they

contribute significantly to maintaining agricultural production. This aspect of the farm labour problem would also tend to accelerate the flight from the land.

Farms in the south tend to be smaller and more labour intensive compared to farms in the north. Sarris (10) estimated that the average economic size of a commercial farm in the south in 1986/87 was 11.3 European Size Units (ESU) compared to 38.6 ESU in the north, and it employed 53.6 thousand ECU of capital per Annual Work Unit (AWU) compared to 111.8 thousand ECU per AWU in the north. The average farm in the south employed 1.51 AWU (of which 1.28 was from family), while in the north it employed 1.68 AWU (of which 1.37 was from family). The average Family Farm Income (FFI) per Family Work(er) Unit (FWU) in commercial farms in the south was not much lower than in the north (6 578 ECU compared to 9 452 ECU). More interestingly since the FWU per farm do not differ much by size both in the south as well as in the north, it turns out that there are large differences in FFI/FWU according to size, with the index in the largest farms being more than ten times that of small farms, both in the south as well as in the north. If relative incomes are the key determinant of occupational shifts, then since there is a wide disparity between farm family incomes, which seems to be preserved in the overall income distribution as seen earlier, maintenance or worsening of the maldistribution of farm support would tend to make pressures for adjustment larger.

5 CONCLUDING THOUGHTS AND RECOMMENDATIONS

The results of the TIAH project highlight the fact that farm households on average do not have lower total incomes compared to non-farm households. However, the aggregate analysis hides considerable distributional issues. These issues concern the distribution of income within agriculture, rather than between agriculture and non-agriculture. It has been the purpose of this paper to raise the possibility that the major aspect of the farm adjustment problem is one of distributional equity within agriculture.

There is considerable further analytical and empirical work that is needed to understand these issues. First, one key set of data that is missing is the relation of total income of agricultural (and non-agricultural) households to their ownership of various types of human and non-human assets. It is asset ownership that determines total incomes, and it is the accumulation and redistribution of non-human assets, in addition to human capital accumulation, that determines the evolution of the income distribution. This suggests that perhaps the HBSs and/or the farm structure surveys could be combined.

Another set of related issues that needs to be studied and understood further relates to the dynamic evolution of the farm population and its economic aspects. The farm structure surveys, the FADN, as well as the country specific HBSs do not involve a panel of households. Hence it is very difficult to study the dynamics of change, including the farm adjustment problems.

It is becoming increasingly clear that for various reasons, some of which have been reviewed above, the nature of farm support must change from one of indiscriminate market support to one of direct income support. This involves considerably more complex and expensive administrative procedures, and it is not known whether the transfer

efficiency will be higher under this system compared to the current system. Studies on transfer efficiency are needed.

Finally, while the TIAH project shows that farm family incomes compare well with non-farm family incomes, this does not appear to be enough to slow down the labour adjustment problem. Living in rural areas entails a variety of benefits and disadvantages, such as the availability of public amenities, availability of leisure choices, etc. These non-economic benefits constitute what might be termed "non-income" benefits, and they can be as or more important than income-related ones. A study of the valuation of these non-income benefits by different types of households is crucial to the planning of better farm policy .

The overall conclusion that emerges from the above brief discussion is that farm policy in the EU needs to become more integrated with rural development and regional policies, and that distributional issues have to become more important in the shaping of overall farm policy.

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REFLECTIONS UPON AGRICULTURAL INCOMES, RURAL POVERTY AND SOCIAL OBJECTIVES OF AGRICULTURAL SUPPORT

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SUMMARY

There is a clear distinction between the farmer as a producer of food/raw agricultural produce and the farm family as a consumption group in the rural society. All too often this distinction has been blurred by agricultural policy makers, with the result that inappropriate policies have been pursued. In consequence the Common Agricultural Policy has failed to achieve either lasting improvements in the relative incomes of farming families or reasonable prices for consumers. Increasingly, attention is being drawn to the externalities - positive and negative - resulting from farming. Whilst regulation can address the perceived problems of environmental degradation, as yet few policy instruments have been established to deliver desired social and environmental enhancement. An approach centred on attempting to use either support prices or area/headage payments as the instruments to rectify disadvantaged households is bound to fail because this approach does not identify the under-privileged households nor the causes of rural deprivation. In reflecting upon these matters the author offers some personal suggestions as to the appropriate direction of policy reform.

1 INTRODUCTION

In order to determine the relevance of agricultural income statistics, we must first ask what are the policy objectives or measures we seek to evaluate. Since the Common Agricultural Policy (CAP) has, or is alleged to have, an income objective, the paper considers the relevance of farm income statistics to CAP decision-making. The CAP embraces a wide ranging set of policy instruments which have contained a substantial element of social policy (some might say social engineering). Hence the paper examines the issue of rural poverty and questions whether farm income studies throw much light on the matter.

As the Community's food self-sufficiency has increased, so concerns about the adequacy of future food supplies have diminished, to be replaced by worries about the impact of surpluses on our trade relations with other countries and anxieties about environmental issues. The paper, therefore, contains the author's observations on the future development of EU policy towards agriculture, rural society and the environment and the implications this has for farm income studies.

[41] The opinions expressed in this paper are those of the author and do not necessarily represent the views of the National Farmers' Union.

2 THE PURPOSE OF COLLECTING AGRICULTURAL INCOMES DATA

Governments and international institutions have not spent time and resources on the collection and evaluation of agricultural income statistics out of mere curiosity or simply to make comparisons with other occupational or geographic groups. Given the amount of public spending and the wide range of policy measures devoted to agricultural support throughout the world, it is scarcely surprising that sustained efforts are made to measure and evaluate the impact of public policy.

Brian Davey (3) sets out half a dozen applications of micro level farm family income data for policy purposes in Canada, ranging from the analysis of equity issues, through the distinctions between full-time commercial and part-time farmers, to the evaluation of specific support programmes and uses in bilateral trade discussions. Within the European Union, too, farm income data has been used both to indicate a need for Government action and to analyse the consequences of public policy measures. In this paper I want to use some of the results of farm income studies to explain and perhaps justify some policy measures and to challenge others.

Within the European Community, the CAP has been a cornerstone of collective policy action. Although described as an agricultural policy it has had implicit social/rural policy aims - notably though the inclusion of an income objective.

The Income Objective

In the first paper of this International Seminar, Mr Korakas (4) of the European Commission emphasised the central importance of the income objective of the CAP, quoting from the Treaty of Rome. However, in common with the vast majority of commentators and politicians, Mr Korakas left out a small but crucial point. The first objective set by the Rome Treaty for the CAP was "to increase agricultural productivity by developing technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of factors of production, particularly labour". This objective is followed by "to ensure, *thereby,* a fair standard of living for the agricultural community ." (my emphasis). Three more objectives are then enunciated, namely, market stabilisation, guaranteeing regular supplies for and ensuring reasonable prices to consumers.

It is not mere pedantry that causes me to correct the omission of the word "thereby" in the second CAP objective. The founding fathers of the Economic Community had recognised very clearly that the appropriate way to ensure a fair standard of living for farmers and farm workers was through action to improve their productivity. Indeed the only way in which any group of workers can ensure their long term prosperity is through achieving and maintaining economic efficiency and the competitive advantage that it brings. There is nothing original in this statement - it is a point that has been made by economists *ad nauseam* during the past thirty five years as the original objectives set for the CAP have been distorted by increasing layers of protectionism. That these distortions have been against the interests of consumers and taxpayers is irrefutable. In delaying much needed agricultural adjustment they have also acted against the longer term interests of the farming community and bred and perpetuated a dangerous dependency mentality. It is

clear, however, that whatever the original intention, the CAP has had, and still is interpreted as having, an income objective.

Despite, rather than because of the CAP, the past thirty five years have seen dramatic changes in the farming sector and in the wider rural community. Throughout Europe the numbers engaged in agriculture have fallen sharply. In the original six member states the active farming population had fallen from more than 15 million in 1960 to some 8 million by the time of the first enlargement in 1973. For EUR 12 the proportion of the total population engaged in agriculture has fallen from 13.5 per cent in 1970 to under 6 per cent now.

The total farm workforce is likely to continue to fall over the next decade from both demand side and supply side influences. The gradual growth of farm size as technical and managerial efficiency improves and as labour continues to be replaced by capital reduces the opportunities for both farmers and employees alike. On the supply side, in most EU countries, the perception of better opportunities outside agriculture is likely to continue to discourage the younger generation from entering the industry.

Restrictive policies can slow down the pace of change - but cannot turn the tide. The policy instruments themselves have changed over time but the attraction for politicians and bureaucrats alike of income objectives and income measures remains.

As increasing emphasis has been put on farm incomes with an impressive array of income measures from aggregate farm income to farm family incomes at the micro-economic level, less and less has been heard about the incomes of agricultural workers. It is, of course, difficult to think of policy instruments other than minimum wage and employment protection legislation which could be applied to help farm workers. Nonetheless, throughout the thirty five years of the CAP, no serious attempt has been made by the Community to use official policy measures to improve the incomes of farm workers. The concentration has been on the farmer in general and the family farm in particular.

Indeed some of the suggestions being advanced for capping the level of support payments made to individual farm businesses would have the effect of dividing the employed workforce even more from the self-employed. Past history suggests that farmers part with their non-family workers much more readily than they part with their land. Modulating the support payments could encourage more extensive farming systems leaving still fewer job opportunities for farm workers and depressing the wages of those remaining workers.

3 THE FARMER - PRODUCER OR CONSUMER?

Other than at the subsistence level, there is a very clear distinction between the role of the individual (or even the household) as a producer and as a consumer. Concerns about income levels arise because of the wish to avoid individuals or families having too little income with which to obtain food, clothing and shelter. Whether we adopt an absolute or a relative income criterion, we do so because for the poor, who have no savings, income is synonymous with expenditure. Our concerns surely are about people as consumers rather than as producers.

The close identification of farm family income with household consumption is perhaps in part a reflection of the fact that EC policy makers in the late 1950s were conditioned by the rural poverty of an earlier generation and in part a reflection that in some regions of the Community near subsistence farming was still to be found. A further influence may have been the US approach, established in the 1930s, of using agricultural policy to achieve some degree of parity between agricultural incomes and average incomes in society as a whole.

All too often, however, the distinction between farmers as producers and the farm family as a consumption group in rural society has been blurred by agricultural policy makers, with the result that agricultural policy measures have become a proxy for rural social security payments. This is an inefficient way of tackling the very real problems of rural poverty and an inappropriate approach to agricultural output and land use policies.

4 THE RELEVANCE OF FARM INCOME

Whilst the EU's annual review of agriculture, is not a "wages claim" on the part of the farming sector, agricultural incomes are a most relevant factor in any examination of the economic condition and prospects of agriculture. They have a twofold relevance. First, if a business does not earn an adequate level of profits or is subject to sudden, unexpected, plunges into losses, the business will not survive for very long. Second, farm income is the principal source of funds for re-investment in the farm business.

As is the case for most of the self-employed, little if any distinction is made between the farmer's own income and the business income. It is important to remember that farm income is not simply the reward for the farmer's manual labour and managerial input but also provides the return on the farmer's capital employed in the business. Numerous UK studies over the years have shown that current and accumulated farm income is the source of the great bulk of expenditure on fixed capital formation.

Hence, the significance for agricultural policy is that an inadequate income level means not simply low consumption expenditure by the farm family but also low capital investment. Moreover, a business which is not generating adequate profit is unlikely to be able to borrow on attractive terms, and hence cannot readily find investment from outside. Ultimately, therefore, low farm incomes affect the efficiency of the industry and thus its ability to compete. Hence society as a whole should regard farm income as a means to an end rather than as an end in itself.

Farm income volatility

Although not dissimilar to self-employed incomes in general, since income/profit is the residual when one comparatively large magnitude (total expenses) is deducted from another (total receipts), farm incomes are particularly volatile. Climate, pest and disease are all to some extent beyond the control of the farmer - either individually or collectively. Whilst the volume of supply is thus liable to unexpected change, food demand is both price- and income-inelastic, hence relatively small changes in the supply situation trigger large changes in prices and consequently in incomes.

Table 1 UK real farm income of average farms 1977/78 to 1994/95

Year	Farm type (1986/87=100)			UK Aggregate Farm Net Income 1990 = 100	
	Dairy	Cereals	Lowland cattle & sheep		
1977-78	161	142	1345	1977	247.9
1978-79	174	178	1438	1978	221.1
1979-80	109	135	660	1979	177.4
1980-81	107	139	767	1980	135.1
1981-82	133	134	889	1981	160.4
1982-83	151	207	708	1982	186.4
1983-84	107	228	583	1983	137.7
1984-85	89	246	413	1984	207.3
1985-86	96	25	182	1985	90.0
1986-87	100	100	100	1986	111.9
1987-88	131	16	223	1987	120.3
1988-89	160	19	223	1988	82.9
1989-90	142	40	113	1989	108.2
1990-91	99	48	71	1990	100.0
1991-92	103	47	88	1991	87.6
1992-93	130	65	121	1992	119.9
1993-94	161	54	180	1993	191.2
1994-95 (E)	160	60	153	1994	200
Mean	129	105	459	Mean	149.3
S.D.	27	72.2	418.6	S.D.	49.6
S.D. as % of mean	20.9	69	91	S.D. as % of mean	33.2

Source:

(1) 1977/78 to 1993/94 "Farm Incomes in the UK"

(2) Annual Review of Agriculture 1994

(3) 1994/95 NFU Estimates

Table 1 shows the average levels of real farm income on different categories of farm in England and Wales between 1977/78 and 1994/95 and the corresponding data for the whole UK farming sector from 1977 to 1994. Except for dairying - which is much less susceptible to weather influences than are other sectors of the industry and where, particularly since 1984, the CAP has added stability to the receipts into the sector - the volatility of each individual sector is much greater than that of the industry as a whole. David Blandford (1) quotes the devastating effects of the Australian drought and weak

commodity prices on Australian farm household incomes between 1988/89 and 1991/92. All too many other examples could be cited.

It is the volatility of farm incomes, primarily caused by the unpredictable shifts in the supply curve, coupled with consumer price considerations that originally led to demands for stabilisation measures. Whilst there is some evidence that the milk quotas have had some success in this regard, it has been bought at the expense of ossifying farm development in the dairy sector and causing considerable knock-on effects in the grazing livestock sector. Elsewhere there is little evidence of stabilisation

Government support measures are not the only way of bringing greater stability to farm incomes. Insurance can be used to cover some unpredictable factors such as hail damage to crops. Newly developing techniques can pinpoint climatic conditions where there is a risk of outbreaks of pests and disease and agrochemicals can combat them. Farmers can hedge against price falls in a number of futures markets or via their contracts with downstream processors and purchasers. Hence the rationale for publicly funded stabilisation measures may no longer be as strong as it once was.

Farm factor mobility

Comparisons between factor returns in agriculture and in other industries ("functional income comparisons") are of help in understanding the movement of factors from one sector of the economy to another. In practice, of course, factor mobility is much less than perfect. This is not simply due to the non-monetary benefits that arise from household consumption of the farm output. There is also benefit from the country lifestyle, though that is less tranquil and unchanging than many town dwellers think it to be and, for the self-employed farmer, there is the pleasure of being his own master.

We are familiar with the list of causes of geographical and occupational immobility of labour: lack of knowledge of other employment opportunities; lack of general education; family and social ties; perhaps above all the deep-rooted conservatism and fear of change that is found in rural societies. It is perhaps not always recognised that in family businesses these same influences make for capital immobility too. The farmer reinforces his long-term commitment to the industry by putting most, if not all, of his capital into the farm business. This, in turn reinforces his unwillingness to move out of the industry since not only are his skills, training and experience all linked to farming but also any move may involve a capital loss. Given all these influences which mitigate against change, further policy measures to restrain the outflow from farming might be thought to be superfluous!

Farm income measures

The distinction between income from production and income as a determinant of consumption is crucial when it comes to deciding what forms of income to include when measuring the income of farm families. At one end of the "what is income?" spectrum is the need to include all forms of income from the farm business - benefits in kind such as home grown food, private use of a farm business car and telephone and income disguised in the form of increased stocks or livestock. Some of the measures of farm income may underestimate the extent of the non-monetary income just as some may over-provide for depreciation of assets or for imputed rent where an owner occupied farm business has its

net farm income evaluated on a tenanted farm basis. An accurate recording of all forms of income to the farm business is necessary whether it is going to be used to make judgements about the relative poverty of farming households or the adequacy of farm profitability to sustain food production.

However, the use to which the data is to be put is crucial to what is included in the farm income measure. Thus if we are interested in the farm family's living standard, non-agricultural income is also relevant whether that income comes from farm tourism, from farm shop sales, from investment income or from income received by members of the farm family through working outside the farming sector.

When it comes to agricultural policy objectives - to raising productivity, increasing stability and ensuring adequate supplies at reasonable prices to consumers - income from economic activity outside the sector received by those living on the farm is totally irrelevant. We have no basis for assuming that farm families would be willing to go on subsidising their farming activities from their non-farm incomes.

Hence, the "family income supplement" approach to agricultural policy is quite inappropriate. Where decisions about commodity support or structural spending are concerned, the fact that some farmers have wives who are nurses or teachers is no more relevant than suggestions that nurses' or teachers' salaries should be constrained on the grounds that some nurses and teachers are married to farmers!

5 SOCIAL OBJECTIVES OF AGRICULTURAL POLICY

As the EU - in common with the developed world - has moved from food shortages to food surpluses, so there has been a rising demand that farmers stop engaging in activities which are perceived to produce negative externalities and that they be encouraged to supply environmental enhancement.

Here again, as with farm income measures, we quickly come up against definitional problems. There is not universal agreement about what constitutes environmental damage or enhancement. Thus most of us subscribe to the encouragement of greater biodiversity but we do not want to see a return of timber wolves to the outskirts of our towns and villages! Nor is it easy to adopt the "polluter pays principle" when the polluter cannot be identified.

I must reject assertions that the CAP has led to widespread environmental degradation. Whilst one can always point to individual acts harmful to the environment, the general case has not been proved. Certainly there have been changes - fewer hedgerows as field size has been enlarged in the interests of using modern machinery; reduced biodiversity resulting from the great use of agrochemicals. Are these the consequence of the CAP or are they the result of actions to improve agricultural productivity? Both the use of agrochemicals and the shift to larger scale farming have occurred in other parts of the world where the CAP has no influence. Indeed it could be argued that by slowing down agricultural restructuring the CAP has (inadvertently) dampened at least some of the perceived negative externalities.

Moreover, many of agriculture's activities enhance the environment. Livestock in the hills help in managing the countryside. Stone walls augment the attraction of the countryside. But stone walls do not repair themselves and if tourists and those living in rural areas want to see stone walls rather than wire fences, a means has to be found for rewarding the farmers for the beneficial externalities they provide. Between the costs to the farmer of providing environmental enhancement and the value of such public goods there is room for negotiation on the level of payment and on the monitoring system to be used.

That said, many environmental factors are difficult to measure and it is even more difficult to assign monetary values to them. We can measure the impact of modern farming methods on the number of skylarks and on the presence of natural weeds in grassland - but, despite the efforts of environmental economists and others, we are still not agreed on how to value a skylark or a herb-rich meadow.

Rural poverty

That there is rural poverty is undeniable. That rural poverty is associated with low incomes on family farms is questionable. As Blandford (1) says "for most of the countries for which comparisons are possible, farm households have total incomes that appear to be close to, or higher, than those of other households." It has to be acknowledged that there are limitations to the data and that in many countries the comparisons relate to only one or two years concentrated in the late 1980s. Moreover, as Sarris and Zografakis (8) point out, simply comparing average farm household income with that for the whole population may disguise very different income distributions. If the income spread is greater in agriculture than in society in general, then there could indeed be justification in giving special attention to farmers' incomes.

The finding that farm income levels are equal to those of non-farm households could be interpreted to mean that agricultural income support is unnecessary. Equally it could mean that the support measures have been successful in raising farm incomes to non-farm levels.

Examination of incomes in the less favoured areas in England in recent years shows the average cattle and sheep farm in a Disadvantaged Area received up to £14 000 of direct subsidies yet ended up with less than £7 000 net income (see Table 2). In Severely Disadvantaged Areas, direct subsidies ranged from £14 000 per farm to £28 000 per farm and again in nearly all cases exceeded the net income of the farm.

Table 2 Less Favoured Areas farms in England

Type of Farm	£'s per Farm			
	1992/3	1993/4	1994/5 (p)	1995/6 (e)
Disadvantaged Areas				
Mixed cattle and sheep farms				
Direct subsidy payments	7 810	10 695	11 998	14 182
Net Farm Income	7 752	9 610	6 215	6 670
Severely Disadvantaged Areas				
Specialist beef farms				
Direct subsidy payments	13 963	14 041	16 185	18 945
Net Farm Income	8 894	12 095	5 705	6 070
Mixed cattle and sheep farms				
Direct subsidy payments	16 745	19 980	21 099	24 465
Net Farm Income	18 246	19 880	18 890	19 590
Specialist sheep farms				
Direct subsidy payments	22 259	26 511	24 307	27 939
Net Farm Income	14 655	21 240	16 775	18 990

(p) = provisional (e) = estimated
Source: MAFF

As can be seen in Table 3, livestock subsidies exceed average net income on virtually every type of less favoured area farm in the UK. Some might draw the conclusion that those farmers would have been better off had society subsidised the family directly rather than via subsidising their livestock!

Making any assessment of the impact of subsidies is difficult because we cannot be certain what the output and input prices would have been in the absence of the support system. There is plenty of anecdotal evidence to support suggestions that farming subsidies are capitalised into land prices and passed out of the farming sector via higher rents and increased input prices. Although Ricardo was wrong to say "rent is a surplus" nonetheless in agriculture rent may well be where part of the surplus has gone!

Rural poverty is not simply a question of direct earnings in rural areas - whether earnings from agriculture, from its associated industries or from quite separate activities. In general the provision of social benefits in kind is much worse in rural than in urban areas; in part, but only in part, this reflects the problems of remoteness. The urban population seem to have been much more successful than rural areas in lobbying for subsidised transport, better schools, more swimming pools - in short, for the provision of local public goods.

Table 3 Total direct livestock subsidies (a) as a percentage of Net Farm Income

Country	Type of farm	1993/94	1994/95 (prov.)	1995/96 (forecast)
England	SDA specialist sheep	124.8	144.9	147.1
	SDA specialist beef	116.1	283.7	312.0
	SDA mixed cattle and sheep	100.5	111.7	124.9
	DA cattle and sheep	111.3	193.1	212.8
Wales	SDA specialist sheep	168.5	208.6	219.6
	SDA mixed cattle and sheep	142.0	215.0	218.5
	DA cattle and sheep	76.8	123.3	119.6
Scotland	SDA specialist sheep	174.8	196.9	195.5
	SDA specialist beef	124.0	175.5	202.0
	SDA mixed cattle and sheep	164.0	191.2	198.2
N.Ireland	SDA specialist beef	115.3	189.6	238.9
	SDA mixed cattle and sheep	129.6	127.4	143.4
	DA cattle and sheep	147.8	173.0	263.7

(a) LCAs, Sheep Annual Premium, Suckler Cow Premium and Beef Special Premium
SDA - Severely Disadvantaged Areas; DA - Disadvantaged Areas

Source: UK Agricultural Departments

In his seminal study on rural poverty, Brian McLaughlin (5) examined five areas in England ranging from a metropolitan rural area in North West Essex to a remote upland area in the North Yorkshire Dales. Perhaps the most remarkable finding was that, judged against the income levels at which various forms of state benefits (such as family income supplements) are paid, around a quarter of all the households in the survey areas were living in or on the margins of poverty. This proportion of one in four households in rural England in or on the margins of poverty was fairly consistent in each of the (widely different) study areas.

Alongside this picture of rural poverty was a significant degree of inequality of income distribution within each relatively small study area. In contrast, in urban areas, the process of "ghettoisation" tends to see the grouping together of the urban poor into clearly identifiable "downtown" areas. Thus, a major difference between the rural and urban poor is that considerable degrees of inequality can be found within very short distances (what Howard Newby describes as "two nations in one village").

Another contrast with urban areas is that a significant proportion of poor householders in rural areas were elderly single person householders, whereas in urban areas it is families with children which are the major victims of poverty and deprivation. However, for the majority of the rural poor it is low incomes from employment rather than age, sickness, unemployment or self-employment that is the major cause of poverty.

Again, in contrast to urban areas, the absolute income spread in rural areas is far greater. What this means is that relative poverty is not only greater in rural areas than in England

as a whole but it must also be much more obvious to those in poverty that they are surrounded by substantial affluence. These findings from McLaughlin's study in the early 1980s have been confirmed by a more recent report by Professor Paul Cloke (2).

An inadequate housing stock, poor shopping provision, depleted public transport facilities and the closure of many schools in villages and small towns have all combined to cause rural deprivation in Britain. They all also serve to highlight the contrast between the wealthy, who can afford better housing, private transport and private education, and the rural poor.

What has all this to do with agriculture in general and farm incomes in particular? In the UK and even more so in many other Member States, employment opportunities in agriculture have been shrinking. As shown above it is not low incomes in farming that is the major cause of rural poverty. To direct attention to farm income in the expectation that this will be the major driving force in the rural economy is therefore mistaken. Whilst not ignoring the multiplier effect on the local economy of a buoyant, profitable agriculture, we should not delude ourselves that protecting farm incomes will automatically solve the problems of rural poverty and deprivation. Rather what is needed is to develop an EU policy for sustainable rural development.

6 POLICY INTERPRETATION

When it comes to policy interpretation of farm income data, for the reasons given earlier not too much reliance can be put upon the absolute level of any farm income measure nor upon the year to year movements. Yet in the past within the EU, as in much of the developed world, annual political decisions have been made on the support levels for agriculture. Although it may be countered that in most countries in most years the actual decisions to be taken are only marginal or incremental ones (a little higher headage payment here, a little lowering of the intervention price there) the political temptation will always be to avoid major public arguments and therefore not do anything too radical. For an industry which needs a long term commitment from farmers and where production cannot be quickly boosted or cutback, the delays in decision- making can be at best frustrating and often inimical to rational optimising behaviour. EU Ministers have been especially prone to last minute decision-making which has been to the detriment of the industry.

A very welcome change from the annual hand to mouth decision-making process occurred in 1992 with the MacSharry CAP Reforms which whilst not universally welcomed amongst the farming community did bring in a three year programme of change to the support system and to support levels. Economists might disagree as to whether the CAP reforms took the industry closer to or further away from the market; certainly it shifted the emphasis of public support away from the higher yielding farms towards the less productive ones and from commodity prices to area and headage payments.

7 THE FUTURE OUTLOOK

It is very clear that further changes are needed in the near future. The external pressures from GATT and EU enlargement, coupled with internal pressures from the industry's steadily rising productive capacity, which significantly outpaces the potential for increased food consumption, all add up to pressure for further CAP reform.

In 1994, the NFU published a major study of the need for further CAP reform and the policy options available in "Real Choices" (6). We followed this up in the Spring of 1995 with "Taking Real Choices Forward" (7). After initial criticisms from both the EU Commission and the UK Ministry of Agriculture, I am glad to say that these two institutions are now both moving much closer to our own position which is that reform is inevitable and should be quite radical in its form.

Agriculture is too important to be dependent upon annual institutional decisions: more and more what is needed is for Governments to play a less prominent role. The EU should set out broad objectives for a food and agricultural policy, establish a comprehensive rural development policy distinct from, though with linkages to, the agricultural policy and above all decouple social income measures from agricultural commodity support. It should adopt a pluri-annual approach to the CAP, perhaps along the lines of the five year reform packages that we have seen work well in other contexts. In this regard I welcome the GATT Settlement as setting out a clear five year timetable for the reduction in levels of commodity support and subsidised food and agricultural exports.

The GATT Settlement is not the end of agricultural trade reform; rather, it is the beginning of a process that needs to be encouraged and built upon. That, coupled with the problems of EU enlargement to the East, will be the major policy agenda items for the coming years.

8 CONCLUSION

If we are to divorce social objectives from agricultural policy and evolve a distinct policy for sustainable rural development, I am doubtful that devoting more resources to an increasingly sophisticated range of measures of farm income will be necessary or appropriate.

Addressing the future reform of the CAP by looking at farm income levels is a bit like trying to judge the flavour of a horse and hare stew where the two forms of meat have been combined in the ratio one horse to one hare. The overall flavour will be dominated by that of the horse (the GATT obligations, the EU budgetary position, the problems of Eastern Europe). Hence meticulous evaluation of the flavour of the hare (farm incomes) seems something of a waste of resources.

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DISCUSSION

Fourth session *Policy and statistics: implications of results*

The paper *What is the income problems of agriculture in developed countries* (G. Schmitt and C. Burose) drew comments that expressed interest in the model used by the authors, though proposing that it might be made more sophisticated. Additional factors suggested included the level of risk associated with agriculture and with off-farm employment, and the importance of the possibility of other forms of employment in the region (though farmers and non-farmers were similarly affected by this latter factor). A claim was made that farmers had greater local mobility to find employment than other groups, though this was not universally accepted by participants in the discussion. The opportunity costs of asset income and social transfer income were also felt to be important; however a view was expressed that farmers received increasing amounts of income from non-agricultural assets and did not draw a meaningful distinction between farm and non-farm assets. Despite the general reduction in numbers of people working in agriculture and the increasing participation of farmers in the wider economy, some politicians still clung to the view that having fewer people working on the land was bad

G. Schmitt commented that evidence from Germany suggested that there was no detectable difference between part-time and full-time farmers in their efficiency of factor use, and there is no empirical support for the political idea that agriculture must consist of at least some full-time farmers.

In *Agricultural income statistics and policy: a view from Southern Europe* (A. Sarris and S. Zografaris) a major topic had been the problem of income measurement using Greece's family budget survey and the related problem of classifying households on the basis of income composition, as set out in the methodology of the TIAH and in the 1995 ESA. Under-reporting of income by self-employed households (including farmers) could lead to an understatement of the real number of agricultural households. It was pointed out in the discussion that the ESA classification was intended to be based on real income, that is after correcting for any under-reporting. To assist with making corrections, perhaps the family budget survey could be linked with the FADN. As presented in the paper, the extent of the low income problem was clearly dependent on the parameter chosen, so the results should be treated with caution.

In reply, Mr Sarris noted that the degree of inequity among incomes did not appear to be sensitive to adjustments to income figures, though adjustments were of course desirable. A large proportion of poor farmers tended to be old, and they were also associated with small land plots.

To conclude this fourth session, a representative from DG VI (T. Haniotis) commented that, in reality, the income objective of agricultural policy was only one of several (five were set out in the Treaty of Rome, but others have emerged since, such as environmental conservation). Each of these were rather vague and the process of decision-making by which they were pursued was complex. In practice less attention has been given to incomes than to market objectives. Nevertheless, it appears that the importance of TIAH-type statistics is on the increase. At a time when resources for

agricultural statistics are diminishing it is nevertheless important to generate information of high quality, so that policy proposals based on this information are sound, prudent and practical.

CLOSING REMARKS

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Before closing this Seminar somebody from Eurostat should in my view make a few comments on the course of this very important meeting. It might perhaps be too early to start drawing conclusions from this Seminar. However I can at least evaluate whether our basic objectives for this Seminar have been realised.

One of the basic objectives behind the idea of this International Seminar was to bring together politicians, statisticians and academics. We are proud that this objective has been fulfilled. Another aim was to invite competent chairmen and speakers in the field of Total Income of Agricultural Households. This aim has also been achieved. The Seminar has spawned stimulating debate with reflections and impulses that will need to be considered.

Eurostat will continue to concentrate its efforts on the macroeconomic approach of the Total Income of Agricultural Households statistics, though it is fully aware of its limitations and thus the need for complementary micro-economic data. As you know, there is always the danger that one does not see the wood for trees. Nevertheless, the results of our Seminar have given us various insights which would not have been possible with the "classical three income indicators" of the Agricultural Economic Accounts. We are satisfied that we have not only gained lots of new impulses, but that we have also been encouraged.

The next step will be to draw conclusions from what has been said during the Seminar, in internal discussions and in the appropriate bodies of the EU Member States and through drafting working documents for the next session of the Agricultural Statistics Committee and Working Parties.

We hope sincerely that we have also succeeded in providing our guest from the Central and East-European Countries with new ideas for their work.

The seeds of our work have been sown - now the crops have to come up. That takes time, so let's be patient. Being patient is, as everybody knows, an integral attribute of a farmer.

Finally, Eurostat wishes to express its gratitude to those who have helped it in the preparation of making this Seminar a success. We thank the Chairmen and Speakers for their contributions. We thank Dr Hill for his vital assistance. Last, but not least, special thanks go to the DG IX and in particular to Mrs Eisen, for accomplishing the hard task of making this Seminar run so smoothly.

Eurostat International Seminar

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This publication contains the papers presented at the Eurostat international seminar 'Income statistics for the agricultural household sector', which was held in Luxembourg from 10 to 11 January 1996. Additionally, the publication includes a summary of the discussions that took place after the papers were presented. About 150 people comprising policy decision-makers, statisticians from the EU and national institutions, academics and representatives of farmers' groups, among others, attended the seminar.

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