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Norwegian Data on Agricultural and Household Income

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Its importance in agriculture and implications for statistics

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The purpose of this paper is to give a short presentation and description of Norwegian data sources for assessing income for persons, families and households, both in general and for those involved in agriculture. Some information concerning the agricultural sector is mentioned. Statistics Norway, the Norwegian Agricultural Economics Research Institute, and the Agricultural Budgeting Committee are the main producers of such statistics. The presentation is organised by institution.

1. Data from Statistics Norway¹

1.1 Background information

According to legislation (LOV-1989-06-16-54 om offisiell statistikk og Statistisk Sentralbyrå (statistikkloven)), Statistics Norway produces official Norwegian statistics. In doing so, Statistics Norway is entitled to utilize administrative data systems (registers) in governmental agencies and in national organisations of municipalities.

The tradition of producing income statistics on the basis of administrative records has a long history in Norway. For instance, the first Income Distribution Survey conducted in 1958, was totally based on information collected from tax records. The scope of these early surveys was, however, rather limited. The income data was, for instance, restricted only to include taxable income from the tax return, and did not include any tax-free transfers at all. The household definition was restricted to only cover family units that could be derived from registers, i.e. married couples with or without dependent children and singles. Adult children still residing at their parents' home with their own income were, for instance, considered to be separate households. This was also the case for cohabiting couples.

In 1982 the *Income Distribution Survey* (IDS) was reorganised. It had become apparent that a household definition strictly based on administrative records was less than satisfactory, particularly since the 1970s and 1980s saw a dramatic increase in the number of unmarried couples living together. The reorganisation led to the introduction of a household interview in

¹ The information in this section is mainly based on Epland (1996), Bye and Epland (1998) and Statistics Norway (2002) and communications with Jon Epland, Statistics Norway. He also read and commented on an earlier version of this paper and made valuable comments.

order to obtain information on actual household composition, including cohabitants, see below.

The introduction of the UN *Provisional Guidelines* (United Nations, 1977) led to the recognition that if one should use income as an indicator of economic well-being, more information than what was reported in the tax return was needed. For many households tax-free social benefits constitute an important part of total household income. However, since most of these tax-free transfers did in fact exist as administrative registers, they have subsequently been linked to the IDS. There are, nevertheless, still some minor income items missing in the IDS, either because there exist no administrative records at all, or because the quality of the registers has not been considered good enough.

The use of administrative data in the production of income statistics obviously has many advantages compared to traditional household surveys, e.g. low data collection costs, less burden on respondents, no item non-response, possibility of checks against population totals etc. In addition, the possibilities of using register information are growing due to computerisation in public administration. On the other hand, one should not neglect the fact that register data do have some limitations and drawbacks too, compared to interview data, for instance in respect to speed, relevance and flexibility. Since the primary object of administrative registers is *not* to supply statistical information, the statistician is more or less dependent on definitions and concepts used in registers. Needless to say, the use of register data poses many challenges to statisticians whose prime concern is to construct comprehensive income concepts, and in particular to maintain income concepts that are comparable over time. There is for instance one word that statisticians who work with tax registers fear more than anything else, and that word is «Tax Reform». Whenever the rules of taxation are changed, and in the 1980s and 1990s we had a lot of that in Scandinavia, then this in many cases will have an impact on the definition of household income too.

The Tax Register for Personal Tax Payers (Likhingsregisteret)

This register has data from 1967 onwards. It contains data on all persons 13 years and older (ca. 3.7 million persons in 2001). The main data concerns the various measures for income and wealth, income and property taxes paid, contribution to the National Insurance Scheme and tax deductions. The register has no information on capital income and debt.

The Tax Return Register (Selvangivelsesregisteret)

Since 1993 all local tax offices handle the tax return electronically, and nearly all information from the return is stored electronically. Statistics Norway receives a copy of the register from the Norwegian Tax Administration.

The register contains individual data for the entire population. The register provides both information on income and deductions and on assets, debts and net property. Some of the information in *the Tax Return Register* is comparable to information in *the Tax Register for Personal Tax Payers*.

Income Statistics for Persons and Families (IPF) (Inntektsstatistikk for personer og familier)

Neither *The Tax Register for Personal Tax Payers* nor *The Tax Return Register* contains all income that a person might have. Tax-free incomes are not included. In order to construct income measures that can be good indicators of economic welfare, Statistics Norway constructs a register-based income statistics by linking several registers. All persons with some kind of registered income in Norway are included in the register. Also information on education is included.

In addition the IPF contains information on the person's family derived from the *Central Population Register*. A family is not necessarily the same as a household. For instance two persons living together without being married and without having common children are registered as two families, while they form one household.

Relevant information in addition to income is:

- Type of family (restricted to married couples and cohabiting couples with common children, only)
- Number of persons in the family
- Number of children
- Age of children
- Education (highest level of completed education)

The Income Statistics for Persons and Families has comparable data for the income years 1993-2000. However, the *Population and Housing Census 2001* will establish a statistical register of all households in Norway. This will give a new data source covering all private households in Norway. Household income for the year 2001 based on this register will be available in June 2003.

1.2 Information based on sample surveys

The Income Distribution Survey (Inntekts- og formuesundersøkelsen for husholdninger)

The Income Distribution Survey is a sample survey where information on households is collected. The sample size has varied from 3 000 households in 1984-9 to close to 15 000 for a period during the 1990s, and is approximately 13 000 in 2000 (Statistics Norway 2002).

All income data are taken from various registers (the same as those for *the IPF*). Since 1991 this sample has been co-ordinated with a sample of self-employed persons. For self-employed persons Statistics Norway also has information from business accounts, for instance data on depreciation and other capital allowances (write-down).

The households in the sample are interviewed in order to obtain information on actual household composition, including cohabitants. Non-responding households are however, not dropped from the survey. Instead, one substituted missing interview data on actual household composition with family composition derived from administrative registers. Consequently, it may be claimed that there is no non-response in the Norwegian IDS, as the number of households initially drawn to participate in the survey (the gross sample) will be equal to the actual number of households included in the survey (the net sample).

The Income Distribution Survey is, apart from Census data, the only statistics and data source where households are the unit of investigation. Households are classified according to several criteria, among others the main income source for the main income earner in the household (socio-economic groups). Results are presented as income per household, per person, and per consumer unit.

In 1997, 599 households were classified as self-employed in the primary industries (agriculture, forestry and fisheries). The number was 363 in 1998 and 275 in 1999.

It is possible to divide the group "employers and self-employed in the primary industries" into subgroups to get figures for "self-employed in agriculture" specifically. This would be a definition of an agricultural household rather similar to the "narrow definition" used in IAHS statistics. It is also possible to apply a broad definition of an agricultural household to include all households where at least one person has income as self-employed in agriculture.

Also persons and households in other groups have entrepreneurial income from the primary sector. It is therefore possible to apply a broad definition of agricultural households, and to estimate figures for the "marginal" agricultural households.

Income data from agricultural censuses

Statistics Norway conducts complete agricultural censuses every ten years, the most recent in 1999. These include all units meeting some criteria. Based on these censuses, Statistics Norway draws a sample that is surveyed every year until the next census. The same sample is kept for 10 years.

The annual representative agricultural survey includes a question on how much of total income for holder and spouse that originates from the holding (agriculture, forestry and other farm based activities).

Statistics Norway also combines data from the annual representative agricultural survey and *the Tax Return Register* to prepare statistics on holders' income and wealth. Holder and spouse is the unit (Statistics Norway 2000). In 1998 there were 14 328 holders in this survey. In a similar way Statistics Norway produces statistics for forest owners' income and wealth.

Most tables represent holdings with at least 0.5 hectare of agricultural land in use (owned or rented). In 2001 (end of July) the estimated number of such holdings was 65 200, compared with 70 740 at the agricultural census in 1999.

Results are presented both as averages per holder (and spouse) and as aggregate figures for all holders, nationally or by county, age of holder, area of grain and oil seed grown, number of dairy cows, number of sheep, and socio-economic status. The latter means that the holders are classified as employees, self-employed in agriculture, forestry and fishing, self-employed in other industries, and other according to their main income source.

2. Data from Norwegian Agricultural Economics Research Institute

As in many other countries, there is in Norway an annual investigation of farm profitability based on accounts from a sample of farms (holdings). Also, as in most countries this investigation is not intended to be representative for all holdings. In Norway, the intention is that the investigation should be representative for "yrkesmessig drevne bruk". The term "yrkesmessig drevne bruk" might be close to commercial farms in an English translation. The term expresses that the holding is rationally managed in order to produce an operating surplus. As an operational definition the agricultural activity should at least be equal to 400 standard man-hours, assuming that when other on-farm activities is taken into account this might be equal to 600 or more standard man-hours in agriculture. However, most of the holdings, approximately 80 per cent, should have at least 1800 standard man-hours in agriculture. A holding with 400-1800 standard man-hours in agriculture is typically a cereal farm or a sheep farm.

The Farm Business Survey (FBS) is based on tax accounts, but the accounts are converted to the principles used in FBS, and many data on quantities and prices are collected in addition. The FBS is rather detailed on agricultural income and costs, and agricultural assets. Other incomes, both from on-farm and off-farm activities are registered and published. There is also a complete balance sheet. However, as historic cost is the main principle when estimating costs and asset values, the values are probably lower than the real values. Farmer and spouse and children 16 years or younger are the main economic unit.

Since 1950 the number of farms have been approximately 1000. For the year 2000 it was 957. Participation is voluntary. There is no limit for how long a holding may be included in the survey, but the holder must not be older than 67 years. Approximately 5-10 per cent of the holdings in the survey are replaced each year. Therefore, it is possible to construct balanced or unbalanced panels and conduct longitudinal studies. Roald Sand's paper at this workshop and Hegrenes, Hill & Lien (2001) are examples of such studies.

3. Data from the Agricultural Budgeting Committee

Since 1950 the Ministry of Agriculture (or another ministry) has appointed a committee called Budsjettnemnda for jordbruket (The Agricultural Budgeting Committee). This committee has representatives from several ministries, the farmers' unions, the employees' trade union, Statistics Norway and an independent chairman. The Norwegian Agricultural Economics Research Institute is secretariat for the Committee.

The main task for the Committee is to prepare the material for the annual negotiations on agricultural prices and income. The main material is now the agricultural sector account. From approximately 1980 to 1993 the model farms were the main material.²

The agricultural sector account

The sector account is presented in two versions: one is the income and costs as they are estimated for the crop year, the other is the "normalised" account, which shows the estimated result if the harvest had been normal. It is the last version that is used to assess the average income in agriculture. Return to labour and the farmers own capital per man-year is the main indicator. This is calculated by summing the value of each agricultural product and subtracting all costs in agriculture other than labour and interest on own capital. All grants and subsidies are included. Labour input is estimated from representative agricultural censuses carried out by Statistics Norway every two years.

The sector account and budget are the main data input to the agricultural sector account in the National account and National budget prepared by Statistics Norway.

Reference farms (Model farms)

During the period 1980-93 income estimations for model farms were the main instrument to measure income in agriculture in the annual negotiations between the government and the

² From 1980 to 1993 the terms "modellbruk" (model farms) and "modellbruksberegninger" (model farm calculations) were used. Since then the term has been "referansebruk" (reference farms) and "referansebruksberegninger" (reference farm calculations). The reason for the change of terminology was that the aim and importance of the calculations were altered, and there was a wish to indicate this in the name too. The system of model farms are shortly described in OECD (1990 pp. 36-38).

farmers unions. After a change in agricultural policy in 1993 the term reference farms replaced the term model farms. The main purpose of the present reference farms is to estimate effect of proposed and actual changes in agricultural policies. In the model farms system efficiency standards were used to a greater extent. Income parity between farmers and other groups depended on the fulfilment of these standards. The reference farms represent different types of production, farm sizes and regions.

The Farm Business Survey is the main data source for constructing reference farms. However, annual variations in cereal and potato yields are average out in the reference farms.

For some years, forestry was included in two model farms, and farm tourism was included in one model farm. Since the middle of the 1990s forestry and farm tourism have not been included in the reference farm, and reference farms have information only on agricultural activities.

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