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ISSUES IN SETTING UP A REGISTER BASED STATISTICAL SYSTEM FOR RURAL DEVELOPMENT IN SWEDEN

Invited paper submitted by the Swedish Board of Agriculture*

I. INTRODUCTION

1. Sweden has a well-established system of agricultural statistics. This system has been directed largely at describing agricultural production and agricultural structural development, and has been quite dominating for the production of statistics concerning rural areas. This approach may be quite correct from the point of view of traditional agricultural policy, but has limitations in the face of the partially new role which agriculture has acquired in recent years. Ever since the late 1990s there has been a growing awareness that agricultural businesses are only one of the important operators in rural areas, and new policies for the development of rural areas have been established. These polices will require statistics that go beyond agriculture to cover social, economic and environmental aspects for all people and all businesses situated in rural areas.

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2. The general Swedish regional policy aims at creating conditions for sustainable economic growth, equity and freedom of choice so that similar living conditions are created for all citizens of Sweden. That is why the Swedish government has given the National Rural Development Agency the following task: ”… to coordinate different sectors of society and working for good living conditions and development opportunities for rural areas and rural populations …”. One of the ways in which the Agency is managing this task is by providing information about the situation in rural and sparsely populated areas so that it can be monitored and analysed.

3. An important means of achieving sustainable rural development is the Environment and Rural Development Plan part-financed by the EU. This plan aims at promoting all aspects of rural development by encouraging the participation of local operators. In the work with the evaluation of the EU-support for rural development activities, the Swedish Board of Agriculture has taken some first steps in order to monitor some aspects of rural development and to evaluate the effects of this support by presenting some statistics in this domain.

4. The evaluation work carried out by the Board of Agriculture mainly but not exclusively concerns different aspects of the agricultural sector. In the small statistical study presented in this paper, which has no connection with the running evaluation work in Sweden, a somewhat broader view is taken by comparing some aspects of the social and economic situation for different types of households in different kinds of regions in Sweden. The aim of this paper is to show some possibilities of using different statistical registers, which are managed by Statistics Sweden, in order to describe some parts of rural development in Sweden in a statistical way. This study is not an attempt to design a system of rural statistics, even though there is no national system for rural statistics in Sweden.

5. This study is based on the consideration that when producing statistics inside a certain domain, it is important to do it in an efficient way. It is especially important to consider total costs for statistical surveys and the burdens placed on respondents. In very general terms, the following methods and data sources can be used:

- Special surveys;
- Supplementary questions on existing surveys;
- Calculations based on existing agricultural or other data sets from statistical surveys;
- Statistical registers based on administrative and other sources.

Of special interest nowadays is to consider the last one of the methods mentioned above, i.e. use of statistical registers. This method does not put any additional burden on respondents and usually requires fewer resources than the other methods.

II. SYSTEM OF STATISTICAL REGISTERS IN SWEDEN

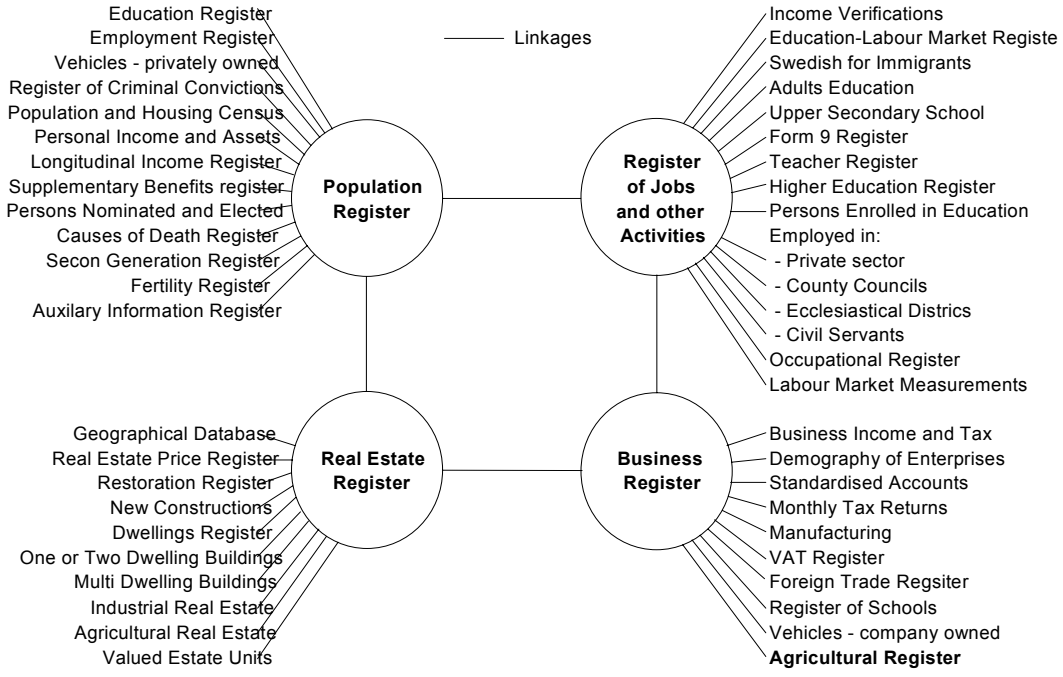
6. At Statistics Sweden there are many statistical registers based on administrative and other sources. The vision of a future general register system is presented in the following diagram, in which the most important registers are included. The system is planned to be built

up in cooperation with various state agencies responsible for different parts of the official statistics in Sweden. Some parts of the system do not exist today, new registers are under development and new linkages are planned; further, it is hoped that many of the present registers will be modified. By harmonization and more efficient use of the administrative sources the system will be made more efficient and the quality of the statistics produced from this system will be improved.

7. In the Nordic countries it is common to use population registers for statistical purposes, and these registers are very important for the statistical systems. The laws regulating this practice guarantee individuals a high level of confidentiality. All register processing at Statistics Sweden involving statistics on an individual level is under the supervision of a governmental authority independent of Statistics Sweden.

8. The statistical tables presented in this study are based on some of the registers in this system. Also the evaluation carried out by the Swedish Board of Agriculture on the effects of the EU rural development support and the information on the situation in rural and sparsely populated areas in Sweden, which is provided by the National Rural Development Authority, are based on some of these statistical registers but also on a data base about different kinds of services and on statistical surveys.

Statistics Sweden's System of Statistical Registers structured by Type of Object



III. VARIABLES FOR COMPARISONS AND REGISTERS USED

9. It is widely recognised that sustainable development has economic, social and environmental dimensions. The measurement of rural development is very difficult because it

requires a view on what the term actually means. In the context of measurement at international level, different countries have to agree on this issue. There are also technical questions relating to the use and harmonisation of data and the definition of particular variables that need to be answered in putting forward a set of statistics that, collectively, measure progress towards rural development.

10. The social dimension of sustainable development reflects the need to address the welfare of citizens while allowing sustainable growth and protection of the environment. Social welfare, in terms of sustainable development, relates to both the economic and physical well-being of the population by improving access to education, health, housing, etc. This paper deals exclusively with statistics for this dimension, since it is appropriate to base statistics for this dimension on micro data or data for single individuals and households. For statistics concerning the economic and environmental dimensions it is in general more convenient to use macro data or a combination of micro and macro data.

11. Sustainability of a (set of) region(s) is much dependent on the development in neighbouring regions. Therefore this study compares the situation in rural regions with the situation in non-rural regions and some of the statistical variables have been selected with this in mind. Furthermore, as agricultural holdings play a very important role in rural development, special attention has been given to the agricultural population.

12. The selection of variables in this study has been based on which registers can be used without spending too large resources, which variables may be interesting when comparing rural and urban areas and which variables may be interesting when comparing the agricultural population with other parts of the population. The following variables have been selected:

- Number of individuals and households;
- Net migration;
- Age distribution;
- Size of households;
- Educational level;
- Net disposable income;
- Incomes from different sources;
- Social benefits;
- Poverty.

13. In this study the statistics are based on the information in a few of the registers, which are parts of the Population Register and the Business Register. The linkage variable between the different registers is the unique personal number, which consists of ten digits. By using a few more registers it is not very difficult to get the corresponding statistics for other parts of the social dimension, as for example:

- Adult learning and
- Unemployment.

IV. POPULATION AND SAMPLE

14. The population considered in this study consists of all individuals in Sweden and the corresponding households. At Statistics Sweden a primary statistical sample consisting of 3% of the individuals in the Register of the Total Population is drawn every year. This sample is linked to other statistical registers in order to produce different kinds of statistics. The sample is drawn in such a way that the system of samples can be used for longitudinal studies. To this primary sample are added all individuals in the same households as the individuals of the primary sample. The total sample for 2000 consists of about 1.1 million people out of the total population of 8.9 million people in Sweden. In some of the following tables is also used a sample consisting of all farmers in the statistical Farm Register.

15. When dividing the households into different types or socio-economic groups, the same method has been used as in the statistics IAHS (Incomes of the Agricultural Households Sector) of Eurostat. This means that for each household the socio-economic group is decided according to the main income of the household reference person. According to this method, the households have been divided into following five main groups: Agricultural, Other self-employed, Employees, Pensioners and All others.

16. With this IAHS method most of the households that manage their own holding will not be defined as agricultural households, since only small parts of their total incomes can be assigned to the agricultural activity. As it may be interesting to describe the situation for all households with agricultural activity, some of the presented statistics are also describing the situation for different groups of agricultural households. One group consists of agricultural households according to the IAHS definition, which is called Narrow group. The second group consists of all other households with agricultural activity, which is called Marginal group. The last group consists of all households with agricultural activity, which consists of all households in the Narrow group and the Marginal group.

V. RURAL AND NON-RURAL AREAS

17. In analyses of the specific conditions within rural areas it may be necessary to consider different kinds of rural areas, as it is increasingly recognised that rural areas are diverse and undergoing significant changes. It is also revealed that inter-relationships and interdependence between urban centres and the rural hinterland are increasing, making any clear distinction between rural and non-rural hard to formulate. It is therefore not possible to use the term ’rural’ generally as it holds very different meanings depending on geographical region, and no single classification system is likely to be adequate for describing all the characteristics of rural areas that are of interest to policymakers.

18. Usually the developments in rural and non-rural areas differ, and it is usually this difference that needs attention of policy makers. Therefore, in order to contrast rural and non-rural areas, it may be of great interest to produce the same set of statistics for comparing the situation in rural and non-rural regions.

19. Rural and non-rural areas are defined in different ways in different contexts and in different countries. For example, the definition of rural areas may be based on the following principles or combinations of these principles:

- Population density;
- Structure of economic activities, especially the proportion of population engaged in agriculture;
- Development level;
- Geographical location in relation to the centre of the country;
- Geographical location in relation to urban areas.

20. In Sweden there is no broadly accepted definition of rural areas. For statistics such definitions must be based on what conditions are to be described. The National Rural Development Agency defines *urban areas* as population centres with more than 3 000 inhabitants or areas not further away from these centres than 5 minutes travel by car. *Rural areas near urban areas* are defined as areas with between 5 and 45 minutes travel by car to these centres. *Other rural areas* are defined as all other areas. These definitions are mainly used to show the situation for people with different access to services.

21. In this paper the same definitions of rural and non-rural areas have been used as in the ongoing evaluations of the effects of the EU rural development support carried out by Swedish Board of Agriculture. Sweden is divided into four different areas, two rural and two urban ones. This division is not based on any administrative regions or borders. One reason for this is that the development in most (rural) areas is not dependent on which administrative regions the areas belong to. Another reason is that a method based on administrative regions is not very flexible. The statistics in the following tables are based on the geographical coordinates for all buildings in Sweden and the number of people living in each building. In Swedish population statistics *an urban area* is traditionally defined as *consisting of a cluster of buildings with at least 200 inhabitants if the distance between the buildings is not longer than 200 metres*. Based on this definition of an urban area the four different areas considered in this paper are defined in the following way:

Urban 1 (large urban areas): Urban areas with more than 10 000 inhabitants.
Rural 1 (rural areas influenced by urban areas): Areas not further away than a) 60 km from Stockholm, Gothenburg or Malmo (the three largest cities in Sweden) or b) 30 km from other urban areas with more than 70 000 inhabitants or c) 20 km from urban areas with between 10 000 and 70 000 inhabitants.
Urban 2 (small urban areas): Urban areas with more than 1 000 and less than 10 000 inhabitants not included in Rural 1.
Rural 2 (other rural areas): All other areas incl. urban areas with less than 1 000 inhabitants.

22. This kind of definition is useful when describing the situation for areas with different kinds of job potential. The method of using geographical coordinates for buildings is very flexible and makes it possible to use different divisions of the country into rural and non-rural areas. It is for example very easy to combine areas defined by this method with administrative

areas. In the following section, also some results from an alternative definition of urban and rural areas are shown.

VI. STATISTICAL RESULTS

6.0 Introduction

23. In the following tables statistics are presented for two kinds of urban areas and two kinds of rural areas and for different socio-economic groups of households. The different kinds of areas are defined in section 5. The household types are defined in the same way as in the Eurostat statistics IAHS (Incomes of the Agricultural Households Sector). This means that for each household the socio-economic group is decided according to the main income of the household reference person.

24. Furthermore, in some of the tables statistics are presented for three kinds of agricultural households named Narrow group, Marginal group and All agric. The Narrow group consists of the households which have agricultural activity and for which the main income of the household reference person is from independent activity. The Marginal group consists of all other households with agricultural activity according to the statistical farm. The group All agric. includes all households with agricultural activity.

6.1 Number of households

25. In the two rural areas the number of households in the two rural was about 26 % and 7 % of the total number of households in 2000 (see table 1.1). The number of households with agricultural activity constitutes only a small part of the total number of households in rural areas, about 3.5 % in Rural 1 and about 7.5 % in Rural 2 (see table 1.1 and 1.2).

Table 1.1
Total number of households in different socio-economic groups in 2000 (1000s)

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	0	63	1 628	764	388	2 843
Urban 2	0	6	143	99	25	273
Rural 1	12	42	740	333	98	1 227
Rural 2	6	13	160	117	29	326
Total	18	123	2 673	1 314	541	4 670

Table 1.2
Total number of households in 2000 with agricultural activity (1000s)

Area	Narrow group	Marginal group	All agric.
Urban 1	0	3	3
Urban 2	0	1	1
Rural 1	12	34	46
Rural 2	6	19	25
Total	18	57	75

6.2 Net migration

26. Net migration can be considered as one of the most important indicators when it comes to measuring strengths and weaknesses of an area. The net migration rate between regions is one of the important social factors that determine population changes, in particular in regions where an ageing population is an issue.

27. From Table 2.1 it can be seen that since 1995 the net migration has been positive in Urban 1 and Rural 1 but negative in Urban 2 and Rural 2. As the migration results may be dependent on how the different areas are defined, an alternative definition of rural areas has been exemplified in the ongoing evaluations carried out by Swedish Board of Agriculture on the effects of the EU rural development support. In this alternative (Alt. 2 in table 2.2) Rural 2 is smaller and defined as areas not further away than a) 40 km from Stockholm, Gothenburg or Malmo (the three largest cities in Sweden) or b) 10 km from other urban areas with more than 70 000 inhabitants or c) 5 km from urban areas with between 10 000 and 70 000 inhabitants.

Table 2.1
Population in 1995 and net migration 1995 – 2001 (persons 16 – 64 years)

Area	Population 1995 (1 000)	Change 1995 - 1997	Change 1997- 1999	Change 1999 – 2001
Urban 1	3 130	+ 1,5 %	+ 1,8 %	+ 0,7 %
Urban 2	325	- 2,5 %	- 2,5 %	- 1,9 %
Rural 1	1 649	+ 0,4 %	+ 0,4 %	+ 0,8 %
Rural 2	392	- 0,9 %	- 0,9 %	- 1,5 %
Total	5 497	+ 0,8 %	+ 0,9 %	+ 0,5 %

Table 2.2
Population in 2001 and net migration 1995 – 2001 (persons 16 – 64 years)

Area	Population 2001 (1 000s) Alt. 1	Alt. 2	Net migration Alt. 1	Alt. 2
Urban 1	3 281	3 281	+ 4,1 %	+ 4,1 %
Urban 2	304	627	- 6,9 %	- 6,1 %
Rural 1	1 680	873	+ 1,6 %	+ 4,7 %
Rural 2	381	866	-3,3 %	- 0,8 %
Total	5 647	5 647	+ 2,2 %	+ 2,2 %

6.3 Age distribution

28. A society with an old population is more sensitive to social and economic disturbances and has not the same opportunities for sustainable development as a society with a young population. The populations in Urban 2 and Rural 2 have higher proportions of individuals older than 50 years and lower proportions of individuals younger than 35 years, which can be seen from Table 3.

Table 3
Proportion of persons in different age groups in 2000

Area	- 20 years	21 - 35 years	35 - 50 years	51 - 65 years	66 - years	Total
Urban 1	24 %	23 %	19 %	17 %	17 %	100 %
Urban 2	25 %	17 %	18 %	19 %	21 %	100 %
Rural 1	28 %	17 %	21 %	19 %	15 %	100 %
Rural 2	25 %	15 %	20 %	20 %	20 %	100 %
Total	25 %	20 %	20 %	18 %	17 %	100 %

6.4 Household size

29. There is a trend towards smaller households – including single parent families – which affects the welfare of households (income, housing, etc.) and the well-being of dependent children. This is a key issue in European countries. From Table 4 it can bee seen that on average households in rural areas are larger than in urban areas. Agricultural households are somewhat larger than Other self-employed and Employees households. Concerning the variable household size it would in this case have been more interesting to present proportions of households in different groups of household size than the figures in Table 4.

Table 4
Number of persons per household in 2000

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	..	2,1	2,0	1,3	1,7	1,8
Urban 2	..	2,3	2,3	1,3	1,8	1,9
Rural 1	2,6	2,4	2,5	1,4	1,9	2,2
Rural 2	2,6	2,2	2,5	1,4	1,9	2,0
Total	2,6	2,2	2,2	1,4	1,7	1,9

6.5 Level of education

30. Level of education is essential for the communication and promotion of sustainable development. In Urban 2 and Rural 2 there are higher shares of persons with the lowest level of education and lower shares with the highest levels.

Table 5
Proportion of persons 25 – 64 years old according to educational level in 2000

Area	Educational level 1	2	3	4	5 -	Total
Urban 1	8 %	10 %	45 %	7 %	30 %	100 %
Urban 2	15 %	13 %	54 %	3 %	15 %	100 %
Rural 1	11 %	12 %	52 %	5 %	20 %	100 %
Rural 2	16 %	13 %	55 %	3 %	13 %	100 %
Total	10 %	11 %	48 %	5 %	26 %	100 %

6.6 Net disposable income

31. Net disposable income is a main determinant of consumption, deprivation and a measure of inequality. Households in Rural 1 and Employees households have on the average the largest net disposable incomes (see Table 6.1). The Agricultural households (Narrow group) have somewhat higher incomes than Other self-employed households. In rural areas the net disposable incomes are nearly the same for agricultural households in the Narrow group and Marginal group. Also disposable income per household, per household member or per consumer unit can easily be calculated.

Table 6.1
Net disposable income per household in 2000 (SEK 1000)

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	..	195	224	140	87	181
Urban 2	..	223	224	129	121	180
Rural 1	220	212	255	140	112	210
Rural 2	202	199	228	123	120	179
Total	213	203	233	138	95	189

Table 6.2
Net disposable income per household in 2000 for households with agricultural activity (SEK 1000)

Area	Narrow group	Marginal group	All agric.
Urban 1	..	252	249
Urban 2	..	243	242
Rural 1	220	225	224
Rural 2	202	212	210
Total	213	222	220

6.7 Incomes from different income sources

32. The proportion of incomes from different income sources to the total household income demonstrates the dependency of households on more than one income source. From Table 7.1 can be seen that for both Agricultural households and Other self-employed households about 20 % of the total incomes are coming from dependent activities. There are only small differences between different regions. From Table 7.2 can be seen that for all households with agricultural activity, more than 65 % of the total incomes are coming from dependent activity.

Table 7.1
Proportion of total incomes from dependent activity in 2000

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	..	20 %	88 %	4 %	15 %	69 %
Urban 2	..	20 %	84 %	4 %	19 %	64 %
Rural 1	20 %	21 %	85 %	5 %	19 %	69 %
Rural 2	18 %	19 %	82 %	3 %	21 %	61 %
Total	19 %	20 %	86 %	4 %	16 %	69 %

Table 7.2
Proportion of total incomes from dependent activity in 2000
for households with agricultural activity

Area	Narrow group	Marginal group	All agric.
Urban 1	..	70 %	68 %
Urban 2	..	69 %	66 %
Rural 1	19 %	67 %	56 %
Rural 2	18 %	65 %	55 %
Total	19 %	66 %	56 %

6.8 Social benefits

33. Social benefits are a long-term response factor to the problems of equity, in particular with high levels of unemployment and the growing importance of elderly citizens in the labour force. As can be seen in Table 8, the social benefits Other self-employed and Employees are lowest in Urban 1 and highest in Rural 2. Furthermore, they are much higher for Other self-employed household than for Agricultural and Employees households.

Table 8
Social benefits in 2000 per household (SEK 1000)

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	..	52	40	184	108	88
Urban 2	..	56	52	161	137	100
Rural 1	42	54	53	174	138	93
Rural 2	42	62	58	151	140	99
Total	42	54	46	176	117	91

Table 8.2
Social benefits as a percentage of total income in 2000

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	..	5 %	4 %	58 %	43 %	13 %
Urban 2	..	5 %	5 %	60 %	41 %	15 %
Rural 1	4 %	5 %	4 %	52 %	33 %	10 %
Rural 2	5 %	7 %	5 %	56 %	36 %	14 %
Total	4 %	5 %	4 %	56 %	40 %	12 %

6.9 Poverty

34. Poverty is both a cause and a consequence of unsustainable societies. Population living below the poverty line is here defined as the share of population subsisting with an annual equilised (i.e. divided by its 'equivalent size') income after social transfers below 60% of the national median equilised annual income. The present statistics identifies the share of people living below the poverty line but does not show how severe this poverty is. Social transfers are important factors to alleviate poverty and are included in the data.

35. From Table 9 can be seen that there is a tendancy that the share of households below the poverty line is somewhat less for households in Urban 2 than in the other areas. Furthermore this share is much less for Employees households than for Agricultural and Other self-employed households.

Table 9
Proportion of households in 2000 below the poverty line

Area	Agricultural	Other self-employed	Employees	Pensioners	All others	Total
Urban 1	..	21 %	4 %	3 %	25 %	7 %
Urban 2	..	19 %	2 %	3 %	19 %	5 %
Rural 1	14 %	17 %	3 %	5 %	25 %	6 %
Rural 2	18 %	17 %	4 %	8 %	27 %	8 %
Total	15 %	20 %	3 %	4 %	25 %	7 %

VII. CONCLUSION

36. From this study it can be seen that it may be possible to base a system for the social dimension of rural development statistics on the statistical register system, which is managed by Statistics Sweden. There is a large flexibility in deciding definitions of rural areas and household types in order to show interesting aspects of rural development. Furthermore one can carry out longitudinal studies, because of the way the samples of individuals from the Register of the Total Populations are drawn. This flexibility depends on the fact that these statistics can be based on statistical registers with individuals as statistical units and that different registers can be linked with each other in a simple way.

37. However there is not the same flexibility for statistics concerning the economic and environmental dimensions of sustainable development, as these statistics are of macro type.
