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METHODOLOGY

Prioritization of information from multiple register sources -
case of main type of activity in the Finnish census

Note by the Statistics Finland

I. INTRODUCTION

1.   This presentation gives an example of the so-called register estimation. This method makes simultaneous use of a number of register-based datasets. For example, some 20 registers and datasets are used to obtain information on the population's main type of activity in Finland. The coverage and quality of the registers and other administrative sources vary and statisticians have to make estimations in order to get the best results. The register estimation method is used to form new variables not found direct in any existing registers.

2.   The aim is to estimate for each statistical unit the value of a target variable that is as identical with a statistical concept and definition as possible. This value for a statistical variable is established by means of estimation in which all the available existing data and a set of decision rules are used. The problems with the sources for register estimation arise from register quality, such as partial coverage, overlapping and basic information content in each register. In principle, different registers supplement each others. In this example the sequence of the steps relating to the concept of main type of activity is based on three principles:

- International (census, UN, ILO) definitions
- Quality of administrative sources
- Other reasons (such as....).

3.   The decision rules were originally formed by utilising parallel statistics from the 1985 Census to test decisions in different ways and in different sequences.

4.   The aim was to come up with such decision rules that the number of persons in each group would be as close as possible to the data in the questionnaire-based census and the proportion of those belonging to the same group would be as high as possible.

II.   MAIN TYPE OF ACTIVITY

5.   The concept of main type of activity describes the nature of a person's economic activity. The population is divided into people in and outside the labour force. These categories can further be divided into subgroups. The classification is based on data on a person's main type of activity during the last week of each year.

6.   Information on main type of activity is derived from data in various registers. Where the data conflict as to whether a person is in the labour force or outside it, priority is given to the former. If, within the labour force, the data conflict as to whether a person is unemployed or employed, priority is given to the former.

7.   To produce data on main type of activity a *derived variable* is constructed using multiple registers and administrative sources in the following order. The defining takes place in 19 steps. The unclassified population diminishes after each category until all persons have been classified to some group.

Persons aged 0-14 years

> 1. The first step is the defining of persons aged 0 to 14. They are all defined as being outside the labour force. The information is obtained from the Finnish population register called the Population Information System (PIS) maintained by the Population Register Centre.
> In 2008, this group made up 16.7% of the total population.

Persons aged over 74 years
> 2. All persons aged 75 or more are defined as pensioners. The data on age is obtained from the Population Information System.
> In 2008, this group made up 7.9% of the total population.

Unemployed
> 3. Unemployed people are defined as persons aged 15-64 who, according to the Ministry of Employment and the Economy's Register of Job Applicants are unemployed on the last working day of the year.
> In 2008, this group made up 4.4% of the total population.

Conscripts
> 4. Conscripts are defined as persons who, according to General Staff of the Armed Forces have been doing their military service during the last week of the year. Persons undergoing their non-military service are defined as people who, according to the Ministry of Employment and the Economy's data have been doing their non-military service during the last week of the year.
> In 2008, this group made up 0.3% of the total population.

Entrepreneurs

5. Entrepreneurs are defined as persons aged 18-74 who, during the last week of the year had a self-employed person's pension insurance (and who were not classified as unemployed or conscripts in the previous steps). The used registers are the employment registers of the private and public sectors.
In 2008, this group made up 4.1% of the total population.

6. If, in addition to having a self-employed person's pension insurance, a person is in an employment relationship, it is required that his/her income from the entrepreneurship exceeds his/her wage income. The used registers used are the employment registers of the private and public sectors, and the Personal Tax Register.
In 2008, this group made up 0.2% of the total population.

7. Also included in the category of entrepreneurs are people whose entrepreneurial income exceeds a specified level of earnings, provided that they are not retired during the reference week. The used registers are the employment registers of the private and public sectors, the Personal Tax Register and pension registers.
In 2008, this group made up 0.2% of the total population.

8. Persons who are employed with labour policy measures as entrepreneurs are also included in the category of entrepreneurs. This information is collected from the Register of Job Applicants maintained by the Ministry of Employment and the Economy.

In 2008, this group made up 0.02% of the total population.

Employees

9. Employees are defined as persons aged 18-74 who, according to the different employment registers or a pension insurance scheme are in an employment relationship during the last week of the year and who have wage or salary income from the same year (and who have not been classified into any of the previously mentioned groups).
The used registers used are the Population Information System (PIS) and diverse employment registers of the private and public sectors.
In 2008, this group made up 37.2% of the total population.
10. Persons who do not have employment relationships in any employment registers but who are employed with labour policy measures, are aged between 18 and 74, and have wage or salary income from the reference year are also included in the category of employees.
The used registers are the Population Information System, the Personal Tax Register and the Register of Job Applicants.
In 2008, this group made up 0.1% of the total population.

Students

11. Students or pupils are defined as persons aged 15-74 who are included in Statistics Finland's Student Register during the autumn term.
The used register is Statistics Finland's Student Register.
In 2008, this group made up 5.9% of the total population.

12. In addition, persons aged 15 who have not been gainfully employed or unemployed during the last week of the year are defined as students. The used register is the Population Information System (PIS).
In 2008, this group made up 1.2% of the total population.
13. Persons who have been in labour market training during the last week of the year according to the Ministry of Employment and the Economy's Register of Job Applicants. The used register is the Register of Job Applicants.
 In 2008, this group made up 0.3% of the total population.
14. Persons who, according to the Social Insurance Institution's Register of Student Aid have received support during the autumn term (or have received support during both spring and autumn term).
In 2008, this group made up 0.2% of the total population.
15. Persons who have been included as applicants for educational institutions from comprehensive schools in the Joint Selection Register collected by the National Board of Education.
In 2008, this group made up 0.1% of the total population.

Pensioners

16. Pensioners are defined as persons who, according to the Social Insurance Institution or the Finnish Centre for Pensions receive old-age, disability, unemployment or special farmers pension, and who have not been classified in any of the previous steps above.
In 2008, this group made up 15.0% of the total population.
17. In addition, persons whose income from pensions exceeds a specified limit and whose pension is not a survivor's pension or a part-time pension are classified as pensioners.
In 2008, this group made up 0.2% of the total population.

Employees defined using income

18. If a person aged 18 -74 is not self-employed, unemployed, student, pensioner, conscript or conscientious objector and if his/her wage income exceeds a specified level of earnings (which is set in connection with inferences from data of the Labour Force Survey on wage and salary earners), he/she will be classified as an employee even if the sources on employment indicate that he/she is not in an employment relationship. The used registers are the Personal Tax Register and the Population Information System (Population Register).
In 2008, this group made up 0.8% of the total population.

Others outside the labour force

19. Others outside the labour force include persons who do not meet any of the above criteria. (Persons aged 15-74 who are not employed, unemployed, students, pensioners, or conscripts /conscientious objectors.)
It has not been possible to form a separate category for people doing domestic work, but they are included in this group.
In 2008, this group made up 3.2% of the total population.

Table. Population by main type of activity on 31 December 2008

	Persons	%
Employed	2,377,181	44.6
- employees	2,137,027	40.1
entrepreneurs	240,154	4.5
Unemployed	233,487	4.4
0 - 14 –year-olds	891,162	16.7
Students	405,963	7.6
Pensioners	1,232,420	22.2
Conscripts	16,508	0.3
Other persons outside the labour force	169,593	3.2
Total	5,326,314	100.0

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