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Joint ECE-EUROSTAT work session
on Population and Housing Censuses¹
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Study topic 1

DEMOGRAPHIC SURVEYS BASED ON CENSUS RESULTS

Invited paper prepared by the Czech Statistical Office²

I. Introduction

1. Czech Statistical Office used data of a census which was organised in the Czech Republic as a source of data for two international demographic surveys. The first one was the Reproductive Health Survey (1993) and the second the Fertility and Family Survey (1997). This paper is oriented to evaluate census data quality as a source for demographic surveys.

2. First of all a couple of words about the Czech Republic. The Czech Republic, with a population of 10.4 million people, lies in central Europe, covering an area of 78,864 square kilometers (30,590 square miles). Since 1918, the Czech Republic had constituted the western three-fifths of Czechoslovakia prior to the January 1993 breakup of that country. The country consists of two historical areas, Bohemia in the west, which is divided into six regions, and Moravia and Silesia in the east, divided into two regions.

3. At the time the survey was carried out, the crude birth rate (births per 1,000 population per year) was estimated to be about 12 per 1,000 and the crude death rate was about 11.1 per 1,000, with the annual rate of natural increase being about 0.1 percent (Population Reference Bureau 1994). According to the 1991 Census, 75% of the Czech population lived in places

1 The papers which are prepared for this work session will be treated in the same manner, as papers that are prepared for seminars.

2 Prepared by Jaroslav Kraus.

classified as urban, with 22% of people living in cities with at least 100,000 people (Czechoslovakia Federal Statistical Office 1991). Average life expectancy was estimated to be 77 years among females and 69 years among males (National Public Health and Hospital Institute 1994). Ethnically, the Czech Republic is highly homogeneous, with the overwhelming majority of residents (about 95%) identifying themselves as Czech (or Bohemian or Moravian). The largest numbers of non-Czech residents are Slovak, Romany (Gypsy), Polish, and Silesian. The Czech language is the primary language for all but a very small percentage of the entire population.

II. Sample Selections - Methodology

4. The 1993 RHS was designed to collect information from a nationally representative sample of women of reproductive age from throughout the Czech Republic. The universe from which women were selected consisted of all females between the ages of 15 and 44 years living in households in the Czech Republic at the time that the survey was carried out. Although some pregnancy and childbearing takes place outside the ages 15 to 44, because of the relative rarity of these events at those ages, it was decided that it would be most efficient to limit the sample to women between 15 and 44 years of age.

5. Selection of survey respondents was made using a three-stage cluster sampling design. First, 166 pairs of basic census enumeration districts (ED) (332 districts in all) were systematically selected from throughout the country, with the probability of selection proportional to the population of each census enumeration district. These 332 ED constituted the primary sampling units (PSU) for the survey. The sample included ED in all but one of the Czech Republic's 85 districts. The Czech Statistical Office then made listings available of all known dwelling units in each of the selected ED. These listings were taken from the 1991 Population and Housing Census. Because the selection of PSUs was done proportional to population size and no strata were oversampled, the sample was geographically self-weighting.

6. In the second stage of selection, individual dwelling units were sampled from each ED chosen in the first stage. Because of slightly different mean numbers of 15 to 44 year-old women per household according to size of community, the number of dwelling units selected in an ED depended on the population of the community in which the ED was located, as follows:

<u>Community</u> <u>Population</u>	<u>Selected</u> <u>Dwelling Units</u>
1-4,999	43
5,000-19,999	37
20,000+	39

7. One dwelling unit was randomly chosen from the each PSU. That unit and the 42, 36, or 38 units (depending on the community population) listed next

constituted the sample of housing units to be visited. No substitution was made for dwellings that were unoccupied or where nobody was at home. By varying the number of units selected according to the average number of women per household we were able to hold fairly constant the average numbers of women living in selected ED across population size categories. If the selected ED had fewer households than were needed to constitute a sample sector, all dwelling units were sampled and another ED (the one with the next highest number, which was usually geographically contiguous) was added to the sample.

8. The third and final stage of sampling consisted of the selection of individual respondents. In households in which more than one woman between the ages of 15 and 44 lived, the household respondent was asked for a listing of all such females. One of those women was randomly selected by the interviewer to be the survey respondent. During analysis each record was weighted by the number of women of childbearing age in the household, to compensate for the fact that only one woman per household was selected with probability inverse to the number of women in the household.

III. Data Collection

9. Data collection for was done by about 150 female interviewers from throughout the Czech Republic. Each interviewer received intensive training in interviewing techniques, field procedures, and proper administration of the CRRHS questionnaire. Each interviewer attended one of three training courses held immediately before the beginning of field work, two in Prague and one in Brno in January and February of 1993. These sessions included practice interviews with community residents to ensure that interviewers were able to administer the questionnaire competently.

10. Data collection lasted from February until June of 1993. Each interviewer was assigned to visit selected households in from one to three sample sectors easily accessible from her home. Interviews were conducted at respondents' homes and generally lasted between 30 and 60 minutes. Completed questionnaires were sent by the interviewer to her supervisor, who reviewed each questionnaire and, if it was satisfactorily completed, forward it to the Czech Statistical Office.

IV. Response Rates of RHS

11. A total of 12,747 dwelling units were visited in the 332 sample sectors. Women eligible for interview were identified as residing in 38.2% of these units. In 52.2% of the households visited there were no 15-44 year-old women resident. Nobody was home at 4.0% of units and 3.0% of units were uninhabited. Residents refused to be interviewed at 2.7% of households. As the size of community increased, the percent of refusals increased slightly and the percent of households with no eligible females decreased.

12. Of the 4,870 households identified as containing at least one 15-44 year-old female, interviews were completed in 4,497, for a completion rate of 92.3%. Of those women selected, 5.3% refused to be interviewed and 1.6% were

not found at home, even after repeated visits. The completion rate fell slightly as community size grew, from 93.8% in towns under 5,000 population to 91.3% for cities with at least 20,000 people.

13. In regard to residential characteristics, the sample appears to have been highly representative of the 15-44 year-old population of the Czech Republic. Of the Czech Republic's nine regions, only in Prague was the difference between the 1991 Census and RHS proportion of the female 15-44 year-old population as much as two percentage points. Likewise, the census and survey distributions of size of place of residence were very similar.

V. Response Rates of FFS

14. The sample was prepared to collect information for women in fertile age from throughout the Czech Republic. A total of 7611 households was visited in almost all districts of the Czech Republic. Short questionnaire for household was completed in 4038 cases, the questionnaire for woman in 1735 cases and there were 721 questionnaires for man. That means that 1838 woman were not identified. There were three reasons for such a result:

- (i) the woman was visited several times, but she was never at home (564),
- (ii) the woman completely refused to participate in the survey (515) and
- (iii) the house or the flat did not exist (759)

15. The result is, the sample size was much smaller than was expected. There are two reasons for that situation. First, the conditions for surveys are getting worse in general. The same result of non-response was found in last Microcensus (1997). The second reason is probably connected with contemporary economic situation in the Czech Republic - people are disappointed and do not want to cooperate.

16. Fertility and Family Survey was organized in all regions and districts of the Czech Republic. The relative number of visited households was higher in Moravian part of the Czech Republic, lower then in Central Bohemia. The numbers of non-existing households were identified in all parts of the Czech Republic, with a cluster in West Bohemia. That is probably connected with decrease in dwelling stock. The numbers of households refusing and household visited several times without results have similar space distribution. We have asked for cooperation local authorities, but the results of that were different.

VI. Summary

17. Census data are a possible source for sampling of demographic surveys. And vice versa sample design of RHS confirmed the quality of the census data. Two circumstances are related now with using of census data in demographic surveys. The first one is the time elapsed from the census and the second is the actual economic and social situation in the country. The combination of these factors resulted in two different results of field works.

