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Full enumeration versus sample surveys

Transition from traditional census to sample survey? (Experience from Population and Housing Census 2011)

Note by the Statistical Office of the Slovak Republic

Summary

In the area of current Slovak republic the method historically used is the traditional comprehensive survey. In the specific period the census was conducted for the purpose of obtaining only the basic data on population – number, sex and age, also the migration of population between regions. Eventually, with the development of the society, diversification of social reality as well as with the growing demand from the end users on both the national and international levels, the upgrade of the survey has been decided, adding extra social and economic characteristics.

The public opinion to the census moved strongly. It is still various, but the share of people with the negative attitude is increasing. This fact reflects the relationship between citizens and government, the stronger influence of individualism and increased show of skepticism or even concern or fear, mainly in connection to the providing of the personal data, e. g. on date of birth, address/residence, occupation, household equipment.

The trend moves worldwide towards the use of administrative data sources by linking the various registers, that serves for the purpose of record keeping in the social and health insurance, record keeping on enterprises, giving the permissions for specific activities (occupations) etc. The method of sample surveys could usually be used, when we want to gather the data that are not a part of registers, e. g. the household structure, household equipment, housing standard etc.. The purpose is to use the existing data sources to maximally reduce the statistical burden for the public and to save the financial resources.

In this article, we would evaluate the course of the 2011 Population and housing census on the ground of factors, that move towards revision of the method of conducting the next census in Slovakia.

1. The Population and Housing Census 2011 was conducted by the NSI in Slovakia. The census reference date was the 21st of May 2011. As far as the survey was the comprehensive survey, we could consider it the statistical action of the decade.
2. Preparatory works started in 2007 with the preparation of the legislation framework – the law act on population and housing census. The new census followed the range of historical censuses, from the first modern census in the area of current Slovakia which was held in 1754, through the czechoslovak censuses between 1921- 1991 up to the first census in independent Slovak Republic in 2001. All were conducted in the traditional way, as a comprehensive survey. Besides the traditional method the range of traditional elements from the previous censuses were applied – as institutional covering by regional statistical offices and municipalities, data collection by the means of field work and using of paper questionnaires. The new modern element of the current census was the creation of enumeration areas and census questionnaire completion by the electronic means – through the web-applications.
3. In particular, immediately before the reference date and also during the data collection increased the negative responses from the people. They reasoned mostly with the statement, that the state has enough data in the offices and authorities databases and therefore it should not burden the respondents with the data collection. People demanded more modern alternatives of census conduction, the most remembered request was the use of registers for the purposes of the census conducting.
4. The explanations and argumentation of the Statistical office before the census and during the data collection were based on next facts:
 - some but not all data surveyed in the census are actually the part of existing databases and registers in Slovakia,
 - these databases are created for a specific purpose and they contain only the data for particular group of inhabitants,
 - the unified identifier does not exist, which could make possible the two-way data linking,
 - there is to mention, that the project of informatization of the public administration was stopped just after the law act on census adoption, although it had to ensure the condition of mutual data linking.
5. The preparation for using the administrative data for the purposes of census conducting is not a question of a short time. It is important, that the public opinion should identify with the possibility of using the administrative data sources (ADS) for the statistical purposes. For the right setting of the public opinion is an advantage, if the public trusts the government and other state authorities, that they adopt the rational and public beneficial decisions. The existence of the increasing number of administrative data could lead to the discussions about privacy protection. If the public attitude is negative, the politicians could refuse to create new administrative sources or update the existing administrative sources.
6. The statistical use of administrative data means mainly the linking of data from the various administrative sources, that could lead to the Big Brother Syndrome. On the other hand, the citizens know, that administrative bodies collect the same data as the Statistical offices use for their own needs. It is very hard to motivate people to provide the data for statistical purposes, if the data already exist in administrative databases.
7. According to the view of Mr. Vaňo (Vaňo 2011), the main advantage of administrative sources is, that in the principle they provide the complete coverage and reduce the processing costs. By using registers, it is possible to produce more detailed

statistics than by using sample surveys (e. g. small areas data or multiplied classifications). Using the administrative sources relate in particular with the objective to reduce the costs and with quality enhancing. In census conditions, it means also the possibility to reduce the respondents burden. But it is important to assess the default status in existence of the administrative sources and their following use for the statistical purposes. The national legislation has to reflect the fact, that there is a reason to use existing administrative sources besides the repeating data collection for the statistical purposes (Vaňo 2011).

8. One of the administrative sources, that was and is suitable for the census purposes and it is currently worked up for using it in the demographic balances processing, is the population register at the moment, that contains all necessary data on the one hand (besides data about the highest education level), but on the other hand their quality is not sufficient. The problems in population register according to their use in the demographic balances are solvable just in a short-time horizon. There is no need for the legislation changes, just for the adjustment of output data from the register on the base of external information and providing the data from the Ministry of Interior of the Slovak Republic on a regular basis. According to the opinion of Mr. Vaňo, the current practice in providing the register outputs for the purpose of Statistical Office's needs is not suitable. (Vaňo 2011)

9. Despite of objections to the data quality the data from population register were used firstly in generating the identifiers and also as one of the sources used for data imputation. Highly negative campaign held by some media during the census reflected in the non-responses. As the expert evaluation report says, „The Office prepared the census in the manner of keeping all legislation, methodology and other conditions for the purpose of ensuring the representative outputs for the Slovak Republic and Eurostat needs.“ (Infostat 2012)

10. The census has in Slovakia a long tradition and until now the response rate and the completeness were very high and the problem of incomplete data was not an issue to solve. But in the census 2011 the rate of non-responses significantly increased in all three types of non-responses – per unit, partial per unit and item non-response. There arise three types of non-responses. In connection with the non-responses per unit, the housing, dwelling and related personal questionnaires were not submitted.

11. In the case of partial non-responses per unit – for the house – the housing questionnaire was submitted, but one of related dwelling questionnaires was missed, or both housing and dwelling questionnaires were submitted but one of the personal questionnaires for particular person living in the dwelling was missed, or other combinations were possible. In the case of the item non-response some of the relevant answers were not provided (Infostat 2012).

12. The special problem was the fact, that the unit non-response was geographically concentrated mainly to the location of the capital. To ensure the solving of the situation the Statistical Office of the Slovak Republic hired the external experts to work up the theoretical solutions, methods and software tools for using the imputations in 2011 Population and Housing Census (see the material 1, 2). Currently, the data are processed and the part of processing is also the data analysis and their imputation.

13. After the assessment of all the information currently available and the current status quo, replacing the traditional census with administrative sources seems to be hardly probable. In the first phase we should look for a transitional form of census conducting and this could be the combination of the traditional method and the sample survey.

14. Certain solution should be the dividing of the variables surveyed into the two groups, where would be surveyed the main demographic characteristics by the traditional way and other variables – the questions, for that the higher level of non-response was detected – e. g. concerning the employer and the occupancy – could be the object of the

sample survey. But one sub-group remains – that are the variables of the declaratory character of answers, they represent the personal attitude of the person to the particular community (religion and nationality).

15. These data are specially sensitive according to that in Slovakia, they are still the basis for ethnic-group financing and also the religious organizations. On the other hand, possible higher level of non-responses is criticised by the data users and the statistical methods for imputation could not manage to reach the positive feedback.

Conclusions

16. The current trend in developing the information technologies opens the way for using the administrative sources. The whole process of transition has to be gradual and it requires the time. Therefore it is necessary to engage in the issues of the transition from the traditional census to the new more modern and more effective way immediately after ending the last census. The part of output presentation on all levels will be also the discussions about the future of next census in Slovakia. The Statistical Office of the Slovak Republic expect the participation of all necessary subjects in the discussion – from the citizens to the responsible authorities, from the data processors to the data users. One of most important conclusion from the analysis of the current census is the fact, that the law act has to be prepared with more respect of current situation and adopted as close as possible to the census reference date.

References

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