

COMBINING DATA FROM ADMINISTRATIVE AND STATISTICAL SOURCES IN PRODUCING LABOUR MARKET STATISTICS

– workshop background paper

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In order to harmonize activities with European methodology, the SORS has been working constantly on modernization of statistical production processes. SORS has recently made a significant progress regarding the use of administrative data in the statistical production, especially in the area of labour market statistics. Labour market statistics is an important input for governmental decision-making processes, and significant indicator of economic development. This document aims to familiarize the workshop participants with the process of introduction of new sources and new activities. Furthermore, it displays a general overview, featuring past situation, current status and future plans in producing labour market statistics.

PAST SITUATION

Calculation of average salaries and wages

The Monthly survey on employees and their salaries and wages (RAD1) has been carried out for decades on a purposive sample of legal entities. The units of observation and reporting units at RAD1 survey, were legal entities (enterprises, institutions, cooperatives and other organisations), as well as their territorially separated units. All territorially separated units of an enterprise or another organization submitted a single report, according to their municipality and NACE activity. The survey was conducted on the sample that covered approximately 8,000 reporting units, and involved some 800,000 employees (about 65% of the total number of employees in legal entities). The sample provided a data representativeness on total average wages and salaries on municipality level, while for regions (territorial level NSTJ2) they were representative on the level of NACE divisions (two-digit CA 2010 level). The data collected at the level of observation units, were aggregated data on the total number of employees and the total mass of paid wages.

Since 1997, the average wages and salaries were calculated by dividing the payroll, paid in a reference period, by the number of employees registered in the human resources records at the end of a reference month. The data on average wages and salaries referred to all the employees registered in the human resources records, regardless of being remunerated or not in a reference month.

From January 2009, the data on salaries and wages paid to employees working for entrepreneurs were taken from the records of the Tax Administration and joined to those from the monthly survey. Approximately 65% of entrepreneurs were covered.

In RAD1 survey, the collected data were total wages and salaries, taxes and contributions paid out in a reference month. Since April 2011, a survey questionnaire was modified to collect the data on hours worked, to be compliant with the international regulations on short-term statistics. This additional data allowed providing not only average wages and salaries paid in a month, but also data essential for calculation of average wages and salaries paid for the month.

The collection of monthly data imposed an overwhelming response burden on Serbian businesses. It also required the engagement of a significant number of employees in the SORS (the employees of the Division of Employment and Earnings Statistics in the head office, as well as those employed in the 15 regional offices), as well as substantial financial resources.

Formal employment statistics

In addition to the monthly survey RAD1, the SORS simultaneously conducted a regular semi-annual survey (in March and September each year) on employees and their salaries and wages (RAD1/P). It was carried out on an enlarged sample. This survey provided the data on the level of education and gender. The survey also establishes the coefficients necessary for monthly estimation of the number of employees in legal entities by activity sections.

Furthermore, the two additional surveys, supplementing the semi-annual survey (RAD1/P), were carried out:

- (ARAD1/P) Semi-annual survey on the number of employees in small legal entities;
- (RAD15) Semi-annual survey on entrepreneurs and their employees;

Only the persons who had a formal employment contracts with an employer for a fixed or indefinite time, irrespective of working full time or part time, were considered as employees.

PRESENT SITUATION

Formal employment statistics

Administrative data of the Central Register of Compulsory Social Insurance (CRCSI – hereinafter **CROSO**) became available, as a source, for Labour market statistics in 2014. The analysis of the quality of these administrative data started immediately, as well as all necessary actions needed for adapting data for statistical needs. During 2015, SORS switched to a data source for monitoring registered employment – CROSO.

The new source of data provides more up-dated coverage of all enterprises, thus a better coverage of employees, and it broadens the definition of employment too.

Hence, all modalities of employment are included and taken into calculation:

- Long-term employment;
- Temporary and occasional employment;
- Registered individual agricultural producers (farmers);

The objective of the survey on registered employment is to obtain data on the number of employees in legal entities, entrepreneurs and employees working for them, number of self-employed, as well as the number of farmers included in the system of social insurance.

The use of administrative data poses major challenges. For example, two important information are not available in the CROSO:

- Municipality of a working place (There is an information on the municipality of the head office, while the data on the municipality, where an employee works, is not always specified);
- NACE activity code (the CROSO database does not have information on the activities of an employee, i.e. NACE activity of a local unit where the employee works);

It is very important to obtain data that are represented on municipality level.

The national *Law on regional development* obliged statistics to provide data at the municipality level, in order to define degree of development of the municipality.

In order to overcome these shortcomings, the SORS has introduced a new methodology for computing the registered employment. The new methodology combines data from the CROSO and the Statistical Business Register (SBR).

Upon request of the Labour Force Department, the SBR has modified the question of the number of employees in its annual Survey on local units of large and middle-sized enterprises, hence the Total number of employees in the local unit had been split in three modalities ("long-term employment", "temporary and occasional employment", "rented employees").

Every month, the SBR creates two consultation databases.

The first one includes all active enterprises on the last day of the month. That first dataset is being paired with the CROSO dataset. The matching data from these two datasets denotes the set of enterprises; employees from CROSO, belonging to these matched enterprises represents the base population for calculation.

Also, the SBR creates the second dataset, which comprises of all local units. In this dataset, the number of employees is segmented by the NACE activities. This file allows the creation of STRUCTURE file, intended for distribution of employees from the enterprise to the L-KAU level, where the number of employees in enterprises, are presented by the local units and by the NACE activities of local units. Finally, based on the SBR STRUCTURE, the number of employees from the CROSO database can be broken down by municipalities and the NACE activities.

Benefits given by using Administrative sources in calculating registered employment:

- Better coverage – (Include employees in the Ministry of the Interior and the Ministry of Defence)
- Modalities of employment (temporary and occasional employment, farmers)
- Employees by categories in The Public Sector

Calculation of average salaries and wages

Although the survey on the registered employment had switched to new sources, the monthly and semi-annual surveys (RAD-1 and RAD-1/P) continued until 2018 in providing the data on earnings. As from January 2018, the SORS has started using the Tax Administration (TA) to calculate average wages, which are collected in electronic form for tax return. The TA data covers all the earnings for which an employer has submitted a tax form.

Wages and salaries are payments to employees to which the corresponding taxes and social security contributions are paid, and include all payments to employees under fixed-term and indefinite-term employment contracts as well as remuneration for work of employees under temporary and occasionally employment contracts.

Average salaries and wages are calculated by dividing the total mass of calculated salaries for the reporting month with the number of employees calculated for the full-time equivalent (relying on work hours). By this approach, each employee is assigned a coefficient (between 0-1.5), and there is no multiplication if the employee works for several employers. Additionally, the earnings are calculated for the NACE activity and in ownership type in which it had been realized.

TA data lack important information needed for earnings statistics: NACE activities of the local unit (LKAU), municipality of working place, educational level etc. This challenge has been overcome, also, by the significant changes in methodology. Additionally, the annual survey on employees and their salaries and wages RAD-1/G is conducted, aiming to

obtain the additional data needed for detailed analysis (such as, average salary due to NACE activities and educational level), and also to acquire data needed for distribution of earnings and employees by units of observation, by the NACE activities.

Major differences between survey and register based calculation of average salaries and wages:

<i>Till 2018</i>	<i>From 2018</i>
Included wages paid during the reporting month (regardless of the month in which they were realized)	Included all calculated wages for the reporting month
Average wages were available at the level of the municipality of work of employees.	Average wages by municipalities relate to the municipality of residence (not to the municipality of work) of employees.
Payroll paid was divided by the number of employees from the human resources records	Payroll paid now is divided by the number of employees calculated for the full-time equivalent
Average monthly wages reports were available 25 days after the end of the reference month.	Average wages will be available 55 days after expiration of the reference month
	Include wages of employees in the Ministry of the Interior and the Ministry of Defence
	Include salaries of employees under temporary and occasionally employment contracts
	New statistical indicators are available: median wage, wage distribution, gender pay gap, average earnings by age, average earnings in public sector, etc.

FUTURE PLANS

Administrative data, despite all of its shortcomings, secure better efficiency, reduce the response burden on reporting units; it also diminishes financial expenditures, enables better coverage and more up-to-date data, as well as improving the quality of statistical output. The statistical producers with the SORS are faced with arising challenges, in an attempt to fit administrative data to the statistical needs. Serbia still does not have some of the important administrative registers (i.e. population register), while the existing administrative registers are often not of satisfactory content, format and scope to be used in the official statistics. Additionally, the current (SQL server) database system for storing and processing data in our Office cannot completely satisfy the data processing needs, and the continuing anticipated extensions will contribute to further complications.

Therefore, the reorganization of the register system of the administrative data is inevitable, in order to create a system within which different registers can be linked on the basis on clearly defined keys. The integration of microdata from different sources would efficient the data storage and usage. One of the basis registers, planned to be established next year, is the Activity Register. This Register would be a link between the Business Registers and the Statistical Population Register (it would be formed based on data from several Administrative registers). The main types of activity registers are job registers.

The Activity Register should contain: job activities, study activities, and other activities relating to labour market. The activity is the statistical unit and one person can have many jobs and study activities during a specific period.

The personal information on an employed person (gender, age, place of residence, education etc.) as well as the basic information of an establishment (industry, location etc.) will be part of the job register that would greatly facilitate the work of the labour market statistic producers.