

Building a new system of business statistics in Moldova: the experience and vision for the future

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Abstract

Increased users' demand for relevant, timely, consistent and coherent data for early warning of economic vulnerabilities and detection of turning points in business cycles requires prompt, adequate response of official statistics. High quality business statistics are of special interest to developing market economies such as Moldovan one, which are extremely vulnerable to economic downturns caused by shocks at the national, regional and global levels. Responding to the challenge to produce a consistent and harmonized picture of economic activity in an efficient manner, the process of development of an integrated business statistics system, based on advanced experience of other countries, has been launched in the Republic of Moldova. As a result, the integrated data production system for short-term business statistics (STS) was designed and implemented in 2011, based on consistent concepts, common sampling frame, survey and questionnaire design, as well as standardized statistical processes. The integrated approach to the production of STS extended the scope and improved the accuracy, consistency and international comparability of national business statistics. The redesign of STS has given the possibility to obtain main short-term business statistics in line with European Union's requirements, being of special importance for national, as well as for international users, taking into account the Moldova's European integration aspirations. The decrease of the number of statistical questionnaires collected from economic entities and the use of sampling methods on a large scale resulted in significant reduction of response burden. This paper presents the Moldovan experience on implementation of integrated STS, as well as the vision on further development of business statistics in the country.

Keywords: efficiency, harmonization, integration, short-term business statistics

1. Introduction

Aiming to meet the crucial needs for reliable and internationally comparable data, the business statistics of the Republic of Moldova (like the whole statistical system inherited from former USSR), is under reform for its adaptation to the market economy requirements, in line with the users' demands and international standards. In this respect, the process of modernisation of national statistics, including business statistics, is focused on the alignment to the EU standards and best practices, being of crucial importance, taking into account the Moldova's European integration aspirations. Despite the considerable improvements undertaken in the recent years, before 2010 there were plenty of different surveys in the field of short-term business statistics in Moldova, with an outdated system of indicators and much overlapping, accompanied by separate data production processes for each survey (based on "stove pipe" approach). Along with this, because of exhaustive data collection method, based on functional principle, the response burden on businesses was exaggerated.

Until 2010, the STS, performed by National Bureau of Statistics (NBS) were based on infra-annual statistical business surveys (monthly, quarterly), conducted, traditionally, on exhaustive basis and developed separately, in the framework of branch statistics (labour market, industry, construction, investments, trade and market services, etc.).

Among the main characteristics of the STS surveys in the above mention period the following can be mentioned:

- *The functional principle* of the surveys' organization, which implied data collection system from the statistical units regardless of their main kind of activity. Thus, for instance, the respondent unit with manufacturing as the main economic activity and distributive trade and services as the secondary activities, had to provide monthly statistical reports to the regional statistical office (RSO), on: i) industrial production; ii) trade activity; iii) services provided to the individuals, as well as a series of other questionnaires collected from economic units irrespective of the main activity of enterprise (on labour, investments etc). Hence the statistical units had to present up to 11 questionnaires to the statistical body during the year.

- *The exhaustive principle* of STS data collection. Most of short-term statistical surveys were based on the exhaustive coverage of statistical units regardless of their size. Thus, the statistical surveys were characterized by a large number of statistical respondents surveyed infra-annually. For instance, within the quarterly survey on consumption and expenditure of enterprises about 23 thousands of units were covered, compared to 16 thousands of units annually surveyed within the Structural Business Survey (since 1998 based on sampling methods) which, as a matter of fact, is considered to be the most comprehensive annual statistical survey (excluding censuses).

- *The repetition of information* in different statistical questionnaires. Similar indicators were collected within the various statistical questionnaires, accompanied by inconsistencies in their reporting. Thus, for instance, the indicators on the number of employees were present in 6 monthly and quarterly questionnaires. At the same time, varied concepts were used in the different questionnaires (for instance: *average number of employees, number of personnel, average number of employees for the calculation of productivity, average number of the personnel employed in the main activity*) causing difficulties for the respondents when reporting this indicator and negatively influencing the quality of primary data.

- The reporting criteria and statistical units to be observed within certain surveys *were not strictly defined*. Thus, in a series of statistical surveys, the respondent units were both enterprises and local units. Consequently, the statistical questionnaires could be presented to the NBS as follows: i) in a centralized manner by the mother enterprise (which included the economic activity of all its establishments, regardless of the administrative-territorial units (ATU) they were located in), or ii) in a decentralized manner - by local units of the enterprise situated in many ATUs, by presenting the statistical questionnaires to the local territorial statistical body. Thus, there was the risk to under report or to replicate the primary statistical information.

As the result of the above mentioned, there were a lack of consistency of data and high response burden, along with an exceeded overload on statisticians and respective negative impact on quality assurance of micro data.

- The respondents observed within the statistical surveys were directly identified by the territorial statistical offices (TSO) and were weakly led from the central statistical office. The National Register of Statistical Units was not entirely used within short-term surveys. The lists of statistical respondents for some surveys, elaborated by the TSOs included mainly statistical units, which traditionally presented the statistical information. Because of the limited use of the National Register of Statistical Units, sometimes there were various data from different statistical surveys for the same enterprise regarding the main activity, the type of ownership, the legal

and organizational form, etc., affecting the quality of the statistics disaggregated by the respective criteria.

- Despite the development of national short-term statistics within the process of transition towards the market economy, there were important gaps regarding the system of indicators and their calculation methodology compared to the international standards, including those of the European Union. This is caused inclusively by the “traditional thinking” of many statistical users, especially from the public authorities preferring “old fashioned” statistical indicators, produced earlier.

Thus, on one hand, the short-term business statistics were not fully relevant for the market economy and did not ensure their comparability at international level, and, on the other hand, the statistical body and the respondents allocated considerable resources for producing some “traditional” data with reduced informational value in the new economic conditions.

2. The implementation of the short-term integrated statistical survey

For the modernization and ensuring the better efficiency of the short-term business statistics, the National Bureau of Statistics (NBS) launched the reformation of STS. At the first stage, since 2010, the exhaustive surveys on the number of employees and wages& salaries (monthly - for the units with 20 and more employees and quarterly - for the other units with up to 19 employees), have been replaced with a single sample-based survey (covering about 10 thousand units, instead of 30 thousand enterprises included earlier in the infra-annual surveys).

At the second stage, which started in January 2011 a short-term integrated business statistical survey (*integrated* survey or *STIS*) was implemented in 2011, with monthly and quarterly periodicity.

The main objectives of the implementation of this survey were:

- to optimize the programme of the STS surveys aiming to improve the coherence of statistical data and to eliminate the repetition of indicators;
- to harmonize short-term statistics with the relevant European Union standards;
- to decrease the information burden on the entities and to optimize the deadlines for the reporting of short term statistics questionnaires;

In order to achieve integrated STS, the full set of relevant conceptual, production and institutional issues has been addressed. A new data production system was developed, based on consistent concepts, common sample frame and standardized statistical processes:

- common (centralised) survey design, sample selection and use of estimation methods,
- common questionnaire design, ensuring consistent terminology and definitions, aligned to international, especially EU standards,
- modular approach on data collection with the common core questionnaire for all entities covered by short- term economic surveys and special modules depending on the statistical units’ main kind of activity (industry; construction; trade and other market services),
 - the use of the common sampling frame extracted from the business register,
 - common technical infrastructure on data entry, processing and storage,
 - integrated data base of micro data, etc.

So, as the result of short-term business statistics’ renovation, the production of STS has been changed through replacement of the previously separated “stove pipe” processes for each of the eleven monthly and quarterly statistical surveys with a comprehensive production system, based on a common infrastructure, standardized tools for data processing and storage.

The manner of organizing the integrated survey broadly corresponds to the practice of the National Institute of Statistics (INS) of Romania. The advanced

experience of INS, with appropriate relevance for Moldova was kindly shared with NBS within the bilateral fruitful cooperation.

The National Bureau of Statistics performed, from the organizational and methodological point of view, the integration of 11 statistical questionnaires with monthly and quarterly periodicity in the domains of industry, construction, trade and services, employment and remuneration, which until 2010 had been carried out separately by different NBS' departments of statistics production.

The questionnaires of STIS have common chapters for all the reporting units, regardless of their main activity, including information:

- on the number of employees (monthly);
- on wages/ salaries (monthly);
- related to turnover (monthly), except for the units for which this indicator is not relevant (budgetary units, financial institutions, etc);
- related to enterprise consumption/expenditures and investments (quarterly).

At the same time, the monthly questionnaires also include specific modules dependent on the main activity of the enterprise, on: industry; construction; trade and other market services.

It is worth mentioning the fact that experts in the National Accounting Standards have been involved in the elaboration of the questionnaires content. Thus, in order to facilitate the respondents' understanding of the questionnaires, as well as of the methodological instructions for filling them in, these have been elaborated, in compliance with the peculiarities of accounting system for entities, according the normative acts in force.

Since 2011, following the implementation of the above-mentioned survey, the system of short-term business statistical surveys has the following characteristics:

The organization of data collection from statistical units is based on the *institutional principle* – according to their main type of activity. The reporting entity submits only a monthly and a quarterly statistical questionnaire.

The statistical survey is conducted on a sample basis and includes cca 10 thousand reporting units or 2.3 times less entities than in the most comprehensive infra-annual survey carried out up to 2010.

Statistical units are included in the integrated survey in the following manner:

- exhaustively – the enterprises with an average number of 20 or more employees; public institutions are surveyed irrespective of the number of staff;
- on a sample basis – the enterprises with an average number of employees between 4 and 19 persons;
- the enterprises with up to 4 employees are not included in the statistical surveys conducted during the year(excluding some special cases, mentioned below).

Thus, the response burden, in particular on micro-enterprises, decreased considerably and so did the expenses related to the statistical reporting by businesses. The work of statistical bodies became more efficient, with the focus on ensuring the quality of primary data.

The responding unit - the *enterprise* is clearly defined, so, the data are reported per total entities, including its local units (branches, representations, own shops etc.). The overlapping collection of the information or the under-reporting of the data due to the incomplete collection of these data from local units are thus avoided.

New, extended reporting deadlines were set, allowing the entities to provide data of a better quality. The integrated short-term survey is submitted by the responding units to the territorial statistical bodies monthly - by the 15th and quarterly by the 25th following the reference period.

The implementation of the survey enabled the harmonization of the definitions and the compliance of short-term statistics with EU requirements.

The launching of the integrated survey also required a common modern technical infrastructure. Due to efforts of the NBS specialists, an efficient information

subsystem for inputting, processing and storage of data in a common database was created.

More details on the sampling procedure for the integrated short-term survey are provided below.

3. Sampling frame and plan of STIS

Population covered by the survey is the totality of enterprises (all units having turnover exceeding zero or at least one employee), irrespective of the economic activity, according to the National Classification of Economic Activities (CAEM Rev.1, harmonised with the European standard NACE, Rev.1.1.), excepting sections *P "Activities of households "* and *Q "Activities of extra-territorial organizations and bodies"*, on the territory of the Republic of Moldova, excluding Transnistria region.

The survey's design with optimum (Neyman) allocation is applied for sampling, and the simple random sampling without replacement is used as the selection method within each stratum. The strata are defined by crossing the divisions of CAEM with size classes of enterprises (4-9, 10-19 and 20 or more employees).

Aiming to increase the efficiency of the statistical survey, the units having up to 3 employees were eliminated from the sampling frame due to their low weight in the turnover per country. However, the sampling frame ensures at least 90% at the level of each CAEM division. The selection thresholds were decreased for the strata for which CAEM divisions were under represented, in order to ensure the representativeness by turnover of at least 90%, at the level of every division.

The selection unit is the enterprise.

The size of the sample for STIS is cca 10 thousand units (out of some 50 thousand enterprises included in the Register of Statistical Units). The standard error is 5% for turnover and the accuracy of the results is guaranteed with a probability of 95%.

The Neyman method is used for the allocation of sample size by strata, taking into account the value of standard deviation of turnover in the frame of stratum.

Due to the need to ensure the comparability of time series, it was decided to set up the exhaustive survey threshold at 20 persons. Beyond the units, which meet the above-mentioned criteria of exhaustiveness, there is one more category of units observed on exhaustive basis – outliers. The detection of outliers is based on the interquartile deviation method, according the turnover at the stratum level.

4. Vision for future developments

The conducting of the integrated short-term business survey represents an important step in the reformation of economic statistics in the Republic of Moldova, but further large-scale adjustments of the current national statistical system are needed for enhancing integration and the efficiency of the overall statistical activity.

According to the National Strategy of the national statistics development until 2014, further harmonization of national statistics with EU standards, the use of new IT technologies and enhancing of statistical coordination will serve as key elements in the modernization of NBS's production and dissemination systems. The major objective is to replace the previously separated production "stove pipe" processes with a comprehensive production system for all statistical surveys, which will be based on a common (technical) infrastructure, standardized tools for data processing, storage and dissemination.

The re-engineering of the whole architecture for the production and dissemination of national statistics will be based on the new concept of the NBS' Information System development, approved in 2010. The efficiency of the processes will be improved based on the use of SDMX standards. The implementation of the electronic reporting of statistical data by business units via Internet, which is under way, will further contribute to the decrease of the response burden.

Obvious advantages will be obtained by a better use of available administrative data, as well as by using accounting data for production of statistics directly from the bookkeeping systems of business units. In this respect, the use of following administrative data for the production of infra-annual statistics is under consideration: on VAT returns - data owned by the State Tax Inspectorate; on the number of employees, earnings and mandatory state social security contributions - data owned by the National Social Insurance House. Nevertheless, important efforts are needed for eliminating of the methodological differences between these data sources to ensure the quality of data since, in many cases administrative and accounting data does not fully meet statistical requirements.

Within future activities needed to perform within business statistics are also:

- the implementation of new revisions of activity and product classifications, redesign of the annual surveys, ensuring mutual coherence within an integrated business statistics system and harmonization with EU standards, based on the use of administrative data and modern information technologies;
- the implementation of new methods for data editing and imputation in order to improve the quality of statistics;
- the development of regional statistics (on NUTS 2 and 3 levels), etc.

The implementation of the strategy should enable the NBS to respond to new and increasing statistical needs while saving resources and reducing or limiting the burden for respondents.

5. Conclusions

The integrated approach to the production of STS extended the scope, improved the accuracy, consistency, international comparability and efficiency of national business statistics. The implementation of STIS, based on consistent concepts, harmonized with EU standards, has given the possibility to obtain and provide to the national and international users relevant, reliable and comparable short-term business statistics. The decrease of the number of statistical questionnaires collected from entities and the use of sampling methods on a large scale, made it possible to reduce significantly the response burden.

The conducting of the integrated short-term survey is an important step in the reform of economic statistics in the Republic of Moldova. The need to complete the reform of economic statistics as a whole in accordance with EU standards becomes apparent. According the Strategy of the development of national statistics until 2014 the modernization of the production and dissemination systems of NBS is foreseen, with the focus on further harmonization of national statistics with EU standards, the use of new IT technologies and enhancing of statistical coordination.

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