Improvement of Business Statistics from Territorial Perspective

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Content

- Background information
- Characteristics of Structural Business Survey
- Characteristics of Administrative Data
- New method of regional data production
- Main results
- Further work
General context

- Population – 3.5 mil. (without Transnistria), according to the preliminary census data 2014 – 2.9 mil.
- Surface area of the country – 33.8 th. sq.m.
- Urban population – 42%;
- GDP per capita in 2014 – 2.7 th USD (PPP – 5.0 th USD)
- SME per 1000 inhabitants - 15 enterprises
- Moldova has in total:
  - 901 local administrative units, including 5 municipalities
  - 35 districts: 32 rayons, 1 ATU (UTA Gagauzia) and 2 municipalities.
- There are 6 development regions: North, Center, South, ATU Gagauzia, mun. Chisinau and Transnistria.
- Out of 6 development regions only 4 are functional.
- There is Regional development agency in each functional development regions.
- Moldova does not have any regional administrative units and regions are not elected as local governments.
Background information (I)

Increasing demand on regional data from policy making perspective:

- National development strategy on regional development for 2016-2020
- Regional development strategy for North, South, Center, UTA Gagauzia
- Small and Medium Enterprise Sector Development Strategy for 2012-2020
- Agricultural and Rural Development strategy for 2014-2020
- Domestic Trade Development Strategy for 2014 – 2020
All business data collected by statistical surveys is available at the enterprise level.

Structural Business Survey (SBS):
- This is the only survey which collects data at the level of local unit.
- The survey is representative for national level.

Administrative data:
- Is available only at the level of enterprise.

!!! Since 2014 NBS has been producing regional data by combining the SBS data with Administrative Data.
SBS – background facts

- SBS – most detailed economic sample survey conducted by NBS
- Launched in 1997 like pilot survey on small enterprise
- Since 1998 – has been conducted for all enterprises
- Financial and technical assistance – INSEE France
SBS – at a glance

- Main source for National Accounts and for updating Business Register
- The same questionnaire for all enterprises
- Frequency – annual
- Reference period – calendar year
- Sampling unit – enterprise
SBS – population

➢ Reference population:
  ▪ All active enterprises in \textbf{t-1 year}, which have submitted the annual statistical and financial reports
  ▪ All active enterprises in \textbf{t year}, which have submitted the STS statistical questionnaires during first 9 months
  ▪ All new enterprises, registered in \textbf{t year} with a statutory capital > 0.5 mil MDL

➢ Reference population size:
  ▪ around 44.5 thousand enterprises (2015), including NACE B – J; L-N; 95-96
  ▪ With exception: Agriculture, Financial sector, Public sector, Education sector, Health sector, Non profit organisations, etc.
Characteristics of SBS population by class size, 2015

Structure of number of enterprises
- Class size:
  - 0-4: 26%
  - 5-9: 24%
  - 10-49: 11%
  - 50-249: 11%
  - 250 and more: 11%
- Nr. of enterprises - 44 529

Structure of employees
- Class size:
  - 0-4: 26%
  - 5-9: 24%
  - 10-49: 11%
  - 50-249: 11%
  - 250 and more: 11%
- Nr. of employees - 389 233

Structure of turnover
- Class size:
  - 0-4: 26%
  - 5-9: 24%
  - 10-49: 11%
  - 50-249: 11%
  - 250 and more: 11%
- Total Turnover - 241.9 billions MDL
Characteristics of SBS population by activity, 2015

G - WHOLESALE AND RETAIL TRADE
C - MANUFACTURING
M - PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES
L - REAL ESTATE ACTIVITIES
F - CONSTRUCTION
D - ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY
H - TRANSPORTATION AND STORAGE
J - INFORMATION AND COMMUNICATION

Structure of number of enterprises
Structure of employees
Structure of turnover
SBS 2015 – sampling

- Sampling frame – Business Register
- Stratification criteria – size classes (0-9, 10-19, 20+ employees) x main activity by NACE rev.2 (4 digits level)
- Sample size – 12 thousand enterprises
- Take all strata/exhaustive:
  - enterprises with 20 and more employees (2940 units),
  - enterprises with less than 20 employees, but which have more than one local unit (376 units)
  - enterprises considered as outliers according their turnover (3009 units)
- Probabilistic sample – units with less than 20 employees (5877 units)
There are 3 indicators disaggregated at the local unit:
- Turnover
- Number of employees
- Wages/salaries

Each enterprise provides these indicators for each local unit.

The sample size doesn’t allow to produce reliable estimates at the regional level.
Administrative data

- Financial Reports, Tax Declaration, National Social Insurance House, National Medical Insurance House: reporting unit is ENTERPRISE
- Administrative data cannot be used directly to produce regional data

- Financial Reports (FR) are mandatory for all type of enterprises, with exception of individual enterprises non VAT payers
- It contains 3 indicators collected at the local unit level such as in SBS: turnover, number of employees and wages/salaries
- NBS – the owner of Financial Reports

Solution – combination of statistical data (SBS) with administrative data (Financial Reports) at the micro level.
## Combination of SBS and FR data

<table>
<thead>
<tr>
<th>Type of report</th>
<th>Respondent units</th>
<th>Number of respondents</th>
<th>Disaggregation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FR</strong></td>
<td>All enterprises (excepting individual enterprises non VAT payers)</td>
<td>54 thousand enterprises</td>
<td>National level, type of activity (class level), ownership</td>
</tr>
<tr>
<td><strong>SBS</strong></td>
<td>Exhaustive - 20+ employees, atypical units and those with LU (~6300 enterprises)</td>
<td>12 thousand enterprises</td>
<td>National level, type of activity (class level), Size of enterprises</td>
</tr>
<tr>
<td></td>
<td>Sampled - 0-19 employees (~5900 units)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FR + SBS</strong></td>
<td>All enterprises without local units with 0 – 19 employees from FR + all enterprises with 20+ employees from SBS + enterprises with less than 20 employees from SBS, with local units</td>
<td>Over 60 thousand records at the local units level</td>
<td>National level, type of activity, ownership, territorial breakdown</td>
</tr>
</tbody>
</table>
Methodological aspects

- Data from FR regarding enterprises under 20 employees is combined with data from SBS regarding units with more than 20 employees at the level of each local unit.
- For each of 3 indicators the aggregation is simply done by summing up the individual value of each unit:

\[ X^k = \sum_{j}^{k} X_{ij}, \]

Where \( X_{ij} \) represents the value of indicator \( X \) for local unit \( j \) of the enterprise \( i \).

\( k \) – total number of units in a given category \( K \) (territory, economic activity, class size, etc.)
Data calibration

Aggregated data at the national level differs slightly from that obtain in SBS

For consistency reason - calibration on margins obtained in SBS:

$$\text{coeff}_{X}^{adj} = \frac{\sum X^{SBS}}{\sum X^{CD}}$$

Final aggregates:

$$X^{k}_{fin} = \text{coeff}_{X}^{adj} \cdot X^{k}$$

<table>
<thead>
<tr>
<th></th>
<th>SBS, estimates ($\sum X^{SBS}$)</th>
<th>Combined data, aggregates ($\sum X^{CD}$)</th>
<th>SBS/CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover, bil MDL</td>
<td>202.1</td>
<td>203.7</td>
<td>0.993</td>
</tr>
<tr>
<td>Average number of employees, thousands</td>
<td>445.2</td>
<td>447.3</td>
<td>0.995</td>
</tr>
<tr>
<td>Wages and salaries, mil MDL</td>
<td>145.5</td>
<td>146.5</td>
<td>0.993</td>
</tr>
</tbody>
</table>
Results: turnover/headquarter vs. turnover/LU
Activity of enterprises in territorial aspect, 2014

<table>
<thead>
<tr>
<th>Whole country</th>
<th>Wholesale and retail trade: repair of motor vehicles and motorcycles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G Wholesales and retail trade: repair of motor vehicles and motorcycles</td>
</tr>
<tr>
<td></td>
<td>Turnover, thou. lei</td>
</tr>
<tr>
<td>Whole country</td>
<td>125,235,592.6</td>
</tr>
<tr>
<td>Municipality Chisinau</td>
<td>88,704,017.2</td>
</tr>
<tr>
<td>North</td>
<td>16,297,860.5</td>
</tr>
<tr>
<td>.Municipality Balti</td>
<td>6,232,573.2</td>
</tr>
<tr>
<td>.Briceni</td>
<td>1,476,019.1</td>
</tr>
<tr>
<td>.Donduseni</td>
<td>481,022.8</td>
</tr>
<tr>
<td>.Drochia</td>
<td>3,425,409.1</td>
</tr>
<tr>
<td>.Edinet</td>
<td>2,551,196.6</td>
</tr>
<tr>
<td>.Folesti</td>
<td>978,122.0</td>
</tr>
<tr>
<td>.Floresti</td>
<td>482,633.0</td>
</tr>
<tr>
<td>.Glodeni</td>
<td>354,285.2</td>
</tr>
<tr>
<td>.Ocnița</td>
<td>506,329.9</td>
</tr>
<tr>
<td>.Răceni</td>
<td>413,337.4</td>
</tr>
<tr>
<td>.Sîngerei</td>
<td>578,773.1</td>
</tr>
<tr>
<td>.Soroca</td>
<td>814,460.0</td>
</tr>
<tr>
<td>Centre</td>
<td>12,024,216.9</td>
</tr>
<tr>
<td>.Anenii Noi</td>
<td>827,102.7</td>
</tr>
</tbody>
</table>
Activity of enterprises in territorial aspect, 2014

Variable: Turnover, thou. lei
Classification (for choropleth map): Quantile
Map size: 100%

Activity of enterprises in territorial aspect, 2014
Indicators: Turnover, thou. lei
Anomalous Activities: % Wholesales and retail trade net

Datasource: Statistics Moldova
Mapdata: Cadastre and Land Relations Agency.
Activity of enterprises in territorial aspect, 2014

Data source: Statistics Moldova
Map data: Cadastre and Land Relations Agency.
Activity of enterprises in territorial aspect, 2014

Variable: Remuneration, thou. lei
Classification (for choropleth map): Quantile
Map size:

Data sources: Statistics Moldova, National Cadastre and Land Relations Agency.
Advantages

- Simple approach and formulas
- No weights
- No sampling errors
- Possibility to obtain disaggregated data at the lowest possible level (limited only by risk to disclose confidential data)
- One of the main sources for Regional GDP
- Useful source of regional data for Local Public Administration
Future work

- Exploring other administrative data to produce regional estimates
- Improvement of the Business Register by adding the local units from Tax Authority and SBS
- Georeferencing of Business Register based on Address Register
- Introduction of a new indicator in SBS disaggregated at local unit – investments in fixed capital
Thank you for your attention!

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