**Brief Description of Sampling Procedure of Survey on International Trade in Services**

**Pilot Survey**

Pilot Survey on International Trade in Services is planned to be conducted in Q4 2020 according to the Action Plan of the National Strategy for the Development of Official Statistics of Georgia 2020-2023. The reference period for the survey is Q3 2020. Field works of the survey are scheduled to cover 3rd October – 17th November period alongside with the regular quarterly survey on Data on External Economic Activities (FDI survey).

Unlike FDI survey (where enterprises are surveyed according to full coverage) SITS survey is sample survey. Sampling population is number of enterprises which responded export or import of services either in FDI or in Business survey in 2019, Q1 2020 or Q2 2020. Total number of samples are 800 (according to the approved budget of 2020).

The following method was used for sampling procedure:

In order to ensure the full coverage of enterprises comparison of FDI and Business survey results was conducted at the first stage. Levels of Turnover were used as indicator for formation of clusters and allocation enterprises between them.

Results of Business Annual Survey are presented in the table №1

Table №1

|  |  |  |
| --- | --- | --- |
|   | Turnover According to Business Survey (GEL) | Reported Services in Business or in FDI Survey (weighted number of enterprises) |
| Cluster № According to Business Turnover | Min. Value | Max. Value | No | Yes | Total |
| 1 | 0 | 10,000 | 32,195 | 75 | 32,270 |
| 2 | 10,000 | 50,000 | 23,913 | 32 | 23,945 |
| 3 | 50,000 | 100,000 | 16,034 | 119 | 16,153 |
| 4 | 100,000 | 500,000 | 20,755 | 722 | 21,477 |
| 5 | 500,000 | 2,000,000 | 8,238 | 605 | 8,844 |
| 6 | 2,000,000 | + | 4,190 | 1,306 | 5,496 |
|  |  |  | ***105,325*** | ***2,859*** | ***108,185*** |

Number of enterprises from Business Turnover Clusters which reported services either in Business or in FDI surveys is the result and has an error.

The table №2 shows formation of clusters from Business survey according to Turnover of International Trade in Services (ITS):

Table №2

|  |  |  |
| --- | --- | --- |
| Cluster № According to ITS Turnover | ITS Turnover (US Dollars) | ITS Cluster (number of enterprises, units) |
| Min. Value | Max. Value |
| 1 | 0 | 1,000 | 1485 |
| 2 | 1,000 | 8,000 | 463 |
| 3 | 8,000 | 38,000 | 343 |
| 4 | 38,000 | 300,000 | 372 |
| 5 | 300,000 | + | 197 |
|  |  |  | ***2859*** |

On the second stage enterprises reporting services were analysed. Total number of enterprises which reported services either in Busienss or in FDI survey was **2,244** units according to the combines results of 2019, Q1 2020 and Q2 2020 surveys (without duplicates). This number was disseminated in ITS Turnover Clusters as it is shown in table №2.

Table №3

|  |  |  |
| --- | --- | --- |
| Cluster № According to ITS Turnover | ITS Turnover (US Dollars) | ITS Cluster (number of enterprises, units) |
| Min. Value | Max. Value |
| 1 | 0 | 1,000 | 809 |
| 2 | 1,000 | 8,000 | 405 |
| 3 | 8,000 | 38,000 | 406 |
| 4 | 38,000 | 300,000 | 406 |
| 5 | 300,000 | + | 218 |
|  |  |  | ***2,244*** |

Comparison of Table №3 and Table №2 gives us the following results presented in Table №4:

Table №4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cluster № According to ITS Turnover | Volume of Clusters According to Business Survey (weighted number of enterprises which reported services, units) | ITS Cluster (number of enterprises, units) | Number of Enterprises Corrected with Survey Error | Weight of Correction (column 2/ column 3 or 1) |
|
| 1 | 2 | 3 | 4 | 5 |
| 1 | 1485 | 809 | 1485 | 1.8356 |
| 2 | 463 | 405 | 463 | 1.1432 |
| 3 | 343 | 406 | 406 | 1.0000 |
| 4 | 372 | 406 | 406 | 1.0000 |
| 5 | 197 | 218 | 218 | 1.0000 |
|  | ***2859*** | ***2244*** | 2978 |  |

**The sampling and weighting mechanism is as follows:**

1. Sampling will be done out of the number of enterprises that reported services either in Business or in FDI survey;
2. Enterprises from Cluster №5 will be considered as large enterprises and will be presented with full coverage.
3. Neumann Distribution will be used in order to select enterprises from Clusters №1, 2, 3 and 4.
4. After receiving survey results data will be grossed-up to the number of enterprises given in column 4 of table №4.
5. Correction will be made using the coefficients presented in column 5 of table №4.

**The results will be as follows:**

**Table №5: Distribution of the Number of Sampled Enterprises by Clusters**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Number of Selected Enterprises, units | Corrected Number of Selected Enterprises, units |
| Cluster № | Standard Deviation | Number of Enterprises According to the ITS Cluster Volume, units  | Multiplication (StdDev \* ITS Cluster) | Proportions | *582* |
| 1 | 238 | 809 | 192441.0257 | 0.58% | 3 | 30 |
| 2 | 2,067 | 405 | 837084.2222 | 2.54% | 15 | 46 |
| 3 | 8,711 | 406 | 3536758.739 | 10.73% | 62 | 100 |
| 4 | 69,939 | 406 | 28395135.15 | 86.15% | 406 | 406 |
| **Sum** | 32961419.14 | 100.00% |   |   |
| 5 | 6,035,193 |   |   |   | 218 | 218 |
|  |  |  |  |  |  | **800** |

**Table №6: Weights by Clusters**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cluster № | Number of Sampled Enterprises, units | ITS Turnover Cluster (number of enterprises, units) | Weights for the Enterprises in ITS Turnover Clusters | Correction Weights Concerning to Business Turnover Cluster | Final Weights |
| 1 | 30 | 809 | 26.96666667 | 1.8356 | 49.50001333 |
| 2 | 46 | 405 | 8.804347826 | 1.1432 | 10.06513043 |
| 3 | 100 | 406 | 4.06 | 1 | 4.06 |
| 4 | 406 | 406 | 1 | 1 | 1 |
| 5 | 218 | 218 | 1 | 1 | 1 |
|  | 800 | 2244 |  |  |  |

**Regular Survey**

Regular Survey on International Trade in Services is planned to be conducted on a quarterly basis from Q1 2021 according to the Action Plan of the National Strategy for the Development of Official Statistics of Georgia 2020-2023. Field works of the survey are scheduled to be conducted alongside with the regular quarterly survey on Data on External Economic Activities (FDI survey).

Regular SITS survey will be also sample survey. The sampling and weighting mechanism for regular survey will be similar to the pilot version described above.

Sampling will be done out of the number of enterprises that reported services either in Business or in FDI survey;

Business Turnover will be used to define clusters according to the Business Survey results as presented in Table №7.

Table №7

|  |  |
| --- | --- |
|   | Turnover According to Business Survey (GEL) |
| Cluster № According to Business Turnover | Min. Value | Max. Value |
| 1 | 0 | 10,000 |
| 2 | 10,000 | 50,000 |
| 3 | 50,000 | 100,000 |
| 4 | 100,000 | 500,000 |
| 5 | 500,000 | 2,000,000 |
| 6 | 2,000,000 | + |
|  |  |  |

Volume of Clusters According to Business Survey will be defined as weighted number of enterprises which reported services.

ITS Turnover will be used to define clusters according to the reported services either in Business or in FDI survey as presented in Table №8.

Table №8.

|  |  |
| --- | --- |
| Cluster № According to ITS Turnover | ITS Turnover (US Dollars) |
| Min. Value | Max. Value |
| 1 | 0 | 1,000 |
| 2 | 1,000 | 8,000 |
| 3 | 8,000 | 38,000 |
| 4 | 38,000 | 300,000 |
| 5 | 300,000 | + |
|  |  |  |

1. Enterprises from Cluster №5 will be considered as large enterprises and will be presented with full coverage;
2. Neumann Distribution will be used in order to select enterprises from Clusters №1, 2, 3 and 4;
3. After receiving survey results data will be grossed-up to the number of enterprises corrected with survey error. Correction will be made using the coefficients that are calculated on the basis of comparison of number of enterprises from Business Turnover clusters and ITS Turnover Clusters as shown in Table №9.

Table №9

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cluster № According to ITS Turnover | Clusters According to Business Survey | ITS Clusters  | Number of Enterprises Corrected with Survey Error | Weight of Correction  |
|
| 1 | 2 | 3 | 4 | 5 |
| 1 | Weighted number of enterprises which reported services in Business Survey | Raw number of enterprises which reported services in FDI or in Business surveys  | * If column 3 < column 2, column 2 is taken;
* If column 3 > column 2, column 3 is taken.
 | * **column 2 / column 3** (if column 3 < column 2);
* **1** (if column 3 > column 2).
 |
| 2 |
| 3 |
| 4 |
| 5 |

The main difference between pilot and regular surveys of SITS is related to the number of samples. According to the approved budget of 2020 total number of samples are 800 for pilot survey. As for regular surveys number of interviews are defined for regions while for Tbilisi the number is not strictly defined. According to the plan for the budget of 2021-2024 compensation for interviewers is based on number of employed persons for Tbilisi while for regions it is based on the pre-defined number of interviews.

Part of compensation of field works of ITS survey according to 2021 budget plan is presented in Table №10.

Table №10

|  |  |  |  |
| --- | --- | --- | --- |
| **Region** | Measurement unit | Number of units | Compensation per unit, GEL |
| Tbilisi | Number of employed persons | 32 | 450 |
| Other regions | Interview | 400 | 10 |

The number of interviews is 400 for each quarter of 2021-2022 and 500 for each quarter of 2023-2024 according to the plan of the budget. Consequently, these number of enterprises will be sampled for regions. Sampling procedure for Tbilisi will be made separately.

Thus, together with clusters defined according to Business Turnover and ITS Turnover clusters for Tbilisi and for other regions will be formed and sampling and grossing-up procedures will be conducted separately.

Main part of enterprises is allocated in Tbilisi (e.g. from total number of enterprises (2244) that reported services in 2019, Q1 and Q2 2020 surveys 80.5% belong to Tbilisi by legal address and 65.4% by actual address). Thus, distinguishing Tbilisi from other regions enables to increase number of selected enterprises.

Additional **clusters concerning kinds of economic activities** of enterprises may be also formed for regular survey after analyzing the results of pilot survey.

**Procedure for Updating Population**

Nowadays there are two main sources for updating population for SITS survey:

**Source 1** – Service part presented in the regular quarterly and annual survey on Data on External Economic Activities (FDI survey)

The questions about services are planned to be kept in the regular FDI survey during a certain period. As soon as the quality of new SITS survey is ensured, the service part (in its current form) is planned to be removed from FDI survey in order to reduce the burden on the enterprises related to reporting detailed data on ITS via two different questionnaires. The current version of questions on ITS in regular FDI surveys will be replaced with screening question.

**Source 2** - Screening question on services in regular quarterly and annual Business Survey

Screening question on services will remain in quarterly as well as in annual Business Survey during a certain period. Sometime later, after analyzing results of newly added enterprises from quarterly and annual Business surveys, it may be decided to leave screening question only in annual survey.

These two sources will enable regular updating of the database of enterprises that will be used for sampling. Thus, sampling population still will be the number of enterprises which responded export or import of services either in FDI or in Business survey.

At current stage **grossing up procedures** are planned to be done on a regular quarterly as well as on annual basis. This means adding new enterprises to the number of population and calculating new weights. Although periodicity may change according to the analyzing received results for some time series e.g. it may be decided to update population annually in case a law number of new enterprises reporting ITS in quarterly surveys.