

TWINNING CONTRACT

AM/14/ENP/ST/15

Strengthening of the National Statistical System of Armenia – Phase II



MISSION REPORT

on

Innovation Statistics

Activity 5.5: Preparation of regular surveys of innovation statistics

Mission carried out by

Ms. Mervi Niemi, Statistics Finland
Mr. Gediminas Samuolis, Statistics Lithuania

27 February – 2 March 2017

Final version



National Statistical Service
Republic of Armenia



STATISTICS
LITHUANIA



Expert contact information

Mervi Niemi
Statistics Finland
Työpajankatu 13
FIN-00022 Statistics Finland
Finland
Tel: +358 29 551 1000
Email: Mervi.Niemi@stat.fi

Gediminas Samuolis
Statistics Lithuania
Gedimino av. 29
LT-01500 Vilnius
Lithuania
Tel. +370 5 2364 621
Gediminas.Samuolis@stat.gov.lt

Table of contents

1. General comments.....	4
2. Assessment and results.....	4
3. Conclusions and recommendations	8
Annex 1. Terms of Reference	10
Annex 2: Programme for the mission	12
Annex 3. Persons met.....	13
Annex 4. Core tabulation for CIS survey	13
Annex 5. Optional questions from EU CIS surveys.....	13
Annex 6. Core EU questions (in yellow) in ARM CIS questionnaire.....	13

List of Abbreviations

EU	European Union
EACU	Eurasian Customs Union
NSSRA	National Statistical Service of the Republic of Armenia
BC	Beneficiary Country
MS	Member State
ToR	Terms of Reference
STI	Science, Technology and Innovation

1. General comments

This mission report was prepared within the Twinning Project “Strengthening of the National Statistical System of Armenia – Phase II”. This was the fifth activity in component 5 and the actions planned for this activity were carried out as scheduled.

The purposes of the mission were:

- Amended methods for a regular surveys based on the experiences from the pilot survey
- Proposals of imputation methods that will be used for regular compilation
- Discussion on revision policy
- Preparation of final questionnaires for a regular production
- Plan for a regular survey
- Plan for publication including user needs
- Development of methodology
- Further discussion on the use of administrative sources
- To involve relevant stakeholders in the discussions

The planned activities and the expected output were all achieved.

The MS experts would like to express their sincere thanks to all officials and individuals met for the kind support and valuable information which they received during the stay in Armenia and which highly facilitated their work. The views and observations stated in this report are those of the MS experts and do not necessarily correspond to the views of EU, NSSRA, Statistics Lithuania, Statistics Finland or Statistics Denmark.

2. Assessment and results

Expected output of the activity was

- Plan for regular survey and publication developed
- Imputation methods proposed
- Revision policy discussed
- Questionnaire finalised
- Methodology developed
- A lining up of work programme for the next and last activity:
 - 5.6: Follow-up on achievements and recommendations for the future (25-28 April 2017)

NSSRA finalised the editing of the innovation pilot data after the previous mission in October 2016. Also the weights for the data were prepared as agreed during the mission at that time. According to the conclusions and recommendations made in October NSSRA also produced the first weighted tabulations before this mission. The finalised data and first tabulations were provided for MS experts before the mission.

Staff of NSSRA and MS experts discussed experiences from the pilot survey so far. During the data collection it was surprising that many of large enterprises, obviously also innovators,

did not report any innovation activity. There may be many reasons for this, like secrecy and unwillingness to use time for filling voluntary survey questionnaire (for pilot there exist no state statistical form). Like mentioned already earlier during the project the concept of innovation was quite challenging for respondents. This may of course cause some measurement errors, but the staff of NSSRA has done lot of work to explain definitions for respondents and is now confident that respondents get familiar with the concept in the future and along the forthcoming surveys. One observation was that there were many enterprises, which did not consider themselves as innovators before the survey but could now identify themselves as innovators according to the definitions given.

The NSSRA expert from Business Register helped in editing the data and compiling the weights for the data (help from Business Register was received also for sampling before data collection). Some inconsistencies concerning number of employees had been acknowledged between Business Register data and survey data i.e. responses by enterprises during the process. Updating Business Register data and analysing the information from different data can be considered again if needed, but it is foreseen that the survey will in the future use Business Register data instead of asking background information on employees and turnover. This is perfectly in line with the principle in statistics that we should not collect data that once collected and already exist.

Also the availability of administrative data and the utilisation of register more widely were discussed. Innovation data needs to be surveyed because registers on that do not exist.

IT specialist in Social Sphere and Nature Protection Division has helped with first tabulations from innovation data. The challenge is the availability of software because the staff responsible for the innovation survey do not have a proper system for making tabulations by itself although it would be good to have own processing possibility for flexible way of working. The specialist who also contributed the first pilot survey tabulations, met the MS experts and discussed about tabulations and practices of database issues (including data collection, the way of transferring the data, and publishing) in Finland and in Lithuania. MS expert of Lithuania informed about software free of charge, R Project (<http://www.r-project.org/>; <http://cran.at.r-project.org>). At Statistics Finland, the process for innovation data is utilising SAS.

The work done so far confirms that cooperation in-house between different units at NSSRA is functioning and is really needed. Also in the future the most effective output can be obtained by good co-operation.

It was also discussed about CIS type of survey and innovation statistics, and other data needs, like inquiry on innovation issues from Customs Union. NSSRA will study possibilities to maximize recoverability of results from innovation statistic's data collection also for other data inquiries and thus to reasonable the workload caused by several data inquiries.

The first tabulations indicate promising starting point for regular surveys although the number of units in population was quite low and especially, although the share of enterprises with innovation activity was quite low. For example, based on the first results, the following issues were discussed

- whether to cover small enterprises in the future surveys (yes, if wanted to be in line with EU)
- publication (small, medium and large enterprises, NACE classes)

- publishing innovation expenditure (which are very difficult and unreliable perhaps also especially when collected for the first time, perhaps publishing only distribution of expenditure by type of category or e.g. innovation intensity (expenditure/turnover))
- distribution of innovation expenditure over activity categories was different than was expected but it was in line with results from some other countries; the large differences in countries distributions indicate the differences in economic situations, partly at least; in some countries investments in development work are based on investments in machinery etc. and in some countries in other elements of innovation activities, like for R&D; the measurement challenges of this difficult item may also affect comparability of the results.

The rules for tabulations were discussed more profoundly and some examples for tables were checked together. It was agreed that MS experts give basic rules for most core type of tabulations during the mission and tabulations from pilot data are made after the mission by NSSRA. Further tabulations, especially from the regular production's point of view, will be dealt with during the last mission in April 2017.

The weighted data allowed the first international comparisons also and some graphs were made covering the prevalence of innovation activity in some benchmarking countries. This was done by restricting the data to the EU CIS core NACE classes (Armenian pilot covered all the EU core classes and some other, nationally important classes too).

Statistical information shall be prepared and disseminated following impartiality and objectivity principles, i.e. in a systematized, reliable and unbiased manner, following professional and ethical standards and transparent policy and practice towards users and respondents. Statistical information dissemination forms and modes are:

- information releases,
- statistical publications,
- indicators in the database (and on GIS maps),
- responses to user enquiries,
- posts in social networks and other possible information media.

MS expert introduced elements of their own publishing. It was encouraged to publish all possible aspects from the pilot data, but considering carefully variable by variable what would be the suitable, sensible and proper level of publishing. The principle of NSSRA is to publish as much as possible about collected data. The mode of publishing will be online on NSSRA's website. Publishing innovation pilot data makes the data visible and is a good way of marketing the data to the users. As regards further ideas of publishing (the innovation data in general) NSSRA was willing to analyse some examples (like Finnish and Lithuanian) with time.

Main issues of compiling innovation statistics will be described in the Methodological Notes, which originally was not covered by the project plan. As regards methodology, for example imputations were discussed during the mission. It was discussed at the same also about response activeness in Armenia and methods used for working together with respondents.

NSSRA have already some preliminary plans and thoughts for regular innovation survey. Like for the pilot survey, the Division of Social Sphere and Environment Statistics will be responsible for the production of regular Innovation statistics with assistance of regional offices (data collection) and specialists in other units, like Business Register (population,

sample, weighting and estimation). The final solutions regarding the regular production of innovation statistics are dependent on the practices of NSSRA.

Regarding the revision policy and the preparation of final questionnaire for a regular production, MS experts underlined the changing and developing nature of innovation activity and thus the need for changing modules and questions in innovation surveys from one survey to another. The new model questionnaire for EU CIS2016 was discussed about and changes in it as compared to model questionnaire for CIS2014 were used as an example for describing the changing nature of innovation surveys.

MS experts continued to write the Notes, the methodological guidance for use of NSSRA, but also for the use of data collection. The Notes may possibly be edited for website also. All of issues to be considered during the statistical process are not covered in detail in the Notes. MS experts suppose that NSSRA must complete Notes according national practice (for example weighting, dissemination and etc.).

It was decided to collect different questions used in the context of CIS (from CIS 2010 to CIS 2016) in to the Notes (also presented in Annex 5). These can be used as an example when discussing about user needs. For example, questions on information sources for innovation activity and objectives of innovation activity – mentioned also in EU regulation, although voluntary – could be interesting, important and very basic questions to be included. NSSRA will consider additions needed. (Also some descriptions and instructions for questionnaire will be added in to the Notes.)

NSSRA indicated few ideas for changes on the questionnaire in the regular survey and these were discussed together;

- eliminate the background variables on the number of employees and turnover - they can be taken from the business registry;
- eliminate the explanatory questions about the product or process innovation
- if stakeholders can provide lists of enterprises that received support for innovation from the state institutions, question related to public financial support for innovation activities can be eliminated;
- adding filter after implementation of eco innovations and before the reasons for eco innovations
- in the regular survey can be added questions for national purpose and optional modules from harmonised EU questionnaire.

It is sensible to fix many of the solutions regarding the regular production of innovation statistics only a bit later because the Oslo manual, giving the main guidance on the measurement of innovation, is under revision process. The new version of it may change some basic concepts, ideas and aspects of measurement, and MS experts have encouraged the staff of NSSRA to keep an eye on the new version in order to be able to follow its guidelines in the future surveys. The Notes needs to be updated after the revision too.

Also the EU CIS is under a change which may mean changes in benchmark information at the EU level.

MS experts underlined again the importance of documentation, and received a lot of information on quality work done at NSSRA (new division, quality declarations, quality reporting etc.). With the aim of providing for users as comprehensive information about

statistical indicators as possible, standardised statistical survey metadata descriptions and other related information shall be published together.

MS experts did not meet stakeholders during this mission, but the staff of NSSRA is well aware of expectations of most relevant stakeholders regarding innovation data. Representative of NSSRA, Nelly Baghdasaryan, Head of Social Sphere and Nature Protection Division, also main responsible of execution of innovation pilot, has presented this pilot project in several occasions and expert meetings where lot of experts and main stakeholders have been attending. The main parties as regards innovation issues are Committee of Science and Ministry of Economics.

MS experts underlined the importance of co-operation with stakeholders, like the cooperation in-house. Before finalising the questionnaire for future surveys and for state statistical form it is extremely important to discuss about user needs with stakeholders. Especially in the case where it is better to minimize changes in to the questionnaire. Mapping the user needs with good coverage guarantee the validity of questionnaire for long time.

3. Conclusions and recommendations

It seems that methodological guidelines may provide practical tool for helping the process but many issue in the process is up to practices of NSSRA. MS experts suppose that part of these manual questions should be filled mainly by NSSRA according national practice (for example weighting, dissemination and etc.).

Before next mission MS Expert propose to prepare main survey results (Core tabulation in Annex 4). By expert's opinion, NSSRA can provide selected output tables as examples to the ministries (tables based on EU model questionnaire codes).

MS experts and NSSRA discuss few ideas for changes on the questionnaire in the regular survey. Some questions, used in pilot survey, can be deleted from regular survey. MS Experts proposes to maintain the core questions from EU questionnaire. Core EU questions in CIS questionnaire are presented in Annex 6 (marked in yellow).

Different questions used in the context of EU CIS surveys (from CIS 2010 to CIS 2016) are presented in Annex 5. These questions can be used as an example when discussing about user needs and can be included in future CIS surveys. For example, questions on information sources for innovation activity and objectives of innovation activity – mentioned also in EU regulation, although voluntary – could be interesting, important and very basic questions to be included. NSSRA will consider additions needed.

MS experts recommend strongly to wait the revision of Oslo Manual and also for example availability of the content of CIS2018 before making final decisions on regular innovation surveys. These updates may change the approach recommended and applied, and waiting for seeing the results from this revision work is sensible especially from the viewpoint of international comparability of these statistics.

Close and good co-operation both in-house and with stakeholders is still heavily underlined by MS experts.

Specialised statistical software (like a free of charge R Project) for statistical divisions is relevant for more flexible production of output.

Homework for NSSRA until beginning next mission:

- Finalizing tabulations of pilot survey based on MS experts recommendations
- Provide comments and suggestions for the draft version of the "Methodological notes for Innovation Statistics"
- Planning regular survey needs (what is needed, how to get the best results and etc.)

Annex 1. Terms of Reference

Terms of Reference

EU Twinning Project AM/14/ENP/ST/15

27 February – 2 March 2017

Component 5: Innovation Statistics

Activity 5.5: Preparation of regular surveys of innovation statistics

0. Mandatory results and benchmarks for the component

Mandatory results:

- Innovation statistics introduced (July 2017)

Benchmarks:

- Questionnaire for gathering innovation statistics is drafted (February 2016)
- Pilot survey conducted (January 2017)
- Test results analyzed (January 2017)
- Methodology on innovation statistics introduced (April 2017)
- Plan for regular production and publication developed (April 2017)
- Staff of NSSRA trained on issues related to innovation statistics (July 2017)

1. Purpose of the activity

- Amended methods for a regular surveys based on the experiences from the pilot survey
- Proposals of imputation methods that will be used for regular compilation
- Discussion on revision policy
- Preparation of final questionnaires for a regular production
- Plan for a regular survey
- Plan for publication including user needs
- Development of methodology
- Further discussion on the use of administrative sources
- To involve relevant stakeholders in the discussions

2. Expected output of the activity

- Plan for regular survey and publication developed
- Imputation methods proposed
- Revision policy discussed
- Questionnaire finalised
- Methodology developed
- A lining up of work programme for the next and last activity:
 - 5.6: Follow-up on achievements and recommendations for the future (25-28 April 2017)

3. Participants

NSSRA

Component leaders

- Mr. Gagik Gevorgyan
- Ms. Nelly Baghdasaryan

Other staff

- Ms. Anahit Nazaryan
- Ms. Anna Hakobyan
- Ms. Alina Grigoryan

MS experts

Ms. Mervi Niemi, Expert, Statistics Finland

Mr. Gediminas Samuolis, Expert, Statistics Lithuania

Other stakeholders taking part in the activity

Representatives from:

- Ministry of Economy of RA
- Ministry of Economy, Intellectual Property Agency of RA
- Ministry of Education and Science of RA, State Committee of Science
- National Academy of Sciences of RA

will also be invited.

Annex 2: Programme for the mission

Time	Place	Event	Purpose / detail
Monday, morning (27/2)	NSSRA	Meeting with RTA	To discuss the programme of the week
	NSSRA	Meeting with BC Component Leader and BC Experts	Assessment of situation and presentation by BC of the work conducted since last mission Presentation by BC of the expected outcome of current mission
			Discussion of amended methods for a regular surveys based on the experiences from the pilot survey
Monday, afternoon (27/2)	NSSRA	Meeting with BC Component Leader and BC Experts	Proposals of imputation methods that will be used for regular compilation
			Discussion on revision policy
Tuesday, morning (28/2)	NSSRA	Meeting with BC Component Leader and BC Experts	Preparation of final questionnaires for a regular production
			Plan for a regular survey
Tuesday, afternoon (28/2)	NSSRA	Meeting with stakeholders	Meeting with stakeholders
Wednesday, morning (1/3)		Meeting with BC Component Leader and BC Experts	Plan for publication including user needs
			Development of methodology
			Further discussion on the use of administrative sources
Wednesday, afternoon (1/3)		Meeting with BC Component Leader	Presentation of MS Experts' findings and agreement on the reached conclusions
		Ad-hoc meetings	Final clarifications with BC Experts, preparation of report and presentation for BC Project Leader
Thursday, morning (2/3)	NSSRA	Debriefing with BC Project Leader	Conclusions recommendations for the next activity and the implied work programme for BC Experts

Annex 3. Persons met

NSSRA:

- Stepan Mnatsakanyan, President of the NSSRA
- Anahit Safyan, Member of the State Council on Statistics of RA
- Gagik Gevorgyan, Member of the State Council on Statistics of RA
- Nelly Baghdasaryan, Head of Social Sphere and Natural Protection Division
- Alina Grigoryan, Social Sphere and Natural Protection Division
- Anna Hakobyan, Social Sphere and Natural Protection Division
- Vardan Arevshatyan, Business Register Division

RTA Team:

- Peter Bohnstedt Anan Hansen, Resident Twinning Adviser
- Liana Atoyán, RTA Assistant
- Anush Poghosyan, RTA Language Assistant

Annex 4. Core tabulation for CIS survey

See separate document

Annex 5. Optional questions from EU CIS surveys

See separate document

Annex 6. Core EU questions (in yellow) in ARM CIS questionnaire

See separate document