



Forwarding Armenian Statistics Through Twinning

AM09/ENP-PCA/TP/04

MISSION REPORT

on

A.6. Quality Management Review of the implementation

Mission carried out by:

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Final version



National Statistical Service
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The German Federal
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List of Abbreviations

MWG	Working Group on Methodology
NSO	National Statistical Office
NSSRA	National Statistical Service of the Republic of Armenia
QWG	Working Group on Quality
SDDS	IMF's Special Data Dissemination Standard

1. General comments

This report was prepared as the result of the mission to the National Statistical Service of the Republic of Armenia. The activity was devoted to evaluate the processes, the activities, and the results of the project. Furthermore, proposals and recommendations for further development of the quality work of NSSRA are to be provided.

The tasks of the activity involve:

- An evaluation of the planning and the work processes during the project;
- An evaluation of the results obtained and the current status of the different initiatives:
 - PC Axis / PX Web and electronic dissemination
 - Quality Declarations – including NSSRA's Working Group on Quality
 - Implementation of thematic structure in dissemination
 - Quality Metadata Database and Concept Database
 - Sampling issues – including NSSRA's Working Group on Methodology
 - Enhancing the use of administrative sources for statistics
 - Organisational issues
- A coherent plan of how to develop and/or secure the sustainability of the results.

The consultants would like to express their thanks to all officials and individuals met for the kind support and valuable information which we received during the stay in Armenia, and which made the mission enjoyable and fruitful.

The views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of Statistics Denmark, Statistics Finland or the Federal Statistical Office of Germany (Destatis).

2. Assessment and results

The following actions were executed to assess the results of the component:

- Several meetings were arranged with RTA and BC Component Leader on assessment of the activities within the component A and on the agreement of the work programme for the week.
- Meeting with the Working Group on Quality (QWG) and the Working Group on Methodology (MWG) concerning the status of the quality declarations.
- Meetings with the Head of IT and Head of Dissemination Systems concerning the ArmStatBank
- Meeting with Internal Auditor on the risk management of the NSSRA
- Several meetings with the sampling expert on the calculation of sampling errors and improvement of sampling procedures in NSSRA
- Follow-up and evaluation of the work concerning Standard Error Estimations for sample surveys since the sampling expert's last visit in September 2012. Outlining the importance of standard error estimations of sample survey results for Quality Management of statistics, especially in the context of Quality Declarations.
- Examining developed IT-solutions at NSSRA for the sample size allocation to strata and sample selection, giving recommendations for the further development of this software.
- Explaining basic concepts of imputation as treatment of non-response.
- Discussing the usage of sampling in the context of lowering response burden, e.g. the usage of administrative data as a source for calibration estimation techniques.
- Discussions about organizational structure of Armenian Statistical Office, especially about the need to have a Sampling Expert Group.
- Meeting with the BC Component Leader: summary, presentation of results and recommendations for the work in shorter and longer term after the project. Agreement on future developments was achieved.

3. Conclusions and recommendations

3.1. Conclusions

Quality declarations

The work on Quality Declarations is managed by a steering group chaired by Member of State Council on Statistics and the Head of Methodology, Ms Lilit Petrosyan. All 134 quality declarations for each of the statistical products have been prepared and posted on the web site of the NSSRA. Around 50 have already been translated into English and published. The group has also set up the procedure to update the quality declarations. The updates are already being done to include quality indicators like sampling error calculations and to improve descriptions particularly from the sampling part.

Concept and classification databases

Concept (glossary) database is under preparation. The major classifications are posted on the web site.

User friendly database – ArmStatBank

In September 2012 the user friendly databank was opened on the web site of the NSSRA. See the link: <http://www.armstat.am/en/>. In that context the NSSRA introduced the new thematic structure for the presentation of the statistics according to the statistical domains. The databank includes currently 35 multidimensional tables and by the end of 2012 the amount of tables will be 50. The databank includes also graphics. The maps will be included there in the summer 2013. The user feedback has been very positive and the NSSRA has indicated that the ArmStatBank will in future be the primary source for various publications and other products to be developed basing on the data in the databank.

Quality assurance of primary data

The NSSRA has made major steps during the project period to increase the use of administrative data in the statistics production. In 2012 eight reporting forms were changed because the NSSRA can have the needed variables directly from the data files of the State Revenue Service and two forms were completed canceled. The response burden of enterprises has decreased accordingly and the coverage of the data has improved at least to certain extent. Moreover, the consultants were told that the central office of NSSRA receives the most of the data both from the regional offices and from other administrative bodies at the micro level, which has improved the possibilities to control the quality of basic data significantly. The imputing and editing procedures can be done at micro level, not only at macro level which used to be the case earlier. Still there is a need for the improvements in the assurance of the quality of basic data.

Standard error estimations

A separate issue during the mission was a follow-up and evaluation of the work concerning Standard Error Estimations for sample surveys since the sampling expert's last visit in September 2012. The mission outlined the importance of standard error estimations of sample survey results for Quality Management of Statistics, especially in the context of Quality Declarations.

In September 2012, the usage of the *R*-software and the package “*survey*” for the purpose of standard error estimation of sample survey results was demonstrated to NSSRA staff members (especially to the Working Group on Methodology). In the meantime, the members of this Working Group made themselves more familiar with this software. As a first step, a graphical user interface to the *R*-software has been implemented, in order to enhance user friendliness.

The importance of standard error estimations in the context of quality management has been repeated to NSSRA staff members, especially the need to publish standard errors within the quality declarations.

It has been agreed that from now on, standard errors for the main results for every sample survey will be calculated and published in the quality declarations. This is at the same time the main recommendation of the expert in this context.

Also, the need for the calculation of non-response rates for every survey (sample or census) has been discussed. It is recommended to publish non-response rates in the quality declarations.

Stakeholder relations

The administrative authorities are one of the major stakeholder groups of the national statistical institutes in any country. During the project several workshops have been arranged with various administrative authorities, which have further improved the working relations between the NSSRA and other authorities. The NSSRA has signed an agreement with State Revenue Committee about the use of tax data in the statistics production.

It has been agreed that the NSSRA will be a key partner in the government's project which will introduce electronic reporting of enterprises to the various authorities. The project is part of the eGovernment programme of the government of the RA, which is supported by a new EU Twinning project.

New working culture

During the project it can be seen that a new working culture has been introduced in the NSSRA. It is related to the notion of the need to have continuous improvements in production processes of statistics. It has been one of the major factors contributing to the success of the whole twinning project.

The relevant organizational structures are in place to assure the quality work to continue.

3.2. Recommendations

3.2.1 Recommendations on sampling issues

IT-solutions for sample size allocation to strata and sample selection

Mr. Laert Harutyunyan (Head of Methodology Working Group) presented a program developed by him for the calculation of strata sample sizes according to proportional and Neyman-Tschuprow allocation. This software also calculates expected sampling errors of the allocation variable.

Also, the software is drawing a sample according to the strata sample sizes out of the given data frame.

The software is intended to be used by NSSRA staff members to facilitate their work on sampling plan development and sample drawing, which was carried out until now “manually” using the Excel office software. So it is of huge practical importance for sampling at NSSRA.

It also contains functions needed prior to sampling plan development, such as formation of strata according to combinations of given variables in the data frame.

It is really an excellent work which was made by Mr. Laert Harutyunyan which will enhance the quality of developed sampling plans at NSSRA for the future.

Several recommendations were given with respect to the further development of this software:

- It should be possible to determine sample size of strata according to a two-stage allocation approach, like e.g. to have a proportional allocation at first stage hierarchical level of stratification (e.g. regional or NACE) and Neyman-Tschuprow at a second hierarchical level of stratification (e.g. size classes). This would require the implementation of some loops according to hierarchy level.
- The software should be able to calculate required sample size in order to fulfil expected standard error margins.
- It should be possible, when sample size allocation to strata has been done, to estimate expected standard errors also to further variables contained in the data frame.

Non-response issues

Non-response issues were discussed with members of the Methodological Working Group (MWG). A brief overview of imputation methods was given and some concrete problems from NSSRA practice were tackled.

It was recommended, concerning unit non-response, to evaluate the possibility to apply calibration estimation techniques. Concerning item non-response, the concept of “nearest neighbour” was outlined and recommended to be tested for its applicability in the NSSRA context.

Discussing the usage of sampling in the context of lowering response burden, e.g. the usage of administrative data as a source for calibration estimation techniques

The possible usage of administrative data (e.g. register data) in the context of estimation techniques for sample survey results was discussed with members of the Methodological Working Group. Especially calibration estimation methods (as developed by Carl-Eric Särndal et al.) were briefly introduced.

Such calibration methods is a possible way to come to more effective sampling in the future. It may lead to a better quality of survey results (if sample size is unchanged), or may help to reduce sample sizes and thereby lowering response burdens.

It is recommended – as a mid to long-term objective – to analyse the possibility to implement such estimation techniques at NSSRA.

Sampling expert group within NSSRA

Nowadays it is crucial for any National Statistical Office to have a very good knowledge of sampling methodology and mathematical-statistical methodology in general. This is because financial and personal resources of the NSOs are limited and statistics production has to be effective and punctual. Also response burden of enterprises and households is a general topic with which NSOs are confronted.

Sampling techniques – if properly applied – provide a solution to this challenge. They help in cost saving, timely statistics production and to lower the response burden.

Survey planning, especially from the mathematical-statistical point of view, is an important task in every statistical office nowadays. It is therefore important to have specialized and educated staff to perform these tasks at a level, which is state of the art compared to the currently used methods by international statistical offices.

It is not possible, even for larger statistical offices, to have such specialists in every subject matter area. Also, as statistical methodology is developing rather quickly, one can not at a time learn the newest methods from literature and work on subject matter tasks.

It is therefore recommended to have a *group* (at least 2-5 persons) of mathematical statistical specialists, which work *organisationally independent* from the subject matter areas and provide consultation to the subject matter divisions of NSSRA in the development of sampling plans for surveys, the estimation procedures, the statistical disclosure control and the performing of seasonal adjustment.

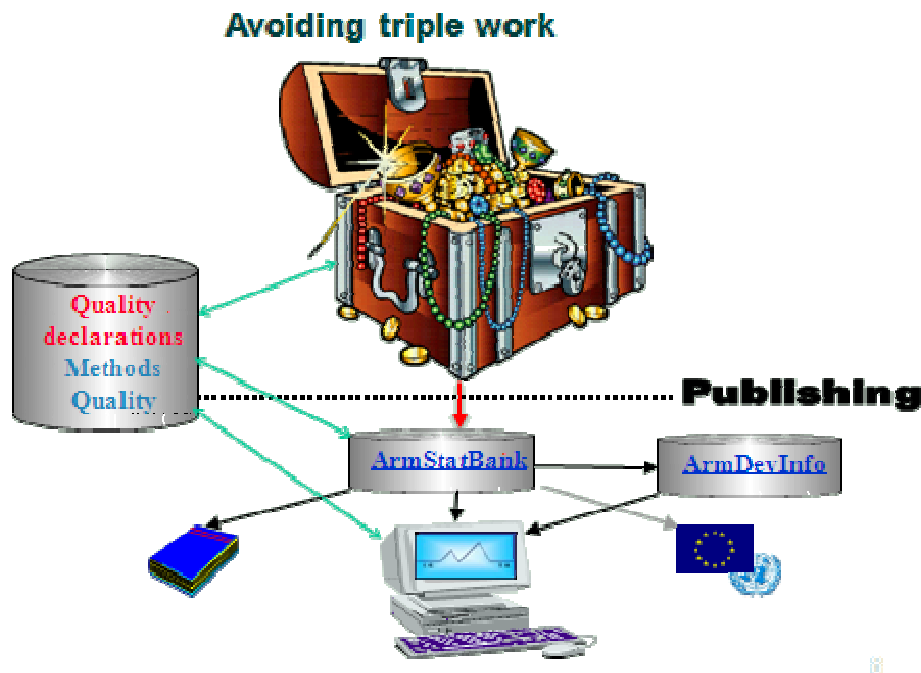
Such a group serves as a “knowledge centre” for mathematical-statistical purposes to the subject matter divisions of NSSRA.

It is important in the context of quality and appropriateness of applied methods at NSSRA to have such an independent group implemented. It is nearly the only way to guarantee that applied methods become standardised within NSSRA in the future.

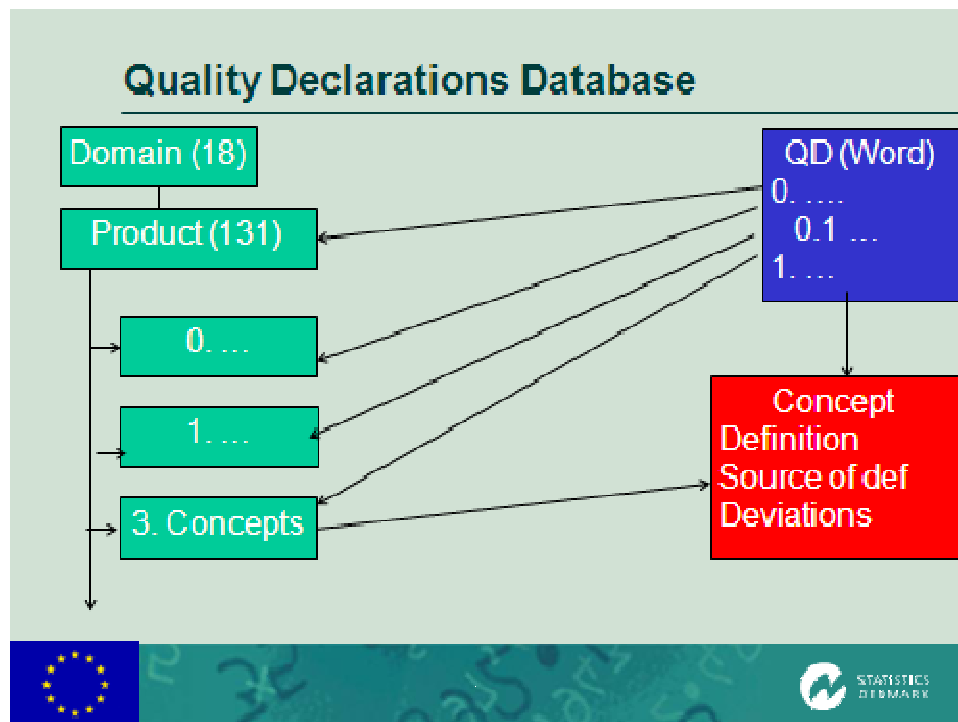
The size of this group has to be large enough to guarantee, that acquired knowledge persist within the group, especially that transfer of knowledge from older to younger staff members takes place.

3.2.2 Recommendations on update of the database and quality declarations

- The update of quality descriptions as part of the working processes of statistical staff
- Consider release of the figures first in the databases and then in the publications, thus making the ArmStatBank the primary release; this can be established when ArmStatBank covers all statistics
- Introduce the mapping part of the PC-Axis in the databank (Summer 2013)
- Minimize the overlapping working processes: Data should not be entered separately in ArmStatBank, ArmDevInfo and the publications and the web site. Instead data should be entered once in the databank, and from there fed into the other media:



- Further work with the administrations to improve and increase the use of administrative registers in statistics production
 - Carry out an analysis of existing and potential administrative registers as sources for statistics
- Organisational matters
 - Internal rotation system of the staff should be introduced if possible (improves the quality consciousness of the staff and standardisation)
 - Knowledge transfer of the certain key skills should be secured (particularly methodological skills)
 - The role of regional offices is still strong – in the longer run it should be considered to downsize most of the offices
- Metadata systems
 - Integration of various metadata systems needed (picture), including a concepts database



- Further development of coherent metadata and quality reporting system including some quality indicators (e.g. sampling errors where possible)
 - Training on quality indicators
- Establishment of Quality Assurance Framework to support implementation of new activities related to e.g. data collection and the whole statistical production process; Eurostat's QAF is a recommendable source of inspiration
 - A long term vision for future national statistical system should be defined
 - Co-ordination of official statistics (requires resources)
 - Enhanced co-operation with users and other stakeholders, also the research sector being important.

ANNEX 1. Terms of Reference (A.6); 10–14 December 2012

Activity A.6 Review of implementation

0. Mandatory result of the component

Metadata and quality indicators for all major collections of NSSRA collected, systematized and published at the NSSRA website.

1. Purpose of the activity

The purpose of the activity is to evaluate the processes, the activities, and the results of the project. Furthermore, proposals and recommendations for further development of the quality work of NSSRA are to be provided.

2. Expected output of the activity

The expected outputs of the activity are:

- An evaluation of the planning and the work processes during the project;
- An evaluation of the results obtained and the current status of the different initiatives:
 - PC Axis / PX Web and electronic dissemination
 - Quality Declarations – including NSSRA's Working Group on Quality
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 - Sampling issues – including NSSRA's Working Group on Methodology
 - Enhancing the use of administrative sources for statistics
 - Organisational issues
- A coherent plan of how to develop and/or secure the sustainability of the results.

3. Project Participants

Mr Stepan Mnatsakanyan, President of NSSRA (*BC Component Leader*)

Ms Lilit Petrosyan, Member of State Statistical Council of RA

Ms Anahit Safyan, Head of International Statistical Cooperation Division

Mr Lars Thygesen, Director of Sales and Marketing, Statistics Denmark (*MS Component Leader*)

Ms Hilkka Vihavainen, Deputy Director General, Statistics Finland

Mr Kai Lorentz, Head of Section, Methodological Division, Federal Statistical Bureau of Germany

Other NSSRA staff members taking part in the activity

Mr Vanush Davtyan, Responsible for IT, Member of State Council on Statistics

Ms Narine Musheghyan, Head of Dissemination Division, NSSRA

Mr Laert Harutyunyan, Head of Methodology Working Group, NSSRA

Mr Vladimir Oboyantsev, Head of IT Division, NSSRA

Annex 2. Meeting Programme for MS Experts: 10-14 December 2012

Time	Place	Event	Purpose / detail
Monday, 10 Dec. Morning	Congress Hotel	Meeting with RTA	To discuss the programme of the week
Afternoon	NSSRA	Meeting with BC Project Leader	Status of the on-going work and progress since August 2012 activities (A4.2 and A4.3): <ul style="list-style-type: none"> • The Working Group on Quality of NSSRA • The Working Group on Statistical Methodology of NSSRA • ARMSTATBANK.AM
Tuesday, 11 Dec. Morning	NSSRA	Meeting with Dissemination and IT Divisions	Thematic structure in dissemination – organisation of the data.
	NSSRA	Meeting with Working Group on Methodology	Hands-on: the work undertaken by NSSRA regarding sampling error estimation (<i>meeting continues during afternoon and Wednesday morning</i>)
Afternoon	NSSRA	Meeting with Project Leader	Increased use of administrative data for statistical purposes – how could NSSRA proceed, and how to involve and motivate external stakeholders?
Wednesday, 12 Dec. Morning	NSSRA	Meeting with Working Group on Quality	Other issues discussed during the Twinning – how to proceed with: <ul style="list-style-type: none"> • Quality Metadata Database • Concepts Database
Afternoon	NSSRA	Seminar for external stakeholders	Joint agenda with the GDP Exhaustiveness component (National Accounts): <ul style="list-style-type: none"> • Revisions of the national accounts – principles and practical implementation • Co-ordination with revisions of primary statistics • EU's "Code of Practice": the release calendar of the national statistical agency
Thursday, 13 Dec. Morning	NSSRA	Meeting with Working Group on Quality	Quality Declarations: <ul style="list-style-type: none"> • Work processes needed to ensure updating • Further future developments, e.g. EU standards
	NSSRA	Meeting with Working Group on Methodology	Laying out a work and time plan for sampling error estimation for all statistical products of NSSRA
Afternoon	NSSRA	Meeting with Project Leader	Organisation of NSSRA – possible future scenarios for the divisions of methodology, dissemination and IT (<i>joint meeting</i>)
Friday, 14 Dec. Morning	NSSRA	Ad-hoc meetings	Drafting of report
Afternoon	NSSRA	Debriefing with BC Project Leader	Conclusions, decisions and recommendations. Evaluation of obtained results and of work processes during the project.

Annex 3. Persons met

Mr. Stepan Mnatsakanyan, President of NSSRA (BC Component Leader)
Ms Lilit Petrosyan, Member of State Statistical Council of RA
Ms. Anahit Safyan, Head of International Statistical Cooperation Division
Mr. Vanush Davtyan, Responsible for IT, Member of State Council on Statistics
Ms Narine Musheghyan, Head of Dissemination Division, NSSRA
Mr Laert Harutyunyan, Head of Methodology Working Group, NSSRA
Mr Vladimir Oboyantsev, Head of IT Division, NSSRA
Ms xxx, Internal Auditor

Workshop with stakeholders on Revision Policy on 12 December 2012

Representatives from:

Central Bank of Armenia
Ministry of Finance
Ministry of Economy
Economic Research Institute

Also representatives from RA NSS
Total number of participants xx

Annex 4. National Accounts and Primary Statistics revision (Power Point presentation)



Co-ordination and dissemination of current revisions in primary statistics and in National Accounts

Hilkka Vihavainen
Yerevan, December 2012



Principles of European revisions, adopted by the ESSC (Specific guidelines agreed on 9 February 2012 by the ESSC)

- Principle 1 - General and domain specific revision policies
- Principle 2 - Consistency and stability of domain specific revision policies
- Principle 3 - Communication of revisions
- Principle 4 - Routine and annual revisions
- Principle 5 - Major revisions
- Principle 6 - Non-scheduled revisions
- Principle 7 - Definition of domain specific revision policies
- Principle 8 - Data vintages and monitoring of revisions



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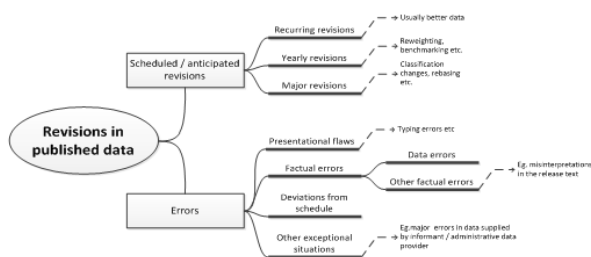
An example at national level

- Statistics Finland
 - Earlier precise guidelines on handling of errors at statistical publications
 - Extended guidelines on handling on **changes** in published figures in April 2012
 - The major extension in guidelines: dissemination of systematic information about revisions



Distinction between revisions and errors

- Revision – change of data regardless of the fact that the processing has been correct
 - Anticipated (foreseeable)
 - Quality improves
- Occurrence of errors –revision non-scheduled
 - Not planned
 - Quality issue



From the users' point of view: revision of published data

- Expectations on the size of the revision: it is about the quality
 - Revision is not the problem if it is not unexpected
 - If the precision is worse than expected, the user is unsatisfied
- Errors and delays are a big risk for the professional image of statistician
- Open policy to tell about the errors and their transparent correction strengthens public confidence on statistics

The guiding principles at Statistics Finland

- Preventive measures to avoid errors
- Reaction on deviating situations
 - Openness
 - Rapid reaction
 - Documentation
- Foreseeable revisions
 - Improvement of precision of data
 - Advance communication
 - Avoidance of useless revisions

Publication of the scheduled revisions on statistics

- Around 30 statistics where a table on revisions is published
- The table includes the latest and certain amount of historical revisions
 - Major time series and indicators
 - Update in every publishing period
- Implementation in 2012 and ready at the beginning of 2013

Description of the revisions in quality metadata descriptions

- Reasons for revisions
- Length of the period of revisions
- Size of the foreseeable revisions
- Timings of annual revisions
- Which data are revised more than the others
- Which data are preliminary

Home | Statistics | Metadata | Data collections | Products and services | News | Statistics Finland

Home > Statistics > Trade > Turnover of trade

Statistics Finland

Turnover of trade

Producers: Statistics Finland

Date: Latest release: 14 Nov 2012

Next release: 26 Nov 2012

Description: The index of turnover of trade describes development in the turnover of enterprises engaged in trade. Turnover for the largest enterprises in their respective industries is described with the data collected with the sales inquiry while the data on sales obtained from periodic tax returns are exploited to describe the turnover of other enterprises. Turnover is exclusive of value-added tax.

Read full description >>>

Revisions in these statistics

The data of the statistics have become revised according to the table below. For more information about data revisions, see Section 3 of the quality description (only in Finnish).

Revision of annual changes in turnover in main industries¹⁾

Industry	Reference month	Year on year change, %		Revision, percentage point
		Latest release 12.9.2012	1st release	
Total trade (G)	04/2012	1.7	1.1	-0.6
	05/2012	2.7	3.2	0.5
	06/2012	2.1	2.4	0.3
	07/2012	2.1	2.1	0
	08/2012	0.3	-0.1	-0.4
Motor vehicle trade (45)	04/2012	-13.5	-13.2	0.3
	05/2012	2.4	4.8	2.4
	06/2012	1.8	2.9	1.1
	07/2012	-15.2	-11	4.2
	08/2012	-24.2	-21.9	2.3
Wholesale trade (46)	04/2012	6.1	4.9	-1.2
	05/2012	2.5	2.8	0.3
	06/2012	0.5	0.9	0.4
	07/2012	5.1	4.2	-0.9
	08/2012	3	2.2	-0.8
Retail trade (47)				

1) The 1st release refers to the time when data for the reference period were released for the first time. The revision describes the difference of annual change percentages between the first and latest release.

Conclusions

- Publishing of our policy
- To extend the revision principles to be part of the quality criteria of official statistics
- Avoidance of errors – improvement of our processes