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ISSUES OF QUALITY AND RELIABILITY ASSESSMENT FOR RUSSIAN NATIONAL ACCOUNTS DATA

Invited paper submitted by Russian Federation*

Summary

This paper discusses possible approaches to assessment of quality and reliability of national accounts data. Following the introduction, the second part discusses the question of quantitative measurement of quality indicators. In the third part, Russian national accounts data are analyzed using the IMF Data Quality Assessment Framework. The forth part describes the experience of regression approach to consistency assessment of the SNA data. The fifth part gives concluding remarks.

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I. Introduction

1. The development of the system of national accounts in Russia, like in most transition economy countries, started relatively recently. Statisticians faced in a double problem. On one hand, time was very constrained to implement a radically new methodology, to form new data flows and to organize new calculation procedures. On the other hand, an economy in transition is frequently characterized by instability of its individual components as well as of its entire structure. This rendered the creation of a new system of macroeconomic statistics even more difficult.

2. Today the SNA methodology has been put in place in Russia. The national accounts indicators published cover the conceptual, institutional and time aspects rather completely. Russian national accounts data allow for a detailed analysis of the macroeconomic situation. This is the main measure of quality from the user's point of view. At the same time, the implementation of SNA has not been finished in all its details and this raises specific issues when considering data quality.

3. The present paper has no pretensions to provide an exhaustive quality assessment for Russian national accounts data. It discusses some of the most significant questions in forming an approach to such an assessment.

II. Could the quality be measured in a quantitative scale?

4. While considering the issue of national accounts data quality assessment, one would like to raise in the first place a conceptual question, the solution of which broadly determines the general approach. How promising is the effort to make quantified estimates of the quality? Is it possible to introduce a points scale for a strict and straightforward assessment of quality for any set of the national accounts data? Taking into account the importance and the complexity of these questions, one could expect arguments supporting diverging or even opposite answers.

5. In particular one could suppose that an accurate and straightforward measurement of quality could be an aim of those who have to control or to discuss the statisticians' work – official bodies or public opinion. However, one would not like to make final conclusions in haste.

6. It is doubtful that the data quality assessment problem could be solved in terms of a unified straightforward quantitative scale. During the discussion on the quality assessment issues at the OECD National Accounts meeting in October 2001, it was noted: that the quantitative approach is not good for quality assessment, as existing IMF and Eurostat experiences demonstrate.

7. A similar conclusion could be illustrated indirectly by the example of the UN experience in introducing the milestones assessment of the 1993 SNA implementation. According to the request of the UN Statistical Commission, the Inter-secretariat Working Group on National Accounts (ISWGNA) proposed a scheme for an implementation milestones assessment based on

six consecutive stages. Each stage was identified by a concrete set of implemented accounts. This scheme of six stages is logically well-balanced and seems to be proper from the methodological point of view. However, its realization in practice ran into some problems.

8. As a result, upon the request of the Statistical Commission, the ISWGNA developed a new approach to the assessment of the 1993 SNA implementation. This approach was endorsed by the Commission at its 32nd session in March 2001[1]. It included three dimensions: the scope of the accounts, the conceptual compliance and the quality issues. In this approach, the definition of the scope of the accounts does not rely on six stages but instead includes three data sets described in quite general terms – a minimum set, a recommended and other data sets. The Commission also agreed that the three data sets should be referred to by more neutral names. The development of this approach was the subject of discussions at the 33rd session of the Commission in March 2002. Thus the first scheme of six stages, which is easy to quantify, is progressively being extended by introducing new dimensions which hardly could be quantified using a single scale.

9. This experience has not only been the case with data quality issues, but it is also the broader case of data quality. Moreover, the degree of implementation of the most advanced methodology could be treated in some cases as an indicator of statistics quality. The example cited above reflects an important common tendency in forming an effective quality assessment approach while considering a complex and many-faceted subject. The development of such an approach goes from more straightforward schemes (which could be described in strict quantitative terms) to more complex schemes which are not always reducible to a single scale. The implementation of the fundamental 1993 SNA methodology is such a multi-faceted subject. The data quality is a similar subject having heterogeneous characteristics. In this connection, the search for summary quantitative estimates of statistical data quality, including national accounts data, seems to be problematic. More promising seems to be the development of an assessment system which includes a relative description of different elements not reducible to a single point on a scale.

10. The final solution of this problem could be found in the future as more national and international experience is accumulated in this field. At the same time one would like to suggest some conclusions now. It seems that the most preferable approach in developing a data quality assessment scheme would not be oriented to a summary quantitative estimate. The reasoning below relies just on such an approach.

11. In this connection, one would like to take the Data Quality Assessment Framework developed by the IMF (see Annex 1). One of its basic principles seems to provide an all-round description of the quality without aiming to reduce estimates into a single quantitative scale. Formulations of titles and of substance of the DQAF elements do not require a quantitative description.

III. Application of the IMF Data Quality Assessment Framework

12. As Carol S. Carson and Claire Liuksila note[2], the IMF Data Quality Assessment Framework (DQAF) is a tool providing structure and a common language for data quality. It considers successively six of the most important questions which determine the quality of work:

- what are the initial conditions for the work? ("Prerequisites of quality");
- what is the qualification level of those who do the work? (dimension 1 "Integrity");
- what tools are used to do the work? (dimension 2 "Methodological soundness");
- what are the results? (dimension 3 "Accuracy and reliability");
- do the results meet the public demand? (dimension 4 "Serviceability");
- how available are the results for users? (dimension 5 "Accessibility").

13. Within the preparation of the present document an experimental assessment of quality of Russian national accounts data was made according to the DQAF methodology. The following formulations recommended by the IMF Statistics Department were used in assessing concrete indicators and elements: "practice observed", "practice largely observed", "practice largely non-observed", "practice non-observed", "not applicable".

Prerequisites of quality

14. The legal and institutional environment is largely supportive of accounts compilation. The responsibility for collecting, processing, and disseminating statistics is largely clearly specified. Some problems occur in coordination between the agencies producing data for the national accounts. In particular Goskomstat has sometimes to make important additional efforts to ensure the cooperation with the Bank of Russia, the Ministry of Finance, and the Ministry of Taxes and Duties in supplying data. Unfortunately, there are few directions which could help Goskomstat to increase this cooperation. The legal support for this cooperation could be assessed as largely non-observed. Keeping respondents' data confidential as well as ensuring statistical reporting through legal measures could be assessed as observed.

15. Resources turned out to be the most difficult to assess. Whereas the level of sufficient financial and computing resources for the compilation of national accounts could be discussed, the level of staff resources appears rather surprising. Less than 10% of the total staff of the central office of the Goskomstat of Russia is involved in the compilation of national accounts. This is very few. Fortunately the professional level of these people is exclusively high and it ensures the successful implementation of the SNA in Russia. However, the comparison of this indicator in the context of DQAF would be difficult due to its marginal value. Apparently it would be better to consider it as not applicable in this case. Measures to ensure the efficient use of existing resources have been largely implemented.

16. Regarding quality awareness, one could say that close attention is paid de-facto to quality issues in the Russian national accounts compilation. Quality is constantly taken into account, but there are no special documents formulating quality requirements. So, existing practice could be assessed as largely non-observed.

Integrity

17. All DQAF indicators related to professionalism are observed in full in the compilation of national accounts. Data are compiled on an impartial basis; the choices of sources and statistical techniques are informed solely by statistical considerations. The National Accounts Department of Goskomstat is entitled to comment on erroneous interpretation and misuse of the SNA data and in practice it exercises this right.

18. The polices and practices for accounts compilation are largely transparent. The terms and conditions under which statistics are collected, processed, and disseminated are completely available to the public and products of the statistical service are clearly identified as such. The practice of giving advanced notice of major changes in methodology, source data, and statistical techniques is largely observed. For example, before the surveys on NPISHs or on small enterprises were carried out, users were warned that new data may provoke corrections in the accounts.

19. The ethical standards are observed. These are established in the policies and practices of accounts compilation. The corresponding requirements are formulated in staff job descriptions.

Methodological soundness

20. From the very beginning of its development – since the beginning of 1990s – Russian SNA has been based on the 1993 SNA methodology. Therefore, the practice is observed: the concepts and definitions that are used in Russian national accounts at present meet the 1993 SNA standards.

21. The scope of accounts is largely consistent with international standards, but not all accounts are yet compiled. For example, financial account is not yet compiled, as well as balance sheets. Not all accounts are compiled for some sectors, some problems remain in the compilation of financial sector accounts.

22. The assessment of the used classification/sectorization systems meets some difficulties in applying the DQAF. In practice, data presented in Russian national accounts are aggregated according to the international classifications. However, this is achieved not by application of the corresponding classifications to primary data collection but thanks to additional efforts of national accountants in compiling output data. Formally speaking, the existing classifications do not correspond exactly to those of the 1993 SNA. Thus, the real quality of Russian national accounts data exceeds the formal basis for their compilation. The output data are largely consistent with the internationally accepted standards of classification, their quality ensures macro-analysis in accordance with the 1993 SNA methodology. However, the use of classifications for primary data can be formally assessed as largely non-observed. In some cases, the implementation of classifications runs into additional difficulties when cooperation with other agencies is needed: for example, the implementation of the classification of financial assets should be done by the Bank of Russia.

23. The basis for recording follows international standards (practice observed) – market prices are used to value flows and stocks, grossing/netting procedures are largely consistent with international standards. Some problems are faced in using accrual basis as for instance, the

execution report of the state budget is produced by the Ministry of Finance on a cash basis. Additional efforts are needed in order to bring these data in line with accrual basis accounting.

Accuracy and reliability

24. Source data are collected through comprehensive data collection programs, and they reasonably approximate the definitions, scope, methodology, valuation and time of recording required. Source data are largely timely. The entire practice for this element can be assessed as observed.

25. Data compilation as well as necessary adjustments and transformations employ sound statistical techniques – this corresponding practice is observed.

26. Assessment and validation of source data is largely implemented. However, not in all branches the source data are analyzed with the same thoroughness. As a result, the data of some branches can be questioned, for instance, whether the sample was representative. And national accountants cannot always influence the actions of branch statisticians. The main tool to compensate for the poor quality of the source data, in this case, would be to make adjustments at the national accounts level.

27. A similar situation takes place in analyzing discrepancies in the intermediate data. Intermediate branch data are not always checked for internal consistency. For example, data on output and on the compensation of employees are compiled by different branch units, and the real confrontation of these data is done only when the national accounts are compiled. If a non-consistency of intermediate data is detected, special efforts are needed in order to organize the revision of these data. Possible discrepancies in statistical outputs are also analyzed when the accounts are compiled. The statistical discrepancy between the production and the use of GDP is subject to regular analysis. If this discrepancy approaches 5%, revision calculations are conducted in order to identify and remove errors. The entire practice for this element can be assessed as largely observed.

28. Studies and analysis of revised data are carried out regularly (observed).

Serviceability

29. National accountants focus on monitoring users' needs (observed). In particular, the scope of indicators compiled is successively extended from the point of view of number of accounts and number of institutional sectors.

30. Timeliness and periodicity of the national accounts compilation follow international standards (observed). For example, the IMF Special Data Dissemination Standard is strictly respected in the dissemination of quarterly and annual data.

31. Accounts data meet completely the consistency requirements (observed). They have an internal consistency in terms of accounting identities (this will be discussed in more detail in part

IV below). They are also consistent with other statistical systems data – for example, those of balance of payments and state budget. They are largely reconcilable over time periods.

32. Revision policy and practice are observed. For example, revision of the GDP estimates is conducted regularly according to the special Regulations adopted by Goskomstat jointly with the main governmental users of macroeconomic statistics – Ministry of Finance and Ministry of Economy. Preliminary data are clearly identified when published. Studies and analyses of revisions are also largely made public.

Accessibility

33. National accounts data are widely accessible to users (observed). As soon as they are compiled they are presented in the regular intra-annual publications and on the Goskomstat web-site. The statistical publication "National Accounts of Russia" is published annually. Data dissemination schedules are given to users in advance. Non-published non-confidential data are made available upon request.

34. Metadata are also widely accessible (observed). They are given at different levels of detail in monthly information reports of Goskomstat, special comments on revisions, mass-media articles, Internet, national accounts yearbook.

35. Assistance to users is prompt and knowledgeable (observed). The contact person for each subject field is publicized, e.g. in the national accounts yearbook.

The summary results of this experimental assessment are presented in Annex *2*

36. The analysis carried out according to DQAF allows us to assess the quality and reliability of Russian national accounts data at quite a high level. This result is not surprising for professional users of these data. The experience of macroeconomic analysis on the basis of Russian SNA data testifies for their informative capacity as well as their adequate accuracy and reliability.

37. At the same time, the Summary presentation of the results (Annex 2) allows us to make another interesting conclusion. The good quality of Russian national accounts data has been achieved under very difficult conditions. Section "Prerequisites of quality" does not include any "O" rating corresponding to the complete implementation of the quality criterion. Moreover, two thirds of this section is described by low ratings "LNO" and "NA". All other sections look significantly better. So, quite a good quality is ensured under weak prerequisites. This conclusion, which looks a little paradoxical at first sight, reflects the real situation. Considering inadequate resources the quality of the Russian national accounts data is ensured by the additional efforts of the accountants.

IV. Regression approach to data consistency assessment

38. Looking at the DQAF quality dimensions, one would like to discuss in more detail the assessment of national accounts data consistency. Each dimension is undoubtedly of great significance. Data should have integrity, methodological soundness, accuracy and reliability, serviceability as well as accessibility. To ensure data quality, it is necessary to fulfill the requirements of all these five dimensions. At the same time the 4th dimension – "serviceability" – looks as one of the most important from the user's point of view.

39. In practice element 4.3 – "consistency" – is of prime interest (see Annex 1). Without a doubt all elements are important – national accounts data should be supplied respecting timeliness and periodicity (4.2), revised according to an adapted schedule (4.4), and users' needs should be monitored frequently by statisticians (4.1). But if in practice these elements are not observed in full. This does not create problems for the analysis and forecasting as serious as those provoked by data inconsistency. So, it seems that it might be useful to pay special attention to the development and application of more detailed techniques for accounts data consistency assessment.

40. The experience of working with Russian national accounts data has shown that the use of regression analysis is quite effective for these purposes. This approach is efficient not only for national accounts but also for other fields of statistics. Goskomstat of Russia undertook some steps to use regression methods for assessment of the general consistency of data.

41. The nature of reforms in Russia in the mid-1990s caused frequent and important changes in most social and economic indicators. That is why a continuous monitoring of ongoing processes played an important role in the development and implementation of economic policy. As a result operational statistical data, especially monthly data, became of key importance. At the same time, the importance of these data required higher quality. On the other hand, the operational character of these data, and the need of rapid processing threatened to lead to additional errors of measurement, as well as threatened quality and reliability of the data. In order to solve these problems Goskomstat used regression methods in 1995-1997 for checking the consistency of monthly data.

42. Regression equations were estimated for time series for different branches of economic and social statistics (first of all – for growth indicators). The set of these equations formed a model describing the relationships between the indicators. As soon as data for a new month came out, they were run through the model which demonstrated the general level of their consistency. If the model indicated inconsistencies in new data, this meant that at least some data included measurement errors. In this case, additional checking and corrections were made. Calculations through this model were conducted by the Aggregation Statistics Department of Goskomstat. These calculations had an experimental character and were effective. These measures helped to avoid measurement errors to an extent and thus really supported the quality and the reliability of statistical outputs.

43. Application of the regression approach for the analysis of Russian national accounts data can be illustrated by the following case example, taken from the practice. For purposes of macroeconomic analysis and forecasting, the Bureau of Economic Analysis developed a special computed indicator. This indicator, that was named Aggregate Economic Growth Rate (AEG),

reflects one of the most important macroeconomic features – the real GDP growth. The primary condition enabling the use of methodology of this indicator is the quality and the consistency of accounts data. As a result, the AEG computation provides one of the quality estimates for the national accounts data. It is worth noting that this indicator was constructed during a specific period of Russian SNA development, when Goskomstat compiled monthly GDP estimates which themselves were subject to discussion in the context of statistics quality.

44. As mentioned above, the Russian economy went through serious structural changes during the last decade. Many of these changes, which normally take a long time in a stable functioning economy accelerate at the time of active and large-scale reforms. As a result, a lot of important developments – e.g. changes in prices and structure of prices, changes in growth of output and the share of branches and economic sectors – were recorded during intra-annual periods instead of annually. These radically new circumstances required new solutions from the statisticians. One of these solutions was the compilation of monthly GDP figures. This solution caused doubts but it was needed.

45. It should be taken into account that monthly indicators could not actually represent veritable GDP estimates but provided only general characteristics. They were not intended for a sound analysis of the Gross Domestic Product. Their purpose was to give a macro-assessment of the ongoing economic situation. Briefly speaking, the purpose was to give a timely answer to the question: what was generally the situation last month? Taking into account the specific features of the period of reforms, the answer to this question often was extremely important for the development and realization of the economic policy.

46. While compiling and publishing monthly GDP indicators, Goskomstat of Russia always emphasized the provisional character and the limited application of these indicators. At the time, not all users paid the necessary attention to this disclaimer notice. Publications by some researchers and also in the mass-media show that there were attempts to analyze operational monthly GDP estimates as deep and in detail as quarterly and annual accounts data. As a result, Goskomstat, in coordination with the government, abandoned the compilation of monthly estimates in 1998. At the same time, there remained a need for a monthly macroeconomic estimate for purposes of analysis and forecasting. The development of the Aggregate Economic Growth Rate was a solution to this need.

47. The AEG represents the real GDP growth as a function of the real growth rates of some branches. Regression analysis demonstrated that Russian monthly series data enabled us to estimate this function with a high level of accuracy and reliability. As a result, the real growth rate of Russian Gross Domestic Product can be estimated without direct compilation of the GDP indicators themselves. It can be done using the information on the real growth rates of industry, agriculture, construction, trade, and state budget expenditures through the following formula[3]:

$$\begin{array}{lccccccccccc} AEG = & 30.978 & + & 0.439*Ind & + & 0.0635*Agr & + & 0.0625*Con & + & 0.0922*Tra & + & 0.0332*Bud \\ & (11.418) & & (13.656) & & (3.369) & & (3.377) & & (3.377) & & (3.159) \end{array}$$

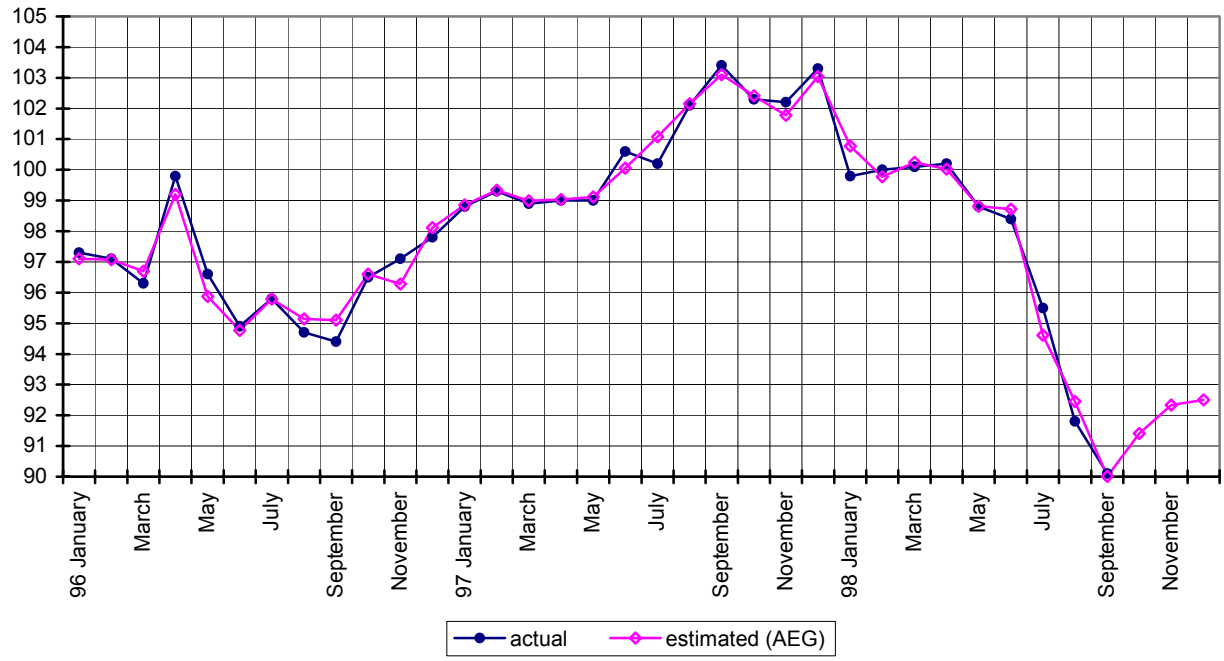
$R^2 = 97.9\ \%$
$DW = 2.482$

All variables are computed as the real indexes (%) comparing one month to the same month of previous year, where:

AEG Aggregate Economic Growth Rate reflecting the real GDP growth rate,
Ind industry growth rate,
Agr agriculture growth rate,
Con construction growth rate,
Tra trade growth rate,
Bud nominal growth rate of consolidated state budget expenditures deflated by CPI.

48. These selected branches account for more than three quarters of Russian Gross Domestic Product (it is not by accident that the sum of the explanatory variable parameters equals about 0.7). This set includes branches producing goods, market and non-market services. The aggregated growth rate of these branches objectively reflects the GDP growth rate. The following chart illustrates the closeness between the actual and estimated monthly GDP growth rates.

Real GDP growth to the corresponding month of previous year, %



49. This example demonstrates a successful application of regression approach for the consistency assessment of the most problematic kind of macroeconomic data – monthly data. Further the AEG was also obtained for quarterly and annual GDP estimates. The procedure for checking the stability of equation parameters is conducted regularly as one of the requirements for the AEG correct use. The parameters are modified if needed.

50. In practice the AEG application procedure is simple: each next newly obtained GDP estimate is checked for consistency with the corresponding set of data. A significant divergence between the direct GDP estimate and the computed AEG can mean one of two things: the economic relationship changed significantly during the period under study or, at least one of the indicators used included a measurement error. If the economic relationship has changed significantly, it must be explainable by other statistical data. If such an explanation is not obvious then (taking into account the quarterly procedure of the AEG) assuming measurement errors in the considered period seems to be the most convincing cause.

51. Leaving aside the analytical and forecasting functions of the AEG, one should emphasize that the AEG model provides a strictly identified and effective tool for assessment of the internal consistency of the indicators of the Gross Domestic Product. It should be noted that the actual experience over the entire period when the AEG was used demonstrates quite a good consistency of the main indicators which compose Russian GDP estimates.

52. The practical experience of the regression approach application furthermore indicates that this method is capable of giving an indirect check for data consistency. One would like to suggest that this application of regression approach could be considered as a complementary method for further development of the Data Quality Assessment Framework for national accounts.

V. Concluding remarks

53. The above reasoning could be summarized as follows.

- An approach which does not use direct quantitative measurements of the quality of national accounts data seems to be more promising when developing the assessment system of the national accounts data quality and reliability.
- The analysis of national accounts data using the IMF Data Quality Assessment Framework gives us a reason to believe that the Russian national accounts data, compiled in rather difficult conditions, are of good quality.
- The application of regression approach provides an effective tool for an indirect assessment of the consistency of national accounts indicators. Such an approach could be considered as one possible element in the further development of a system of assessment of quality and reliability of these data.

54. In conclusion, we would like to note one more circumstance which seems to play important role in ensuring the quality of national accounts data. It is the users' demand. When a lot of users of different kind are interested in the various accounts indicators, this increases the requirements to the national accountants and makes them pay more attention to the quality issues while compiling the data.

NOTES

[1] E/CN.3/2001/25, Chapter III "Economic statistics", para. 19.

[2] Carol S. Carson and Claire Liuksila, “Further Steps Toward a Framework for Assessing Quality”, paper presented at the International Conference on Quality in Official Statistics, May 14-15, 2001, Stockholm (Sweden).

[3] Estimates were obtained using data from January 1996 to September 1998. Values of *t-statistic* (shown under the equation) are essentially higher than critical value which equals in this case to 2.771 with 99 percent of probability. There is no autocorrelation as the Durbin-Watson statistic is essentially higher than the upper bound.

ANNEX 1

IMF Data Quality Assessment - Generic Framework
(Draft as of July 2001)

Quality Dimensions	Elements	Indicators
0. Prerequisites of quality *(The elements and indicators included here bring together the "pointers to quality" that are applicable across the five identified dimensions of data quality.)*	**0.1 Legal and institutional environment** – *The environment is supportive of statistics.*	0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified. 0.1.2 Data sharing and coordination among data producing agencies are adequate. 0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only. 0.1.4 Statistical reporting is ensured through legal mandate and/or measures to encourage response.
	0.2 Resources – *Resources are commensurate with needs of statistical programs.*	0.2.1 Staff, financial, and computing resources are commensurate with institutional programs. 0.2.2 Measures to ensure efficient use of resources are implemented.
	0.3 Quality awareness – *Quality is a cornerstone of statistical work.*	0.3.1 Processes are in place to focus on quality. 0.3.2 Processes are in place to monitor the quality of the collection, processing, and dissemination of statistics. 0.3.3 Processes are in place to deal with quality considerations, including tradeoffs within quality, and to guide planning for existing and emerging needs.

1. Integrity *The principle of objectivity in the collection, processing and dissemination of statistics is firmly adhered to.*	**1.1 Professionalism** – *Statistical policies and practices are guided by professional principles.*	1.1.1 Statistics are compiled on an impartial basis. 1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations. 1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.
	1.2 Transparency – *Statistical policies and practices are transparent.*	1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public. 1.2.2 Internal governmental access to statistics prior to their release is publicly identified. 1.2.3 Products of statistical agencies/units are clearly identified as such. 1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques.
	1.3 Ethical standards – *Policies and practices are guided by ethical standards.*	1.3.1 Guidelines for staff behavior are in place and are well known to the staff.

2. Methodological soundness *The methodological basis for the statistics follows internationally accepted standards, guidelines, or good practices.*	**2.1 Concepts and definitions –** *Concepts and definitions used are in accord with standard statistical frameworks.* **2.2 Scope** – *The scope is in accord with internationally accepted standards, guidelines, or good practices.* **2.3 Classification/sectorization** *Classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices.* **2.4 Basis for recording** – *Flows and stocks are valued and recorded according to internationally accepted standards, guidelines, or good practices.*	2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or good practices: see dataset-specific framework. 2.2.1 The scope is broadly consistent with international standards, guidelines, or good practices: see dataset-specific framework. 2.3.1 Classification/ sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices: see dataset-specific framework. 2.4.1 Market prices are used to value flows and stocks. 2.4.2 Recording is done on an accrual basis. 2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or good practices.

3. Accuracy and reliability ***Source data and statistical techniques are sound and output data sufficiently portray reality.***	**3.1 Source data** – *Source data available provide an adequate basis to compile statistics.*	3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions. 3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required. 3.1.3 Source data are timely.
	3.2 Statistical techniques – S*tatistical techniques employed conform with sound statistical procedures.*	3.2.1 Data compilation employs sound statistical techniques. 3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.
	3.3 Assessment and validation – *Source data are regularly assessed and validated.*	3.3.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning.
	3.4 Assessment and validation of intermediate data and statistical outputs.-*Intermediate results and statistical outputs are regularly assessed and validated.*	3.4.1 Main intermediate data are validated against other information where applicable. 3.4.2 Statistical discrepancies in intermediate data are assessed and investigated. 3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.
	3.5 Revision studies – Revisions, as a gauge of reliability, are tracked and mined for the information they may provide.	3.5.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes.

4. Serviceability **Statistics are relevant, timely, consistent, and follow a predictable revisions policy.**	**4.1 Relevance –** *Statistics cover relevant information on the subject field*.	4.1.1 The relevance and practical utility of existing statistics in meeting users' needs are monitored.
	4.2 Timeliness and periodicity – *Timeliness and periodicity follow internationally accepted dissemination standards.*	4.2.1 Timeliness follows dissemination standards. 4.2.2 Periodicity follows dissemination standards
	4.3 Consistency – *Statistics are consistent over time, internally, and with major datasets*.	4.3.1 Statistics are consistent within the dataset (e.g., accounting identities observed). 4.3.2 Statistics are consistent or reconcilable over a reasonable period of time. 4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.
	4.4 Revision policy and practice – *Data revisions follow a regular and publicized procedure.*	4.4.1 Revisions follow a regular, well-established and transparent schedule. 4.4.2 Preliminary data are clearly identified. 4.4.3 Studies and analyses of revisions are made public.

5. Accessibility *Data and metadata are easily available and assistance to users is adequate.*	**5.1 Data accessibility –** *Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis.*	5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts). 5.1.2 Dissemination media and formats are adequate. 5.1.3 Statistics are released on a pre-announced schedule. 5.1.4 Statistics are made available to all users at the same time. 5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request.
	5.2 Metadata accessibility – *Up-to-date and pertinent metadata are made available.*	5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated. 5.2.2 Levels of detail are adapted to the needs of the intended audience.
	5.3 Assistance to users – *Prompt and knowledgeable support service is available.*	5.3.1 Contact person for each subject field is publicized. 5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.

Annex 2

DQAF: Summary Presentation of Results for the Russian National Accounts
(Experimental Assessment)

O = practice observed, LO = practice largely observed, LNO = practice largely non-observed, NO = practice non-observed, NA = not applicable

Elements	Assessments					Comments
	O	LO	LNO	NO	NA	
0. Prerequisites of quality						
0.1 Legal and institutional environment		X				There are some problems in information cooperation of Goskomstat with Central Bank, Ministry of Finance, and Ministry of Taxes and Duties
0.2 Resources					X	Human resources are so low that application of this element seems to be problematic
0.3 Quality awareness			X			Quality issues are taken into account in the work but not stipulated in any special documents
1. Integrity						
1.1 Professionalism	X					
1.2 Transparency	X					
1.3 Ethical standards	X					
2. Methodological soundness						
2.1 Concepts and definitions	X					
2.2 Scope		X				Most accounts are compiled but their set is not complete
2.3 Classification/sectorization			X			Accounts data are aggregated in accordance with the SNA 1993, however, in primary data collection not all relevant classifications are implemented
2.4 Basis for recording	X					
3. Accuracy and reliability						
3.1 Source data	X					

Elements	Assessments					Comments
	O	LO	LNO	NO	NA	
3.2 Statistical techniques	X					
3.3 Assessment and validation of source data		X				Not all source data are assessed with the same thoroughness
3.4 Assessment and validation of intermediate data and statistical outputs		X				Intermediate data not always are assessed for internal consistency
3.5 Revision studies	X					
4. Serviceability						
4.1 Relevance	X					
4.2 Timeliness and periodicity	X					
4.3 Consistency	X					
4.4 Revision policy and practice	X					
5. Accessibility						
5.1 Data accessibility	X					
5.2 Metadata accessibility	X					
5.3 Assistance to users	X					
