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SESSION 1: RECONSTRUCTING THE PAST

**PROBLEMS OF THE RUSSIAN STATISTICS RECONSTRUCTION
OVER A LONG-TERM PERIOD**

Report submitted by the Institute of Statistics and
Economic Research of the State Committee of the Russian Federation
on Statistics */

1. New social, economic and political conditions as well as Russia's joining the European Council impose high requirements for the quality and depth of long-term statistical series for the national economy. Under the new conditions such information can be helpful for understanding and controlling the processes of Russia's social-economic development. It is supposed to compile official yearbooks of Russia's historical statistics for about the three last centuries on the basis of the experiences gained in other countries. This task has been set for the first time and immediately problems have arisen. The main problems are as follows:

- making compatible indicators which have been never determined over such a long historic periods;

*/ Prepared by Ms. Elena S. Zavarina.

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- correcting regional indicators for similar administrative regions included in the Russian Empire, the former USSR and the present Russian Federation; and,
- if it is possible, to correct accumulated errors in absolute values of statistical indicators.

In order to solve these problems it is necessary to critically study available archived and published materials as well as to use indirect methods of statistical estimation in especially critical cases. These methods include equilibrium and mathematical/statistical methods as well as international standards and comparisons. The preliminary work has been carried out at the Institute of Statistics and Economic Research of the RF State Committee for Statistics under the supervision of M.R. Eidelman (1991) and G.A. Golts (1994).

2. It is necessary to specify the historical periods before systematization of and reviewing historical reconstruction of sources. Let us use a slightly modified version of the statistical description periods proposed by Carl Hermann in 1817. Then we will define the periods based on data streams' structure, intensity and likelihood. It is proposed to define the following periods being unequal in duration:

1. Before Peter the Great's reforms (up to 1719)
2. 1701-1725
3. 1726-1766
4. 1767-1801
5. 1802-1869
6. 1870-1906
7. 1907-1917
8. 1918-1925
9. 1926-1953
10. 1954-1964
11. 1965-1990
12. 1991

3. The conditions and methods of Russia's historical statistics reconstruction sharply differ for these periods and especially for the periods before and after the revolution. During the Soviet period a lot has been done to systematize the published sources and their bibliographical description. It is reasonable to begin the next stage of the works by a description of the Soviet economic, Party and other archives. This base can provide an adequate analysis of the initial sources to reconstruct Russian statistics during the Soviet period.

4. In this connection it should be mentioned that publications on archive studies and document movement are poorly covered in the works on historical statistics by not only Soviet but also pre-revolutionary authors for unknown reasons. Notwithstanding, this kind of statistical data (primary documents, their systematization and archiving) is logically the key moment for historical statistics reconstruction.

5. Only historians, especially those dealing with the economic history, partially used this information in their historical papers. Particular contribution was made by archive research institutes which described archives and developed corresponding methods.

6. Documentary sources about the state of statistics for the period before the revolution show that in the mid of 18th century, on the initiative of firstly the Russian Academy of Sciences, then the Free Economic Society and then the Senate, specially developed questionnaires concerning socio-economic and demography problems which were sent to towns and regions. These questionnaires asked for not only qualitative but also more quantitative answers and hence became the basis for many statistical works on Russia in the second part of the 18th century. In addition the authors of these works reconsidered the results of the qualitative analysis and the statistical reports presented in works covering many geographical expeditions held on the initiative of the Russian Academy of Sciences.

7. The economic observations for the General surveying materials became the second document source. The general survey was conducted for all the administrative areas in the 18th century. This process continued for about a hundred years. During this period the type and character of the observations changed. Nonetheless, they are considered a rather representative and relatively reliable source (especially for territory size and land use) due to the thorough work of the geodesists and topographers who supervised the works. Only after the 1850s the size of the provinces territory was determined precisely. Their final correction was made only in the 1880s-1890s.

8. The Annual Reports of the governor were the third and the most valuable and comprehensive statistical documents. They were prepared regularly from 1802 to 1917 for all Russia's administrative districts (regions) such as provinces with 20-27 statistical annexes attached. The latter included data about population, crops and harvest, livestock, plants and factories, navigation, market turnover, prices for the most important goods, troops, losses of cattle, recruiting, etc. Only part of this data was included in official statistics and even less was published. In 1835 the province's statistical committees were created mainly for drawing up these reviews. A province review was prepared annually before 1 March. The initial statistical material was gathered for this review from all 76 (!) provinces. This huge work was often carried out in a hurry and sometimes was not thoroughly done.

9. The main task of such province reviews was to give information about dangerous movements in society, incomes for state treasury, level of possible recruiting, etc. to the tsar and the central managing bodies. The province reviews were the secret documents. They were accumulated in archives year by year for all provinces. Now they are the most complete source of statistical, social and economic data. The data published by the Central statistical committee is only the above water part of this huge statistical iceberg. Consequently it can be supposed that for the Soviet period there is a similar generalizing source of social-economic data for regions (maybe annual reviews of the Communist party regional committees or of other organizations).

10. The fourth kind of primary documents are the Ministry annual reports for 1802-1917 which partially intersect with the province reviews. Data in the province reviews are presented for regions and in the ministry reviews - for branches. A combination of the two kinds of data makes it possible to perform half-yearly reconstruction of all indicators for 76 positions in the region

(province and partially district) taking into consideration contemporary computer possibilities for data accumulation, systematization and processing. There is a real possibility to compose yearbooks which are similar in degree of detail to the known statistical yearbooks on historical statistics published in the USA and Canada (for the period 1802-1917).

11. The reports of ministers and governors to the tsar and other central managing bodies on certain problems and events are the next kind of documentary and archive sources. Additional archived materials rich in presentation of the full set of professional activities of the provincial institutions are also available.

12. Finally the published official statistics, materials of various censuses and numerations (especially household censuses) can be used. A large amount of reference and bibliographical publications on this subject by well-known professional statisticians are now available. Nonetheless there are reserves for the reconstruction of Russian historical statistics which have not been used. Authors of works on historical statistics often ignore the activity of non-professionals (from their point of view) in the historical reconstruction of social-economic statistics. This is the case with many specialists in economic, social and cultural history as well as works from scientific schools and centers involved in this field. It is surprising that specialists studying practically the same subject and analyzing the same sources of statistical data do not use each others results.

13. Attention should be paid to the latter aspect as the involvement of the professionals from adjacent fields (historians, archivists and geographers) will make reconstruction more systematic. However a statistical establishment can and has to organize this work as well as to supervise it. Jointly with its scientific and research institute it should decide on the need to involve other specialists, scientific organizations and other institutions.

14. The practice of calculating indices for production volume makes it necessary to recalculate time series for the main macro-economic indicators to retrieve the dynamics of the economic development before the revolution. This practice has been developed for many years and was used for composing time series on the basis of the indicators. It possessed certain significant disadvantages and led to a considerable overstating of economic growth. One of the reasons was the incorrect use of comparable prices which did not give the correct representation of the physical production volume dynamics especially for a long-term period. Because a certain part of the index was constantly renewed, the assortment and quality of the items produced changed. Temporal, agreed and price-list prices were used in the applied statistics to evaluate new kinds of products. All this led to the misrepresentation of the real physical production volume and to significant overstating of the production growth rate. Other factors to the physical production volume dynamics were various upward distortions in primary registration and accounting, setting too high prices for new product types, etc.

15. Official statistical data about growth rates for the principal macro-economic indicators were criticized many times by Soviet and foreign

economists. Significant overstating of growth rates for gross national product, national income, industrial production and some other cost indicators were mentioned. Actually if one considers official data published in statistical yearbooks about growth rates of national income, industrial production and other cost indicators for the Soviet period and compares them with the same indicators for the USA, we should have not only overtaken but also surpassed the USA in economic development level. However in the statistical yearbooks the data show that we are significantly behind the USA in economic development level. According to the data published in statistical yearbooks the USSR's national income was in 1988 67% of that of the USA. But it has been established that even this is overstated by no less than 1.5 times.

16. Statisticians, especially specialists dealing with calculation of macro-economic indicators, saw significant disadvantages of this technique for calculating production volume indices which overstated economic growth rate. These problems were periodically discussed at scientific conferences and in publications. However, in spite of the number of correct critical remarks, opponents did not take into account the problems of renewing the assortment and quality of items when developing time series in comparable prices. It should be noted that in 1950's and later some attempts were made in the Central Committee for Statistics (TsSU USSR) to reconsider dynamics of both the national income and the industrial production growth rates. However the authorities of the statistical and planning bodies were not interested and enthusiastic. At that time they did not dare to revise the published data about economic growth rate. The authoritarian economic system played a significant part in maintaining the status quo, because the country's authorities were satisfied with the existed methodology of statistical calculations which showed high rates of the country's social and economic development. Only now with the transfer to the market economy, democratization of society and publicity it has become possible and necessary to radically reconsider the time series for the main macro economic indicators. These indicators reveal and impartially show the real processes in the development of society during the Soviet period. Reconstruction and retrospective analysis should be done not only to obtain reliable time series of the real processes in country social-economic development but also for the creation of a scientifically substantiated statistical basis for forecasting national economic development and defining the correct economic policy for the future.

17. The preliminary calculations were made in accordance with the "Methodology for recalculation of time series for main macro economic indicators of the USSR's national economic development for 1928-1988". This methodology was discussed at the Working group on statistical methodology of the USSR Goskomstat in 1991. Recommendations given in the paper "On the methodology for recalculation of time series for the most important Russian Federation macro economic indicators for 1961-1990" have been developed in order to take into account Russia's regional peculiarities. The natural-cost calculation technique was taken as a basis for recalculation. This technique makes it possible to co-ordinate cost indicators of production dynamics with the dynamics of certain product types in physical units. First of all the detailed list of branches, sub-branches and production types for which the

recalculation of series had to be made was defined. Then the representative set of products (goods-representatives) was defined in physical units for each sub-branch and product types. The product sets were evaluated both in actual and comparable prices. Ratios (indices) between actual and comparable prices obtained for the groups goods-representatives were extended for the whole production volume of the corresponding sub-branches and production species and then for the whole branch.

18. The calculations were made for a wide circle of branches, sub-branches and product types. A large number of goods-representatives, which were in several cases detailed in certain types and sizes were derived. So, more than 200 branches, sub-branches and product types covering more than 80% of the industrial product whole volume were derived for the industry of the former USSR only. The whole number of goods-representatives' articles derived for the recalculation of industrial production amounts to 2,500. Their specific weight in the production volume for certain branches, sub-branches and product types varies from 50 to 80% and more. For the Russian Federation the recalculation of industrial production was made for 123 branches, sub-branches and production types what amounts to approximately 85% of all industrial products using 940 producers names. That covers from 45 to 85% of the production of corresponding branches, sub-branches and production types. The degree of details of the stock-list implementation in branches, sub-branches and production types and high level of representativity for the selected goods-representatives have made it possible, to a considerable degree to take into account the assortment and quality changes in production contents and to level their influence on physical production volume dynamics.

19. The additional difficulties and problems arose when recalculating series for the main macro economic indicators (if comparing with the recalculations made for the former USSR). These problems are caused by the regional peculiarities and statistical data status. First of all this concerns the problems of production recalculation for all enterprises and organizations located in the Russian Federation and being subordinated to the Union authorities as well as for those having been subordinated to the Union authorities and changed for republic authorities and vice versa. They should be included into the total volume of the production being recalculated which was produced in the Russian Federation in accordance with the corresponding list of branches and sub-branches for the whole recalculation period.

20. It should be taken into account that during the Soviet period Russia as well as other republics of the USSR, was not an independent subject possessing the sovereignty in all internal affairs and international relationship. Russia's statistical bodies had no information about the considerable part of the economic activity of enterprises and organizations located on its territory. First and foremost that concerned the activity of the Ministry of machine building, closed enterprises and organizations subordinated to the Union authorities, expenditures for the country's defense, international trading activity, etc. Information about the economic activity of these enterprises and organizations was centrally taken into account and passed to the TsSU of the USSR in accordance with the order established by the government. At the same time the statistical data was required for the fulfillment of certain statistical works in the republics

(calculation of the gross national product and the national income, drawing of national economy and interindustry balances, analytic work). The data show the results of the economic activity of all enterprises and organizations on the territory of a certain republic. In order to do this TsSU of the USSR calculated the total volume of resources centrally taken into account for the territories of republics and then informed every republic about the part of the production centrally taken in account and falling to its share. All this has complicated the recalculation for the production being produced in the Russian Federation and required special approach to recalculations for certain branches, sub-branches and selection of goods-representatives.

21. Many problems and difficulties arose while collecting and processing archived materials of the State statistical committee of the Russian Federation. These materials turned out to be worse than those for the former Soviet Union. For example yearbooks of whole sale prices and industrial products' profitability were in certain cases made by Russian statisticians for some years with different degree of detail of product nomenclature. This complicated the recalculations made for a common list of branches and products. There was no data required for the recalculation for 1960. In order to obtain the necessary information in these cases special calculations were made on the basis of the production data in physical units and average wholesale prices. Archive materials of the former USSR, in particular yearbooks of average whole sale prices for the majority of branches for the USSR as a whole with the separation of the republics, were used for calculations when there was no data for Russia.

22. Recalculation of the time series for 1960-1990 was made in the prices of 1983, i.e. in the prices which were used when fulfilling the 12th five-year plan as comparable prices for the dynamics calculation for the most important macro-economic indicators (gross national product, national income, etc.). Through recalculation of series in consultant prices of 1983 it became possible to cover a wider list of products (than for the recalculation in comparable prices for particular periods). Recalculations made on the basis of particular periods (with the subsequent dynamics calculation by the sequential method) make it possible to more accurately take into account in indicators the changes in the composition and assortment of the products. However it is difficult to collect the necessary data in accordance with the common list of branches and products for such calculations especially for a long-term period. From the analytical point of view such calculations were made for certain industrial branches during re-evaluation of industrial products for the former USSR. Discrepancies in the calculation results obtained by two methods (in consultant prices of 1983 and based on the prices which served as comparable prices for certain periods) turned out relatively small (within 10-12 items for the whole recalculation period).

23. In order to recalculate time series a large effort was made on the collection, processing and analysis of the statistical materials from the state statistical bodies' archives. In particular general annual reports of enterprises and organizations made in cost and physical units for industry, building, agriculture, transportation, trade and other branches of national economy as well as yearbooks of average wholesale prices and profitability were used. The latter contained the detailed data about industrial product

realization expressed in cost and in assortment for certain branches, sub-branches and production types with pointing out average settlement prices for every product. Additional materials of both the annual national economic overall balances and interindustry balances as well as the initial data for their preparations were used.

24. To conclude, it has to be noted that the problem in the field of analysis of previous experience and Russia's development forecasts, consists not in (even if it seems strange) the lack of works on this topic (the list of bibliographical reference books amounts to more than 50,000 books and articles on historical statistics on Russia's economic state from the beginning of the 18th century to the present time, not considering the papers of narrow branch and regional character) but in their redundancy. A common disadvantage of these works is that they are based on poor factual numerical material, especially for the period before 1807 and for the last 75 years. For example, it has recently been discovered that the urban population percent was not increasing from the beginning and up to mid of the 19th century as it stated in all official and secondary statistical publications, studies and manuals on history, economy, sociology, demography, etc. On the contrary it was falling. This systematic distortion occurred due to the statistical errors and data comparison methods. As for the period from the beginning of 1930s in addition to unintentional errors deliberate distortions caused by ideological mottoes were widely introduced.

25. Before the revolution intentional data concealment (for example number of tax paying heads, size of allotted plots of arable land, degree of their profitability and profitability of real estate) was as a rule a source of statistical errors. During the Soviet period, especially from the beginning of the 1930s, two level of distortions should be taken into account. Distortions at the lower level (invoices, acceptance reports, orders, schedules of duties, enterprises' initial reports) which were connected with the possibility of upward distortions provided by a system of work quota setting and estimating. These distortions were also caused by the wish to report about the plan fulfillment at any price. Second level distortions were of political and ideological nature. Moreover, calculation methods were used which in principle could not be compared with similar foreign methods. Repetitive calculation (up to 30-40% of the whole volume of such an indicator as e.g. cost of gross product), arbitrary manipulating with the price indicator, systematic incomplete consideration of the defense role in the national economy as a whole and at finally the direct correction of reported data with the subsequent elimination of witnesses (as it was with the results of general census of population in 1937) also played a significant role.

26. Under such conditions it is hardly possible to correct initial data already distorted at the first level by the methods of direct calculation. The second level distortions can be corrected by calculations in accordance with the more perfect and comparable method on the basis on archive data and the improved results can be obtained, albeit with initial data error contradiction. In order to achieve better results from the point of view of approaching reliable value of the statistical indicator, indirect approaches are required as it follows from the previous historic statistical reconstructions. These approaches will make it possible to obtain

approximately real indicator value (within the limits of possible deflection equal to $\pm 20\%$). For this the original method proposed by G.A. Golts can be used. The method consists in revealing a number of competing (in the sense being considered) interrelated multifactor dynamic mechanisms of the main trends for the national economy development in the leading countries. The possible level of this or that required indicator for Russia is calculated using these mechanisms. Comparison of such calculations for different mechanisms (where the required indicator is considered) narrows the range of deflections from the possible true value. Such iterations are repeated until standard deviation is equal to the given value providing the required indicator accuracy level for all the calculations. It is impossible to perform such huge calculations without usage of modern computers. Thus the creation of initial numeric base for the subsequent analysis is the main task of the studies which have been already started. Namely absence of such a base led many authors to unfeasible and unjustified results which are sometimes of social-political and social-economic importance.
