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INTRODUCTION OF PAPERLESS TECHNOLOGY FOR COLLECTING INFORMATION ON PRICES IN THE RUSSIAN FEDERATION

**Invited paper submitted by the State Committee on Statistics
of the Russian Federation***

1. Summary

This paper contains a general description of the process of converting Russian statistics to the recording of consumer prices for goods and services using paperless technology (minicomputers).

It presents the main stages of introducing new and advanced methods of gathering information on prices, an evaluation by the regional official statistical bodies of the effectiveness of using paperless technology, and the results of joint work by specialists of Russia's State Committee on Statistics and the Office for National Statistics of the United Kingdom.

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In addition, the paper briefly reviews the prospects for the wider introduction of paperless technology in Russian statistics.

2. Introduction

Reform of the Russian economy has been accompanied not only by the introduction into statistical practice of a new methodology conforming to international standards, but also by the conversion to modern methods for gathering information about price levels. The whole set of measures to establish a new methodology meeting present-day requirements was meant to facilitate the most accurate possible calculation of price indices.

The subsequent transformation of an economy with high rates of inflation to one with substantially decelerating rates of inflation created additional opportunities for developing a set of measures helping to increase the accuracy of calculations of indicators both for price levels and for price indices.

Consumer prices in the Russian Federation are monitored by means of recording them in trade and services-sector organizations. Prices for the federal consumer price index (CPI) are recorded monthly in 196 towns (capitals of republics, territories and oblasts, towns of federal importance, major industrial centres and selected district centres).

Information is gathered with respect to 400 goods and services in 40,000 trade organizations. Calculating a monthly CPI involves the collection of 500,000 price quotes. In addition, consumer prices are recorded for 40 designations of goods and services on a weekly basis to measure inflation in the current month. Such extensive recording of prices is essential given Russia's federal set-up. Since Russia is a federal State, all statistical information must be prepared so as to ensure the representativeness of the indicators calculated not only at the federal but also at the regional level.

Until 2000 prices for goods and services were collected on special record forms, which set out the information gathered by enumerators at trade enterprises. The primary information was then entered manually from the price record forms into personal computers. Because of the scale of the recording process, this work was quite labour-intensive and costly, and left room for input errors by the system operators. The regional official statistical bodies had to be supplied each year with 950,000 record forms, which were sent out to all parts of the Russian Federation.

3. Appropriateness of introducing modern methods of data collection

For the large-scale work of collecting information on consumer prices, an especially important question for the Russian statistical system was that of bringing the technology for recording prices as closely as possible into line with advanced methods.

Russia's enormous geographical expanses necessitated introducing methods of collecting data on prices that would both enhance the quality of the information and reduce as much as possible the time required for its collection, and thus provide quickly all the indicators of interest in Russia and abroad concerning inflation in the Russian Federation. A priority for achieving the goals set was therefore to abandon paper-based technology (filling out by enumerators of the

price record forms) and to convert Russian statistics to the collection of information on prices using minicomputers. The specialists of the State Committee on Statistics realized, however, that the conversion to paperless technology for collecting price data is a very costly exercise requiring particular expertise in this field. At the point of changing to new methods of recording prices the State Committee on Statistics had neither the requisite technical base nor specialists capable both of developing the computer software needed and of applying a whole system of new price recording methods.

4. Programme for converting to the collection of information on prices using paperless technology

The change to recording consumer prices using minicomputers was completed in several stages.

During the first stage, specialists of the State Committee on Statistics travelled to the United Kingdom's Office for National Statistics, where they had the opportunity to learn about paperless technology for the collection of information on prices using minicomputers, and were given the necessary guidance on this technology.

During the second stage, an organizational plan was drawn up for the introduction of paperless technology (minicomputers) into Russia's statistical practice. This plan included the following steps:

- Development of subcodes for the introduction of paperless technology to collect and process information for Russian price statistics;
- Preparation of a draft economic description of tasks for the development of software;
- Development of software for the collection of information on prices suited to the particularities of Russian statistics;
- Making various arrangements for the acquisition of minicomputers;
- Training of specialists at regional statistical offices in the use of minicomputers;
- Implementation of work for the wider collection of information on prices using minicomputers.

All the steps in the organizational work plan were successfully completed.

During the third stage, work was carried out to produce a "Psion WorkAbout MX" Microcomputers User Manual for recording prices and tariffs for goods and services. This Manual is designed for users as a reference guide for the timely collection of data on prices and tariffs, as well as entering information into the system for electronic processing of data by means of transferring the data from minicomputers to personal computers at the municipal level.

The Manual provides a detailed general description of the equipment and means of communication with a personal computer. Explanations are given concerning work with the keyboard, the power supply and diskettes. There is a general description of the operations to be performed, explanations for loading and keying in data, start-up of the program for the work to be performed, choice of the location for collecting prices (shops, markets, etc.), headings for entering price data, downloading of the data from the minicomputer to a personal computer, and replacement of software.

During the fourth stage, work was carried out jointly with Eurostat under the TACIS programme to prepare all the necessary documents for ordering and purchasing the minicomputers.

During the fifth stage, an all-Russian seminar was held for specialists employed in recording consumer prices. The seminar was attended by specialists from 89 constituent entities of the Russian Federation and representatives of the TACIS programme in Russia.

The following topics were discussed during the seminar:

- Application of advanced methods for collecting information on prices, as used in international statistical practice, and prospects for the introduction of paperless technology;
- Technological and methodological issues relating to the development of software for the conversion to paperless technology;
- Training with minicomputers following the Psion WorkAbout MX Manual for recording prices and tariffs for goods and services;
- Trial recording of prices using minicomputers in trade organizations in Moscow;
- Results of testing the use of minicomputers to collect data in trade organizations in Moscow.

A “hotline” is now working successfully. It provides a link between specialists of the official statistical committees at regional level and the software developers enabling them to obtain guidance and deal with problems in replacing equipment which is out of order or needing repair.

The specialists attending the seminar (one or two representatives from each of the 89 regional statistical committees) received training for holding similar seminars in constituent entities of the Russian Federation with their own colleagues, and staff recording prices at local level.

5. Evaluation of the effectiveness of introducing paperless technology

Tours of the regional official statistical committees were made to assess the effectiveness of introducing paperless technology in the statistical practice of the Russian Federation.

Specialists of the Russian State Committee on Statistics and the United Kingdom's Office for National Statistics took part in the tours.

During their assignments these specialists checked on the use of minicomputers to record prices. For these purposes checks were made on the work of enumerators using minicomputers in shops and at markets of towns in five constituent entities of the Russian Federation (Republic of Tatarstan and Ulyanovsk, Bryansk, Nizhny Novgorod and Kirov oblasts). Operations for transferring information from minicomputers to personal computers were demonstrated, along with further steps in processing data on price levels for compiling the CPI.

Specialists responsible for recording prices were interviewed in all the above regional statistical committees. The aim of this survey was to obtain detailed information to evaluate the effectiveness of using minicomputers. The evaluation for the questions in the survey as a whole ranged from 8 to 10 points on a 10-point scale.

To produce a more accurate assessment of the effectiveness of introducing minicomputers for Russia's price statistics, such questionnaires were addressed to the other 84 constituent entities of the Russian Federation. The results of the full survey largely confirmed the earlier results. It should be noted that the survey was conducted during the initial stage of the use of minicomputers. It can be said with certainty that such a survey now would give higher ratings for the use of minicomputers. This conclusion is possible because enumerators of older age groups during the first stage were cautious about changes in the arrangements for their work on collecting information about prices. There have since been substantial changes in their attitude to the use of minicomputers. Requests have started to arrive from regional branches of the State Committee on Statistics for the allocation of more minicomputers.

It can now be stated with certainty that enumerators have fully assimilated the method of gathering information on prices using minicomputers. The conversion to paperless technology has increased the reliability of the information gathered, reduced (by 20 to 40 per cent) the time taken from the collection of information on prices to the production of indicators for the CPI, enhanced the presentation of the work and made it more attractive for the specialists employed to gather price information.

Minicomputers are now used both for the monthly collection of information on prices and for the weekly recording of consumer prices.

6. Prospects for the wider introduction of paperless technology

In view of the positive experience with introducing minicomputers into the practice of gathering information about prices, the decision was taken to purchase more minicomputers to ensure the full conversion to paperless technology for recording prices for goods and services.

It has now been decided to purchase a further 240 minicomputers to convert the Russian system of price statistics entirely to paperless technology. After their acquisition it is proposed to resume the whole range of work to train enumerators in methods of collecting information using minicomputers.

Given the experience gained with the paperless collection of information, we consider it advisable to extend the introduction of minicomputers to other branches of statistics (for example, statistics from household budget surveys).

The State Committee on Statistics is very grateful to Eurostat and the United Kingdom's Office for National Statistics for the help and support provided in the conversion to modern methods of collecting information on consumer prices using minicomputers.

Annex 1

Criteria for evaluating the effectiveness of using minicomputers to collect primary data for consumer price statistics

	Criteria for evaluating the effectiveness of paperless technology	Average value for the Russian Federation (from 1 to 10 points)
1	Evaluation of the functioning of minicomputer programs from the viewpoint of user convenience	
1.1	Convenience (user friendliness) of programs, including the system of screens, menus and "hot" keyboards	8.0 points
1.2	Speed of entering data, including search for the necessary heading and input of numerical values	7.2 points
1.3	Convenience of auxiliary functions (dynamic revision of price index, price dynamics, checking of data entry)	8.1 points
1.4	Convenience and speed of programs for loading information into minicomputer	8.5 points
1.5	Convenience and speed of programs for downloading information from minicomputer to personal computer	8.8 points
2	Operational features of minicomputer	
2.1	Convenience of operation of minicomputer	7.0 points
2.2	Luminosity of screen	7.6 points
2.3	Power supply of minicomputer	6.5 points
2.4	Protection of minicomputer against freezing	7.0 points
2.5	Protection against mechanical damage (dropping) and external factors (snow, rain)	7.5 points
2.6	Reliability of operation of equipment linking minicomputer with personal computer	8.4 points
3	Influence of use of minicomputer on:	
3.1	Quality of information collected from the viewpoint of errors in recording prices	8.4 points
3.2	Relationship with management of trade enterprises and sales personnel	7.8 points
3.3	Reduction of time required for data collection, reduction in number of additional sources for recording	7.1 points
