

System of Consumer Price Statistics: the First Thirty Years of Russian Experience

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Abstract

The article deals with the analysis of Russian consumer price statistics as a system of absolute and relative indicators. The sampling method and design used by the national statistical office Rosstat are considered as Russian experience and adaptation of the CPI international standard. The survey of the system of consumer price statistics is realized on the basis of the indicator representativeness, the assessment of time and spatial differentiation and similarity in consumer prices. The main indicators of this system are the price indices. These include the consumer price index, fundamental consumer price index and cost of living index which are intended for dynamics analysis with additive seasonal decomposition of time series and to spatial differentiation of price level in Russian regions and cities.

Keywords

Consumer price index, cost-of-living index, Russian consumer price statistics

JEL code

C43, C83

INTRODUCTION

Consumer price statistics is one of the most needed in the sphere of macroeconomic regulations and wage adjustment by the inflation rate. It is one of the dynamically developing statistics as well. These facts determine the multitasking, representativeness, and adaptiveness of price statistics indicators. Therefore, there is a need to construct a system of statistical indicators which complement each other. This system should include time and spacial indicators, mainly index numbers. It corresponds to the multitasking of the price index number.

Russian experience in constructing price statistics indicators is not longer: consumer price data has been collected and consumer price index (CPI) compiled since 1991. These first thirty years of Russian consumer price statistics were subject to the changing conditions, namely the dramatic increase of prices, significant spatial differentiation in regional economies and imbalance of social and transport infrastructure development. This research offers a survey of Russian consumer price statistics with the assessment of indicator representativeness and analysis of consumer price indicator relationship.

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The consumer price statistics research focuses mainly on the CPI which has many limitations and disadvantages. The main disadvantage which is a bias is minimized by the improvement of sample design and the use of new formulae. This article focuses on a different way of consumer price statistics development and national adaptation. There is the use of the auxiliary statistical indicators constructed on the common base of samples and methods and eliminating the CPI limitations. As a result, the system of consumer price statistics indicators is formed. It becomes a means of representation of regional differences, absolute price levels, seasonal variations, and its elimination, notably meets the requirements of multitasking. In this research the consolidation of indicators of consumer price statistics is considered as a systematic phenomenon.

1 HISTORICAL BACKGROUND

The CPI as the first and main indicator of consumer price statistics has a long history, almost over a century. It was needed initially to adjust the wage of clerical workers and earners in the big industrial cities in US when the price of goods in the First World War time changed very quickly and unpredictably. The basis of the CPI construction was very simple, notably it needed to form the goods basket with constant quantities and then calculate its value every month. The result is the division of two basket values. This principle was based on the CPI and is used today. In the 1920s the basket consisted of forty nutrition goods. Later, the bundle of basket has increased by adding the new type of goods and services and extending the existing categories of food. Now it numbers more than 300 items in US, more than 500 in Russia.

In the 1920s and 1930s the consumer price index was called the cost of living index (COLI) but in 1945 the COLI was transformed into the consumer price index after publishing of Alexander Könus' paper and as a result of many discussions about the limits of calculated indicator and its name (Könus, 1939). This differentiation has played very important role in the CPI development: it was a driver to the theoretical basis development for the CPI and expansion of Könus' conception into the price indices in general. Könus' idea about the COLI had allowed to show the substance of the calculated CPI and to determine what the CPI represents. As a result of this theoretical development there was the understanding of the CPI bias from the real change of prices in the consumer market because the Laspeyres formula used for CPI calculating doesn't take into account the consumer reaction to the price changes.

The extension of Könus' conception was realized by the generation of "new" formulae which include the components numerically determining the consumer reaction (Wald, 1939; Klein and Rubin, 1947–1948; Chetty, 1971; Galatin, 1973; Fry and Pashardes, 1989; Balk, 1990). But this idea of new form of formula couldn't develop in the practice of national statistical offices because of the difficult valuation of these components on the macroeconomic level. This extension showed a new wave of the CPI realization and theoretical research of the COLI. It was the assessment of the bias between the CPI and COLI calculated by the econometric model. J. Ulmer (1946) was the first who wrote about the exact assessment of bias but it was without proof. The bias was valued as 1.5%. Braithwait (1980), Balk (1990), Beatty and Larsen (2005) calculated the bias on the basis of the national statistics.

R. Pollak had published the series of articles about the COLI. This index number was included in the context of economics and relation with the household economy. In Pollak's research there are some propositions about the classification of price index numbers and its integration in the theory of production and consumption. Firstly, price index numbers are divided into the subindices of two types such as partial and conditional index numbers (Pollak, 1975). Its difference subsists in the relation with the complete index. It is not constructed from the conditional index numbers which include the part of bundle of goods and reflect the consumer behavior in situation of this part of bundle. On the contrary, the partial index numbers in generalization are the upper bound of complete index because there is week

separability of utility function and consumer behavior is similar in the cases of the complete bundle and its part. Furthermore, Pollak includes the new variables in the cost-of-living formulation. He uses the household production of goods as a notion of technology of production in the COLI. As a result, there are the variable and constant technology COLIs, which are related to the subindices because the household technology may affect the utility function as well as the price change (Pollak, 1978). The idea of subindex was adjusted in the question of aggregation process (Blackorby and Russell, 1978). Pollak's conception of subindex has undergone the development in the group COLI as well (Pollak, 1980). These COLIs are concerned the households of other types and thereafter the consumer patterns.

The development of the CPI and COLI conception was realized on the basis of consumer theory and the next step was a finding of formula which reflects the consumer behavior and does not need the additional statistical information and complex assessment. The class of superlative indices met these requirements. The scientific explanation of superlative index was related to the form of utility function and consumer reaction on the price change. The superlative index corresponds with the translog cost function which assesses the substitution effect connected with the price change better than Laspeyres and Paasche indices (Diewert, 1976; Reinsdorf, Diewert, Ehemann, 2002).

In the 1990s and 2000s there was a time of theoretical and practical deduction in the relationship of the CPI and COLI. There were many researches generalizing the experience of the COLI conceptions and describing the framework of two indices. Triplett (2001) presents two points of view on the problem of the CPI and COLI: first, the CPI is the same as COLI, but the latter is a result of economics, that is a theoretical notion; second, the CPI is a part of the COLI, its difference is the number of goods and services, which are included in the index calculation. More significant development was recorded in the practical assessment of the CPI. At that time the theoretical results in the COLI conception were applied in the CPI methodology change. In the history of the CPI politics there were the moments, when the special commission was organized for the deduction of theory achievements of the CPI and its estimation of practical using: the Stigler Commission report in 1961 (Rippy, 2014) and the Boskin Commission report in 1996 (Boskin et al., 1998). If the results of the first-mentioned report came to the improvement of samples of households (for weights) and goods. The second-mentioned report gave the information about the need of the additional CPI construction to estimate more accurately the inflation, namely it suggested the use of the Törnqvist or other superlative formula for the new complementary index number. The recommendations of these reports were used in the methodological development of the U.S. CPI. In addition to the change of sampling design the new CPIs were introduced in the statistical practice. Its difference concerns the other household sample for weighing, the other formula on the high level of aggregation (Abraham, 2003). Furthermore, there were the implicit transformations, namely the replacement of arithmetic mean by the geometric mean on the low level of price information aggregation (Dalton et al., 1998), the change of assessment process for several types of goods (Stewart et al., 1999). The above-mentioned introductions were later used by other countries.

The other way of CPI development concerns the use of digital technologies for data collecting. From the 2000s to the present there are research of scanner data using for CPI compiling (Leclaire et al., 2019; Richardson, 2003).

2 FROM INTERNATIONAL STANDARD TO NATIONAL ADAPTATION

The international document about the CPI is *Consumer price index manual: concepts and methods* (2020) which is based on *Consumer price index manual: Theory and practice* published in 2004. It doesn't reflect the exact assessment process of the CPI by the national statistical offices. It is only the way which needs to create and develop the national methodology for the CPI. National statistical offices themselves decide how to generate the methodology of CPI compiling and to sample the cities, the goods and the retail shops. The choosing of a strategy relates to the aim which must be achieved by means of the CPI.

In the text of *Consumer price index manual: concepts and methods* there are the most common motivation of CPI compiling: “the indexation of wages, rents, contracts, and social security payments; the deflation of household final consumption expenditure in the national accounts; and the use as a general macroeconomic indicator, especially for inflation targeting and for setting interest rates” (*Consumer price index manual: concepts and method...s*, 2020, p. 1). It is evident that this purpose list couldn't include all possible CPI aims because of economic system variety of countries. So the national statistical offices add the new indicators to the consumer price statistics, change the consumer coverage (all population or its part).

Russia had no time to develop evolutionarily and profoundly the CPI compiling process in compliance with the standards generated by the International Labor Office (ILO), International Monetary Fund (IMF) and other organizations together during the 20th century. In the USSR despite of the active development of price statistics theory in the 1920s, the consumer price statistics did not develop. Since the beginning of the 1990s it has needed to construct the CPI and other basic macroeconomic indicators as measures of comparability of economies.

At the end of 1991 the start of the CPI methodology, data collection and assessment process was announced in Russia. The CPI methodology must have been formed during one month since the publishing of law concerning the indexation. It is a very interesting fact that in science literature, especially in the articles of the economic and statistical journal, there is not a single sample of research about CPI elaboration in Russia. There are the series of researches about the price and inflation situation in the first half of 1990s after the price liberalization. The fundamental idea of these investigations was a description of the large-scale growth rate, a comparison of Russian price statistics data with the indicators of other countries (Masi and Koen, 1996). The other significant research of the Russian CPI concerned a problem of assessment process, especially the CPI bias. This investigation was based on the data of the second half of 1990s, which had two parts: price information collected by the national statistical office Rosstat and the household expenditure accumulated by the group of researchers from the University of North Carolina. The result was that the CPI bias for 1994–2001 varies from 0.64 to 0.87 percentage points as cumulative indicator for this time (Gibson et al., 2008).

The main stage of the CPI compiling process is considered as a practical assessment in Russia. The first stage of the CPI compiling is a sampling, which is the most interesting because it supposes the consideration of the national features as far as possible. The city sample where the consumer prices are collected was formed on the basis of some criteria. According to the Rosstat methodology (*Official statistical methodology...*, 2014) it does not use the probability sampling techniques within each region, the use of present country division in the first stage of city sampling is a typical example of stratification mentioned as “a common sampling technique used in the CPI” (*Consumer price index manual: concepts and methods...*, p. 68).

The significant features for city inclusion are the geographic position within the region in the present administrative and territorial division, the size of consumer market, which correlates with the number of people in the city, the number of cities in the region. The most common image of standard region from the position of city sample is that (1) there are from 2 to 4 of cities, (2) one of these is a region capital city, (3) sum of population share in these cities is not less 35% and (4) cities should be located in different parts of the region but an exception concerns the city which distinguishes by the special consumer market. The sample numbers are 282 cities and urban villages. The change of its list is not significant: during the last ten years 10 cities were added and 3 cities were excluded in 2019, in other years there were single cases of replacement or exception.

The formation of the *outlet sample* is realized on the basis of the sampling techniques combination. On the first stage there is the stratification of outlets in four populations which include all organizations operating in the city consumer market. The first population consists in the outlet selling the foodstuff,

the second is the nonfood outlet population, there are the service outlets in the third population and the last outlet population consists in the small organizations which sell good, foodstuff or nonfood, or/and services and do not include in the first three population. On the second stage of sampling the ranking of outlets in each population is realized by the gross sales variable. The number of outlets depends on the number of populations: a lower rate of organizations relates to bigger size of population. The rate of outlet sample is 30%, if the population is less 300 organizations. For the population from 300 to 1 000 item the rate reduces by 10% and more by 10% when the sampling is realized on the basis of more than 1 000 organizations.

On the third stage the organizations are selected in the outlet sample in according to the above-mentioned rate and at regular interval in the ranking of outlets. After this simple random sampling the organizations are evaluated by the criteria of spatial diversity within the city, regular sales of goods and focus on the mass consumers.

The *item sample* is formed centrally by Rosstat for all regions, but on the regional level and for the regional CPI compiling the other special goods may be included. The bundle of goods and services in the CPI basket is revised continuously because of the changing of consumer pattern and emerging of new goods. The main formation of the item sample was in the 1990s. Since the beginning of XXI century the basket numbers have included more than 500 items. In 2005 the Rosstat methodology embraced 511 items but 48 items were not used for CPI compiling, only were collected. Today the sample numbers about 520 items, the sample size may differ insignificantly from year to year.

Despite the non-significant change in the item quantity there were many substitutions. In foodstuffs there were the integration of other quality goods in one item (for boiled sausage and vodka), the inclusion of many fresh vegetables and fruits, coffee beans, turkey meat and some additional seafood items. In the nonfood item sample the new goods were added, there are such as drugs, building materials, household appliances, mobile phone, jeans' clothes. The many types of textile and perfumery were excluded or united. The services are replaced according to the housing legislation: the addition of the household refuse services and the payment of capital repairs. Many types of financial services were included as well. The sewing services and house appliance repair were excluded because these services ceased to be important in the consumer pattern.

The next steps of the CPI compiling process are less dependent on the national features. The choice of many goods sold in the sampled outlets is realized on the base of the constant presence in outlet, popularity among consumers. These goods correspond to the item from sample. It numbers 5 or more to ensure the CPI time series continuity. The quantity of item price in each city depends on the three factors – the price dispersion, the share in the consumption and its quality.

Before the CPI calculation the weights for the price indices are formed. The weights are the indicators of two types for other levels of price aggregation. There are the levels of city, region, and country. Because of the use of three levels in the Russian CPI compiling it is not enough only the item consumer expenditure or its share to construct the intermediate of the aggregates. The regional CPI and intermediate aggregates do not exist in the CPI system of all countries, so the weights of low-level aggregations are formed by the national statistical offices without strong requirements and based on the local features. The Russian CPI compiling is realized in consecutive order from city to regional level, from regional to country level.

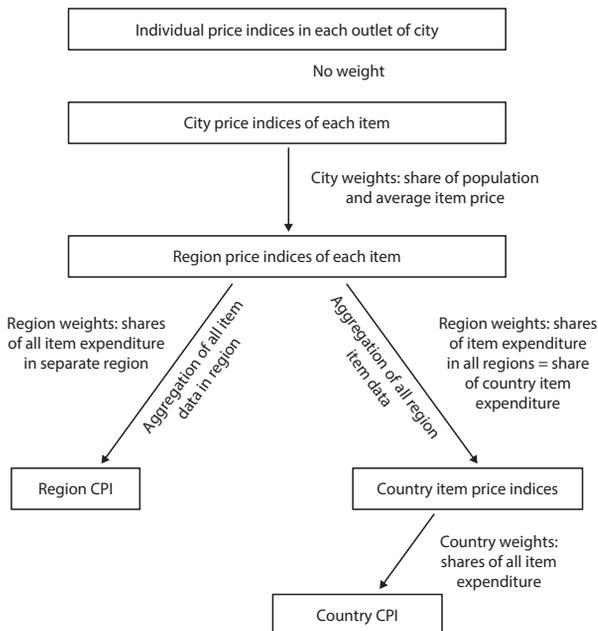
The calculation of regional level index numbers is fulfilled by the weight of two complex indicators. There are the shares of population in the cities used for the price data collection and the average level of item price in these cities. In the *Consumer price index manual: concepts and methods* the judgement about population is following: “population statistics are sometimes used to split household expenditure across regions; however, this approach is not preferred as it assumes that expenditures per capita or per household are the same in all regions” (2020, p. 56, para. 3.28). The Russian methodology of the CPI includes the shares of population as an index price weights on the regional level. It assumes that each

city in the sample has a consumer market of the size corresponding to the number of people. The share of population is one of two weights used simultaneously. The second weight in price index is the average price in the previous period. Furthermore in 2017 there was a renovation of city weight methodology. The aggregate shares of population in cities included in the sample were not always 100%. The new methodology assumes the recalculation of the initial shares by the addition of other regional localities to sampled cities. This addition is realized on the basis of two factors: first, the proximity of the minimum subsistence level which is calculated for each locality in terms of the age structure of population; second, there is the geographical proximity of localities.

The basic weights for the high level of aggregation are the shares of item expenditure obtained by the household budget survey which is organized quarterly. The weights are calculated on the basis of the average item expenditure of two years which are previous with a lag of one years to compiling period. This corresponds to the common trends of weights for price indices. Additionally, the adjustment of expenditure structure concerns the data replacement of the share of alcoholic beverages. The expenditure of alcoholic beverages is changed by the data of retail trade statistics because the respondents of the household budget survey understate the consumption of these goods.

The brief description of the aggregation process is shown in Figure 1. The main simplification concerns the representation of one index number for the bundle of goods and services because it does not need to description.

Figure 1 Process of Russian CPI compiling with the used weights



Source: Own construction based on the Rosstat methodology

The CPI on the high-level aggregation is calculated as a Laspeyres-type index number that corresponds to the practice of the national statistical offices in other countries. The Russian CPI has two types of assessment. There are the monthly and weekly price indices. The compiling process and weights are identical. Its difference consists in the item sample size: for the weekly CPI 83 items are used, as a result,

the multiplication of four weekly CPI is not equal to the monthly CPI. The weekly CPI was very important indicator in the 1990s, today it is the interim assessment of inflation. The monthly CPI remains the basic inflation indicator in the Russian national economy and one of consumer price statistics indicators.

3 SYSTEM OF CONSUMER PRICE STATISTICS INDICATORS

The Russian consumer price statistics numbers 6 indicators, half of which are index numbers, 2 indicators are the absolute values and one of this is an average price. This system is formed thanks to the common basis of collection data principles and methods of the low-level indicator calculation.

The main element of system is the CPI which is compiled on the ground of the consumption pattern of all people. This is without the division by type of profession or the place of living. The U.S. Bureau of Labor Statistics compiles the CPI for all urban consumers and for urban wage earners and clerical workers, for example. There are two (weekly and monthly) assessments of the Russian CPI, about this fact is described in the previous chapter of this article.

The monthly CPI traditionally has a disadvantage for the forecasting and other related aims. This is a seasonal variation. Russian statistical practice has an experience of seasonality elimination. Rosstat does not apply the seasonal adjustments for the monthly CPI, neither does it correct this published price index. Instead of correction it compiles the other consumer price index named as a fundamental (or basic) CPI (F-CPI) which is *per se* the part of CPI. F-CPI is compiled on the basis of the same samples and assessment process that is for CPI but there is one difference. The item sample numbers less goods and services. Due to the F-CPI Rosstat proposes the additive decomposition of the consumer price changes. It publishes monthly the three indicators: CPI, F-CPI and residual CPI which is compiled on the basis of the item non-included in F-CPI. There indicators and its relations may represent in the following way:

$$CPI = \frac{\sum_{j=1}^n i_{pj} d_j}{\sum_{j=1}^n d_j}, \quad (1)$$

$$F - CPI = \frac{\sum_{j=1}^k i_{pj} d_j}{\sum_{j=1}^k d_j}, \quad (2)$$

$$residual\ CPI = \frac{\sum_{j=k}^n i_{pj} d_j}{\sum_{j=k}^n d_j}, \quad (3)$$

where j is item of sample, all item number is n , the items from 1 to k are used for the F-CPI compiling, the rest of items from k to n need to assess the residual CPI. Also i_{pj} is the consumer price index for j -item, d_j is the corresponding weight:

$$\sum_{j=1}^n d_j = \sum_{j=1}^k d_j + \sum_{j=k}^n d_j = 100\%. \quad (4)$$

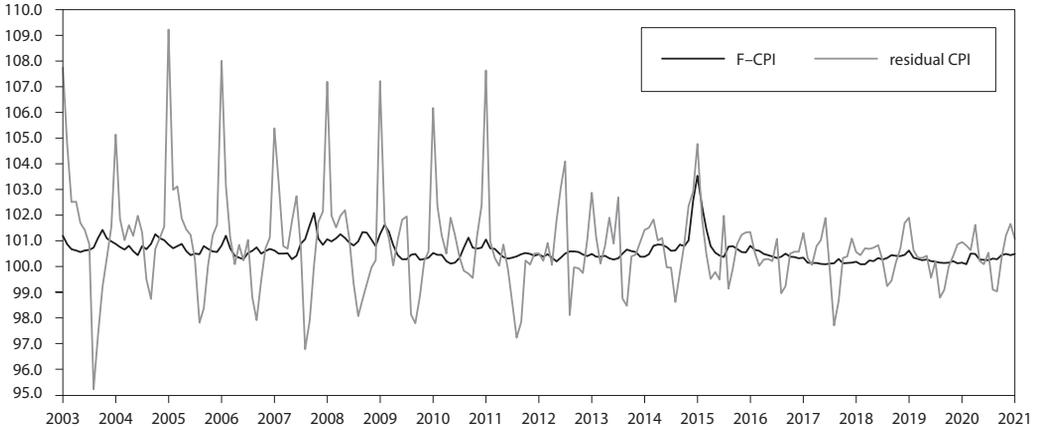
As a result, the additive decomposition of the CPI change is realized by the F-CPI and residual CPI:

$$\Delta_p = \Delta_{non-seasonal}^{F-CPI} \times \sum_{j=1}^k d_j + \Delta_{seasonal}^{residual\ CPI} \times \sum_{j=k}^n d_j. \quad (5)$$

The ratio of non-seasonal and seasonal changes is correlated with the summary share of expenditure. The residual CPI includes the items which are seasonal-determined goods and services, also the items

for which non-market pricing is typical (sometimes with the seasonal variation). Due to the exclusion of two types of items from F-CPI the seasonal variation is minimized, that it is apparently in Figure 2.

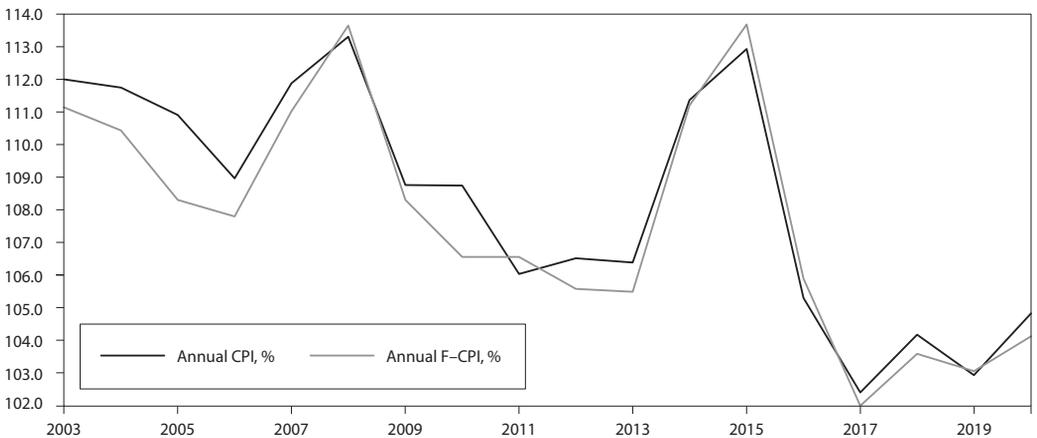
Figure 2 Russian monthly F-CPI and residual CPI in 2003–2021



Source: Own construction based on the Rosstat monthly data

The annual CPI and F-CPI have similar values but the F-CPI is not significant to the prediction aim and macroeconomic regulation. The CPI and F-CPI trends are shown in the Figure 3 where the annual data is used. Thereby the F-CPI is actual in the monthly or quarterly data analysis, in other cases it is less representative than the CPI because of the size of sample for the F-CPI compiling.

Figure 3 Russian annual CPI and F-CPI in 2003–2021



Source: Own construction based on the Rosstat annual data

The use of the monthly F-CPI is more appropriate in the macroeconomic models because of the low variance and standard error. The summary share of all excluded items from F-CPI is about 20–30%

by the expenditure indicator and about 20–22% by the number items.

Besides the seasonality the CPI as a one of the basic macroeconomic indicators attracts the society attention by its representativeness. The samples and sampling for the CPI compiling are considered above. This representative feature of the CPI relates to the quality of indicator on the base of variation. The CPI is an arithmetic mean on the high level of aggregation, as a result the test of its representativeness may be realized by the dispersion and standard deviation. For Russia this testing is very important because of the dramatic price change and its spatial and item heterogeneity. According to the Russian CPI compiling method (Figure 1) the testing must be concerned with the item price variation; it may use the regional price variation (spatial dispersion of prices) to estimate of CPI representativeness.

The standard deviation of item price indices is evaluated by the weight method. The weights are consumer expenditure shares which are used in the CPI compiling process. In Table 1 there are the monthly and annual indicators for 2020.

Table 1 Russian CPI in 2020 and its standard deviation by item price indices

Month	CPI in 2020, % to the previous month	Maximum item price index, %	Minimum item price index, %	Standard deviation, percentage point
January	100.40	123.29	89.56	2.16
February	100.33	119.49	94.14	1.71
March	100.54	114.91	83.64	1.99
April	100.83	250.95	79.35	5.44
May	100.27	118.22	66.44	2.21
June	100.22	121.11	70.55	2.97
July	100.35	110.49	83.20	2.14
August	99.96	114.09	80.39	2.54
September	99.93	112.34	83.77	2.27
October	100.43	118.29	90.35	1.76
November	100.71	139.20	94.66	3.15
December	100.87	147.47	95.60	3.71
Year	104.91	168.64	89.83	6.18

Source: Own construction based on Rosstat data, standard deviation is compiled

Besides the significant difference of item price indices, the monthly and annual CPIs have a low standard deviation which characterizes CPI as a representative indicator. For the estimation of the spatial dispersion it uses the regional CPI and number of people which live in region. The last indicator is the weight for the deviation estimation. This is more relevant weight that corresponds to the size of region, size of consumer market and consumer expenditure which are used to the regional CPI compiling.

In Table 2 the standard deviation by the regional CPI differentiation is not significant as for item price index deviation. It is much lower than the standard deviation for the item price index differentiation. It should be noted that it is determined by the lower difference between the regional CPIs. Furthermore for two types of standard deviation there is a cumulative effect for the annual value of standard deviation. It is higher than the monthly average.

The other relative indicator in the consumer price statistics is so-called cost-of-living index number. This price index has nothing in common with the COLI from the CPI research in the 20th century. In Russian statistical practice COLI (*Methodological recommendations...*, 2012) is a spatial index number.

Table 2 Regional CPIs in 2020 and country CPI standard deviation

Month	Maximum regional CPI, %	Minimum regional CPI, %	Standard deviation, percentage point
January	101.86	99.50	0,3
February	101.81	99.79	0.16
March	101.75	99.90	0.29
April	101.62	100.20	0.28
May	100.75	98.83	0.17
June	100.83	99.41	0.21
July	100.34	99.51	0.22
August	100.43	99.51	0.21
September	100.73	99.41	0.20
October	101.00	99.90	0.20
November	102.00	100.04	0.27
December	101.69	100.06	0.25
Year	107.28	101.91	0.80

Source: Own construction based on Rosstat data, standard deviation is compiled

Its methodology is not special. Rosstat has used the COLI compiling methods used by the American Chamber of Commerce Researchers Association (ACCRA) and the Council for Community and Economic Research (C2ER).

The Russian COLI is the newest indicator in the consumer price statistics. The CPI and COLI form the time-space coordinate system due to the common statistical data. In the case of U.S. CPI and COLI this condition is not fulfilled: price indices are compiled by other organizations with different price sample and the same weights, the frequency of price sampling and index publication is different also.

For the Russian COLI there are two features which do not correspond completely with the CPI. Firstly, this is the number of sampled items included in the COLI. It is less than for the CPI and slightly more than half of CPI item sample. Secondly, the COLI is compiled only for cities used for the consumer price collecting. On the one hand, it is relevant to the price difference in the other cities. On the other hand, the COLI and CPI do not correlate directly because COLI is compiled for cities, CPI is published for regions and country. The Russian COLI interpretation concerns the identification of “expensive” and “cheap” cities in relation to the country average level of consumer prices.

The absolute indicators of consumer price statistics are the value of constant set of goods and services and value of foodstuff minimum set. Both sets play an independent role and add to price index. The constant set of goods and services is more significant and more used. It includes 83 items from the sample. It is compiled by the multiplication of recent consumer prices and the constant quantities which do not change since the beginning of the 2000s. As a result the value of constant set of goods and services has not the bias related to the item sample structure. The small sample for constant set of goods and services provides the indicator value perspicuous for statistical data consumers and clear for interpretation.

As an absolute indicator the constant set of goods and services defines only the consumer price level in a country and regions where it may have a significant difference. In Figure 4 and Figure 5 there is an illustration of other patterns concerning the absolute price level and price change by CPI.

For the absolute price level there is one feature. The north regions and remote regions with underdeveloped transport infrastructure have a high price level. The regions with the high price level are

Figure 4 Regional differentiation of value of constant set of goods and services in 2020, rubles



Source: Own construction based on Rosstat data

Figure 5 Regional differentiation of CPI in 2020 (in %)



Source: Own construction based on Rosstat data

not the regions with the high change price (Figure 4 and Figure 5). On the contrary, the north territories show a low-price change. The consumer prices by the CPI increase faster in European and south regions.

The value of constant set of goods and services has the advantage in comparison with the published consumer price for each item from sample. It is one number for the item set that allows to analyze the common consumer price level in country or region. The average consumer prices differ and one of them does not characterize the situation on the consumer market.

The last indicator of consumer price statistics which is described in this article is the value of the foodstuff minimum set. The foodstuff minimum set includes 33 foods. Their quantities are enough to support life in the biological sense. The structure of this set and constant quantities of included items are formed in 1999 and remain the same at this moment. The significance of the foodstuff minimum set for the macroeconomic researchers and analysts of consumer market is not evident. The use of this set in the econometric model is not suitable because it does not include the consumer goods and foodstuff to form a representative indicator. The food quantities differ from similar indicators in the constant set of goods and services. As a result, the comparison of sets does not make any sense. The one special significance of the value of foodstuff minimum set is that it is a part of the value of subsistence minimum. On the base of it there is formation of the main minimum level of social payments. Until 2021 the value of subsistence minimum and the value of foodstuff minimum set as its part had been used as the base of the minimum wage setting. Today the last indicator is defined by the average and median income. So the value of foodstuff minimum set has not the former significance and may disappear in the consumer price statistics.

CONCLUSION

Formation of the consumer price statistics in Russia intends for its systemic nature and the multitasking. There are the balances of absolute (in rubles) and relative (in percent) indicators, time and spatial indicators. The first thirty years of Russian consumer price statistics was a time of finding an indicator set for the inflation assessment, inter-city and interregional differences in the consumer price level. Russian CPI has a weekly estimation, today it is not so important as in the 1990s, but there is a need for the short-run forecast. In research it was shown that the monthly CPI is a representative index number in terms of item change price and regional change price besides of dramatic dynamics in some periods. The representative characteristics reached are the sample design which is shown as well.

The CPI corresponds to the spatial price index COLI which supports the idea about time-space system of index numbers. This is a very important way of price statistics development, especially for a country with strong interregional differentiation. For this reason, the absolute indicators for price level estimation should be used. The value of constant set of goods and services intends to perform this task. One region may have the high rate of growth with absolute low-price level and vice-versa. As a result the time and space price indices represent the adequate statistical image in connection with the absolute value of goods bundle. This aim cannot be reached by the average price for each item.

The system of consumer price statistics in Russia is changing in accordance to the conditions in national economy and society. Furthermore, the CPI as a central element of this system is changing as well. These transformations concern mainly the item and outlet sample to maintain the representativeness of the CPI. In addition, the new technology of data collecting allows to use more adequate information about prices and quantities simultaneously. In 2016 the new technology of retail prices in the outlets was installed in Russia, so this possibility of price data collecting is not only for the taxation aim, for the CPI compiling as well. The Director of Rosstat announces that the scanner data is one additional way of data collecting and the prices from scanner data will be used for in the next year. This will only increase the price sample in the cities. The replacement of the data collected traditionally by the scanner data is not planned to be realized in the short run.

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