GAIDAR INSTITUTE
FOR ECONOMIC POLICY

MODEL CALCULATIONS OF SHORT-TERM FORECASTS OF RUSSIAN ECONOMIC TIME SERIES

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INTRODUCTION TO ALL THE ISSUES

This paper presents calculations of various economic indicators for the Russian Federation in *January–June* 2018, which were performed using time series models developed as a result of research conducted by the Gaidar Institute over the past few years[1]. A method of forecasting falls within the group of *formal* or *statistical* methods. In other words, the calculated values neither express the *opinion* nor *expert evaluation* of the researcher, rather they are calculations of future values for a specific economic indicator, which were performed using formal ARIMA-models (p, d, q) given a prevailing trend and its, in some cases, significant changes. The presented forecasts are of inertial nature, because respective models rely upon the dynamics of the data registered prior to the moment of forecasting and depend too heavily on the trends, which are typical of the time series in the period immediately preceding the time horizon to be forecast. The foregoing calculations of future values of economic indicators for the Russian Federation can be used in making decisions on economic policy, provided that the general trends, which were seen prior to forecasting for each specific indicator, remain the same, i.e. prevailing long-term trends will see no serious shocks or changes in the future.

Despite that there is a great deal of data available on the period preceding the crisis of 1998, models of forecasting were analyzed and constructed using only the time horizon which followed August 1998. This can be explained by the findings of previous studies[2], which concluded, among other key inferences, that the quality of forecasts was deteriorated in most of the cases when the data on the pre-crisis period was used. Additionally, it currently seems incorrect to use even shorter series (following the crisis of 2008), because statistical characteristics of models based on such a short time horizon are very poor.

Models for the economic indicators in question were evaluated using standard methods of time series analysis. Initially, the correlograms of the studied series and their first differences were analyzed in order to determine the maximum number of delayed values to be included into the specifications of a model. Then, the results of analyzed correlograms served as the basis for testing all the series for weak stationarity (or stationarity around the trend) using the Dickey–Fuller test. In some cases, the series were tested for stationarity around the segmented trend using Perron and Zivot–Andrews tests for endogenous structural changes[3].

The series were broken down into weak stationary, stationary near the trend, stationary near the trend with structural change or difference stationary, and then models, which corresponded to each type (regarding the levels and including, if necessary, the trend or segmented trend or differences), were evaluated. The Akaike and Schwartz information criteria, the properties of models' residuals (lack of autocorrelation, homoscedasticity and normality) and the quality of the in-sample-forecasts based on these models were used to choose the best model. Forecast values were calculated for the best of the models constructed for each economic indicator.

Additionally, the Bulletin presents future monthly values of the CPI, which were calculated using models developed at the Gaidar Institute, and volumes of imports/exports from/to all countries, which were calculated using structural models (SM). The forecast values based on the structural models may, in some cases, produce better results than ARIMA-models do, because structural

1 See, for example, R.M. Entov, S.M. Drobyshevsky, V.P. Nosko, A.D. Yudin. The Econometric Analysis of the Time Series of the Main Macroeconomic Indices. Moscow, IET, 2001; R.M. Entov, V.P. Nosko, A.D. Yudin, P.A. Kadochnikov, S.S. Ponomarenko. Problems of Forecasting of Some Macroeconomic Indices. Moscow, IET, 2002; V. Nosko, A. Buzaev, P. Kadochnikov, S. Ponomarenko. Analysis of the Forecasting Parameters of Structural Models and Models with the Outputs of the Polls of Industries. Moscow, IET, 2003; M.Yu. Turuntseva and T.R. Kiblitskaya, Qualitative Properties of Different Approaches to Forecasting of Social and Economic Indices of the Russian Federation. Moscow, IET, 2010.

2 Ibid.

3 See.: Perron, P. Further Evidence on Breaking Trend Functions in Macroeconomic Variables, Journal of Econometrics, 1997, 80, pp. 355–385; Zivot, E. and D.W.K. Andrews. Further Evidence on the Great Crash, the Oil-Price Shock, and Unit-Root Hypothesis. Journal of Business and Economic Statistics, 1992, 10, pp. 251–270.

models are constructed by adding information of the dynamics of exogenous variables. Besides, the use of structural forecasts in making aggregated forecasts (i.e. forecasts obtained as average value from several models) may help make forecast values more accurate.

The dynamics of the Consumer Price Index was modeled using theoretical assumptions arising from the monetary theory. The following was used as explanatory variables: money supply, output volume, the dynamics of the ruble-dollar exchange rate, which reflects the dynamics of alternative cost of money-keeping. The model for the Consumer Price Index also included the price index in the electric power industry, because the dynamics of manufacturers' costs relies heavily on this indicator.

The baseline indicator to be noted is the real exchange rate, which can influence the value of exports and imports, and its fluctuations can result in changes to the relative value of domestically-produced and imported goods, though the influence of this indicator turns out to be insignificant in econometric models. Global prices of exported resources, particularly crude oil prices, are most significant factors, which determine the dynamics of exports: a higher price leads to greater exports of goods. The level of personal income in the economy (labor costs) was used to describe the relative competitive power of Russian goods. Fictitious variables D12 and D01 – equal to one in December and January and zero in other periods – were added so that seasonal fluctuations were factored in. The dynamics of imports is effected by personal and corporate incomes whose increase triggers higher demand for all goods including imported ones. The real disposable cash income reflects the personal income; the Industrial Production Index reflects the corporate income.

The forecast values of foreign exchange rates were also calculated using structural models of their dependence on global crude oil prices.

The forecast values of explanatory variables, which are required for forecasting on the basis of structural models, were calculated using ARIMA-models (p, d, q).

The paper also presents calculations of the values of the Industrial Production Index, the Producer Price Index and the Total Unemployment Index, which were calculated using the results of business surveys conducted by the Gaidar Institute. Empirical studies show[1] that the use of series of business surveys as explanatory variables[2] in forecasting models can make forecasting more accurate on the average. Future values of these indicators were calculated using ADL-models (seasonal autoregressive delays were added).

The Consumer Price Index and the Producer Price Index are also forecast using large datasets (factor models – FM). The construction of factor models relies basically on the evaluation of the principal components of a large dataset of socio-economic indicators (112 indicators in this case). The lags of these principal components and the lags of the explanatory variable are used as explanatory variables in these models. A quality analysis of the forecasts obtained for different configurations of the factor models was used to chose a model for the CPI, which included 9th, 12th and 13th lags of the four principal components, as well as 1st and 12th lags of the variable itself, and a model for the PPI, which included 8th, 9th and 12th lags of the four principal components, as well as 1st, 3rd and 12th lags of the variable itself.

All calculations were performed using the Eviews econometric package.

1 See, for example: V. Nosko, A. Buzaev, P. Kadochnikov, S. Ponomarenko. *The Analysis of Forecasting Parameters of Structural Models and Models with Business Surveys' Findings*. Moscow, IEP, 2003.

2 Used as explanatory variables were the following series of the business surveys: the current/expected change in production, the expected changes in the solvent demand, the current/expected price changes and the expected change in employment.

Table 1

CALCULATIONS OF FORECAST VALUES OF INDICES OF INDUSTRIAL PRODUCTION[1] (%)

	Index of industrial production				IIP for mining		IIP for manufacturing		IIP for utilities (electricity, water, and gas)		IIP for food products		IIP for coke and petroleum		IIP for primary metals and fabricated metal products		IIP for machinery	
	Rosstat		NRU HSE		Rosstat	NRU HSE	Rosstat	NRU HSE	Rosstat	NRU HSE	Rosstat	NRU HSE	Rosstat	NRU HSE	Rosstat	NRU HSE	Rosstat	NRU HSE
	ARIMA	BS	ARIMA	BS														
Expected growth on the respective month of the previous year																		
Jan 18	-1.5	0.5	0.4	0.2	0.9	-0.2	-0.6	3.1	-1.8	-2.1	1.2	3.7	1.6	0.8	-25.5	-2.2	-8.9	4.6
Feb 18	1.4	1.7	2.2	1.4	0.4	0.6	1.9	1.0	-0.1	-0.9	6.4	6.9	3.3	3.3	-23.2	-1.2	5.5	3.8
Mar 18	-0.7	-0.1	-0.5	0.4	0.8	0.6	0.5	-0.7	0.5	1.9	2.5	4.2	3.5	2.7	-24.7	-2.4	-6.0	-8.1
Apr 18	-1.1	1.9	-1.7	1.6	-0.9	0.4	1.2	0.8	-1.6	-0.8	3.1	5.2	-1.2	-1.4	-28.8	-0.5	9.2	0.1
May 18	-2.2	1.8	-1.2	1.7	-1.1	-0.3	-0.4	0.5	-0.2	-1.2	0.7	4.0	3.1	2.4	-24.3	-1.7	5.0	3.2
Jun 18	-1.8	2.5	-1.4	2.3	-0.8	-0.4	1.4	-0.1	2.0	1.7	3.4	5.4	-0.6	0.1	-24.0	-2.8	4.5	4.9
For reference: actual growth in 2017 on the respective month of 2016																		
Jan 17	2.3		3.3		3.3	2.6	2.0	5.8	0.8	-3.7	4.8	5.6	-3.9	1.0	-9.3	-2.6	10.4	7.9
Feb 17	-2.7		-0.1		0.0	-1.4	-5.1	0.1	2.7	2.6	-2.5	-2.3	-2.2	-3.2	-13.8	-4.9	9.0	9.2
Mar 17	0.8		2.1		0.2	-1.3	1.0	4.8	0.4	-1.2	5.1	0.6	0.6	-2.1	-3.5	0.4	5.3	4.6
Apr 17	2.3		2.9		4.2	2.7	0.6	2.7	5.5	4.6	5.2	0.7	3.4	3.3	0.3	-2.3	-9.4	5.8
May 17	5.6		3.8		5.6	2.6	5.7	4.3	4.7	6.4	7.0	4.7	1.8	0.0	-1.7	-1.7	-2.2	8.6
Jun 17	3.5		2.6		5.2	2.5	2.9	2.8	0.6	1.9	2.5	1.1	3.1	1.2	-3.5	0.1	-0.7	-5.6

Note: in the time spans under review, the series of the Rosstat and the NRU HSE chain indices of IIP, as well as the NRU HSE chain IIP *for manufacturing* are identified as stationary processes around the trend with an endogenous structural change; the series of the Rosstat and the NRU HSE chain IIPs *for manufacturing*, *for primary metals and fabricated metal products*, as well as the NRU HSE chain IIP *for mining* and Rosstat chain IIP *for machinery and equipment* are identified as stationary processes around the trend with two endogenous structural changes. The time series of other chain indices are stationary at levels.

1 It is to be noted that for making of forecasts so-called "raw" indices (without seasonal and calendar adjustment) were used and for that reason in most models existence of the season factor is taken into account and, as a consequence, the obtained outputs reflect the seasonal dynamics of the series.

INDUSTRIAL PRODUCTION AND RETAIL SALES

Industrial production

For making forecast for January–June of 2018, the series of monthly data of the indices of industrial production released by the Federal State Statistics Service (Rosstat) from January 2002 to October 2017, as well as the series of the base indices of industrial production released by the National Research University Higher School of Economics (NRU HSE[1]) over the period from January 2010 to November 2017 were used (the corrected value of January 2010 was equal to 100%). The forecast values of the series were calculated on the basis of ARIMA-class models. The forecast values of the Rosstat and the NRU HSE indices of industrial production are calculated using business surveys (BS) as well. The obtained results are shown in Table 1.

As seen from *Table 1*, the Rosstat industrial production index posted growth of 0.2% in H1 2018 compared to the same period of the previous year for industry as a whole. As for the NRU HSE industrial production index, this indicator constitutes 0.5%.

The average monthly values of the Rosstat industrial production index and for the NRU HSE industrial production index for mining for January–June 2018 come to -0.1% and 0.1%, respectively.

In H1 2018 in comparison with the same period of last year, the average growth of the Rosstat industrial production index for manufacturing comes to 0.7% and the NRU HSE industrial production index to 0.8%. The average monthly values of the Rosstat industrial production index and the NRU HSE industrial production index for food products constitute 2.9% and 4.9%, respectively. The production of coke and petroleum products is forecast to average 1.6% and 1.3% for the Rosstat and NRU HSE indexes, respectively. The average monthly values of the industrial production index for primary metals and fabricated metal products for January–June 2018 computed by Rosstat and the NRU HSE constitute (-25.1%) and (-1.8%), respectively. Manufacturing of machinery and equipment is forecast on average at 1.6% and 1.4% for the Rosstat and the NRU HSE indexes, respectively.

The average growth of the industrial production index for electricity, gas, and water supply; for air conditioning computed by Rosstat for H1 2018 in comparison with the same period of the previous year constitutes (-0.2%); the same indicator for the NRU HSE industrial production index comes to (-0.3%).

Retail Sales

This section (Table 2) presents forecasts of monthly retail sales made on the basis of monthly Rosstat data over January 1999 – December 2017.

As seen from *Table 2,* the monthly trade turnover is forecast to grow on average at around 3.6% in January–June 2018 against the corresponding period of 2017.

The monthly real trade turnover is forecast to grow at around 1.0% in January–June 2018 compared to the corresponding period of 2017.

Table 2

CALCULATIONS OF FORECAST VALUES OF THE RETAIL SALES AND THE REAL RETAIL SALES

	Forecast value according to ARIMA-model	
	Retail sales, billion RUB (in brackets – growth on the respective month of the previous year, percent)	Real retail sales (as % of the respective period of the previous year)
Jan 18	2283.0 (3.2)	100.8
Feb 18	2259.7 (3.7)	100.4
Mar 18	2448.3 (3.9)	101.3
Apr 18	2423.1 (3.6)	101.5
May 18	2474.8 (3.7)	101.5
Jun 18	2510.2 (3.6)	100.5
For reference: actual values in the same months of 2017		
Jan 17	2211.3	97.9
Feb 17	2178.9	97.4
Mar 17	2356.7	99.8
Apr 17	2338.7	100.4
May 17	2386.8	101
Jun 17	2423.8	101.5

Note: the series of retail sales and real retail sales over January 1999 – December 2017.

1 The indices in question are calculated by E.A. Baranov and V.A. Bessonov.

Table 3

CALCULATIONS OF FORECAST VALUES OF VOLUMES OF FOREIGN TRADE TURNOVER WITH COUNTRIES OUTSIDE THE CIS

	Exports to all countries				Imports from all countries				Exports to countries outside the CIS				Imports from countries outside the CIS			
	Forecast values (billion USD a month)		Percentage of actual data in the respective month of the previous year		Forecast values (billion USD a month)		Percentage of actual data in the respective month of the previous year		Forecast values (billion USD a month)		Percentage of actual data in the respective month of the previous year		Forecast values (billion USD a month)		Percentage of actual data in the respective month of the previous year	
	ARIMA	SM	ARIMA	SM	ARIMA	SM	ARIMA	SM	ARIMA	SM	ARIMA	SM	ARIMA	SM	ARIMA	SM
Jan 18	27.6	29.4	109	116	19.8	18.4	145	135	22.6	23.4	101	105	16.4	16.9	129	119
Feb 18	29.9	31.8	116	123	22.6	20.8	146	134	24.8	27.2	111	121	19.2	18.4	110	120
Mar 18	33.2	34.8	106	111	24.3	22.9	128	121	28.2	28.5	103	104	20.9	21.9	109	119
Apr 18	31.7	34.2	122	131	23.8	22.4	131	123	28.9	27.8	130	125	19.3	21.7	104	116
May 18	34.8	34.8	123	123	24.9	23.7	127	121	27.5	28.4	114	117	20.1	21.0	105	122
Jun 18	34.0	33.5	115	114	25.1	22.7	121	110	30.4	28.2	121	113	20.4	21.2	103	111
For reference: actual values in respective months of 2017 (billion USD)																
Jan 17	25.4				13.6				22.3				12.0			
Feb 17	25.8				15.5				22.4				13.7			
Mar 17	31.3				19.0				27.3				16.9			
Apr 17	26.0				18.2				22.2				16.3			
May 17	28.2				19.6				24.2				17.4			
Jun 17	29.5				20.7				25.0				18.5			

Note: over the period from January 1999 to December 2017, the series of exports, imports, exports to the countries outside the CIS and imports from the countries outside the CIS were identified as stationary series in the first-order differences. In all the cases, seasonal components were included in the specification of the models.

Table 4

CALCULATIONS OF FORECAST VALUES OF PRICE INDICES

	The consumer price index (ARIMA)	The consumer price index (SM)	The consumer price index (FM)	Producer price indices:														
				for industrial goods (ARIMA)	for industrial goods (BS)	for industrial goods (FM)	for mining and quarrying	for manufacturing	for utilities (electricity, water, and gas)	for food products	for textile and sewing industry	for wood products	for pulp and paper industry	for coke and refined petroleum	for chemical industry	for basic metals and fabricated metal	for machinery and equipment	for transport equipment manufacturing
Forecast values (% of the previous month)																		
Jan 18	101.6	100.3	100.5	101.4	100.5	100.3	104.8	100.3	100.8	99.2	100.2	100.2	100.7	97.7	101.7	101.4	101.2	100.5
Feb 18	100.8	100.3	100.5	100.7	100.9	100.5	101.3	100.1	100.8	99.8	100.7	100.5	100.4	102.3	101.2	101.8	100.0	100.2
Mar 18	100.4	100.2	100.5	100.2	100.4	100.8	100.0	100.8	99.4	100.3	100.8	100.6	100.4	102.3	100.1	101.2	100.2	100.1
Apr 18	100.4	100.2	100.5	100.1	100.2	100.6	103.6	101.2	100.5	100.4	100.6	99.8	100.3	102.2	99.8	101.1	100.4	100.8
May 18	100.3	100.5	100.5	100.7	100.1	100.6	97.5	100.9	99.4	100.5	100.1	100.4	100.4	102.2	99.5	100.7	100.5	100.6
Jun 18	100.3	100.6	100.5	99.7	100.2	100.6	101.4	101.1	99.5	100.7	100.6	100.2	100.5	102.1	99.6	100.5	100.4	100.7
Forecast values (% of December 2017)																		
Jan 18	101.6	100.3	100,5	101.4	101.1	100.3	104.8	100.3	100.8	99.2	100.2	100.2	100.7	97.7	101.7	101.4	101.2	100.5
Feb 18	102.4	100.6	101,0	102.1	101.4	100.8	106.1	100.3	101.6	99.1	100.9	100.7	101.1	100.0	103.0	103.2	101.2	100.6
Mar 18	102.8	100.8	101,5	102.4	101.3	101.6	106.1	101.1	101.0	99.4	101.7	101.3	101.5	102.3	103.1	104.4	101.4	100.8
Apr 18	103.2	101.0	102,0	102.4	100.6	102.2	110.0	102.3	101.5	99.8	102.3	101.2	101.8	104.5	102.9	105.5	101.8	101.6
May 18	103.5	101.5	102,5	103.1	100.3	102.8	107.2	103.2	100.9	100.3	102.4	101.6	102.2	106.8	102.4	106.2	102.3	102.2
Jun 18	103.8	102.1	103,0	102.9	100.3	103.4	108.7	104.3	100.4	101.0	103.0	101.8	102.7	109.0	102.0	106.7	102.7	102.9
For reference: actual values in the same periods of 2017 (% of December 2016)																		
Jan 17	100.6			103.3			111.9	101.5	99.5	100.0	100.6	100.3	100.8	103.9	101.5	102.2	102.9	101.0
Feb 17	100.8			104.1			117.8	101.0	99.4	98.5	100.3	100.2	101.1	103.4	102.4	102.3	102.8	101.2
Mar 17	100.9			103.8			115.8	100.8	101.7	97.8	101.2	100.5	100.9	102.0	103.6	102.5	102.8	102.6
Apr 17	101.2			102.3			109.0	100.8	99.7	97.3	100.8	99.4	100.2	103.9	103.7	101.0	103.2	101.8
May 17	101.6			101.7			106.1	100.7	101.1	97.1	100.8	100.6	100.2	104.9	102.2	98.6	103.8	102.2
Jun 17	102.2			101.4			105.8	100.6	99.5	97.1	101.5	100.8	100.7	106.1	100.2	96.5	103.8	102.3

Note: over the period from January 1999 to October 2017, the series of the chain producer price index for machinery are identified as a stationary process around the trend with two endogenous structural changes. The series of other chain price indices are stationary at levels.

FOREIGN TRADE INDICES

Model calculations of forecast values of the export and export to countries outside the CIS and the import and import from countries outside the CIS were made on the basis of the models of time series and structural models evaluated on the basis of the monthly data over the period from September 1998 to December 2017 on the basis of the data released by the Central Bank of Russia[1]. The results of calculations are shown in Table 3.

Export, import, export outside the CIS and import from the countries outside the CIS are forecast to grow at 17.2%, 27.4%, 13.6%, and 25.4%, respectively in January–June 2018 against the same period of 2017. The average forecast surplus volume of the trade balance with all countries for January–June 2018 will amount to $ 59.2bn which reflects increase of 1.0% on the same period of 2017.

DYNAMICS OF PRICES

The Consumer Price Index and Producer Price Index

This section presents calculations of forecast values of the consumer price index and producer price index (as regards both the industry in general and some types of its activities under the National Industry Classification Standard (NICS)) made on the basis of the time-series models evaluated on the basis of the data released by Rosstat over the period from January 1999 to October 2017[2]. Table 4 presents the results of model calculations of forecast values over January–June of 2018 in accordance with ARIMA-models, structural models (SM) and models computed with the help of business surveys (BS).

The consumer price index is forecast to grow at an average monthly rate of 0.5% in H1 2018. The producer price index (PPI) for the same period is also forecast to average 0.5% per month.

The producer price indexes computed by Rosstat are forecast to grow at average monthly rates in January–June 2018: for mining and quarrying 1.4%, manufacturing 0.7%, utilities (electricity, gas, and water) 0.1%, food products 0.2%, textile and sewing industry 0.5%, wood products 0.3%, pulp and paper industry 0.4%, coke and refined petroleum 1.5%, for chemical industry 0.3%, for basic metals and fabricated metal 1.1%, for machinery and equipment 0.4% , and for motor vehicles manufacture 0.5%.

The Cost of the Monthly per Capita Minimum Food Basket

This section presents calculations of forecast values of the cost of the monthly per capita minimum food basket over the first half of 2018. The forecasts were made on the basis of time series with use the Rosstat data over the period from January 2000 to November 2017. The results are shown in Table 5.

Table 5

THE FORECAST OF THE COST OF THE MONTHLY PER CAPITA MINIMUM FOOD BASKET

Forecast values according to ARIMA-model (RUB)	
Jan 18	3895.6
Feb 18	3970.2
Mar 18	4021.3
Apr 18	4090.0
May 18	4181.4
Jun 18	4244.9
For reference: actual values in the same months of 2017 (billion RUB)	
Jan 17	3726.4
Feb 17	3745.1
Mar 17	3771.9
Apr 17	3872.5
May 17	4036.7
Jun 17	4233.2
Expected growth on the respective month of the previous year (%)	
Jan 18	4.5
Feb 18	6.0
Mar 18	6.6
Apr 18	5.6
May 18	3.6
Jun 18	0.3

Note: the series of the cost of the monthly per capita minimum food basket over the period from January 2000 to November 2017 are stationary in the first-order differences.

1 The data on the foreign trade turnover is calculated by the CBR in accordance with the methods for making of the balance of payment in prices of the exporter-country (FOB) in billion USD.

2 Structural models were evaluated in the period from October 1998.

As can be seen from *Table 5*, the minimum set of food products' cost is forecast to grow compared to the corresponding period of the previous year. At the same time, the minimum set of food products is forecast to average RUB 4,067.2. The minimum set of food products cost is forecast to grow on average around 4.4% compared to the level of the corresponding period of the previous year.

Indices of Freight Rates

This section presents calculations of forecast values of freight rate indices on cargo carriage[1], made on the basis of time-series models evaluated on the Rosstat data over the period from September 1998 to November 2017. Table 6 shows the results of model calculations of forecast values in January–June of 2018. It should be noted that some of the indices under review (for instance, the pipeline rate index) are adjustable ones and for that reason their behavior is hard to describe by means of the time-series models. As a result, the future values may differ greatly from the real ones in case of the centralized increase of rates in the period of forecasting or in case of absence of such an increase in the forecasting period, but with it taking place shortly before the beginning of that period.

Table 6

CALCULATIONS OF FORECAST VALUES OF INDICES OF FREIGHT RATES

	The composite freight rate index	The index of motor load freight rate	The index of pipeline rate
Forecast values according to ARIMA-models (% of the previous month)			
Jan 18	100.5	101.7	100.5
Feb 18	100.5	99.9	96.5
Mar 18	100.5	99.9	99.8
Apr 18	103.8	99.9	107.0
May 18	100.5	99.9	103.6
Jun 18	100.5	99.8	100.1
Forecast values according to ARIMA-models (% of December of the previous year)			
Jan 18	100.5	101.7	100.5
Feb 18	101.0	101.6	101.1
Mar 18	101.5	101.4	97.5
Apr 18	105.4	101.3	97.3
May 18	105.9	101.1	104.1
Jun 18	106.4	101.0	107.8
For reference: actual values in the same period of 2017 (% of the previous month)			
Jan 17	100.2	102.1	97.2
Feb 17	100.0	99.9	99.9
Mar 17	100.0	100.1	100.0
Apr 17	106.8	100.2	114.3
May 17	100.0	100.1	100.1
Jun 17	100.2	100.0	100.2

Note: over the period from September 1998 to November 2017, the series of the freight rates index were identified as stationary ones; the other series were identified as stationary ones over the period from September 1998 to November 2017, too; fictitious variables for taking into account particularly dramatic fluctuations were used in respect of all the series.

According to the forecast results for January–June 2018, the composite index of transport tariffs will increase on average 1.0% per month. In April 2018, the seasonal growth of the index is expected by 3.8 p.p.

The index of motor freight tariffs will grow in the course of given six months at an average rate of 0.2%.

The index of pipeline tariffs will be increasing in the course of the next six months at a monthly average rate of 1.1%. In April 2018, the seasonal increase of the index is expected by 7.0 p.p.

World Prices of Natural Resources

This section presents calculations of such average monthly values of Brent crude prices (US$ per barrel), the aluminum prices (US$ per ton), the gold prices ($ per ounce), the copper prices (US$ per ton), and the nickel prices (US$ per ton) over the first half of 2018 as were received on the basis of nonlinear models of time series evaluated on the basis of the IMF data over the period from January 1980 to November 2017.

The crude oil price is forecast to average around $65.5 per barrel, which is above its corresponding year-earlier indexes on average by 26.6%. The Aluminum price is forecast to average around $2,390.0 per ton and their average forecast increment constitutes around 26.0% compared to the same level of last year. The gold price is forecast to average $1,276.0 per ounce. The copper price

1 The paper presents a review of the composite freight rate index on freight transport and the motor load freight rate index, as well as the pipeline rate index. The composite freight rate index is computed on the basis of the freight rate indices by individual types of transport: rail, pipeline, shipping, domestic water-borne, and motor load freight and air service (for more detailed information, pls. refer, for instance, to: *Prices in Russia*. The Official Publication of Goskomstat of RF, 1998).

is forecast to average $7,726 per ton, and prices for nickel – around $14,156 per ton. The average forecast price increase for gold constitutes around 2.0%, average increase of copper prices – around 32.0%, and average increase of nickel prices 45.0% compared to the corresponding level of last year.

Table 7

CALCULATIONS OF FORECAST VALUES OF WORLD PRICES ON NATURAL RESOURCES

	Brent oil ($ per barrel)	Aluminum ($ per ton)	Gold ($ per ounce)	Copper ($ per ton)	Nickel ($ per ton)
Forecast values					
Jan 18	66.89	2312	1266	7565	13785
Feb 18	66.59	2370	1269	7646	13801
Mar 18	66.07	2413	1271	7719	14344
Apr 18	65.36	2392	1276	7767	14175
May 18	64.42	2418	1283	7810	14552
Jun 18	63.50	2432	1289	7852	14277
Expected growth on the respective month of the previous year (%)					
Jan 18	20.5	24.3	2.6	27.3	29.5
Feb 18	28.1	24.7	3.1	31.3	35.2
Mar 18	24.5	25.6	0.5	35.8	49.3
Apr 18	28.5	25.0	2.5	38.7	54.8
May 18	37.4	28.3	1.8	36.5	62.9
Jun 18	20.6	26.9	4.3	23.2	39.7
For reference: actual values in the same period of 2017					
Jan 17	55.49	1861	1234	5941	10643
Feb 17	51.97	1901	1231	5825	10205
Mar 17	53.06	1921	1266	5684	9609
Apr 17	50.87	1913	1245	5600	9155
May 17	46.89	1885	1260	5720	8932
Jun 17	52.65	1917	1236	6375	10223

Note: over the period from January 1980 to November 2017, the series of prices of crude oil, nickel, gold, copper, and aluminum are series of DS type.

MONETARY INDICES

The future values of the monetary base (in the narrow definition: cash funds and the Fund of Mandatory Reserves (FMR) and M_2 monetary aggregate over the period from January to June of 2018 were received on the basis of models of time-series of respective indices calculated by the CBR[1] over the period from October 1998 to December (November – for M_2 time series) 2017. Table 8 presents the results of calculations of forecast values and actual values of those indices in the same period of previous year. It is to be noted that due to the fact that the monetary base is an instrument of the CBR policy, forecasts of the monetary base on the basis of time-series models are to a certain extent notional as the future value of that index is determined to a great extent by decisions of the CBR, rather than the inherent specifics of the series.

In January–June 2018, the monetary base will be growing at an average monthly rate of 1.0%. In January 2018, seasonal growth of the monetary base is planned at 7.4%

Table 8

THE FORECAST OF M_2 AND THE MONETARY BASE

	The Monetary base		M_2	
	Billion RUB	Growth on the previous month, %	Billion RUB	Growth on the previous month, %
Jan 18	9854	7.4	41068	2.4
Feb 18	9458	-4.0	40753	-0.8
Mar 18	9601	1.5	41069	0.8
Apr 18	9597	0.0	40753	-0.8
May 18	9737	1.5	41069	0.8
Jun 18	9734	0.0	40753	-0.8
For reference: actual value in the respective months of 2017 (growth on the previous month, %)				
Jan 17	7.7		5.4	
Feb 17	-4.9		-1.0	
Mar 17	1.0		1.2	
Apr 17	-0.2		0.2	
May 17	2.7		0.3	
Jun 17	-0.3		1.4	

Note: over the period from October 1998 to December (November) of 2017, all the time series of monetary indices were attributed to the class of series which are stationary in the first-order differences and have an explicit seasonal component.

1 The data on the specific month is given in accordance with the methods of the CBR as of the beginning of the following month.

.In the period under review, the monetary indicator M_2 will be growing on a monthly average by 0.3%. In January 2018, seasonal growth of the monetary indicator M_2 is planned at 2.4%.

INTERNATIONAL RESERVES

This section presents the outputs of the statistical estimation of such future values of the international reserves of the Russian Federation[1] *as were received on the basis of evaluation of the model of time series of the gold and foreign exchange reserves on the basis of the data released by the CBR over the period from October 1998 to December 2017. That index is forecast without taking into account a decrease in the amount of reserves due to foreign debt payment and for that reason the values of the volumes of the international reserves in the months where foreign debt payments are made may happen to be overestimated (or otherwise underestimated) as compared to the actual ones.*

Subsequent to the forecast results for January–June 2018, the international reserves will be growing at an average monthly rate of 0.3%.

Table 9

THE FORECAST OF THE INTERNATIONAL RESERVES OF THE RUSSIAN FEDERATION

	Forecast values according to ARIMA-model	
	Billion USD	Growth on the previous month, %
Jan 18	432.7	0.3
Feb 18	435.7	0.7
Mar 18	438.1	0.5
Apr 18	439.2	0.2
May 18	441.2	0.5
Jun 18	443,4	0,5
For reference: actual values in the same period of 2017		
Jan 17	377.7	-2.0
Feb 17	390.6	3.4
Mar 17	397.3	1.7
Apr 17	397.9	0.1
May 17	401.0	0.8
Jun 17	405.7	1.2

Note: over the period from October 1998 to December 2017. the series of the gold and foreign exchange reserves of the Russian Federation were identified as stationary series in difference.

FOREIGN EXCHANGE RATES

The model calculations of prospective values of the foreign exchange rates (RUB per USD and USD per euro) were made on the basis of assessment of the time series models (ARIMA) and structural models (SM) of the relevant indicators released by the Central Bank of Russia as of the last date of each month over the periods from October 1998 to December 2017 and from January 1999 to December 2017[2]*, respectively.*

In January–June 2018, USD/RUB average exchange rate is forecast along two models in the amount of RUB 56.14 for USD.

Euro/USD exchange rate is forecast at USD 1.23 per 1 euro on average at the period under review.

Table 10

FORECASTS OF THE USD/RUB AND EUR/USD EXCHANGE RATES

	The USD/RUB exchange rate (RUB per USD)		The EUR/USD exchange rate (USD per EUR)	
	ARIMA	SM	ARIMA	SM
Jan 18	56.24	56.24	1.24	1.24
Feb 18	55.77	55.99	1.23	1.23
Mar 18	55.63	56.08	1.24	1.23
Apr 18	55.78	56.40	1.24	1.23
May 18	55.88	56.69	1.24	1.23
Jun 18	55.99	57.02	1.24	1.22
For reference: actual values in the similar period of 2017				
Jan 17	60.16		1.07	
Feb 17	57.94		1.06	
Mar 17	56.38		1.06	
Apr 17	56.98		1.10	
May 17	56.52		1.12	
Jun 17	59.09		1.14	

Note: over the respective periods, the series under review were identified as integrated series of the first order with a seasonal component.

1 The data on the volume of the gold and foreign exchange reserves is presented as of the first day of the following month.

2 The authors use the IMF data over the period from January 1999 to October 2017. The data over the November and December 2017 was obtained from the foreign exchange rate statistics website: www.oanda.com

THE LIVING STANDARD INDEXES

This section (Table 12) presents calculations of forecast values of indices of real wages. real disposable income and real income [1] *as were received on the basis of the model of time series of respective indices computed by Rosstat and taken over the period from January 1999 to December 2017. The above indices depend to a certain extent on the centralized decisions on raising of wages and salaries to public sector workers. as well as those on raising of pensions. scholarships and allowances; such a situation introduces some changes in the dynamics of the indices under review. As a result. the future values of the indices of real wages and real disposable income calculated on the basis of the series which last observations are either considerably higher or lower than the previous ones due to such a raising may differ greatly from those which are implemented in reality.*

According to the results presented in *Table 11*, average monthly growth of real disposable cash income is forecast at the rate of 1.4% compared to the previous year; real cash income – 1.0%. Real accrued wages are projected to grow on average by 3.1%, according to forecast.

Table 11

THE FORECAST OF THE LIVING STANDARD INDEXES

	Real disposable cash income	Real cash income	Real accrued wages
Forecast values according to ARIMA-models (% of the respective month of 2017)			
Jan 18	92.0	93.0	105.5
Feb 18	99.1	99.5	103.4
Mar 18	99.2	99.6	103.0
Apr 18	103.0	102.9	102.2
May 18	99.2	99.5	102.1
Jun 18	98.8	99.2	102.2
For reference: actual values in the respective period of 2017 (% of the same period of 2016)			
Jan 17	108.8	107.9	101.0
Feb 17	96.2	96.9	100.8
Mar 17	95.8	96.5	103.1
Apr 17	92.2	93.2	103.8
May 17	99.4	100.0	102.7
Jun 17	99.9	100.2	103.8

Note: for calculating purposes the series of the real disposable cash income. real cash income and real accrued wages in the base form were used (January 1999 was adopted as a base period). Over the period from January 1999 to December 2017. those series were attributed to the class of processes. which are stationary in differences and have an explicit seasonal component.

EMPLOYMENT AND UNEMPLOYMENT

For the purpose of calculation of the future values of the employment (of the number the gainfully employed population) and the unemployment (the total number of the unemployed), models of the time series evaluated over the period from October 1998 to October 2017 on the basis of the monthly data released by Rosstat[2] *were used. The unemployment was calculated on the basis of the models with results of the findings from business surveys*[3] *too.*

It is to be noted that feasible logical inconsistencies[4] *in forecasts of employment and unemployment which totals should be equal to the index of economically active population may arise due to the fact that each series is forecast individually and not as a difference between the forecast values of the economically active population and another index.*

1 *Real cash income* is a relative index which is calculated by means of division of the index of the nominal size (which was actually formed in the period under review) of households' cash income by the CPI. *Real disposable cash income* is cash income minus mandatory payments and contributions. (See: Rossiisky Statistichesky Ezhegodnik, Moscow, Rosstat, 2004, p. 212).

2 The index is computed in accordance with the methods of the International Labor Organization (ILO) and is given as of the month-end.

3 The model is evaluated over the period from January 1999 to October 2017.

4 For example, deemed as such a difference may be a simultaneous decrease both in the employment and the unemployment. However, it is to be noted that in principle such a situation is possible provided that there is a simultaneous decrease in the number of the economically active population.

Table 12

CALCULATION OF FORECAST VALUES OF THE INDICES THE EMPLOYMENT AND THE UNEMPLOYMENT

	Employment (ARIMA)		Unemployment (ARIMA)			Unemployment (BS)		
	Million people	Growth on the respective month of previous year (%)	Million people	Growth on the respective month of previous year (%)	% of the index of the number of the gainfully employed population	Million people	Growth on the respective month of previous year (%)	% of the index of the number of the gainfully employed population
Jan 18	71.7	0.2	4.1	-4.0	5.8	3.9	-8.7	5.4
Feb 18	71.7	0.6	4.1	-2.7	5.7	3.9	-6.7	5.4
Mar 18	72.0	0.2	4.0	-1.3	5.6	3.9	-3.7	5.4
Apr 18	72.1	0.6	4.0	-1.2	5.5	3.9	-1.6	5.4
May 18	72.8	1.2	3.8	-3.1	5.2	3.8	-1.3	5.2
Jun 18	73.0	1.2	3.7	-2.1	5.1	3.8	0.9	5.2
For reference: actual values in the same periods of 2017 (million people)								
Jan 17	71.6		4.3					
Feb 17	71.3		4.2					
Mar 17	71.8		4.1					
Apr 17	71.7		4					
May 17	71.9		3.9					
Jun 17	72.1		3.8					

Note: over the period from October 1998 to October 2016. the series of employment is a stochastic process which is stationary around the trend. The series of unemployment is a stochastic process with the first order integration. Both indices include seasonal component.

According to ARIMA-model forecast (*Table 12*), in H1 2018, the increase of the number of employed in the economy will average 0.7% per month against the corresponding period of the previous year

The decrease of the total number of jobless is forecast to average 3.0% per month against the same period of last year.

ANNEX

DIAGRAMS OF THE TIME SERIES OF THE ECONOMIC INDICES OF THE RUSSIAN FEDERATION

Fig. 1a. The Rosstat industrial production index (ARIMA-model) (% of December 2001)

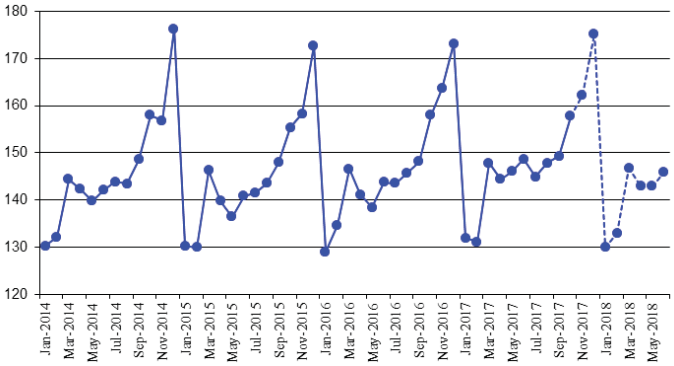


Fig. 1b. The NRU HSE industrial production index (ARIMA-model) (% of January 2010)

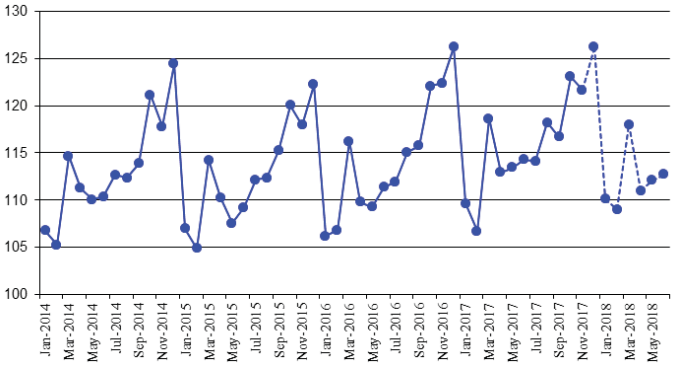


Fig. 2a. The Rosstat industrial production index for mining (% of December 2001)

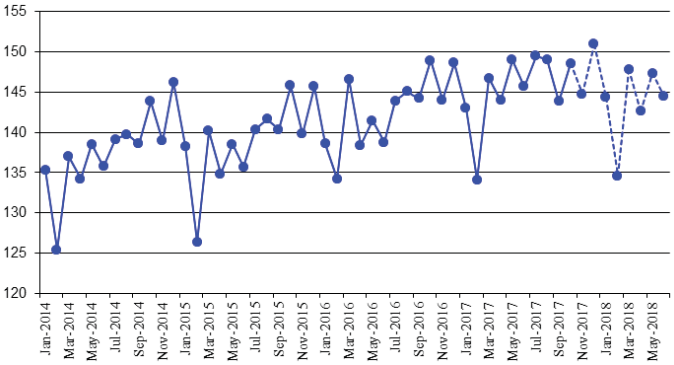


Fig. 2b. The NRU HSE industrial production index for mining (% of January 2010)

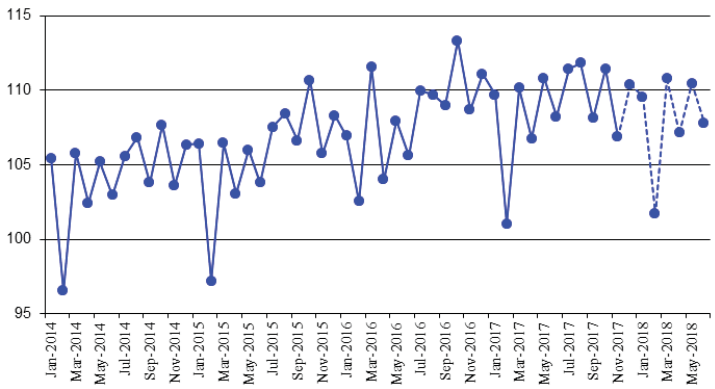


Fig. 3a. The Rosstat industrial production index for manufacturing (% of December 2001)

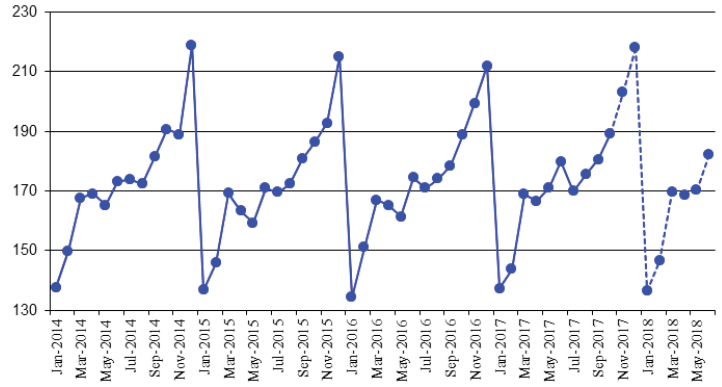


Fig. 3b. The NRU HSE industrial production index for manufacturing (% of January 2010)

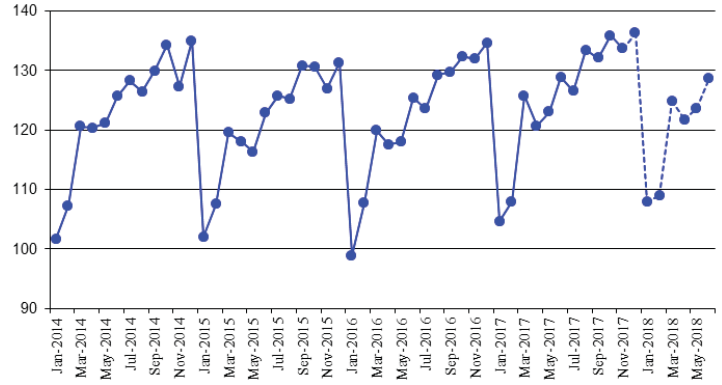


Fig. 4a. The Rosstat industrial production index for utilities (electricity, water, and gas) (as a percentage of that in December 2001)

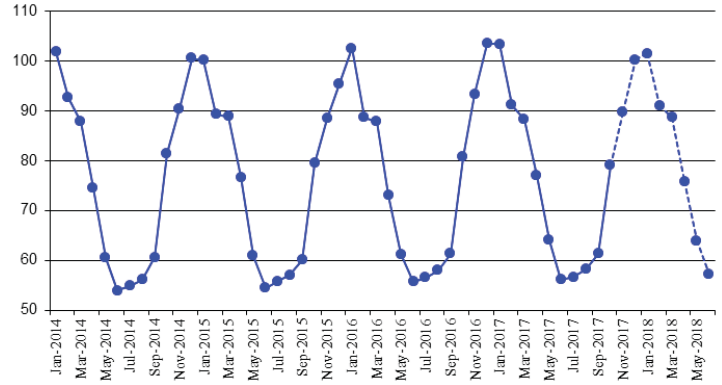


Fig. 4b. The NRU HSE industrial production index for utilities (electricity, water, and gas) (as a percentage of that in January 2010)

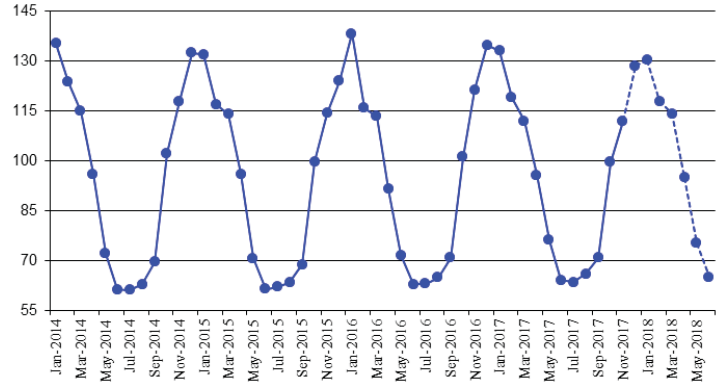


Fig. 5a. The Rosstat industrial production index for food products (as a percentage of that in December 2001)

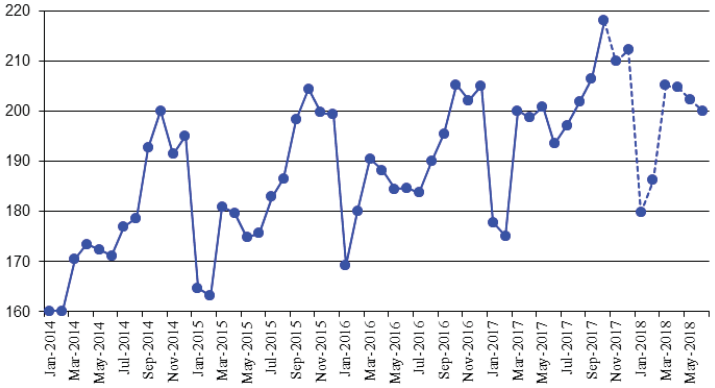


Fig. 5b. The NRU HSE industrial production index for food products (as a percentage of that in January 2010)

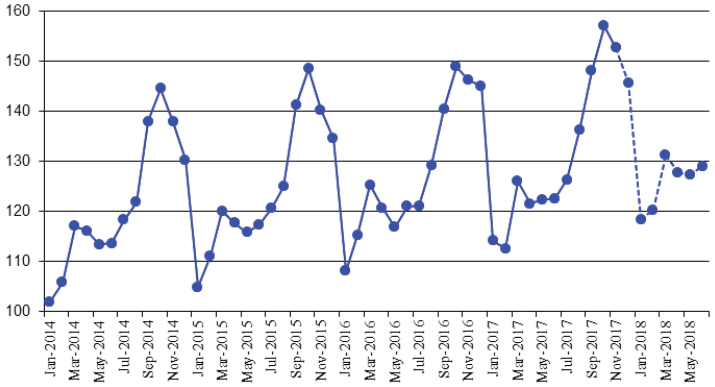


Fig. 6a. The Rosstat industrial production index for coke and petroleum (as a percentage of that in December 2001)

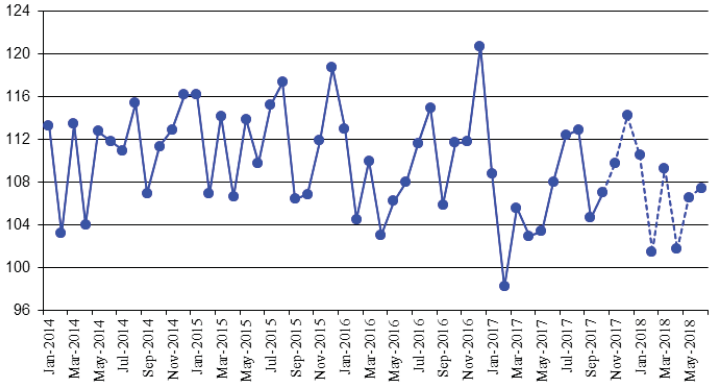


Fig. 6b. The NRU HSE industrial production index for petroleum and coke (as a percentage of that in January 2010)

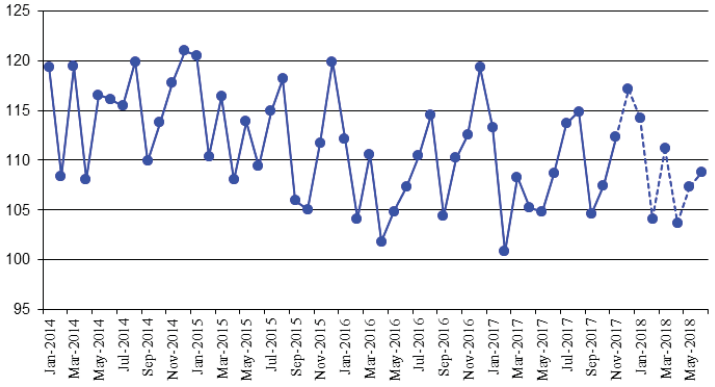


Fig.7a. The Rosstat industrial production index for primary metals and fabricated metal products (as a percentage of that in December 2001)

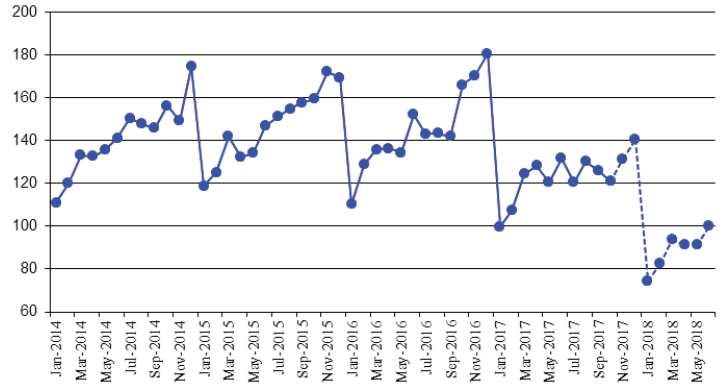


Fig. 7b. The NRU HSE industrial production index for primary metals and fabricated metal products (as a percentage of that in January 2010)

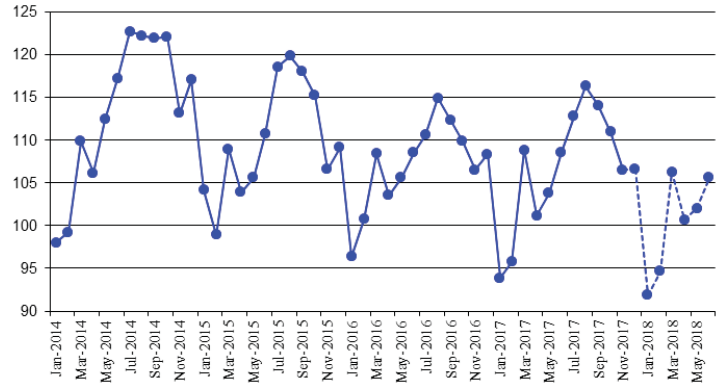


Fig. 8a. The Rosstat industrial production index for machinery (as a percentage of that in December 2001)

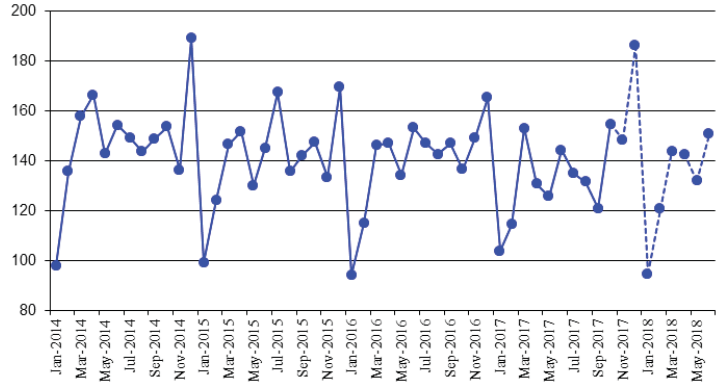


Fig. 8b. The NRU HSE industrial production index for machinery (as a percentage of that in January 2010)

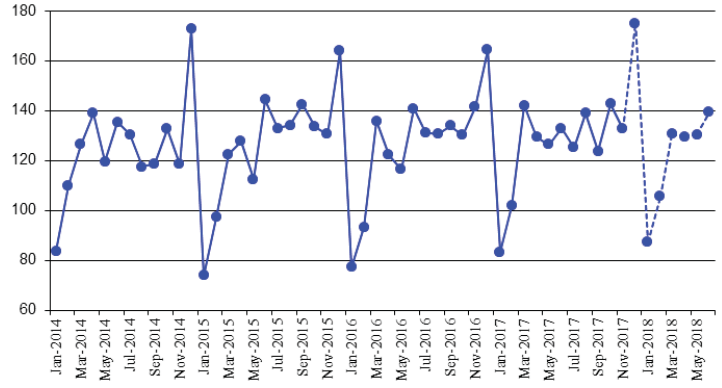


Fig. 9. The volume of retail sales (billion RUB)

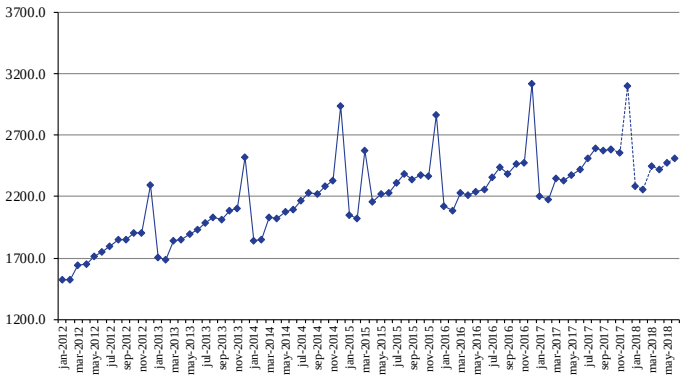


Fig. 9a. The real volume of retail sales
(as a percentage of that in the same period of the previous year)

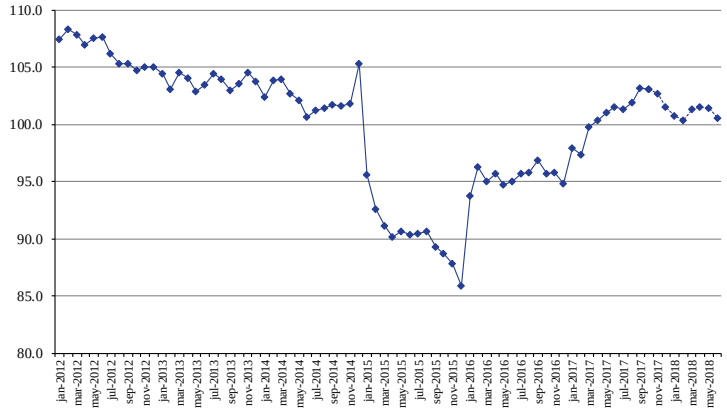


Fig.10. Export to all countries (billion USD)

Fig. 11. Export to countries outside the CIS (billion USD)

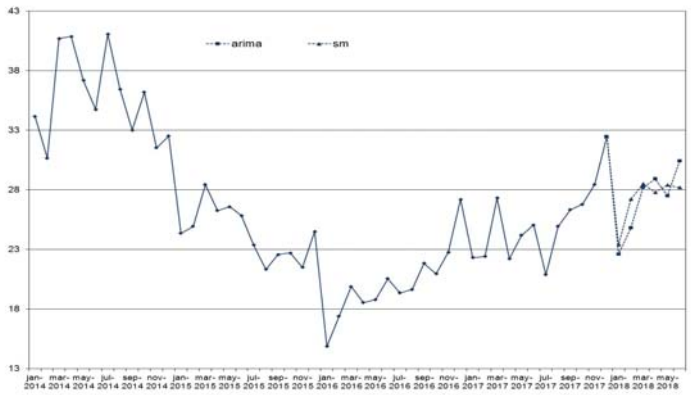


Fig. 12. Import from all countries (billion USD)

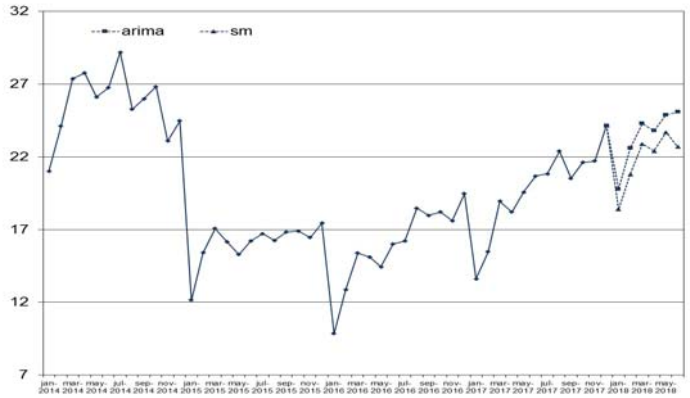


Fig. 13. Import from countries outside the CIS (billion USD)

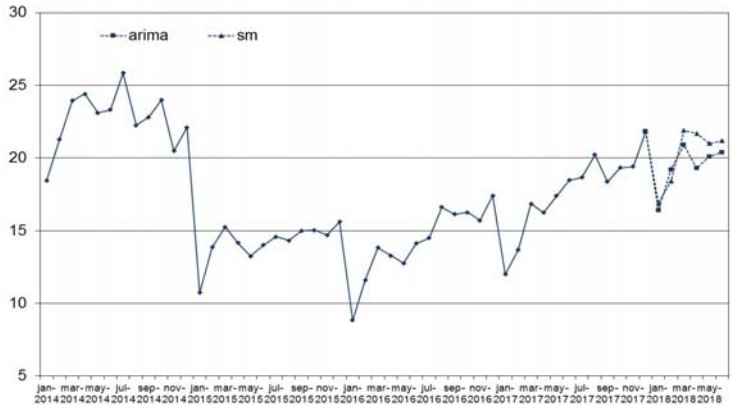


Fig. 14. The consumer price index
(as a percentage of that in December of the previous year)

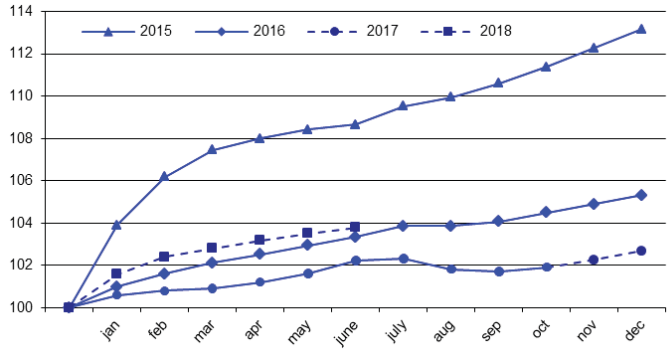


Fig. 14a. The consumer price index
(as a percentage of that in December of the previous year) (SM)

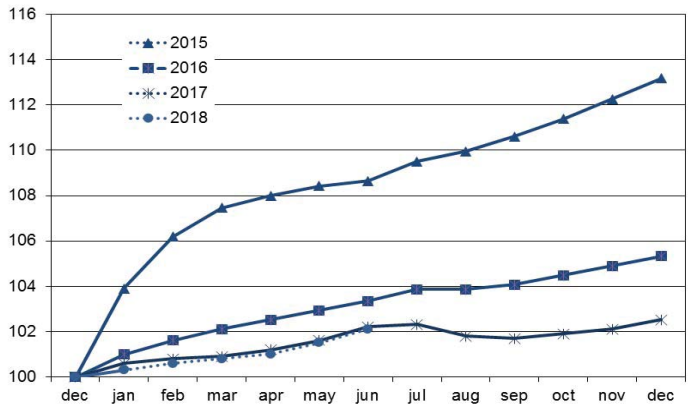


Fig.15. The producer price index for industrial goods
(as a percentage of that in December of the previous year)

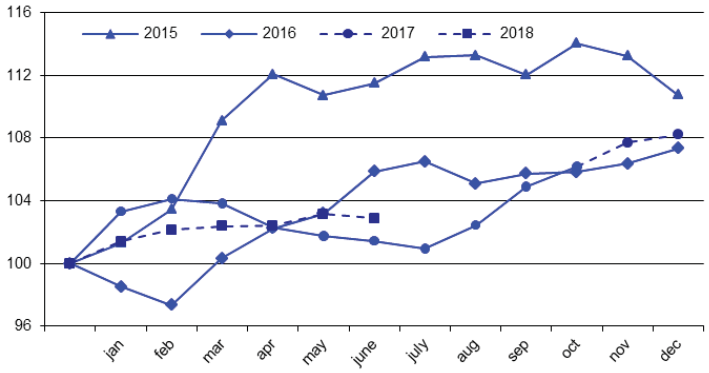


Fig. 16. The price index for mining
(as a percentage of that in December of the previous year)

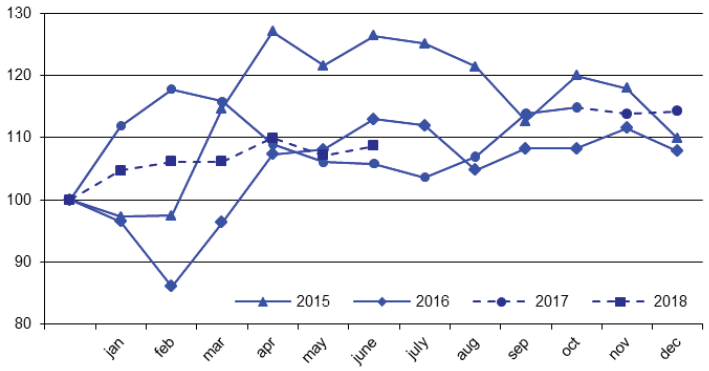


Fig. 17. The price index for manufacturing
(as a percentage of that in December of the previous year)

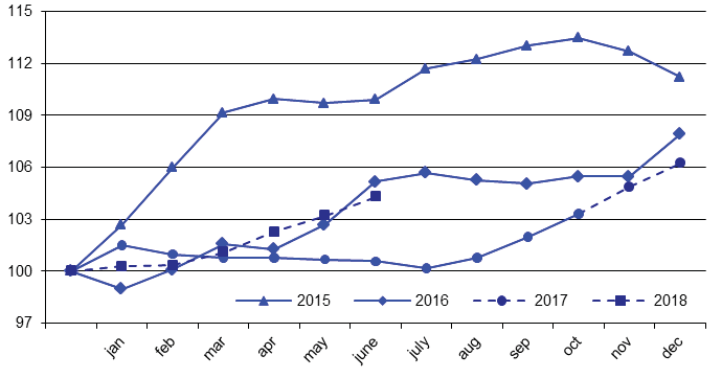


Fig. 18. The price index for utilities (electricity, water, and gas)
(as a percentage of that in December of the previous year)

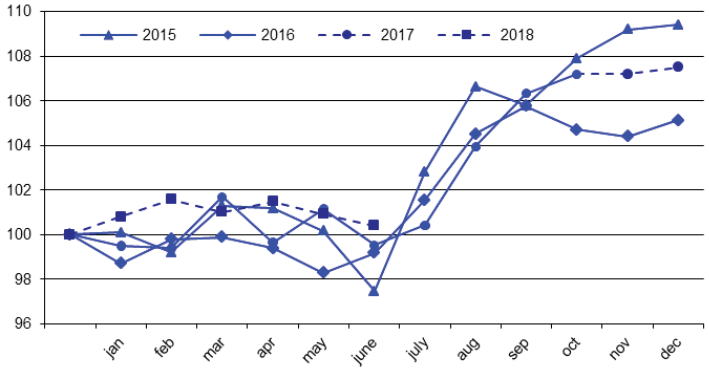


Fig. 19. The price index for food products
(as a percentage of that in December of the previous year)

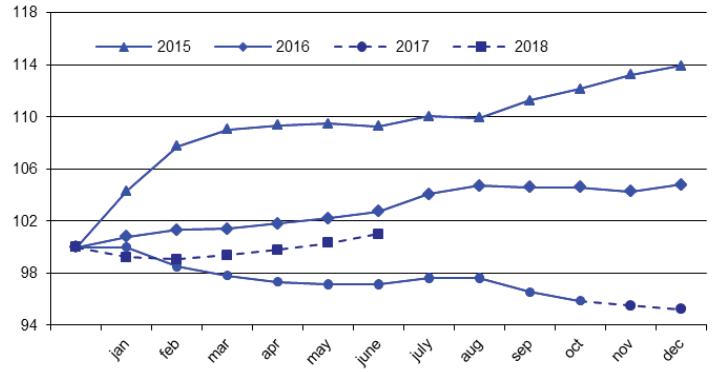


Fig. 20. The price index for the textile and sewing industry
(as a percentage of that in December of the previous year)

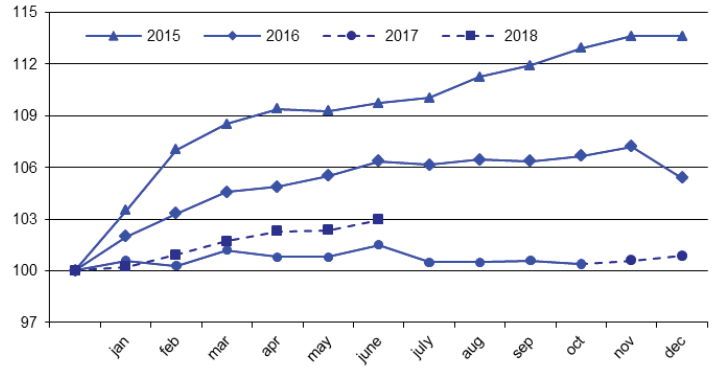


Fig. 21. The price index for wood products
(as a percentage of that in December of the previous year)

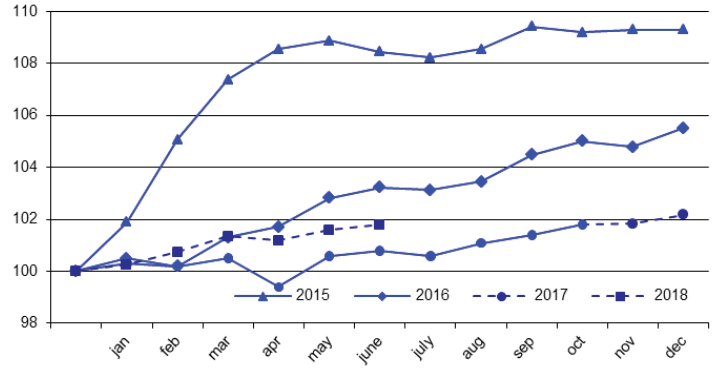


Fig. 22. The price index for the pulp and paper industry
(as a percentage of that in December of the previous year)

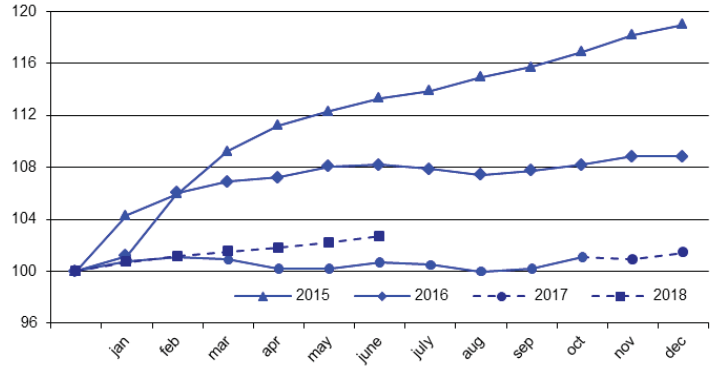


Fig. 23. The price index for coke and petroleum
(as a percentage of that in December of the previous year)

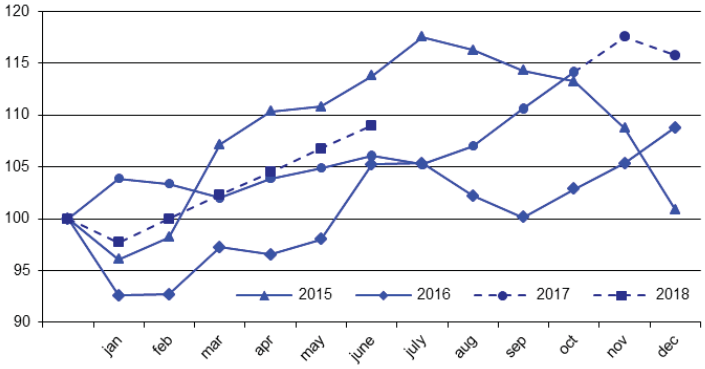


Fig. 24. The price index for the chemical industry
(as a percentage of that in December of the previous year)

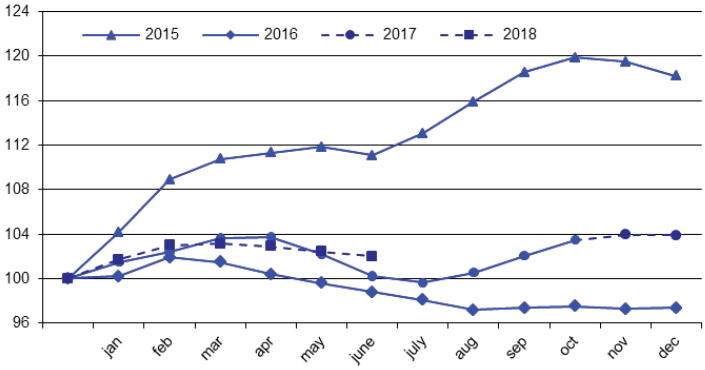


Fig. 25. The price index for primary metals and fabricated metal products
(as a percentage of that in December of the previous year)

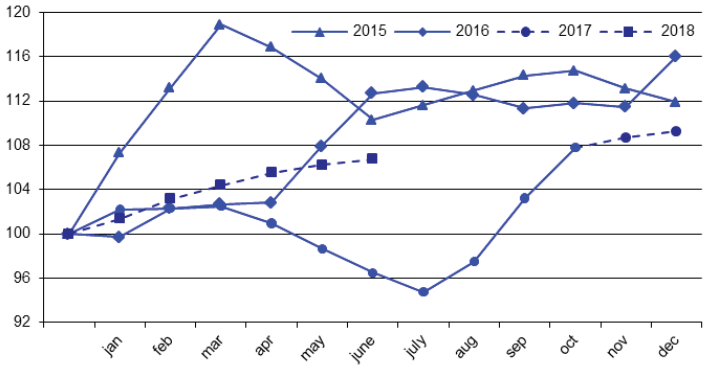


Fig. 26. The price index for machinery
(as a percentage of that in December of the previous year)

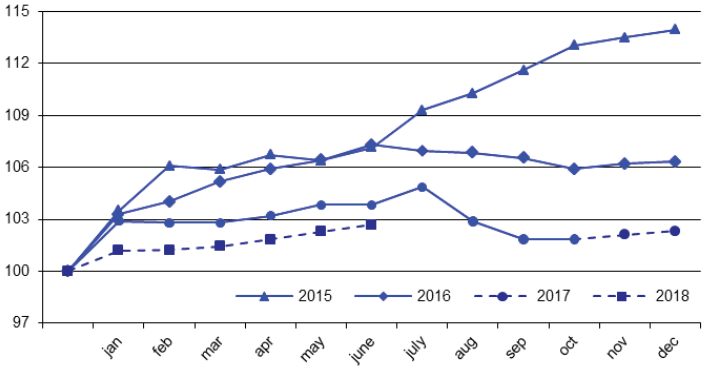


Fig. 27. The price index for transport equipment manufacturing (as a percentage of that in December of the previous year)

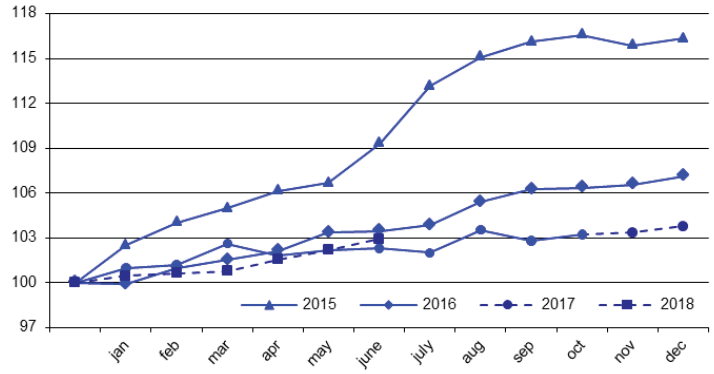


Fig. 28. The cost of the monthly per capita minimum food basket (RUB)

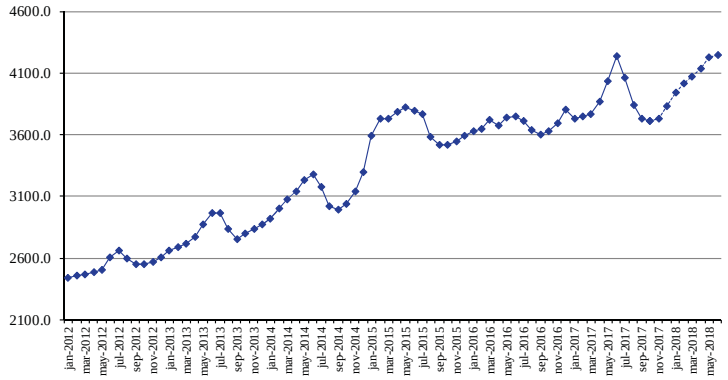


Fig. 29. The composite index of transport tariffs (for each year. as a percentage of that in the previous month)

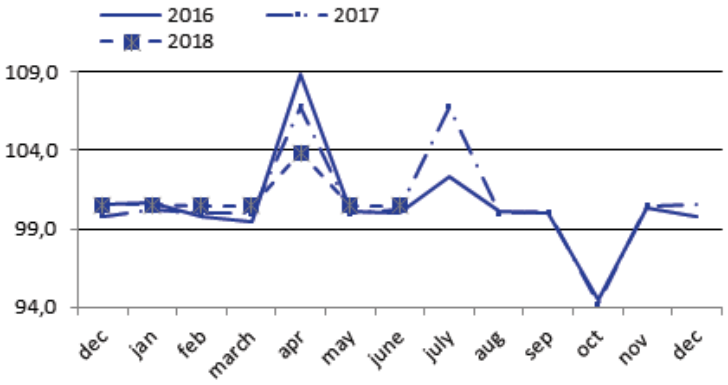


Fig. 30. The index of motor freight tariffs (for each year, as a percentage of that in the previous month)

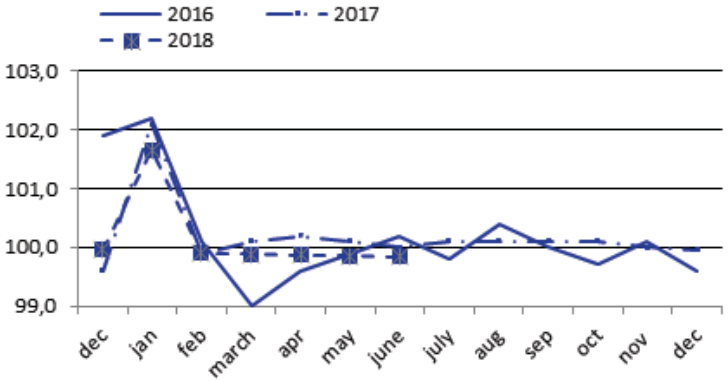


Fig. 31. The index of pipeline tariffs
(for each year, as a percentage of that in the previous month)

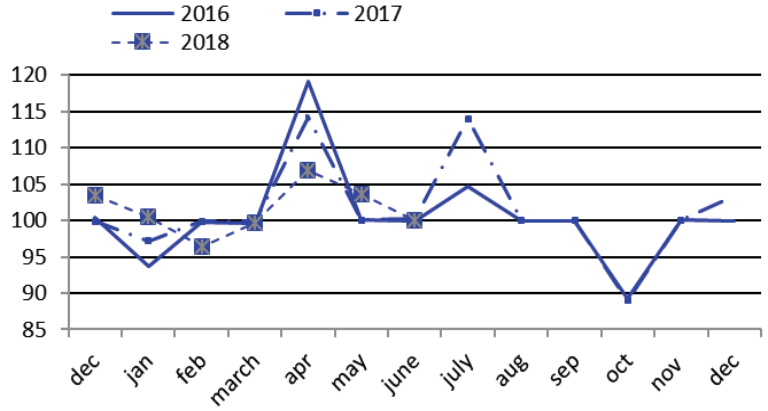


Fig. 32. The Brent oil price ($ per barrel)

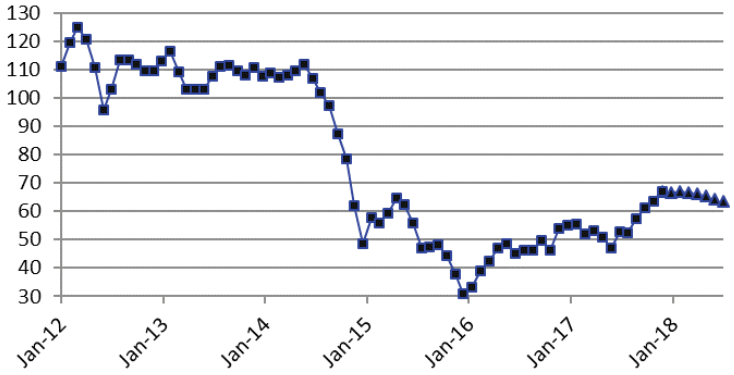


Fig. 33. The aluminum price ($ per ton)

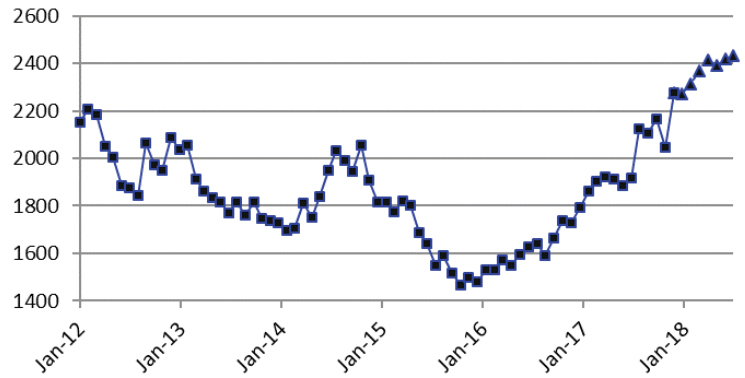


Fig. 34. The gold price ($ per ounce)

Fig. 35. The nickel price ($ per ton)

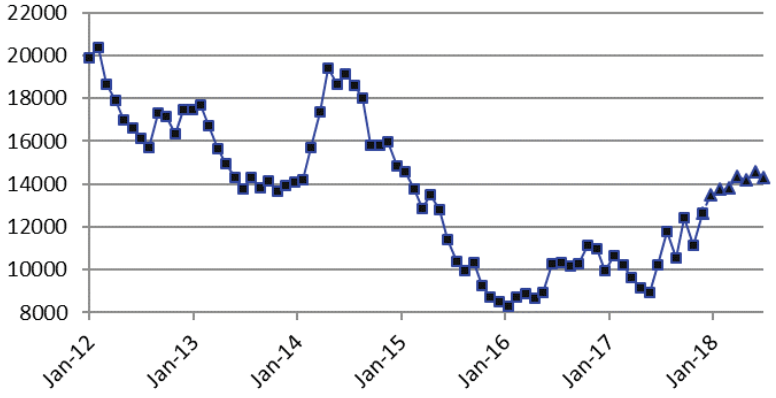


Fig. 36. The copper price ($ per ton)

Fig. 37. The monetary base, billion RUB

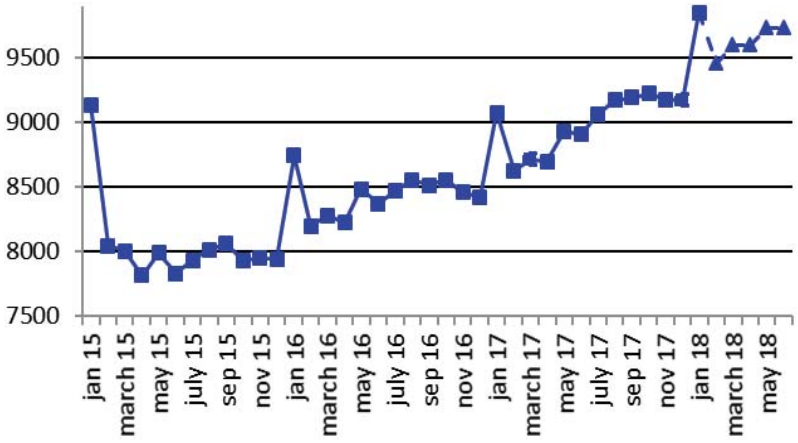


Fig. 38. M_2, billion RUB

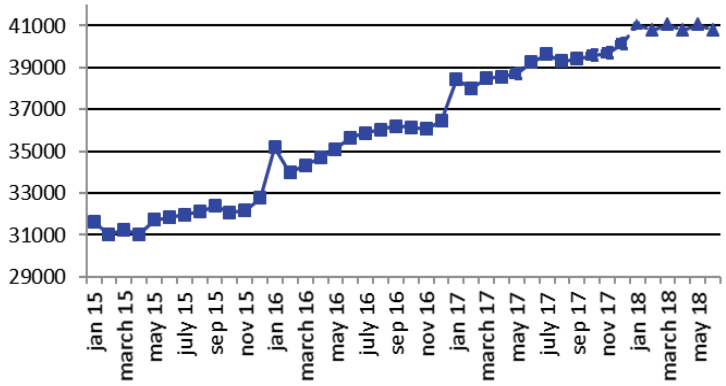


Fig. 39. The international reserves of the Russian Federation, million USD

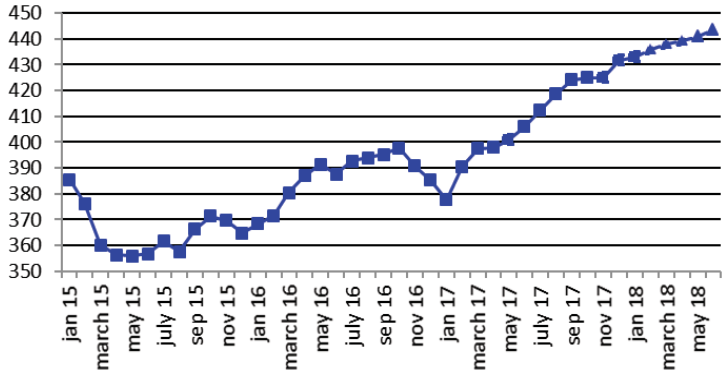


Fig. 40. The RUB/USD exchange rate

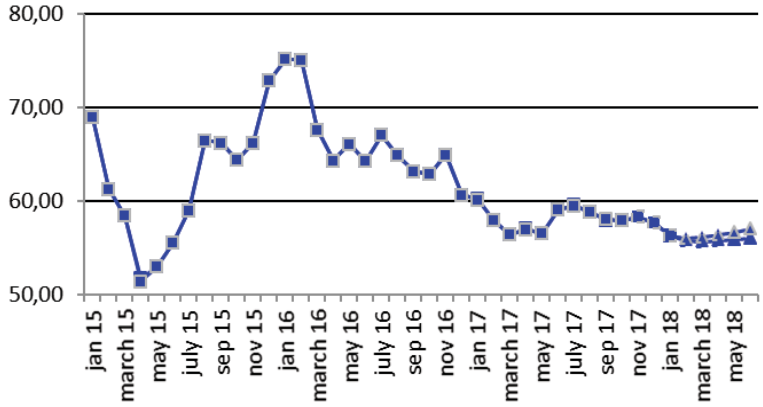


Fig. 41. The USD/EUR exchange rate

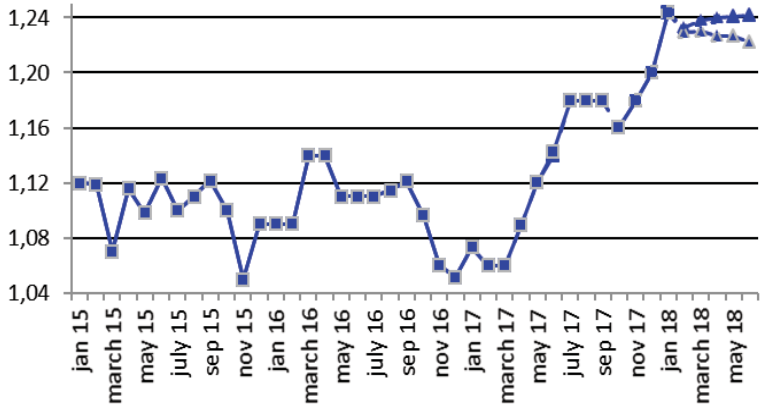


Fig. 42. Real disposable cash income
(as a percentage of that in the same period of the previous year)

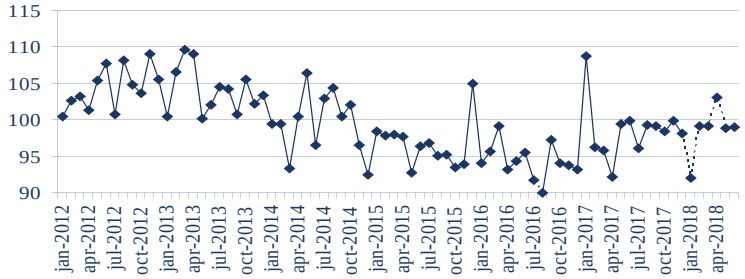


Fig. 43. Real cash income
(as a percentage of that in the same period of the previous year)

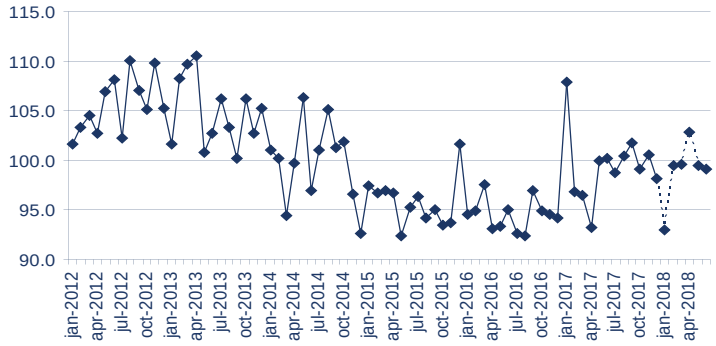


Fig. 44. Real accrued wages
(as a percentage of those in the same period of the previous year)

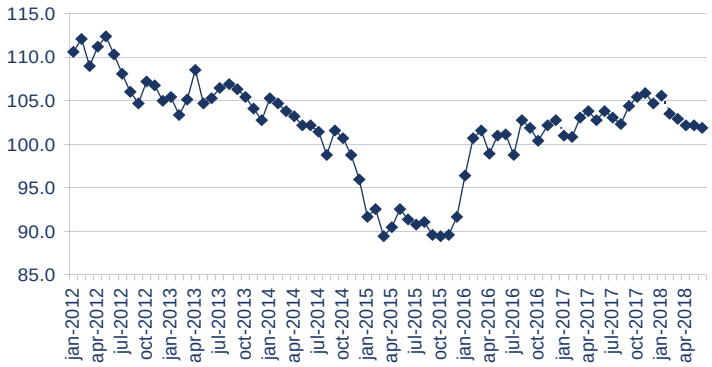


Fig. 45. Employment (million people)

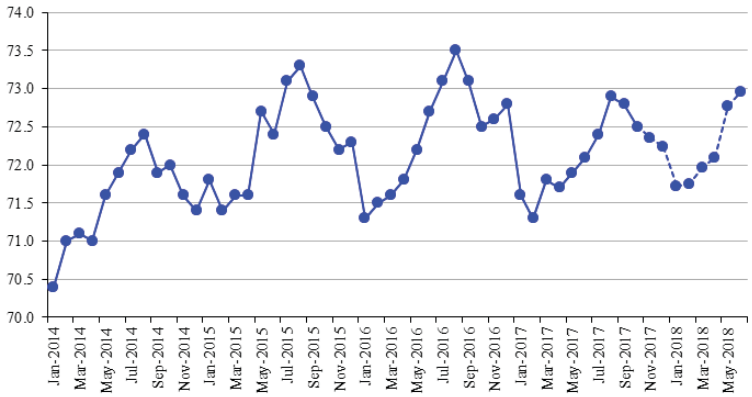
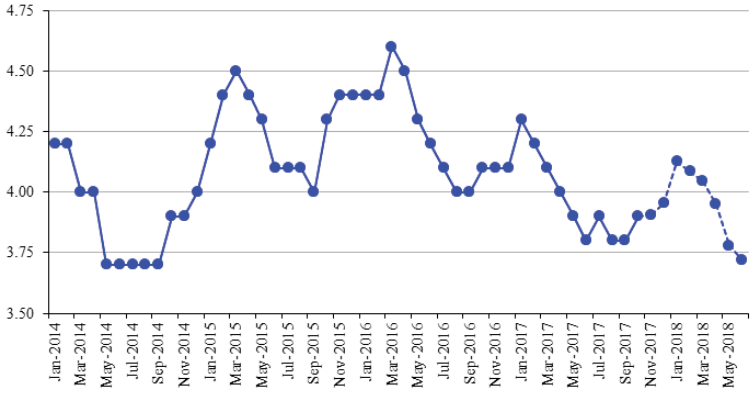


Fig. 46. Unemployment (million people)



MODEL CALCULATIONS OF SHORT-TERM FORECASTS OF SOCIAL AND ECONOMIC INDICES OF THE RUSSIAN FEDERATION: DECEMBER 2017

	2017			2018					
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Rosstat IIIP (growth rate, %)*	**0,0**	-0,8	-0,2	-0,5	1,6	-0,4	0,4	-0,2	0,4
HSE IIP (growth rate %)*	**0,8**	**-0,6**	-0,2	0,3	1,8	-0,1	0,0	0,3	0,5
Rosstat IIP for mining (growth rate, %)*	**-0,1**	0,5	1,5	0,9	0,4	0,8	-0,9	-1,1	-0,8
HSE IIP for mining (growth rate, %)*	**-1,7**	**-1,7**	-0,6	-0,2	0,6	0,6	0,4	-0,3	-0,4
Rosstat IIIP for manufacturing (growth rate, %)*	**0,1**	1,8	2,8	-0,6	1,9	0,5	1,2	-0,4	1,4
HSE IIP for manufacturing (growth rate, %)*	**2,6**	**1,3**	1,2	3,1	1,0	-0,7	0,8	0,5	-0,1
Rosstat IIP for utilities (electricity, water, and gas) (growth rate, %)*	**-2,1**	-3,8	-3,1	-1,8	-0,1	0,5	-1,6	-0,2	2,0
HSE for utilities (electricity, water, and gas) (growth rate, %)*	**-1,5**	**-7,7**	-4,6	-2,1	-0,9	1,9	-0,8	-1,2	1,7
Rosstat IIP for food products (growth rate, %)*	**6,8**	3,8	3,6	1,2	6,4	2,5	3,1	0,7	3,4
HSE IIP for food products (growth rate, %)*	**5,5**	**4,4**	0,4	3,7	6,9	4,2	5,2	4,0	5,4
Rosstat IIP for coke and petroleum (growth rate, %)*	**-1,7**	-1,8	-5,4	1,6	3,3	3,5	-1,2	3,1	-0,6
HSE for coke and petroleum (growth rate, %)*	**-2,5**	**-0,1**	-1,8	0,8	3,3	2,7	-1,4	2,4	0,1
Rosstat for primary metals and fabricated metal products (growth rate, %)*	**-12,4**	-22,8	-22,2	-25,5	-23,2	-24,7	-28,8	-24,3	-24,0
HSE IIP for primary metals and fabricated metal products (growth rate, %)*	**1,0**	**0,0**	-1,6	-2,2	-1,2	-2,4	-0,5	-1,7	-2,8
Rosstat IIP for machinery (growth rate, %)*	**20,0**	-0,5	12,7	-8,9	5,5	-6,0	9,2	5,0	4,5
HSE IIP for machinery (growth rate %)*	**9,6**	**-6,3**	6,5	4,6	3,8	-8,1	0,1	3,2	4,9
Retail sales, trillion Rb	**2,59**	2,56	3,10	2,28	2,26	2,45	2,42	2,47	2,51
Real retail sales (growth rate, %)*	**3,10**	2,70	1,49	0,79	0,35	1,34	1,50	1,46	0,53
Export to all countries (billion $)	**31,4**	**33,2**	**37,9**	28,5	30,9	34,0	33,0	34,8	33,8
Export to countries outside the CIS (billion $)	**26,8**	**28,5**	**32,5**	23,0	26,0	28,4	28,4	28,0	29,3
Import from all countries (billion $)	**21,6**	**21,7**	**24,2**	19,1	21,7	23,6	23,1	24,3	23,9
Import from countries outside the CIS (billion $)	**19,3**	**19,4**	**21,8**	16,7	18,8	21,4	20,5	20,6	20,8
CPI (growth rate, %)**	**0,2**	0,3	0,4	0,8	0,5	0,4	0,4	0,4	0,5
PPI for industrial goods (growth rate, %)**	**1,2**	1,1	0,7	0,7	0,7	0,5	0,3	0,5	0,2
PPI for mining (growth rate, %)**	**0,9**	-0,9	0,4	4,8	1,3	0,0	3,6	-2,5	1,4
PPI for manufacturing (growth rate, %)**	**1,3**	1,5	1,3	0,3	0,1	0,8	1,2	0,9	1,1
PPI for utilities (electricity, water, and gas) (growth rate, %)**	**0,8**	0,0	0,3	0,8	0,8	-0,6	0,5	-0,6	-0,5
PPI for food products (growth rate, %)**	**-0,7**	-0,4	-0,3	-0,8	-0,2	0,3	0,4	0,5	0,7
PPI for the textile and sewing industry (growth rate, %)**	**-0,2**	0,2	0,3	0,2	0,7	0,8	0,6	0,1	0,6
PPI for wood products (growth rate, %)**	**0,4**	0,0	0,3	0,2	0,5	0,6	-0,2	0,4	0,2
PPI for the pulp and paper industry (growth rate, %)**	**0,9**	-0,2	0,6	0,7	0,4	0,4	0,3	0,4	0,5
PPI for coke and petroleum (growth rate, %)**	**3,2**	2,9	-1,5	-2,3	2,3	2,3	2,2	2,2	2,1
PPI for the chemical industry (growth rate, %)**	**1,4**	0,4	0,0	1,7	1,2	0,1	-0,2	-0,5	-0,4
PPI for primary metals and fabricated metal products (growth rate, %)**	**4,4**	0,8	0,5	1,4	1,8	1,2	1,1	0,7	0,5
PPI for machinery (growth rate, %)**	**0,0**	0,3	0,2	1,2	0,0	0,2	0,4	0,5	0,4
PPI for transport equipment manufacturing (growth rate, %)**	**0,4**	0,1	0,4	0,5	**0,2**	0,1	0,8	0,6	0,7
The cost of the monthly per capita minimum food basket (thousand Rb)	**3,71**	3,73	3,83	3,90	**3,97**	4,02	4,09	4,18	4,24
The composite index of transportation tariffs (growth rate, %)**	**0,1**	**0,0**	0,0	1,7	-0,1	-0,1	-0,1	-0,1	-0,2
The index of pipeline tariffs (growth rate, %)**	**-11,0**	**0,1**	3,4	0,5	-3,5	-0,2	7,0	3,6	0,1
The index of motor freight tariffs (growth rate, %)**	**-5,8**	**0,5**	0,5	0,5	0,5	0,5	3,8	0,5	0,5
The Brent oil price ($ a barrel)	**63,6**	**66,9**	66,7	66,9	66,6	66,1	65,4	64,4	63,5
The aluminum price (thousand $ a ton)	**2,05**	**2,28**	2,27	2,31	2,37	2,41	2,39	2,42	2,43
The gold price (thousand $ per ounce)	**1,28**	**1,26**	1,26	1,27	1,27	1,27	1,28	1,28	1,29
The nickel price (thousand $ a ton)	**6,77**	**7,25**	7,41	7,56	7,65	7,72	7,77	7,81	7,85
The copper price (thousand $ a ton)	**11,1**	**12,7**	13,5	13,8	13,8	14,3	14,2	14,6	14,3
The monetary base (trillion Rb)	**9,23**	**9,18**	**9,17**	9,85	9,46	9,60	9,60	9,74	9,73
M_2 (trillion Rb)	**39,6**	**39,7**	40,1	41,1	40,8	41,1	40,8	41,1	40,8
Gold and foreign exchange reserves (billion $)	**0,42**	**0,42**	**0,43**	0,43	0,44	0,44	0,44	0,44	0,44
The RUR/USD exchange rate (rubles per one USD)	**57,87**	**58,33**	**57,60**	56,24	55,88	55,86	56,09	56,29	56,51
The USD/EUR exchange rate (USD per one Euro)	**1,16**	**1,18**	**1,20**	1,24	1,23	1,24	1,24	1,24	1,24
Real disposable cash income (growth rate, %)*	**-1,6**	**-0,1**	-1,8	-8,0	-0,9	-0,8	3,0	-0,8	-1,2
Real cash income (growth rate, %)*	**-0,9**	**0,6**	-1,8	-7,0	-0,5	-0,4	2,9	-0,5	-0,8
Real accrued wages (growth rate, %)*	**5,4**	**5,8**	4,6	5,5	3,5	3,0	2,2	2,1	2,2
Employment (million people)	**72,5**	72,4	72,2	71,7	71,7	72,0	72,1	72,8	73,0
Unemployment (million people)	**3,9**	3,9	4,0	4,0	4,0	4,0	4,0	3,8	3,8

Note: actual values are printed in the bold type
* % of the respective month of the previous year
** % of the previous month.

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