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The review provides a detailed analysis of main trends in Russia's economy in 2014. The paper contains 6 big sections that highlight single aspects of Russia's economic development: the socio-political context; the monetary and credit spheres; financial sphere; the real sector; social sphere; institutional challenges. The paper employs a huge mass of statistical data that forms the basis of original computation and numerous charts.

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4.2. The Decomposition of Russia's GDP Growth Rate in 1999–2015

Since about the mid last year, Russian expert community has been actively involved in adjusting forecast on the Russia's 2015 economic growth rates downgrading it to negative. For example, unlike the forecasts in July 2014, with growth rates within a range of around 1-2% year-on-year, currently we are talking about an economic slump. Forecasts as of March 2015 predict contraction at: 1.5% - Fitch Rating, 2.9% - World Bank, 3% - the RF Ministry of Economic Development, IMF and Citi Group, 4.8% - the RF CB and EBRD and 5.5% - Moody's. Moreover, solely forecasts made by OECD and the UN remain relatively optimistic. The OECD forecasts zero growth in Russia and the UN – stagnation and slow positive trend at 0.2%.

At present, according to the January version of the official (Ministry of Economic Development) MED's forecast,¹ the RF GDP this year will contract by 3% against last year, with an average annual price of oil being \$50 per barrel. As far as production factors are concerned, they are going to see negative dynamics: labor force will contract by 0.9% (from 67.9 in 2014 to 67.4m in 2015), while investment will fall by 13.7%; and net capital outflows will come up to \$115bn.

It is our opinion that the economic contraction forecast for 2015 is not too pessimistic because of the negative dynamics of the key factors having an effect on the development of GDP. These factors can be identified using the method we suggest, which is based on the method of decomposing the macroeconomic indicators into their structural, foreign trade, and cyclical (business cycle and random shocks) components which is applied in developed countries (OECD), except that it has been refined to take account of the Russian economy peculiarities. These peculiarities imply a heavy reliance on foreign trade trends approximable through the dynamics of global crude oil prices.

Following the logic of our calculations, *the first stage* in the decomposition of the GDP growth rate into its components consists in separating the structural component in accordance with the methodology practiced in the OECD countries.

The structural component of the economic growth index is the fundamental one. The most important property of the structural component is the slow movement of its value over time. In contrast to the structural component, the cyclical component, which is determined by a current situation in the market, is a rapidly changing value.

One of the most frequently cited examples of extraction of the structural component of the macroeconomic index is the estimate that describes the potential (structural) GDP index (as well as the output gap) which, in accordance with one of the existing definitions of potential GDP, represents the maximum output level achieved when all production factors are used in full and the capacity load is at its normal level (60–65%). It should be noted that, in the framework of our decomposition methodology, the terms 'structural' and 'potential' will be applied as synonyms, with due regard for the existence of different interpretations of the notion of potential GDP.

In order to estimate the aggregate factor productivity index, the potential (structural) GDP, and the output gap, the OECD Economics Department applies the production function methodology,² whereby it is possible to derive the potential GDP value by separately estimating the inputs of production factors into the rate of economic growth. This method applies the following log linear

¹ <http://economy.gov.ru/minec/activity/sections/macro/prognoz>

² Giorno C., Richardson P., Roseveare D. and van der Noord P. *Estimating Potential Output, Output Gaps and Structural Budget Balances // Economics Department Working Papers*. 1995. No. 152. OECD.

equation, where GDP is estimated on the basis of labor input, capital input and aggregate factor productivity (AFP) values (1):³

$$\Delta \ln(Y_t) = \Delta \ln(E_t) + \alpha \Delta \ln(K_t) + (1 - \alpha) \Delta \ln(L_t), \quad (1)$$

where Y – is actual GDP volume

K – is actual capital volume,

L – is actual labor volume,

E – is AFP,

α – is elasticity of capital input in output; the value of returns to scale effect is assumed to be constant, i.e. $\alpha = 0.3$, and $1 - \alpha = 0.7$.⁴

Once the average estimated labor and capital inputs in GDP are found (the coefficients applied to logarithms of the variables of labor and capital inputs), the value of aggregate factor productivity can be found; its smoothed-curve representation is obtained by applying the *Hodrick–Prescott filter*, which demonstrates 'trend' or 'potential' factor productivity. Then the resulting value is once again entered in the production function equation alongside the values of actual capital reserves and the estimated 'potential' labor volume (based on the already known non-accelerating rate of unemployment (NAIRU)), and the resulting GDP growth rate is taken to be the potential GDP.

The Hodrick–Prescott filter was applied to the structural component of the GDP growth rate obtained by applying the method described above in order to remove the fluctuations that are difficult to explain in economic terms.

The second stage of Russia's GDP growth rate decomposition consists in separating its foreign trade component explainable by specific trade conditions, in particular the movement of world oil prices.

The theoretic substantiation for the hypothesis that explains the influence of the oil price growth rate and the price level on the growth rate of GDP relies on the mechanism whereby oil prices influence the rate of economic growth in the long run (cointegration ratio) and over short-term periods (error correction model)⁵; and on the analysis of household behavior in terms of changes in their inclination to save and to consume in response to temporary and constant increases in the level of household income (microeconomic level).

The dependence of the level of GDP on the movement of oil prices can be described by an investment mechanism within the framework of the Solow model, which works as follows: an improvement in trade conditions causes a transfer of income, which is subsequently invested, in its turn increasing the amount of capital and pushing up GDP. Thus, in a long run, a dependence can be observed between the levels of GDP and oil prices (or, which is the same thing, between the growth rate of GDP and the growth rate of oil prices). At the same time, over the entire period under consideration, we observe a rising level of world prices for oil and the transitional movement between different phases of economic development, with their specifically different rates of GDP growth. In other words, we follow the correlation between the level of world prices for oil and the

³ For the purpose of our calculation, this function is expressed as *logarithmic increments*, i.e., growth rates.

⁴ In our calculations, we apply the empirically obtained estimates of labor input elasticity and capital input elasticity for the developed countries, which are also compatible with Russia's statistics (for further detail, see Bessonov V. A. *O dinamike sovokupnoi faktornoi proizvoditel'nosti v Rossiiskoi perekhodnoi ekonomike* [On the Aggregate Factor Productivity Movement in the Russian Economy in Transition]. *Ekonomicheskii zhurnal VShE* [The Economics Journal of the National Research University Higher School of Economic]. 2004. No 4, pp. 542–587).

⁵ For more detail, see Kazakova M., Sinelnikov-Murylev S. *Kon"iunktura mirovogo rynka energonositelei i tempy ekonomicheskogo rosta v Rossii* [Economic Situation on the World Energy Carriers Market and Rates of Economic Growth in Russia]. *Ekonomicheskaya politika* [Economic Policy]. 2009. No 5, pp. 118–135.

growth rate of GDP (and not GDP level), which can be estimated by using cointegration ratios and the error correction model.⁶

The strength of this dependence can be further enhanced by the effects of the mechanism of economic agents' response to changes in the level of income received by them. The logic of analysis of the effects of temporary and constant income increases corresponds to the permanent income hypothesis suggested by M. Friedman in 1957.⁷ In case of an unexpected income increase, an individual considers it to be only a temporary phenomenon, and so a considerable portion of the income increment is saved instead of being spent on current consumption. If later on the income remains high, the individual adapts (get used) to this higher income level and begins to consume more, while the saving norm is reduced. Consequently, the inclination to consume is low if the increase in income is temporary. When this principle is applied to our mechanism of response to income movement, it means that economic agents, while adapting to new levels of oil prices, do not believe that this higher level of oil prices will stay over a long-term period (or become permanent)⁸.

In our model, the logic employed in estimating the consequences of changes in the level of oil prices is analyzed in relative terms; in other words, the important factor is the starting oil price level before the onset of its growth/decline - that is, returns to scale related to the movement of oil prices. Thus, in order to identify the foreign trade component within the rate of GDP growth dependent on the deviation of the actual price of oil from its multiyear average estimate (i.e. trade conditions), it is feasible to estimate the interdependence between the 'residual values' after subtraction from the value of actual structural GDP growth (GDP growth unexplainable by the movement:

$$\Delta Y_t^{resid} = \gamma_0 + \gamma_1 \frac{P_{oil_t}}{P_{oil_t}} + \tau_t. \quad (2)$$

The estimation derived from equation (2) makes it possible to identify the GDP growth component dependent on trade conditions, with due regard for the scale of deviation of the actual price of oil from its multiyear average. The foreign trade component of GDP growth rate, explainable by favorable trade conditions, is estimated by the theoretic significance of the relevant variable applied in the regression described above (2) (i.e., the theoretic significance of the difference between the actual and structural GDP growth rates at a given actual ratio of the current oil price to its multiyear average).

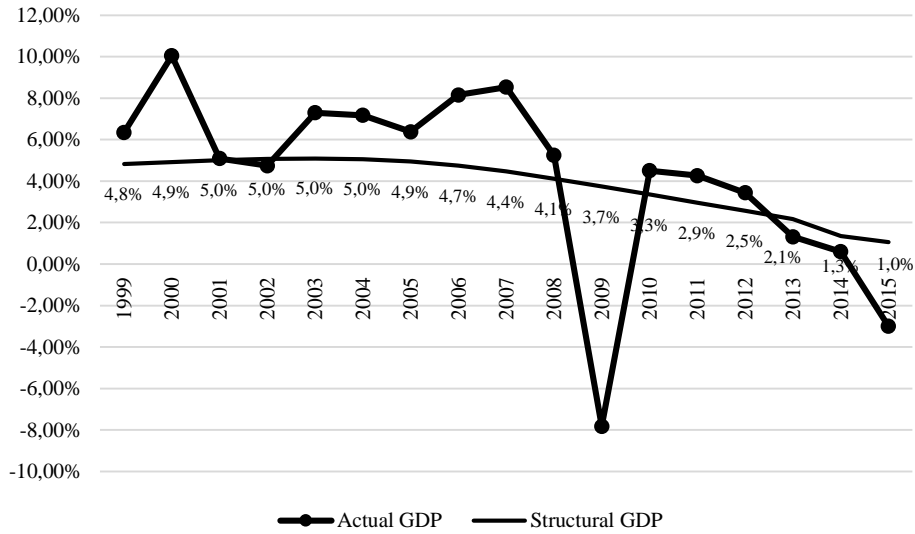
At the *last stage* of the decomposition of GDP growth rate into its components, its cyclical component is separated, which incorporates the business-cycle component and random shocks. This component can be interpreted as the residuals from equation (2) obtained after subtraction of the structural and foreign trade components from the actual GDP growth rate.

As a result, the actual, structural and foreign trade components of Russia's GDP growth rate, as well as its cyclical component (i.e. the sum of the business-cycle component plus random component) - the calculated residuals of regression (2)), will appear to be as follows *Fig. 15 and 16*. These components of the GDP growth rates were estimated by us parting from the first Federal State Statistics Service (Rosstat) estimates of Russia's economic growth rates and the IMF assessment of the world oil price in 2014. Moreover, in our calculations we used the official MED forecast according to which Russia was facing a 3% slump vis-à-vis previous year at the average annual oil price of \$50 per barrel.

⁶ Kzakova M.V. Vklad neftegazovogo sektora v dinamiku *ekonomicheskikh pokazatelei v Rossii* i v mirovoi praktike [Input of the Oil and Gas Sector in the Movement of Economic Indexes in Russia and in the World Practices] // *Rossiiskii vneshneekonomicheskii vestnik* [Russian Foreign Trade Herald]. 2009. No 8, pp. 66–72.

⁷ Friedman, M. *A Theory of the Consumption Function*. Princeton. NJ: Princeton University Press, 1957. Ch. 2, 3.

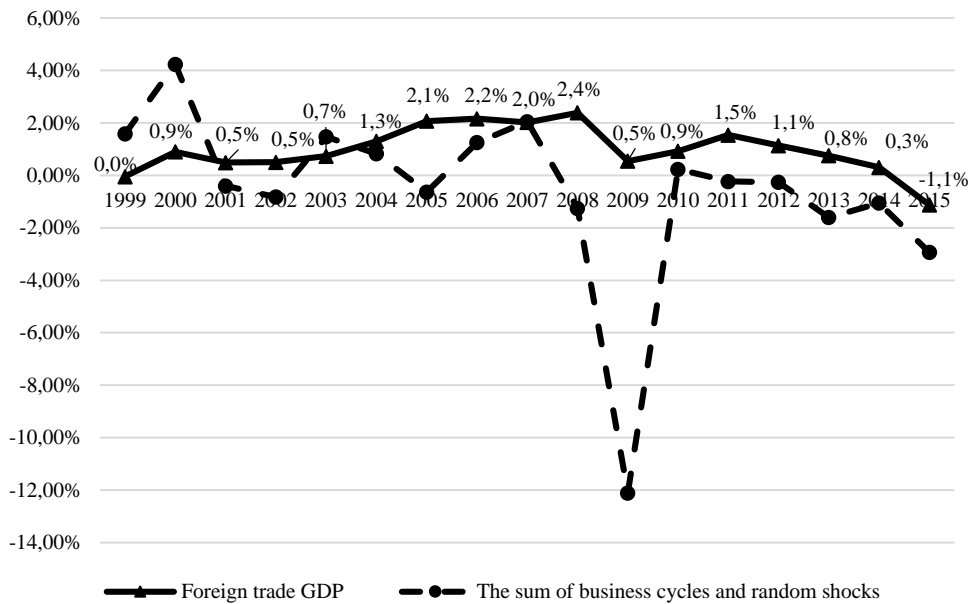
⁸ For more detail, see Sinelnikov-Murylev S., Drobyshevsky S., Kazakova M. *Dekompozitsiia tempov rosta VVP Rossii v 1999–2014 godakh* [Decomposition of Russian GDP Growth Rates in 1999–2014] // *Ekonomicheskaya politika* [Economic Policy]. 2014. No 5, pp. 7–37.



Source: Rosstat, MED, own calculations.

Fig. 15. The Actual and Structural GDP Growth Rates, as a percentage to the previous year, 1999–2014, 2015 forecast

According to our estimates, over last 10 years structural component in Russia’s economic growth rate contracted (about from 5% to 1.3%, see Fig. 15) and in 2015 will also decline (to 1%). It should not be surprising: as was mentioned above, labor and investments are contracting, money does not go to the economy, and, on the contrary, leave it.



Source: Rosstat, MED, IMF, own calculations.

Fig. 16. Foreign trade and cyclical growth rates of GDP, % to the previous year, 1999–2014, and 2015 – forecast

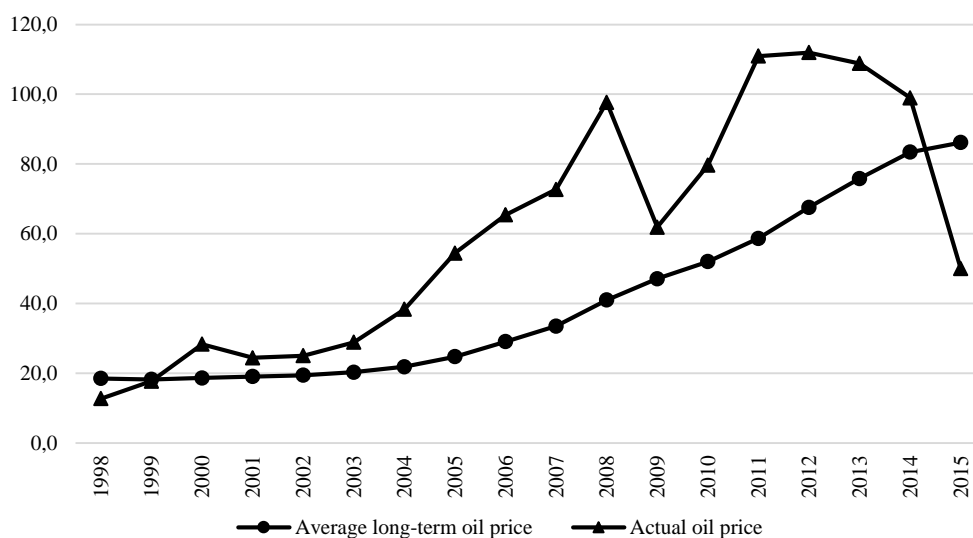
Regarding foreign trade component, commencing sustainable oil price growth this component also went up. Moreover, if in 2000 the foreign trade component was less than 1 percent, than in 2008 it reached its maximum for the whole period of 2000-2008 to about 2.4% with the oil price at 98dol/barrel (also maximum for given period). It should be noted that due to favorable terms of

trade the Russian economy got out of the 2008-2009 crisis with minimum losses than it could have been under unfavorable terms of trade (note that in 2009 oil price dropped to \$62 per barrel for a short-term period and already in 2010 oil prices reached \$80 per barrel).

The period 2008-2014 was characterised by overheating of the economy (early 2008), and then the global economic crisis (second half of 2008-2009) and a subsequent new phase of the business cycle of the Russian economy. In these years a gradual decrease in the structural and foreign trade components of the growth can be observed due to the slowdown in the growth of the fundamental factors and decreased demand for Russian exports, the key items of which are raw materials.

Over 2010-2012 favorable terms of trade allowed the Russian economy to preserve positive growth rates at 3-4% with oil price above \$110 per barrel. However, already in 2013 GDP growth rates contracted to 1.3% and in 2014, according to the latest Rosstat data, constituted only 0.6%. It should be noted that average annual price of oil were high and constituted nearly \$99 per barrel. The sharp drop of oil prices happen in the end of the year. Low GDP growth rates with favorable terms of trade are explained by the fact that the economy gets adapted to high prices (and consequently to high export revenues) and with time invest less and spend more on current consumption by analogy with an individual within permanent-income hypothesis described above. Moreover, the scale of oil price change is important: when we speak about the growth from \$38 per barrel in 2004 to \$54 per barrel in 2005, transfer of 'oil' revenues to the economy turns out to be more than in case of price growth from \$110 per barrel to \$112 per barrel in 2011-2012. Thus, with time importance of oil prices in the economic growth rates decline and in the long-term practically comes to zero.

The negative foreign trade component of Russia's GDP growth rates in 2015 (-1.1%) can be explained by the logic of our method of decomposition: the worsening of the terms of trade (a fall in crude oil prices to \$50 per barrel) makes the actual price fall below the long-time average annual (\$86 per barrel) (see *Fig. 17*).



Source: IMF, own calculations.

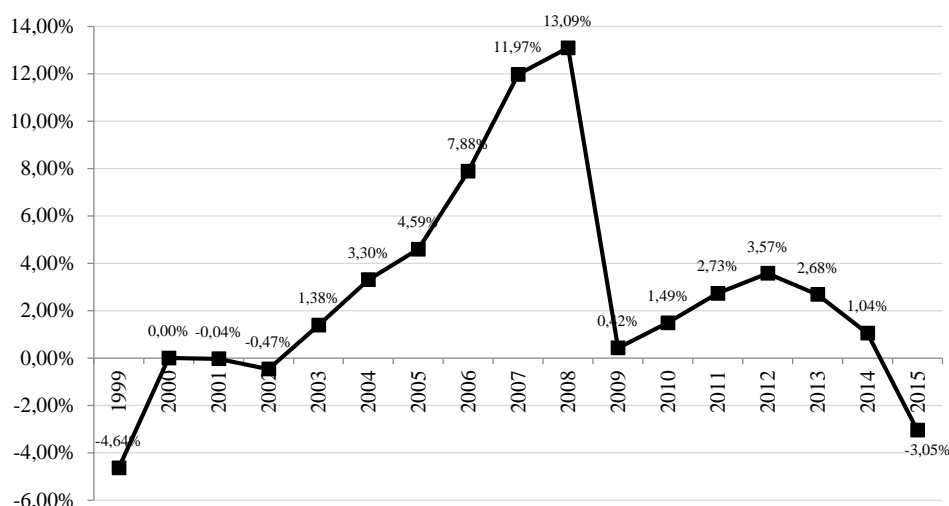
Puc. 17. Actual and average long-term price of Brent, \$ per barrel, 1999–2014, 2015 forecast.

Whereas in 2012–2014, the Russian economy entered the lower phase of the economic cycle after overheating and, consequently, cyclical component shifted into negative area (see *Fig. 16*). The aggregate rate of economic growth is close to zero, because the negative value of the cyclical component is compensated by the positive foreign trade component.

The cyclical component of the economic growth remains negative in 2015, besides it contracts vis-à-vis 2014 which allows us to draw a conclusion about strengthening of the cyclical recession in the Russian economy in the current year.

The decomposition of the GDP growth rate into its components has allowed us to estimate Russia's GDP output gap, that is the deviation of the current GDP from that obtained on the basis of the above method of determining structural GDP, which, as shown, in certain conditions can be considered as the potential GDP (Fig. 18).

As can be seen on Fig. 16 and 18, in 2012–2015 Russian economy moved to the low cycle phase after overheating, and consequently cyclical component turned negative. Aggregate economic growth rates were close to zero because the negative cyclical component is compensated by a positive foreign trade one.



Source: authors' calculations.

Fig. 18. The output Gap in the Russian Economy (%), 1999–2014, 2015 forecast.

Between 2010 and 2014, the gap in the output is a positive one and constitutes about 2-3% due to the fact that the level of real GDP exceeds a structural one. Nevertheless, there was no economic overheating because the real GDP growth rates were less than the structural GDP growth rates: under high oil prices, production factors are used to 100% and there is no growth of their volume

In 2015, the output gap resulting from the decomposition of Russia's GDP growth rates appears to be negative (see Fig. 16), being indicative of the fact that there is no economic growth factors for the time being.

Based on our estimates, the Russian economy in 2014 got closer to its *production possibility frontier* (in other words, the actual growth rate of GDP was near to its potential value). Under the circumstances, stimulating fiscal and monetary policies are inefficient. However, with a negative gap in 2015, the actual output appeared to be less than the potential one, in which case, stimulating monetary and fiscal policies would have a positive effect on the economy in terms of higher economic growth rates.⁹ At the same time, it is worthwhile noting that this effect should not be expected to last long. The support to import substitution and the manipulation with interest rates or the ruble's exchange rate can indeed have some impact on GDP growth rates, but within a very short period of time, because the foregoing factors are not essential for economic growth.

According to the Gaidar Institute estimates, in order to achieve potentially feasible growth rates which approximately equal average world growth rates (about 3%), Russia needs to annually over

⁹ A more detailed description of the method of decomposing Russia's GDP growth rates and the interpretation of the results we obtained can be found⁹ in the article written by *Sinelnikov-Murylev S., Drobysheskiy S., Kazakova M. The decomposition of Russia's GDP growth rates in 1999–2014. Ekonomicheskaya Politika. 2014. No. 5. pp. 7–37, and <http://iep.ru/ru/publikacii/7125/publication.html>*

3 years increase its workforce by 1 m people, investments in main capital should grow by 3.4% (in other words, \$200-300 bn for 3 years). Instead, over last several year investments do not grow (for example, 2013 demonstrated a slump by 0.2% against 2012, and in 2014 by 2.5% against 2013. As for 2015, the official forecast reports a slump, as was mentioned before, by 13.7%). The number of employed in the economy does not growth either over recent years (this number comes to about 68 m people). Forecast for 2015 posts its reduction and consequently growth of unemployment.

Currently unfavorable terms of trade are coupled with acute geopolitical situation, including sanctions and countersanctions. Nevertheless, to our mind, current slowdown of Russian economy is, first of all, explained by structural factors: contraction of labor force and investments. In these circumstances, according to a classical economic growth model, the only source of growth lies in the growth of total factor productivity (in other words, efficiency of available factors) which is not feasible in the near future. In view of this, measures aimed at increasing the efficiency of production functions usage should, first of all, include quality upgrade of institutions and business environment, including clamp down on the corruption, reform of the judicial and law enforcement systems, reduction of barriers and market monopolization, quality reform of the social safety net (including education, health care and pension systems which, in turn, contribute to the increase in the quality of human capital as a new factor in economic growth). These measures lay the foundation for the implementation of structural reforms aimed at the diversification of the economy and, as a result, at moving to a new path of long-term economic growth and advance in living standards.