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Impact of the fiscal manoeuvre on GDP growth: estimation of short-term effects using fiscal multipliers

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The Note analyses fiscal multipliers in the Russian economy and estimates the impact of the fiscal manoeuvre, the start of which is planned for 2019, on GDP growth. Fiscal multipliers in the Russian economy proved to be rather low, in part due to "leakages" through imports and relatively low efficiency of budgetary funds. We estimate the multiplier of total revenue of Russia's budget at -0.75 and the multiplier of total spending at +0.28. Therefore, changes in the budget revenue produce a stronger effect on GDP growth compared with the effect from the comparable change in expenditures. However, compared to changes in expenditures, changes in revenue feed through to GDP growth more slowly.

Our analysis of the components of total expenditure based on the Russian and international experience suggests that in terms of the functional classification of expenditure, the biggest is the fiscal multiplier for economic spending, followed by military and social blocks. Spending on general state issues have a negative multiplier. The analysis of the economic classification of expenditure showed that the investment component has the highest multiplier. It exceeds more than twofold multipliers for other components.

The estimation of the effects of the fiscal manoeuvre using fiscal multipliers gives grounds for expecting in the medium term additional 0.2-0.3 pp to GDP growth per year on average as a result of the manoeuvre. However, the actual effect may prove materially higher than the estimated one in case of efficient fund utilisation (e.g., a thorough selection of investment projects) as well as rapid cost cutting coupled with labour productivity growth by VAT payers. This will raise the fiscal multiplier for spending and lower it for revenue. Additionally, fiscal multipliers demonstrate a short-term effect of the fiscal policy on GDP growth without assessing its impact on the potential growth, which should also be positive. The current situation in the economy bordering on the full utilisation of resources may serve as a constraining factor, thereby lowering the efficiency of their utilisation.

Theoretical concept of fiscal multipliers

Fiscal multipliers measure the response of output (*ΔY*) over horizon *i* to the discretionary (initiated by government decisions) changes in fiscal indicators (total revenue/spending or their components – *ΔFI*) in period *t*.

$$Fiscal \ multiplier \ at \ horizon \ i = \frac{\Delta Y(t+i)}{\Delta FI(t)}.$$

Fiscal multipliers are essential to macroeconomic forecasting. Knowledge of revenues and spending multipliers and their components helps to choose the optimal policy. Fiscal multipliers demonstrate a *direct* effect of the fiscal policy on GDP growth, however they do not allow estimating the impact of fiscal indicators on potential economic growth, e.g. as a result of the favourable effect of investment in non-productive infrastructure on the business activity growth.

Papers by foreign authors on this issue feature a wide spread of fiscal multiplier estimates with no conventional benchmarks. This is explained by both variations in the estimation and data handling methodology and by difference in the determinants of fiscal multiplier sizes, which depend on a country characteristics, its policy and the state of its economy. Higher sizes of fiscal multipliers are driven by higher labour market rigidity, lower propensity to import and lower degree of financial markets development. Higher efficiency of budget spending, more sustainable public finance and coordination with monetary policy are all capable of producing a positive impact on the size of fiscal multipliers. Moreover, fiscal multipliers are typically higher in a recession than in an expansion.

Research results suggest that fiscal multipliers in advanced economies (AEs) exceed comparable multipliers in emerging market economies (EMEs) and low-income countries. This can be explained by a better composition of the above-mentioned factors (Batini et al., 2014).

In Russia, the majority of the above-mentioned determinants more likely to produce a negative impact on the size of fiscal multipliers. As a result, rather low multipliers are expected during a period of normal growth. Sufficiently high 'leakage' supposedly occurs through imports[1] and due to relatively low efficiency of budgetary funds utilisation, which is in part driven by a high share of the shadow economy[2].

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[1] Imports are seen as a deduction from GDP.
[2] For details about the factors affecting the size of fiscal multipliers, including for Russia's economy, see Vlasov, Deryugina (2018).

Fiscal multiplier estimates for total revenue and spending in the Russian economy

By using the Structural Bayesian autoregressive model (SBVAR),[3] we obtained fiscal multiplier estimates for the overall government revenue and spending in the Russian economy equal to -0.75 and 0.28 respectively. This means that a discretionary increase in government revenue (spending) by 1% of GDP, other things equal, leads to a decrease (increase) in output by 0.75% (0.28%)[4]. GDP response to a change in spending will reach its peak in the subsequent quarter, while in case of revenue changes the effect will build up gradually and will peak in the eighth quarter after the change in revenue (Table 1). Therefore, a change in revenue produces a stronger effect compared with that of a comparable change in spending. However, the speed at which it feeds through to GDP growth is lower (2/3 on average during the first year).

Table 1. **Estimates of fiscal multipliers over different horizons**

	Quarters after the change of indicator					
	0	1	2	4	8	12
Revenue	-0.33	-0.48	-0.59	-0.69	**-0.75**	*-0.75*
Spending	0.25	**0.28**	*0.29*	*0.28*	*0.28*	*0.27*

The values of peak multipliers are given in bold, statistically insignificant values are given in italics.

Source: Vlasov, Deryugina (2018).

The relationship between government revenue and spending multipliers in the Russian economy seems to stem from the relatively low efficiency of budget expenditures, the improvement of which is one of the government's first-order priorities (MFR, 2018). Research results for EMEs suggest that an increase in the relative size of the state budget may cause a decrease in the efficiency of public spending[5].

Over several recent years, the fiscal policy has been consistently aimed at reducing the share of public spending in GDP, coupled by its growth in nominal terms, to ensure the long-term fiscal sustainability. According to fiscal multiplier estimates, the constraining effect of this policy on GDP growth seems to be rather small during such periods.

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[3] See Vlasov, Deryugina (2018) for details about estimation methods. The revenues and spending of the consolidated budget and budgets of government extra-budgetary funds are applied (quarterly data for 2000-2015).

[4] We determine the value of fiscal multipliers as the maximum GDP response to the change in a respective variable among statistically significant values (peak multipliers).

[5] The Armey curve shows that any increase in public spending above a certain level will lower its efficiency and its positive effect on economic growth. According to research findings, the highest average optimal level of public spending is observed in AEs, whereas in EMEs it ranges from 15% to 30% of GDP (see, for example: Asimakopoulos, Karavias (2015), Altunc, Aydin (2013), Gunalp, Dincer (2005), Rezk (2005)). In Russia, the share of public spending is roughly 35% of GDP.

Deviations of fiscal multipliers from estimates

Estimates of fiscal multipliers for the Russian economy constitute a certain GDP response, 'average' for the period under consideration, to changes in fiscal policy. Therefore, estimates obtained require accurate interpretation. They do not take into consideration a possible response of economic agents to discretionary policy measures in the period between their announcement and actual implementation. In case of increasing taxes and spending, a considerable lag between these events may reduce the negative effect on GDP. With respect to revenue this can be done through agents' adjustment to changed conditions (e.g., by cutting costs). The positive effect of expenditures may increase due to improvements in project selection for financing and better targeted funds allocation.

The size of fiscal multipliers is also affected by changes in policy conditions and the structure of budget components. Reduced share of the shadow economy may either reduce the size of the revenue fiscal multiplier by adding presumably less efficient economic agents to tax payers and it may raise the size of the spending fiscal multiplier by improving the efficiency of budget spending. A shift in the revenue and spending structure towards components with a higher fiscal multiplier causes an increase in overall multipliers. On the spending side, components exerting a direct impact on aggregate demand (government investment and consumption) have the highest multiplier, while untargeted transfers are associated with the lowest one (Coenen et al., 2010, Ilzetzki et al, 2013). However, there is no consensus on tax multipliers. Estimates derived using Vector autoregression (VAR) models show that the consumption tax multiplier is the highest (in absolute terms), followed by labour taxes, while the corporate income tax multiplier is the lowest. By contrast, Dynamic stochastic general-equilibrium (DSGE) models demonstrate a reverse interrelation (Batini et al., 2014).

Moreover, it is necessary to distinguish between the dynamics of key budget indicators directly associated with government decisions (structural component) and the effect of automatic stabilisers (cyclical component) which depend on changes in economic activity (output gap). During the period of economic upturn (slump), the latter automatically increase (reduce) tax burden for the economy and lower (increase) budget spending. These include the main part of budget revenue and a small part of expenditures, e.g., unemployment benefits. Automatic stabilisers are generally lower in Russia than in the majority of other countries primarily due to the absence of progressive taxation rates. Some earlier estimates suggested that, during certain years, their size may influence considerably budget balance dynamics (up to 1 pp of GDP) (Vlasov, 2011). Fiscal multipliers capture the effect of government decisions on GDP, whereas a comparable by size change in automatic stabilisers may produce another effect.

Finally, fiscal multipliers differ in size depending on the business cycle phase: they tend to be higher in a recession, than in an expansion. This is true for the periods of both fiscal consolidation and expansion (Auerbach, Gorodnichenko, 2012). According to the estimates by Ivanova, Kamenskih (2011), the size of the spending fiscal multiplier in Rus-

sia was almost twice as high during the 2009-2010 crisis than in 2000-2008. One of the main reasons for this may be a re-distribution of budgetary funds in favour of low-income households with a higher propensity to consume and a higher proportion of consumption of domestic goods, which lowers the 'leakage' of funds, specifically through imports. By contrast, amid a full resources utilisation, the efficiency of their use diminishes.

Despite the above limitations, we believe it possible to use the obtained estimates of fiscal multipliers, including the relation between revenue and spending multipliers, in the analysis of the fiscal policy's impact on GDP in the reporting and forecast periods.

Fiscal multipliers of budget expenditure components

Based on our estimate of the fiscal multiplier for total spending and available international experience, we proceed with estimating fiscal multipliers for the components of Russia's budget expenditures. They show the effect of fiscal policy on current GDP, however they fail to estimate its influence on the potential economic growth.

There exist few estimates of fiscal multipliers for the Russian economy and only a small number of studies providing the estimates of spending component multipliers in line with the functional classification[6]: Ivanova, Kamenskih (2011) and Kudrin, Knobel (2017). Using the estimates of relationships between fiscal multipliers for overall spending and their individual components obtained in these two papers, we have computed preliminary sizes of fiscal multipliers for the components of our overall spending multipliers (0.28). Spending on economic block presumably have the highest fiscal multiplier, 0.70 (Table 2). The fiscal multipliers of military and social blocks are considerably lower, standing at 0.32 and 0.28 respectively[7]. Spending components with higher multipliers are characterised by a higher share of productive expenditures. Spending on general state issues have a negative fiscal multiplier of -0.73, i.e. increasing these expenditures drags negatively GDP.

In terms of using fiscal multipliers, the economic classification of spending[8] seems to be more informative compared to the functional classification. In Russia, the estimates of fiscal multipliers for expenditure components according to the economic classification do not exist mainly due to the insufficient length of time series and, as a result, insufficient reliability of estimates. From the international experience the estimates by Ilzetzki (2011) and Ilzetzki et al. (2013) for the panel of EMEs show the fiscal multiplier of 0.2 for total spending and 0.6 for the government investment. The respective estimates by Coenen et al. (2010) for the panel of AEs are 0.4 and 1.0. This suggests that the government investment multiplier is roughly 2.5-3 times as high as the total spending multiplier and stands at approximately 0.75 for Russia (Table 2). The fiscal multiplier for transfers is the

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[6] The grouping of spending items by key areas of government activity.

[7] *The Military block* includes functional classification sections 'National defence' and 'National security and law enforcement'. *The Economic block* includes sections 'National economy', 'Housing and utilities sector' and 'Environment conservation'. *The Social block* includes sections 'Education', 'Culture, cinematography', 'Healthcare', 'Social policy', 'Physical fitness and sports' and 'Mass media'.

[8] The grouping of spending by business feature and production element.

smallest among the main components of the economic classification. According to the estimates by Coenen et al. (2010), the multiplier for transfers to non-Ricardian households, comprising low-income population with a high propensity to consume, is roughly 50% higher than the total spending multiplier, however it is twice as low for other transfers. We categorise the majority of pension benefits and certain other social ones as the transfers to non-Ricardian households. In this case, the fiscal multipliers for transfers to non-Ricardian households and other transfers for Russia stand approximately at 0.43 and 0.15 respectively. Consequently, we estimate the fiscal multiplier for total transfers at roughly 0.21. Finally, proceeding from the structure of Russian budget expenditure and the estimates of multipliers of discussed components, the final consumption spending multiplier totals roughly 0.37. This is in line with our idea about the sizes of fiscal multipliers for spending components in the Russian economy.

Table 2. Estimates of fiscal multipliers for budget spending components in Russia

Indicator	Fiscal multiplier
Total spending	0.28
Functional classification of spending	
Economic block	0.70
Military block	0.32
Social block	0.28
General state issues	-0.73
Economic classification of spending	
Investment	0.75
Transfers	0.21
including to non-Ricardian households*	0.43
including other transfers	0.15
Final consumption	0.37

* Households with a high propensity to consume.

Sources: Coenen et al. (2010), Ilzetzki (2011), Ilzetzki et al. (2013), Vlasov, Deryugina (2018), Ivanova, Kamenskih (2011), Kudrin, Knobel (2017), estimates of the Research and Forecasting Department.

Given the above-noted absence of consensus with regard to the relative sizes of component multipliers, such analysis of the revenue part of the budget seems unreasonable because of the possibility of a large mistake. We use the multiplier for total revenues (-0.75) for revenue components (consumption tax, corporate income tax, personal income tax, etc.).

Estimate of the impact of the fiscal manoeuvre on GDP growth using fiscal multipliers

From 2019, the government plans to conduct a large-scale fiscal manoeuvre. This will include raising budget spending (mainly, investment), funded mostly by a 2 pp increase in the main VAT rate and a temporary cut of the primary budget balance relative to the effective fiscal rule. The manoeuvre seeks to accelerate Russian economic growth,

including potential one (for details see MFR, 2018). Fiscal multipliers do not allow estimating the impact of fiscal indicators on the potential economic growth (we expect this impact to be positive primarily due to accelerated investment in fixed capital[9]). Nonetheless, fiscal multipliers allow us to have an idea about the impact of the fiscal manoeuvre on the actual GDP growth.

According to the estimates by the Ministry of finance of the Russian Federation, over the mid-term horizon, the VAT rate increase will cause an annual resource extraction from the economy totalling roughly 0.55% of GDP, which will be subsequently returned via budget expenditures, and the cut in the primary budget balance will provide additional funding for spending totalling roughly 0.5% of GDP per year on average.

The use of the total revenue multiplier (-0.75) suggests that, in the medium term, the VAT rate increase will have a constraining effect on GDP growth totalling 0.4 pp (-0.75x0.55) per year on average. The effect from additional expenditures will depend on their structure. The higher is the share of investment spending having the maximum multiplier, the higher is the consolidated fiscal multiplier of additional spending and the positive contribution to GDP growth, other things equal. If we proceed from the above listed budget spending component multipliers and the assumption that the share of investment expenditure will be 50-75%, while the rest will fall on the final consumption expenditure, then the consolidated multiplier will equal approximately 0.55-0.65 pp. Consequently, in the medium term, the total positive effect on GDP growth will be 0.6-0.7 pp (from 0.55x1.05 to 0.65x1.05) per year on average. Therefore, the direct application of fiscal multipliers suggests that the average annual total effect from the fiscal manoeuvre on GDP growth will be 0.2-0.3 pp in the medium term.

However, the actual effect may differ considerably from the estimated one. The effect on GDP growth from the VAT rate increase may be less negative due to economic agents' adjustment to changes in conditions, in part due to a significant time lag between the announcement about this measure and its actual implementation. Improvement in VAT collection, on the one hand, will increase the amount of resources extracted from the economy and the overall negative effect on GDP growth but, on the other hand, will likely scale down this negative effect per one ruble collected as a result of allegedly less efficient agents being added to tax payers. On the expenditure side, the increase of positive contribution to GDP growth may be due to a more efficient fund use, primarily a thorough selection of investment projects with a high multiplication effect and low 'leakage' of funds. Similar to VAT increase, this may be assisted by a considerable time lag between the decision on an increase in budget expenditures and the actual implementation of respective projects. It is assumed that positive impact may be also produced by the factors, such as a relatively low share of imports used in infrastructure projects (the main portion of planned investment expenditure), and the government's efforts to improve the efficiency of public expenditure. In general, given the efficiency of budget expenditure, the over-

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[9] The World Bank and the IMF point to relatively low capital stocks in Russia and note a pick up in investment growth as one of the main factors shaping the acceleration of the potential economic growth (see, for example Okawa, Sanghi (2018), IMF (2016)).

all positive effect on GDP growth from the implementation of the fiscal manoeuvre may turn out to exceed the level estimated on the basis of fiscal multipliers.

It should also be noted that the effect of the fiscal manoeuvre may vary materially by year and by quarter within a year. It will be mainly determined by expenditure dynamics. The socio-economic forecast prepared by the Ministry of Economic Development of the Russian Federation assumes that project financing conducted as part of the fiscal manoeuvre will begin closer to the middle of 2019, whereas the higher VAT rate will be in effect from the beginning of the next year. We expect to see a negative effect on GDP growth in the first half of 2019 and a below-medium effect at the end of 2019. However, in subsequent periods, the fiscal manoeuvre shall exert a growing positive impact on GDP growth.

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