

Fiscal multipliers in Austria^{*)}

Executive summary

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The effect of fiscal measures on the total output of an economy depends on **key factors** that basically comprise the **purpose, type, duration and financing of a fiscal impulse and various country-specific factors**. Moreover, fiscal multiplier calculations are based on different **theoretical and methodological assumptions** that strongly influence their size. Meta studies (e.g. Mineshima et al., 2014) address this uncertainty about the actual effect of fiscal multipliers on GDP, attempting to draw conclusions from the wide variety of results reported in the literature. To our knowledge, however, the results of the meta studies published so far ignore the different definitions of fiscal multipliers used in the literature. Therefore, the conclusions drawn and the range of results derived in these meta studies are difficult – or almost impossible – to interpret. The present study refers to the important role of **different definitions of multipliers** recently discussed in Ramey (2019) and, in addition, considers various **statistical definitions of fiscal instruments** that also strongly influence the corresponding fiscal multipliers (Čapek et al., 2018). The FISK project, which comprises three studies (empirical estimation: Čapek et al., 2019; model-based estimation: Schuster, 2019; survey: Holler und Schuster), employs consistent definitions of multipliers and data composition of considered variables in the calculation of a potential range of fiscal multipliers for Austria.

For the **empirical estimation of fiscal multipliers**, all methods used in the recent literature (except the narrative approach) are taken into account to calculate a distribution of peak and net present value (NPV) expenditure and tax multipliers. The NPV multiplier measures the total discounted effect of a fiscal impulse on GDP within two years upon implementation of the corresponding measure. Considering all estimated variants, the average NPV multiplier comes to 0.68 for government expenditure and 1.12 for government revenue. This result implies that changes in revenues have a considerably stronger average effect on GDP than changes in expenditure. When considering the peak multiplier that measures the maximum GDP effect of a fiscal impulse within the first two years upon implementation, by contrast, the average expenditure multiplier comes to 0.85 and the average tax multiplier to 0.54. This reflects the dynamics of increasing and declining GDP effects of a fiscal impulse over time. Changes in expenditure have a considerably stronger immediate effect on GDP than changes in revenues because they constitute a subcomponent of GDP, while the indirect effect of expenditure changes that builds up over time is smaller than that of tax changes. An analysis of the fiscal multipliers calculated for different definitions of fiscal variables clearly illustrates the importance of their statistical definitions for the size of fiscal multipliers. If monetary social benefits or capital transfers are taken into consideration, for instance, the calculated revenue or tax multipliers are close to zero. In addition, the results for various VAR models show that fiscal shocks and models that are identified by applying a Cholesky decomposition and that do not consider interest rate or inflation variables on average provide the lowest fiscal multipliers.

Under a **New Keynesian model** calibrated for Austria, medium- and long-term multipliers for a wide range of disaggregated fiscal variables are calculated in addition to short-term multipliers. In this study, we focus exclusively on the results achieved for NPV multipliers, given their relevance for economic

^{*)} Opinions expressed by the authors of this study do not necessarily reflect the viewpoint of the Austrian Fiscal Advisory Council.

policy. The results show that changes in expenditure have a strong immediate effect on output changes. Their impact multiplier for the benchmark calibration, namely 0.80, is substantially higher than the impact multiplier of tax changes, namely 0.38. Given the different dynamics of the effects of changes in taxes and expenditure over time, however, after one year the multiplier for an average change in taxes is only slightly lower than for an average change in expenditure (0.55 and 0.66, respectively). When we take self-financing effects into account (ex post), after the first year following the respective impulse, changes in taxes continuously exhibit higher multipliers than changes in expenditure. Over the long term, the ex post tax multiplier clearly exceeds the ex post expenditure multiplier. However, this is only applicable to an average tax or expenditure shock and cannot be generalized for all subcomponents of taxes or expenditure. At the disaggregated level, especially investment grants and public investments exhibit very high multipliers already in the short term, but particularly in the long term, while not earmarked subsidies hardly have positive output effects. Within the range of tax instruments observed, it is in particular changes in taxes on the use of capital in businesses and taxes on profits that cause major changes in output, while the multipliers for taxes on consumption and investment income tend to be lowest. An exact ranking of fiscal policy instruments by value added effects, however, depends on the parameterization of the model on the one hand and on the type of fiscal shock (temporary vs. permanent, anticipated vs. not anticipated, etc.) and the considered time period on the other. While over the short term, the size of the multiplier is determined above all by parameters relating to the import share, the elasticity of export demand and the extent of price and wage rigidity, the major long-term determinants are assumptions regarding technologies and preferences.

Given the relatively quick fade-out of fiscal impulses implicitly considered in the VAR models, the empirical estimation and the model-based estimation of the fiscal multipliers for Austria are comparable exclusively for short-term multipliers. A comparison with the benchmark calibration of model-based analysis shows that the average empirical estimation results in similar expenditure multipliers but yields a clearly higher tax multiplier. Both approaches identify substantially higher immediate effects of expenditure multipliers than of tax multipliers. A comparison of the model-based approach and the empirical approach shows that VAR models require a smaller number of theoretical and model-specific assumptions. The resulting multipliers, however, strongly depend on the statistical definition of fiscal variables and the applied shock identification strategy. By contrast, while the model-based calculation requires a high number of assumptions, it can also calculate multipliers for the medium and long term. In addition, the model-based approach allows for evaluating not only temporary shocks but also permanent shocks and, as a consequence, structural policy measures. An analysis of the output effect of individual measures is only possible in the model-based estimation.

Despite continued uncertainty about the exact size of fiscal multipliers for Austria, the results of this study make it possible to narrow down the output effect of fiscal impulses more precisely and to derive their key determinants. The model-based estimation shows that the composition of aggregate expenditure and aggregate tax changes plays an important role in determining the size of the fiscal multipliers. This, in turn, shows that in order to determine the macroeconomic effects of various sets of fiscal measures, it is important to exactly define their composition. It was not possible to discuss the narrative approach in this study, given that necessary data series are missing. Future projects might serve to close this methodological gap. Results from the relevant literature indicate that very high values are to be expected for tax multipliers in particular.