Fiscal multipliers in the 21st century ☆

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ABSTRACT

Fiscal multipliers appear to vary greatly over time and space. Based on VARs for a large number of countries, we document a strong correlation between wealth inequality and the magnitude of fiscal multipliers. In an attempt to account for this finding, we develop a life-cycle, overlapping-generations economy with uninsurable labor market risk. We calibrate our model to match key characteristics of a number of OECD economies, including the distribution of wages and wealth, social security, taxes, and government debt and study how a fiscal multiplier depends on various country characteristics. We find that the fiscal multiplier is highly sensitive to the fraction of the population who face binding credit constraints and also to the average wealth level in the economy. These findings together help us generate a cross-country pattern of multipliers that is quite similar to that in the data.

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1. Introduction

After the 2008 financial crisis, the global economy went into a substantial economic slowdown. Many countries responded by pursuing expansionary fiscal policies, in some cases financed by austerity measures due to debt buildup and a lack of credit market access. Different policymakers and researchers appear to have had different expectations regarding the effectiveness of the policies pursued, and the ensuing academic literature has actually broadened our views in this regard: it has brought forth the notion that there is no such thing as *a* fiscal multiplier. Instead, the multiplier now appears to be viewed as a function of country characteristics and the state of the economy, in addition to the type of fiscal instrument used; e.g., Ilzetzki et al. (2013).

In parallel, growing wealth inequality has re-entered the public discourse, with particular interest raised by the projections in Piketty (2014), suggesting that we may even be looking at further increases in inequality over the coming century. From our perspective, however, there is significant variation in wealth inequality across countries and also how it has developed over the last decades. Thus, the data offers interesting variation across time and space for assessing the effectiveness of fiscal policy. Moreover, growing wealth inequality may have implications for the future effectiveness of this policy.

In this paper we use modern, quantitative macroeconomic theory with heterogeneous consumers to ask whether differences in the distribution of wealth across countries can generate differences in their respective aggregate responses to fiscal policy. We focus on a classic fiscal-policy scenario: a one-period unexpected increase in government expenditures, financed by a one-period increase in lump-sum taxation (see, e.g., Baxter and King, 1993). Fiscal multipliers are naturally expected to depend on the fiscal instrument and we leave the response to alternative policies for future research.

We begin our analysis by some empirical documentation. In particular, we estimate relationship between the size of our fiscal multipliers and wealth inequality using SVARs, based on the data and methodology in Ilzetzki et al. (2013), to which we add measures of wealth inequality. Our estimates show that countries with relatively high inequality experience significantly larger responses to increases in government spending.

On a more detailed level, our theoretical framework is a life-cycle, overlapping-generations (OLG) economy with uninsurable labor market risk, i.e., a life-cycle extension of Aiyagari (1994). We calibrate the model to match data from a number of OECD countries along dimensions such as the distribution of income and wealth, taxes, social security, and the level of government debt. We then study the contributions from each of these country characteristics toward the correlation between fiscal multipliers and wealth inequality.

We find that the size of our fiscal multiplier is highly sensitive to the fraction of liquidity-constrained individuals in the economy and also depends importantly on the average wealth level in the economy. Agents who are liquidity-constrained have a higher marginal propensity to consume goods and leisure and respond more strongly to fiscal shocks. Larger labor-supply responses, in particular, lead to larger output responses. The marginal propensity to consume is also higher for relatively wealth-poor agents, since they have a precautionary savings motive. Finally, relatively wealth-poor economies have a higher interest rate and the net present value of an otherwise equally large fiscal shock today is larger when the interest rate is higher. We should therefore expect fiscal multipliers to be high in countries with high inequality, a low savings rate and/or a high debt.

In a multi-country exercise, where we calibrate 15 OECD countries to country-specific data, we obtain raw correlations between the fiscal multipliers generated by our model and the wealth Gini's and capital–output ratios that are 0.62 and −0.68, respectively. The regression coefficients when the fiscal multiplier is regressed on the Gini or on K/Y are, moreover, highly statistically significant. We find that an increase of one standard deviation in the wealth Gini coefficient for the countries in our sample raises the multiplier by about 17% of the average multiplier value.

Changing the steady-state progressivity of the tax system, a mechanism which has received some attention in the literature on automatic stabilizers, has a limited impact on the fiscal multiplier. One reason is that the reduction in the fraction of borrowing-constrained individuals then simultaneously delivers lower average asset holdings and a higher interest rate. The decrease in the multiplier stemming from a reduction in the number of constrained agents is then counteracted by the positive effect on the multiplier of lower average asset holdings and a higher interest rate. Lower wage inequality in the form of less heterogeneity in permanent-ability component of wages also has a limited impact on the multiplier. Idiosyncratic wage risk, on the other hand, is found to be of first-order importance.[1]

The remainder of the paper is structured as follows. We begin with a very brief discussion of some relevant literature in Section 2. In Section 3 we then document an empirical relationship between wealth inequality and fiscal multipliers. Section 4 contains a description of our quantitative OLG economy with heterogeneous agents and a definition of our competitive equilibrium. Section 5 then describes how we calibrate the model to a given country-specific data set. In Section 6 we take a baseline calibration and, by varying some key parameters that are expected to differ across countries, isolate the effects of these parameters—and hence of country characteristics—on the size of the fiscal multiplier. Section 7 presents the results from a multi-country analysis of fiscal multipliers where we simply calibrate the primitive parameters for 15 countries and compute all of their multipliers; this analysis thus allows a comparison between the artificial data for these countries and their actual data. We conclude in Section 8. The appendix discusses data and some properties of our tax function.

2. Some relevant literature

Fiscal multipliers measure the effectiveness of fiscal policy in stimulating economic activity. Empirical evidence suggests that government consumption and tax cuts have a positive impact on output.[2] However, as mentioned previously, research has progressed towards the notion that there is no such thing as *a* fiscal multiplier, but rather that the effect of a fiscal shock on output is dependent on country characteristics, the state of the economy, and the type of fiscal instrument considered. For example, Ilzetzki et al. (2013) argue that multipliers are (i) larger in developing countries than developed countries, (ii) larger under fixed exchange rates but negligible otherwise, and (iii) larger in closed economies than in open economies. The results in Auerbach and Gorodnichenko (2011) indicate that for a large sample of OECD countries the response of output is large in recessions, but insignificant during normal times. Anderson et al. (2013) find that in the context of the U.S. economy, individuals respond differently to unanticipated fiscal shocks depending on age, income level, and education. The behavior of the wealthiest agents, in particular, is consistent with Ricardian equivalence but poor households show evidence of non-Ricardian behavior.

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[1] Unfortunately, we do not have the data to make idiosyncratic risk a part of our cross-country analysis.
[2] For a good survey of the various approaches for modeling and measuring the impacts of fiscal policy, see Caldara and Kamps (2008).