The age-specific burdens of short-run fluctuations in government spending☆

Burkhard Heer [a,b,*], Christian Scharrer [a]

[a] *Department of Economics, University of Augsburg, Universitätsstrasse 16, Augsburg 86159, Germany*
[b] *CESifo, Munich, Germany*

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ABSTRACT

We study the impact of government spending shocks on the distribution of income and wealth between cohorts and the associated welfare effects in a dynamic stochastic overlapping generations model with two types of households, Ricardian households and rule-of-thumb consumers. We demonstrate that an unexpected increase in government spending decreases income and wealth inequality. In contrast to the conventional wisdom that the financing of government expenditures by debt rather than taxes especially burdens young generations, we find that debt-financing also harms Ricardian households during retirement. The crucial element in our analysis is a wealth effect that results from the decline in the price of capital due to higher government debt.

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1. Introduction

The distributional consequences of higher government spending between different generations constitute a major concern for economic policy in modern industrialized countries. The appropriate fiscal rule, which controls the response of taxes and government debt if government consumption changes, plays a crucial role in this regard. A positive government spending shock financed by bonds transfers a real economic burden on present young or even future generations, whereas a tax-financed increase in government spending shifts the burden into the present. In this paper, we study the associated effects of unanticipated short-run fluctuations in government spending on inequality and welfare in a New Keynesian stochastic overlapping generations (OLG) model that both replicates the wealth and income distribution in the US and accords well with empirical evidence from VAR studies.

Our main results show, in particular, that a positive government spending shock marginally decreases the inequality of gross market income and wealth with nontrivial redistributive effects on the disaggregate level which are not captured by aggregate measures of inequality like the Gini coefficient. Moreover, and contrary to the conventional wisdom, we find that debt financing of government expenditures may also harm a large fraction of the elderly with asset holdings. Debt financing causes stronger fluctuations in asset prices and, hence, welfare, while tax financing allows households to better smooth their consumption over the life-cycle in response to government spending shocks.

Our New Keynesian model features overlapping generations with two types of households, Ricardian households who save for old age and rule-of-thumb consumers who do not accumulate any wealth.[1] Furthermore, we introduce workers with different productivity types and particularly incorporate a labor income tax function proposed by Benabou (2002) such that we are also able to take into account the most important redistributive features of the US tax system and its effects on inequality. These assumptions allow us to replicate the empirically observed high concentration of wealth and the somewhat smaller concentration of income by quintile groups in the US. The Gini coefficients of wealth and gross income in our model amount to 0.789 and 0.573, respectively, which are broadly consistent with evidence presented by Budría Rodríguez et al. (2002).[2]

In addition, we introduce an investment goods sector that results in a variable price of capital. In this setting, a debt-financed increase in government spending leads to a larger crowding-out effect on productive private investment than a tax-financed increase. The real price of capital decreases strongly and partially transmutes into an additional negative wealth shock affecting the wealth accumulation and consumption decisions of workers and retirees. Retired Ricardian households are completely exposed to this shock because they have accumulated considerable wealth and cannot increase their labor supply in order to benefit from higher wages. There are two opposing effects of higher government consumption on inequality in our model. (1) Higher wages have a stronger incentive effect on the labor supply of high-productivity workers than on the labor supply of low-productivity workers so that gross labor income becomes more concentrated. (2) Since the price of capital and interest rates decline, capital income, however, falls. The overall effect on the income distribution is that inequality measured by the Gini coefficient declines to a small extent. Moreover, wealth inequality also falls slightly with higher government consumption since the price of capital decreases. Therefore, the values of the existing wealth holdings decline, while it becomes more beneficial to build up savings for the less affluent younger cohorts.

The main wealth channel in our model – higher government consumption crowds out capital and decreases the value of wealth – is supported by empirical evidence. In particular, we find that positive fiscal policy shocks induce a temporary fall in stock prices in our model. This result is in accordance with findings from previous empirical studies. For example, Afonso and Sousa (2012) and Agnello and Sousa (2013) provide empirical evidence that a positive fiscal policy shock leads to an immediate and negative response of stock prices influencing the wealth of different cohorts. In addition, real interest rates decline in our model as a consequence of the decrease in capital prices. With respect to the effect of government spending on real interest rates, the empirical evidence is more mixed. On the one hand, Ramey and Shapiro (1998) and Fatás and Mihov (2001) provide empirical evidence that real T-bill rates increase after a positive government spending shock. But, on the other hand, more recent studies such as Fisher and Peters (2010) and even Ramey (2011) find a negative (transient) effect of government spending on real interest rates. Murphy and Walsh (2016) survey the literature on this topic and provide additional empirical evidence for declining interest rates. They come to the conclusion that most studies with US data usually support a negative relationship.

Our New Keynesian model is also broadly consistent with empirical evidence from VAR studies. In particular, an increase of government spending results in (1) an increase of output[3] and (2) private consumption,[4] (3) a strong decline in investment and the price of capital, 4) higher employment,[5] (5) higher wages,[6] and (6) lower mark-ups.[7] The presence of rule-of-thumb consumers helps to reconcile the model with the data and to effectuate the observed responses of output, employment, consumption, and wages. Since rule-of-thumb consumers are not subject to a wealth effect from higher government consumption, their labor supply curve shifts out less than that of the Ricardian households. As a consequence, there is more upward pressure on the real wage. In addition, higher wages allow for an increase of consumption. In the absence of rule-of-thumb consumers, we do not find an increase of aggregate private consumption in response to higher government spending.

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[1] Rule-of-thumb consumers have been prominently introduced in the business cycle analysis by Galí et al. (2007). They show that, in the presence of rule-of-thumb consumers, the standard New Keynesian model is able to replicate a rise of private consumption in response to an unexpected increase in government consumption.

[2] Budría Rodríguez et al. (2002) report Gini coefficients of wealth and (gross) income equal to 0.803 and 0.553.

[3] Blanchard and Perotti (2002) provide evidence for the US postwar economy that GDP increases after an expansion of fiscal spending. Using panel structural VAR analysis from four industrialized countries, Ravn et al. (2012) also provide cross-country evidence for this hypothesis.

[4] There is some mixed evidence with regard to the effect of government consumption increases on private consumption. The prevalent view, however, indicates a positive effect of higher government consumption as in the studies presented by, for example, Blanchard and Perotti (2002), Galí et al. (2007), and Ravn et al. (2012).

[5] See, for example, Blanchard and Perotti (2002).

[6] Here, again, the empirical evidence is mixed. Rotemberg and Woodford (1992) present evidence that real wages also increase after a government spending shock, while Monacelli et al. (2010) only find an statistically insignificant rise of the real wage for men.

[7] Again, Monacelli et al. (2010) only find evidence for a decline of the mark-ups that is statistically insignificant at the 5% confidence level.