A New Approach to the Estimation of Tax Multipliers

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1 Extended Abstract

There has been much recent interest in estimation of fiscal policy shocks and their effects upon the macroeconomy. Nonetheless, there is still a considerable amount of disagreement about the size of multipliers and even about sign of the impact of fiscal shocks on key macroeconomic aggregates. Given the potential importance of fiscal policy as a stabilization tool, this state of the art is clearly unsatisfactory. This paper makes a contribution to the literature on tax multipliers. We develop a new method for estimating the impact of tax changes and shows that it delivers results that are useful for understanding conflicting results in the literature. The estimator can be adopted for the estimation of the impact of other fiscal shocks (e.g. government spending shocks) as well as to monetary policy shocks.

The key idea of the paper is to use information from narrative accounts in a structural VAR estimations of the impact of tax shocks. In particular, we derive an SVAR estimate of the impact of tax changes that is based upon the assumption that narratively identified tax shocks can be viewed as a noisy signal on the "true" unobserved tax shocks. We implement this strategy by adopting the "exogenous" components of Romer and Romer (2010) narrative tax policy account as a noisy measure of the true tax policy shocks in a VAR set-up. We find estimates of tax multipliers that are much larger than the estimates of Blanchard and Perotti but slightly smaller (on impact) than those reported by Mertens and Ravn (2010). According to our estimates a 1 percent drop in tax liabilities increases aggregate output by 2 percent on impact and with 3 percent with two years delay. We also decompose the aggregate tax changes into personal income tax changes and corporate tax changes. We find that corporate income tax changes have much larger impact on aggregate activity than personal income tax changes.

We show that the differences in the estimates of the impact of tax changes relative to Blanchard and Perotti (2002) derive from differences in the estimate of the response of tax revenues to aggregate output (in particular). Blanchard and Perotti's (2002) estimates rely on a calibration of the contemporaneous elasticity of tax revenues to GDP of 2. Their identification procedure does not allow for a separate estimate of this parameter since the calibration is introduced in order to provide identification of the tax shock. Our procedure instead allows us to estimate this parameter and we find a point estimate of the output elasticity of tax revenues of 3. A standard simultaneity bias argument therefore explains our higher estimates of the impact of tax shocks on output relative to Blanchard and Perotti's (2002) estimates. We also argue that the higher estimate of the elasticity of tax revenues to output produced by our estimator is natural given that the calibration of this parameter adopted in the SVAR literature relies on reduced form estimates that suffer from the same type of simultaneity bias that the identification strategy itself is meant to address.

We produce some indirect evidence that is supportive of the higher estimate of the elasticity of tax revenues to output produced by our estimator relative to Blanchard

and Perotti (2002). In particular, we estimate the parameters for a sample that excludes the Great Depression and then out-of-sample tax revenue forecasts using the realized path of output (and other variables) using either the Blanchard and Perotti (2002) calibration of the output elasticity of tax revenues or the estimate of this parameter produced by our estimator. We find the latter to produce much better out-of-sample estimates of the tax revenue path during the Great Depression.

Our estimator also produces an estimate of the reliability of the narrative account of the exogenous tax shocks. Assume that the true tax shock is a convex combination of the narrative measure and a white noise measurement error. We estimate that the weight of the Romer and Romer (2010) tax shock is around 85 percent. This indicates that the narrative account is very informative but associated with some measurement error. It is the presence of this measurement error that explains the difference between the results in this paper and those in our earlier work, Mertens and Ravn (2010).