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Comment

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Estimate of the effects of fiscal policy on the economy have struggled with the problem of how to identify "exogenous" shifts in a country's fiscal stance for over twenty years. A first set of estimates (e.g., Giavazzi and Pagano 1996; Alesina and Perotti 1997; Alesina, Perotti, and Tavares 1998) relied on "cyclically adjusted" measures of shifts in taxes or spending, assuming that such an adjustment would purge the fiscal variables from their contemporaneous correlation with fluctuation in output. Subsequently, VAR techniques were used to identify "shocks" to fiscal variables (e.g., Blanchard and Perotti 2002; Mountford and Uhlig 2009). The VAR approach, however, could not deal with the possibility that shifts in fiscal policy might be anticipated. The reason is that allowing for shocks to be anticipated runs against the noninvertibility of the moving average representation of a VAR. The breakthrough in this literature came from Romer and Romer's (2010) idea to apply to fiscal policy the "narrative" approach they had long before used in the analysis of the effects of shifts in monetary policy. One important advantage of this approach (as discussed in Mertens and Ravn 2011) is that it naturally allows for a study of the effects of policy anticipations.

In the area of fiscal policy, the narrative approach has recently used information on state-specific spending shocks; that is, shifts in government spending that are specific to an individual US state (see, e.g., Nakamura and Steinsson 2011). The results obtained in these papers are often referred to as "local multipliers," since they estimate the effects of a spending shock on a specific state or region. This literature—of which this article provides an excellent example—has advanced our understanding of the effects of shifts in spending, previously (for the most

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part) limited to the effects of large military purchases in the occasion of major wars (for an overview see Ramey 2011a).

Sylvain Leduc and Daniel Wilson take very seriously the possibility, offered by the narrative approach, to study the effects of anticipations. The care with which they investigate the timing of infrastructure decisions, and of their subsequent implementation, goes all the way in addressing the issue originally flagged by Valerie Ramey in "It's All in the Timing" (2011b).

Local multipliers, however, have pluses and minuses. The plus is that they allow for the inclusion, in the estimated equation, of time fixed effects. This takes care of a major problem with VAR-based estimates that use US-wide data: the possibility that the equation might miss other variables—importantly monetary policy—whose shifts might be contemporaneous to the shifts in government spending, thus confounding the results. The recent literature on the effects of fiscal policy at the zero lower bound for nominal interest rates is an example of the limitations of aggregate, VAR-based estimates.

The minus is their inability to capture an important effect of shifts in government spending: the response of private demand in states or regions different from those where the shock occurs. Consider for instance, as in this paper, the effect of the decision to build Boston's Big Dig. In the Boston area such a decision will have two effects: a direct demand effect, stemming from the local increase in public spending, and an indirect effect associated with the anticipation of the taxes that will eventually be levied to pay for the project. Outside the region, however—and more so the further away you move from Boston—the demand effect will vanish and you are only left with the negative wealth effect. This assuming, as was the case, that most of the Big Dig was paid for with federal funds and thus eventually with federal taxes. Because they omit these wealth effects, local multipliers deliver an upward biased estimate of total spending multipliers.

How can one correct for the two different sources of bias? In the case of aggregate estimates that cannot include time fixed effects, one can identify the omitted variables (for instance monetary policy) and partition the sample in different subsamples, each corresponding to a particular monetary policy (or exchange rate) regime. There will thus be a set of different answers to the question "What is the size of the multiplier?", one for each monetary policy regime. In the case of local multipliers, a possibility is to calibrate the missing wealth effect us-

Table C1
Government Spending Multiplier in Separable Preferences Model

	Closed Economy Agg. Multiplier	Open Economy Rel. Multiplier
A. Sticky Prices		
Volcker–Greenspan Monetary Policy	0.20	0.83
Constant Real Rate	1.00	0.83
Constant Nominal Rate	∞	0.83
Constant Nominal Rate ($\rho_g = 0.85$)	1.70	0.90
B. Flexible Prices		
Constant Income Tax Rates	0.39	0.43
Balanced Budget	0.32	0.43

Source: Table VI in Nakamura and Steinsson (2011).

ing a model. Nakamura and Steinsson (2011) provide an illustration of this approach. Table VI in their paper (see table C1) reports the government spending multiplier calibrated using a model with separable preferences and, alternatively, sticky and flexible prices and different assumptions about monetary policy. The table shows two sets of multipliers: closed and open economy multipliers. The first is a "total" multiplier that includes wealth effects. The second is a "local" multiplier that excludes them, except those happening in the state where the shock occurs. The calibrated total multipliers ("closed economy" multipliers in the Nakamura and Steinsson definition) are highly sensitive to how strongly monetary leans against the wind. In contrast, local multipliers ("open economy" multipliers) "difference out" these effects because different regions in the United States share a common monetary policy. While (using a model with sticky prices) total (closed economy) multipliers range from –0.39 to +1.0 depending on the monetary policy regime, local (open economy) multipliers are very stable across regimes. (Giavazzi and McMahon [2013] show that household-level data can, under some assumptions, allow to compute total multipliers from estimates of local multipliers.)

Leduc and Wilson do as good a job as one can hope for in the estimation of local multipliers. Their work is a rare gem in this literature. Still, one walks away from their paper with the feeling that it has not really answered the question asked in the title. The total multiplier of infrastructure spending is certainly smaller than the local multipliers estimated in this paper. How much smaller, and whether positive or negative, is the relevant policy question that this paper cannot address.

Endnote

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