The Optimal Use of Government Purchases for Macroeconomic Stabilization

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Pascal Michaillat[1,2] and Emmanuel Saez[3]

[1]Centre For Macroeconomics; [2]London School of Economics; and [3]University of California–Berkeley

In the United States, the Full Employment and Balanced Growth Act of 1978 imparts the responsibility of achieving full employment to the Board of Governors of the Federal Reserve, through the choice of the Federal funds rate, and to the government, through public employment and other public expenditure. In practice however it is the Federal Reserve that has been in charge of macroeconomic stabilization. This reliance on monetary policy reflects the consensus among policymakers and academic researchers that monetary policy is more adapted to stabilize the economy.

But the stabilization achieved through monetary policy alone remains imperfect. Of course, at the zero lower bound on nominal interest rates, monetary policy is severely constrained, and that is what happens starting in 2009. But that is not all; even in the 1991 and 2001 recessions, when monetary policy was not subject to the zero lower bound, stabilization was only partial. Thus, the unemployment rate has fluctuated noticeably over the past thirty years despite strong responses of the Federal funds rate.

This paper explores how government purchases can be used to improve macroeconomic stabilization. To that end, we embed the standard theory of optimal government purchases, developed by Samuelson [1954], within a matching model of the macroeconomy. In our matching model, unemployment can be too high or too low.

We derive a sufficient-statistics formula for optimal government purchases. Our formula is the Samuelson formula plus a correction term proportional to the government-purchases multiplier and the gap between actual and efficient unemployment rate. Optimal government purchases are above the Samuelson level when the correction term is positive---for instance, when the multiplier is positive and unemployment is inefficiently high---and below the Samuelson level when the correction term is negative---for instance, when the multiplier is positive and unemployment is inefficiently low.

Our formula indicates that US government purchases, which are mildly countercyclical, are optimal under a small multiplier of 0.03. If the multiplier is larger, US government purchases are not countercyclical enough.

Our formula also implies significant increases in government purchases during slumps, even for small multipliers. For instance, with a multiplier of 0.1 and other statistics calibrated to the US economy, when the unemployment rate rises from the US average of 5.9% to a high level of 9%, the optimal government purchases-output ratio increases from 16.6% to 17.8%; and with a multiplier of 0.5, the optimal government purchases-output ratio increases more, from 16.6% to 19.8%.

However, the optimal ratio increases less for multipliers above 0.5. For instance, with a multiplier of 2, the optimal government purchases-output ratio only increases from 16.6% to 17.6% when the unemployment rate rises from 5.9% to 9%. The intuition for the hump-shaped relation between the multiplier and the optimal increase of the government purchases-output ratio is the following. For small multipliers, the optimal amount of government purchases is determined by the crowding out of personal consumption by government consumption; a higher multiplier means less crowding out and thus higher optimal government purchases. For large multipliers, it is optimal to fill the unemployment gap and a higher multiplier means that fewer government purchases are required to fill this gap.