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## Discussion

This paper elicited questions about the quality of the data used, the empirical strategy, and possible alternative interpretations.

Reiterating a point made by Anil Kashyap in his comment, Kenneth Rogoff expressed doubt about the cross-country measures of the output gap. These "fantasy numbers" often do not correspond with economic intuition, he suggested, especially in the cases of Japan and France. The data suggest that the French macroeconomy, for example, was remarkably stable during times generally known to have been highly volatile. These potential data problems would have large implications for the paper's empirical results, as they form the basis of the first-stage regression.

Aghion acknowledged the inherent limitations with cross-country studies but suggested that this should not discourage research in this politically relevant area. The authors' work was meant to encourage more macroeconomic research. Further, Aghion acknowledged that a closer look at microeconomic data was needed, a process that he had already begun. Studying micro data would help determine whether the mechanism through which countercyclical fiscal policy was said to induce growth seemed accurate.

Marinescu, continuing the authors' response to questions about the data, graphically showed that the timing of the peaks and troughs of the growth data accorded with intuition. If anything, she insisted, skepticism should surround the magnitude, and not the timing, of the data. Marinescu explained that the OECD data and the traditional HP-filtered series look similar, which should alleviate some doubt.

Both Daron Acemoglu and Steve Zeldes commented on the dependent variable in the first-stage regression. Since the mechanism of impact involved government spending reducing the liquidity constraints faced 296 Discussion

by firms, Acemoglu questioned whether the left hand side of the regression should contain government spending instead of the change in public debt minus interest payments. Aghion responded by saying that the size of government spending is not as informative as the composition of government spending. In fact, the authors had already begun working on a decomposition of government spending into investment, consumption, and transfers. Initial results suggested that countercyclical investment was the most important factor within public spending. Aghion argued that they did not present their results from these component regressions because they were not theoretically founded. The authors' empirical structure for using public debt as the dependent variable has its roots in Barro's optimal taxation model, while there does not exist similar work on the optimal dynamics of public spending.

Zeldes further questioned whether the authors' variable for fiscal policy should be decomposed into active and passive components. If this paper suggested that the government should take on a more proactive role during recessions, then the authors should directly examine the active elements of spending, rather than combining these with automatic stabilizers. Additionally, Zeldes noted that most economists believe that it is difficult to have a timely and directed fiscal policy. Have the authors, he asked, found that this belief is unfounded?

Again returning to the mechanism at play, Acemoglu made two comments about timing in the empirical work. First, he wondered whether the authors should use a longer-horizon than yearly data, as fiscal policy would likely take time to ameliorate firms' constraints. Marinescu agreed, noting that in the second-stage regression, countercyclicality had a significant effect on growth up to five lags. Second, he suggested that the low-frequency cycles in government spending could be exploited. In addition to high-frequency movements, the slow buildup of public spending should also have an effect on growth.

Kenneth Rogoff questioned whether the authors had taken into account other evolving government policies during the period they study. Monetary policy, for example, has changed dramatically in the OECD countries. Marinescu replied that they had tried to account for this by controlling for inflation in their first-stage regression.

Mark Gertler then hypothesized that the cyclicality of a country's fiscal policy was linked to the cyclicality of its current account. Developed countries, he argued, could run countercyclical budget deficits and, in bad times, borrow from abroad. In fact, it might be this ability to borrow internationally that allowed these governments to run countercyclical

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policy. Developing countries, conversely, have less countercyclical fiscal policy and cannot borrow from abroad during bad times. As such, developing countries could be forced into running more procyclical policy. Aghion agreed that studying the current account would be helpful in understanding the mechanism better.

Worrying about identification problems, Steve Cecchetti asked about how the authors can distinguish between the reduced volatility of the macroeconomy coming from the Great Moderation and the changes in cyclicality of fiscal policy. The business cycle, he said, had been damped to such a degree as to make it difficult to identify variations in government spending over the cycle.

Data measurement was again brought to the forefront with questions about the detrending process. Responding to Anil Kashyap's earlier comments about how dependent the data are on the specific trend chosen, Marinescu noted that the key is what the government expects future government spending to be. Certainly, she admitted, the results they obtained depend on whether the government can correctly forecast the true distribution of its future obligations.

Ricardo Caballero and Olivier Blanchard both argued for the potential of reverse causality in the authors' regressions. Caballero posited that governments often respond to periods of low growth by increasing spending. Blanchard nuanced this view, saying that evidence suggests that government transfers increase when the economy is growing slowly. This suggests that low growth would encourage countercyclicality of fiscal policy and so, as Aghion says, plays against their results.