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## *Comment*

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### **Introduction**

This paper by Blanchard, Erceg, and Linde provides a two-country model to understand the spillovers from one country's fiscal expansion on another country's macroeconomy. The authors do not want to merely provide a theoretical discussion of what determines these spillovers in abstract, but they also want to apply their framework to the euro area. After showing that spillovers from a fiscal expansion in the core to the periphery will be larger if there is a longer-lasting liquidity trap, if the Phillips curve is steeper, and if the import content of government spending is larger, they further conclude that the boost to output in the periphery is larger than the effect on consumption and welfare. Their preferred numerical estimates point to an aggregate euro-area multiplier of around 2 and a boost to welfare in both the core and the periphery.

Before thinking about what to make of their points, it helps to fix ideas by asking to which two actual euro-area regions their model might apply. The "core" country in their model has no fiscal constraint that prevents it from exogenously choosing to increase public spending. It can finance this expansion by issuing public debt, and this comes with no increase in the interest rate it pays. Moreover, it is large enough that this extra spending will make a significant material difference in the exports from the rest of the euro area. In turn, the "periphery" country is smaller, but not infinitesimal as in small open economy models, since its actions have an effect on the exchange rate and on the trade balance of the larger core economy. It has a similar structure as the core country, with the same frictions leading to inefficient production, namely monopolistic competition and price rigidities. It differs in the

shocks that hit it and, therefore, in the stage of the business cycle. Both economies have nominal interest rates stuck at zero.

From this description, it seems adequate to equate the core economy with Germany in Europe. In turn, the periphery country is probably best captured by Italy, or maybe even perhaps France. This is not a model that applies easily to the peripheral countries of Greece, Ireland, or Portugal. These countries are both too small to match the periphery country in this model, and too distant from the simple new Keynesian model in this paper. Capital misallocation, fragile financial systems, bloated public sectors, or sovereign debt crises are all important features of some of these economies that would interact with fiscal expansions in a way that would have large and relevant effects on fiscal multipliers (see, e.g., Reis 2013; Gourinchas, Philippon, and Vayanos 2016, in this volume).

Focusing on Germany at the time of this conference, in 2016, the large wave of refugees into the country coming from the Middle East and Northern Africa dominated the headlines. There are a variety of public-spending programs needed to process these new immigrants and provide them with basic social services, which across the EU could be as large as 40 billion euros (Corsetti et al. 2016). While this is not the way in which the authors frame the contribution of their paper, their analysis and results can be used to answer a precise question: Will the increase in public spending in Germany to receive the refugees benefit the Italian or French economies?

The authors isolate the theoretical channels that will affect the response to this question and calibrate their model with European data to provide some estimates of how large the effects will be. In these comments, I start by discussing the channels that the authors focus on and then make three comments. First, I note a few extra channels that may be important for fiscal spillovers. Second, I discuss the difficulties with interpreting fiscal multipliers. Third, I try to complement the authors' analysis that focuses on traditional new Keynesian channels with the modern view of the euro crisis, and how they may interact with fiscal spending. Finally, I conclude by asking whether the authors' contribution and arguments are coming at the right time to gauge whether they will be effective in shaping policy choices or not.

### **Three Channels, Four Factors, and Two Absences**

The authors focus on three channels that rely on central economic conditions, and as such are common to many modern macroeconomic models.

The first condition is the aggregate resource constraint (without investment) stating that output is equal to consumption spending, government purchases, and net exports. From this condition, applying to both core and periphery, one gets the first effect considered by the authors. An increase in core government spending will potentially raise output both in the core and in the periphery, because some of the core government spending falls on goods and services produced in the periphery.

The second condition is a negative relation between net exports and the real exchange rate. Then, an increase in core spending will lead to an appreciation of its real exchange rate, which will boost exports from the periphery, raising its output.

The third channel relies on combining the Euler equation for consumption, a no arbitrage condition between long-term real returns and one-period returns, the Fisher equation linking real rates to domestic inflation, and a common union-wide nominal interest rate that does not respond to changes in inflation. If inflation in the periphery is higher on average over the near future, then short-term and long-term real returns will be lower in the periphery. This leads to higher current consumption, and so output.

Whatever makes these three effects stronger will boost the impact of core fiscal spending on periphery's output. The authors therefore focus on four factors on which the fiscal spillover will depend. First, the longer is the expected duration of the liquidity trap then nominal interest will stay fixed for longer, so the effect of inflation on long real interests is larger. For their baseline results, countries are in a liquidity trap for three years, and the hike in government spending that generates the higher inflation and the stimulus through lower real interest rates takes place over 2.5 years. Given the history of the euro area between 2011 and 2016, these choices seem conservative.

Second, the steeper is the Phillips curve, then the more inflation will increase as a result of the fiscal stimulus, and so the larger its expansionary effect. Again, the authors are conservative, assuming a Calvo-duration of price stickiness of 3.5 years, which amounts to a very flat Phillips curve.

Third, the larger the import component of government spending in the core, then the larger the direct aggregate demand effect on periphery output. The authors calibrate this to match the average ratio of imports to GDP and a trade price elasticity of 1.1, which is line with the literature.

A fourth factor is important in assessing the fiscal spillovers to welfare. Since the periphery country runs a trade surplus in response to the fiscal expansion in the core, output in the periphery increases considerably more than its consumption. The authors argue that while the welfare of the representative agents in their model would focus on consumption, if one thinks instead of economies with considerable slack, one might want to focus on output. I would further add that the foundations in social welfare theory for equating the utility of a representative agent with a proper social welfare function in an economy with diverse people are very shaky. Therefore, arguing for an ad hoc welfare function that focuses on output instead of consumption seems defensible.

These channels and factors are all important, and the authors do well to focus on them and emphasize them. One could easily list many more that might be considered, but it is much harder to argue that any of them are as important as the ones considered by the authors. Still, two of them stand out, in my view, as being potentially as important, and so are worth mentioning.

The first is the consideration of a third region with which there is trade. Between 2010 and 2015, the current account of the Eurozone went from a surplus of 36 to 330 billion euros, while Germany's current account went from 145 to 257 billion euros. The Eurozone adjusted to the euro crisis and the fiscal austerity in the periphery in part through trade with the outside. A fiscal stimulus in the core would plausibly likewise have a significant "leakage" in its aggregate demand stimulus to outside the euro area, reducing some of the authors' estimates.

The second absent channel works through nominal wage rigidities. In new Keynesian models, wage rigidities have a large effect on how much the domestic economy expands after a fiscal stimulus, as well as on the international transmission of domestic shocks (Galí, Lopez-Salido, and Valles 2007). The slow adjustment of nominal wages in Southern Europe after 2011 suggests this is empirically relevant.

### **But What Do Fiscal Expansions and Multipliers Stand For?**

Up to a first-order approximation, to predict how output changes after a spending stimulus ( $\Delta Y$ ), we need to multiply the size of the stimulus ( $\Delta G$ ) with the partial derivative of output with respect to spending keeping everything else fixed ( $\partial Y / \partial G$ ). The same applies to other variables rather than output. This is the spirit of most of the exercises in this

paper, as well as those in the large literature that in the last few years has studied the stimulus provided by government spending.

Yet, each of the two terms that must be multiplied is problematic when trying to confront the data. Starting with  $\Delta G$ , this is typically quite small in twenty-first century stimulus programs. In the days of Keynes, the bulk of government spending in developed countries indeed went to purchases of goods, for either military purposes or infrastructure. Theoretical thought experiments that involved building another bridge or highway had a clear counterpart in reality. Those days are long gone. The largest category of government spending in almost all OECD countries is nowadays transfer payments, not consumption purchases.

As a result, when one looks at the breakdown of actual fiscal stimulus programs, it jumps to the eye that most of them consisted of increases in transfers. Between 2007 and 2009, government spending shot up by 14% in the United States. Three quarters of this increase was on transfers. Looking at the increase in spending across 21 OECD countries during this period, Oh and Reis (2012) found that in 14 of them the increase in transfers exceeded the increase in government consumption plus investment. Focusing on the ARRA stimulus package in the United States between 2008 and 2010, Cogan and Taylor (2012) found that almost all of it consisted of transfers to states, which in turn used it to pay down debt or fund social transfers, with little funding going to government purchases. In short, in modern stimulus packages, the  $\Delta G$  seems too small for the stimulus to matter all that much.

The partial derivative term is also problematic because of what is being held fixed. The precise *ceteris paribus* experiment matters a great deal in ways that make it hard to relate these multipliers to the data. A few examples make this problem concrete. First, the authors assume that the increase in government purchases is paid off over time either using lump-sum taxes (in their simple model) or labor income taxes (in their larger model). But, in this class of models, if instead capital income taxes or consumption taxes were used, the multipliers can be quite different (Drautzburg and Uhlig 2015). Since actual fiscal stimulus packages rarely clearly specify how the deficits will be paid for in the future, this makes it hard to estimate their effect. Second, the time profile of taxes is likewise important by affecting intertemporal relative prices, and it is especially important whether the higher taxes come before or after the economy leaves the zero lower bound (Correia et al. 2013). Slight changes in the time profile of taxes can easily turn an expansionary fiscal stimulus into a contractionary policy. Third, what

people know and don't know about the future size and duration of the expansion in purchases and the taxes that pay for it will likewise affect their response to the stimulus (Leeper, Walker, and Yang 2013). Again, measuring agents' expectations following a stimulus is a daunting empirical task after the fact, let alone when the policy is being discussed. Fourth, increases in purchases and their effect on real activity will affect the extent to which the fiscal automatic stabilizers act in the economy, as well as their overall effectiveness (McKay and Reis 2016).

The "all else fixed" problem with this partial derivative also applies to nonfiscal variables. One concrete example is given by the work of Feve, Matheron, and Sahuc (2013). Public and private consumption are plausibly nonseparable in the utility function of households. The standard assumption of separability makes it easier to analyze the theory of fiscal stimulus, and it is also adopted by the authors because it keeps fixed the marginal utility of consumption in response to a the stimulus. But, if there are complementarities instead, the fiscal expansion will raise this marginal utility. Because the zero lower bound equilibrium is characterized by having too low marginal utility of consumption in the present relative to the future, due to too high real interest rates, this provides another channel for the effectiveness of government purchases.

None of these caveats point to the authors' estimates being either clearly underestimated or overestimated. Moreover, most of them apply as much to this paper as they do to the large literature that in the last few years has estimate purchases multipliers. But they are still worth stating and repeating many times, as so much research energy has been spent measuring a multiplier that is hard to properly define and that multiplies something that is so small in modern fiscal expansions.

### **Bringing in Modern Views of the Crisis**

This paper uses models and tools from the conventional macroeconomics tool kit. Brunnermeier and Reis (2016) argue that, especially when thinking about the crisis in the Eurozone, this tool kit has to be expanded in a few directions to be able to make sense of the crisis. Because this paper's policy study applies with this crisis in the background, it is likewise important to revisit the policy analysis taking these modern considerations of the crisis into account.

The first important consideration is the spread between sovereign interest rates in Germany vis-à-vis France or Italy. The sovereign debt crisis in the periphery countries started with spikes in their sovereign

interest rate spreads. Given the common monetary policy, and so common exchange-rate risk, the spreads reflect primarily the differential risk of default between those countries and Germany. What would happen to this risk premia and so to the interest rate spreads following a fiscal expansion in the core?

We can think of the expansion in the core as having two effects on the chances of a default in the periphery. First, by raising domestic output in the periphery, through the channels identified by the authors, the fiscal expansion lowers the benefits of defaulting. Second, by lowering the core real interest rate, it increases the supply of capital and lowers the cost of repaying the debt. Both of these effects increase the incentives to repay the debt to foreign, and so lower the risk premia. A countervailing effect would be that if the expansion increases the risk that the core cannot repay its debt, it may raise its risk of default, thus raising interest rates for the periphery as well. This effect is likely small, given the size of the fiscal stimulus that the authors have in mind, and the level of the public debt in the core. Therefore, overall, the default channel would lower periphery real interest rates, further boosting the expansionary effects of the fiscal stimulus.

A second consideration to have is on the role of capital misallocation. The Italian economy stopped growing well before the crisis of the last few years: Italian per capita GDP barely increased between 2000 and 2010. The same applies to Portugal, and if one focuses on productivity growth, Spain, Greece, and Ireland have all gone through a slump with the creation of the financial and monetary union. The euro and the twenty-first century came with a productivity slump in the Eurozone that was followed by a crash in these countries in 2010–12.

The evidence for several countries points to misallocation of the abundant capital flows from the core to the periphery as a likely culprit for this slump (Reis 2013). In Italy, the nontradables sector grew at the expense of tradables (Benigno and Fornaro 2014). In Portugal, within nontradables, it was the least productive and competitive sectors that absorbed more of the capital flows and grew faster (Reis 2013). In Spain, even within tradable manufacturing, the dispersion of firm productivity increased as smaller and less productive firms were being kept afloat by the abundant and cheap foreign capital (Gopinath et al. 2015). How would a fiscal expansion at the core affect the allocation of capital in the periphery?

Perhaps the most important effect would come through higher exports in the periphery. Therefore, the sectors that would most benefit are those associated with exports to the core. Since more productive firms

tend to export more, this would potentially promote a better allocation of resources. This channel would again potentially increase the benefits of a fiscal expansion at the core on the periphery.

Third, the crisis has shown the importance of modern banks for the transmission of macroeconomic shocks, and the need for economies to have safe assets. A fiscal expansion in the core that is funded by deficits increases the safe core public debt, alleviating some of the safe asset shortage (Caballero, Farhi, and Gourinchas 2016). At the same time, increasing the supply of national bonds when there is no euro-wide bond may accentuate the diabolic loop between banks and sovereigns at the core, making it more exposed to the possibility of sovereign debt crisis (Brunnermeier et al. 2016).

### **Conclusion and Would the Core Be Convinced?**

This paper makes a useful contribution to a relevant and important policy question today: Would a fiscal expansion in Germany stimulate economic activity in welfare not just in Germany but in France and Italy as well? The authors isolate three important features of these economies on which the answer will depend: the import content of government purchases, the slope of the Phillips curve, and the expected duration of the zero lower bound period. Moreover, they make a persuasive case for the effects being potentially large, and for both countries being better off as a result of the fiscal expansion.

In these comments, I added three further considerations. Two other important factors on the effectiveness of fiscal stimulus are the spillover of trade with other countries outside the Eurozone and the role of nominal wage rigidity on the slope of the Phillips curve. Second, I criticized the focus on purchases multipliers because actual changes in government purchases are usually small, and the estimation of multipliers is fraught with obstacles. Third, I speculated on the effects of a fiscal stimulus on the risk premium on sovereign bonds, on misallocation of capital in the periphery, and on the supply of safe assets and the balance sheet of banks. While my hope is that these add to the understanding of the question posed by the authors, they do not detract from the relevance and significance of their contribution.

A harder question is whether a core country would be convinced by these arguments. On the positive side, this paper comes at the right time. In 2010–12, many commentators on the American side of the Atlantic frequently tried to make a case for a fiscal expansion on the European side.



That case relied on applying the same economic argument on both sides of the ocean: when nominal interest rates are zero, higher government spending does not raise real interest rates or crowd out investment, but rather lowers real interest rates because of the increase in expected inflation so that investment is crowded in and the stimulus is more powerful.

This argument went nowhere in Europe for clear and good reasons. First, to discuss a fiscal expansion for the Eurozone as a whole made little sense: there is no federal budget or government to undertake this expansion, and a program like the American Recovery and Reinvestment Act of 2009 in the United States, with a large transfer across states, is almost politically impossible to entertain in Europe. Second, the countries going through a sovereign debt crisis, like Portugal, Greece, Ireland, Italy, and Spain were not at the zero lower bound. In fact, during the two years of the crisis, even vague news that public spending would be higher than expected would lead to large run-ups in interest rates, so the extent of crowding out was very large. Third, from the perspective of the core, the German economy was booming during these years, so expansionary fiscal policy would have been procyclical. As much as American commentators were frustrated by how little influence their arguments had, European commentators were dismayed by how little relevant they were for the European situation.

In 2016, making the case for fiscal expansion makes more sense. Germany and most of the euro area seem to satisfy now the conditions for the zero lower bound, and both are projected to grow at a dismal 1.7%, so that Germany is no longer off cycle with the rest of the area. Moreover, with the refugee crisis, a modest fiscal expansion seems inevitable. It seems like a good idea to discuss now whether this fiscal expansion should be larger so that it goes beyond nonrefugee spending. The welfare benefits for the core are not very large, but they are positive. Whether the core countries will be convinced is harder to know.

## Endnote

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