EMU and the Cyclical Behavior of Fiscal Policy:

A Suggested Interpretation

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Abstract

Fiscal policy is widely criticized for its failure to act as a stabilizing countercyclical force in the European Monetary Union. Two periods should be distinguished: Prior to the Financial Crisis of 2008, when monetary policy had traction to pursue stability for the aggregate eurozone, fiscal policies failed to contain macroeconomic divergence across the currency area. After the crisis, when interest rates had hit the zero lower bound, widespread fiscal austerity exacerbated the persistent recession. The paper proposes a minimal model of decentralized fiscal policymaking in a monetary union. The model is used to interpret policy behavior in both periods. The analysis points to a pro-cyclical bias and suggests a need for coordination.

Preliminary, comments welcome

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1. Introduction[1]

The fiscal policy framework of the European Monetary Union (EMU), laid down in the Treaty of Maastricht and the Stability Pact, is almost exclusively designed to prevent excessive borrowing by EMU member governments. The role of fiscal policy as a device for counter-cyclical macroeconomic stabilization is all but completely neglected. The European Central Bank (ECB) was put in place as the sole guardian of macroeconomic stability - with a mandate confined to preserving price stability. The standard arsenal of monetary policy normally allows controlling monetary conditions in the Union as a whole, but not the macroeconomic state of individual member countries. This gap in the EMU's macroeconomic policy framework has been widely criticized (for e.g. by EEAG 2003).

As it turned out, the EMU experienced more macroeconomic turmoil than the ECB could handle. With the launch of the common currency, the euro area was exposed to strong centrifugal forces that led to massive macroeconomic disequilibria between member countries. An expansion of domestic demand, fuelled by a credit bubble, propelled a number of mainly peripheral countries into an inflationary boom. At the same time, the core of the EMU, in particular Germany, suffered from an extended period of stagnation and high unemployment. There is broad agreement that a major force behind this macroeconomic divergence was the rapid convergence of European interest rates due to the elimination of currency risk, giving the former high-interest-rate countries access to a large pool of cheap capital. Ironically, the creation of the common currency turned out to be the very asymmetric shock which the Maastricht Treaty failed to provide for (Krugman 2013, Landmann 2011, Wren-Lewis 2013). As a consequence, the one-size-fits-all monetary policy of the ECB, while reasonably successful in maintaining macroeconomic stability for the eurozone as a whole, did not fit the needs of individual members at all (Nechio 2011).

It was the sort of situation in which one would wish national fiscal policies played a stabilizing role. However, such stabilization was not forthcoming. The empirical literature on this period has not found strong evidence for a systematically countercyclical stance of fiscal

policies (Huart 2013, Bénétrix/Lane 2013). Fatas and Mihov (2009) even find a "mildly pro-cyclical" pattern of fiscal policies which was not significantly altered by the introduction of the common currency. In particular, the failure of the governments of booming eurozone countries to contain their booms by tighter fiscal policies was a "missed opportunity" (Lane 2012).

When the bubble in the periphery burst and domestic demand collapsed in 2008/09, boom turned into recession. The countercyclical response of macroeconomic policies to this downturn was short-lived: Monetary policy was soon constrained by interest rates approaching the zero lower bound (ZLB) and fiscal policy, in the face of a mountain of debt resulting from stimulus programs and bank bail-outs, had sharply turned towards austerity by 2010. Mounting evidence points to a substantial recession-deepening effect of this austerity (Holland 2012, In't Veld 2013). As Obstfeld (2013, p. 48) has summarized the evidence, "the ex post imposition of austerity after a financial and debt crisis is underway, and especially when several neighboring countries are acting similarly, can have devastating output effects."

The two panels of Figure 1 plot the cyclical positions of euro area member states against their fiscal policy behavior during the pre-financial-crisis boom from 2003 to 2007, and in the aftermath of the Great Recession, 2009-2014, respectively. Cyclical conditions are measured by the average output gap for the period. fiscal impulses are measured by the change in structural government balances. Except for Germany, all euro countries experienced boom conditions (positive output gaps) on average during 2003-2007. Some countries adopted a countercyclical policy (increasing structural balances), others allowed fiscal policy to heat up their booms even further, Greece and Ireland being the worst offenders. Averaged over the euro area (EA), the fiscal policy stance was slightly countercyclical. In the 2009-2014 period, all countries experienced substantial slack (negative output gaps) and all of them tightened their fiscal policies significantly.[2] Procyclical behavior is indicated for individual countries by opposite signs of the output gap and the change in the structural government balance. Across countries, there appears to exist a procyclicality in the sense of an inverse relation between output gaps and changes in structural balances which is particularly pronounced in the 2009-2014 period.

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[2] In 2008/09 (not shown), when boom turned into bust, most fiscal authorities applied some short-lived fiscal stimulus in response to the collapse of private-sector demand.
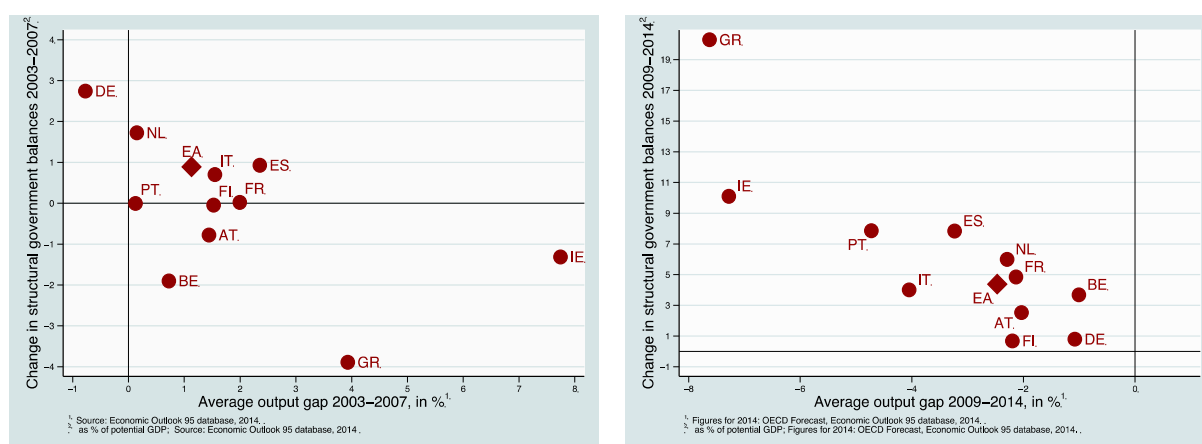
Figure 1: Cyclical conditions and fiscal impulses in the euro area, 2003-07 and 2009-14

The remainder of the paper offers an interpretation of European fiscal-policy behavior both before and after the financial crisis. The analysis is organized around a minimal model of macroeconomic interdependence in a monetary union. The model demonstrates in a simple way

- o how the effects of fiscal policy in a monetary union change when interest rates hit the ZLB;
- o how the interaction between optimizing, but uncoordinated national fiscal authorities is inherently biased towards procyclical behavior, both when the ZLB is binding and when it is not.

The argument is developed as follows: Section 2 introduces the model and highlights the role of the monetary-policy regime for the fiscal-policy multiplier and the structure of fiscal-policy interaction within a monetary union. Section 3 applies the model to the scenario of a monetary union hit by an asymmetric shock to risk premia when monetary policy retains traction and fiscal authorities face a trade-off between macroeconomic stabilization and other objectives (such as deficit targets). Section 4 applies the same model to the scenario of an "austerity shock", i.e. a shift of fiscal policy priorities towards austerity at a time when the central bank is constrained by the ZLB. For both scenarios, the scope for fiscal-policy coordination is explored. Section 5 concludes.

2. Fiscal and Monetary Policy Interaction in a Monetary Union

If a monetary union is not also a fiscal union, monetary policy interacts with many national fiscal policies and the latter interact among each other. There is a sizable literature on how this double-layered interaction can play out under alternative assumptions about the objectives of policymakers and the type of their strategic behavior (Beetsma/Giuliodori 2010). Also, there has recently been an explosion of theoretical and empirical research on fiscal multipliers. In New-Keynesian DSGE models, a multitude of factors - demand-side and supply-side, actual and expectational - determine the impact of fiscal-policy actions. A broad consensus has emerged on at least two propositions: First, as long as monetary policy has traction, the scope for countercyclical fiscal stabilization is negligible. Fiscal policy can become a rather powerful tool, however, when monetary policy cannot react to macroeconomic disturbances (Woodford 2011, Eggertson 2014). Second, national fiscal policies have a country-specific stabilization role in a currency union where monetary policy is in charge of monetary stability for the union as a whole (Galí/Monacelli 2008, Illing/Watzka 2014).

This section sets the stage for an interpretation of fiscal-policy behavior in the eurozone by introducing the elements of a model that are needed to capture the essentials of monetary-fiscal policy interaction in a monetary union. The model is stripped of all the the bells and whistles of current new-keynesian models, but is built to conform to the two propositions stated above and it allows for direct demand spillovers between the members of the currency union. It is cast in a symmetrical, static two-country format where the two countries are indexed N (North) and S (South), respectively. There is an equilibrium condition for the goods market of each of the two countries. In addition, the model allows for an exogenous risk premium which drives a wedge between the two national interest rates:

(1) $\quad y_i = -\partial_0\, r_i + \partial_1\left(p_j - p_i\right) + \delta_2 y_j + \delta_3 g_i, \quad i, j = N, S; i \neq j; \quad \delta_0, \delta_1, \delta_3 > 0;\ 0 < \delta_2 < 1$

(2) $\quad r_S = r_N + \rho$

y: output, measured as deviation from potential output (output gap); r: real interest rate; p: log of price level; g: fiscal policy variable (increase in g = stimulus); ρ: intra-union interest-rate spread (exogenous risk premium).

The demand for output in each country is assumed to depend on the real interest rate (the lever used by the central bank), on the relative price level (a measure of intra-union competitiveness), on economic activity in the other country (foreign trade multiplier), and fiscal policy, where g is best thought of as a fiscal impulse measure such as the cyclically adjusted deficit (relative to potential output). If the monetary union were treated as an open economy, third-country effects would have to be considered, such as an external exchange rate or world output. But these external linkages are suppressed here since they are not critical for the results and would not add insight.

In a long-run equilibrium, defined by flexible price levels and zero output gaps, the three equations (1) and (2) determine the two real interest rates and the intra-union real exchange rate. In addition, central-bank behavior would have to be specified to pin down the absolute price levels. In the short run, nominal price rigidity is assumed so that exogenous demand shocks are absorbed by changes in output[3]. The short-run output effects of demand-side disturbances are conditioned by the monetary policy of the central bank. What this means in practice is illustrated for the case of a fiscal impulse in Figure 2. Here, $y_S = f(y_N,...)$ and $y_N = f(y_S,...)$ represent the symmetrical output equations (1) for given fiscal policies, price levels and real interest rates. They express the mutual interdependence of output determination in the two countries. An initial long-run equilibrium of the monetary union is assumed to be located in point A where both output gaps are zero.

The way the effects of fiscal-policy impulses are conditioned by the conduct of monetary policy can be seen by considering the case of North tightening its fiscal policy by dg_N. In Figure 2, $f(y_S,...)$ shifts downwards by $\delta_3 dg_N$ (distance AB). If the central bank is concerned about the macroeconomic stability of the aggregate monetary union and has been on target in point A, it will not allow the contractionary fiscal impulse to reduce aggregate output $(y_N + y_S)$. Rather, it will respond by cutting the average interest rate of the monetary union

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[3] More generally, one would of course want to include a short-run Phillips curve or aggregate supply function to generate a joint output and price response. Such a generalization would be indispensable in any explicitly dynamic context or for an analysis of supply shocks. Below, only demand-side disturbances occur. Thus, the short-run stabilization problem is the same for any (finite) slope of the short-run aggregate supply relation.

so as to keep $(y_N + y_S)$ constant.[4] The condition of constant aggregate output is represented by the downward sloping 45° line through point A. The easing of monetary policy shifts $y_N = f(y_S, ...)$ upwards and $y_S = f(y_N, ...)$ to the right until they intersect on the $(y_S + y_N = 0)$ line at a point such as *C*. Clearly, the response by the central bank reduces, but does not eliminate the multiplier effect of dg_N on y_N. At the same time, the interest-rate cut overrides the direct spillover effect on y_S, thereby creating an inverse transmission of the demand impulse between the individual countries.[5] This endogenous response of the central bank turns any demand shock that is not completely symmetrical among countries into a pure asymmetric shock which drives output in the two countries into opposite directions.
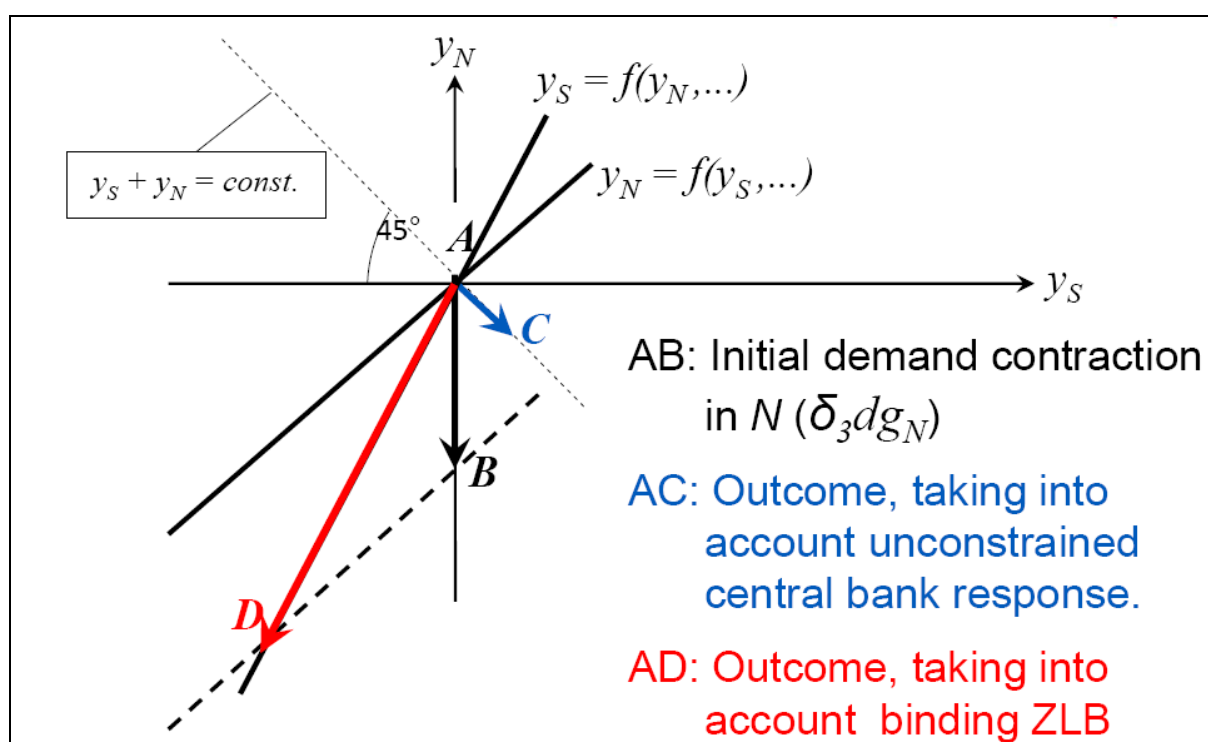

Figure 2: Effect of a demand shock, conditioned by the monetary-policy environment

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[4] This is a stark assumption, tailored to the static character of the analysis. A dynamic specification could consider lags in the monetary transmission process or delays in the response of the central bank, e.g. due to a recognition lag or an interest-rate smoothing motive. However, the assumption that the central bank immediately neutralizes demand shocks is quite common in New Keynesian models of monetary policy (see e.g. Clarida et al. 1999, Result 4, p. 1674).

[5] In a monetary union that is open to the rest of the world, the inverse transmission might also operate via the external exchange rate. Cwik/Wieland (2011) found this transmission channel at work in the euro area.

Formally, the multiplier and spillover effects are obtained from (1) under the condition $dy_S + dy_N = 0$:

$$(3) \quad \begin{bmatrix} \dfrac{dy_N}{dg_N} \\ \dfrac{dy_S}{dg_N} \end{bmatrix} = \frac{1}{2(1+\delta_2)} \cdot \begin{bmatrix} \delta_3 \\ -\delta_3 \end{bmatrix}$$

A very different picture emerges when monetary policy is constrained by the ZLB, which was essentially the case for the ECB since 2009 after it had lowered the interest rate to near zero in response to the financial crisis. Instead of a constant aggregate union-wide output, it is now a constant interest rate in both countries which shapes the effects of a demand shock. In Figure 2, the same unilateral demand shift AB that was translated into a movement AC before, now ends up taking the monetary union to point D in the absence of a stabilizing interest-rate cut. Rather than being dampened, the fiscal impulse is now amplified by the direct trade-induced spillovers between the countries and, as a consequence, output in South is dragged down as well. Formally, the multiplier and spillover effects are derived from (1) under the condition $dr_i = 0$:

$$(4) \quad \begin{bmatrix} dy_N \\ dy_S \end{bmatrix} = \frac{1}{1-\delta_2^2} \cdot \begin{bmatrix} \delta_3 \\ \delta_2 \delta_3 \end{bmatrix} \cdot dg_N$$

An obvious implication of (3) and (4) is that fiscal-policy effects obtained from models calibrated to pre-crisis conditions cannot be used to assess fiscal policy under post-crisis conditions.[6]

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[6] A point emphasized e.g. by De Grauwe (2009).

3. A Risk-Premium Shock When Monetary Policy Has Traction

As pointed out in the introduction, there is broad agreement that a major factor behind the macroeconomic divergence during the first ten years of the European Monetary Union was the elimination of interest-rate spreads between the former "soft"-currency countries (roughly, the South) and the "hard"-currency countries (the North). The model developed above can now be used to study the short-run reaction of fiscal and monetary policymakers to such an asymmetric demand shock. This is done here under the assumption that all policymakers pursue their objectives independently, taking into account their exogenous environment, including the choices of the other decision-makers. In terms of game theory, they all play Nash.[7] As explained above, monetary policy neutralizes any demand shock on the level of the aggregate monetary union $(y_S + y_N = 0)$.[8] Following Uhlig (2003), it is assumed that fiscal authorities care about the output gap of their country, but have other objectives as well, such as debt or deficit targets. If $\bar{g}_i$ $(i = N,S)$ denotes the fiscal stance preferred by governments when the macro-economy is on track $(y_i = 0)$, the overall objective functions governing fiscal-policy behavior are

$$(5) \quad L_i = \frac{1}{2}\left[y_i^2 + \alpha(g_i - \bar{g}_i)^2\right]; \quad i = N,S$$

It follows immediately that a government, minimizing the quadratic loss function (5) subject to the shocks and constraints it faces, will in general not fully neutralize the output effects of country-specific shocks. Policy behavior is now derived by letting the two governments and the central bank optimally set their instruments, each of them conditioned by the instru-

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[7] The assumed Nash behavior is intuitively most appealing if the two-country model is understood as a special case of a more general n-country structure. Alternative types of strategic interaction are explored in different set-ups by Beetsma et al. (2001), Dixit/Lambertini (2001), and Uhlig (2003). Letting fiscal authorities and the central bank move sequentially, as in Uhlig (2003), makes only a minor difference to the results obtained below.

[8] The introduction of a Phillips curve and the specification of a standard monetary-policy objective function in terms of inflation and output is dispensable if inflation is on target to begin with and the analysis is concerned only with demand-side shocks. Under these conditions, any monetary-policy action required to stabilize aggregate output will also stabilize inflation.

ment settings of the other two policy-makers as well as by equations (1) and (2). Under the continued assumption of short-run price rigidity, the resulting reaction functions for the real interest rate and the two fiscal policy variables can be solved for a simultaneous tri-partite Nash equilibrium which describes how the monetary union responds to a risk-premium shock in the short run. This response is shaped by the interaction of markets, governments, and the central bank.

The central bank adjusts the real interest rate so as to maintain $y_S + y_N = 0$, which implies

(6) $r = \dfrac{\delta_3}{2\delta_0} \cdot (g_N + g_S)$,

where $r \equiv \dfrac{r_N + r_S}{2}$ (average real interest rate of the monetary union).

According to its reaction function (6), the central bank must adjust the average real interest rate r of the monetary union to offset the aggregate demand effects of changes in g_N and g_S. In contrast, a change in the interest-rate spread ρ (a purely asymmetric shock) does not call for a change in the average interest rate r.

Turning to fiscal policy, each government chooses its fiscal instrument g_i so as to minimize its loss function (5), subject to equations (1) and (2). The resulting two first-order conditions relate g_i to $\bar{g}_i$, ρ, r, and to the policy choice of the other government g_j ($i, j = N, S; i \neq j$). Upon substitution of the interest-rate policy function (6) for r, these first-order conditions yield the following pair of fiscal-policy reaction functions, R_N and R_S:

(7) $\quad R_N: \quad g_N = \phi_0 g_S + (1 - \phi_0)\bar{g}_N - \phi_1 \rho$

$\text{where} \begin{cases} 0 < \phi_0 = \delta_3^2 \Delta^{-1} < 1 \\ \phi_1 = \delta_0 \delta_3 \Delta^{-1} > 0 \\ \Delta = \delta_3^2 + 2\alpha(1 + \delta_2)^2(1 - \delta_2) > 0 \end{cases}$

(8) $\quad R_S: \quad g_S = \phi_0 g_N + (1 - \phi_0)\bar{g}_S + \phi_1 \rho$

Two properties of (7) and (8) stand out. First, the two fiscal-policy variables are strategic complements: When one government applies a fiscal stimulus, the other government will follow suit (though by less than one-for-one). This is a consequence of the inverse transmission discussed above. Fiscal stimulus in one country reduces output in the other country so

that some stimulus is required there, too. Second, since a risk premium shock is an asymmetric shock, the two governments choose opposite fiscal-policy responses to the shock.

Figure 3 illustrates the case of a risk-premium shock. The shock is expressed by $d\rho < 0$ (elimination of a preexisting premium). Assuming an initial long-run equilibrium in point A with zero output gaps and zero deviations from desired fiscal policies in both countries ($y_i = 0$, $g_i = \bar{g}_i$, $i = N, S$), the shock shifts the two fiscal-policy reaction functions to their positions shown in Figure 3: R_S has moved to the left from point A as South tightens fiscal policy in response to the stimulus entailed by its lower interest rate. By analogous reasoning, R_N has moved upwards as North eases its fiscal policy in response to its higher interest rate. The Nash equilibrium is in point N, implying some countercyclical response by both governments (tightening in South, easing in North). As can be inferred from the set of indifference curves (iso-loss loci), the Nash outcome is inefficient. Both governments could improve their lot if they both took a more vigorous countercyclical stance, moving inside the shaded area. A social planner, minimizing a composite loss function of both governments, would choose a point such as C.
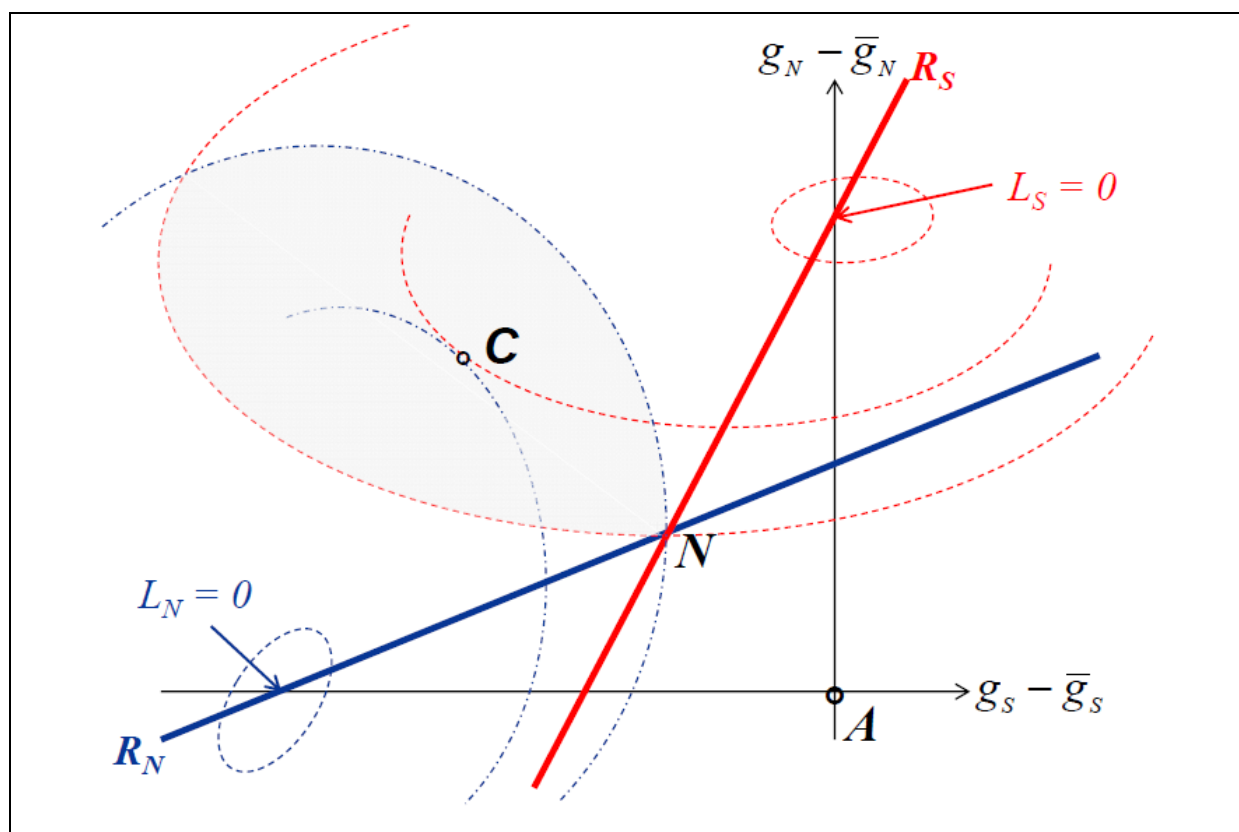

Figure 3: Fiscal-policy responses to a risk-premium shock

Why are the uncoordinated fiscal policy responses too weak? The intuition is straightforward: Both governments fail to internalize the spillovers from their own actions to the other economy. Since the risk-premium shock is asymmetrical and fiscal impulses are transmitted inversely, the countercyclical reaction of each government has a stabilizing impact not only at home, but also abroad – a benign externality. The failure to internalize a benign externality leads to an undersupply of the activity generating it.

What does this analysis add to our understanding of the failure of fiscal policies to counteract macroeconomic divergence in the eurozone in the run-up to the financial crisis of 2008? According to the model, the strength of the decentralized fiscal responses to a change in cyclical conditions mainly reflects two factors: The response is weak if the importance attached to countercyclical stabilization is low to begin with (a high value of α in the loss functions, eqs. 5), and if the fiscal multiplier is low. With a low multiplier, the cost of countercyclical stabilization in terms of other fiscal objectives is high. Both factors may not have been favorable to vigorous countercyclical stabilization prior to 2008. But as shown here, the failure to take spillovers into account further weakened incentives to lean against diverging cyclical conditions.

The model could easily be extended to allow for an endogenous determination of $\overline{g}_i$. More specifically, the elimination of interest-rate spreads is likely to have shifted the fiscal preferences of governments in former high-interest countries towards higher deficits since the outlook for the sustainability of existing government debt had improved markedly. It is not far-fetched to conclude that such a change in fiscal-policy attitudes could have turned a weak countercyclical response into an outright procyclical policy in some cases.

4. An Austerity Shock in a Liquidity Trap

After starting a recovery from the Great Recession of 2009 for some two years, the eurozone fell back into renewed recession. At the same time, fiscal policy turned from stimulus to austerity. According to OECD (2014) data, the aggregate cyclically adjusted fiscal deficits of the eurozone increased by 3,2% of GDP in 2008/09, only to be slashed again by more than that

amount subsequently. This sharp reversal of fiscal policy at a time of ongoing recession has revealed sharply differing views on fiscal policy among experts. Whereas De Gauwe and Ji (2013) denounced it as a panic-driven mistake, EEAG (2014) defended it as painful, but necessary.

Within the framework of this paper, the sudden turn of eurozone governments towards austerity is best represented as an "austerity shock", i.e. as a shift of fiscal preferences towards austerity – formally a fall in $\overline{g}_N$ and $\overline{g}_S$ in the loss functions, not necessarily by the same amount. By the time this shock occurred, the ECB had lowered its policy interest rate by enough to be constrained by the zero lower bound for all practical matters. Thus, the full consequences of the austerity shock must be analyzed with reference to the fiscal multipliers and spillovers derived above for the case of a liquidity trap. The key difference from the analysis in the preceding section is that this scenario can no longer be represented by an interest-rate adjustment that keeps aggregate union-wide output unchanged, but rather by an output adjustment in the face of an unchanged interest rate.

It is still true that each government minimizes its loss function (5), subject to equations (1) and (2), and chooses its fiscal instrument g_i accordingly. But this time, the interaction of the two governments is conditioned by the zero interest rate. As shown above, this change in the monetary-policy regime reverses the sign of the cross-border transmission of a fiscal impulse. Not surprisingly, then, the shape of fiscal-policy reaction functions changes as well. Imposing constant interest rates, and other things being equal, the first-order conditions of loss minimization now imply the following responses to an austerity shock:[9]

$$(9) \quad R_i' \qquad g_i = \frac{-\delta_2 \delta_3^2 g_j + \alpha(1-\delta_2^2)^2 \overline{g}_i}{\delta_3^2 + \alpha(1-\delta_2^2)^2} \qquad i, j = N, S; i \neq j$$

The two fiscal-policy variables g_N and g_S are now strategic substitutes. If one government cuts its deficit, it reduces demand abroad as well as at home, thereby creating an incentive

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[9] Instead of keeping other things equal, one might also wish to trace the effects of the reappearance of high risk premia under these circumstances. To keep the exposition transparent, the analysis of this case is left to the reader.

for the government of the other country to apply some offsetting stimulus. Also, $\bar{g}_i$ enters eq. (9) with a positive sign: Not surprisingly, an austerity shock induces austerity.

Figure 4 illustrates the general-equilibrium effects of an austerity shock, taking into account all mutual spillovers and reactions. Point *A* is again the starting point of the analysis - not necessarily a long-run equilibrium this time. The two axes plot g_N and g_S, adjusted for their initial values g_N^A and g_S^A, respectively. The austerity shock displaces the downward sloping reaction functions to the positions shown as R'_N and R'_S, respectively: Both governments adopt a tighter fiscal policy (lower g_N and g_S) than in point *A*. They thereby end up in point N.
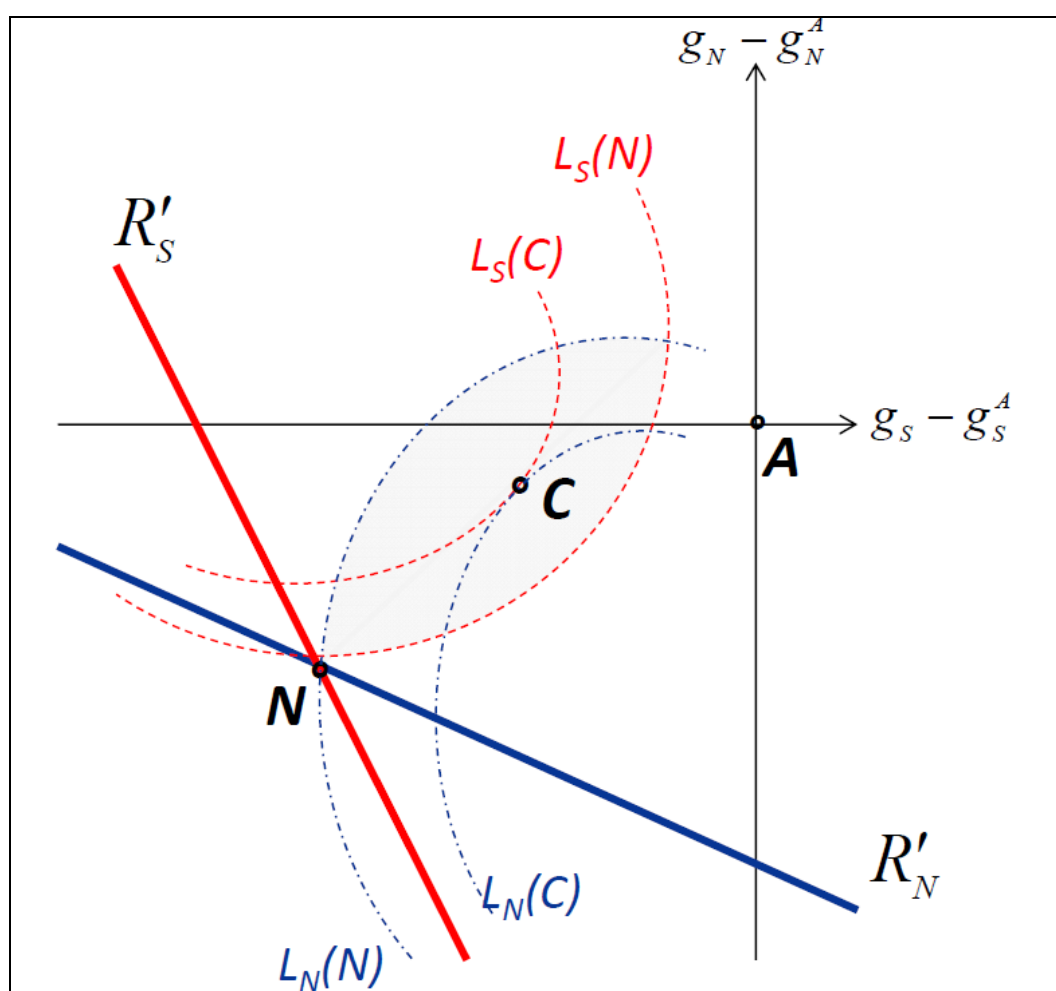

Figure 4: An austerity shock

Again, the resulting Nash equilibrium is inefficient. Even taking full account of the preference shift which induces the change in policies, both governments apply too much austerity. They would both be better off in the shaded area in Figure 4 if they simultaneously scaled down their policy adjustment. A social planner who shares the revised fiscal preferences would minimize a composite loss function in a point such as *C*.

Why are the uncoordinated fiscal adjustments too strong in this case? Again, both governments fail to internalize the spillovers from their own actions to the rest of the currency union. Since both policy shifts reduce demand abroad as well as at home, both governments export unwelcome macroeconomic distress – a malign externality. The failure to internalize a malign externality induces an oversupply of the activity generating it.

In the light of this analysis, the highly synchronized, but uncoordinated move towards austerity across the eurozone since 2010 inflicted unnecessary harm by generating an overall policy stance that was too tight even by the standard of the objectives underlying the policy shift. Empirical estimates of the output losses from recent fiscal consolidation efforts in Europe point to a quantitatively substantial contribution of cross-border spillovers to the overall impact (Holland 2012, In't Veld 2013). On this account, the case for some form of policy coordination that would have made decision-makers recognize the damage they mutually imposed on each other appears strong. One might object that, in a number of cases, the shift in fiscal preferences behind the austerity shock may not have been homegrown, but rather imposed from outside, be it by capital markets or by the conditionality of a financial rescue program. However, this makes the case for some collective action to internalize adverse spillovers no less compelling.

5. Conclusion

This paper has employed a highly parsimonious model of optimizing fiscal policy and of fiscal-monetary interaction in a monetary union to shed light on the failure of fiscal policy to act as a stabilizing macroeconomic force in the European Monetary Union. The analysis emphasizes the change in the structure of monetary-fiscal policy interaction associated with the

transformation of the monetary-policy environment when the zero lower bound began to bite in 2009.

Before the financial crisis of 2008, the eurozone experienced massive internal imbalances which fiscal policy largely failed to address, or worse. As it turns out, decentralized fiscal policies, by failing to internalize their spillover effects, were systematically biased against countercyclical stabilization during that period. After the Great Recession, fiscal authorities imposed an austerity shock on the eurozone - with multiplier and spillover effects that were amplified by the inability of monetary policy to provide an offsetting stimulus. As decentralized fiscal action failed to internalize spillover effects, policies were excessively biased towards austerity.

In sum, this interpretation of EMU experience suggests both a larger role for fiscal policies in national macroeconomic stabilization and a role for international fiscal policy coordination. As Blanchard et al. (2013) have remarked, "international policy coordination is like the Loch Ness monster – much discussed, but rarely seen." Indeed, formidable obstacles to effective coordination exist. Frankel and Rockett (1988) have emphasized long ago that successful policy coordination requires policymakers to hold correct and consistent views on the effects of their actions. Recent European experience may not instill much confidence that this condition is met in practice (Corsetti 2012). Nor is there an institutional framework in place that could enforce coordinated fiscal policies. After all, as long as efficient policies differ from the Nash equilibrium outcome, individual countries retain an incentive to abandon commonly agreed policies unilaterally.

Considerable attention has recently been devoted to the role that fiscal rules and fiscal councils might play in improving the quality of fiscal policymaking (see e.g. Calmfors/Wren-Lewis 2011). Any functional institutional framework for fiscal policy would inevitably be complex. It must be rigid enough to maintain fiscal discipline in the long term and yet flexible enough to allow for effective stabilization in the short term. Dealing even with the limited set of changing circumstances considered in this paper - the stabilization needs of the eurozone before and after the financial crisis - would appear to require a rather intricate set of rules and provisions.[10] After the failure of the fiscal framework enshrined in the Maastricht

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[10] Portes and Wren-Lewis (2014) have some suggestions on how to accomplish this.

Treaty and the Stability Pact, it may be tempting to argue that future fiscal institutions should be anchored and monitored on a strictly national level (Wren-Lewis 2013). However, in view of the spillovers of national policies discussed above, it does not appear advisable to leave the eurozone without any mechanism of mutual fiscal coordination.

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