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Fiscal policy under alternative monetary policy regimes

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In the particular policy framework of a monetary union, the management of fiscal policy becomes an issue of special relevance, because the fiscal discipline imposed by the monetary agreements could limit the scope of stabilization fiscal policies, and its implications on economic growth. In this paper we will review the theoretical implications of fiscal policy in open economies. But we will pay special attention to the particular case of monetary unions, in order to show the relevance of the macroeconomic model behind economic policy decisions.

JEL Classifications: E62, E63, F41

Keywords: Fiscal policy, open economies, monetary union

Introduction

An open economy is dependent on the outside world, but small economies do not necessarily have impact on the economies of partners. The greater is the degree of openness and economic integration greater are the effects of the interaction among the involved economies. Those effects depend on the international linkages or channels of transmission, being structural interdependence one of the main implications of integration with partner countries.

The degree of openness can be recognized first, by an increase of international trade in goods, services, and assets; being recorded the quantities of the items traded internationally by the balance of payments. Second, by an economy's interaction with the rest of the world that has implications on the prices of the items traded. In open economies, the prices are affected, or even determined, by world markets. And finally, by the economic interdependence, that leads to externalities or spill over effects which can be counterproductive for domestic policy decisions.

In an interdependent world, domestic disturbances will spill over into foreign economies, and changes in one country's income and employment will therefore be transmitted abroad. Since the channels of transmission are determined by the economic framework of each country, it is necessary to take into account policy interactions when adopting policy decisions. A good example of international policy conflict arise from currency depreciating policies under flexible exchange rates, just as they emerge from the use of devaluation under fixed exchange rates. Given that an immediate effect of interdependence is a greater policy interaction, the question arises on whether international policy coordination may be a better response than the non-cooperative solutions. Theoretically, cooperation

* The authors acknowledge financial support from the Institute for Fiscal Studies, and C. Díaz-Roldán, from the Spanish Ministry of Economy and Competitiveness (Project ECO2011-29314-C02-02).

internalizes the effects of economic interdependence, but empirical studies do not support international coordination clearly (Díaz-Roldán, 2004).

In the last years, following the financial and economic crisis, the debate on the role of economic policies has been reopened. Related to the literature on monetary unions, questions such as fiscal discipline and policy coordination have been considered as highly relevant. Studies on coordination have recovered a new interest having in mind the case of the Economic and Monetary Union (EMU). Since monetary union is one of the possible infinite cooperative solutions, the rationale of a monetary union could be interpreted as an explicit way of taking advantages from monetary policy coordination. In fact, the institutional framework provided by the Maastricht Treaty to avoid excessive deficits, can be interpreted as a rule of cooperation. Moreover, from the studies on the Pact for Stability and Growth (Eichengreen and Wyplosz, 1998; Obstfeld and Peri, 1998), it has been argued that the Stabilization Pact represents a more complex rule of cooperation, since its constraints are more restrictive than the limits of the Maastricht Treaty, reducing fiscal policy flexibility and the extent of automatic stabilization.

From a different point of view, also has been addressed that the success of fiscal consolidation depends not only on the improvement of the primary fiscal balances, but also on the macroeconomic conditions such as the monetary policy regime, the exchange rate adjustment, and the external position relative to the foreign sector (European Central Bank, 2013).

The management of fiscal policies at international level, and the channels of transmission of their effects depend crucially on the particular monetary regime prevailing (Díaz-Roldán, 2004); but the literature on open economies does not always pay special attention to this question. Monacelli and Perotti (2008) have studied the effects of government spending on trade. They find that a rise in government spending generates an appreciation of the terms of trade and a fall in the price of traded goods. Nickel and Vansteenkiste (2008) analyse the relationship between fiscal policy and the balance of payments, concluding that the effects of the fiscal deficit on the current account deficit depend on the initial public debt level. Barrios et al. (2010) estimate the determinants of successful fiscal consolidations and find that the repair of banking sector is a key condition. They also stress that the initial public debt level plays a significant role to achieve a successful fiscal consolidation, but they do not explore the effects of fiscal adjustment on the external sector. Riguzzi (2011), studies the extent to which the degree of openness influence the transmission mechanism of fiscal policy. He finds that openness to trade limits both the stimulating effect of government spending on output, and the contractionary effect of higher taxes on output. More recently, Karras (2012) tests the effectiveness of fiscal policy in open economies, and he finds that an increase in trade openness reduces the magnitude of the long-run fiscal multiplier.

As we can see, the public debt level seems to be determinant for the success of fiscal consolidation, and its implications abroad; although the empirical results are inconclusive, and none of the papers mentioned focus on the theoretical linkages behind, neither the monetary policy regime. Moreover, given that the interactions between monetary and fiscal authorities change depending on the monetary policy regime, we are interested in study the implications and the scope of fiscal policies under different scenarios.

Consequently, the aim of this paper is to provide an overview of the theoretical implications of fiscal policy in open economies, under alternative monetary policy regimes. Our main contribution will be to pay special attention to the particular case of monetary unions. As far as we know, the literature on open economies does not frequently use macroeconomic models explicitly designed to describe monetary unions. For that reason, we will offer a comparison of the standard results of open economies and the novel results of monetary unions; in order to show the relevance of the macroeconomic model behind economic policy decisions. To that end, we first will offer a short discussion on the macroeconomic policy regime provided by a monetary union, as substitute of the standard fixed exchange rate regime. Next, we briefly review the implications of monetary

and fiscal policies in open economies when achieving both domestic equilibrium and balance of payments equilibrium. And we will focus on the implications of fiscal policies in monetary unions. Finally, to highlight the importance of macroeconomic models when adopting policy decisions, we will discuss how the current economic crisis would be described by a macroeconomic model.

Alternative exchange rate regimes vs. monetary unions

In large economies, domestic economic policy decisions generate externalities on the outside world; and the greater is the degree of openness and economic integration greater are the effects of the interaction among the economies. The degree of openness can be measured by an increase of international trade in goods, services, and assets; and the prices of the items traded are affected, or even determined, by world markets.

The balance of payments of a country records all the economic transactions that have taken place during a given period between the country's residents and the rest of the world. The official reserve settlements balance (i.e., the sum of the current and the capital account) of the balance of payments has a different meaning depending on the particular exchange rate regime. Under a fixed exchange rate regime, this balance can be used, though imperfectly, to measure the intervention in foreign exchange markets. In a managed floating system, in which the exchange rate is allowed to fluctuate (but monetary authorities still intervene in foreign exchange markets in order to smooth out fluctuations in exchange rates), it is still an useful concept. Finally, under freely floating regime, when the monetary authorities let the exchange rate fluctuate, the calculation of the official reserve settlements balance loses interest.

Under a system of flexible exchange rates, there is no “balance of payments problem”. Exchange rate guarantees the disappearance of the balance of payments deficits or surpluses that would arise under a regime of fixed exchange rates. In the absence of government intervention, a purely monetary mechanism exists that can correct payments imbalances automatically, without requiring changes in output, prices or interest rates. In the absence of interventions in foreign exchange markets to fix exchange rates, the money supply is in principle under the control of the monetary authorities. This nominal monetary autonomy is obtained, however, at the cost of losing direct control over the exchange rates. On the contrary, the formulation of monetary rules for open economies should recognize that neither the price level nor the money supply may be controllable by domestic monetary authorities under a fixed exchange rate regime. In that way, a monetary rule defining a target rate of growth of Central Bank credit can be formulated not only for achieving the *inflation targeting*, but also with the purpose of keeping the external balance.

In the last years, in the academic circles, establishing a monetary union has been suggested as an alternative to a system of fixed exchange rates (Obstfeld and Rogoff, 1995; De Grauwe, 2006). In fact, from a macroeconomic point of view it is clear that a system of fixed exchange rates (and full capital mobility) implies that there is only one system-wide monetary policy. National currencies would become perfect substitutes through the irrevocable fixing of exchange rates if they became equally appropriate for the three classical functions of money, namely: unit of account, store of value and medium of exchange.

Our environment, the EMU, started by 11 member countries of the European Union (EU) in January 1st 1999, is a good example of that particular economic policy framework. A single monetary policy is the exclusive competence of an independent and supranational central bank, the European Central Bank (ECB), whilst other economic policies (budgetary and structural policies, as well as wage determination) generally remain the responsibility of the member states. The ECB formulates its policy in the light of

developments in the euro area as a whole. Monetary policy is therefore well placed to respond, if necessary, to any symmetric shocks that might affect the currency area.

In this economic policy framework, the management of fiscal policy becomes an issue of special relevance. In line with the subsidiarity principle, national governments are in a position (subject to certain common rules) to deal with their respective economies, e.g., in the case of country-specific shocks. However, the EU budget should not be expected to play the same role than, for instance, the United States of America (US), federal budget when providing the insurance function of fiscal policy. The exogenous shocks affecting US monetary union would be automatically absorbed due to the effect of procyclical taxes and countercyclical expenditures. In Europe, incorporating the insurance function to the EU budget would require to reinforce fiscal competencies at the EU level, given that the size of its budget is still relatively small (Rubio-Guerrero and Ruiz-González, 2009). In fact, proposing structural reforms of the budget would require several institutional changes, such as reinforcing the role of the European Parliament, creating either a supranational authority on taxes or funds guaranteed by different budget rules, or establishing a joint decision mechanism for the coordination of fiscal policies.

In a monetary union, there are good reasons for coordination in an economic environment characterised by increasing interdependence. Since interdependence leads to spillover effects across the member states, the key objective of policy coordination is to take account of spillovers of national policies. But with the exception of binding rules on deficits, macroeconomic coordination within the euro area is generally based on dialogue and consensus (Monteagudo-Cuerva, 2006). As mentioned before, a monetary union can be defined on the basis of achieving the *inflation targeting*, and also with the purpose of keeping external balance in the economy. On one hand, the large risk posed by fiscal imbalances to any monetary area stability justifies close rules-based coordination in budgetary policies. But, in the other hand, the fiscal discipline imposed by the monetary agreements could limit the scope of stabilization fiscal policies, and its implications on economic growth.

Summing up, in a monetary union, fiscal policy is the only demand policy aimed to achieve the stabilization goal. Therefore, member states of a monetary union would face special difficulties when dealing with external shocks. In the EMU, the fiscal policy is oriented to achieve output stabilization in the short-run, through the use of the public deficit and automatic insurance mechanisms. In the long-run the fiscal policy should guarantee the sustainability of public finances, and also it should contribute to economic growth through the structure of revenues and expenditures, and the public investment in physic and human capital (European Central Bank, 2004). However, as mentioned before, in the EMU the management of fiscal policy is constrained by the limits imposed to the deficit and the lack of a federal budget.

Domestic equilibrium vs. balance of payments equilibrium

In an open economy, domestic resident expending (or internal absorption) diverges from domestic income. This gap between income and absorption correspond to the trade balance, that is, the net foreign demand for domestic goods.

The objectives of policymakers in an open economy can be expected to achieve the internal balance (i.e., full employment), and the external balance, associated with balanced payments: (i) balanced trade account, in the absence of international capital movements, and (ii) long-term trade balance (or current account balance), under capital mobility (in the short-term, trade imbalances are financed by capital flows).

But in a simple Keynesian framework (or any model inspired by the Mundell-Fleming model), the economy's equilibrium does not ensure either full employment or balanced trade. The domestic equilibrium is achieved through the monetary policy and the fiscal

policy, while keeping the external balance depends on the particular monetary and exchange rate regimes adopted.

Monetary policy and the exchange rate regimes

Regarding monetary policy, money supply process in an open economy differs from that in a closed economy. The reason is that the monetary base is composed not only of Central Bank credit creation, but of the Central Bank's holdings of international reserves as well.

Under flexible exchange rate, the effectiveness of monetary policy is directly related to the degree of capital mobility. With imperfect capital mobility, monetary policy will influence domestic output, but under perfect capital mobility, monetary policy is highly effective. An increase in the money supply places downward pressure on domestic interest rates, inducing incipient capital outflows and depreciating domestic currency. This depreciation switches demand towards domestic goods and is expansionary. At the same time, since the domestic currency depreciation amounts to a foreign currency appreciation, higher domestic money growth might adversely affect output abroad. In this sense, monetary policy can be a "*beggar-thy-neighbour*" policy under flexible exchange rates (Díaz-Roldán, 2004).

In a regime of fixed exchange rates, balance of payments deficits (surpluses) tend to decrease (increase) the domestic money supply by decreasing (or increasing) foreign exchange reserves and thus the monetary base. Under this regime, there exists an automatic adjustment mechanism that tends to move the economy towards external balanced payments. This adjustment process is a monetary one in the sense that it moves the economy towards full equilibrium by adjusting the domestic money supply through the balance of payments. An expansionary monetary policy generates a rise in income and a decrease in interest rates. Both lead to a payments deficit, which induces a reduction of the money supply towards its original level, diluting its initial effects on the economy.

Fiscal policy and the exchange rate regimes

Regarding fiscal policy, under fixed exchange rates, increases in government spending raise aggregate demand, leading to an output expansion. The multiplier effects on domestic income are smaller the more open the economy is, in the sense of a higher marginal propensity to import. In an open economy, increases in government spending increase income but raise imports and deteriorate the trade balance. An increase of government expenditure raises the level of income and the interest rate. As these have opposite effects on the balance of payments, either surplus or a deficit may develop over the short run, depending on how large the degree of capital mobility is relative to the marginal propensity to import.

Under flexible exchange rates, the effectiveness of fiscal policy is oppositely related to the degree of capital mobility. When imperfect capital mobility prevails, fiscal policy will influence domestic output. But under perfect capital mobility the opposite holds, and fiscal policy is not effective in changing output. An increase in government expenditures would raise aggregate demand for domestic goods and place upward pressures on domestic interest rates. This induces financial capital to flow into the economy, leading to an appreciation of the exchange rate and switching demand away from domestic goods. This aggregate demand reduction would offset the direct expansionary effects of increased government spending. With interdependence, an increase in domestic spending will spill over into foreign income expansion. Since some of the increased foreign spending will fall on domestic goods, spill overs result in further expansionary repercussions on domestic income, is the so called "*locomotive effect*" (Díaz-Roldán, 2004).

In Table 1 we show the effectiveness of monetary and fiscal policies, under the main alternative exchange rate regimes. As can be seen, the results depend not only on the exchange rate regime, but also on the degree of capital mobility.

TABLE 1. DEMAND POLICIES IN OPEN ECONOMIES VERSUS CLOSED ECONOMIES

	FIXED EXCHANGE RATE	FLEXIBLE EXCHANGE RATE
MONETARY POLICY	Ineffective ($Y = \text{unchanged}$) This result is independent of the degree of capital mobility	Effective ($\Delta Y_O > \Delta Y_C$) Maximum effectiveness under perfect capital mobility
FISCAL POLICY	Effective ($\Delta Y_O < \Delta Y_C$) Maximum effectiveness under perfect capital mobility	Effective ($\Delta Y_O < \Delta Y_C$) Ineffective under perfect capital mobility

Source: Own elaboration.

Note: Y_O = open economy output, Y_C = closed economy output

Fiscal policy and the novel economic framework of monetary unions

As mentioned before, in the particular policy framework of monetary unions, the management of fiscal policy becomes an issue of special relevance. The first attempt to extend the Mundell-Fleming model to the supply-side and the case for a monetary union is Bajo-Rubio and Díaz-Roldán (2011a). They consider a common money market equilibrium condition and analyses the effects of real, monetary, supply-side, common and country-specific shocks in the novel macroeconomic framework given by a monetary union.

But in this paper, we will follow Bajo-Rubio and Díaz-Roldán (2011b), where a model of aggregate demand and aggregate supply for a monetary union is developed, but where the monetary authority is the Central Bank that follows a common monetary rule. In such context, a fiscal policy would have the same effect as a disturbance that affected goods market. If fiscal policy were applied in all countries of the union, in the medium-term equilibrium, an increase in inflation rates and interest rates would be observed, but production levels would return to their initial values. That is, a common fiscal policy (or any real common disturbance) would be only effective in the short term. However, if fiscal policy was applied in one country (country-specific shock), the inflation rate would increase in the whole union, so the union Central Bank would raise the interest rate. The production level of the country that has applied expansionary (contractive) fiscal policy would increase, while for the rest of the member countries would have decreased (increased). However, the increase of the level of production of a country and the decrease in the rest would be exactly compensated, so that the output level of the union as a whole would remain unchanged in the final equilibrium. In other words, the total income of the union would not be altered, but there would be a redistribution of income in each member country of the union.

In Table 2 we show the effectiveness of fiscal policies in monetary unions. We analyse two polar cases: (i) when a common fiscal policy is applied in all the countries of the union (or equivalently, all the countries of the union are hit by a common real shock); and (ii) when fiscal policy is applied in one country only (equivalent to a country-specific real shock). We also show the effects of the policy (or disturbance) on the member states and on the whole union.

The main result that we find is that fiscal policy only seems to be effective in the short-run, when countries are affected by a common shock. And, for the case of country-specific shocks, fiscal policy may be effective for the country that has been hit by the shock. In any case, the output level of the union as a whole remains unchanged in the

long-run; being the only one noticeable effects the redistribution of output among the country members.

TABLE 2. FISCAL POLICIES IN MONETARY UNIONS

	COUNTRY-SPECIFIC SHOCK (POLICY)	COMMON SHOCK (POLICY)
THE COUNTRY MEMBER	Effective (Y_{MC} increases or decreases, and the opposite for the rest of the member countries)	Ineffective (Y_{MU} and Y_{MC} = unchanged) in the long run
	There is a redistribution of output	Effective in the short-run
THE WHOLE UNION	Ineffective (Y_{MU})	Ineffective (Y_{MU} and Y_{MC} = unchanged) in the long run
	Levels unchanged for the whole union in the long-run	Effective in the short-run

Source: Own elaboration.

Note: Y_{MU} = monetary union output, Y_{MC} = member country output

The macroeconomics of the current crisis

In terms of a macroeconomic model, the current economic crisis could be explained as follows: due to the problems of the financial system, the difficult to borrow has led to increases of the real interest rate. In one hand, domestic economies have reduced consumption, given their disposable income, and thereby decreasing the level of income of the economy. On the other hand, the rise has also reduces investment and therefore aggregate demand. However, the smaller decrease in aggregate demand will lead the Central Bank to lower the interest rate, reducing partially the contractive effect on the level of activity.

In terms of aggregate supply, the result is a decrease on output and employment and, therefore, on the rate of inflation. And consequently, the Central Bank has reduced the real interest rate in response to a lower inflation. Therefore, in a closed economy, in the medium term, the economy would return to the initial output level. But in an open economy, however, the lower real interest rate would lead to a depreciation of the real exchange rate. And this depreciation would lead the output level to decrease in the medium term. If we try to deal with the crisis by implementing an expansionary fiscal policy, the result would be an increase of public deficit and debt, which are already very high in most advanced countries. In EU countries, contractionary fiscal policies are being implemented to reduce the size of government deficits and to recover the confidence of financial markets, trying to avoid the risk of debt default. But it is also true that a contractionary fiscal policy will tend to cause a drop in activity levels, exacerbating the recession and difficult further deficit reduction.

In other words, the current crisis would be equivalent to a contractionary common demand (monetary) disturbance. In an open economy, under flexible exchange rates, expansive monetary policies would be the advised by economic theory. On the other hand, under fixed exchange rates, monetary policy measures prove to be ineffective; being fiscal policy effective. But in the particular regime of a monetary union, fiscal policy only seems to be effective in the short-run (see Table 2). Therefore, the way to recovering the pre-crisis levels of output differ depending of the particular monetary policy regime.

Conclusion

In the last years, following the financial and economic crisis, the debate on the role of economic policies has been reopened. It is well known that the success of fiscal

consolidation depends not only on the improvement of the primary fiscal balances, but also on the macroeconomic conditions such as the monetary policy regime and the exchange rate adjustment.

In this paper, we have seen that it is not trivial to manage fiscal policy in the particular economic framework given by a monetary union. In this economic policy framework, the management of fiscal policy becomes an issue of special relevance. In line with the subsidiarity principle, national governments are in a position (subject to certain common rules) to deal with their respective economies, e.g., in the case of country-specific shocks. As far as we know, the literature on open economies does not frequently use macroeconomic models explicitly designed to describe monetary unions. And our main contribution has been to offer a comparison of the standard results of open economies and the novel results of monetary unions; to highlight the relevance of the macroeconomic model behind economic policy decisions.

On one hand, we have seen that in the tradition of the Mundell-Fleming model, the effectiveness of demand policies is close related to the exchange rate regime. Under flexible exchange rates, the effectiveness of monetary policy is directly related to the degree of capital mobility. With imperfect capital mobility, monetary policy will influence domestic output, but under perfect capital mobility, monetary policy is highly effective. But in a regime of fixed exchange rates, monetary policy proves to be ineffective, being this result independent of the degree of capital mobility. On the other hand, fiscal policy is effective in any case. But under flexible exchange rates, the effectiveness of fiscal policy is oppositely related to the degree of capital mobility.

On the other hand, in last years, establishing a monetary union has been suggested as an alternative to a system of fixed exchange rates. And for that reason, we have paid special attention to the particular policy framework of a monetary union. In such environment, the management of fiscal policy becomes an issue of special relevance because it is the only stabilization policy that remains under the responsibility of the member states. And has been stated, also, that in a monetary union the fiscal discipline required to sustain the monetary agreements, could limit the scope of stabilization fiscal policies, and its implications on economic growth.

The main result that we find is that fiscal policy, in monetary unions, only seems to be effective in the short-run, when countries are affected by a common shock. And, for the case of country-specific shocks, fiscal policy may be effective for the country that has been hit by the shock. In any case, the output level of the union as a whole remains unchanged in the long-run; being the only one noticeable effect the redistribution of output among the country members.

When analysing the current economic crisis, from a theoretical point of view, an increase in foreign demand for domestic goods could help to alleviate the recession. However, in this situation, in which most countries experience very low growth rates, to improve external positions do not appear as a short-run solution. And in the particular case of a monetary union, the current crisis is equivalent to a contractionary demand disturbance (common to all member states); and fiscal policy measures only are effective in the short term, as we have seen. The question therefore is: what is the duration of what we call short term?

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