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Review paper

Discretionary policy in a monetary union with sovereign debt

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ABSTRACT

This paper examines the interactions between multiple national fiscal policymakers and a single monetary policy maker in response to shocks to government debt in some or all of the countries of a monetary union. We assume that national governments respond to excess debt in an optimal manner, but that they do not have access to a commitment technology. This implies that national fiscal policy gradually reduces debt: the lack of a commitment technology precludes a random walk in steady-state debt, but the need to maintain national competitiveness avoids excessively rapid debt reduction. If the central bank can commit, it adjusts its policies only slightly in response to higher debt, allowing national fiscal policy to undertake most of the adjustment. However, if it cannot commit, then optimal monetary policy involves using interest rates to rapidly reduce debt, with significant welfare costs. We show that in these circumstances the central bank would do better to ignore national fiscal policies in formulating its policy.

1. Overview

What is the optimal response of the European Central Bank's (ECB) monetary policy to a positive shock to government debt in its member countries? This will depend on how national fiscal policy responds to its own excess debt, which we show is likely to be quite different to how it would respond outside of a monetary union. We analyse a multi-country monetary union where national fiscal authorities operate in the national interest and do not have access to a commitment technology. This alters the analysis of optimal monetary and time-consistent fiscal policy in closed economies in various respects. First, an effective means of influencing debt levels in the closed economy (or in the open economy under flexible exchange rates) is to introduce inflation surprises under flexible prices, or to reduce real debt service costs under sticky prices. Within a monetary union national policy makers no longer have access to monetary policy to achieve this, and any inflation consequences of changes in distortionary taxes will have repercussions on competitiveness with respect to the rest of the monetary union and will ultimately have to be undone. Thus the extent of the time-inconsistency problem can be quite different in the monetary union, relative to the closed economy. Secondly, while the national fiscal authorities are assumed to be too small to interact strategically with each other or the European Central Bank (ECB), the ECB could reasonably be thought to be aware of how national fiscal authorities might react to union-wide economic conditions and may or may not choose to factor this into their optimal policies. We therefore explore how time-consistent national fiscal policies influence ECB behaviour, after allowing for varying degrees of ECB conservatism, ECB mandates and whether or not the ECB can commit. We show that even when national fiscal policies are sound and collectively stabilise union-wide debt stocks, the ECB faces a significant temptation to

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adjust monetary policy to facilitate national fiscal adjustment and this time-inconsistency problem can be particularly costly in welfare terms.

In terms of modelling, we follow Gali and Monacelli (2008) in considering the case of monetary union consisting of a continuum of small economies, although we extend GM's analysis to include a labour income tax, in addition to government spending, as a national fiscal instrument. More significantly, we also focus on the need to satisfy national government budget constraints through adjustments in distortionary taxes and/or government spending conditional on the monetary policies pursued by the ECB.[1] We assume that national fiscal authorities seek to maximise national welfare, taking the ECB's monetary policy and the state of the rest of the union as given. Additionally, we assume that the national fiscal authorities do not have access to a commitment technology such that their national fiscal policies are constrained to be time-consistent. The resultant optimal national policies successfully stabilise national government debt gradually through a combination of government spending cuts and tax rises, which are carefully balanced to mitigate the costs of lost competitiveness relative to the rest of the monetary union during the period of fiscal correction. The fact that national fiscal authorities care about competitiveness *vis a vis* the rest of the monetary union, also implies that increasing price flexibility significantly slows the speed of debt correction—this is in contrast to the case of the closed economy or open economy operating under flexible exchange rates where increasing price flexibility allows inflation surprises to be used to stabilise debt more rapidly.

We then turn to consider the optimal policies of the ECB, where the ECB cares about an aggregate of utility functions across the monetary union, in the light of the aggregate impact of the national fiscal policies. Since the national fiscal authorities are solely concerned with national welfare and take conditions in the rest of the union as given, there is scope for the ECB to act as a Stackelberg leader and take account of the collective national fiscal response to its policies. If the ECB can commit then it moderates its monetary policies slightly to reduce union-wide debt levels, but the bulk of the adjustment takes place through national fiscal adjustment. However, such a policy is inherently time-inconsistent: the ECB is resisting the temptation to introduce a policy surprise to reduce union-wide debt levels and partially avoid the costly national fiscal adjustments that would otherwise take place. When the ECB is assumed not to have access to a commitment technology, then its policy response to a union-wide debt shock is quite different. Although the national fiscal authorities follow policies which stabilise national (and therefore, collectively, union-wide) government debt stocks, the ECB runs a time-consistent policy which aggressively returns union-wide debt to its steady-state value by reducing debt service costs, boosting the union-wide tax base and encouraging national fiscal authorities to cut government spending.

As an alternative description of ECB policy, we assume that the ECB seeks to maximise union-wide welfare but does not recognise national fiscal policies and the national budget constraints as constraints on its policy problem. In other words we allow the ECB to simply ignore the fiscal repercussions of its actions, and therefore its ability to both influence government debt and also the attendant national fiscal responses. Since the national fiscal policies are essentially sound, this is consistent with fiscal stability. If the ECB cannot commit, and is constrained to follow time-consistent policies, then ignoring the fiscal consequences of its actions enables to the ECB to pursue far more reasonable policies with a significant welfare gain.

The results in this paper extend and differ from many earlier results obtained in the context of closed economies. Generally, when fiscal policy does not have access to a commitment technology and is therefore constrained to follow time-consistent policies, this means that steady state debt no longer follows a random walk (as shown in Leith and Wren-Lewis, 2007a, b in contrast to the random walk results of Schmitt-Grohe and Uribe, 2004 and Benigno and Woodford, 2003). In extending this to the case of a monetary union, we show that national debt correction is relatively gradual because of the need to preserve national price competitiveness. This is in sharp contrast to the closed economy (or isomorphic flexible exchange rate small open economy[2]) case under (time-consistent) discretion, where optimal debt correction is very rapid (Leith and Wren-Lewis, 2007a, b). As the need to preserve national competitiveness moves the path of debt closer to the commitment solution, it improves welfare under discretion.

The literature that has explored the time-inconsistency of optimal fiscal policy, where policymakers do not have access to non-distortionary tax instruments, has typically assumed a flex price environment. For example, in Lucas and Stokey (1983) surprise inflation effectively acts as a lump-sum tax on real money balances allowing the fiscal consequences of shocks to be dealt with costlessly. In contrast, when monetary injections cannot be fully spent in the period in which they occur (Nicolini, 1998), time consistent policy may actually result in surprise deflations rather than inflations. This and other papers show that the desired long-run level of debt under the time-consistent policy may actually be positive or negative, depending on preferences and whether or not debt is real or nominal (see for example, Diaz-Gimenez et al., 2008; Ellison and Rankin, 2007) or if the government can only issue risk-free debt (Aiyagari et al., 2002). In the case of nominal debt it is the temptation to use surprise inflation/deflation to influence the real level of government debt that drives the time-inconsistency problem.

The results in Schmitt-Grohe and Uribe (2004) suggest that even a "miniscule" degree of price stickiness means that it ceases to be optimal (under a Ramsey policy) to use surprise inflation in this way. As a result, it may be thought that the time-inconsistency problem in a sticky-price environment may be slight. Leith and Wren-Lewis (2007a, b) show that this is not the case. They demonstrate that in a closed New Keynesian economy time-consistent policy will very rapidly return debt to its (efficient) pre-shock level. While surprise inflation plays some role in this adjustment, most of the correction takes place

[1] GM assume that national governments have access to a lump-sum tax at all points in time such that government debt does not play any part in their analysis.

[2] Gali and Monacelli (2005) show that the policy problem for the small open economy can be isomorphic to that in the closed economy. While Kirsanova et al. (2006) discuss the conditions under which this holds true.