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Fiscal consolidation in a currency union: Spending cuts vs. tax hikes

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A B S T R A C T

This paper uses a two country DSGE model to examine the effects of tax-based vs. expenditure-based fiscal consolidation in a currency union. We find three key results. First, given limited scope for monetary accommodation, tax-based consolidation tends to have smaller adverse effects on output than expenditure-based consolidation in the near-term, though is more costly in the longer-run. Second, a large expenditure-based consolidation may be counterproductive in the near-term if the zero lower bound is binding, reflecting that output losses rise at the margin. Third, a "mixed strategy" that combines a sharp but temporary rise in taxes with gradual spending cuts may be desirable in minimizing the output costs of fiscal consolidation.

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1. Introduction

The global financial crisis and slow ensuing recovery have put severe strains on the fiscal positions of many industrial countries. Between 2007 and 2011, debt/GDP ratios climbed by 25–30% in many countries, including the United States, United Kingdom, France, and Spain. Mounting concern about high and rising debt levels, especially in the wake of the runup in borrowing costs for many European sovereigns, has spurred efforts to implement sizeable and long-lived fiscal consolidation plans, especially in Europe.

In designing a fiscal consolidation plan, policymakers must make a number of key decisions: These include the size of the desired improvement in the primary balance or debt/GDP ratio; its composition between spending cuts and tax increases; and its speed of implementation. Thus far, many of the fiscal consolidation plans in Europe that have received legislative approval appear to have broadly similar features—they are typically fairly front-loaded, and more focused on spending cuts than tax-hikes. But an important open question is the extent to which it may be desirable to tailor the structure of fiscal consolidation to the economy in question by taking account of its monetary policy regime, the state of the business cycle, and other factors.

Our paper makes a purely *positive* contribution along these lines by investigating how the effects of tax-based vs. expenditure-based consolidation depend on the degree of monetary accommodation.[1] Specifically, we use a two country medium-sized DSGE model to analyze the implications of each type of consolidation under the constraints imposed by currency union membership. We consider an independent monetary policy (IMP) as a useful reference point, and allow for the possibility that the currency union is constrained by the ZLB. Our analysis has an important parallel with previous

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[1] A normative welfare analysis of the alternative fiscal instruments would be an interesting extension, but is beyond the scope of the current analysis.

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work by Eggertsson (2010), who used the New Keynesian model to compare the relative efficacy of spending hikes and tax cuts in providing short-run fiscal stimulus when the ZLB is binding. However, our analysis differs due to its open economy orientation, our use of a more empirically realistic model, and our focus on longer-term fiscal consolidation.

Our model assumes that the home economy is large enough to markedly influence the setting of policy rates, so that fiscal consolidation may affect the duration of the liquidity trap faced by the currency union. Fiscal policy in each country specifies a rule for how *either* the labor tax rate *or* government spending responds to the difference between the debt/GDP ratio and its target value, with the latter time-varying. An important feature influencing the effects of fiscal policy in our model is the inclusion of ''rule of thumb'' households who consume all of their after-tax income as in Erceg et al. (2006); ample micro- and macro-evidence suggests that such non-Ricardian consumption behavior is a key transmission channel for fiscal policy.[2] On other dimensions, our model is a relatively standard two country open economy model which embeds the nominal and real frictions that have been identified as empirically important in the closed economy models of Christiano et al. (2005) and Smets and Wouters (2003), as well as analogous frictions relevant in an open economy framework (such as costs of adjusting trade flows). Given the importance of financial frictions as an amplification mechanism – as highlighted by the recent work of Christiano et al. (2010) – we incorporate a financial sector following the basic approach of Bernanke et al. (1999).

We begin by analyzing the effects of a 25% reduction in the *desired* long-run debt target that is achieved either by a prolonged rise in the labor tax rate, or alternatively, through a cut in government spending. Under an independent monetary policy (IMP), government spending cuts are much less costly in reducing public debt than tax hikes. With a tax hike, output falls 2% after two years, while the debt/GDP ratio is reduced about 4% points, consistent with a ''fiscal sacrifice ratio'' of 1/2 at a two year horizon. By contrast, output falls only about half as much under the spending-based consolidation, while progress in reducing debt is slightly faster, implying a sacrifice ratio of less than 1/4. The larger output decline in response to tax hikes reflects that tax hikes have a more depressing effect on potential output, and that monetary policy (which follows a Taylor rule) keeps output reasonably close to potential under either type of consolidation.[3] A key insight is that the spending-based consolidation requires relatively large cuts in the policy rate to crowd-in private demand, including through an induced depreciation of the exchange rate, while the tax-based consolidation implies a much smaller fall in interest rates, and generates exchange rate appreciation.

Under a currency union, an expenditure-based consolidation depresses output by more than a tax-based consolidation for several years. This reflects that the CU central bank in effect provides too little accommodation given its focus on union-wide aggregates. Moreover, fixed exchange rates tend to cause spending cuts to be more contractionary than under an IMP, while causing tax hikes to be somewhat less contractionary (by reducing the appreciation that would otherwise occur). Even so, because real interest rates and real exchange rates gradually adjust towards their flexible price levels at longer horizons, the sacrifice ratio associated with a spending-based consolidation eventually falls below that of a tax-based consolidation, with the cross-over occurring after three years under our benchmark calibration. Thus, the CU constraint in effect introduces an intertemporal trade-off between tax-based and expenditure-based consolidation: the former induces a smaller near-term output contraction, but implies a considerably deeper output decline at longer horizons.

The adverse GDP impact of a spending-based consolidation is exacerbated considerably when the CU central bank is constrained by the ZLB. Given the substantial size of the home country in the CU, larger spending cuts lengthen the duration of the liquidity trap faced by the CU, implying a progressively larger adverse impact on output *at the margin* (i.e., the multiplier increases), and correspondingly, less improvement in the debt/GDP. If large enough in scale, spending-based consolidations can even become counterproductive at a horizon extending out several years, in the sense that they markedly deepen the output contraction without achieving any additional improvement in the debt/GDP ratio. By contrast, the effects of tax-based consolidation are much less sensitive to the degree of monetary accommodation, and hence to the scale of fiscal consolidation: the sacrifice ratio is close to constant until the consolidation becomes extremely large.

Given that tax-based consolidations are relatively attractive in the near-term if monetary policy is constrained, while spending-based consolidations induce a smaller longer-term output contraction, it is natural to consider the effects of a ''mixed strategy'' that combines sharp but temporary increases in taxes with more gradual and more persistent spending cuts. We find that such an approach indeed contributes to much smaller output costs in the near-term than under a spending-based approach, while also reducing the longer-run output contraction (since taxes are lower in the longer-term). Of course, the benign effects on output are contingent on convincing the public that the tax hikes are purely temporary, which may be difficult to achieve in practice given that tax hikes initially promised as temporary often prove hard to unwind. If the public believes the tax hike will ultimately support higher spending, the effects on output would be much more contractionary.

We also illustrate how the model's implications for sacrifice ratio under alternative types of consolidation are sensitive to a number of key parameters. Perhaps unsurprisingly, a high Frisch elasticity of labor supply tends to make spending-based consolidation more attractive at all horizons. The sharp contractionary effects of spending-based consolidations are

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[2] Using micro-data from the Consumer Expenditure Survey, Johnson et al. (2006) and Parker et al. (2011) find evidence of a substantial response of U.S. household spending to the temporary tax rebates of 2001 and 2008. On the macro-side, Galí et al. (2007) present evidence from structural VARs that government spending shocks tend to boost private consumption, and show how the inclusion of rule-of-thumb agents in their DSGE model helps it account for this behavior. Blanchard and Perotti (2002) and Monacelli and Perotti (2008) obtain similar empirical findings.

[3] We define potential output as the level of output that would prevail if prices and wages were fully flexible.

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