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Fiscal devaluation in the euro area: A model-based analysis☆

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ABSTRACT

We assess the effects of a temporary fiscal devaluation enacted in Spain on the trade balance by simulating EAGLE, a large-scale multi-country dynamic general equilibrium model of the euro area. Social contributions paid by firms are reduced by 1% of GDP for four years and are financed by increasing the consumption tax. Our main results are the following. First, in the first years following implementation the Spanish trade balance improves by around 0.6% of GDP, the (before-consumption tax) real exchange rate depreciates by 0.7% and the terms of trade deteriorate by 1.3%. Second, the trade balance improves when the temporary fiscal devaluation is also enacted in the rest of the euro area, albeit to a lower extent than in the case of unilateral (country-specific) implementation. Third, similar results are obtained if we consider the case of a smaller euro area economy, specifically Portugal. Fourth, quantitative results are robust to changes in some key parameters but crucially depend on the degree of substitutability between domestic and imported tradables.

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1. Introduction³

In the presence of nominal price rigidities, a country can rely on nominal exchange rate devaluations to restore short-run international price competitiveness. However, for a country belonging to a monetary union this policy measure is not available. In fact, the nominal exchange rate vis-a-vis other members of the union is fixed and the common nominal exchange rate against third countries depends on the performance of the union as a whole.

An alternative way to increase a country's short-run international price competitiveness that is often discussed in policy debates and also analyzed in academic work is a temporary fiscal devaluation. In line with the quantitative literature (see e.g., Lipinska and von Thadden, 2012; Mooij and Keen, 2012) and policy discussions, we define fiscal devaluation as the possibility for fiscal policy to have effects on trade and relative prices in an open economy by appropriately increasing consumption tax and reducing employers' social security

contributions.⁴ The reduction in social contributions decreases unit labor costs and, as long as they are passed through to final prices, the relative price of domestic goods. The improvement in price competitiveness reduces producer prices of domestically produced (non-traded and traded) goods and, hence, favors exports and reduces imports. The reduction in contributions is financed by increasing the consumption tax.⁵ The latter is a destination-based tax. As such, it raises the after-tax price of domestic and imported goods uniformly, but not the price of exported goods. Overall, the combination of lower unit labor costs and a higher consumption tax decreases the price of exported goods and increases the after-tax relative price of the imported good. The terms of trade deteriorate, as in the case of a nominal exchange rate devaluation that is passed through in the prices of exported and imported goods. A fiscal devaluation that is temporary can be a relevant measure for two reasons. First, it can speed up the convergence process toward the long-run equilibrium, where all prices are flexible and fully adjust to the fundamentals of the economy. Second, it can make the convergence process smoother and prevent sudden rebalancing of the current account.

In this paper, we assess the extent to which the trade balance improves in the short run in correspondence of a temporary fiscal

☆ The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Italy, Bank of Portugal or the European Central Bank (ECB).

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⁴ Our use of the term fiscal devaluation is different from that used in theoretically oriented contributions to the literature (see Farhi et al., 2014). In these contributions, it is defined in terms of an equivalence, i.e., it is a change in fiscal instruments that implements the same real allocations as a nominal exchange rate devaluation.

⁵ In what follows, we will use "value added taxes (VAT)" and "consumption taxes" interchangeably. Similarly, we will use "social contribution paid by firms" and "payroll taxes" interchangeably.

devaluation enacted by a country in the euro area.⁶ Thus, we focus on fiscal devaluation as a tool to overcome the lack of short-run adjustment associated with nominal rigidities. The long-run equilibrium remains the same regardless of the fiscal devaluation, given that it is temporary. The analysis is based on the EAGLE model (Euro Area and Global Economy model, see Gomes et al., 2010, 2012), a large-scale multi-country dynamic general equilibrium model of the euro area and the world economy. The model is New Keynesian as it features monopolistic competition in the labor and goods markets and, importantly for the purpose of this paper, nominal price and wage rigidities. The euro area is split into two regions, calibrated to Spain and the rest of the euro area. They share monetary policy and the nominal exchange rate against third countries. The monetary policy is conducted at the euro area level according to a Taylor-type rule. For the international dimension, the model features incomplete international financial markets (a riskless bond is internationally traded), home bias, international price discrimination and short-run adjustment costs on imports and distinguishes between tradable and non-tradable intermediate goods. As such, the model allows for an exhaustive characterization of the international relative prices and trade balance dynamics.

We initially simulate the implementation of a fiscal devaluation in Spain. Subsequently, we consider the case of simultaneously implementing a fiscal devaluation in the euro area as a whole. As a sensitivity exercise, we run a unilateral fiscal devaluation in a euro area economy smaller than Spain, specifically Portugal. Finally, a sensitivity analysis is also performed by changing the values of parameters regulating nominal wage and price rigidities and the elasticity of substitution between domestic and imported goods.

Unit labor costs are diminished through a reduction in employers' social contributions equal to 1% of *ex ante* nominal GDP. The reduction in contributions is financed by the increase in consumption taxation equal to 1% of *ex ante* nominal GDP. As such, the measures are *ex ante* revenue-neutral. Tax reforms are announced, immediately implemented and fully credible. Given the temporary nature of the policy measure, the steady state is left unaffected. The measures are temporary, implemented over a four-year horizon. The latter is chosen in line with the model's short-term horizon, which is given by nominal prices and wages adjusting on average every one-to-two years. This is consistent with the idea that the fiscal devaluation is an alternative to a nominal exchange rate devaluation when short-run nominal rigidities and a fixed nominal exchange rate are a constraint to an improvement of the trade balance in the short-run.

Our main results are as follows. First, in the case of Spain, the temporary fiscal devaluation improves the external balance, as a ratio to GDP, by about 0.6 percentage points (maximum value) after two years from the beginning of devaluation and then it gradually returns to the steady state.⁷ In the first year, exports increase because of the improvement in Spanish price competitiveness. Imports decrease only marginally as their loss of competitiveness is compensated for by the increase in demand for investment goods. The real exchange rate depreciates by 0.7% and the terms of trade deteriorate by 1.3%. GDP increases by 0.9%, sustained by the increase in net exports and investment. Second, the external balance also improves in the case of a euro area-wide temporary fiscal devaluation. The improvement is somewhat smaller than in the case of unilateral devaluation, as tradable goods produced in the rest of the euro area are now more competitive than in the case of unilateral devaluation. However, Spanish exports toward the rest of the euro area still increase, as they benefit from the increase in investment in the rest of the euro area. Third, Portuguese results are in line with the Spanish ones. The Portuguese trade balance temporarily improves by

0.4% of GDP and the real exchange depreciates by 0.6%. Fourth, results are robust to changes in the values of some key parameters, such as nominal price and wage rigidities. Quantitative results crucially depend on the elasticity of substitution between domestic and imported tradables.

Our paper focuses on the impact of a temporary fiscal devaluation on short-run trade imbalances. Thus, we do not consider very persistent trade deficits and foreign borrowing which can create problems of foreign debt sustainability. As the latter are likely to be a structural feature of the deficit economy, a temporary fiscal devaluation is not the appropriate policy measure to deal with it. Structural reforms, aiming at improving the competitiveness and the external position of the country on a permanent basis should be more effective (see Vogel, 2012, 2014).

The paper is organized as follows. Section 2 provides an overview of the related literature. Section 3 shows the model setup, the transmission mechanism of the fiscal devaluation and the calibration of the model. Section 4 reports the results. Section 5 concludes.

2. Related literature

Several papers look at fiscal devaluation as a way to regain competitiveness. Mooij and Keen (2012) present empirical evidence which suggests that revenue-neutral shifts from the employers' social contributions toward the VAT in euro area could improve the trade balance in the short run in a sizable way. Lipinska and von Thadden (2012) develop a two-country DSGE model of a monetary union to analyze unilateral permanent shifts of the tax structure toward indirect taxes and find usually small long-run effects of this measure that depend crucially on the degree of financial integration between the two countries in the union. The authors show that the short-run impact depends significantly on whether the tax shift is anticipated or not and on the degree of nominal wage stickiness. Focusing on Portugal, Franco (2011) analyzes the same type of policy measure by estimating a number of VAR equations with Portuguese data and by simulating its impact on a small-open economy DSGE model. His empirical analysis suggests that these measures imply a gain of competitiveness and an improvement in the trade balance, but the necessary changes in tax rates would have to be large. The author concludes that a temporary version of the tax swap achieves a sharp improvement in the current account. The impact of a fiscal devaluation in Portugal is also simulated by Banco de Portugal (2011). A shift from employers' social security contributions to value added tax equivalent to 1% of GDP in the first year boosts total exports by 0.5% and improves the trade balance by 0.6% of GDP.⁸ Jaumotte and Sodsriwiboon (2010) assess causes and consequences of large external deficits in the euro area based on standard current account regressions. Their results suggest that raising labor productivity and moderating unit labor costs could substantially improve current account positions.

Our paper also relates to the strand of international finance literature addressing the role of international relative prices in external adjustment. Many papers have focused on the US case. The size of the real dollar depreciation required to correct global imbalances differs across contributions. Obstfeld and Rogoff (2005) show that (permanently) eliminating the US current account deficit by 5 percentage points of GDP would require that economy's real exchange rate to depreciate by roughly 35 to 50%. Other contributions, however, find that the magnitude of a real depreciation that would insure a sustainable correction of the US external imbalance may well be 10–20%, perhaps less, in real effective terms. Faruquee et al. (2007) construct scenarios with real effective dollar depreciations of around 15%, under a “soft-landing scenario”. Similar figures are produced by Ferrero et al. (2010). Corsetti et al. (2013) calibrate a model to the US economy and find that real exchange

⁶ We focus on the trade balance as the model does not allow us to capture valuation effects associated with the net foreign asset position of a country, that can influence the dynamics of current account. Nevertheless, as suggested by Baxter (1995), at business cycle frequency trade balance and current account balance are positively correlated.

⁷ For results, in what follows we always report peak or trough values.

⁸ The fiscal devaluation has been widely discussed in Portugal. In the initial EU/IMF Financial Assistance Programme, the implementation of a budget-neutral fiscal devaluation as a way to boost competitiveness was considered.

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