Labour Market Regulation, Fiscal Consolidation, and the Success of Current Account Adjustments

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Abstract

In this paper we argue that the strictness of labour market regulations can interact with the mode of fiscal consolidation (tax- based versus spending-based fiscal adjustments) to affect whether current account adjustments are successful. Using data from 81 countries, we are able to identify 147 episodes of current account adjustments, of which 69 are classified as successful. On the basis of a discrete choice cross- sectional time- series model we find that the co-existence of tax-based fiscal consolidations and strict labour market regulations reduces significantly the probability of successful current account adjustments.

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1. Introduction

Since the onset of the Global Financial Crisis (GFC), global current account imbalances – and especially those among Eurozone countries – have come to the forefront of the global policy agenda, both as a factor impairing a sustainable recovery of output, and as a source of global instability (e.g. Blanchard and Milesi-Ferretti, 2009). This has generated heated discussion about whether the onus of adjustment should be borne by deficit or surplus countries, and whether these imbalances are the results of "structural deficiencies" or "distortions" which prevent an "optimal" allocation of resources – especially in deficit countries.

Tax reform and labour market reform have traditionally been the focus of proposals for structural adjustment in both developed and developing countries by the international organizations (IMF, OECD, World Bank). Yet, how these reforms affect exports has been an active area of research only for developing countries (e.g., Gordon and Li, 2009; Kugler and Kugler, 2009), whereas the literature for developed economies has focused mostly on their (un)employment or growth effects. Among the rare exceptions to this dearth of scholarly work on the effects of tax and labour markets reforms on export performance in developed countries is Saint-Paul (1997). He argued that due to globalization there has been an increase in the (wage cost) elasticity of labour demand, thus exacerbating the effects of labour market rigidities on employment. He also claimed that labour market rigidities induce firms to produce products at a later stage of the product cycle, thus resulting in low innovation, low learning externalities, and low export growth. In contrast, Agell and Lommerud (1993) and Moene and Wallerstein (1997) have argued that many labour market rigidities which are characterised by a high degree of wage equality, drive inefficient firms off the market and expedite structural change, thereby fostering productivity and export growth.[1]

In the present paper we focus on the role played by various forms of labour market regulation (LMR) in affecting the probability of successful current account adjustment. This is an important endeavour since it is commonly believed that the

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[1] The literature on the influence of labour market institutions on the workings of the economy is very diverse (see, also, Bertola, Blau, and Kahn, 2007; Blanchard and Landier, 2002; Boeri and Garibaldi, 2009).

easing of LMR can soften the impact of deflationary policies on output during periods when countries try to lower their current account deficits. The literature (e.g. Kerdain, Koske and Wanner, 2010) has identified a number of channels through which LMR can influence the current account. Noting that as a matter of national accounting the current account balance is the difference between (national) saving and investment, LMR can impact on the current account by affecting the decisions of households and firms to save and invest. With respect to saving, it is usually thought that a weakening of LMR can be associated with a temporary rise in the growth rate of income and thus a permanent shift in its future level, which sets in some time after the change in LMR is implemented. This should lead to a temporary fall in the household saving rate. If the reform of LMR takes the form of lowering employment protection legislation, its impact on saving is ambiguous. On the one hand, the higher likelihood of dismissal should increase precautionary saving. On the other hand, the attendant higher labour turnover should lower it by reducing the expected length of unemployment spells. Another channel through which LMR can affect the economy's overall saving rate is by altering the allocation of resources across sectors (e.g. services versus manufacturing) and the volatility of GDP growth. For example, a weakening of LMR may reduce the relative attractiveness of services. This is because this sector is usually dominated by small firms which tend to eschew LMRs more than the larger manufacturing firms, which are fully burdened by the existing LMRs. To the extent that manufacturing is more volatile than services, a weakening of LMR will, by increasing the relative attractiveness of manufacturing, draw more resources into it, increase the overall volatility of GDP growth, and, through the precautionary saving motive decrease saving.

The arguments above suggest that the impact of weakening LMR on saving is a-priori ambiguous. The same ambiguity is not present regarding investment, which is expected to increase in response to less strict LMR due to the increased profitability of investment projects. However, it would be incorrect to conclude that, on balance, these arguments suggest that the more likely outcome of weaker LMR would be decrease in the saving-investment balance, and a deterioration in the current account. One reason for this is the interdependence between saving and investment decisions due to financial frictions. This arises when information asymmetries create a wedge between the internal and external costs of finance, thus inducing firms to reduce

dividend pay-outs and use instead their retained profits to finance their investment projects. Similarly, households wishing to acquire big-ticket items (e.g. housing) may also wish to first accumulate a large amount of saving before making the purchase in the presence of financial frictions. In these cases, policies inducing increases in planned investment will also induce immediate increases in saving, and an immediate improvement in the current account. We may thus conclude from the discussion above that trying to infer the effects of changes in LMRs on the current account balance through their possible effects on saving and investment does not lead to unambiguous conclusions.

A more direct approach has been followed by Carlin, Glyn, and Van Reenen (2001). These authors test the presumption that labour market regulations affect (relative) unit labour costs, which, in theory, should be a significant factor for the evolution of a country's exports. Using data for OECD countries, these authors found a surprisingly low sensitivity of exports to labour cost changes. This finding echoes also the lack of empirical relationship between the growth in unit labor costs and output growth found earlier by Kaldor (1978). This is known as the Kaldor paradox, since he found, for the postwar period, that those countries that had experienced the greatest decline in their price competitiveness (i.e., highest increase in unit labor costs) also had the greatest increase in their market share.

This ambiguity regarding the impact of LMRs on the current account balance is also reflected in Figure 1, which displays a simple correlation between the change in the average five-year current account balance as percentage of GDP from 1996-2000 to 2003-2007, and the change in the strictness of employment protection legislation (EPL) for employees with regular contracts between 1994-1996 and 2001-2003.[2] The measure used for EPL is provided by the OECD and incorporates 8 data items concerning regulations for individual dismissals.[3] Figure 1 does not allow us to draw

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[2] We choose a five-year average for the current account balance in order to reduce the potential influence of business cycle effects. We do the same for our measure of EPL since, for most of the Eurozone countries most changes in EPL took place between 2000 and 2003. We also allow for the existence of a lag regarding the potential influence of changes in EPL on the current account. Our focus on Eurozone countries is motivated by the need to reduce the influence of nominal exchange rate changes on the current account in this simple bivariate correlation.

[3] The data items relate to, inter-alia, notification procedures, the length of the notification period, the size of severance pay, and the definition of unfair dismissal.

any (simplistic and preliminary) inference between changes in LMR and changes in the current account balance, since the correlation coefficient between the two variables is indistinguishable from zero.

Figure 1 here

Figure 2 repeats the same exercise, but now the EPL measure used is the OECD indicator for temporary employment which measures the strictness of regulation on the use of fixed-term and temporary work agency contracts, and incorporates 6 data items.[4] In this case there appears to be a (weak) negative correlation between the strictness of the EPL measure and the current account balance, i.e. the bigger was the reduction in the strictness of EPL measure for temporary contracts, the larger was the improvement in the current account balance. Nevertheless, we should note that for (still) other measures of EPL there does not appear to a relationship between the two variables, and thus these simple correlations do not provide any evidence for the influence of LMRs on current account balances. In any case, the fact that the data used cover periods before and after the introduction of the euro should make us conscious about the influence of other factors, and a proper econometric analysis should be used to control for them.

Figure 2 here

The existence of the national accounting identity naturally suggests government spending and taxation as direct influences on the current account balance. The received wisdom regarding the influence of budget deficits on current account deficits is that a 1 percent of GDP fiscal consolidation raises the current account balance-to-GDP ratio by between 0.1 and 0.6 percentage points, with most estimates being between 0.1 and 0.3 points (see, e.g., Abbas et al., 2010; Bluedorn and Leigh, 2013; Bussière, Fratzscher and Müller, 2010; Gagnon, 2011).

In addition, Adam and Moutos (2015) have argued that supply-side adjustments (i.e. the reallocation of productive resources between the traded and non-traded sectors)

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[4] These items relate to, inter-alia, the definition of valid cases for the use of fixed-term contracts, and the maximum number and duration of fixed-term contracts.

can be an important determinant of the output costs of current account adjustment. The thrust of their argument is based on the assumption that tax evasion is more prevalent in non-traded goods (medical and law services, car repairs, haircuts, etc.) than on traded goods. The realism of this assumption can be appreciated by realizing that, as is well known in the literature (e.g. Melitz and Trefler, 2012), exporting firms tend to be larger than firms selling only in the home market, and to be more productive as well. It is also well known (e.g. de Paula and Scheinkman, 2009), that exporting firms usually transact with other formal-sector firms, like financial intermediaries, and also need the appropriate documentation to export. The implication of the above is that the effective after-tax relative price of the traded sector is smaller than what one would surmise by looking simply at the prices of the two sectors, thus attracting fewer resources in the traded sector. It also implies that a rise in the statutory tax rate, for given rates of tax evasion in the two sectors, increases the relative attractiveness of the non-traded sector, decreases the production of traded goods and deteriorates the current account. These arguments imply that the mode of fiscal consolidation (tax-based versus spending-based) could be an equally important determinant of current account adjustment.

The potential presence of such effects implies that LMRs can interact with the mode of fiscal consolidation to either facilitate or slow down the necessary adjustment of the economy. Consider, for example, a reduction in government spending. If the reduction in government spending does not discriminate between traded and non-traded goods, the reduction in domestic absorption would not necessarily be associated with a need for a reallocation of productive resources between the non-traded and traded sectors. However, if the mode of fiscal consolidation involves an increase in taxation, then, as explained above, this would induce a shift of resources from the traded to the non-traded sector.[5] If LMRs prevent traded-sector firms from shedding labour efficiently (e.g. due to long notification periods or because redundancy payments are very high), then traded sector firms may be induced to shut down rather than remain in operation by just reducing appropriately the size of their

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[5] In the presence of factor-price rigidities this reallocation of production activity can also be associated with a decline in total activity for each sector at the initial phases of the adjustment.

workforce[6] and output. In such cases, the undue reduction in the size of the traded sector would prevent an efficient re-balancing of the economy, and would decrease the probability of successful adjustment. The upshot of these considerations is that strict labour market regulations can exacerbate the deleterious effects of tax-based fiscal consolidations and render costly (in terms of output and employment losses) adjustment efforts unsuccessful.

The rest of the paper is organized as follows. In Section 2 we develop, and estimate, a probit model to assess whether tax-based budget consolidations affect the probability of a successful current account adjustment. Our results, and extensive robustness checks, which are carried in Section 3, indicate that increased reliance on tax-based consolidations reduces the probability of successful current account adjustments in countries with strict labour market regulation. Section 4 provides concluding comments and mentions some caveats of our analysis.

2. Estimating the Probability of Successful Adjustments

In this section we first develop our baseline empirical model, and then present the results of our econometric analysis. In developing our empirical model we rely on the voluminous literature on current account adjustment - see, for example, Razin (1994), Dornbusch et al (1995), Milesi-Ferretti and Razin (1996, 1998), Calvo (1998), Calvo et al (2003), and Edwards (2003).

2.1 Data and Econometric Specification

Given our interest on how the modality of budget consolidation may interact with the strictness of labour market regulations in order to affect the probability of a successful current account adjustment, we must include in our sample countries with different levels of labour market rigidity. For this reason we construct a dataset of 81 countries. Our choice of countries is restricted by the availability of the fiscal data (i.e. government revenues and spending) and data on labour market regulations (see Appendix A for the full list of countries).

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[6] Flexible labour markets may also allow firms to maintain the size of their workforce through work-sharing arrangements.

The starting point of our analysis is the definition of what constitutes a current account adjustment. It is clear that if one wants to exclude non-policy-driven fluctuations in the current account, then "large" events should provide more valuable information on determinants of reductions in current-account deficits than any short-run fluctuations. Following the relevant literature cited earlier, as well as de Haan et al. (2008), Freund (2005), Freund and Warnock (2007), and Algieri and Bracke (2007), we define as an adjustment episode a situation where:

(i)   the initial current account deficit was more than 2% of GDP and the following year there was an improvement of at least two (2) percentage points, *and*

(ii)   the new current account deficit as percentage of GDP was at most 1/3 of the initial deficit three years after the start of the adjustment period, or there was an improvement in the current account balance by at least three percentage points during the same period.

The definition of *successful adjustment* which we adopt is related to the concept of *sustainability*. Reductions in the current account deficit which do not succeed in reducing a country's net foreign indebtedness as proportion of GDP may not be considered as successful. The same holds if the improvement in the current account balance is not maintained, or is associated with default or restructuring of the country's debt. We thus consider a current account adjustment as successful if *either* of the following two conditions held:

(i)   three years after the start of the adjustment there was a rise in Net Foreign Assets (purged from changes in their valuation and approximated by the cumulative current account balances) by more than five percentage points of GDP

(ii)   there was an average improvement of the current account balance by more than two percentage points of GDP *and* there was no default or restructuring of the country's debt within 4 years after the beginning of the adjustment.

Overall we have found 367 adjustment episodes, with 150 of them being classified as successful. However, due to missing data for some of the explanatory variables in the

regressions that follow, we are able to use only 147 of these episodes, of which 69 are classified as successful.

In order to explain the probability of a successful adjustment a number of control variables are used. Given our interest on how the modality of budget consolidation may interact with different LMRs, our choice of countries is restricted by the availability of the fiscal data (i.e. government revenues and spending) and data on LMRs (see Appendix A for the full list of countries).

First, we use the change in the stance of fiscal policy by taking into account the modality of fiscal adjustment. Blanchard (1990) has suggested as an indicator of discretionary changes in fiscal policy "the value of the primary surplus which would have prevailed, were unemployment at the same value as in the previous year, minus the value of the primary surplus in the previous year, both in ratio to GNP in each year". Thus, we introduce the variables *Change in Spending* and *Change in Revenue*, which measure the average (over the whole period of adjustment) change in total government spending and total tax revenues as a share of GDP, each divided by the difference between the cyclically adjusted primary balance at year t and the (unadjusted) primary balance at year $t-1$. All data are obtained from IMF's, World Economic Outlook. In order to calculate the cyclically adjusted balance we follow the method of Blanchard (1990) using unemployment and GDP data from the World Bank (2011).

In the presence of weak LMRs we expect that the *Change in Spending* and *Change in Revenue* variables will have their standard effect on the current account. However, as argued in the previous section, in the presence of strict regulations in the labour market the coefficient of *Change in Revenue* is expected to be negative. To categorize countries into countries with high and low share of labour market regulation we use the qualitative measure of labour market regulations developed by the Heritage index. The Heritage index on labour market regulations is constructed using six quantitative factors which are equally weighted, with each counted as one-sixth of the labor freedom component. These components measure the ratio of minimum wage to the average value added per worker, the hindrance to hiring additional workers, the

rigidity of working hours, the difficulty of firing redundant employees, the legally mandated notice period, and the mandatory severance pay.

To allow the coefficient of *Change in Revenue* to vary across countries with low and high labour regulations we construct a dummy variable that takes the value of *1* when the country has an average (over the period 2000-2010) labour regulation index above the median value of the index and zero otherwise.[7] Then we interact the dummy variable with the variable *Change in Revenue*, and the corresponding estimated coefficient that we get in the regressions is the deviation of the countries with strict labour market regulations from the rest of the countries.

To account for the necessary size of adjustment we introduce in the explanatory variables the current account balance as a share of GDP in the year prior to the start of the adjustment *(CA(-1))*. We do this since it is reasonable to assume that when the initial deficit in the current account is higher, the politico-economic effort required is so large, that it becomes less likely that the adjustment will turn out to be successful. A possible reason for this may be that the necessary fiscal contraction or reduction in domestic absorption is so large that "adjustment fatigue" sets in and the adjustment programme is prematurely abandoned.

To control for various changes in domestic and international economic conditions affecting the probability of successful adjustments we use a number of variables: The *Change in the Terms of Trade,* defined as the percentage change in the Net Barter Terms of Trade Index, controls for changes in the external environment (e.g. an improvement in the terms of trade through a rise in commodity prices for a commodity-exporting country is expected to improve the external balance). In addition, this variable could capture the Harberger-Laursen-Metzler effect, according to which adverse transitory terms of trade shocks produce a decline in current income, which leads to a decline in savings and, thus, a deterioration in the current account balance. The variable *Openness,* defined as the sum of imports and exports over GDP, accounts for the ability of more open economies to avoid very large real

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[7] The countries with less than the average labour regulation strictness comprise about 45% of our country sample. We have experimented with other values of the index (median, 25%, 75% etc.) however the results are similar to the ones presented here.

devaluations as a prerequisite of external adjustment.[8] This is a property of both the Mundell-Fleming-type models, and of intertemporal-type models (e.g. Frankel and Razin, 1992), as well as of the recent "sudden stops" models (e.g. Calvo et al., 2003). In these models, the smaller is the trade (imports plus exports) to GDP ratio, the larger must be the reduction in domestic absorption and/or the larger the real devaluation for a given improvement in the current account. *Growth,* defined as the average, over the period of adjustment, growth rate of per capita GDP, is also included since it can affect the process of external adjustment in various ways. On the one hand, faster growth than one's trading partners can deteriorate the current account by increasing imports faster than exports. On the other hand, faster growth during the adjustment decreases political strife and makes the reallocation of economic activity towards the traded sector easier to accomplish. *Change in Domestic Credit*, defined as the sum of net credit to the nonfinancial public sector, credit to the private sector, and other accounts (World Bank, 2011) is also included to capture the effect that higher domestic credit expansion can have on import demand. All of the above variables are taken from World Bank (2011), *World Development Indicators*.

Finally we need to account for the exchange rate regime at the time of the adjustment. At least since Keynes (1925), Meade (1951), and Friedman (1953), economists have argued about the perils of basing the burden of real exchange rate adjustment on (slow-moving) wage and price adjustments, and suggested that changes in nominal exchange rates are a more expedient instrument in bringing forward the required real exchange rate adjustment.[9] To account for the importance of the exchange rate regime, we use data from Rose (2011) and construct the dummy *Fixed XR Regime*, to

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[8] It also helps in making the adjustment faster, thus avoiding the potentially politically disruptive consequences of protracted adjustment efforts.

[9] IMF (2011) concludes, on the basis of analysis of fiscal consolidations, that current account adjustment is equally large under fixed and flexible exchange regimes, but there is a sharper medium-term contraction in economic activity when the (nominal) exchange rate is fixed and real exchange rate depreciation is achieved through a decline in domestic wages and prices. These differential impacts on economic activity may affect the longer-run political viability of the adjustment programme.

take the value of 1 when the exchange rate regime is classified by the IMF as a de facto fixed exchange rate regime (see Rose, 2011).

Following Beck et al (1998), we note that the discrete choice cross- sectional time-series model employed here is likely to violate the independence assumption for the probit regression. To correct for this potential problem we introduce a variable which measures the number of previous adjustment episodes (see, for example, Beck at al., 1998; Morrison, 2009). The estimated equation takes the form:

$$y_{i,t} = \beta_1 Change\_in\_\mathrm{Re}venue_{i,t} + \beta_2 High\_regulation_i * Change\_in\_\mathrm{Re}venue_{i,t} + \beta_1 Change\_in\_Spending_{i,t} + \beta_k x_{i,t} + u_{i,t}$$

(1)

where $x_{i,t}$ is the vector of explanatory variables, $y_{i,t}=1$ when the current account adjustment is successful and $y_{i,t}=0$ otherwise, and u_{it} is the error term. Since $y_{i,t}$ is a dichotomous variable, equation (1) is transformed using the cumulative density function of the standard normal distribution.

3. Results

3.1 Baseline Results

The results of our baseline estimation are presented in Table 1. All coefficients represent marginal effects. According to column (1), the fiscal variables have the expected sign and are statistically significant; fiscal contraction, either in the form of reductions in spending, or in the form of increases in tax revenue are found to increase the probability of a successful adjustment. We find that a 1 percentage point increase in the variable showing the reliance on tax revenue as part of the fiscal adjustment, *Change in Revenue,* is associated with an approximately 0.007 percentage point increase in the probability of successful current account adjustment. The corresponding increase in probability of successful adjustment due to, *Change in Spending,* is 0.017 percentage points. To make a more meaningful comparison between these two effects we note that an increase in the *Change in Revenue* variable by a one standard deviation (equal to 28.9) has about the same effect on the

probability of successful adjustment as a reduction in the *Change in Spending* variable by one standard deviation (equal to 13.4); in the first case the probability increases by 0.21, and in the second case by 0.23, percentage points.

With respect to the rest of the explanatory variables, the *Change in Domestic Credit* variable has a negative and statistically significant influence, which indicates the importance of domestic absorption declines for successful current account adjustments. The only other statistically significant variable is the (dummy) *Fixed XR Regime,* and it indicates that, contrary to received wisdom, a fixed exchange rate *increases* the probability of successful adjustment. We note that the orthodox presumption regarding the superiority of flexible exchange rates facilitating current account adjustment has been challenged by Chinn and Wei (2012), who found no strong, robust, or monotonic relationship between exchange rate regime flexibility and the rate of current account reversion.

We now proceed to test our main hypothesis, i.e. that the effect of *Change in Revenues* on the probability of a successful adjustment depends on the strictness of LMRs. For this reason in column (2) we re- estimate our main model, this time allowing the coefficient of *Change in Revenues* to differ across countries. We do this by introducing a new (dummy) variable which captures the interaction between *Change in Revenues* and our measure of the strictness of LMRs. Including this variable allows us to estimate the influence of tax-based adjustments (on the probability of successful adjustment) for countries with strict labour market regulations as the sum of the estimated coefficients on *Change in Revenues* and the *High_Regulation*Change in Revenues* variables.

Column (2) reveals an increase in the estimated effect that a *Change in Revenues* has on the probability of successful current account adjustment for countries with relatively weak LMRs; we find that a 1 percentage point increase in *Change in Revenues* increases the probability of successful adjustment by 0.068 percentage points – an effect which is 10 times larger than the one appearing in column (1). The estimates of column (2) also indicate that for countries with LMRs below the average threshold, the probability that a rise in tax revenue will lead to successful current account adjustment is 0.08 percentage points higher (per percentage point rise *in*

Change in Revenues) than for countries with strict LMRs. Thus, although for countries with a more liberal labor market a rise in tax revenue is estimated to result in a rise in the probability of successful adjustment, for less liberal countries a rise in tax revenue is estimated to *reduce* the probability by 0.012 (=0.068-0.080) percentage points. This implies that a rise in *Change in Revenues* by one standard deviation is expected to result in a *reduction* in the probability of successful adjustment by about 0.35 percentage points for high labour regulation countries. In contrast, for low-labour regulation countries the effect will be an *increase* in the probability of successful adjustment by about 2 percentage points.[10] These effects are in accordance with our main hypothesis.

In column (3) we re-estimate our main model by introducing two additional dummy variables that may affect the process of adjustment. The first separates the OECD countries from the rest of the sample and the second takes the value of one if during the period of adjustment a natural disaster occurred. Both variables turn out statistically insignificant and do not affect the qualitative influence of our main variables of interest; for this reason, we decided not to include them in the rest of our analysis. In column (4) we include the real effective exchange rate, *REER,* as a possible determinant, and find that it has not exercised any influence. In column (5) we exclude all fiscal-policy variables; as a result, the current account balance (as a share of GDP) in the year prior to the start of the adjustment (*CA(-1)*), becomes statistically significant. This alludes to the importance of fiscal variables for the evolution of the current account. Finally, in column (6), we re-introduce only the tax-related variables, and we find the influence of these variables to be similar to the one suggested in columns (2) to (4).

3.2 *Robustness Analysis*

In Table 2 we examine the robustness of our results. As a first step, we re- estimate our main model by using a different measure to approximate the degree of labour

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[10] As a point of comparison, we note that the corresponding effect due to a one standard deviation reduction in *Change in Spending* is about a 0.19 percentage point reduction in the probability of successful adjustment.

market strictness. This measure is the World Bank's Doing Business Index, which also measures the degree of labour market regulation.[11] Higher values of this index correspond to countries with lower regulation. As in the even-numbered columns of Table 1, we allow for interactions between *Change in Revenues* and *Low Labour Marker Regulation*. Higher values of index correspond to countries with lower LMR. Following the same logic as per our previous definition, we classify a country as having stricter LMR if its average index is below the average.

Column (1) provides us with an estimate of how much the marginal effect of a change in (government) revenue on the probability of successful adjustment is affected by the country's labour market institutions. This estimate suggests that for countries with lower regulation the probability that a rise in tax revenue will lead to successful current account adjustment is 0.019 percentage points higher (per percentage point rise in *Change in Revenues*) than for countries with high regulation. Thus, although for countries with low regulation a rise in tax revenue is estimated to result in a rise in the probability of successful adjustment, for high regulation countries a rise in tax revenue is estimated to *reduce* the probability by 0.01 (=0.009-0.019) percentage points. Accordingly, a rise in *Change in Revenues* by one standard deviation is expected to result in a *reduction* in the probability of successful adjustment by about 0.29 percentage points for countries with strict labour market regulation. We note that the estimated effect is very close to the one obtained in column (2) of Table 1.

Similar results are obtained when we also include the dummy variables for the OECD countries and Natural Disasters (column 2), and when we introduce the *REER* variable. In columns (4) and (5) we examine the robustness of our results first, by excluding the high income OECD countries from our sample, and then by excluding from our sample, the countries with low labour market regulation(i.e. countries for which the index is below the average). One reason for excluding the OECD countries from the sample is because other features of these countries may render our main hypothesis inoperative. For example, it may be the case that the lower overall regulation in this countries may be the driving force behind our results. In both cases the results are consistent with our previous findings. When we exclude the OECD

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[11] We use the labour market regulation index in the Doing Business Indicators.

countries we lose only 4 adjustment episodes from our sample, and this has no discernible influence on our results. However, when we exclude countries with a low regulation, the estimated coefficient on *Change in Revenues* becomes negative and the marginal effect now increases in magnitude, i.e. the probability that tax-based fiscal consolidations will result in successful adjustments decreases by more. This finding is in accordance with our main hypothesis.

Finally in columns (6) and (7) we estimate a Logit model using the specifications of Table 1- column (2) and Table 2- column (1), respectively. In both cases the results verify the rest our findings from Tables 1 and 2, and are similar in magnitude. This provides further evidence in support of our hypothesis.

4. Conclusion

The "twin-deficits" hypothesis suggests that an improvement in a country's budget deficit will lead to an improvement in its current account balance (see, e.g. Obstfeld and Rogoff, 1996). Leaving aside well-known theoretical and empirical objections about the validity of this hypothesis, we have argued that the effects of fiscal consolidations on the current account balance are more nuanced and depend, first, on labour market regulations, and second, on the mode of fiscal consolidation, and especially on the interaction between tax-based fiscal consolidations and the strictness of labour market regulations. Our econometric findings suggest that the co-existence of tax-based fiscal consolidations and strict labour market regulations reduce significantly the probability of successful current account adjustments, and thus provide support for our hypothesis.

To some extent our results indicate the potential importance of the supply side for current account adjustment. This is, of course, not new; after all, that the supply side, or, more generally, that a country's economic structure exercises large influence on how government policy affects the external balance has been well understood for a long time (e.g. Branson, 1983; Buiter, 1988). In this sense, our results about how differential rates of tax evasion interact with fiscal policy to affect the inter-sectoral allocation of economic activity and the current account provides yet another instance in which a country's economic structure - interpreted in a broad way so as to include political and administrative constraints – provide another reason why current account

adjustments in non-industrial countries have been found to work through distinctly different channels than those in industrial countries (Milesi-Ferretti and Razin, 1998; Chinn and Prasad, 2003).

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Figure 1: EPL for Regular Contacts and Current Account Balance
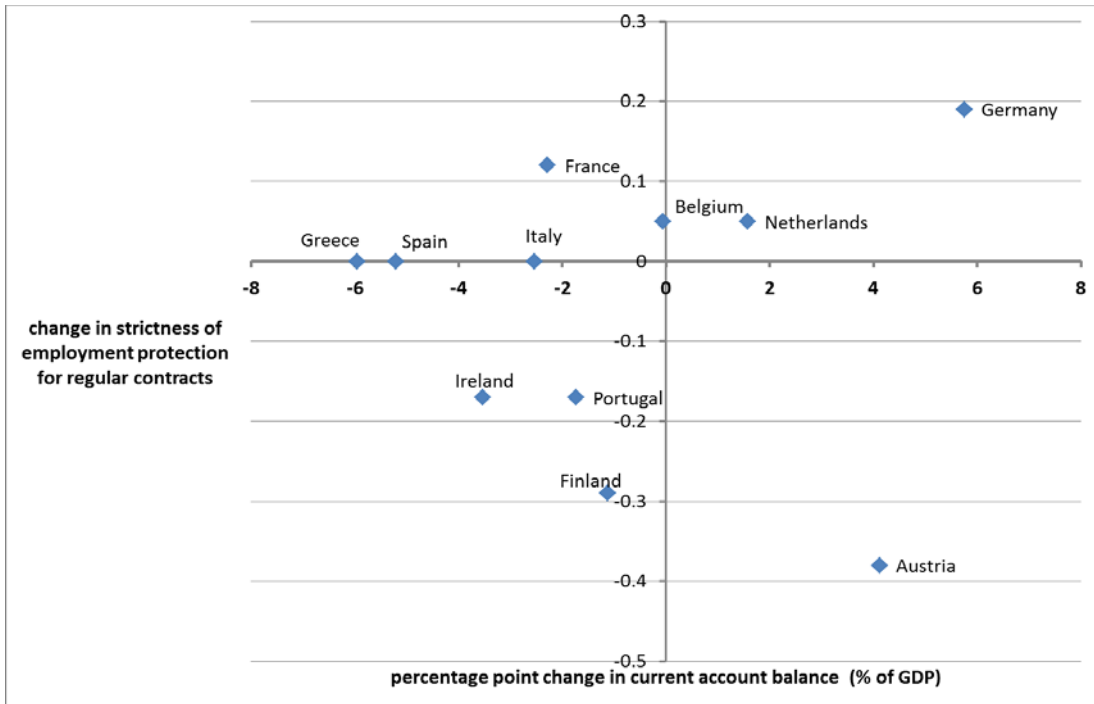
Source: OECD, AMECO, and own calculations

Figure 2: EPL for Temporary Contracts and Current Account Balance

Source: OECD, AMECO, and own calculations

Table 1:Probit estimates-dep. Variable successful adjustments

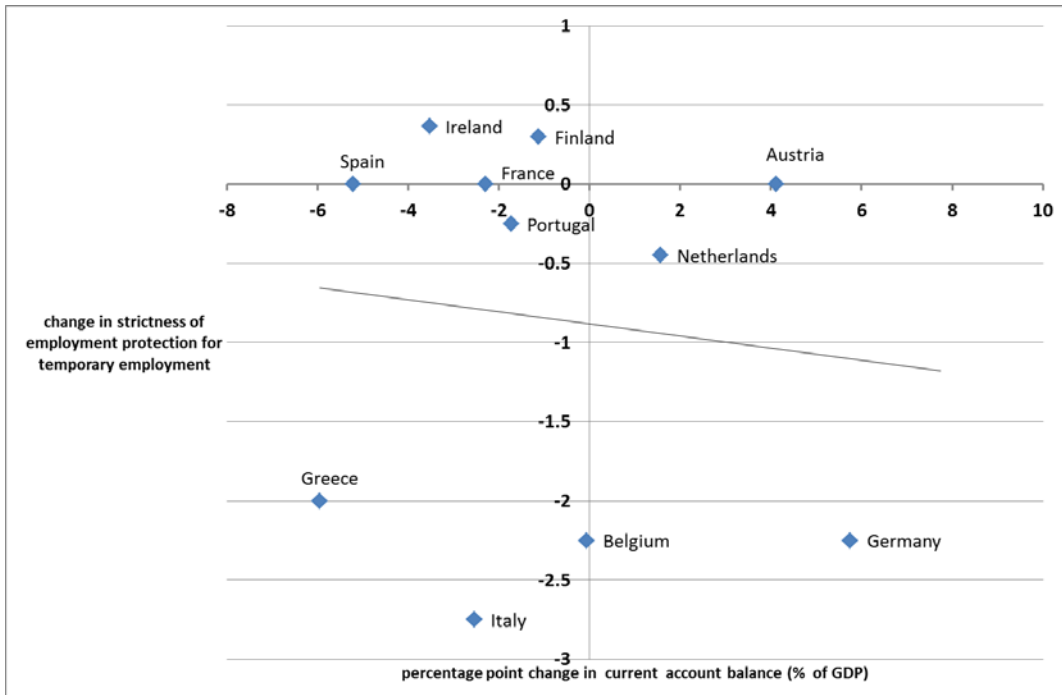|	(1)	(2)	(3)	(4)	(5)	(6)
CA(-1)	-0.006	-0.006	-0.007	-0.008	-0.011***	-0.007
	(-0.787)	(-0.837)	(-1.031)	(-0.752)	(-2.946)	(-1.030)
change in Spending/BFI	-0.017***	-0.014*	-0.013	-0.011*		
	(-2.871)	(-1.768)	(-1.546)	(-1.659)		
change in Revenues/BFI	0.007***	0.068**	0.078**	0.069**		0.063*
	(2.732)	(2.002)	(2.124)	(2.134)		(1.772)
Labour Regulation*change in Revenues/BFI		-0.080**	-0.090**	-0.083***		-0.083**
		(-2.429)	(-2.565)	(-2.649)		(-2.438)
Change in Domestic Credit	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-5.644)	(-4.450)	(-3.763)	(-3.810)	(-3.456)	(-4.356)
Growth	-2.143	-2.486*	-2.464*	-2.553*	-0.307	-2.524*
	(-1.596)	(-1.877)	(-1.882)	(-1.769)	(-0.671)	(-1.926)
Change in Terms of Trade	-0.317	-0.220**	-0.217**	-0.205**	-0.102	-0.206**
	(-1.244)	(-2.047)	(-2.056)	(-1.970)	(-1.635)	(-2.162)
Openness	0.000	0.000	0.000	0.000	0.001	0.000
	(0.122)	(0.167)	(0.477)	(0.287)	(0.853)	(0.146)
Fixed XR regime	0.222**	0.212**	0.209**	0.220**	-0.036	0.200**
	(2.327)	(2.120)	(2.033)	(2.214)	(-0.717)	(1.995)
Number of previous adjustments	0.050	0.039	0.038	0.028	-0.036*	0.031
	(1.185)	(1.028)	(1.031)	(0.708)	(-1.908)	(0.842)
Oecd			-0.189			
			(-1.591)			
Natural disaster			0.122			
			(1.275)			
REER				0.001		
				(0.675)		
Log-Likelihood	-91.04	-87.83	-86.36	-82.77	-300.02	-89.38
obs	147	147	147	139	454	147
wald	77.17	79.17	77.73	77.78	33.02	81.04
R2(pseudo)	0.10	0.14	0.15	0.14	0.03	0.12

clustered t-statistics in the parenthesis.*,**,*** denote statistical signifficance at the 10%,5%, 1% level respectively

Table 2: Robustness-dep. Variable successful adjustments

	Labour Regulation	Labour Regulation II	Labour Regulation III	Excluding OECD	Excluding Low Regulation	Logit	Logit-Labour Regulation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CA(-1)	-0.007	-0.009	-0.008	-0.006	-0.011	-0.006	-0.007
	(-1.128)	(-1.446)	(-0.889)	(-0.808)	(-1.423)	(-0.739)	(-1.065)
change in Spending/BFI	-0.017**	-0.017**	-0.016**	-0.013*	-0.010	-0.014*	-0.018**
	(-2.258)	(-2.106)	(-2.235)	(-1.705)	(-1.415)	(-1.649)	(-2.081)
change in Revenues/BFI	0.009*	0.009	0.010*	0.076**	-0.018**	0.066*	0.009*
	(1.804)	(1.415)	(1.889)	(2.080)	(-2.196)	(1.957)	(1.808)
high regulation * Change in Revenu	-0.019**	-0.021*	-0.024**				-0.020**
	(-1.970)	(-1.955)	(-2.400)				(-2.010)
Regulation Index*change in Revenues/BFI				-0.088**		-0.078**	
				(-2.505)		(-2.418)	
Change in Domestic Credit	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-6.140)	(-5.775)	(-5.410)	(-3.898)	(-3.924)	(-3.624)	(-4.817)
Growth	-2.246*	-2.332*	-2.556*	-2.252*	-3.392**	-2.475*	-2.296
	(-1.727)	(-1.792)	(-1.755)	(-1.726)	(-2.130)	(-1.710)	(-1.617)
Change in Terms of Trade	-0.263*	-0.279*	-0.245**	-0.204*	0.086	-0.219*	-0.270
	(-1.798)	(-1.863)	(-2.047)	(-1.915)	(0.314)	(-1.737)	(-1.627)
Openness	0.000	0.001	0.001	0.000	-0.000	0.000	0.000
	(0.234)	(0.531)	(0.518)	(0.008)	(-0.294)	(0.166)	(0.251)
Fixed XR regime	0.142	0.147*	0.145	0.188*	0.167	0.211**	0.143
	(1.596)	(1.661)	(1.618)	(1.825)	(1.409)	(2.014)	(1.577)
Number of previous adjustments	0.053	0.056	0.045	0.034	0.033	0.039	0.055
	(1.358)	(1.414)	(1.102)	(0.910)	(0.761)	(1.014)	(1.339)
OECD		-0.176					
		(-0.856)					
Natural Disaster		0.156*					
		(1.645)					
REER			0.001				
			(0.538)				
Log-Likelihood	-102.70	-101.05	-96.67	-85.99	-72.17	-87.94	-102.81
obs	166	166	157	143	118	147	166
wald	77.35	75.37	76.38	75.20	45.57	42.09	40.39
R2(pseudo)	0.10	0.12	0.11	0.13	0.11	0.13	0.10

clustered t-statistics in the parenthesis.*,**,*** denote statistical signifficance at the 10%,5%, 1% level respectively

Appendix

Table A1:Summary Statistics

Variable	Definition	Obs	Mean	Std. Dev.	Source
S_adjustment	Dummy variable, takes the value of one when the current account adjustment is successful	147	0.469	0.50	Own calculations using data from IMF World Economic Outlook
Labour Market Regulation	Average(1999-2009) Labour Market Regulation Index	147	55.300	12.55	Heritage Foundation (2014)
Corruption	Average(1984-2007) corruption index	166	2.820	0.80	International Country Risk Guide
CA(-1)	Current account balance as a % of GDP in t-1	147	-4.515	6.64	IMF World Economic Outlook
change in Spending/BFI	Average (over the whole period of adjustment) change in total government spending as a % of GDP, divided by the difference between the cyclically adjusted primary balance at year t and the (unadjusted) primary balance at year $t-1$	147	-0.713	13.39	Own calculations using data from IMF World Economic Outlook
change in Revenues/BFI	Average (over the whole period of adjustment) change in total government revenues as a % of GDP, divided by the difference between the cyclically adjusted primary balance at year t and the (unadjusted) primary balance at year $t-1$	147	-1.733	28.94	Own calculations using data from IMF World Economic Outlook
Change in Domestic Credit	Sum of net credit to the nonfinancial public sector, credit to the private sector, and other accounts	147	8.535	101.64	IMF World Economic Outlook
Growth	Average, over the period of adjustment, growth rate of real (in USD) per capita GDP	147	0.024	0.04	World Bank (2011)
Change in Terms of Trade	% change in the Net Barter Terms of Trade Index	147	-0.124	0.59	World Bank (2011)
Openness	Exports plus Imports divided by GDP	147	82.506	43.26	World Bank (2011)
Fixed XR regime	Dummy variable, takes the value of 1 when country has a de facto fixed exchange rate agreement	147	0.320	0.47	Rose (2011)
Natural Disaster	Dummy variable takes the value on 1 when country has faced a natural disaster(erathquake, flood, volcano erruption) in the coreesponding year	147	0.299	0.46	Collaborating Centre for Research on the Epidemiology of Disasters (2012)
ind_va	Share of Industry Value Added to GDP	1729	31.772	10.51	World Bank (2011)
serv_va	Share of Services Value Added to GDP	1702	54.880	12.68	World Bank (2011)
man_va	Share of manufacturing Value Added to GDP	1578	16.522	6.99	World Bank (2011)
Log GDP per capita	Log of real per capita GDP in USD	1729	3.520	0.71	World Bank (2011)
Population 65+	Total population aged 65+ to total population	1729	8.258	5.16	World Bank (2011)
REER	Nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs	1729	104.738	65.96	World Bank (2011)

county	Years of adjustments	Successful adjustments	county	Years of adjustments	Successful adjustments
Albania	2001,2006		Lebanon	2001, 2005	2001, 2005
Algeria	1994		Liberia	2000, 2004	
Angola	2001		Libya	1993	1993
Argentina	2000	2000	Madagascar	1984, 1989, 1995, 1999, 2003	
Australia	1997		Malawi	2005	2005
Azerbaijan	2000,2004	2004	Malaysia	1990, 1994	
Bahrain	1991,1998	1991,1998	Mali	2000, 2004	2000
Bangladesh	1989	1989	Malta	1999, 2003	
Belarus	1997, 2003	1997	Mexico	1993	1993
Bolivia	1986,1992,2001	2001	Mongolia	1996, 2000	
Brazil	2001	2001	Morocco	1995	1995
Bulgaria	2000, 2004		New Zealand	1997	
Burkina Faso	1988, 1992, 2005	2005	Oman	1992,1998	1998
Cameroon	1999, 2004	2004	Pakistan	1993, 1997	1997
Chile	1997	1997	Papua New Guinea	1997	1997
China	1985	1985	Paraguay	1996	
Colombia	1984, 1997	1984, 1997	Philippines	1989,1995	
Croatia	2001		Poland	1996, 2000, 2004	
Cyprus	1996, 2003		Portugal	2001	2001
Czech Republic	1999, 2003	2003	Republic of Congo	1995, 1999, 2004	1995, 1999, 2004
Côte d'Ivoire	2000		Republic of Yemen	1998	
Dominican Republic	2001	2001	Romania	2002	
Ecuador	1994, 1998, 2002	1998, 2002	Saudi Arabia	1998	1998
Estonia	1998, 2006	1998, 2006	Slovak Republic	1997, 2005	1997
Ethiopia	1993, 1999, 2006	2006	Slovenia	1999, 2006	1999
Gabon	1992, 1998	1998	Sri Lanka	1995, 1999, 2005	1995
Ghana	1992, 1997, 2001	2001	Suriname	1998, 2002	1998
Greece	1998		Syrian Arab Republic	1994, 2002	1994
Guyana	1999		Tanzania	1993, 1997, 2001, 2005	
Honduras	2002, 2006		Thailand	1995, 2005	1995, 2005
Hong Kong SAR	1995	1995	The Bahamas	1995, 1999, 2003	
Hungary	2000	2000	The Gambia	2004	
Iceland	2000, 2006	2000, 2006	Tunisia	1993	1993
Islamic Republic of Iran	1990, 1998	1998	Uganda	1997, 2002	2002
Jamaica	1996	1996	Ukraine	1997	1997
Jordan	1991, 1995, 2005	1995, 2005	Uruguay	2000	2000
Kazakhstan	2001, 2006	2001	Venezuela	1987, 1992, 1998	1987, 1992, 1998
Kenya	1989, 1995, 2000, 2006	1989	Vietnam	1997, 2003	2003
Korea	1996	1996	Zambia	2001, 2005	2001, 2005
Kuwait	1991	1991	Zimbabwe	2005	
Latvia	1998, 2005				