

Fiscal adjustments in Advanced and Emerging countries: A comparison.

By Yassine Slaoui

Abstract

This paper investigates the impacts of fiscal consolidation and its transmission channels on growth in emerging and advanced countries. In a first step I replicate the result of Alesina and Ardagna (2012), using the same OECD Economic Outlook database, namely that fiscal consolidations are expansionary. To do so I use the Blanchard procedure to compute the Cyclically Adjusted Primary Balance, which is a measure of discretionary fiscal policy, and estimate the impulse response functions on various variables using the panel VAR approach adopted in Cerra and Saxena (2008). I find nevertheless that this expansionary effect in advanced countries is not robust to a change in the database. Using IMF's Public Finance in Modern History Database that covers a large sample of emerging and advanced countries I find that : (i) In emerging countries fiscal consolidations are contractionary in the short and long run (ii) In advanced countries fiscal consolidations generate an expansion in output in the short run followed by a contraction in the long run (iii) Monetary policy responses account for much, though probably not all, of the short term expansionary effect observed in advanced countries (iv) The dynamics of exchange rates and their impact on the trade balance account for much, though probably not all, of the contractionary effect observed in emerging countries.

I. Introduction

Although researchers have focused on the impacts of fiscal consolidations on growth, very little attention has been paid to the impact of fiscal adjustments in emerging countries, as a way to understand the peculiarities of emerging countries and to shed light on the transmission channels in the advanced economies themselves. The present paper builds upon a rich literature based on "episodes". The first paper in this series was by Giavazzi and Pagano (1990), who studied the experience of Denmark in the early eighties and Ireland at the end of the same decade and argued that these episodes represent cases of "expansionary fiscal adjustments". Giavazzi and Pagano's (1990) paper has generated a growing literature concerning the so-called non Keynesian effects of fiscal policy, e.g. Cour et al. (1996), Alesina and Ardagna (1998, 2010), Miller and Russek (2003). These studies are based on empirical analyses in which they first identify periods of drastic and sizeable budget cuts within a panel of OECD countries, and then perform a descriptive analysis of the sample characteristics of macroeconomic aggregates, mainly GDP, before, during, and after the year in which the consolidation episode took place. The main conclusion from this literature is that fiscal adjustments are often followed by an improved growth performance, which is interpreted as evidence of non-Keynesian effects during fiscal consolidation episodes.

A positive correlation between fiscal consolidation episodes and GDP growth does not necessarily mean that fiscal consolidations generate economic growth. In fact, this literature usually assumes that the consolidation episode is exogenous to GDP. The positive correlation between fiscal adjustments and economic growth may be the result of a positive effect from GDP growth to fiscal consolidation instead of the other way around as suggested in this literature: the expectation of a recovery (stronger during the trough of the cycle) may increase the likelihood of public finance consolidation (i.e. consolidation episodes are endogenous to GDP).

Some attempts have been made in this literature to address this potential endogeneity issue. For example, Ardagna (2004) instruments fiscal consolidation episodes with political variables such as the orientation of the government party, but ignores the endogeneity of other fiscal variables such as the size of the consolidation. Giavazzi and Pagano (1996) and Giavazzi et al. (2000) respectively estimate consumption and savings equations accounting for potential endogeneity problems of fiscal variables such as taxes (i.e. the instrument government taxes with the government surplus), but ignore the potential endogeneity of the fiscal adjustment episode per se.

To identify discretionary changes in fiscal policy that are exogenous to GDP, the recent literature on fiscal adjustments has focused on “episodes” of fiscal consolidation. One difficult issue in this literature is how to identify these episodes. Two identification approaches, the “outcome based approach” (Alesina and Ardagna, 2010) and the “action based approach” (IMF WEO October 2010) challenge each other and come out with different results. The two approaches use a Panel of OECD countries and agree that tax-based adjustments are more harmful to the economy than spending-based fiscal adjustments. However, while the outcome based approach, in line with Giavazzi and Pagano, confirms the expansionary impact of fiscal adjustments, the action based approach refutes it and finds evidence of contractionary effects.

In the outcome based approach (Alesina and Ardagna ,2010), a large fiscal adjustment is defined as an episode where the cyclically adjusted primary deficit over GDP ratio (as computed in Blanchard, 1993) falls by a certain amount (at least 1.5 percent of GDP) . The idea is that such a large adjustment in the cyclically adjusted primary deficit is unlikely to be driven by the business cycle and is, instead, an indication of a discretionary active fiscal adjustment package. According to the outcome-based definition, fiscal consolidations are, on average, followed by positive GDP growth in the short run.

The action-based identification method (IMF WEO, October 2010) follows the narrative approach pioneered by Romer and Romer (2010) for defining large discretionary changes in fiscal policy that do not depend on the success of the policy. In fact, the IMF’s WEO (October 2010) follows this narrative approach and defines fiscal consolidation episodes for a sample of OECD countries over the period 1980-2009. According to the IMF definition, fiscal consolidations are, on average, followed by negative GDP growth in the short run. The IMF findings, however, have been revisited and a later IMF paper (Devries et al. 2011), using the same methodology, revised the set of fiscal stabilization episodes (see Favero, Giavazzi and Perego,2011 for a comparison of the results obtained using the two sets of data). About a third of the episodes are reclassified from the 2010 to the 2011 version.

My paper takes on from this line of papers. In a first step I replicate the results of Alesina and Ardagna (2012) on the expansionary effects of fiscal consolidations using the OECD Outlook database. I then construct outcome-based episodes of fiscal adjustments on a dataset of emerging and advanced countries following the definition provided in Alesina and Ardagna (2012). I estimate the impulse response functions following a fiscal consolidation shock using the method of Cerra and Saxena (2008). Looking at the annual period 1980-2011 I find that : (i) In emerging countries fiscal consolidations are contractionary in the short and long run (ii) In advanced countries fiscal consolidations generate an expansion in output in the short run followed by a contraction in the long run (iv) Monetary policy responses accounts for much, though probably not all, of the expansionary effect observed in advanced countries (v) The dynamics of exchange rates and their impact on the trade balance account for much, though probably not all, of the contractionary effect observed in emerging countries.

The remainder of the paper is organised as follows. The data used in the paper are described in Section 2. Section 3 outlines the methodology and definitions, and Section 4 presents the main results. The last section summarizes and provides concluding remarks.

II. Data

My data is an unbalanced annual panel of 31 emerging countries and 22 advanced countries from 1980 to 2010. The variables included in the dataset can be classified in two different groups: (i) The fiscal variables (Primary Balance, Government Revenues and Primary Expenditures) are from the IMF's Public Finance in Modern History Database (Mauro and Binder, 2013). This database is the most comprehensive cross-country data set assembled to date on fiscal variables and covers 55 countries during 1800-2011. (ii) The outcome variables (output level, GDP growth, real interest rates, effective exchange rates, exports and imports, unemployment) are from the World Bank's WDI database and start in 1980. Additional information on the variables considered can be found in the Appendix.

Before proceeding it is worth mentioning an important disclaimer. There are two ways of constructing the primary balance variable. The first is to subtract governments' revenues from government's primary expenditures (spending excluding interest on debt), which is the method used in Alesina and Ardagna (2012). The advantage of IMF's Public Finance in Modern History Database is to provide a Primary Balance variable constructed in this way, along with the breakdown between revenues and spending. The second is to use the definition of the OECD and define the primary balance as net borrowing minus net lending. The World Bank database is also defined in this way. In my search for database covering a large set of Emerging countries the IMF's database seemed to be the more convenient. Nonetheless, Alesina and Ardagna (2012) construct the primary balance as the sum of Government Consumption, transfers, subsidies and net capital outlays minus total direct taxes, Social Security Taxes, Indirect Taxes, and Other Current Transfers Received by Government, all these variables coming from the OECD economic outlook. Such a breakdown is not available for emerging countries. This can influence the results because the cyclically adjusted primary balance is constructed as the sum and difference of the cyclically adjusted values of all its components. As such, I compute the cyclically adjusted primary balance as the difference between the cyclically adjusted revenue minus the cyclically adjusted primary expenditures, but part of the difference in the results may be due to data peculiarities.

III. Methodology and Definitions

A. Construction of fiscal consolidation episodes

The Blanchard Procedure

The cyclically adjusted primary balance is computed using the Blanchard (1993) method. The Blanchard fiscal impulse (BFI) is an indicator of discretionary fiscal policy, and is defined as the value of the primary surplus which would have prevailed, were the unemployment at the same value as in the previous year, minus the value of the primary surplus in the previous year, both as a ratio to GDP in each year. I divide the cyclically adjusted component by trend GDP, and the lagged primary balance by nominal GDP. I estimate the Blanchard Fiscal Impulse in two steps. In the first step I regress the revenue and primary expenditure on a time trend and on unemployment. The predicted value from this regression is the value of revenues (resp. expenditures) which would have prevailed were the unemployment at the same value as in the previous year, i.e the cyclically adjusted revenue (resp. expenditures). I subtract past revenue (resp. expenditures) from this cyclically adjusted component, which yields the discretionary change in revenue. The Blanchard fiscal impulse is then obtained by subtracting the discretionary change in revenue from the discretionary change in expenditure.

Construction of episodes

Defining an episode of fiscal adjustment is challenging for two reasons. The first difficulty lies in the endogeneity of fiscal variables, that is the reduction of the deficit over GDP ratio may be due to an increase in GDP and may have nothing to do with a discretionary policy action. Obviously, one can (and should) use cyclically adjusted fiscal variables but the cyclical correction is notoriously imperfect and arbitrary to some extent.

Second, it is often difficult to identify the precise timing since fiscal adjustments are often multi-year events. For instance, imagine a country in which the deficit over GDP ratio falls by 2 percent in year t , by 0.1 percent in year $t+1$, and 2 percent in year $t+2$. Does one consider the three year period one fiscal adjustment or does one consider year t and year $t+2$ as two separate episodes? Depending on what choice one makes the results might be different. The literature on episodes adopted definitions that considered only single years large adjustments or consecutive years in which the adjustment in each year was smaller but always in the range of 1-2 percent as this range seemed a high enough one to isolate large episodes but not so large as to have too few episodes. In the present paper, however, I consider only multi-year adjustments and I allow for the possibility of small reductions in the primary deficit in a particular year, provided that this happens in a period of consecutive years when I observe sizable contractions in the fiscal balance. In particular, I use the following definition from Alesina and Ardagna (2012)

Definition: *A fiscal adjustment is either: 1) a two year period in which the cyclically adjusted primary balance/GDP contracts in each year and the cumulative contraction is at least two points of the balance/GDP ratio; 2) a three or more year period in which the cyclically adjusted primary balance over GDP contracts in each year and the cumulative contraction is at least three points of the balance/GDP ratio.*

The list of my episodes of fiscal adjustments captured by this definition is provided in Appendix. This definition allow me to avoid the problem highlighted above of "stop and go" adjustments. Note that I use the primary balance, (i.e.: the balance, excluding interest rate expenses paid on government debt, and total tax revenue), rather than the total balance, to avoid that episodes selected result from the effect that changes in interest rates have on total government expenditures.

B. Impulse Responses

After constructing an outcome-based indicator of fiscal consolidation, I estimate impulse response functions to the shock. Given that my data covers a large set of countries, I estimate the models using panel data analysis, and provide group averages of the impulse responses of output to the shock. I am also able to partition the country sample to examine any differential impact of the shock on emerging and advanced countries. In particular, I estimate a univariate autoregressive model in growth rates, which accounts for the nonstationarity of output (Charles Nelson and Charles Plosser 1982) and for serial correlation in growth rates. I control for country fixed effects. I estimate an AR(2), as I find insignificant coefficients beyond the third lag. I estimate the model on all of the available data from 55 countries over the period 1980 through 2011. The estimation equation includes the current and lagged impacts of the shock. Thus, I estimate the following model:

$$\Delta Y_{it} = \sum_{j=1}^2 \alpha_j \Delta Y_{it-j} + \sum_{j=0}^2 \beta_j \Delta CAPB_{it-j} + \vartheta_i + \mu_t + \epsilon_{it}$$

Y_{it} is the logarithm of Real GDP, $\Delta CAPB_{it-j}$ is the Blanchard Fiscal Impulse in periods of fiscal adjustments and zero otherwise, θ_i and μ_t are country and time Fixed Effects. I estimate this equation over the entire sample period by OLS and I cumulate the estimated responses for the Blanchard Fiscal Impulse at t , $t+1$, $t+2$ to measure the effect of a 1 percentage point change in the fiscal variable on the level of real GDP. I compute the standard errors of the impulse responses via the delta method. Note that the IMF paper runs the same regression, using their measure of the size of fiscal adjustment during their episodes instead of the Blanchard Fiscal Impulse. I estimate this equation using the Arellano-Bond procedure to avoid the bias due to the possible correlation between lagged output growth and consolidation.

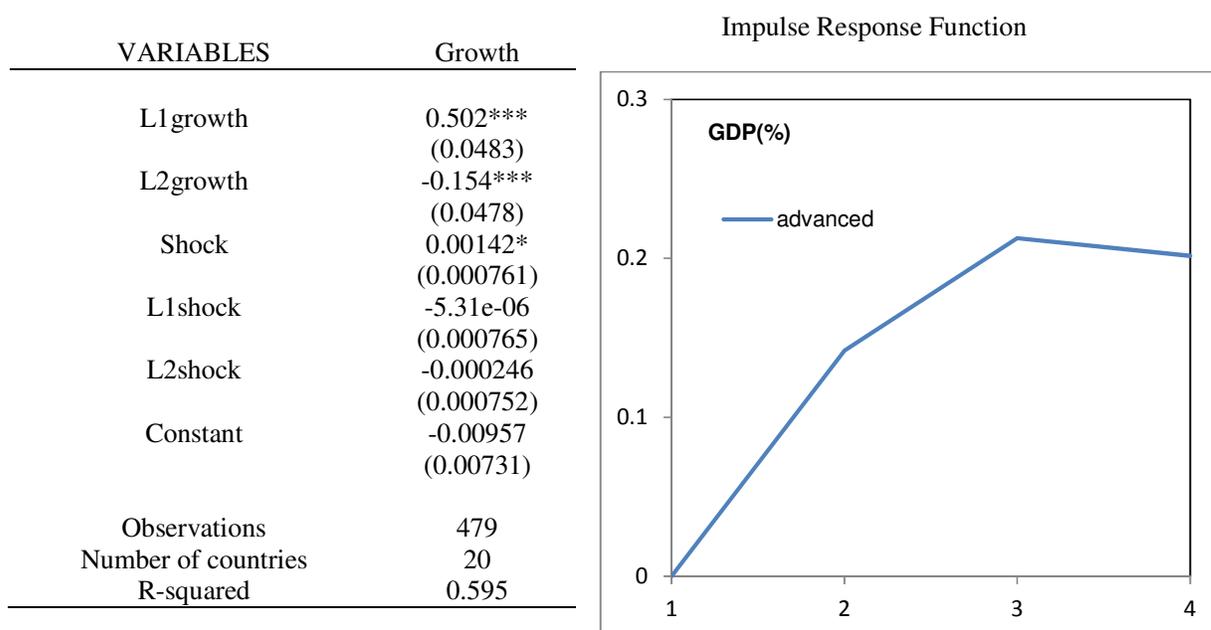
IV. Results

A. *Replicating expansionary effects in OECD economies*

As a first step I replicate the main result of Alesina and Ardagna (2012), namely that using the outcome based approach on OECD data the effect of fiscal consolidations in advanced countries is expansionary.

Figure 1 shows the cumulated effect on real GDP of a 1% contraction in the CAPB. The specification is estimated following the baseline model, and using fiscal variables from the OECD Economic Outlook. In particular the Cyclically Adjusted Primary Balance is computed as the sum of the cyclically adjusted expenditure minored by the sum of cyclically adjusted revenues. Cyclically adjusted expenditure includes Government Consumption, Transfers, Subsidies and Net Capital Outlays, all adjusted using the Blanchard procedure. The revenue-side variables include Total Direct Taxes, Social Security Contributions, Indirect Taxes and Other Current Transfers Received by Government. The Data for OECD countries covers a panel of 21 countries from 1970 to 2011. The countries included in the sample for this model are Australia, Austria, Belgium, Canada, Denmark, France, Finland, Germany, Greece, Italy, Ireland, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Estimates suggest that fiscal adjustments have a statistically significant contemporaneous effect on GDP, but this impact is not significant beyond the first period. The impact of a 1% contraction in the CAPB on output is positive and highly persistent. The gain in output averages about 0.2% percent for the entire panel of countries. My results are in line with those obtained in Alesina and Ardagna (2012) who find a cumulated impact of 0.23% after 3 years.



Note: the Table shows the results from the baseline regression. Estimated regressions include country and time fixed effects. Standard errors are computed via the delta method. The figure shows the cumulative estimated response of a shock of 1 percentage point to a fiscal variable at t, t+1, t+2 on the real GDP.

Figure 1: Impulse Response on a Panel of OECD countries

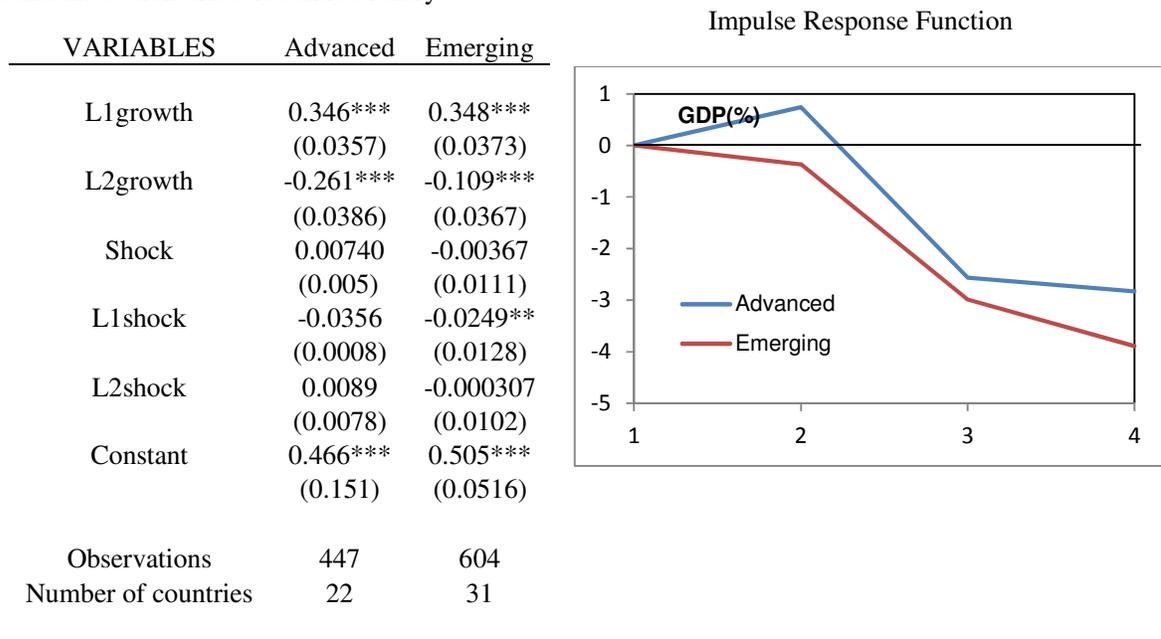
Using the OECD Economic Outlook database, I am able to replicate the expansionary effect of fiscal consolidation as found in the literature. However, as I show in the following sections, this result is not robust to a change in the Primary Balance Variable. Using the Primary Balance variable provided in the IMF's Public Finance in Modern History Database (Mauro and Binder, 2013) leads to a contractionary effect of fiscal adjustments, a result that is broadly in line with the results obtained using the narrative approach.

B. Impulse responses : Impact in output in Advanced and Emerging Countries

Figure 2 shows the cumulated effect on real GDP of a 1% contraction in the primary balance. The specification is estimated following the baseline model, using the Arellano-Bond procedure. Fiscal variables are from the IMF's Public Finance in Modern History Database (Mauro and Binder, 2013). In particular the Cyclically Adjusted Primary Balance is computed as the sum of the cyclically-adjusted expenditure minored by cyclically-adjusted revenue. It is difficult to obtain series that are as disaggregated as in the OECD economic outlook for emerging countries, which is a caveat of my extension of the paper of Alesina and Ardagna, all the more as the Blanchard Procedure is applied separately to each component of the Primary Balance. However, I apply the exact same specification as in part B and I find that the result of the expansionary effect of a fiscal consolidation in the long run is not robust.

Estimates suggest that the impact of a 1% contraction in the CAPB on Output is not statistically significant. This is in line with the broader literature on the impact of fiscal consolidations on econometric growth using Panel Data Fixed Effects regressions (Sala-i-Martin, 1994 ; Moral Benito, 2012) The impact of a 1% contraction in the primary balance on output in advanced countries is expansionary after one year and contractionary in the second and third year. Results in the following sections suggest that this short term expansion in output is due to the offsetting impact of monetary policy, in line with IMF WEO (October 2010). The gain in output averages about 0.7% percent for advanced countries in the first year, and peaks down to minus 2.8% of GDP after 3 years. The magnitude of the impact is higher compared to previous studies, but has to be considered with caution since the effect is not significant. Our main conclusion is to confirm, in line with Sala-i-Martin, that the impact of fiscal consolidation on growth is not significant in advanced countries and, if any, this impact is contractionary, in line with the findings of the narrative approach. One explanation of this result is the offsetting impact of interest rates as shown in the following section.

In emerging countries, a 1% contraction in the CAPB is significant after one period, and the impact is found to be contractionary in the short and the long run. The impact after one period is -0.3% of GDP, which in absolute value is of the same order of magnitude as the results found in the literature for advanced countries. The impact then peaks to -3.8% of GDP after 3 years but this long term impact is not significant. In emerging countries the contractionary impact is contained in the first year, suggesting an offsetting impact of monetary policy that will be confirmed in the following section. However and due to the dynamics of exchange rates and the trade balance, these offsetting effects of monetary policy play a little role and the overall effect is contractionary.



Note: the Table shows the results from the baseline regression. Estimated regressions are implemented using the Arellano-Bond procedure. Standard errors are computed via the delta method. The figure shows the cumulative estimated response of a shock of 1 percentage point to a fiscal variable at t, t+1, t+2 on Growth.

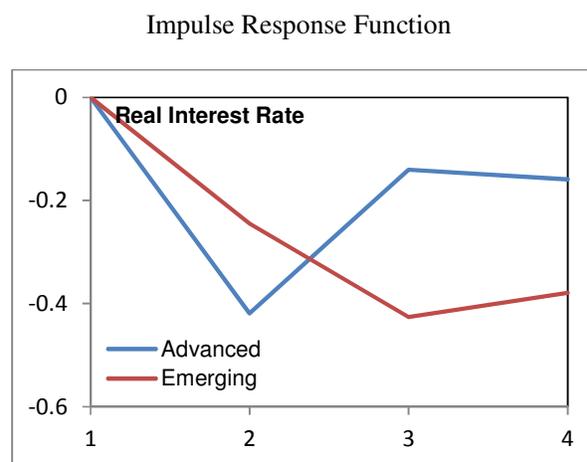
Figure 2: Impulse Response of growth in a Panel of emerging and advance countries

C. Impulse responses : Impact on Real Interest Rates in Advanced and Emerging Countries

Figure 3 shows the cumulated effect on real interest rates of a 1% contraction in the primary balance. The specification is estimated following the baseline model, using the Arellano-Bond procedure. Fiscal variables are from the IMF's Public Finance in Modern History Database (Mauro and Binder, 2013). The Real Interest Rate data is from the World Bank WDI. Estimates suggest that the impact of a 1% contraction in the CAPB on real interest rates is statistically significant and negative in both emerging and advanced countries. In particular the impact on interest rates in advanced economies is significant in the three periods, while the impact in emerging countries ceases to be significant at the third period. Moreover the U-shaped form of the impulse response function in advanced countries is suggestive of a short run decrease in interest rates aiming at offsetting the Keynesian effect of fiscal consolidations. In advanced countries after one period, real interest rates decrease and output expands, which corresponds to monetary policy offsetting fiscal policy effects. In period 2 however interest rates rebound and more than half of the decrease in interest rates is recuperated. I observe at the same time a contraction in output. In period 3 both the effects on real interest rates and output cease to be significant. Overall for advanced countries, a fiscal consolidation has no impact (the effect is non significant) on output because of the offsetting (and significant) effect on interest rates. In particular the expansion in output observed in period 1 corresponds exactly to the decrease in interest rates observed in period 1. As interest rates are significant in advanced countries I can conclude that interest rates play a key offsetting role during fiscal consolidation in advanced economies.

On the contrary, monetary policy is not efficient in offsetting the contractionary effects of fiscal policy in emerging economies. The impact of a contraction in the primary balance on real rates is significant and negative both in the first and the second period. However this decrease seems to contain the impact of a fiscal consolidation in the first period (where the impact on output is not significant) but not in the second period (where the impact on output is negative and statistically significant). Monetary policy does not play a key role in emerging countries in offsetting the impact of a fiscal consolidation. As I will show in the following section, exchange rates play a key role in dampening the contractionary effects of fiscal consolidations in emerging countries.

VARIABLES	Advanced	Emerging
L1interestrate	0.385*** (0.050)	0.479*** (0.0377)
L2interestrate	0.121** (0.0494)	-0.026** (0.0330)
Shock	-0.00426*** (0.00135)	-0.0199*** (0.0034)
L1shock	0.005*** (0.00183)	-0.0078** (0.004)
L2shock	-0.015 (0.00134)	0.0019 (0.00345)
Constant	1.67*** (4.124)	2.73 (3.97)
Observations	495	422
Number of countries	21	29



Note: the Table shows the results from the baseline regression. Estimated regressions are implemented using the Arellano-Bond procedure. Standard errors are computed via the delta method. The figure shows the cumulative estimated response of a shock of 1 percentage point to a fiscal variable at t, t+1, t+2 on the real interest rates.

Figure 3: Impulse Response of real interest rates

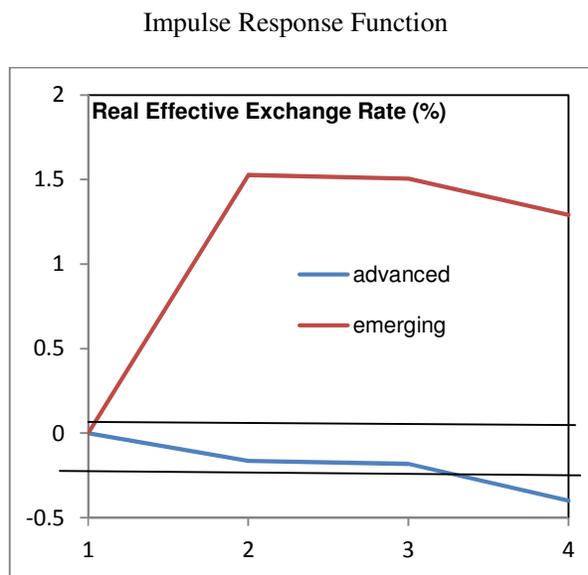
D. Impulse responses : Impact on Real Exchange Rates in Advanced and Emerging Countries

Figure 4 shows the cumulated effect on real exchange rates rates of a 1% contraction in the primary balance. The specification is estimated following the baseline model, using the Arellano-Bond procedure. Fiscal variables are from the IMF's Public Finance in Modern History Database (Mauro and Binder, 2013). The Real Interest Rate data is from the World Bank WDI. Estimates show that the impact of a 1% contraction in the CAPB on real exchange rates rates is negative and not statistically significant in advanced countries, suggesting that exchange rates play a second role in explaining the transmission of the impact of fiscal consolidations to the real economy in advanced countries. I also note that this impact is limited in magnitude. On the other hand in emerging countries the impact of a 1% contraction in the CAPB on real exchange rates rates is positive and statistically significant at the first and second period, and ceases to be significant at the third period. In response to a fiscal consolidation of 1 percent of GDP, the exchange rate appreciates by about 1.1 percent in real terms.

Interestingly, the effect, if any, is negative in advanced countries (in line with the findings of IMF WEO, but this paper does not report the significance of the result) and strongly positive in emerging countries. This is a key difference between the two groups. While real interest rates move in the same direction and play a key offsetting role in advanced countries and a more limited role in emerging countries, exchange rates on the contrary react in opposite ways and have a key role in emerging countries.

How do these changes in interest rates and exchange rates affect the economy? The fall in interest rates is likely to support consumption and investment, but as we have shown this effect is more relevant in advanced countries. And the real depreciation should support economic activity by boosting the trade balance in advanced countries while the real appreciation of exchange rates should harm economic activity by deteriorating the trade balance in emerging countries. This is what I investigate in the following section.

VARIABLES	Emerging	Advanced
L1RER	0.437*** (0.0510)	1.099*** (0.0415)
L2RER	0.109** (0.046)	-0.313*** (0.0422)
Shock	0.098*** (0.0068)	-0.00215 (0.00178)
L1shock	-0.0432*** (0.00991)	0.00161 (0.00281)
L2shock	0.00535 (0.00842)	-0.00272 (1.708)
Constant	37.97*** (10.32)	24.09***
Observations	351	555
Number of countries	19	22



Note: the Table shows the results from the baseline regression. Estimated regressions are implemented using the Arellano-Bond procedure. Standard errors are computed via the delta method. The figure shows the cumulative estimated response of a shock of 1 percentage point to a fiscal variable at t, t+1, t+2 on the real effective exchange rate.

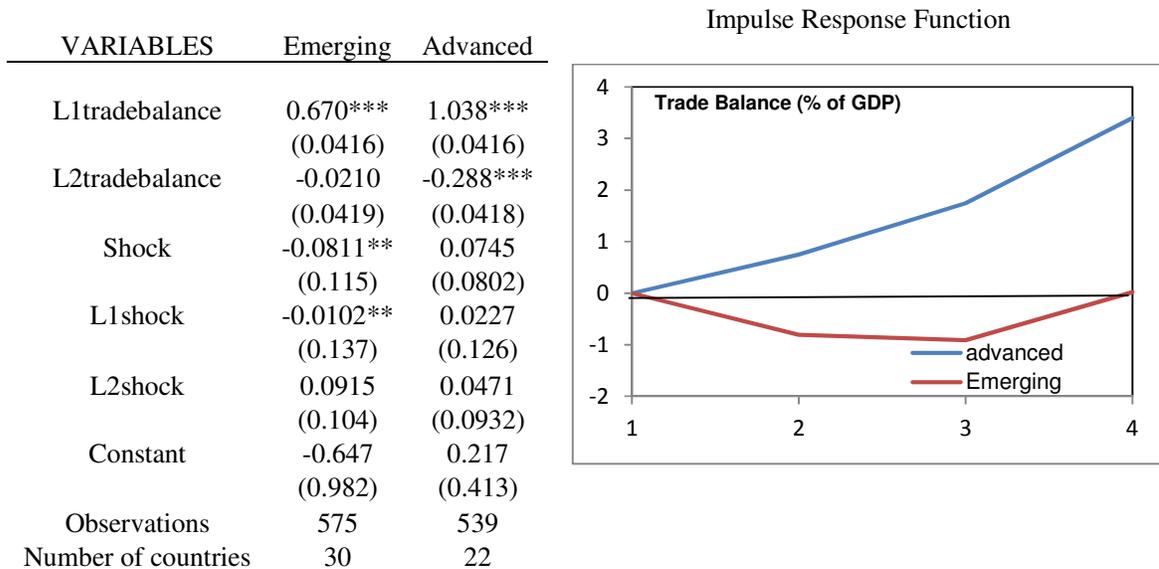
Figure 4: Impulse Response of exchange rates

E. Impulse responses : Impact on the Trade Balance

Figure 5 shows the cumulated effect on real exchange rates rates of a 1% contraction in the primary balance. The specification is estimated following the baseline model, using the Arellano-Bond procedure. Fiscal variables are from the IMF’s Public Finance in Modern History Database (Mauro and Binder, 2013). The Trade Balance data is from the World Bank WDI. Estimates show that the impact of a 1% contraction in the Primary Balance on the trade balance is positive and not statistically significant in advanced countries, suggesting that the depreciation in real exchange rates boosts the trade balance in advanced countries. However this impact is not significant, as is the case for the Real Exchange Rate. On the other hand in emerging countries the impact of a 1% contraction in the CAPB on the trade balance is negative and statistically significant at the first and second period, and ceases to be significant at the third period. In response to a fiscal consolidation of 1 percent of GDP, the exchange rate appreciates by about 1.1 percent in real terms and the trade balance deteriorates by 0.8% of GDP in emerging countries.

Overall, this section confirms that the appreciation in real exchange rate plays a key role in the contractionary impact of fiscal consolidation on output in emerging countries through the impact on the trade balance. On the contrary, in advanced countries, the negative impact on the trade balance, if any, is limited and does not explain the transmission of the impact of fiscal consolidations to the real economy

In the following section I check the robustness of my result on output, namely that the effect is contractionary in both emerging and advanced countries, this effect being lagged in advanced countries due to the short-term offsetting effect of real interest rates

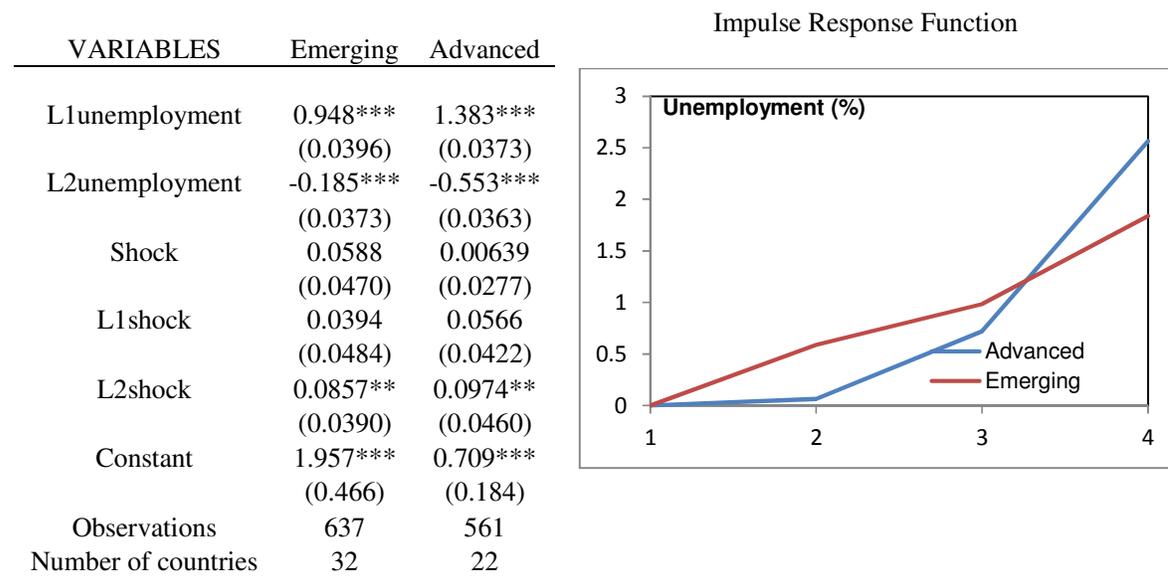


Note: the Table shows the results from the baseline regression. Estimated regressions are implemented using the Arellano-Bond procedure. Standard errors are computed via the delta method. The figure shows the cumulative estimated response of a shock of 1 percentage point to a fiscal variable at t, t+1, t+2 on the trade balance.

Figure 5: Impulse Response of the Trade Balance

F. Impulse responses :Robustness checks

I check the robustness of my result by estimating the impact of a 1% contraction in the cyclically-adjusted primary balance on unemployment. Again, I find that a fiscal consolidation triggers contractionary effects both in emerging and advanced countries. Interestingly I find that the effect on unemployment is lagged in advanced countries, which can be linked to the offsetting role of interest rates. Moreover this positive impact on unemployment is significant in both groups of countries only at the third period which suggests that fiscal consolidations have a negative long-term impact on unemployment.



Note: the Table shows the results from the baseline regression. Estimated regressions are implemented using the Arellano-Bond procedure. Standard errors are computed via the delta method. The figure shows the cumulative estimated response of a shock of 1 percentage point to a fiscal variable at t, t+1, t+2 on unemployment.

Figure 6: Impulse Response of Unemployment

G. Conclusion

The result that fiscal consolidations have an expansionary effect on output is not robust to a change in database and is dependent on the way the Blanchard Procedure is specified. I have shown using a new database extended to emerging countries, that the effect of a 1% contraction in the cyclically-adjusted primary balance is contractionary in both emerging and advanced countries. In advanced countries I find a short run expansionary effect on output that is accounted for by the dynamics of real interest rates in my model. In emerging countries, accommodative monetary policies accompanying fiscal consolidations fail to offset the Keynesian impact of a reduction in the Primary Balance, and this effect is all the more

important as it appreciates the Real Exchange Rate, triggering a deterioration of the trade balance and affecting growth negatively.

Overall, the cyclically – adjusted primary balance is an imperfect measure of discretionary fiscal policies. Cyclical adjustment methods suffer from measurement errors that are likely to be correlated with economic developments. Nevertheless my results are more in line with those of the narrative approach than the outcome-based approach, suggesting contractionary effects on output.

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Appendix 1: Fiscal Adjustments episodes – IMF WEO 2010

Episodes of fiscal adjustments Weo (Oct. 2010. ch.3)										
Australia	1980	1985	1986	1987	1994	1995	1996	1997	1998	1999
Belgium	1982	1983	1984	1987	1990	1992	1993	1994	1995	1996
	1997	1998								
Canada	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Denmark	1983	1984	1985	1986	1995					
Finland	1984	1988	1992	1993	1994	1996	1997	1998	1999	2000
	2006	2007								
France	1984	1986	1987	1988	1989	1991	1995	1996	1997	1998
	2000	2006	2007							
Germany	1982	1983	1984	1985	1986	1987	1988	1989	1992	1993
	1994	1995	1996	1997	1998	1999	2000	2003	2004	2005
	2006	2007								
Ireland	1982	1983	1984	1985	1986	1987	1988	2009		
Italy	1992	1993	1994	1995	1996	1997	1998	2004	2005	2006
	2007									
Japan	1981	1982	1983	1986	1997	2003	2004	2005	2006	2007
Portugal	1983	2000	2002	2003	2005	2006	2007			
Spain	1983	1984	1985	1986	1987	1988	1989	1992	1993	1994
	1995	1996	1997	1998						
Sweden	1983	1984	1986	1992	1993	1994	1995	1996	1997	1998
	2007									
United Kingdom	1981	1982	1994	1995	1996	1997	1998	1999		
United States	1980	1981	1985	1986	1988	1990	1991	1993	1994	2000

Appendix 2: Fiscal Adjustments episodes – IMF WEO 2011

Episodes of fiscal adjustments Devries et al. (IMF WP 11/128)										
Australia	1985	1986	1987	1988	1994	1995	1996	1997	1998	1999
Austria	1980	1981	1984	1996	1997	2001	2002			
Belgium	1982	1983	1984	1985	1987	1990	1992	1993	1994	1996
	1997									
Canada	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
	1994	1995	1996	1997						
Denmark	1983	1984	1985	1986	1995					
Finland	1992	1993	1994	1995	1996	1997				
France	1979	1987	1989	1991	1992	1995	1996	1997	1999	2000
Germany	1982	1983	1984	1991	1992	1993	1994	1995	1997	1998
	1999	2000	2003	2004	2006	2007				
Ireland	1982	1983	1984	1985	1986	1987	1988	2009		
Italy	1991	1992	1993	1994	1995	1996	1997	1998	2004	2005
	2006	2007								
Japan	1979	1980	1981	1982	1983	1997	1998	2003	2004	2005
	2006	2007								
Netherlands	1981	1982	1983	1984	1985	1986	1987	1988	1991	1992
	1993	2004	2005							
Portugal	1983	2000	2002	2003	2005	2006	2007			
Spain	1983	1984	1989	1990	1992	1993	1994	1995	1996	1997
Sweden	1984	1993	1994	1995	1996	1997	1998			
United Kingdom	1979	1980	1981	1982	1994	1995	1996	1997	1998	1999
United States	1978	1980	1981	1985	1986	1988	1990	1991	1992	1993
	1994	1995	1996	1997	1998					

Appendix 3: Fiscal Adjustments episodes – Alesina and Ardagna (2012)

Episodes of fiscal adjustments			
Successfull		Unsuccessfull	
Belgium	1993-2001	Austria	1996-1997
Canada	1993-1997	Belgium	1973-1974
Denmark	1983-1986	Belgium	1984-1990
Denmark	2004-2005	Canada	1986-1989
Finland	1996-1998	Finland	1988-1989
Ireland	1986-1989	Finland	1993-1994
Ireland	1996-1998	France	1994-2001
Italy	1995-1997	Germany	1996-2000
Japan	1979-1987	Germany	2003-2007
Netherlands	1971-1973	Ireland	1983-1984
Netherlands	1996-2000	Italy	1976-1977
Netherlands	2004-2005	Italy	1982-1983
New Zealand	1991-1994	Italy	1988-1993
Norway	1978-1980	Italy	2006-2007
Norway	1993-1996	Netherlands	1982-1983
Portugal	1994-1995	Netherlands	1985-1988
Spain	1986-1987	Norway	1982-1983
Spain	1994-1997	Norway	1988-1990
Sweden	1983-1984	Norway	1999-2000
Sweden	1986-1987	Norway	2004-2005
Sweden	1993-1998	Portugal	2002-2003
Sweden	2004-2005	Portugal	2006-2007
Switzerland	2003-2008	Spain	1983-1984
United Kingdom	1984-1988	Sweden	1975-1976
United Kingdom	1994-2000		

Appendix 4: List of countries

Emerging	Advanced
South Africa	United States
Argentina	United Kingdom
Bolivia	Austria
Brazil	Belgium
Chile	Denmark
Colombia	France
Costa Rica	Germany
Dominican Republic	Italy
Honduras	Netherlands
Mexico	Norway
Nicaragua	Sweden
Panama	Switzerland
Paraguay	Canada
Peru	Japan
Uruguay	Finland
Venezuela	Greece
Iran	Iceland
Israel	Ireland
Hong Kong	Portugal
India	Spain
Indonesia	Australia
South Korea	New Zealand
Pakistan	
Philippines	
Thailand	
Ghana	
Bulgaria	
Russian Federation	
China	
Hungary	
Poland	
Romania	

Appendix 5: Fiscal Adjustments episodes in advanced countries - IMF's fiscal historical database

Country	Year
United States	1981-1986 1991-1995 2003-2006 2010-2011
United Kingdom	1985-1986 1992-1997 2003-2007 2010-2011
Austria	1983-1984 1987-1989 1994-1997 2010-2011
Belgium	1984-1985 2008-2010
Denmark	1983-1985 1995
France	1983-1987 1992-1997 2004-2005 2010-2011
Germany	1992-1999 2000-2007
Italy	1981-1992 2004-2007
Netherlands	1982-1984
Sweden	1981-1985 1992-1996
Switzerland	1992-1995 2004-2005
Canada	1980-1986 1997-2002
Japan	1981-1984 1995-2001 2007-2010
Finland	1993-1996
Greece	1982-1994
Iceland	1994-1995 2010-2011
Ireland	1984-1987 2009-2011
Portugal	1981-1983 1994-1995 2001-2005
Spain	1981-1989 1990-1997 2010-2011
Australia	1983-1986 1992 -1995 2009-2011
New Zeland	2009-2011

Appendix 6: Fiscal Adjustments episodes in emerging countries - IMF's fiscal historical database

country	year
Argentina	1982-1984
Bolivia	1981-1990 200-2005
Brazil	1997-1999
Chile	1983-1986
Colombia	1981-1990 1995-2000
Costa Rica	1981-1982 1987-1988 2010-2011
Dominican Republic	2003-2005 2009-2010
Honduras	1987-1989 2002-2005 2007-2010
Mexico	2010-2011
Nicaragua	1991-1995 200-2001
Panama	1983-1985 1989-1990
Paraguay	1982-1986 2000-2001
Peru	1987-1989
Uruguay	1982-1985 2000-2002
Venezuela	2008-2011
Israel	1981-1982 1990-1991 1993-1994 2010-2011
India	1995-2010
Pakistan	1981-1997
Pakistan	2007-2008
Philippines	2010-2011
Thailand	1981-1987 1998-2003 2010-2011
Ghana	1993-2003 2005-2006 2010-2011
Bulgaria	2010-2011
Russia	2010-2011
China	1990-1999 2010-2011
Hungary	2003-2007
Poland	1997-1999 2001-2011
Romania	1996-1998 2001-2002 2007-2011

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