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European Monetary Union Towards a Multi-speed 'Fiscal Adjustment' Europe

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Abstract: In recent years, the financial crises that broke out in 2007 and the pandemic crises has brought forth the issue of government debt which again has drawn the attention of economists. The issue of debt becomes more complicated when the analysis concerns member states of a monetary union. In the case of EMU, the need for fiscal cooperation is essential for the stability of the union, yet fiscal cooperation is quite complex. In this paper we will attempt to estimate the size of fiscal multipliers using a VAR model for the member states of EMU for the period 2002-2019, controlling for the level of debt, size of the country and openness of the economy. Findings are in line with the relevant literature and shows that fiscal multiplier is higher in small open countries with less debt in comparison to other countries. These findings raise some important questions for the effectiveness and efficiency of fiscal rules in EMU. Given that multipliers are vary between countries of EMU, as our model suggests, fiscal rules could ultimately lead to multi speed fiscal adjustment Europe since some countries will succeed in restoring their fiscal position faster and more effectively than others.

Keywords: Fiscal Policy, European Monetary Union, Fiscal Multipliers, Debt, Fiscal Rules, VAR Model

1. Introduction

Since the dawn of the 21st century, economies have faced two major downturns. In 2007-8, the financial and banking crisis hit developed economies forcefully. National governments attempted to revitalize economies and particularly the financial system by providing the necessary financial support. After many years of applying supply-side policies, it was (once again) the time to remember the Keynesian doctrine and the necessity of state intervention to restore economic activity. This was the first round of increasing the fiscal deficit. Some years later, the coronavirus pandemic broke out. Economies floundered again (in a very short time since the financial crisis) under severe stress. National and regional lockdowns shrunk economic activity, which was hit simultaneously by negative demand and supply shock. This economic downturn made the financial support of households and firms an imperative task, leading again to a substantial expansion of public spending and deficits. The crucial issue after the end of the pandemic crisis will be the elimination of excessive budgetary deficits. Fiscal policy has always been a central issue for economic theory and policy and often, a vigorous debate has raged over the appropriate fiscal policy. The issue of fiscal policy is more intriguing in the case of a monetary union, where the common currency redefines the framework of fiscal policy. The question we attempted to answer in this thesis is whether it is possible to apply the same fiscal rules in every economy of the monetary union and the analysis indicates that this is not a viable proposition.

The success of fiscal consolidation will depend on many other factors (such as the size of the crowding-out effect, the Ricardian or Non-Ricardian nature of households and governments, etc). Furthermore, as Ferguson and Kane pointed out the preferences over fiscal policy is a main reason for the differences in fiscal stance across the EMU countries. This challenged the rules of fiscal consolidation of EMU, putting some member states in liquidity and solvency risk [1]. The development of the last decade has contested the efficiency of fiscal rules and fiscal institutional framework pointed out the need to be re-designed as showed by Buti, Giudice, and Leandro [2] and Della Posta and Tamborini, [3]. Howarth and Quaglia highlighted that under the present incomplete economic governance any economic measure

taken by European Union will fail [4]. Verdun [5] and Howarth and Verdun [6] have been given a different perspective focusing on the asymmetry between centralized monetary policy that is decided by the Central Banker which has a specific task and the decentralized fiscal policy decided by 20 Ministers of Finance having different priorities, while Hodson [7] focused on the strict detailed policy prescriptions and the bureaucracy that needed to apply fiscal rules while Bauer and Bekker [8] and Savage and Verdun [9] emphasize to the intervention of the European Commission which, under European Semester, has more authority to influence national policies.

We contribute to this debate from a different perspective. Our aim is to estimate fiscal multipliers to assess fiscal framework and to discuss the limitation of the fiscal design of the EMU. The examination of the size of fiscal multipliers could provide us with an appropriate tool to assess the fiscal policy. Thus, his study focuses on the size of fiscal multipliers. Multipliers are affected by various factors such as the characteristics of the economy (e.g., marginal propensity to consume) and institutional characteristics (e.g., the role of Central Banks). The model we developed verified these results.

In the last few decades, we have witnessed an increase in public debt. As the economies return to normality, there will be an urgent need for tackling this problem. Especially in the European Monetary Union, fiscal consolidation is imperative, given that the sound fiscal position of the countries guarantees the stability of the common currency. The effort to return to a viable fiscal position rests on the fiscal framework. Yet, common fiscal rules would not be suitable for all countries, given that *the effectiveness and impact of fiscal policy depend on several factors*, *there are different frameworks for fiscal monitoring and EMU's fiscal design has several drawbacks*, and *the fiscal multipliers that determine the potency of fiscal policy vary substantially across member-states* (which is the focus of our analysis).

So, apply identical fiscal rules to different countries could ultimately revive the old discussion of the two-speed Europe, this time in the sense of not development but fiscal adjustment (the multi-speed fiscal adjustment Europe). If this comes true, then the European Union will face new 'exits' or a new round of fiscal austerity and perhaps severe recession in some countries. The only way out is a new economic paradigm with sustainable, fair, and equal development for all countries of the EMU.

In what follows in the second part we will review the literature of the VAR models; the third part will analyses the model and the final part will conclude by reporting the policy implications of the empirical findings.

2. Literature Review of VAR Models for Estimating Fiscal Multipliers

A second strand of the empirical literature for the estimation of fiscal multipliers is based on Vector Autoregression (VAR) models. The advantage of these models is that they are not based on theoretical frameworks. Furthermore, VAR models are easier to estimate and better incorporate non-linear behaviour, especially when the economy deviates from its steady state. The previous aspect is crucial given that recent literature indicated that multipliers are state dependent, i.e., they are affected by the state of the economy being larger in times of recession. This is in line with Keynesian theory, which emphasizes the fiscal expansion as a more suitable policy to restore full employment. The downward stickiness of prices and wages, mainly due to institutional factors, allows the fiscal expansion to affect output and employment, thereby making the multiplier higher. Moreover, fiscal multipliers are smaller when the financial position of a government is weak. These are the features that characterize economies in the present times.

In the past several years, researchers in the field have shown an increasing interest in using VAR models for the estimation of multipliers. We may identify two main strands of this literature. First, there are models that incorporate business cycle; second, there are studies that include structural characteristics. Auerbach and Gorodnichenk [10], sing regime-switching VARs, estimated the impact of fiscal adjustment on the United States, Europe, and Japan allowing fiscal multipliers to vary across recessions and booms. It was found that the size of fiscal multipliers is different during expansion and recession with increasing values during recession. Batini et el. [11] following the same line of argument using regime-switching models for United States, found large differences in the size of spending multipliers during recessions and expansions with fiscal policy being considerably more effective in recessions than in expansions. Riera -Crichton et al. [12], using non-linear methods, estimated that multipliers are even higher reaching 3,1 in extreme recessions. The above results are also validated by the work of Silva et al. [13], which showed that public spending multiplier is positive in recessions whereas smaller in expansions. Therefore, the tax multiplier is also higher in recessions. On the other hand, the study of Ramey and Zubairy [14] for the United States did not conclude a multiplier below unity with a statistically significant difference of the values of multipliers during a period of economic stack estimating. However, during periods of zero lower bound interest rates, results are more mixed, and multipliers could be as high as 1,5 under certain specifications.

The other strand of the literature focused on the structural characteristic of the economy for the estimation of the multiplier. Blanchard and Perotti [15, 16] using a mixed structural VAR, estimated effects of shocks in government spending and taxes on US activity in the post-war period, thereby incorporating institutional information about the tax and transfer systems so as to identify the automatic response of taxes and spending to economic activity. The results showed that government spending have a positive effect on GDP, while taxes have a negative effect on it. A further finding indicated that an increase in both spending and taxes have a negative effect on investment spending. Ilzetski et al. [17] based on a novel quarterly dataset of government expenditure

in 44 countries, showed that the impact of government expenditure shocks depends on country characteristics such as the level of development, exchange rate regime, openness to trade, and public indebtedness. A positive spending shock affects output to a greater degree in industrial countries than in developing countries; fiscal multipliers are larger under a fixed exchange rate regime and are near zero under a floating exchange rates regime; additionally, fiscal multipliers are smaller in open economies than in closed economies and are negative in high-debt countries. A similar conclusion was reaffirmed in the study of Hory [18]. Based on a sample of 48 emerging and advanced economies, Hory estimated that emerging market economies have smaller fiscal multipliers than advanced economies. Hory also included factors such as imports, public debt, savings, unemployment, and financial development and found that all of the factors respond in the same way in the cases of both emerging and advanced economies. Finally, the leading structural factor that affects the efficiency of fiscal policy is public debt for emerging market economies and openness to trade for advanced economies. Chian Koh [19], using an annual data set of 120 countries over the period 1960–2014, also confirmed these findings. More specifically, Chian Koh examined four structural characteristics of the economies that included the level of debt, the level of financial development, the financial conditions, and the business cycle and found that fiscal multipliers are larger in advanced economies when debt is low and the economy faces financial crises or recession. Corsetti et al. [20], using a panel of OECD countries, examined how the effects of government spending vary with the economic environment, i.e., the exchange rate regime, public indebtedness, and health of the financial system. They showed that currency regimes affect the value of fiscal multipliers and output and consumption multipliers are higher in times of financial crisis. Born, Jussen, and Muller [21] also analysed fiscal multipliers under fixed and floating exchange rate regimes using a panel Vector Autoregression Model for OECD countries. Their finding indicated that government spending multipliers are considerably higher under fixed exchange rate regimes.

The basic weakness of these types of models is the lack of data given that periods of deep recession do not occur very often and so it is difficult to estimate the non-linearity of the multiplier. Furthermore, the reduced-form VAR is quite simple; they only include total spending, net taxes, and output and therefore are prone to omitted variable biases. VAR models have also received a lot of criticism for the 'fiscal foresight problem' as Leeper et al. [22] coin the term. If agents are forward looking, they can anticipate changes in fiscal policy. Thus, the effects of fiscal shocks appeared before the implementation of fiscal decisions. In other words, there is a lag that may lead to biased estimation of fiscal multipliers.

3. The Model

Our aim is to develop a panel VAR model for the estimation of fiscal multipliers. We use yearly data for the period 2002–2019. We choose this period because the new currency was introduced in EMU in 2002 and we extend the period until 2019 to avoid including data from the turbulent time of the pandemic crisis. The entire dataset is collected from AMECO. Our attempt is to estimate the impact of fiscal policy, based controlling for exogenous key variables, namely debt to GDP ratio, openness, and size of the country. To do this, we construct two new variables, openness, and size, which are explained below.

The first variable is straightforward. In order to analyze the impact of debt on fiscal multipliers, we distinguish two levels of debt to GDP ratios – countries with debt to GDP ratio less than 60%, and countries with debt to GDP ratio above 60%. This choice follows Maastricht criterion for debt level. This has also been justified by the influential work of Rogoff and Reinhart (2010). Rogoff and Reinhart showed that low levels of external debt (below 60%) do not impede economic growth whereas when debt to GDP levels exceeds 90%, economic growth is slowed. According to this analysis, we present a table with the average Debt/GDP ratio during the period 2002–2019 for the 19 member states of EMU.

Table 1. *Average %Debt/GDP of the Countries of EMU 2002-2019.*

Country	Average %Debt/GDP 2002-2019
Belgium	100.16
Germany	69.46
Estonia	7.23
Ireland	63.64
Greece	144.80
Spain	69.88
France	82.17
Italy	120.20
Cyprus	76.57
Latvia	29.63
Lithuania	29.88
Luxembourg	16.32
Malta	61.23
Netherlands	55.87
Austria	75.02
Portugal	100.47
Slovenia	48.47
Slovakia	43.89
Finland	49.07

The table shows that only 4 countries (Portugal, Belgium, Greece and Italy) had a Debt/GDP ratio level of above 100% during the period 2002–2019. Seven countries have an average ratio of Debt/GDP between 60% and 90%, namely Germany, Spain, France, Austria, Malta, Cyprus, and Ireland. Finally, Finland, Slovakia, Netherlands, Slovenia, Luxembourg, Lithuania, Latvia, and Estonia have a Debt to GDP ratio below 60%, which is the threshold of the Maastricht treaty.

As far as openness is concerned, there are a lot of indicators for openness. First, we need to clarify that by openness we mean trade openness, in contrast with financial or economic openness. Thus, for trade openness, the relevant literature uses four different indicators. First, the World Bank uses the export share/import share/trade share (exports + imports) indicator. This is a simple indicator that expresses import/export/trade volume as a percentage of nominal GDP

calculated for 199 countries from 1960. This is a continuous indicator and the results are expressed as a percentage of nominal GDP. Second, a very similar indicator is the Real Trade Share that was developed by Alcala and Ciccone [23] and it used the real GDP at PPP. The results are expressed as a percentage of real GDP. The calculations are made for 173 countries for the period 1960–2014. Tang [24] developed the Generalized Trade Openness Index that represents the trade volume as a share of GDP for the countries. The difference is that GDP is not included in nominal values but is defined by CES-function of the country's GDP and the GDP of the rest of the world. The results are continuous, and the scale is 0–100. Tang (2011) uses 167 countries for the period 1960–2016. Another indicator is the Composite Trade Share developed by Squalli and Wilson [25] for 231 countries for the period 1977–2016. This is the trade volume (exports + imports) as a share of GDP that is adjusted by World Trade Share. Finally, Li et al. (2004) developed the Adjusted Trade Share that calculated the imports divided by GDP and adjusted for the nation's share in world production. Li et al. [26] used 233 countries for the period 1960–2016.

We use the World Bank's indicator for trade openness for two reasons: its simplicity and its straightforward results. Thus, we calculate (import + export)/GDP for each country of EMU and take the average for the period 2002–2019. The results are summarized in the table below:

Table 2. *Openness of the Countries of EMU 2002-2019.*

Country	OPENNESS
	(Average (import+exports)/ GDP
Belgium	1.697885
Germany	0.877403
Estonia	1.624752
Ireland	2.023187
Greece	0.685237
Spain	0.652593
France	0.664827
Italy	0.61248
Cyprus	1.424018
Latvia	1.204607
Lithouania	1.445988
Luxembourg	3.800397
Malta	3.101549
Netherlands	1.531066
Austria	1.134377
Portugal	0.836911
Slovenia	1.544905
Slovakia	1.816997
Finland	0.861888
Average	1.44953

In the last row, we calculate the average and define the countries whose values are above this average as open.

The last explanatory variable is the size of the country. To our knowledge, no study has investigated the relations between size of a country and fiscal multiplier. In case of a monetary union, this is a core issue because if the mechanism and rules of fiscal discipline are the same for each country and the multiplier is found to be dependent on the size of a country, then it would be easier for some countries to restore its fiscal position, while for some countries, either fiscal austerity must last longer or fiscal discipline must be more dire and consequently more recessionary. To address this issue, we construct a new variable. We define the size as the nominal GDP of each country as a share of the GDP of the whole monetary union, and then we calculate an average for the period 2002–2019 for each country. The results are summarized in the following table:

Table 3. *Size of the Countries of EMU 2002-2019.*

Country	SIZE
	%GDP/GDPEMU (%average 2002-2019)
Belgium	3.4199%
Germany	25.2119%
Estonia	0.1510%
Ireland	1.9240%
Greece	1.8118%
Spain	9.6647%
France	18.0807%
Italy	14.5319%
Cyprus	0.1572%
Latvia	0.1872%
Lithuania	0.2827%
Luxembourg	0.3831%
Malta	0.0688%
Netherlands	5.9410%
Austria	2.7569%
Portugal	1.5783%
Slovenia	0.3220%
Slovakia	0.6448%
Finland	1.7560%
Average	4.6776%

In the last row, we calculate the average and define big countries as those whose values are above this average and small countries as the ones whose values are below this average. The results seem to follow intuition given that the big countries include Germany, France, Italy, Spain, Netherlands, and the rest (Belgium, Austria, Ireland, Greece, Finland, Portugal, Slovakia, Luxemburg, Slovenia, Lithuania, Latvia, Cyprus, Estonia, and Malta).

We continue by reporting the results. First, we see that in the full sample, the multiplier is 0,1 and declines sharply. This of course is not so interesting, given the absence of distinction between countries but the sharp decline shows that the effects of fiscal shocks fade out rapidly. This is summarized in Figure 1.

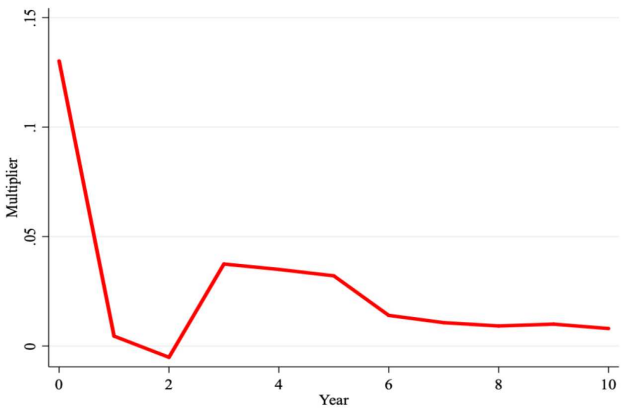

Figure 1. *Multiplier for Full Sample.*

We proceed to analyze the effects of debt. We divide the sample into two groups of countries, the first comprising countries with a debt to GDP ratio of less than 60% and the second consisting of countries with a debt to GDP ratio of more than 60%. As indicated above, the choice is based on the Maastricht criterion. The figure below demonstrates the impact multiplier for countries with a debt to GDP ratio of less than 60%.

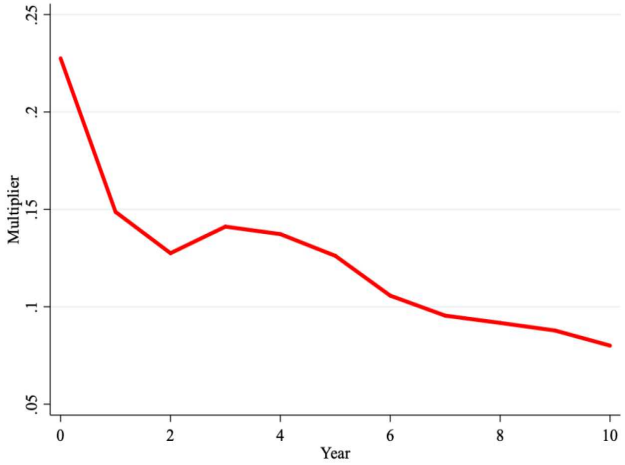

Figure 2. *Impact multiplier for countries with debt to GDP ratio of less than 60%.*

As we can see, the impact multiplier at time zero is greater than 0.2 but falls rapidly in the first year.

Instead, for countries with a debt of more than 60%, the impact multiplier is less than that for countries with lower debt but has some cyclicity (falls and rise) the nest years as shown in the graph below. Further, for countries with high debt, the effects of fiscal policy vanish in three years and turn negative.

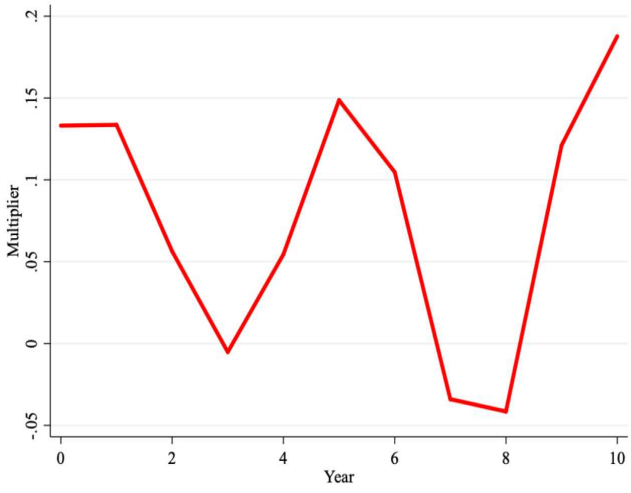

Figure 3. *Impact multiplier for countries with debt to GDP ratio of more than 60%.*

We conclude from the above analysis that the impact multiplier is higher for countries with low debt to GDP ratio, compared to those with a high ratio. This is in line with the literature as the work of Ilzetzki Mendoza & Vegh, [17]; Perotti, [15, 16] Afonso & Jalles, [27] showed.

We now proceed to the size of the country. We start from large countries where the impact multiplier is very small but rises steadily and starts declining after five years. This follows economic theory and intuition, given that for large countries, it is more difficult to motivate factors of production but, in general, they can invest in bigger projects. The graph below illustrates the above analysis.

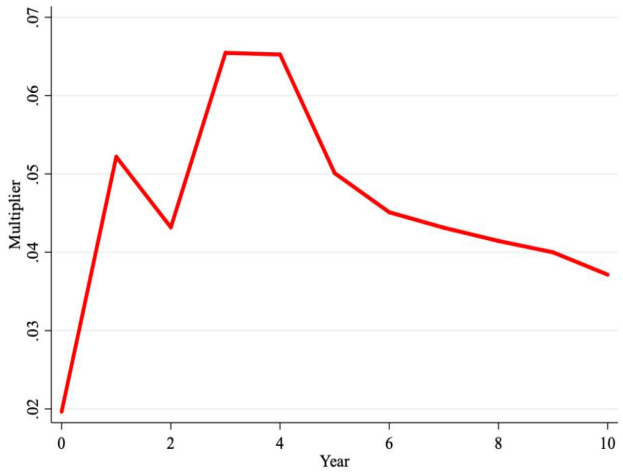

Figure 4. *Impact multiplier for large countries.*

On the other hand, though small countries have a significantly higher impact multiplier than large ones, it rapidly declines and after the first year, the impact multiplier becomes negative. Overall, the findings suggest that size matters for the magnitude of the multiplier.

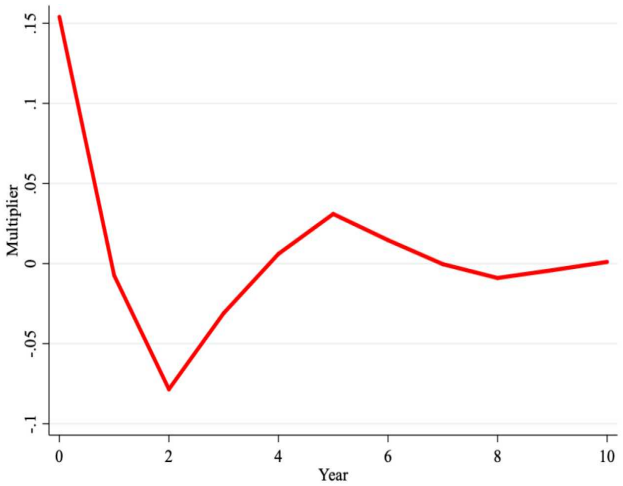

Figure 5. *Impact multiplier for small countries.*

The third factor that this model analyses is the openness of the economy. Figure 6 furnishes the multiplier for more open countries (trade to GDP ratio >=1). The impact the multiplier for this group of countries follows a pattern similar to the full sample but impact the multiplier is slightly higher and remains at a higher level than the full sample, also declining sharply during the first year.

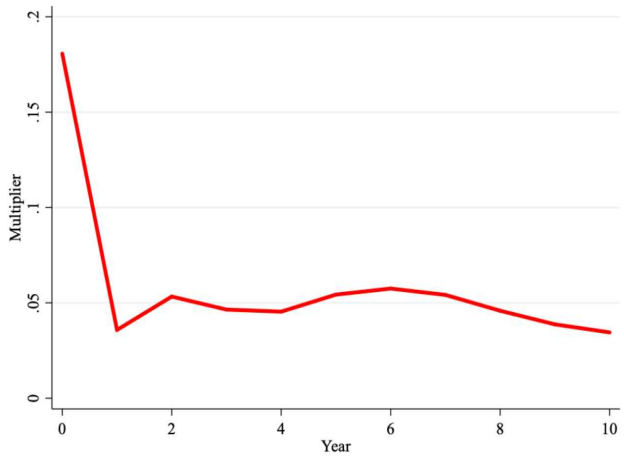

Figure 6. *Impact multiplier for more open countries.*

Figure 7 indicates the multiplier for less open countries (trade to GDP ratio <1). For this group of countries, the impact multiplier is small but rises and starts declining after 1 year. Even the peak multiplier for these countries is smaller than for the more open countries. Thus, we conclude that the multiplier is higher in more open countries and remains significantly higher than for the less open countries even after 5 years. The above findings are partly per the relevant literature (Ilzetzki, Mendoza & Vegh, [17]; Kraay, [28]; Silva et al., [13]; Deskar, Skrbic & Simovic, [29]) which reported that fiscal multipliers are higher in less open economies. This is verified by our model after the first year but not in year 0, where the fiscal multiplier for open countries is higher, compared to the less open countries. Yet, in year 1, our findings indicate that in open economies, the multiplier becomes smaller than that of the less open economies.

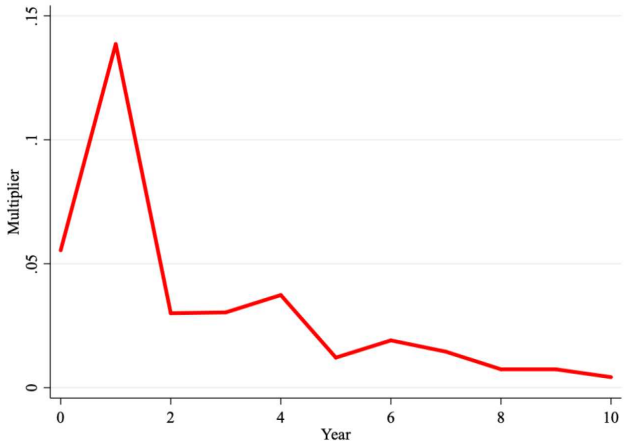

Figure 7. *Impact multiplier for less open countries.*

Combining the above points, we conclude that the fiscal multiplier is higher in small, open countries with less debt, compared to other countries.

4. Policy Implications

The above findings have some interesting policy implications. The Stability and Growth Pact has been suspended to stave off any unwanted economic consequences of the pandemic. Since then, the debt of the member states of EMU has soared and the fear of a new round of crisis, a debt crisis this time, has been invoked to justify the re-activation of fiscal rules. This implies that some countries should follow strict programmes of fiscal adjustments. Given the differences in the size of multipliers this may cause the multi-speed fiscal adjustment Europe, given that some countries will succeed in restoring their fiscal position faster and more effectively than others.

Declaration

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