



Lisbon School
of Economics
& Management
Universidade de Lisboa

MASTER
MONETARY AND FINANCIAL ECONOMICS

MASTER'S FINAL WORK
DISSERTATION

**MONETARY POLICY EASING AND NON-KEYNESIAN EFFECTS OF
FISCAL POLICY**

GONALO DIAS QUARESMA

APRIL-2021



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SUPERVISION:
ANT3NIO AFONSO

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GLOSSARY

C- Consumption

CAPB- cyclically adjusted primary balance

ECB- European Central Bank

EFC- Expansionary Fiscal Consolidations

EMU- Economic and Monetary Union

EU- European Union

FC- Fiscal Consolidation

FED- Federal Reserve

G- Government Expenditure

GDP- Gross Domestic Product

I- Investment

IMF- International Monetary Fund

OECD- Organization for Economic Co-operation and Development

OLS- Ordinary Least Squares

SGP- Stability and Growth Pact

ABSTRACT

This paper assesses the possible contribution of monetary expansions for the existence of expansionary fiscal consolidations, using annual panel data for 14 European Union countries over the period 1970-2019. The paper adopts a two-fold approach: it combines the usual CAPB approach used to identify fiscal consolidations with the narrative approach, and extends this approach to include dummy variables for identifying monetary expansions. A fiscal consolidation couple with a monetary expansion does produce little evidence of non-Keynesian effects, thus, monetary expansions does not contribute for the existence of expansionary fiscal consolidations. Moreover, Panel Probit estimations suggest monetary developments even contribute negatively for success of fiscal consolidations. For other success variables, duration and size contribute in a positive way and expenditure based consolidations lead to a decrease in debt to GDP ratio.

KEYWORDS: fiscal consolidations, fiscal episodes, monetary expansion non-Keynesian effects, panel data, probit

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MONETARY POLICY EASING AND NON-KEYNESIAN EFFECTS OF FISCAL POLICY

Gonçalo Quaresma

THIS WORK ASSESSES THE CONTRIBUTION OF MONETARY EASING TO THE EXISTENCE OF EXPANSIONARY FISCAL CONSOLIDATIONS, USING A CAPB APPROACH AND A NARRATIVE APPROACH.

1. INTRODUCTION

Keynesian theory says an increase in government spending should stimulate the economy via the multiplier mechanism thus increasing disposable income and private consumption. So, a fiscal consolidation should lead to a decrease in private consumption.

Nevertheless, some cases of non-linear effects in 90s like Denmark and Ireland gave rise to the strand of possible non-Keynesian effects of fiscal policy namely during fiscal consolidation periods. Accordingly, if there is a FC GDP may expand via private consumption or private investment.

An expansionary fiscal consolidation (EFC) happens when a fiscal consolidation leads to an increase in GDP (assuming that consumers adopt a Ricardian behaviour). According to literature two channels come at play in the existence of an EFC, Consumption channel and Investment channel.

There exist some conditions to provide success of EFC, being Size and Persistence [Giavazzi & Pagano (1996)]; Initial Conditions [Peroti (1999) and Ardagna (2004)] and Composition [Giavazzi (2000)].

However, some literature questioned the role that monetary policy might potentially play in the existence of EFC. Ardagna (2004) even stated: “In this case [referring a fall in interest rates], the coefficients of fiscal policy variables can be biased, capturing the effect of monetary rather than fiscal policy”.

Thus, our research question is: Can monetary policy easing explain the existence of non-Keynesian effects of fiscal policy?

Having in mind recent criticisms to CAPB approach, especially those stating that CAPB is useless in eliminating the cyclical effects and when CAPB tries to adjust for that cyclical effects suffers from measurement errors that are not correlated with economic development [Botta (2015)].

Thus, our paper contributes to the recent literature that complements the usual CAPB approach with the narrative approach developed by Devries et.al. (2011), and the effect of monetary expansions on the existence of EFC.

Overall, we conclude that monetary expansions do not contribute to the existence of EFC even using the narrative approach. In terms of success of fiscal consolidations, the three dummies accounting for monetary expansions all seem to contribute negatively for success of fiscal consolidations based on the evolution of Debt to GDP ratio (accounting for initial conditions) and, even some of them, contribute negatively for success of fiscal consolidations based on change of CAPB (accounting for size of FC).

The paper is organized as follows. Section two provides a literature review on the conditions needed to provide the existence of EFC and assesses one criticism, monetary policy easing effect on the existence of expansionary fiscal consolidations. Section three presents and identification of monetary and fiscal episodes and their respective relationship. In section four we conduct the empirical analysis of EFC using panel estimations, recurring to both the CAPB and narrative approaches and accommodating the monetary developments for both, and we also assess the success of the fiscal consolidations. Section five concludes the paper.

2. LITERATURE REVIEW

Non-Keynesian effects of fiscal policy

As Afonso (2010) says “the theoretical possibility of the existence of expansionary fiscal consolidations echoed in the so-called “German perspective” of fiscal consolidations, expressed in 1981 by the German Council of Economic Experts. Such view would afterwards have an influence on the fiscal convergence criteria of the Maastricht Treaty, calling for discipline of public accounts as a precondition for stable economic growth.”.

Fiscal Policy may have non-Keynesian effects on private consumption and investment decisions, though by different channels at stake in each situation.

C channel (expectations, wealth and substitution effects)

First, the expectation channel where lying on Ricardian equivalence agents perceive actual public spending cuts as leading to future tax reductions. Thus, they increase their consumption today. (Afonso & Leal, 2019)

Second, fall in interest rates due to the implementation of a fiscal consolidation leads to a wealth effect that, together with an increase in assets markets value, and the opportunity cost of savings lead households to increase their daily consumption (Afonso & Leal, 2019)

Third, cut in government spending lead to a substitution of public consumption by private consumption. Cut in public consumption frees up more economic resources like labour force and increases market space leading to an expansion of private sector (Afonso & Leal, 2019)

Giavazzi (1990) analysed the presence of this channels in some countries. They described two cases: Denmark (essentially wealth channel and expectations channel at stake) and Ireland (expectations channel present in 2nd Irish Stabilization).

I channel (credibility effect, wage moderation)

Regarding the effects on private investment two effects are present, wage moderation and credibility effect.

First, fiscal consolidation may have economic effects via the labour market because of reducing public spending mainly salaries, instead of rising taxes, reducing unit labor costs what increases external competitiveness and fosters net exports. Ardagna (2004) state labor market (wage moderation) channel has being important in transmission of fiscal policy.

Finally, a decrease in government deficits leads to a decrease in sovereign default risk what results in a decrease in real interest rate, the so-called credibility effect. Guajardo & Yépez (2019) analyse the effect in spreads, fiscal consolidations announcements made by congress in episodes when sovereign risk is high have contribute to decrease spread specially under an IMF program and high spread countries. Still, they found no evidence of EFC.

Conditions to provide the possibility of EFC: size, persistence, composition, initial state of public finances (public debt to GDP)

Most of the literature agrees that there are some necessary conditions required to provide the possibility of EFC. This regarding size, persistence, composition and initial state of public finances.

For example, Giavazzi & Pagano (1996) analyses the effects of budgetary items on private consumption and adds Sweden episode of 1989-1984, where large cuts in taxes led to a decrease in private C, to the analysis of Giavazzi & Pagano (1990). It argues sharp and persistent cuts have non-Keynesian effects.

Turning to the influence of initial conditions Perotti (1999) analysing OECD countries from 1965 to 1994 says the bigger the debt to GDP the more likely is that FC turns out to be expansionist, introducing the idea that initial conditions may be determinant for success of fiscal consolidation.

Regarding composition, Giavazzi et.al. (2000) addresses the issue of expansionary fiscal consolidations in OECD countries between 1973 until 1996 and for developing countries from 1996 to 1995 introducing the idea of composition that FC are expansionary when based on tax increases instead of spending cuts, more successful in reducing debt to GDP. That is the case for OECD countries.

Using data from 17 OECD countries from 195 to 2002, Ardagna (2004) analyses the effects of fiscal consolidations on GDP growth and debt ratio. Initial debt to GDP has a positive effect on the probability of success of fiscal consolidations. Meanwhile, current GDP growth does not seem to drive success of fiscal consolidations. More, the probability that a fiscal consolidation leads to decrease in debt to GDP depends more on the size of its improvement in CAPB and less on the composition.

Returning to the effects of budgetary items on private consumption Afonso (2010) extends Giavazzi & Pagano (1996) analysis to 15 EU countries from 1970 until 2005. He finds evidence of non-Keynesian effects, especially on social transfers.

In some recent strand of literature, CAPB has been criticised for not being able to fully eliminate cyclical shocks. One the first approaches was led by Devries et. al. (2011), which created a dataset with policy documents approved in National Parliaments and statements from National Central Bank of each country presented, to distinguish cyclical component. This dataset was then extended by Gupta et.al. (2017). Botta (2015) even points CAPB as an empirical fragility of expansionary fiscal consolidation advocates.

According to Alesina & Ardagna (2013), expenditure-based consolidations are the best on reducing debt to GDP and private investment is the one that most reacts to this type of adjustments using OECD countries from 1970 to 2010. If accompanied by structural reforms on labor and goods market, there is no negative effect. Alesina et.al. (2013) points differences in supply side policies as being the key of policy mix to outweigh negative effects on GDP. These results are even robust to alternative definition of episodes such as those used by Devries et. al. (2011).

Still some recent literature uses narrative approach, like Guajardo et.al.(2014) analysing a sample of OECD countries from 1978 to 2009 using CAPB and narrative approach to evaluate the effect of consolidations on GDP and private consumption. In terms of narrative approach, Guajardo et.al. (2014) finds no evidence of non-Keynesian effects, adding that they are contractionary independent of composition.

Getting back to the effect of budgetary items on private consumption, Afonso & Leal (2019) analyse 19 EMU countries from 1960 until 2017, but now using narrative approach only to 10 Euro Area countries. They conclude private consumption continues to exhibit

non-Keynesian effects. Again, social benefits present a negative long run elasticity appearing to contribute the most to non-Keynesian effects.

More recently, Alesina et.al. (2019) stated again that spending cuts are much less costly in terms of output loss than tax increases, this time analysing 16 OECD countries from 1978 until 2014. Notably this different effect on output is robust to accompanying policies (monetary policy, structural reforms, exchange rates) and state of the economy (whether recession or expansion).

Breuer (2019) develops the idea that in CAPB approach expenditure to GDP behaves inversely to output gap, thus, an economic upswing (arising from a positive output gap) is wrongly associated with a reduction in government spending. A major implication is the fact that fiscal multiplier becomes small or even negative much more for expenditure side than revenue side.

Interestingly, Alesina et.al. (2019) results may suffer from this problem.

Effect of MP easing on the existence of NK effects of FP

One of the critics to EFC is that the possibility of non-Keynesian effects may come not from Fiscal Policy but from Monetary Policy easing [Botta (2015)]. Foresti & Marani (2013) even states that an “expansionary reaction of the Central Bank to a FC can be the main cause of the increase in income”.

According to Ardagna (2004), and using a sample of OECD countries, successful and expansionary fiscal consolidations are not the result of accompanying expansionary monetary expansions or currency devaluations.

Studying the same issue, using OECD countries from 1980 to 2005 recurring to an OLS pooled Ahrend et.al. (2006) state that the scope for monetary policy reaction to consolidation efforts is defined by their credibility. Additionally, after controlling for reverse causality between fiscal consolidations and monetary policy, they conclude that fiscal consolidations based on expenditure cuts lead to a decrease in interest rate.

Moreover, Alesina & Ardagna (2013) state the same idea of Ahrend et.al. (2006). They even criticise Devries et. al. (2011) narrative approach conclusions where they say monetary policy seem to help initial conditions by lowering interest rates.

An important conclusion by Afonso & Martins (2014) lies on the fact that when fiscal consolidations are matched by monetary easing, appears to exist some evidence of non-Keynesian effects on government consumption and taxes, however, when not matched liquidity constrained households may emerge, as such, the non-Keynesian effects registered disappear. Basically, they added monetary episodes variable to the regression that studies GDP and budget components effects on private consumption, using panel data with fixed effects for 14 EU countries from 1970 to 2013.

Similarly, to Alesina & Ardagna (2013) conclusions Guajardo et.al. (2014) using the same sample of OECD countries from 1978 to 2009 concludes that monetary policy is relevant, indeed interest rates fall more in spending based adjustments and monetary policy accounts for much the difference in output.

Some literature tries to develop a Central Bank reaction function to Fiscal Policy similarly to Foresti & Marani (2013).

That is the case of Afonso & Alves (2019) using panel data for a sample of 28 EU countries from 1970 until 2015. They plot the Central Bank reaction function and Government reaction function having observed a substitution effect between both fiscal policy and monetary policy, especially in cases of higher debt levels. When government attains high debt or public deficits Central Bank assumes a more dominant position to confront fiscal problem.

Also, Banerjee & Zampoli (2019) using a Local projection method on a sample of 17 OECD economies from 1978 to 2007 conclude fiscal consolidations do not require large output and employment costs provided exchange rates are flexible and monetary policy has sufficient room to ease. On average monetary policy is loosened after a fiscal consolidation.

So, most authors agree that monetary policy may be eased after fiscal consolidation starts with that easing normally not happening before.

3.METHODOLOGY

Identifying fiscal episodes

In order to identify the fiscal episodes, we firstly used the same approach as Alesina & Ardagna (2010), where a fiscal consolidation occurs when the change in primary balance is greater than 1,5 percentage points where

(1)

$$FC^1 = \begin{cases} 1 & \text{if } \Delta CAPB \geq 1.5 \\ 0 & \text{if } \Delta CAPB < 1.5 \end{cases}$$

For the second method of identification, we relied on the approach used by Afonso (2010), where a fiscal consolidation occurs “when either the change in the primary cyclically adjusted balance is at least one and half times the standard deviation in one year, or when the change in the primary balance cyclically adjusted balance is at least one standard deviation on average in the last two years” as Afonso (2010) states.

(2)

$$FC^2 = \begin{cases} 1 & \text{if } \Delta b_t > \gamma \sigma \\ 1 & \text{if } \sum_{i=0}^1 \frac{\Delta b_{t-i}}{2} > \sigma \\ 0, & \text{otherwise} \end{cases}$$

where b is the primary structural balance as a percentage of GDP in period t and σ is the respective standard deviation for the panel sample while γ is applied to determine a multiple of the standard deviation as commonly used in the literature ($\gamma = 1,5$).

Table I shows the fiscal consolidations according to the different criteria. By observing the table I, we acknowledge that the number of years with Fiscal Consolidations for dummy variable $FC1$, based on Alesina & Ardagna (2010) is higher than for dummy variable $FC2$, based on Afonso (2010). But the same is not verified for duration, where Fiscal Consolidations identified by $FC2$ generally last longer than those identified by $FC1$.

Recognizing the critiques made by recent literature of the CAPB not being able to fully eliminate cyclical fluctuations on GDP, we adopted a third method ($FC3$) based on Devries et.al. (2011) and Gupta et.al. (2017), a policy-based approach, that created a dataset for fiscal and monetary episodes which occurrence was based on policy documents approved in National Parliaments and statements from National Central Bank

of each country presented and SGP, OECD and IMF reports. In recent literature, Botta (2015) even points CAPB as an empirical fragility of EFC advocates.

Again, looking at Table I, the number of Fiscal Episodes based on FC3 is significantly larger than those existent for FC1 and FC2 and, generally, the average duration is much higher than the previous two. This goes in accord with the conclusions from Afonso Leal (2019), that also used a narrative approach of Devries et. al. (2011) to identify Fiscal Episodes, having obtained 151 episodes for this approach vs. 51 episodes for CAPB approach.

Identifying monetary episodes

Following a similar approach used by Afonso & Martins (2014), this paper tries to verify if monetary expansions can explain the existence of non-Keynesian effects of fiscal policy. As such, we relied on 3 different methods to identify monetary episodes.

The first method is derived from the use of the real short term interest rates, a widely used measure of the monetary policy easing or tightening. (Afonso & Martins (2014))

The second and third methods are, respectively, nominal and real effective exchange rate, commonly used to assess the countries competitiveness. Ardagna (2004) used the nominal effective exchange rate as an indicator of the monetary stance. Real effective exchange was included to account for differences in price differences, mainly due to inflation.

We kept the same strategy used by Afonso & Martins (2014) to identify monetary episodes. As such, a monetary episode (monetary expansion) occurs when “the absolute change in one year or the average change in two years in the different indicators was greater than 1,5 times or 1 time the panel standard deviation” as Afonso & Martins (2014) state.

Specification (3) describes the equation for identifying monetary episodes:

(3)

$$ME_t^l = \begin{cases} 1, & \text{if } |\Delta M_t^l| > 1.5\sigma^l \\ 1, & \text{if } \left| \frac{\Delta M_t^l + \Delta M_{t-1}^l}{2} \right| > \sigma^l \quad l = 1, 2, 3 \\ 0, & \text{otherwise} \end{cases}$$

where ME_t^l denotes a monetary episode in period t according to criteria l ; ΔM_t^l corresponds to the change of the indicator l in period t . For the real short-term interest rate, we have an absolute change while in the nominal and effective exchange rates we used the percentage changes of the respective indexes. σ^l stands for the panel standard deviation of the relevant indicator.

From the observation of Table II, we can conclude that there are more monetary episodes than fiscal episodes, being more notable in the case of real short term interest rates (ME1), with 260 episodes. The average duration for monetary episodes varies significantly across episodes. In case of real short term interest rates, the average duration of the expansions is 4.4 years, whereas, for nominal effective rates (ME2) the average duration of the expansions almost 11 years,

Our conclusions on the number of monetary episodes vs fiscal episodes match those from Afonso & Martins (2014), where the number of monetary episodes is also far larger than fiscal episodes.

4. EMPIRICAL ASSESSMENT

Data

To assess the role of monetary expansions on the success of expansionary fiscal consolidations we used a set of 11 countries who belong to the EMU, namely Austria, Belgium, Germany, Finland, France, Greece, Ireland, Italy, Netherlands, Portugal, Spain and Denmark. Despite not belonging to the EMU, Sweden and United Kingdom were also include by their ties with the union.

The data consists on annual time series ranging from 1970 to 2019 for private consumption, GDP, general government, final consumption, social transfers, taxes, cyclically adjusted primary balance, general government debt, revenue and expenditure,

taken from AMECO database, achieving a maximum of 686 observations per variable, throughout the entire panel.

Core specification Model

The approach used for assessing the impact of the fiscal consolidations on the existence of non-Keynesian effects of fiscal policy is, as said before, based on an extension of Afonso & Martins (2014) in order to incorporate a dummy variable accounting for the narrative approach of Devries et.al. (2011), in a dataset that is extended until 2017 as of Gupta et.al. (2017).

As such, the core specification will be:

(4)

$$\begin{aligned} \Delta C_{it} = & c_i + \tau C_{it-1} + \omega_0 Y_{it-1} + \omega_1 \Delta Y_{it} + \\ & (\alpha_1 G_{it-1} + \alpha_3 \Delta G_{it} + \beta_1 TF_{it-1} + \beta_3 \Delta TF_{it} + \gamma_1 TAX_{it-1} + \gamma_3 \Delta TAX_{it}) \times FC_{it}^m + \\ & (\alpha_2 G_{it-1} + \alpha_4 \Delta G_{it} + \beta_2 TF_{it-1} + \beta_4 \Delta TF_{it} + \gamma_2 TAX_{it-1} + \gamma_4 \Delta TAX_{it}) \times (1 - \\ & FC_{it}^m) + \mu_m \end{aligned}$$

Where i ($i = 1, \dots, N$) indicates the different countries, t ($t = 1, \dots, T$) stands for the period. We also have: C -private consumption; Y - GDP; G - general government final consumption expenditure; TF – social transfers; TAX - taxes. All variables displayed correspond to the natural logarithm of the real *per capita* values. FC^m is a dummy variable that identifies a fiscal consolidation episode, according to the three different criteria mentioned in the previous section ($m=1,2,3$). The disturbances u_{it} are assumed to be independent and identically distributed across countries with zero mean and constant variance.

Core specification output

Generally, the fixed effects model is a better choice than Random Effects model, as it is able to remove the effect of time-invariant characteristics, which, in Fixed Effects model, are country specific and should not be correlated with other individual features. As such, the only source of country heterogeneity is represented but the intercept c_i in

specification (4) with Fixed Effects allowing for correlation between the latter and the repressors.

I have used the usual Hausmann specification test to choose between Random and Fixed Effects model. Under this specification test, H_0 is true if, in a certain regression, the covariance between a certain unobserved individual factor and the dependent variable is equal to 0, and as a result, Random Effects and Fixed Effects estimators are consistent, with the Random effects estimator ending up being used has its standard error is lower.

Results for the Hausmann test indicate that, for all the regressions with the three different dummies, p value equals 0 for all of them, meaning, the null hypothesis is false, and the Fixed Effects estimator has to be used.

Table III presents the estimation results for specification (4) according to the different dummies to identify fiscal consolidations episodes. Income is statistically significant for all the regressions, meaning, an increase in GDP will lead to an increase in private consumption. It is worth noting that, lagged consumption is not statistically significant and exhibit a positive effect on the variation of private consumption, therefore, increasing consumption in period $t-1$ also increases consumption in period t . This goes against the usual results from another papers, where the lagged consumption shows a negative elasticity to private consumption (Afonso & Martins (2014)).

If consumers perceive an increase in Government expenditure as leading to more taxes in future, thus leading to a decrease in future income, consumers decrease their current consumption. This corresponds to the so-called Ricardian behaviour. As such, if there is an increase in taxes in the present, consumers will assume they will have more future income, so they will increase their present consumption, leading to non-Keynesian effects for taxes.

In the absence of fiscal consolidations ($FC^m = 0$), there is a positive statistically significant relationship between the first difference of taxes (ΔTAX_{it}) and private consumption (ΔC_{it}) ($\gamma_4 > 0$ for all outputs), therefore, taxes exhibit non-Keynesian effects across all estimations based on (4). This behaviour of taxes goes in line with previous studies that also register non-Keynesian effects in Taxes for all the dummies present in their specifications (Afonso (2010); Afonso & Martins (2014))

For social transfers, it is worth noting that the first difference of social transfers (ΔTF_{it}) exhibits a negative statistically significant relationship to private consumption ($\beta_4 < 0$ for the first and second outputs) in the absence of fiscal consolidations ($FC^m = 0$). Thus, social transfers also register non-Keynesian effects on private consumption but only for specifications in (3) based on FC1 and FC2. Afonso (2010) also registered a negative elasticity of the first difference of social transfers in relation to private consumption and Afonso and Leal (2019) even conclude that social transfers appear to contribute the most for the creation of non-Keynesian effects.

In the presence of fiscal consolidations ($FC^m = 1$), taxes continue to exhibit non-Keynesian effects for private consumption but only for the estimation based on FC3 (dummy variable based on the narrative approach of Devries (2011)), with $\gamma_3 > 0$ for the third output. The same results are verified for social transfers, that only register non-Keynesian effects for the estimation based on FC3, as we can see by $\beta_3 > 0$ in the third output.

There is a positive statistically significant elasticity of government expenditure (ΔG_{it}) in relation to private consumption in the presence of fiscal consolidations ($FC^m = 1$) for the regression based on FC3 ($\alpha_3 > 0$ in the third output).

Thus, in the in the presence of fiscal consolidations ($FC^m = 1$) results do seem a bit contradictory as in the presence of the narrative approach dummy (FC3), as both non-Keynesian effects for taxes and social transfers are registered but also the usual Keynesian effects for government expenditure appear.

According to Afonso & Leal (2019), that also used the narrative approach of Devries (2011) and Gupta (2017), in a dataset of 10 Euro Area countries for the time period ranging from 1978-2015, taxes exhibit non-Keynesian effects for private consumption under austerity policies ($FC^m = 1$), as such, taxes can present Ricardian behaviour. Also, they add that exists a positive statistically significant elasticity for government expenditure in relation to private consumption (usual Keynesian effects). Thus, our results also using the narrative approach do seem to confirm Afonso and Leal (2019) results under the presence of Fiscal Consolidations ($FC^m = 1$)

Comparing to the literature that used only the CAPB approach, we can confirm Afonso (2010) results on the positive long run effect, that an increase in taxes combined with a Fiscal Consolidation, has in private consumption and the presence of Ricardian Behaviour in taxes under austerity policies (Afonso & Leal (2019). However, we do not find any non-Keynesian effects of government expenditure in private consumption under Fiscal Consolidations ($FC^m = 1$), the elasticity is even positive, signalling the usual Keynesian effects, confirming similar results of Afonso & Martins (2014).

ME specification output

We departed from Afonso and Martins (2014) specification and, so we also added each country's monetary developments to the specification (4). Our analysis extends the approach of Afonso and Martins (2014) because it adds a dummy accounting for the narrative approach of Devries et. al. (2011).

To identify Monetary Episodes, we relied on a similar strategy used by Afonso & Martins (2014):

$$ME_t^l = \begin{cases} 1, & \text{if } |\Delta M_t^l| > 1.5\sigma^l \\ 1, & \text{if } \left| \frac{\Delta M_t^l + \Delta M_{t-1}^l}{2} \right| > \sigma^l \quad l = 1,2,3 \\ 0, & \text{otherwise} \end{cases}$$

ME_t^l denotes a monetary episode in period t according to criteria l; ΔM_t^l corresponds to the change of the indicator l in period t. For the real short-term interest rate, we have an absolute change while in the nominal and effective exchange rates we used the percentage changes of the respective indexes. σ^l stands for the panel standard deviation of the relevant indicator.

As such specification (5) is as follows:

(5)

$$\Delta C_{it} = c_i + \tau C_{it-1} + \omega_0 Y_{it-1} + \omega_1 \Delta Y_{it} +$$

$$\begin{aligned}
& (\alpha_{10}G_{it-1} + \alpha_{30}G_{it} + \beta_{10}TF_{it-1} + \beta_{30}TF_{it} + \gamma_{10}TAX_{it-1} + \gamma_{30}TAX_{it} + \\
& \eta_{50}\Delta M_{it}^l) \times FC_{it}^m MX_{it}^l + \\
& (\alpha_{20}G_{it-1} + \alpha_{40}G_{it} + \beta_{20}TF_{it-1} + \beta_{40}TF_{it} + \gamma_{20}TAX_{it-1} + \gamma_{40}TAX_{it} + \\
& \eta_{60}\Delta M_{it}^l) \times (1 - FC_{it}^m) MX_{it}^l + \\
& (\alpha_{11}G_{it-1} + \alpha_{31}G_{it} + \beta_{11}TF_{it-1} + \beta_{31}TF_{it} + \gamma_{11}TAX_{it-1} + \gamma_{31}TAX_{it} + \\
& \eta_{51}\Delta M_{it}^l) \times FC_{it}^m (1 - MX_{it}^l) + \\
& (\alpha_{21}G_{it-1} + \alpha_{41}G_{it} + \beta_{21}TF_{it-1} + \beta_{41}TF_{it} + \gamma_{21}TAX_{it-1} + \gamma_{41}TAX_{it} + \\
& \eta_{61}\Delta M_{it}^l) \times (1 - FC_{it}^m)(1 - MX_{it}^l) + \mu_m
\end{aligned}$$

In addition to the variables previously explained, MX_{it}^l denotes a monetary expansion in period t

($t = 1, \dots, T$) for country i ($i=1, \dots, N$) according to the criteria l ($l = 1, 2, 3$). ΔM^l corresponds to the relevant indicator used to compute monetary episodes in (3).

Table IV presents the results for specification (5).

We verify that, as in Core Specification, Income continues to be statistically significant for all the results (ω_0 and $\omega_1 > 0$ for all outputs).

In the absence of monetary expansions and fiscal consolidations ($FC^m = 0$; $MX^l = 0$), the non-Keynesian effects of taxes and social transfers continue to be verified for almost all the regressions in specification (5), as happened in specification (4). As such we can verify that, for social transfers $\beta_{41} < 0$ for some outputs and, for taxes, $\gamma_{41} > 0$ for all outputs.

For the presence of monetary expansions and absence of fiscal consolidations ($FC^m = 0$; $MX^l = 1$), taxes register non-Keynesian effects only for regression based on ME1 (real short-term interest rate), as such, $\gamma_{41} > 0$ for output based on dummy variable ME1.

For the presence of fiscal consolidations and absence of monetary expansions ($FC^m = 1$; $MX^l = 0$), $\alpha_{31} > 0$ for almost all outputs, meaning, government expenditure verifies non-Keynesian effects for almost all regressions in specification (5). These results differ from specification (4) where non-Keynesian effects for government expenditure

where only statistically significant for the regression based on FC3 (dummy for the narrative approach of Devries et. al. (2011) and Gupta et.al. (2017)).

Most importantly, in the presence of both fiscal consolidations and monetary expansions ($FC^m = 1 ; MX^l = 1$), there is concurrent evidence of some Keynesian effects for lagged taxes on private consumption ($\gamma_{10} < 0$ for ME2, FC1 output) and some non-Keynesian effects for taxes on private consumption ($\gamma_{30} > 0$ for ME1, FC3 output). Lagged taxes register a negative elasticity to private consumption at 10% statistical significance level only for regression based on dummies FC1 and ME2. Taxes register non-Keynesian effects in private consumption at 10% statistical significance only for regression based on FC3 and ME1, meaning that, as in core specification (4) there still exist some evidence of non-Keynesian effects for the regression based on narrative approach (FC3 dummy) under a fiscal consolidation episode combined with a monetary expansion.

In relation to government expenditure, we can verify that, contrary to Afonso and Martins (2014), under a combination of austerity policies and monetary expansions ($(FC^m = 1 ; MX^l = 1)$, there is no statistically significant evidence of government expenditure, having a negative elasticity to private consumption (meaning, having non-Keynesian effects), or even a positive one (the usual Keynesian effects). These results diverge from those of specification (4) results where, under the narrative approach, government expenditure exhibited the usual Keynesian effects under Fiscal Consolidations.

As such, our specification (5) results as a whole seem to confirm that, successful and expansionary fiscal consolidations are not the result of accompanying Monetary Policy or devaluations, as stated by Ardagna (2004).

Table V summarises the robustness testes computed for specification (5).

Conditions for Success of Fiscal Consolidations

In order to assess what are the factors that may contribute for the success of fiscal consolidations we recurred to two different dummy variables based on the same approach used by Afonso & Martins (2014).

The first dummy $SU1$ is based on Afonso & Jalles (2012) “who define a fiscal consolidation as being successful if the change in the cyclically adjusted primary balance b_t for two consecutive years is greater than the standard deviation σ of the full panel sample” as stated in Afonso & Martins (2014):

(6)

$$SU_t^1 = \begin{cases} 1, & \text{if } \sum_{i=0}^1 \Delta b_{t+i} > \sigma \\ 0, & \text{otherwise} \end{cases}$$

The second dummy $SU2$ is based on a measure computed by Alesina & Ardagna (2013) based on the level of debt as a percentage of GDP. A fiscal consolidation is successful if “the debt-to GDP ratio two years after the end of the fiscal adjustment ($Debt_{t+2}$) is lower than the debt-to GDP ratio is lower than the debt-to-GDP ratio in the last year of adjustment ($Debt_t$)” as stated in Afonso & Martins (2014):

(7)

$$SU_t^2 = \begin{cases} 1, & \text{if } Debt_{t+2} < Debt_t \\ 0, & \text{otherwise} \end{cases}$$

We have also used the same dummy variables of Afonso & Martins (2014) to assess the leading option of fiscal consolidation- expenditure or revenue based. As stated in Afonso & Martins (2014): “a Fiscal Consolidation in period t is expenditure based (EXP_t) if the change in the cyclically adjusted total expenditure of the general government as a percentage of GDP in that period (Δexp_t) accounts for a proportion greater than λ of the change in the cyclically adjusted primary balance (Δb_t)”:

(8)

$$EXP_t = \begin{cases} 1, & \text{if } \frac{\Delta exp_t}{\Delta b_t} > \lambda \\ 0, & \text{otherwise} \end{cases}$$

where λ is meant to represent the composition of the adjustment for three different thresholds, so that λ assumes the values of 1/2, 2/3 and 3/4. A similar process was used to compute revenue based consolidations.

We have estimated a Probit model that intends to assess if “the reported differences between the expenditure and revenue based consolidations are statistically relevant and impinge on the success of the fiscal adjustments” (Afonso & Martins (2014))

(9)

$$Pr_i(SU = 1|Z_i) = E[SU = 1|Z_i] = \Phi(Z_i)$$

where $E[SU = 1|Z_i]$ is the conditional expectation of the success of the fiscal consolidation, given Z_i and SU refers to the dummy variables defined on (6) and (7). Equation (10) describes Z_i as follows:

(10)

$$Z_i = \delta_1 + \delta_2 D_i + \delta_3 \Delta b_i + \delta_4 EXP_i + \delta_5 MX_i$$

where D_i is the duration of the fiscal consolidation, Δb_i refers to the change in the cyclically adjusted primary balance, accounting for the size of fiscal consolidation. EXP_i is the dummy variable defined in (8) that accounts for expenditure based consolidations and MX_i refers to the dummy variable used to account for monetary expansions (MX1 for a decrease in real short term interest rates, MX2 and MX3, respectively, for nominal and real effective currency depreciations)

Table VI shows the results for the success measure constructed by Afonso & Jalles (2012).

For the first measure of success, SU1, based on Afonso & Jalles (2012), we can see that duration and size of fiscal consolidations play a statistically significant positive role on the success of fiscal consolidation. Similar to Afonso and Martins (2014), these results hold across for either FC1, FC2, FC3.

In terms of composition of fiscal consolidations, results are not linear and are even contradictory. For the specification based on dummy FC1, expenditure based

consolidations are the only to contribute for success of fiscal consolidations, as happens in Alesina & Ardagna (2013). For FC2, both expenditure based and revenue based consolidations contribute for success of fiscal consolidations. Finally, for specification based on dummy FC3, both expenditure based and revenue based consolidations do not play a statistically significant role on the existence of fiscal consolidations, similar to Afonso & Martins (2014).

Regarding the role of monetary developments in the FC2 case, for the first measures of success SU1 we can see that ME3 (real terms devaluation) contributes negatively for the success of fiscal consolidations. These results go in line with those of Ardagna (2004), that analysing a sample of concluded that successful and expansionary fiscal consolidations are not the result of accompanying monetary policy or even currency depreciation. Alesina et al. (2019) even state that expenditure based consolidations contribute for success of fiscal consolidations independently of accompanying policies (such as monetary policy, structural reforms, currency depreciation).

For the second measure of success SU2, based on Alesina & Ardagna (2013), duration and size do not play a statistically significant role on success of fiscal consolidation, as measured by the evolution of the Debt/GDP ratio.

Expenditure based consolidations seem to be the only to contribute for a reduction of Debt/GDP ratio across all specifications FC1, FC2, FC3, thus, contribute for the success of fiscal consolidations measured by criteria SU2. These results confirm Alesina Ardagna (2013), where they concluded that expenditure-based consolidations where those more likely to lead to a reduction of Debt/GDP ratio.

In terms of the role of monetary policy in the SU2 case, we can see that all the three monetary dummies, MX1, MX2 and MX3, give a statistically significant negative contribution for success of fiscal consolidations, reinforcing and even going further of Afonso & Martins (2014) conclusions of the negative effect of MX2 in the success of fiscal consolidations.

Our results conclude that even with a dummy variable accounting for the narrative approach of Devries et.al. (2011) and Gupta et.al. (2017), instead of using the usual CAPB approach, monetary policy still contributes negatively for the success of fiscal consolidations. It contradicts the usual idea in recent literature using narrative approach,

and concluding that monetary policy contributes for success of fiscal consolidations just by instituting initial conditions for success via lower interest rates (Alesina & Ardagna (2013)).

5. CONCLUSION

Our paper tried to answer the research question: Can Monetary Policy easing explain the non-Keynesian effects of Fiscal Policy? The regressions computed in this paper recourse to the usual dummies for identify fiscal consolidation but complement this analysis with a two-fold approach: extend the regression to accommodate dummies to identify monetary expansions as in Afonso & Martins (2014) and insert a dummy variable that accounts for the narrative approach of Devries et.al. (2011) and Gupta et.al. (2017) to identify fiscal consolidations.

The Fixed Effects panel estimations conducted for 14 EMU countries, show that, in the presence of a fiscal consolidation not combined with a monetary expansion, there is no evidence of non-Keynesian effects. Importantly, the results for the specification accommodating the narrative approach are contradictory, having in mind that both Keynesian effects for Government expenditure and non-Keynesian effects for taxes are verified.

However, in the absence of Fiscal Consolidations, there is evidence of non-Keynesian effects, in line with results from previous literature.

Accommodating monetary expansions through a new specification, we can conclude that when fiscal consolidations are matched by a monetary expansion there is little evidence of non-Keynesian effects. Thus, we can conclude that, monetary expansions do not play a role on the existence of expansionary fiscal consolidations.

Using a Probit Model to assess the probability of success of fiscal consolidations, we can even acknowledge that monetary developments contribute negatively for success of fiscal consolidations. Also, duration and size play a statistically significant role on success of fiscal consolidation. As previous literature states, we can confirm that expenditure-based consolidation contribute for success of fiscal consolidations, especially in terms of the evolution of Debt-to-GDP ratio.

Having in mind 2020 was a year of further substantial and spectacular increases in asset purchases programs by the FED and the ECB, for further research it would be interesting to include a variable accounting for the existence and magnitude of Asset Purchase Programs (most know as Quantitative Easing). This would allow a more

complete identification of monetary expansions in all its stances and would retest the
inexistent and even negative relation of monetary expansions with EFC.

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APPENDICES

Table I - Identification of the fiscal episodes according to the different criteria (1970-2019)

Country	FC1	FC2	FC3
	Consolidations	Consolidations	Consolidations
Austria	84,96,97,01,05,15	84,96	80,81,84,96,97,01,02,11,12,15
Belgium	77,82,84,85,93,06	82,84	82,83,84,87,90,92,93,94,96,97,10,11,12,13,14,15
Denmark	71,83,84,85,86,05,13,14,19	70,71,83,84,85,04,13,19	83,84,85,95
Finland	75,76,81,84,88,96,00	74,75,76,95,96,99,00	92,93,94,96,97,11
France	96	95	79,87,91,95,96,97,11,12,13,14,15
Germany	96,11	96,11	82,83,84,91,92,93,94,95,97,99,00,03,04,06,07,11,12
Greece	91,94,05,10,11,14,16	90,91,93,94,05,09,10,11,13,14,16	82,83,84,85,86,87,88,09,10,11,12,13,14,15
Ireland	88,03,11,12,13,16	11,12	91,92,93,94,96,97,98,04,05,06,07,10,11,12,13,14,15
Italy	82,83,91,92,93,97,07,12	82,90,91,92,11,12	81,84,85,86,87,88,91,92,93,04,05,11,12,13,15
Netherlands	77,85,91,93,96	91,96	83,00,02,05,06,07,10,11,12,13,14,15
Portugal	82,83,86,88,92,02,06,3,11,12,15,16,18	82,83,10,11,12,15	83,84,89,92,93,94,95,96,97,09,10,11,12,13,14,15
Spain	10,13	10,12,13	84,93,94,95,96,97,98
Sweden	96	95,96	79,80,81,82,94,95,96,97,98,99
UK	86,96,11,13	95,96,97,10	9
#Years with Episodes	76	60	160
Average duration of episodes	1,55	1,93	4,58

Source: author's computations. Notes: FC1 - Measure based on Alesina (2010); FC2 - Measure based on Afonso (2010); FC3 - Measure based on Devries (2011).

**Table II - Identification of the monetary episodes according to the different criteria
(1970-2019)**

	ME1	ME2	ME3
Country	Expansion	Expansion	Expansion
Austria	70,73,75,76,79,81,84,88,92,93,02,05,08,09		77,78
Belgium	70,73,74,75,76,77,78,81,82,84,85,86,92,93,02,05,08,09		77,78
Denmark	70,71,72,73,74,75,76,77,78,79,80,81,84,86,88,89,91,92,93,95,05,08,09		77,78
Finland	70,71,72,73,74,75,78,81,82,86,88,91,92,94,95,07	90,91,93	77,78,90,91,92
France	70,73,75,79,80,88,92,94,95,02,08,09		
Germany	90,91,92,08		77,78
Greece	70,71,72,73,74,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,96,98,99,02,08,09,10,11,12,14,15	70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90	
Ireland	70,71,72,73,74,76,77,78,79,80,81,82,83,84,85,86,88,89,92,93,97,98,02,03,06,07,08,09,10		77,78
Italy	71,72,74,75,78,79,80,82,83,90,91,92,97,01,08,09,12	71,72,73,74,75,76,79,80,91,92	91,92
Netherlands	70,72,73,74,75,76,77,81,84,85,86,88,92,93,05,06,08,09		77,78
Portugal	70,71,72,73,74,75,76,77,78,80,82,83,84,87,88,89,90,92,93,95,96,97,05,06,07,08,09	72,73,74,75,76,77,78,79,80,81,82,83,84	77,78
Spain	75,76,77,78,79,81,82,83,85,86,87,92,93,96,98,02,05,08,09,15	74,75,75,79,81,82,92	78,79
Sweden	80,83,85,89,90,91,92,93,95,07,08,09,10,13	76,81,91,92	77,78,81,81,92
UK	70,71,72,72,73,73,74,75,76,77,80,81,83,84,85,87,89,96,00,01,07,08,09,13	71,72,74,75,96,07	77,78,79,95,96,07
#Years with Episodes	260	64	34
Average duration of episodes	4,45	10,78	2,11

Source: author's computations. Notes: ME1 - Measure based on the changes in the real short-term interest rate; ME2 - Measure based on changes in the real effective exchange rate; ME3 - Measure based on the changes in the nominal effective exchange rate.

Table III- Fixed effects estimation results for specification (4)

		FC1	FC2	FC3
VARIABLES		varlnC	varlnC	varlnC
τ	C_{it-1}	0.013 (0.057)	0.007 (0.057)	0.025 (0.058)
ω_0	Y_{it-1}	0.246*** (0.067)	0.244*** (0.066)	0.238*** (0.066)
ω_1	ΔY_{it}	0.111*** (0.042)	0.121*** (0.042)	0.112*** (0.042)
α_2	G_{it-1}	0.054 (0.057)	0.050 (0.057)	0.060 (0.061)
α_4	ΔG_{it}	0.067 (0.059)	0.080 (0.059)	0.033 (0.064)
β_2	TF_{it-1}	-0.001 (0.050)	-0.002 (0.049)	0.051 (0.057)
β_4	ΔTF_{it}	-0.126** (0.057)	-0.118** (0.056)	-0.074 (0.060)
γ_2	TAX_{it-1}	0.035 (0.058)	0.047 (0.058)	-0.009 (0.061)
γ_4	ΔTAX_{it}	0.264*** (0.057)	0.239*** (0.055)	0.251*** (0.057)
α_1	G_{it-1}	0.004 (0.133)	-0.079 (0.151)	-0.013 (0.102)
α_3	ΔG_{it}	0.222 (0.153)	0.246 (0.170)	0.200* (0.118)
β_1	TF_{it-1}	0.005 (0.128)	0.217 (0.156)	-0.094 (0.073)
β_3	ΔTF_{it}	-0.043 (0.143)	0.045 (0.168)	-0.194* (0.101)
γ_1	TAX_{it-1}	0.028 (0.134)	-0.051 (0.136)	0.155 (0.099)
γ_3	ΔTAX_{it}	0.168 (0.125)	0.159 (0.128)	0.258*** (0.089)
Constant		130.663** (54.317)	125.964** (53.902)	125.078** (54.333)
Observations		686	686	686
R-squared		0.115	0.120	0.123
Number of Country		14	14	14

Notes: Used robust heteroskedastic-consistent standard errors. The t-statistics are in parentheses. *, **, *** denotes statistically significant at a 10,5,1 percent level, respectively. FC1- Measure based on Alesina (2010); FC2- Measure based on Afonso (2010); FC3- Measure based on Devries (2011).

Table IV- Fixed Effects estimation for specification (5)

VARIABLES		FC1,ME1	FC2,ME1	FC3,ME1	FC1,ME2	FC2,ME2	FC3,ME2	FC1,ME3	FC2,ME3	FC3,ME3
		varInC	varInC	varInC	varInC	varInC	varInC	varInC	varInC	varInC
τ	C_{it-1}	0.025 (0.059)	0.008 (0.060)	0.023 (0.060)	0.072 (0.068)	0.065 (0.068)	0.078 (0.069)	0.023 (0.058)	0.024 (0.058)	0.042 (0.059)
ω_0	Y_{it-1}	0.274*** (0.070)	0.271*** (0.070)	0.270*** (0.070)	0.251*** (0.070)	0.251*** (0.069)	0.244*** (0.069)	0.240*** (0.069)	0.236*** (0.068)	0.232*** (0.068)
ω_1	ΔY_{it}	0.098** (0.043)	0.110** (0.043)	0.100** (0.043)	0.129*** (0.044)	0.136*** (0.043)	0.128*** (0.043)	0.108** (0.043)	0.117*** (0.042)	0.111*** (0.042)
α_{21}	G_{it-1}	0.054 (0.072)	0.043 (0.073)	0.095 (0.079)	0.055 (0.058)	0.051 (0.058)	0.060 (0.062)	0.056 (0.059)	0.068 (0.059)	0.084 (0.063)
α_{41}	ΔG_{it}	0.073 (0.072)	0.108 (0.072)	0.067 (0.078)	0.071 (0.061)	0.087 (0.061)	0.039 (0.067)	0.074 (0.060)	0.092 (0.060)	0.040 (0.065)
β_{21}	TF_{it-1}	0.012 (0.057)	0.016 (0.056)	0.051 (0.065)	-0.017 (0.052)	-0.013 (0.050)	0.039 (0.059)	-0.010 (0.051)	-0.008 (0.049)	0.043 (0.058)
β_{41}	ΔTF_{it}	-0.112 (0.069)	-0.105 (0.069)	-0.067 (0.074)	-0.128** (0.059)	-0.108* (0.058)	-0.069 (0.062)	-0.146** (0.059)	-0.129** (0.058)	-0.085 (0.062)
γ_{21}	TAX_{it-1}	0.018 (0.072)	0.043 (0.072)	-0.031 (0.077)	0.026 (0.061)	0.042 (0.061)	-0.019 (0.065)	0.042 (0.060)	0.047 (0.059)	-0.017 (0.063)
γ_{41}	ΔTAX_{it}	0.325*** (0.068)	0.299*** (0.067)	0.314*** (0.073)	0.247*** (0.059)	0.233*** (0.056)	0.239*** (0.060)	0.272*** (0.058)	0.244*** (0.056)	0.253*** (0.059)
η_{61}	ΔM_{it}^l	-0.005 (0.051)	-0.020 (0.051)	0.002 (0.056)	0.015 (0.044)	-0.006 (0.043)	0.023 (0.046)	0.021 (0.042)	0.007 (0.041)	0.033 (0.044)
α_{20}	G_{it-1}	0.069 (0.091)	0.077 (0.088)	0.029 (0.097)	-0.341 (1.637)	-0.110 (1.672)	-0.288 (1.645)	-0.149 (0.255)	-0.292 (0.233)	-0.302 (0.236)
α_{40}	ΔG_{it}	0.074 (0.101)	0.049 (0.101)	-0.002 (0.109)	0.012 (0.297)	-0.010 (0.302)	-0.015 (0.320)	0.020 (0.366)	0.060 (0.361)	0.053 (0.409)
β_{20}	TF_{it-1}	-0.057 (0.087)	-0.052 (0.080)	0.034 (0.097)	0.177 (0.368)	0.188 (0.368)	0.217 (0.376)	0.280 (0.268)	0.361 (0.243)	0.376 (0.251)
β_{40}	ΔTF_{it}	-0.155 (0.096)	-0.106 (0.093)	-0.062 (0.102)	-0.154 (0.300)	-0.199 (0.313)	-0.127 (0.326)	0.012 (0.243)	-0.077 (0.247)	-0.090 (0.300)
γ_{20}	TAX_{it-1}	0.057 (0.083)	0.052 (0.083)	-0.006 (0.087)	0.256 (1.674)	0.033 (1.711)	0.190 (1.686)	-0.037 (0.220)	0.063 (0.219)	0.048 (0.228)
γ_{40}	ΔTAX_{it}	0.141 (0.088)	0.141* (0.085)	0.150* (0.086)	0.286 (0.240)	0.342 (0.276)	0.301 (0.244)	-0.038 (0.289)	0.128 (0.286)	0.184 (0.303)
η_{60}	ΔM_{it}^l	0.101 (0.066)	0.085 (0.065)	0.113* (0.067)	0.115 (0.144)	0.122 (0.145)	0.109 (0.148)	0.094 (0.187)	0.045 (0.179)	0.051 (0.191)
α_{11}	G_{it-1}	0.250 (0.240)	-0.010 (0.278)	-0.059 (0.132)	-0.036 (0.141)	-0.115 (0.167)	-0.020 (0.105)	-0.017 (0.148)	-0.238 (0.170)	-0.067 (0.106)
α_{31}	ΔG_{it}	0.812*** (0.251)	0.380 (0.310)	0.231 (0.161)	0.267 (0.162)	0.268 (0.179)	0.200* (0.120)	0.298* (0.163)	0.347* (0.179)	0.211* (0.120)
β_{11}	TF_{it-1}	-0.228 (0.226)	0.209 (0.302)	-0.050 (0.095)	0.007 (0.131)	0.204 (0.172)	-0.102 (0.076)	-0.022 (0.133)	0.210 (0.169)	-0.093 (0.075)
β_{31}	ΔTF_{it}	-0.157 (0.195)	0.036 (0.234)	-0.181 (0.133)	0.006 (0.159)	0.063 (0.192)	-0.168 (0.108)	-0.002 (0.154)	0.002 (0.178)	-0.185* (0.109)
γ_{11}	TAX_{it-1}	0.164 (0.194)	-0.126 (0.202)	0.178 (0.130)	0.183 (0.148)	0.016 (0.151)	0.202* (0.103)	0.194 (0.150)	0.158 (0.152)	0.260** (0.103)
γ_{31}	ΔTAX_{it}	0.129 (0.164)	0.180 (0.193)	0.327*** (0.118)	0.183 (0.131)	0.139 (0.139)	0.268*** (0.093)	0.200 (0.129)	0.216 (0.135)	0.303*** (0.092)
η_{51}	ΔM_{it}^l	-0.335** (0.163)	-0.065 (0.186)	-0.064 (0.095)	-0.177* (0.107)	-0.009 (0.122)	-0.062 (0.079)	-0.159 (0.106)	-0.065 (0.119)	-0.064 (0.078)
α_{10}	G_{it-1}	0.041 (0.177)	-0.109 (0.241)	0.106 (0.159)	0.705 (0.600)	0.789 (1.039)	0.562 (0.599)	21.601 (25.361)	0.500 (0.716)	0.702 (1.574)
α_{30}	ΔG_{it}	-0.109 (0.217)	0.136 (0.281)	0.097 (0.187)	0.117 (0.877)	0.150 (0.823)	0.055 (1.038)	-2.662 (3.279)	0.146 (0.800)	0.058 (2.829)
β_{10}	TF_{it-1}	-0.107 (0.219)	0.202 (0.250)	-0.100 (0.126)	0.653 (0.660)	0.903 (2.536)	0.251 (0.400)	213.708 (249.257)	-1.300 (1.411)	0.308 (2.215)
β_{30}	ΔTF_{it}	0.034 (0.228)	0.136 (0.266)	-0.094 (0.165)	-0.110 (0.501)	-0.094 (0.471)	-0.129 (0.587)	24.800 (28.216)	-0.335 (0.950)	-0.231 (2.613)
γ_{10}	TAX_{it-1}	0.047 (0.208)	0.063 (0.206)	0.186 (0.155)	-0.792* (0.439)	-0.801 (0.510)	-0.735 (0.488)	-83.899 (97.357)	0.000 (0.000)	-0.618 (1.119)
γ_{30}	ΔTAX_{it}	0.306 (0.221)	0.136 (0.210)	0.247* (0.149)	0.000 (0.000)	-0.188 (1.629)	0.331 (0.450)	0.000 (0.000)	0.000 (0.000)	0.048 (2.883)
η_{50}	ΔM_{it}^l	-0.026 (0.159)	-0.031 (0.167)	-0.106 (0.130)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Constant		111.865** (56.597)	107.155* (57.339)	100.895* (57.428)	106.226* (58.684)	97.916* (58.375)	96.484 (59.164)	124.914** (55.993)	115.979** (55.528)	109.947* (56.048)
Observations		686	686	686	686	686	686	686	686	686
R-squared		0.143	0.132	0.141	0.129	0.130	0.134	0.132	0.141	0.146
Number of Country		14	14	14	14	14	14	14	14	14

Notes: Used robust heteroskedastic-consistent standard errors. The t-statistics are in parentheses. *, **, *** denotes statistically significant at a 10,5,1 percent level, respectively. ME1- Measure based on the changes in the real short term interest rate; ME2- Measure based on changes in th real effective exchange rate; ME3- Measure based on the changes in the nominal effective exchange rate.

Table V- Robustness results for estimations based on specification (5)

Sample restriction	Summary Results
Sample with "central-European" countries	Some evidence of non-Keynesian effects for taxes and social transfers in the absence of both fiscal consolidations and monetary Expansions. In the presence of fiscal consolidations only, there is some evidence of non-Keynesian effects for taxes under FC3 only, and some keynesian effects for government expenditure. In the presence of Monetary Expansions only, taxes continue to verify some non-Keynesian effects. In the presence of both Fiscal Consolidations and Monetary Expansion, there exists no evidence of non-keynesian effects for taxes. Lagged taxes even exhibit Keynesian effects for specification based on FC1, ME2. Could not compute some estimations due to near singular matrix problems.
Sample with "peripheral-European" countries	Under a fiscal consolidation combined with a monetary expansion there continues to exist little evidence of non-Keynesian effects for any of the independent variables in the regression. Lagged taxes continue to exhibit Keynesian effects for specification based on FC1, ME2. Could not compute some estimations due to near singular matrix problems.
1971-1998	It is worth noting that in the absence of fiscal consolidations and monetary expansions, taxes and social transfers continue to exhibit the same usual non-Keynesian effects, but, despite that, Government expenditure now registers some Keynesian effects for specification based on FC2, ME3 and FC3, ME3. The same Keynesian effects are verified for social transfers, in the presence of monetary expansions, only for specifications based on FC2, ME3 and FC3, ME3; despite that new fact, taxes continuing to exhibit non-Keynesian effects. Most importantly, under a fiscal consolidation and a monetary expansion, we have evidence of Keynesian effects for taxes and government expenditure. One estimation could not be computed due to near singular matrix problems
1999-2019	When we have the presence of fiscal consolidation not combined with monetary expansions there is no evidence of non-Keynesian effects of taxes. Lagged taxes register some keynesian effects for the specification based on FC1, ME2 when a Fiscal Consolidation is matched with a Monetary Expansion. All estimations could be computed.

Notes: "Central European" include all but Greece, Ireland, Italy, Portugal and Spain, which are labelled as peripheral countries.

Table VI- Success of fiscal consolidations for SU1 based on FC2

VARIABLES	Expenditure			Revenue		
	(1) SU1	(2) SU1	(3) SU1	(4) SU1	(5) SU1	(6) SU1
<i>duration_FC2</i>	2.926*** (0.567)	2.927*** (0.565)	2.920*** (0.563)	3.004*** (0.560)	3.002*** (0.558)	3.000*** (0.557)
<i>Δcapb</i>	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
<i>exp12</i>	0.467** (0.215)					
<i>ME1</i>	-0.427 (0.454)	-0.469 (0.458)	-0.452 (0.464)	-0.616 (0.452)	-0.618 (0.453)	-0.614 (0.455)
<i>ME2</i>	-0.413 (0.402)	-0.414 (0.406)	-0.424 (0.408)	-0.452 (0.410)	-0.464 (0.412)	-0.468 (0.413)
<i>ME3</i>	- 1.651*** (0.569)	- 1.646*** (0.567)	- 1.649*** (0.568)	- 1.742*** (0.564)	- 1.746*** (0.562)	- 1.747*** (0.562)
<i>exp23</i>		0.364* (0.215)				
<i>exp34</i>			0.412* (0.220)			
<i>rev12</i>				0.479** (0.229)		
<i>rev23</i>					0.513** (0.227)	
<i>rev34</i>						0.520** (0.227)
Constant	- 4.328*** (0.652)	- 4.264*** (0.612)	- 4.278*** (0.624)	- 4.435*** (0.680)	- 4.453*** (0.688)	- 4.452*** (0.688)
Observations	686	686	686	686	686	686

Notes: Used robust heteroskedastic-consistent standard errors. The t-statistics are in parentheses. *, **, *** denotes statistically significant at a 10, 5, 1 percent level, respectively. 12, 23 and 34 next to exp and rev refer to the relevant variable for , according to (8)

Table VII- Success of fiscal consolidations for SU2 based on FC3

VARIABLES	Expenditure			Revenue		
	(1) SU2	(2) SU2	(3) SU2	(4) SU2	(5) SU2	(6) SU2
<i>duration_FC3</i>	-0.017 (0.024)	-0.017 (0.024)	-0.017 (0.024)	-0.010 (0.023)	-0.010 (0.023)	-0.010 (0.023)
<i>Δcapb</i>	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)
<i>exp12</i>	0.411** (0.168)					
<i>ME1</i>	-0.202* (0.105)	-0.204* (0.104)	-0.204* (0.104)	-0.222** (0.104)	-0.221** (0.104)	-0.223** (0.104)
<i>ME2</i>	-0.576*** (0.197)	-0.577*** (0.197)	-0.581*** (0.197)	-0.603*** (0.196)	-0.601*** (0.196)	-0.604*** (0.196)
<i>ME3</i>	-0.593** (0.274)	-0.598** (0.274)	-0.602** (0.274)	-0.591** (0.269)	-0.590** (0.270)	-0.591** (0.269)
<i>exp23</i>		0.434** (0.173)				
<i>exp34</i>			0.433** (0.178)			
<i>rev12</i>				-0.009 (0.143)		
<i>rev23</i>					0.021 (0.145)	
<i>rev34</i>						-0.038 (0.147)
Constant	-0.151 (0.111)	-0.156 (0.111)	-0.160 (0.111)	-0.173 (0.111)	-0.172 (0.111)	-0.174 (0.111)
Observations	686	686	686	686	686	686

Notes: Used robust heteroskedastic-consistent standard errors. The t-statistics are in parentheses. *, **, *** denotes statistically significant at a 10,5,1 percent level, respectively. 12, 23 and 34 next to exp and rev refer to the relevant variable for, according to (8)

