EXPANSIONARY FISCAL CONSOLIDATIONS IN EUROPE: NEW EVIDENCE

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In order to assess the existence of expansionary fiscal consolidations in Europe, panel data models for private consumption are estimated for the EU15 countries, using annual data over the period 1970-2005. Three alternative approaches to determine fiscal episodes are used, and the level of government indebtedness is also taken into account. The results show some evidence in favour of the existence of expansionary fiscal consolidations, for several budgetary spending items (general government final consumption, social transfers, and taxes), depending on the specification and on the time span used. On the other hand, the possibility of asymmetric effects of fiscal episodes does not seem to be corroborated by the results.

1 Introduction

The frequently assumed positive correlation between private consumption and fiscal expansion may be reversed if some particular conditions are in place. For instance, a significant and sustained reduction of government expenditures may lead consumers to assume that a permanent tax reduction will also take place in the near future. In that case, an increase in permanent income and in private consumption may well occur, also generating better expectations for private investment. However, if the reduction in expenses is small and temporary, private consumption may not respond positively to the fiscal cutback. In other words, under the right conditions, consumers might anticipate benefits from fiscal consolidation and act as described above, resulting in a so-called "non-Keynesian" effect of fiscal policy.[1]

This paper contributes to the existing literature on fiscal adjustments by looking at the evidence from a new timing using three different criteria to define the relevant fiscal episodes. The first two criteria are inspired in Giavazzi and Pagano

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[1] See Giavazzi and Pagano (1990). Bertola and Drazen (1993), Barry and Devereux (1995) and Perotti (1999) presented several theoretical explanations concerning the existence of those effects. For an overview of the topic, see Perotti (1998).

(1996) and in Alesina and Ardagna (1998) while a third alternative criterion provides additional cross-check of the results. Moreover, I also take into account the level of government indebtedness and assess as well the possibility of asymmetric effects of fiscal episodes, using all three criteria to determine fiscal episodes.

The organisation of the paper is as follows. Section two briefly reviews the underpinnings of expansionary fiscal consolidations and the available empirical evidence. Section three uses alternative measures to determine fiscal episodes. Section four presents the empirical analysis on expansionary fiscal consolidations in the EU15 via the estimation of private consumption panel data specifications, which use budgetary items as explanatory variables. Finally, section five concludes.

2 Expansionary fiscal consolidations

The basic underlying idea of non-Keynesian effects has been put forward by Feldstein (1982), who stated that permanent public expenses reductions may be expansionist if they are seen as an indication of future tax cuts, giving rise to expectations of a permanent income increase. Additionally, when public expenses keep rising beyond a certain limit, there will be also an increased probability that fiscal consolidation might occur. Bertola and Drazen (1993) define this moment as a "trigger point", after which a fiscal adjustment is highly probable. When the fiscal adjustment occurs, there are expectations that there will be significant future tax cuts, leading therefore to an increase in the consumer's permanent income. The same happens with private consumption, and consumers tend to exhibit Ricardian behaviour.[2]

On the other hand, Blanchard (1990) and Sutherland (1997) maintain that non-Keynesian effects may be associated with tax increases at high levels of government indebtedness. This kind of argument is based on "the expectational view of fiscal policy". If the fiscal consolidation appears to the public as a serious attempt to reduce the public sector borrowing requirements, there may be an induced wealth effect, leading to an increase in private consumption. Moreover, the reduction of the government borrowing requirements diminishes the risk premium associated with public debt issuance, contributes to reduce real interest rates and allows the crowding-in of private investment.

Besides the above mentioned expectational channel a so-called labour market channel could also be active. For instance, Ardagna (2004) mention in this context that the composition of fiscal policy may have economic effects via the labour market as a result of reducing public spending, notably salaries, instead of rising taxes. Giavazzi and Pagano (1990) and Alesina and Perotti (1997) also mention the role of exchange rates in promoting successful fiscal adjustments, since a significant exchange rate depreciation occurred before and during the fiscal consolidations of Ireland and Denmark in the 1980s.[3] Indeed, currency devaluations before or during

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[2] For instance, Afonso (2005b) reports evidence of overall government Ricardian behaviour in the EU15.

[3] Giavazzi and Pagano (1996) and McDermott and Westcott (1996) also analyse these fiscal episodes.

fiscal contractions also could play a role in the success of those consolidations (see, for instance, Hjelm, 2003, and Lambertini and Tavares, 2005).

The available empirical work so far does not seem to completely reject the expansionary fiscal contraction hypothesis. The composition of the adjustment seems to be a relevant issue, that is, to what degree the fiscal contraction is based on tax increases and public investment or government consumption cuts.[4]

3 Determination of fiscal episodes in the EU15

The most commonly used measure of fiscal adjustment, the cyclically-adjusted primary budget balance, allows the correction of all the effects on budget balance resulting from changes in economic activity such as inflation or real interest rate changes. This measure is frequently used either as percentage of GDP or as a percentage of potential output. In the paper I will use cyclically-adjusted primary budget balance as a percentage of GDP since it is a more widely used measure by the international institutions.

Alesina and Ardagna (1998) adopted a fiscal episode definition that allows that some stabilisation periods may have only one year.[5] On the other hand, the definition used by Giavazzi and Pagano (1996) decreases the probability of fiscal adjustment periods with only one year by using a limit of 3 percentage points of GDP for a single year consolidation.[6] However, the above definitions, by choosing arbitrarily 2 or 3 years fiscal adjustment periods, end up determining the number of years subjectively. In other words, in selecting the time span of fiscal episodes one incurs the risk of finding either an excessive number of periods, or of neglecting single year length fiscal episodes.

In order to identify fiscal policy episodes in the EU15, I used a simple approach trying also to minimise, but not necessarily avoiding, *ad hoc* definitions of fiscal episodes. Annual data for the fifteen EU countries, over the period 1970 to 2005, was collected for the primary cyclically-adjusted budget balance, computed by the European Commission. Therefore, a possible measure of fiscal impulse is the first difference of the primary structural budget balance, as a percentage of GDP. With 505 annual observations available, for the group of the 15 EU countries, the

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[4] Alesina and Perotti (1995, 1997b), Giavazzi and Pagano (1996), McDermott and Wescott (1996), Alesina and Ardagna (1998), Perotti (1999), Giavazzi, Jappelli and Pagano (2000), Zaghini (2002) and van Aarle and Garretsen (2003) present empirical results concerning the composition and size determinants of successful adjustments. Heylen and Everaert (2000) empirically contest the idea that government wage cuts contribute to successful fiscal consolidations. Von Hagen, Hughes-Hallet and Strauch (2001) and EC (2003) provide additional descriptive analysis and case studies.

[5] The change in the primary cyclically-adjusted budget balance is at least 2 percentage points of GDP in one year or at least 1.5 percentage points on average in the last two years.

[6] The cumulative change in the primary cyclically-adjusted budget balance is at least 5, 4, 3 percentage points of GDP in respectively 4, 3 or 2 years, or 3 percentage points in one year.

average change in the primary structural budget balance is 0.04 and the standard deviation 1.578.

Our definition of fiscal episode, *FE*, in this case defined as a fiscal consolidation, in period *t*, is as follows:

$$FE_t = \begin{cases} 1, \text{if } \Delta b_t > \gamma\sigma \\ 1, \text{if } \sum_{i=0}^{1} \Delta b_{t-i} / 2 > \sigma \\ 0, \text{otherwise} \end{cases} \quad (1)$$

where b is the primary structural budget balance 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. For simplicity I use γ = 1.5.[7] In other words, a fiscal episode occurs when either the change in the primary cyclically-adjusted balance is at least one and a half times the standard deviation in one year, or when the change in the primary cyclically-adjusted balance is at least one standard deviation on average in the last two years.

Using the definition in (1) one can determine both contractionary and expansionary fiscal episodes. In order to allow for similar definitions available in previous studies, I compute also the episodes using the definitions used by Giavazzi and Pagano (1996) and by Alesina and Ardagna (1998), labelled respectively measures *FE1* and *FE2*, while the criterion defined in (1) provides our measure *FE3*.

According to Table 1, the number of years with fiscal episodes labelled as contractions ranges from 58, in the approach of equation (1), to 81, following the Giavazzi and Pagano (1996) approach. Episodes of fiscal expansion are less common, ranging from 39 to 51 respectively for methods three and one, while fiscal consolidations range from 58 to 81 respectively also for methods three and one. The average duration of the reported fiscal contractions is around 2.5 years for the method inspired by Giavazzi and Pagano (1996), and around 1.8 years for the other two methods. Moreover, 76 and 68 per cent of the episodes determined with criterion one coincide with episodes determined respectively with criterion two and three, and 82 per cent of the episodes determined with criterion two coincide with episodes determined via criterion three.

4 Empirical analysis of expansionary fiscal consolidations

4.1 Empirical specifications

The empirical strategy to assess the evidence on expansionary fiscal

[7] As in all the related literature, here there is also an element of arbitrariness. In this case, 1.5 σ is 2.4 percentage points of GDP, implying a more demanding threshold to determine a fiscal episode.

Table 1

Fiscal Episodes (FE), Based on the Change in the Cyclically-adjusted Primary Budget Balance

Country	FE1		FE2		FE3	
	Expansions	Contractions	Expansions	Contractions	Expansions	Contractions
AU	76	97	76	84, 97, 01	76	84, 97, 01
BE		82-85, 95-96		82-83, 85, 95		82-83
DK	76, 94	83-87, 95-97	76, 82, 94	83-86, 95-96	76, 94	83-86, 95-96
FI	79-80, 87	76-77, 95-96, 00-01	78-79, 87	76-77, 95-96, 00-01	79, 87	76-77, 95-96, 00-01
FR		96-97		95-96		96
GE	75, 90-92	82-83	75, 90-91	82-83	75, 90-91	83
GR	81, 85, 89-90, 01-04	82-83, 87, 91-97	75, 81, 85, 88-89, 01-02, 04	82-83, 86-87, 91-92, 94-97, 05	81, 85, 88-89, 01-02	82-83, 86-87, 91-92, 94-95, 05
IR	75, 78-79, 01-02	76-77, 83-86, 88-89, 04	74-75, 78-79, 95, 99, 01-02	76-77, 83-84, 88-89, 04	74-75, 78-79, 01-02	76-77, 83-84, 88, 04
IT		77, 83, 92-94		77, 83, 91-93		77, 83, 92-93
LU	86-87, 02-05	83-85, 01	86-87, 02-04	83-85, 01	86-87, 02-03	83-85, 01
NL		93, 95-98		91, 93, 95-96		95-96
PT	74, 80-81	82-86, 92	80-81, 05	82-83, 86, 92	80-81, 05	82-83, 86, 92
SP		95-98		95-96		95-96
SW	74, 79-80, 91-94, 02-03	84, 87, 95-99	74, 79, 91-93, 01-02	76, 83-84, 87, 95-97	74, 79, 91-93, 02	87, 95-97
UK	72-75, 92-93, 02-04	81, 95-99	72-73, 92-93, 02-03	81, 95-98	72-73, 92-93, 02-03	95-98
Years with episodes	51	81	47	71	39	58
Average duration (years)	2.0	2.5	1.6	1.8	1.6	1.8

FE1 – Measure used by Giavazzi and Pagano (1996): the cumulative change in the primary cyclically-adjusted budget balance is at least 5, 4, 3 percentage points of GDP in respectively 4, 3 or 2 years, or 3 percentage points in one year.
FE2 – Measure used by Alesina and Ardagna (1998): the change in the primary cyclically-adjusted budget balance is at least 2 percentage points of GDP in one year or at least 1.5 percentage points on average in the last two years.
FE3 – Measure based on (1).

consolidations will rely on the estimation of private consumption specifications, which use budgetary items as explanatory variables. This is quite in line with some of the existing empirical literature. Therefore, the following baseline specification is used:

$$\Delta C_{it} = c_i + \lambda C_{it-1} + \omega_0 Y_{it-1} + \omega_1 \Delta Y_{it} + \delta_0 Y_{it-1}^{oecd} + \delta_1 \Delta Y_{it}^{oecd} + \quad (2)$$

$$(\alpha_1 FCE_{it-1} + \alpha_3 \Delta FCE_{it} + \beta_1 TF_{it-1} + \beta_3 \Delta TF_{it} + \gamma_1 TAX_{it-1} + \gamma_3 \Delta TAX_{it}) \times FC_{it}^m +$$

$$(\alpha_2 FCE_{it-1} + \alpha_4 \Delta FCE_{it} + \beta_2 TF_{it-1} + \beta_4 \Delta TF_{it} + \gamma_2 TAX_{it-1} + \gamma_4 \Delta TAX_{it}) \times (1 - FC_{it}^m) + \mu_{it}$$

where the index i (i = 1,…,N) denotes the country, the index t (t = 1,…,T) indicates the period and c_i stands for the individual effects to be estimated for each country i. These country-specific constants are the only source of heterogeneity in the specifications. In the equation, C represents the private consumption, Y the GDP; Y^{oecd} the OECD's GDP, FCE is the general government's final consumption expenditure, TF the social transfers and TAX the taxes, and all the abovementioned variables are taken as the logarithms of the respective real per capita observations. FC^m is a dummy variable that controls for the existence of fiscal episodes that are labelled as contractions, with m = 1, 2, 3, for each of the three fiscal episode determination strategies used in the previous section. Additionally, it is assumed that the disturbances u_{it} are independent and identical distributed random shocks across countries, with zero mean and constant variance.

In specification (2), ω_1 and δ_1 are the short-run elasticities of consumption to income and to OECD's income respectively. Moreover, α_3, β_3, and γ_3 are the fiscal short-run elasticities of the consumption function for the case when a fiscal consolidation occurs (i.e., $FC^m = 1$). It is straightforward to see, for instance, that $-\omega_0/\lambda$ is the long-run elasticity of consumption to income. Similarly, the long-run effects for the fiscal variables, in the presence of a fiscal consolidation episode, are given by $-\alpha_1/\lambda$, $-\beta_1/\lambda$ and $-\gamma_1/\lambda$ respectively for general government final consumption, social transfers and taxes.

Specification (2) is a standard fixed effects model, essentially a linear regression model in which the intercept term varies over the individual cross section units. The existence of differences between the several countries should then be taken into account by the autonomous term that may change from country to country, in each cross-section sample, in order to capture individual country characteristics.

4.2 Data

In order to assess the possibility of expansionary fiscal consolidations regimes for the EU15, I use annual data spanning the years 1970-2005 for private consumption, GDP, taxes, general government final consumption, and social

transfers. Taxes are the sum of current taxes on income and wealth (direct taxes) and taxes linked to imports and production (indirect taxes).

All variables are taken as the logarithms of real per capita observations. This gives a maximum of 36 years of annual observations for 15 countries and a maximum possible of 540 observations per series. Of the 15 countries in the panel data set, 12 are currently in EMU – Austria, Belgium, Germany, Finland, France, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal and Spain – and 3 others have not adopted the euro – Denmark, Sweden and the United Kingdom. The source of the data is the European Commission AMECO database (updated on 14 November 2005). Data for OECD population and GDP are taken from the OECD national accounts publications. Additionally, for the entire sample period the common unit root test, as proposed by Levin, Lin and Chu (2002) rejects the existence of a unit root at least at the 5 per cent significance level for all series in first differences.

4.3 Estimation results

The fixed effects model is a typical choice for macroeconomists and is generally more adequate than the random effects model. For instance, if the individual effects are a substitute for non-specified variables, it is probable that each country-specific effect is correlated with the other independent variables. Moreover, since the country sample includes all the relevant countries, and not a random sample from a bigger set of countries, the fixed effects model is a more obvious choice.[8]

According to the results reported in Table 2, in all specifications both the short-run and the long-run elasticity of private consumption to income are statistically significant. The short-run elasticity is approximately 0.66-0.69 in the three specifications. The long-run effect of income is close to one, ranging from 0.95 to 0.97, which indicates that the relation between private consumption and income is rather stable for the EU15 countries.[9] The short-run elasticity for the OECD income is also significant.

Regarding general government final consumption there is no statistically significant short-run effect on private consumption, either when there are fiscal consolidation episodes or not (even though the sign of the estimated coefficients for ΔFCE, α_3 and α_4, is positively in line with the usual Keynesian effects). However, the long-run effect of government final consumption on private consumption turns out to be statistically significant with the first method for determining fiscal episodes

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[8] Additionally, Judson and Owen (1999) show that even if the existence of a lagged endogenous variable could imply biased and inconsistent fixed effects panel estimators, such bias is minor when the cross section dimension is small in relation to the time dimension of the panel. This holds for an unbalanced panel and at least $T = 30$, as in the present case.

[9] The share of private consumption in GDP has some heterogeneity across the EU15 countries, with the country average for the entire sample period ranging from 0.52-0.53 in Finland, Denmark and the Netherlands to 0.66-0.67 in Greece and Portugal.

Table 2

Fixed Effects' Estimation Results for Specification (2), 1970-2005

			FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
λ	C_{t-1}		–0.072 ***		–0.070 ***		–0.069 ***	
			(–4.29)		*(–4.20)*		*(–4.15)*	
ω_0	Y_{t-1}		0.069 ***	0.970	0.068 ***	0.966	0.066 ***	0.951
			(4.39)		*(4.38)*		*(4.26)*	
ω_1	ΔY_t		0.693 ***		0.690 ***		0.688 ***	
			(14.54)		*(14.31)*		*(14.32)*	
δ_0	Y^{oecd}_{t-1}		0.004		0.004		0.004	
			(0.62)		*(0.69)*		*(0.74)*	
δ_1	ΔY^{oecd}_t		0.043 ***		0.041 ***		0.040 **	
			(2.70)		*(2.56)*		*(2.50)*	
α_1	FCE_{t-1}		–0.029 ***	–0.410	–0.027 ***	–0.390	–0.020	–0.290
			(–2.16)		*(–1.90)*		*(–1.35)*	
α_3	ΔFCE_t		0.002		0.022		0.014	
			(0.03)		*(0.42)*		*(0.26)*	
β_1	TF_{t-1}	$\times FC^m$	–0.008		–0.013		–0.013	
			(–0.70)		*(–1.12)*		*(–1.09)*	
β_3	ΔTF_t		–0.012		0.001		0.021	
			(–0.19)		*(0.01)*		*(0.28)*	
γ_1	TAX_{t-1}		0.029 **	0.405	0.032 ***	0.451	0.026 **	0.372
			(2.5)		*(2.63)*		*(2.03)*	
γ_3	ΔTAX_t		0.073 *		0.025		0.030	
			(1.67)		*(0.52)*		*(0.56)*	
α_2	FCE_{t-1}		–0.015	–0.214	–0.017 *	–0.241	–0.019 *	–0.290
			(–1.56)		*(–1.73)*		*(–1.94)*	
α_4	ΔFCE_t		0.028		0.025		0.023	
			(0.95)		*(0.84)*		*(0.78)*	
β_2	TF_{t-1}	$\times(1-FC^m)$	–0.006		–0.006		–0.005	
			(–0.75)		*(–0.70)*		*(–0.65)*	
β_4	ΔTF_t		0.022		0.020		0.019	
			(1.07)		*(0.96)*		*(0.87)*	
γ_2	TAX_{t-1}		0.015 *	0.209	0.016 *	0.222	0.017 **	0.252
			(1.86)		*(1.94)*		*(2.17)*	
γ_4	ΔTAX_t		–0.008		–0.002		–0.003	
			(–0.33)		*(–0.08)*		*(–0.13)*	
N			505		505		505	
$\bar{R}^2$			0.550		0.577		0.547	
Null hypothesis			Test statistics	*p*-value	Test statistics	*p*-value	Test statistics	*p*-value
$\alpha_1 - \alpha_2 = 0$			1.11	0.29	0.61	0.64	0.00	0.95
$\gamma_1 - \gamma_2 = 0$			2.07	0.15	2.64	0.10	0.61	0.44
$-\alpha_1 - \gamma_1 = 0$			0.00	0.97	0.14	0.71	0.23	0.63

Notes: The *t*-statistics are in parentheses. *, **, *** indicate values statistically significant at the 10, 5, and 1 per cent level respectively. The data sample includes yearly observations for the EU15 countries over the period 1970-2005. *lr* is the long-run elasticity of private consumption with respect to the relevant explanatory variables.
FC^1: measure used by Giavazzi and Pagano (1996); FC^2: measure used by Alesina and Ardagna (1998); FC^3: measure based on the method proposed in (1).

and when there are fiscal consolidations (α_1); with method two (both with and without fiscal consolidations); and with method three when there are no fiscal consolidations (α_2).

Interestingly, the long-run elasticity of private consumption with respect to general government final consumption is negative, which indicates that a reduction of government consumption increases private consumption in the long-run. Moreover, one should also notice that the magnitude of such long-run elasticity is higher when a fiscal consolidation episode occurs ($FC^m = 1$ in (2)), for the first two methods used to determine the fiscal episodes. Therefore, cuts in general government final consumption seem to stimulate private consumption in the long-run, with or without fiscal consolidation episodes, but that stimulus is higher in the presence of such fiscal episodes. For instance, and taking the results from method two (see column II in Table 5), a 1-euro decrease in general government final consumption is estimated to raise long-run private consumption by 24 cents, if there are no fiscal consolidation episodes, and by 39 cents when a fiscal consolidation takes place. With method one such effect is 21 and 41 cents, respectively without and with fiscal consolidations.

Concerning taxes, the short-run effect does not seem to be overall statistically significant, with the exception of the first approach (column I in Table 2), indicating that a tax raise, together with a fiscal consolidation episode, could increase private consumption (a non-Keynesian effect). On the other hand, the coefficients of lagged taxes (γ_1, γ_2) always come out statistically significant, implying a similar significance for the respective long-run effect of taxes on private consumption. Since such long-run elasticity is positive, this would indicate that tax increases contribute to increase private consumption in the long-run, again in a non-Keynesian fashion. This long-run elasticity is more statistically significant when a fiscal consolidation episode takes place, and its magnitude is also higher under such circumstances ($\gamma_1 > \gamma_2$), even though one cannot reject the null hypothesis that the two coefficients are identical (except for the second approach, see Table 2). For instance, in the presence of a fiscal consolidation episode a 1-euro raise in taxes could contribute to increase private consumption in the long run by 37-45 cents.

Another point worth mentioning is that the long-run effects of both general government final consumption and taxes are quite similar in absolute value and statistically significant, when a fiscal consolidation episode occurs (see values of α_1 and γ_1 in column I of Table 2 and their corresponding long-run counterparts, and notice also that in this case the null $-\alpha_1 = \gamma_1$ is not rejected). Therefore, one can envisage, for this case, the long-run effect on private consumption as given approximately by *0.41*(FCE-TAX)*, which would imply that increases of general government final consumption net of taxes negatively impinge on private consumption. Put in other words, faced with an increase in general government final consumption net of taxes consumers would behave in a Ricardian way by presuming the need for future higher taxes.

In what concerns social transfers, the results from Table 2 do not show any statistical significance, implying an absence of relevant effects on private consumption from that fiscal component.

In order to assess possible effects from the institutional changes that occurred in the EU in the 1990s, alternative sub-sample periods can be considered to take into account the signing of the European Union Treaty on 7 February 1992 in Maastricht, with the setting up of the convergence criteria. Therefore, I split the time sample into the pre- and post-Maastricht period, using 1992 as the first year of the new EU fiscal framework, and re-estimated the specifications for the resulting two time intervals. This might be a way of controlling for common changes in fiscal policy as response to common problems as, for instance, the need to make additional efforts in order to comply with the EMU convergence criteria. Table 3 reports the estimation results for the post-Maastricht period.

Concerning the post-Maastricht period the estimation results seem to be more in line with the results obtained previously for the entire time series sample, even if taxes (general government final consumption) gain (loose) statistical significance. On the other hand, the long-run elasticity of social transfers is now statistically significant and negative, generally regardless of the existence of fiscal consolidation episodes (see also that in Table 3 one does not reject the null $\beta_1 = \beta_2$). If higher social transfers lead to lower private consumption, this could be seen as an indication of a substitution effect or as a non-Keynesian effect with consumers anticipating future higher taxes to finance the current social transfers.

Regarding the pre-Maastricht period the overall estimation results do not seem to show any significant effects, either in the short or in the long run, from fiscal variables on private consumption. Therefore, these results are not reported.

4.4 The relevance of government indebtedness

It has been mentioned in the literature that the effects of government spending on private consumption may depend on the level of government indebtedness. Specifically, the effects of government spending could become less Keynesian if large increases in general government debt occur or if debt-to-GDP ratios are already at a high level.

To assess how different levels of government indebtedness may impinge on the responsiveness of private consumption, I considered two alternative thresholds for the debt-to-GDP ratio by using two dummy variables *Byear* and *Bcountry*. These debt ratio thresholds variables are defined as follows. $Byear_{it}$ takes the value 1 if the debt ratio is above the year average and 0 otherwise, where "year average" is the simple average of the debt-to-GDP ratio in year t for the entire cross country sample. $Bcountry_{it}$ takes the value 1 if the debt ratio is above the country

Table 3

Fixed Effects' Estimation Results for Specification (2), Post-Maastricht, 1992-2005

		FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
λ	C_{t-1}	–0.216 ***		–0.226 ***		–0.222 ***	
		(–3.51)		*(–3.62)*		*(–3.60)*	
ω_0	Y_{t-1}	0.150 ***	0.696	0.168 ***	0.694	0.155 ***	0.698
		(3.02)		*(4.38)*		*(3.17)*	
ω_1	ΔY_t	0.592 ***		0.588 ***		0.594 ***	
		(7.81)		*(7.55)*		*(7.71)*	
δ_0	Y_{t-1}^{oecd}	0.051 **		0.050 *		0.048 *	
		(1.97)		*(1.91)*		*(1.86)*	
δ_1	ΔY_t^{oecd}	0.043		0.042		0.042	
		(1.35)		*(1.26)*		*(1.28)*	
α_1	FCE_{t-1}	–0.027	–0.127	–0.071 *	–0.164	–0.023	–0.135
		(–1.01)		*(–1.33)*		*(–1.08)*	
α_3	ΔFCE_t	0.037		0.036		0.052	
		(0.77)		*(0.68)*		*(0.88)*	
β_1	$TF_{t-1} \times FC^m$	–0.062 ***	–0.287	–0.050 ***	–0.222	–0.053 ***	–0.240
		(–3.28)		*(–2.69)*		*(–2.98)*	
β_3	ΔTF_t	0.015		0.084		0.096	
		(0.20)		*(1.16)*		*(1.23)*	
γ_1	TAX_{t-1}	0.091 ***	0.422	0.092 ***	0.406	0.087 ***	0.392
		(3.24)		*(3.36)*		*(3.18)*	
γ_3	ΔTAX_t	0.015		0.019		0.027	
		(0.30)		*(0.36)*		*(0.50)*	
α_2	FCE_{t-1}	–0.043	–0.202	–0.043	–0.192	–0.044 *	–0.198
		(–1.62)		*(–1.63)*		*(–1.67)*	
α_4	ΔFCE_t	–0.015		–0.016		–0.018	
		(–0.28)		*(–0.31)*		*(–0.36)*	
β_2	$TF_{t-1} \times (1-FC^m)$	–0.050 ***	–0.229	–0.048 ***	–0.213	–0.048 ***	–0.218
		(–3.33)		*(–3.25)*		*(–3.30)*	
β_4	ΔTF_t	0.013		0.002		0.002	
		(0.30)		*(0.94)*		*(0.05)*	
γ_2	TAX_{t-1}	0.095 ***	0.438	0.095 ***	0.421	0.095 ***	0.427
		(3.51)		*(3.54)*		*(3.55)*	
γ_4	ΔTAX_t	0.097 ***		0.097		0.094 ***	
		(2.99)		*(3.06)*		*(3.04)*	
N		206		206		206	
$\bar{R}^2$		0.617		0.618		0.618	
Null hypothesis		Test statistic	*p*-value	Test statistic	*p*-value	Test statistic	*p*-value
$\alpha_1 - \alpha_2 = 0$		0.82	0.37	0.13	0.72	0.59	0.44
$\gamma_1 - \gamma_2 = 0$		0.10	0.76	0.09	0.77	0.45	0.50
$-\alpha_1 - \gamma_1 = 0$		3.99	0.05	3.02	0.08	3.33	0.07
$\beta_1 - \beta_2 = 0$		1.13	0.29	0.03	0.87	0.14	0.71

Note: see notes to Table 2.

average, where "country average" is the debt-to-GDP ratio on average in country i for the entire sample.[10] Using the country average debt-to-GDP ratio in each year is relevant since capital markets do compare individual country positions vis-à-vis some perceived group average. Moreover, if for some years the debt ratio of a given country is clearly above the group average, notably in the EU context, the public may become more aware of the existence of fiscal imbalances and react differently.

These debt threshold variables can then be interacted with the dummy variables that reflect the existence of fiscal consolidation episodes, in order to see if the existence of a higher or a lower level of public indebtedness in the previous period makes a difference for private consumption decisions. For instance, for the *Byear* dummy the testable empirical specification can be extended from (2) and written in the following way:

$$\Delta C_{it} = c_i + \lambda C_{it-1} + \omega_0 Y_{it-1} + \omega_1 \Delta Y_{it} + \delta_0 Y_{it-1}^{oecd} + \delta_1 \Delta Y_{it}^{oecd} + \tag{3}$$

$$(\alpha_{10} FCE_{it-1} + \alpha_{30} \Delta FCE_{it} + \beta_{10} TF_{it-1} + \beta_{30} \Delta TF_{it} + \gamma_{10} TAX_{it-1} + \gamma_{30} \Delta TAX_{it}) FC_{it}^{m} (1 - Byear_{it-1}) +$$
$$(\alpha_{20} FCE_{it-1} + \alpha_{40} \Delta FCE_{it} + \beta_{20} TF_{it-1} + \beta_{40} \Delta TF_{it} + \gamma_{20} TAX_{it-1} + \gamma_{40} \Delta TAX_{it})(1 - FC_{it}^{m})(1 - Byear_{it-1}) +$$
$$(\alpha_{11} FCE_{it-1} + \alpha_{31} \Delta FCE_{it} + \beta_{11} TF_{it-1} + \beta_{31} \Delta TF_{it} + \gamma_{11} TAX_{it-1} + \gamma_{31} \Delta TAX_{it}) FC_{it}^{m} Byear_{it-1} +$$
$$(\alpha_{21} FCE_{it-1} + \alpha_{41} \Delta FCE_{it} + \beta_{21} TF_{it-1} + \beta_{41} \Delta TF_{it} + \gamma_{21} TAX_{it-1} + \gamma_{41} \Delta TAX_{it})(1 - FC_{it}^{m}) Byear_{it-1} + \mu_{it}$$

According to the estimation results for specification (3), reported in Table 4, now general government final consumption is not statistically significant in explaining private consumption, regardless of the existence of a fiscal consolidation episode, and when the ratio is below the debt threshold. This result holds for the three different methodologies used to determine fiscal consolidation episodes. If the debt ratio is above the debt threshold and in the absence of a fiscal consolidation episode, the long-run effect of the general government final consumption (α_{21}) varies across the three methods of determination of fiscal episodes.

As regards social transfers, the short-run effect on private consumption is positive and statistically significant when there are no fiscal consolidation episodes and when the debt-to-GDP ratio is below the defined threshold (β_{40}). On the other hand, in the presence of a fiscal consolidation episode and if the previous period debt-to-GDP ratio was already above the debt ratio threshold, social transfers have a negative (non-Keynesian) long-run effect on private consumption (β_{31}). The same is true for the long-run effect of social transfers (β_{11}).

The results from Table 4 indicate also that taxes have a positive (non-Keynesian) long-run effect on private consumption when there are no fiscal consolidations and when the debt ratio is below the relevant threshold (γ_{20}).

[10] For instance, the period average of the debt-to-GDP ratio ranged from 10.3 and 42.1 per cent respectively for Luxembourg and Germany to 86.2 and 100.6 percent respectively in Italy and Belgium. On the other hand, the simple cross-country average for the debt ratio had a minimum value of 27.5 per cent in 1973 and a maximum value of 72.9 per cent in 1995.

Additionally, for the cases when the debt ratio is above the threshold, the significance of such non-Keynesian effects increases, which could be interpreted along the lines proposed by Blanchard (1990), as a reduction of uncertainty about future fiscal policy unbalances. Moreover, the robustness of the result is higher when a fiscal consolidation occurs (γ_{11}), under the first two strategies used to determine the existence of fiscal episodes (columns I and II of Table 4).[11]

The alternative set of results for specification (3), using as the dummy threshold for the debt-to-GDP ratio the average in year t for the entire country sample, as determined in (5), are reported in Table 5. These additional results show that when the debt threshold is not surpassed, general government final consumption has a negative (non-Keynesian) long-run effect on private consumption and this effect is of a bigger magnitude when there is a fiscal consolidation episode ($|\alpha_{10}| > |\alpha_{20}|$). This result is mostly visible for the first and third strategies used to determine the occurrence of fiscal episodes (columns I and III in Table 5), and it also holds when the country debt-to-GDP ratio is above the country average and when there is a consolidation episode (α_{11} in column I).[12]

Taxes depict a positive (non-Keynesian) long-run effect on private consumption when the debt-to-GDP ratio is below the relevant threshold. When the debt ratio threshold is surpassed a positive and statistically long-run effect of taxes on private consumption is mostly visible when coupled with a fiscal consolidation episode (γ_{11}).

Social transfers have a statistically significant negative long-run effect when a fiscal consolidation episode occurs and the debt ratio is above the threshold, for the last two methods used to determine the fiscal episodes (β_{11}, columns II and III in Table 5). Below the debt threshold social transfers have a positive (Keynesian) short- and long-run impact on private consumption, which is only significant for the first method of selection of fiscal episodes (β_{10} and β_{30} in column I).

I did an additional analysis regarding alternative debt-to-GDP ratio thresholds. For instance, with the thresholds of 40 and 60 per cent, this breaks the panel sample into three more or less equal sized sub-samples, with 196, 164 and 184 observations respectively below 40 per cent, between 40 and 60 per cent and above 60 per cent. However, the results for such alternative calculations (not reported in the paper for the sake of size) did not provide relevant additional insights.

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[11] The interaction of the year average for the debt dummy with the fiscal episode dummy results in a split of the fiscal episodes into two roughly equal sized sub-samples (for the three methods used to determine the fiscal episodes).

[12] One can mention that the use of the country average for the debt dummy interaction results approximately in a two thirds (one third) sub-sample of fiscal consolidations episodes coupled with the debt-to-GDP ratio above (below) the threshold.

Table 4

Fixed Effects' Estimation Results for Specification (3), *Byear* Dummy for Debt Ratio Threshold, 1970-2005

		FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
λ	C_{t-1}	–0.073 ***		–0.072 ***		–0.074 ***	
		(–4.22)		*(–4.14)*		*(–4.20)*	
ω_0	Y_{t-1}	0.065 ***	0.894	0.064 ***	0.887	0.064 ***	0.862
		(3.96)		*(3.95)*		*(3.89)*	
ω_1	ΔY_t	0.678 ***		0.675 ***		0.668 ***	
		(16.06)		*(15.50)*		*(15.49)*	
δ_0	Y^{oecd}_{t-1}	0.014		0.002		0.002	
		(0.22)		*(0.23)*		*(0.23)*	
δ_1	ΔY^{oecd}_{t}	0.040 **		0.038 **		0.036 **	
		(2.47)		*(2.30)*		*(2.21)*	
α_{10}	FCE_{t-1}	–0.018	–0.251	–0.017	–0.231	–0.019	–0.261
		(–1.04)		*(–0.88)*		*(–0.95)*	
α_{30}	ΔFCE_t	0.029		0.069		0.039	
		(0.43)		*(0.72)*		*(0.43)*	
β_{10}	TF_{t-1}	0.006		0.005		0.004	
	$\times FC^m$	*(0.51)*		*(0.34)*		*(0.25)*	
β_{30}	ΔTF_t	0.077		0.104		0.090	
	$\times$ (1–*Byear*)	*(0.99)*		*(1.2)*		*(0.93)*	
γ_{10}	TAX_{t-1}	0.015	0.209	0.015	0.206	0.018	0.249
		(1.09)		*(0.94)*		*(1.10)*	
γ_{30}	ΔTAX_t	0.095		0.040		0.025	
		(1.61)		*(0.56)*		*(0.33)*	
α_{20}	FCE_{t-1}	–0.017	–0.227	–0.017	–0.233	–0.017	–0.227
		(–1.28)		*(–1.28)*		*(–1.28)*	
α_{40}	ΔFCE_t	0.035		0.030		0.003	
		(1.05)		*(0.92)*		*(0.09)*	
β_{20}	TF_{t-1}	–0.004		–0.002		–0.001	
	$\times$(1–FC^m)	*(–0.38)*		*(–0.23)*		*(–0.10)*	
β_{40}	ΔTF_t	0.039 **		0.038 **		0.039 **	
	$\times$(1–*Byear*)	*(2.12)*		*(2.09)*		*(2.15)*	
γ_{20}	TAX_{t-1}	0.019 *	0.262	0.018 *	0.253	0.018 *	0.243
		(1.86)		*(1.75)*		*(1.72)*	
γ_{40}	ΔTAX_t	–0.012		–0.002		0.003	
		(–0.39)		*(–0.06)*		*(0.09)*	

Note: see notes to Table 2.

Table 4 (continued)

Fixed Effects' Estimation Results for Specification (3), *Byear* Dummy for Debt Ratio Threshold, 1970-2005

			FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
α_{11}	FCE_{t-1}		–0.018 *(–1.10)*	–0.250	–0.021 *(–1.26)*	–0.294	0.003 *(0.15)*	
α_{31}	ΔFCE_t		0.022 *(0.45)*		0.029 *(0.60)*		0.057 *(1.09)*	
β_{11}	TF_{t-1}	$\times FC^m$	–0.027 ** *(–2.22)*	–0.371	–0.025 ** *(–1.97)*	–0.349	–0.034 *** *(–2.91)*	–0.455
β_{31}	ΔTF_t	$\times Byear$	–0.1385 ** *(–2.13)*		–0.129 * *(–1.93)*		–0.062 *(–0.69)*	
γ_{11}	TAX_{t-1}		0.040 *** *(3.25)*	0.545	0.041 *** *(3.43)*	0.572	0.028 * *(1.94)*	0.375
γ_{31}	ΔTAX_t		0.070 *(1.38)*		0.046 *(0.95)*		0.061 *(1.04)*	
α_{21}	FCE_{t-1}		0.020 ** *(2.37)*	0.275	–0.022 *(–1.64)*	–0.310	–0.030 ** *(–2.12)*	–0.405
α_{41}	ΔFCE_t		0.066 *(1.00)*		0.067 *(1.08)*		0.058 *(0.99)*	
β_{21}	TF_{t-1}	$\times(1-FC^m)$	0.004 *(0.30)*		0.004 *(0.35)*		0.007 *(0.59)*	
β_{41}	ΔTF_t	$\times Byear$	–0.045 *(–0.76)*		–0.048 *(–0.84)*		–0.053 *(–0.97)*	
γ_{21}	TAX_{t-1}		0.020 ** *(2.37)*	0.275	0.019 ** *(2.23)*	0.259	0.024 *** *(2.75)*	0.318
γ_{41}	ΔTAX_t		0.023 *(0.68)*		0.021 *(0.63)*		0.018 *(0.56)*	
N			489		489		489	
$\bar{R}^2$			0.546		0.543		0.540	
Null hypothesis			Test statistics	*p*-value	Test statistics	*p*-value	Test statistics	*p*-value
$\beta_{30} - \beta_{40} = 0$			0.23	0.63	0.56	0.45	0.27	0.60
$\beta_{40} - \beta_{31} = 0$			7.02	0.01	5.88	0.02	1.23	0.27
$\beta_{31} - \beta_{41} = 0$			1.24	0.27	0.93	0.33	0.01	0.93
$\gamma_{10} - \gamma_{11} = 0$			2.73	0.09	2.54	0.11	0.24	0.62

Note: see notes to Table 2.

Table 5

Fixed Effects' Estimation Results for Specification (3), *Bcountry* Dummy for Debt Ratio Threshold, 1970-2005

			FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
λ	C_{t-1}		–0.076 *** *(–4.32)*		–0.074 *** *(–4.08)*		–0.075 *** *(–4.14)*	
ω_0	Y_{t-1}		0.068 *** *(4.19)*	0.895	0.065 *** *(3.93)*	0.873	0.067 *** *(4.06)*	0.886
ω_1	ΔY_t		0.683 *** *(16.11)*		0.679 *** *(15.34)*		0.675 *** *(15.55)*	
δ_0	Y_{t-1}^{oecd}		0.002 *(0.38)*		0.003 *(0.48)*		0.003 *(0.47)*	
δ_1	ΔY_t^{oecd}		0.039 ** *(2.45)*		0.039 ** *(2.30)*		0.035 ** *(2.11)*	
α_{10}	FCE_{t-1}		–0.201 *** *(–5.63)*	–2.645	–0.084 *(–1.59)*	–1.134	–0.131 ** *(–2.39)*	–1.745
α_{30}	ΔFCE_t		–0.273 *** *(–2.64)*		–0.024 *(–0.15)*		–0.084 *(–0.55)*	
β_{10}	TF_{t-1}	$\times FC^m \times$ (1–*Bcountry*)	0.093 *** *(4.85)*	1.223	0.035 *(1.21)*		0.049 *(1.64)*	
β_{30}	ΔTF_t		0.209 *** *(3.04)*		0.135 *(1.05)*		0.161 *(1.28)*	
γ_{10}	TAX_{t-1}		0.105 *** *(5.56)*	1.376	0.051 * *(1.77)*	0.683	0.075 *** *(–2.67)*	0.997
γ_{30}	ΔTAX_t		0.186 *** *(2.90)*		0.040 *(0.39)*		0.030 *(0.31)*	
α_{20}	FCE_{t-1}		–0.025 * *(–1.94)*	–0.334	–0.027 ** *(–2.00)*	–0.362	–0.027 ** *(–2.01)*	–0.356
α_{40}	ΔFCE_t		0.025 *(0.73)*		0.020 *(0.58)*		0.020 *(0.59)*	
β_{20}	TF_{t-1}	$\times(1-FC^m) \times$ (1–*Bcountry*)	–0.002 *(0.24)*	–0.032	–0.001 *(–0.05)*		0.001 *(0.05)*	
β_{40}	ΔTF_t		0.028 *(1.42)*		0.029 *(1.34)*		0.029 *(1.43)*	
γ_{20}	TAX_{t-1}		0.027 *** *(2.71)*	0.356	0.027 ** *(2.57)*	0.360	0.025 ** *(2.41)*	0.332
γ_{40}	ΔTAX_t		–0.035 *(–1.09)*		–0.026 *(–0.80)*		–0.023 *(–0.70)*	

Note: see notes to Table 2.

Table 5 (continued)

Fixed Effects' Estimation Results for Specification (3)
***Bcountry* Dummy for Debt Ratio Threshold, 1970-2005**

			FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
α_{11}	FCE_{t-1}		–0.028 ** *(–2.02)*	–0.363	–0.024 *(–1.63)*	–0.320	–0.010 *(–0.64)*	
α_{31}	ΔFCE_t		0.009 *(0.19)*		0.028 *(0.53)*		0.061 *(1.22)*	
β_{11}	TF_{t-1}	$\times FC^m \times Bcountry$	–0.014 *(–1.12)*		–0.021 * *(–1.78)*	–0.278	–0.021 * *(–1.81)*	–0.274
β_{31}	ΔTF_t		–0.068 *(–1.09)*		–0.065 *(–1.04)*		0.042 *(0.65)*	
γ_{11}	TAX_{t-1}		0.038 *** *(3.33)*	0.499	0.040 *** *(3.70)*	0.534	0.027 *(2.41)*	0.354
γ_{31}	ΔTAX_t		0.072 *(1.55)*		0.062 *(1.37)*		0.088 * *(1.92)*	
α_{21}	FCE_{t-1}		–0.018 *(–1.30)*	–0.240	–0.017 *(–1.23)*	–0.229	–0.023 *(–1.68)*	–0.311
α_{41}	ΔFCE_t		0.043 *(0.69)*		0.051 *(0.82)*		0.044 *(0.74)*	
β_{21}	TF_{t-1}	$\times(1-FC^m) \times Bcountry$	0.004 *(0.44)*		0.004 *(0.43)*		0.005 *(0.50)*	
β_{41}	ΔTF_t		0.010 *(0.16)*		–0.004 *(–0.07)*		–0.017 *(–0.29)*	
γ_{21}	TAX_{t-1}		0.015 *(1.61)*	0.190	0.013 *(1.49)*	0.180	0.018 * *(1.92)*	0.234
γ_{41}	ΔTAX_t		0.038 *(1.17)*		0.035 *(1.07)*		0.030 *(0.97)*	
N			489		489		489	
$\bar{R}^2$			0.553		0.543		0.542	
Null hypothesis			Test statistics	*p*-value	Test statistics	*p*-value	Test statistics	*p*-value
$\alpha_{10} - \alpha_{20} = 0$			25.98	0.00	1.57	0.21	3.82	0.05
$\gamma_{11} - \gamma_{21} = 0$			1.01	0.32	1.71	0.19	0.02	0.88
$\beta_{11} - \beta_{21} = 0$			2.18	0.14	5.12	0.02	5.49	0.02

Note: see notes to Table 2.

4.5 Are contractions different from expansions?

In the current set up the assessment of asymmetric responses to fiscal policy episodes can be done using the following alternative specification:

$$\Delta C_{it} = c_i + \lambda C_{it-1} + \omega_0 Y_{it-1} + \omega_1 \Delta Y_{it} + \delta_0 Y_{it-1}^{oecd} + \delta_1 \Delta Y_{it}^{oecd} + \quad (4)$$

$$(\alpha_5 FCE_{it-1} + \alpha_6 \Delta FCE_{it} + \beta_5 TF_{it-1} + \beta_6 \Delta TF_{it} + \gamma_5 TAX_{it-1} + \gamma_6 \Delta TAX_{it}) \times (1 - FC_{it}^m) \times (1 - FX_{it}^m)$$
$$+ (\alpha_2 FCE_{it-1} + \alpha_4 \Delta FCE_{it} + \beta_2 TF_{it-1} + \beta_4 \Delta TF_{it} + \gamma_2 TAX_{it-1} + \gamma_4 \Delta TAX_{it}) \times (1 - FC_{it}^m) \times FX_{it}^m$$
$$+ (\alpha_1 FCE_{it-1} + \alpha_3 \Delta FCE_{it} + \beta_1 TF_{it-1} + \beta_3 \Delta TF_{it} + \gamma_1 TAX_{it-1} + \gamma_3 \Delta TAX_{it}) \times FC_{it}^m + \mu_{it}.$$

In equation (4) FC^m is still a dummy variable that controls for the existence of contractionary fiscal episodes. Therefore, as before, FC^m assumes the following values: $FC^m = 1$ when there is a contractionary fiscal episode and $FE^m = 0$ when such episode does not occur. On the other hand, FX^m is a dummy variable that controls for the existence of expansionary fiscal episodes. FX^m assumes the following values: $FX^m = 1$ when there is an expansionary fiscal episode and $FX^m = 0$ when such episode does not occur.

The estimation results for (4) are reported in Table 6. For the case where a fiscal consolidation occurs the results are naturally virtually identical to what was reported before in Table 2. When a fiscal expansion episode takes place one can notice that the long-run effect of taxes on private consumption is still positive (non-Keynesian) even if less statistically significant, which in the end does not seem to support the idea of asymmetric consumer behaviour (γ_2).

Interestingly, in the absence of fiscal episodes, the long-run effect of taxes is also present (γ_5), while the negative long-run impact of general government final consumption expenditure on private consumption also holds true, even if now only statistically significant for the third strategy of determination of fiscal episodes (α_5 in column III).

Again, specification (4) was estimated only for the post-Maastricht period and the results are presented in Table 7. Overall, for this sub-period, there is more statistical evidence of effects of fiscal components on private consumption than for the entire time sample. Once more, when a fiscal consolidation takes place, the results are similar to the ones reported in Table 3, with social transfers depicting a negative long-run effect on private consumption (β_1) and taxes having a positive long-run effect (γ_1).

In the presence of fiscal expansions, broadly similar effects on private consumption can be observed, as when a fiscal consolidation occurs. Eventually, one could notice that when a fiscal expansion takes place the magnitude of the short-run effects of taxes on private consumption is somewhat bigger than in the absence of fiscal episodes ($\gamma_4 > \gamma_6$), and also that the long-run effects are not statistically significant in the case of a fiscal contraction (γ_3). Nevertheless, overall one has to

Table 6

Estimate Results of Fixed Effects for Specification (4), 1970-2005

			FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
λ	C_{t-1}		–0.073 ***		–0.070 ***		–0.070 ***	
			(–4.35)		*(–4.20)*		*(–4.23)*	
ω_0	Y_{t-1}		0.070 ***	0.961	0.066 ***	0.949	0.065 ***	0.925
			(4.42)		*(4.23)*		*(4.15)*	
ω_1	ΔY_t		0.689 ***		0.681 ***		0.675 ***	
			(14.37)		*(13.89)*		*(14.04)*	
δ_0	Y_{t-1}^{oecd}		0.004		0.004		0.004	
			(0.65)		*(0.69)*		*(0.76)*	
δ_1	ΔY_t^{oecd}		0.042 ***		0.040 ***		0.037 **	
			(2.59)		*(2.50)*		*(2.31)*	
α_5	FCE_{t-1}	$\times(1-FC^m)$ $\times(1-FX^m)$	–0.015	–0.198	–0.015	–0.207	–0.017 *	–0.233
			(–1.41)		*(–1.53)*		*(–1.74)*	
α_6	ΔFCE_t		0.036		0.039		0.037	
			(1.14)		*(1.17)*		*(1.18)*	
β_5	TF_{t-1}		–0.005		–0.006		–0.005	
			(–0.60)		*(–0.67)*		*(–0.63)*	
β_6	ΔTF_t		0.020		0.022		0.020	
			(0.86)		*(0.92)*		*(0.87)*	
γ_5	TAX_{t-1}		0.014 *	0.184	0.015 *	0.202	0.017 **	0.226
			(1.72)		*(1.82)*		*(2.06)*	
γ_6	ΔTAX_t		–0.006		0.005		0.005	
			(–0.23)		*(0.19)*		*(0.20)*	
α_2	FCE_{t-1}	$\times(1-FC^m)$ $\times FX^m$	–0.025		–0.024		–0.036	
			(–0.96)		*(–1.00)*		*(–1.42)*	
α_4	ΔFCE_t		–0.072		–0.069		–0.126 *	
			(–0.97)		*(–1.05)*		*(–1.78)*	
β_2	TF_{t-1}		–0.015		–0.012		–0.017	
			(–1.01)		*(–0.89)*		*(–1.16)*	
β_4	ΔTF_t		0.033		0.011		–0.024	
			(0.63)		*(0.21)*		*(–0.39)*	
γ_2	TAX_{t-1}		0.032 *	0.438	0.030 *	0.404	0.047 **	0.641
			(1.67)		*(1.80)*		*(2.52)*	
γ_4	ΔTAX_t		0.009		0.010		0.030	
			(0.15)		*(0.17)*		*(0.45)*	
α_1	FCE_{t-1}	$\times FC^m$	–0.030 **	–0.409	–0.026 *	–0.359	–0.020	–0.273
			(–2.09)		*(–1.74)*		*(–1.31)*	
α_3	ΔFCE_t		0.001		0.026		0.017	
			(0.02)		*(0.48)*		*(0.32)*	
β_1	TF_{t-1}		–0.008		–0.014		–0.013	
			(–0.72)		*(–1.20)*		*(–1.13)*	
β_3	ΔTF_t		–0.014		–0.004		0.017	
			(–0.22)		*(–0.05)*		*(0.22)*	
γ_1	TAX_{t-1}		0.030 **	0.406	0.033 ***	0.445	0.027 **	0.375
			(2.50)		*(2.66)*		*(2.14)*	
γ_3	ΔTAX_t		0.073 *		0.025		0.030	
			(1.65)		*(0.52)*		*(0.57)*	
N			505		505		505	
$\bar{R}^2$			0.549		0.547		0.550	

Notes: The *t*-statistics are in parentheses. *, **, *** indicate values statistically significant at the 10, 5, and 1 per cent level respectively. The data sample includes yearly observations for the EU15 countries over the period 1970-2005. *lr* is the long-run elasticity of private consumption with respect to the relevant explanatory variables. FC^1, FX^1: measure used by Giavazzi and Pagano (1996); FC^2, FX^2: measure used by Alesina and Ardagna (1998); FC^3, FX^3: measure based on the method proposed in (1).

conclude that this evidence does not seem to give much support to the hypothesis of asymmetric effects of fiscal episodes.

Still from Table 7, one can see that in the absence of fiscal episodes, general government final consumption has mostly no impact on private consumption. On the other hand, negative long-run effects can be detected both for social transfers (β_5) and for taxes (γ_5), while the short-run effect in the case of taxes (γ_6) is also statistically significant and negative. Such effects were essentially absent when the entire time sample was considered, which could imply some differences in the public perception of fiscal policy in the post-Maastricht period.

5 Conclusions

In this paper I assessed whether expansionary fiscal consolidation in the European Union can be considered part of conventional wisdom. In other words, the paper searches for possible evidence of so-called non-Keynesian effects of fiscal policy, and this was done via panel specifications of private consumption.

Fiscal episodes, expansions and contractions, for the EU-15 countries over the period 1970 to 2005, were determined using the first difference of the primary structural budget balance as the relevant indicator, together with three alternative strategies. The first one was used by Giavazzi and Pagano (1996), and the second was used by Alesina and Ardagna (1998). The third one, proposed in this paper, assumes that a fiscal episode occurs when either the change in the primary cyclically-adjusted balance is at least one and a half times the standard deviation of the overall sample in one year, or when the change in the primary cyclically-adjusted balance is at least one standard deviation on average in the last two years.

The estimation results, using a fixed effects panel data strategy show that the long-run elasticity of private consumption with respect to general government final consumption is negative, which indicates that a reduction of government consumption increases private consumption in the long-run. The magnitude of such long-run elasticity is higher when a fiscal consolidation episode occurs.

On the other hand, the results seem to indicate that a tax raise, together with a fiscal consolidation episode, could have a positive long-run effect on private consumption. Furthermore, increases of general government final consumption net of taxes negatively impinge on private consumption in the long-run. Put in other words, given an increase in government final consumption net of taxes, consumers may behave in a Ricardian way by presuming the need for future higher taxes.

The long-run elasticity of social transfers is statistically significant and negative, regardless of the existence of fiscal consolidation episodes, but only for the post-Maastricht period. This negative effect on private consumption could be interpreted as an indication of a substitution effect, if the government replaces

Table 7

Fixed Effects' Estimation Results for Specification (4), 1992-2005

			FE[1] (I)	*lr*	FE[2] (II)	*lr*	FE[3] (III)	*lr*
λ	C_{t-1}		–0.218 *** *(–3.41)*		–0.233 *** *(–3.58)*		–0.238 *** *(–3.83)*	
ω_0	Y_{t-1}		0.147 *** *(2.95)*	0.675	0.156 *** *(3.22)*	0.668	0.161 *** *(3.35)*	0.674
ω_1	ΔY_t		0.549 *** *(6.59)*		0.590 *** *(7.49)*		0.562 *** *(7.11)*	
δ_0	Y_{t-1}^{oecd}		0.058 ** *(2.07)*		0.053 * *(1.88)*		0.057 ** *(2.03)*	
δ_1	ΔY_t^{oecd}		0.042 *(1.27)*		0.043 *(1.20)*		0.044 *(1.29)*	
α_5	FCE_{t-1}		–0.048 * *(–1.72)*	–0.222	–0.039 *(–1.48)*		–0.044 *(–1.64)*	
α_6	ΔFCE_t		–0.010 *(–0.16)*		–0.028 *(–0.45)*		–0.026 *(–0.47)*	
β_5	TF_{t-1}	$\times(1-FC^m)$ $\times(1-FX^m)$	–0.056 *** *(–3.39)*	–0.256	–0.058 *** *(–3.63)*	–0.265	–0.056 *** *(–3.65)*	–0.259
β_6	ΔTF_t		–0.009 *(–0.20)*		–0.025 *(–0.57)*		–0.024 *(–0.56)*	
γ_5	TAX_{t-1}		0.106 *** *(3.48)*	0.489	0.104 *** *(3.45)*	0.477	0.106 *** *(3.58)*	0.488
γ_6	ΔTAX_t		0.107 *** *(2.72)*		0.093 ** *(2.35)*		0.100 *** *(2.73)*	
α_2	FCE_{t-1}		–0.078 * *(–1.74)*	–0.358	–0.028 *(–0.71)*		–0.084 * *(–2.03)*	–0.384
α_4	ΔFCE_t		–0.157 *(–1.61)*		0.029 *(0.28)*		–0.276 ** *(–2.55)*	
β_2	TF_{t-1}	$\times(1-FC^m)$ $\times FX^m$	–0.061 *** *(–2.67)*	–0.278	–0.050 ** *(–2.15)*	–0.230	–0.074 *** *(–2.92)*	–0.341
β_4	ΔTF_t		–0.077 *(–0.67)*		0.072 *(0.83)*		–0.228 ** *(–2.17)*	
γ_2	TAX_{t-1}		0.140 *** *(3.08)*	0.646	0.104 *** *(3.45)*	0.477	0.164 *** *(4.32)*	0.755
γ_4	ΔTAX_t		0.154 * *(1.79)*		0.183 ** *(2.23)*		0.315 *** *(3.78)*	
α_1	FCE_{t-1}		–0.033 *(–1.14)*		–0.032 *(–1.15)*		–0.031 *(–1.10)*	
α_3	ΔFCE_t		0.035 *(0.71)*		0.041 *(0.77)*		0.044 *(0.75)*	
β_1	TF_{t-1}	$\times FC^m$	–0.069 *** *(–3.51)*	–0.316	–0.057 *** *(–2.95)*	–0.260	–0.060 *** *(–3.25)*	–0.274
β_3	ΔTF_t		0.003 *(0.04)*		0.081 *(1.08)*		0.087 *(1.10)*	
γ_1	TAX_{t-1}		0.104 *** *(3.25)*	0.477	0.097 *** *(3.21)*	0.477	0.098 *** *(3.25)*	0.452
γ_3	ΔTAX_t		0.023 *(0.41)*		0.018 *(0.31)*		0.026 *(0.44)*	
N			206		206		206	
$\bar{R}^2$			0.611		0.612		0.625	
Null hypothesis			Test statistics	*p*-value	Test statistics	*p*-value	Test statistics	*p*-value
$\gamma_6 - \gamma_4 = 0$			0.29	0.59	1.03	0.31	6.85	0.01
$\gamma_4 - \gamma_3 = 0$			0.34	0.56	1.10	0.30	7.55	0.01

Note: see notes to Table 6.

consumers in paying for, say, some health items, or as a non-Keynesian effect with consumers anticipating future higher taxes to finance the current social transfers.

Interacting debt threshold variables with the fiscal consolidation episodes dummies, gives additional information regarding whether the existence of a higher or a lower level of public indebtedness in the previous period makes a difference for private consumption decisions. For instance, the short-run effect on private consumption of social transfers is positive and statistically significant when there are no fiscal consolidation episodes and when the debt-to-GDP ratio is below the defined threshold (the cross-country year average). On the other hand, in the presence of a fiscal consolidation episode and if the previous period debt-to-GDP ratio was already above the debt ratio threshold, social transfers have a negative (non-Keynesian) long-run effect on private consumption. The same is true for the long-run effect of social transfers. Additionally, the possibility of asymmetric effects of fiscal episodes does not seem to be corroborated by the results.

Overall, the results obtained for the EU15 for the period 1970-2005 seem to hint to the existence of some possible Ricardian behaviour from consumers when a fiscal consolidation event takes place. However, one must be cautious to welcome into conventional wisdom the idea of expansionary fiscal consolidations. Specific country analysis, outside the scope of this paper, could provide additional insight into the possibility of such theoretical reasoning. Moreover, it is far from clear whether one can use the positive expansionary fiscal consolidations experiences that occurred in the past in a few countries as a rational for similar policy prescriptions in other EU countries.

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