European Fiscal Policy and the Fiscal Compact*

—Preliminary and incomplete—

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Abstract

The Fiscal Compact, signed in 2012, further tightened the fiscal rules laid down in the EU economic governance framework. A major concern is that these rules might promote a procyclical fiscal stance and thereby constrain effective stabilization of business cycles. Using a quarterly panel of European countries, however, I document a significant increase in countercyclicality of discretionary fiscal policy after the implementation of the Fiscal Compact, especially in countries with weak fiscal positions. In addition, I find that the fiscal framework does not hamper the free operation of automatic stabilizers. Overall, there is no evidence that the tightening of rules has constrained the ability of European countries to use fiscal policy to stabilize economic fluctuations.

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1 Introduction

The EU treaties contain a broad set of rules designed to ensure sound public finances in the member countries. Well-known examples include the Maastricht convergence criteria or the Excessive Deficit Procedure laid down in the Stability and Growth Pact. These rules evolve dynamically over time and reflect the economic trends that Europe has been facing in the last decades. On the one hand, country-specific fiscal policy is the main instrument to stabilize the economy in a monetary union. Member states therefore need some leeway for idiosyncratic fiscal policies to cope with asymmetric shocks. On the other hand, the union needs to ensure a certain degree of budgetary discipline among its members to avoid fiscal externalities and moral hazard problems. This requirement is reflected in the European fiscal framework which imposes constraints on national policies. In this context, a main concern is that fiscal rules hamper effective countercyclical stabilization over the business cycle by fostering a procyclical fiscal stance. Besides, these rules could prevent automatic stablizers from operating freely, which would additionally undermine the stabilization function of fiscal policy. In response to the sovereign debt crisis, European fiscal rules were tightened further in the Fiscal Compact, which represented a major reform of the fiscal framework in the year 2012.

In this chapter, I evaluate whether the passing of the Fiscal Compact has changed the conduct of fiscal policy. More specifically, I exploit quarterly time series for a large panel of European countries to empirically examine the cyclical stance of fiscal policy before and after the passing of the Fiscal Compact. In the spirit of Galí and Perotti (2003) and Fatás and Mihov (2010), the analysis focuses on the cyclicality of discretionary fiscal policy and the role of automatic stabilizers over the cycle. To the best of my knowledge, this is the first attempt to evaluate the impact of the Fiscal Compact on realized fiscal outcomes in European countries.

The empirical analysis does not provide evidence that the Fiscal Compact has constrained the conduct of stabilizing fiscal policy in European countries. On the contrary, I document a significant increase in countercyclicality of discretionary fiscal policy after the implementation of the compact. This finding is especially pronounced for countries with weak fiscal positions. In addition, I find that the tightening of fiscal rules has not impaired the proper functioning of automatic stabilizers over the cycle.

The remainder of the chapter is structured as follows. Section 2 discusses the related literature and provides a brief overview of the evolution of European fiscal governance over time. In Section 3, I describe the empirical strategy and the panel dataset. Section 4 presents the empirical results. Finally, Section 5 concludes. Details on the data and various robustness checks are included in the appendix.

2 Background

2.1 Related literature

There is a large body of empirical literature on the cyclical properties of fiscal policy. In an influential study using a novel dataset, Gavin and Perotti (1997) document the procyclical stance of fiscal policy in Latin American countries. Kaminsky et al. (2004) explore the cyclical behavior of fiscal policy, capital flows and monetary policy for a large sample of countries and confirm that fiscal policies are procyclical in most developing countries. Talvi and Végh (2005) and Ilzetzki and Végh (2008), among others, also provide corresponding empirical evidence. These findings established the wide-spread view that developing countries are more inclined to procyclical fiscal policies, whereas industrial countries tend to conduct countercyclical policies. In the literature, this view is mostly rationalized by political-economy considerations. On the one hand, procyclical policies in developing countries are explained by political distortions. Alesina et al. (2008) analyze a political agency problem and demonstrate that procyclicality is induced by voters that mistrust corrupt governments and demand procyclical spending to prevent political rent seeking. Ilzetzki (2011) finds that conflicts of interest and, in particular, disagreement about the distribution of public expenditures can lead to fiscal procyclicality. On the other hand, Frankel et al. (2013) and, more recently, Jalles (2018) show that the quality of rules and institutions matters for the cyclicality of fiscal policy.

Focusing on the US fiscal framework, Bayoumi and Eichengreen (1995) demonstrate that the cyclical responsiveness of fiscal policy depends on the level of government. They find that fiscal stabilization is mainly provided through the federal and state budgets, not through local governments. Alesina and Bayoumi (1996) show that US fiscal rules successfully increase fiscal discipline, but limit the scope for countercyclical stabilization.

Fatás and Mihov (2006) confirm that fiscal restrictions in the US impair the government's ability to conduct countercyclical fiscal policy.

In the EU, ongoing fiscal integration has been associated with the concern that the fiscal policy framework might limit the member states' room for stabilization through countercyclical fiscal policy. Galí and Perotti (2003) compare the conduct of fiscal policy in European countries before and after the passing of the Maastricht Treaty using annual data from 1980 to 2002 and do not find evidence in support of this concern. On the contrary, they document that discretionary fiscal policies have become more countercyclical in the post-Maastricht period, while ensuring the proper functioning of automatic stabilizers. These findings are confirmed by Wyplosz (2006) in a panel of 15 European countries for the period 1980 to 2005. Fatás and Mihov (2010) extend the analysis to the introduction of the euro in 1999 and, evaluating annual data from 1970 to 2009, do not find evidence for a significant change in the cyclicality of fiscal policy after the currency changeover. In a panel of 11 EMU countries for the 1980 to 2007 period, Bénétrix and Lane (2013) document an increase in countercyclicality of fiscal policy after the Maastricht Treaty, but a decrease in countercyclicality after the introduction of the euro.

Gootjes and Haan (2020) provide evidence that budgetary outcomes in the EU are procyclical although fiscal plans are mostly acyclical. In addition, they find that the strength of fiscal rules, as measured by an index constructed from qualitative institutional information, fosters fiscal countercyclicality. Larch et al. (2021) confirm that the quality of fiscal rules and compliance therewith increases the countercyclicality of fiscal policy using a panel of EU and non-EU countries. In contrast to the latter two contributions, the analysis in this chapter focuses on the effects of one specific major reform of the EU fiscal framework, i.e., the implementation of the Fiscal Compact, and the empirical analysis relies on a large panel with quarterly data.

2.2 European fiscal governance

In 1992, the 12 member states of the European Communities signed the Maastricht Treaty which was the foundation treaty of the European Union. The Maastricht criteria for the budget deficit ($\leq$ 3% of GDP) and the public debt level ($\leq$ 60% of GDP), which were initially part of the convergence criteria to be fulfilled before adopting the common currency, became the guiding principles for the EU fiscal framework. Building on these principles, the Stability and Growth Pact (SGP) introduced a set of fiscal rules to enforce

the deficit and debt limits in 1997. The *preventive arm* of the SGP establishes close fiscal monitoring and requires EU member states to document compliance with the deficit and debt rules. Under the *corrective arm*, non-compliers enter an Excessive Deficit Procedure which prescribes policy responses to get the deficit and/or the debt level under control and, ultimately, imposes sanctions.

The first reform of the SGP in 2005 aimed at a more differentiated approach providing further flexibility. In particular, the attention of EU fiscal monitoring is directed towards the underlying budgetary position as measured by the *structural budget balance*. The EU methodology defines the structural balance as the headline budget balance adjusted by the cyclical component net of one-off and temporary policy measures (Mourre et al., 2014). This balance measure provides a non-cyclical reference for fiscal surveillance, allowing for the free functioning of automatic stabilizers. In 2011, the six-pack legislation (consisting of six reform packages) strengthened the corrective arm of the SGP by tightening sanctions. One of the reform packages introduced the Macroeconomic Imbalances Procedure which addresses macroeconomic imbalances by monitoring a broad range of indicators.

The next major step in the evolution of European fiscal governance was the passing of the Fiscal Compact in 2012. Specifically, the Fiscal Compact is the fiscal chapter of the *Treaty on Stability, Coordination and Governance in the Economic and Monetary Union* (European Union, 2012). In contrast to the preceding fiscal rules mostly implemented through secondary EU legislation, this treaty is an intergovernmental agreement embedded into national (ordinary or constitutional) law. The provisions are binding for all euro area countries plus Bulgaria, Denmark and Romania which decided to opt in.

The Fiscal Compact aims to tighten the rules laid down in the SGP in response to the European debt crisis. On the one hand, the balanced-budget rule is refined and allows for more flexibility regarding the structural budgetary position. More precisely, the structural deficit limit from then on depends on the public debt level. As a general rule, the lower limit is set to 0.5% of GDP, but this treshold is relaxed to 1% of GDP for countries with debt levels significantly below the 60% reference value. On the other hand, the framework is supplemented with a debt-brake rule which prescribes a specific adjustment path towards sustainable debt levels for countries exceeding the 60% treshold. Both provisions have to be implemented into domestic law, along with an automatic correction mechanism which defines concrete measures in case of non-compliance. The depth and

frequency of fiscal monitoring was further increased by the two-pack regulations in 2013. The most recent initiative towards a deeper European fiscal integration has been launched by the Five Presidents' Report in 2015 (Juncker et al., 2015). This report—presented by the Presidents of the European Commission, the Euro Summit, the Eurogroup, the European Central Bank and the European Parliament—outlines a plan for completing the European Economic and Monetary Union. As a result, the European Fiscal Board was founded as an independent advisory body to support fiscal monitoring and the execution of fiscal rules.

Overall, the European fiscal framework has become very elaborate over time and the complexity of the rules in force has increased substantially. For example, this is also reflected in the extensive Vade Mecum on the Stability and Growth Pact that outlines the methodology and procedures related to the fiscal policy provisions (European Commission, 2019). In spite of the increased complexity of the framework, the implementation still involves a lot a judgment and, hence, room for discretionary policies. Analyzing the impact of this framework on realized fiscal outcomes is therefore crucial to assess the effectiveness of EU fiscal governance.

3 Methodology and data

3.1 Empirical strategy

The evaluation of the change in the conduct of fiscal policy after the Fiscal Compact is based on the estimation of a simple quarterly fiscal reaction function of the form

$$Fiscal_t = \alpha + \beta\, Cycle_t + Controls + u_t, \tag{1}$$

where the coefficient of interest β indicates the reponsiveness of fiscal policy to cyclical conditions which are captured by $Cycle_t$. The latter is typically measured using the output gap. In the baseline estimation presented below, I allow for a structural shift in the cyclical behavior of fiscal policy induced by the Fiscal Compact. The effect captured by the coefficient β depends on the measure that is used for the fiscal policy indicator $Fiscal_t$. Since the analysis aims to identify the effect of the Fiscal Compact on fiscal policy outcomes, I use the government budget balance which is a measure for the realized outcome.

Following Galí and Perotti (2003) and Fatás and Mihov (2010), the headline government budget balance can be decomposed into two different components. First, the cyclical component of the balance which is a measure for the automatic stabilizers inherent to public spending behavior. It accounts for the short-term automatic reaction of fiscal policy over the business cycle due to spending rules, variations in the tax base or transfers that are tied to cyclical conditions. This component is non-discretionary in the sense that it is not directly controlled by policy makers. Automatic stabilizers are determined by the institutional framework, for example the tax system, and therefore change slowly over time. The second component of the budget balance is the non-cyclical component. This component can be interpreted as an indicator for the discretionary fiscal stance, i.e., the part of fiscal policy that is directly driven by decisions of policy makers.

Hence, the interpretation of the coefficient β in the fiscal reaction function depends on the component of the budget balance that is used in the estimation. If the headline balance is used as fiscal policy indicator, β measures the reaction of both discretionary policy and automatic stabilizers. Using the cyclical component of the balance implies that the coefficient captures the automatic stabilizers in the economy. Finally, if a measure for the non-cyclical budget balance is used, β corresponds to the reponsiveness of discretionary fiscal policy. As discussed in Section 2.2, the EU fiscal framework relies on the structural balance to quantify discretionary policy. I use the cyclically-adjusted budget balance as a proxy because the structural balance is only available at annual frequency.[1] In line with Galí and Perotti (2003), I argue that the cyclically-adjusted *primary* budget balance is the most informative indicator for discretionary fiscal policy because it excludes predetermined interest payments on public debt which could be driven by the cyclicality of interest rates. Therefore, the primary balance quantifies the component of public spending that is under direct control of fiscal authorities. In the main specification for discretionary fiscal policy, the dependent variable is the cyclically-adjusted primary balance, but I also consider the cyclically-adjusted balance.

[1] One-off measures are usually small and the sample period starts after the UMTS license auctions.

In order to capture the cyclicality of the budget balance over the whole sample period, I run the following panel regression:

$$Balance_{i,t} = \alpha_i + \beta\, Cycle_{i,t} + \gamma\, Debt_{i,t-1} + \delta\, Balance_{i,t-1} + u_{i,t}, \tag{2}$$

where α_i captures country-specific fixed effects, β quantifies the cyclical reponsiveness of fiscal policy, γ accounts for debt stabilization and δ allows for budget smoothing over time. Since positive values of the balance refer to a budget surplus, $\beta > 0$ indicates a countercyclical stance of fiscal policy, while $\beta < 0$ implies procyclicality.[2]

In the main specification, I allow for a structural shift in the conduct of discretionary fiscal policy after the Fiscal Compact by including a dummy variable and a corresponding interaction term. More specifically, I estimate the following regression:

$$\begin{aligned} Balance_{i,t} = \alpha_i + \alpha_{fc}\, Dfc_{i,t} + \beta\, Cycle_{i,t} + \beta_{fc}\, (Dfc_{i,t} \cdot Cycle_{i,t}) \\ + \gamma\, Debt_{i,t-1} + \delta\, Balance_{i,t-1} + u_{i,t}, \end{aligned} \tag{3}$$

where $Dfc_{i,t} = 1$ in the periods after the passing of the Fiscal Compact. The coefficient β_{fc} captures the change in the responsiveness to cyclical conditions after the Fiscal Compact, whereas α_{fc} allows for an intercept shift. Accordingly, $\beta_{fc} > 0$ indicates an increase in the countercyclicality of fiscal policy. Note that the specification does not feature time fixed effects. I argue that exceptional periods like the European sovereign debt crisis should be explicitly included in the sample because the specific design of the EU fiscal governance framework reflects these episodes. However, the results are robust to the inclusion of time fixed effects, see Appendix C.

I use the output gap as measure for the cyclical indicator $Cycle_{i,t}$. In order to address potential endogeneity issues, I use two alternative approaches. First, I estimate the fiscal reaction by OLS and replace the indicator with its lag, $Cycle_{i,t-1}$. Following Blanchard and Perotti (2002), the underlying identifying assumption excludes a contemporaneous response of the fiscal policy measure to the economic cycle due to decision and implementation lags. Second, I use an instrumental variable (IV) specification with the trade-

[2]Using the budget balance as fiscal policy indicator is standard in the literature. Note, however, that this is an aggregate measure which does not differentiate between the cyclicality of the revenue and income side of the underlying government budget constraint, e.g., see Kaminsky et al. (2004) and Alesina et al. (2008).

weighted average rest-of-the-sample output gap and the lag $Cycle_{i,t-1}$ as instruments for the cyclical indicator $Cycle_{i,t}$. This approach, pioneered by Jaimovich and Panizza (2007) as a refinement of the instruments proposed in Galí and Perotti (2003) and Alesina et al. (2008), is widely used in the literature.[3]

3.2 Data description

The balanced panel includes quarterly data running from 2002Q1 through 2019Q4 for 21 countries bound by the Fiscal Compact (the euro area member states, excluding the Slovak Republic because of missing data, plus Bulgaria, Denmark and Romania).[4] I use seasonally-adjusted data for the headline budget balance, the primary budget balance, the debt-to-GDP ratio and real GDP. Appendix A lists the exact series and the corresponding sources. In addition, I code a dummy variable to capture the periods in which the Fiscal Compact is in force. This dummy is country-specific since the entry into force of the compact differs across countries, see Appendix A for the exact dates.

The cyclically-adjusted primary budget balance, denoted by $CAPB_{i,t}$, is constructed according to the methodology used by the European Commission (Mourre et al., 2014). More specifically, the $CAPB_{i,t}$ for each country i is given by the difference between the primary balance $PB_{i,t}$ and an estimated cyclical component:

$$CAPB_{i,t} = PB_{i,t} - \varepsilon_i \cdot Gap_{i,t}, \tag{4}$$

where $Gap_{i,t}$ denotes the output gap and ε_i corresponds to the country-specific semi-elasticity of the headline budget balance to the economic cycle reported in Mourre et al. (2019) and listed in Appendix A. Mourre et al. (2019) derive the budgetary semi-elasticities ε_i based on the semi-elasticities of revenues and expenditures, which are in turn weighted aggregates of the elasticities associated with the corresponding components. The cyclically-adjusted balance, denoted by $CAB_{i,t}$, is constructed accordingly, using the difference between the budget balance and the cyclical component.[5]

[3] See, for example, Lane (2003), Bénétrix and Lane (2013) or Eyraud et al. (2017).

[4] Heterogeneous monetary policy reactions in Bulgaria, Denmark and Romania could affect fiscal policies in these countries. However, the results remain unchanged if Bulgaria, Denmark and Romania are excluded from the sample, see Appendix C.

[5] The estimates for the budgetary semi-elasticities are revised on a regular basis. Appendix C shows that the results are not affected if the old estimates reported in Mourre et al. (2014) are used.

The output gap, which is used as cyclical indicator and for the construction of the cyclically-adjusted budget balance, is measured as the percentage deviation of GDP from its trend. I employ the standard HP filter with a smoothing parameter of 1600 to extract the trend component of GDP.[6] The trade-weighted output gap that is used as an instrument in the IV specification is constructed with export weights, see Appendix A for details.

4 Results

4.1 Cyclical behavior of discretionary fiscal policy

Table 1 displays the estimates for the discretionary component of fiscal policy measured by the cyclically-adjusted primary budget balance (CAPB). For each specification, I report the results of both the OLS estimation and the IV approach discussed in Section 3.1. The first and second column show the estimates for the specification which abstracts from the shift in the institutional framework, see Equation (2).

Table 1: Discretionary fiscal policy

$Balance$:	CAPB (OLS)	CAPB (IV)	CAPB (OLS)	CAPB (IV)
$Cycle$	−0.06	−0.04	−0.12**	−0.09**
	(0.04)	(0.04)	(0.04)	(0.04)
$Debt(t-1)$	0.01*	0.02***	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
$Balance(t-1)$	0.49***	0.49***	0.48***	0.48***
	(0.08)	(0.02)	(0.08)	(0.02)
Dfc			0.58*	0.56***
			(0.31)	(0.21)
$Dfc \cdot Cycle$			0.30*	0.38***
			(0.17)	(0.14)

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 'OLS' estimation uses $Cycle_{i,t-1}$. 'IV' refers to 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

[6] The results are robust to using polynomials of order $k = \{2, 3, 4\}$ to extract trend GDP, see Appendix C.

Table 2: Discretionary fiscal policy

$Balance:$	CAB (OLS)	CAB (IV)	CAB (OLS)	CAB (IV)
$Cycle$	−0.04	−0.02	−0.12**	−0.09**
	(0.04)	(0.04)	(0.04)	(0.04)
$Debt(t-1)$	0.01	0.01**	−0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
$Balance(t-1)$	0.51***	0.51***	0.48***	0.48***
	(0.08)	(0.02)	(0.08)	(0.02)
Dfc			1.07***	1.05***
			(0.34)	(0.22)
$Dfc \cdot Cycle$			0.35*	0.48***
			(0.19)	(0.14)

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 'OLS' estimation uses $Cycle_{i,t-1}$. 'IV' refers to 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

Discretionary fiscal policy is found to be acyclical on average for the whole sample period. However, the estimates from specification (3) reported in the third and fourth column reveal that fiscal policy was indeed procyclical in the period prior the Fiscal Compact. Afterwards, there was a significant increase in countercyclicality. This result is even more pronounced for the IV estimates. As expected, the estimates document significant autocorrelation of the budget balance, i.e., there is considerable budget smoothing. Furthermore, the Fiscal Compact led to an improvement in average balances as indicated by the shift in the intercept. This is consistent with the tightening of fiscal rules laid down in the compact.

Table 2 reports the estimates of the same specifications for discretionary fiscal policy as measured by the cyclically-adjusted budget balance (CAB). The results are in line with the findings discussed above. In particular, the estimates confirm the strong increase in countercyclicality after the implementation of the Fiscal Compact.

4.2 Countries with weak fiscal positions

So far, the analysis finds no evidence for an increase in the procyclicality of fiscal policy after the Fiscal Compact. In fact, the provisions of the Fiscal Compact seem to foster a countercyclical fiscal stance, thereby supporting effective cyclical stabilization. However,

Table 3: Subsamples of countries with weak fiscal positions

	# Countries	Sample Size
Full sample	21	1491
Non-GIPS countries	17	1207
GIPS countries	4	284
Deficit $\geq 3\%$ of GDP	11	781
Debt-to-GDP ratio $\geq 60\%$	9	639
Debt and deficit above limit	6	426

the panel includes 21 countries characterized by a high degree of asymmetry. Fiscal policy in countries with weak fiscal positions is obviously most constrained by the tightening of rules. In order to account for this dimension of cross-country heterogeneity, I consider different country subsamples. First, I split the sample into the GIPS countries (Greece, Italy, Portugal, Spain), which were particularly badly affected by the European sovereign debt crisis, and the remaining countries. Second, using a straightforward indicator for a weak fiscal position, I select the countries that on average did not comply with the Maastricht criteria in the sample period prior to the implementation of the Fiscal Compact. For these countries, I further differentiate between average non-compliance with the deficit criterion, the debt criterion and both criteria at the same time. Table 3 summarizes the aggregate sample size and the number of countries included in each of the subsamples.[7] In Figure 1, I present the results of the subsample analysis. More specifically, the plot shows the point estimates for the change in the cyclical responsiveness of the cyclically-adjusted primary balance induced by the Fiscal Compact, denoted by β_{fc} in Equation (3), along with the corresponding 90% confidence intervals. For comparison purposes, the first line of the figure displays the full-sample estimate as reported in Table 1. The second line refers to a group of all countries excluding the GIPS states. The estimate is not significantly different from zero, suggesting that the compact did not considerably alter the conduct of discretionary fiscal policy in these countries. In the GIPS states, however, discretionary fiscal policy became much more countercyclical after the implementation of the Fiscal Compact, with a point estimate for the change in cyclical responsiveness of 0.81.

[7] Appendix B lists the countries included in each subsample.

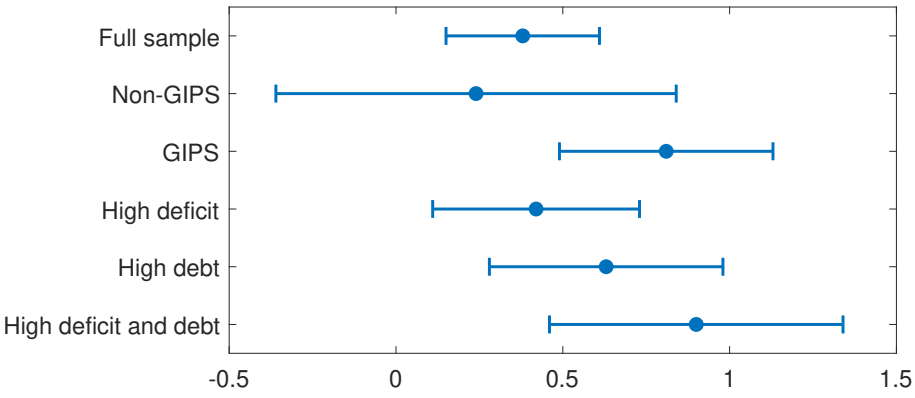

Figure 1: Change in cyclical responsiveness after Fiscal Compact

Notes: Point estimates for β_{fc} from IV specification of Equation (3) with 90% confidence intervals. Dependent variable: CAPB. See Appendix B for full set of estimation results.

Focusing on the countries with a high deficit (i.e., the non-compliers with the Maastricht deficit criterion), the point estimate is only slightly larger than the full-sample estimate. For the high-debt countries (i.e., the countries with public debt levels exceeding the Maastricht threshold), the change in the cyclical responsiveness is found to be more pronounced. In the subsample restricted to countries breaching both the deficit and debt criteria, the Fiscal Compact induced a large shift in the cyclical behavior. The point estimate amounts to 0.90 and is even higher than the estimate associated with the GIPS subsample.

Overall, the subsample analysis leads to the conclusion that the provisions of the Fiscal Compact do not impair the ability of countries with weak fiscal positions to conduct countercyclical fiscal policy. The increase in countercyclicality after the implementation of the compact is even stronger in these countries, allowing for a more effective cyclical stabilization.

4.3 Debt stabilization

Besides the balanced-budget rule, the Fiscal Compact also aims at improving the sustainability of public debt levels. Following Wyplosz (2006) and Bénétrix and Lane (2013), I account for this motive by allowing for a shift in the responsiveness of the budget balance to the debt level with the implementation of the Fiscal Compact.

In particular, I estimate the following reaction function:

$$\begin{aligned} Balance_{i,t} = \alpha_i + \alpha_{fc}\, Dfc_{i,t} + \beta\, Cycle_{i,t} + \beta_{fc}\,(Dfc_{i,t} \cdot Cycle_{i,t}) \\ + \gamma\, Debt_{i,t-1} + \gamma_{fc}\,(Dfc_{i,t} \cdot Debt_{i,t-1}) + \delta\, Balance_{i,t-1} + u_{i,t}, \end{aligned} \tag{5}$$

where γ_{fc} captures the change in the responsiveness to the debt level. Table 4 reports the estimation results.

First, all specifications show that there was a significant but small increase in the debt stabilization coefficient after the Fiscal Compact. This implies a higher priority on debt sustainability. However, the ongoing accumulation of public debt observed in some European countries underlines that this finding reflects an average effect across all countries included in the panel. Second, the coefficients for the intercept shift after the implementation of the Fiscal Compact are negative, although statistically not significant. These estimates stand in contrast to the positive shift in the intercept reported in Table 1 and Table 2. The baseline specification, however, does not account for a change in the responsiveness to the debt level. Since debt levels are strictly positive for all countries in the panel, this is consistent with an improvement of the average balance after the Fiscal Compact.

Table 4: Debt stabilization

$Balance$:	CAB (OLS)	CAB (IV)	CAPB (OLS)	CAPB (IV)
$Cycle$	−0.14***	−0.11**	−0.13***	−0.10**
	(0.05)	(0.04)	(0.04)	(0.04)
$Debt(t-1)$	−0.03**	−0.02***	−0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
$Balance(t-1)$	0.45***	0.45***	0.46***	0.47***
	(0.08)	(0.02)	(0.08)	(0.02)
Dfc	−0.24	−0.25	−0.25	−0.25
	(0.45)	(0.35)	(0.39)	(0.35)
$Dfc \cdot Cycle$	0.40*	0.55***	0.33*	0.42***
	(0.20)	(0.14)	(0.18)	(0.14)
$Dfc \cdot Debt(t-1)$	0.02***	0.02***	0.01**	0.01***
	(0.01)	(0.01)	(0.01)	(0.00)

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 'OLS' estimation uses $Cycle_{i,t-1}$. 'IV' refers to 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

4.4 Automatic stabilizers

Finally, I focus on the effect of the implementation of the Fiscal Compact on the automatic stabilizers in the economy. Following Galí and Perotti (2003) and Fatás and Mihov (2010), the cyclical (or non-discretionary) component of the budget balance is used as a measure for the automatic stabilizers, see Section 3.1. The cyclical component is given by the difference between the headline (primary) balance and the cyclically-adjusted (primary) balance, i.e., the discretionary component. In line with Fatás and Mihov (2010), I estimate specification (3) by OLS using the contemporaneous cycle measure in order to account for the inherent simultaneity. The automatic response of the non-discretionary component to cyclical conditions is a built-in feature of the budget. For instance, movements in the tax revenues or state-contingent public transfers are merely driven by the economic cycle and independent of discretionary policy decisions, at least in the short run. Moreover, reverse causality is not an issue due to the nature of the cyclical component of the budget balance.

Table 5 reports the results for the cyclical balance (CB) and the cyclical primary balance (CPB). As expected, automatic stabilizers are clearly countercyclical for the whole sample period and the implementation of the Fiscal Compact reinforced this pattern.[8] The estimates for the intercept shift show that the Fiscal Compact did not affect the average cyclical balance. Thus, the change in the fiscal framework has not impaired the proper functioning of automatic stabilizers. Galí and Perotti (2003) draw the same conclusion for the change in fiscal rules induced by the Maastricht Treaty.

The strongly countercyclical stance of the automatic stabilizers is also reflected in the cyclical behavior of the headline budget balance. Table 6 shows the estimates for the headline balance (B) and the primary balance (PB) as dependent variables. Both are slightly countercyclical prior to the implementation of the Fiscal Compact, indicating that the strong automatic stabilizers dominate the cyclicality of the balance. In line with the previous results, countercyclicality increased afterwards.

[8] Fatás and Mihov (2010) point out that the cyclical responsiveness of the automatic stabilizers should reflect the semi-elasticities used for the cyclical adjustment of the budget balance. This is indeed the case for the estimates. The average semi-elasticity of the countries included in the panel amounts to 0.51 (see Appendix A), which is close to the values shown in Table 5.

Table 5: Automatic stabilizers

$Balance$:	CB	CB	CPB	CPB
$Cycle$	0.44***	0.42***	0.44***	0.42***
	(0.03)	(0.03)	(0.03)	(0.03)
$Debt(t-1)$	0.00*	0.00	0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
$Balance(t-1)$	0.06*	0.06**	0.06*	0.06**
	(0.03)	(0.03)	(0.03)	(0.03)
Dfc		0.00		0.00
		(0.01)		(0.01)
$Dfc \cdot Cycle$		0.07***		0.07***
		(0.02)		(0.02)

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications.

Table 6: Headline balance

$Balance$:	B (OLS)	B (IV)	PB (OLS)	PB (IV)
$Cycle$	0.05	0.13***	0.05	0.14***
	(0.04)	(0.04)	(0.04)	(0.04)
$Debt(t-1)$	−0.01	−0.01	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
$Balance(t-1)$	0.50***	0.48***	0.50***	0.48***
	(0.08)	(0.02)	(0.08)	(0.02)
Dfc	1.05***	1.05***	0.59*	0.57***
	(0.34)	(0.22)	(0.32)	(0.21)
$Dfc \cdot Cycle$	0.25	0.41***	0.20	0.31**
	(0.21)	(0.14)	(0.19)	(0.14)

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 'OLS' estimation uses $Cycle_{i,t-1}$. 'IV' refers to 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

5 Conclusion

Fiscal policy is the main stabilization tool for countries in monetary unions. The European fiscal framework includes a broad set of rules that could potentially put a strain on national fiscal policies. In this chapter, I provide evidence that the Fiscal Compact, signed in 2012, has not constrained the conduct of country-specific policy. On the contrary, the tightening of rules increased countercyclicality of discretionary fiscal policy, especially in countries with weak fiscal positions, and still allows automatic stabilizers to function properly over the cycle.

The implications for the further evolution of European fiscal governance are evident. First, the provisions of the Fiscal Compact are functional in the sense that the stabilization role of fiscal policy is not impaired although stricter rules were implemented. Second, the provisions are particularly successful in reducing procyclicality in countries with weak fiscal positions which are the main target of the rules. Third, monitoring based on cyclically-adjusted budget balance measures, i.e., the structural balance in the EU case, seems to provide a suitable framework for effective fiscal surveillance. However, EU economic governance will continue to be faced with different requirements of heterogeneous member states in the future, representing a key challenge for a unitary fiscal framework.

Appendix

A Data

Table A-1: Data sources

Series	Source
Net lending (in % of GDP)	Eurostat
Government primary deficit (in % of GDP)	ECB SDW
Government consolidated gross debt (in % of GDP)	Eurostat
Real GDP (chain linked volumes, 2010)	Eurostat
Exports (in US Dollars)	IMF DOTS

Table A-2: Fiscal Compact dummy by member state

Member state	Entry into force
Austria, Cyprus, Denmark*, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Portugal, Romania*, Slovenia, Spain	01/01/2013
Luxembourg	01/06/2013
Malta	01/07/2013
Netherlands	01/11/2013
Bulgaria*, Latvia	01/01/2014
Belgium	01/04/2014
Lithuania	01/01/2015

Notes: Countries marked with * are not part of the euro area but decided to opt in. The Slovak Republic is not included in the sample due to missing data.

Table A-3: Budgetary semi-elasticities

	Source	
Country	Mourre et al. (2019)	Mourre et al. (2014)
Belgium	0.615	0.605
Bulgaria	0.298	0.308
Denmark	0.589	0.619
Germany	0.504	0.551
Estonia	0.486	0.443
Ireland	0.522	0.528
Greece	0.524	0.483
Spain	0.597	0.539
France	0.630	0.603
Italy	0.544	0.539
Cyprus	0.504	0.523
Latvia	0.378	0.380
Lithuania	0.399	0.413
Luxembourg	0.462	0.445
Malta	0.479	0.456
Netherlands	0.605	0.646
Austria	0.571	0.580
Portugal	0.538	0.506
Romania	0.321	0.339
Slovenia	0.468	0.477
Finland	0.582	0.574
Average	0.506	0.503
EU	0.554	0.563

Notes: 'Average' refers to the arithmetic mean over the countries incluced in the sample. 'EU' denotes the aggregate semi-elasticity of EU countries reported in Mourre et al. (2019) and Mourre et al. (2014).

Calculation of trade-weighted output gaps:

Following Jaimovich and Panizza (2007), Galí and Perotti (2003), and Alesina et al. (2008), I use the trade-weighted average output gap of the other countries in the sample as instrument for the output gap of country i:

$$Gap_{i,t} = \sum_{j} \omega_{ij,t} Gap_{j,t}$$

where $\omega_{ij,t}$ denotes the fraction of exports from country i going to country j.

B Countries with weak fiscal positions

Table B-1: Overview of subsamples

Subsample	Included countries
Deficit $\geq 3\%$ of GDP	Ireland, Greece, Spain, France, Italy, Cyprus, Lithuania, Malta, Portugal, Romania, Slovenia
Debt-to-GDP ratio $\geq 60\%$	Belgium, Germany, Greece, France, Italy, Cyprus, Malta, Austria, Portugal
Debt and deficit above limit	Cyprus, Greece, France, Italy, Malta, Portugal

Table B-2: Detailed estimation results (Dependent variable: CAPB)

	No-GIPS	GIPS	High deficit	High debt	High deficit and debt
$Cycle$	−0.09**	−0.16	−0.14*	−0.07	−0.29*
	(0.05)	(0.15)	(0.09)	(0.11)	(0.16)
$Debt(t-1)$	0.00	0.01	−0.01	0.02***	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
$Balance(t-1)$	0.44***	0.58***	0.44***	0.30***	0.26***
	(0.03)	(0.05)	(0.03)	(0.04)	(0.05)
Dfc	0.59***	0.94	1.58***	0.85***	1.43***
	(0.23)	(0.72)	(0.43)	(0.32)	(0.51)
$Dfc \cdot Cycle$	0.24	0.81***	0.42**	0.63***	0.90***
	(0.16)	(0.30)	(0.19)	(0.22)	(0.27)
N	1207	284	781	639	426

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

C Robustness checks

Table C-1: Estimation with time fixed effects

$Balance:$	CAPB	CAPB	CAPB	CPB
$Cycle$	-0.29^{***}	-0.38^{***}	-0.38^{***}	0.39^{***}
	(0.00)	(0.00)	(0.06)	(0.03)
$Debt(t-1)$	0.02^{***}	0.02^{***}	0.01	0.00
	(0.01)	(0.00)	(0.01)	(0.00)
$Balance(t-1)$	0.36^{***}	0.35^{***}	0.34^{***}	0.08^{*}
	(0.00)	(0.00)	(0.02)	(0.04)
Dfc		−0.63	-1.32^{*}	0.05
		(0.40)	(0.79)	(0.04)
$Dfc \cdot Cycle$		0.51^{***}	0.53^{***}	0.09^{***}
		(0.01)	(0.18)	(0.02)
$Dfc \cdot Debt(t-1)$			0.01^{**}	
			(0.00)	

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

Table C-2: Restricting the sample to euro area countries

$Balance:$	CAPB	CAPB	CAPB	CPB
$Cycle$	−0.03	-0.08^{*}	-0.10^{**}	0.44^{***}
	(0.04)	(0.05)	(0.05)	(0.03)
$Debt(t-1)$	0.01^{***}	0.00	−0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.00)
$Balance(t-1)$	0.49^{***}	0.47^{***}	0.46^{***}	0.04^{*}
	(0.02)	(0.03)	(0.03)	(0.02)
Dfc		0.78^{***}	−0.15	0.00
		(0.24)	(0.41)	(0.01)
$Dfc \cdot Cycle$		0.36^{**}	0.40^{***}	0.06^{**}
		(0.14)	(0.15)	(0.02)
$Dfc \cdot Debt(t-1)$			0.01^{***}	
			(0.01)	

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1278$ across all specifications. 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

Table C-3: Using semi-elasticities reported in Mourre et al. (2014)

Balance :	CAPB	CAPB	CAPB	CPB
$Cycle$	−0.04	−0.08*	−0.10**	0.42***
	(0.04)	(0.04)	(0.04)	(0.02)
$Debt(t-1)$	0.02***	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.00)
$Balance(t-1)$	0.49***	0.48***	0.47***	0.05**
	(0.02)	(0.02)	(0.02)	(0.02)
Dfc		0.57***	−0.25	0.00
		(0.21)	(0.35)	(0.01)
$Dfc \cdot Cycle$		0.38***	0.42***	0.07***
		(0.14)	(0.14)	(0.02)
$Dfc \cdot Debt(t-1)$			0.01***	
			(0.00)	

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

Table C-4: Using polynomial of order k to extract GDP trend

	$k=2$			$k=3$			$k=4$		
Balance :	CAPB	CAPB	CPB	CAPB	CAPB	CPB	CAPB	CAPB	CPB
$Cycle$	−0.20***	−0.21***	0.35***	−0.14***	−0.15***	0.41***	−0.16***	−0.18***	0.41***
	(0.02)	(0.02)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
$Debt(t-1)$	0.01	0.00	0.00*	0.00	0.00	−0.01	0.00	−0.01	0.00
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
$Balance(t-1)$	0.47***	0.46***	0.23***	0.48***	0.47***	0.10**	0.49***	0.48***	0.09***
	(0.02)	(0.02)	(0.07)	(0.02)	(0.02)	(0.04)	(0.02)	(0.02)	(0.03)
Dfc	0.57***	−0.19	0.04	0.50**	−0.27	−0.01	0.55***	−0.23	0.00
	(0.21)	(0.34)	(0.03)	(0.21)	(0.35)	(0.02)	(0.21)	(0.35)	(0.01)
$Dfc \cdot Cycle$	0.09**	0.10**	0.04***	0.14*	0.17**	0.05***	0.24**	0.26***	0.06***
	(0.04)	(0.04)	(0.01)	(0.08)	(0.08)	(0.01)	(0.09)	(0.09)	(0.02)
$Dfc \cdot Debt(t-1)$		0.01***			0.01***			0.01***	
		(0.00)			(0.00)			(0.00)	

Notes: Panel estimates including country fixed effects with robust standard errors in parentheses. Asterisks denote statistical significance level: * 10%, ** 5%, *** 1%. $N = 1491$ across all specifications. 2SLS estimation with trade-weighted average rest-of-the-sample output gap and $Cycle_{i,t-1}$ as instruments.

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