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Abstract

In this paper I examine how a Eurozone buffer fund could help bolster the stability of the Eurozone economy by mitigating the procyclicality of fiscal policies. Receipts from the buffer fund are assumed to be triggered by the cyclical movements in unemployment in each country. The receipts, in turn, are expected to mitigate the fiscal contractions during downturns. To quantify the extent of macroeconomic stabilisation thus achieved, the paper superimposes estimates for 'fiscal multipliers' on the assumed change in fiscal policies. The computations are carried out using two databases – the European Commission's AMECO database and the OECD Economic Outlook database – and suggest that a Eurozone buffer fund would have significant stabilisation properties.

Keywords: Fiscal policy, Business fluctuations, European Buffer Fund

JEL Classification: E32, E63, F33

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INTRODUCTION

In its first two decades of existence the Eurozone has experienced pronounced cyclical swings in economic activity, with an almost unabated expansion until the global financial crisis in 2008-2009 followed by a deep slump as the ensuing sovereign debt crisis unwound. Spurred by massive monetary policy stimulus the economy rebounded, lifting the cyclical position roughly to where it started in 1999. The Eurozone thus appears to have completed a full twenty-year economic cycle, albeit one surrounded by smaller cyclical fluctuations as well.

The cyclical fluctuations in economic activity directly cause movements in government expenditure and revenue. These act to smooth the business cycle – via the "automatic fiscal stabilisers" stemming from the presence of large social safety nets, a heavy weight of the public sector in economic activity and progressive taxation. The automatic stabilisers are comparatively powerful in the Eurozone, and it is a generally accepted view among policymakers that they provide significant protection against the vagaries of the business cycle.

However, discretionary fiscal policies have frequently overruled the working of the automatic stabilisers in the Eurozone – e.g. as governments cut expenditure in response to fiscal shortfalls caused by the cycle -- thus muting their smoothing impact, both in good and in bad times (Van den Noord 2019). Hence the smoothing impact of automatic stabilisers on economic activity may have been neutralised to a considerable extent by fiscal action. Importantly, to the extent that automatic stabilisers themselves have triggered these procyclical fiscal responses, their stabilising impact may be questionable.

The analysis in this paper provides evidence that the spending of cyclical windfalls in good times, and its reversal in bad times, is indeed deeply ingrained in the conduct of fiscal policies in Europe. In part, fiscal restraint in bad times has stemmed from the need to comply with the EU's fiscal rules, to contain market reactions to unsustainably high debt, or from the conditionality of Economic Adjustment Programmes. However, some of this could have been avoided had governments built up sufficient buffers in good times.

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Against this backdrop, this paper examines to what extent the creation of Eurozone buffer fund, to which Member States contribute in good times and draw on in bad times, would have changed the conduct of discretionary policies in a counter-cyclical direction. The methodology was first developed in Van den Noord (2019) and is further refined and updated in this paper. A main extension in this paper relative to my earlier work is that it quantifies the impact of the induced changes in discretionary fiscal policies on economic activity, using existing estimates for 'fiscal multipliers' available in the literature.

The baseline analysis is conducted on the European Commission's AMECO database which is likely to be used by the designated authorities, if ever a European buffer fund is created. By way of a sensitivity check the same methodology is applied to the OECD Economic Outlook database – which is maintained independently from the European institutions and incorporates somewhat different assessments of the cyclical position of the economies and the split between automatic stabilisation and discretionary fiscal policies (see for a recent discussion Price et al. 2015).

The next section provides a brief review of the main rationale for and policy issues around a European buffer fund. This is followed by a discussion of the analysis while the final section concludes.

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1. MOTIVATION

1.1. Why a buffer fund?

The experience of the past decade has shown that the economy of the Eurozone is particularly vulnerable to adverse shocks. There are several reasons for this, including:

1. the build-up of large macroeconomic imbalances at the early stages of monetary union, with countries in the southern rim of the Eurozone featuring large current account deficits against the rest of the area (in particular Germany), in some cases fuelled by real estate booms spurred by capital inflows and cheap credit;
2. the (initial) absence of financial backstops for, both, national sovereigns and banks, which left them prone to losing access to market funding when in distress, exacerbated by large amounts of national sovereign debt on the balance sheets of banks in the same jurisdiction;
3. a lack of fiscal discipline in a number of member states, and a tendency towards procyclicality of fiscal policy (spending of windfalls in upswings alternated by austerity in the face of budget shortfalls in downswings).

Progress with the completion of the Banking Union (including a pan-European backstop) and a simplification and tighter surveillance of compliance with the EU fiscal rules, will undoubtedly help to mitigate the Eurozone's vulnerability to shocks and smooth the business cycle. This is true as well for the European Stabilisation Mechanism (ESM), that was created during the sovereign debt crisis and prevented the financial system to implode. However, what is still lacking is a fiscal mechanism to help prevent excessive cyclical swings in the Eurozone. A European buffer fund could be such a mechanism.

1.2. Pros and cons

The basic principle of a European buffer fund is relatively straightforward. In "good times" member states transfer money to the fund and in "bad times" money is transferred from the fund to the member states. The advantage is that member states

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in a downturn would be less inclined (or forced) to cut public expenditure. Conversely, they have less wiggle room to add fuel to the upswing by raising expenditure in a procyclical manner. Because of the strong economic integration of the Eurozone, not only the individual member state benefits but also the Eurozone as a whole. In other words, there are likely to be substantive positive externalities, which provides a strong rationale for collective action.

In principle a system of national ("rainy day") buffer funds could achieve the same goal of reining in procyclical fiscal policies, but this then raises the issue as to why this has not already happened. Apparently, the incentives to get national buffer funds off the ground in member states are weak without binding pressure based on e.g. the treaty. In any case, buffer funds operated by national sovereigns leave the incentives for procyclical fiscal policies largely intact: surpluses building in good times could induce fiscal profligacy while deficits of the fund in bad times could prompt ill-timed fiscal austerity.

Moreover, an important advantage of a European buffer fund, as opposed to national rainy-day funds, is that it allows for the possibility of transfers between member states, which can be useful if business cycles are out of sync. This means that the call on capital markets for funding would be smaller in the case of a European buffer fund than in the case of national funds if business cycles are not synchronised, for the same degree of fiscal stabilisation. Some see this, however, as a drawback as cross-country fiscal transfers would be politically unpalatable – even if these are temporary, reversable and strictly linked to the business cycle (as opposed to the quasi-permanent one-directional structural funds running through the EU-budget).

As argued by a recent study by the Dutch Bureau for Policy Analysis (Smid and Veldhuizen, 2019) a buffer fund mandated to provide loans -- instead of transfers -- in bad times, would be less effective because its recipients would then still experience an increase in their debt, which in turn could prompt procyclical austerity. A better alternative would be to make participation in the fund conditional on compliance with the EU's fiscal rules and their submission to independent surveillance. In that case, however, it would be advisable to simplify the fiscal rules, to facilitate compliance and surveillance, as recommended by the European Fiscal Board (2018a, 2018b).

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1.3. Examples

A recent study by the IMF (Arnold et al, 2018) reviews a large number of proposals made by policymakers and leading economists for a European buffer fund. These include proposals for contribution-transfer schemes that reallocate funds across countries and/or across time (akin to this paper), alongside proposals for borrowing-lending schemes and a dedicated budget for the euro area (which are outside the scope of this paper). The IMF also reports model simulations which suggest that economic slack caused by an adverse (demand and risk premium) shock would roughly be halved if a buffer fund is in place.

A feature of the approach adopted by the IMF study is that during good times contributions to the buffer fund are fixed while pay-outs are in proportion with the "damage", in line with the insurance principle (although the IMF also computes versions in which net recipients pay a "malus" and net contributors receive a "bonus"). A potential drawback of this approach is that procyclical (e.g. expansionary) fiscal policy in good times is not discouraged, as opposed to an approach where contributions to the fund are in proportion to the size of the cyclical fiscal windfalls on their budgets. However, this could be motivated by the smaller fiscal multiplier effects in upswings than in downswings, as will be discussed below.

The IMF study also computes ex post how a hypothetical European buffer fund, set up according to the above principles, would have evolved had it been implemented as early as in 1990. This starting date sounds somewhat unrealistic given that the Eurozone was created effectively only in 1999. By contrast, the aforementioned study by the Dutch Bureau for Policy Analysis (Smid and Veldhuizen, 2019) instead more realistically assumes the buffer fund to be established in 1999, but otherwise adopts similar assumptions as the IMF.

Specifically, it assumes that each member state every year contributes 0.35% of its GDP to the fund, and receives from the fund the equivalent of 0.5% of its GDP for every percentage-point deviation of its unemployment rate from a seven-years' moving average (a measure of the cyclical component of the unemployment rate). According to these calculations the fund would peak at 2% of GDP in 2008 and subsequently shrink to a debt position of 2% of GDP in 2015. The Dutch study does

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not provide explicit estimates of the stabilisation effects of the fund, though it mentions its welfare implications. The present paper is aimed to fill this gap.

2. A QUANTIFICATION

2.1. Assumptions

The assumptions to calculate the flow of transfers to/from a Eurozone buffer fund adopted in this paper can be summarised as follows:

1. All member states contribute a fixed 0.35% of GDP to the buffer fund (regardless of the state of the business cycle). In bad times (when the unemployment rate drops below its seven-years moving average) member countries receive compensation from the fund for their estimated cyclical fiscal shortfall. These rules are uniformly applied across all member states to preserve strict neutrality.
2. The cyclical fiscal shortfalls are unobservable in real time but can be estimated on the basis of the historical relationship between these shortfalls and the unemployment gap – i.e. the difference between the unemployment rate and its seven-years moving average. To estimate this relationship the cyclical fiscal shortfalls are taken from the databases of the OECD (Economic Outlook database) and the European Commission (AMECO), as discussed in more detail below.
3. In line with the IMF, the buffer fund is assumed to invest its surpluses (which mostly occur in the run-up to the financial crisis in 2008) in German sovereign bonds (*Bunds*) with a ten years maturity, and to keep these until maturity. Conversely, the pay-out of the fund is financed by maturing *Bunds*, which are supplemented, if needed, by ten-year loans (guaranteed by the joint member states) at the same yield as that on 10-year *Bunds*.

2.2. Fund size and evolution

Figure 1 reports the evolution of the size of the fund and its annual net receipts. A number of features stand out. First, even in the good times prior to the global financial crisis in 2008 the net contribution to the fund in some years is negative as the pay-out exceeds the “insurance premium” of 0.35% of GDP in some years (in the

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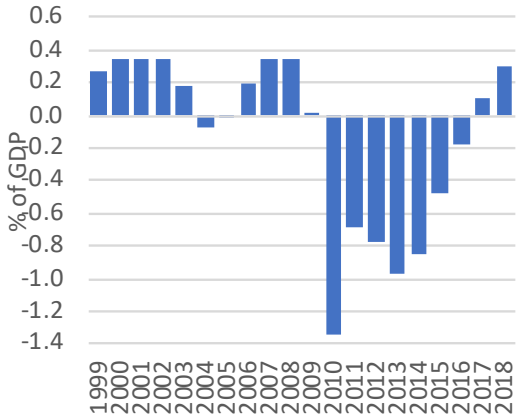
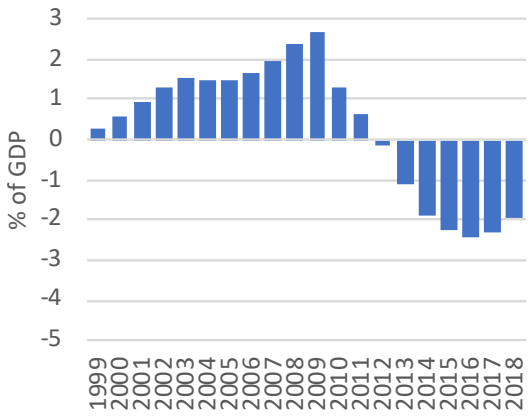
wake of the shallow recession of 2003). Second, the net pay-outs of the fund tend to be somewhat larger on the basis of OECD data than on the basis of the European Commission data. This is due to the somewhat smaller estimated cyclical fiscal shortfalls in the latter case, as discussed in more detail below.

Figure 1: Evolution of the buffer fund

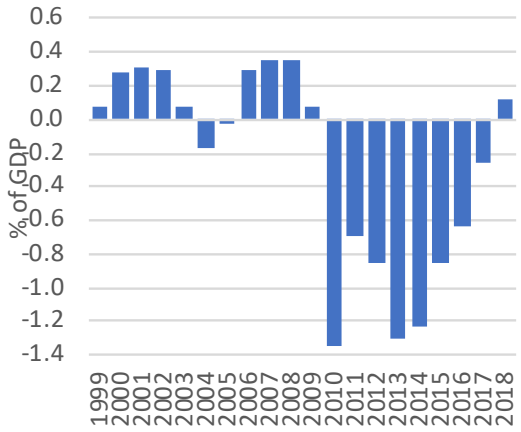
A. Net transfers (using AMECO)



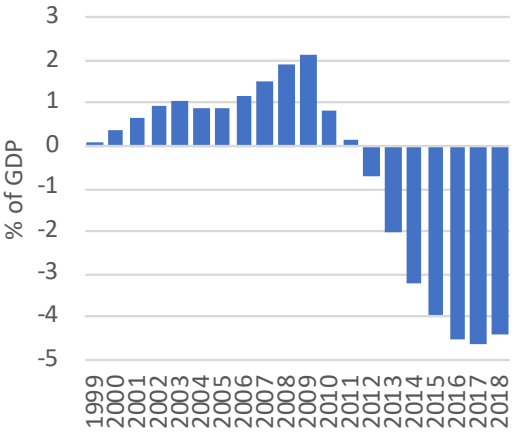
B. Fund size (Using AMECO)



C. Net transfers (using OECD data)



D. Fund size (using OECD data)



Sources: European Commission, OECD, autor's calculations

Notwithstanding the differences stemming from the database used, the results are of the same order of magnitude, with the size of the fund peaking at over 2% of GDP in 2009, shrinking to zero by 2012 and reaching a net debt position in the range of 2.5% of GDP on the basis of AMECO and 4.5% of GDP in the case of the OECD Economic Outlook database towards the end of the decade. In both cases the net receipts of the fund fluctuate between 0.35% of GDP in good times and -1.3% of GDP in bad times, though in the case of the OECD database this peak is attained not only in 2010, but also in 2013 and 2014.

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2.3. Triggers and transfers

The differences in fund size and transfers that result from the respective databases can easily be traced back to the specific evolutions of the unemployment gap (the difference between the unemployment rate and it seven-year moving average) and the cyclical fiscal windfalls and shortfalls. As noted, the earlier exercise by the IMF quoted above assumed that for each percentage point (positive) deviation of the unemployment rate from its seven-year moving average a member country receives compensation from the fund of half per cent of GDP. This simple rule is not explicitly motivated by the IMF, but it can actually be underpinned by empirical analysis, as shown below.

Specifically, a simple model is estimated which relates, for each year t and country i, the cyclical component of the primary balance as a per cent of GDP ($CC_{i,t}$) to the unemployment gap ($UGAP_{i,t}$):

(1) $$CC_{i,t} = \alpha . UGAP_{i,t} + e_{i,t}$$

in which α is the parameter of interest and $e_{i,t}$ denotes the unexplained residual. Figures 2 and 3 show the evolution of the two variables in equation (1) for the Eurozone as a whole and for the five largest members of the monetary union (Germany, France, Italy, Spain and the Netherlands) which together constitute over 80% of the Eurozone's GDP. In both databases the correlation is generally high, though with a major outlier for Germany in 2009. The latter is attributable to the plummeting cyclical fiscal shortfall in Germany during the global recession while the unemployment gap hardly responded owing to a temporary reduction in labour time (*Kurzarbeit*).

It appears that the residual $e_{i,t}$ is strongly autocorrelated, such that it can be described by a simple $AR(1)$ process:

(2) $$e_{i,t} = \rho . e_{i,t-1} + u_{i,t}$$

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where $u_{i,t}$ is a normally distributed residual with a zero mean. As reported in Table 1, the estimated value of the coefficient α is close to 0.5 (somewhat lower when AMECO is used and somewhat higher when the relationship is estimated on the OECD database). This implies that if a country were to receive full compensation from the fund for the (estimated) fiscal shortfall in a downturn this should indeed correspond to about half a per cent for every percentage point of the unemployment gap, as assumed by the IMF.

Table 1: Estimation results for model (1) with autocorrelation (2)

Dependent variable: $CC_{i,t}$	AMECO		OECD	
	Coefficient	(t-statistic)	Coefficient	(t-statistic)
$UGAP_{i,t}$	-0.44***	(-14.2)	-0.52***	(-9.4)
$AR(1)$	0.73***	(20.3)	0.85***	(19.2)
$\bar{R}^2(DW)$	0.73	(1.83)	0.74	(2.00)
Countries in the sample	AT, BE, CY, EE, FI, FR, DE, GR, IR, IT, LT, LU, LV, MT, NL, PT, SK, SL, ES		AT, BE, FI, FR, DE, GR, IR, IT, LU, NL, PT, SK, SL, ES	

Sources: European Commission, OECD, author's calculations; *, ** and *** denote significance at the 10%, 5% and 1% level; time period: 1999-2018.

To compute the net transfers to the fund for each country and each year, denoted as $TRANS_{i,t}$, we assume these to be equal to 0.5% of GDP less a compensation for the estimated cyclical component of the primary balance $\widehat{CC}_{i,t}$ if that component is negative, so:

(3) $$TRANS_{i,t} = 0.5 + \min(0, \widehat{CC}_{i,t})$$

where the estimated cyclical component of the primary balance is computed with the help of equations (1) and (2) while setting the error term $u_{i,t}$ at zero, or in reduced form:

(4) $$\widehat{CC}_{i,t} = \rho . CC_{i,t-1} - \alpha . \left(UGAP_{i,t} - \rho . UGAP_{i,t-1}\right)$$

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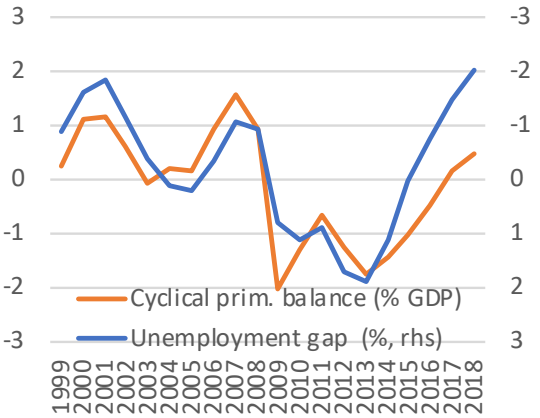
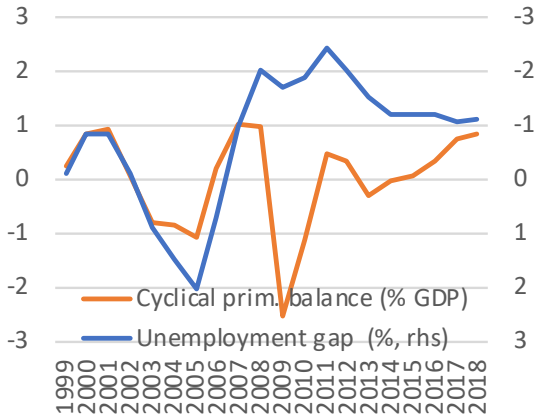
Figure 2: The cyclical primary balance and the unemployment gap (AMECO)

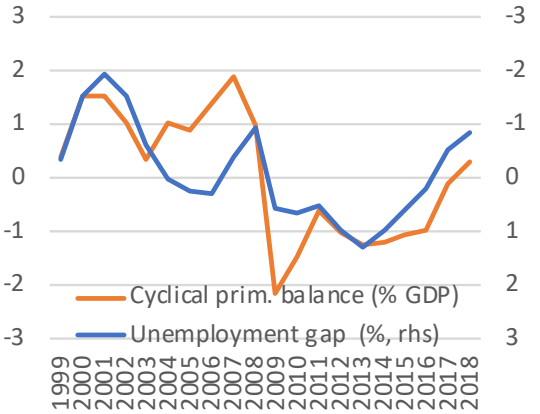
A. Eurozone



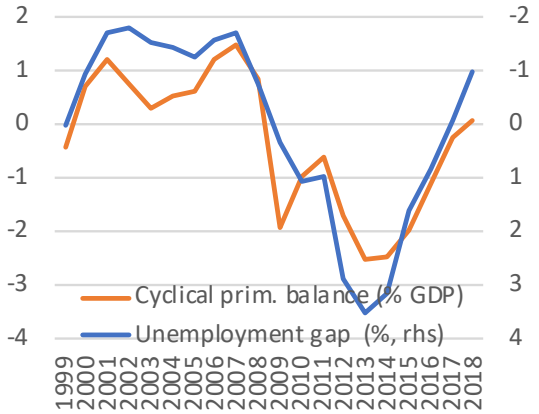
B. Germany



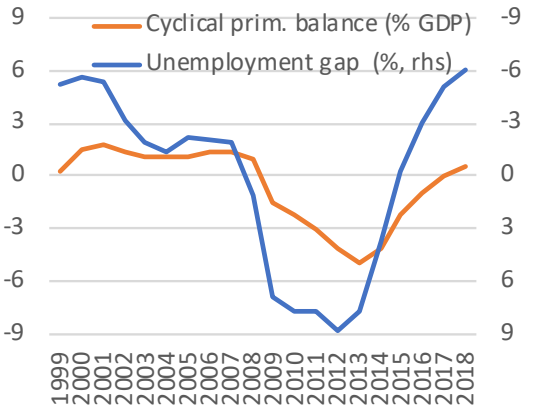
C. France



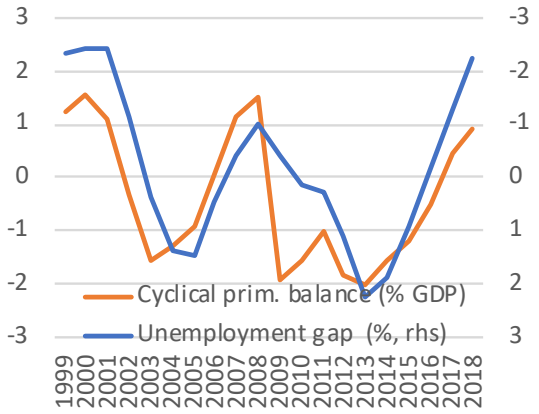
D. Italy



E. Spain



F. The Netherlands



Sources: European Commission, author's calculations

Figure 3: The cyclical primary balance and the unemployment gap (OECD)

A. Eurozone

B. Germany

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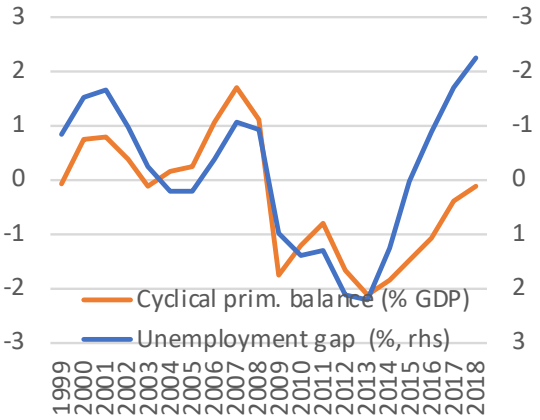
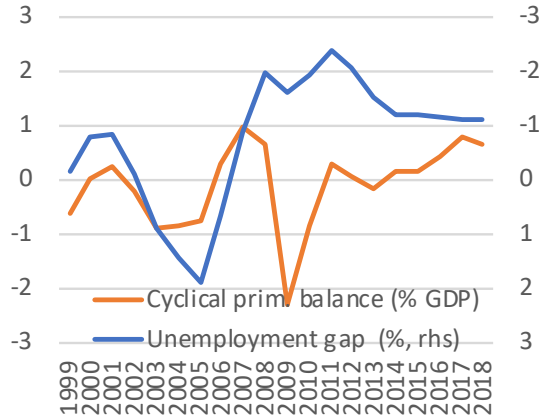
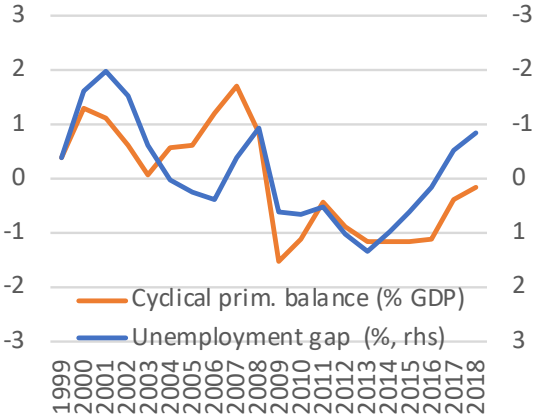
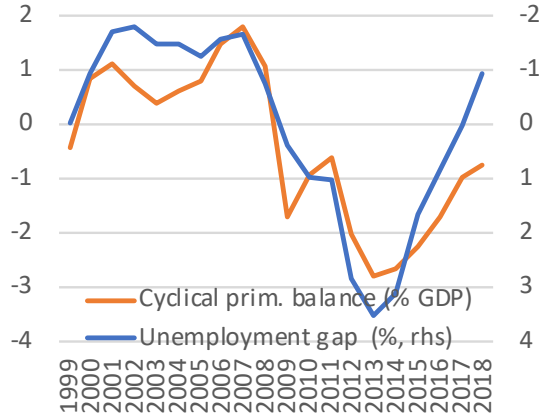




C. France

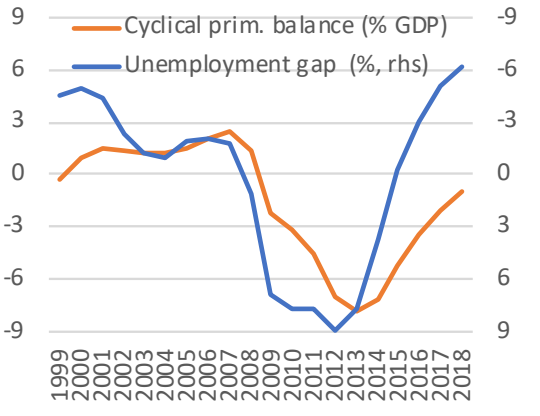
D. Italy

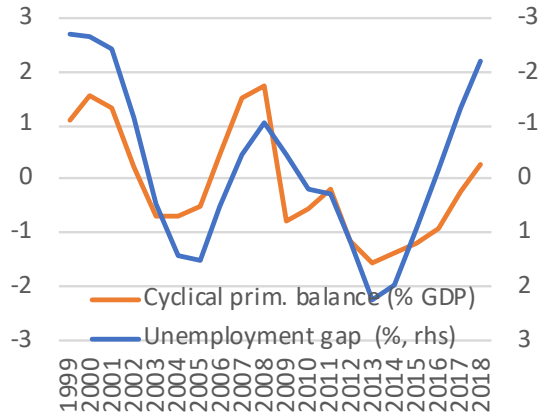




E. Spain

F. The Netherlands





Sources: Sources: OECD, author's calculations

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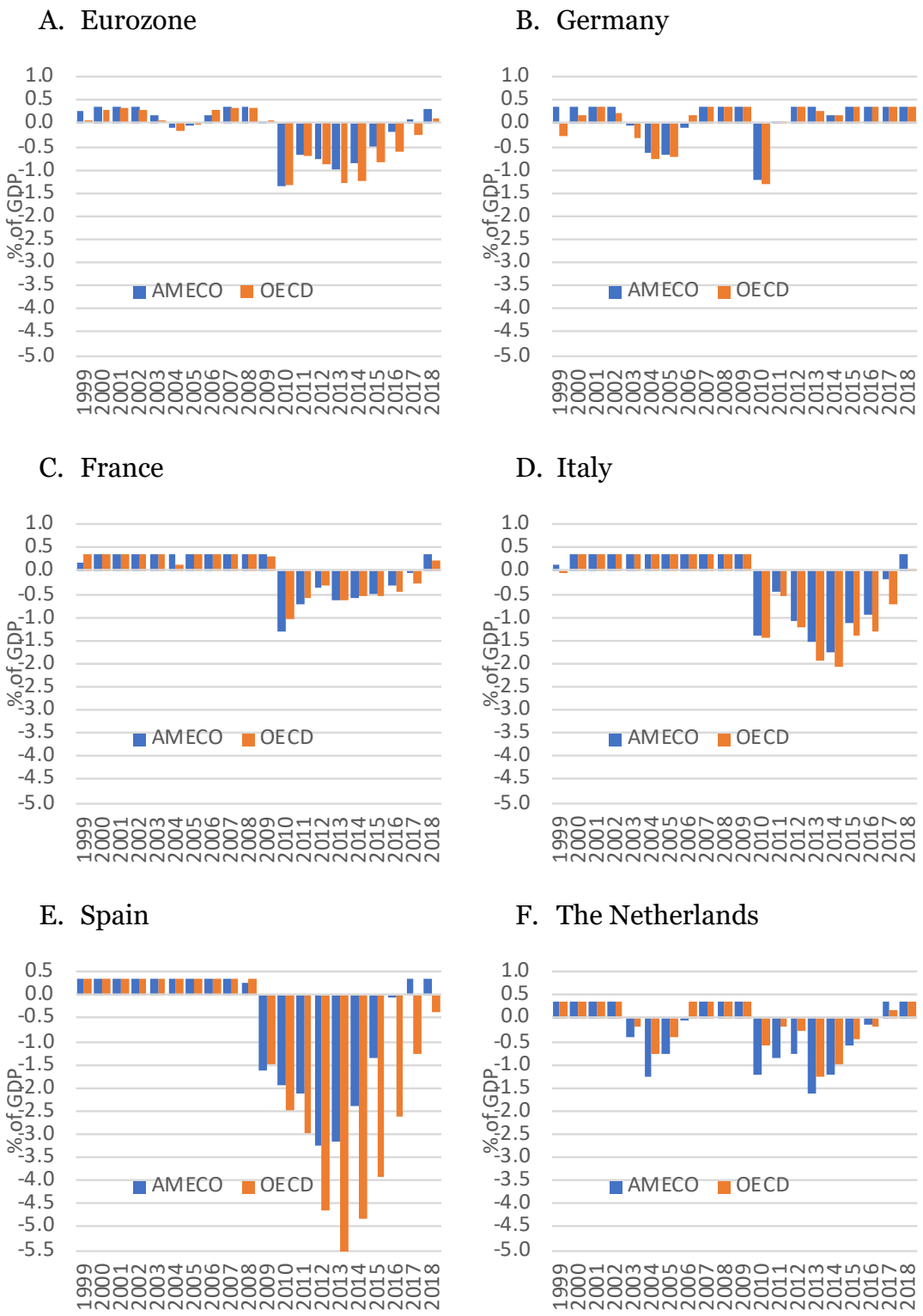
Figure 4: Net transfers to the European bffer fund by country



Sources: European Commission, OECD, author's calculations.

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This approach means that the transfers for each year are computed on the basis of variables that are either lagged or less susceptible to historical revision (unemployment), or both. This is a convenient property if this method is ever to be used in real time when a buffer fund has been set up. Moreover, the advantage of this approach over the one proposed by the IMF is that it is rooted in an empirical relationship that can be kept up to date in real time as the economy evolves and more data becomes available (as opposed to a fixed rule of thumb).

Looking at the results reported in Figure 4 a number of features stand out:

1. Germany would have been a net contributor to the fund for about three-quarters of the 1999-2018 period, as opposed to the other four largest member countries who would be a net contributer to the fund during roughly half of this period.
2. In the aftermath of the shallow recession in 2003, Germany along with the Netherlands, would have been a net receipient nonetheless. This is in contrast with the other major countries France, Italy and Spain, who remained net contributors to the fund in that episode.
3. In the aftermath of the global financial crisis and the ensuing euro crisis all major member countries apart from Germany would have been net recepients from the fund. Among these, Italy, and most notably Spain, emerge as the by far largest net recepients (and Spain even more so if the OECD database is used).

This goes to show that in the wake of the crisis, the net payout from the buffer fund would have been biased – at least among the largest five member countries -- towards Italy and Spain. That should not be surprising given the deep slumps these two countries have experienced, and is precisely what the buffer fund is intended for. Even so, the political economy implications should not be underestimated. Would such an asymmetric evolution be acceptable to national electorates and therefore politically sustainable? The answer should depend at least in part on the effectiveness of the fund in terms of stabilising the Eurozone economy as a whole and of its members. This is the focus of the next section.

3. STABILISING IMPACT

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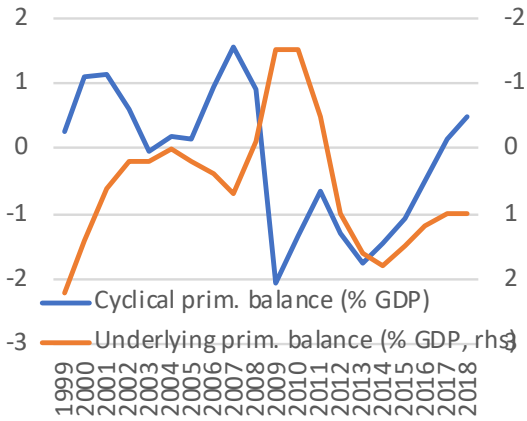
3.1. Response of discretionary fiscal policy

Cyclical shortfalls on government budgets tend to occur when economies slump, and as such can have a stabilising macroeconomic impact. Cyclical shortfalls stem from the tax and benefit systems which in bad times automatically provide support via the budget and thus offset some of the cyclical slack – hence dubbed the "automatic fiscal stabilisers" (see Van den Noord, 2000). The same mechanism operates when tax and benefit systems produce fiscal windfalls and thus help to prevent overheating of the economy.

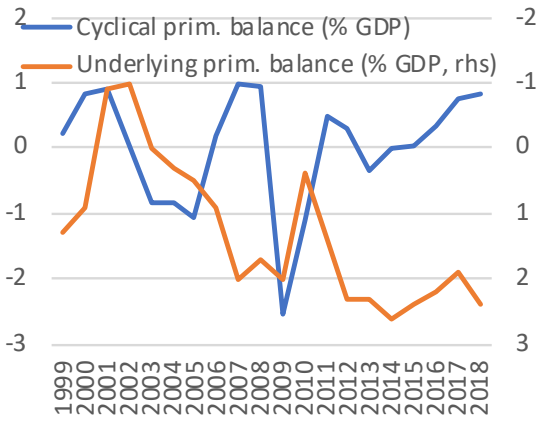
However, evidence abounds that governments in the Eurozone tend to overrule the working of the automatic stabilisers, consolidating their fiscal positions when the economy slumps and providing stimulus in economic upswings (see European Fiscal Board 2019, Mohl et al 2019 and Van den Noord 2019). There may be strong rationales for them to do so, such as to comply with the EU's fiscal rules, as part of the conditionality for financial assistance, or to rein the yield spreads on their bonds. But there may also be political motives for procyclical fiscal policy, i.e. "handing back" fiscal windfalls to special interest groups in good times, necessitating "belt tightening" in bad times. If the incentives for procyclical fiscal policies are strong enough, automatic stabilisers will never be able to perform their stabilising role to the full.

Figure 5: Automatic and discretionary fiscal policies (AMECO)

A. Eurozone



B. Germany



C. France

D. Italy

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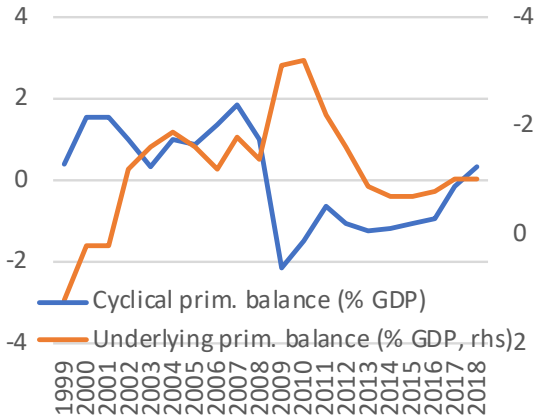
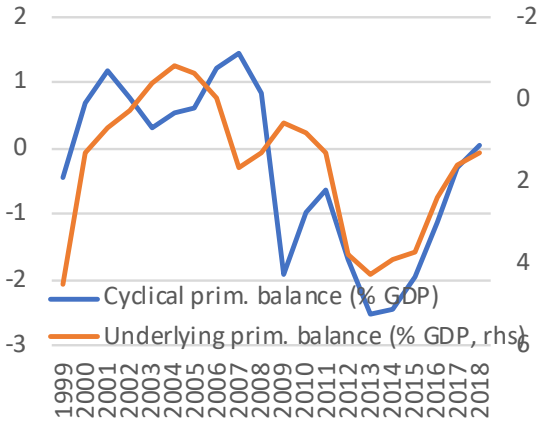
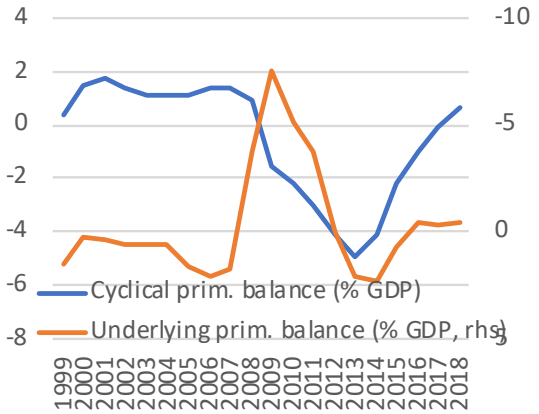
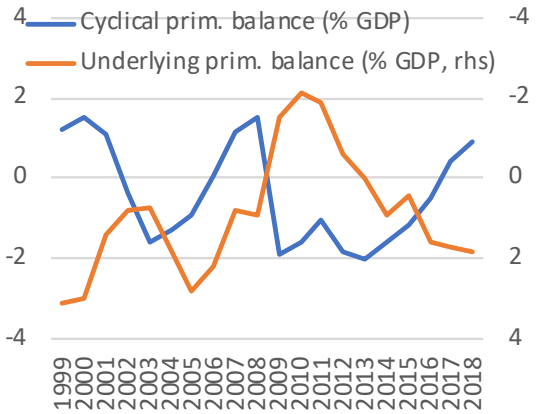


E. Spain



F. The Netherlands

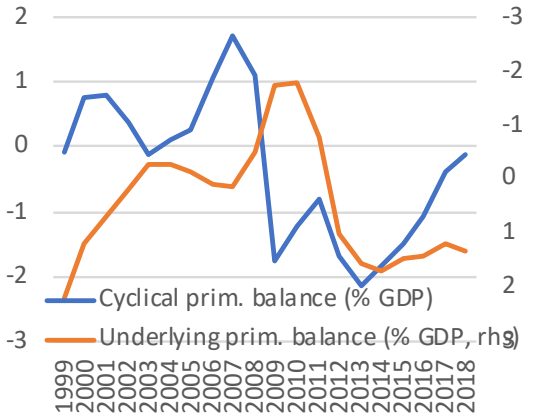




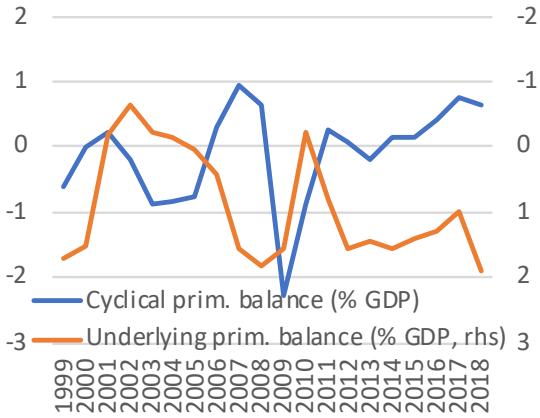
Source: European Commission

Figure 6: Automatic and discretionary fiscal policies (OECD)

A. Eurozone



B. Germany



C. France

D. Italy

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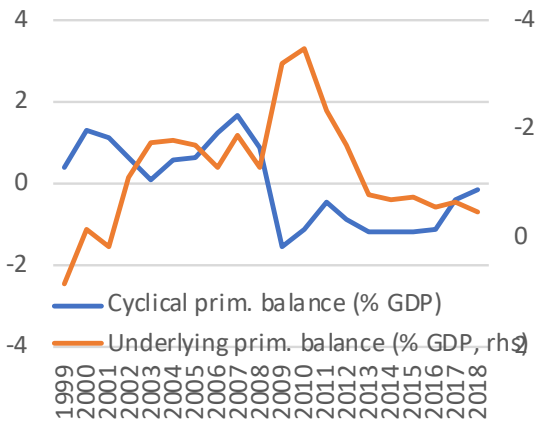

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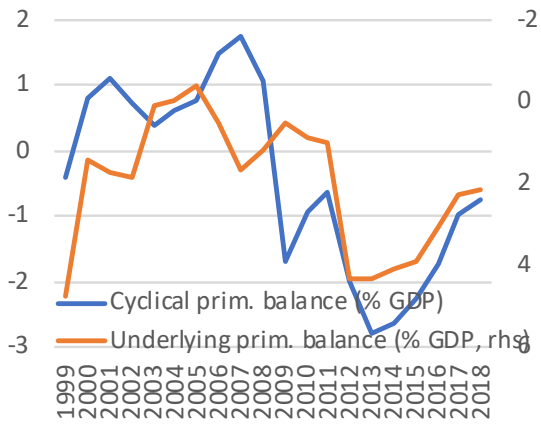
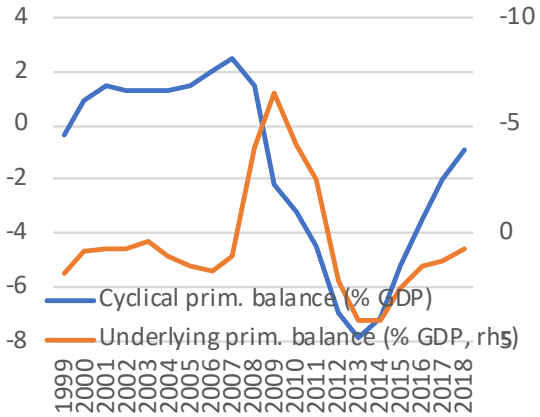
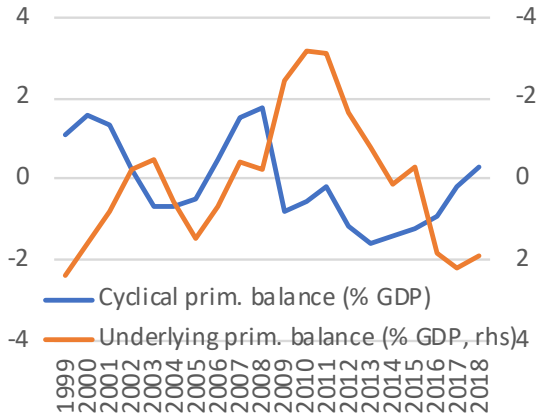


F. The Netherlands





Source: OECD.

The evolution of the cyclical and discretionary components of the primary balance (as a per cent of GDP) depicted in Figures 5 and 6 for the Eurozone and its five largest constituent members indeed suggests a certain degree of procyclicality of the latter (with the picture quite similar for the two databases). This is particularly evident in the case of Italy, where almost consistently the cyclical and discretionary components of the primary balance move in opposite directions. But among the other major Eurozone economies this is generally also the case, with the exception of the immediate aftermath of the global financial crisis in 2008-2009 when fiscal policies were massively eased via for instance the adoption of "cash-for-clunkers" schemes.

The regression results reported below indeed suggests that the automatic stabilisers are systematically offset by the conduct of discretionary fiscal policies, even when properly controlling for other country or time specific factors. Specifically, again

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using the latest available AMECO and OECD Economic Outlook databases, I examine if – across time and member states – the following relationship holds (see for an earlier estimate of this relationship on a previous version of the OECD Database Van den Noord 2019):

(5) $$UND_{i,t} = b_0 - b_1.CC_{i,t} - b_2.DEBT_{i,t} + e_{i,t}$$

where $DEBT$ denotes the debt ratio to GDP, which is included to capture the impact of debt-sustainability concerns on discretionary fiscal policy. UND is the underlying primary balance as a per cent of potential GDP, CC, as previously, is the cyclical component of the primary balance as a per cent of GDP, and e is the error term. If indeed b_1 is close to one, there may be said to be a virtually full discretionary fiscal offset of the automatic stabilisers.

It proved efficient to embed relationship (5) in an error-correction system and to include time-specific and country-specific constant terms as well. The estimation results, using Two-Stage Least Squares to remove reverse-causality bias as much as possible, are reported in Table 2. It indicates that, in the short run, changes in the underlying primary balance are fully offset by an opposite change in the cyclical component of the primary balance (the relevant regression coefficient equals -0.96 and -0.98, respectively). It is also possible to identify the parameter b_1 in equation (5), i.e. the long-run impact of automatic stabilisers on discretionary policy (see the explanatory note of Table 2). This equals $-0.15/0.22 = 0.68$ and $-0.22/0.24 = 0.92$ (depending on the database used), suggesting that in the long run 70% to 90% of the fiscal impact of the automatic stabilisers are offset by discretionary policy, in line with findings reported by inter alia the European Fiscal Board (2019).

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Table 2: Estimation results for model (5) in an error-correction framework

Dependent variable: $\Delta UND_{i,t}$	AMECO		OECD	
	Coefficient	(t-statistic)	Coefficient	(t-statistic)
$\Delta CC_{i,t}$	-0.96***	(-8.3)	-0.98***	(-5.4)
$CC_{i,t-1}$	-0.15**	(-2.2)	-0.22***	(-2.8)
$UND_{i,t-1}$	-0.22***	(-6.3)	-0.24***	(-6.6)
$DEBT_{i,t-1}$	0.04***	(5.3)	0.04***	(4.9)
C	-2.2***	(-5.1)	-2.8***	(-5.3)
$\bar{R}^2(DW)$	0.43	(1.96)	0.49	(1.75)
Countries in the sample	AT, BE, CY, EE, FI, FR, DE, GR, IR, IT, LT, LU, LV, MT, NL, PT, SK, SL, ES		AT, BE, FI, FR, DE, GR, IR, IT, LU, NL, PT, SK, SL, ES	

Sources: European Commission, OECD, author's calculations. Time period 1999-2018.

Note: The relationship estimated reads:

$$\Delta UND_{i,t} = -a_1.\Delta CC_{i,t} - a_2.\left(UND_{i,t-1} + b_1.CC_{i,t-1} + b_2.DEBT_{i,t-1} - b_0\right) + d_i + d_t + u_{i,t}$$

with $-a_1$ measuring the short-run impact and a_2 a measure of the speed of adjustment of the underlying primary balance to its desired level. The terms d_k and d_t denote the country-specific and time-specific constant terms. *,** and *** denote significance at the 10%, 5% and 1% level. Two-Stage Least Squares is applied with one period lags of the dependent and explanatory variables used as instruments. Additional instruments include the sovereign yield spreads against German Bunds (10-year maturities) and a dummy variable that takes the value 1 if a country is in a financial adjustment programme and 0 otherwise. Both regressions include time and country fixed effects.

In view of this result it might useful, from a macroeconomic stabilisation perspective, to 'ringfence' the automatic stabilisers from the national governments, that is use the proceeds in good times to build supranational buffer, to be automatically released to national governments in bad times. This is exactly what the European buffer fund intends to do. To compute the impact of the buffer fund on discretionary fiscal policies, it is assumed that policy continues to behave according to the estimated model above, but now with the cyclical component of the primary balances reduced by the net transfers to the fund. This implies that in bad times the cyclical component of the primary balance is practically eliminated by the compensation received from the fund, barring the fixed annual contribution to the fund of 0.5% of GDP.

The resulting evolution of the underlying primary balances with a European buffer fund – in comparison with the actual devolution -- are shown in Figures 7 and 8. The results are reported for the same subset of member countries as before alongside the Eurozone as a whole. It shows that in the immediate aftermath of the global financial

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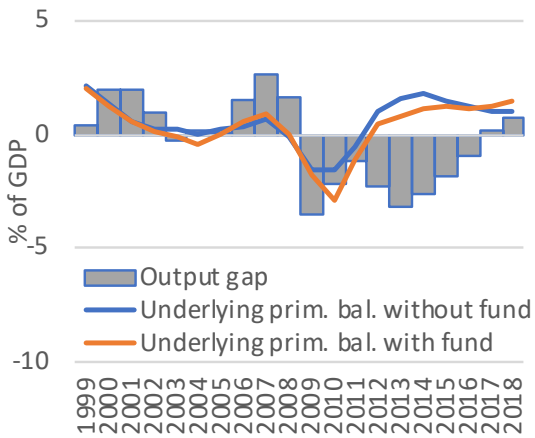
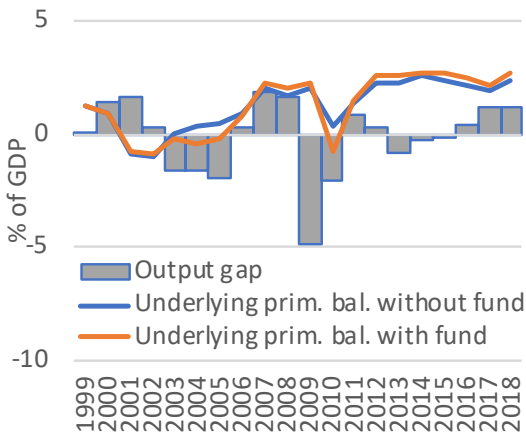
crisis in 2009 and 2010 a significantly stronger easing of fiscal policies would have been conducted had buffer fund been present, both on aggregate and in the five largest Eurozone member states individually. Even so, by 2018 the underlying primary balances would have been more positive (or less negative) than without the buffer fund, because during the recovery after the sovereign debt crisis of 2010-2013 fiscal policies would have been significantly tighter than without the buffer fund. This illustrates well that fiscal policy in Eurozone member countries would have been more countercyclical with a European buffer fund. How effective this would have been in terms of stabilising the economy is another issue and depends on the multiplier effects of fiscal policies, which is discussed in the next subsection.

Figure 7: Impact of the fund on discretionary fiscal policies (AMECO)

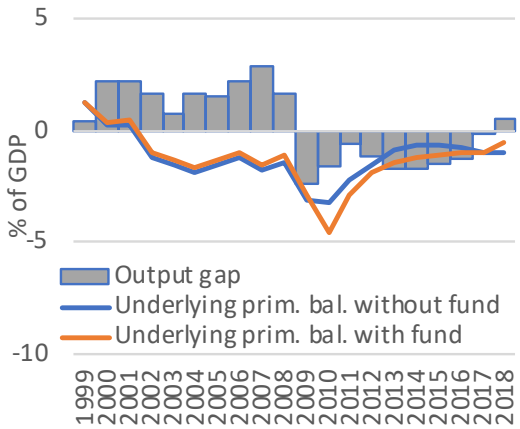
G. Eurozone



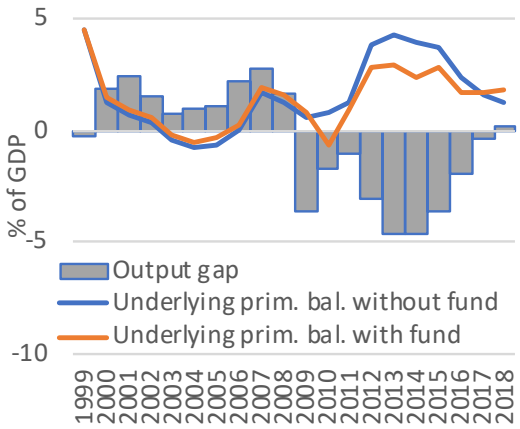
H. Germany



I. France



J. Italy



K. Spain

L. The Netherlands

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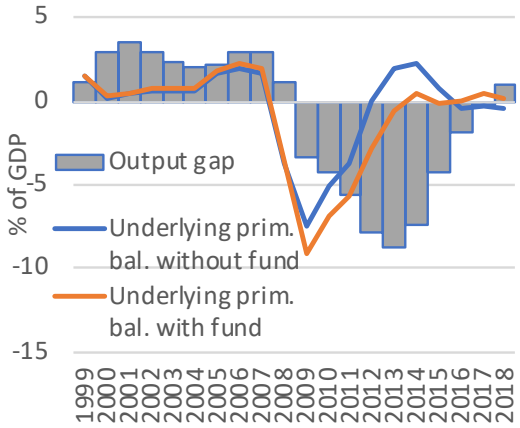
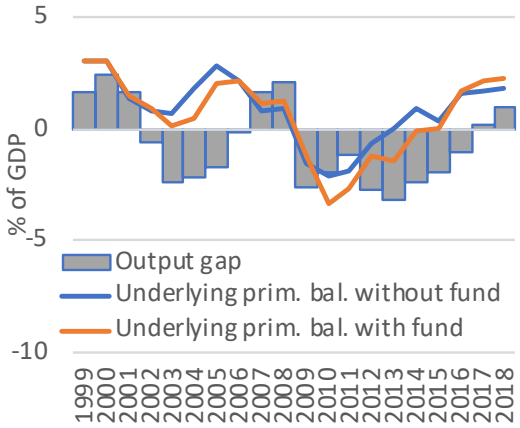
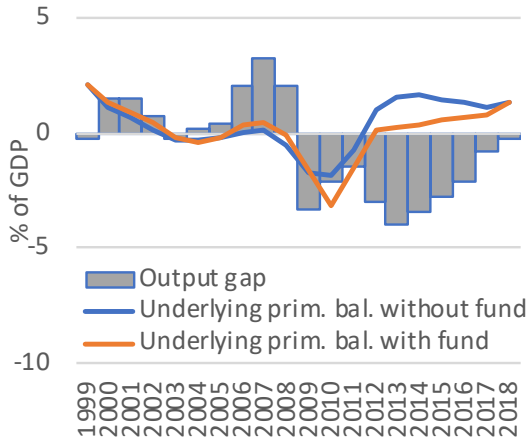




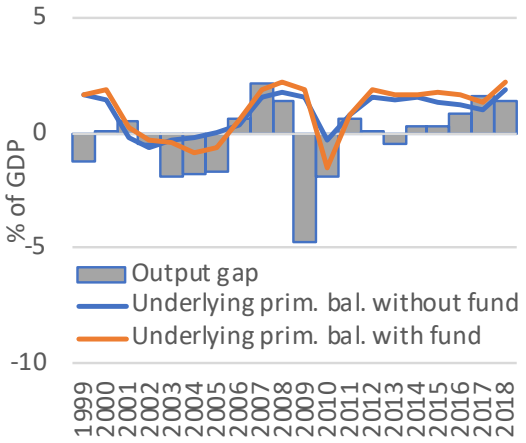
Sources: European Commission, author's calculations.

Figure 8: Impact of the fund on discretionary fiscal policies (OECD)

G. Eurozone



H. Germany



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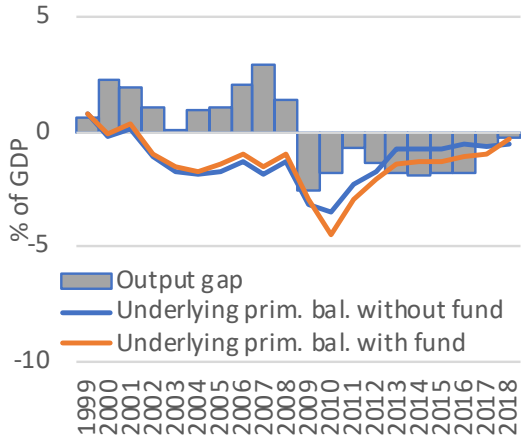
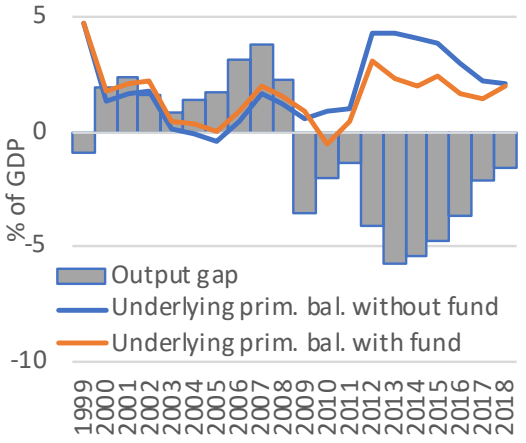


J. Italy



K. Spain

L. The Netherlands

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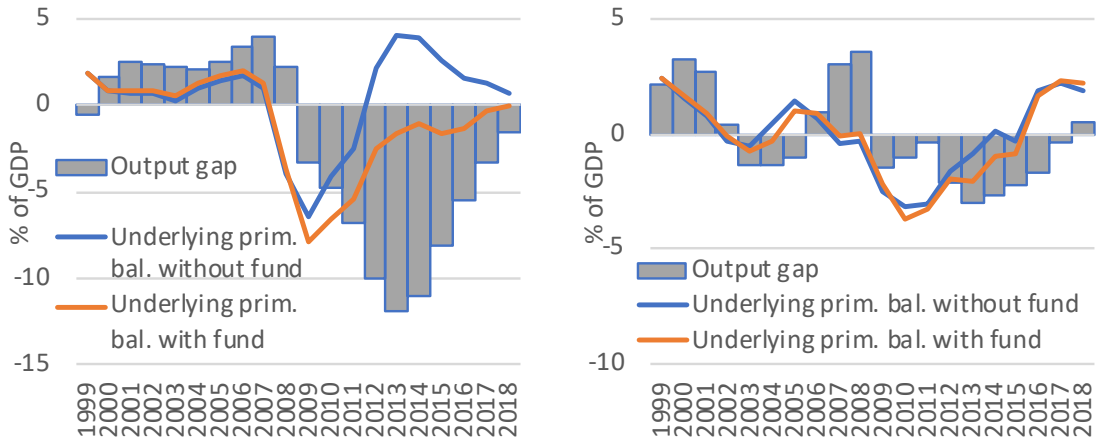

Sources: OECD, author's calculations.

3.2. Multiplier effects

To compute the multiplier effects of the change in fiscal policies achieved through the European buffer found the following simple formula is applied:

(6) $$GAP^*_{i,t} = GAP_{i,t} - MULT_{i,t} \,.\, \left(UND^*_{i,t} - UND_{i,t}\right)$$

where $GAP_{i,t}$ is the actual output gap in country i at time t (see Figures 7 and 8) and $GAP^*_{i,t}$ is the equivalent output gap after the introduction of the European buffer fund. Similarly, $UND_{i,t}$ and $UND^*_{i,t}$ are the underlying primary balances as a per cent of GDP without and with a buffer fund as depicted in Figure 7 and 8. $MULT_{i,t}$ is then the fiscal multiplier which is specific to each country and each point in time.

The size of fiscal multipliers is subject to lively debate and somewhat inclusive. But observers generally agree (Baum et al. 2012, Barrell et al. 2012, Batini et al. 2014 and Woodford 2011) that multiplier effects will tend to be:

1. strongest for government purchases of goods and services, and weakest for taxation, with income transfers somewhere in between. This is because a cut in transfers or a tax increase can be offset to some extent by dissaving (or credit), and vice versa.

2. weaker in good times and stronger in bad times. Austerity measures taken in good times create room for private effective demand to surface that would

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otherwise be squeezed by a lack of resources. As a result, the net impact of fiscal consolidation on economic activity in good times tends to be muted. By contrast, the shortage of effective demand in bad times can be remedied successfully by fiscal stimulus.

3. stronger in relatively large and closed economies and smaller in small open economies. This is due to the fact that in small open economies a larger share of the fiscal impulse "leaks" to other countries via the trade channel.

4. stronger when the room for monetary policy stimulus is more limited, for instance because it has hit the zero-lower bound (ZLB). Under these circumstances, deflation or an expectation thereof will push up the real interest rate and reinforce the downturn and hence fiscal stimulus would be particularly effective.

5. smaller if the fiscal contraction is permanent as opposed to temporary ones, as the impact of the fiscal contraction on government bond yields will be larger, and the fall in long rates will be larger, inducing stronger increases in asset prices and in investment (and vice versa).

6. smaller if households are more forward looking, as they would take into account the necessary fiscal policy offset (e.g. a tax increase) in the future to finance the fiscal expansion (i.e. repay the public debt).

7. stronger if households are credit constrained, i.e. if it proves impossible for them to borrow against the deferred asset of lower taxation in the future after a fiscal expansion now.

In addition to these conditions, that can change both across time and across countries, it also matters a lot whether or not fiscal stimulus (or consolidation) is conducted jointly by all members of the Eurozone. If all or a majority of member states provide fiscal stimulus in a joint move, not only will each of them be affected by their own action, but this action will be reinforced by the spill-over effects from fiscal stimulus elsewhere. This is particularly relevant for member states with very open economies, as these will be most strongly affected by action abroad.

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In sum, the magnitude of the fiscal multipliers depends on the specific budget item under consideration, the cyclical position of the economy, the size/openness of the economy, whether or not monetary policy is beset by a liquidity trap, whether or not the fiscal action is viewed as permanent, the degree of credit constraints, and whether or not the fiscal stances move in sync at home and abroad. These considerations are reflected in the choice of multipliers discussed below to compute the impact of the European buffer fund – via the stance of fiscal policies – on economic activity.

Specifically, Figure 9 below reports these multipliers for the same subset of Eurozone member countries as before, noting that similar estimates have been carried out for all other member countries as well. The general approach can be summarised as follows. As a starting point the multipliers on government consumption are used as reported by Barrell et al (2012) which apply to individual countries. Barrell et al (2012) actually report two sets of multipliers, one for unilateral action and one for joint action. Next, these two set of multipliers are adjusted on the basis of Baum et al (2012) to reflect the sign of the output gap and the sign of the fiscal stance. Generally speaking, multipliers tend to be the highest for fiscal contractions in a slump (negative output gap) and the lowest for fiscal expansions in a boom (positive output gap), with the two other possible cases in between these two extremes. Finally, all multipliers thus computed are doubled in size if monetary policy is constrained by the ZLB, crudely based on Batini et al (2014). This is a quite conservative estimate of the impact of the ZLB according to the literature they review.

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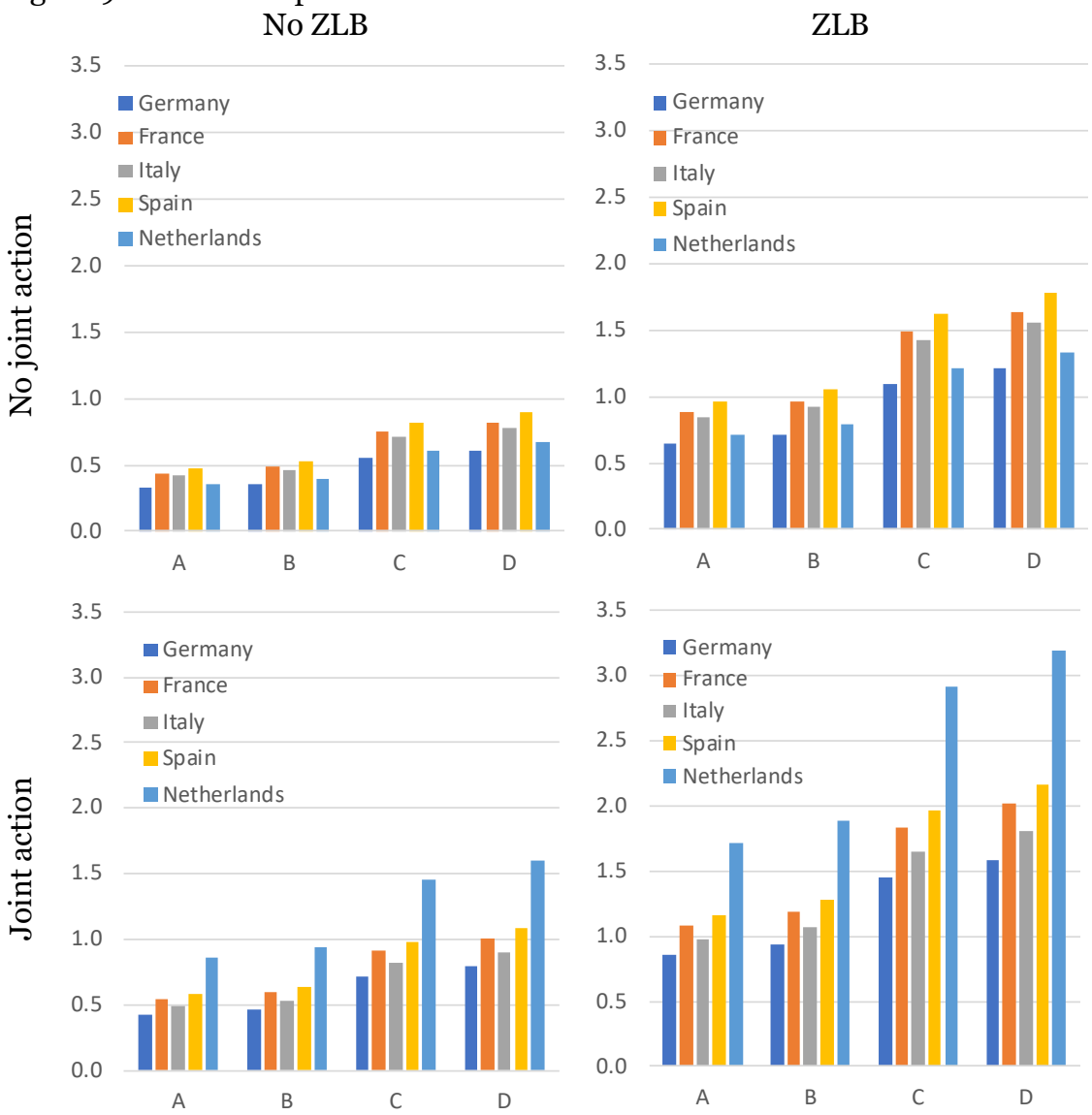
Figure 9: Fiscal multipliers



Note: A = fiscal expansion when output gap is positive; B = fiscal contraction when output gap is positive; C = fiscal expansion when output gap is negative; D = fiscal contraction when output gap is negative.
Sources: Author's calculations based on Baum et al. (2012), Barrell et al. (2012), and Batini et al. (2014).

The multipliers reported in Figure 9 illustrate well that joint fiscal stimulus is particularly effective in a situation where the output gap is negative and monetary policy is constrained by the ZLB, especially for the most open member states (the Netherlands being a striking case in point). While the estimated multipliers mostly hover in the range of 0.5 and 1.5, depending on the case or country, these can be significantly higher in the smaller and open economies under certain conditions.

Using the relationship described by equation (6) and the multipliers as reported in Figure 9, the Figures 10 and 11 report – for the two databases -- the underlying

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primary balances as a per cent of GDP with and without the European buffer fund for the Eurozone as a whole and the largest five member countries. The figures also show for each of the countries as well for the Eurozone on aggregate the (weighted average) multipliers based on the criteria shown in Figure 9 that have been used to compute the impact of the change in the fiscal stances triggered by the European buffer fund on the output gaps. The following results emerge:

1. The multiplier effects tend to be the highest in the period 2013-2017, after the Eurozone was hit by the sovereign debt crisis. In that episode output gaps were uniformly negative, the fiscal stance uniformly tight and the ZLB constraint binding. As noted above, these are the typical conditions under which fiscal multipliers are comparatively high.
2. The largest economies tend to be the least affected by the changes in the fiscal stances triggered by the buffer fund, and the smaller countries tend to be the strongest affected. For instance, in the Netherlands the output gap with the European buffer fund in place would have seen its output gap hovering around zero in the period 2013-2017 rather than the actually observed persistently negative output gap of around -2%. In Spain the reduction in economic slack in this period would have been particularly massive, reflecting not only the comparatively large multipliers in this period but also the sheer size of the transfers received from the fund (see Figure 4).
3. Perhaps surprisingly, the stabilising impact of the fund on the output gap would have been relatively muted in the immediate aftermath of the global financial crisis. The main reason is that in that episode the fiscal multipliers were still comparatively modest as monetary policy at that point was still not constrained by the ZLB. In other words, in that episode conventional monetary policy ease would probably have been less had there been more fiscal stimulus as a result of a European buffer fund.
4. The stabilisation effect through the European buffer fund appears to be stronger in the case of the OECD database than in the other case. This is mainly a reflection of the much larger negative output gap – and hence the cyclical component of the fiscal primary deficit and the associated transfers from the fund (see Figure 4) -- according to the OECD in comparison with the

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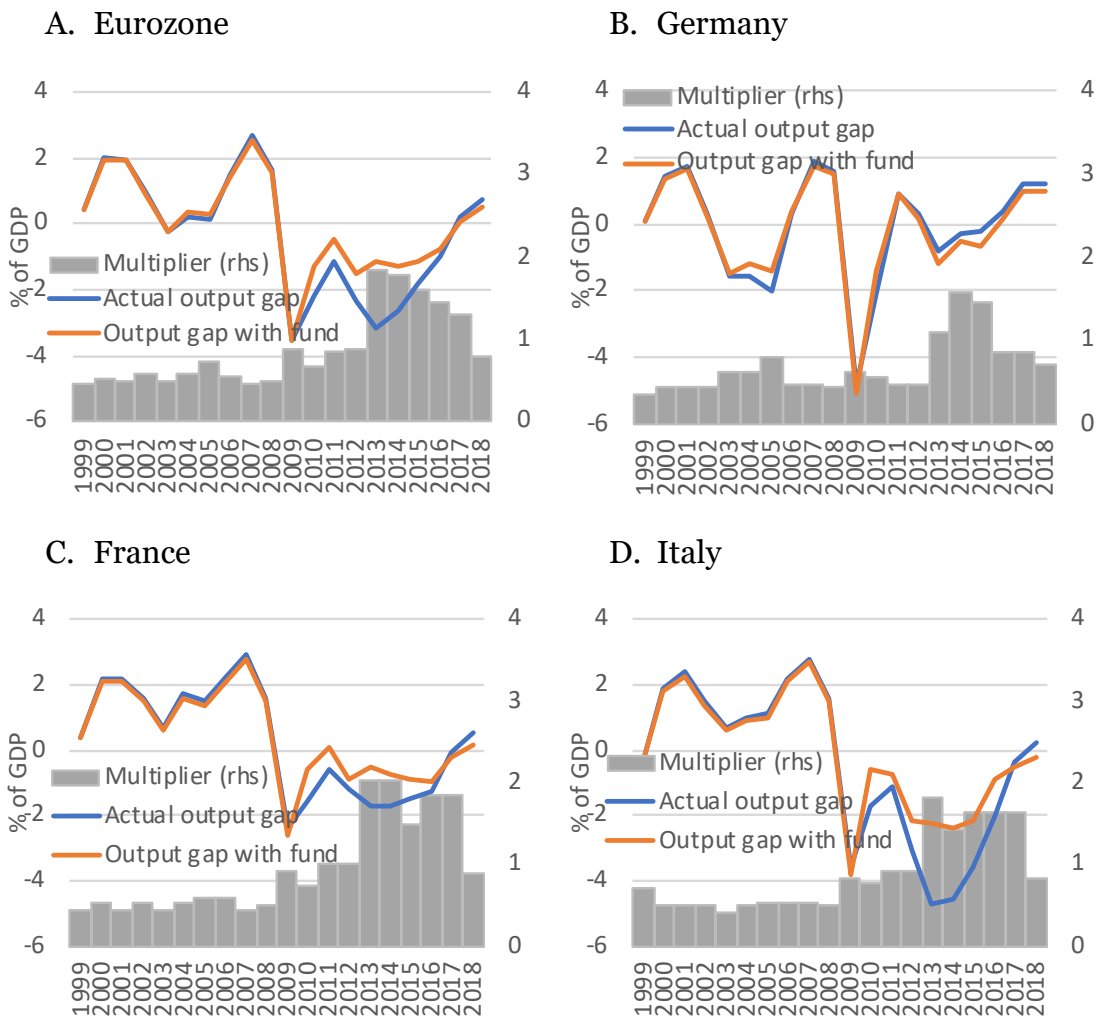
European Commission's assessment in the aftermath of the global financial crisis.

To sum up, the cyclical variation of the output gap would have been considerably smaller with a European buffer fund than actually observed. This is further illustrated by the mean squares of the output gap, without and with a buffer fund, reported in Table 3. Specifically, on the basis of the European Commission's AMECO database, this measure of variability would fall by over one third in the Eurozone as a whole and by almost a half when the OECD Economic Outlook database is used. This difference between the two data sources largely stems from Spain, where transfers from the European buffer fund are much larger when using the OECD database than when AMECO is used. That said, given the large uncertainties that surround these results, it seems fair to conclude that regardless of the database used, the stabilising effect of a European buffer fund may be considerable.

Figure 10: Impact of the fund on the output gap (AMECO)



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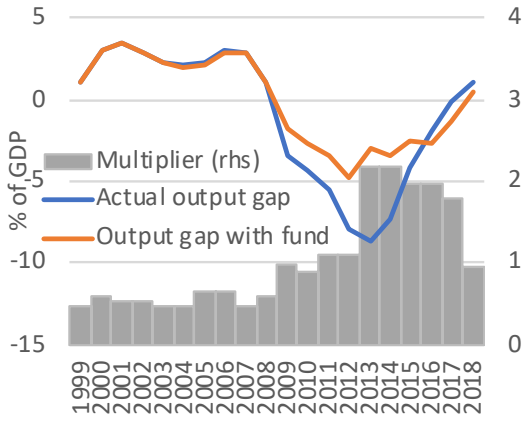
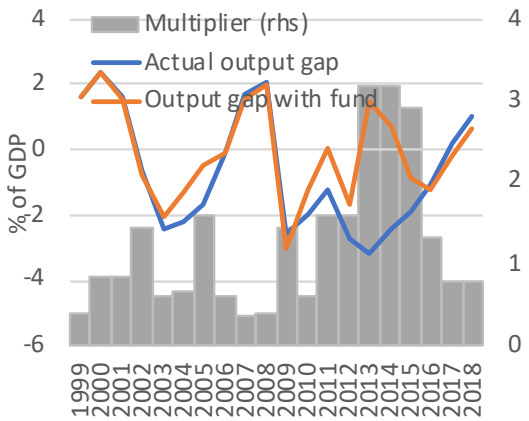
E. Spain



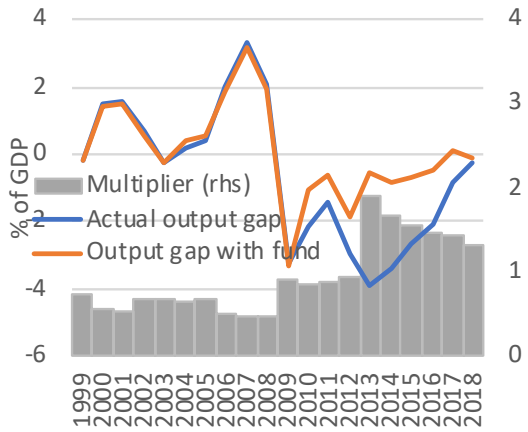
F. The Netherlands



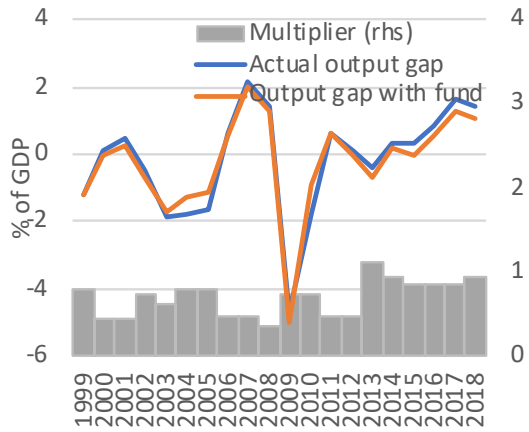
Sources: European Commission, author's calculations.

Figure 11: Impact of the fund on the output gap (OECD)

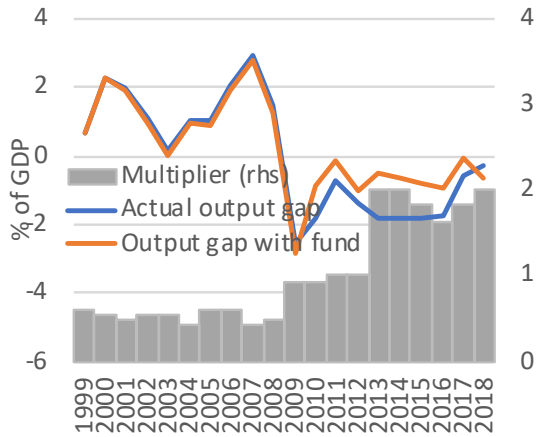
A. Eurozone



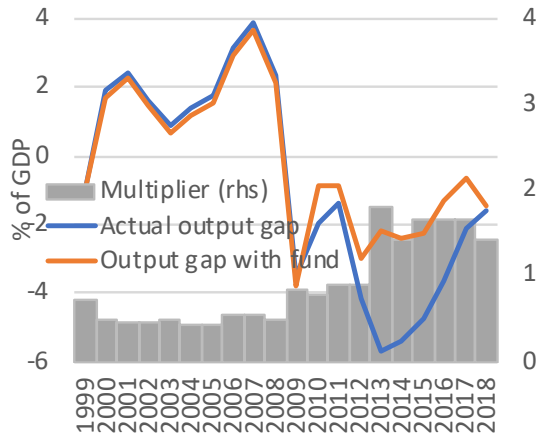
B. Germany



C. France



D. Italy



E. Spain

F. The Netherlands

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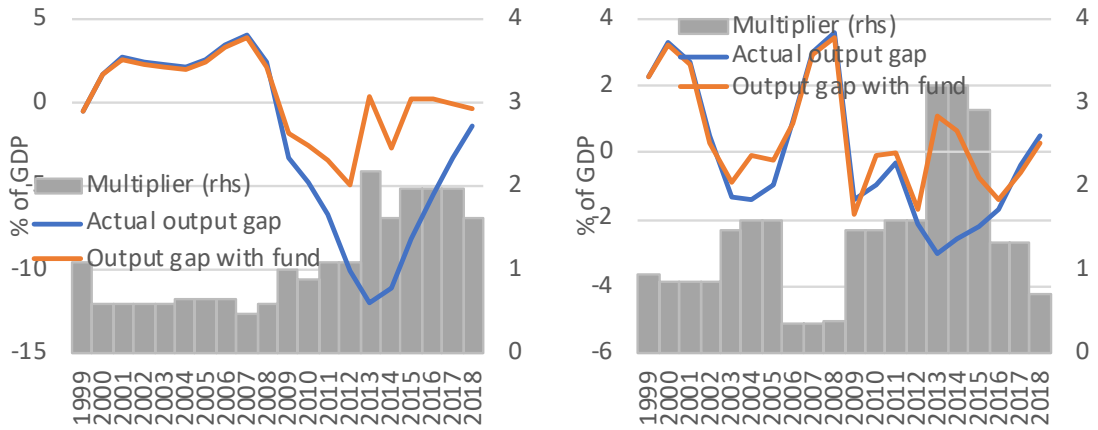

Sources: OECD, author's calculations.

Table 3: Mean square of the output gap

	EA	DE	FR	IT	ES	NL
AMECO Database European Commission						
Actual output gap	3.5	2.8	2.8	5.9	17.0	3.4
Output gap with fund	2.1	2.5	1.9	3.3	7.5	2.2
% change	-38%	-10%	-30%	-44%	-56%	-34%
OECD Economic Outlook Database						
Actual output gap	4.4	2.6	2.8	9.2	27.7	4.3
Output gap with fund	2.1	2.2	1.9	4.6	5.9	2.6
% change	-52%	-14%	-33%	-50%	-79%	-39%

Source: Author's calculations

4. CONCLUSIONS

The well-known "automatic fiscal stabilisers" are comparatively powerful in the Eurozone, but discretionary fiscal policies have frequently overruled their impact. Against this backdrop, this paper has examined to what extent the creation of Eurozone buffer fund, to which Member States contribute in good times and draw on in bad times, would have changed the conduct of discretionary policies in a counter-cyclical direction. It is assumed that all member states contribute a fixed 0.5% of GDP to the buffer fund (regardless of the state of the business cycle) while in bad times member countries receive compensation from the fund for their estimated cyclical fiscal shortfall.

Depending on the database used, the size of the fund would peak at close to 2.5% of GDP in 2009, shrinking to zero by 2012 and reaching a net debt position in the range of 2.5% of GDP on the basis of the European Commission's AMECO database and 4.5% of GDP in the case of the OECD Economic Outlook database towards the end of the decade. The net receipts of the fund fluctuate between 0.5% of GDP in good times

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and -1.2% of GDP in bad times. The net payout from the buffer fund would be, however, biased towards Italy and Spain given the deep slumps these two countries have experienced. While this is what the buffer fund is intended to do, the political economy implications are challenging.

Whether or not this is politically sustainable depends at least in part on the effectiveness of the fund in terms of stabilising the Eurozone economy. On that score, it appears that the cyclical slack in economic activity in the wake of the global financial crisis would have been considerably smaller with a European buffer fund than actually observed. This is illustrated by the mean squares of the output gap, which, on the basis of the European Commission's AMECO database, would be one third lower and almost half its original size when the OECD Economic Outlook database is used. Given the large uncertainties that surround these results, it may be fair to conclude that, the stabilising effect of a European buffer fund would be considerable.

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