The Cyclical Character of Fiscal Policy in Transition Countries

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This study investigates the cyclical character of fiscal policy in transition countries in Central, Eastern and Southeastern Europe (CESEE) in the period from 1995 to 2011, using system GMM as the preferred estimation method for the underlying sample and model specification. The study finds discretionary policy in the CESEE EU Member States and in the Western Balkan countries to have been procyclical, thus aggravating economic fluctuations, whereas automatic stabilizers moved overall policy to an acyclical stance. In addition, the analysis indicates considerable differences in the cyclical character of fiscal policy between transition countries and the Western European EU Member States, where both overall fiscal policy and discretionary policy were acyclical. Finally, the study also offers several recommendations for policymakers, particularly in transition countries.

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The two main schools of macroeconomics have different views on the adequate response of fiscal policy to output movements, and correspondingly on the stabilization properties of fiscal policy. According to traditional Keynesian theory, governments can and should pursue countercyclical policies, particularly by lowering revenues and increasing consumption and public investment in recessions. In contrast, the neoclassical school is mostly skeptical about the ability of fiscal policy to stabilize economic movements and therefore advocates that governments should keep tax rates constant over the business cycle (Barro, 1979). For a given path of government spending, constant tax rates would result in countercyclical overall budget balances. Yet contrary to these theoretical prescriptions, empirical research since the 1990s has often tended to find acyclical or procyclical policies, particularly in developing countries. Various explanations have been put forward for these findings. For instance, Gavin and Perotti (1997) suggest that procyclical policy in Latin America is related to market failures, as government borrowing is constrained in recessions. Lane and Tornell (1998) and Tornell and Lane (1999) argue that procyclicality is a result of voracity effects, as multiple power groups compete for a higher share in a common pool of resources. Further, Talvi and Végh (2005) argue that procyclicality is an optimal response to shocks to the tax base, which is more volatile in developing countries due to their more volatile output movements. Finally, Alesina, Campante and Tabellini (2008) explain procyclicality with political agency problems in democracies. According to their model, voters are suspicious of corrupt governments and therefore press for higher spending, causing the government to borrow more in order to meet these demands.

Despite the prevailing focus on monetary policy in the academic literature, the issue of the cyclical stance of fiscal policy has been addressed by several empirical studies during the past two decades, mostly in the context of EU or euro area countries. Galí and Perotti (2003) find that discretionary policy in the euro area

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countries was procyclical before 1992, but acyclical afterwards. In contrast, Candelon, Muysken and Vermeulen (2010) find that discretionary policy was procyclical both before and after 1992, and that procyclicality has even increased in recent years in the euro area countries. Deroose, Larch and Schaechter (2008) conclude that the finding of procyclical discretionary policy in the euro area in empirical studies tends to overlook the relatively large size of automatic stabilizers in these countries, which can offset discretionary measures in periods of large cyclical movements. In addition, they attribute the weaknesses of discretionary policy in the euro area to the wrong assessment of cyclical conditions in real time and to the tendency of policymakers to spend revenue windfalls. Further, Annett (2006) concludes that the Stability and Growth Pact (SGP) has been quite successful in improving fiscal discipline in most countries. Afonso and Hauptmeier (2009) also conclude that fiscal rules within the Maastricht Treaty and the SGP improve fiscal discipline, while spending decentralization and electoral cycles have a negative effect. Finally, in a wider study of fiscal policy in OECD countries, Égert (2010) finds that overall policy has become more countercyclical, particularly in downturns, and that discretionary policy is countercyclical mostly in countries with low debts and deficits, and procyclical in others.

Most studies of fiscal policy that also include transition countries (e.g. Ilzetzki and Vegh, 2008; Afonso and Hauptmeier, 2009; Égert, 2010) pay little attention to modeling their specific circumstances. Rahman (2010) uses relatively simple approaches to analyze the cyclical character of revenues and expenditures in the then EU Member States from Central, Eastern and Southeastern Europe (CESEE) and Croatia between 2003 and 2007. Her results indicate that the procyclicality of revenues is a reflection mostly of domestic absorption and less of the output gap, while the procyclicality of expenditures is driven by capital expenditures, with domestic absorption and the output gap having similar effects on the cyclical stance of total expenditures. Further, two recent studies analyze fiscal policy in transition countries in a more careful manner, including the use of empirical methods that are prevalent in the recent empirical literature. Staehr (2008) finds that fiscal policy in CESEE EU Member States is less inertial and more countercyclical than in Western European EU Member States, while debt and interest payments are insignificant in both groups. Further, Lewis (2009) concludes that overall fiscal policy in these countries is countercyclical and less inertial than in the EU-15 group. However, the main drawback of these studies is that they do not allow for a direct interpretation of results in terms of cyclicality, since they both use GDP growth as an indicator of the business cycle rather than the output gap, which is a standard approach in the empirical literature. In addition, they both focus on overall budget balances, and thus omit a more detailed investigation of the cyclical stance of discretionary policy.

The main aim of this study is to empirically analyze the cyclical character of fiscal policy in transition countries between 1995 and 2011. While focusing on discretionary fiscal policy, it also analyzes overall policy, thus providing an indication of the effects of automatic stabilizers. This is an important extension of existing studies, which tend to pay little attention to transition countries, are mostly based on years prior to EU accession or focus on overall fiscal policy. Further, the study also investigates differences in the cyclical stance between Western European EU Member States on the one hand and the CESEE EU Mem-

ber States as well as the countries from the Western Balkans (CESEE-6) on the other hand. Therefore, to the best of our knowledge, this is the first study to empirically investigate the cyclical stance of fiscal policy in the CESEE-6 countries. Further, the study pays particular attention to the choice of model specification and empirical method for analyzing the cyclicality of fiscal policy in order to avoid some of the weaknesses in existing studies. Finally, the study provides some recommendations which should be relevant for policymakers in transition countries when designing and implementing stabilizing fiscal policies.

The study proceeds as follows. Section 1 describes the context and data. Section 2 presents the model specification and the estimation method. Section 3 discusses the results and section 4 concludes.

1 Context and Data

In our sample we include all the European transition countries which have data available for variables of interest, and split them in two groups. The first group consists of the ten EU Member States from Central, Eastern and Southeastern Europe that joined the EU in 2004 and 2007 (CESEE EU Member States). The second group, denoted as CESEE-6, includes six transition countries that are in various stages of the EU accession process: Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro, and Serbia.[2] To be able to make comparisons with previous EU members, our analysis also includes the group of EU-15 plus Malta and Cyprus (labeled EU-17[3]). This means that our empirical analysis is based on an unbalanced panel of 33 countries between 1995 and 2011, as the data for the CESEE-6 are only available from dates later than 1995. Moreover, we use the European Commission AMECO database for all data for the EU countries, and various sources and author calculations for data on the CESEE-6 (see annex).

Fiscal policy in our sample was affected by several important factors during the period under analysis. Most notably, this applies to the requirements of the Maastricht criteria and of the SGP. The Maastricht Treaty prohibits countries from exceeding reference values for budget deficits and public debts, defined as 3% and 60% of GDP, respectively. The literature notes two possibilities for the effects of the Maastricht Treaty and the SGP on fiscal policy (e.g. Galí and Perotti, 2003; Fatás and Mihov, 2009). On the one hand, the loss of monetary sovereignty means that fiscal policy is the only remaining tool for macroeconomic stabilization, so policymakers would use it more aggressively in a countercyclical manner when faced with crisis or output volatility. On the other hand, the limits set by the Maastricht Treaty and the SGP could prevent such an activist countercyclical policy, which could become acyclical or even procyclical as a result.

In transition countries, fiscal policy has additionally been affected heavily by unprecedented political, economic and structural transformation since the early 1990s. Initially, fiscal policy was constrained because of changes in revenues and expenditures due to the restructuring and privatization of state-owned enterprises. Government budgets were also affected by market and price liberalization,

[2] *Kosovo is omitted due to the lack of data on public debt. Croatia became an EU Member State in 2013, while our analysis ends in 2011.*

[3] *Cyprus and Malta joined the EU in 2004 as well, but they are grouped with the EU-15 countries because their economic structure and history put them much closer to the EU-15 than to the CESEE EU Member States.*

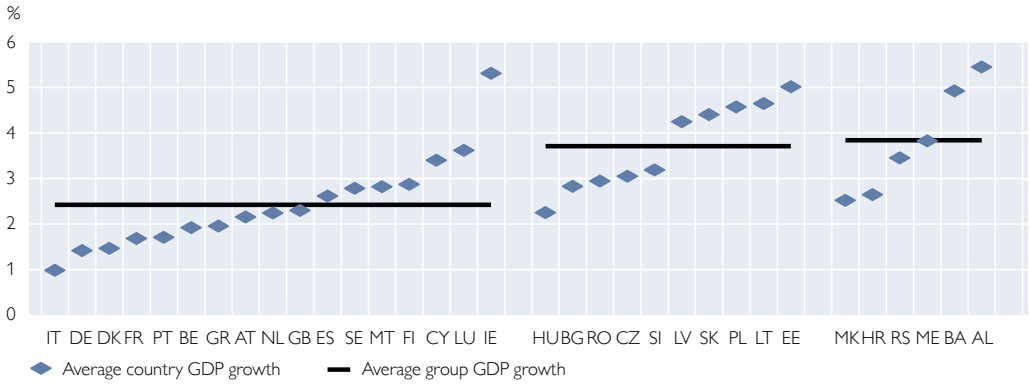
infrastructure building and institutional reforms. Expensive borrowing sources and some of the exchange rate regimes were additional constraints. As transition advanced, the challenges started resembling those of their Western European peers, such as issues of countercyclical fiscal policy and the sustainability of public debt. However, some specific challenges remained: The process of EU accession meant that there was a continued need for spending on institutional reforms and infrastructure modernization to meet EU entrance criteria and reach the levels of Western European countries. Further, as EU members and potential candidates for joining the euro area, they were also faced with the constraints of the SGP. Various authors argue that the SGP puts additional constraints on transition countries, generally considered undue because of their rapid development and their specifics (Nuti, 2006). Coricelli (2004) brings forward three arguments why SGP requirements would be more stringent for the CESEE EU Member States. First, they have a higher potential and more volatile actual GDP growth than Western European EU Member States, so the deficit ceiling would be binding more often, even if one considers cyclically adjusted indicators. This would impose a need for frequent fiscal adjustments, thus increasing the volatility and the procyclical bias of fiscal policy. Second, in the original SGP there is a lack of consideration for public investments, which are higher in CESEE due to the catching-up process. Third, the political element in the excessive deficit procedure, which was also important in some cases of breaches by EU-15 Member States, means that larger CESEE countries might be treated more leniently when breaching the SGP.

Macroeconomic developments during the period under analysis broadly confirm the specific environment for implementing fiscal policy in the EU-17 and in European transition countries during the past two decades. As evidenced by chart 1, average GDP growth was considerably higher in the CESEE EU Member States (3.7%) and CESEE-6 (3.8%) between 1995 and 2011 than in the EU-17 group (2.2%).[4] In line with expectations in Coricelli (2004), GDP growth was also more volatile in the CESEE EU Member States and in the CESEE-6 (with a standard deviation of 4.5 and 4.4, respectively) than in the EU-17 countries (with a standard deviation of 2.7). In addition, in most countries in the EU-17 group GDP growth was fairly close to the group average, with Ireland as a positive outlier. On the other hand, growth in transition countries was much more diverse, with very few countries close to their respective group average. For instance, among the CESEE EU Member States, the Baltic countries, Poland and Slovakia had growth rates considerably higher than the group average, whereas the other countries and particularly Hungary had significantly lower growth. A similar picture arises for the Western Balkan countries, with Albania and Bosnia and Herzegovina growing much more quickly and FYR Macedonia and Croatia having a considerably lower GDP growth.

[4] *All group indicators are calculated as simple, nonweighted averages.*

Chart 1

Average GDP Growth Rates by Countries and Groups, 1995–2011



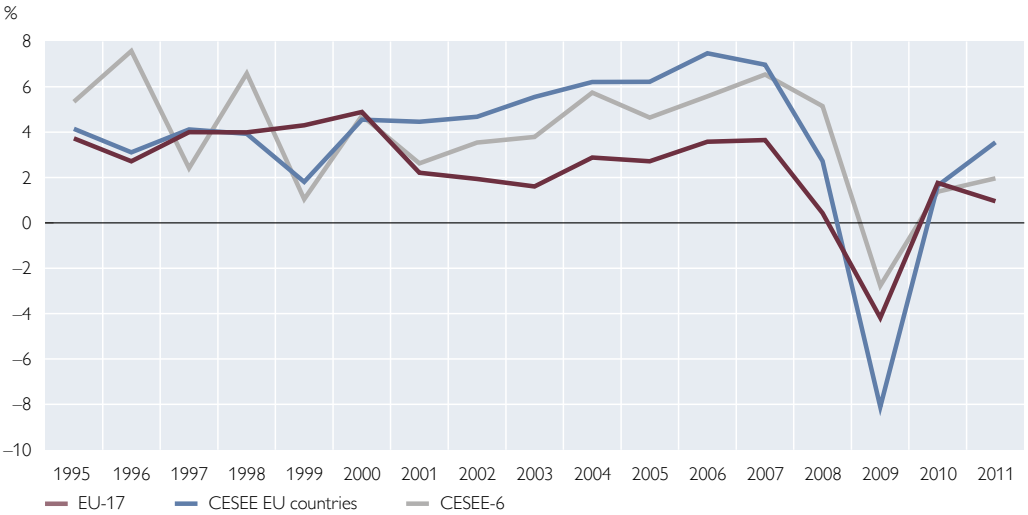
Source: European Commission, AMECO database for EU-17, CESEE EU Member States and some CESEE-6 countries. National statistical offices, central banks or finance ministries, EBRD, and IMF WEO database for some CESEE-6 countries.

Note: Group averages are unweighted. Averages for CESEE-6 are based on data available from dates later than 1995 for some countries.

Differences in GDP growth between the three groups of countries are also noticeable if averages are compared across years. According to chart 2, average GDP growth in both groups of current EU Member States was quite similar in almost all years until 2000. At the same time, growth in the CESEE-6 was quite volatile, in good part reflecting the consequences of wars and postwar reconstruction in the region during this period. However, a clear decoupling appears between 2000 and 2007, with both groups of transition countries growing more quickly than their Western European peers in all years. In this period, growth was highest in the CESEE EU countries, which were clearly reaping the benefits of pre- and post-accession convergence. Finally, growth in all countries was

Chart 2

Average Annual GDP Growth Rates by Country Groups, 1995–2011

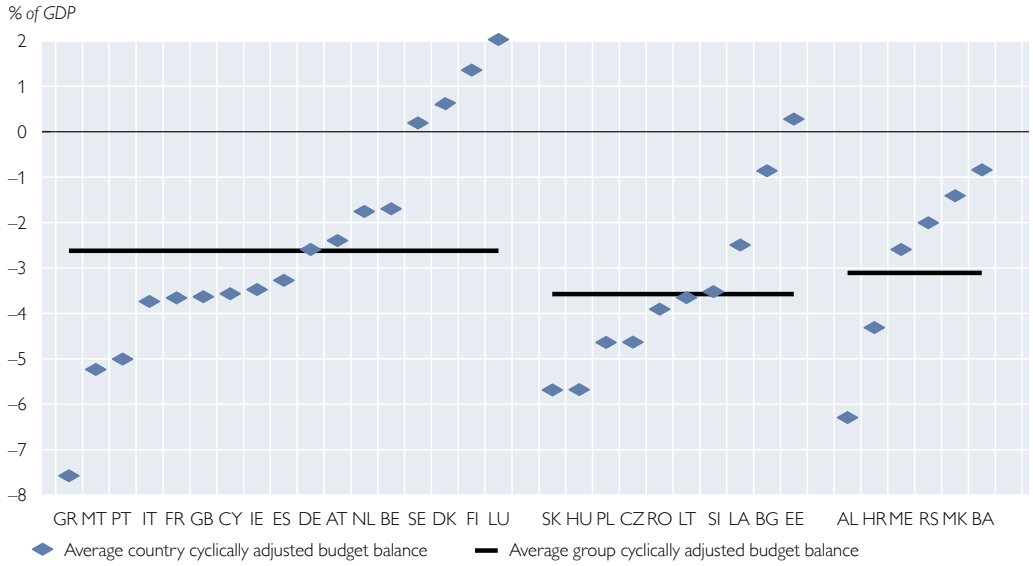


Source: European Commission, AMECO database for EU-17, CESEE EU Member States and some CESEE-6 countries. National statistical offices, central banks or finance ministries, EBRD, and IMF WEO database for some CESEE-6 countries.

Note: Group averages are unweighted. Averages for CESEE-6 are based on data available from dates later than 1995 for some countries.

Chart 3

Average Cyclically Adjusted Budget Balance by Countries and Groups, 1995–2011



Source: European Commission, AMECO database for EU-17 and CESEE EU Member States. Author's calculations based on data from national statistical offices, central banks or finance ministries, EBRD, and IMF WEO database for CESEE-6 countries.

Note: Group averages are unweighted. Averages for CESEE-6 are based on data available from dates later than 1995 for some countries. The cyclical adjustment is based on the Hodrick-Prescott calculation of trend GDP.

considerably lower during the global crisis. Nevertheless, during the crisis, average GDP growth was generally higher in both groups of transition countries, with the noticeable exception of 2009 when the group of CESEE EU Member States recorded the lowest growth rate of all three groups.

The cyclically adjusted budget balances, which are expected to correct for differences in economic growth, also reflect considerable differences in fiscal policy: The average cyclically adjusted deficit in the CESEE EU Member States between 1995 and 2011 was 3.6% of GDP, much larger than the deficit of 2.6% in the EU-17 group, while the CESEE-6 were somewhere in between with an average deficit of 3.1% of GDP. In addition, according to chart 3, there were also relatively large variations among countries, particularly transition countries. Indeed, most of the "core" EU-17 countries had discretionary surpluses or small deficits, while a few countries from the "periphery" had relatively large deficits. In contrast, except for a marginal surplus in Estonia, on average all CESEE EU Member States reported cyclically adjusted deficits during the period, with the four Visegrád countries having large deficits of close to or exceeding 5% of GDP. In addition, cyclically adjusted balances were also negative on average in all CESEE-6 countries, and quite large in Croatia and particularly Albania.

This divergence in cyclically adjusted balances, which also holds if headline balances are analyzed (not shown), may be explained by two factors. First, it confirms the expectation that fiscal policy in transition countries would be affected by the comprehensive political, economic and structural transformation. Therefore, it is in line with the arguments in Nuti (2006) and Coricelli (2004) that the fiscal policy environment would be heavily affected by the specifics of the transition process. Second, for most of the period it seemed that transition countries had a

somewhat more comfortable "fiscal space," although it was considerably limited in most countries during and after the global economic and financial crisis. While it is not the aim of this paper to deal with the issue of fiscal space in CESEE (see Eller, 2009, and OeNB, 2012, for more details), the fact that the CESEE countries were able to pursue expansionary fiscal policies for a relatively long period does lend some support to this argument. In addition, transition countries started the period with fairly low debt levels, which enabled them to accumulate budget deficits, generally without seriously bringing into question the issue of debt sustainability (average debt-to-GDP ratios during the period were 30.9% in the CESEE EU Member States and 44.4% in the CESEE-6). At the same time, the fiscal space was much more constrained in the EU-17 countries, which had an average debt-to-GDP ratio of 63.4% during this period, with significant variations among countries. In addition, some of these countries had fairly high initial debt levels, and they were required to lower them in order to meet the Maastricht convergence criteria.

After this brief discussion of the economic and fiscal movements in our sample, in the next two sections we turn to a formal empirical analysis of our research questions. Before doing so, it should be noted that we use the output gap as a measure of cyclical movements, which is in line with the consensus in the empirical literature (e.g. Galí and Perotti, 2003). By doing so, we also aim to overcome some of the weaknesses of the existing studies on transition countries that use GDP growth, as noted above. In particular, we use the output gap defined as a percentage deviation of actual from trend GDP as calculated with the Hodrick-Prescott filter, since this is the only cyclical indicator that can be consistently calculated for all the countries, unlike the production function approach which is not available for the CESEE-6 countries. In accordance with this, for the cyclically adjusted budget balances we also use the data based on the Hodrick-Prescott filtered trend GDP. All the data for the EU countries are taken from the AMECO database of the European Commission, while data for the CESEE-6 are taken from various sources and calculated by the author[5] (see the annex for details).

2 Model Specification and Estimation Methodology

Policymakers and researchers usually split overall fiscal policy into automatic stabilizers and discretionary policy. Automatic stabilizers include components of fiscal policy that are incorporated in the legislation and act without any short-term action by policymakers. Discretionary policy consists of measures undertaken by policymakers as a reaction to various factors, such as output movements, debt movements or other factors.

This classification of fiscal policy has a straightforward translation into a fiscal policy function which has become standard in cyclicality studies and will also be used as our model specification (equation 1). It reflects the dependence of fiscal outcomes on cyclical output movements and debt, as well as policy inertia, which is included on strong practical grounds. In addition, the inclusion of initial debt and deficit enables proper consideration of initial conditions, as well as testing for

[5] *While other statistical filters could also be used, we decided to use the Hodrick-Prescott filtered trend GDP for the CESEE-6 countries in order to ensure consistency with the data on EU countries published by the European Commission. In the Hodrick-Prescott filtering, we use a smoothing parameter of 100, in line with common practice for annual data.*

budget sustainability. According to Bohn (1998), a response of the primary balance to the debt-to-GDP ratio that is positive and at least linear is a sufficient condition for sustainability. Finally, we also include inflation in our specification, following Torsten Persson's comment on Gavin and Perotti (1997) that the omission of inflation may bias the coefficient on the cycle, which is in fact the main variable of interest.

$$Bal_{it} = \alpha + \beta \cdot Cycle_{it} + \gamma \cdot Debt_{i,t-1} + \delta \cdot Bal_{i,t-1} + \omega \cdot Infl_{it} + \varepsilon_{it} \quad (1)$$

Bal – budget balance as a share of nominal GDP
Cycle – indicator for cyclical movements of the economy (output gap)
Debt – public debt as a share of GDP
Infl – inflation rate

If the coefficient on the cycle (β) is positive, then fiscal policy is countercyclical, meaning that it acts in a stabilizing manner by accumulating surpluses in expansions and stimulating demand in recessions. In contrast, a negative β indicates procyclical policies (i.e. policies that are likely to amplify economic fluctuations[6]), while an insignificant β points to acyclicality. Further, if the dependent variable is defined as the overall budget balance, then the coefficient on the output gap shows the combined cyclicality of automatic stabilizers and discretionary policy. If the dependent variable is defined as the cyclically adjusted budget balance, then β shows only the cyclical stance of discretionary policy.

In our study, we mostly use the cyclically adjusted primary balance as a fiscal indicator, since we are primarily interested in discretionary responses by policymakers. However, we also pay attention to overall fiscal policy by using the overall unadjusted primary budget balance. The difference between these indicators consists of automatic stabilizers, so comparing the results of the two options allows us to infer the effectiveness of stabilizers, which should be countercyclical by design.

The model implies two sources of endogeneity: the dynamic specification and simultaneity between the dependent and one of the independent variables, i.e. fiscal outcomes and the contemporaneous output gap. Therefore, the use of pooled ordinary least squares (OLS) or random effects with generalized least squares would be inappropriate, since endogeneity would bias the results. Further, numerous studies in this area use least squares dummy variables (LSDV), although it has long been recognized that in dynamic models with a finite time dimension LSDV yields biased coefficients (also known as "the Nickell bias" following Nickell, 1981). Related to this, Judson and Owen (1997) show that LSDV yields a considerable bias of the autoregressive parameter of up to 28% when the sample has 20 periods, and of up to 20% when the time dimension rises to 30. Several other studies, especially the more recent ones, tend to address the Nickell bias by employing a bias-corrected LSDV estimator, which was proposed by Kiviet (1995), and extended by Bun and Kiviet (2003) and Bun and Carree (2006). However, this correction rests on the assumption of strict exogeneity of regressors and is hence inapplicable in our model with a contemporaneous output gap, which is endogenous to fiscal outcomes.

[6] *The extent to which fiscal policy affects the business cycle in reality is also related to the size of the fiscal multiplier, an important issue which is however beyond the scope of this study.*

Therefore, we decided to use the generalized method of moments (GMM), which is being increasingly used in the empirical literature, including cyclicality studies. In particular, we use the "system GMM" estimator (Arellano and Bover, 1995; Blundell and Bond, 1998). One of the advantages of system GMM is that it utilizes a bigger subset of instruments, thus using more information. System GMM is a lot more efficient than difference GMM, particularly with a higher persistence of the dependent variable and a lower time dimension (Blundell and Bond, 1998), which are typical features of macroeconomic data. The improvement in efficiency is enhanced by the ability of system GMM to use more information by generating more instruments not only for the lagged dependent variable, but for other regressors as well, which might themselves exhibit high inertia. However, GMM estimators are not without their drawbacks. While additional moment conditions are useful in exploiting additional information, they can cause a rapid growth of the instrument count with the time dimension. This problem of too many instruments may result in overfitting endogenous variables, thus failing to remove their endogenous components, which can yield biased coefficients (Roodman, 2008). In addition, a high number of instruments can severely weaken the Sargan/Hansen test of overidentifying restrictions (Bowsher, 2002).

Another potential problem of GMM estimators is the fact that they were originally designed and are mostly used for microeconomic panels with a large cross-section and short time dimensions, while their small sample properties may be problematic. Several recent studies nonetheless tend to prefer GMM over alternative estimators even in small samples. Bun and Kiviet (2006) apply higher-order asymptotic methods and Monte Carlo simulations in analyzing the properties of a range of alternative least squares and GMM estimators. They conclude that there is no straightforward advice on what estimator to use in small samples, but system GMM is a relatively safe choice with inertia in the dependent variable and effect stationarity.[7] Hayakawa (2007) also suggests that system GMM is less biased than both difference and level GMM. Finally, on the basis of detailed Monte Carlo simulations, Soto (2010) concludes that, in small samples with high inertia in the dependent variable, system GMM outperforms a wide range of alternative estimators in terms of bias and efficiency, and that it is highly reliable in terms of the power of statistical significance tests.

Bearing all this in mind, we proceed with system GMM as our estimation method, using the *xtabond2* syntax for Stata written by Roodman (2006). We use internal instruments for the lagged dependent variable and the output gap to exploit one of the main strengths of the method and avoid the difficulty of finding valid external instruments. To deal with instrument proliferation, we follow the advice of Roodman (2008) for lag limiting and collapsing the instruments. We also check for cross-section error dependence using the procedure suggested by Sarafidis, Yamagata and Robertson (2009). Further, we use two-step system GMM, which provides standard errors that are robust to heteroskedasticity and autocorrelation within cross-sections (Roodman, 2006). Finally, we address the downward bias of standard errors in two-step GMM by using

[7] *With effect stationarity (also known as mean stationarity) "the original data in levels have constant correlation in time with the individual-specific effects," which implies that lagged differences can be used as instruments for current levels of endogenous variables (Bun and Sarafidis, 2013, p.5)*

the correction proposed by Windmeijer (2005), which is implemented by the *xtabond2* syntax.

3 Results

Table 1 shows our results and main diagnostics. In order to account for common shocks affecting fiscal policy and to control for possible cross-sectional dependence, we initially included full year dummies (results not shown). However, the inclusion of full year dummies yielded 26 instruments in a sample of 33 countries, and there is a reasonable risk that we would quickly run into a degrees of freedom problem as we extend this initial specification. Therefore, we considered dropping some of the year dummies, particularly bearing in mind that most of them are insignificant. After performing sequential tests by dropping one or several year dummies, results indicated that dummies for 1995–2001 were both individually and jointly insignificant. Therefore, we decided to drop them from further estimations and proceed with dummies for 2002–2011 (column 1). The testing procedure suggested by Sarafidis, Yamagata and Robertson (2009) indicates that, even after dropping them, there is no problem with cross-section dependence. What is also reassuring is that the significance and size of coefficients from the case with full year dummies (not shown) is quite robust to this modification.

According to the results in column 1, there is a considerable persistence of discretionary fiscal policy, which supports the use of system GMM. The significantly negative coefficient on the output gap shows that discretionary policy has been procyclical in the entire sample. According to these results, an increase in the output gap by 1 percentage point results in a discretionary balance that is lower by around 0.2 percentage points (as a share of GDP). Further, there is no indication that policymakers are concerned with debt movements, since the debt coefficient is only significant at a level slightly over 10%, and its size is very small, indicating that a considerable increase of the debt-to-GDP ratio of 10 percentage points improves the discretionary balance-to-GDP ratio by only 0.1 percentage point. This lack of consideration of debt movements relates well to the recent events, when the consequences of the global economic and financial crisis in Europe were exacerbated by the high debt levels in several countries and the ensuing uncertainty over debt sustainability. Finally, the effect of inflation is also very small and only significant at a level slightly above 10%. However, we retain both debt and inflation due to the theoretical and practical recommendations discussed above.

Table 1

Baseline Results

Dependant variable	Cyclically adjusted primary balance (HP trend GDP), % of nominal GDP				Overall unadjusted primary balance, % of nominal GDP	
Lagged dependent variable	0.59***		0.60***	0.60***	0.64***	0.61***
	(0.08)		(0.08)	(0.09)	(0.09)	(0.10)
Lagged dependent variable*EU-17 interaction		0.74***				
		(0.12)				
Lagged dependent variable*CESEE EU countries interaction		0.36***				
		(0.11)				
Lagged dependent variable*CESEE-6 interaction		0.24*				
		(0.12)				
Output gap, % of HP trend GDP	–0.16**	–0.18***		–0.17**	0.01	
	(0.06)	(0.05)		(0.08)	(0.06)	
Output gap*EU-17 interaction			0.10			0.31
			(0.17)			(0.21)
Output gap*CESEE EU countries interaction			–0.20***			–0.06
			(0.04)			(0.06)
Output gap*CESEE-6 interaction			–0.41***			–0.11
			(0.10)			(0.17)
Lagged public debt, % of nominal GDP	0.01	0.01	0.01		0.01	0.01
	(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
Lagged public debt*EU-17 interaction				0.00		
				(0.01)		
Lagged public debt*CESEE EU countries interaction				0.01		
				(0.02)		
Lagged public debt*CESEE-6 interaction				–0.04		
				(0.03)		
Inflation rate	0.01	0.02***	0.02***	0.02**	0.00	0.01
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Dummy for EU-17		–0.07	0.13	0.34		0.15
		(0.62)	(0.73)	(0.71)		(0.89)
Dummy for CESEE EU countries		–0.83*	–0.37	–0.54		–0.26
		(0.41)	(0.40)	(0.71)		(0.58)
Dummy for CESEE-6		–1.01	0.26	1.91*		0.22
		(0.70)	(0.54)	(1.06)		(0.61)
Constant	–0.21				–0.09	
	(0.47)				(0.47)	
Observations	500	500	500	500	502	502
Period	1995–2011	1995–2011	1995–2011	1995–2011	1995–2011	1995–2011
Number of countries	33	33	33	33	33	33
Number of instruments	19	27	27	23	19	27
p-value for F-statistics, joint significance test	0.00	0.00	0.00	0.00	0.00	0.00
Arellano-Bond test for AR(1) in differences	0.00	0.00	0.00	0.00	0.00	0.00
Arellano-Bond test for AR(2) in differences	0.94	0.54	0.82	0.96	0.85	0.87
Sargan test of overidentified restrictions p-value	0.10	0.00	0.53	0.05	0.09	0.64
Hansen test of overidentified restrictions p-value	0.26	0.54	0.87	0.16	0.12	0.49
GMM instruments for levels: Hansen test excluding group p-value	0.42	0.34	0.62	0.40	0.61	0.50
GMM instruments for levels: Difference-in-Hansen test of exogeneity of instruments p-value	0.17	0.64	0.87	0.10	0.04	0.40

Source: Author's estimations.

*Note: Standard errors in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Internal instruments are used for endogenous variables (lagged dependent variable and output gap). Lag limits are 1/2 for the lagged dependent variable, and 2/3 for output gap. The "collapse" option is always used. Year dummies for 2002–2011 are also included but not shown.*

In columns 2, 3 and 4 we analyze possible differences across country groups for the main variables. In order to do this, we use dummy variables for the three country groups and interact them with the particular variable of interest. It should be noted that there is no base group and the constant is removed, so the interpretation of the reported coefficient sizes and significances for interaction terms is straightforward. According to column 2, the autoregressive coefficient is significant in all three country groups. However, there are considerable differences in policy inertia. Indeed, discretionary policy is quite persistent in the EU-17 group, while the relatively lower size of this coefficient in both groups of transition countries lends some support to the argument that discretionary policy in these countries has been more volatile. Column 3 shows differences in the cyclicality of discretionary policy across country groups, which is one of our main issues of interest. Discretionary policy has been acyclical in the EU-17 countries but procyclical in the CESEE EU Member States and even more so in the CESEE-6, which means that fiscal policy exacerbated cyclical economic movements in those countries. Indeed, these results indicate that this feature in transition countries is driving the procyclicality in the entire sample (column 1). These findings are in line with expectations and empirical findings of more procyclical policies in less developed countries. Next, column 4 shows differences in reactions to public debt levels. In line with findings in column 1, in none of the country groups were policymakers reacting to debt movements, which indicates that all three country groups paid insufficient attention to debt movements. While this might be somewhat justified for transition countries, which generally have fairly low public debt levels, the result is more worrying for the EU-17, bearing in mind the still ongoing European debt crisis.

Another important issue of interest is the cyclical character of overall fiscal policy and the effectiveness of automatic stabilizers. Therefore, in columns 5 and 6 we use the overall, unadjusted primary balance as dependent variable. Column 5 shows results for the entire sample, while column 6 shows results on cyclicality by country groups. Results in column 5 show that overall fiscal policy has also been quite persistent, similar to comparable results on discretionary policy in column 1. However, the most important result here is the insignificant output gap, which indicates that overall fiscal policy in the entire sample has been acyclical. This result relates very well to the previous ones: in the entire sample, automatic stabilizers have been exercising their expected countercyclical effect, thus offsetting procyclical discretionary policy (column 1) and resulting in an overall acyclical fiscal policy. At the same time, while this means that overall fiscal policy was not amplifying cyclical movements, it was not acting in a stabilizing manner either, since it is not countercyclical. Finally, the last column shows differences of overall policy across groups. Results for the CESEE EU Member States and the CESEE-6 are in line with expectations and results on discretionary policy in column 3. Overall policy in the transition countries is acyclical, which shows that the countercyclical effects of automatic stabilizers are offsetting procyclical discretionary policies in these countries. However, we can find no such effect in the EU-17 group, where both overall and discretionary policy are acyclical, indicating that automatic stabilizers are unable to shift the discretionary acyclicality into an overall countercyclicality.

These results mostly differ from findings of previous studies on transition countries. In particular, Staehr (2008) finds that overall fiscal policy has been more countercyclical in the CESEE EU Member States, while we reach the opposite conclusion, with overall policy being acyclical in all three country groups. Lewis (2009) also finds that overall policy in the CESEE EU Member States has been countercyclical, which is not confirmed by our results that indicate acyclical overall policy. In addition, although he mostly focuses on overall balances, Lewis (2009) indirectly calculates that discretionary policy has been acyclical in the CESEE EU Member States, while our detailed investigation of this issue suggests that discretionary policy in this group has in fact been procyclical. While a more detailed investigation of these divergences in results is beyond the scope of this paper, they probably reflect several differences in our approach compared to Staehr (2008) and Lewis (2009): we use a longer sample, output gap as a cyclical indicator, and system GMM as an estimation method.

Diagnostic tests in table 1 do not reject the validity of instruments and the validity of instruments for endogenous variables in the level equation in system GMM (based on the Hansen test of overidentifying restrictions and the difference-in-Hansen test of the exogeneity of GMM instruments for levels, respectively) and we therefore prefer system GMM as an estimation method. However, in table 2 we present some robustness checks of the baseline results on discretionary policy.

Table 2

Robustness Checks

Dependent variable	Cyclically adjusted primary balance (HP trend GDP), % of nominal GDP			
Lagged dependent variable	0.59***	0.68***	0.71***	0.58***
	(0.08)	(0.10)	(0.03)	(0.04)
Output gap, % of HP trend GDP	–0.16**	–0.15***	–0.20***	–0.19***
	(0.06)	(0.05)	(0.04)	(0.04)
Lagged public debt, % of nominal GDP	0.01	0.01	0.01***	0.03***
	(0.01)	(0.01)	(0.00)	(0.01)
Inflation rate	0.01	0.01	0.01	0.02
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	–0.21	–0.12	–0.17	–1.19**
	(0.47)	(0.38)	(0.26)	(0.52)
Observations	500	500	500	500
Period	1995–2011	1995–2011	1995–2011	1995–2011
Number of countries	33	33		33
Number of instruments	19	22		
p-value for F-statistics, joint significance test	0.00	0.00	0.00	0.00
R-squared			0.69	0.59
Arellano-Bond test for AR(1) in differences	0.00	0.00		
Arellano-Bond test for AR(2) in differences	0.94	0.92		
Sargan test of overidentified restrictions p-value	0.10	0.01		
Hansen test of overidentified restrictions p-value	0.26	0.25		
GMM instruments for levels: Hansen test excluding group p-value	0.42	0.15		
GMM instruments for levels: Difference-in-Hansen test of exogeneity of instruments p-value	0.17	0.66		

Source: Author's estimations.

*Note: Standard errors in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. In the first two columns, internal instruments are used for endogenous variables (lagged dependent variable and output gap). Lag limits are 1/2 for the lagged dependent variable and 2/3 for output gap in column 1, and 1/4 and 2/4 respectively in column 2. The "collapse" option is used in the first two columns. Year dummies for 2002–2011 are also included but not shown.*

In order to facilitate the comparison, baseline results are repeated in column 1. Then in column 2 we use deeper lags as instruments for the two endogenous variables, i.e. policy inertia and output gap, again using the *xtabond2* option to collapse the instruments. However, there is no considerable change in baseline results, except for the slightly higher policy inertia when more lags are used as instruments. Columns 3 and 4 then re-estimate the baseline specification in column 1, but now using OLS and LSDV, respectively. Despite the drawbacks of these two methods, Roodman (2006) suggests that GMM estimates of the lagged dependent variable should lie within the range of OLS estimates, which are upward biased, and LSDV estimates, which are downward biased. In our case, the coefficient on policy inertia in column 1 indeed lies between OLS and LSDV estimates in columns 3 and 4. Further, there are fairly limited differences when alternative estimators are used. In particular, the coefficient on output gap is slightly less negative when system GMM is used. In addition, both OLS and LSDV yield a statistically significant coefficient on public debt, which is insignificant in the baseline. However, the size of the debt coefficient with GMM in column 1 is within the confidence interval of alternative estimators in columns 3 and 4, which themselves also suggest a very low effect of this factor on discretionary balances.

4 Conclusions

This study investigates the cyclical character of discretionary and overall fiscal policy in transition countries in Central, Eastern and Southeastern Europe and compares them to the Western European EU Member States for the period between 1995 and 2011, using a specification that is recommended by theory and recent studies. Based on recommendations from the literature and the specifics of the model, system GMM is used as the preferred estimation method, although alternative estimates are also presented for the baseline specification.

Results show that discretionary fiscal policy has been procyclical in the CESEE EU Member States and even more so in Southeastern Europe, which means that policymakers in these countries were exacerbating economic fluctuations. At the same time, overall policy in both groups of transition countries is acyclical, meaning that automatic stabilizers were effective in eliminating the procyclical stance of discretionary policy, but that overall fiscal policy did not have a stabilizing effect on economic fluctuations. Comparisons indicate that there are considerable differences with Western European EU Member States (EU-17), where both discretionary and overall policy are acyclical, suggesting that automatic stabilizers are not strong enough to offset the acyclical character of discretionary policy and to make overall fiscal policy countercyclical. In addition, discretionary policy is much more persistent in the EU-17 group than in both groups of transition countries. Finally, the results show that policymakers in all country groups have paid little attention to public debt, which is a worrying sign for debt sustainability.

These results give rise to several recommendations that should be useful for policymakers, particularly in transition countries. First, considerable efforts are needed in order to eliminate the amplifying effect of discretionary measures on economic fluctuations, and to move discretionary policy in a countercyclical direction. This could be achieved particularly by efforts to improve estimates of cyclical movements and economic forecasts. In turn, this could help improve the design and implementation of discretionary measures to react to forecasts of

economic fluctuations, bearing in mind implementation lags of fiscal policy. In addition, the removal of the procyclical stance of discretionary policy would help turn overall fiscal policy countercyclical, bearing in mind that automatic stabilizers are effective in transition countries. Second, policymakers in transition countries also need to address the issue of the higher volatility of discretionary measures. Combined with the finding of a considerably procyclical policy stance, this indicates that transition countries are tempted to relax policies during expansions and tighten policies during recessions. Therefore, the implementation of some kind of medium-term fiscal rules or other types of commitment would help to reduce volatility. In addition, a better design and implementation of discretionary measures would also help, as it would enable a timely reaction to economic movements. Finally, policymakers in all three country groups need to pay much more consideration to debt sustainability. The results of our analysis and the ongoing European debt crisis indicate that insufficient attention was paid to this issue in the past. At the same time, they also point out that there is no room for complacency about this issue in transition countries, despite their generally low debt levels.

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Annex

Data Description and Sources

Series	Description	Source/calculation
Overall, unadjusted primary balance, % of nominal GDP	Overall, cyclically unadjusted primary budget balance as a share of nominal GDP	AMECO database of the European Commission (May 2013) for EU-17 and CESEE EU countries. For CESEE-6, author's calculation based on data from national statistical offices, central banks or finance ministries, EBRD, and IMF WEO database (April 2013).
Cyclically adjusted primary balance (HP trend GDP), % of nominal GDP	Cyclially adjusted primary balance as a share of nominal GDP (cyclical adjustment using the Hodrick-Prescott trend GDP)	AMECO database for EU-17 and CESEE EU countries. For CESEE-6, author's calculation based on data from national statistical offices, central banks or finance ministries, EBRD, and IMF WEO database. The cyclical adjustment is done following the methodology described in Fedelino, Ivanova and Horton (2009), and using the author's calculation of Hodrick-Prescott trend real GDP. In the absence of relevant information, revenue and expenditure elasticities are approximated by using respective averages for CESEE EU countries calculated from country elasticities in European Commission (2005).
Output gap, % of HP trend GDP	Output gap as a share of Hodrick-Prescott trend real GDP	AMECO database for EU-17, CESEE EU countries and Croatia. For other CESEE-6 countries, author's calculation based on data from national statistical offices, central banks or finance ministries, EBRD, and IMF WEO database.
Public debt, % of nominal GDP	Public debt as a share of nominal GDP	
Inflation rate	Average annual CPI inflation, in %	AMECO database; except Albania, Bosnia and Herzegovina and Serbia from IMF WEO database (April 2013).
Dummy for EU-17	Dummy = 1 for the EU-15 Member States, Cyprus and Malta; 0 otherwise	
Dummy for CESEE EU countries	Dummy = 1 for 10 CESEE countries that gained EU membership in 2004 or 2007; 0 otherwise	
Dummy for CESEE-6	Dummy = 1 for the following CESEE countries: Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Montenegro and Serbia; 0 otherwise	

Source: Author's compilation.