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Political institutions and central bank independence revisited

by

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Political institutions and central bank independence revisited

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Abstract

We build on earlier studies regarding Central Bank independence (CBI) by relating it to political, institutional and economic variables. The data suggest that CBI is positively related to the presence of federalism, the features of the electoral system and parties, the correlation between the shocks to the level of economic activity in the countries included in the sample and, for a sub-sample of economies, the convergence criteria to join the European Monetary Union (EMU).

Keywords: Central Bank independence; institutional systems; variable selection

JEL Classification: E5

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1. Introduction

Research on "political macroeconomics" during the last twenty years showed growing interest in factors affecting monetary policy and its performance.

Several studies have examined the causes for monetary instability in different countries and at different historical times. To account for differences in inflation rates among countries, empirical analyses have highlighted the key role of Central Bank independence (hereinafter "CBI"): in fact, it is widely documented that a higher degree of CBI is associated with a lower inflation rate in developed countries.[1]

The recognition of this link has encouraged the study of factors that influence the CBI. In particular, wide empirical literature exists[2], analyzing the economic and social determinants that cause changes in the degree of commitment to the monetary policy of individual countries[3].

The institutional systems of countries also represent a crucial factor in determining the degree of independence of the central bank. Research on this topic is, however, very limited. Two major studies exist: Farvaque (2002) and Moser (1999), who have shown how the legal CBI is significantly higher in OECD countries where legal procedures are characterized by extensive checks and balances[4] and the state has a federal form.

The aim of this paper is to investigate this issue further. Changes with respect to the works by Farvaque and Moser develop in three directions.

The first concerns the time horizon of the analysis, carried out until 2003 using the update by Polillo and Guillem (2005) of the legal independence index of Cukierman (1992).

The second concerns the fact that the institutional variables are examined together with a number of economic variables that were not considered by Farvaque and Moser, including in particular the correlation between the country's business cycle and the world business cycle.

Finally, we use the least absolute shrinkage and selection operator (Lasso) (Tibshirani, 1996) for selecting the determinants of CBI from a large set of explanatory variables. The method optimally balances model complexity, thus avoiding models that over-fit the sample.

The main contribution of the present paper is to show the existence of an "*external constraint*" that seems to account for the choice of the degree of CBI in the different countries.

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[1] For a survey see Cukierman (1992) and Cukierman (2008).

[2] Recent works on this topic include: D'Amato, Pistoresi, and Salsano (2009); Polillo and Guillem (2005).

[3] To explain cross country variation in the observed degree of independence the theoretical commitment approach (Rogoff 1985; Lohmann 1992) argues that the costs of an independent Central Bank, from the government's point of view, consist mainly of the loss of flexibility in monetary policymaking. The balance between flexibility and credibility determines the equilibrium degree of central bank independence in a country. The balance between costs and benefits in delegating the power to manage paper money may depend on many aspects of the economy and on its institutional framework.

[4] In a checks and balances system the legislative function is equally divided between at least two decision-making bodies (two-chamber parliamentary system, or the opportunity for the active voters to request a referendum), which hold veto powers.

2. Data and methodology

In this paper the CBI is considered to be an endogenous variable, measured by the legal independence index of Cukierman (1992), updated by Polillo and Guillem (2005) until 2003. The 54 exogenous variables considered are economic and institutional determinants of the CBI. Our sample includes 24 OECD countries[5] and spans from 1980 to 2003.

The economic variables used are the following: the world-wide common component in the business cycle (i.e., the correlation between the country's GDP growth and the world GDP growth[6]), the past inflation, and the size of the economy (i.e. real GDP total). They have been selected following the results of D'Amato, Pistoresi, and Salsano (2009), which show how these are the relevant variables for the OECD countries to account for the CBI[7].

Sources of such data include IMF (2008) and World Bank (2008). In addition, the dummy variable EUROPEAN MONETARY UNION (EMU) is considered, which takes the value of 1 (in the 1998-2003 period) for the countries that joined the EMU after complying with the convergence criteria provided for by the Maastricht Treaty.

The political and institutional variables are taken from the DPI database (2006) of the World Bank. Such variables are basically divided into seven different groups: those relevant to the executive power, the parties that make up the legislative power, the electoral rules, the stability of the political system, the checks and balances system, and the state form, i.e., whether or not it is a federal state.[8] These last two groups include the variables analyzed by Farvaque and Moser.

To select the determinants of the CBI from the database of 54 potential explanatory variables, we use the Lasso method for linear regression (Tibshirani, 1996). This method minimizes the sum of squared errors, with a bound on the sum of the absolute values of the coefficients. The tightness of the bound depends on a tuning parameter, usually selected by cross-validation (e.g., see Hastie et al., 2001), as is the case in this work. Differently from traditional information-theoretical procedures producing over-fitting models (with small model bias but large variance), selection by Lasso is optimal in terms of balancing such a trade-off.

3. Regression results

The Lasso method suggests 13 determinants of CBI out of 54 making up the whole sample considered. Their coefficients are estimated by OLS and presented in Table 1. We exclude the outcome from the reduced specification (Model 2) in which there are no significant variables from Model 1.

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[5] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Holland, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK, US.

[6] We use the correlation between the GDP growth in each country and a weighted average of the growth rates of the economies in the sample. The weights are the GDP levels in each country. The result do not depend on the proxy for the common component. On this point, see D'Amato, Pistoresi, and Salsano (2009) note 11.

[7] See D'Amato, Pistoresi, and Salsano (2009) for further details on the variables and their relation with the CBI.

[8] Please refer to the DPI (2006) for a definition of each variable included in the above-mentioned groups. The previous version of this database is described in Beck at al. (2001).). The updated DPI (2006) by Keefer (2006) is maintained at the URL: http://go.worldbank.org/2EAGGLRZ40. Note that we use the same variable definitions when we comment the results. Note that we use the same variable definitions when we comment the results.

Central Bank independence is larger the higher the correlation between the country's business cycle and the world business cycle (WORLD CYCLE). To understand this result, consider that governments expect their economies to be in the same state as the world's (booms or busts) as foreign economies. All governments in each country have a strategic incentive to commit monetary policy in order to free ride on the stabilization provided abroad and gain credibility at home. Hence, the larger the correlation is among shocks, the larger the incentive to hold a commitment (i.e., the larger the CBI).

A negative relation between CBI and PAST INFLATION supports the idea stressed by Cukierman (1992) that inflation leads to the evolution of automatic accommodative mechanisms such as indexation of contracts in the labor and capital markets to the general price level. Society reduces opposition to inflation and public pressure for an independent Central Bank.

The dummy EMU suggests that the participation in the EURO encouraged individual countries to change the institutional design of the monetary policy in view of greater price stability.

We find FEDERALISM is a significant element of a country's institution associated with CBI. As suggested by Farvaque and Moser, federalist countries may promote a stable monetary policy by constraining fiscal policy. In addition, federalism determines society's inclination towards price stability by strengthening the influence of the financial opposition to inflation (Posen, 1995).

Both variables relevant to the electoral systems are highly significant: PLURALITY and HOUSESYSTEM.

PLURALITY (which points to the presence of a uninominal majority electoral system) is positively correlated: The countries whose governments are elected using the majority system are generally supported by strong and broad majorities, and this leads the political contenders to subtract the monetary policy *ex ante* from the scope of the government, lest it be exploited for electoral purposes.

Such interpretation seems to be confirmed by the negative correlation of HOUSESYSTEM (which points to the presence of a mixed electoral system, i.e., partly majority-based and partly proportional). The countries where such electoral laws are in place are characterized by greater political fragmentation and by a stricter control over the government by the opposition. Therefore their incentive to commit is weaker.

This result is further confirmed, in part, by the party variables. In fact, OPP3VOTE (rate of votes of an opposition made up of three parties) is significant and negatively correlated. This means that highly fragmented parliaments have a negative impact on the degree CBI. The EXECSPEC variable (which specifies whether the governing parties support any special interests) has a negative impact on the degree of CBI. Finally, the GOV2SEAT variable (the share of votes of 2-party governments) has a positive impact.

4. Conclusions

This paper confirms the role of federalism as one of the determinants of a country's incentive to commit to monetary policy stressed by Farvaque and Moser, while the role of the checks and balances does not look significant. Another finding is the existence of an "*external constraint*", which seems to guide the individual countries in their choice of the institutional design of the monetary policy. In particular, such constraint is posed both by written rules (i.e., compliance with

the convergence criteria to join the EMU), and by the correlation between the country's business cycle and the world business cycle.

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Table 1. Determinants of the Central Bank Independence (CBI)

	MODEL 1		**MODEL 2**	
	Estimate (OLS)	**t-value**	**Estimate (OLS)**	**t-value**
INTERCEPT	0.41***	13.91	0.38***	23.39
Party variables				
GOV2SEAT	0.0007***	3.65	0.0007***	4.09
GOVOTHST	- 0.0032***	- 4.92	-0.003***	- 4.95
OPPVOTE	-0.0007	-1.35	----------	----------
OPP2VOTE	-0.0002	- 0.18	----------	----------
OPP3VOTE	- 0.007***	- 4.58	-0.008***	-5.80
EXECSPEC	- 0.12***	- 5.55	- 0.11***	
Electoral Rules				
PLURALITY	0.08***	4.96	0.079***	4.98
HOUSESYSTEM	- 0.16***	- 9.80	-0.17***	-10.87
Stability - Checks and Balance				
TENSHORTLAX	0.001	0.47	----------	----------
Federalism				
FEDERALISM	0.091***	5.74	0.096***	6.42
Economic variables				
PAST INFLATION	- 0.002**	- 2.91	-0.002**	-2.93
WORLD CYCLE	0.128***	5.76	0.131***	6.08
Monetary institution				
EMU	0.45***	28.63	0.38***	23.39
Degree of freedom	**555**		**563**	
Adjusted R^2	**0.7045**		**0.7048**	

Notes: Asterisks denote significance at the 1% (***), 5% (**) level.

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