Strategic fiscal performance in Spain: when the regions pay attention to federal fiscal deficits.

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Abstract

The aim of this paper is to investigate whether fiscal performance and governments are vertically related in a federal country. Specifically, we claim that budget deficits at central level are potential explanations of their regional counterparts. Shared fiscal rules are common within a country, though literature have paid little attention on it. Inefficient fiscal policies may arise when one player deviates from the target. The existence of such relation should have impacted countries economic stabilization in the short run, improving or eroding fiscal accounts.
This work first identify relations between both variables through correlation analysis. Then a variety of panel data methods are estimated for the Spanish case between 1995 and 2010 (both years included). Results reveal a high correlation between deficits and a positive effect relationship. In conclusion, when federal government deviates from the deficit target, regions run higher deficits.

1 Introduction

The financial crisis of 2008 has turned out into a worldwide economic and fiscal downturn, with special impact in the European Union. Countries such Greece, Ireland and Portugal are now involved in rescue programs with the European Union, the International Monetary Fund and/or the European Central Bank. Meanwhile, Italy and Spain suffer serious debt troubles. On one hand, both debt stocks are increasing and reaching unsustainable levels. On the other hand, market pressures make debt difficult to finance.
Early solutions based on public investment stimulus have evolved to austerity programs aiming to reduce fiscal gaps between revenues and expenditures, mainly through the second option. Moreover, international organisms (see, for instance, (OECD, 2012)) claim for the necessity of intra-countries fiscal adjustments to help in the stabilization goal and to comply with each country deficit target. In this context, Blochliger (2013) stresses the positive role played by sub-central governments

to overcome the current and pass crisis on the OECD.
Fiscal relations across government levels within a country or in an economic and monetary union have been deeply studied from different points of view. Examples of such literature are fiscal federalism interest on the impact of decentralization on fiscal performance or strategic behaviors resulted from the soft budget constraint problem. Contrasted opinions in each field keep the debate at present, but the necessity of fiscal rules able to tight government fiscal behaviors seems to be a common conclusion to obtain sound public finances.
Fiscal rules are imposed from the top the bottom in the institutional hierarchy framework. For instance, every country in the European Union must comply the so called Fiscal Compact[1] or, within a country, local governments are unable to run deficits by federal law.
Works on this topic are growing nowadays. Considering that public finances are worse than previous years (say pre-crisis period), effectiveness of rules are under examination. Afonso and Hauptmeier (2009) find a positive effect of rules on fiscal position for the 27 EU countries between 1990 and 2005 while Foremny (2011) asserts that fiscal rules matter only in unitary countries.
This paper contributes to the literature of fiscal rules from a different perspective. To the best of our knowledge, rules shared by different levels of government have received little attention even thought inefficiencies may arise as a consequence of interactions between them. In essence, there are two players who share the same goal, say overall fiscal stabilization. Cooperation is probably the most useful and rational decision they can make. Both governments comply the rules to reach the target. However, strategic behaviors may appear when payoffs to no collaborate are greater. Either government takes advantage of the other efforts to maintain unsustainable public finances. At the end, the efficient outcome reverses to the most inefficient due to the unfairness game.
The aim of this paper is to shed light in this question. Specifically, we are interested in sub-central governments fiscal reaction to central government fails to comply with common budgetary rules. In other words, do regional governments perform sound public finances independently of their federal counterpart? or do regions run unsustainable policies too? We try to answer this question analyzing the Spanish case in the period between 1995 and 2010.
We find Spain a good model to investigate for several reasons. First, it is one of the huge European Union members (in percentage of GDP) which is suffering hardly the current crisis. Doubts about risk contagion have been growing since 2008 and a better understand of fiscal outcomes is needed. Second, fiscal decentralization is highly pronounced in the country. Hence, regions are autonomous enough to adopt discretionary policies by themselves. And third, data availability allows for better control heterogeneous behaviors, making the study richer than those which work with aggregate government data.
The rest of the paper is structured as follows: part II presents some insides in the relationship between federal and regional governments accounts. Besides, empirical strategy, variables definition and data source can be found there. Part III presents our main results while part IV is dedicated to robustness checks. Finally, part V concludes.

[1] A stricter version of the Stability and Growth Pact that shall guarantee members budget to be in balance or surplus and copy the "debt brake" criteria for the previous pact.

2 Empirical approach

2.1 Correlation

This section presents multivariate statistical analysis of fiscal performance in Spain. Time series for both federal and regional governments budget balance are compared to identify the existence of common patterns and their strength. Though, correlation do no imply causality, it will sow whether our variables of interest are related or not and hence, whether federal outcomes are possible explanations of their regional counterpart. Two common measures of fiscal stance have been taken into account. First, gross budget financial needs (i.e. no financial revenues less no financial expenditures) and second, primary balance (net of interest), both variables relative to GDP.

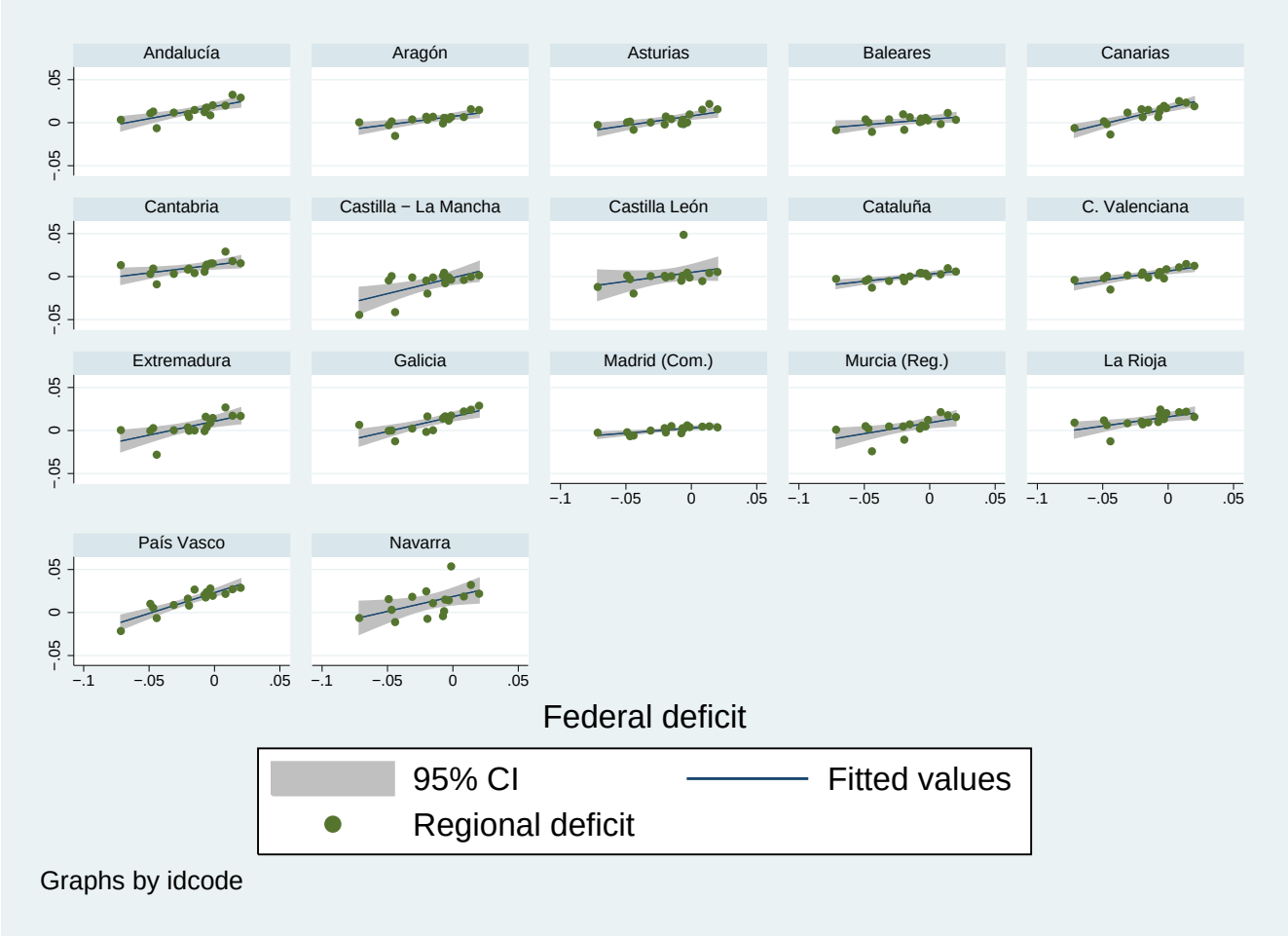

Figure 1: Regional vs federal deficit scatter plot

The analysis starts with qualitative information pictured in scatter plots.[2]Graphs will allow for a comprehensive interpretation of the nature of the relations. For instance, figure 1 shows gross financial budget needs relationships between every Autonomous Community (vertical axis) and the central government (horizontal axis). Each point in the graph represent contemporaneous pairs of values (federal, regional)

[2]Primary balance graphs can be found in appendix A.

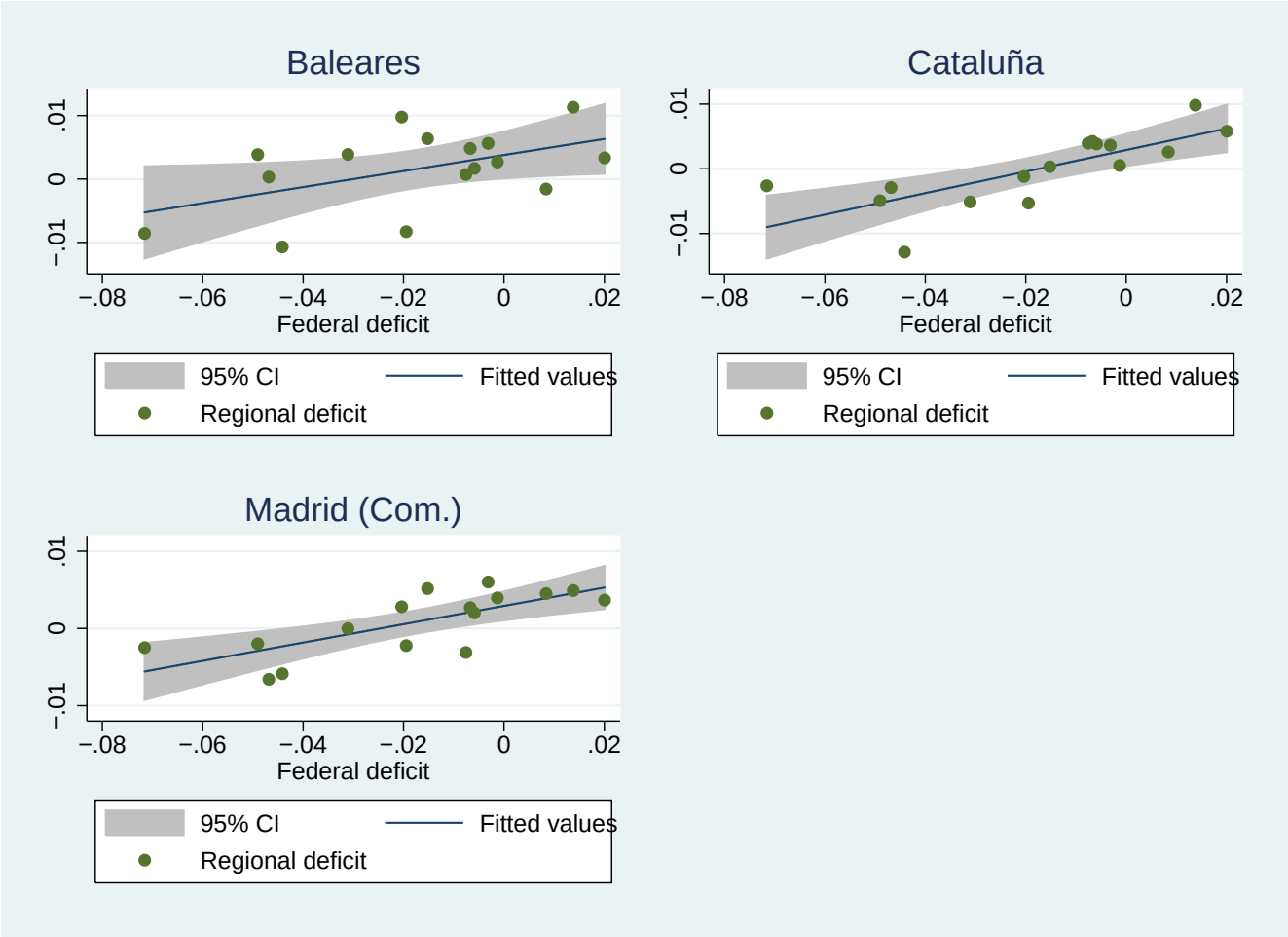

Figure 2: Flatter deficit scatter plot

in the year recorded. The straight line will signal the direction of the values.
In general, pairwise comparison reveals a common upward (positive) trend between points. Andalucía, Canarias, Galicia and Pais Vasco seem to be heavily correlated with federal outcomes while Castilla-La Mancha, Castilla-León and Navarra are the regions with either most dispersed data or evident outliers. On the other hand, it is difficult to appreciate correlation in Baleares, Cataluña or in the Region of Madrid. Figures 2 and 3 pay attention to those anomalous cases. Though values oscillate into a narrower margin, increasing patters are found again. Perhaps, Castilla-León shows less evidence. We need to rely on correlation coefficients to accurately understand the behavior of the data.
Table 1 provides quantitative information of relations and strength between time series. Each coefficient are presented with its respective p-value. Preliminary conclusions are confirmed. Baleares, Castilla-León and Navarra(the most dispersed data) obtain the lowest values. Moreover, Castilla-León probability is higher than 0.05, implying that is not possible to reject the null hypothesis, nonexistence of individual correlation. The rest of coefficients oscillate between 0.56 for Cantabria and 0.89 for País Vasco. All in all, results support the existence of a positive linear relationship between regional and federal deficits. Primary balance pairwise comparison behaves similar, though, two things mast be highlighted: now, Castilla-León coefficient reject the null hypothesis only at 10% and Cantabria as well.

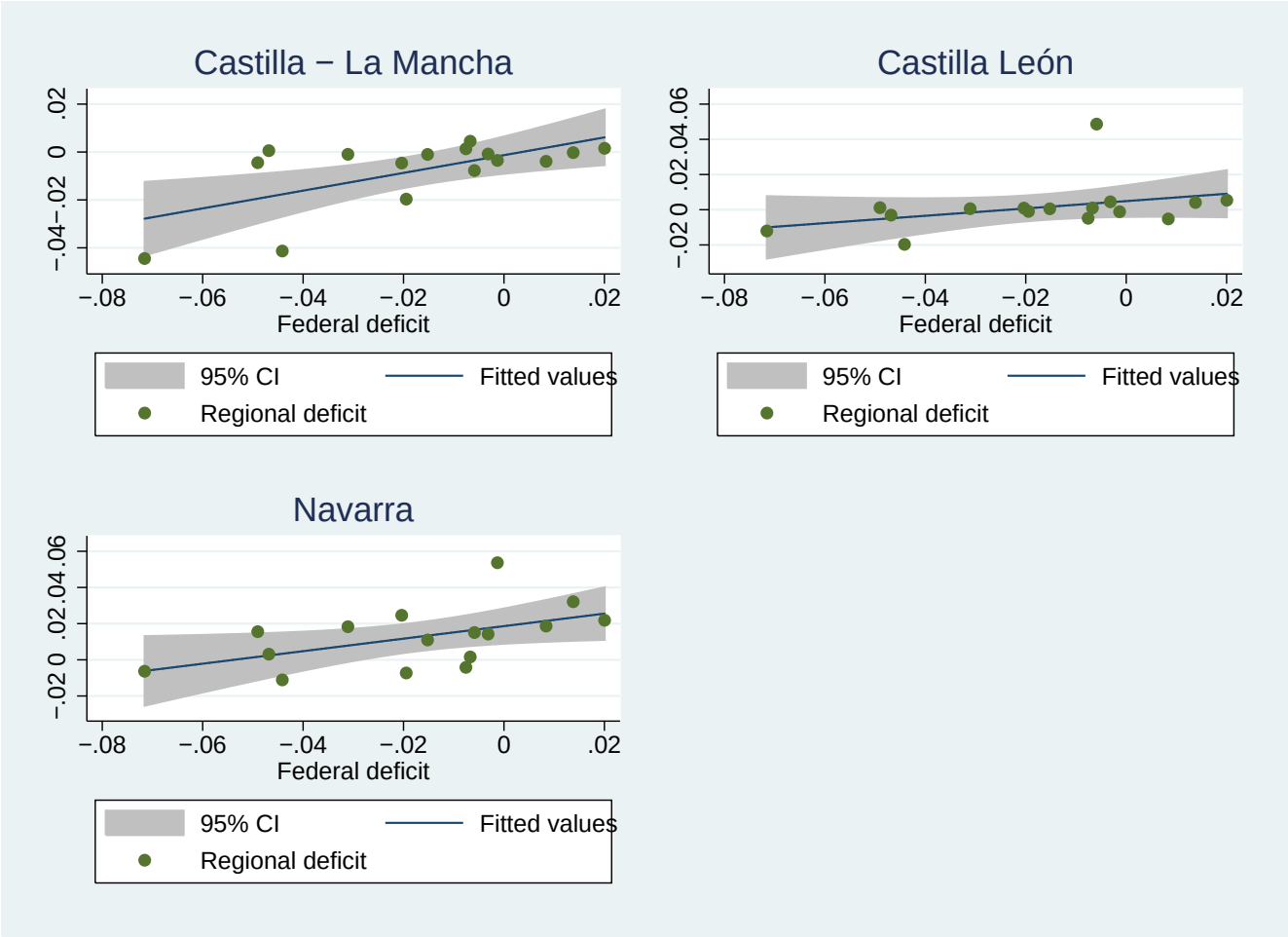

Figure 3: High deficit dispersion scatter plot

Pearson correlation index suffers tow handicaps: by construction, it implies linear relationships and also fails in the presence of outliers. As a robustness check, we try to circumvent these problems with Spearman correlation index. Those regions with highest values still are at the top results. In the other side, Baleares is now rejecting the null hypothesis and the two Castillas are in the 0.1 chances of correlation. The same applies for primary balances.
Correlation analysis performed show that regional and federal fiscal performance are positively related. Those regions with highest values are invariable respect to the methodology used. In the other hand, we cannot draw a clear conclusion for those regions whose data are more widespread such Baleares, Castilla-León and Navarra.

2.2 Econometric analysis

In order to identify whether federal fiscal behavior affects sub-central outcomes, we estimate the following fiscal reaction function:

$$deficit_{it} = \beta_0 + \beta_1 f\_deficit_t + \beta_2 cycle_{it} + \beta_3 X_{it} + u_{it} \quad (1)$$

where $deficit$ is a the fiscal balance measure of the region i in the period t, $f\_deficit$ is federal fiscal balance, $cycle$ refers to the business cycle, X_{it} is a set of covariates and finally, u_{it} is the error term.

Table 1: Correlation analysis coefficients

Region	Pearson				Spearman			
	deficit	p-value	pb	p-value	deficit	p-value	pb	p-value
Andalucía	0.7585	0.007	0.7401	0.001	0.7676	0.0005	0.7235	0.0015
Aragón	0.6965	0.0027	0.659	0.0055	0.7294	0.0013	0.6471	0.0067
Asturias	0.7059	0.0022	0.5801	0.0185	0.6588	0.0055	0.5735	0.0202
Baleares	0.5094	0.0439	0.6775	0.0039	0.3353	0.2043	0.3529	0.18
Canarias	0.8614	0	0.8895	0	0.8971	0	0.8912	0
Cantabria	0.5598	0.0241	0.4625	0.0712	0.7647	0.0006	0.7176	0.0017
C. La Mancha	0.635	0.0082	0.8384	0	0.4735	0.0639	0.4588	0.0738
C. León	0.3717	0.1563	0.4371	0.0904	0.4471	0.0825	0.5382	0.0315
Cataluña	0.759	0.0007	0.6998	0.0025	0.7941	0.0002	0.8529	0
C. Valenciana	0.7532	0.0008	0.6675	0.0047	0.7912	0.0003	0.6882	0.0032
Extremadura	0.6627	0.0052	0.6302	0.0089	0.7529	0.0008	0.7324	0.0013
Galicia	0.7703	0.0005	0.6465	0.0068	0.8441	0	0.8118	0.0001
Madrid (Com.)	0.7385	0.0011	0.7443	0.0009	0.7118	0.002	0.6882	0.0032
Murcia (Reg.)	0.5974	0.0145	0.6164	0.011	0.7382	0.0011	0.6029	0.0134
La Rioja	0.6228	0.01	0.5856	0.0172	0.7618	0.0006	0.7206	0.0016
País Vasco	0.8889	0	0.957	0	0.8588	0	0.8647	0
Navarra	0.5225	0.0379	0.5696	0.0213	0.5529	0.0263	0.4706	0.0658

Along the paper we use different measures of budget outcomes and cycle. For instance, $deficit$ will be governments budgetary financial needs (i.e. no financial revenues less no financial expenditures) or primary balances (financial needs net of interest payments), both as a percentage of the GDP and per capita. On the other hand, cycle is calculated in three different manners: the output gap(og), result to apply the HP filter (see (Hodrick and Prescott, 1997)) to regional GDP with $\lambda = 6.25$ for annual data , the regional unemployment rate (unemployment) and the GDP growth (pibgrowth).
In order to keep clear the analysis and better understand our proposal, variables relative to GDP controlled for the output gap can be found in the section *results*. We will exploit specification variations as robustness checks.
The set of covariates are summarized in Hernández de Cos and Pérez (2013).They are classified in two sections:

1 Fiscal rules:
The variable *sgp* refers to the Stability and Growth Pact in force since 2002 and is a dummy variable equal to one if law operating and zero otherwise. A negative sign is expected, hence, deficits shall decrease if rules really constraint regional accounts.
We include also two different measures of fiscal co-responsibility. On the one hand, revenue regional taxes relative to the total no financial revenues[3] (called $fiscal\_cor$). This variable try to measure whether higher fiscal autonomy

[3]Revenue taxes don't include fees nor transfers. Those revenues are at least earmarked for specific purposes and governments are unable to use them discretionary.

affects budget outcomes. On the other hand, we take advantage of the progressive fiscal decentralization process carried out in Spain. Hence, we introduce a dummy variable for each financial decentralization agreement (i.e. 1992-1996, 1997-2001, 2002-2010).[4]

2 Political variables:
The fiscal federalism literature had noticed the relevance of the political arena effects on fiscal performance. We include in our analysis an ideology variable based on the number of seats occupied for parties in the regional parliament. For instance, *sh_izq* refers to the number of seats belonged to left parties in each parliament and *sh_reg* refers to nationalists parties. We also include the variable *alignment* which is a dummy equal to one if federal and regional governments shares party leadership and zero otherwise. Finally, attending the different fiscal system of the country we include a dummy equal to one if the region follows the foral system (i.e. País Vasco and Navarra) and zero otherwise.

Regression models evolve from static to dynamic process. Regional heterogeneity is captured a) introducing dummy variables for each region and b) considering time-constant unobserved effects directly in the model. So, we use Least Square Dummy Variables (LSDV) and fixed effects (FE) estimators, respectively. We also consider Random effects (RE) models which under certain conditions, provides consistent and efficient estimators of the variables. Finally, we follow the difference GMM estimator developed by Arellano and Bond (1991) to include a one year lagged regional deficit as regressor. All variables are estimated in levels.

2.3 Data

Financial needs and primary balances are calculated with budget settlement data. Because of a lack of information in the Spanish regional budget statistics, we gathered the information from two places: first, the Ministry of Finance and Public Administrations provides regional data for the period 2002-2010. Second, the Spanish fiscal database "BADESPE" provides data for the period 1995-2001. Since the information located in both databases are from the same source (General Secretary of Financial Coordination with the Autonomous Regions and with Local Entities) we expect no problems mixing them. In the case of the federal government, the whole information is compiled from "BADESPE", which offers data supervised by the General State Comptroller (Intervención General de la Administración del Estado).
From the National Institute of Statistics (Instituto Nacional de Estadística) we obtain population, unemployment and GDP data. In our variables relative to GDP, we mean GDP with basis the year 2000. The choice of this basis is because the series is already calculated in a homogeneous way and we do not have to deal with different basis calculation.
Finally, political data are gathered from each regional parliament.

[4] A new pact begins in 2011 but is out of our analysis.

3 Results

This section present the main results of the study. As commented above, budgetary variables are measured as a percentage of GDP while the output gap is the business cycle. Estimations outputs are reported in tables 2 to 5. Each column represents (1) Least Square Dummy Variables, (2) Fixed effects, (3) Random effects and (4) GMM, respectively.

Regression results confirm that regional government react in the same direction than the federal government. For instance, when the Spanish federal government runs higher deficits, regions response in the same way. This is true also for the primary balance, where more discretionary power exists. Coefficients are very significance and robust to changes in the specification and in the methodology used.

The output gap is positive, though evidence is mixed. When fiscal autonomy is measure as own revenues, the variable became significance. A positive sign means counter-cyclical fiscal position. That is, in downturn periods, expenditures (revenues) increase (decrease).

Political alignment and foral also play a role in explaining regions policies. Both variables present positive values. Hence, when governments share the same political color as well as regions belong to the foral system, deficits are higher than those which not.

Respect to fiscal co-responsibility, only decentralization agreements are significance. Nonetheless, fiscalcorr variable presents the adequate sign. In this case, decentralization seems to have a good impact on regional fiscal policies.

Finally, the lagged deficit/primary balance variable sign is indicative that unsustainable policies were run in the past. Nevertheless, no evidence is found in our estimations.

Table 2: Output gap and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_defpib	0.251***	0.251***	0.250***	0.258***
	(0.0294)	(0.0294)	(0.0273)	(0.0344)
og	0.0527	0.0527**	0.0543**	0.0181
	(0.0357)	(0.0225)	(0.0211)	(0.0219)
alignment	0.00208*	0.00208	0.00211*	0.00195
	(0.00107)	(0.00123)	(0.00121)	(0.00136)
foral	0.0156*		0.00645*	
	(0.00811)		(0.00332)	
sh_izq	-0.00388	-0.00388	-0.00771	0.00248
	(0.0122)	(0.0137)	(0.0104)	(0.0172)
sh_reg	0.0202	0.0202	0.00496	0.0356
	(0.0135)	(0.0124)	(0.00815)	(0.0287)
fiscal_cor	-0.00288	-0.00288	-0.00321	-0.000554
	(0.00455)	(0.00347)	(0.00246)	(0.00519)
sgp	0.0000351	0.0000351	-0.000194	0.00120
	(0.00176)	(0.00140)	(0.00159)	(0.00124)
$defpib_{t-1}$				0.0823
				(0.0851)

constant	-0.00163	0.00847	0.0120**	0.00111
	(0.00756)	(0.00691)	(0.00507)	(0.00986)
N	272	272	272	238
R^2	0.561	0.415		
adj. R^2	0.521	0.399		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Output gap and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_defpib	0.299***	0.299***	0.300***	0.283***
	(0.0355)	(0.0344)	(0.0340)	(0.0356)
og	0.00774	0.00774	0.00650	-0.00251
	(0.0365)	(0.0253)	(0.0242)	(0.0240)
alignment	0.00276**	0.00276*	0.00274**	0.00263
	(0.00108)	(0.00132)	(0.00130)	(0.00169)
foral	0.0125*		0.00602**	
	(0.00666)		(0.00265)	
sh_izq	-0.0173	-0.0173	-0.0161	0.000482
	(0.0121)	(0.0121)	(0.0100)	(0.0170)
sh_reg	0.0113	0.0113	0.00125	0.0274
	(0.0129)	(0.0111)	(0.00792)	(0.0262)
da(97-01)	-0.00749***	-0.00749***	-0.00750***	-0.00629***
	(0.00172)	(0.00126)	(0.00120)	(0.00212)
da(02-10)	-0.00666***	-0.00666**	-0.00692***	-0.00493**
	(0.00195)	(0.00229)	(0.00213)	(0.00232)
$defpib_{t-1}$				0.0778
				(0.0862)
constant	0.0119	0.0209***	0.0215***	0.00883
	(0.00795)	(0.00693)	(0.00502)	(0.00966)
N	272	272	272	238
R^2	0.584	0.445		
adj. R^2	0.546	0.431		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Output gap and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_pbpib	0.257***	0.257***	0.257***	0.259***
	(0.0322)	(0.0319)	(0.0301)	(0.0336)
og	0.0661**	0.0661***	0.0680***	0.0256
	(0.0330)	(0.0226)	(0.0221)	(0.0223)

alignment	0.00196*	0.00196	0.00202*	0.00170
	(0.00104)	(0.00121)	(0.00119)	(0.00139)
foral	0.0182**		0.00720**	
	(0.00782)		(0.00331)	
sh_izq	0.00238	0.00238	-0.00225	0.0129
	(0.0122)	(0.0134)	(0.0107)	(0.0178)
sh_reg	0.0209	0.0209	0.00807	0.0297
	(0.0137)	(0.0128)	(0.00714)	(0.0260)
fiscal_cor	-0.000394	-0.000394	-0.00111	0.00256
	(0.00458)	(0.00402)	(0.00341)	(0.00496)
sgp	0.00188	0.00188	0.00181	0.00232**
	(0.00178)	(0.00127)	(0.00142)	(0.00114)
$pbpib_{t-1}$				0.104
				(0.0913)
constant	-0.0115	-0.000107	0.00336	-0.00844
	(0.00768)	(0.00679)	(0.00512)	(0.00941)
N	272	272	272	238
R^2	0.583	0.422		
adj. R^2	0.545	0.407		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Output gap and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_pbpib	0.293***	0.293***	0.294***	0.284***
	(0.0366)	(0.0357)	(0.0353)	(0.0356)
og	0.0364	0.0364	0.0358	0.00943
	(0.0332)	(0.0244)	(0.0238)	(0.0235)
alignment	0.00262**	0.00262*	0.00264**	0.00265
	(0.00105)	(0.00129)	(0.00128)	(0.00169)
foral	0.0169***		0.00705***	
	(0.00648)		(0.00256)	
sh_izq	-0.0104	-0.0104	-0.0112	0.0104
	(0.0121)	(0.0115)	(0.00946)	(0.0170)
sh_reg	0.0125	0.0125	0.00356	0.0185
	(0.0131)	(0.0114)	(0.00670)	(0.0227)
da(97-01)	-0.00653***	-0.00653***	-0.00662***	-0.00641***
	(0.00152)	(0.00113)	(0.00110)	(0.00195)
da(02-10)	-0.00275**	-0.00275	-0.00301**	-0.00263
	(0.00137)	(0.00162)	(0.00152)	(0.00208)
$pbpib_{t-1}$				0.104
				(0.0926)
constant	-0.000353	0.0103	0.0115***	-0.000196
	(0.00774)	(0.00604)	(0.00410)	(0.00867)

N	272	272	272	238
R^2	0.603	0.449		
adj. R^2	0.566	0.435		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4 Robustness checks

4.1 Business cycle alternatives

As mentioned above, the Hodrick-Prescott filter relies heavily on the decomposed series tails. Taken into account that the period of study is 15 years, the output gap estimated may affect potentially our results. Hence, we use alternative proxies considered in the literature such the unemployment rate (tables 6 to 9) and the GDP growth rate (Appendix B).
In general, results are similar to those reported previously. We merely highlight relevant coefficients.
The variable of interest, federal deficit/primary balance keeps its statistical significance, no matters specification or methodology. Coefficients are a bit lower controlling with the GDP growth rate but the main conclusion remains: regional governments run higher deficits when their federal counterpart deviates from the target.
Cycle measures still support counter-cyclical policy behaviors. In this sense, gdp growth rates present highly statistical significance.

Table 6: Unemployment and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_defpib	0.242***	0.242***	0.260***	0.244***
	(0.0426)	(0.0439)	(0.0416)	(0.0486)
unemployment	-0.000209	-0.000209	-0.0000677	-0.000193
	(0.000225)	(0.000216)	(0.000192)	(0.000208)
alignment	0.00180	0.00180	0.00196	0.00184
	(0.00113)	(0.00134)	(0.00128)	(0.00135)
foral	0.0155*		0.00661**	
	(0.00805)		(0.00334)	
sh_izq	0.00375	0.00375	-0.00379	0.00691
	(0.0126)	(0.0136)	(0.0103)	(0.0180)
sh_reg	0.0237*	0.0237*	0.00564	0.0377
	(0.0143)	(0.0131)	(0.00863)	(0.0295)
fiscal_cor	-0.00311	-0.00311	-0.00346	-0.00105
	(0.00454)	(0.00374)	(0.00294)	(0.00476)
sgp	-0.000791	-0.000791	-0.000580	0.000724
	(0.00202)	(0.00151)	(0.00162)	(0.00114)
$defpib_{t-1}$				0.0753
				(0.0776)

constant	-0.00261	0.00809	0.0118**	0.00181
	(0.00721)	(0.00703)	(0.00552)	(0.00998)
N	272	272	272	238
R^2	0.559	0.412		
adj. R^2	0.519	0.396		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Unemployment and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_defpib	0.260***	0.260***	0.286***	0.258***
	(0.0430)	(0.0428)	(0.0419)	(0.0483)
unemployment	-0.000328	-0.000328	-0.000131	-0.000242
	(0.000208)	(0.000192)	(0.000179)	(0.000199)
alignment	0.00254**	0.00254*	0.00263*	0.00257
	(0.00110)	(0.00143)	(0.00137)	(0.00172)
foral	0.0109*		0.00586**	
	(0.00656)		(0.00281)	
sh_izq	-0.0139	-0.0139	-0.0137	0.00333
	(0.0123)	(0.0121)	(0.01000)	(0.0177)
sh_reg	0.0135	0.0135	0.00127	0.0289
	(0.0133)	(0.0112)	(0.00830)	(0.0272)
da(97-01)	-0.00816***	-0.00816***	-0.00779***	-0.00652***
	(0.00149)	(0.00108)	(0.00108)	(0.00194)
da(02-10)	-0.00827***	-0.00827***	-0.00763***	-0.00574***
	(0.00198)	(0.00227)	(0.00208)	(0.00182)
$defpib_{t-1}$				0.0496
				(0.0731)
constant	0.0151**	0.0241***	0.0226***	0.0110
	(0.00747)	(0.00691)	(0.00566)	(0.00970)
N	272	272	272	238
R^2	0.590	0.452		
adj. R^2	0.551	0.438		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Unemployment and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_pbpib	0.257***	0.257***	0.273***	0.250***
	(0.0413)	(0.0402)	(0.0394)	(0.0445)
unemployment	-0.000175	-0.000175	-0.0000494	-0.000164
	(0.000184)	(0.000166)	(0.000152)	(0.000169)

alignment	0.00168	0.00168	0.00188	0.00158
	(0.00109)	(0.00130)	(0.00126)	(0.00136)
foral	0.0185**		0.00752**	
	(0.00778)		(0.00325)	
sh_izq	0.0108	0.0108	0.00168	0.0175
	(0.0124)	(0.0127)	(0.00999)	(0.0186)
sh_reg	0.0246*	0.0246*	0.00842	0.0329
	(0.0144)	(0.0131)	(0.00753)	(0.0277)
fiscal_cor	-0.000554	-0.000554	-0.00125	0.00175
	(0.00457)	(0.00446)	(0.00389)	(0.00495)
sgp	0.00109	0.00109	0.00167	0.00176
	(0.00213)	(0.00134)	(0.00140)	(0.00115)
$pbpib_{t-1}$				0.106
				(0.0820)
constant	-0.0133*	-0.00117	0.00239	-0.00793
	(0.00740)	(0.00707)	(0.00597)	(0.0106)
N	272	272	272	238
R^2	0.579	0.415		
adj. R^2	0.540	0.400		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Unemployment and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_pbpib	0.266***	0.266***	0.287***	0.258***
	(0.0415)	(0.0400)	(0.0399)	(0.0444)
unemployment	-0.000351**	-0.000351**	-0.000180	-0.000313**
	(0.000171)	(0.000150)	(0.000146)	(0.000158)
alignment	0.00241**	0.00241*	0.00253*	0.00266
	(0.00107)	(0.00137)	(0.00133)	(0.00169)
foral	0.0152**		0.00681***	
	(0.00637)		(0.00257)	
sh_izq	-0.00589	-0.00589	-0.00771	0.0145
	(0.0121)	(0.0109)	(0.00962)	(0.0180)
sh_reg	0.0155	0.0155	0.00381	0.0219
	(0.0134)	(0.0113)	(0.00718)	(0.0244)
da(97-01)	-0.00801***	-0.00801***	-0.00761***	-0.00741***
	(0.00138)	(0.00107)	(0.00113)	(0.00168)
da(02-10)	-0.00562***	-0.00562***	-0.00465***	-0.00488***
	(0.00178)	(0.00192)	(0.00178)	(0.00145)
$pbpib_{t-1}$				0.0688
				(0.0762)
constant	0.00432	0.0152**	0.0138**	0.00387
	(0.00742)	(0.00643)	(0.00570)	(0.0101)

N	272	272	272	238
R^2	0.609	0.457		
adj. R^2	0.572	0.442		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.2 GDP measure alternatives

A potential bias in our results could be hidden under the way we calculate budget variables. Concretely, GDP appears always as denominator in the deficit/primary balance measures. Then, we can be captured variations due to increase/decrease of the GDP and not because of differences between revenues and expenditures. To solve this problem, we recalculate the model using instead, deficits and primary balance relative to population. Tables 10 to 13 present results using the output gap as business cycle variable. In tables 14 to 17, unemployment rates substitute the output gap and finally, in the appendix C, we use the GDP growth rates measures. In general, coefficients largely increase their values and statistical significance of variables change depending on how the cycle is measured. However, and more importantly, federal government budget effects are robust to every change we include. Specifically, the variable remains positive and very significance. In words, regional governments react to federal deviations of the deficit target running higher deficits/primary balance.
Between cycle measures, we can stress that now, evidence of counter-cyclical fiscal policies comes from the output gap, instead of from the GDP growth rates. Variables, in any case, still have the correct sign.
Political alignment and foral remains unchanged. On the other hand, we found evidence that pass fiscal policy matters.

Table 10: Output gap and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_defcap	0.276***	0.276***	0.276***	0.257***
	(0.0353)	(0.0404)	(0.0386)	(0.0383)
og	0.988	0.988	0.992*	0.434
	(0.750)	(0.631)	(0.601)	(0.391)
alignment	0.0418**	0.0418*	0.0420*	0.0509**
	(0.0208)	(0.0232)	(0.0228)	(0.0240)
foral	0.414**		0.192***	
	(0.183)		(0.0495)	
sh_izq	-0.344	-0.344	-0.351*	-0.294
	(0.247)	(0.255)	(0.202)	(0.268)
sh_reg	-0.0823	-0.0823	-0.0808	-0.105
	(0.266)	(0.229)	(0.122)	(0.439)
fiscal_cor	-0.109	-0.109	-0.101**	-0.0232
	(0.0982)	(0.0648)	(0.0397)	(0.0929)
sgp	0.0840**	0.0840***	0.0821***	0.0802***
	(0.0365)	(0.0220)	(0.0246)	(0.0201)

$defcap_{t-1}$				0.138*
				(0.0776)
constant	0.0976	0.314**	0.292***	0.235
	(0.149)	(0.141)	(0.110)	(0.164)
N	272	272	272	238
R^2	0.587	0.476		
adj. R^2	0.549	0.463		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Output gap and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_defcap	0.283***	0.283***	0.284***	0.261***
	(0.0370)	(0.0408)	(0.0405)	(0.0379)
og	0.711	0.711	0.689	0.286
	(0.783)	(0.678)	(0.662)	(0.431)
alignment	0.0468**	0.0468*	0.0459*	0.0571**
	(0.0220)	(0.0243)	(0.0236)	(0.0277)
foral	0.332**		0.181***	
	(0.149)		(0.0392)	
sh_izq	-0.486*	-0.486*	-0.399**	-0.332
	(0.259)	(0.254)	(0.204)	(0.268)
sh_reg	-0.192	-0.192	-0.0900	-0.201
	(0.271)	(0.237)	(0.119)	(0.479)
da(97-01)	-0.0618**	-0.0618***	-0.0583***	-0.0569*
	(0.0271)	(0.0203)	(0.0198)	(0.0336)
da(02-10)	0.0109	0.0109	0.0150	0.0211
	(0.0288)	(0.0359)	(0.0324)	(0.0348)
$defcap_{t-1}$				0.145*
				(0.0789)
constant	0.215	0.408**	0.332***	0.307*
	(0.164)	(0.147)	(0.110)	(0.173)
N	272	272	272	238
R^2	0.590	0.480		
adj. R^2	0.552	0.467		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Output gap and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_pbcap	0.260***	0.260***	0.259***	0.246***
	(0.0355)	(0.0403)	(0.0386)	(0.0392)

og	1.514**	1.514**	1.533***	0.779*
	(0.731)	(0.609)	(0.584)	(0.428)
alignment	0.0420**	0.0420*	0.0428*	0.0480*
	(0.0208)	(0.0234)	(0.0230)	(0.0258)
foral	0.459**		0.209***	
	(0.182)		(0.0484)	
sh_izq	-0.246	-0.246	-0.278	-0.0278
	(0.249)	(0.253)	(0.195)	(0.311)
sh_reg	-0.0372	-0.0372	-0.0180	0.00910
	(0.266)	(0.204)	(0.101)	(0.408)
fiscal_cor	-0.0564	-0.0564	-0.0494	0.0741
	(0.0994)	(0.0669)	(0.0462)	(0.103)
sgp	0.0855**	0.0855***	0.0845***	0.0686***
	(0.0371)	(0.0204)	(0.0233)	(0.0188)
$pbcap_{t-1}$				0.135*
				(0.0765)
constant	-0.0614	0.172	0.155	0.00499
	(0.152)	(0.126)	(0.0985)	(0.152)
N	272	272	272	238
R^2	0.586	0.459		
adj. R^2	0.547	0.445		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Output gap and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_pbcap	0.270***	0.270***	0.270***	0.255***
	(0.0374)	(0.0414)	(0.0410)	(0.0396)
og	1.247	1.247*	1.239*	0.586
	(0.756)	(0.653)	(0.636)	(0.468)
alignment	0.0483**	0.0483*	0.0484**	0.0611**
	(0.0219)	(0.0247)	(0.0241)	(0.0308)
foral	0.409***		0.203***	
	(0.148)		(0.0336)	
sh_izq	-0.393	-0.393	-0.346*	-0.0489
	(0.259)	(0.247)	(0.196)	(0.290)
sh_reg	-0.139	-0.139	-0.0439	-0.128
	(0.271)	(0.203)	(0.0974)	(0.464)
da(97-01)	-0.0652**	-0.0652***	-0.0633***	-0.0736**
	(0.0268)	(0.0198)	(0.0199)	(0.0353)
da(02-10)	0.0246	0.0246	0.0278	0.0179
	(0.0265)	(0.0325)	(0.0294)	(0.0371)
$pbcap_{t-1}$				0.149*
				(0.0791)
constant	0.0597	0.277**	0.215**	0.109

	(0.162)	(0.127)	(0.0970)	(0.148)
N	272	272	272	238
R^2	0.590	0.465		
adj. R^2	0.553	0.451		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 14: Unemployment and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_defcap	0.271***	0.271***	0.280***	0.239***
	(0.0467)	(0.0548)	(0.0506)	(0.0574)
unemployment	-0.00390	-0.00390	-0.00231	-0.00516
	(0.00405)	(0.00405)	(0.00343)	(0.00528)
alignment	0.0364	0.0364	0.0384	0.0480*
	(0.0221)	(0.0253)	(0.0242)	(0.0245)
foral	0.419**		0.189***	
	(0.181)		(0.0528)	
sh_izq	-0.190	-0.190	-0.257	-0.162
	(0.264)	(0.281)	(0.220)	(0.314)
sh_reg	-0.00849	-0.00849	-0.0496	-0.0317
	(0.285)	(0.278)	(0.136)	(0.483)
fiscal_cor	-0.121	-0.121*	-0.110**	-0.0456
	(0.0974)	(0.0621)	(0.0431)	(0.0803)
sgp	0.0684*	0.0684**	0.0730***	0.0700***
	(0.0411)	(0.0298)	(0.0275)	(0.0222)
$defcap_{t-1}$				0.135*
				(0.0780)
constant	0.0765	0.306**	0.292***	0.247
	(0.141)	(0.138)	(0.108)	(0.162)
N	272	272	272	238
R^2	0.586	0.475		
adj. R^2	0.548	0.461		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 15: Unemployment and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_defcap	0.261***	0.261***	0.278***	0.236***
	(0.0456)	(0.0541)	(0.0508)	(0.0567)
unemployment	-0.00672	-0.00672	-0.00354	-0.00633
	(0.00410)	(0.00422)	(0.00371)	(0.00532)
alignment	0.0425*	0.0425	0.0434*	0.0553**

	(0.0224)	(0.0260)	(0.0247)	(0.0279)
foral	0.303**		0.171***	
	(0.150)		(0.0450)	
sh_izq	-0.390	-0.390	-0.319	-0.223
	(0.266)	(0.271)	(0.216)	(0.322)
sh_reg	-0.137	-0.137	-0.0646	-0.159
	(0.282)	(0.268)	(0.131)	(0.514)
da(97-01)	-0.0957***	-0.0957***	-0.0790***	-0.0744***
	(0.0245)	(0.0180)	(0.0207)	(0.0284)
da(02-10)	-0.0452	-0.0452	-0.0170	-0.0117
	(0.0364)	(0.0436)	(0.0406)	(0.0233)
$defcap_{t-1}$				0.132*
				(0.0781)
constant	0.289*	0.488***	0.367***	0.360**
	(0.154)	(0.138)	(0.119)	(0.163)
N	272	272	272	238
R^2	0.594	0.486		
adj. R^2	0.557	0.472		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 16: Unemployment and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_pbcap	0.261***	0.261***	0.270***	0.236***
	(0.0465)	(0.0546)	(0.0507)	(0.0557)
unemployment	-0.00434	-0.00434	-0.00260	-0.00431
	(0.00385)	(0.00384)	(0.00325)	(0.00456)
alignment	0.0353	0.0353	0.0383	0.0447*
	(0.0221)	(0.0256)	(0.0245)	(0.0260)
foral	0.469**		0.206***	
	(0.181)		(0.0513)	
sh_izq	-0.0430	-0.0430	-0.153	0.134
	(0.261)	(0.264)	(0.202)	(0.342)
sh_reg	0.0523	0.0523	0.0247	0.118
	(0.286)	(0.256)	(0.113)	(0.475)
fiscal_cor	-0.0660	-0.0660	-0.0559	0.0482
	(0.0997)	(0.0688)	(0.0546)	(0.0906)
sgp	0.0673	0.0673**	0.0743***	0.0562**
	(0.0420)	(0.0276)	(0.0255)	(0.0234)
$pbcap_{t-1}$				0.148*
				(0.0796)
constant	-0.102	0.149	0.141	-0.00497
	(0.144)	(0.125)	(0.104)	(0.158)
N	272	272	272	238

R^2	0.581	0.453
adj. R^2	0.542	0.439

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 17: Unemployment and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_pbcap	0.253***	0.253***	0.269***	0.232***
	(0.0456)	(0.0539)	(0.0504)	(0.0549)
unemployment	-0.00751*	-0.00751*	-0.00448	-0.00687
	(0.00382)	(0.00388)	(0.00335)	(0.00458)
alignment	0.0436*	0.0436	0.0454*	0.0597**
	(0.0224)	(0.0263)	(0.0251)	(0.0302)
foral	0.382**		0.192***	
	(0.148)		(0.0370)	
sh_izq	-0.267	-0.267	-0.238	0.0929
	(0.264)	(0.253)	(0.207)	(0.335)
sh_reg	-0.0742	-0.0742	-0.0103	-0.0484
	(0.281)	(0.235)	(0.108)	(0.507)
da(97-01)	-0.108***	-0.108***	-0.0937***	-0.101***
	(0.0239)	(0.0174)	(0.0204)	(0.0291)
da(02-10)	-0.0429	-0.0429	-0.0158	-0.0328
	(0.0352)	(0.0399)	(0.0366)	(0.0225)
$pbcap_{t-1}$				0.141*
				(0.0798)
constant	0.146	0.371***	0.263**	0.172
	(0.155)	(0.126)	(0.118)	(0.155)
N	272	272	272	238
R^2	0.593	0.469		
adj. R^2	0.555	0.455		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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A Appendix A

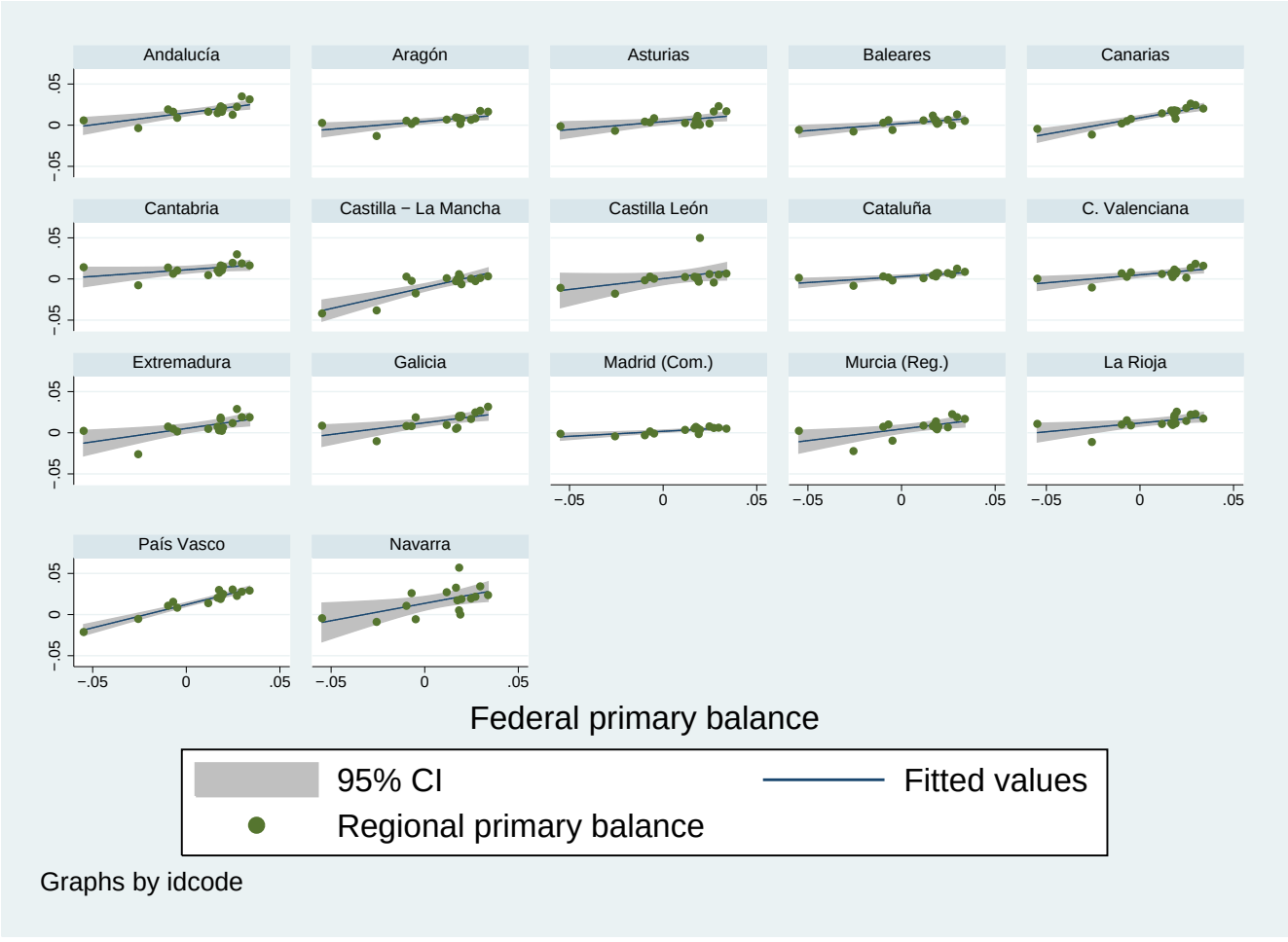

Figure 4: Regional vs federal primary balances scatter plot

B Appendix B

Table 18: PIB growth rate and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_defpib	0.133***	0.133***	0.142***	0.141***
	(0.0409)	(0.0373)	(0.0352)	(0.0486)
pibgrowth	0.00119***	0.00119***	0.00115***	0.00100**
	(0.000362)	(0.000302)	(0.000297)	(0.000399)
alignment	0.00164	0.00164	0.00173	0.00170
	(0.00113)	(0.00148)	(0.00148)	(0.00128)
foral	0.0130		0.00661**	
	(0.00899)		(0.00282)	
sh_izq	-0.0163	-0.0163	-0.0152	0.00740
	(0.0162)	(0.0174)	(0.0135)	(0.0181)
sh_reg	0.00386	0.00386	0.000210	0.0251
	(0.0178)	(0.0153)	(0.00877)	(0.0262)
fiscal_cor	0.00322	0.00322	-0.000940	0.00161
	(0.00459)	(0.00386)	(0.00303)	(0.00522)
sgp	0.00222	0.00222	0.00299**	0.00311**
	(0.00210)	(0.00150)	(0.00149)	(0.00141)
$defpib_{t-1}$				0.117
				(0.0868)
constant	-0.00669	0.00359	0.00454	-0.00911
	(0.0107)	(0.0100)	(0.00713)	(0.0112)
N	255	255	255	238
R^2	0.582	0.439		
adj. R^2	0.541	0.423		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 19: PIB growth rate and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_defpib	0.211***	0.211***	0.209***	0.200***
	(0.0478)	(0.0453)	(0.0432)	(0.0449)
pibgrowth	0.000733*	0.000733**	0.000743**	0.000641*
	(0.000383)	(0.000336)	(0.000318)	(0.000370)
alignment	0.00244**	0.00244	0.00242	0.00237
	(0.00115)	(0.00161)	(0.00159)	(0.00165)
foral	0.0150*		0.00670**	
	(0.00795)		(0.00267)	
sh_izq	-0.0178	-0.0178	-0.0165	0.00383
	(0.0159)	(0.0165)	(0.0129)	(0.0184)
sh_reg	0.00368	0.00368	-0.000736	0.0232

	(0.0176)	(0.0147)	(0.00858)	(0.0251)
da(97-01)	-0.00625***	-0.00625***	-0.00625***	-0.00474**
	(0.00167)	(0.00140)	(0.00137)	(0.00201)
da(02-10)	-0.00368	-0.00368*	-0.00378**	-0.00192
	(0.00256)	(0.00181)	(0.00177)	(0.00237)
$defpib_{t-1}$				0.0932
				(0.0841)
constant	0.00397	0.0146	0.0140**	0.000764
	(0.0111)	(0.00964)	(0.00694)	(0.0118)
N	255	255	255	238
R^2	0.592	0.452		
adj. R^2	0.552	0.436		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 20: PIB growth rate and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_pbpib	0.194***	0.194***	0.202***	0.177***
	(0.0527)	(0.0442)	(0.0398)	(0.0501)
pibgrowth	0.000721*	0.000721**	0.000682***	0.000699*
	(0.000386)	(0.000275)	(0.000263)	(0.000416)
alignment	0.00171	0.00171	0.00181	0.00159
	(0.00112)	(0.00143)	(0.00143)	(0.00137)
foral	0.0156*		0.00723***	
	(0.00882)		(0.00271)	
sh_izq	-0.0101	-0.0101	-0.0110	0.0173
	(0.0162)	(0.0178)	(0.0138)	(0.0189)
sh_reg	0.00950	0.00950	0.00328	0.0275
	(0.0182)	(0.0171)	(0.00827)	(0.0250)
fiscal_cor	0.00388	0.00388	0.000561	0.00402
	(0.00491)	(0.00472)	(0.00389)	(0.00520)
sgp	0.00231	0.00231	0.00300**	0.00265**
	(0.00195)	(0.00143)	(0.00145)	(0.00115)
$pbpib_{t-1}$				0.128
				(0.0900)
constant	-0.00997	0.00113	0.00272	-0.0142
	(0.0101)	(0.00997)	(0.00661)	(0.0109)
N	255	255	255	238
R^2	0.590	0.431		
adj. R^2	0.549	0.415		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 21: PIB growth rate and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_pbpib	0.279***	0.279***	0.278***	0.266***
	(0.0566)	(0.0537)	(0.0500)	(0.0542)
pibgrowth	0.000214	0.000214	0.000225	0.000161
	(0.000391)	(0.000308)	(0.000284)	(0.000398)
alignment	0.00258**	0.00258	0.00259*	0.00260
	(0.00114)	(0.00151)	(0.00151)	(0.00170)
foral	0.0188**		0.00765***	
	(0.00778)		(0.00254)	
sh_izq	-0.0108	-0.0108	-0.0122	0.0122
	(0.0158)	(0.0170)	(0.0129)	(0.0181)
sh_reg	0.00743	0.00743	0.00159	0.0185
	(0.0180)	(0.0167)	(0.00784)	(0.0227)
da(97-01)	-0.00678***	-0.00678***	-0.00682***	-0.00621***
	(0.00157)	(0.00140)	(0.00141)	(0.00194)
da(02-10)	-0.00270	-0.00270	-0.00284*	-0.00230
	(0.00184)	(0.00161)	(0.00158)	(0.00201)
$pbpib_{t-1}$				0.113
				(0.0904)
constant	-0.00176	0.0103	0.0109**	-0.00205
	(0.0100)	(0.00897)	(0.00549)	(0.0103)
N	255	255	255	238
R^2	0.603	0.450		
adj. R^2	0.564	0.434		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

C Appendix C

Table 22: PIB growth rate and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_defcap	0.290***	0.290***	0.292***	0.256***
	(0.0477)	(0.0568)	(0.0550)	(0.0601)
pibgrowth	0.000670	0.000670	0.000515	0.00118
	(0.00770)	(0.00697)	(0.00674)	(0.00762)
alignment	0.0397*	0.0397	0.0396	0.0493**
	(0.0224)	(0.0272)	(0.0271)	(0.0245)
foral	0.421**		0.200***	
	(0.207)		(0.0484)	
sh_izq	-0.469	-0.469	-0.414	-0.241
	(0.331)	(0.359)	(0.263)	(0.269)
sh_reg	-0.252	-0.252	-0.115	-0.103

	(0.372)	(0.295)	(0.132)	(0.440)
fiscal_cor	-0.0693	-0.0693	-0.0899**	-0.0183
	(0.0995)	(0.0580)	(0.0438)	(0.0920)
sgp	0.0783**	0.0783***	0.0853***	0.0799***
	(0.0397)	(0.0210)	(0.0219)	(0.0197)
$defcap_{t-1}$				0.157*
				(0.0900)
constant	0.149	0.380*	0.317**	0.202
	(0.213)	(0.193)	(0.138)	(0.184)
N	255	255	255	238
R^2	0.589	0.472		
adj. R^2	0.548	0.457		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 23: PIB growth rate and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_defcap	0.297***	0.297***	0.299***	0.268***
	(0.0484)	(0.0592)	(0.0577)	(0.0614)
pibgrowth	0.0000300	0.0000300	-0.000291	-0.000504
	(0.00781)	(0.00746)	(0.00694)	(0.00787)
alignment	0.0471**	0.0471	0.0456	0.0566**
	(0.0236)	(0.0290)	(0.0287)	(0.0285)
foral	0.386**		0.194***	
	(0.178)		(0.0411)	
sh_izq	-0.527	-0.527	-0.403	-0.305
	(0.330)	(0.347)	(0.256)	(0.272)
sh_reg	-0.349	-0.349	-0.107	-0.200
	(0.381)	(0.314)	(0.133)	(0.479)
da(97-01)	-0.0802***	-0.0802***	-0.0775***	-0.0589*
	(0.0267)	(0.0221)	(0.0214)	(0.0329)
da(02-10)	-0.00760	-0.00760	-0.00264	0.0177
	(0.0348)	(0.0289)	(0.0239)	(0.0349)
$defcap_{t-1}$				0.156*
				(0.0916)
constant	0.246	0.472**	0.358***	0.303
	(0.216)	(0.186)	(0.133)	(0.198)
N	255	255	255	238
R^2	0.593	0.478		
adj. R^2	0.553	0.464		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 24: PIB growth rate and fiscal corresponsability regressions

	LSDV	FE	RE	GMM
f_pbcap	0.285***	0.285***	0.287***	0.229***
	(0.0516)	(0.0580)	(0.0560)	(0.0580)
pibgrowth	0.000321	0.000321	-0.0000469	0.00451
	(0.00778)	(0.00645)	(0.00623)	(0.00769)
alignment	0.0396*	0.0396	0.0403	0.0447*
	(0.0227)	(0.0272)	(0.0273)	(0.0259)
foral	0.462**		0.216***	
	(0.207)		(0.0450)	
sh_izq	-0.363	-0.363	-0.334	0.0887
	(0.335)	(0.362)	(0.256)	(0.299)
sh_reg	-0.214	-0.214	-0.0496	0.0254
	(0.376)	(0.268)	(0.113)	(0.415)
fiscal_cor	-0.00466	-0.00466	-0.0316	0.0882
	(0.103)	(0.0723)	(0.0534)	(0.105)
sgp	0.0803**	0.0803***	0.0900***	0.0687***
	(0.0398)	(0.0225)	(0.0228)	(0.0206)
$pbcap_{t-1}$				0.172*
				(0.0892)
constant	-0.0238	0.224	0.166	-0.0805
	(0.205)	(0.179)	(0.118)	(0.163)
N	255	255	255	238
R^2	0.583	0.451		
adj. R^2	0.541	0.435		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 25: PIB growth rate and decentralization agreements regressions

	LSDV	FE	RE	GMM
f_pbcap	0.300***	0.300***	0.300***	0.251***
	(0.0523)	(0.0622)	(0.0600)	(0.0603)
pibgrowth	-0.00117	-0.00117	-0.00137	0.00195
	(0.00785)	(0.00712)	(0.00658)	(0.00794)
alignment	0.0490**	0.0490	0.0484*	0.0595*
	(0.0239)	(0.0286)	(0.0285)	(0.0310)
foral	0.467***		0.216***	
	(0.177)		(0.0362)	
sh_izq	-0.403	-0.403	-0.339	0.0316
	(0.334)	(0.350)	(0.252)	(0.283)
sh_reg	-0.283	-0.283	-0.0570	-0.120
	(0.384)	(0.272)	(0.112)	(0.469)
da(97-01)	-0.0835***	-0.0835***	-0.0814***	-0.0761**
	(0.0265)	(0.0231)	(0.0228)	(0.0338)

da(02-10)	0.00807	0.00807	0.0137	0.0163
	(0.0324)	(0.0300)	(0.0250)	(0.0343)
$pbcap_{t-1}$				0.176*
				(0.0918)
constant	0.0704	0.322*	0.231**	0.0616
	(0.207)	(0.170)	(0.114)	(0.168)
N	255	255	255	238
R^2	0.589	0.458		
adj. R^2	0.548	0.443		

Standard errors in parentheses. Estimations with standard errors robust to heteroskedasticity.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$