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# **A spatial analysis of the XIII Italian Legislature**

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# A spatial analysis of the XIII Italian Legislature

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## **Abstract**

We present a spatial map of the Italian House of Deputies during the XIII Legislature obtained by applying the Poole and Rosenthal methodology to roll call data. We estimate coordinates for almost all the 650 Deputies that were on the House's floor at the time, and we aggregate them according to parties. We find that voting patterns generate basically a two dimensional political space. The first dimension represents loyalty to either the ruling coalition or the opposing one. The second dimension is represented by the European Union. These findings are consistent with the exceptional case of the party Northern League, which at the time did not belong to either coalition, and presented itself as a northern, separatist, and anti-system party.

# 1 Introduction

This paper offers a spatial map of the Italian political space as it unfolds from the final votes cast by the members of the House of Deputies (the lower chamber of the Italian Parliament) in the course of the XIII legislature (1996-2001). We use the methodology developed and applied to the U.S. Congress by Poole and Rosenthal (1997) (PR henceforth) and we then address three basic questions: 1) what is the dimensionality of the Italian party system? 2) What do these dimensions mean? 3) How do our results relate to previous spatial studies?

The Italian political space has been investigated for the past three decades, under a variety of methodologies and in different time frameworks: Party positions have been estimated using expert surveys data (Warwick (2005)), mass survey data (Sani and Sartori (1978), Corbetta et al. (1988)), ecological data (Ricolfi (1999)), and party manifesto data (Budge et al. (2001), Campus (2001), and Pelizzo (2003)). Little agreement has been achieved about the number and the nature of its dimensions. Some scholars have in fact suggested that the Italian political space is or can be properly represented as uni-dimensional, with parties ordered along the (ideological) left-right dimension. This is the interpretation given by Sani and Sartori (1978) for the mid seventies, by Corbetta et al. (1988) for the 1966-1983 period, by Campus (2001) for the 1996 elections, and by Pelizzo (2003) for the 1948-1996 period. Others have argued that the Italian political space is multi-dimensional. This is the evidence found by Ricolfi (1999) and Ricolfi (2004) for the periods 1953-1992 and 1994-1996, and by Loera and Testa (2004) who have investigated the dimensionality of the perceptual space of the voters in the new millennium. It is however interesting to note that the scholars advocating the multi-dimensional interpretation of the Italian political space have not reached a consensus as to what are its structuring dimensions. For several decades it was believed that the first dimension of the Italian political space was the ideological left-right ordering and that the second dimension divided pro-system and anti-system parties (Sani (1973)). Recent studies have instead suggested not only that the second dimension might have a different meaning (Ricolfi and Testa (2002)) but also that the left-right dimension may no longer represent the main dimension of the Italian political space (Ricolfi (1999) [page 31]).

By applying the PR methodology, we can estimate the political coordinates of each party and the dimensionality of the political space as they

unfold from voting behaviors in the House.<sup>1</sup> We find that the Italian political space is best understood as two-dimensional, and we discuss the nature of these two political dimensions. Specifically we argue that the first dimension structuring the parliamentary party system is the loyalty to the coalition each party belongs to, while the second dimension reflects differences with respect to the European Union (EU henceforth).

The remainder of the paper is organized as follows: section 2 reports a brief description of the institutional factors, section 3 discusses the data we collected, section 4 reports the estimated spatial map, discusses the dimensionality of the political space and its interpretation, while section 5 concludes and suggests some possible venues for future research. Minor charts and tables are in the appendix.

## 2 Institutional background

While all the elections in the Italian “First” Republic (1948-1992) had been held under proportionality formulas, those in 1994, 1996, and 2001 were taken under a mixed electoral systems. After the April 18, 1993 referendum, the Italian Parliament was forced *ob torto collo* to rewrite the law for the election of the Senate and, for the sake of homogeneity, of the House of Deputies. For the latter, the agreement was reached on a mixed system, where 475 Deputies (MPs henceforth) ought to be elected in single member districts under first past the post system, while the remaining 155 ought to be allocated among the various parties on the basis of a proportional representation formula, provided that parties reached a 4% electoral threshold nationwide.

The adoption of the electoral law n. 277/93, which is known as *Mattarellum*, was intended to produce a variety of positive outcomes: a more direct relationship between the electors and the elected, weaker parties, as well as more stable effective governments. The adoption of the Mattarellum failed to produce all of the expected outcomes, but it did reshape the Italian political/party system in a major way. Historically the Italian party system had been a prototypical case of polarized pluralism (Sartori (1976)) characterized by the presence of: a party occupying the center-position; a bilateral and irresponsible opposition; anti-system parties; the prevalence of centrifugal

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<sup>1</sup>Initially we applied the NOMINATE model. In this version we use the Optimal Classification (OC) model, so that we can keep more bills and more Deputies’ voting tracks.

drives over centripetal ones; polarization and ideological patterning. After the adoption of the Mattarellum, the Italian party system became, however imperfectly, characterized by a bipolar competition between two coalitions of parties. The imperfection was due not so much to the fact that the coalitions were made up of a fairly high number of parties, but rather to the fact that both in the 1994 and in the 1996 elections there had been a third, smaller, but by no means negligible pole. In the 1994 elections the center-left and center-right coalitions were also competing against the *Patto per l'Italia*, while in the 1996 elections they were challenged, in the North at least, by the Northern League (LN).<sup>2</sup> In the 1996 elections the center-left coalition, known as the Olive Tree (Ulivo henceforth) clearly defeated the center-right coalition known as the Freedom Polo (Polo henceforth) and the Northern League. The XIII Legislature was the first elected with the Mattarellum that lasted for its whole constitutional term of five years, from 1996 to 2001. It presented both similarities with and differences from previous Italian parliaments. Like all the preceding ones, the parliament in the XIII Legislature was not able to support the same government for the whole length of the legislature. During its course four cabinets (Prodi, D'Alema 1, D'Alema 2, Amato 2) were appointed and dismissed by the tiny majority of the Ulivo coalition. But the parliament elected in 1996 differed from its predecessors in two major respects: first, it was characterized by an uncommonly high rate of party switching, as documented by Heller and Mershon (2005). Second, it was forced to support fiscally austere measures to allow Italy to respect the convergence criteria set by the Maastricht Treaty and to join the forthcoming European Monetary Union. These were the institutional and the political scenario in which the XIII Legislature operated. We turn now to the analysis of the voting patterns. Before we do, we will discuss how the data that we analyze were collected.

### 3 The data

Voting procedure in the Italian Parliament is very elaborate. In the standing orders of the House at least twelve articles (with several sub-articles) regulate parliamentary votes. In particular, any time the number of *Yea* exceeds *Nay* and at least half of the MPs are present (i.e. if the

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<sup>2</sup>The Northern League was a member of the center-right coalition at the beginning of the XII Legislature. They then exited it, causing the end of the center-right government. Starting with the XIV Legislature, LN will join again the center-right coalition.

quorum is met), a bill is passed. MPs that are absent because they are on parliamentary duty, are considered as present in the computation of the quorum. Similarly, MPs that show up but abstain, i.e. do not express either *Nay* or *Yea*, are considered as present.

Voting is managed electronically or can be done by raising hand (the most common), by splitting the house in two groups, or by roll call. In some specific instances, such as for bills dealing with human and family rights, constitutional bodies, and electoral rules, voting is secret. In other cases, bills may be passed within Committees, without involving the whole House. (See article 92.1 of the standing orders.)

During the XIII Legislature, 905 approved bills were published in the *Gazzetta Ufficiale*.<sup>3</sup> Some may have been approved during the previous Legislature, some may have been passed with secret vote, while some others may have been approved within Commissions. As a result we have track of voting records for 630 bills.

The House hosts 630 MPs. However as some members resigned before the end of the legislature, and were replaced by others, we have a voting record of 651 MPs. For any bill we know whether each MP was absent, on a justified absence, present and voted *Yea*, *Nay* or abstained. We just coded votes *Yea* and *Nay* while treated all the other cases as missing. The dataset so created has been used to estimate MP's policy positions according to the PR methodology, and the results are reported in the next section.<sup>4</sup>

## 4 Spatial analysis

Table 1 shows the summary statistics of our estimations.

[Table 1 about here.]

The first row reports the number of bills that are in the dataset, while the second indicates the cutoff criterium used for rejecting the bills. Thus roll calls with a majority of more than 99.95% were not considered in the estimation. This is a traditional cutoff rule in the OC method. As a result, 248 roll calls were rejected (third row) and 382 were accepted (fourth row).

Similar numbers (fifth and and seventh rows of table 1) are reported for the number of MPs that were available (651) and those which were rejected (4). The cutoff criterium of 10 (which is still standard) means that only MPs

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<sup>3</sup>The source is the House itself, through its web-site: <http://www.camera.it>

<sup>4</sup>A detailed explanation of the PR methodology is in Poole (2005).

for which there is a record of voting in at least 10 roll calls are considered (sixth row). Thus we estimated coordinates for 647 MPs.<sup>5</sup>

The remaining rows in table 1 show the goodness of fit statistics (percentage of correct classified - PCC, and aggregate proportional reduction in error - APRE) if we estimate a model with one, two, three or four dimensions.<sup>6</sup> Finally, the last six rows report the improvement in, respectively, PCC and APRE if we increase by one the dimensionality of the model.

The first question of interest is about the dimensionality of the political space. How many dimensions do we have? Figure 1 reports the plot of the normalized eigenvalues of the double centered agreement score matrix. A good way to understand the dimensionality of the political space, in fact, consists in locating the *elbow* in such a plot.

[Figure 1 about here.]

As can be seen, it is likely that the overall space may have two or three dimensions. In order to have a better understanding of the dimensionality, we look at the improvements in APRE when we increase by one the dimension. Table 1 shows that an increase from one to two dimensions improves APRE by 6.5 percentage points. Moving further to three dimensions only improves APRE by 1.5 percentage points. Finally, increasing the dimensionality to four generates an improvement of the APRE of only 0.8 percentage points. We can therefore safely conclude that the estimated space is most likely bidimensional, even though one dimension alone explains most of the voting pattern.

Since the type of bills that are proposed and passed is, to a very large extent, endogenous to the legislative process, while we treat them as exogenous in our estimations, we decided to make sure that the low dimensionality is not just an artifact of this issue. To this end, we coded the estimated bills according to two main classifications (Clausen, Peltzman), one we made on

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<sup>5</sup>When we used the NOMINATE model we had to set higher cutoffs for bills (0.025) and MPs (20). The procedure rejected (accepted) 388 (242) bills and 9 (642) MPs.

<sup>6</sup>PCC is just the percentage of the correct predictions that are generated by the estimated model. Instead, APRE explains how the model can be improved with respect to the trivial prediction *all MPs vote according to the majority*. It is computed as

$$APRE = \frac{\sum_j \{\text{minority vote} - \text{classification error}\}_j}{\sum_j \{\text{minority vote}\}_j},$$

and it is equal to 0 when the model does not improve on the benchmark case, it is equal to 1 when the model achieves perfect classification, and it is negative whenever the model generates more errors than the benchmark.



our own (Ours), and one that is provided by the House itself (Teseo).<sup>7</sup> We then computed the Herfindahl concentration index (H) for any of the above mentioned classifications, and then we normalized it (NH) in such a way that it ranges between 0 (maximum spread, that is even distribution, of the bills) and 1 (maximum concentration of bills in one category).<sup>8</sup> Table 2 reports our findings for any classification of the bills we adopted.

[Table 2 about here.]

The worst possible scenario is if we look at the Clausen classification, which has the smallest number of categories. Even so, we have that NH is 0.123, so that the variety of bills passed is just 12.3% far away from an even distribution. Therefore the low dimensionality in the Italian Parliament is not a mere artifact of the legislative process, and we can now move onto understanding the meaning of these two dimensions.

Cutting line angles provide a useful way to understand which dimension is playing an important role in each roll call. In particular, any time the cutting line is (close to) vertical, we know that voting goes according to the first dimension. Similarly, when the cutting line is (close to) horizontal, we know that voting is mainly determined by the second dimension. Figure 2 reports the distribution of the bills by cutting line angles.

[Figure 2 about here.]

As we can see, the distribution has two peaks, one where the cutting lines are almost vertical, and one where they are almost flat. The majority of bills is concentrated around the vertical cutting lines, which confirms the prominent role played by the first dimension in explaining the voting pattern.

Despite the fact that the Italian political arena is characterized by a multiparty system, the XIII Legislatures offers us the possibility to compare the voting patterns within the two main coalitions: Ulivo and Polo. Thus we define party-line votes whenever at least 90% of the Ulivo coalition voted

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<sup>7</sup>This procedure is taken again from Poole and Rosenthal (1997), where a description of Clausen and Peltzman classifications can be found. In the appendix we report a description of both Teseo and Ours classifications.

<sup>8</sup>Specifically, if we let  $p_i$  denote the percentage of bills within category  $i = 1, \dots, n$ , the Herfindahl index is computed as  $H = \sum_i p_i^2$ . Whenever the bills are evenly split,  $H = 1/n$ . Whenever bills are concentrated on one category only,  $H = 1$ . Our normalization generates  $NH = (nH - 1)/(n - 1)$ , which ranges between 0 (maximum spread) and 1 (maximum concentration).

against at least 90% of the Polo coalition.<sup>9</sup> Figure 3 shows the distribution of the bills with party-line votes by cutting line angles.

[Figure 3 about here.]

As we can see, cutting line angles are closer to vertical when party-line votes are present.

So what do these dimensions mean? Let us first take a look at the scatter plots of individual MPs coordinates. Figures 4 and 5 report the spatial maps for each MP, that are labeled according to, respectively, the party and the coalition they belong. In particular, parties who did not belong to either majority (Ulivo) and minority (Polo) are labeled I (independent). Moreover, parties who changed their support to the Ulivo during the legislature are labeled UI. MPs' coordinates are clustered for each group.

[Figure 4 about here.]

[Figure 5 about here.]

To the left of the origin in the first dimension (horizontal axis) we can find the MPs belonging to the center-left parties, while to the right are the MPs belonging to center-right parties. On that side, along the second dimension, members of LN are somehow disconnected from the other parties. Similarly to the left, even if less marked, MPs of Party of the Communist Refoundation (PRC). We will discuss in length this pattern when we analyze the meaning of those political dimensions. For the moment we just stress on the fact that, overall, MPs are clustered by parties. Table 3 reports three measures of cohesion that confirms a high homogeneity of voting patterns within parties. The first indicator is the Rice index, the second one is Agreement Index (AI), which has been proposed by Hix et al. (2005), and the last one is Modified Agreement Index (MAI), which is proposed by us. The basic difference between these three measures of cohesion concerns the number of voting options that are taken into account. In the Rice index only (yes, no) are considered, in the AI three of them (yes, no, abstain) are included by AI, while in the MAI four voting options (yes, no, abstain, absence) are considered.<sup>10</sup>

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<sup>9</sup>The analysis summarized by figure 3 was done by including LN in the Polo coalition. This does not affect the results and allows for more bills to be considered. Similarly, in figure 5 LN is labeled as a member of Polo. Nevertheless our analysis keeps the distinction between LN and Polo clear.

<sup>10</sup>Specifically, let  $s_{ij}$ ,  $n_{ij}$ ,  $a_{ij}$  and  $h_{ij}$  be, respectively, the number of MPs for group  $j$

[Table 3 about here.]

Table 3 shows us that there is a high homogeneity of voting patterns within each party but once we account for absence, some differences arise. We also have that Rice and Agreement Index are significantly correlated (0.862), while neither of them is significantly correlated to the Modified Agreement Index (resp. 0.454 and 0.261). We interpret this as a suggestive evidence that the role of absence from voting sessions needs to be further investigated.

Figures 6 and 7 report the spatial maps obtained by, respectively, taking the mean and the median of each party member's coordinates.<sup>11</sup>

[Figure 6 about here.]

[Figure 7 about here.]

Interestingly enough, median coordinates are more clustered than the average ones, which shows how the overall distribution is skewed towards the center of the space.

Visual inspection of the spatial maps reveals that, from left to right, the parties that are more loyal to the (center-left) government are clustered around the left-end of the spectrum, the LN is located at the right-end of the spectrum, while the parties belonging to the center-right coalition are placed in between. This party ordering could be interpreted in the following way: on the left we have the responsible government-parties, which vote together to make the government work. We have then an opposition that, while opposing the government on partisan issues and votes, does not perform

that vote yes, no, abstain or stay home for roll call  $i = 1, \dots, m$ . The Rice index for group  $j$  is

$$R_j = \frac{1}{m} \sum_{i=1}^m \frac{|s_{ij} - n_{ij}|}{s_{ij} + n_{ij}};$$

The Agreement index is:

$$AI_j = \frac{1}{m} \sum_{i=1}^m \frac{\max\{s_{ij}, n_{ij}, a_{ij}\} - 1/2(s_{ij} + n_{ij} + a_{ij} - \max\{s_{ij}, n_{ij}, a_{ij}\})}{s_{ij} + n_{ij} + a_{ij}};$$

The Modified Agreement index is:

$$MAI_j = \frac{1}{m} \sum_{i=1}^m \frac{\max\{s_{ij}, n_{ij}, a_{ij}, h_{ij}\} - 1/3(s_{ij} + n_{ij} + a_{ij} + h_{ij} - \max\{s_{ij}, n_{ij}, a_{ij}, h_{ij}\})}{s_{ij} + n_{ij} + a_{ij} + h_{ij}}.$$

<sup>11</sup>Specifically, we followed a two steps process: first, we computed the average (median) of MP's coordinates by group in each bill, considering only those MPs that actually voted on that bill. Then we computed the group average (median) across all bills.

its role in a completely irresponsible manner and supports the government whenever it is necessary to do so. And finally we have an extremist, ideologically alienated party that opposes both the government and the responsible opposition. A similar interpretation has been suggested for the two party case in the U.S. Congress (see Poole and Rosenthal (1997)). We tested this hypotheses by looking at the change in APRE if we move from one to two dimensions in the subset of all the bills where party line vote was present. The change in APRE is only about 1.7%, which we consider small enough to confirm our hypothesis.

As for the second dimension, our analysis reveals that the EU provides the best explanation for the change in the dimensionality of the political space in the Italian parliament. To test this hypothesis we once again looked at the changes in APRE if we move from one to two dimensions in each bill's categories as given from the four bills classifications (Peltzman, Clausen, Ours and Teseo). In particular, we consider only those categories with at least 10 roll calls and 20% change in APRE. For any of the classifications considered, (see tables 12 through 15 in the appendix) we find that the foreign policy variable is the one that passes the test (or is the closest to pass it). Nevertheless, the most striking results are obtained with the Teseo classification, which considers explicitly the category European Affairs (number 15), and which generated the highest change in APRE (0.328). The importance of the pro-Europe/anti-Europe dimension in influencing the voting behavior of the Members of the European Parliament, has been highlighted by Hix et al. (2006). It is therefore interesting to find that EU-related issues affect the legislative behavior of parliamentarians not only in a supranational legislature such as the European Parliament, but also in the Italian Parliament.

Next we look for other evidence to further corroborate our findings. We use data collected by Benoit and Laver (2006) and perform correlation and regression analysis with parties' averages on each dimension.<sup>12</sup> Benoit and Laver (2006) constructed their data-set through an ample survey, where country experts were asked to locate each party on 20-point scales for different issues. We consider virtually all their variables that apply to Italy, divided in two main sets. The first illustrates party positions on national policy issues, and includes the following variables: *RILE*, which represents the left-right dimension as a super-issue that indicates simultaneously where a party stands and what a party stands for. Low scores are associated with

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<sup>12</sup>As will become clear later, the use of correlation analysis is needed by the relatively small sample size we have.

leftist positions. *TASPEN*, which is related to fiscal policy. Low scores are associated with positions favorable to increase taxes to increase public expenditures. This is a variable of interest because at least two Italian parties, Let's Go Italy (FI) and the LN were strongly advocating a reduction of the fiscal pressure. *IMMIGRA*, which summarizes positions on immigration. Low scores are associated to a greater acceptance of immigrants and asylum seekers. This issue was particularly important in the course of the XIII legislature for at least two reasons: first, it had represented an important electoral topic for some parties, such as LN; second, it was perceived as a possibly destabilizing factor for the already weak majority coalition (Hine (1999)). *DEREG*, which is related to the role of the government in the economy. Low scores are associated to positions favoring high control and regulation of the market. *DECEN*, which is about the degree of decentralization of the public administration. Low scores indicate the advocacy to a high level of decentralization. The relevance of this variable is given by the fact that talks about possible reforms of the public administration were present during the works of the Bicameral Commission for Constitutional Reforms, whose existence affected to a certain extent the parliamentary agenda. *SOCIAL*, which codes positions on matters like abortion and homosexuality. Low scores are associated to more liberal views. This variable is of interest because it can potentially separate parties on the basis of their receptiveness of catholic values as they are expressed by the Roman Church. *ENVIR*, which ranks parties according to the priority they assign to environmental issues. Low scores are for the more environmentalist groups.

The second set of indexes summarizes party positions on a variety of issues related to the EU such as its enlargement, its role in peacekeeping activities, its strengthening, accountability, and authority. This group includes the following variables: *EUPEACE*, which deals with the role of the country in peacekeeping missions. Low scores mean a clear approval of the employment of Italian troops in peacekeeping missions in other countries. This variable was relevant in the Italian political agenda of the legislature (Bellucci (1997); Sciortino (1998)): the Italian army was involved in peace-keeping missions (Bosnia and Albania), and the decision to joint them was quite controversial. *EUACC*, which tackles a very important question: whether the EU should be an intergovernmental organization controlled by national governments or whether the EU should be a supranational entity with its own power and authority. Low scores are associated to positions that are more favorable to a direct accountability to the citizens. *EUAUTH*, which is about defining the areas of authority of the EU. Low scores are related to

increasing the areas of intervention for the EU.<sup>13</sup>

Last, we construct a dummy variable (*GOV*) to indicate whether a party has supported at least one of the governments of the legislature.

We look at the correlations between parties' average coordinates on each dimensions and these sets of indicators. The results for the first dimension are reported in table 4. They reveal that all variables but *EUPEACE* are significantly related to the parties' average coordinates.

[Table 4 about here.]

The results for the second dimension are reported on table 5. As we can see, no variable but *EUPEACE* is significantly related to parties' average coordinates.

[Table 5 about here.]

Since, in the Italian case, different positions on the left-right dimensions reflect different party stances with regard to taxation, immigration and deregulation, some of the above results are expected.<sup>14</sup> For instance, if *GOV* is highly correlated to *RILE*, then it should also be highly correlated to, say, *TASPEN*, *DEREG*, and *IMMIGRA*. On the other hand, we note that *EUPEACE* separates itself from all the other variables (not only those EU-related) in the passage from first to second dimension.

Finally we regress party positions on each dimension against these independent variables. Given the small size of the sample, we cannot employ more than two regressors in any run. Thus, for the first dimension we start with *GOV* and *RILE* to test whether the dialectic government opposition is more important than the left-right super issue. We find that *GOV* prevails and we use it as regressor with any of the remaining variables. Similarly, for the second dimension we keep *EUPEACE* and match it with any other variable.

For the first dimension, the results of our regression models, which we label M1 to M10, are presented in tables 6 and 7.

[Table 6 about here.]

[Table 7 about here.]

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<sup>13</sup>A more detailed definition of these variables can be found in Benoit and Laver (2006).

<sup>14</sup>We also looked at the correlation among these variables, and we found that *RILE* is highly correlated to *TASPEN*, *IMMIGRA*, *DEREG*, *GOV*, *ENVIR*, *SOCIAL*, *EUACC*, and *EUAUTH*.

As we can see, tables 6 and 7 reveal that *GOV* is always significantly different from zero, and has a coefficient whose magnitude is roughly between 0.11 and 0.25. As for the other variables, when they are significantly different from zero (like *EUACC*, *EUAUTH*, and *IMMIGRA*) their coefficient is much smaller (roughly one fifty to one twelfth) than *GOV*. Overall these findings seem to confirm the predominance of the dialectic between government and opposition in shaping the first dimension of our estimated political space. Our interpretation is perfectly consistent with the fact that a party like PRC, which traditionally occupied the far left position of the left-right dimension, is positioned in more centrist position in our map. In fact, PRC's support for the government was weak to the extent that induced Prodi to resign from Prime Minister. Moreover, our finding can be explained in the light of the transformation of the Italian party system. In the course of the so called First Republic, this system was a case of polarized pluralism, in which there was limited alternation in government. The Christian Democrats were members of every government coalition, alternation affected exclusively the smaller coalitional partners, and the bilateral opposition had an incentive, under those circumstances, to be irresponsible and take anti-systemic stances. By contrast, in the new Italian party system, there is a real alternation in power between a center-right coalition, which has won the 1994 and the 2001 elections, and a center-left coalition that has won the 1996 and the 2006 elections. As a result, opposition parties have now an incentive to fence the government on socio-economic issues and to present themselves as possible members of a future government, rather than competing on the basis of an ideologically charge, alienated, anti-system platform. Previous work (Sartori (1976)) had underlined that the left-dimension in Italy was a constitutional dimension and reflected the fact that anti-system parties such as the Italian Communist party on the extreme left and the Italian Social Movement on the extreme right occupied extreme positions on this spectrum because these parties instead of opposing the government on the basis of its policy proposals and programs, challenged the democratic nature of the Italian political regime. The data presented in this paper suggests instead a different conclusion, namely that the opposition between the parties of the left and of the right, an opposition that reinforces the dialect between government and opposition parties, is no longer based on constitutional issues, but is instead based on socio-economic issues (*TASPEN*, *IMMIGRA*, *DEREG*). Hence, as the peripheral alternation, that for Sartori was peculiar of polarized pluralist party systems, has been replaced by real, bipolar alternation, parties' positions in the political space have come to represent parties' stances on substantive socio-economic issues rather than

their position viz-a-viz the viability of the existing regime.

As for the second dimension, tables 8 and 9 show that *EUPEACE* is the only variable that is significantly different from zero.

[Table 8 about here.]

[Table 9 about here.]

This again confirms the importance that foreign, and, in particular, European affairs have played in shaping the political agenda of the XIII Legislature. Moreover, it suggest one particular channel through which the European dimensions enters the picture: namely, the use of the Italian army in peacekeeping missions abroad. This result is somehow surprising: as parties had conflicting views about the opportunity for Italy to join the European Monetary Union, one could have expected that the rigorous and costly (in terms of short term economic growth, employment, as well as political popularity) fiscal measures that were undertaken by the government to allow Italy to join the Monetary Union would have generated a bigger and differentiation on our political map. On the other hand, this finding seems to reconcile with the role played by foreign and defense policies in our initial analysis of the second dimension, where we compared changes in APRE by group of bills.

## 5 Conclusion

This paper offers a spatial analysis of the Italian House during the XIII Legislature. We found that the Italian political space is virtually two-dimensional and that the first dimension has a greater impact on the ordering of the Italian parties in the political space than the second dimension. We also found that while the first dimension reveals fairly clearly the dialectic between government and opposition, the conflict between government and opposition is structured by what can be considered ideological considerations, namely by party positions along the left-right continuum. Our analysis further suggested that while the left-right dimension remains the single most important structuring factor, as the literature has argued for the past three decades, the nature of the left-right dimension has changed. The left-right dimension, when Sartori proposed his theory of polarized pluralism (Sartori (1976)), reflected party positions viz-a-viz the constitution, but was not significantly related to parties' position on socio-economic issues. By contrast, the analysis that we have performed in the course of the



present investigation, reveal instead that party ordering along the left-right continuum is closely related to parties' position on the socio-economic issues previously identified. The second dimension orders parties according to the European Union. Last, the overall eccentric position of the Northern League is consistent with the anti-system role played by this party during the whole legislature.

Our brief comparison between the Rice, the Agreement and the Modified Agreement indexes has also suggested that a better understanding of the role of absence to voting sessions may help highlight some features related to party's discipline. While party averages can be used to estimate party positions in the political space, in a previous version of this paper we suggested that party dispersion in each dimension can provide a new, behaviorally based measure of party cohesion. This measure has the advantage of coming from a structural model of voting behavior (rather than simply voting outcomes). It may be interesting to understand whether (and if so, how) party dispersion relates to such individual characteristics as electoral district (majoritarian or proportional), and absence from voting sessions.

The analysis and the findings previously discussed may be of interest for scholars working on comparative legislative studies as well as for methodologists. We believe, however, that the results of our investigations may be of particular interest for Italian politics scholars. The analysis performed in this paper represents the first attempt, to our knowledge, to gain a better understanding of the Italian political space by applying the Poole and Rosenthal methodology to the voting record of Italian MPs. Our analysis, as we have underlined throughout the paper, were carried by using the data concerning the XIII legislature, when the center-left coalition, Ulivo, was in power. We believe that it may be of great interest for Italian politics experts to replicate the analysis we have conducted for the XIII Legislature with the data from the recently concluded XIV legislature, where the center-right coalition, which included the Polo and Lega Nord, was in power and with a larger majority. It will be therefore interesting to see whether and to what extent a change in the size and in the ideological outlook of the government majority affects the dimensionality of the political space, the geography of party positions, and the cohesion of Italian parties.

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## A Tables and charts

In this section we report tables and charts of our analysis. Table 10 reports the classification in Teseo. The code number in the second column indicates how we aggregated those bills into 16 categories. Table 11 reports Ours classification.

[Table 10 about here.]

[Table 11 about here.]

Tables 12 through 15 report the change in APRE from one to two, from two to three, and from three to four dimensions by bill according to the classifications we have used. Last, table 16 reports the list of parties sitting in the Parliament.

[Table 12 about here.]

[Table 13 about here.]

[Table 14 about here.]

[Table 15 about here.]

[Table 16 about here.]

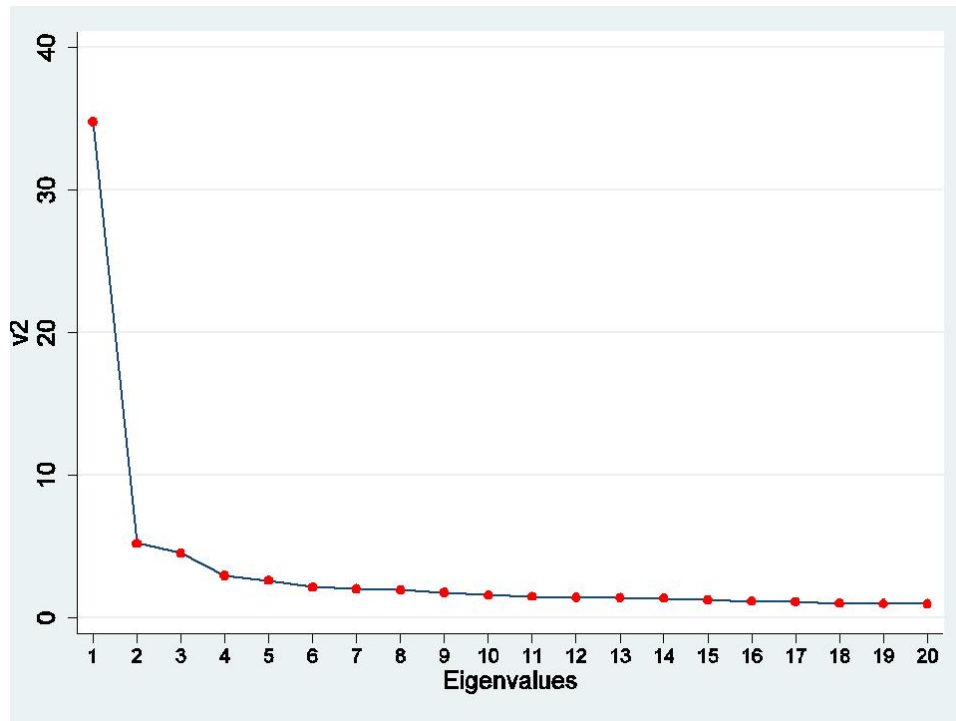


Figure 1: Normalized eigenvalues of the double centered agreement score matrix as indicators of dimensionality of the political space.

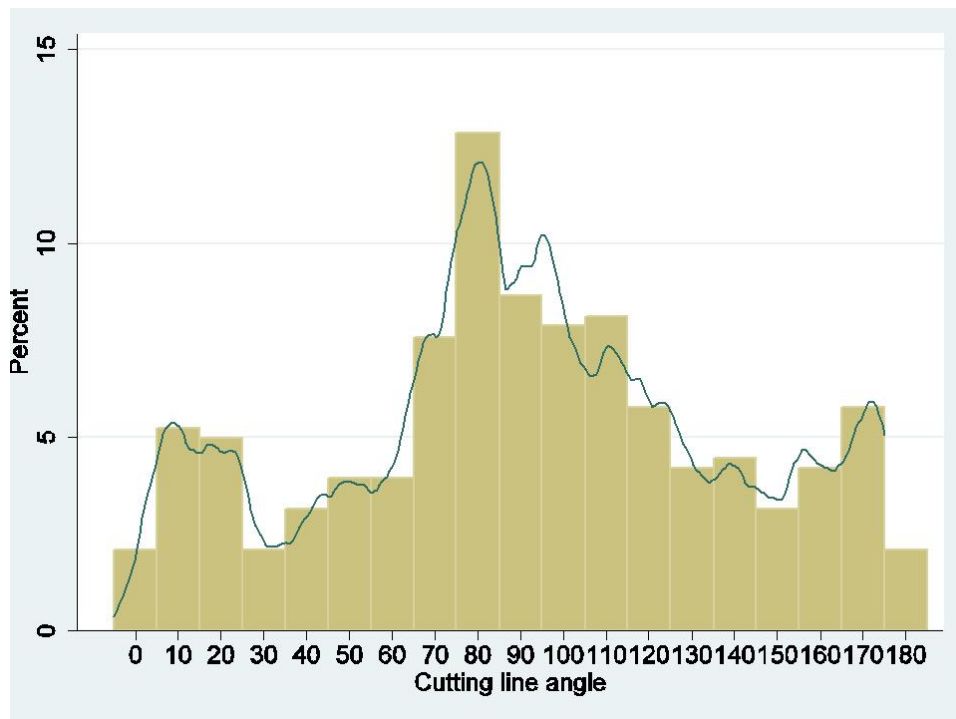


Figure 2: Distribution of bills by cutting line angles

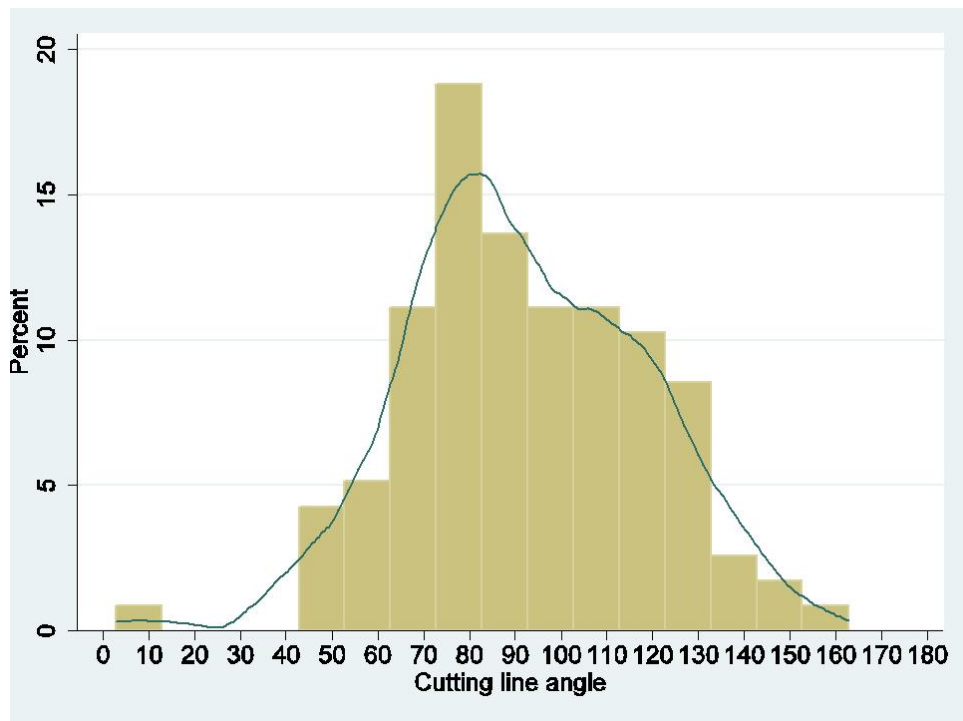


Figure 3: Distribution of bills with party-line vote by cutting line angles





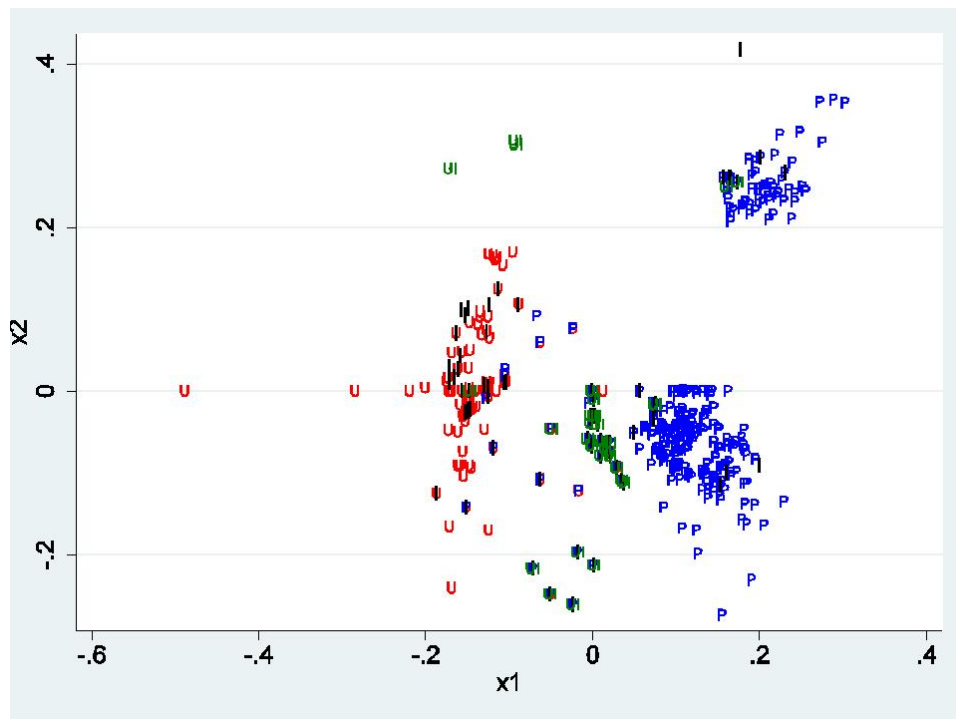


Figure 5: Individual MPs' coordinates.

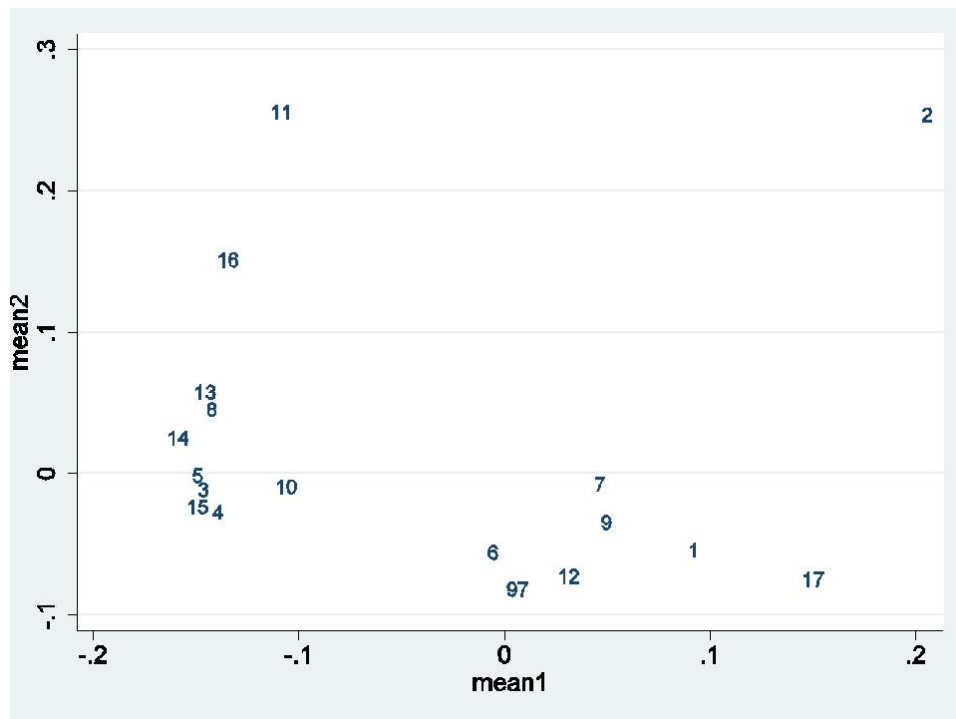


Figure 6: Average coordinates by parties

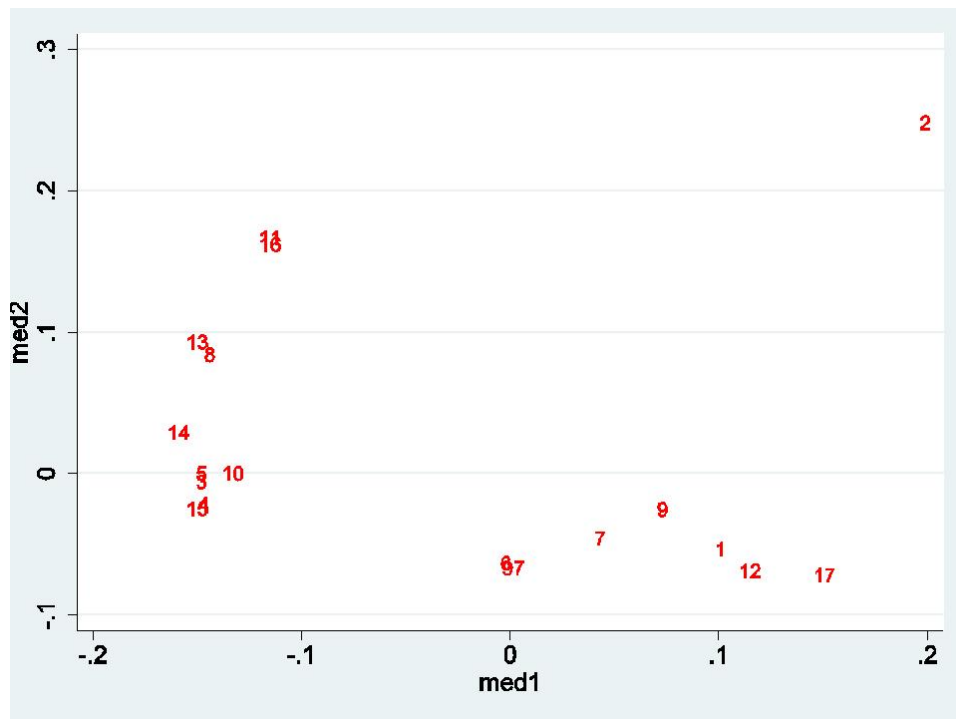


Figure 7: Median coordinates by parties

Table 1: Summary statistics.

SUMMARY STATISTICS	
ROLL-CALLS READ	630
CUTOFF	0.005
NUMBER REJECTED	248
NUMBER ACCEPTED	382
LEGISLATORS READ	651
CUTOFF	10
NUMBER REJECTED	4
NUMBER ACCEPTED	647
$PCC_1$	97.914
$PCC_2$	98.861
$PCC_3$	99.082
$PCC_4$	99.197
$APRE_1$	0.857
$APRE_2$	0.922
$APRE_3$	0.937
$APRE_4$	0.945
$\Delta PCC_2$	0.947
$\Delta PCC_3$	0.222
$\Delta PCC_4$	0.115
$\Delta APRE_2$	0.065
$\Delta APRE_3$	0.015
$\Delta APRE_4$	0.008

Table 2: Dispersion indexes for estimated bills. H is Herfindahl index. Max spread is the minimum value for H. NH is the normalized Herfindahl index.

CLASSIFICATIONS	CATEGORIES	H	MAXSPREAD	NH
TESEO	16	0.107	0.063	0.048
PELTZMAN	12	0.169	0.083	0.093
OURS	17	0.154	0.059	0.101
CLAUSEN	6	0.269	0.167	0.123

Table 3: Agreement indexes for each party.

GROUP	RICE	AI	MAI
1	0.919	0.932	0.504
2	0.955	0.925	0.537
3	0.993	0.989	0.747
4	0.982	0.969	0.543
5	0.991	0.987	0.615
6	0.996	0.986	0.568
7	0.876	0.823	0.555
8	0.989	0.988	0.604
9	0.980	0.957	0.550
10	0.989	0.984	0.570
11	0.991	0.988	0.572
12	0.995	0.914	0.743
13	0.978	0.945	0.603
14	0.998	0.991	0.780
15	0.998	0.989	0.779
16	0.992	0.988	0.499
17	0.951	0.938	0.529
97	0.970	0.936	0.523

Table 4: Correlation analysis between party's average on the first dimension and party positions on issues. \*\* represent significant at 5%.

VARIABLE	COEFFICIENT
GOV	-0.925**
DECEN	-0.152
DEREG	0.652**
ENVIR	0.844**
EUACC	0.955**
EUAUTH	0.873**
EUPEACE	-0.151
IMMIGRA	0.946**
SOCIAL	0.821**
TASPEN	0.762**
RILE	0.906**

Table 5: Correlation analysis between party's average on the second dimension and party positions on issues.\*\* represent significant at 5%.

VARIABLE	COEFFICIENT
GOV	0.296
DECEN	-0.202
DEREG	-0.285
ENVIR	-0.256
EUACC	0.087
EUAUTH	0.323
EUPEACE	0.842**
IMMIGRA	-0.079
SOCIAL	-0.400
TASPEN	-0.310
RILE	-0.362



Table 6: OLS estimates of the average first dimension of each party. Part a. Standard errors are in parenthesis.

MEAN1	M1	M2	M3	M4	M5
GOV	-0.145 (0.063)	-0.233 (0.031)	-0.223 (0.043)	-0.184 (0.055)	-0.106 (0.030)
RILE	0.010 (0.006)				
DECEN		-0.004 (0.005)			
DEREG			0.002 (0.005)		
ENVIR				0.007 (0.006)	
EUACC					0.020 (0.004)
CONS	-0.044 (0.094)	0.142 (0.052)	0.076 (0.069)	0.003 (0.093)	-0.162 (0.052)
Adj. $R^2$	0.861	0.837	0.826	0.844	0.955

Table 7: OLS estimates of the average first dimension of each party. Part b.  
Standard errors are in parenthesis.

MEAN1	M6	M7	M8	M9	M10
GOV	-0.156 (0.027)	-0.246 (0.031)	-0.112 (0.033)	-0.206 (0.060)	-0.210 (0.049)
EUAUTH	0.013 (0.003)				
EUPEACE		0.005 (0.004)			
IMMIGRA			0.014 (0.003)		
SOCIAL				0.003 (0.005)	
TASPEN					0.004 (0.006)
CONS	-0.063 (0.043)	0.061 (0.040)	-0.084 (0.044)	0.053 (0.090)	0.053 (0.079)
Adj. $R^2$	0.937	0.848	0.944	0.829	0.831

Table 8: OLS of the average second dimension of each party. Part a. Standard errors are in parenthesis.

MEAN2	M1	M2	M3	M4	M5
EUPEACE	0.026 (0.006)	0.026 (0.004)	0.028 (0.006)	0.027 (0.006)	0.025 (0.005)
RILE	0.002 (0.005)				
DECEN		-0.011 (0.006)			
DEREG			0.006 (0.006)		
ENVIR				0.005 (0.005)	
EUACC					0.003 (0.005)
CONS	0.026 (0.092)	-0.099 (0.066)	-0.273 (0.095)	-0.271 (0.093)	-0.225 (0.074)
Adj. $R^2$	0.654	0.754	0.678	0.679	0.657

Table 9: OLS of the average second dimension of each party. Part b. Standard errors are in parenthesis.

MEAN2	M6	M7	M8	M9	M10
EUPEACE	0.024 (0.005)	0.024 (0.006)	0.026 (0.005)	0.026 (0.006)	0.027 (0.006)
EUAUTH	0.004 (0.005)				
GOV		0.008 (0.043)			
IMMIGRA			0.003 (0.004)		
SOCIAL				0.002 (0.004)	
TASPEN					0.004 (0.006)
CONS	-0.222 (0.062)	-0.197 (0.055)	-0.235 (0.069)	-0.234 (0.097)	-0.255 (0.095)
Adj. $R^2$	0.669	0.646	0.672	0.653	0.666

Table 10: Teseo classification of bills.

TESEO CLASSIFICATION	CODE
CONSTITUTIONAL MATTERS	1
CIVIL LIBERTIES AND CIVIL RIGHTS	1
FOREIGN AFFAIRS	2
FOREIGN TRADE	2
AGRICULTURE	3
HEALTH SECTOR	4
BANKS, CREDIT AND MONEY	5
BUDGET	5
STOCK EXCHANGE AND FINANCIAL ACTIVITIES	5
PUBLIC FINANCE AND TAXES	5
PUBLIC ECONOMY AND PRIVATIZATIONS	5
NATIONAL DEFENSE AND ARMY	6
FAMILY AND CHILDHOOD	7
SOUTHERN ITALY AND DEPRESSED AREAS	7
ENVIRONMENT	8
SOCIAL SECURITY AND WELFARE	9
LABOR AND EMPLOYMENT	9
PUBLIC SECTOR	9
UNIONS AND WORKERS RIGHTS	9
LOCAL AND REGIONAL PUBLIC FINANCE	10
REGIONS AND LOCAL AUTONOMIES	10
CONSUMERS PROTECTION	11
COMMERCIAL AND CORPORATE LAW	11
ENERGY	11
INDUSTRY AND CRAFTMANSHIP	11
CULTURE, ENTERTAINMENT, SPORT AND TOURISM	12
EDUCATION AND RESEARCH	12
INFORMATION AND COMMUNICATION	13
TRANSPORTATIONS	13
PUBLIC WORKS AND HOUSING	14
EUROPEAN AFFAIRS	15
LAW AND JUSTICE	16
PUBLIC ORDER AND POLICE FORCES	16

Table 11: Ours classification of bills.

OURS	CODE
CONSTITUTIONAL MATTERS	1
LAW AND JUSTICE	2
FOREIGN AFFAIRS	3
NATIONAL DEFENSE AND ARMY	4
BUDGET, PUBLIC FINANCE AND TAXES	5
PUBLIC EXPENDITURE	6
EDUCATION AND RESEARCH	7
ENVIRONMENT	8
TRANSPORTATION	9
HEALTH	10
LABOR	11
WELFARE AND SOCIAL POLICY	12
AGRICULTURE	13
DELEGATION, RATIFICATION, EXTENSION OF TERMS	14
INFORMATION AND COMMUNICATION	15
INTERNAL AFFAIRS	16
OTHERS	0

Table 12: Changes in APRE in Teseo classification.

CAT	NBILLS	APRE1	APRE2	DAPRE2
1	27	0.738	0.876	0.138
2	131	0.646	0.793	0.147
3	15	0.903	0.929	0.026
4	19	0.926	0.938	0.012
5	51	0.944	0.973	0.029
6	33	0.717	0.880	0.163
7	7	0.927	0.953	0.026
8	18	0.815	0.869	0.053
9	46	0.877	0.933	0.055
10	9	0.875	0.935	0.060
11	20	0.866	0.931	0.065
12	51	0.834	0.894	0.060
13	32	0.883	0.936	0.053
14	14	0.936	0.971	0.035
16	48	0.824	0.861	0.037
15	24	0.426	0.754	0.328

Table 13: Changes in APRE in Ours classification.

CAT	NBILLS	APRE1	APRE2	DAPRE2
0	22	0.898	0.943	0.045
1	26	0.684	0.860	0.176
2	19	0.853	0.883	0.030
3	34	0.701	0.898	0.198
4	9	0.836	0.950	0.113
5	37	0.951	0.981	0.029
6	12	0.924	0.962	0.038
7	13	0.881	0.915	0.034
8	5	0.859	0.900	0.041
9	12	0.942	0.966	0.024
10	9	0.912	0.934	0.022
11	8	0.651	0.795	0.144
12	12	0.941	0.955	0.014
13	11	0.926	0.941	0.015
14	131	0.672	0.812	0.139
15	5	0.833	0.957	0.124
16	17	0.901	0.922	0.021



Table 14: Changes in APRE in Peltzman classifications.

CAT	NBILLS	APRE1	APRE2	DAPRE2
1	28	0.965	0.984	0.019
2	40	0.924	0.950	0.026
3	41	0.860	0.935	0.076
4	35	0.915	0.947	0.032
5	18	0.950	0.965	0.015
8	73	0.800	0.886	0.086
9	3	0.757	0.770	0.014
10	1	0.981	0.990	0.010
61	4	0.728	0.869	0.141
62	19	0.715	0.858	0.144
71	9	0.843	0.951	0.108
72	120	0.479	0.717	0.238

Table 15: Changes in APRE in Clausen classifications.

CAT	NBILLS	APRE1	APRE2	DAPRE2
1	106	0.919	0.963	0.044
2	40	0.895	0.926	0.032
3	13	0.924	0.947	0.024
4	18	0.827	0.888	0.061
5	152	0.628	0.803	0.176
6	53	0.806	0.894	0.088

Table 16: Parties sitting in the House during the XIII Legislature

GROUP NAME	CODE
LET'S GO ITALY (FI)	1
NORTHERN LEAGUE (LN)	2
DEMOCRATS OF THE LEFT (DS)	3
DEMOCRATS (DE)	4
POPULAR PARTY (PP)	5
UNION OF THE DEMOCRATS FOR EUROPE (UDEUR)	6
MIXED	7
MIXED ITALIAN SOCIALIST DEMOCRATS (SDI)	8
MIXED CHRISTIAN DEMOCRATIC CENTER (CCD)	9
MIXED ITALIAN RENEWAL (RI)	10
MIXED PARTY OF THE COMMUNIST REFORMATION (PRC)	11
MIXED SEGNI PACT	12
MIXED GREEN	13
MIXED LINGUISTIC MINORITIES	14
MIXED FEDERATION OF LIBERALS, DEMOCRATIC AND REPUBLICANS (FLDR)	15
PARTY OF THE ITALIAN COMMUNISTS (PdCI)	16
NATIONAL ALLIANCE (AN)	17
CHRISTIAN DEMOCRATIC UNITED (UDR/CDU)	97