How representative is the European Union parliament?

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Abstract

We test the closeness of the correspondence between the preferences of EU citizens and their delegations to the European Parliament using the data on roll-call votes. Differences in EU citizens' preferences are captured using a variety of country characteristics including bilateral country dummy variables, and the demographic, social and economic characteristics of the countries. We find that the differences in delegations' voting patterns are not strongly related to underlying differences between the countries they represent. Our findings support the existence of a democratic deficit in the EU – a gap between the preferences of EU citizens and the way their delegations vote.

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1. Introduction

In July of 2009, the German Constitutional Court rejected the Lisbon Treaty on the grounds that it gave the European Union too much control over German affairs, and that the European Union is not sufficiently democratic. More specifically, the Court argued that the European Parliament (hereafter EP) is not a proper legislature.[1] The Constitutional Court is not the first to complain about a "democratic deficit" in the EU, but it is certainly one of the more authoritative voices lodging this critique. Is the charge justified? In this article we offer a partial answer to this question by examining the degree to which the EP *represents* the preferences of European citizens.

The argument that the EP is not a "proper" legislature is controversial. Amie Kreppel (2006), for example, has compared the EP to the U.S. House of Representatives, and claims that the two bodies are quite similar in terms of their legislative power relative to the executive branch, the important role played by committees in the legislative process, and the frequent appearance of bipartisan voting. She regards the wide-spread belief that the EP is powerless as a "misconception," a view shared by several other observers of EU politics.[2] The Lisbon Treaty, which went into effect in late 2009, has given even more power to the EP. Still further support for the argument that the EP is a proper legislature is provided by the important study by Hix, Noury, and Roland (2007). They provide evidence that party cohesion within the EP has been increasing over time as the EP's legislative power has increased, and that European-wide parties within the EP now behave much like parties in

[1] German Federal Constitutional Court - Press office (2009-06-30). "Press release no. 72/2009. Judgment of 30 June 2009". For a commentary, see *Economist*, July 25, 2009.

[2] See, for example, Tsebelis (1994), Garrett, Tsebelis and Corbett (2001), and Shackleton (2002).

national parliaments, with voting taking place along a classical left-right ideological dimension.

Although there are still some important differences between the EP and national parliaments in Europe or the House of Representatives with respect to their powers to *initiate* legislation, we largely accept the position that the EP now has substantial power to shape policies in the EU, and that it does operate much like any other legislative body. Thus, with respect to the question of whether the EP *functions* like nation state parliaments, we believe that there is no democratic deficit in the EU worth worrying about. Nevertheless, a democratic deficit of sorts might still exist, if the link between the preferences and voting by members of the EP (hereafter MEP) and European citizens' preferences is weak. It is this question that we explore in this article.

One reason to fear that the connection between citizens' preferences and voting in the EP may be weak is that elections for the EP do not serve the same purpose as elections to national parliaments do. They do not reward parties for good past performance, or punish them for bad performance. Instead, they mainly serve as vehicles for voters to express their satisfaction or frustration with the parties in power in their *national* parliaments.[3] Thus, while the punishments and rewards associated with national elections can be expected to align voting in national parliaments with citizens' preferences, the same may not be true of EP elections.

Even if elections to the EP do not serve the same role in revealing citizens' preferences as national parliamentary elections do, it still could be, of course, that the EP does a good job representing European citizens' preferences. In this article, we attempt to

[3] See, for example, Eijk and Franklin (1996), and Føllesdal and Hix (2006).

determine whether this is the case by developing a methodology for measuring how representative the EP is. It turns out that this is not as easy as one might expect. Our empirical findings suggest that the link between citizen preferences and the EP is not particularly strong, and thus concern about the democratic deficit is justified.

The remainder of the article is organized as follows. In the next section we discuss the question of how one can test for the representativeness of the EP, and describe our methodology for doing so. Section 3 discusses the econometric techniques and data used in running the tests. Sections 4 and 5 present the results and conclusions are drawn in the final section.

2. Conceptual Issues

Consider two possible distributions of citizens' preferences with respect to EU questions. (I) All citizens in a given country have the same preferences toward EU legislation, but they differ from the preferences of citizens in another EU country, in which all citizens again have identical preferences. Such a situation might exist, for example, if the EU were to consider setting up defenses against an attack from Russia. Citizens in the Baltic States and Poland might strongly favor such defenses, citizens in Greece and Portugal might be less favorable. When EU issues take this form, we would expect all delegates to the EP from a country to vote in the same way, *if* the delegates vote in accordance with the preferences of the citizens of their respective countries. (II) Citizens' preferences within countries are heterogeneous. Hawks on defense can be found in every country as can doves. With preferences such as these, we expect representatives who are members of right-wing (hawkish) parties to vote in the same way regardless of which country they come from, and

the same to be true for members of left-wing (dovish) parties.[4] Hix et al. (2007) find that party identification has been strengthening over time and now is a much better predictor of how a member of the EP votes than country identification.[5] This implies that citizen preferences in the EU must be of the second type, if votes in the EP are to reflect the underlying preferences of citizens in the member countries accurately.

Here it is perhaps worth noting that the Council of the European Union would be a good vehicle for representing citizens' preferences, if they took the form described under (I). Representatives of the national parliaments could represent the preferences of *all* their citizens on EU issues, since all of their citizens would have the same preferences. If, on the other hand, citizens' preferences are heterogeneous within countries, then the Council is a bad way to represent these preferences, since representatives of the national governments can be expected to represent only the preferences of the voters who supported them – not all of their countries' voters. Moreover, since most EU legislation now requires the concurrence of *both* the Council and the Parliament, we can conclude that at least one of these bodies will not be representing the preferences of the citizens who elected them accurately.

Suppose now that the preferences of voters in country *A* are identical to the preferences of voters in country *B*. *A* has, let us say, a larger population than *B*, but the percentage of citizens in *A* holding one set of preferences is identical to the percentage of citizens in *B* holding the same set of preferences, and this is true for every set of preferences. If the delegations to the EP from *A* and *B* are faithfully representing the preferences of their citizens, then the percentage of yes votes by representatives from *A* on a given issue should be

[4] For example, public opinion on whether "[t]he European institutions should adopt one single language to communicate with European citizens" seems to follow this pattern (Fidrmuc, Ginsburgh, and Weber, 2009).

[5] See also, Hix (2001), Noury (2002), Hix, Noury, and Roland (2005).

identical to the percentage of yes votes by representatives from *B* on that same issue, and this should be true for *all* issues. Identical distributions of preferences within any two countries imply identical voting patterns by their representatives, *if* they are voting in accordance with the preferences of their citizens. Conversely, differences in voting patterns between two countries should, if their representatives are voting in accordance with their citizens' preferences, reflect underlying differences in the distributions of preferences in the two countries. Our methodology, for measuring how representative the EP is, takes advantage of these predictions.

The types of issues voted upon in the EU can vary greatly. On one extreme are issues that benefit large numbers of voters. If all citizens in a country thought they would benefit from the passage of such an issue, each would, presumably, vote in its favor if given a chance. If all citizens in two countries would vote positively on a given issue, then so too should their representatives in the EP, if their votes reflect the preferences of their citizens.

Now consider an issue over which there is disagreement – how much to spend on a given subsidy program, how much to deregulate, etc. Such issues can often be regarded as involving a single, ideological dimension, say left-right. If citizens have single peaked-preferences along the one dimension, and they were to vote directly on the issue, the median voter theorem would apply, and we would predict that the citizens in a given country would choose the policy corresponding to the peak preference of the median voter. Aggregating over all countries, we would expect the outcome for the EU to correspond to the peak preference of the median voter in the EU, if EU citizens' preferences determined the outcome for the EU. Now suppose a vote is taken in the EP between a proposal lying somewhat to the left of this EU-median and the median itself. A yes vote favors the proposal left of the EU-median. If 70

percent of the citizens in country *A* have preferences to the left of the EU-median, and their representatives vote according to their citizens' preferences, then roughly 70 percent of country *A*'s delegation should vote yes.[6] If now, say, 40 percent of the citizens in country *B* have preferences to the left of the median, and their representatives vote according to their citizens' preferences, then roughly 40 percent of *B*'s delegation should vote yes. By the same logic, if a vote is taken between the median and a proposal somewhat to its right, roughly 70 percent of *A*'s delegates and 40 percent of *B*'s should vote no. In both cases the absolute value of the difference in the fractions of the delegates voting yes will be equal to 0.3.

This reasoning leads to our choice of dependent variable. Let X_A^i be the share of the MEPs from country *A* voting for issue *i*, and X_B^i the share of the MEPs from country *B* vote for it. The dependent variable, $d_{A,B}^i$, is then the absolute value of the difference between the fraction of yes votes for *i* in country *A* and the fraction of yes votes for *i* in *B*:

$$d_{A,B}^i = \left| X_A^i - X_B^i \right|. \tag{1}$$

Since X_A^i and X_B^i are shares, the so defined voting distance lies in a closed interval [0,1]. The minimum distance of zero occurs when the shares of MEPs from the two countries voting yes are identical. The maximum distance of one signifies two unanimous but contrarian votes. We do not gauge the sign of the difference in (1), as the difference would then depend on the order in which the countries are entered, and because the sign of the difference cannot be meaningfully interpreted or modeled using our data.

Assume now that some of the issues voted on in the EP fall along a different ideological dimension – north-south rather than east-west (left-right). The fractions of citizens

[6] We say "roughly" because some citizens might have preferences left of the median but to the right of the alternative to it. If votes tend to be on proposals near the median, however, the approximation will be very close.

with preferences to one side of the median in this new dimension differ in countries *A* and *B* from the fractions in the east-west dimension. We still predict similar deviations between the yes-vote shares of the two countries for different issues falling along this north-south dimension, although these differences will not be the same as in the east-west dimension. To allow for the possibility of different dimensions in the issue space, we have placed each issue voted upon into one of eleven issue categories that might, conceivably, have different ideological dimensions– agriculture and fisheries, foreign affairs, etc. (see below). We then estimate separate equations within each issue category.

This discussion implies that differences in the voting patterns of any two countries depend on two things – the characteristics of the issue being voted on and the nature of the underlying citizen preferences in the two countries. We test this proposition by creating two sets of dummy variables. The first set consists of a dummy variable for every proposal voted upon. In one set of regressions, we define a dummy variable for each final vote on an issue. In a second set, we define a dummy variable for both proposed amendments and the final votes on issues. In addition to these vote dummies, we create a dummy variable for each country pair, which is expected to capture the underlying differences between two countries that determine how their delegations vote. By allowing for different relationships between the bilateral country dummies and the voting share differences across issue categories, we allow for the possibility that the issue space has more than one salient dimension.

The inclusion of fixed-effects dummies in empirical work is common in the social sciences. Typically, they are regarded as a kind of catch-all for factors that might affect the dependent variable and have been left out. Our bilateral country dummies are also fixed effects that are included on the assumption that the preferences of citizens in a given country

do not change. Unlike in most empirical studies, however, the country fixed effects are not regarded as something that should be estimated and ignored. They are a key part of the tests. If the delegates from two countries are faithfully representing their citizens' preferences, and these preferences are stable, then the dummy variable for this country pair should explain a large fraction of the differences in how the delegations from the two countries vote.

An alternative to creating bilateral country dummies would be to try to identify the underlying characteristics of a country, which explain the preferences of its voters – income per capita, demography, schooling, etc. If these characteristics remain relatively constant, they should be among the factors captured by the bilateral country dummies, and we would not expect to have higher explanatory power by including them. Some of these variables do change over time, however, and so their inclusion in the regressions is a way to account for these changes. To match the definition of a voting distance, the difference in a characteristic between two member states is defined by an absolute percentage deviation in the respective characteristic. For example, if gdp_A is the per capita GDP of country *A*, and gdp_B is the per capital GDP of country *B*, then the distance in the income levels is defined as:

$$gdp_{A,B} = \left| \frac{gdp_A - gdp_B}{gdp_A} \right|. \qquad (2)$$

We now discuss the data and econometric technique used to obtain our results.

3. Data and Econometrics

3.1 Variable Definitions

The dependent variable in our study is given by (1). To explain differences in how countries vote on issues, we define four sets of variables: vote dummies, country pair dummies, measures of ideology, and variables that capture demographic, social and economic differences across countries.

A dummy variable, v_i, is created for each vote on an issue *i*. As discussed above, we expect country delegations to vote in greater unison on issues that have public good characteristics for the entire EU than on more divisive issues.

The dependent variable is defined for each country pair. We also define a dummy variable, $b^i_{A,B}$, for each country pair, *A* and *B,* which should capture all of the characteristics of countries *A* and *B* that make their delegations to the EP vote differently. Thus, in principle, we could stop here. Nevertheless, it is of interest to try and identify what these characteristics are, and which of them are most important. If characteristic *X* is an important determinant of citizens' preferences, then a large difference between magnitudes of *X* in two countries should be associated with large differences in voting patterns by their representatives in the EP.

Our first set of characteristics captures the ideological differences of the citizens of country pairs, and of their delegations to the EP.

Ideology. An obvious reason why the preferences of voters in two countries might differ is that there are significant ideological differences between the two countries. Hix, Noury, and Roland (2007) have used the NOMINATE procedure developed by Poole and Rosenthal (1997) to identify ideological differences between EU countries. The technique

essentially does a factor analysis of role call votes (hereafter RCVs) in the EP to identify different dimensions of the ideological space. Typically a large fraction of the votes in a parliament can be explained by two dimensions. The first seems to capture the standard left-right dimension and we label it as such, *Left-Right*. The second appears to accord with attitudes toward the EU itself, and is labeled *Anti-Pro EU*. The left-right has been shown to be the dominant dimension in a number of studies that cover the national parties in Europe (Marks, Wilson and Ray, 2001; Aspinwall, 2002), manifestos of the European Parliamentary groups (Hix 1999; Gabel and Hix, 2002), and surveys of electoral attitudes (Gabel and Anderson, 2002). However, studies of RCVs in the EP uncover an additional dimension that can be described as anti-pro European integration, leading to a two-dimensional spatial map of positions of the parliamentary groups in the EP (Hix, Nouri and Roland, 2006; Hix and Noury, 2009). The anti-pro European integration dimension is generally considered to be less prominent and its independence from the left-right dimension has been questioned.[7] We nevertheless control for both dimensions, because the anti-pro European integration dimension may be particularly relevant for some issues such as EU enlargement.

Composition. If one country's delegation to the EP is dominated by left-wingers and another country's by right-wingers, it is likely that their voting patterns will differ. To measure differences in delegation composition across countries we constructed the distance between two countries' delegations. Let f_A^p and f_B^p be the fractions of the delegations from countries *A* and *B* that belong to party *P*. Either fraction can equal zero if party *P* does not include a MEP from that country. The distance between the two countries delegations, *Composition*, is then defined as

[7] See, for example, Gabel and Anderson (2002), and Hooghe, Marks and Wilson (2002).

$$c^{i}_{A,B} = \sqrt{(f^{1}_{A} - f^{1}_{B})^2 + \ldots + (f^{p}_{A} - f^{p}_{B})^2 + \ldots + (f^{n}_{A} - f^{n}_{B})^2}\,, \qquad (3)$$

where n denotes the total number of parties in the EP. Our composition variable treats parties equally, as their ideological complexion has already been reflected by the ideology variables. This is the only continuous explanatory variable that is not a percentage deviation.

Note that, while this variable is relevant for capturing the distance between the party compositions of two delegations, it does not necessarily measure differences in the underlying preferences of the two countries' citizens. As argued above, EU Parliamentary elections are not particularly good ways to reveal citizens' preferences on EU issues.

Country characteristics. In an attempt to identify the country characteristics that have an effect on voting outcomes after differences in ideology have been accounted for, we include differences in several variables that are reasonable candidates for reflecting differences in citizens' preferences. We list them without comment.

Share of agriculture in GDP; GDP per capita; Share of university graduates in the population; Old-Age dependency ratio; and *Population size.*

These variables represent a small set of the potentially large number of characteristics in which countries may differ, but seem to us the most important characteristics likely to influence citizen preferences on a majority of issues. Contrary to our dependent variable, distances in country characteristics are not bounded by one from above. The country characteristics vary by year.

One item of contention throughout the EU's life has been the status of a country as a net contributor to the EU or a recipient.[8] To capture the effect of this difference, we created a dummy variable that equals one when one member of a country pair is a net donor and the other a net recipient, and zero otherwise. This variable was included by itself and interacted with GDP per capita differences, under the assumption that large differences in GDP per capita become more salient between donor and recipient countries.

3.2 Data

We use the data on RCVs collected by Hix, et al. (2007). This is the most comprehensive dataset on votes in the EP. It covers the period from the first directly elected Parliament in 1979 to the end of the fifth Parliament in 2004.[9] The majority of the votes in the dataset are identified by the type of motion and a short description of the issue. We have refined this classification by crosschecking the short description with parliamentary minutes, when available, and placed all proposals voted upon into one of 11 issue categories – agriculture and fisheries, EU enlargement, etc. (see below).

Voting in the EP can be conducted by a show of hands, by a standing vote, by a roll call, or by secret ballot. RCVs identify the delegates voting yes and no and have been the main source of data for studies of voting in the EP. RCVs represent only about a third of the total number of votes in the EP, however, raising the danger of selection bias in the choice of

[8] For a historical overview and current developments of the EU budget see, for example, Blankart and Koester (2009). In budgetary matters, however, one should not overestimate the influence of the EP relative to the Council of Ministers (Napel and Widgrén, 2006). Kandogan (2000) and Kauppi and Widgrén (2007) develop a power-politics view on the allocation of the EU budget in the Council.

[9] Datasets covering types of votes other than the roll-call votes are available for short periods. Such data have been analyzed, for example, in Charrubba, Gabel, Murrah, Clough, Montgomery, Schambach (2006), Thiem (2006), Charrubba, Gabel, Hug (2008). Although the coverage in these datasets is too narrow for our purposes, they are important for understanding how representative the roll-call votes are, and whether the request of a roll-call vote by a parliamentary group is endogenous to the outcome of the voting.

votes examined. Hix, et al. (2007) justify this choice with the claim that RCV are called for the most important issues, and are not disproportionately used for particular issue categories, or are not called disproportionately by certain parties.[10]

The EP votes on many procedural and other issues that do not materially affect EU citizens. Since we want to test whether the preferences of citizens in different countries are reflected in the voting patterns of their representatives in the EP, we confine our sample to votes on legislative issues, which arguably are the most important votes for EU citizens. Legislative votes are taken in the EP on four types of motions:

- *Cooperation*. This procedure allows the EP to send legislation back to the Council for possible amendment. Today it is only used for economic and monetary union questions.
- *Consultation*. Motions by which the EP expresses a non-binding opinion on a piece of legislation.
- *Codecision*. Motions that require the Council to consider the EP's position on a piece of legislation, or send the legislation to a joint committee with the Council to determine a mutually acceptable compromise.
- *Assent.* Votes on motions that allow the EP to veto legislation.

The last two types of motions are more likely to have substantive effects on the legislation enacted by the EU. Therefore, we report separate results for codecision and assent votes, and for cooperation and consultation votes to see whether differences in the types of votes taken are related to differences in the underlying preferences of EU citizens. Together

[10] All three claims have been challenged by Charrubba et al (2006), however.

the four types of votes comprise about one third of the total number of roll-call votes, roughly eight percent of the total number of votes.

The cooperation/consultation votes and codecision/assent votes comprise 35 percent of the total sample of roll-call votes, their respective shares being 19.2 and 15.8 percent. These figures include amendments (non-final) as well as final votes. The shares of final votes in cooperation/consultation votes and codecision/assent are, respectively, 78.2 and 4.5 percent. The high share of non-final votes among codecision/assent votes is consistent with these types of votes being more substantive. Because of their greater importance, more amendments are offered to any proposal than for cooperation and consultation votes. Several authors favor including both amendments and final votes because there is consistently less agreement on amendments than there is in final votes (Kreppel and Tsebelis 1999; Hix 2001). Others have discarded amendment votes arguing that final votes carry more import (Attina 1990; Brzinski 1995). We report pooled results for both types of votes, and separately for the final votes.

3.3 Econometric Methodology

Our choice of regression model is largely determined by the properties of the dependent variable – the voting distance. By definition, the voting distance is contained in the closed interval [0,1]. A histogram of the data in the left panel of Figure 1 shows that a non-trivial proportion of voting distances equals zero (16.68 percent), while the fractional part of the data is strongly positively skewed (sample skewness 1.46), so that the median fractional distance of 0.15 is close to zero. We thus opt for a distributional model whose probability density function has a bounded support and is flexible enough to capture the shape of the empirical density function. Both criteria are met by the Beta distribution, which makes a

generalized linear model based on the Beta distribution a popular choice in modeling fractions.[11]

To model the zero and fractional components simultaneously, we estimate a parametric mixture model. The occurrence of zero distances is modeled using a Bernoulli component, while the fractional data are modeled using a two-parameter Beta (conditional) probability density function:

$$D \mid X = d \sim f(d \mid \alpha(x), \beta(x), p_0(x)) = \begin{cases} p_0 & if \quad d = 0 \\ (1-p_0)\dfrac{d^{\alpha-1}(1-d)^{\beta-1}}{B(\alpha,\beta)} & if \quad 0 < d < 1 \end{cases},$$

where D is the voting distance, X is the matrix of explanatory variables including the unit vector, and $B(\alpha,\beta) = \int_0^1 x^{\alpha-1}(1-x)^{\beta-1}dx$ is the Beta function. The distributional parameters satisfy: $\alpha > 0$, $\beta > 0$, $0 < p_0 < 1$. The three parameters are estimated using the maximum likelihood method.[12] We found that the likelihood function of an alternative parameterization given by $\mu = \alpha/(\alpha+\beta)$, $\delta = (\alpha+\beta+1)^{-1/2}$, $\nu = p_0$ has superior convergence properties; which is the parameterization we estimate. The explanatory variables enter the regression via linear predictors:

$$g_\mu(\mu) = \overline{X}^T \overline{\beta}_\mu, \; g_\delta(\delta) = \overline{I}^T \overline{\beta}_\delta, \; g_\nu(\nu) = \overline{X}^T \overline{\beta}_\nu,$$

where $\overline{X}$ is the matrix of explanatory variables including the unit vector (the superscript T denotes the transpose), $\overline{I}$ is the unit vector, $\overline{\beta}_\mu$, $\overline{\beta}_\delta$ and $\overline{\beta}_\nu$ are the vector of parameters to be

[11] For a survey of fractional data models, see Ramalho, Ramalho and Murteira (2009). A classic treatment of generalized linear models is McCullagh and Nelder (1989).

[12] For details, see Rigby and Stasinopoulos (2005). The estimation techniques are discussed in Akantziliotou, Rigby and Stasinopoulos (2002), who also developed the statistical package used in estimation.

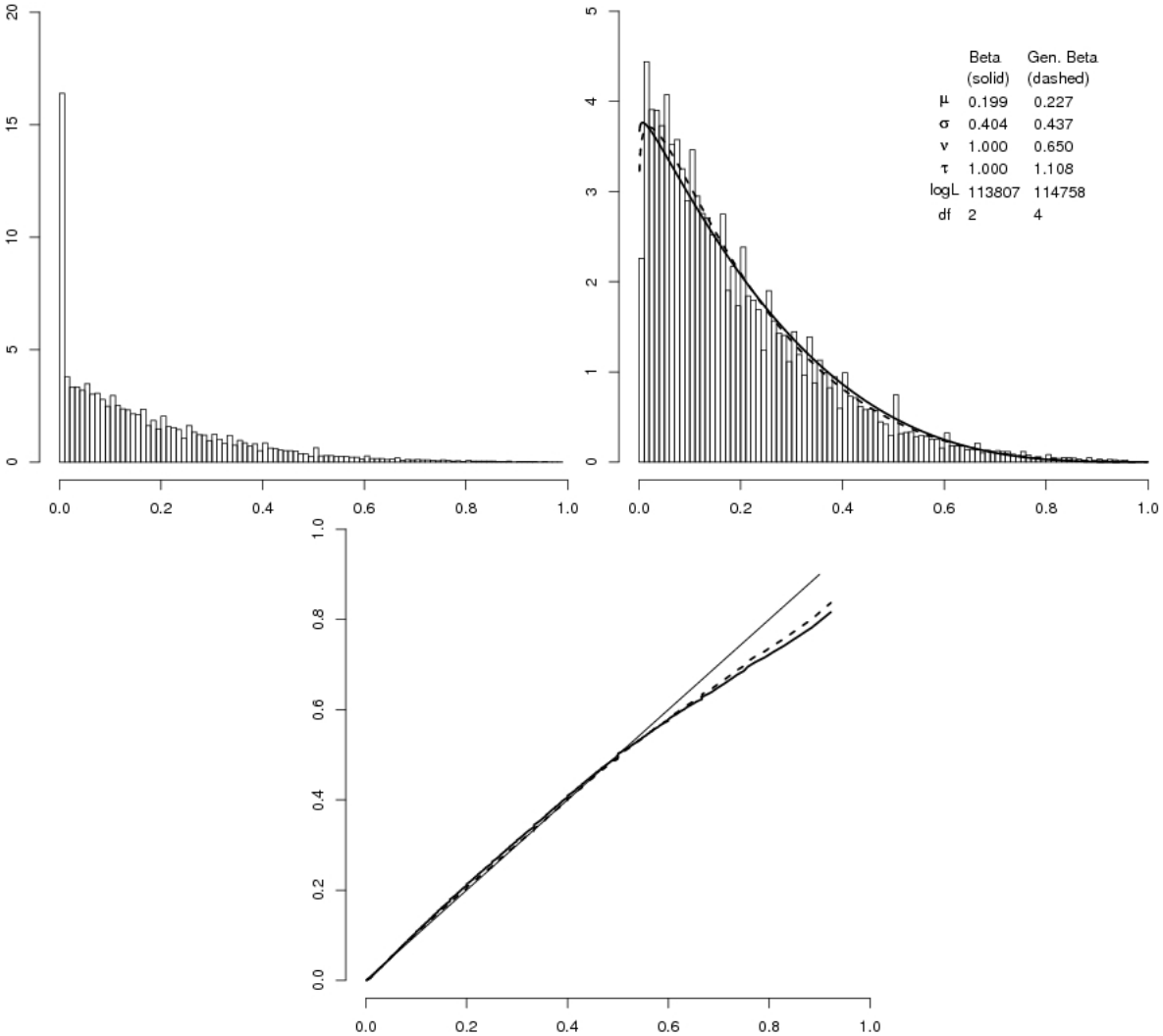
estimated, and g_μ, g_δ, g_ν are the link functions that relate the linear predictor to the density parameter. The link functions (respectively, *logit*, *logit* and *log*) are chosen so as to maximize fit. In view of the large number of explanatory variables, we simplify the above model by regressing the scale parameter on a unit vector, whereas the full set of explanatory variables is used to model the location of the fractional part data and the occurrence of zero distances.

The solid line in middle panel of Figure 1 shows the fit of the Beta density to the fractional data when each parameter is regressed on a constant term only, i.e. when $\overline{X} = \bar{I}$. The quantile plot in the right panel of Figure 1 confirms a satisfactory fit for most of the distribution, except at higher quantiles corresponding to large distances, where the data are sparse. Although a two-parameter Beta density fits the fractional data well, the fit can be further improved using a more general density such as the four-parameter Generalized Beta (Type I) (middle panel, dashed line).[13] Given the complexity of the regression model and the large number of parameters in the linear predictor, we nevertheless opt for the simpler two-parameter Beta density.

Figure 2 shows a smoothed empirical density of the residuals (solid line) that fits a normal distribution reasonably well (dashed line). The goodness of fit is also confirmed by the quantile plot against the normal distribution. The residuals are the quantile residuals proposed by Dunn and Smyth (1996).

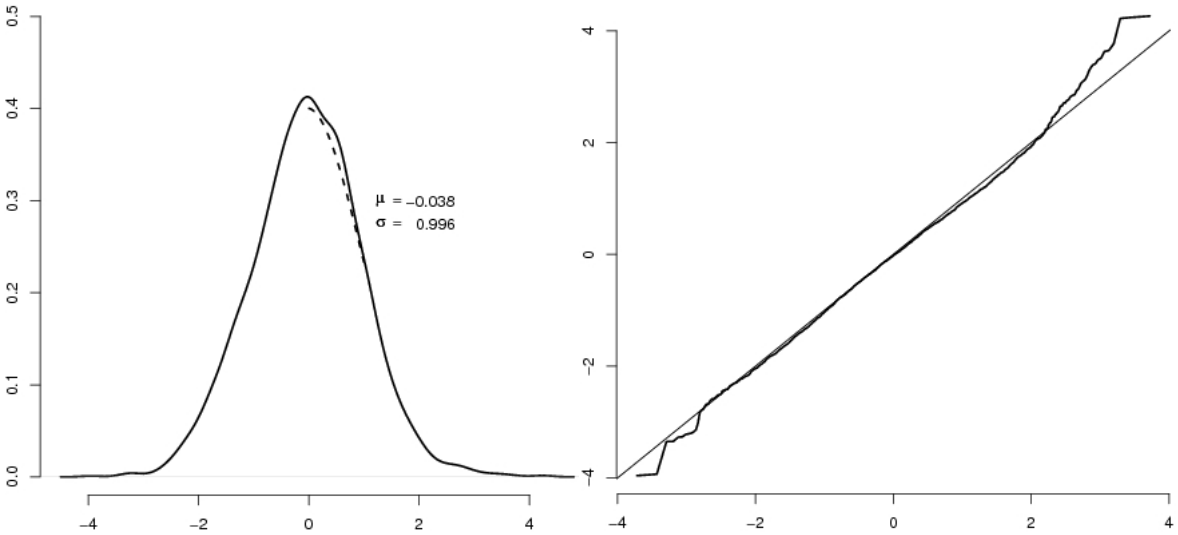
[13] Several generalizations of the Beta distribution are discussed in Kleiber and Kotz (2003, Chapter 6).

Fig. 1. The fit of the Beta model to voting distance



The top left panel shows a histogram of the entire sample that includes zero and fractional distances. The top right panel compares the fit of a two-parameter Beta distribution (solid line) and a four-parameter generalized Beta distribution (dashed line) to the fractional portion of the data. Given the overall complexity of the model and the number of parameters in the linear predictor, we select the simpler density. The bottom panel shows a quantile plot of the estimated model against the data, the closer the line to the diagonal the better the fit.

Fig. 2. The residuals of the fit of the Beta model to voting distance



The left panel compares a kernel smoothed probability density function of the residuals (solid line) against a normal density estimated from the residuals (dashed line). The parameter estimates refer to maximum likelihood estimated of the normal density. Estimates of the parameters of the Beta model are given in Figure 1. The right panel shows the quartile plot against the estimated normal distribution. The residuals are the Dunn and Smyth (1996) quantile residuals.

4. Results

4.1 Tests of Goodness of Fit

Our main interest is in determining how much of the differences in yes votes by country delegations in the EP can be explained by the variables defined in the previous section. For the reasons given above, we expect considerable differences in the way delegations vote depending on the issue being voted on. Thus, our interest is in seeing how much *additional* explanatory power the other variables provide. This information is provided in Table 1 for the four types of legislative votes grouped into two categories.

The upper part of Table 1 presents the GLM regression fits for assent and codecision votes. The measure of fit is the Cox-Snell Adjusted R^2, which accounts for the degrees of freedom in estimating the coefficients of the model. Since final votes constitute less than five percent of all assent/codecision RCVs, the estimates within each issue category are for all

votes, final and intermediary. The voting dummies alone explain between 31 and 51 percent of the variation in country pair voting across the eleven issue categories (line 2). Since the bilateral country dummies should capture all of the underlying differences between two countries, which account for differences in how their delegations vote, we expect a big jump in R^2s when we add the bilateral country dummies. This occurs, however, in only one issue category. For EU enlargement, the R^2 more than doubles, jumping from 0.31 to 0.67 for assent and codecision RCVs. In the other ten issue categories, adding the 104 bilateral country dummies raises the R^2s by between 0.04 and 0.09, somewhere between 10 and 20 percent. Since these country dummies must account for *all* of the relevant differences between any pair of countries, we conclude that, except for issues dealing with EU enlargement, voting in the EP is not closely related to underlying differences between these countries including differences in their citizens' preferences. Nevertheless, it is interesting that we do observe a large increase in explanatory, when the bilateral country dummies are added for votes on EU enlargement issues. If these dummies are capturing differences in underlying citizens' preferences, then the results in Table 1 imply that country delegations vote in much greater accordance with their citizens' preferences on enlargement issues than on other sorts of issues. A possible explanation for this is that EU enlargement issues are more salient for EU citizens than other issues voted upon in the EP, and thus that they are more likely to take notice of how their representatives to the EP vote on these issues. Knowing this, members of the EP vote in closer alignment with their citizens' preferences on enlargement issues than on other kinds of issues.

Adding the three ideology variables to the voting dummies raises the adjusted R^2s only marginally (line 4). A likelihood ratio test indicates significant improvements in fit for all 11 issue categories (as is true for the other two sets of variables added), but with so many

observations this test is almost impossible to fail, if the added variables have any explanatory power at all. Turning to specific demographic and economic variables, we find that they have the same explanatory power as the three ideology variables for some issue categories, and marginally outperform them in the remaining categories (line 5).

The bottom portion of Table 1 reports R^2s for RCVs on cooperation and consultation issues. The R^2s increase only slightly in all of the issue categories including EU enlargement. These results suggest that there is even a weaker connection between the way members of the EP vote and their citizens' preferences for cooperation and consultation issues than for assent and codecision issues.

4.2 Which Country Characteristics Are Important?

Table 2 reports the results for GLM regressions for each issue category pooled over all parliaments for votes on codecisions and assents. We also estimated separate regressions for each parliament, but the differences did not prove to be very interesting, so we report only the pooled results. The first two columns in Table 2 report the results for pooled regressions across all issue categories. The first column pools final votes and amendments. The second column reports the results for only final votes. The two sets of results are quite similar, except for the greater lack of statistical significance in the final votes sample due, perhaps, to the much smaller number of observations that we have for final votes. The remaining columns in the table report results for the 11 individual issue categories for all types of votes.

The estimates in the upper half of Table 2 are for positive values of the dependent variable (fractional voting distances). Since each explanatory variable measures the magnitude of a difference in a particular characteristic for a country pair, and the dependent variable is the difference in the yes votes, we expect positive coefficients on all explanatory

variables except for the interaction term between GDP per capita and the donor/donee dummy. This interaction term captures possible nonlinearities in the two variables and could thus be negative. All but two of the 13 coefficients on the interaction terms are, indeed negative. Of the remaining 130 coefficients in the 13 columns all but 21 are positive, and 11 of the 21 negative coefficients are insignificant, so this prediction tends to be supported.

Most of the coefficients on the *Left-Right* and *Composition* ideology measures are positive, significant and of large magnitude. The *Anti-Pro EU* ideology dimension performs considerably worse than the left-right dimension derived. Many coefficients on *Anti-Pro EU* are insignificant and/or of the wrong sign. Interestingly, its coefficient is both negative and large in the EU Enlargement category. As we saw in Table 1, this was the one category of issues for which there was a large increase in R^2 when we added the bilateral country dummies. Votes on EU Enlargement seemed to come closest to matching citizens' preferences. Since the *Anti-Pro EU* ideology dimension measures the ideology of EU representatives, the negative coefficient on this variable for EU enlargement issues implies that EP representatives vote *against* their own ideologies (presumably pro enlargement) on enlargement issues, while voting according to their citizens' preferences (presumably anti-enlargement). The positive coefficients on both the *Left-Right* and *Composition* variables are consistent with the prediction that members of the EP vote in accordance with their *own* ideological preferences.

The eight economic and demographic characteristics perform quite unevenly across the 11 issue categories. All eight are significant at the 10 percent level or better in environment and health (although two of these have the wrong sign), only four are significant in the EU enlargement category with one of these having the wrong sign. GDP differences are

consistently associated with bigger differences in yes-voting. Somewhat curiously, the coefficient on the share of agriculture in GDP, although significant, has a very small coefficient in the agriculture and fisheries category. Differences in how country delegations vote on agricultural issues are not closely related to differences in the importance of agriculture in their countries.

Estimates in the bottom half of Table 2 are for the same explanatory variables, but now trying to explain a zero difference in the fractions of yes votes in a country. This almost always occurs when all delegates vote either yes or no. All variables should now have negative coefficients. This prediction is consistently supported for the two dimensions of the ideological space, *Left-Right* and *Anti-Pro EU*, but not for the other variables. Thus, underlying differences between country pairs are better predictors of differences between how country delegations vote, when their votes are not unanimous, than they are predicting when two countries both unanimously vote yes or no.

Table 3 reports our findings for cooperation and consultation votes, and is organized identically to Table 2. As in Table 2, the prediction of positive coefficients on the explanatory variables, when fractional voting differences are being explained, is much better supported than the prediction of negative coefficients when zero differences are being explained. Aggregated over all categories the numbers of observations in the two tables are about the same – 207,625 and 251,696. Within the different issue categories, on the other hand, there are striking differences. There were almost three times as many cooperation and consultation RCVs dealing with agriculture and fisheries issues than the number of assent and codecision RCVs in this category. On the other hand, there were *fewer* cooperation and consultation RCVs dealing with economic and social affairs issues than for assent and codecision RCVs in

this category. The willingness of delegates to stand up and be counted differs greatly across these four types of votes.

The R^2 for assent and codecision votes on agriculture and fisheries issues was 0.46, while for cooperation and consultation RCVs in this category it was 0.45. For all other issue categories there was a *lower* R^2 for assent and codecision RCVs than for cooperation and consultation RCVs. If we assume that the explanatory variables in the model are proxies for underlying citizen preferences, then these differences imply that members of the EP vote in accordance with their citizen preferences to a greater degree on the less important cooperation and consultation votes than they do on assent and codecision votes.

4.3 Which Countries Have the Largest (Smallest) Differences in Voting from Other Countries?

The coefficient on a country pair dummy measures the average deviation in yes votes for these two countries. Averaging these coefficients for a particular country, say France, over all country pairs in which France is a part tells us how France on average tends to differ in its voting from all other EU countries. For some countries these averages can be quite large for a given issue category. For example, for votes on education, youth and culture issues, Greece's delegation differs in its voting by more than 50 percent on average from the other countries (coefficient 0.548); France's difference on EU enlargement issues is over 60 percent (coefficient 0.621).

The first column in Table 4 reports the means of the 11 issue categories' coefficients for each country expressed as a deviation from the sample mean. The five countries with the largest positive differences with the average county – Ireland, Denmark, France, Sweden and Luxembourg – are all relatively rich countries, with three of them also being newer members

to the EU. These five countries can be regarded as the nonconformists in the EU. The five countries with the most negative coefficients – Germany, the Netherlands, Belgium, Italy and Spain – include four of the founding six EU members. A negative coefficient implies that a country's voting tends to resemble that of other countries to a greater extent than the average. The results in Table 4 imply that these four founding members along with Spain were the *conformists* in the EU. That Germany has the largest negative coefficient in absolute value is consistent with the general belief that Germany has not wanted to "rock the EU boat." In this respect it is interesting that it is Ireland and not Great Britain that is most out of step with other countries' delegations in EU voting, given the general belief that Britain contains the greatest fraction of EU skeptics. Either this interpretation is wrong, or Britain's delegations to the EP are less out of line with other EU countries than their citizens are and, thus, have not voted in accordance with their citizens' preferences.

Table 4. Differences in Country Voting for All Issues (Assent and Codecision, Fractional Distances)

	Means of Coefficients		Coefficients for Pooled Regression
Ireland	0.26	Ireland	0.21
Denmark	0.16	Denmark	0.20
France	0.12	Austria	0.06
Sweden	0.10	France	0.06
Luxemburg	0.09	Luxemburg	0.06
Greece	0.06	Sweden	0.04
Austria	0.03	Greece	0.03
Great Britain	0.02	Great Britain	0.02
Portugal	0.02	Finland	-0.01
Finland	-0.03	Germany	-0.08
Spain	-0.11	Italy	-0.08
Italy	-0.13	Belgium	-0.09
Belgium	-0.14	Portugal	-0.10
The Netherlands	-0.17	The Netherlands	-0.13
Germany	-0.22	Spain	-0.17

The second column of numbers in Table 4 presents the coefficients of the country dummies when all issues are pooled into a single sample. This pooled sample obviously gives

more weight to the issues for which we have a lot of observations. Ireland and Denmark again top the list, but Germany is no longer at the bottom. Although there is some shuffling of the countries between the two columns, the general picture of which countries are conformists and nonconformists does not change significantly.

5. Summary and Conclusions

Much has been written about the "democratic deficit" in the EU, but little has been done to try and measure the size of this deficit, assuming that one exists. Skepticism about the existence of a deficit is raised by the studies which find that the EP functions in many ways like national parliaments with respect to the EP's committee structure and operating procedures, and the fact that its members tend to vote "along party lines." Concern about the possible existence of a deficit arises, however, when one observes the lack of accountability to voters that characterizes European Parliamentary elections. Parliamentary delegations do not seem to be rewarded or punished for their past performance, nor do citizens choose among the competing candidates on the basis of campaign promises. The possibility of a substantial gap between the preferences of citizens for EU policies in a given country and the way its delegation votes in the EP cannot be ruled out.

In this article, we have attempted to measure the correspondence between the preferences of EU citizens and their delegations to the EU. We have done so by constructing several variables which should proxy for differences in voter preferences across EU countries. The most important variable explaining why one country's delegation votes differently from another is a dummy variable for the issue voted upon.

Like any fixed-effect dummy, a dummy variable for the country pair Germany and France should capture all of the characteristics of Germany and France that would lead its delegations to vote differently – income, age distribution, ideology, weather, etc., any conceivable difference that would explain differences in voting preferences. If the delegations to the EP faithfully represent their voters' preferences, then the country pair dummies should explain large fractions of the differences in how the delegations vote. Inclusion of the county-pair dummies did increase the explanatory power of the model over just accounting for differences in the issues voted upon but, except in the case of assent and codecision votes on EU enlargement issues, the improvement of fit was modest. Interestingly, for this same category of issues, differences in the ideologies *of country delegations to the EP* over EU enlargement did not explain how they voted. Indeed, the MEP ideology measure had the wrong sign. Thus, on issues that are likely to be particularly salient for EU citizens, their representatives appear to be voting more in accordance with their citizens' preferences than for other sorts of issues, and less in accordance with the representatives own ideologies. Were this the finding for the other 10 issue categories, we would conclude that MEPs appear to vote more in accordance with their citizens' preferences than with their own. But this, as we saw, has not been the case for the other issue categories.

A second approach to trying to account for differences in voter preferences across countries was to define specific variables, like income per capita, and see how much of the differences in delegations' voting patterns these variables can explain. The answer again was not much, indeed the increase in explanatory power was even less than for the country-pair dummies, as might be expected since these dummies should capture differences in the underlying variables. Nevertheless, many of the coefficients on the individual variables seemed plausible. We again obtain what might be regarded as glass-half-full, glass-half-

empty result. Differences in the underlying characteristics of countries do explain some of the differences in how their delegations vote – but not much.

When we examined how the votes of the individual countries' delegation systematically differed, we observed some results that were consistent with general impressions about the relationship between different countries and the EU, and some that were not. Germany's EP delegations have much smaller deviations from other delegations' than the average country. Ireland's delegations have much larger deviations. Surprisingly, perhaps, the deviations between the votes of Great Britain's delegations and those of the other countries were very close to the average. Either the preferences of British voters for EU legislation are much closer to those of voters in other EU countries than generally believed, or Britain's delegations to the EP do not represent their citizens' preferences very faithfully.

Thus, in general, our results lend support to those concerned about a democratic deficit in the EU, in so far as this concern is over a gap between the preferences of EU citizens for EU policies and the way their delegations vote. The EP may in many ways behave like a well-functioning national parliament, but differences in how delegations to the EP vote do not seem to have a strong relationship to underlying differences between the countries they represent, including differences in their citizens' preferences.

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References

Akantziliotou, K., Rigby, R.A., Stasinopoulos, D.M., 2002. The R implementation of generalized additive models for location, scale and shape. In: Stasinopoulos, D.M. and Touloumi, G. (Eds.), Statistical Modelling in Society: Proceedings of the 17th International Workshop on Statistical Modelling, Chania, Greece, pp. 75–83.

Aspinwall, M., 2002. Preferring Europe: Ideology and national preferences on European integration. *European Union Politics* 3, 81–112.

Attina, F., 1990. The voting behaviour of the European Parliament members and the problem of the Europarties. *European Journal of Political Research* 18, 557–579.

Blankart, C.B., Koester, G.B., 2009. Refocusing the EU budget: An institutional view. *Public Finance and Management* 9, 63–92.

Brzinski, J.B., 1995. Political group cohesion in the European Parliament, 1989–1994. In: Rhodes, C., Mazey, S. (Eds.), The State of the European Union, Lynne Reinner, pp. 135–156.

Charrubba, G.J., Gabel, M., Murrah, L., Clough, R., Montgomery, E., Schambach, R., 2006. Off the record: Unrecorded legislative votes, selection bias and roll-call vote analysis. *British Journal of Political Science* 36, 691–704.

Charrubba, G.J., Gabel, M., Hug, S., 2008. Legislative voting behavior, seen and unseen: Adjusting for selection effects in roll call vote analysis. *Legislative Studies Quarterly* 33, 543–572.

Dunne, P.K., Smyth, G.H., 1996. Randomized quantile residuals. *Journal of Computational and Graphical Statististics* 5, 236–244.

Economist, 2009. Constitutional Concerns, 25, 26–27.

van der Eijk, C, Franklin, M. (Eds.), 1996. Choosing Europe? *The European Electorate and National Politics in the Face of Union*. University of Michigan Press, Ann Arbor MI.

Fidrmuc, J., Ginsburgh, V., Weber, S., 2009. Voting on the choice of core languages in the European Union. *European Journal of Political Economy* 25, 56–62.

Føllesdal, A., Hix, S., 2006. Why there is a democratic deficit in the EU: A response to Majone and Moravcsik. *Journal of Common Market Studies* 44, 533–562.

Gabel, M.J., Anderson, C.J., 2002. The structure of citizen attitudes and the European political Space. *Comparative Political Studies* 35, 893–913.

Gabel, M.J., Hix, S., 2002. Defining the EU political space: An empirical study of the European Elections Manifestos, 1979–1999. *Comparative Political Studies* 35, 934–964.

Garrett, G., Tsebelis, G., Corbett, R., 2001. The EU legislative process: Academics vs. practitioners—round 2. *European Union Politics* 3, 353–366.

Hix, S., 1999. Dimensions and alignments in European Union politics: Cognitive constraints and partisan responses. *European Journal of Political Research* 35, 69–106.

Hix, S., 2001. Legislative behaviour and party competition in European Parliament: An application of nominate to the EU. *Journal of Common Market Studies* 39, 663–688.

Hix, S., Noury, A., 2009. After enlargement: Voting patterns in the sixth European Parliament. *Legislative Studies Quarterly* 34, 159–174.

Hix, S., Noury, A., Roland, G., 2005. Power to the parties: Cohesion and competition in the European Parliament, 1979–2001. *British Journal of Political Science* 35, 209–234.

Hix, S., Noury, A., Roland, G., 2006. Dimensions of politics in the European Parliament. *American Journal of Political Science* 50, 494–511.

Hix, S., Noury, A., Roland, G., 2007. *Democratic Politics in the European Parliament*. Cambridge University Press, Cambridge UK.

Hooghe, L., Marks, G., Wilson, C., 2002. Does left/right structure party positions on European integration? *Comparative Political Studies* 35, 965–989.

Kandogan, Y., 2000. Political economy of eastern enlargement of the EU: Budgetary costs and the reform of voting rules. *European Journal of Political Economy* 16, 685–706.

Kauppi, H., Widgrén, M., 2007. Voting rules and budget allocation in the enlarged EU. *European Journal of Political Economy* 23, 693–706.

Kleiber, C., Kotz, S., 2003. *Statistical Size Distributions in Economics and Actuarial Sciences*. Wiley Series in Probability and Statistics.

Kreppel, A., 2006. Understanding the European Parliament from a federalist perspective: The legislatures of the USA and EU compared. In: Menon, A., Schain, M. (Eds.), Comparative Federalism: The European Union and the United States. Oxford University Press, Oxford, pp. 245–271.

Kreppel, A., Tsebelis, G., 1999. Coalition formation in the European Parliament. *Comparative Political Studies* 32, 340–362.

Marks, G., Wilson, C., Ray, L., 2001. National political parties and European integration. *American Journal of Political Science* 46, 585–594.

McCullagh, P., Nelder, J.A., 1989. *Generalized Linear Models*, 2nd Ed., Monographs on Statistics and Applied Probability 37. Chapman and Hall, London.

Napel, S., Widgrén, M., 2006. The inter-institutional distribution of power in EU codecision. *Social Choice and Welfare* 27, 129–154.

Noury, A., 2002. Ideology, nationality and Euro-parliamentarians. *European Union Politics* 3, 33–58.

Poole, K.T., Rosenthal, H., 1997. A Political-Economic History of Roll-Call Voting. Oxford University Press, Oxford.

Ramalho, E.A., Ramalho, J.J.S., Murteira, J.M.R., 2009. Alternative estimating and testing empirical strategies for fractional regression models, Working Paper, University of Évora.

Rigby, R.A., Stasinopoulos, D.M., 2005. Generalized additive models for location, scale and shape, (with discussion). *Applied Statistics* 54, 507–554.

Shackleton, M., 2002. The European Parliament. In: Peterson, J., Shackleton, M. (Eds.), The Institutions of the European Union. Oxford University Press, Oxford, pp. 95–117.

Thiem, J., 2006. Explaining roll call vote request in the European Parliament. Working Paper, University of Mannheim.

Tsebelis, G., 1994. The power of the European Parliament as conditional agenda-setter. *American Political Science Review* 88, 128–142.

Table 1: Cox Snell Adjusted R2 by Model

	All Issues All Votes	All Issues Final Votes	Agriculture and Fisheries	Economic and Social Affairs	Education Youth and Culture	EU Enlargement	Environment and Health	Foreign Affairs	Inter-Institutional and Budget	Internal European Parliament	International Trade and Aid	Justice and Home Affairs	Other
						ASSENT AND CODECISION							
Observations	207,625	9,434	12,921	74,057	2,100	1,707	56,329	7,487	25,302	5,579	4,711	10,516	6,916
Voting Dummies	0.39	0.51	0.44	0.34	0.37	0.31	0.43	0.38	0.39	0.42	0.32	0.38	0.38
Bilateral and Voting Dummies	0.44	0.58	0.48	0.40	0.46	0.67	0.49	0.43	0.46	0.50	0.38	0.43	0.45
Ideology and Voting Dummies	0.41	0.51	0.45	0.37	0.39	0.33	0.46	0.40	0.41	0.44	0.34	0.39	0.42
All Country Characteristics and Voting Dummies	0.42	0.52	0.46	0.37	0.39	0.37	0.47	0.40	0.41	0.45	0.35	0.40	0.43
						CO-OPERATION AND CONSULTATION							
Observations	251,696	196,857	32,758	59,098	1,397	1,946	30,388	20,566	37,968	8,189	5,421	38,168	15,797
Voting Dummies	0.45	0.45	0.43	0.45	0.43	0.45	0.47	0.48	0.45	0.49	0.48	0.38	0.48
Bilateral and Voting Dummies	0.50	0.50	0.48	0.50	0.48	0.51	0.52	0.53	0.49	0.55	0.52	0.51	0.53
Ideology and Voting Dummies	0.47	0.47	0.44	0.47	0.44	0.47	0.49	0.50	0.47	0.51	0.50	0.43	0.50
All Country Characteristics and Voting Dummies	0.48	0.48	0.45	0.48	0.46	0.48	0.50	0.51	0.47	0.52	0.51	0.45	0.51

Regressions by issue include both final and non-final votes.

Table 2: Assent and Codecision Votes. Zero-Inflated Beta Model

	All Issues All Votes	All Issues Final Votes	Agriculture and Fisheries	Economic and Social Affairs	Education Youth and Culture	EU Enlargement	Environment and Health
Distance in:				FRACTIONAL DISTANCES			
Left-Right	0.861 ***	0.769 ***	1.138 ***	0.787 ***	1.011 ***	-0.252	0.781 ***
Anti-Pro EU	-0.003	-0.010	0.162 **	0.017	-0.078	-0.404 **	-0.051 *
Composition of EPG	0.800 ***	0.365 ***	0.338 ***	0.869 ***	0.366 *	0.881 ***	1.109 ***
Share of Agriculture in GDP	0.018 ***	0.038 **	0.038 ***	0.015 ***	0.072 ***	0.004	0.022 ***
GDP per capita	0.071 ***	0.127 **	0.068 **	0.036 **	0.178 **	0.215 *	0.138 ***
GDP per capita x Donor and donee	-0.044 ***	-0.135 **	-0.027	-0.019	-0.114	-0.404 **	-0.145 ***
Share of University Graduates in Population	0.033 ***	0.003	0.020 **	0.032 ***	0.014	0.040	0.045 ***
Old-Age Dependency Ratio	0.147 ***	0.097	0.029	0.099 ***	0.197	-0.146	0.247 ***
Population size	-0.001 ***	0.000	0.000	0.000 *	-0.002 **	-0.001	-0.001 ***
Dummy Variables:							
Donor and donee	0.026 ***	0.094 **	-0.017	0.019 *	0.069	0.258 ***	0.050 ***
Voting (output omitted)							
Intercept	-1.890 ***	-2.071 ***	-2.745 ***	-2.300 ***	-1.790 ***	-2.595 ***	-2.216 ***
Distance in:				ZERO DISTANCES			
Left-Right	-1.295 ***	-0.226	-1.071 **	-1.583 ***	-2.518 **	-2.940 ***	-1.576 ***
Anti-Pro EU	-1.097 ***	-0.498 **	-1.125 ***	-1.087 ***	-0.854	0.128	-1.492 ***
Composition of EPG	0.874 ***	0.705 **	0.409	1.139 ***	-0.540	0.443	1.684 ***
Share of Agriculture in GDP	0.142 ***	0.152 ***	0.066 **	0.160 ***	0.064	-0.029	0.145 ***
GDP per capita	0.300 ***	0.852 ***	0.077	0.420 ***	0.600 *	2.434 ***	0.241 **
GDP per capita x Donor and donee	-0.053	-0.406 **	-0.127	-0.182 **	-0.735 *	-1.673 ***	0.028
Share of University Graduates in Population	0.091 ***	0.149 ***	0.083 **	0.097 ***	0.006	0.306 ***	0.071 ***
Old-Age Dependency Ratio	0.198 **	1.172 ***	-0.930 **	0.253 *	1.114	1.816 ***	0.302 *
Population size	-0.002 ***	-0.005 ***	0.001	-0.003 ***	-0.006	-0.011 ***	-0.003 ***
Dummy Variables:							
Donor and donee	-0.082 **	0.210 **	0.128	-0.009	0.599 **	0.353 *	-0.244 ***
Voting (output omitted)							
Intercept	-7.992	-3.858	-4.633	-8.630	-6.588	-3.494	-7.277
Observations	207,625	9,434	12,921	74,057	2,100	1,707	56,329
Parameters	4,005	213	271	1,442	61	54	1,084
Cox Snell Adj R2	0.42	0.52	0.46	0.37	0.39	0.37	0.47

Regressions by issue include both final and non-final votes. *** 1 percent; ** 5 percent; * 10 percent level of significance.

Table 2 (continued): Assent and Codecision Votes. Zero-Inflated Beta Model

	Foreign Affairs	Inter-Institutional and Budget	Internal European Parliament	International Trade and Aid	Justice and Home Affairs	Other
Distance in:			FRACTIONAL DISTANCES			
Left-Right	0.814 ***	0.941 ***	0.895 ***	0.791 ***	0.966 ***	1.495 ***
Anti-Pro EU	-0.081	0.018	0.306 ***	0.047	0.037	-0.163 **
Composition of EPG	0.623 ***	0.499 ***	0.196	0.418 **	0.536 ***	0.923 ***
Share of Agriculture in GDP	0.007	0.017 **	0.013	0.024 *	0.051 ***	-0.028 **
GDP per capita	0.123 **	0.068 **	0.086 *	0.066	0.068 **	0.005
GDP per capita x Donor and donee	-0.071	-0.005	-0.100 *	0.006	0.005	-0.008
Share of University Graduates in Population	0.023 **	0.025 ***	0.027 **	0.059 ***	0.010	0.060 ***
Old-Age Dependency Ratio	0.264 **	-0.159 **	0.111	0.362 **	0.343 ***	-0.061
Population size	-0.001 *	0.000	-0.001 **	0.000	0.000	-0.001
Dummy Variables:						
Donor and donee	0.117 ***	0.003	-0.005	-0.039	-0.008	0.098 **
Voting (output omitted)						
Intercept	-2.230 ***	-2.053 ***	-1.823 ***	-1.997 ***	-2.528 ***	-1.958 ***
Distance in:			ZERO DISTANCES			
Left-Right	-0.917 *	-0.652 **	-0.697	-1.651 **	-0.350	-0.035
Anti-Pro EU	-0.832 **	-0.846 ***	-1.025 **	-0.284	-1.143 ***	-1.124 ***
Composition of EPG	0.895 *	0.266	-1.244 **	-0.330	0.111	-0.065
Share of Agriculture in GDP	0.180 ***	0.197 ***	0.171 ***	0.106 **	0.141 ***	0.135 **
GDP per capita	0.170	0.277 ***	0.465 **	0.231	0.298 **	0.302 *
GDP per capita x Donor and donee	0.045	-0.102	0.036	0.076	0.089	-0.179
Share of University Graduates in Population	0.091 **	0.059 **	0.022	0.105 **	0.101 **	0.120 **
Old-Age Dependency Ratio	0.620	-0.450 *	0.435	-0.390	-0.168	0.087
Population size	-0.001	0.000	0.000	-0.001	-0.001	-0.002
Dummy Variables:						
Donor and donee	-0.238 *	-0.061	-0.183	-0.144	-0.102	-0.061
Voting (output omitted)						
Intercept	-7.446	-5.904	-4.850	-6.684	-5.858	-8.979
Observations	7,487	25,302	5,579	4,711	10,516	6,916
Parameters	174	506	131	111	226	155
Cox Snell Adj R2	0.40	0.41	0.45	0.35	0.40	0.43

Table 3: Cooperation and Consultation Votes. Zero-Inflated Beta Model

	All Issues All Votes	All Issues Final Votes	Agriculture and Fisheries	Economic and Social Affairs	Education Youth and Culture	EU Enlargement	Environment and Health
Distance in:				FRACTIONAL DISTANCES			
Left-Right	0.776 ***	0.739 ***	0.815 ***	0.773 ***	0.626 **	0.980 ***	0.793 ***
Anti-Pro EU	0.169 ***	0.197 ***	0.243 ***	0.218 ***	0.456 ***	-0.172	0.100 ***
Composition of EPG	0.739 ***	0.748 ***	0.510 ***	0.699 ***	0.402 *	0.747 ***	0.860 ***
Share of Agriculture in GDP	0.022 ***	0.021 ***	0.027 ***	0.034 ***	0.032	-0.024	0.034 ***
GDP per capita	0.131 ***	0.132 ***	0.179 ***	0.142 ***	0.221 **	0.058	0.117 ***
GDP per capita x Donor and donee	-0.101 ***	-0.102 ***	-0.137 ***	-0.118 ***	-0.116	0.143 *	-0.077 ***
Share of University Graduates in Population	0.016 ***	0.016 ***	0.013 **	0.008 **	-0.002	0.038 **	0.017 ***
Old-Age Dependency Ratio	0.144 ***	0.202 ***	-0.246 ***	0.119 **	-0.434	0.503 **	0.270 ***
Population size	0.000	0.000	0.000	0.000 **	0.002 **	-0.001	0.000
Dummy Variables:							
Donor and donee	0.064 ***	0.071 ***	0.094 ***	0.070 ***	0.016	-0.093	0.024
Voting (output omitted)							
Intercept	-1.636 ***	-1.640 ***	-1.618 ***	-2.219 ***	-1.678 ***	-1.987 ***	-1.745 ***
Distance in:				ZERO DISTANCES			
Left-Right	-0.257 **	-0.233 **	-1.277 ***	-0.317 *	0.683	-1.851 *	-0.693 **
Anti-Pro EU	-0.663 ***	-0.576 ***	-0.816 ***	-0.888 ***	-0.584	-1.952 ***	-0.780 ***
Composition of EPG	0.001	-0.185 **	0.255	0.358 **	1.044 *	1.443 *	-0.345 **
Share of Agriculture in GDP	0.238 ***	0.230 ***	0.201 ***	0.228 ***	0.398 ***	-0.044	0.229 ***
GDP per capita	0.457 ***	0.435 ***	0.460 ***	0.439 ***	0.719 **	0.655 **	0.390 ***
GDP per capita x Donor and donee	-0.236 ***	-0.245 ***	-0.292 ***	-0.187 ***	-0.664 **	-0.474	-0.130 *
Share of University Graduates in Population	0.054 ***	0.055 ***	0.046 **	0.072 ***	-0.133 *	0.236 ***	0.049 **
Old-Age Dependency Ratio	-0.034	-0.309 ***	0.989 ***	0.947 ***	1.917 *	1.908 **	0.795 ***
Population size	0.000	0.001 **	0.001	-0.001 **	-0.002	-0.009 **	0.000
Dummy Variables:							
Donor and donee	0.027	0.071 **	0.063	-0.039	-0.085	0.282	-0.084
Voting (output omitted)							
Intercept	-6.505	-5.690	-4.346	-5.277	-3.143	-4.893	-3.785
Observations	251,696	196,857	32,758	59,098	1,397	1,946	30,388
Parameters	6,197	4,875	829	1,430	65	67	760
Cox Snell Adj R2	0.48	0.48	0.45	0.48	0.46	0.48	0.50

Regressions by issue include both final and non-final votes. *** 1 percent; ** 5 percent; * 10 percent level of significance.

Table 3(continued): Cooperation and Consultation Votes. Zero-Inflated Beta Model

	Foreign Affairs	Inter-Institutional and Budget	Internal European Parliament	International Trade and Aid	Justice and Home Affairs	Other
Distance in:			FRACTIONAL DISTANCES			
Left-Right	0.747 ***	0.679 ***	1.166 ***	0.485 ***	0.811 ***	0.609 ***
Anti-Pro EU	0.227 ***	0.176 ***	0.109 **	0.308 ***	0.058 **	0.210 ***
Composition of EPG	0.531 ***	0.756 ***	0.450 ***	0.679 ***	1.294 ***	0.617 ***
Share of Agriculture in GDP	0.014 *	0.029 ***	0.035 **	0.056 ***	-0.028 ***	0.049 ***
GDP per capita	0.175 ***	0.121 ***	0.049	0.156 ***	0.072 ***	0.101 ***
GDP per capita x Donor and donee	-0.107 ***	-0.132 ***	-0.051	-0.048	-0.060 **	-0.064 **
Share of University Graduates in Population	0.004	0.011 **	0.007	-0.003	0.054 ***	0.026 ***
Old-Age Dependency Ratio	-0.291 ***	-0.098 *	0.064	-0.039	0.650 ***	0.311 ***
Population size	0.000	0.000	0.000	0.001 *	0.000 **	0.000 *
Dummy Variables:						
Donor and donee	0.076 ***	0.069 ***	-0.010	0.089 **	0.074 ***	0.023
Voting (output omitted)						
Intercept	-1.785 ***	-2.330 ***	-2.139 ***	-2.304 ***	-1.926 ***	-1.673 ***
Distance in:			ZERO DISTANCES			
Left-Right	0.881 **	0.129	-2.252 ***	0.869 *	0.945 ***	-0.712 **
Anti-Pro EU	-0.570 ***	-0.754 ***	-1.026 ***	-1.034 ***	0.030	-0.559 ***
Composition of EPG	-0.563 **	0.455 **	0.291	-0.188	-0.871 ***	-0.432 **
Share of Agriculture in GDP	0.262 ***	0.276 ***	0.278 ***	0.119 **	0.268 ***	0.306 ***
GDP per capita	0.384 ***	0.411 ***	0.368 ***	0.204 *	0.808 ***	0.291 ***
GDP per capita x Donor and donee	-0.249 **	-0.345 ***	-0.187	0.030	-0.265 ***	-0.069
Share of University Graduates in Population	0.080 ***	0.028 *	0.081 **	0.161 ***	0.006	0.097 ***
Old-Age Dependency Ratio	-0.155	0.269	0.983 **	0.786	-2.493 ***	0.675 *
Population size	0.000	0.000	0.000	-0.001	0.003 ***	0.001
Dummy Variables:						
Donor and donee	-0.037	-0.015	0.022	-0.147	0.212 ***	-0.075
Voting (output omitted)						
Intercept	-4.064	-4.954	-3.072	-3.512	-6.480	-2.883
Observations	20,566	37,968	8,189	5,421	38,168	15,797
Parameters	559	983	252	158	823	481
Cox Snell Adj R2	0.51	0.47	0.52	0.51	0.45	0.51