

Bargaining within the European Council: An empirical study on the allocation of funds of the European budget

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Little is known about the bargaining process of the European Council, because negotiations of member countries occur behind closed doors. Using a brand-new dataset, we analyze the factors leading a country to a successful negotiation over one of the most important decisions taken by the Council every year, that for the allocation of the European budget. Important predictors of a country's bargaining success, proxied by the quota of EU budget received, are the extent to which its votes are pivotal to form a winning coalition in the Council, its seniority, the control over the Council presidency office, and the political orientation of its government on the EU integration process. We also provide new evidence that countries advancing a similar policy agenda may benefit from each other's effort. Finally, we demonstrate that reform of the Council introduced by the treaty of Nice had no significant impact on the bargaining process and the balance of power among member countries.

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I. Introduction

The European Council presides the overall political directions and priorities of the European Union (EU). It thus represents the most important intergovernmental body of the EU. Yet, negotiations among the members of the Council are still characterized by secrecy. When asked, even close observers admit that they do not know what leads to the bargaining success of a member country (Bailer, 2004). The difficulty in understanding the bargaining process of the Council lies in the fact that issues are discussed through working groups behind close doors, and proposals are voted in public only when an agreement has been reached. In fact, between 75% and 80% of all proposals are voted unanimously in the Council (Mattila and Lane, 2001; Hayes-Renshaw et al., 2006). Aim of this paper is to uncover which factors allows member countries to conduct a successful negotiation in the Council.

A large number of hypotheses have been made on the bargaining mechanisms of the Council. The decision-making process of this body have been scrutinized at various levels, looking at the meetings of ministers, permanent representatives, and other working groups. These studies have been conducted using interviews (Elgström et al., 2001; Bailer, 2004; Stokman and Thomson, 2004), qualitative case studies (Widgrén, 1994; Johnston, 1995; Häge, 2007) and statistical data on roll-call votes (Mattila, 2004, 2009; Hayes-Renshaw et al., 2006). Other studies instead, have addressed the question of how decisions are being made from a theoretical perspective, by drawing upon the general literature on decision-making and negotiation theory (March and Olsen, 2010; Scharpf, 1997; Wallace and Hayes-Renshaw, 2006). However, only a small number of studies substantiated their hypotheses with empirical data, and none of them considered how the bargaining process of the Council might have changed over the years. Instead, they conducted their analysis on a limited time span, disregarding the enlargement of the Council to new members and changes of countries' government.

This paper offers a contribution to the literature by presenting an empirical analysis on the factors explaining the bargaining success of member countries within the Council. In doing so, we focus on the outcome of one of the most important negotiations conducted by the Council every year, that for the allocation of the EU budget resources, and we measure the extent to which a member country is able to conduct a successful negotiation by looking at the quota of EU budget received. The core of the procedure to allocate the EU budget has been designed with the EU treaties of the seventies and it is still the same that exists today. Every year, the Council works on a draft of the budget proposed by the European Commission. Funds are allocated to countries through a set of economic programs, each one designed to support and complement the policies of member countries to achieve one of the Council's economic and political priorities: e.g. sustainable growth, economic, social, and territorial cohesion, etc. The draft

of the budget is approved by the Council with qualified majority and forwarded to the Parliament, which can either approve it – and in this case the budget is deemed finally adopted – or require the Council to amend the draft. Despite the involvement of the Parliament however, the agenda-set of EU expenditures is mainly determined by the Council, and the Parliament has limited impact over budget decisions (Benedetto, 2013). Over the course of 50 years in fact, only in five occasions the Parliament obtained major changes in the budget proposed by the Council, namely in 1979, 1984, 2011, 2013, and 2015 (Calatozzolo, 2020).¹ Therefore, one can safely consider the quota of EU budget allocated to a member country as a reliable measure of its negotiation success in the Council.

In order to conduct our inquiry, we construct a brand new dataset which includes a large number of information about each member country for each year that goes from 1976, that is the first year in which the EU budget was made public, to the most recent year, that is 2019. Specifically, we collect information about the tenure and the number of votes held in the Council by a country, the seniority and the political orientation of its government, its economic contribution to the EU budget, and its shared interests with other member countries over specific policies. We then test the extent to which these factors explain the quota of EU budget received by a member country, after controlling for time-invariant characteristics of countries and year fixed effects. In doing so, our aim is to assess the validity of a large number of hypotheses on the bargaining mechanisms of the Council presented by the literature so far.

Our results confirms the importance of three factors for conducting a successful negotiation in the Council. The first is the extent to which a country's votes are decisive to reach a qualified majority in the Council, swinging a coalition of members from losing to winning. Specifically, we find that the bargaining success of a country is determined by the percentage of winning coalitions in the Council in which country's votes are pivotal to reach a qualified majority. This is consistent with a large theoretical literature dedicated to understand how member countries negotiate and create coalitions with a qualified majority of votes to determine the decisions of the Council.² The second factor is the seniority of a country in the negotiation process. Seniority is deemed to be a crucial factor during Council's negotiations by a number of researches (see for a discussion Perez and Scherpereel, 2017). This hypothesis is also supported by a large literature on legislative studies on the role that seniority plays in helping politicians to be successful legislative players (see among others Hibbing, 1991). Consistently, we find that countries pay the cost of their inexperience during their first year of tenure in the Council, i.e. when they join the EU. However, member countries rapidly

¹For background and details on the history of the EU budget see [Directorate general for the budget \(2019\)](#).

²See among others Hopmann (1995); Johnston (1995); Teasdale (1996); Tsebelis and Garret (1996); Bindseil and Hantke (1997); Laruelle and Widgrén (1998); Sutter (2000); Leech (2002)

catch up with senior members. Any additional year of a government’s experience in the Council has no statistically significant effect on its bargaining success within the Council. The last factor is the control of a member country over the Council presidency office. This is in line with research on multilateral bargaining suggesting that the chairmanship of decision bodies constitutes a powerful platform, because it enables the actor in control of this office to shape the outcomes of negotiations (see among others [Hampson and Hart, 1999](#); [Odell, 2005](#)). Extant studies suggest that the European Council makes no exception ([Tallberg, 2006](#); [Schalk et al., 2007](#); [Thomson, 2008](#)): holding the presidency of the Council is a resource for a country, especially for those with small or medium-sized population, and hence with a relatively small number of votes. Of course, the ability to use the presidency office may change with time and the composition of the Council. Consistently, we find that an increase in the number of years during which a country hold the presidency office has a positive and statistically significant effect on the amount of revenues received from the EU budget. All our findings are confirmed also when controlling for the economic power hold by a country in the Union, proxied by its contributions to the EU budget. This is a direct measure of the gross national income of a country ([Directorate general for the budget, 2018](#)). Importantly, our results are also robust to the inclusion of macroeconomic factors which may influence the allocation of EU budget funds to a country in a given year (i.e. gross domestic product growth rate, unemployment and education), and to the choice of the methodology used to estimate our model.

We enrich our analysis also considering what is the role played by governments in the bargaining process of the Council. In fact, testimonies from the participants to the meetings of the Council ([Bailer, 2004](#)) report that the negotiation success of a country strongly depends on the extent to which its political agenda is related to the median position of the Council. At the same time, testimonies indicate that in order to achieve a particular goal, it can be also beneficial to adopt an extreme position, and threaten to stop negotiations by using the power of veto. This is especially true in the context of the Council, where small states, independently of their number of votes, can deliberately choose to threaten the use of veto at the beginning of a negotiation and force the Council to take into account their requests. Such qualitative evidence is also corroborated by the theory on the bargaining process of the Council proposed by [Schneider and Cederman \(1994\)](#), and with research conducted on veto players in deliberative institutions by [Tsebelis \(1999\)](#) and [Tsebelis and Chang \(2004\)](#). Consistently, we find that countries far from the common position of the Council on the European process of integration are those more penalized in terms of budget allocation. However, by adopting an extreme position, countries can increase their bargaining power and strongly influence the negotiation result: e.g., ensuring that an outcome is only slightly different from the status quo. Conversely, we find that the position of a government on the left-right political spectrum has no impact on its negoti-

ations over the budget allocation.

We also present new evidence adding to the extant literature by investigating how countries benefit from each other's effort during the bargaining process within the Council. In order to do that, we leverage the fact that the EU budget is allocated to countries through programs meant to sustain EU members with specific features, e.g. an emerging or developed economy, involved in a given industry such as farming and forestry, characterized by certain conditions of business competitiveness or unemployment.³ Given that a country aiming to increase its quota of funds has to push for prioritizing the funding of programs that are most of its interest, it is natural to expect that member countries eligible for the same programs will indirectly benefit from the country's activity. Coherent with this framework, we find that countries benefit from each other's effort in the Council when they have a stringent economic proximity, their economies are strictly integrated, they are similar in terms of economic structure, and they support the same economic policies. However, spill over effects greatly varies according to the dimension of proximity considered. The largest effects are those among countries with a similar economic structure, proxied by their arable land endowment. This is not surprising, given that those similar in this dimension benefits from the same EU budget programs related to the Common Agricultural Policy (CAP), namely one of the most important and largely funded program of the Union.

Finally, in our last analysis, we investigate the effects that produced the radical change occurred in the qualified majority system of the Council after 2004 with the Treaty of Nice. After this reform, a coalition of member countries is required not only to held a minimum number of votes, but also to represent a minimum number of EU countries and EU population in order to reach a qualified majority in the Council. Such change was introduced as a result of a compromise between all member countries to ensure a fair distribution of power in the Council after the enlargement of the EU to the Eastern countries. At the time when the reform was introduced, the dominant expectation was that most influential countries would have suffered the most from the change in the voting system. Extant research by [Heinemann \(2003\)](#) and [Tallberg \(2008\)](#) however, suggests that this reform did not substantially affect the balance of powers in the Council, and powerful countries maintained intact their role of leadership. Accordingly, we find that the reform of the system in 2004 produced no substantial changes in the bargaining process of the Council. Most influential countries in this body were able to keep intact their position of power. Adopting a new voting system represented a totally negligible

³Observe that before the community budget reform in 1988, the programs to be funded and the expenditure dedicated to them were decided on a yearly basis. After the reform, the EU operates within a multi-annual financial framework. This means that the precise allocation of the budget to programs differ from one year to another in terms of percentages, but the set of programs and the maximum expenditure for each program is established for a period of several years (i.e. 1988-1993, 1994-1999, 2000-2007, 2007-2013, 2014-2020, 2021-2027).

cost for them.

The remainder of the paper is organized as follows. Section (II) describes the data and defines the variables used in our empirical investigation. Section (III) presents the main results of the empirical investigation. Section (IV) discusses our inquiry on the bargaining power of governments depending on their political position. Section (V) reports our analysis on the spill over effects existing among countries with similar characteristics. Section (VI) presents our inquiry on the reform of the vote system occurred in 2004. Finally, Section (VII) concludes.

II. Data and Definition of Variables

We pull data from different sources.

Quota per capita of EU budget revenues. We consider the time span that goes from 1976 to 2019, that is the entire period for which EU budget data is available. Data prior to year 2000 is manually retrieved from the EU budget financial report of 2008 (Directorate general for the budget, 2009). Data from year 2000 (included) onward is scraped from the web page of the EU directorate-general for the budget (https://ec.europa.eu/budget/graphs/revenue_expediture.html). For each year, data indicates the total amount of revenues received by a country from the budget programs. By using this data, we calculate the quota of revenues associated to a country with respect to the total revenues allocated by the EU budget in a given year. In order to make cross-country comparisons, this value is then divided by the population registered by the country in the same year, obtaining the quota per capita of revenues allocated by the EU budget to a citizen of the country in a year. Data relative to the population is taken from the World Bank database (<https://data.worldbank.org/indicator/SP.POP.TOTL>). The average quota per capita of revenues allocated to the citizens of member countries in each year is represented in Figure (1) with a light-gray line. Over the years, this value greatly varies, ranging roughly between 0.006 to 0.003. The only exception is registered at the beginning of the nineties, when we register a spike above 0.007. This happened in consequence of the decision of the Council to increase investments directed to the internal markets of member countries in preparation for the entry into force of the euro (Directorate general for the budget, 2019). After 2004 then, because of the enlargement of the Union to the Eastern Countries, this value constantly remained below the value of 0.004. This is not surprising of course, because by increasing the European population, it decreases the quota of funds available to a single citizen.

Measures of power within the Council. Several metrics are indicated in the existing literature to determine the power of a country during the processes of bargaining and negotiation within the Council.

In the Council, each country has a different number of votes, which is roughly determined by its quota of population with respect to the EU population. However, no country has enough votes to approve a motion on its own. The distribution of votes is conceived so that countries are forced to coordinate with each other and form a coalition to advance an agenda in the Council. For this reason, a large literature (see for a review [Napel and Widgrén, 2011](#)) suggests that the power of each country in the Council is determined by the extent to which its votes are crucial for the success of a coalition. The standard metric used in this context is the Banzhaf index ([Banzhaf III, 1964](#); [Penrose, 1946](#); [Taylor and Pacelli, 2008](#)), henceforth BFI. The BFI is a measure of the number of coalitions that a country can swing from losing to winning in the Council by providing its own votes. Preliminary evidence ([Baldwin et al., 2001](#)) already suggests that the benefits obtained by a country in terms of EU contributions are related to its bargaining power, as registered by the BFI. The BFI is calculated with the formula:

$$BFI'_{i,t} = \frac{\sum_{k=1}^{N_t} [v(S_k) - v(S_k \setminus \{i\})]}{2^{n-1}}$$

Where S_k is a coalition of countries formed at year t and including country i , N_t is the number of possible coalitions between the members of the Council at year t , n_t is the number of members of the Council, while $v(S_k)$ and $v(S_k \setminus \{i\})$ are two indicator functions. The former takes one if coalition S_k holds a qualified majority in the Council, and zero otherwise. The latter takes one if coalition S_k , even without country i , holds a qualified majority in the Council, and zero otherwise. It follows that the measure of power provided by BFI is equal to the number of coalitions S in which the presence of i is critical to reach a qualified majority. The index is then normalized so to sum to one using the formula:

$$BFI_{i,t} = \frac{BFI'_{i,t}}{\sum_{k=1}^{N_t} BFI'_{k,t}}$$

Consequently, when the BFI of country i at year t is equal to zero, it indicates that all possible coalitions can reach a qualified majority even without i 's votes. Conversely, when it is equal to one, it signals that all possible coalitions need i 's votes to reach the qualified majority. The BFI of each country in each year is reported in [Figure \(2\)](#).

An alternative measure of power is the Shapley Shubik index ([Shapley and Shubik, 1954](#); [Taylor and Pacelli, 2008](#)), henceforth SSI.⁴ The value of the SSI is

⁴Preliminary evidence of the correlation between the SSI of a country and its quota per capita of EU budget revenues has been already provided by [Baldwin et al. \(2001\)](#) and [Soukeník \(2005\)](#).

calculated as follows:

$$SSI_{i,t} = \sum_{k=1}^{N_t} \frac{(s_k - 1)!(n_t - s_k)}{n_t!} \left[v(S_k) - v(S_k \setminus \{i\}) \right]$$

Where s_k is the number of countries in coalition S , and the remaining variables are the same used to compute the BFI. Two things are important to stress with respect to the SSI. First, the total value of the SSI in a given year sums to one. Second, when n is not too large, the value of the BFI and the SSI is strictly correlated, but not equal. In fact, the SSI assigns a weight to each coalition, with weight equal to $(s_k - 1)!(n_t - s_k)$, and gives a higher importance to small coalitions with a large number of votes and less importance to other coalitions. On the contrary, the BFI attributes the same importance to all coalitions.⁵

In order to determine which coalition S has a qualified majority, and calculate the BFI and SSI, we collect data on the number of votes held by a country within the Council in each given year, and the relative threshold required to obtain a qualified majority. Data is provided by the Centre Virtuel de la Connaissance sur l'Europe (CVCE) of the University of Luxembourg.⁶ It is important to stress that a major change occurred in the qualified majority system of the Council after the ratification of the Treaty of Nice in 2004. Before 2004, a coalition would reach the qualified majority only by virtue of the votes of its members. Specifically, a coalition is considered winning over others if it holds roughly 70% of the votes in the Council. It is standard to refer to this system as the “Union of treaties”, because the legitimacy of a Council decision only relies on the number of votes assigned to each country by the EU treaties. After 2004, the qualified majority system of the Council required other two criteria in addition to the “Union of treaties” criterion. First, a coalition of countries must represent a percentage of the EU population that is equal or over a specific threshold: i.e., 62% from 2004 to 2013, and 65% after 2014. Second, a coalition must include a number of countries that is equal or over a specific value: i.e., 13 from 2004 to 2013, and 14 after 2014. It is standard to refer to the former criterion as to the “Union of People”, and the latter criterion as to “Union of Countries”.

Following extant literature, we create two measures relative to different dimensions of country’s seniority within the Council. The first is a dummy variable, which takes one if country i joined the Council at time t , and zero otherwise. This variable is meant to assess whether a country pays a cost for its inexperience in the Council during its first year of tenure. We refer to this variable as to “Joined EU

⁵For background and further details on the difference between the BFI and the SSI, see Strafin Jr (1988).

⁶See the link https://www.cvce.eu/en/obj/evolution_of_qualified_majority_voting_in_the_council-en-091ecbcb-7f7d-4772-ac95-9c51b041a7ff.html.

at year t ". The second variable is the "Seniority of government in the Council", and it counts the number of consecutive years that the government of country i has been a member of the Council up until year t . Data on the governments of each country is taken from the "cabinet database" of the "parliaments and governments project", available at <http://www.parlgov.org/>. This variable is used to quantify the experience of a country's Ministers in working within the Council.

In order to assess the benefits obtained by a country from holding the president office, we create a variable "Control of the EU presidency". The variable counts the number of years in which country i hold the presidency office at year t . In order to collect data for this time period, we manually retrieve the nationality of the Presidents of the Council from the official web page of the European Union at the link <https://europa.eu/european-union/about-eu/history/>.

It is natural to expect that the contributions of a country to the EU budget will have a significant impact on its ability to determine how budget revenues are allocated. For this reason, we calculate the quota per capita of national contributions given by each country to the EU budget in every considered year. It is worth emphasizing that national contributions are calculated based on gross national income (Directorate general for the budget, 2018), thus they are a direct measure of a country's wealth (Directorate general for the budget, 2018). The data sources used to this purpose are the same used for collecting data about member countries' revenues.

The average quota per capita of contributions allocated to the citizens of member countries in each year is represented in Figure (1) with a dark-gray line. It is easy to see that this value follows a specific trend, and it constantly decreases over time, ranging from c.a. 0.004 in 1976, to roughly 0.002 in most recent years. As it is standard in these cases (Stock and Watson, 1988), we remove the time trend in the data and isolate its long-term variations. This is done by detrending the variable with a country-specific linear trend.⁷

Measures of macroeconomic context. A number of macroeconomic factors may influence the allocation of EU budget funds in a given year: e.g. fluctuations in the aggregate economic activity of a country, or advances in its technological development. In order to obtain a proxy of the macroeconomic context of a county in a given year we create three variables. The first is the Gross Domestic Product (GDP) growth rate of a country at year t with respect to the previous year, calculated from the OECD "Main Economic Indicators - complete database", available at <http://dx.doi.org/10.1787/data-00052-en>. The sec-

⁷Specifically, detrending is obtained following three steps. First, we regress the contributions relative to a country against a time trend and a constant value (i.e. the intercept). Second, we multiply the estimated coefficient of the time trend by the time trend vector. Third, the vector obtained from the multiplication is then subtracted to the vector registering country's contributions.

ond is the unemployment rate of a country at year t , as registered by the annual macro-economic database of the European Commission’s Directorate General for Economic and Financial Affairs (AMECO), available at https://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm. The third is the gross enrollment ratio of a country’s population to tertiary schools at year t , calculated by the World Bank <https://data.worldbank.org/indicator/SE.TER.ENRR?view=chart>. Observe that data about education is missing for 12% of the observations.

Measures of political position within the Council. According to the theoretical literature of comparative political studies, the ideology of a country’s government is irrelevant with respect to its ability to negotiate within the Council (Marks and Steenbergen, 2002). In order to test this hypothesis, we build the dummy variable “Political Ideology”, which takes one if the government is positioned on the right wing of the political spectrum, and zero if the government instead leans to the left wing of the political spectrum. To create this variable, several steps are needed.

First, we download the “party database” of the “parliaments and governments project”, available at <http://www.parlgov.org/>. This database provides the name of all parties present in the Parliament of a country in a given year, and the percentage of seats assigned to each one of them. This dataset provides information about all countries considered in this study, except for Malta after 2003, Bulgaria after 2013, and for caretaker governments (e.g. the Italian government presided by Mario Monti in 2012). Second, we match this data with the “cabinet database” of the “parliaments and governments project”. This allow us to identify the name of the parties forming the government of the country in a given year. Third, the name of the parties belonging to a government are identified in the “Manifesto Project Dataset”, <https://manifesto-project.wzb.eu/datasets>, and linked to an ideology index. Ideology is derived by performing a text analysis of the electoral programs of a party, and translated into a left-right index (see for additional details Merz et al., 2016). This is called the RILE index (Mölder, 2013), and it is a continuous variable on the realm of real numbers. Values below and above zero indicates that a party belongs to the left or right wing of the political spectrum, respectively. Using this data, we calculate the ideology of the government of country i at year t as follows:

$$LR_{i,t} = \frac{\sum_{j=1}^{N_i} v_j r_j}{\sum_{j=1}^{N_i} v_j}$$

Where N_i is the number of parties belonging to the government of country i at time t , while v_j and r_j are respectively the percentage of seats in Parliament and the RILE index associated to party j . Using this value, we create our dummy variable recording whether the government of a country in a given year is posi-

tioned on the left or right side of the political spectrum. Specifically, the dummy takes zero if $LR_{i,t} < 0$, that is the country is governed by left-leaning parties. On the contrary, the dummy takes one if $LR_{i,t} \geq 0$: i.e. the country is led by right-leaning parties.

Both theoretical and qualitative studies on the bargaining processes within the Council agree that negotiations between countries take place on the anti-EU integration versus pro-EU integration dimension (Marks and Steenbergen, 2002; Bailer, 2004). Bailer (2004) also suggests that countries holding a position that is closer to the median position of the Council on this dimension have high probability of negotiation success. In addition, a large literature hypothesizes that holding a particularly extreme position can be fruitful to achieve a particular goal (Schneider and Cederman, 1994; Tsebelis, 1999; Tsebelis and Chang, 2004). In fact, countries with an extreme position can threaten to use their power of veto to stop negotiations. As a result, they can strongly influence the negotiation result. In order to test these theories, we create two variables. The first is a dummy variable, which takes zero if the government of a country holds an anti-EU integration position. It takes one if the government of the country supports a pro-EU integration position. We refer to this variable as to “Attitude towards Europe”. The second is a continuous variable, which measures the distance of the country position on the anti-pro integration dimension from the median position of the Council. We refer to this variable as to “Distance from the median attitude towards Europe”. Data is obtained from the same sources used to create the dummy variable “Political Ideology”.

The specific procedure to create these variables is the following. We use data from the “parliaments and governments project” to identify the names of the parties belonging to the government of a country in a given year, and the percentage of seats assigned to them in their national Parliament. Then, we associate to each party the “anti-pro EU” index created by the “Manifesto Project Dataset” by analyzing the electoral programs of parties. This index goes from 0, which is associated to an anti-EU position, to 10, that indicates a pro-EU position. We then measure the position of a government on the anti-pro integration dimension with the formula:

$$AP_{i,t} = \frac{\sum_{j=1}^{N_i} v_j p_j}{\sum_{j=1}^{N_i} v_j}$$

Where the term p_j is the “anti-pro EU” index associated to the party of the government of country i . Using this value, we create our two variables. The first, “Attitude towards Europe”, takes one if $AP_{i,t} > 5$, meaning that the parties of the government leans toward a pro-integration position. On the contrary, it takes zero if $AP_{i,t} \leq 5$, that is the party of the government holds an anti-integration position. The second variable, “Distance from the median attitude

towards Europe”, is calculated as follows:

$$D_{i,t} = |AP_{i,t} - \bar{AP}_{i,t}|$$

Where the term $\bar{AP}_{i,t}$ is the median value of the anti-pro integration position of the governments working within the Council at time t .

Measures of proximity within the Council. It is clear that when a country succeeds in increasing the budget spending on a specific program, all countries eligible for that program will benefit from it. It follows that countries with similar characteristics will benefit from each other’s effort in supporting a given motion on the budget. In order to observe how benefits exerted by a country spillover onto countries with similar characteristics, we create four measures of countries’ proximity.

The first measure we consider is the proximity of the economies of two countries, and it is based on GDP. Countries sharing a similar economic development will be interested by the same programs of e.g. regional cohesion supported by the EU budget (see for instance the cohesion fund, existing since 1988). Specifically, the economic proximity between country i and country j at year t is defined by the absolute difference of their GDPs (normalized using a GDP deflator), taken as quota with respect to the total EU GDP at year t . The data used to perform this exercise is taken for the OECD “Main Economic Indicators - complete database”, available at <http://dx.doi.org/10.1787/data-00052-en> and it is available for the years from 1976 to 2018.

The second measure of proximity is relative to the economic integration of the economies of two countries, and it is derived from their trade relationship. Countries lying close in this dimension are expected to have a shared interest in programs of the EU budget sustaining the competitiveness of specific enterprises, as in the case of the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) program promoted from 2014 to 2020. Proximity in this case is calculated with the formula:

$$\frac{exp_{i,j} + exp_{j,i}}{\sum_{j=1}^N exp_{i,j} + \sum_{i=1}^N exp_{j,i}}$$

Where $exp_{i,j}$ is the value in dollars of the export from country i to country j , $exp_{j,i}$ is the value in dollar of the export from country j to country i , and the denominator accounts for the sum of exports from both i and j . Data is obtained from the “Bilateral Trade Historical Series” provided by the “Centre d’Etudes Prospectives et d’Informations Internationales” (CEPII) at the link http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=32. Data is only

available from 1980 to 2009, and we need to impute values after 2009. This is done using the “International Trade Statistics Database” by UN Comtrade (<https://comtrade.un.org/>). Specifically, imputation is performed using the formula:

$$exp_{i,j,t}^c = exp_{i,j,2009}^c \times \frac{exp_{i,j,t}^{un}}{exp_{i,j,2009}^{un}}$$

Where $exp_{i,j,2009}^c$ is the value of export between countries i and j in 2009 as reported by the CEPII data, while $exp_{i,j,t}^{un}$ and $exp_{i,j,2009}^{un}$ are the value of export between countries i and j respectively in year t and in 2009 as registered by UN Comtrade.⁸

The third measure of proximity is used to assess the similarity in the economic structure of two countries, and it is obtained by looking at the difference in their endowment of arable land. Countries relying on a similar economic structure will be benefiting from EU budget programs such as the Common Agricultural Policy (CAP), existing from 1962. Specifically, this measure of proximity is obtained from the formula:

$$\frac{1}{|agr_{i,t} - agr_{j,t}|}$$

Where $agr_{i,t}$ and $agr_{j,t}$ refer to the percentage of arable land respectively in country i and j at year t . Data is retrieved from the World Bank database at the link <https://data.worldbank.org/topic/1>, and it is available from 1976 to 2019.

The fourth measure of proximity is calculated to assess the extent to which countries support similar economic policies. We expect that governments with the same agenda will benefit from the same EU budget programs directed to, for instance, countries committed to policies of sustainable development (e.g. the LIFE program, which ran from 2014 to 2020) or strategic investments to support employment and industrial innovation (e.g. the EaSI program promoted from 2014 to 2020). This measure is retrieved using our measures of political position within the Council. We consider both the distance of two governments on the left-right dimension, as measured by the variable $LR_{i,t}$, and on the anti-pro integration dimension, as recorded by the variable $AP_{i,t}$. Then, we take the inverse of the Euclidean distance of governments in the two considered dimensions. Put in formula:

$$\frac{1}{\sqrt{(LR_{i,t} - LR_{j,t})^2 + (AP_{i,t} - AP_{j,t})^2}}$$

⁸Observe that the correlation of the data provided by the CEPII and UN Comtrade for the year 2009 is extremely high: i.e., 0.9976.

III. Main Results

In this section, we analyze how the quota per capita of EU budget allocated to a country is determined by its bargaining power within the Council. The analysis is conducted using the following model:

$$(1) \quad y_{i,t} = \alpha + \beta X_{i,t} + \eta_i + \xi_t + \epsilon_{i,t}$$

Where $y_{i,t}$ is the quota per capita of EU budget allocated to country i at year t , $X_{i,t}$ is a vector containing all the measures of power relative to the country in the considered year, η_i and ξ_t are respectively country and time fixed effects, and they are used to average out from the equation any time-invariant characteristics of i and overall year trends, α is a constant value (i.e. the intercept), and $\epsilon_{i,t}$ is an idiosyncratic term (i.e. the error). Errors are clustered at the country level.

Estimates from model 1 are presented in Table (1). In column (1), the only measure of power included in the specification is the BFI. The estimated coefficient of this variable is positive and statistically significant. This confirms previous hypotheses that the benefits obtained by a country is determined by the extent to which it is pivotal for swinging coalitions from losing to winning. The effect of this variable is not small. An increase of one standard deviation in the BFI determines an increase of 0.75 standard deviation in the quota per capita of revenues received from the EU budget.

In column (2), we augment our model by including the measures relative to the different dimensions of country’s seniority. The results show that the dummy variable “Joined EU at year t ” has a negative and statistically significant impact on the revenues received by a country. The other variable instead, controlling for the seniority of country’s government, have no statistically significant effect. This implies that countries pay the cost of their inexperience exclusively during their first year of tenure in the Council, and more experienced members exert a benefit from their seniority only for the first year of enlargement of the Council. This might suggests that whenever a new composition of the Council occurs, a new equilibrium of power arises among countries, and they need to adjust to the new situation without having the chance to rely on their past experience or relationships.

In column (3), we further include in the specification the variable “Control of the EU presidency”. The variable bears a positive and statistically significant effect, meaning that an increase in the number of years holding the control of the presidency office provides to a country an advantage during negotiations, and increases its revenues from the EU budget. This suggests that more experienced countries are able to leverage the control of this office better than less experienced members, and it is in line with extant literature about the role that seniority plays

in helping agents to conduct successful negotiations.

Finally, in column (4) we add a control for the economic power of a country, as proxied by its quota per capita of contributions to the EU budget. Model estimates show that our findings are robust to the inclusion of this variable. Moreover, as one should probably expect, we find that this variable has a positive and statistically significant effect on the revenues allocated to that country.

In the Appendix, we perform a number of exercises of robustness to validate our findings. First, in order to verify whether our results are robust to the choice of the power index, we replicate the analysis presented so far by substituting the BFI with the SSI. Results are presented in the Appendix, Table A2. Reassuringly, all our findings are qualitatively unchanged. However, we note that the goodness of fit of estimates obtained using the SSI is lower than to those obtained with the BFI. This suggests that the BFI is the most appropriate metric of power to conduct our analysis. Second, we test the robustness of our results to the choice of the estimator. Following Papke and Wooldridge (1996), we replicate our analysis using a fractional probit estimator. In fact, OLS estimates may yield incorrect predictions when using a share value as the dependent variable, as in our case. Results are presented in Table A3. Our findings are all confirmed, hence we can safely assume that OLS estimation does not lead to any significant bias. Third, we estimate our models including macroeconomic controls (i.e. GDP growth rate, unemployment, and education), and a linear time trend. Results are reported in Table A4. We find that a country’s macroeconomic context, which may influence the allocation of EU budget funds in a given year, does not interfere with a country’s bargaining power within the Council. The effect of all our measures of power is in fact left qualitatively unchanged when controlling for these factors.

IV. Benefits from different Political Positions

This section is dedicated to the study of the benefits obtained by country by adopting a specific political position in the Council. To this aim, we augment equation (1) by including the measures of political position discussed in Section (II). Results are presented in Table (2).

In column (1), we test the impact of the ideology of a government, as measured by the dummy variable “Political Ideology”, in determining its success during negotiations. We find that the position of a government on the left-right political spectrum has no impact on its bargaining power, and does not significantly affect the revenues received from the EU budget. This is consistent with extant research and confirms that the Council does not discriminate countries according to the political orientation of their governments.

In column (2), we analyze the effect of the position of a country with respect

to the European integration processes, using the variables “Attitude towards Europe” and “Distance from the median attitude towards Europe”. As expected, the estimated effect of the former variable shows that governments with a pro-EU position have more power within the Council, and this has a positive and statistically significant effects on the amounts of revenues received. Moreover, the latter variable indicates that governments far from the median position of the Council tend to have lower bargaining power, and receive less revenues with respect to others.

In column (3), we include the squared value of the variable “Distance from the median attitude towards Europe”. This new term is used to register those countries who have an extremist position with respect to that of the Council. We find that both the linear and the quadratic term of this variable have a negative and statistically significant effect, meaning that the more a government is far from the median position of the Council, the less is its power to determine the allocation of the EU budget. In other words, the more a government is against the median position of the Council, the less are the revenues received from the budget.

Finally, in column (4) we interact the term BFI with the linear and quadratic variable “Distance from the median attitude towards Europe”. This is done in order to understand whether countries at different distances from the median position of the Council exert a different bargaining power during negotiations. Perhaps unexpectedly, we find that the interaction of the BFI with the linear term of government distance has no statistically significant effect. When countries are relatively close to the median position of the Council, their bargaining power exerts the same effect on negotiations regardless of their attitude towards the integration process. On the contrary, we find that the interaction of the BFI with the squared value of government distance is positive and statistically significant. We interpret this result as evidence that among the countries with the same BFI, those leaning towards a very extremist position (and potentially threatening to use veto power) are able to magnify the impact of their BFI. In other words, they are able to obtain an amount of revenues from the EU budget that is larger with respect to that allocated to countries with the same BFI, but a less extreme position.

V. Assessment of Spillover effects

Since each budget program benefits a specific pool of countries, it is logic to expect that each member of the Council will push to prioritize the funding to those programs that will produce the most benefits for itself. In this section, we investigate the extent to which a successful negotiation conducted by country in prioritizing the funding of some programs may indirectly benefit other countries eligible for those programs.

From a theoretical perspective, the extent to which the effort of one country during negotiations will spill over onto other countries can be modeled using a spatial autoregressive model of this kind:

$$(2) \quad y_t = \alpha + \beta X_t + \phi G_t y_t + \eta + \xi_t + \epsilon_t$$

The terms contained in this equation are the same described in equation (1), except for ϕG . The term G is an $n \times n$ adjacency matrix, where the generic element $g_{i,j}$ registers the proximity in the characteristics between i and j at year t . In other words, $g_{i,j}$ is a measure of the extent to which an increase in the funding of programs benefiting i will have positive effects for j . It follows that the term ϕ is the estimated effect of Gy , that is the measure of the spill over effects.

We estimate equation (2) using alternatively the different measures of proximity presented in Section (II), and report the results in Table (3).⁹ Specifically, in column (1), we assess spill over effects when controlling for the economic proximity of countries. In column (2), we report the value of spill over effect considering the economic integration of countries, derived from their trade relationships. In column (3), we look at the spill over effects flowing across countries with a similar economic structure, as determined by their endowment of arable land. In column (4), we test whether statistically significant spill over effects exist among countries with similar political orientation, and thus likely to support the same economic policies.

In all cases, spill over effects have a positive and statistically significant effect, confirming that the effort of a country in pushing for the funding of a program of interest for itself, will benefit other countries eligible for that program. However, the intensity of such effects greatly varies depending on the chosen measure of proximity. The smallest spill over effects recorded are those existing among countries which are economically integrated. This is not surprising, given that budget programs sustaining specific sectors of production are among the youngest in the pool of programs funded by the EU. As probably expected, the largest spill over effects are instead those flowing among countries with a similar endowment of arable land. Countries similar in this dimension are those benefiting from the EU budget programs related to the CAP, one of the oldest and most funded program of the Union.

⁹Estimates are obtained using a non-linear least square estimator. For details and background of this estimation technique, and the software used to implement it, see Battaglini et al. (2020).

VI. The reform of the Treaty of Niece

Aim of this section is to test the effects on countries' bargaining power produced the change in the qualified majority system of the Council after 2004. As already discussed in Section (II), votes were ratified according to the "EU of treaties" criterion until 2004. After that year, the "EU of people" and the "EU of countries" criteria were added.

In order to conduct our inquiry, we calculate the BFI derived by only considering the "EU of treaties" criterion along all the time span considered in our study (1976-2019), henceforth BFI_{vote} . This value is equal to the BFI that we would have observed if no changes in the qualified majority system were adopted in 2004. We then compare the change in the power of countries when considering the BFI_{vote} and the actual BFI, henceforth BFI_{all} , that is obtained when considering all criteria.

The correlation between the value of countries' BFI_{all} and BFI_{vote} is 0.99. This means that the reform of Niece did not introduce any significant change in the balance of power of the Council. Still, we can investigate whether some countries were benefited more than others from this change. To this purpose, we estimate model (1) with all control variables, and using alternatively the variables BFI_{all} and BFI_{vote} . Results are presented in Table (4), respectively in column (1) and (2). Of course, results show that the estimated coefficient of the BFI is substantially unchanged in the two models, and we observe only a slight difference in standard errors. Using these estimates, we then quantify in terms of euros the benefits received from the citizens of each country from the reform. This is done with the formula:

$$(3) \quad (\hat{\beta}_{all} - \hat{\beta}_{votes}) \sum_{t=2004}^{2019} quota_{i,t} \times EU \text{ expenditures}_t$$

Here, $\hat{\beta}_{all}$ and $\hat{\beta}_{votes}$ are the estimated coefficients relative to respectively BFI_{all} and BFI_{votes} and reported in Table (4), the term $quota_{i,t}$ indicates the quota per capita of EU budget revenues allocated to country i at year t , and $EU \text{ expenditures}_t$ is equal to the total revenues assigned to countries by the EU budget in the same year.

Results obtained from equation (3) are presented in the first two panels of Figure (3). On Panel (a), we show the change in the total amount of revenues received by each country from an increase of their BFI in the two voting systems. Differences are negligible. The country who benefited the most from approving the reform is Luxembourg. However, its gain is in the order of 3 euros over the entire period following the reform. On Panel (b) instead, we consider two differ-

ent groups, namely those who were part of the Council before 2004, and those who joined the Council in 2004, and we show the median value associated to each group in Panel (a). The group who benefits the most from the voting system introduced by the reform is that of the countries who joined the Council after 2004. Still, such gains are extremely small, namely less than 40 cents of euros over the entire considered period.

We now replicate our analysis by using the BFI obtained when considering only the “EU of people” criterion, henceforth BFI_{pop} , and the “EU of countries” criterion, henceforth BFI_{cou} . Our goal is to understand if choosing one of these criteria over the others would have produced actual changes in the bargaining processes of the Council.

We begin by investigating the effect of a voting system constructed only considering the “EU of people” criterion. To this purpose, first we calculate the effect of BFI_{pop} on the the quota per capita of EU budget revenues allocated to countries. Results of our estimations are presented in Table (4), column (3). Then, we use equation (3) to compute the benefits of EU citizens from keeping the actual voting system with respect to that derived from the “EU of people” criterion. The results of this exercise are presented in Figure (3), Panel (c) and (d). In Panel (c), we see that the country who benefits the most from the actual voting system is Luxembourg again. Over the period 2004-2019, its citizens gained more than 4,000 euros from the power assigned to them by the reform, with respect to a voting system based on population. This is not surprising given that Luxembourg has the smallest population in Europe, and its power would become insignificant if the voting system was constructed only considering the “EU of people” criterion. As for the other countries, we see that all of them have an interest in keeping unchanged the criteria of vote introduced by the reform. However, when looking at Panel (d), we see that the largest interest in keeping the system unchanged is again for those who entered in the Union after 2004.

Finally, we turn our attention to the effect of a voting system constructed only considering the “EU of country” criterion. Again, we first calculate the effect of BFI_{cou} on the the quota per capita of EU budget revenues allocated to countries. Results of our estimations are presented in Table (4), column (4). Then, we use equation (3) to calculate the benefits of EU citizens from keeping the actual voting system. Results are shown in Figure (3), Panel (e) and (f). Panel (e) shows that Luxembourg is again the country who benefits the most from the actual voting system. Over the period 2004-2019, its citizens gained almost 3,000 euros from the power assigned to them by the reform, with respect to a voting system based on the criterion of one country one vote. This implies that this country has by far a power in the Council that exceeds its importance in the Union. Panel (f) however, shows that the largest interest in not switching to this qualified

majority system is for the group of countries who entered in the Union after 2004.

In conclusion, we affirm that the reform introduced by the Treaty of Nice has not affected the balance of power in the Council. Moreover, preferring a different system of vote based on the “EU of people” or “EU of country” criteria would not lead to a more desirable situation for the countries who joined the Union after the reform was put in place.

VII. Conclusions

On many accounts, studying the process of bargaining among the members of the Council is essential to improve our understanding of the political system of the EU and design a fairer and more efficient distribution of powers in the Union (see for a review [Hagemann, 2015](#)). Investigating this matter is made even more urgent by the current pandemic crises, which have led to an excruciating process of bargaining among the member countries in 2020. Over the years, a number of hypotheses has been presented by the literature on what leads to a successful negotiation in the Council, however none of them have been substantiated by a robust empirical analysis. This paper contributes to fill this gap in literature by presenting the first inquiry on the validity of these hypotheses considering the negotiations conducted every year by member countries over the EU budget.

Consistent with the extant theories on the bargaining process within the Council, our results show that important predictors of the quota of budget assigned to a member country are: i) the extent to which its votes are pivotal to obtain a qualified majority in the Council, as measured by the BFI; ii) its seniority in the Council; and iii) its control over the Council presidency office. We further show that the political orientation of a government on the EU pro-anti integration dimension matters in determining its bargaining power in the Council. Specifically, we find evidence that member countries aligned with the median position of the Council on this dimension receive a larger quota of funds with respect to governments with more extremist positions. Conversely, we find that the position of a government on the left-right political spectrum does not matter in the negotiation process. In addition to this, our analysis indicates that member countries sharing similar interests benefit from each other’s effort in pushing a specific agenda. In particular, largest spill over effects are observed for the countries with a similar economic structure. Finally, we find that the reform of the qualified majority system of the Council which took place in 2004 did not introduce any substantial change in the balance of power in the Council. Most powerful countries in the Council were not affected at all by the reform.

VIII. Tables

Table 1: Main Results

	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	(1)	(2)	(3)	(4)
Banzhaf index	0.0952*** (0.0158)	0.0955*** (0.0157)	0.0985*** (0.0158)	0.0976*** (0.0158)
Joined EU at year t (1 = Yes)		-0.0021** (0.0010)	-0.0023** (0.0010)	-0.0022** (0.0010)
Seniority of government in the Council		0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Control of the EU presidency			0.0005* (0.0002)	0.0004* (0.0002)
Yearly quota of national contributions to EU (per capita)				0.6286** (0.2925)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	769	769	769	769
R squared	0.6156	0.6183	0.6202	0.6227

Note: OLS estimated coefficients are reported along with robust standard errors (in parentheses). Standard errors are clustered by country using the wild cluster bootstrap-t procedure proposed by [Cameron et al. \(2008\)](#). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see [Table \(A1\)](#).

Table 2: Bargaining Power of Extremist Positions

	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	(1)	(2)	(3)	(4)
Banzhaf index	0.1001*** (0.0274)	0.1048*** (0.0304)	0.1403*** (0.0395)	0.1838** (0.0733)
Political Ideology (0 = Left, 1 = Right)	-0.0001 (0.0003)	-0.0002 (0.0003)	-0.0001 (0.0003)	0.0000 (0.0002)
Attitude towards Europe (0 = Anti, 1 = Pro)		0.0012* (0.0007)	0.0012* (0.0007)	0.0033** (0.0010)
Distance from the median attitude towards Europe (Anti/Pro Europe)		-0.0041* (0.0025)	-0.0165** (0.0083)	-0.0650 (0.0593)
				-0.0893 (0.5591)
				* Banzhaf index
Squared distance from the median attitude towards Europe (Anti/Pro Europe)			-0.0203** (0.0062)	-0.1206*** (0.0268)
				0.8361*** (0.1526)
				* Banzhaf index
Joined EU at year t (1 = Yes)	-0.0021*** (0.0004)	-0.0023*** (0.0005)	-0.0021*** (0.0005)	-0.0016*** (0.0004)
Seniority of government in the Council	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Control of the EU presidency	0.0005** (0.0002)	0.0005** (0.0002)	0.0004* (0.0002)	0.0004* (0.0002)
Yearly quota of national contributions to EU (per capita)	0.6086 (0.5019)	0.6415 (0.4965)	0.5837 (0.5391)	0.8380 (0.6266)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	715	715	715	715
R squared	0.6180	0.6204	0.6285	0.6524

Note: OLS estimated coefficients are reported along with robust standard errors (in parentheses). Standard errors are clustered by country using the wild cluster bootstrap-t procedure proposed by Cameron et al. (2008). To avoid collinearity issues, the method of orthogonal polynomials is applied to the variables "Distance from the median attitude towards Europe (Anti/Pro Europe)" and "Squared distance from the median attitude towards Europe (Anti/Pro Europe)". *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see Table (A1).

Table 3: Spillover effects of the political action of countries

Measure of proximity	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	GDP	Trade	Agriculture	Politics
	(1)	(2)	(3)	(4)
ϕ	0.2108* (0.1130)	0.0501*** (0.0034)	0.4398*** (0.0706)	0.2143* (0.1250)
Banzhaf index	0.0984*** (0.0151)	0.0635*** (0.0190)	0.0871*** (0.0147)	0.0966*** (0.0166)
Joined EU at year t (1 = Yes)	-0.0021** (0.0010)	-0.0019** (0.0010)	-0.0015* (0.0009)	-0.0024** (0.0010)
Seniority of government in the Council	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Control of the EU presidency	0.0006** (0.0003)	0.0009** (0.0003)	0.0005* (0.0003)	0.0006* (0.0003)
Yearly quota of national contributions to EU (per capita)	0.6327** (0.2944)	1.3104*** (0.3796)	0.7341** (0.2888)	0.6884** (0.3091)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	741	649	769	715
AIC	-6233.7626	-5488.5707	-6505.1277	-5988.4171

Note: NLLS estimated coefficients are reported along with standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see Table (A1).

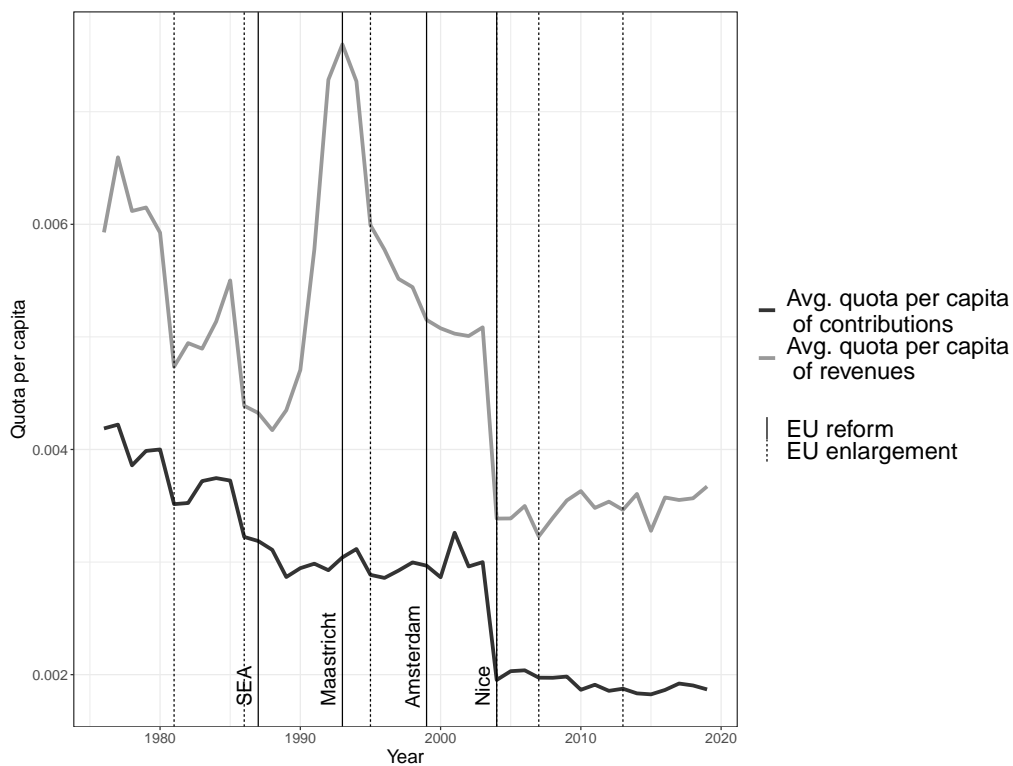
Table 4: Change in power using different qualified majority criteria

Qualified Majority System	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	Status quo	Union of Treaties	Union of People	Union of Countries
	(1)	(2)	(3)	(4)
Banzhaf index	0.0976** (0.0393)	0.0976** (0.0390)	0.0085* (0.0045)	0.0316*** (0.0095)
Joined EU at year t (1 = Yes)	-0.0022*** (0.0005)	-0.0022*** (0.0004)	-0.0020*** (0.0004)	-0.0020*** (0.0004)
Seniority of government in the Council	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Control of the EU presidency	0.0004** (0.0002)	0.0004** (0.0001)	0.0003** (0.0001)	0.0003** (0.0001)
Yearly quota of national contributions to EU (per capita)	0.6286* (0.3740)	0.6288* (0.3740)	0.6735* (0.3937)	0.6756* (0.3776)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	769	769	769	769
R squared	0.6227	0.6227	0.6023	0.6018

Note: OLS estimated coefficients are reported along with robust standard errors (in parentheses). Standard errors are clustered by country using the wild cluster bootstrap-t procedure proposed by [Cameron et al. \(2008\)](#). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see Table (A1).

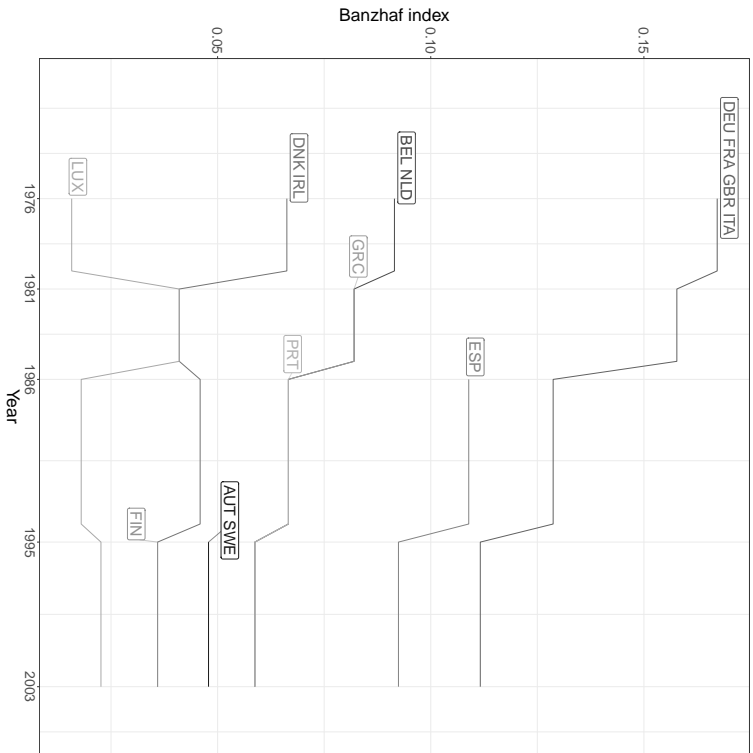
IX. Figures

Figure 1. : Revenues and Contributions of EU Council Members - Quota per capita

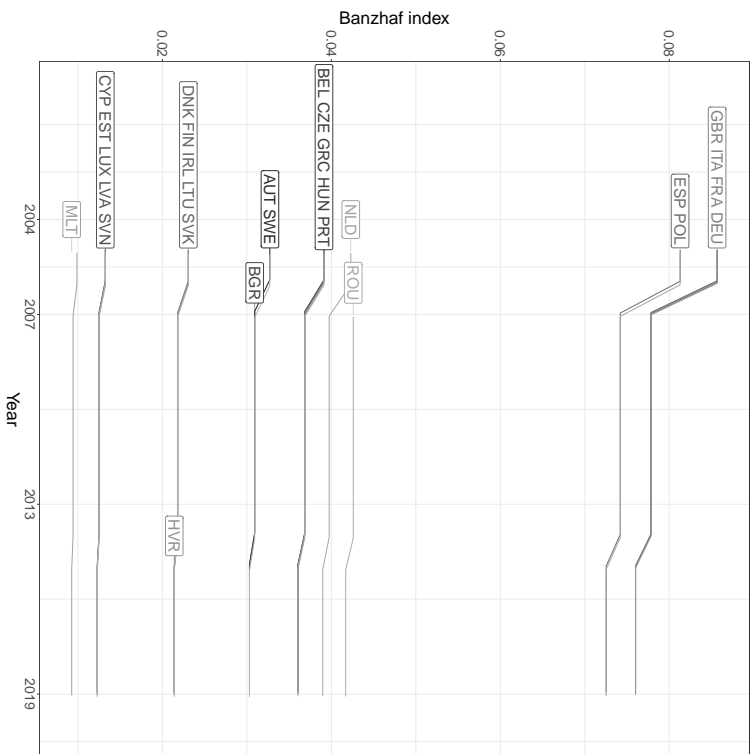


Note: The light-colored line indicates the average quota per capita of revenues of EU Council Members in each recorded year. The dark-colored line registers the average quota per capita of contributions of EU Council Members in each recorded year. Solid-vertical lines mark the years in which occurred a major reform of the EU (i.e. the Single European Act (SEA), the Treaty of Maastricht, the Treaty of Amsterdam, the treaty of Niece). Dashed-vertical lines are placed in correspondence of the years in which a EU enlargement occurred.

Figure 2. : Normalized Banzhaf index of EU Council Members



(a) 1976-2004

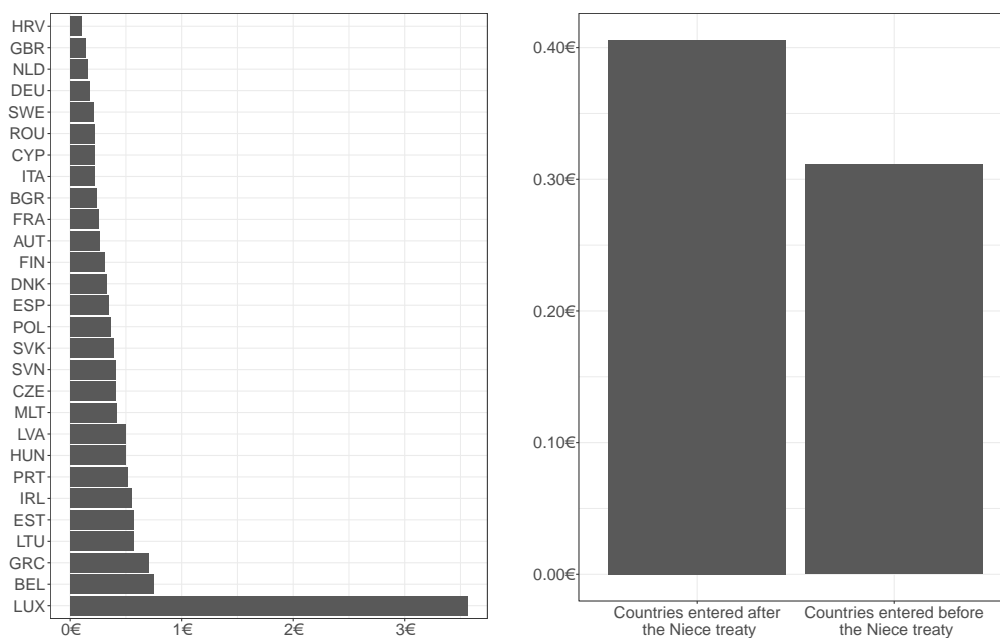


(b) 2004-2019

Note: Normalized Banzhaf index of EU Council Members in each consider year. Country names are indicated using the ISO3 code system. Colors are used to identify group of countries associated to similar values of Banzhaf index.

Figure 3. : Change in power using different qualified majority criteria

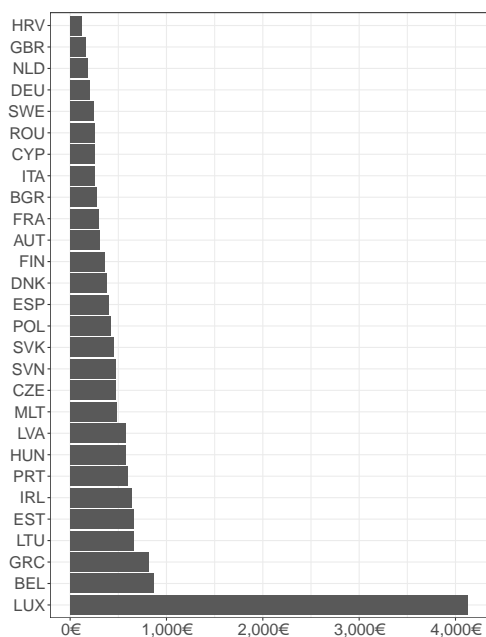
- (a) Benefits of EU citizens by country: status quo vs union of treaties.
Total value
- (b) Benefits of EU citizens by accession group: status quo vs union of treaties.
Median value



Note: For each country i , we calculate its average Banzhaf index over the years considering the status quo criteria for qualified majority, $\bar{x}_{i,all}$, and considering only the criterion of the number of votes (Union of Treaties), $\bar{x}_{i,vote}$. We then estimate the difference of the quota per capita of revenues when considering a different qualified majority system by using by using equation (3). Panel (a) displays on the x-axis the name of each EU member using the ISO3 code system, and on the y-axis the computed difference of the quota per capita of revenues by country. Panel (b) summarizes the information in Panel (a) by grouping countries according to their year of accession to the EU: i.e. after and before the treaty of Niece. On the x-axis is indicated the group of countries, and on the y-axis the average difference of the quota per capita of revenues when considering a different qualified majority system.

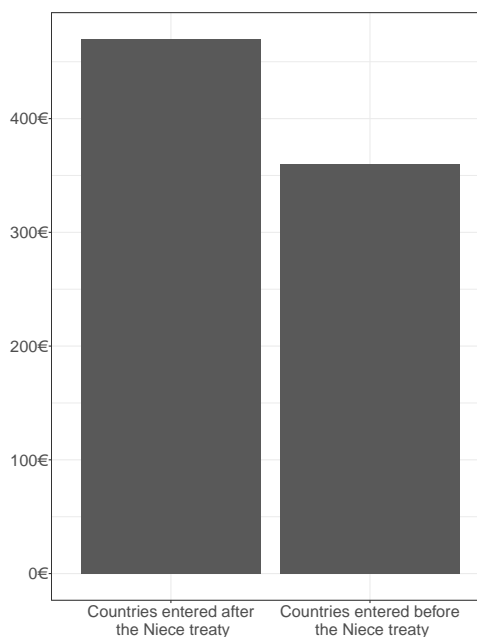
- (c) Benefits of EU citizens by country: status quo vs union of people.

Total value



- (d) Benefits of EU citizens by accession group: status quo vs union of people.

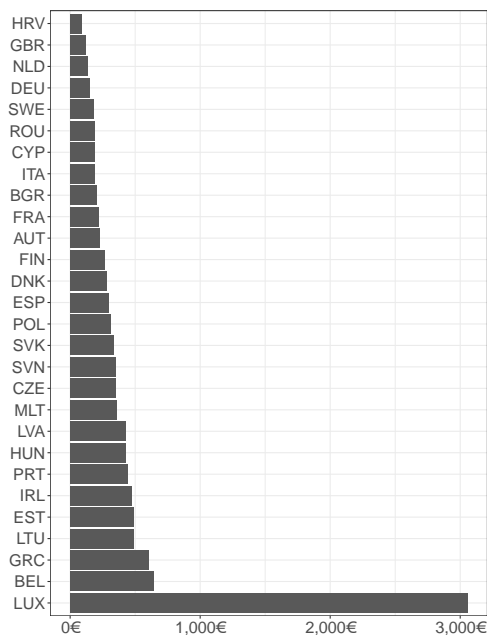
Median value



Note: For each country i , we calculate its average Banzhaf index over the years considering the status quo criteria for qualified majority, $\bar{x}_{i,all}$, and considering only the criterion of the number of population (i.e. union of people criterion), $\bar{x}_{i,pop}$. We then estimate the difference of the quota per capita of revenues when considering a different qualified majority system by using equation (3). Panel (c) displays on the x-axis the name of each EU member using the ISO3 code system, and on the y-axis the computed difference of the quota per capita of revenues by country. Panel (d) summarizes the information in Panel (c) by grouping countries according to their year of accession to the EU: i.e. after and before the treaty of Nice. On the x-axis is indicated the group of countries, and on the y-axis the average difference of the quota per capita of revenues when considering a different qualified majority system.

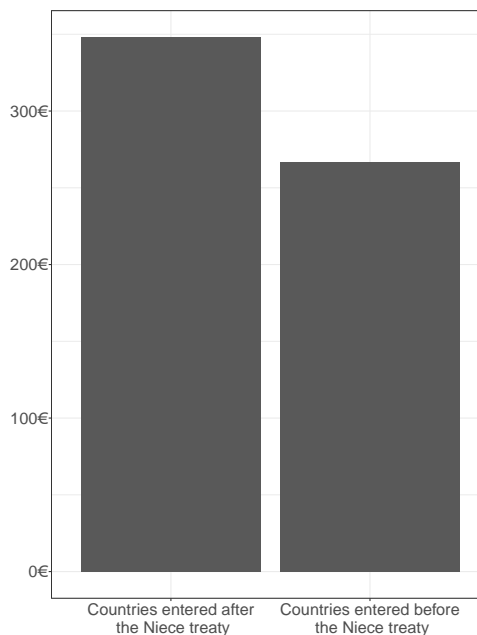
(e) Benefits of EU citizens by country:
status quo vs union of states.

Total value



(f) Benefits of EU citizens by accession
group: status quo vs union of states.

Median value



Note: For each country i , we calculate its average Banzhaf index over the years considering the status quo criteria for qualified majority, $\bar{x}_{i,num}$, and considering only the criterion of the number of countries (i.e. union of states criterion), $\bar{x}_{i,num}$. We then estimate the difference of the quota per capita of revenues when considering a different qualified majority system by using equation (3). Panel (e) displays on the x-axis the name of each EU member using the ISO3 code system, and on the y-axis the computed difference of the quota per capita of revenues by country. Panel (f) summarizes the information in Panel (e) by grouping countries according to their year of accession to the EU: i.e. after and before the treaty of Niece. On the x-axis is indicated the group of countries, and on the y-axis the average difference of the quota per capita of revenues when considering a different qualified majority system.

REFERENCES

- Bailer, S. (2004). Bargaining success in the European Union: The impact of exogenous and endogenous power resources. *European Union Politics*, 5(1):99–123.
- Baldwin, R. E., Berglof, E., Giavazzi, F. and Widgrén, M. (2001). *Nice Try: Should the Treaty of Nice Be Ratified?* Number 11. Centre for Economic Policy Research.
- Banzhaf III, J. F. (1964). Weighted voting doesn't work: A mathematical analysis. *Rutgers L. Rev.*, 19:317.
- Battaglini, M., Leone Sciabolazza, V., Patacchini, E. and Peng, S. (2020). *econet: An R package for parameter-dependent network centrality measures*. Working Paper, available at <https://cran.r-project.org/web/packages/econet/vignettes/econet.pdf>.
- Benedetto, G. (2013). The EU budget after Lisbon: rigidity and reduced spending? *Journal of Public Policy*, 33(3):345–369.
- Bindseil, U. and Hantke C. (1993). The Power Distribution in Decision Making among EU Member States. *European Journal of Political Economy*, 13(1):171–185.
- Calatuzzolo, R. (2020). The budgetary procedure. *Fact Sheets on the European Union*, September 2020, <https://www.europarl.europa.eu/factsheets/en/sheet/10/the-budgetary-procedure>.
- Cameron, A., Gelbach, J. and D, M. (2008). Bootstrap-based improvements for inference with clustered errors. *The Review of Economics and Statistics*, 90(3):414–427.
- Directorate general for the budget (2009). EU budget - Financial Report 2008. Technical report, European directorate-general for the budget.
- Directorate general for the budget (2019). The History of the EU Budget. Technical report, European directorate-general for the budget.
- Directorate general for the budget (2018). EU budget - Financial Report 2017. Technical report, European directorate-general for the budget.
- Elgström, O., Bjurulf, B., Johansson, J. and Sannerstedt, A. (2001). Coalitions in European Union Negotiations. *Scandinavian Political Studies*, 24(2):111–128.
- Häge, F. M. (2007). Committee Decision-making in the Council of the European Union. *European Union Politics*, 8(3):299–328.

- Hagemann, S. (2015). Studies of Bargaining in the European Union. In Lynggaard, K., Löfgren, K. and Manners, I., editors, *Research Methods in European Union Studies*, Palgrave MacMillan, 136–153.
- Hayes-Renshaw, F, Van Aken, W. and Wallace H. (2006). When and why the EU Council of Ministers votes explicitly. *Journal of Common Market Studies*, 44(1):161–194.
- Hampson, F. O. and Hart, M. (1999). *Multilateral negotiations: Lessons from arms control, trade, and the environment*. JHU Press.
- Heinemann, F. (2003). The political economy of EU enlargement and the Treaty of Nice. *European Journal of Political Economy*, 19(1):17–31.
- Hibbing, J. R. (1991). *Congressional careers: Contours of life in the US House of Representatives*. UNC Press Books.
- Hopmann, P. T. (1995). Two paradigms of negotiation: Bargaining and problem solving. *The Annals of the American Academy of Political and Social Science*, 542(1):24–47.
- Johnston, R. J. (1995). The conflict over qualified majority voting in the European Council of Ministers: An analysis of the UK negotiating stance using power indices. *British Journal of Political Science*, 25(2), 245–254.
- Laruelle, A. and Widgrén M. (1998). Is the Allocation of Voting Power among EU States Fair? *Public Choice*, 94(3-4):317–339.
- Leech, D. (2002). Designing the voting system for the Council of the European Union. *Public Choice*, 113(3-4):437–464.
- March, J. G. and Olsen, J. P. (2010). *Rediscovering institutions*. Simon and Schuster.
- Marks, G. and Steenbergen M. (2002). Understanding Political Contestation in the European Union. *Comparative Political Studies*, 35(8):879–892.
- Mattila, M. and Lane, J.-E. (2001). Why unanimity in the Council? A roll call analysis of Council voting. *European Union Politics*, 2(1):31–52.
- Mattila, M. (2004). Contested decisions: Empirical analysis of voting in the European Union Council of Ministers. *European Journal of Political Research*, 43(1):29–50.
- Mattila, M. (2009). Roll call analysis of voting in the European Union Council of Ministers after the 2004 enlargement. *European Journal of Political Research*, 48(6):840–857.

- Merz, N., Regel, S. and Lewandowski, J. (2016). The Manifesto Corpus: A new resource for research on political parties and quantitative text analysis. *Research & Politics*, 3(2):2053168016643346.
- Mölder M. (2013). The validity of the RILE left–right index as a measure of party policy . *Party Politics*, 22(1):37–48.
- Napel, S. and Widgrén (2011). Strategic versus non-strategic voting power in the EU Council of Ministers: the consultation procedure. *Social Choice and Welfare*, 37(3):511–541.
- Odell, J. S. (2005). Chairing a WTO negotiation. *Journal of international economic law*, 8(2):425–448.
- Papke, L. E. and Wooldridge J. M. (1996). Econometric methods for fractional response variables with an application to 401 (k) plan participation rates. *Journal of applied econometrics*, 11(6):619–632.
- Penrose, L. S. (1946). The elementary statistics of majority voting. *Journal of the Royal Statistical Society*, 109(1):53–57.
- Perez, L. K. and Scherpereel, J. A. (2017). Vertical intra-institutional effects of ministerial turnover in the Council of the European Union. *Journal of European Public Policy*, 24(8):1154–1171.
- Schalk, J., Torenvlied, R., Weesie, J. and Stokman, F. (2007). The power of the Presidency in EU Council decision-making. *European Union Politics*, 8(2):229–250.
- Scharpf, F. W. (1997). Games real actors play: Actor-centered institutionalism. *Boulder, CO*.
- Schneider, G. and Cederman, L.-E. (1994). The change of tide in political cooperation: A limited information model of European integration. *International Organization*, 633–662.
- Shapley, L. S. and Shubik, M. (1954). A Method for Evaluating the Distribution of Power in a Committee System. *American Journal of Political Science*, 48(3):787–792.
- Soukeník, K. (2005). Shapley value predicts the distribution of EU expenditure among member states. *Journal of European Integration*, 23(2):165–198.
- Stock J. H., Watson, M. W. (1988). Variable trends in economic time series. *Journal of economic perspectives*, 2(3):147–174.
- Stokman, F. and Thomson, R. (2005). Winners and Losers in the European Union. *European Union Politics*, 5(1):5–23.

- Straffin Jr, P. D. (1988). The Shapley-Shubik and Banzhaf power indices as probabilities. In Shapley, L. S, and Alvin, E., editors, *The Shapley value: essays in honor of Lloyd S. Shapley*, Cambridge University Press, 71–82.
- Sutter, M. (2000). Flexible Integration, EMU and Relative Voting Power in the EU. *Public Choice*, 104(1-2):41–62.
- Tallberg, J. (2006). *Leadership and negotiation in the European Union*. Cambridge University Press.
- Tallberg, J. (2008). Bargaining power in the European Council. *JCMS: journal of common market studies*, 46(3):685–708.
- Taylor, A. D. and Pacelli, A. M. (2008). *Mathematics and politics: strategy, voting, power and proof*. Springer Science & Business Media.
- Teasdale, A. L. (1996). The Politics of Majority Voting in Europe. *Political Quarterly*, 67(2), 101–115.
- Thomson, R. (2008). The Council presidency in the European Union: Responsibility with power. *Journal of Common Market Studies*, 46(3), 593–617.
- Tsebelis, G. and Garret, G. (1996). Agenda Setting Power, Power Indices and Decision Making in the European Union. *International Review of Law and Economics*, 13(1), 345–361.
- Tsebelis, G. (1999). Veto players and law production in parliamentary democracies: An empirical analysis. *American political science review*, 93(3), 591–608.
- Tsebelis, G. and Chang, E. C. C. (2004). Veto players and the structure of budgets in advanced industrialized countries. *European Journal of Political Research*, 43(3):449–476.
- Wallace, H. and Hayes-Renshaw, F. (2006). *The Council of Ministers*. Palgrave Macmillan.
- Widgrén, M. (1994). Voting power in the EC decision making and the consequences of two different enlargements. *European Economic Review*, 38, 1153–1170.

APPENDIX

Table A1: Descriptives

Variable name	Definition	Mean	St. Dev.
Quota per capita of the revenues received by country i at time t	Quota of the total share of revenues assigned by the European Commission to country i at year t , weighted by the population of country i at year t .	0.0044	0.0052
Banzhaf index	Normalized Banzhaf index (Banzhaf III, 1964; Penrose, 1946; Taylor and Pacelli, 2008) of country i at year t .	0.0572	0.0403
Shapley Shubik index	Normalized Shapley Shubik index (Shapley and Shubik, 1954; Taylor and Pacelli, 2008) of country i at year t .	0.0571	0.0457
Joined EU at year t (1 = Yes)	Dummy variable. It takes the value one if country i joined the EU commission at year t , and zero otherwise.	0.0234	0.1513
Seniority of government in the Council	Number of years the government of country i has been member of the EU commission up until year t .	2.6827	1.4792
Control of the EU presidency	Number of years in which country i hold the presidency office of the Council at year t .	2.6176	2.2510
Yearly quota of national contributions to EU (per capita)	Quota of the total share of contributions of country i at time t to the EU, weighted by the population of country i at time t . All values relative to a country have been detrended with a country-specific linear trend.	0.0000	0.0004
Num. Obs.		769	769
Political Ideology (0 = Left, 1 = Right)	Dummy variable. It takes the value one if the weighted average of the Rile index (Merz et al., 2016) associated to the parties participating to the country's government is positive, and zero otherwise. Weights are equal to the percentage of votes that each party has in the country's Parliament.	0.4028	0.4908
Attitude towards Europe (0 = Anti, 1 = Pro)	Dummy variable. It takes the value one if the weighted average of the Anti/Pro EU index (Merz et al., 2016) associated to the parties participating to the country's government is higher than five, and zero otherwise. Weights are equal to the percentage of votes that each party has in the country's Parliament.	0.9510	0.2159
Distance from the median attitude towards Europe (Anti/Pro Europe)	Difference between the weighted average of the Anti/Pro EU index (Merz et al., 2016) associated to the parties participating to the country's government at time t , and its median value among all EU members at time t . Weights are equal to the percentage of votes that each member country has in the Council.	0.2020	0.1909
Num. Obs.		715	715
GDP growth rate	Gross Domestic Product growth rate of a country at year t with respect to the previous year.	1.0597	0.1129
Unemployment rate	Rate of unemployed working population in a country at year t .	8.2730	4.1055
Education	Ratio of total enrollment, regardless of age, to the population of the age that officially corresponds to the level of tertiary education.	53.5361	22.8801
Num. Obs.		677	677

Table A2: Robustness checks: using a different measure of power

	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	(1)	(2)	(3)	(4)
Shapley Shubik index	0.0684** (0.0261)	0.0701** (0.0271)	0.0740** (0.0260)	0.0720** (0.0282)
Joined EU at year t (1 = Yes)		-0.0023*** (0.0004)	-0.0025*** (0.0004)	-0.0024*** (0.0004)
Seniority of government in the Council		0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Seniority of EU president			0.0005*** (0.0002)	0.0005** (0.0002)
Yearly quota of national contributions to EU (per capita)				0.5404 (0.3831)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	769	769	769	769
R squared	0.6114	0.6148	0.6171	0.6189

Note: OLS estimated coefficients are reported along with robust standard errors (in parentheses). Standard errors are clustered by country using the wild cluster bootstrap-t procedure proposed by [Cameron et al. \(2008\)](#). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see Table (A1).

Table A3: Robustness check: using a different estimation technique

	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	(1)	(2)	(3)	(4)
Banzhaf index	7.2104* (4.4426)	7.312* (4.437)	7.6171* (4.412)	7.5989* (4.4213)
Joined EU at year t (1 = Yes)		-0.287*** (0.0427)	-0.2998*** (0.0426)	-0.2935*** (0.0433)
Seniority of government in the Council		0.0031 (0.0033)	0.0032 (0.0036)	0.0023 (0.0035)
Control of the EU presidency			0.0369*** (0.0139)	0.0356** (0.0141)
Yearly quota of national contributions to EU (per capita)				28.8791*** (8.0068)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	769	769	769	769

Note: Fractional probit estimated coefficients are reported along with robust standard errors (in parentheses) clustered by country. *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see Table (A1).

Table A4: Robustness check: including macroeconomic controls

	Dep. Var.: Quota per capita of the revenues received by country i at time t			
	(1)	(2)	(3)	(4)
Banzhaf index	0.0826* (0.0433)	0.0831** (0.0412)	0.0851** (0.0417)	0.0835* (0.0426)
Joined EU at year t (1 = Yes)		-0.0032*** (0.0006)	-0.0033*** (0.0007)	-0.0032*** (0.0007)
Seniority of government in the Council		0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Control of the EU presidency			0.0003** (0.0001)	0.0003* (0.0002)
Yearly quota of national contributions to EU (per capita)				0.6781** (0.2430)
GDP growth rate	0.0021 (0.0041)	0.0035 (0.0043)	0.0034 (0.0042)	0.0035 (0.0042)
Unemployment rate	0.0003** (0.0001)	0.0003** (0.0001)	0.0003** (0.0001)	0.0003** (0.0001)
Education	-0.0001** (0.0000)	-0.0002** (0.0000)	-0.0001** (0.0000)	-0.0001** (0.0000)
Time trend	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0004*** (0.0001)	-0.0004*** (0.0001)
Country Fix. Eff.	Yes	Yes	Yes	Yes
Year Fix. Eff.	Yes	Yes	Yes	Yes
Num. Obs.	677	677	677	677
R squared	0.6727	0.6791	0.6799	0.6828

Note: OLS estimated coefficients are reported along with robust standard errors (in parentheses). Standard errors are clustered by country using the wild cluster bootstrap-t procedure proposed by [Cameron et al. \(2008\)](#). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. For a definition of each variable, see [Table \(A1\)](#).