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Negotiating the Lisbon Treaty: Redistribution, Efficiency and Power Indices

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Abstract In this paper, we try to explain the intergovernmental negotiation of the Lisbon treaty from a rational choice perspective with the aid of power index analysis. There are two aspects of the reform of qualified majority voting (QMV) in the Council that we find puzzling. The first one is that, according to Shapley-Shubik index based on the notion of power as the distribution of a fixed prize, small and medium-sized member states have lost power as compared to the Nice treaty, which conflicts with the unanimity requirement for treaty reform. The second one is that, according to the Banzhaf measure based on the notion of power as influence, the Lisbon treaty leaves all member states worse off in absolute terms as compared to the Convention's draft. We propose the measure developed by Steunenberg et al. (1999) as a possible solution to these paradoxes, and draw some conclusions about the nature of EU policy making and power index analysis.

Keywords Council, European Union, Lisbon treaty, negotiation, power index, voting
JEL classification D78, F55, H77

1. Introduction

Agreeing to new rules for a qualified majority in the Council has proven to be one of the main hurdles in the reform of the Nice Treaty that envisaged the establishment of a Constitution for Europe and ended up in the current Lisbon Treaty. The new voting rules substituted the triple majority requirement of Nice (72% of weighted votes, 50% of member states and 62% of the population) with a double majority system (55% of member states and 65% of the population). In between was the Convention's draft treaty that contained a less stringent double majority rule (50% of member states and 60% of the population).

In this paper, we analyze the intergovernmental negotiation of the Lisbon treaty from a rational choice perspective. Other studies have focused on the efficiency or the fairness of the new rules from a normative perspective (Laruelle and Widgrén 1998; Leech 2002). But in this paper, we analyze the negotiation process from a positive perspective, trying to understand the negotiating positions of the individual member state governments that made the final outcome possible. This is an instance of how

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formal models can also be applied to the analysis of a particular case (Bates et al. 1998; McLean 2003). Of course, the results of the analysis can provide us with insights for other cases.

There are two aspects of the negotiation process that we find puzzling. The first one concerns the final outcome of the negotiations and we call it the "redistribution paradox". According to the results of recent studies using the normalized Banzhaf power index to analyze the distribution of voting power between member states under these three institutional arrangements, some member states, namely medium-sized member states such as Poland or Spain, would lose relative voting power in favour of other states, namely large and small member states (see Algaba et al. 2007; Felsenthal and Machover 2007). This outcome contrasts with the unanimity requirement for the amendment of EU treaties.

In this paper, we confirm the existence of a large scale redistribution of power between member states when computing the Shapley-Shubik power index, which is better suited to the notion of politics as the distribution of a fixed prize between the players (*P*-power). Such redistribution of voting power may have important budgetary implications if we take into account that both theoretical models and empirical analyses of fiscal redistribution in the EU reveal a strong relationship between voting power and budget allocation (Rodden 2002; Kauppi et al. 2004).

In order to solve this paradox, we make recourse to a different type of power measure based on the notion of power as influence (*I*-power), namely the Banzhaf measure. This resolves the "redistribution paradox" but creates a new one, which concerns the negotiation process itself, and in particular the movement from the 50–60 rule in the Convention's draft to the final 55–65 rule of the Lisbon Treaty. Apparently, this amendment made each and every member state worse off relative to the original proposal of the Convention. But why would any member state reject a draft treaty arguing that it reduced its voting power and then promote a new deal that further reduced that power? We refer to this puzzle as the "efficiency paradox".

In this paper, we will try to analyse these two paradoxes with the help of power indices computed through computer simulation techniques. One of the main advantages of models based on computer simulations is that they can deal with a high degree of complexity that would be difficult to manage by analytical models (Kollman et al. 2003). This allows adapting the model to different assumptions relatively easily, such as different voting rules, different preferences, different notions of power (division of a fixed prize vs. influence) or different nature of the political choices (binary or gradual). In doing so we cover three main power indices, namely Shapley-Shubik (1954), Banzhaf (1965) and the measure developed by Steunenberg, Smidtchen and Koboldt (1999). We compute the indices for the Nice treaty and the Lisbon Treaty, as well as the Convention's draft treaty that was considered in between. We come to the conclusion that the latter measure is better suited to explain the nature of EU politics and resolves the above mentioned paradoxes to a great extent.

The rest of the paper will be divided in six sections. In Section 2, we will review the literature on treaty negotiations and power index analyses applied to the EU. In Section 3, we will present the main indices and voting rules analyzed in this paper (Nice,

Convention and Lisbon Treaty). In Sections 4 to 6, we will analyze those three different institutional arrangements using three different measures by Shapley-Shubik, Banzhaf, and Steunenberg, Schmidtchen and Koboldt, respectively. Finally, in Section 7, we will draw some general conclusions about the nature of Council voting and power index analysis.

2. Literature review

This paper tries to explain the negotiation of the Lisbon treaty from a rational choice perspective. In order to better understand the nature of bargaining and the interests at stake, in this section, we briefly review the institutionalist literature on EU treaty negotiations as well as the literature on power indices applied to EU decision making.

2.1 Explaining EU treaty negotiations

There are two main streams in the institutional literature on EU treaty negotiations that differ in relation to the nature of bargaining, and in particular who the main actors are and whether they have power of veto or not. On the one hand, supranational institutionalism stresses the role of actors above the nation state, such as European institutions, international political leaders or transnational interest groups. The presence of logrolling and linkages allows political entrepreneurs to upgrade the interest of member states beyond the lowest common denominator (e.g. Stone Sweet and Sandholtz 1997).

On the other hand, intergovernmental institutionalism stresses the role of member state governments. As Moravcsik (1991) points out, without a "European hegemon" capable of providing universal incentives or threats to promote regime formation and without the widespread use of linkages and logrolling, the bargains struck in the EC reflect the relative power positions of the member states. Thus, intergovernmental institutionalism is characterized by lowest-common-denominator (veto group) decisions among the largest member states, with smaller states receiving side-payments and larger states subject to threats of exclusion.

Indeed, small states can be bought off with side payments, such as the expansion of structural funds aimed at poorer regions of the EC, which was essential to the passage of the internal market program of the Single European Act. This policy of "economic and social cohesion" was not a vital element of economic liberalization, as the Commission at times claimed, but was instead a side-payment to Ireland and the Southern states in exchange for their political support. But larger states exercise a de facto veto over fundamental changes in the scope or rules of the core element of the EC. Thus, bargaining tends to converge toward the lowest common denominator of large state interests (Moravcsik 1991).

The only tool that can impel a state to accept an outcome on a major issue that it does not prefer to the status quo is the threat of exclusion. Once an international institution has been created, exclusion can be expensive both because the excluded state forfeits input into further decision making and because it forgoes whatever benefits result. If two major states can isolate the third and credibly threaten it with exclusion,

and if such exclusion undermines the substantive interests of the excluded state, the coercive threat may bring about an agreement at a level of integration above the lowest common denominator (Moravcsik 1991). Such a threat of a two-speed Europe may be an effective way to force reluctant states to accept new initiatives such as the Common Foreign and Security Policy (CFSP) or the Economic and Monetary Union (EMU), but is less likely to work for a reform of Council voting which is at the core of the EU.

Although supranational institutions such as the European Commission or the European Parliament were present in the Convention that prepared the draft treaty that served as a basis for the Lisbon treaty, in this paper, we argue that the main role in the negotiations was played by member state governments. This is in line with our nationally-based power index analysis. Each of those governments enjoyed a power of veto over the final outcomes, and without the possibility of a credible threat of exclusion, side-payments were the only means to convince reticent states to accept a new voting system they did not like. But such an option was only viable for smaller member states and/or minor issues.

2.2 Power index analysis of EU decision making

There is a rich literature using power indices to analyze the distribution of voting power between member states under different institutional arrangements in the EU (e.g. Hosli 1996). Such 'power indices' represent the *a priori* probabilities of the member states being pivotal or decisive, i.e. being able to turn a losing coalition into a winning one, or vice versa. Such probabilities are usually expressed in relative terms, in such a way that the power indices of all member states add up to unity, the most common of such indices being the Shapley-Shubik index and the normalised Banzhaf index. But power index analysis of Council voting has not been immune to criticism, for two main reasons: (i) its assumptions on uniformly distributed preferences, and (ii) its apparent failure to account for the sequential nature of the legislative game and strategic powers such as agenda setting (Tsebelis and Garrett 1996; Garrett and Tsebelis 1999a,1999b). In addition to that, a third source of controversy is the concept of power applied, which can be based on influence (I-power) or the division of a fixed prize (P-power) (Felsenthal and Machover 1998). We will discuss those three issues in turn.

2.2.1 Preferences

Defendants of power indices have tried to address the first criticism in two main ways. In some cases, power indices have been adapted to take into account the fact that some coalitions are traditionally more likely to form than others (Hosli 1996). On other occasions, power indices have been adapted in order to allow for connected coalitions only, assuming a given configuration of preferences of the member states along a single dimension (Hosli 1999). But such an assumption is debatable if one considers that the political space may not be one-dimensional and therefore it is possible that coalitions connect on dimensions other than the traditional left-right dimension. Barr and Passarelli (2009), and Benati and Vitucci Marzetti (2011) are recent examples of preference-augmented power indices.

There are two main problems in preference-augmented power indices. On the one hand, when one starts to assume given configurations of preferences, one of the main advantages of power indices is lost, namely the preference neutrality that allows them to make clear predictions in the absence of detailed information about preferences (Hosli 1997, p. 358). On the other hand, the fact that a centrist member state with a small number of votes is more often on the winning side of a coalition does not mean that it has more voting power but rather more luck (Barry 1980a,1980b). When we take preferences into consideration, indices cease to be voting power indices and become voting success indices (Steunenberg et al. 1999).

As Dowding (1995, p. 57) points out, accurate preference-augmented models require such a great amount of data that 'everything the model could teach us must already be known.' The great amount of data necessary makes this type of models suitable almost exclusively to explain individual policy issues or what has been called policy analysis (Lane and Berg 1999, p. 310).

Conversely, preference-neutral power indices assume that the preferences of the actors are not known and try to single out the influence of the legislative procedure. They focus on constitutional modalities and abstract from other factors such as preferences, which are neither fixed, nor known at the time constitutional decisions are taken. In order to abstract from preferences, these models assume that the latter are uniformly distributed. The result is a probability or an average of power. These models produce clear predictions and require much less information. Although they are particularly relevant to constitutional analysis, they also have applications in policy analysis, as their insights can be applied to particular cases in order to denote the structural constraints under which the negotiators operate (Dowding 1995; Lane and Berg 1999, p. 309).

2.2.2 The sequence of moves

Garrett and Tsebelis have criticised voting power analyses for neglecting strategic agenda setting and have shown the serious consequences of this failure (Tsebelis and Garrett 1996; Garrett and Tsebelis 1999a,1999b). In their defence of voting power indices, Holler and Widgrén (1999, p. 328) agree with the fact that voting power analyses do not consider agenda-setting power but try to downplay this deficit by arguing that the power of the agenda setter is exaggerated under the common assumption of complete and symmetric information.

Steunenberg et al. (1999) address Garrett and Tsebelis' criticism by developing a power index that takes into account the strategic nature of the legislative game. Traditional power indices are based on co-operative game theory and consider different legislative procedures simply as different coalition requirements of a voting body, understanding power as pivotality or decisiveness. Conversely, the model by Steunenberg et al. (1999) is based on computer simulations of spatial models that assume an issue space where ideal points of the actors and the status quo are located, and measure utility as the distance between the outcome and an actor's ideal point. Thus, in addition to voting power, their model is able to account for agenda-setting power. A number of recent models try to account for agenda setting as well (e.g. Barr and Passarelli 2009; Benati and Vittucci Marzetti 2011; Napel and Widgrén 2011).

2.2.3 *I*-power vs. *P*-power

The third source of controversy concerns the concept of power that underlies power indices. Felsenthal and Machover (1998) point out that there are two main ways to understand voting power. On the one hand, power as influence or *I*-power is conceived as a voter's potential influence over the outcome of decisions, namely whether proposed bills are adopted or blocked. On the other hand, *P*-power is conceived of as a voter's expected relative share in a fixed prize available to the winning coalition under a decision rule, seen in the guise of a simple cooperative game. The distinction between these two underlying pre-formal notions of a priori voting power is essential because *I*-power and *P*-power are fundamentally different.

As Machover (2000) points out, the notion of *I*-power has essentially nothing to do with cooperative game theory. Under this conception, voting behaviour is motivated by policy seeking and does not depend on bargaining or binding agreements. Therefore, the very use of the term "coalition" as referring to an arbitrary set of voters may be somewhat misleading in this case, as it may imply some sort of conscious coordination. The outcome of a proposal can be best seen as a public good affecting all voters, irrespective of how they have voted. Note also that in the case of *I*-power one can talk meaningfully not only about relative voting power but also about voting power in absolute terms. In the case of *I*-power, the total amount of absolute power in a game is given endogenously.

Conversely, *P*-power is based on cooperative game theory. It assumes office-seeking voting behaviour aimed at winning, for the sake of obtaining part of the prize, which is available only to the winners and therefore cannot be a public good in the true sense. It also assumes bargaining and binding agreements. Also, *P*-power is an essentially relative notion, and absolute *P*-power makes little sense because the absolute size of the total prize is determined exogenously (Machover 2000).

Despite the fact that the index developed by Penrose (1946) and later popularized by Banzhaf (1965) was based on the idea of *I*-power, the notion of *P*-power, on which the Shapley-Shubik (1954) index was based, soon became the dominant approach (Felsenthal and Machover 2005). But the idea of *I*-power that underlies the Banzhaf measure also found support in authors such as Coleman (1968), for whom in many, perhaps most, decision-making situations, the outcome of a division is not the acquisition of power or any other private good by the winners, but a public good (or public bad) that may affect all the voters and others, possibly in an open-ended way, i.e., not a constant sum (Steunenberg et al. 1999; see also Barry 1980a,1980b; Morriss 1987). The indices developed by these authors were all closely related to the original one developed by Penrose and Banzhaf (Steunenberg et al. 1999; Barry 1980a,1980b; Felsenthal and Machover 2005).

3. The model

In this paper, we try to explain the reform of qualified majority voting in the Council as part of the negotiations of the Lisbon treaty. The three voting rules that are analyzed (Nice, Convention and Lisbon) are defined as follows:

(i) Nice: 255 votes AND 62% of the population AND 50% of the member states;
(ii) Convention: 60% of the population AND 50% of the member states;
(iii) Lisbon: (65% of the population AND 55% of the member sates) OR 24 member states.

For the sake of simplicity, we focus on Council decision making and abstract from other institutional issues that were also part of the negotiations (reallocation of seats in the European Parliament and reduction of the size of the European Commission). A computational model like the one used in this paper could include the Commission and the European Parliament relatively easily, but some of the model's assumptions might be controversial (such as assuming national blocks in the EP, for instance) and distract attention away from the main points of the paper. By focusing on the Council, we follow the tradition of the most commonly used power indices of EU decision making.

We compute the voting power of different member states in the Council according to three different power measures:

(i) the Shapley-Shubik index (1954);
(ii) the Banzhaf measure (Banzhaf 1965);
(iii) the measure proposed by Steunenberg, Schmidtchen and Koboldt (1999), hereinafter referred to as SKK.

The Shapley-Shubik index is a well known index that is based on the notion of power as the distribution of a fixed prize. We compute it by simulating the legislative game for different orderings of member states and assigning the fixed price entirely and exclusively to the member state that acts as a pivot. Thus the power indices of the different players necessarily add to unity.

The Banzhaf and SSK measures are both based on the notion of power as influence. In fact, as Felsenthal and Machover (2001) have shown, the SSK measure is a generalization of the Banzhaf measure that allows the incorporation of additional information about the legislative game. The main difference between both measures is that the Banzhaf measure assumes that there is a choice between two symmetrical options, whereas the SSK measure assumes a multiple choice among equidistant points along a single issue dimension. The SSK measure also allows the incorporation of assumptions about the location of agenda setting power. The similarities between both indices allow us to compute them using a common framework.

The legislative game is computer-simulated for randomly generated configurations of preferences and the status quo. In the case of the Banzhaf measure, there are only two options for the status quo and member state ideal points, which are uniformly distributed. In the case of the SSK measure, the status quo and member-state preferences are assumed to be uniformly distributed among 27 equidistant points along a single issue dimension. We do not assume a single interpretation of this dimension of conflict in political terms. In a particular case, it may coincide with the traditional left-right dimension, the European integration dimension, the North-South dimension, East-West, centre-periphery, new-old members, or any other dimension of conflict. This is because, by construction, our model assumes random preferences, an assumption which

finds empirical support in a number of studies showing that decision making in the Council in not characterized by the existence of stable coalitions across issues (see Thomson et al. 2004).

Agenda-setting power is assumed to rotate among member states, which is in line with the existence of a rotating presidency (see Kollman 2003). The agenda setter submits a proposal to the Council for voting as a take-it-or-leave-it offer in a one-shot game. Thus, the agenda setter will chose, among the available options, the one that is closer to her ideal among those that will be supported (weakly preferred) by a qualified majority in the Council, whose requirements vary depending on the voting rule applied (see above).

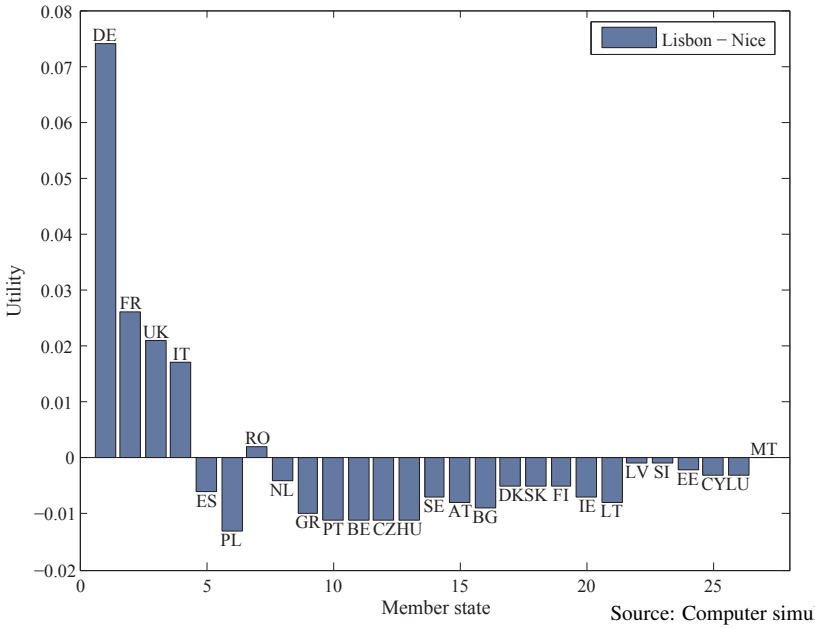
The mean utility gain of each member state is recorded for each voting rule, and the results can be found in the Appendix. The population data we have used corresponds to the start of 2004, the year when the deal on the institutional details of the Lisbon treaty was struck. Alternative dates would also be possible. For instance, the original deal was intended to come into effect at the end of 2006, and due to difficulties in the ratification process, the Lisbon treaty did not come into force until the end of 2009. Furthermore, reticent states managed to postpone the entry into force of the institutional provisions relating to QMV in the Council until 2014, and the new voting rule will probably remain in force for some years thereafter. But considering population projections instead of existing data may be a dubious exercise in the presence of short-sighted politicians, and we find it an unnecessary complication for the purposes of this paper, as it affects the estimates for particular countries, but not the main results of the analysis.

4. The Shapley-Shubik index and the "redistribution paradox"

The Shapley-Shubik index is the most popular index based on the notion of *P*-power. This index is suitable for explaining the distribution of power in a zero-sum game in which the winner obtains some sort of private good. Such a game could serve to model the distribution of pork-barrel projects though the budget, for instance. The Shapley-Shubik index has been applied to explain the distribution of power in several institutions of the EU such as the Council or the European Parliament (e.g. Herne and Nurmi 1993; Widgrén 1994; Nurmi and Meskanen 1999; Aleskerov et al. 2002; Kauppi and Widgrén 2007).

When we compute this index and use it to compare the distribution of power of the Nice and Lisbon treaties, we see that there is an increase of power for very large member states (Germany, UK, France and Italy) at the expense of the rest of smaller member states (see Figure 1). The only exception among the latter is Romania, which does not lose power because it had a rather small number of votes under the Nice system relative to its population. So we end up with 22 losers as a consequence of the new treaty. Such redistribution of power contrasts with the unanimity requirement for amending the treaties. This is what we call the "redistribution paradox".

Some sort of redistribution is an inevitable consequence of in any reform of the voting rules when we apply the concept of *P*-power, and we do not argue that this is always



Source: Computer simulation.

Figure 1. Shapley-Shubik index variation from Nice to Lisbon

incompatible with a unanimous treaty reform procedure. In fact, as we have pointed out above, smaller member states can be bought off with side payments (Moravcsik 1991). What we argue is that the magnitude of the redistribution shown by the figure is so great, because it affects so many member states and varies their power to such a great extent, that if would be impossible to compensate them by means of side-payments financed by the EU budget. If we add the power variations of the losing member states, the aggregate loss amounts to 13.89%. If we assume that such power losses represent variations in the share of the EU budget, for instance, it means that the side payments necessary to compensate the losers would amount to 13.89% of the annual budget indefinitely. Such a large side-payment scheme would be difficult to accommodate if we keep in mind that the EU budget is capped at little over 1 per cent of the Union's GDP, and much of it is allocated to compulsory spending, such as agricultural subsidies.

In order to overcome this "redistribution" paradox, we argue that *P*-power indices such as the Shapley-Shubik index presented above are not well suited to explain the politics of the EU, which is not characterized by a large budget providing large private gains to member states (such as pork barrel projects). Instead, EU politics is dominated by regulatory issues that produce public goods whose benefits or costs are potentially shared to different extents by many countries at the same time. Our hypothesis is that member states, when they decide on a new voting rule, are not guided by relative power considerations but by their absolute expected utility gain.

5. The Banzhaf index and the "efficiency paradox"

The most common measure of *I*-power is the Banzhaf measure. Although this measure is sometimes presented in normalized form as a relative power index where the power shares of different member states add to unity, the nature of the index as a measure of *I*-power makes it particularly useful when used in absolute terms. As said, it is almost inevitable that any reform of the voting system will bring about winners and losers in terms of relative voting weight. But unanimous agreement for reform is still possible if we consider Council voting as a positive-sum game, in which utility gains for some member states need not be at the expense of other member states. Thus, the utility of a member state will be jointly affected by its share of voting power and the efficiency of the voting rule, in such a way that a loss in relative voting power can be offset by a more efficient voting rule (see König and Bräuninger 2000).

This efficiency effect is not taken into account by relative voting power indices such as the Shapley Shubik index, based on the notion of P-power where the prize is fixed by definition, or the normalized Banzhaf index, where voting power measures are normalized so that they add to unity, therefore losing any available information about the efficiency of the voting rule. For instance, in the case of "One-Man-One-Vote", all member states have the same relative power under simple majority, qualified majority and unanimous voting provisions (König and Bräuninger 1998, p. 136). However, the original version of the Banzhaf measure is able to produce results in terms of absolute power.

Figure 2 shows the Banzhaf measure of the 27 member states under the Nice treaty, the Convention's draft and the Lisbon Treaty. If we compare the status quo ante with the rules finally approved by the Lisbon treaty, all member states without exception gain from the reform of the Nice Treaty. Thus, when we use the Banzhaf index to look at power in absolute terms, the above-mentioned "redistribution paradox" disappears. However, a new paradox arises, because all member states apparently lose from the amendment of the Convention proposal represented by the Lisbon treaty. We will refer to this as an "efficiency paradox", because it is difficult to understand why any member state would reject the Convention's draft and agree on an amendment that made each one of them worse off, i.e. a Pareto-inferior voting rule. If at least some member state gained from the amendment, and as long as the Lisbon treaty was still better than the Nice treaty for everyone, the amendment of the Convention proposal could be a result of intergovernmental bargaining. But this does not seem to have been the case, if we look at the results in Figure 2. In order to try to resolve this paradox, we will use an alternative measure slightly modified assumptions about the outcome space.

6. The SSK spatial multiple-choice power index

EU Politics is seldom about choosing between black and white as there are usually a number of grey tones in between. The spatial power index developed by Steunenberg et al. (1999) can account for that fact, as it assumes that the preferences of the member states are uniformly distributed among a series of equidistant options equal to the

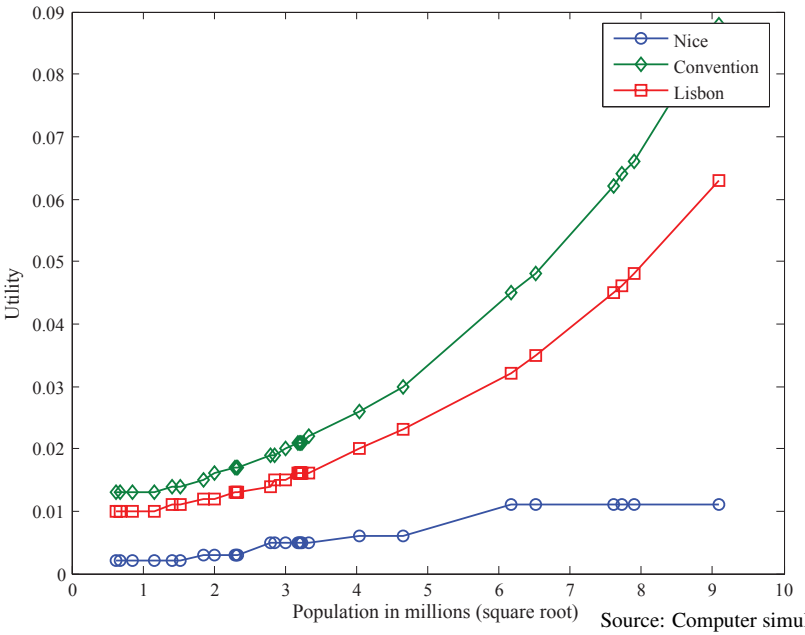


Figure 2. Banzhaf measure under Nice, the Convention and Lisbon

number of member states (15 in their original model) along a single dimension. Similarly, we can assume that the preferences and the status quo are uniformly distributed between 1 and 27 along a single political dimension, and compute the mean utility of each member state under each decision rule. The results are also presented in Table A1 in the Appendix.

Figure 3 shows the mean utility of the 27 member states under the three institutional arrangements analyzed. Now the differences between the Nice treaty, the Convention's draft and the Lisbon treaty are not so clear-cut as with the Banzhaf measure presented in Figure 2, although the Lisbon Treaty appears now to be the best of the three options in general terms. Indeed, when we compare the Lisbon treaty to the Convention's draft by applying SSK's multi-option spatial model instead of Banzhaf's binary model, the 'efficiency paradox' disappears. The reason is that all member states increase their expected utility as a consequence of the amendment (although Poland seems to be at the limit), so the Lisbon treaty would be a superior rule to the Convention's draft in a Paretian sense. This is a stronger result than would be necessary to eliminate the "efficiency paradox", for which it would be sufficient that there was a single winner from the amendment of the Convention's draft.

The second issue that we must look at is the so-called "redistribution paradox" that appeared when we compared the Lisbon and Nice treaties by using the Shapley-Shubik power index. Figure 4 compares the expected utility derived from the Lisbon

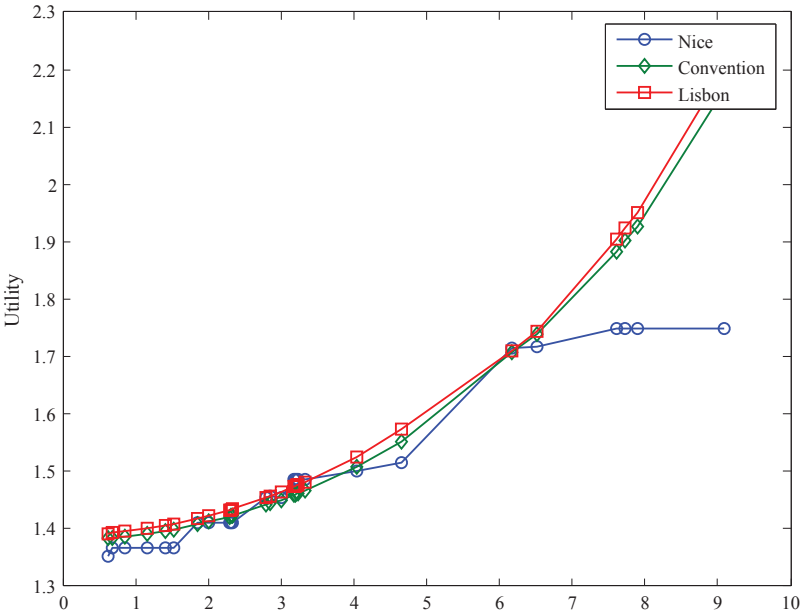
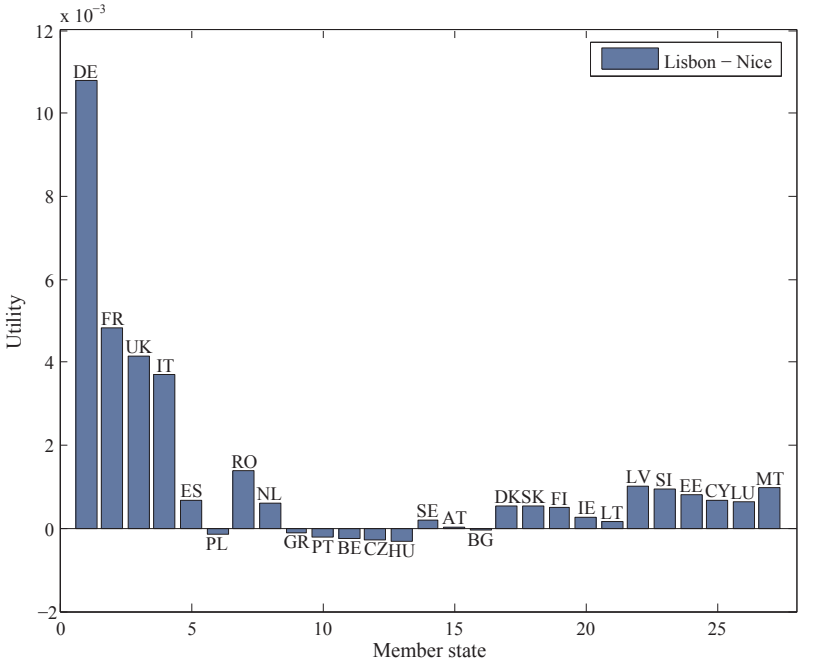


Figure 3. SSK success under Nice, the Convention and the Lisbon Treaty

and Nice treaties by using the SSK measure of success. As compared with the Shapley-Shubik index analysis that provided for 22 losing member states, the SSK measure produces fewer losers, which are now only seven mid-sized member states, namely Poland, Greece, Belgium, Portugal, Czech Republic, Hungary and Bulgaria. But even if the number is smaller, we still have to explain how seven reticent member states could possibly be persuaded to accept a voting rule (Lisbon treaty) that left them worse off as compared to the status quo ante (Nice treaty) that would prevail in the event of a veto.

As we pointed out earlier, reticent member states can be bought off with side-payments, but only to a limited extent, given the limits to the EU budget and other means of redistribution in the EU. Thus, side payments may work with small member states and/or minor issues. In the Shapley-Shubik power-index analysis that we presented earlier we concluded that the amount of redistribution was so important (13.89% of the pie) that compensation through side-payments would be very difficult to implement. We must find out whether the same happens when we use the data from the SSK measure, or else the seven losing member states are small enough and/or their losses are minor enough so that they can be compensated by means of side payments.

The analysis was simpler in the case of the Shapley-Shubik index because it assumes that there is a fixed prize that is privately appropriated by the players of the game. But in the case of the SSK measure, a similar kind of assessment is also pos-



Source: Computer simulation.

Figure 4. SSK gains and losses from the Lisbon Treaty

sible, even if the prize of the legislative game is neither fixed nor a private good. For instance, if we assume that preferences are homogeneous within each member state, we can obtain the aggregate utility gain of each member state by multiplying its expected utility in Table A1 by its population. We can also estimate the aggregate utility gain at EU-level by adding the resulting utility gains of each member state. When we do that we find out that the aggregate loss of the seven losing states represents only 0.09% of the overall utility gain under the Lisbon treaty. Thus, the amount of redistribution is minimal and thus it can be perfectly compensated with a system of side payments. This eliminates the above-mentioned "redistribution paradox".

7. Conclusions

The results of previous studies based on relative power show that the Lisbon treaty increased the voting weight of very large and very small member states at the expense of their medium sized counterparts. This result is paradoxical if we take into account that, according to the treaty reform procedure, the new rules were approved by unanimity of all the 27 governments involved. When we applied a Shapley-Shubik power index analysis we confirmed the existence of this paradox, that we called the "redistribution paradox". According to the main explanations of treaty negotiations, such a paradox

could be resolved by means of side payments as long as the losing states were small enough and/or the issues minor enough. But in this case we estimated the amount of redistribution as 13% of the prize, too large to be accommodated by side payments.

In order to try to overcome this paradox, we used a different measure to analyze the allocation of power, namely the Banzhaf measure, based on the notion of power as influence (*I*-power) as opposed to power as the distribution of a fixed prize (*P*-power). The result was that the Lisbon treaty was a Pareto superior alternative to the Nice treaty and thus the "redistribution paradox" disappeared. But in turn a new paradox arose, because the Lisbon treaty appeared as a Pareto inferior alternative to the Convention's draft and thus it was difficult to understand why member states wouldn't unanimously accept it rather than the Lisbon treaty. We called this the "efficiency paradox".

In order to try to overcome this second paradox, we applied a spatial power index based on Steunenberg et al. (1999), which is an extension of the Banzhaf measure that considers the legislative game not as a binary choice but as a multiple choice between several alternatives along a single issue dimension.

The main results of the paper are two-fold. Firstly, EU legislative politics should not be seen as a zero-sum game in which member states can gain only at the expense of others but as a positive-sum game. EU politics is more about making policies than about forming and dividing the spoils of a coalition government or the distribution of a large budget. That is why absolute power indices based on the notion of *I*-power are better suited to explain EU politics than relative ones based on the notion of *P*-power.

Secondly, EU politics is seldom an election between black and white. Rather it is more about choosing public policies along a certain political dimension. Thus, the extent to which a member state is able to shape those policies is more important than the mere fact of being inside or outside a winning coalition. EU politics should not be seen as a binary choice between being inside or outside the coalition, but about how much one benefits from a given piece of legislation that affects every member state to a different extent. That is why spatial power indices such as the one developed by Steunenberg et al. (1999), which incorporate information about the structure of the policy space, can be useful to explain EU politics.

These two features are particularly true in the case of the EU where, on the one hand, the budget represents little over 1 percent of the Union's GNP and, on the other hand, politics is not characterized by a bipartisan government-opposition dynamics of most national political systems. Not in vain, a number of empirical studies have shown that EU politics in not characterized by the existence of stable coalitions across issues (Thomson et al. 2004). Taking into account the territorial nature of interest representation in the Council, this is probably a good thing for the integrity of the Union.

Another important result is that power index analysis can help us understand the process of the negotiations leading to the reform of voting rules in the EU. This is particularly important taking into account the somewhat paradoxical nature of preliminary results might discourage some authors from using power indices. Surely, the substantive results of this paper should be treated with caution, as they are based on a small number of observations (the move from the treaty of Nice to the Convention draft and

from this to the Lisbon treaty), but the insights provided may be useful for the analysis of other past and future reforms.

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Appendix

Table A1. Average utility gain with different voting rules and number of options

Member state	Code	Nice votes	Population	Shapley-Shubik			Banzhaf			SSK		
				Nice	Convention	Lisbon	Nice	Convention	Lisbon	Nice	Convention	Lisbon
Germany	DE	29	82.532	0.0875	0.1564	0.1607	0.0112	0.0884	0.0626	1.750	2.165	2.201
France	FR	29	62.292	0.0872	0.1113	0.1132	0.0112	0.0664	0.0482	1.749	1.927	1.951
United Kingdom	UK	29	59.697	0.0870	0.1063	0.1077	0.0112	0.0640	0.0464	1.749	1.902	1.923
Italy	IT	29	57.888	0.0869	0.1030	0.1041	0.0112	0.0624	0.0452	1.749	1.883	1.904
Spain	ES	27	42.345	0.0802	0.0756	0.0742	0.0107	0.0480	0.0347	1.716	1.740	1.745
Poland	PL	27	38.191	0.0799	0.0693	0.0674	0.0107	0.0455	0.0316	1.716	1.708	1.709
Romania	RO	14	21.711	0.0399	0.0400	0.0417	0.0062	0.0302	0.0230	1.516	1.553	1.575
Netherlands	NL	13	16.258	0.0367	0.0317	0.0326	0.0059	0.0258	0.0196	1.500	1.508	1.526
Greece	GR	12	11.041	0.0340	0.0240	0.0242	0.0055	0.0215	0.0164	1.486	1.467	1.481
Portugal	PT	12	10.475	0.0340	0.0232	0.0232	0.0055	0.0210	0.0160	1.486	1.462	1.476
Belgium	BE	12	10.396	0.0340	0.0230	0.0231	0.0055	0.0210	0.0160	1.486	1.462	1.476
Czech Republic	CZ	12	10.211	0.0340	0.0228	0.0228	0.0055	0.0208	0.0159	1.486	1.460	1.474
Hungary	HU	12	10.117	0.0340	0.0226	0.0227	0.0055	0.0207	0.0157	1.486	1.459	1.473
Sweden	SE	10	8.976	0.0281	0.0209	0.0209	0.0047	0.0198	0.0151	1.456	1.450	1.464
Austria	AT	10	8.143	0.0281	0.0197	0.0195	0.0047	0.0191	0.0146	1.456	1.444	1.457
Bulgaria	BG	10	7.801	0.0281	0.0192	0.0190	0.0047	0.0188	0.0144	1.456	1.441	1.454
Denmark	DK	7	5.398	0.0195	0.0157	0.0152	0.0034	0.0168	0.0128	1.411	1.423	1.434
Slovakia	SK	7	5.380	0.0195	0.0157	0.0152	0.0034	0.0168	0.0129	1.411	1.422	1.434
Finland	FI	7	5.220	0.0195	0.0155	0.0149	0.0034	0.0166	0.0128	1.411	1.421	1.432
Ireland	IE	7	4.029	0.0195	0.0137	0.0131	0.0034	0.0157	0.0120	1.411	1.412	1.422
Lithuania	LT	7	3.446	0.0195	0.0129	0.0122	0.0034	0.0151	0.0116	1.411	1.407	1.417
Latvia	LV	4	2.319	0.0110	0.0112	0.0105	0.0021	0.0143	0.0109	1.366	1.399	1.408
Slovenia	SI	4	1.996	0.0110	0.0107	0.0100	0.0021	0.0140	0.0108	1.366	1.396	1.406
Estonia	EE	4	1.351	0.0110	0.0098	0.0090	0.0021	0.0135	0.0104	1.366	1.391	1.400
Cyprus	CY	4	0.730	0.0110	0.0089	0.0080	0.0021	0.0129	0.0099	1.366	1.386	1.395
Luxembourg	LU	4	0.455	0.0110	0.0085	0.0076	0.0021	0.0127	0.0098	1.366	1.384	1.393
Malta	MT	3	0.400	0.0082	0.0084	0.0075	0.0017	0.0126	0.0097	1.352	1.384	1.392
Total		345	488.798	1	1	1	0.1490	0.7542	0.5589	40.481	41.459	41.823

Source: Computer simulation. Population data from Eurostat for 1 January 2004.