THE WILLIAM DAVIDSON INSTITUTE
AT THE UNIVERSITY OF MICHIGAN BUSINESS SCHOOL

Power Analysis of the Nice Treaty
On the Future of European Integration

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William Davidson Institute Working Paper Number 576
June 2003

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ABSTRACT

I carry out a power analysis of changes in voting weights and rules in the Nice Treaty of the EU on the widening and deepening of European integration, by applying methods that use Shapley-Shubik and Banzhaf indices. Significant decrease in voting power of small countries makes widening of integration more acceptable to incumbent members due to small size of the applicants. Relative increase in the conciliatory power of smaller members, and relative increase in the independent power of bigger members make smaller members compromise more in the coalitions they form, and improve the position of large members for further deepening of the integration. Lastly, the fairness analysis reveals a more federalist face for the EU in the way votes are distributed in Nice.

JEL Classification: D70, F15

Keywords: EU, Voting Power, Integration, Enlargement, Federalis

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1. Introduction

The European Union leaders radically changed each member's weight and the voting rules in the EU's decision-making institutions in the Nice Treaty signed in December of 2000. This paper discusses these reforms, and analyzes their implications for the future of European integration using power indices. The main question it tries to answer is: Do these changes imply a more acceptable widening, and an easier deepening of the integration in Europe? After all, the often-stated reason in calls for reforms in the voting system before Nice was the fear of a stall in integration. Did the EU leaders successfully prevent that in Nice?

The paper starts with an outline of the reforms in terms of realignment of voting weights, changes in voting rules, and the new areas where each voting rule applies in Section 2.

Section 3 discusses the effects of the changes on the widening of the integration with the help of the Shapley-Shubik Index (1954) and the Banzhaf (1965) Index. Implications on costs of enlargement and power to be lost to new members are analyzed for widening the integration to Central and Eastern European countries.

Section 4 compares the changes in independent versus conciliatory power coefficients of member countries. Relatively more conciliatory power implies members that are more willing to give compromises. Compromises are traditionally given when coalitions are formed to reach decisions. This section examines such implications of the

reforms on the voting power of France, Germany and the Benelux countries, which historically pursued further deepening of the integration, relative to coalitions that will be formed against them.

Lastly, I examine what the reforms imply about the nature of the union in the future. German calls for a federal union, and the well-known British antipathy towards it makes this question an interesting one. Section 5 gives the implication of the reforms on this issue, using a fairness analysis of distribution of votes.

Note that this paper does not analyze the effects of enlargements –the Eastern enlargement in particular- in the distribution of power within the EU. These are discussed in great detail in Widgren (1995), Hosli (1993), Peters (1996a), and others. This paper analyzes effects of the reforms on the future of European integration, including the implications for the Eastern enlargement. There is some recent research done using the reforms in Nice. Leech (2001) examines how a fair voting system can be designed using the scenarios of enlargement envisaged by the Nice Treaty. Felsenthal and Machover (2001) draw attention to ambiguities in the Nice Treaty regarding the voting rules.[1] Finally, Baldwin et al. (2001) emphasize the increasing importance of enhanced cooperation arrangements after analyzing the ability of the EU's Commission, Council of Ministers and the European Parliament to affect EU decisions, in trying to answer if the Nice Treaty should be ratified. This paper analyzes the voting power distribution among member states within the Council of Ministers, i.e. members' ability rather than that of

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[1] This paper adopts the voting rule that they describe as "[what] appears to be prescribed in the Nice Treaty".

institutions to affect the decisions, to examine the implications for the European integration.

The main finding is that the reforms were on target. I find significant decreases in the voting power of small countries. Since most eastern applicants are small in size, this result implies lower costs of enlargement, and smaller loss of power to new members. Both make widening the integration much more acceptable to incumbent members. Furthermore, I find a relative increase in conciliatory power of small countries, and a relative increase in the independent power of major EU countries such as France and Germany. These changes improve the power of proponents for further deepening the integration, and at the same time, make smaller countries more willing to give compromises in the coalitions that they form. Finally, fairness analysis finds a more federalist union after the Nice Treaty.

2. Changes in Nice Treaty

Voting process in the EU involves three institutions: The European Parliament, where members' voting practice reflects ideology rather than nationality; The European Commission, which has a supranational view, and the Council of Ministers, where national interests are pursued. The primary decisive body is the Council of Ministers. The research done on this matter reflects this division of power[2]: The majority of work done is a voting power analysis of the Council of Ministers. Berg and Lane (1996), Hosli (1995, 1996), Laruelle and Widgren (1998), Peters (1996b) are such examples. Voting

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[2] For more on the division of power among EU institutions, refer to Laruelle and Widgren (1997).

power analysis of the European Parliament has drawn much less attention: Hosli (1997), and Nurmi (1997). Since this paper's topic is the influence of nationality, power distribution in the Council of Ministers is analyzed.

Outcome of a voting depends on three things: the voting rule, the voting weights, and each voter's behavior. Analysis of voter behavior is issue sensitive. Since preferences and agendas change frequently, an issue-by-issue approach is not always practical. Therefore, the analysis in this paper is based on power and satisfaction indices of cooperative games such as the Shapley-Shubik Index (1954) and the Banzhaf Index (1965). These indices do not model voters' behavior, but they measure voters' potential ability to change the results. The probabilistic approach offered by these indices is quite effective.[3] Detailed motivation for using power indices in such analyses is given in Baldwin et al. (1997).

In the Council of Ministers, the most practiced rule is qualified majority; unanimity is required only on important issues.[4] The Nice Treaty expanded the use of the qualified majority rule: It will now be used in decisions regarding trade negotiations, certain aspects of visa, asylum and immigration policies, and structural spending for the EU's poor regions. Unanimity is still required on issues regarding taxation and social security after the UK and Swedish opposition to adopt a majority rule. Furthermore, unanimity is the rule in trade negotiations involving cultural and audiovisual issues,

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[3] There has been some criticism of using power indices to study the EU by Garrett and Tsebelis (1999). Discussion of this criticism can be found in Lane and Berg (1999).

[4] Hosli (1993) gives the areas that require each voting rule prior the Nice reforms.

human health and education services in the light of French opposition, and in defense and military issues after the UK, Irish, Swedish, Finnish and Austrian objections.

The Nice Treaty defines the qualified majority as follows[5]:

Acts of the Council shall require for their adoption at least 258 votes in favour, cast by a majority of members, where this Treaty requires them to be adopted on a proposal from the Commissions.

...

When a decision is to be adopted by the Council by a qualified majority, a member of the Council may request verification that the member States constituting the qualified majority represent at least 62% of the total population of the Union. If that condition is shown not to have met, the decision in question shall not be adopted.[6]

Note first that, Nice Treaty requires triple majority for proposals to be adopted: In addition to the traditional condition, where the number of votes need to exceed a given threshold, now, adoption of a proposal also requires simple majority of member countries, as well as a super majority of at least 62% of the population. Felsenthal and Machover (2001) analyze the implications of the last two majority conditions. They find that simple majority requirement is vacuous, and that the population requirement is nugatory. They conjecture that the voting can be recast as a pure weighted rule described

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[5] This is the voting rule for the usual procedure, where the proposal comes from the Commission. Under rare circumstances, decisions are taken outside this procedure. Therefore, I have confined the analysis to this normal procedure.

[6] Official Journal of the European Communities, C 80, p. 82.

by the traditional condition. Secondly, the Nice Treaty changed the threshold to around 75%, which was kept at around 71% for the history of the EU.[7]

However, the primary change in Nice is not the voting rule, but the realignment of the voting weights. Voting weight is simply share of a member's votes in total. New and past distribution of votes and voting weights are given in Table 1. One important observation from Table 1 is that the methodology used in assigning votes to members had not changed since 1973, despite that the EU experienced three enlargements since then. Consequently, voting weights had changed only when new members joined in, each receiving the number of votes implied by the original system.[8] Only in the wake of Eastern enlargement, the EU decided to change the system, which changed not only the future but also the incumbent members' votes, and voting weights.

The next three sections analyze the implications of these reforms for the widening, deepening of the integration, and the degree of federalism in the EU.

3. Widening the integration

Voting weight allocation before Nice strongly favored small member states (Widgren, 1995). Small members used to get more votes relative to their population, and

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[7] This threshold is the percentage that will be used when the accession of all 12 applicants is complete. Nice Treaty leaves the threshold for the interim steps ambiguous, although it sets a minimum and maximum thresholds, which are both above the traditional 71%.

[8] Widgren (1994) observes a logarithmic relation between population size and number of votes assigned in the Council of Ministers. Pre-Nice distribution of votes in Table 1 is determined according to Widgren.

TABLE 1. *Distribution of votes in the Council of Ministers of the EU*

	1958-1973	1973-1981	1981-1985	1986-1995	1995-2000	Pre-Nice	Post-Nice
Belgium	2 (11.76%)	5 (8.62%)	5 (7.94%)	5 (6.58%)	5 (3.70%)	5 (3.70%)	12 (3.48%)
Luxembourg	1 (5.88%)	2 (3.45%)	2 (3.17%)	2 (2.63%)	2 (1.48%)	2 (1.48%)	4 (1.16%)
France	4 (23.53%)	10 (17.24%)	10 (15.87%)	10 (13.16%)	10 (7.41%)	10 (7.41%)	29 (8.41%)
Germany	4 (23.53%)	10 (17.24%)	10 (15.87%)	10 (13.16%)	10 (7.41%)	10 (7.41%)	29 (8.41%)
The Netherlands	2 (11.76%)	5 (8.62%)	5 (7.94%)	5 (6.58%)	5 (3.70%)	5 (3.70%)	13 (3.77%)
Italy	4 (23.53%)	10 (17.24%)	10 (15.87%)	10 (13.16%)	10 (7.41%)	10 (7.41%)	29 (8.41%)
The UK		10 (17.24%)	10 (15.87%)	10 (13.16%)	10 (7.41%)	10 (7.41%)	29 (8.41%)
Denmark		3 (5.17%)	3 (4.76%)	3 (3.95%)	3 (2.22%)	3 (2.22%)	7 (2.03%)
Ireland		3 (5.17%)	3 (4.76%)	3 (3.95%)	3 (2.22%)	3 (2.22%)	7 (2.03%)
Greece			5 (7.94%)	5 (6.58%)	5 (3.70%)	5 (3.70%)	12 (3.48%)
Spain				8 (10.53%)	8 (5.93%)	8 (5.93%)	27 (7.83%)
Portugal				5 (6.58%)	5 (3.70%)	5 (3.70%)	12 (3.48%)
Austria					4 (2.96%)	4 (2.96%)	10 (2.90%)
Sweden					4 (2.96%)	4 (2.96%)	10 (2.90%)
Finland					3 (2.22%)	3 (2.22%)	7 (2.03%)
The Czech Rep.						5 (3.70%)	12 (3.48%)
Poland						8 (5.93%)	27 (7.83%)
Hungary						5 (3.70%)	12 (3.48%)
Slovenia						3 (2.22%)	4 (1.16%)
Estonia						3 (2.22%)	4 (1.16%)
Cyprus						2 (1.48%)	4 (1.16%)
Malta						2 (1.48%)	3 (0.87%)
Bulgaria						4 (2.96%)	10 (2.90%)
Romania						7 (5.19%)	14 (4.06%)
The Slovak Rep.						3 (2.22%)	7 (2.03%)
Latvia						3 (2.22%)	4 (1.16%)
Lithuania						3 (2.22%)	7 (2.03%)
TOTAL	17	58	63	76	87	135	345
Q. Majority	12(70.6%)	41(70.7%)	45(71.4%)	54(71.1%)	62(71.3)	96(71%)	258(74.8%)

the opposite for large members. Candidates in Eastern enlargement are smaller than the EU average. Before Nice, this created concerns in incumbent members, especially in big ones, which feared too much loss of power to small eastern countries and the potential implications for the costs of the enlargement as mentioned in Kandogan (2000).

Voting weights are poor measures of member countries' influence on EU decisions. Especially small members tend to have a bigger influence than what their voting weight suggests. This influence, or voting power, is defined as the probability that a country exerts power in all possible coalitions. In other words, the number of times in all outcomes a country's vote is crucial –i.e. it turns a losing coalition into a winning one– shows that country's power. Extensive non-technical explanation of voting power is given in Felsenthal and Machover (2000).

Voting power of a country i in a group of n countries is formulized below, following Owen (1972):

$$VotingPower_i^n = \sum_{S \in M_i} \prod_{k \in S-\{i\}} x_k \prod_{j \in N-S} x_j \tag{1}$$

where S is any coalition of s countries. M_i are the minimum winning coalitions, in which country i is crucial. N is the set of all n countries, and x_k is the probability that country k votes in favor the proposal in question. Distribution of x_ks defines how coalitions are formed. There are two standard assumptions regarding coalition formation: Independence and homogeneity.

Independence assumption yields the Banzhaf Index (BI), where x_ks are independently uniformly distributed on [0, 1]. Each outcome has equal probability of

occurring. In other words, all combinations of coalitions have equal probability of formation:

$$BI_i^n = \sum_{S \in M_i} \left(\frac{1}{2}\right)^{n-1} \qquad (2)$$

Homogeneity gives out the Shapley-Shubik Index (SSI), where there is a common standard by which voters evaluate each outcome, and thus the probabilities of voters' decisions are correlated (Straffin, 1988), i.e. $x_k = x$, and x is uniformly distributed on [0, 1]. Under homogeneity, all sizes of coalitions are equally possible, and all different coalitions of a certain size have equal probability of formation. In other words, all permutations of coalitions are equally likely:

$$SSI_i^n = \sum_{S \in M_i} \frac{(n-s)!(s-1)!}{n!} \qquad (3)$$

Independence assumes no communication, whereas homogeneity assumes some communication or reconciliation between voters. This is why Straffin (1988) conjectures that the SSI is more appropriate in the analysis of voting bodies with considerable communication between voters, and compromises after a bargaining process, such as the Council of Ministers. However, Banzhaf index should not be discarded in this framework, since it has its own interesting interpretations as discussed in the next two sections. Felsenthal and Machover (1998) give detailed technical explanation of these indices.

Table 2 gives the ratio of voting power to population weight before and after Nice to reveal the bias towards smaller countries. Applicant and member countries are ordered from the smallest, Malta, to the largest, Germany, in terms of population weights. With

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TABLE 2. *Ratio of voting power to population weight*

Country	Pop. Weight (PW)	Pre-Nice SSI/PW	Post-Nice SSI/PW	Pre-Nice BI/PW	Post-Nice BI/PW
Malta	**0.08%**	**18.28**	**10.67**	**19.81**	**12.06**
Luxembourg	0.09%	16.04	12.59	17.38	14.04
Cyprus	**0.16%**	**9.11**	**7.15**	**9.87**	**7.97**
Estonia	**0.30%**	**7.21**	**3.77**	**7.74**	**4.20**
Slovenia	**0.41%**	**5.24**	**2.74**	**5.62**	**3.05**
Latvia	**0.51%**	**4.28**	**2.24**	**4.59**	**2.49**
Lithuania	**0.77%**	**2.81**	**2.55**	**3.02**	**2.86**
Ireland	0.78%	2.77	2.51	2.98	2.82
Finland	1.07%	2.01	1.83	2.16	2.05
Denmark	1.11%	1.95	1.77	2.10	1.99
The Slovak Rep.	**1.12%**	**1.93**	**1.75**	**2.07**	**1.96**
Austria	1.68%	1.73	1.68	1.83	1.85
Bulgaria	**1.71%**	**1.71**	**1.65**	**1.81**	**1.82**
Sweden	1.84%	1.58	1.53	1.67	1.69
Portugal	2.08%	1.76	1.64	1.84	1.79
Hungary	**2.09%**	**1.75**	**1.63**	**1.82**	**1.77**
Belgium	2.13%	1.72	1.60	1.79	1.75
The Czech Rep.	**2.14%**	**1.71**	**1.59**	**1.78**	**1.74**
Greece	2.19%	1.67	1.55	1.74	1.69
The Netherlands	3.28%	1.11	1.12	1.16	1.21
Romania	**4.67%**	**1.12**	**0.86**	**1.11**	**0.92**
Poland	**8.03%**	**0.75**	**0.99**	**0.73**	**0.92**
Spain	8.19%	0.73	0.98	0.71	0.90
Italy	11.98%	0.64	0.72	0.58	0.64
France	12.18%	0.63	0.71	0.57	0.63
The UK	12.36%	0.62	0.70	0.56	0.62
Germany	17.06%	0.45	0.51	0.41	0.45

Note: Bold rows are for the applicant countries.

the exception of 6-7 big countries, all countries enjoy higher voting power than what their population implies. Clearly, small countries are favored in the distribution of votes before and after Nice. However, changes in the ratios show that after Nice, small countries experienced a decrease in voting power, whereas large countries gained. Now, the number of votes assigned better reflects the population size.

These results are fortified by the regressions given in Table 3, where voting power of each country, measured by SSI or BI, is regressed against its population weight in the EU, separately before and after the Nice IGC. After Nice, R^2 goes up, intercepts get closer to zero, the coefficients of the population weight approach to zero, and t-statistics for the intercepts go down, whereas those for the population weight go up. When BI is used to measure voting power, the changes observed are more pronounced. Apparently, the changes had a more significant effect on countries' independent power than their conciliatory power measured by SSI.

An interesting observation is the position of applicant countries relative to incumbent members. The changes in power to population weight ratios, and the average changes applied to incumbent members are given in Figure 1. The decrease in applicant countries' ratio is far greater than that of small incumbent members with similar population, except the biggest applicant, Poland. Especially, Malta, Estonia, Slovenia, Latvia, and Romania had the worst treatments. The fact that the applicant countries were not part of the negotiations in Nice when the new voting weights are decided makes this observation interesting.

Kandogan (2000) analyzes the relation between voting power and budgetary costs of enlargements. He finds that a country's voting power and the power of the coalition it

TABLE 3. *Regression results*

Power Index	Period	Constant	Log(PopulationWeight)	Adj. R^2
	Pre-Nice	-0.86 (-22.66)	0.35 (17.35)	0.92
SSI				
	Post-Nice	-0.67 (-14.14)	0.48 (19.26)	0.94
	Pre-Nice	-0.91 (-28.40)	0.31 (18.51)	0.88
BI				
	Post-Nice	-0.73 (-18.14)	0.44 (20.39)	0.94

FIGURE 1. *Effects on applicant countries*
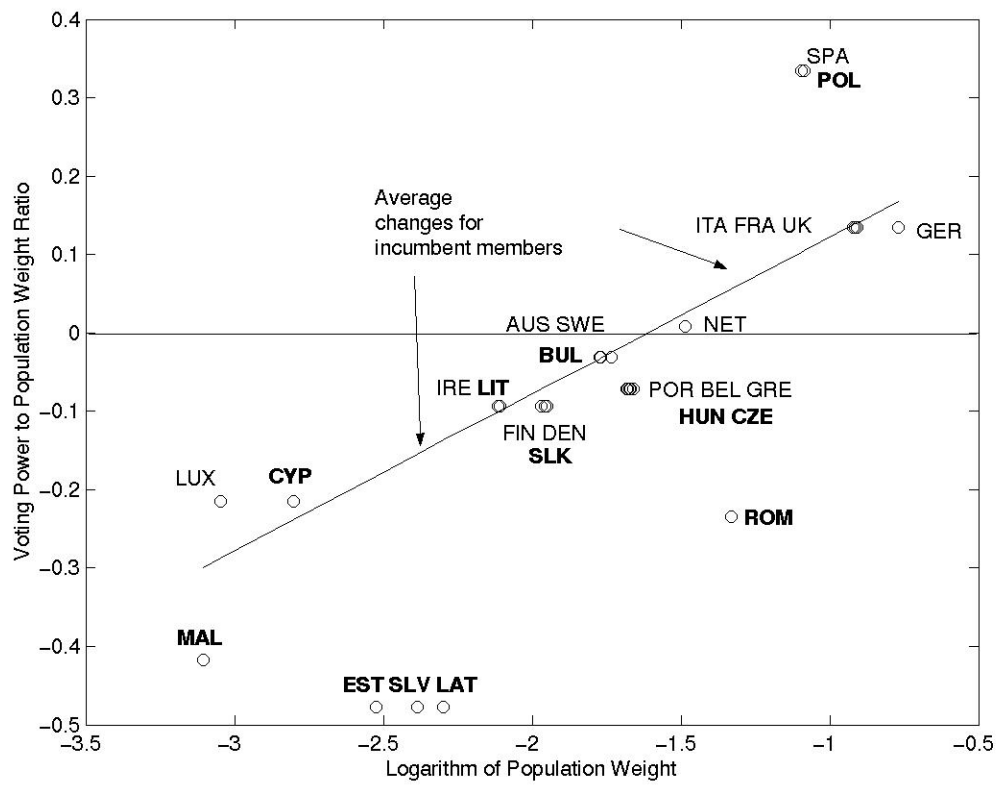
is part of are critical in explaining its receipts from the EU budget. To reduce the costs of Eastern enlargement, he suggests that votes need to be redistributed more proportionally to population, and the threshold needs to be lowered. At Nice, the first suggestion is carried out, but contrary to the second suggestion, the EU increased the number of votes to obtain a qualified majority, from around 71% to 75%. Despite this, the reweighing of votes in Nice still reduced applicant countries' voting power, and because of that, the coalitions they may be part of have smaller power. Thus, the budgetary cost of Eastern enlargement is expected to be much lower than what pre-Nice vote distribution implied.

Using SSI, the total power loss to applicant countries upon membership was 35.1% of the potential power of all EU before Nice, and it is 30.9% after. If BI is used to measure power, the loss goes down from 36.4% to 32.6%. These are significant decreases achieved only by the realignment of voting weights. Fear of losing power can also be remedied by lowering the required number of votes for majority or by increasing the number of issues requiring qualified majority rather than unanimity.[9] Although the Nice treaty increased the threshold, it adopted the qualified majority rule for more issues, which helps reduce the loss of power to new members on decisions regarding those issues.

In sum, the new allocation of voting weights will likely reduce the costs of enlargement. This and the fact that there is a decrease in loss of power to new members

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[9] The idea is simple: When the threshold is 100%, all members have equal power. As the threshold is lowered small members become less crucial in the outcome; and they lose power. In turn, bigger members gain power. Leech (2001) illustrates this relationship between the threshold and the voting power.

make the enlargement, the widening part of integration easier and more acceptable to the incumbent members.

4. Deepening the integration

This section exploits the differences in assumptions used in getting the power indices to analyze the effects of the Nice Treaty on the future of deepening the European integration. SSI index measures power of countries when all countries act conciliatory. BI assumes that all countries act independently. The power coefficient, which is the ratio between these indices and voting weight, measures a country's relative power. Comparison of power coefficients using SSI, and BI, tells whether a country will act in a more conciliatory way by forming coalitions, or act more independently on its own. Since the power indices sum to 1 across countries, while some countries will lose their independent power relative to their conciliatory power, some will gain. As a result, some countries will try to form coalitions, whereas some will act independently. This makes measuring voting power of countries using SSI or BI not feasible, since both require that all countries behave in a similar fashion. Therefore, in this section, I develop a simple index that measures the power of countries under partial homogeneity, where blocs of countries vote independently, and within-bloc decisions are taken in a conciliatory way.

Table 4 gives the changes in power coefficients computed using SSI and BI after the Nice Treaty. The effects on small countries and the big countries are different. Small member countries, like Luxembourg, Denmark, Ireland, Austria, Sweden, and Finland, and small candidates, like Malta, Cyprus, Slovenia, Bulgaria, Latvia, and Lithuania lost both their independent and conciliatory power. In particular, they have lost more

TABLE 4. *Changes in independent and conciliatory power coefficient (PC)*

Country	ΔPC w/ SSI	ΔPC w/ BI
Malta	-12.69%	-48.34%
Luxembourg	-12.15%	-48.48%
Cyprus	-12.15%	-48.48%
Estonia	-8.33%	-27.40%
Slovenia	-8.33%	-27.40%
Latvia	-8.33%	-27.40%
Lithuania	-6.67%	-27.65%
Ireland	-6.67%	-27.65%
Finland	-6.67%	-27.65%
Denmark	-6.67%	-27.65%
The Slovak Rep.	-6.67%	-27.65%
Austria	-7.01%	-12.26%
Bulgaria	-7.01%	-12.26%
Sweden	-7.01%	-12.26%
Portugal	-4.45%	5.91%
Hungary	-4.45%	5.91%
Belgium	-4.45%	5.91%
The Czech Rep.	-4.45%	5.91%
Greece	-4.45%	5.91%
The Netherlands	-4.81%	5.46%
Romania	-1.96%	32.76%
Poland	4.31%	30.66%
Spain	4.31%	30.66%
Italy	9.15%	49.04%
France	9.15%	49.04%
The UK	9.15%	49.04%
Germany	9.15%	49.04%

independent power, which induces more cooperation by forming coalitions among themselves. The effect on bigger countries is almost the opposite. France, UK, Germany, Italy, Spain, and the applicant Poland gained power on both accounts. In particular, their independent power increased significantly. Accordingly, these countries are likely to act alone in the future.

This analysis implies that in the future we may no longer see the Franco-German Alliance that was impeccable in the past since the Elysee Treaty of 1963. We have already started signs of this on recent issues like a European constitution, contributions to the EU Budget, the agricultural subsidies, and Germany's dominance of Eastern Europe. Despite these differences, both countries share the same interests over issues discussed in this paper, such as deepening of the integration. Therefore, they are likely to keep voting in the same direction on integration issues.

Consequently, France, Germany and the other big countries (The UK, Italy, Spain, and Poland) are likely to act independently in the future, whereas small countries are likely to join powers in blocs with other countries in similar situations. Cooperation is likely among the CEEC, with the exception of Poland, upon membership since they share common background and concerns. Other small incumbent EU members and applicants with similar interests will form their own counter-blocs: Mediterranean countries (Portugal, Greece, Malta and Cyprus), Scandinavian countries (Denmark, Sweden and Finland), and Benelux countries (Belgium, the Netherlands, and Luxembourg). Ireland is likely to act along with the Mediterranean bloc because of similar income levels, and Austria with its Scandinavian with their former partners in EFTA.

Partial homogeneity where there are independent blocs, which are homogenous within, is needed in this situation to better explain the power of each country. Under partial homogeneity, the distribution of power among the blocs assumes independence as in the Banzhaf index, and the distribution of the bloc's power among its participants assumes homogeneity as in the Shapley-Shubik index. Accordingly, the power of a country i in a bloc B_i with b_i members is the bloc's power in a group of n_s blocs times country i's power within the bloc:

$$PPH_{i \in B_i} = BI_{B_i}^{n_s} SSI_i^{B_i} = \left(\sum_{S \in M_{B_i}} (\frac{1}{2})^{n_s - 1} \right) \left(\sum_{S' \in M_i} \frac{(b_i - s)!(s-1)!}{b_i!} \right) \qquad (4)$$

where S is any coalition of blocs. M_{B_i} are the minimum winning coalitions, where B_i is crucial. S' is any coalition within the bloc. M_i are the minimum winning coalitions within that bloc, where country i is crucial.

Table 5 gives the power of each country to affect the EU decisions once these blocs are formed, measured according to partial homogeneity.[10] The countries are ordered from the smallest to largest in terms of population weight. Small incumbent members,

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[10] The power indices given in the table assume simple majority voting rule in the distribution of power within a bloc, since countries in the blocs act conciliatory. When compared to SSI or BI, although the power of a country according to partial homogeneity is affected by the particular coalition the country is in, one observes some patterns: Partial homogeneity implies larger power for small countries than what SSI and BI implies. Furthermore, the power of large countries according to partial homogeneity lies in between SSI and BI, larger than BI, smaller than SSI.

TABLE 5. *Power according to partial homogeneity (PPH)*

Country	Pre-Nice PPH	Post-Nice PPH	Change
Malta	0.018	0.008	-55.2%
Luxembourg	0.044	0.040	-9.3%
Cyprus	0.018	0.008	-55.2%
Estonia	0.017	0.010	-42.5%
Slovenia	0.017	0.010	-42.5%
Latvia	0.017	0.010	-42.5%
Lithuania	0.017	0.017	0.1%
Ireland	0.018	0.028	56.8%
Finland	0.012	0.013	9.3%
Denmark	0.012	0.013	9.3%
The Slovak Rep.	0.017	0.017	0.1%
Austria	0.024	0.026	9.3%
Bulgaria	0.032	0.023	-28.1%
Sweden	0.024	0.026	9.3%
Portugal	0.040	0.038	-5.4%
Hungary	0.032	0.032	-0.4%
Belgium	0.044	0.040	-9.3%
The Czech Rep.	0.032	0.032	-0.4%
Greece	0.040	0.038	-5.4%
The Netherlands	0.044	0.040	-9.3%
Romania	0.064	0.046	-28.3%
Poland	0.064	0.079	23.2%
Spain	0.064	0.079	23.2%
Italy	0.072	0.081	12.7%
France	0.072	0.081	12.7%
The UK	0.072	0.081	12.7%
Germany	0.072	0.081	12.7%

Mediterranean members, and all CEEC with the exception Poland lost power, whereas big incumbent members, Scandinavian members, and Poland, gained power after Nice. Considering that the relatively poor countries, like CEEC and the Mediterranean bloc might have the hardest time in adjusting the deepening integration, and thus will likely be against it, and that the rich Scandinavian countries, and big countries like France and Germany, which are traditionally supporters of further deepening, this realignment creates fewer problems in any further integration efforts. The only drawback is the increased power of the UK and Sweden, which have been reluctant towards deepening efforts in the past.

5. Fairness and Federalism in the EU

The question of fairness is explored in detail by Laruelle and Widgren (1998). Their conclusion is that fairness depends on the definition of the EU: If the EU is considered to be a unitary state, every EU elector should have one vote. If the EU is just an association of states, then every state should have one vote. Considering that voting power of countries reflects these, they find that the voting weights and the implied voting power in the EU at the time were not fair in both cases.

A federal EU lies between these two cases. In a federal system, decision-making occurs in two stages: Voters from each state elect their representatives, and representatives from each state vote in the central government. In the EU context, the first stage is the ordinary political process in which voters in each member country elect their government. Then, the elected governments' ministers vote in the Council of Ministers. Due to this two-stage decision-making process, electors in smaller states are more

powerful in the decisions taken than those in larger states. Penrose (1946) formulated that each state in a federal union should have power equal to square root of that state's population. Completing Laruelle and Widgren (1998) work with Penrose's formulation, one can write the absolute voting power of a country i as follows:

$$AbsoluteVotingPower_i = Population_i^x$$

$$\text{where } x = \begin{cases} 0 & \text{if EU is a unitary country} \\ 1/2 & \text{if EU is federal country of } n \text{ states} \\ 1 & \text{if EU is an association of } n \text{ countries} \end{cases} \qquad (5)$$

The above formulation implies the following normalized voting power for country i:

$$VotingPower_i = \begin{cases} \dfrac{1}{n} & \text{if EU is a unitary country} \\[3ex] \dfrac{\sqrt{Population_i}}{\sum \sqrt{Population_i}} & \text{if EU is federal country of } n \text{ states} \\[3ex] Populationweight_i & \text{if EU is an association of } n \text{ countries} \end{cases} \qquad (6)$$

Consequently, by computing the power x that best fits the voting power implied by the new voting weights, I measure the effect of the Nice realignment on the perceived degree of federalism in the EU by its leaders who decided on the new voting weights

Figure 2 gives the plot of voting power measured by Banzhaf Index[11] against the population weight before and after the Nice realignment, and how it would be under different definitions of the EU. As can be seen from the figure, the Nice realignment

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[11] The model behind Laruelle and Widgren (1998) is only applicable for Banzhaf index.

FIGURE 2. *Degree of federalism after Nice*
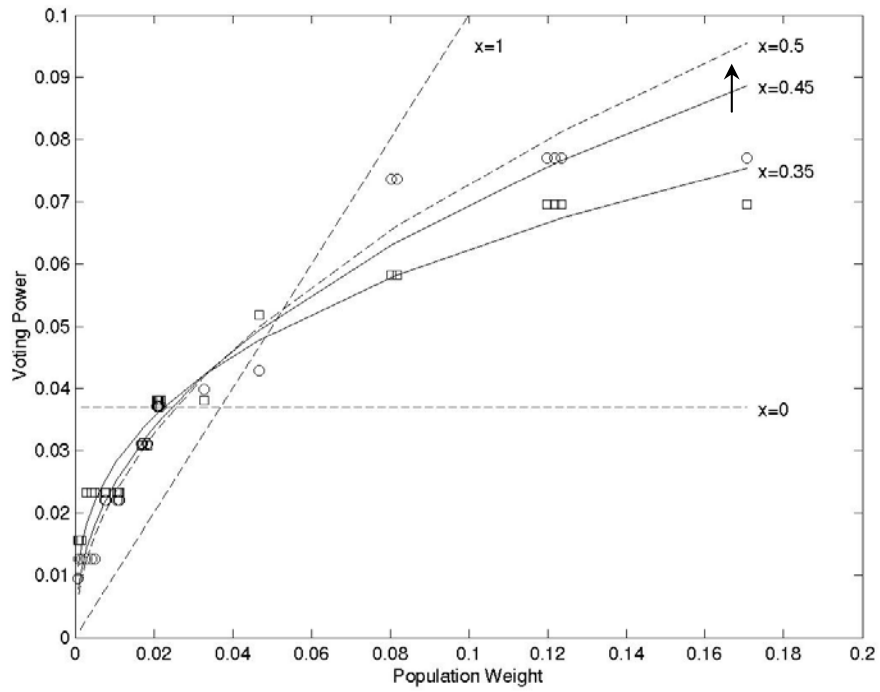
moved the EU further away from the case of association, where $x = 0$, closer to the case of federal union, where $x = 1/2$. In particular, the degree of federalism changes from 0.35 to 0.45 due to the changes in voting weights after Nice. In the previous stages of the EU integration, this degree varied around 0.37.[12] Apparently, the EU leaders' vision of the EU is a much more federalist union, since they realigned the voting weights accordingly.

6. Conclusions

Baldwin et al. (2001) analyze the effects of the Nice Treaty on the EU's Commission and the Council of Ministers and the European Parliament. They conclude that the increased threshold by the Nice Treaty lowers the Council of Minister's ability to make decisions, and indirectly the power of the Commission and the European Parliament suffer too. They conjecture that further integration in the EU is only possible if channeled by enhanced cooperation arrangements. Their analysis is based on the change in the threshold, and the effects of changes in voting weights are not carefully considered. This paper analyzes the effects of the changes in voting weights in the Council coupled with the increase in threshold on the future of the integration in Europe.

A simple comparison of voting weights shows that small countries in the EU are still favored after the Nice realignment of votes, although the bias towards them is now significantly lower. Particularly, predominantly small applicant countries experienced a much larger decrease in their voting weights than the small incumbent members. Voting power analysis using Shapley-Shubik Index, and the Banzhaf Index fortified this result

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[12] In EU6, x=0.363; in EU9, x=0.357; in EU10, x=0.392; in EU12, x=0.374; in EU15, x=0.387.

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by finding a voting power distribution that is now much more aligned with population weights. This decreased the power of small countries like the applicant Eastern Europeans despite an increase in the number of votes required for majority. This change and the increased use of majority voting imply a much smaller loss of power to future new members, as well as decreased cost of enlargement. Overall, the fears of enlargement are lessened, which makes the widening of the European integration more feasible.

Independent versus conciliatory power analysis implies a relatively bigger loss of independent power for small countries, and bigger gains for large countries. These make small countries more willing to give concessions, and enable big countries such as France and Germany to pursue their dream of deeper integration. The power of priori blocs measured under partial homogeneity has increased for big countries and rich Scandinavian countries, which are likely to benefit most from a deeper integration. Coalition power of East Europeans, and the Mediterranean countries decreased, which are the countries that will have the hardest time adopting. All these changes make deepening the integration easier.

Lastly, an analysis of fairness reveals a more federal EU in the future. Considering all of these results, it looks like the Nice Summit was successful in ensuring future efforts in all aspects of integration in Europe.

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