

A study of the Constitutional Treaty's voting reform dilemma

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1. Introduction

The ongoing Intergovernmental Conference (IGC 2003) must re-shape Giscard d'Estaing's draft into a Constitutional Treaty that can be signed and subsequently ratified by all 25 members of the enlarged European Union.

Things are not going well.

The most obvious sticking point concerns the reform of voting rules in the EU's key decision-making body, the Council of Ministers. Here is the problem.

1.1. The dilemma

As it turns out, the voting scheme that Giscard d'Estaing's Praesidium put into the draft Constitutional Treaty is not politically acceptable to all EU members (it concentrates power in the hands of the 4 largest EU members at the expense of Spain, Poland and many small members). Indeed, Giscard's system is so impolitic that any Constitutional Treaty that contains it will almost certainly fail to garner the necessary unanimous support. Yet, if the on-going IGC does not find an alternative to Giscard's system, the EU will face decision-making paralysis because the fallback position is the blotched voting system from the Nice Treaty.

Hence the dilemma: papering over problems with Giscard's unpopular voting rules puts the whole Constitutional Treaty at risk, but failing to agree an alternative voting scheme risks decision-making paralysis.

This paper uses the quantitative tools of voting game theory to study the dilemma.² In particular, we investigate why Giscard's scheme is politically unacceptable to many nations, and how various modified voting rules might solve the dilemma. Specifically we identify two possible solutions to the dilemma. First, changing Giscard's double majority thresholds from 60% of population and 50% of membership to 60% and 60% would go a very long way to reducing the concentration of power in the hands of the Big-4, yet still maintain the EU's ability to act; 50%-50% would also work. Second, if the IGC decides to stay with Nice's triple-majority voting system, modestly lowering two of the three majority thresholds would maintain efficiency without altering Nice's power implications.

¹ We thank Ben Crum for comments and suggestions.

² For background on the mathematics of voting theory, see Felsenthal and Machover (1998); see Banzhaf (1965, 1966, 1968) for the classic treatments, and Widgrén (1994, 1995, 1996), Baldwin (1994), Hosli (1995), Kirman and Widgrén (1995), Laruelle and Widgrén (1998), Felsenthal and Machover (2000, 2001), and Napel and Widgrén (2003) for applications to Europe.

1.2. Organisation of this essay

Readers who are familiar with the shortcoming of the Nice Treaty's voting reform will want to skip Section 2 and focus on the heart of our contribution, Sections 3 and 4. Section 3 presents and evaluates a menu of voting reforms and identifies the 60-60 and 50-50 dual majority systems as alternative that might solve the dilemma. Section 4 shows how a repaired Nice system could also work.

For readers who are sceptical about the importance of voting rules, Appendix A shows that EU voting rules have a very direct and quantitatively important impact on the distribution of power, at least power measured by its impact on the EU's expenditure allocation.

Finally, before turning to the analysis we ask the natural question: Why does the EU again finds itself in a quandary over voting reforms? Why wasn't this dealt with in the European Convention?" Our conjectures are presented in Box 1 .

Box 1: How did the dilemma arise?

The political unacceptability of Giscard's reforms should not be a surprise. Minor variations of the draft's proposed voting reform (a double majority scheme) were considered and rejected by EU 15 members, not once, but twice – in the 1996 IGC that produced the Amsterdam Treaty and then again in the IGC 2000 that produced the Nice Treaty. So why did EU leaders agree to these reforms in the European Convention? The likely answer is that they did not. After all:

- The issue of voting reform was not openly addressed by the Convention. There was no Working Group on the crucial question of voting reforms. The reforms were decided by Giscard d'Estaing's inner group, the Praesidium. There was no vote on this critical issue, indeed there was no vote on anything. Giscard alone decided whether there was a consensus.

- Giscard's only hard constraint was to produce a draft that was acceptable to the leaders of the EU15. And indeed, the EU15 agreed that his draft was "a good basis for starting in the Intergovernmental Conference" in June 2003. But what about the leaders of the 10 new members that will have to get the Constitutional Treaty ratified in their own nations?

As history would have it, Giscard d'Estaing created a mood in the Convention that characterised reluctant nations as selfish troublemakers. Once it was clear that a draft Constitution would emerge, many EU members decided that the Convention – with its Giscard-centric structure – was not the place to fight. In short, Giscard's draft did not solve the voting problem – it suppressed it. As we wrote in June 2003: "This year's IGC, where the member states will be in charge, is where we'll see the old argument re-emerge. If they do, the IGC that starts this Fall may 'discard Giscard', or at least many of the key reforms he put in the draft Constitution." (Financial Times, Personal View, 22 June 2003)

2. Nice will not work

Unless the on-going IGC decides otherwise, the Nice Treaty voting system will come into force in November 2004. Thus, the first task in our study of the dilemma is to illustrate that the Treaty of Nice system will not work.³ With little more than hurried, late-night staff work and their political instincts to guide them, EU leaders adopted a massively complex system at the end of the longest-ever EU summit, topped off by an all night bargaining session. Using quantitative tools from voting game theory, Baldwin, Berglof, Giavazzi and Widgren (2001)

³ Legally, the Accession Treaty implements the voting system agreed politically in the Nice Treaty. The idea that the Nice reforms made EU decision making unwieldy became widely accepted in by mid 2001, so when the Nice reforms were translated into law in the Accession Treaty (the reforms were only a political agreement in the Treaty of Nice; accession treaties is where the EU traditionally alters voting weights in response to enlargements), some of the problems were mitigated by setting the vote threshold at 72% instead of 74% as in the Nice Treaty.

showed that the Nice voting reforms lowered the enlarged Union's ability to act. This section summarises and slightly extends the key findings.

Understanding these changes requires some background on how the Council operates now and how the Nice system is different. For readers who are unfamiliar with how qualified majority voting works now and how it will work under the Nice rules, Box 2 provides the necessary background.

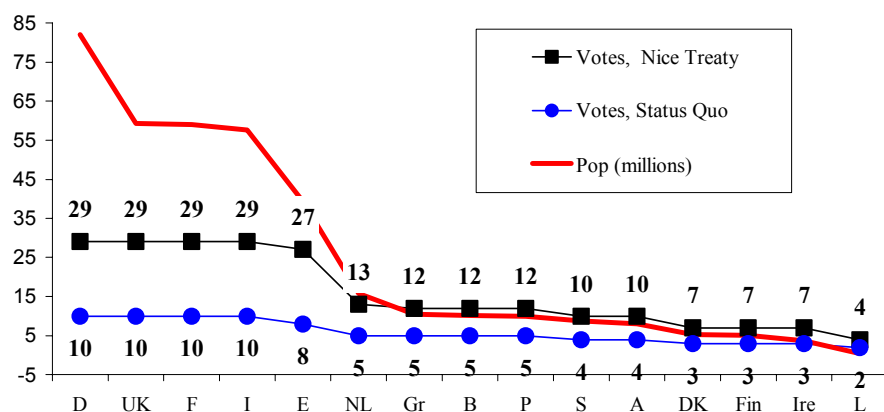
Box 2: How the status quo system in the EU15 works

The Council of Ministers is made up of a minister from each member nation. For very important issues, such as Treaty changes, enlargement and long-term budget questions, these ministers make decisions on the basis of unanimity. For most decisions, however, about 80% of Council business including all Single Market issues, they decide on the basis of a complex system called "qualified-majority voting," or QMV in euro-ese. Under current QMV rules, each member's minister casting a certain number of votes with more populous members having more votes (e.g. France has 10 votes while Denmark has only 3). The total number of votes in the EU15 is 87 and the threshold for a winning majority, called a "qualified majority," is 62, i.e. 71% of all votes. The implications of this system are complex. Since bigger members have more votes, 71% of the votes does not mean 71% of members. Three large members voting 'no' could block adoption even if the other 12 voted 'yes'. And since small nations get far more votes than strict population-proportionality would suggest, 71% of the votes does not mean 71% of the EU population. The 71% threshold can be reached, for example, by a coalition of just 8 members representing 58% of the EU population.

The Nice Treaty reforms – which take effect in November 2004 – change qualified-majority voting in two main ways.

(1) it makes the qualified-majority system more complicated, by adding, on top of the current qualified-majority voting framework, two new criteria that a winning majority must meet. Thus, a proposition passes only when the coalition of yes-voters meets three criteria concerning: (i) Votes, (ii) Members, and (iii) Population. Specifically, the triple criteria require that a winning coalition must have at least 72% of the Council votes; represent at least 50% of the EU member states, and at least 62% of the EU population.¹

(2) The Nice Treaty changes the number of votes assigned to members, favouring big nations as the diagram shows.



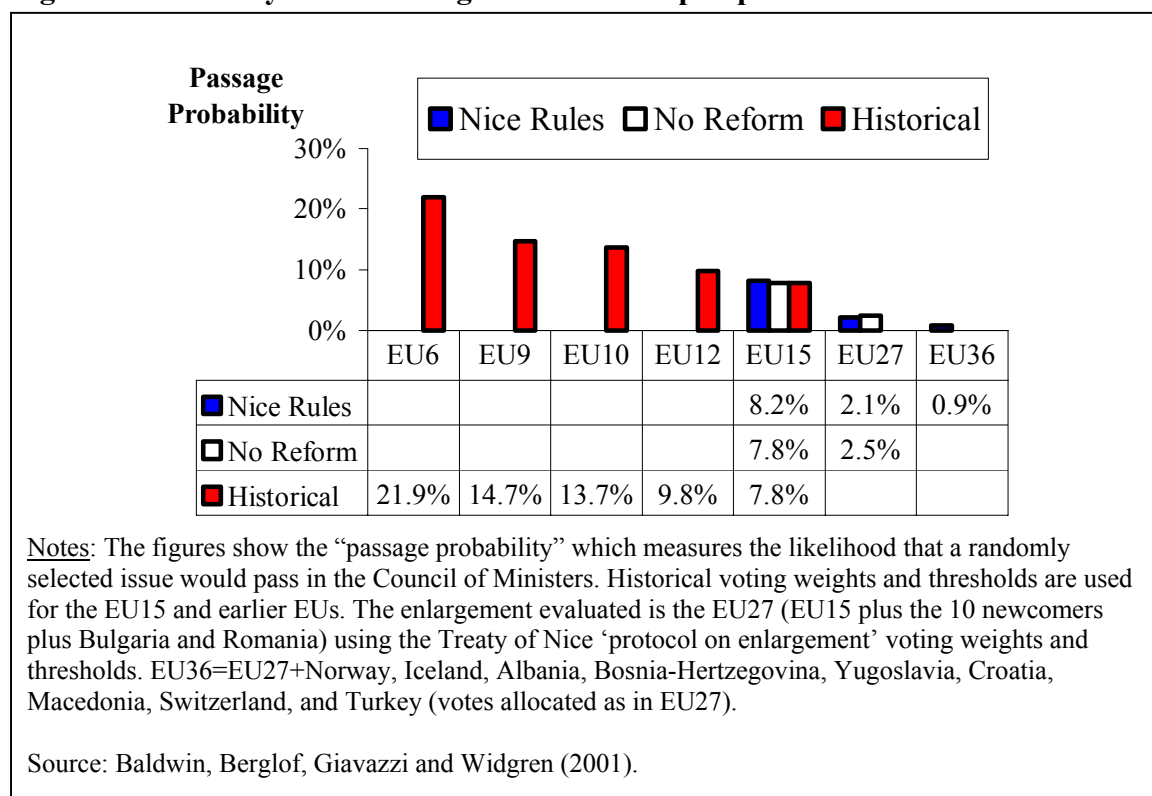
Source: Baldwin, Berglof, Giavazzi and Widgren (2001). Note: status quo votes assume votes were allocated to the newcomers in the same way they are currently allocated to the incumbent 15.

2.1. Capacity to act

“Capacity to act” and “decision-making efficiency” are slippery concepts, but one quantitative tool in voting game theory helps make things more precise. The so-called “passage probability” gauges how likely it is that the Council would approve a randomly selected issue – random in the sense that each EU member would be equally likely to vote for or against it. The best way to describe this measure is to explain how it is calculated.

First, the computer calculates all possible coalitions among EU members, namely every possible combination of 'yes' and 'no' votes by EU members (there are 134 million coalitions in the EU27). Then the computer checks each coalition to see if it is a winner under the Nice voting system; this is done using each member's actual weight on the three criteria (votes, members, population) and the three thresholds. The passage probability tells us what fraction of these coalitions are winning coalitions. It is called the passage probability because it is the likelihood that a random proposal would attract a winning coalition, assuming all coalitions are equally likely. Admittedly, this is a crude measure, but it is objective, precise and its strengths and shortcomings are clear.

Figure 1: Efficiency of reforms agreed at Nice in perspective



Note that the exact passage probability is meaningless because the Commission does not put forth random proposals. But, a change in the passage probability does tell us something about a reform's ability to maintain efficiency. From this perspective, Figure 1 shows that Nice fails on efficiency grounds since it implies a level of efficiency that is far, far below that of the EU15. Indeed, the Nice reforms actually made matters worse. Admitting 12 new members without any reform would have cut the passage probability to a third of its already low level, namely to 2.5%. With the Nice reforms, the figure drops even further to 2.1%. We note that the main source of the lower efficiency is the Nice-rules' high threshold for Council vote. Of course, the 2004 enlargement is not the last, so we also show the Nice rule's efficiency with an EU of 36 members.

We also note that a second, cruder but more transparent efficiency-measuring tool – i.e. blocking minority analysis – confirms these efficiency findings.⁴

⁴ See Baldwin, R., E. Berglof, F. Giavazzi, and M. Widgren (2001). Nice Try: Should the Treaty of Nice be ratified? CEPR, London. www.cepr.org, Chapter 3.

A final point to make here is that the Nice rules do maintain efficiency in the EU15. This may explain how the EU leaders could have agreed such a system. These eminently practical leaders probably have a good intuitive feel for how changes would alter the difficulty of decision-making in the EU they know – the EU15. However, the EU27 is a radically more complex body. For example, there are about 33,000 possible coalitions in the EU15. There are over 134 million in the EU27.

2.2. Winners and losers from the Nice reforms: Why Spain and Poland are fighting so hard

The Treaty of Nice massively shifted power from small EU members to big ones. This point can be illustrated with another quantitative tool in voting theory called the Normalised Banzhaf Index (NBI). In plain English, the normalised Banzhaf index (NBI) gauges how likely it is that a nation finds itself in a position to “break” a winning coalition on a randomly selected issue. Thus, the NBI tells us how powerful a country is likely to be on a randomly chosen issue. Of course, on particular issues, various countries may be much more or much less powerful – especially if they are part of a like-minded group. (See Baldwin, Berglof, Giavazzi and Widgren 2001 for details and simple numerical examples).

Figure 2: Winners and losers from the Nice Reforms, EU27

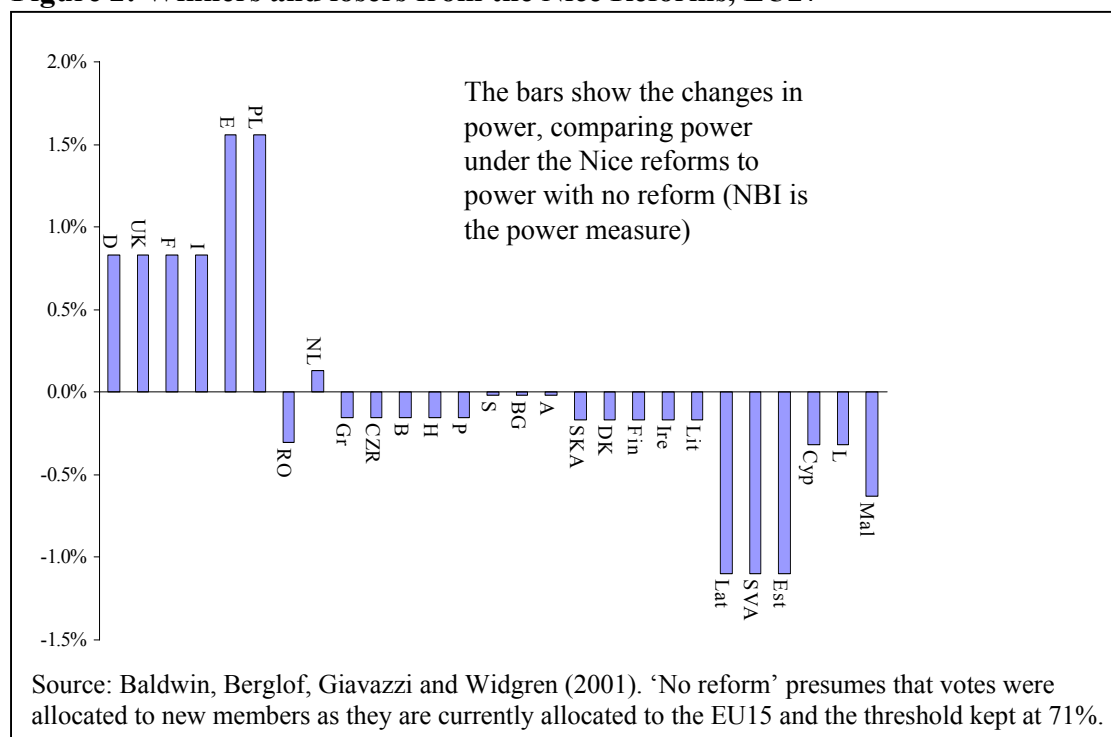


Figure 2 shows how the Nice reforms changed the power distribution in the EU27. That is, the figure plots the difference between the NBIs under the Nice reforms and what they would have been if the current EU15 system had been extended to the newcomers.

The diagram shows two critical points:

1. Nice greatly increased the power of large nations at the expense of small nations.
2. While Germany, France, the UK and Italy gained a lot, Spain and Poland gained twice as much.

Indeed, with the Nice reforms, Spain and Poland are set to become almost as powerful as Germany, even though they have only half Germany's population. To be specific, their NBIs are 7.4% while that of Germany is 7.8%; for comparison, the Netherlands's is 4% (see Table 1).

Given the extraordinary gains won by Spain and Poland in the Nice reforms, one understands why they are fighting so hard to preserve the Treaty of Nice voting system.

Having shown that the IGC's fallback option is unworkable, yet very attractive to certain nations, we turn to seeing if there are other schemes that would maintain the EU's ability to act without unnecessarily shifting power.

Table 1: Power shares under the Nice system, EU27

	Nice Rules	No Reform		Nice Rules	No Reform
Germany	7.8%	7.0%	Bulgaria	3.1%	3.1%
UK	7.8%	7.0%	Austria	3.1%	3.1%
France	7.8%	7.0%	Slovakia	2.2%	2.4%
Italy	7.8%	7.0%	Denmark	2.2%	2.4%
Spain	7.4%	5.9%	Finland	2.2%	2.4%
Poland	7.4%	5.9%	Ireland	2.2%	2.4%
Romania	4.3%	4.6%	Lithuania	2.2%	2.4%
Netherlands	4.0%	3.8%	Latvia	1.3%	2.4%
Greece	3.7%	3.8%	Slovenia	1.3%	2.4%
Czech Rep.	3.7%	3.8%	Estonia	1.3%	2.4%
Belgium	3.7%	3.8%	Cyprus	1.3%	1.6%
Hungary	3.7%	3.8%	Luxemburg	1.3%	1.6%
Portugal	3.7%	3.8%	Malta	0.9%	1.6%
Sweden	3.1%	3.1%			

Source: Authors' calculations

3. Evaluation of various double majority rules

Giscard's draft Treaty proposes that a winning coalition in the Council must account for at least 60% of the EU population and at least 50% of the membership. Other options, however, are worth considering.

- During IGC2000, the Commission's proposal – called double simple majority (DSM) – defined a winning coalition as representing at least 50% of members who represented at least 50% of the EU population.
- Variants on this involve different majority thresholds, such as 50% of nations and 60% of population, 60% of both, or 70% of both. Thresholds of 50% of members and 62% or 66.6% of population have also been mooted.

How to think about dual majority schemes

Before turning to the analysis, we note that the best way to think about dual majority systems is to view them as giving two distinct weights to the vote of each nation; the relative stringency of the majority thresholds then determines the relative importance of the two

weighting schemes. To see this, note that the population criterion weighs nations' votes by their share of EU population. The member criterion weighs them by share of the membership, viz. $1/25^{\text{th}}$ in the EU25, $1/27^{\text{th}}$ in the EU27, etc. In the extreme case, of a 99% threshold on population and a 1% threshold on membership, the membership weighting would be irrelevant since any coalition that had 99% of the population would also have more than 1% of the membership. Under the reverse extreme, 1%-99%, the population weighting would be irrelevant. Roughly speaking, the relative importance of the population weighting increases as the population threshold becomes more stringent.

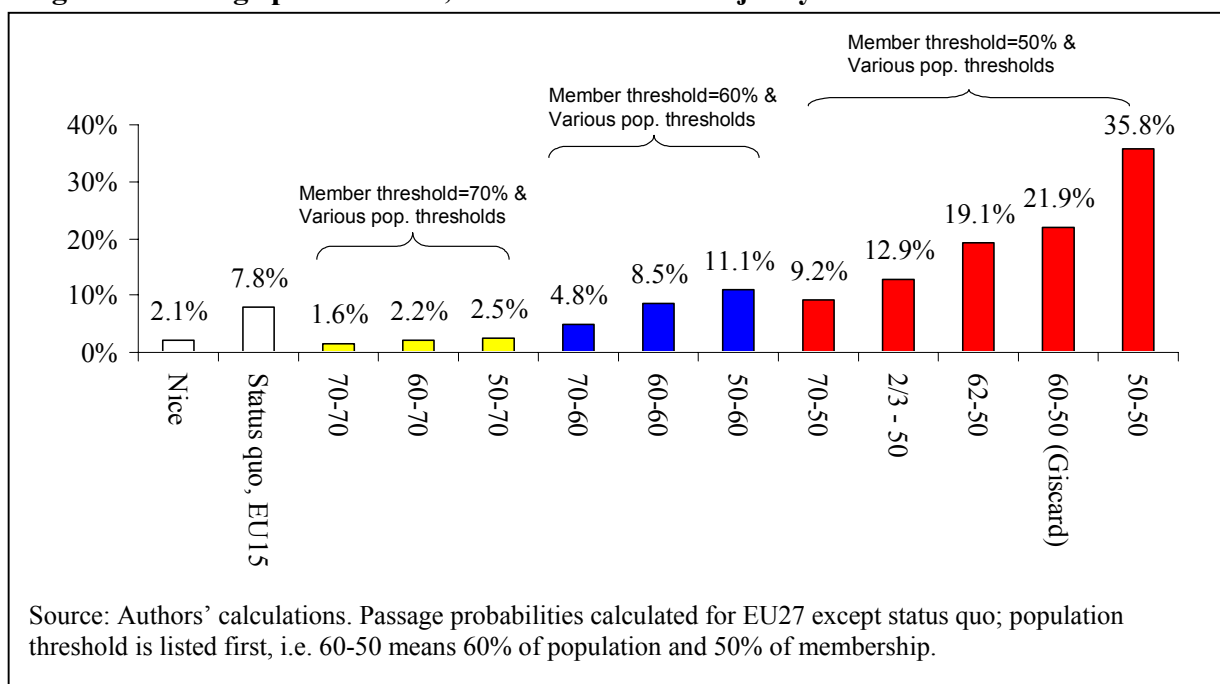
3.1. Passage probability for 10 duals: EU's capacity to act

The impact of the various dual majority schemes on the EU's decision-making capacity, as measured by the passage probability is shown in Figure 3. This includes Giscard's proposal (60-50), and, for comparison, the passage probability of the complex Nice rules and the EU15's current passage probability.

There are three points to retain from this figure:

1. Almost all the dual majority schemes maintain the EU's ability to act since they imply passage probabilities in line with that of the EU15.

Figure 3: Passage probabilities, 11 different dual majority schemes



Because the majority thresholds are lower than those in the Nice system, the dual majorities tend to be more efficient. This suggests that many of the Nice system's defects could be fixed by lowering the Nice-reform majority thresholds (more on this below).

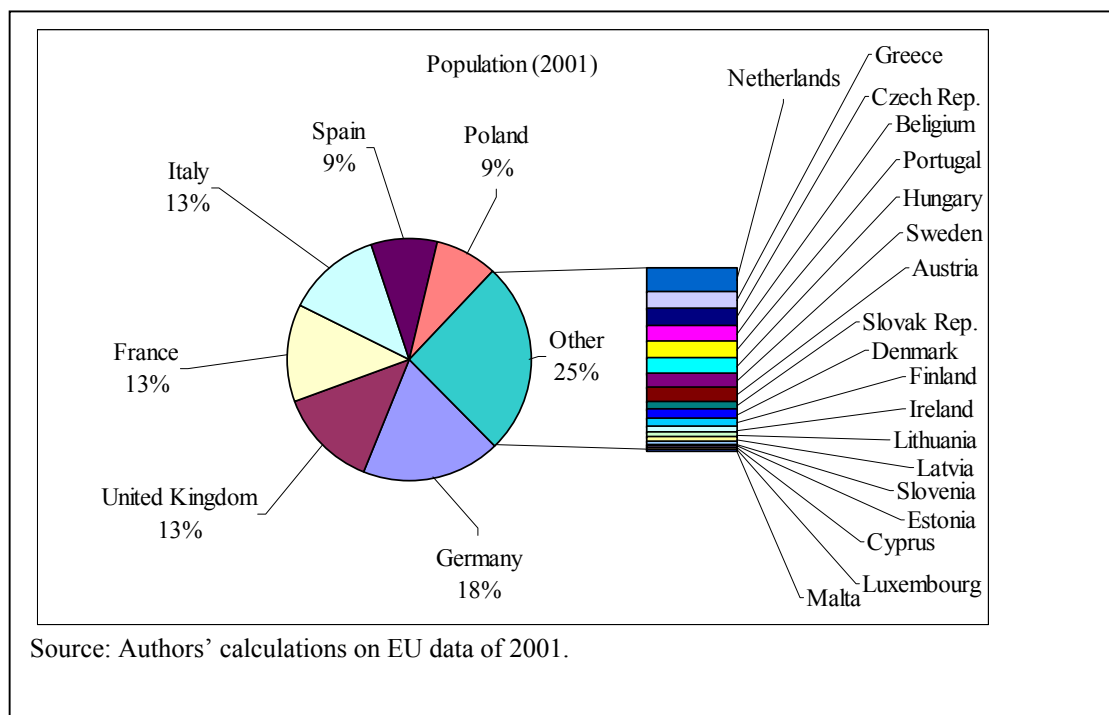
2. Raising majority thresholds has a dramatic and highly nonlinear effect on efficiency.

Moving from 50-50 to 60-60 lowers the passage probably about 27 percentage points; from 60-60 to 70-70 reduces it by 7 points. (This feature of voting systems is well known to voting theorists.)

3. Raising the population threshold has less of a negative impact on efficiency than raising the member threshold. For example, the 50-60 scheme is less efficient than the 60-50 scheme.

The logic behind the asymmetric effects on efficiency is simple. Given the enormously skewed distribution of populations among EU25 member states (see Figure 4), the population weighting of votes puts 75% of the "votes" in the hands of just 6 nations (the Big-6 nations have 75% of the EU25 population). This sort of power concentration makes decision making easier, so raising the majority threshold on population has less of an effect on the EU's ability to act than raising the member threshold.

Figure 4: The very skewed distribution of EU population among members



Further enlargements

The Constitutional Treaty should adopt rules that will allow the EU to function smoothly for many years, even after future enlargements. On this issue, one critical point does not come out in Figure 3 – the impact of membership enlargement on efficiency. Here it turns out that the 50-50 rule has very special properties.

Whenever majority thresholds are above 50%, efficiency falls rapidly as the number of members rises. This is well known to voting theorists and its effect can be dramatic. For example, the passage probability for the EU25 with 60-60 is 13.1% while it is only 8.5% in the EU27.

This effect is a straightforward implication of combinatorics. If the threshold is 50%, then an increase in membership increases the number of winning coalitions and the number of losing coalitions in exactly the same proportion (leaving aside a minor problem with even and odd numbers). After all, any coalition of yes-voters that wins has a corresponding coalition of no-voters that blocks. By contrast, enlargement with a higher threshold, say 60%, increases the number of blocking coalitions more than it increases number of winning coalition, so the passage probability drops. The basic point is that there are more ways to put together a 41% blocking minority than there are to put together a 60% winning majority, and this difference grows with the number of members.

This 'membership invariance' property of the 50% majority rule is exactly why it is used in virtually every large voting body, e.g. national parliaments. Any threshold higher than 50% produces very low passage probabilities when there are more than a few dozen voters.

This suggests that the 50-50, or double simple majority in plain English, might be the best option for the EU as it looks towards the future. The 50-50 rule, however, was explicitly considered and rejected by EU15 members in the IGC 1996 and IGC 2000. One reason might be that it is just too efficient for the members' tastes. As we argued in our June 2003 essay ("Decision Making and the Constitutional Treaty: Will the IGC discard Giscard?") www.cepr.org, improved efficiency shifts a great deal of power from the Council to the Commission and, to a lesser extent, to the Parliament. The basic point is simple. When there are many possible winning coalitions, the agenda-setting Commission has much leeway in determining the exact details of the proposals that get passed.⁵ Below we also explore one political difficulty that might explain this resistance to the 50-50 scheme.

Efficiency is an important criterion in choosing a voting system but ultimately the impact of a reform on the distribution of power will be the key to its political acceptability. This brings us to evaluate Giscard's 60-50 plan – and a number of alternatives – from the point of view of power.

3.2. Muscles in Brussels: the power implications

Much of the politics of the on-going IGC can be understood by looking at how Giscard's system changes the allocation of power in the enlarged EU. But what should be the basis of comparison? Nice is the fallback option so one natural baseline is the power distribution implied by the Nice reforms. On the other hand, there is a widespread feeling that the Nice reforms were not 'fair', especially for small members. And, in any case, the world has no feeling for how the Nice reforms would operate in practice. This suggests that the natural baseline is the status quo. Because both natural baselines have their faults, we show the power changes with respect to both.

The first thing to look at is to see how Giscard's proposal affects power compared to our two baseline power distributions. See Appendix B for the data behind the figure.

Figure 5 shows our findings.

Giscard vs Nice: How much more power shifted to large nations?

Three results in See Appendix B for the data behind the figure.

Figure 5 are striking.

1. The reform that Giscard proposed is yet another large shift of power towards large members. Indeed, the power shift implied in Giscard's voting scheme is more than twice the size of the Nice Treaty's power shift. The sum of the Big-6s' individual power changes shows a 13 percent point gain – vis-à-vis the status quo – under Giscard's plan versus the current EU15 system. For the Nice plan, the equivalent was only 6.4 percentage points.
2. The extra power shift to large nations is very much biased towards Germany and to a lesser extent, France, Britain and Italy; Spain and Poland lose.

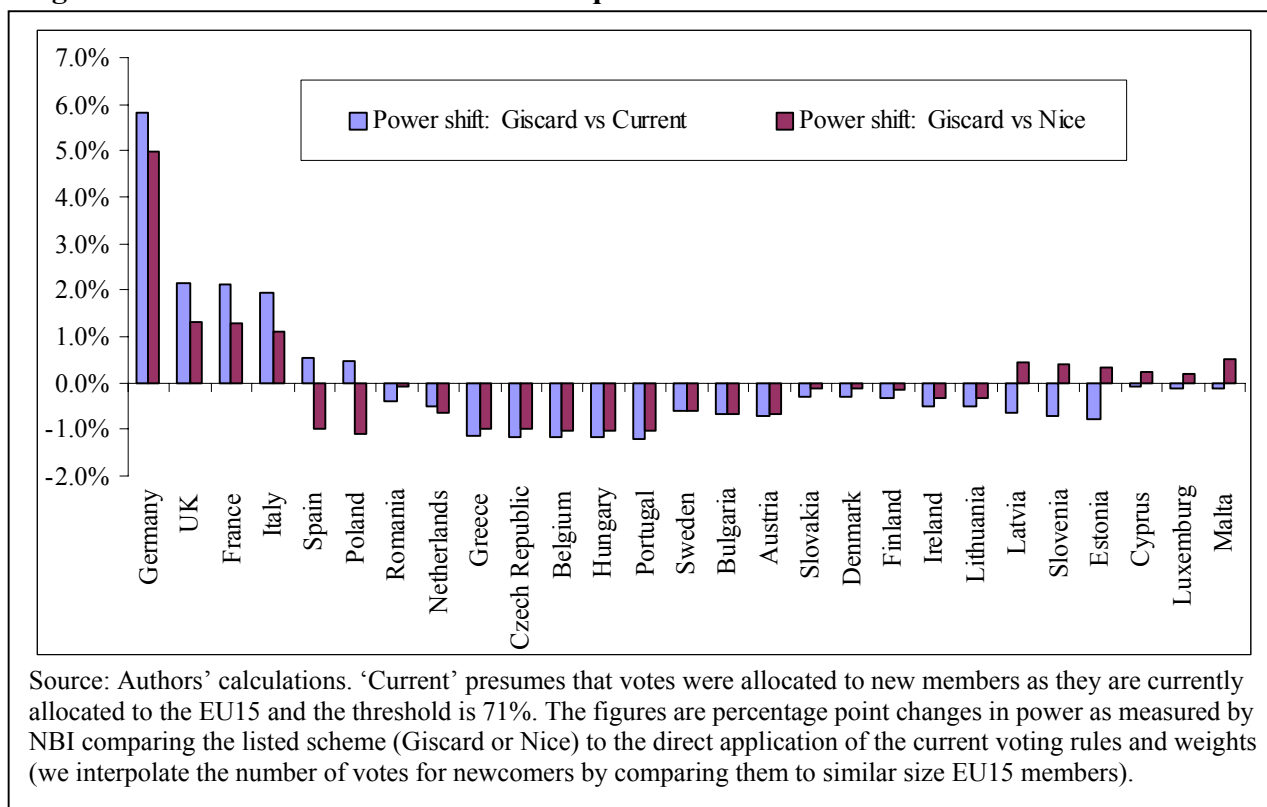
⁵ See Napel and Widgrén, "EU Conciliation Committee: Council 56 versus Parliament 6," CEPR discussion paper 4071 for details of the argument.

In short, Giscard's plan would break the near-equality among the Big-6, a result that might be especially difficult for Spain and Poland to swallow.

3. Compared to power loss they faced under the Nice Treaty (again taking the current voting rules as the baseline), the middle sized nations – those with around 10 million citizens – will lose much more under the draft Constitutional Treaty, while the opposite is true for the tiny nations, i.e. those with less than 2.5 million citizens.

See Appendix B for the data behind the figure.

Figure 5: Giscard versus Nice and status quo



Power implications of alternative dual thresholds

Given the political unacceptability of Giscard's plan, we evaluate the power shifts implied by variants on the dual majority, again looking at the changes with respect to Nice and with respect to an extension of the current system (since this is widely viewed as fair). The results are illustrated in Figure 6. See Appendix B for the data behind these figures.

Three findings are especially noteworthy:

1. The "uneven" thresholds, 60-50 and 50-60, produce more dramatic shifts in power when compared either to the fallback position of the Nice reforms or the status quo.

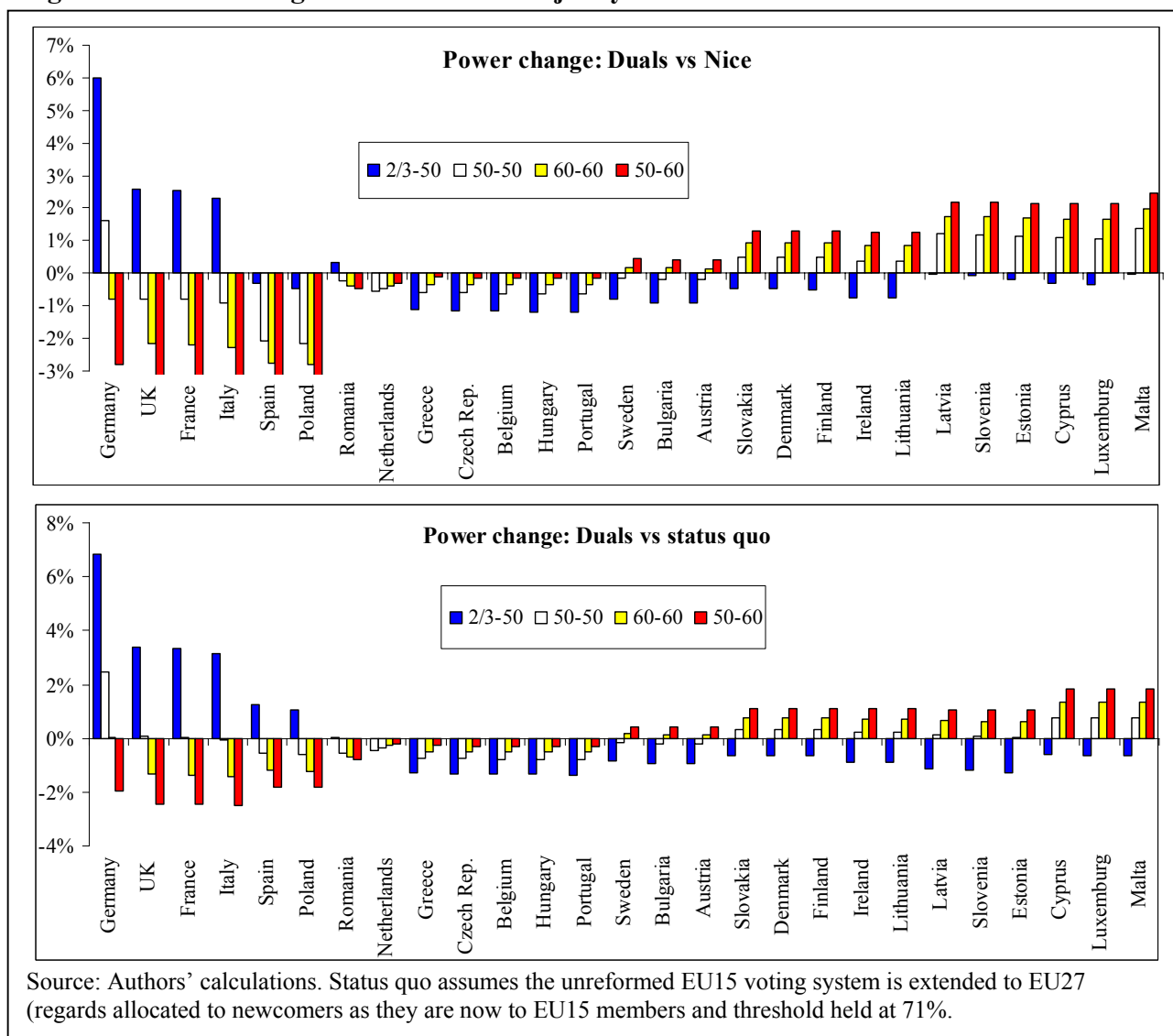
As discussed above, the relative importance of the population-weights and membership-weights are extremely different for very large and very small nations, so uneven thresholds tend to redistribute power (Figure 7). More precisely:

2. While Giscard's plan for 60-50 thresholds (population-membership) shifts power towards large nations, reversing the threshold to 50-60 would shift power from large nations to small nations. This is especially true when taking Nice as the base case, but it also holds when the status quo is the baseline.

3. Taking an extension of the status quo system as our metric of 'fair', the 50-50 and 60-60 dual scheme produces the least deviation from fair.

Specifically, the standard deviations for the power changes (vis-à-vis the status quo) of the various duals are 1.5% for Giscard's 60-50, 0.7% for the double simple majority 50-50, 1.4% for 50-60 and 0.9% for 60-60. See Appendix B for the exact figures.

Figure 6: Power changes: Various dual majority schemes vs Nice



Source: Authors' calculations. Status quo assumes the unreformed EU15 voting system is extended to EU27 (regards allocated to newcomers as they are now to EU15 members and threshold held at 71%).

3.3. 50-50 or 60-60 take the cake

The performance of the 60-60 dual majority system is worth highlighting.

Although almost all observers agreed that simply extending the current voting rules would produce decision-making paralysis, few suggest that such an extension would produce an unfair distribution of power. Thus it is particularly noteworthy that the 60-60 dual scheme implies a power distribution that is close to that of the status quo system extended to the EU27, but it is much, much more efficient; its passage probability is 4 times higher than that of the Nice scheme and it is slightly higher than the passage probability of the current voting rules in the EU15.

We note that the 'least change' system is the 50-50 dual majority. And it has a passage probability that is even higher than Giscard's 60-50 scheme.

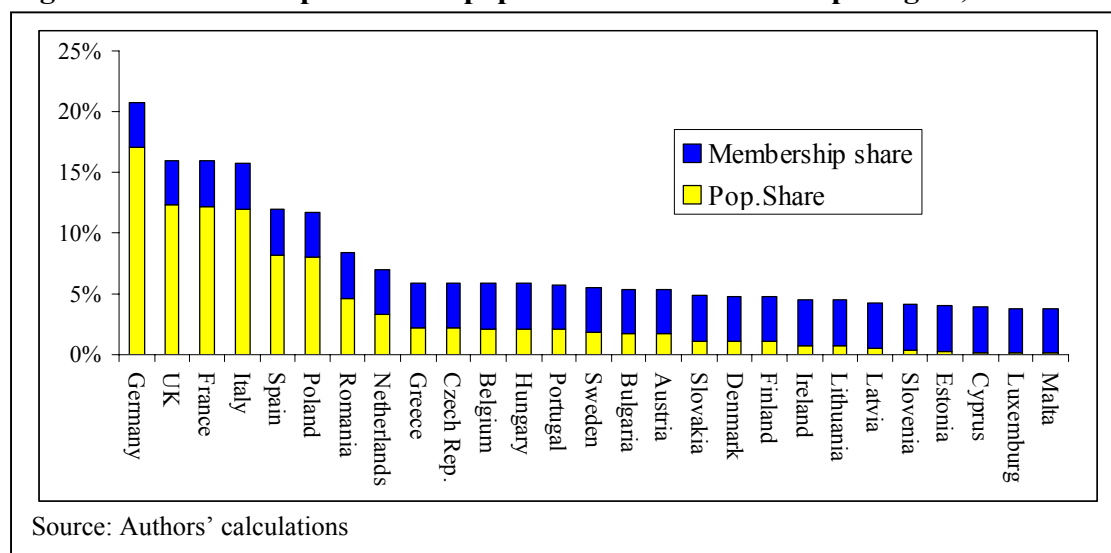
A quick look at the figures may reveal why the EU15 rejected this natural, sensible and widely used system. Under 50-50, most members experience only a very small change in their power compared to the status quo, but Germany gains a lot. Even more problematic from the political point of view may be the fact that Germany gains substantially while the other Big-4 see no increase in their power, or even a drop. Also, as mentioned above, member states may view the 50-50 system as too efficient, giving the Commission too much power.

We turn next to providing intuition for the link between majority thresholds and the distribution of power.

3.4. Intuition for why thresholds affect the power distribution

Figure 6 shows that playing with majority thresholds has important implications for the distribution of power. Here we provide intuition for this result.

Figure 7: Relative importance of population and membership weights, EU27



As mentioned above, the best way to think of a dual majority system is to view each member's vote as having two weights – one reflecting its population share and one reflecting its membership share. Given the radically skewed distribution of population shares in the EU, the weights will be extremely different for different nations. For Germany, its population weight will be huge, about 18%, so its member-share weight will be relatively unimportant to Germany's power. The opposite is true for small members like Estonia. Its population share is just 3-tenths of one percent, but its membership share is 1/27, or 3.7%, so for Estonia, the member-share weight is the most important determinant of its power. (See Figure 7 for the full list.) Plainly then, changing the majority thresholds on population and membership will have different effects on large and small members. Specifically, raising the population majority rule raises the relative power of very big nations, while raising the membership threshold boosts the power of very small nations.

Take an extreme example. If the population majority threshold was 83% and the membership threshold was 50%, Germany alone would be able to break any coalition, or, to put it differently, Germany would have a veto on everything. This veto-power comes uniquely from its population share; it would be true even if its membership share were zero. Now, think

about the impact of lowering the population threshold from this extreme level to, say, 70% without changing the membership threshold. Such a change would clearly reduce Germany's power share a great deal, but it would have very little impact on Luxembourg's. After all, Luxembourg's population share (9-hundredths of one percent in the EU27) would almost never matter, whether the threshold was 83% or 70%. (However, power shares must add to 100% so a gain to Germany must imply a loss to others.)

Next, do the same thought experiment but start at the other extreme. Suppose the population threshold were 50% but the membership threshold were 97%. With such a threshold, any member could break any winning coalition, so they would all be equally powerful. Lowering the 97% to, say, 70% would reduce the significance of every nation's membership-share weight. However, exactly because the membership-share weights are much more important to small nations, lowering the membership threshold lowers small members' power relative to that of large nations.

Another recurring feature in the diagrams is the different impact on small and "medium" sized nations (those with around 10 million citizens). In particular, the power changes for these nations, whether positive or negative, tend to be milder than they are for very large or very small nations. This makes perfect sense in the light of the preceding analysis. Changing the thresholds tends to shift the relative importance of the two weights on a nation's vote (the tighter the threshold, the more important is the corresponding weight in terms of power determination). Because the two weighting schemes tend to be similar for middle nations, changing the thresholds has less impact. For example, a nation with 10 million people has a population share of about 2.2% in the EU27 and a membership share of 3.7%. The weights would be identical for a nation with 1/27th of the EU27 population, viz. 17.8 million.

4. Fixing the Nice voting reforms

Dual majority systems have the great merit of simplicity and 'communicability'; the sort of thing schoolchildren could understand. That said, any reform must be agreed by all EU members, including Spain and Poland who are set to gain "near-great power" status from the Nice Treaty. This leads us to our next question. Can the most noxious aspects of the Nice system be fixed?

The answer is "Yes". The damage the Nice rules do to the EU's capacity to act could be repaired without substantially altering its power implications. Only two changes are needed.⁶

1. Lower the 74% threshold to two-thirds, and
2. Lower the population threshold to one-half.

If the EU lowered the Council-vote threshold to 2/3rds and changed nothing else, the efficiency of the EU27 Council would rise to roughly the level it was the EU12; 14.1% to be precise. Moreover, the population and member safety nets would ensure that gangs of small nations representing a narrow slice of EU citizens could not force their will on the big nations that represent most EU citizens. Likewise, the membership criteria would prevent a minority coalition of big nations from forcing their will on the rest of the EU. **Figure 8**

The downside of such a reform, however, is that it tends to further reduce the power of small nations since it would mean that the Council-vote criterion would no longer dominate so thoroughly. While this further power loss for small nations would be hard to swallow, at least

⁶ These were first proposed in Baldwin, Berglof, Giavazzi and Widgren (2001).

their power sacrifice would buy EU efficiency. The second change would help redress the additional small-country power loss.

Figure 8: Power effects of repair No.1 of the Nice system

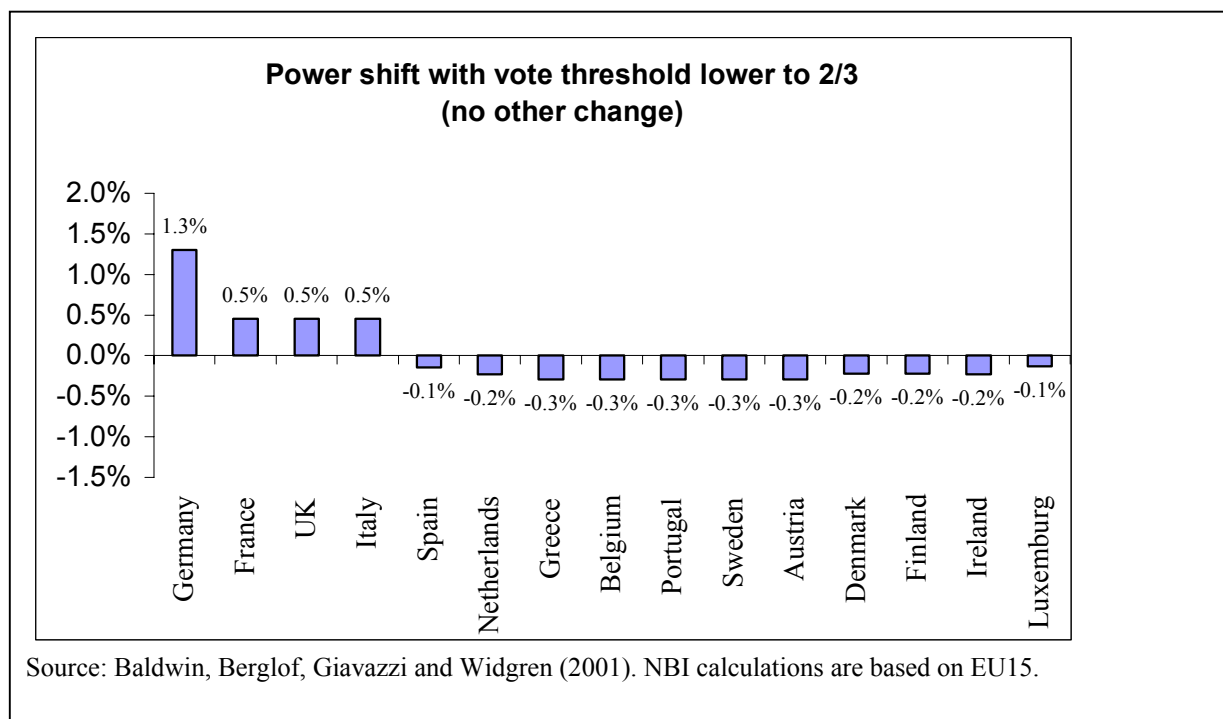
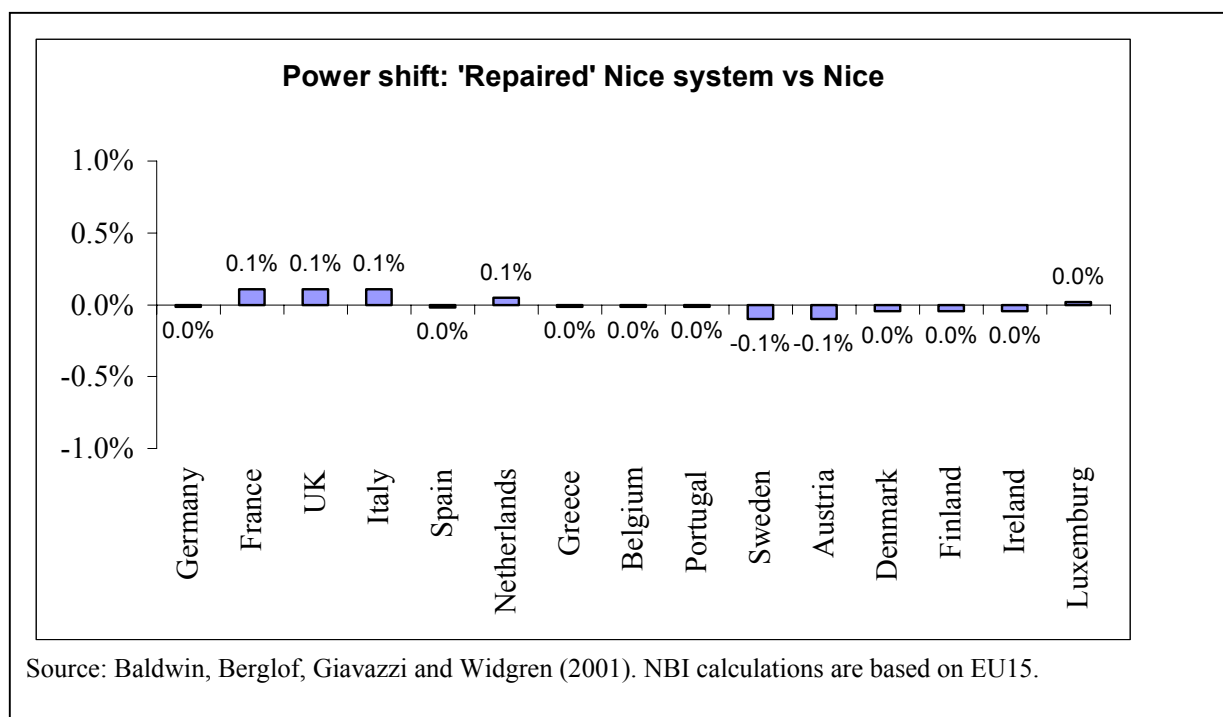


Figure 9: Power effects of combining repairs No.1 and No.2 the Nice system



Another downside is that Spain and Poland might veto such a change since it does not maintain their 'near-great power' status. Repair No. 2 would take care of that.

If in addition to lowering the threshold to 2/3rds of Council votes, the threshold on population were lowered to 50%, the result of this would be a respectably high passage probability (14.6% which is about twice that of the EU15 under pre-Nice rules). Moreover, as **Error! Reference source not found.** shows, the power shift for this would be very small. No country would gain or lose more than a tenth of a percentage point of power compared to the Nice rules, including Spain. As usual, one should not confuse precision and accuracy, but as a rough guide, the power measures indicate that the 'repaired' system would maintain or even increase the enlarged Union's ability to act without further shifting power.

Other voting reforms

The IGC 2000 considered other Council voting reforms based on reweighting and unusual double majority systems.⁷ These were thoroughly discussed by EU15 members during the conference and we evaluated these in terms of efficiency and power in our pre-Nice paper.⁸ None maintains EU decision-making capacity so we do not consider them further.

5. Concluding remarks

Voting rules are the heart of an organisation like the EU. The EU is continually introducing new legislation and most of this turns on majority voting in the Council of Ministers. What this means is that members will frequently find themselves having to adopt rules, regulations and practices that they opposed. The frequency with which this occurs is directly linked to a nation's power and thus to the voting scheme.

Despite the centrality of voting reforms in the Constitutional Treaty, they were not openly and thoroughly discussed at the European Convention. Little wonder then that these reforms are drawing so much conflict at the on-going IGC.

This paper evaluates a number of voting reforms from the narrow, objective perspective of formal voting theory. We find that Giscard's proposal of a 60-50 dual majority scheme would involve a mass shift of power to large EU members – a shift that comes on top of the already important shift of power to the Big-6 that came with the Nice Treaty reforms.

While the 60-50 proposal has the merit of greatly boosting the EU's ability to act, we find that a similar boost to efficiency could be had with much less redistribution of power with a 60-60 dual majority. That is, a rule that require a proposal to be approved by members that represented at least 60% of the EU population and at least 60% of the membership. The 50-50 rule would do the same, but some members may find that it is too 'efficient', an outcome that would shift power to the Commission and the Parliament.

Alternatively, if the on-going IGC finds it impossible to modify the voting weights in the Nice Treaty, we suggest "emergency repairs" that would correct the most pernicious aspects of the Nice voting rules, namely the fact that they are quite likely to lead to decision-making paralysis. The specific reforms would be to lower the Nice Treaty's threshold on votes to 2/3rds and its threshold on population to 50%.

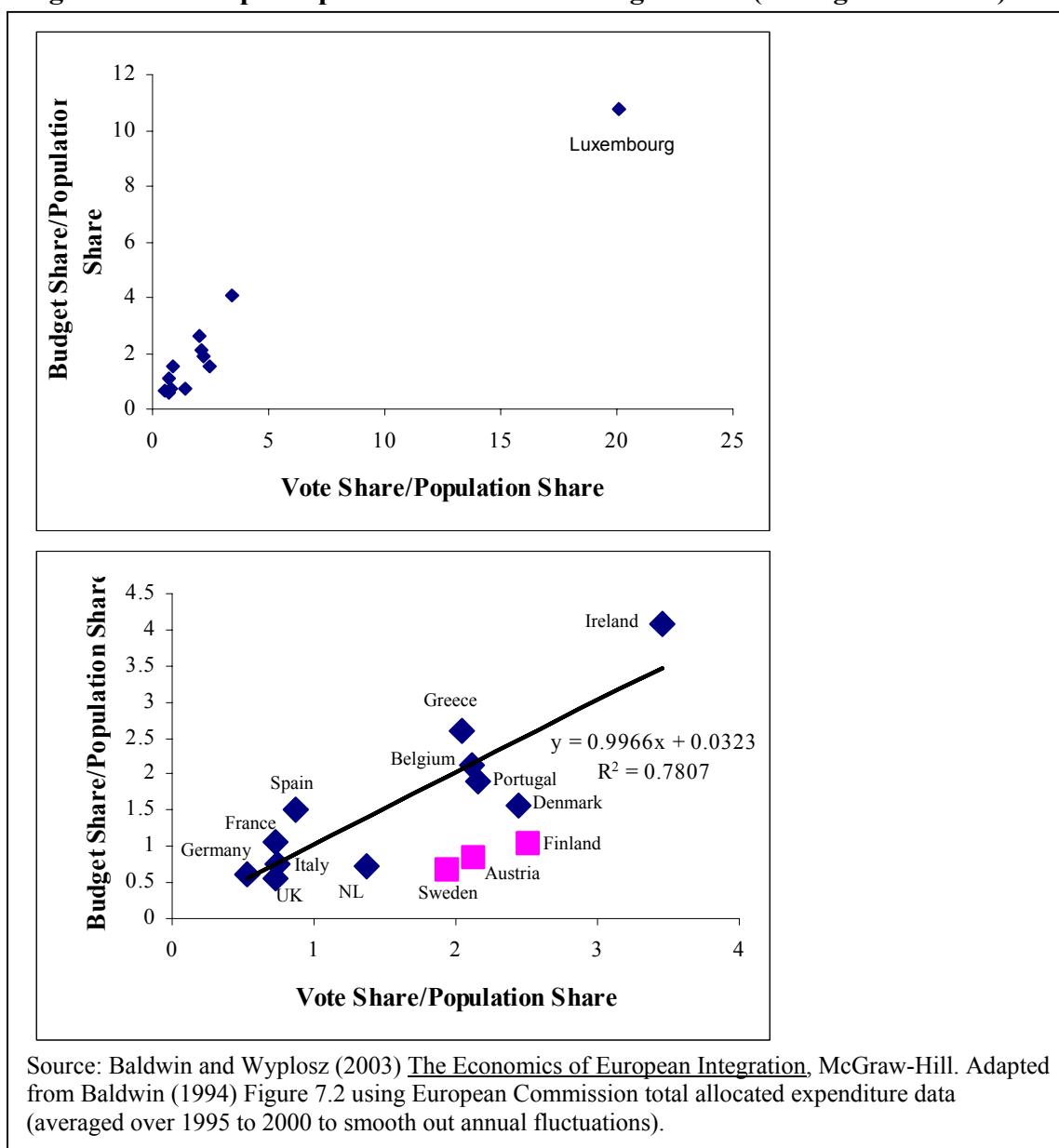
⁷ See, e.g. IGC Working Document, CONFER 4796/00 (9/11/00) and the Portuguese Presidency's June 2000 Report on the IGC progress (CONFER 4750/00 and especially the annexes).

⁸ Baldwin, R, E. Berglof, F. Giavazzi and M. Widgren (2000), "Reforms for tomorrow's Europe," CEPR discussion paper 2623, London. www.cepr.org.

Appendix A: Voting rules affect your “muscles in Brussels”

That voting rules are a, if not the crucial issue in the Constitutional Treaty is as obvious to some as it is mysterious to others. Readers who view this statement as self-evident will want to skip this appendix. For the less convinced, this section argues that voting in the Council of Ministers is very important since it directly affects members' power in the EU decision-making process. Of course, one cannot measure power directly, but one can measure its impact. EU budget shares provide one measurable indicator of the exercise of power.

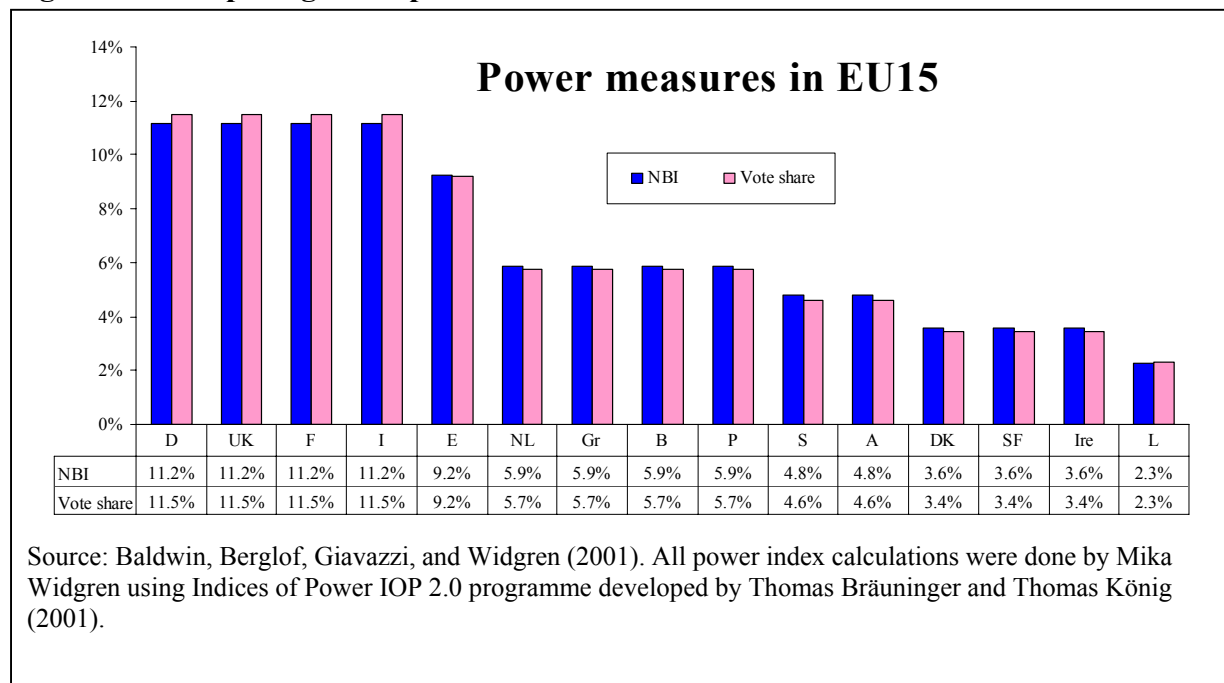
Figure 10: EU15 per capita vote shares and budget share (average 1995-2000)



As Figure 10 shows, Council vote shares go a long way towards explaining EU budget allocations. The horizontal axis in the top panel plots a measure of the ‘bias’ in each nation’s power per person; specifically, it plots the ratio of each nation’s share of Council votes to its share of EU15 population. The vertical axis plots a measure of the bias in each nation’s

receipt per capita. Again, to put everything on a common scale, the precise measure we use is the ratio between the nation's share of EU spending and its share of the EU's population. As with the per capita power measure on the horizontal axis, 1.0 on the vertical axis implies the average receipts per person taking the EU15 as a whole.

Figure 11: Comparing EU15 power measures: NBI and vote shares



Each point in the top panel indicates one of the EU15 members. Two features jump out from the data. First, there is a distinct positive relationship between power-per-person and receipts-per-person. Second, Luxembourg is a real outlier. In the EU15, Luxembourg's have 20 times more votes per person than the EU average and they get almost 11 times more spending per person than the EU average. Because a huge outlier can make it hard to see what is going on with the others, the bottom panel shows the same figure without Luxembourg. The bottom panel confirms the positive relation between power and spending. It shows, however, that the newest EU members, Austria, Finland and Sweden are far below the average relationship between power and spending. Perhaps this reflects the fact that these newcomers have not yet learned how to work EU politics in their favour, or maybe they have not had time to do enough "back scratching". We can also see that the UK is the nation that receives the least per capita of all EU15 nations. It also has one of the lowest vote ratio, but not the lowest (Germany has that distinction).

In making this demonstration, we have used a very crude power measure, namely vote shares. It is worth noting that the crude measure and the NBI yield about the same answers in the EU15, as Figure 11 shows.

5.1. Costs of non-voting

Another line of evidence can be found in the budget allocations that were made to non-voting EU members. This sounds nonsensical, "non-voting EU members?" but indeed they exist, at least up to 2006. Here's why.

The EU's budgeting process rests on a 7-year plan known as the Financial Perspective. The current one, agreed in 1999, goes up to 2006. Since enlargement became a reality in the

meantime, the EU had to readjust its spending plans. This readjustment was decided by the incumbent 15 yet covers the newcomers as well. Let us see how the 15 treated the non-voting members, i.e. the 10 new members who are to be covered by the plan from mid-2004 to late 2006.

Cohesion and CAP cash for the newcomers

At the Copenhagen European Council meeting in 2002, EU leaders set down indicative amounts of aid for each of the 10 newcomers. This allows us to see how non-voting members fair in the budget process.

Figure 12: Cohesion spending and income levels, EU15 vs CC10

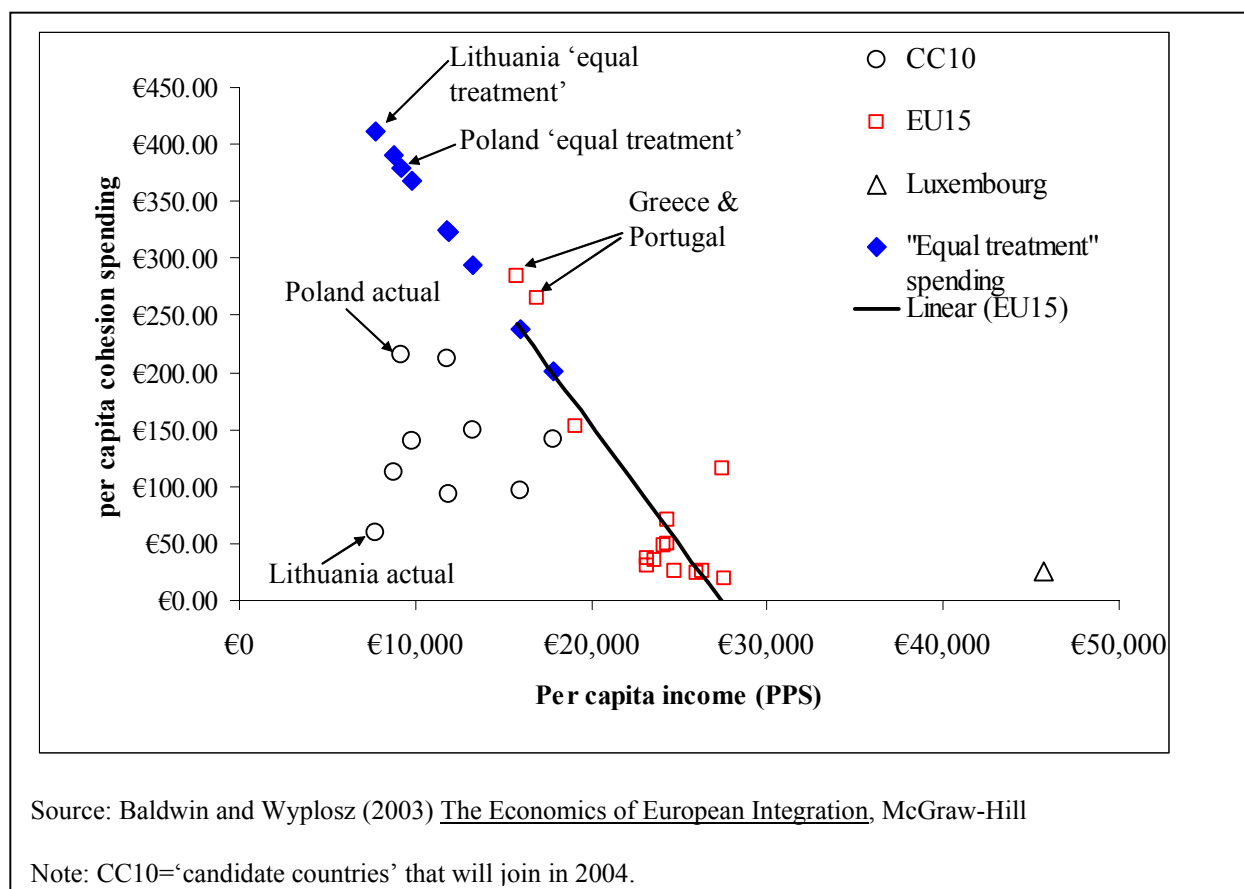


Figure 12 shows cohesion cash per capita on the vertical axis and the income per capita on the horizontal axis for the EU25. While the average annual allocations for the newcomers are not low compared to the EU15 as a whole, but they are lower than what is allocated to the poorest incumbent members, Greece and Portugal (both of which are far richer than the newcomers). More to the point, the allocations are much lower than might be expected, if the statistical relationship between spending and per capita income that holds among the incumbent 15 were applied to the newcomer 10. How much lower?

The line in the figure shows how cohesion-cash-per-person and per-capita-income are statistically related in the EU15 (Luxembourg's extraordinarily high income makes it an outlier, so we exclude it when fitting the cash-income line). As expected, there is a negative correlation between cohesion-cash-per-person and income-per-person. By extending this line, we can conjecture as to what might be called the 'equal treatment' cohesion-cash-per-person allocation.

To illustrate this point, the diagram plots the "equal treatment" cohesion-cash-per-person that is predicted by the trend line. To be concrete, Lithuania (the poorest of the newcomers) and Poland (the biggest of the newcomers) are identified explicitly. The trend line suggests that Poland would have gotten €380 per person under "equal treatment" instead of just €214. This is a lot of money; with 38 million Poles, the below-par treatment means Poland receives about 6 billion euros less than predicted by the statistical relationship that holds in the EU15. Lithuania would have received €411 instead of the €69 it was actually allocated.

There may be many explanations for this 'below the line' treatment of the newcomers. It is a fair bet, however, that this would not have been the outcome, if the allocation had been made while each of the 10 newcomers had voting rights in the Council of Ministers and a Commissioner at the drafting table.

So much for structural spending, which accounts for about a third of the EU budget. What about CAP spending that accounts for almost half the budget?

CAP spending allocation to non-voting EU members

The same 2002 Copenhagen summit among the EU15 provided very limited budget resources for the newcomers' farmers. The agreement stipulated that CAP spending the ten new member nations can be no more than €3.7 billion in their first full year of membership, 2005, rising to €4.1 billion in 2006. This implies CAP spending per-newcomer-farm is just €172 apiece – far, far below the EU15 average of €5,000 per farm.

It must be said that many experts believe that the newcomers' farms are not ready to meet the quality standards that the CAP now imposes as a condition for payments.⁹ But then again, CAP rules are continuously changed to reflect political realities in the Council of Ministers. For example, CAP spending on fruits and vegetables was negligible – even in Southern Italy and Southern France – until the Council votes of newcomers Spain, Portugal and Greece made this spending a political priority. From this perspective, the backward state of agriculture in many newcomer nations suggests that there are plenty of things to spend CAP money on. It is a good bet that CAP spending priorities will change in the EU25. But more to the point, one must ask: would the EU have allocated only 172 euros to the average newcomer farmer if the newcomers had had voting rights when the allocation was made? The answer to this rhetorical question illustrates our basic point – voting rules matters.

⁹ Swinnen, J. (2002), Towards a Sustainable European Agricultural Policy for the 21st Century, CEPS Task Force Report No. 42, Brussels.

Appendix B

Data for Figure 5

	Giscard 60-50	No Reform	Nice Rules	Power shift: Giscard vs Current	Power shift: Giscard vs Nice
Germany	12.8%	7.0%	7.8%	5.8%	5.0%
UK	9.1%	7.0%	7.8%	2.2%	1.3%
France	9.1%	7.0%	7.8%	2.1%	1.3%
Italy	8.9%	7.0%	7.8%	1.9%	1.1%
Spain	6.4%	5.9%	7.4%	0.6%	-1.0%
Poland	6.3%	5.9%	7.4%	0.5%	-1.1%
Romania	4.2%	4.6%	4.3%	-0.4%	-0.1%
Netherlands	3.3%	3.8%	4.0%	-0.5%	-0.6%
Greece	2.7%	3.8%	3.7%	-1.1%	-1.0%
Czech Republic	2.7%	3.8%	3.7%	-1.2%	-1.0%
Belgium	2.7%	3.8%	3.7%	-1.2%	-1.0%
Hungary	2.7%	3.8%	3.7%	-1.2%	-1.0%
Portugal	2.6%	3.8%	3.7%	-1.2%	-1.0%
Sweden	2.5%	3.1%	3.1%	-0.6%	-0.6%
Bulgaria	2.4%	3.1%	3.1%	-0.7%	-0.7%
Austria	2.4%	3.1%	3.1%	-0.7%	-0.7%
Slovakia	2.1%	2.4%	2.2%	-0.3%	-0.1%
Denmark	2.1%	2.4%	2.2%	-0.3%	-0.1%
Finland	2.0%	2.4%	2.2%	-0.3%	-0.1%
Ireland	1.9%	2.4%	2.2%	-0.5%	-0.3%
Lithuania	1.9%	2.4%	2.2%	-0.5%	-0.3%
Latvia	1.7%	2.4%	1.3%	-0.7%	0.4%
Slovenia	1.6%	2.4%	1.3%	-0.7%	0.4%
Estonia	1.6%	2.4%	1.3%	-0.8%	0.3%
Cyprus	1.5%	1.6%	1.3%	-0.1%	0.2%
Luxemburg	1.4%	1.6%	1.3%	-0.1%	0.2%
Malta	1.4%	1.6%	0.9%	-0.1%	0.5%

Data for Figure 6

	Power Change: Dual vs Nice					Power Change: Dual vs status quo			
	2/3-50	50-50	50-60	60-60		2/3-50	50-50	50-60	60-60
Germany	6.0%	1.6%	-2.8%	-0.8%	Germany	6.8%	2.5%	-2.0%	0.0%
UK	2.6%	-0.8%	-3.3%	-2.2%	UK	3.4%	0.1%	-2.5%	-1.3%
France	2.5%	-0.8%	-3.3%	-2.2%	France	3.4%	0.0%	-2.5%	-1.4%
Italy	2.3%	-0.9%	-3.3%	-2.3%	Italy	3.1%	-0.1%	-2.5%	-1.4%
Spain	-0.3%	-2.1%	-3.4%	-2.8%	Spain	1.2%	-0.5%	-1.8%	-1.2%
Poland	-0.5%	-2.2%	-3.4%	-2.8%	Poland	1.1%	-0.6%	-1.8%	-1.2%
Romania	0.3%	-0.2%	-0.5%	-0.4%	Romania	0.0%	-0.5%	-0.8%	-0.7%
Netherlands	-0.6%	-0.5%	-0.3%	-0.4%	Netherlands	-0.4%	-0.3%	-0.2%	-0.3%
Greece	-1.1%	-0.6%	-0.1%	-0.3%	Greece	-1.3%	-0.7%	-0.3%	-0.5%
Czech Rep.	-1.2%	-0.6%	-0.1%	-0.3%	Czech Rep.	-1.3%	-0.8%	-0.3%	-0.5%
Belgium	-1.2%	-0.6%	-0.1%	-0.3%	Belgium	-1.3%	-0.8%	-0.3%	-0.5%
Hungary	-1.2%	-0.6%	-0.1%	-0.4%	Hungary	-1.3%	-0.8%	-0.3%	-0.5%
Portugal	-1.2%	-0.6%	-0.1%	-0.4%	Portugal	-1.4%	-0.8%	-0.3%	-0.5%
Sweden	-0.8%	-0.1%	0.4%	0.2%	Sweden	-0.8%	-0.1%	0.4%	0.2%
Bulgaria	-0.9%	-0.2%	0.4%	0.2%	Bulgaria	-0.9%	-0.2%	0.4%	0.1%
Austria	-0.9%	-0.2%	0.4%	0.1%	Austria	-0.9%	-0.2%	0.4%	0.1%
Slovakia	-0.5%	0.5%	1.3%	0.9%	Slovakia	-0.6%	0.3%	1.1%	0.8%
Denmark	-0.5%	0.5%	1.3%	0.9%	Denmark	-0.6%	0.3%	1.1%	0.8%
Finland	-0.5%	0.5%	1.3%	0.9%	Finland	-0.7%	0.3%	1.1%	0.8%
Ireland	-0.7%	0.4%	1.3%	0.9%	Ireland	-0.9%	0.2%	1.1%	0.7%
Lithuania	-0.7%	0.4%	1.3%	0.9%	Lithuania	-0.9%	0.2%	1.1%	0.7%
Latvia	0.0%	1.2%	2.2%	1.7%	Latvia	-1.1%	0.1%	1.1%	0.6%
Slovenia	-0.1%	1.2%	2.2%	1.7%	Slovenia	-1.2%	0.1%	1.1%	0.6%
Estonia	-0.2%	1.1%	2.2%	1.7%	Estonia	-1.3%	0.0%	1.1%	0.6%
Cyprus	-0.3%	1.1%	2.1%	1.7%	Cyprus	-0.6%	0.8%	1.8%	1.3%
Luxemburg	-0.3%	1.1%	2.1%	1.7%	Luxemburg	-0.7%	0.7%	1.8%	1.3%
Malta	0.0%	1.4%	2.4%	2.0%	Malta	-0.7%	0.7%	1.8%	1.3%
STDEV	0.0%	1.0%	2.0%	1.4%	STDEV	0.0%	0.7%	1.4%	0.9%

NBIs and passage probabilities for 11 duals in the EU27

	50-50	50-60	50-70	60-50	60-60	60-70	70-50	70-60	70-70	62-50	66.67-50
Germany	0.0941	0.0497	0.0402	0.1277	0.0699	0.0499	0.1383	0.0908	0.0660	0.1333	0.1377
UK	0.0701	0.0450	0.0391	0.0910	0.0561	0.0441	0.1082	0.0724	0.0542	0.0949	0.1036
France	0.0698	0.0449	0.0390	0.0906	0.0560	0.0440	0.1077	0.0721	0.0541	0.0945	0.1031
Italy	0.0687	0.0446	0.0390	0.0888	0.0552	0.0438	0.1056	0.0709	0.0535	0.0926	0.1009
Spain	0.0533	0.0406	0.0380	0.0642	0.0466	0.0407	0.0779	0.0555	0.0447	0.0657	0.0710
Poland	0.0525	0.0405	0.0380	0.0634	0.0463	0.0405	0.0766	0.0546	0.0443	0.0647	0.0694
Romania	0.0402	0.0378	0.0372	0.0418	0.0389	0.0376	0.0440	0.0412	0.0388	0.0424	0.0458
Netherlands	0.0350	0.0365	0.0368	0.0335	0.0359	0.0363	0.0336	0.0354	0.0357	0.0337	0.0341
Greece	0.0309	0.0356	0.0366	0.0271	0.0335	0.0355	0.0247	0.0309	0.0339	0.0266	0.0256
Czech Republic	0.0308	0.0355	0.0366	0.0269	0.0334	0.0355	0.0244	0.0307	0.0338	0.0263	0.0253
Belgium	0.0307	0.0355	0.0366	0.0267	0.0333	0.0355	0.0242	0.0306	0.0337	0.0262	0.0251
Hungary	0.0306	0.0355	0.0366	0.0266	0.0333	0.0355	0.0240	0.0306	0.0337	0.0260	0.0250
Portugal	0.0305	0.0355	0.0366	0.0265	0.0333	0.0355	0.0238	0.0305	0.0337	0.0259	0.0248
Sweden	0.0296	0.0353	0.0366	0.0250	0.0327	0.0353	0.0218	0.0294	0.0332	0.0243	0.0228
Bulgaria	0.0292	0.0352	0.0365	0.0243	0.0325	0.0352	0.0207	0.0289	0.0330	0.0234	0.0219
Austria	0.0291	0.0352	0.0365	0.0241	0.0324	0.0352	0.0206	0.0288	0.0330	0.0233	0.0217
Slovakia	0.0269	0.0347	0.0364	0.0206	0.0312	0.0348	0.0157	0.0264	0.0319	0.0195	0.0171
Denmark	0.0269	0.0347	0.0364	0.0206	0.0312	0.0348	0.0157	0.0264	0.0319	0.0195	0.0171
Finland	0.0268	0.0347	0.0364	0.0204	0.0311	0.0348	0.0153	0.0263	0.0318	0.0192	0.0168
Ireland	0.0257	0.0344	0.0364	0.0186	0.0305	0.0347	0.0129	0.0251	0.0313	0.0173	0.0145
Lithuania	0.0257	0.0344	0.0364	0.0186	0.0305	0.0347	0.0129	0.0251	0.0313	0.0173	0.0145
Latvia	0.0247	0.0342	0.0364	0.0170	0.0299	0.0345	0.0106	0.0239	0.0308	0.0155	0.0123
Slovenia	0.0244	0.0342	0.0363	0.0165	0.0297	0.0344	0.0099	0.0236	0.0307	0.0150	0.0117
Estonia	0.0239	0.0341	0.0363	0.0157	0.0295	0.0344	0.0089	0.0230	0.0305	0.0141	0.0107
Cyprus	0.0234	0.0340	0.0363	0.0149	0.0292	0.0343	0.0077	0.0224	0.0302	0.0132	0.0095
Luxemburg	0.0232	0.0339	0.0363	0.0145	0.0290	0.0343	0.0071	0.0222	0.0301	0.0128	0.0090
Malta	0.0232	0.0339	0.0363	0.0145	0.0290	0.0343	0.0071	0.0222	0.0301	0.0128	0.0090
Passage probability	0.3575	0.1114	0.0253	0.2190	0.0854	0.0224	0.0923	0.0478	0.0156	0.1909	0.1293

NBIs and passage probabilities for 9 duals in the EU25

	70-70	70-60	70-50	60-70	60-60	60-50	50-70	50-60	50-50
Germany	6.665%	10.770%	14.455%	5.095%	8.762%	13.359%	4.287%	6.293%	10.151%
UK	5.567%	8.728%	11.380%	4.633%	6.840%	9.524%	4.191%	5.404%	7.454%
France	5.552%	8.691%	11.333%	4.627%	6.816%	9.483%	4.189%	5.391%	7.426%
Italy	5.498%	8.529%	11.123%	4.599%	6.713%	9.305%	4.181%	5.335%	7.305%
Spain	4.601%	6.486%	8.295%	4.343%	5.383%	6.852%	4.082%	4.590%	5.671%
Poland	4.559%	6.343%	8.144%	4.326%	5.350%	6.792%	4.080%	4.559%	5.583%
Netherlands	3.871%	3.812%	3.474%	3.951%	3.785%	3.587%	3.984%	3.937%	3.745%
Greece	3.691%	3.199%	2.640%	3.867%	3.458%	2.927%	3.963%	3.748%	3.331%
Czech Republic	3.684%	3.175%	2.606%	3.864%	3.445%	2.902%	3.962%	3.742%	3.315%
Belgium	3.682%	3.163%	2.589%	3.863%	3.440%	2.890%	3.961%	3.738%	3.307%
Hungary	3.679%	3.151%	2.572%	3.862%	3.433%	2.877%	3.960%	3.735%	3.299%
Portugal	3.675%	3.139%	2.556%	3.860%	3.426%	2.864%	3.960%	3.731%	3.291%
Sweden	3.640%	2.996%	2.349%	3.842%	3.349%	2.712%	3.956%	3.691%	3.195%
Austria	3.621%	2.913%	2.230%	3.832%	3.305%	2.625%	3.952%	3.667%	3.138%
Slovakia	3.530%	2.574%	1.740%	3.796%	3.119%	2.263%	3.944%	3.577%	2.913%
Denmark	3.530%	2.574%	1.740%	3.796%	3.119%	2.263%	3.944%	3.577%	2.913%
Finland	3.524%	2.550%	1.706%	3.795%	3.107%	2.238%	3.943%	3.570%	2.897%
Ireland	3.484%	2.380%	1.460%	3.777%	3.017%	2.059%	3.938%	3.524%	2.784%
Lithuania	3.484%	2.380%	1.460%	3.777%	3.017%	2.059%	3.938%	3.524%	2.784%
Latvia	3.446%	2.225%	1.237%	3.761%	2.928%	1.888%	3.935%	3.482%	2.677%
Slovenia	3.432%	2.172%	1.162%	3.757%	2.903%	1.838%	3.934%	3.470%	2.647%
Estonia	3.413%	2.096%	1.058%	3.752%	2.865%	1.761%	3.931%	3.451%	2.598%
Cyprus	3.396%	2.010%	0.932%	3.745%	2.820%	1.671%	3.930%	3.428%	2.543%
Luxemburg	3.388%	1.972%	0.880%	3.741%	2.800%	1.631%	3.929%	3.418%	2.518%
Malta	3.388%	1.972%	0.880%	3.741%	2.800%	1.631%	3.929%	3.418%	2.518%
Passage probability	1.392%	6.982%	10.164%	1.896%	13.055%	22.480%	2.105%	17.911%	35.491%

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