THE DRAFT CONSTITUTIONAL TREATY'S
VOTING REFORM DILEMMA

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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.

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 four largest EU members at the expense of Spain, Poland and many small members). Indeed, Giscard's system is so impolitic that any draft 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 draft Constitutional Treaty at risk, but failing to agree an alternative voting scheme risks decision-making paralysis.

In this policy brief, we summarise the findings of our research that uses the quantitative tools of voting game theory to show:

- Why Giscard's scheme is politically unacceptable to many nations; and

- How various modified voting rules may 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% respectively would go a very long way to reducing the concentration of power in the hands of the four largest nations ('Big-four'), yet still maintain the EU's ability to act; a ratio of 50%-50% would also work. Second, if the IGC decides to stay with the Nice Treaty's triple-majority voting system, modestly lowering two of the three majority thresholds would maintain efficiency without further shifting power to big nations.[1]

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[1] The full analysis can be retrieved from http://heiwww.unige.ch/~baldwin/.

Before turning to possible solutions, the first task is to show that the Nice voting reforms will not work, and, in the process, to show why Spain and Poland are so attached to the Nice system.

Nice reforms will not work

The Treaty of Nice radically reformed the Council of Ministers' voting rules.[2] These changes will come into effect in November 2004 unless the current IGC agrees otherwise. The Nice Treaty's main goal was to implement reforms that would allow an enlarged EU to operate efficiently and legitimately. It failed on this score. In fact, when it comes to Council voting, the Nice reforms made things worse. But how can one demonstrate such a thing?

Capacity to act

'Capacity to act' and 'decision-making efficiency' are slippery concepts. There is, however, a quantitative tool in voting game theory that 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.
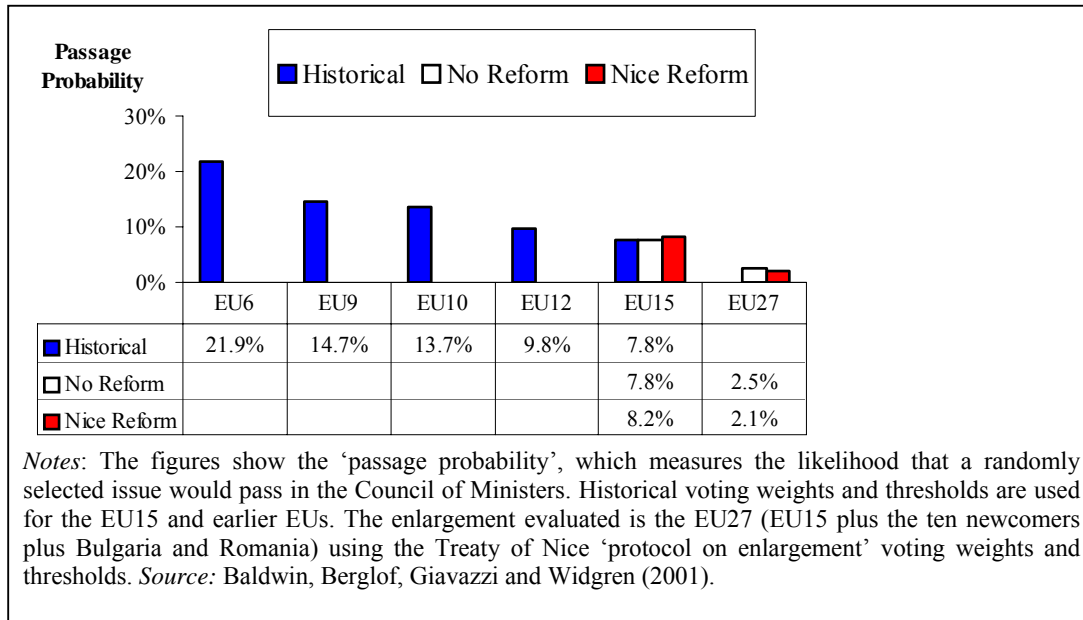
First, the computer calculates all possible coalitions among EU members, namely every possible combination of yes- and no-votes by EU members (there are 134 million possible coalitions in the EU27). Then the computer checks each coalition to see if it is a winning coalition under the Nice voting system; 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 (random in the sense that member states do not know what their stance would be). Admittedly, this is a crude measure, but it is objective, precise and its strengths and shortcomings are clear.

Even if the exact passage probability is meaningless (the Commission does not put forth random proposals), Figure 1 shows that the Nice Treaty 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 high threshold of the Nice rules for Council votes. A second, cruder but more transparent efficiency-measuring tool – i.e. blocking-minority analysis – confirms these efficiency findings.[3]

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[2] Legally, the Accession Treaty implements the voting system agreed politically in the Nice Treaty.

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

Figure 1. Efficiency of the reforms agreed at Nice in perspective

Passage Probability	EU6	EU9	EU10	EU12	EU15	EU27
■ Historical	21.9%	14.7%	13.7%	9.8%	7.8%	
□ No Reform					7.8%	2.5%
■ Nice Reform					8.2%	2.1%

Notes: The figures show the 'passage probability', which measures the likelihood that a randomly selected issue would pass in the Council of Ministers. Historical voting weights and thresholds are used for the EU15 and earlier EUs. The enlargement evaluated is the EU27 (EU15 plus the ten newcomers plus Bulgaria and Romania) using the Treaty of Nice 'protocol on enlargement' voting weights and thresholds. *Source:* Baldwin, Berglof, Giavazzi and Widgren (2001).

Interestingly, the Nice rules do maintain efficiency in the EU15; maybe this is what the EU15 leaders had in mind when they agreed the Nice reforms.

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 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.[4]

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.
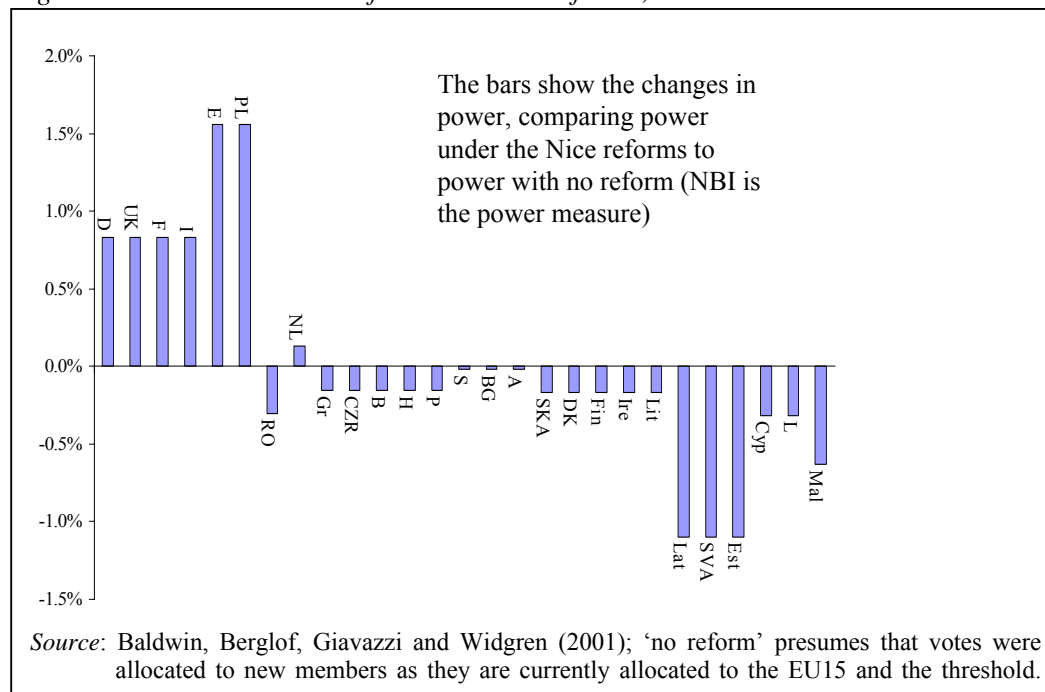
The diagram shows two critical points:

1. The Nice reforms 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.

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[4] See Baldwin, R., E. Berglof, F. Giavazzi and M. Widgren (2001), op. cit., for details and simple numerical examples.

Indeed, with the Nice reforms, Spain and Poland are set to become almost as powerful as Germany, even though they have only half of Germany's population. To be specific, their NBIs are 7.4% while that of Germany is 7.8%; the Netherlands's is 4%.[5]

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

The bars show the changes in power, comparing power under the Nice reforms to power with no reform (NBI is the power measure)

Source: Baldwin, Berglof, Giavazzi and Widgren (2001); 'no reform' presumes that votes were allocated to new members as they are currently allocated to the EU15 and the threshold.

Given the extraordinary gains won by Spain and Poland in the Nice reforms, one understands why they are fighting so hard to preserve the Nice voting system. Having shown that the IGC's fallback option is unworkable, yet very attractive to certain nations, we turn to see if there are other schemes that would maintain the EU's ability to act without unnecessarily shifting power.

Evaluation of various double-majority rules

Giscard's draft Constitutional 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 the IGC 2000, 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.

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[5] See our background study for further details (retrievable from http://heiwww.unige.ch/~baldwin/).

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, namely one twenty-fifth in the EU25, one twenty-seventh 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.
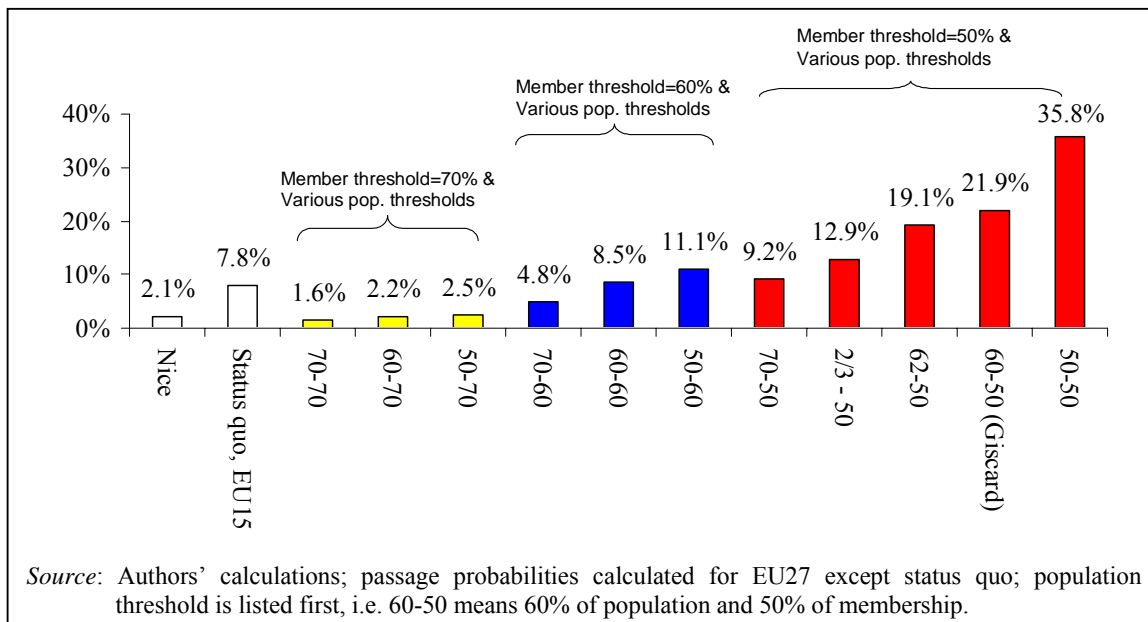
Passage probability for ten duals: the EU's capacity to act

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. 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 it reduces by 7 percentage points. (This feature of voting systems is well-known to voting theorists.)

Figure 3. Passage probabilities, 11 different dual-majority schemes

Source: Authors' calculations; passage probabilities calculated for EU27 except status quo; population threshold is listed first, i.e. 60-50 means 60% of population and 50% of membership.

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, the population weighting of votes puts 75% of the votes in the hands of just six nations (the Big-six 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.

Further enlargements

The draft 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 result 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 the number of winning coalitions, 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 consequence suggests that the 50-50, or double-simple majority in plain English, may 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 the IGC 2000. One reason may be that it is just too efficient for the members' tastes. As we argued in our August 2003 essay, improved efficiency shifts a great deal of power from the Council to the Commission and, to a lesser extent, to the Parliament.[6] 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 are passed.[7] Below we also explore one political difficulty that may explain this resistance to the 50-50 scheme.

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[6] Baldwin and Widgren (2003), *Decision-making and the Constitutional Treaty: Will the IGC discard Giscard?*, CEPS Policy Brief No. 37, CEPS, Brussels, August (retrievable from www.ceps.be).

[7] See Napel and Widgren (2003), *EU Conciliation Committee: Council 56 versus Parliament 6*, CEPR Discussion Paper 4071, for details of the argument.

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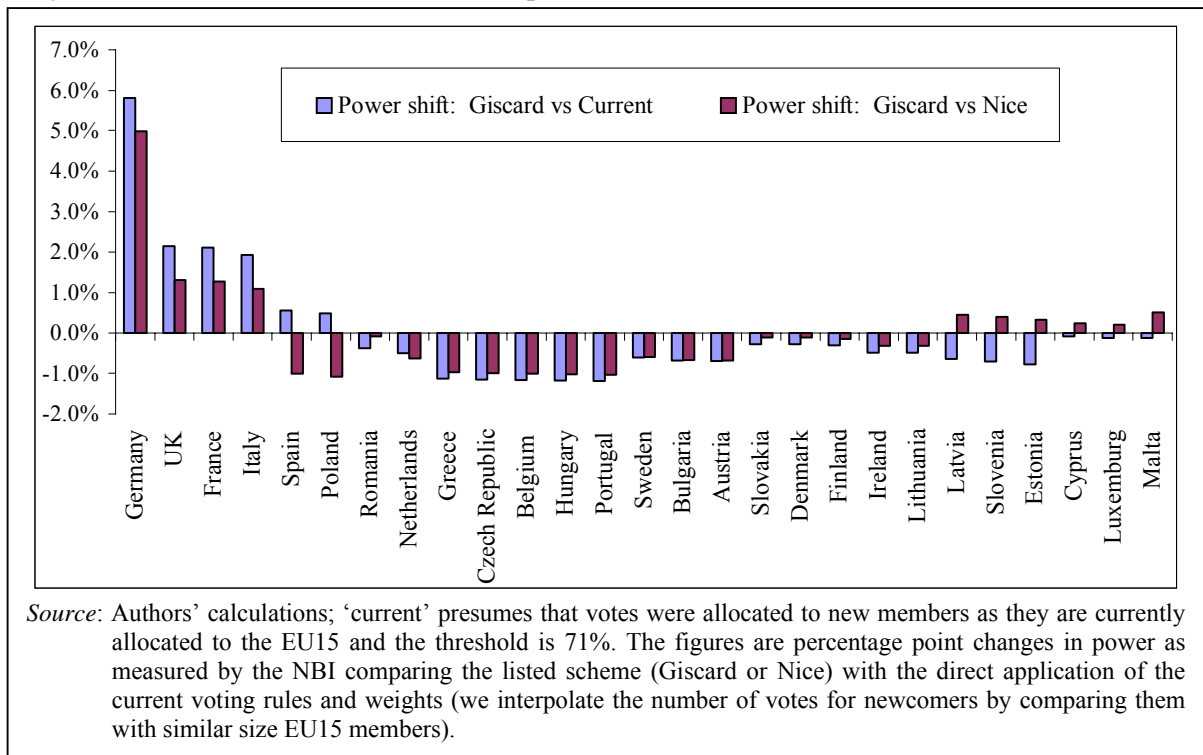
Muscles in Brussels: the power implications

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? The Nice Treaty 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 argument 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.

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

Three results in Figure 4 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 individual power changes for the Big-six shows a 13 percentage point gain under Giscard's plan versus the current EU15 system. For the Nice plan, the equivalent was only 6.6 percentage points.

Figure 4. Giscard and Nice vs. the status quo

Source: Authors' calculations; 'current' presumes that votes were allocated to new members as they are currently allocated to the EU15 and the threshold is 71%. The figures are percentage point changes in power as measured by the NBI comparing the listed scheme (Giscard or Nice) with the direct application of the current voting rules and weights (we interpolate the number of votes for newcomers by comparing them with similar size EU15 members).

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.

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

3. Compared with the power loss they faced under the Nice Treaty (again taking the current voting rules as the baseline), the medium-sized nations – those with around ten 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.

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 the Nice Treaty and with respect to an extension of the current system (since this is widely viewed as fair). The results are illustrated in Figure 5 and Figure 6.

Three findings are especially noteworthy:

1. The 'uneven' thresholds, 60-50 and 50-60, produce more dramatic shifts in power when compared with either 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.

2. More precisely, 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 effect is especially true when taking the Nice Treaty as the baseline, 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 of 50-50, 1.4% for 50-60 and 0.9% for 60-60.

Duals of 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 four 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.

Figure 5. Power changes: various dual majority schemes vs. Nice

Source: Authors' calculations.
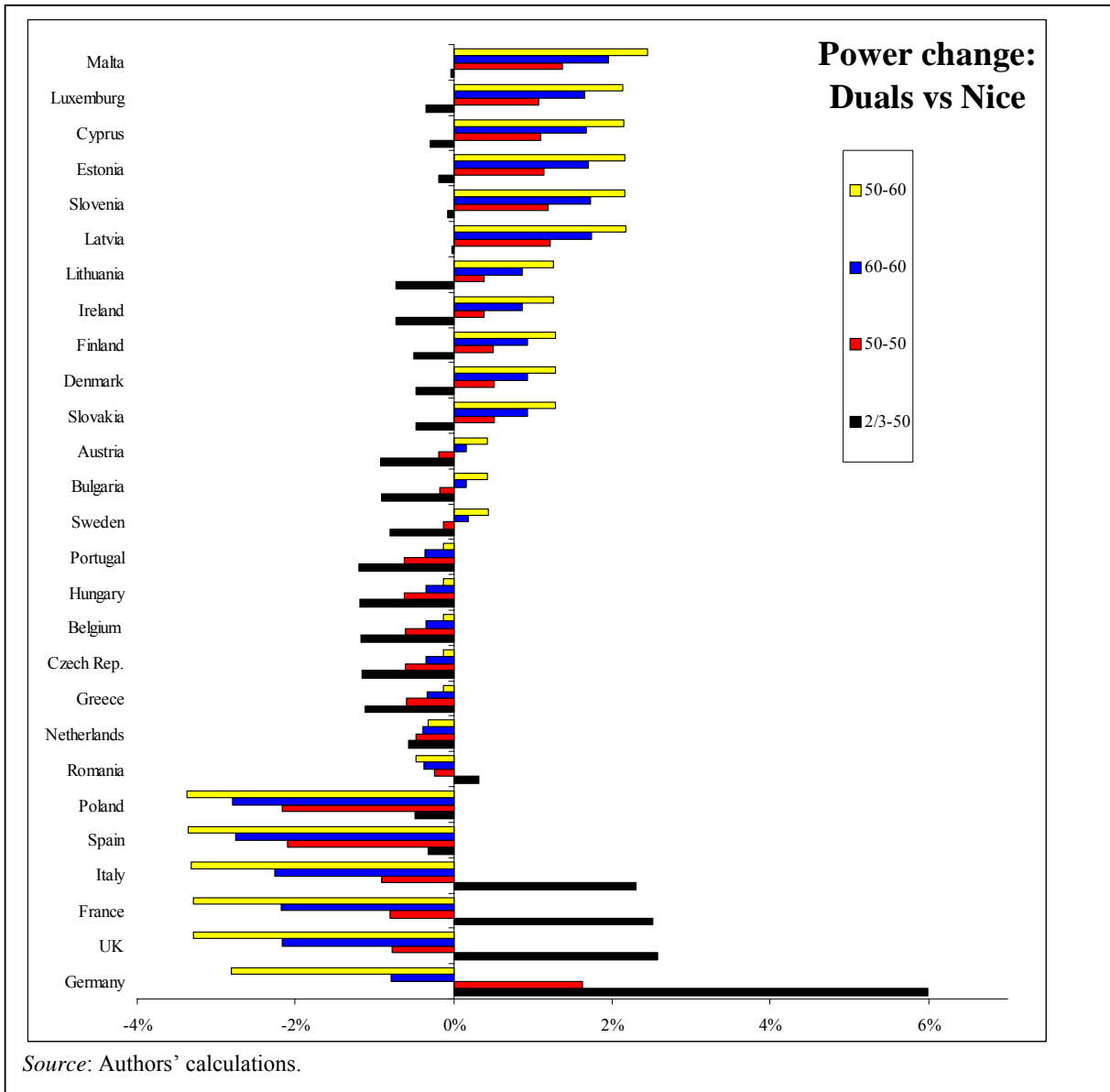
We note that the 'least change' system is the 50-50 dual-majority. And it has a passage probability that is even higher than Giscard's 60-50 scheme. A quick look at the figures may reveal why the EU15 rejected this natural, sensible and widely used system in IGC 1996 and IGC 2000. Under 50-50, most members experience only a very small change in their power compared with 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-four 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.

Figure 6. Power changes: various dual majority schemes vs. status quo

Source: Authors' calculations; status quo assumes the unreformed EU15 voting system is extended to EU27 (votes are allocated to newcomers as they are now to EU15 members and threshold held at 71%).
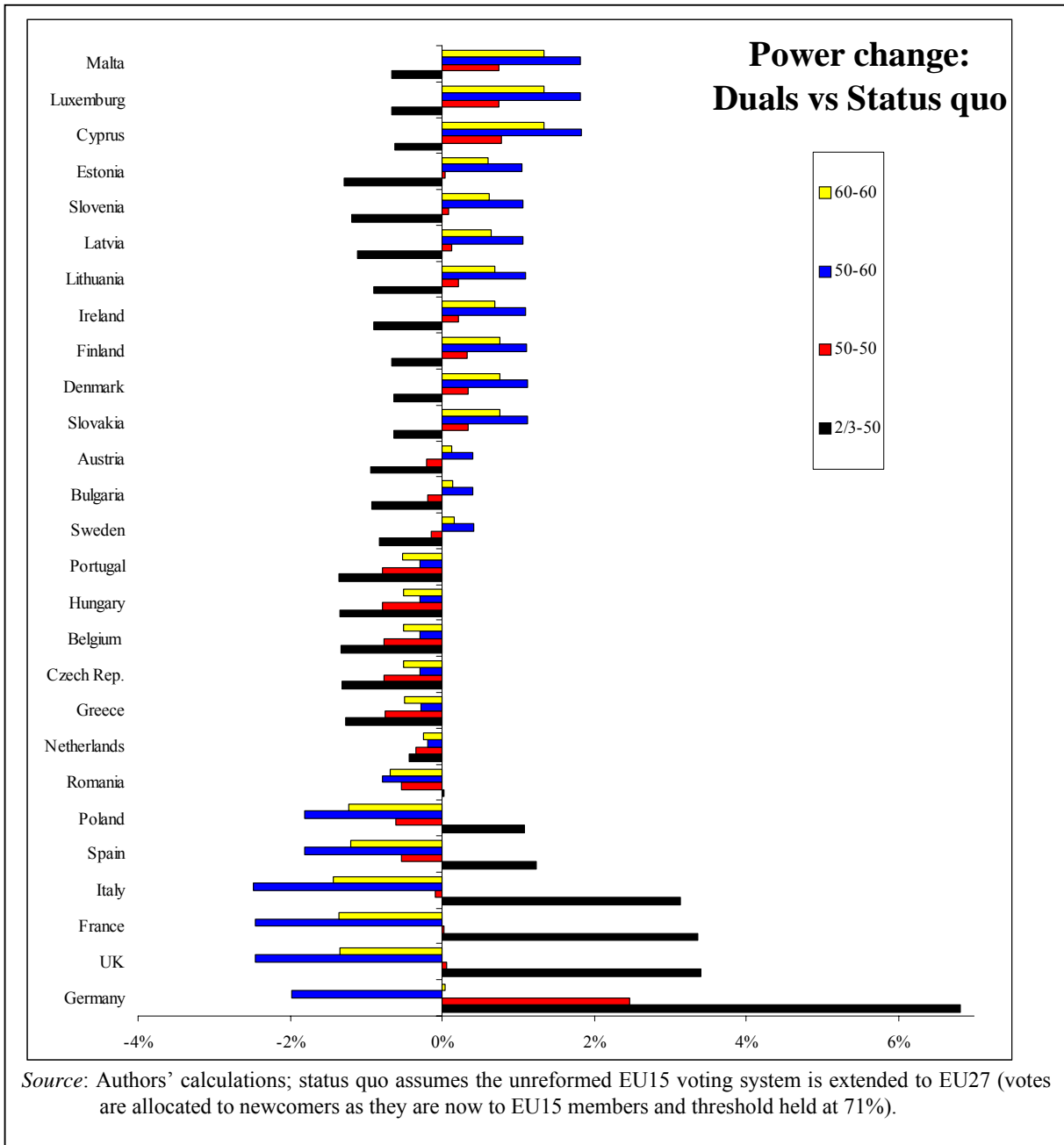
We turn next to providing intuition for the link between majority thresholds and the distribution of power.

Intuition for why thresholds affect the power distribution

Figure 5 shows that playing with majority thresholds has important implications for the distribution of power. Here we provide intuition for this result.

As mentioned above, the best way to think of a dual-majority system is 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 such as Estonia. Its population share is just three-tenths of 1%, but its membership share is one twenty-seventh or 3.7%, so for Estonia, the member-share weight is the most important determinant of its power. 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 (nine-hundredths of 1% in the EU27) would almost never matter. (Nevertheless, power shares must add to 100% so a gain to Germany must imply a loss to others.)
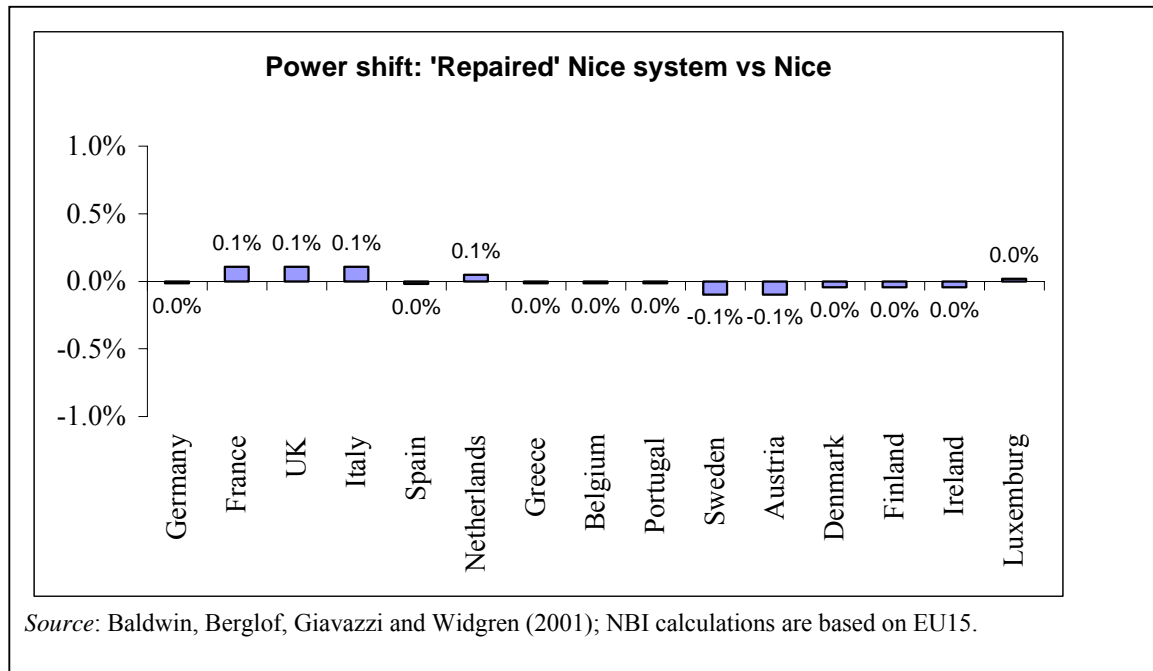
Next, do the same thought experiment but start at the other extreme. Suppose the population threshold were 50% but the membership threshold were 97%. With such a threshold, any member could break any winning coalition, so they would all be equally powerful. Lowering the 97% to, say, 70% would reduce the significance of every nation's membership-share weight. Yet 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 result 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 medium-sized nations, changing the thresholds has less impact. For example, a nation with 10 million citizens 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 one twenty-seventh of the EU27 population, i.e. 17.8 million.

Fixing the Nice voting reforms

Dual-majority systems have the great merit of simplicity and 'communicability'; the sort of thing schoolchildren could understand. That being 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 point leads us to our next question. Can the most noxious aspects of the Nice system be fixed?

Figure 7. Power effects of 'repairing' the Nice system

Power shift: 'Repaired' Nice system vs Nice

Source: Baldwin, Berglof, Giavazzi and Widgren (2001); NBI calculations are based on EU15.

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:[8]

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 two-thirds and changed nothing else, the efficiency of the EU27 Council would rise to roughly the level it was in the EU12, or to be precise, 14.1%. 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.

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. Although this further loss of power for small nations would be hard to swallow, at least their power sacrifice would buy EU efficiency. The second change would help redress the additional small-country power loss.

If in addition to lowering the threshold to two-thirds 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 Figure 7 shows, the power shift for this would be much smaller. None of the countries would gain or lose more than a tenth of a percentage point of power compared with the Nice rules, including Spain. As usual, one should not confuse precision and accuracy, but as a rough

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[8] These were first proposed in Baldwin, R., E. Berglof, F. Giavazzi and M. Widgren (2001), op. cit.

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 away from small nations.

Other voting reforms

The IGC 2000 considered other Council voting reforms based on re-weighting and unusual double-majority systems.[9] These were fully discussed by EU15 members during the conference and we evaluated these in terms of efficiency and power in our pre-Nice paper.[10] None of them maintains EU decision-making capacity so we do not consider them further.

Concluding remarks

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

In this policy brief, we suggest that two variants of Giscard's 60-50 dual-majority system may solve the IGC's voting reform dilemma – ensuring the EU's ability to make decisions while not excessively changing the power distribution. These are a 60-60 dual-majority, or better yet, a 50-50 rule.

Alternatively, if the on-going IGC finds it impossible to abandon the Nice Treaty's triple-majority system and its particular voting weights, we suggest 'emergency repairs' that would correct the most pernicious aspects of the Nice voting rules. The specific reforms would be to lower the Nice Treaty's threshold on votes to two-thirds and its threshold on population to 50%. These changes would be enough to maintain the EU's ability to act.

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[9] See, for example, the 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).

[10] Baldwin, R., E. Berglof, F. Giavazzi and M. Widgren (2000), *Reforms for tomorrow's Europe*, CEPR Discussion Paper 2623, London (retrievable from www.cepr.org).

Postscript: The Turkey Question & Its Implications for QMV Reforms
7 December 2003[*]

If press reports are to be believed, reforming the EU's qualified majority voting is one of the last potential 'deal breakers' left on the table at the EU's ongoing IGC. Our recent research (the present paper and the background study cited in footnote 1) has sought to inform the debate by providing some objective measures of the various voting systems' likely performance, their power and efficiency implications in particular.

In our November 2003 essay, we looked only at the EU27, but the question of Turkey's eventual membership has, it seems, become an important issue. This short update to our November 2003 essay shows the numbers for the EU27 plus Turkey. Readers who are not familiar with the tools of voting theory may want to read our earlier work first.

Efficiency implications

Turkey's membership would have only moderate implications for the passage probabilities as Figure 8 shows. This is not surprising since moving from 27 members to 28 does not change much and Turkey's large population means it does little to damage efficiency. (Efficiency, if not legitimacy, tends to be higher when a large share of power is in the hands of just a few nations.)

As usual, the Nice rules – which are essentially unworkable even in the EU27 – become even less viable in an EU28. The 50-50 rule retains its superior efficiency properties, as does the 60-60 dual majority. Indeed, the 60-60 rule has a passage probability that is higher with Turkey than it is without Turkey.[11] For comparison, the figure also shows historical passage probabilities; note that the 60-60 rule's 11% compares favourably with the current 7.8% in the EU15.

Power implications

Turkish membership has a bigger impact on the power distribution, as measured by the 'Normalised Banzhaf Index' (NBI). For instance, if the Nice rules stay in place, Turkey's membership would generally lower the power of all big and moderately big members (see Figure 9). As often happens in power calculations, the results can appear anomalous. For example, Denmark is shown to gain a good deal of power. The reason for this has to do with the exact numbers. As it turns out, Denmark's exact combination of population weight and membership weight makes it critical in many more coalitions in an EU28 than in an EU27. This sort of result shows the importance of avoiding rules that are designed with very specific coalitions in mind. For example, a coalition that would be able to block with 39% of the EU population in the EU27, might lose that power in a EU28.

The full set of numbers is given in Table 1 and Table 2 below.

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[11] The passage probability rises when the number of winning coalitions increases more than the total number of coalitions; Turkey's big population increases the ways of meeting the 60% population threshold.

Figure 8. Passage probabilities for EU27 plus Turkey

Passage Probabilities, EU27 and Turkey

	50-50	50-60	50-70	60-50	60-60	60-70	70-50	70-60	70-70	62-50	66.67-50	Nice
EU27+T	31.9%	19.8%	8.3%	15.1%	11.0%	5.6%	1.7%	1.6%	1.1%	17.3%	11.7%	1.8%
EU27	35.8%	11.1%	2.5%	21.9%	8.5%	2.2%	9.2%	4.8%	1.6%	19.1%	12.9%	2.1%
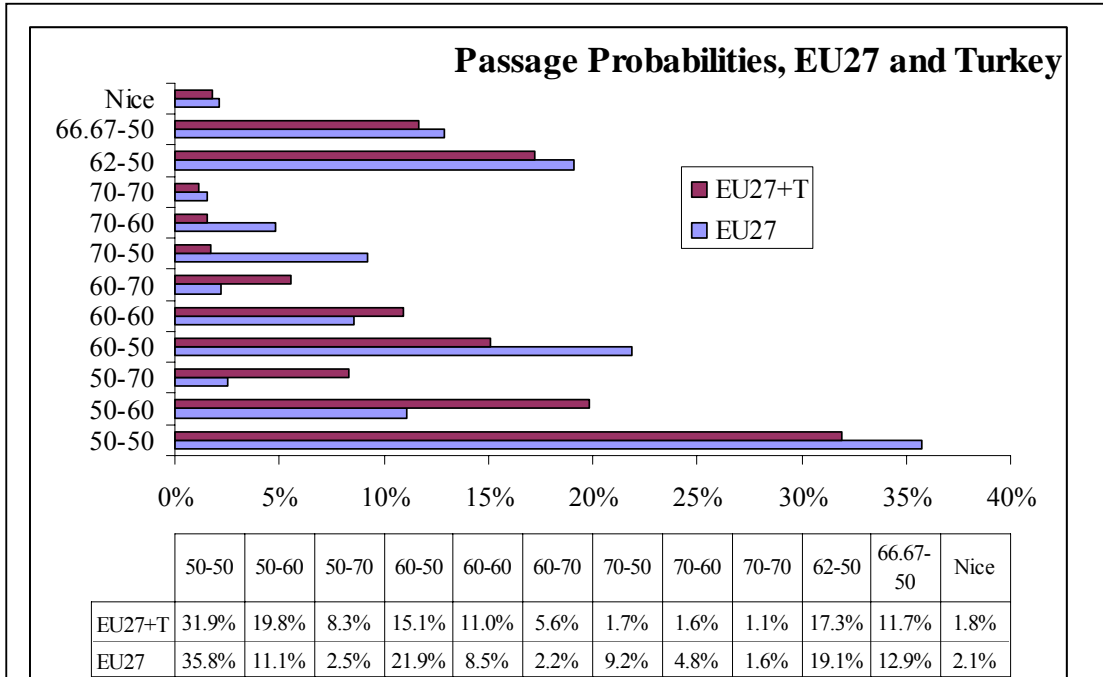
Notes: For the dual majorities, like 62-50, the first number refers to the share of the EU population and the second to the share of EU membership. Under the Nice rules, 29 votes were assigned to Turkey and the QM-rule on votes is 277/374.

Source: Authors' calculations.

Historical Perspective

	EU6	EU9	EU10	EU12	EU15	EU27	EU27+T	EU36
■ Nice Rules					8.2%	2.1%	1.8%	0.9%
□ No Reform					7.8%	2.5%		
■ Historical	21.9%	14.7%	13.7%	9.8%	7.8%			
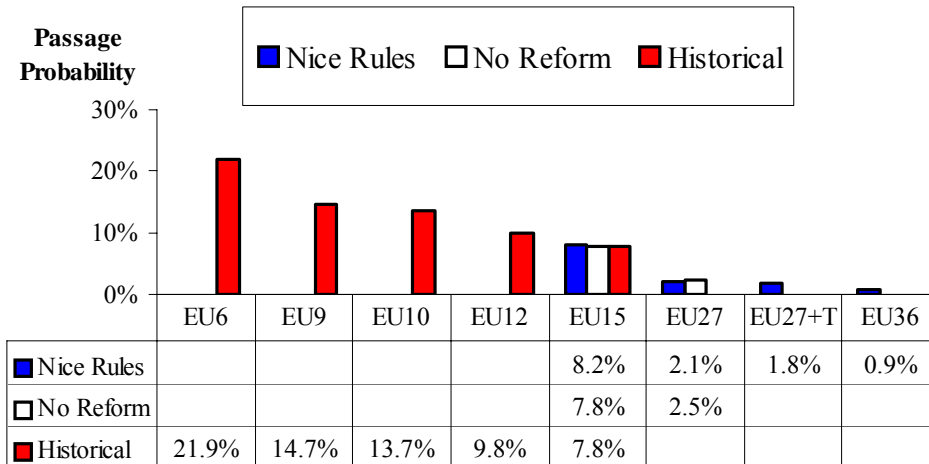
Figure 9. Historical perspective

Notes: This shows the change in power as measured by the Normalised Banzhaf Index (NBI) when Turkey joins the EU27; this assumes Nice rules (see previous figure for details). See table in appendix for exact figures.
Source: Authors' calculations.
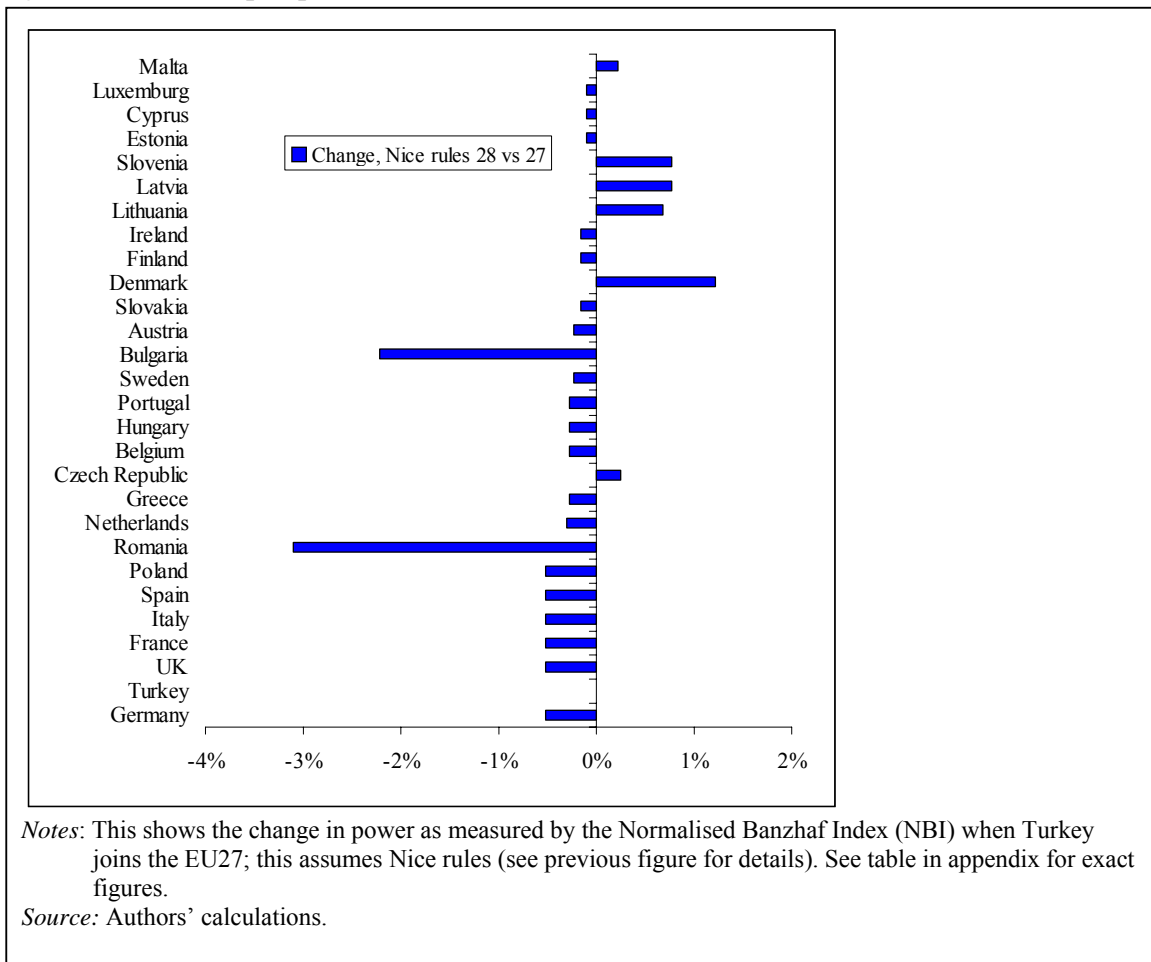
Table 1. NBI's for EU 27 and 28 under Nice rules

	Nice (28)	Nice (27)	Change, Nice rules 28 vs 27
Germany	7.3%	7.8%	-0.5%
Turkey	7.3%		
UK	7.3%	7.8%	-0.5%
France	7.3%	7.8%	-0.5%
Italy	7.3%	7.8%	-0.5%
Spain	6.9%	7.4%	-0.5%
Poland	6.9%	7.4%	-0.5%
Romania	1.2%	4.3%	-3.1%
Netherlands	3.7%	4.0%	-0.3%
Greece	3.4%	3.7%	-0.3%
Czech Republic	3.9%	3.7%	0.3%
Belgium	3.4%	3.7%	-0.3%
Hungary	3.4%	3.7%	-0.3%
Portugal	3.4%	3.7%	-0.3%
Sweden	2.9%	3.1%	-0.2%
Bulgaria	0.9%	3.1%	-2.2%
Austria	2.9%	3.1%	-0.2%
Slovakia	2.0%	2.2%	-0.2%
Denmark	3.4%	2.2%	1.2%
Finland	2.0%	2.2%	-0.2%
Ireland	2.0%	2.2%	-0.2%
Lithuania	2.9%	2.2%	0.7%
Latvia	2.0%	1.3%	0.8%
Slovenia	2.0%	1.3%	0.8%
Estonia	1.2%	1.3%	-0.1%
Cyprus	1.2%	1.3%	-0.1%
Luxemburg	1.2%	1.3%	-0.1%
Malta	1.2%	0.9%	0.2%

Table 2. NBI's for EU 27 and 28, various QMV reforms

	50-50	**50-60**	**50-70**	**60-50**	**60-60**	**60-70**	**70-50**	**70-60**	**70-70**	**62-50**	**66.6-50**	**Nice**
Germany	7.3%	10.1%	11.9%	5.0%	6.9%	9.1%	3.8%	4.4%	5.7%	11.5%	10.5%	7.3%
Turkey	7.1%	9.8%	11.7%	4.9%	6.8%	8.9%	3.8%	4.4%	5.6%	11.2%	10.3%	7.3%
UK	5.8%	7.4%	9.0%	4.4%	5.5%	7.0%	3.7%	4.0%	4.8%	8.5%	7.8%	7.3%
France	5.8%	7.4%	9.0%	4.4%	5.5%	7.0%	3.7%	4.0%	4.8%	8.5%	7.7%	7.3%
Italy	5.7%	7.3%	8.8%	4.4%	5.4%	6.9%	3.7%	4.0%	4.7%	8.3%	7.6%	7.3%
Spain	4.6%	5.5%	6.3%	4.0%	4.5%	5.2%	3.6%	3.7%	4.0%	5.9%	5.7%	6.9%
Poland	4.6%	5.4%	6.1%	3.9%	4.4%	5.1%	3.6%	3.7%	4.0%	5.8%	5.6%	6.9%
Romania	3.6%	3.7%	4.0%	3.6%	3.6%	3.8%	3.6%	3.6%	3.6%	3.9%	3.8%	1.2%
NL	3.3%	3.1%	3.0%	3.5%	3.3%	3.2%	3.6%	3.5%	3.4%	3.0%	3.1%	3.7%
Greece	3.0%	2.6%	2.3%	3.4%	3.1%	2.7%	3.5%	3.4%	3.3%	2.4%	2.5%	3.4%
Czech Rep	3.0%	2.6%	2.3%	3.4%	3.1%	2.7%	3.5%	3.4%	3.3%	2.4%	2.5%	3.9%
Belgium	3.0%	2.6%	2.3%	3.3%	3.1%	2.7%	3.5%	3.4%	3.3%	2.3%	2.5%	3.4%
Hungary	3.0%	2.6%	2.2%	3.3%	3.1%	2.7%	3.5%	3.4%	3.3%	2.3%	2.5%	3.4%
Portugal	3.0%	2.5%	2.2%	3.3%	3.0%	2.7%	3.5%	3.4%	3.3%	2.3%	2.5%	3.4%
Sweden	2.9%	2.4%	2.1%	3.3%	3.0%	2.6%	3.5%	3.4%	3.2%	2.2%	2.3%	2.9%
Bulgaria	2.9%	2.4%	2.0%	3.3%	3.0%	2.5%	3.5%	3.4%	3.2%	2.1%	2.3%	0.9%
Austria	2.9%	2.4%	2.0%	3.3%	3.0%	2.5%	3.5%	3.4%	3.2%	2.1%	2.3%	2.9%
Slovakia	2.7%	2.1%	1.5%	3.3%	2.8%	2.3%	3.5%	3.4%	3.1%	1.7%	2.0%	2.0%
Denmark	2.7%	2.1%	1.5%	3.3%	2.8%	2.3%	3.5%	3.4%	3.1%	1.7%	2.0%	3.4%
Finland	2.7%	2.1%	1.5%	3.2%	2.8%	2.3%	3.5%	3.4%	3.1%	1.7%	1.9%	2.0%
Ireland	2.6%	1.9%	1.3%	3.2%	2.7%	2.1%	3.5%	3.4%	3.1%	1.5%	1.8%	2.0%
Lithuania	2.6%	1.9%	1.3%	3.2%	2.7%	2.1%	3.5%	3.4%	3.1%	1.5%	1.8%	2.9%
Latvia	2.6%	1.8%	1.1%	3.2%	2.7%	2.0%	3.5%	3.4%	3.0%	1.3%	1.7%	2.0%
Slovenia	2.6%	1.8%	1.1%	3.2%	2.7%	2.0%	3.5%	3.4%	3.0%	1.3%	1.6%	2.0%
Estonia	2.5%	1.7%	1.0%	3.2%	2.6%	1.9%	3.5%	3.4%	3.0%	1.2%	1.6%	1.2%
Cyprus	2.5%	1.6%	0.9%	3.2%	2.6%	1.9%	3.5%	3.4%	3.0%	1.1%	1.5%	1.2%
Lux.	2.5%	1.6%	0.8%	3.2%	2.6%	1.8%	3.5%	3.3%	3.0%	1.1%	1.4%	1.2%
Malta	2.5%	1.6%	0.8%	3.2%	2.6%	1.8%	3.5%	3.3%	3.0%	1.1%	1.4%	1.2%
Passage Prob.	31.9%	19.8%	8.3%	15.1%	11.0%	5.6%	1.7%	1.6%	1.1%	17.3%	11.7%	1.8%

CENTRE FOR
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