

Draft Constitution and the IGC:

Voting can be Simple and Efficient – without introducing the Massive Transfer of Power implied by the Convention’s Double Majority Proposal

Institute for Advanced Studies, Vienna, December 2003

Iain Paterson and Peter Silárszky

In Brief

Support for the European Convention’s Double Majority proposal hinges on its supposed simplicity and efficiency. In fact, there is little difference in **efficiency** between the Double Majority proposal and the weighted voting system of Nice. Further, a reweighting of votes is introduced that is **simpler** to implement than the Double Majority, and which represents a redistribution of power that is ‘halfway’ between the voting system of Nice and the massive redistribution of power implied by the Convention proposal. New insights into the source of power and each Member State’s blocking leverage are presented.

Efficiency of decision making is not a decisive factor

Since the beginning of the IGC that has followed on from the Constitutional Convention there have been continuing reports about member states being in favour or opposed to the Double Majority proposal set out in the Draft Constitution. Particular prominence has been given by acolytes of the Double Majority to the issue of the future efficiency of decision making in the Council, in terms of the ease or difficulty of reaching qualified majorities.

As an example, Tabellini (2003) citing Baldwin et al. (2003) claims that “[the Double Majority] results in a huge increase in the probability of approving new legislation [i.e. ‘efficiency’]... under the rules proposed by the Convention Treaty and with 25 countries, as much as 22% of all possible Council coalitions overcome the majority thresholds. This takes the Union to a situation comparable to that of the 1960s, when it consisted of only the six founding member states.”

However, the methodology¹ used in those calculations is not appropriate for analysing the EU Council, a decision making body mostly seeking consensus through negotiation.² There are several strong theoretical reasons for preferring the classical approach of Shapley and Shubik (SH). It is outwith the scope of this policy paper to discuss these theoretical concepts.³ The conclusions reached using the two methodologies are usually similar but occasionally, as in the case of the Convention's Double Majority proposal, they are dramatically and crucially different. In common with many other authors, we consistently calculate indices of power based on the SH approach. In this paper we introduce the measure for efficiency for the Council, building on the probabilistic setting for SH power developed by Straffin (1977). The possibility of being able to make the calculations of efficiency, such as we present here for the Council, has also recently been anticipated in the work of Laruelle and Valenciano (2003b).

The first two rows in Table 1 below show clearly that the claims made about the inefficiency of weighted voting in an enlarged EU are vastly exaggerated. Whereas the Double Majority does fare somewhat better in terms of efficiency (39% in EU25), the efficiency of the other (weighted vote) systems in the EU of 25 member states remains at or around 30%⁴. In fact this level of efficiency – the probability of approving new legislation - is higher than calculated for the Double Majority using the BC approach. In the other cases, e.g. Nice, the BC calculations produce extraneous results.

Table 1: Power Gradient and Efficiency

	EU6	EU15	EU25			
			Status Quo	Status Quo+	Convention	Nice
Efficiency %	35.000	31.030	30.487	39.435	29.165	31.332
(BC %)	21.875	7.779	3.487	22.461	3.587	6.864
Power Gradient	53%*	46.5%	43.1%	82.2%	56.6%	71.3%

* calculated on basis of population in EU6

** Introduced later in the text

An intuitive explanation for the differences is as follows: The BC model assumes that all members of a voting body act entirely independently of one another. This at first seemingly innocuous assumption in fact means that as the number of voters increases the probability continually increases that just around half of the members

¹ Of Banzhaf and Coleman (BC)

² c.f. Moberg (2002)

³ See Straffin (1982), Levínský and Silárszky (2001), Laruelle and Valenciano (2003a) for their detailed presentation.

⁴ Of course, the number of possible bilateral negotiations increases as the EU enlarges, regardless of voting system; efficiency indicates, in contrast, the likelihood of negotiations leading to a qualified majority.

are in favour of any decision, and half against, so it becomes increasingly difficult to cross a threshold usually around a quota of 70% of total votes. Analogously, in a yes/no referendum choice with an electorate of millions, the coalitional probabilities in a BC model of such a voting scenario imply that there would always be an almost exact 50/50 split for and against – clearly, in behavioural terms, a *reductio ad absurdum*.

The better ‘**veil of ignorance**’ assumption is asserted by SH modelling: namely, that there is an equal chance of n member states (n varying from 0 to 25 in EU25) being in favour of any particular issue, and that every coalitional combination making up the n countries is also equally likely.⁵ Efficiency is then the sum of the probabilities, thus determined, of winning coalitions. Not only is the SH model preferable for calculating power, the coalitional probabilities used in the calculation of efficiency are not in conflict with behavioural reality.⁶ Our results clearly prove that worries about efficiency in the enlarged EU are unfounded – it is simply not a decisive factor for the choice of voting system, and it cannot hold as the main reason for preferring the Convention Double Majority proposal to the Nice system.

Nice, Convention or something else?

In our previous short policy paper (IHS 2003) we showed that the Convention’s proposal to replace the system of weighted voting in the Council by a Double Majority requiring a simple majority of member states that together represent 60% of the EU population is fraught with difficulty. Adoption of this method of QMV would mean that a) the actual division of power is not immediately apparent and b) it in fact implicitly represents a huge shift of power away from smaller countries and towards the larger member states far in excess of the agreement reached at Nice.

Criticism of the Nice settlement of qualified majority voting (QMV) has drawn mainly on two aspects; the supposedly complicated definition of ‘Nice’ and the loss in decision making efficiency. We demonstrated here that the latter claim is spurious, and depends on an inappropriate way of modelling power. As regards simplicity, the technical triple majority of Nice, reduces, in most cases – as we know from mathematical analysis – to obtaining sufficient votes to reach the stipulated quota of 72% of all weighted votes, because the other two criteria are nearly always automatically fulfilled. Nevertheless, a question remains as to whether a simpler redefinition of QMV can be found.

Given that there is a huge gap between ‘Nice’ and the ‘Convention’ both in terms of how the distribution of power relates to the whole population of the EU, which is

⁵ See Appendix.

⁶ In particular, for the ‘referendum’ scenario, any outcome is just as likely as another.

measured by the Power Gradient⁷, and in terms of the power of individual countries (measured by the power indices), it may be asked whether there is scope for a solution ‘in-between’ these versions. In fact, one *could* generate an infinity of such solutions. In this paper we present just one such solution (“Synthesis”) that offers an intermediary Power Gradient and redistribution of power, as well as satisfying many logical and ‘EU-traditional’ criteria, and which, above all, is simple.

The QMV variants discussed here are outlined in Table 3.

[Table 3 about here]

For comparison purposes our analysis is also carried out for “Status Quo+”. This QMV system extends the current voting weights by interpolation for the 10 new accession states, and will actually be in force between 1 May 2004 and 1 November 2004⁸.

Table 3 shows the main and additional criteria for each QMV variant. Additional formal criteria (such as the requirement that a simple majority of states pertains) are important but these are not designated as being ‘effective’ when in over 98-99% of cases they are automatically fulfilled whenever the main criteria are satisfied. This distinction explains our differentiation between the number of ‘formal’ and ‘effective’ criteria in Table 2 below.

Table 2: No. Of Criteria and Minimum Population possible under QMV

	EU15	EU25			
	Status Quo	Status Quo+	Convention	Nice	Synthesis
Criteria:					
Formal	1	1	2	3	2
Effective	1	1	2	1	1
Min. Pop. QM	58.16%	52.05%	60.01%	62.00%	62.26%

In the process of reforming QMV in order to achieve a Power Gradient higher than the status quo, it is unavoidable that the criterion of a simple majority of states is formally made explicit.⁹ Nevertheless, with voting weights as the only effective

⁷ c.f. Appendix

⁸ See <http://www.eu2002.dk/ewebeditpro2/upload/OW.StaticContent/294/pakke2.pdf> Council of the European Union, Copenhagen, 10 December 2002.

⁹ [Remark: As the Nice settlement stands at least 12 countries are needed for a qualified majority. However, there would be no explicit requirement for number of states needed, if the threshold were raised to 244 (a quota of 76%); in such case 3 large countries could form a blocking coalition.]

criterion, the 'Synthesis' presented is simpler than other options for an EU with 25 or more members. Note, also, that any qualified majority achieved in the 'Synthesis' variant, in requiring a quota of 70% of all weighted votes, will represent at least 62.26% of the entire EU population. Thus, **no explicit population criterion is needed** for this Synthesis in order to guarantee that 60% of the EU population is represented by a QMV coalition.

Power and how it arises

The distribution of power associated with Nice, the Convention and the Synthesis suggestion are shown in Table 4.

[Table 4 about here]

The power indices show that for 18 countries as large or larger than Lithuania (with the exception of Germany) the Synthesis allocates more power to each member state than the power implied by the Convention. For the 6 smallest countries there is a slight decline in power. It may be verified, however, that these countries would have been affected to a lesser extent by loss of power under the Convention proposal in comparison to the Nice settlement - paradoxically, in fact, Latvia and Slovenia and Malta would benefit from the Convention solution in comparison to Nice. The largest losses of power that would be associated with a transition from 'Nice' to 'Convention' incurred by Spain, Poland and the middle-size countries Greece, Czech Rep., Belgium, Hungary and Portugal would to a considerable extent be redressed by the 'Synthesis'.

Interestingly, it transpires from our analysis that the extent to which the source of power arises from the power to block the adoption of decisions (or its complement, arising from the power decisively to form a 'winning' coalition) can be identified. In Council qualified majority voting, there is a natural preponderance of the 'blocking component of power'. The average value of the blocking component of power is shown in Table 4, and varies between 60 % and 70%. We may note that this value is the complement of the efficiency given in Table 1.

The distribution of power is summarised by calculation of the overall **Power Gradient** of the voting system. (See Appendix for a graphical illustration of its calculation). On a scale of 0 (equal power regardless of size of country) to 100% (power exactly proportional to share of total EU population) the Power Gradient of Nice is 57%. This represents an increase of 14 percentage points on the 'Status Quo+' solution which should be in force during part of 2004. This is a moderate redistribution of power. In contrast, the Convention Double Majority proposal represents a **huge redistribution of power** from most small and medium countries to the large member states. The Power Gradient of the Synthesis lies between the

Nice and Convention solutions, at 71%, thus indicating an intermediate redistribution of power.

Blocking Leverage of individual Member States

In addition to the relative distribution of power between states, individual countries are interested in their ability to exercise power, usually in the sense of being able to ensure that a decision does not pass against their interests. We call here the probability that each country can block a measure that would otherwise pass its **Blocking Leverage**. This measure is defined as each country's blocking component of power as a percentage of the overall efficiency¹⁰. Table 5 displays the Blocking Leverage for the QMV variants.

[Table 5 about here]

Blocking Leverage may be of particular interest to the large member states, around whom a 'blocking coalition' could form on some particular issue. No member state can block on its own: the probability of Germany being able to block is around one quarter for the Nice, Convention and Synthesis options. The Synthesis offers an increased Blocking Leverage for UK, France and Italy over the Nice and Convention variants, and a gain over the Double Majority option for Spain and Poland. In general the Blocking Leverage is in line with the power index (c.f. Table 4).

Which QMV variant?

As we pointed out in our previous paper, the supposed advantages of the Double Majority over Nice – simplicity, understandability – are spurious, especially when one considers that its implication for power is actually concealed. We raised the question previously whether the huge redistribution of power from smaller to larger countries compared to Nice is intentional. We noted as also an advantage of Nice, that its structure distributes power in a readily comprehensible fashion, broadly in line with the share of votes for each member state.

In this paper we have shown, in addition, that the fears for the decision making efficiency for the Council unless the Convention Double Majority is adopted are unfounded. Nice cannot be rejected on grounds of efficiency.

Further, it is feasible to construct a weighted voting system that is simpler than Nice, that requires only a qualified majority above a 70% threshold for a simple majority of countries, and that has **no population weight**. This has been illustrated for the choice of one particular variant, a "Synthesis", that offers a degree of reform (Power

¹⁰ The definition introduced here is the direct SH equivalent of the BC measure known as 'preventive power'. Note that this measure does not sum to 100% over all countries, and combined blocking ability is not obtained additively.

Gradient) intermediary between Nice and the Convention, and which automatically guarantees that a population greater than 60% of the EU is represented by every qualified majority.

The characteristics of the Synthesis weighting are:

- It is simple, usually only the sum of voting weights needs to be checked;
- The requirement for 60% of the total population is automatically fulfilled;
- Weighted votes are degressive proportional i.e. the ratio of votes/population is always decreasing as population of member states increases;
- Countries are in groups as in previous weighted vote systems. Some new groupings are inevitable but obvious groupings (because of close similarity of population) are however maintained (e.g. Slovakia, Denmark and Finland);
- Any two of the 4 largest member states can form a blocking coalition with any one other of the large states (including Spain and Poland);
- The power gradient is 71% (between that of the Convention and that of Nice);
- The 4 largest states gain in power over Nice and Spain and Poland 'nearly' return to their Nice levels of power;
- 18 states gain in power compared to the Convention – exceptions are Germany and the smallest states.

Of course, the Synthesis variant is illustrative: it would be possible, for example, to design an ungrouped weighted voting option, with weights linked by a set formula to population. Also, the question of whether the power of Germany should reflect its higher population or whether the 'grouping' system of equality of large member states should still pertain, could be settled entirely, explicitly and transparently *within* the vote weighting mechanism chosen.

Let us repeat the conclusion of our previous short policy paper: the often reviled vote weighting system turns out to have many practical, not just theoretical, advantages. This does not mean, of course, that the settlement of Nice is the perfect answer 'for all time' (and thus deserving of constitutional status). But it would seem unwise at this stage, to rule out a review, and possible redesign, of the vote weighting system, as an option for the period after 2009 or 2011, especially as a QMV system can be designed that is **simple and efficient, satisfies the requirement of 60% of the EU population, and that is 'tuned' to the required degree of redistribution of power.**

Table 3: Summary of Voting Systems (EU25)

Main Criteria	Status Quo+	Convention		Nice	Synthesis
	Voting Weight	States	Population in '000s	Voting Weight	Voting Weight
Germany	10	1	82038	29	56
UK	10	1	59247	29	56
France	10	1	58966	29	56
Italy	10	1	57612	29	56
Spain	8	1	39394	27	42
Poland	8	1	38667	27	42
Netherlands	5	1	15760	13	18
Greece	5	1	10533	12	16
Czech	5	1	10290	12	16
Belgium	5	1	10213	12	16
Hungary	5	1	10092	12	16
Portugal	5	1	9980	12	16
Sweden	4	1	8854	10	15
Austria	4	1	8082	10	14
Slovakia	3	1	5393	7	10
Denmark	3	1	5313	7	10
Finland	3	1	5160	7	10
Ireland	3	1	3744	7	8
Lithuania	3	1	3701	7	8
Latvia	3	1	2439	4	6
Slovenia	3	1	1978	4	5
Estonia	3	1	1446	4	5
Cyprus	2	1	752	4	4
Luxembourg	2	1	429	4	4
Malta	2	1	379	3	4
Totals	124	25	450462	321	509
Threshold	88	13	270323	232	357
Quota in %	70.96	50.0	60.0	72.27	70.1
Additional Criteria:				Majority of States 62% of Population	Majority of States

Table 4: Distribution of Power In EU25

Power Indices	Status Quo+	Convention	Nice	Synthesis
Germany	8.296	16.515	9.492	11.361
UK	8.296	11.274	9.370	11.361
France	8.296	11.217	9.369	11.361
Italy	8.296	10.932	9.369	11.361
Spain	6.509	7.728	8.671	8.270
Poland	6.509	7.598	8.671	8.270
Netherlands	3.972	3.362	3.950	3.410
Greece	3.972	2.519	3.614	3.029
Czech	3.972	2.482	3.614	3.029
Belgium	3.972	2.470	3.614	3.029
Hungary	3.972	2.452	3.614	3.029
Portugal	3.972	2.434	3.614	3.029
Sweden	3.252	2.257	2.992	2.866
Austria	3.252	2.135	2.991	2.627
Slovakia	2.344	1.726	2.066	1.888
Denmark	2.344	1.715	2.066	1.888
Finland	2.344	1.693	2.066	1.888
Ireland	2.344	1.475	2.066	1.495
Lithuania	2.344	1.468	2.066	1.495
Latvia	2.344	1.270	1.171	1.126
Slovenia	2.344	1.204	1.171	0.966
Estonia	2.344	1.124	1.171	0.966
Cyprus	1.570	1.021	1.171	0.752
Luxembourg	1.570	0.969	1.171	0.752
Malta	1.570	0.961	0.875	0.752
Total	100.0	100.0	100.0	100.0
Blocking Component	69.5	60.6	70.8	68.7
Power Gradient	43.1%	82.2%	56.6%	71.3%

Table 5: Member States' own Blocking Leverage (EU25)

	Status Quo+	Convention	Nice	Synthesis
Germany	19.08	26.58	23.35	25.19
UK	19.08	17.97	22.99	25.19
France	19.08	17.87	22.99	25.19
Italy	19.08	17.39	22.99	25.19
Spain	14.89	12.20	21.22	18.21
Poland	14.89	11.96	21.22	18.21
Netherlands	9.02	5.06	9.51	7.39
Greece	9.02	3.70	8.69	6.56
Czech	9.02	3.65	8.69	6.56
Belgium	9.02	3.63	8.69	6.56
Hungary	9.02	3.60	8.69	6.56
Portugal	9.02	3.57	8.69	6.56
Sweden	7.38	3.29	7.19	6.21
Austria	7.38	3.09	7.18	5.67
Slovakia	5.30	2.45	4.94	4.07
Denmark	5.30	2.43	4.94	4.07
Finland	5.30	2.40	4.94	4.07
Ireland	5.30	2.05	4.94	3.20
Lithuania	5.30	2.04	4.94	3.20
Latvia	5.30	1.72	2.79	2.40
Slovenia	5.30	1.62	2.79	2.06
Estonia	5.30	1.50	2.79	2.06
Cyprus	3.55	1.33	2.79	1.59
Luxembourg	3.55	1.25	2.79	1.59
Malta	3.55	1.24	2.09	1.59

References

Baldwin, R. and M. Widgren (2003), Decision Making in the Constitutional Treaty:: Will the IGC discard Giscard? mimeo, Geneva

IHS, Institute for Advanced Studies Vienna (Bernhard Felderer, Iain Paterson and Peter Silárszky), June 2003, The Double Majority Implies a Massive Transfer of Power to the Large Member States – Is this Intended?, The European Convention Forum, http://europa.eu.int/futurum/forum_convention/doc_en.htm

Annick Laruelle and Federico Valenciano, 2003a, Bargaining, Voting and Value, <http://merlin.fae.ua.es/laruelle/Down-BVV-Sept03.pdf>

Annick Laruelle and Federico Valenciano, 2003b, Potential and 'power of a collectivity to act', <http://merlin.fae.ua.es/laruelle/Down-PPA-March03.pdf>

Rene Levínský and Peter Silárszky, 2001, Global Monotonicity of Values of Cooperative Games: An Argument Supporting the Explanatory Power of Shapley's Approach, in: M.J. Holler and G. Owen, eds., Power Indices and Coalition Formation (Kluwer Academic Publishers, Boston); <http://www.vwl.uni-freiburg.de/fakultaet/erwien/multimedia/holler.pdf>

Axel Moberg, 2002, The Nice Treaty and Voting Rules in the Council, JCMS Vol. 40, No. 2, 259-282

Iain Paterson, 1998, Vote Weighting in the European Union - Confronting the dilemma of Dilution, Institute for Advanced Studies, East European Series No. 54, Vienna

Iain Paterson and Peter Silárszky, 1999, Redesigning the Institution of the Council of Ministers in Advance of EU Enlargement – Issues and Options, *Journal of Institutional Innovation, Development, and Transition (IB Review)*, Vol. 3; <http://www.sigov.si/zmar/apublici/iib/iib0399/04-paterson.pdf>

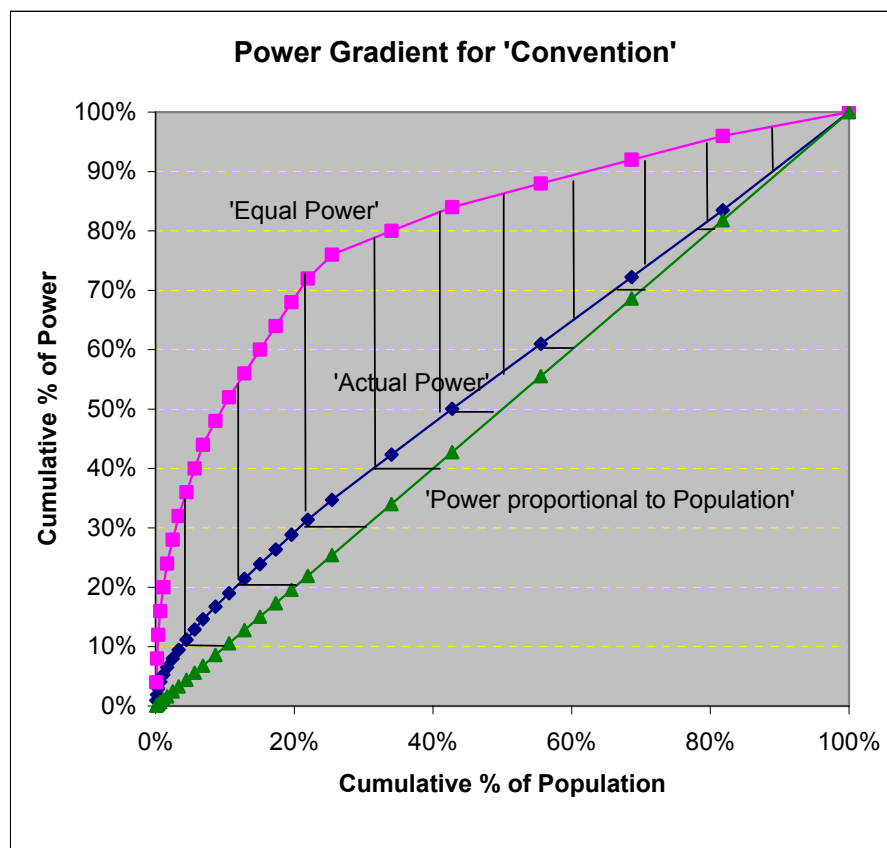
Philip D Straffin Jr., 1977, Homogeneity, Independence and Power Indices, *Public Choice* 30, 107-118

Philip D Straffin Jr., 1982, Power Indices in Politics, in *Political and Related Models*, edited by Brams, S. J., W. F. Lucas, and P. D. Straffin, New York, Springer-Verlag, 256-321.

Guido Tabellini, 2003, Will it last? The European Constitution from an economic perspective, Paper presented at the Conference "New Institutions for a New Europe", Institute for Advanced Studies, Vienna, October 2003.

Appendix:a) Calculation of the Power Gradient

The Power Gradient chart for the Convention Double Majority is shown illustratively in Fig.1. The Power Gradient is calculated as the upper shaded area (between the plot of cumulated power and cumulated equal power) as a percentage of the whole shaded area (bounded on the lower side by the plot of cumulated power equal to cumulated population). Further details may be found in Paterson (1998) and Paterson and Silárszky (1999).

b) Probabilities used for the Calculation of Efficiency – for 'Nice' (EU25)

For Example, the probability if only Malta, say, votes 'against' a Council decision is:

$$\text{BC: Probability} = 1/2^{25} = 0.00000002980232$$

$$\begin{aligned} \text{SH: Probability} &= (\text{Probability of } n \text{ states 'for'} = 1/26) / (\# \text{ combinations of 24 states 'for'}) \\ &= 0.038461538 / 25 = 0.00153846153846 \end{aligned}$$

N.B. probabilities are small – there are 33,554,432 coalitions altogether!