

The Council of Ministers should consider a compromise between the Nice and constitutional treaties to get its votes right, say **Werner Kirsch, Wojciech Słomczyński and Karol Zyczkowski**

TRADITIONALLY, the voting weights in the EU's Council of Ministers were not determined by a formula, they were the result of late-night bargaining between government representatives behind closed doors.

The current voting system, introduced by the 2001 Treaty of Nice, is based on voting weights and has two additional components: for a decision to be taken, a simple majority of states is required and the supporters of the decision must represent at least 62% of the EU population.

The constitutional treaty proposed a voting system of 'double majority', under which supporters of a decision must comprise 55% of states and must represent at least 65% of the Union's population. In what we call the 'population rule', the voting weight of a country is in proportion to the number of its citizens. The double majority reflects the idea that the EU is both a union of states and a union of people (the latter represented by the population rule).

At first glance this double majority system may look like a substantial progress: it is a simple formula to determine the voting weights rather than a non-transparent deal between governments. But is this assignment of voting weights a fair one?

To analyse voting systems and to quantify the notion of voting power, mathematicians created the game theory concept of power indices. It measures the probability that a member's vote will be decisive in a hypothetical ballot: should this country decide to change its vote, the winning coalition would fail to satisfy the qualified majority condition. It is assumed that all potential coalitions are equally likely. This assumption leads to the concept of the Penrose-Banzhaf index, named after a British psychiatrist and mathematician, Lionel S. Penrose, who initiated the theory of indirect voting in 1946, and John F. Banzhaf III, an American attorney, who introduced this index independently in 1965.

Voting weights do not directly give the voting power. Imagine a system with two members: A having 51 votes and B having 49 votes. If the assembly takes decisions by a simple majority vote, then A will win any voting and so his power is 100%. Although B has almost the same voting weight, his or her voting power is 0%.

The idea of a union of people requires that all citizens of the EU have the same influence on decisions regardless of their home country. This should be true at least for the population rule. Such a voting situation was considered by Penrose in 1946. He computed the influence (power index) of an individual citizen on decisions in his country. The bigger the population N of a country, the smaller the influence of a single citizen of this country. Penrose found that the power of a citizen is not proportionate to the inverse population (one over N), as one might expect, but rather it is pro-proportional to one over the square root of N .

To compensate for this effect, the voting power of a state in the Council should not be in proportion to its population N , but to the square root of N . For instance, the population of Spain is four times as big as the population of Portugal, so the voting power of Spain in the Council should be twice as big as the power of Portugal. This



Getting the votes right

Comment

general rule is known as the Penrose square root law.

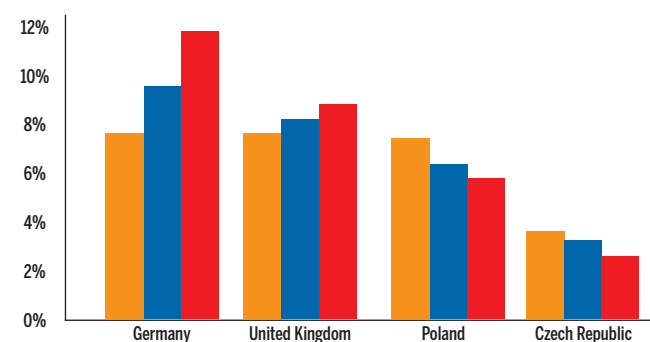
As a consequence of the square root law, the population rule of the constitution gives big states much more power than they should have. In combination with the first rule (simple majority of states), which favours small states, the voting rules introduced in the constitutional treaty benefit the small and the big states, and take influence away from medium-sized countries. The big four, Germany, France, the United Kingdom and Italy, obtain too much weight in this system, but Spain and Poland, the next biggest states, get less power than they deserve.

Penrose wrote in 1952: "If two votings were required for every decision, one on a per capita basis and the other upon the basis of a single vote for each country, this system would be inaccurate in that it would tend to favour large countries."

Comparing the voting power according to the Nice treaty with the square root rule, it is clear that under the current treaty Germany is underrepresented, while Spain and Poland are overrepresented.

A voting system based on the square rule was already proposed for the Council of Ministers in 1996 by Annick Laruelle of the Université Catholique de Louvain and Mika Widgrén of the Turku School of Economics. Since then it has been analysed by several authors, while an open letter in support of square-root voting weights in the Council, endorsed by more than 40 scientists from ten EU countries, was sent to the member states' governments in June 2004.

A system based on the square root weights was put forward by the Swedish government in 2000. Sweden's then prime minister Göran Persson said: "Our



Comparison of voting power measured by the Penrose-Banzhaf index of four EU member states: for the Treaty of Nice (orange), the proposed 'Jagiellonian Compromise' (blue), and the constitutional treaty (red).

formula has the advantage of being easy to understand by public opinion and practical to use in an enlarged Europe. It is transparent, logical and loyal."

The idea of dividing votes proportionally to the square root of population is the simplest mathematical implementation of the principle of degressive proportionality and lies exactly between two extremes: the 'one-country-one-vote' system and the system assigning votes proportional to population. A similar degressive system is also used in the German Bundesrat to assign the number of representatives to each *Land*.

To create a voting system based on the square root rule, it is reasonable to start with voting weights proportional to the square root of the population of the respective country. In addition, we also have to choose the majority quota. As the voting weight of a state does not necessarily reflect the voting power of that country, we have to compute the voting powers according to this assignment.

For an EU of 27 member states the system with a quota of 61.6% is optimal: it fulfils the Penrose square root rule almost exactly, thus being representative: the voting power of each citizen of any member state is the same. Furthermore, this simple one-criterion system, dubbed the Jagiellonian compromise by the

media, is easily extendible, transparent, efficient and moderately conservative.

This compromise solution may be combined with the idea of a union of states, ie, with a simple majority of states. Such a 'modified double majority' voting system based on the Penrose law is determined by the following two rules:

A. The voting weight attributed to each member state is proportional to the square root of its population;

B. The decision of the voting body is taken if:

- the sum of the weights of members of a coalition exceeds the 61.6% quota (eg. 222 out of 360 votes);

- the coalition consists of at least 50% of member states (14 out of 27).

The second criterion does not introduce a considerable shift of power, nor does it reduce the advantages of the single criterion Penrose system. The modified double majority system would be a compromise: Germany, for instance, gains under this system considerable power compared to the Nice treaty, while Spain and Poland benefit with respect to the constitutional treaty.

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