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DEGRESSIVE PROPORTIONALITY IN THE CONTEXT OF THE COMPOSITION OF THE EUROPEAN PARLIAMENT

Summary: The European Union, despite many attempts, has yet to devise a precisely determined algorithm of appointing the composition of the Parliament – it is only known that the algorithm must be consistent with the generally understood degressive proportionality. In the article the authors look at the history of the problem and analyse selected papers on this subject, along with the results of their own research.

Keywords: degressive proportionality, the European Parliament, indivisible goods.

1. Introduction

The distribution of the seats in the European Parliament between the individual Member States of the European Union has become in recent years one of the major unresolved problems of the allocation of indivisible goods. It would appear that this should be a very simple task – to use one of the classic methods of proportional divisions. However, the demographic features of the European Union do not allow for such a solution – the variation in the population of the Member States is too great. Suffice it to say that the population of the currently largest member of the EU (Germany – 82,438,000)[1] is over two hundred times greater than the one of the smallest member state (Malta – 404,000). The use of any proportional division in this situation, would spark off many problems. First and foremost, the European Parliament would then have too enlarge the number of members – if the smallest Member State had one representative, the number of deputies would amount to around 1220. Assuming the minimum national representation at the level of five members (such as in the Parliament's term 2009-2014), we would have approximately 6100 members of the EP. Therefore, in this situation proportional divisions are purposeless. What is also unacceptable (primarily by the large members of the EU) is the equal division. In this case, the most sensible option (perhaps the only) is to apply the solution named

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[1] See Table 2.

in the official document[2] "the principle of degressive proportionality". The idea of this division is completely natural – the larger the country, the greater the downward variance in the number of mandates that it has from the amount that it would obtain using proportional allocation. It appears, however, that the practical application of such a solution is not an easy task.

2. History of the problem

On 18 April 1951 in Paris, Belgium, France, the Netherlands, Luxembourg, the Federal Republic of Germany, and Italy signed the Treaty establishing the European Coal and Steel Community (ECSC). The document called the Treaty of Paris came into force on 23 July 1952. In the Treaty of Paris four institutions were set up:
– High Authority,
– Council of Ministers of ECSC,
– Common Assembly of ECSC,
– Court of Justice.

The Common Assembly of the ECSC, which is the "ancestor" of the European Parliament, had 78 members, who were chosen by the parliaments of the Member States of the community. The Assembly had only an advisory role and its importance was rather symbolic. Table 1 lists the number of members of the Assembly representing each Member State.

Table 1. The Assembly of the ECSC Treaty of Paris

Member of ECSC	Numer of the representatives
France	18
Federal Republic of Germany	18
Italy	18
Belgium	10
The Netherlands	10
Luxemburg	4

Source: authors' own work.

The appointment of ECSC to the life can be considered as the beginning of the economic and political integration of Europe. On 25 March 1957, the founders and members of the ECSC signed the so-called Treaties of Rome, which consisted of two international agreements.

The first of them was the name of the Treaty establishing the European Economic Community (EEC), the second is the Treaty establishing the European Atomic Energy Community (Euratom). The Treaties of Rome came into force on 1 January

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[2] The Treaty of Lisbon.

1958, with them the Parliamentary Assembly, common to the ECSC and the EEC, was established.

Table 2. The number of MEPs (and predecessors of EP) divided by Member States from 1952 to 2009

	1952	1957	1973	1979	1981	1986	1994	1995	2004	2004	2007	2009
Germany	18	36	36	81	81	81	99	99	99	99	99	99
France	18	36	36	81	81	81	87	87	87	78	78	72
Italy	18	36	36	81	81	81	87	87	87	78	78	72
Belgium	10	14	14	24	24	24	25	25	25	24	24	22
Netherlands	10	14	14	25	25	25	31	31	31	27	27	25
Luxemburg	4	6	6	6	6	6	6	6	6	6	6	6
UK			36	81	81	81	87	87	87	78	78	72
Denmark			10	16	16	16	16	16	16	14	14	13
Ireland			10	15	15	15	15	15	15	13	13	12
Greece					24	24	25	25	25	24	24	22
Spain						60	64	64	64	54	54	50
Portugal						24	25	25	25	24	24	22
Sweden								22	22	19	19	18
Austria								21	21	18	18	17
Finland								16	16	14	14	13
Poland									54	54	54	50
Czech Republic									24	24	24	22
Hungary									24	24	24	22
Slovakia									14	14	14	13
Lithuania									13	13	13	12
Latvia									9	9	9	8
Slovenia									7	7	7	7
Cyprus									6	6	6	6
Estonia									6	6	6	6
Malta									5	5	5	5
Romania											35	33
Bulgaria											18	17
Total	78	142	198	410	434	518	567	626	788	732	785	736

Source: authors' own work based on the European Parliament data.

On 19 March 1958 in Strasbourg, the first meeting of the European Parliamentary Assembly was held. One hundred and forty-two members took part in it. Officially, the date of 19 March 1958 is regarded as the beginning of the European Parliament.

Until 1979, the members of the Assembly (since March 1962 the name "European Parliament" has been officially used) were appointed by parliaments of each country. The first direct elections to the EP were held in June 1979, then 410 deputies were appointed. Since then six consecutive elections to the Parliament have been held.

Each subsequent term of the EP appointed a different number of members, from 410 in 1979 to 736 in 2009. The biggest amount of the members of PE were appointed in the period from 2007 to 2009, after 53 seats were given to the new members of the Union: Romania (35) and Bulgaria (18). Table 2 summarizes the numbers of the members of the consecutive terms of the EP (and its predecessors) since 1952.

The problem of the size of the representation of individual Member States of the Union (and previously the ECSC and the EEC) was increasing along with increasing competences of the EP. After analyzing the composition of the Parliament and its predecessors, it is clear that initially the issue was not considered particularly important. We can see that in 1952 Belgium had 10 mandates, while several times larger states – Germany, France, and Italy – had 18 seats. The situation of Luxembourg was even more favourable in this respect – 4 seats. A completely different picture emerges in the current Parliament's term: Luxembourg has 6 mandates (an increase in relation to 1952 by 50%), while France already has 72 deputies (the increase of 300%) and Germany 99 (the increase of 450%). These disparities can in no way be justified by demographic changes (the population growth in France and Luxembourg in 1952-2008 was at the similar level of approximately 50%). Therefore, one of the possible explanations is the increase of the rank of the European Parliament and thus understanding the fact that Member States have greater and greater influence on the Parliament's functioning.

3. The Treaty of Lisbon and the resolution of the EP from 11 October 2007

The Rapid development of the structures of the European Union after the changes in policy in the late 80s and 90s of 20th century, the accessions of new members, the prospect of further expansion and the growing importance of the European Parliament forced the introduction of strict regulations to determine the composition of the EP to avoid burdensome political haggling before every elections. The underlying document forming a legal framework for the composition of the EP is the Lisbon Treaty,[3] signed on 13 December 2007 and ratified by the last members of the Union in December 2009. The Lisbon Treaty is frequently called (also in official EU documents) "The Reform Treaty". In the first article of the Treaty (amending the entries of the Treaty on European Union), we read:

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[3] The full name of the Act: *The Treaty of Lisbon reforming the Treaty on European Union and the Treaty establishing the European Community*.

15) An Article 9A shall be inserted:
'Article 9A

1. The European Parliament shall, jointly with the Council, exercise legislative and budgetary functions. It shall exercise functions of political control and consultation as laid down in the Treaties. It shall elect the President of the Commission.

2. The European Parliament shall be composed of representatives of the Union's citizens. They shall not exceed seven hundred and fifty in number, plus the President. Representation of citizens shall be degressively proportional, with a minimum threshold of six members per Member State. No Member State shall be allocated more than ninety-six seats. The European Council shall adopt by unanimity, on the initiative of the European Parliament and with its consent, a decision establishing the composition of the European Parliament, respecting the principles referred to in the first subparagraph.

3. The members of the European Parliament shall be elected for a term of five years by direct universal suffrage in a free and secret ballot.

4. The European Parliament shall elect its President and its officers from among its members'.

Even before the entry into force of the Lisbon Treaty in 2007, the European Council invited the European Parliament to prepare a draft of a new distribution of seats in the EP on the basis of the adopted Treaty rules. On 3 October 2007, the Committee on Constitutional Affairs (AFCO), which was entrusted with this task, presented a report which concluded the draft of the relevant resolution of the European Parliament. The resolution was adopted at the meeting of the EP on 11 October 2007.

In the explanatory statement to the report, six principles have been presented, which, according to the Committee on Constitutional Affairs (AFCO), could clarify the rule of degressive proportionality:

Principle 1. **The principle of effectiveness** – the functioning of the European Parliament is impossible if its composition exceeds the specific number of deputies, hence the restriction of 750 members.

Principle 2. **The principle of national representation and the motivation of the voters** – each Member State should have the minimum number of seats so that it will be able to represent their electorate by motivating them to participate in the elections.

Principle 3. **The principle of European solidarity** – in order to ensure adequate representation of less populous states, countries with a greater number of citizens will receive fewer seats than in the case of application of the principle of strict proportionality.

Principle 4. **The principle of relative proportionality** – the ratio of the population size to the number of seats is greater the larger a state and smaller the smaller a state.

Principle 5. **The principle of fair distribution** – no state will have more seats than a larger Member State or smaller amount of seats than a smaller Member State.

Principle 6. **The principle of reasonable flexibility or flexible direct degressiveness** – small changes in the allocation of seats may be implemented if other principles are obeyed and the modification aims at the most equitable distribution of seats.

According to the Committee on Constitutional Affairs the aforementioned principles should "give content to this principle of 'degressive proportionality'". In the course of its work on the resolution, the Commission had considerable problems with the actual and precise realization of the set objective. As stated in the resolution, "one option would be to produce a revised version of the formula on which the 1992 decision was based, maintaining the principle of degressive proportionality but starting from a lower minimum number of members and allocating fewer seats per capita and/or altering the population bands". Shortly afterwards, in the same report, we read: "However, an analysis of the different proposals in that sense put forward in the debate makes it clear that any mathematical formula for degressive proportionality is based on some prior political assumptions and will result, in the end, in benefiting some groups of Member States".

A detailed analysis of the report of the Committee on Constitutional Affairs exposes how difficult the task of reaching agreement in this important and delicate issue will be. Note that from the outset of the existence the European Parliament, the principle of degressive proportionality has been used in practice although it has never been named as such. Ironically, the problem began precisely at the moment when the long applied method was recorded in an official document. The legal validation of the traditional principle led to the need for an even more precise determination of the rules. The Committee on Constitutional Affairs after a thorough analysis of the rules of the amending Treaty proposed the allocation of the seats in the Parliament for the term 2009-2014. On this occasion, however, no general rules which could be the basis for the composition of the following terms of the EP were established. The proposal of the Committee on Constitutional Affairs (AFCO) introduced minor changes to the arrangements of the Treaty of Nice, their purpose is to adapt the composition of the EP to the rules of the Lisbon Treaty.

4. Parliament of the seventh term
   ## – a partial and temporary solution

After problems with the ratification, the Lisbon Treaty entered into force on 1 December 2009. The delays in the ratification caused by some Member States of the Union led to the fact that it could serve as a basis to set up the composition of the Parliament of the seventh term (2009-2014) to which the elections took place in June 2009. The distribution of mandates was therefore almost unchanged in relation to the

rules of the Treaty of Nice. The only difference was the granting of the additional two seats to the Czech Republic and Hungary. The composition of the current EP is therefore entirely provisional and it is the result of a one-off negotiation. In Table 3 there are the numbers of mandates to which Member States are entitled in the current Parliament and these numbers are compared with the proposals of the Committee on Constitutional Affairs.

Table 3. The composition of the European Parliament of the seventh term compared with the proposal of the Committee on Constitutional Affairs

A	B	C	D	E	F	G
	Country	Population (million)[A]	2009-2014	AFCO motion	Difference	Parabolic
1	Germany	82.438	99	96	+3	96
2	France	62.886	72	74	−2	79
3	The UK	60.422	72	73	−1	76
4	Italy	58.752	72	72		75
5	Spain	43.758	50	54	−4	59
6	Poland	38.157	50	51	−1	53
7	Romania	21.61	33	33		34
8	The Netherlands	16.334	25	26	−1	27
9	Greece	11.125	22	22		20
10	Belgium	10.57	22	22		20
11	Portugal	10.511	22	22		20
12	The Czech Rep.	10.251	22	22		19
13	Hungary	10.077	22	22		19
14	Sweden	9.048	18	20	−2	18
15	Austria	8.266	17	19	−2	17
16	Bulgaria	7.719	17	18	−1	16
17	Denmark	5.428	13	13		13
18	Slovakia	5.389	13	13		13
19	Finland	5.256	13	13		13
20	Ireland	4.209	12	12		11
21	Lithuania	3.403	12	12		10
22	Latvia	2.295	8	9	−1	9
23	Slovenia	2.003	7	8	−1	8
24	Estonia	1.344	6	6		7
25	Cyprus	0.766	6	6		6
26	Luxemburg	0.46	6	6		6
27	Malta	0.404	5	6	−1	6
	Total	492.881	736	750		750

[A] Population as for 7 November 2006, according to Eurostat.

Source: authors' own work based on the AFCO report.

The allocation of seats proposed by the Committee on Constitutional Affairs (see Table 2, Column E) would meet the requirements of the principle of degressive proportionality, as opposed to the current composition of the Parliament. Note that the differences between the numbers of the mandates arising from the proposal of the Committee on Constitutional Affairs and the current composition of the EP are small – in each case it is a negative difference. The largest "loss" is suffered by Spain (minus four mandates) and Germany (minus three). Except that in the case of Germany the loss was inevitable – the Lisbon Treaty restricts the representation of a Member State to 96 representatives.

5. Proposals for the future

5.1. Proposals of the Committee on Constitutional Affairs

The unresolved question of the allocation of mandates will soon come back to the agenda. In 2012 the negotiations on the composition of the Parliament before the election in 2014 will begin. If until that time a solution was not adopted, a set model or algorithm that could be a foundation for setting up the composition of the Parliament not only for one term but for a longer period of time was not found, the Union would face slow negotiations that would not resolve the problem for the future. The Committee on Constitutional Affairs in its report submitted for consideration two possible solutions[4] to the Parliament:

1. To produce a revised version of the formula on which the 1992[5] decision was based, maintaining the principle of digressive proportionality but starting from a lower minimum number of members and allocating fewer seats *per capita* and/or altering the population bands.

2. Linear reduction in the number of seats allocated by the formula used until now. An enlargement process would then have the same relative impact on the distribution of the number of members. The factor for the reduction would have to be calculated on each new accession, as a function of the ratio of the 750-member limit to the theoretical total number of members that would result from application of the current formula for both current member states and the accession countries.

In its further remarks, the report of the Committee on Constitutional Affairs briefly referred to one of the more popular proposals presented in the official debate within the Commission – the so-called "parabolic method".

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[4] The Report of Committee on Constitutional Affairs, pp. 15-16.

[5] It concerned the elections to the EP in 1994. At the meeting of the Council of Europe in 1992 at the request of the Parliament of the United Germany, a formula was devised, on the basis of which the given place were allocated: six seats for each Member State. In addition, one place for 500 thousand citizens for countries whose population amounted to 1 up to 25 million. Then, one place per million citizens, for countries with population between 25 of 60 million. Next, states whose population exceeded 60 million received one seat for each 2 million citizens. The model was placed in the Amsterdam Treaty, together with the upper limit of the total number of MEPs of 700.

5.2. Parabolic method

Parabolic method is one of the more exposed proposals for the allocation of the seats in the European Parliament between the Member States of the Union. It was presented by Ramirez Gonzalez [2007]. He suggested that the number of seats that each Member State is entitled to obtain should be appointed using a correctly chosen quadratic function. The steps for determining the number of mandates are as follows:

1. Assign the smallest state with the smallest possible number of seats – currently six.

2. Assign the largest state with the largest possible number of seats – currently 96.

3. Nominate the parameters a, b, c for the quadratic function $A(x) = a + bx + cx^2$ in such a way that total value of the function (the number of seats) for arguments x, being the population of Member States, equals 750.

4. Round the value of the function $A(x)$ to the closest natural number.

Gonzalez showed that (with some natural assumptions) this method gives always an unambiguous solution. In Table 2 (Column G), there are the numbers of mandates to be allocated to the individual states as a result of the use of this method.

The main advantage of the parabolic method is its simplicity, elegance, and the unambiguity of the result. What is equally important is the fact that it can easily be used with other (than determined in the amending Treaty) constraints. At the same time, the quadratic function (with a negative coefficient for x^2) is one of the more natural concave functions, which best implement the principle of degressive proportionality[6]. The disadvantage of the parabolic method is that it favours a few major countries of the Union (from France to Poland) and (perhaps for that very reason) it is difficult to accept by the remaining members of the Union. By comparing the composition of the current Parliament with the one set out by the parabolic method, we see that the greatest benefit from its application would fall to Spain.

5.3. Shifted proportionality

Another natural attempt to implement the principle of degressive proportionality is the so-called "shifted proportionality". The idea of division in this case is based on the proportional divisions for the allocation of indivisible goods, which are mandates in the Parliament. Each Member State shall obtain minimum (statutorily provided for) number of seats – currently six. The remaining mandates are divided using a fixed method of proportional distribution. Of course, also in this case, you need to make proper roundings. You can therefore consider three types of roundings by

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[6] The concavity of the proper function is not the condition needed for the realization of the principle of degressive proportionality, see [Dniestrzański 2011].

selecting, for example, one of the classic methods by: Adams, D'hondt, or Sainte'a-Lague. In the article, Cegiełka *et al.* [2010a] present the theoretical distribution of seats in the EP with regard to the three mentioned algorithms. The modifications of proportional divisions were seriously taken into account (as an alternative to the solutions adopted in the Treaty of Lisbon) in the course of work on a new electoral law to the EP. Among the first papers in which the natural proposals appeared were Pukelsheim's analyses [see Pukelsheim 2007].

5.4. Recurrence method

Yet another approach to the issue was proposed by Misztal [2011]. As a starting point he adopted the principle of relative proportionality, being the basis of degressive proportionality. Let l_i be population of a country, i, m_i – the number of seats in the EP at its disposal. The principle of relative proportionality forces the compliance of the implication:

$$l_i > l_j \implies \frac{l_i}{m_i} > \frac{l_j}{m_j}$$

Misztal proposes division of mandates while maintaining a constant difference of quotients population/mandates, he implements the following:

$$\frac{l_{i+1}}{m_{i+1}} - \frac{l_i}{m_i} = t_i$$

and next he considers divisions with a fixed ratio t_i. Coefficient t_i has to be chosen in such a way that the number of mandates distributed in this manner was as large as possible – and at the same time does not exceed 750. The recurrence begins in this algorithm from the smallest state. This means that the maximum number of seats, provided for by the Lisbon Treaty (96) may not be achieved. The problem of rounding, which appears also in previously discussed methods, is solved by Misztal by means of assuming as the mandate number allocated to the consecutive state the following value:

$$m_{i+1} = \max\left\{m_i, \left\lfloor \frac{l_{i+1}}{l_i / m_i + t_i} \right\rfloor\right\},$$

where the symbol $\lfloor \ \ \rfloor$ signifies rounding down to the closest integer. The author proved that this method always generates degressive proportionality.

6. Conclusions

The allocation of seats in the European Parliament between the Member States of the EU is a political issue as much as scientific one. Despite the consent of the community, as for the general rule, the problem lies in the clarification of the rules of the Lisbon Treaty. The Parliament resolution of 11 October 2007 (prepared by the Committee on Constitutional Affairs) not only did not resolve this issue, but rather stressed the importance of the problem and its complexity. The involvement of further scientific centres in the work on this topic may result in bringing the European Union closer to obtaining a solution acceptable to all its members.

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DEGRESYWNA PROPORCJONALNOŚĆ
W KONTEKŚCIE SKŁADU PARLAMENTU EUROPEJSKIEGO

Streszczenie: Unia Europejska, mimo wielu prób, nie ma precyzyjnie ustalonego algorytmu wyłaniania składu Parlamentu – wiadomo jedynie, że musi on być zgodny z ogólnie rozu-mianym podziałem degresywnie proporcjonalnym. W artykule autorzy przedstawiają historię problemu oraz analizę wybranych opracowań dotyczących tego zagadnienia oraz wyniki swoich badań.