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Logical Pillars of the Public Decision. From the Logic of Cooperation to the Political Market

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Abstract

The logic of cooperation substantiates the strategic powers of the public agents and their coalitions, thus bringing contribution to understanding the political mechanisms which determine the public decision. The public bodies, derived from a process of political choice turn into account the logic of cooperation in view to establish own managerial structures. In most situations, the political cooperation will represent a consequence of negotiation, based on political programmes, their compatibility as well as the voting power of the actors/political agents. The political market will represent the support of political cooperation and public decision, thus contributing to understanding of social phenomena such as the political or electoral ones. The current paper aims to emphasise the logical mechanisms of public decision in the context of the necessity to create post electoral coalitions, aimed at maximization of the impact of political options of the electorate. The empirical examples will refer to the recent local elections in Bucharest Municipality. The main tool consists in the “voting power” of the political agents and the results will substantiate a theoretical framework aimed to highlight the logical and systemic connections of public decision with the political market. The research methods will take into consideration both documentation and theoretical analysis, empirical research, modelling and statistic interpretation.

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1. Introduction

The paper aims to emphasise the logical mechanisms of public decision, in the context of the necessity to create post-electoral coalitions, aimed at maximization of the impact of the political options of electorate. The empirical examples refer to the local elections on 10 June 2012 in Bucharest Municipality (Romania). The instrument used consists in the „voting power” of the political agents (alliances or political parties), and the results are substantiating a theoretical framework aimed to highlight the logical and systemic connections of the public decision with the political market. The research methods take into consideration documentation and theoretical analysis, empirical research and statistic interpretation.

In view to emphasise the importance of logics of cooperation in public decision making, I presented a real example, calculating the values of a series of three indices concerning the power of political agents (alliances or political parties), to decide by vote: Penrose Index or Absolute Banzhaf Index, Normalized Banzhaf Index and

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Shapley – Shubik Index.

Within the example, there were calculated values of those three indices at the level of the six Sector Councils of Bucharest Municipality, after the local elections on 10 June 2012, both in decision making with absolute majority (50% + 1 of the total number of local councillors) and for the decisions which require qualified majority (2/3 of the total number of local councillors). Within the example, a series of comparisons between those indices are presented.

2. Logic of cooperation in public decision making

Cooperation represents a major problem in different fields, such as: informatics, economics, but also in certain social sciences. The specialty literature shows that there are different situation in which coalitions are made, which imply several agents. For instance, the local counselors of party „x”, who do not hold majority in a communal council, cannot elect the vice-mayor alone, but if they ally to vote with the local counselors of party „y”, then, they are able to. In general, agents can form groups, in order to divide complementary resources or because together they can obtain much better results than individually.

T. Kotarbinski defines a generic cooperation relationship between individuals, such as the term cooperation also embraces the relationships of hindering or prevention in executing an action by one agent against another. According to the same author, „two subjects are cooperating if at least one of them helps or hinders the other.” Thus defined, the term cooperation is the same thing with the exercise of an influence by one individual over the activity of another individual. Kotarbinski, T., 1976. (p. 125).

Henk Nieland in his work, „Logic of coalition in the voting procedures”, also refers to the cooperation logic.” The vote represents the center of democracy, from the election of the chess club president to the Parliamentary elections. Therefore, the correct and non – manipulative procedures of the vote are very important. Still, a satisfactory definition of what is „correct” was not yet given. Logic can help in reasoning regarding the correctness and efficiency of the vote, but also in other procedures of social choice. All voting procedures that developed throughout more than two centuries have disadvantages. He states that the social processes can be analyzed with logics derived from the formal methods used in computer science, including here the Logic of coalition that could lead to the automatic generation of „the most equitable” voting procedure.” Nobel Prize winner Kenneth J. Arrow demonstrated it is to be desired that a reasonable voting system must take into account five properties; no voting method will ever satisfy these properties, thus destroying a dream of social philosophers. Such a property is that the result of the vote should not depend exclusively on the voting behavior of a single individual. Another aspect is the exclusion of the "strategic vote", in case that, for example, one group can prevent the adoption of a law by means of a vote which is not according to the own preferences, but, in this way, the voting process will not reach any decision. Henk, N. 2002. (p 32).

The concept of „logic of cooperation” is also met in the Romanian specialty literature, in the works or studies written by: Cornel Popa. Popa, C. Coordinator. 1983.

2.1. Voting power

An important problem that was presented within the paper is the voting power and, implicitly, the voting decision power.

Intuitively, says Adrian Miroiu, the voting power of parties, states, shareholders etc. differs, as the number of votes they have is different. Miroiu, A. 2007. (p 87).

“A determining element for establishing the voting power of an actor or agent is not the number of votes, but what he can do with those votes; hence, how he can use them in order to enter a winning coalition. Therefore, the voting power of an actor or agent will depend on the number or weight of the winning coalitions that he is part of (if each actor has the same number of votes – hence, in the general way, the rule of aggregation of individual preferences to which one resorts has the property of anonymity – then this number and the respective weight are identical for all actors).” It must be underlined the fact that it “is not relevant only the fact that the actor is part of a winning coalition or not (in fact, the group of all actors is a winning coalition – and from here derives that each actor will have a certain voting power). Something else is significant: namely if the actor’s presence within the coalition is essential or not; if that coalition remains winning or not even if the respective actor is eliminated from it.” Miroiu, A. 2007. (pp 90 - 91).

It will be more appropriate to consider that the voting power is the ability of a legislator or deliberator (Parliamentarian or local counselor), by means of his vote, to affect whether a measure is passed or not. This ability depends, in turn, on a number of complex factors, including the total votes allocated to each individual representative, the distribution of votes among the other legislators, the total number of members of a certain body.”Banzhaf, J., F. 1965 (p 318).

Let us assume a real example of the Local Councils of the sectors of Bucharest Municipality, after the local elections on 10 June 2012, their regime being regulated by the Law no. 64/2004, for electing the authorities of local public administration (local councils, county councils, mayors and presidents of county councils) republished, with further amendments. The number of councillors for the local and county councils is established by Order of Prefect, according to the provisions of Law no. 215/2001, republished.

According to the advertisement of the Electoral Bureau of constituency no. 42 of Bucharest Municipality, on 13.06.2012, the following political formations have obtained mandates of councillors in the sector local councils: USL (Social Liberal Union comprising the Social Democrat Party and the Center Right Alliance composed of the National Liberal Party and Conservatory Party), PDL (Democrat Liberal Party), PP – DD (Party of the People – Dan Diaconescu) and UNPR (National Union for the Progress of Romania).

The distribution of the mandates on political formations (alliances or political parties) is presented in Table 1.

Table 1. Synoptic table regarding the composition of the Local Council of the sectors within the City of Bucharest *

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	19	14	20	20	18	18
PDL	5	5	7	4	5	6
PP - DD	3	3	4	3	4	3
UNPR	0	5	0	0	0	0
Total mandates	27 mandates	27 mandates	31 mandates	27 mandates	27 mandates	27 mandates

In a first stage we shall calculate Penrose Index for decision-making (adopting the Decisions by the respective Local Council) with absolute majority of $50\% + 1$ of the total number of local councillors (Table 1), afterwards the share is changed to $2/3$ of the total number of local councillors (Table 3), as there are situations where the decisions in order to be valid require a qualified majority (as mandatory rule of decision).

Table 2. Penrose index computed at the level of the six local councils of the City of Bucharest for a share of $50\% + 1$ *

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	1,00	1,00	1,00	1,00	1,00	1,00
PDL	0,00	0,00	0,00	0,00	0,00	0,00
PP - DD	0,00	0,00	0,00	0,00	0,00	0,00
UNPR		0,00				
Share $50\% + 1$	Share = 14	Share = 14	Share = 16	Share = 14	Share = 14	Share = 14

*Source: Advertisement, Electoral Bureau of the Constituency no. 42 Bucharest Municipality, on 13.06.2012. available at http://www4.pmb.ro/wwwt/bem_2012/docs/Anunt_20120613.pdf, accessed on 20.09.2012;

*The calculations were achieved using the algorithms proposed by Leech., D., See <http://www.warwick.ac.uk/~eaae/ipdirect.html>, accessed on 21.09.2012;

Table 3. Penrose index computed at the level of the six Local Council of the City of Bucharest for a share of 2/3*

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	1,00	0,75	0,75	1,00	1,00	1,00
PDL	0,00	0,25	0,25	0,00	0,00	0,00
PP - DD	0,00	0,00	0,25	0,00	0,00	0,00
UNPR		0,25				
Share 2/3	Share = 18	Share = 18	Share = 21	Share = 18	Share = 18	Share = 18

In Tables 4 and 5 there are presented values of the relative voting power index for agents in six sector local councils, firstly for the share of 50% + 1 of the total number of local councillors (absolute majority - Table 4), afterwards the share being changed to 2/3 of the total number of local councillors (qualified majority – Table 5).

Table 4. The normalized Banzhaf index, computed at the level of the six Local Councils of the City of Bucharest for a share of 50% + 1*

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	1,00	1,00	1,00	1,00	1,00	1,00
PDL	0,00	0,00	0,00	0,00	0,00	0,00
PP - DD	0,00	0,00	0,00	0,00	0,00	0,00
UNPR		0,00				
Share 50% + 1	Share = 14	Share = 14	Share = 16	Share = 14	Share = 14	Share = 14

Table 5. The normalized Banzhaf index, computed at the level of the six Local Councils of the City of Bucharest for a share of 2/3 *

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	1,00	0,60	0,60	1,00	1,00	1,00
PDL	0,00	0,20	0,20	0,00	0,00	0,00
PP - DD	0,00	0,00	0,20	0,00	0,00	0,00
UNPR		0,20				
Share 2/3	Share = 18	Share = 18	Share = 21	Share = 18	Share = 18	Share = 18

Further we shall continue the real example and we shall calculate the value of Shapley - Shubik Index, at the level of the six sector local councils of Bucharest Municipality, firstly for the share of 50% + 1 of the total number of local councillors (absolute majority - Table 6), afterwards the share being changed to 2/3 of the total number of local councillors (qualified majority – Table 7).

* The calculations were achieved using the algorithms proposed by Leech., D., See <http://www.warwick.ac.uk/~ecaae/ipdirect.html>, accessed on 21.09.2012;

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Table 6. The Shapley – Shubik index, computed at the level of the six Local Councils of the City of Bucharest for a share of 50% + 1*

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	1,00	1,00	1,00	1,00	1,00	1,00
PDL	0,00	0,00	0,00	0,00	0,00	0,00
PP - DD	0,00	0,00	0,00	0,00	0,00	0,00
UNPR		0,00				
Share 50% + 1	Share = 14	Share = 14	Share = 16	Share = 14	Share = 14	Share = 14

Table 7. The Shapley – Shubik index, computed at the level of the six Local Councils of the City of Bucharest for a share of 2/3*

Parties/ Alliances	Local Council Sector 1	Local Council Sector 2	Local Council Sector 3	Local Council Sector 4	Local Council Sector 5	Local Council Sector 6
USL	1,00	0,67	0,67	1,00	1,00	1,00
PDL	0,00	0,17	0,17	0,00	0,00	0,00
PP - DD	0,00	0,00	0,17	0,00	0,00	0,00
UNPR		0,17				
Share 2/3	Share = 18	Share = 18	Share = 21	Share = 18	Share = 18	Share = 18

Conclusions

According to the example, we may conclude that for the decision by vote with absolute majority (50% + 1 of the total number of local councillors), since the local elections on 10 June 2012, USL alliance (comprising PSD and PNL + PC) has become a majority actor in the six sector local councils of Bucharest Municipality, the three indices (Penrose, normalized Banzhaf and Shapley - Shubik) calculated having the value of 1, thus demonstrating that it can decide alone in those local councils, without requiring the other actors (PDL, PP - DD and UNPR), which become dummy in this decisional process, the value of the three indices being 0.

When the decisions are made by qualified majority, the things are quite different.

Whenever there is an actor holding a number of mandates of local councillor equal to 2/3 of total mandates, it will have the value of the three indices equal to 1. This is the case of USL alliance in the local councils of sectors 1, 4, 5 and 6, when it can make alone decisions even if a qualified majority is required.

For the local council of sector 2 of Bucharest Municipality, no actor has 2/3 of the mandates of local councillors, so they cannot make alone decisions which require qualified majority, and thus they have to form alliances. The possible alliances that may lead to valid decisions (Tables 3, 5 and 7) could be USL and UNPR, or USL and PDL, which is less probable. Also in this situation we have an actor, PP – DD, which is dummy in the decisional process, having a voting power equal to 0.

In the local council of sector 3 of Bucharest Municipality, there is another situation as this sector with larger population has 31 local councillors related to 27 local councillors at the other 5 sector local councils. In this case there is no actor holding 2/3 of the mandates of local councillors, so they have to form alliances for making decisions in situations requiring a qualified majority. The possible alliances are: an alternative comprising USL and PP - DD and the second alternative comprising USL and PDL, less probable due to the fact that PDL held the power during 2008 – 2012 (it had 18 mandates from 27) and USL was in opposition.

According to the calculations, we may remark that in certain cases, even if a certain agent has a small number of mandates, it holds a certain voting power and implicitly the power to decide by vote, influencing the public decision if it belongs to a winning coalition. In this situation we find the agents PDL or UNPR (each holding a

* The calculations were achieved using the algorithms proposed by Leech, D., See <http://homepages.warwick.ac.uk/~ecaae/ssdirect.html>, accessed on 21.09.2012;

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number of 5 mandates of local councillor) in the local council of sector 2 of Bucharest Municipality, if any of them forms a coalition with USL when the decisions are made with qualified majority. In a similar situation is PP – DD and also PDL (with a number of 4, respectively 7 mandates of local councillors) in the local council of sector 3 of Bucharest Municipality, if any of them forms alliance with USL when the decisions are made by qualified majority.

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