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How much of Federalism in the European Union

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How much of Federalism in the European Union

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Abstract:
The European Union (EU) is not de jure a federation, but after 50 years of institutional evolution it possesses attributes of a federal state. One can conclude that EU is "something between" federation and intergovernmental organization. If we measure "something between" by interval [0, 1], where 0 means fully intergovernmental organization and 1 means de facto federation, the questions are: What is the location of recent EU on this interval? What tendency of development of this location can be observed in time? In this paper we propose such a measure based on game-theoretical model of European Union decision making system.

Keywords: Co-decision procedure, committee system, consultation procedure, European Union decision making, federation, intergovernmental organization, qualified majority, power indices, simple voting committee

JEL: C71, D72, H77

1. European Union: an intergovernmental organization or federation?

Unions of states consist of member states with national governments and of some forms of supranational institutions. The constitutional framework of a union follows from Treaties among all member states.

One can consider two forms of governance in the union: Inter-governmental arrangement, when any decision-making is based on consensus of sovereign governments of all member states, and supranational institutions are coordinating execution of unanimous decisions. Federal arrangement, when member states transfer parts of their decision-making sovereignty to supranational institutions.

While intergovernmental arrangement is based on union understood as an international organization, federation is a union comprising a number of partially self-governing states or regions united by a central ("federal") government. In a federation, the self-governing status of the member states is typically constitutionally entrenched and may not be altered by a unilateral decision of the central government.

The form of government or constitutional structure found in a federation is known as **federalism**. It can be considered the opposite of another system, the unitary state.

A unitary state is sometimes one with only a single, centralized, national tier of government. However, unitary states often also include one or more self-governing regions. The difference between a

federation and this kind of unitary state is that in a unitary state the autonomous status of self-governing regions exists by the sufferance of the central government, and may be unilaterally revoked. While it is common for a federation to be brought into being by agreement between formally independent states, in a unitary state self-governing regions are often created through a process of devolution, where a formerly centralized state agrees to grant autonomy to a region that was previously entirely subordinate.

The European Union (EU) is not *de jure* a federation, but after 50 years of institutional evolution it possesses attributes of a federal state. However, its central government is far weaker than that of most federations and the individual members are sovereign states under international law, so it is usually characterized as an unprecedented form of supra-national union. The EU has responsibility for important areas such as trade, monetary union, agriculture, fisheries, and today around sixty per cent of the legislation in member-states originates in the institutions of the Union. Nonetheless, EU member-states retain the right to act independently in matters of foreign policy and defense, and also enjoy a near monopoly over other major policy areas such as criminal justice and taxation. The proposed Treaty of Lisbon would codify the Member States' right to leave the Union, but would at the same time also provide the European Union with significantly more power in many areas. The European Union is being given "legal personality" and taking unto itself powers that it formerly exercised only in a representative capacity for the Member States. Different concepts of federalism in the EU and problems with Lisbon Treaty are discussed e.g. in Jovanovic (2005, 54-88).

One can conclude that EU is “something between” federation and inter-governmental organization. If we measure “something between” by interval [0, 1], where 0 means fully intergovernmental organization and 1 means de facto federation, the questions are: What is the location of recent EU governance on this interval? What tendency in development of this location can be observed in time?

In this paper we propose such a measure based on game-theoretical model of European Union decision making system. Actors of EU decision making are Council of Ministers (representing governments of member states), European Commission (representing super-national interests) and European Parliament (composed of

European political parties groups, directly elected and representing citizens interests on political basis). While decision making involving Council of Ministers comprises inter-governmental element in European Union governance, decision making involving European Commission and European Parliament represents elements of federal governance of the EU. Then we can look what is an "influence" or "power" of Council of Ministers and national governments in the EU decision making compared to "influence" or power of supranational institutions not directly linked to national governments (Commission and the European Parliament). Location of the EU on the scale of the "fully intergovernmental" and "fully federal" governance can be estimated by comparison of decision making power of its inter-governmental body (Council) and supranational bodies (Commission and the European Parliament).

In discussions about distribution of decisional power in the EU only the distribution of voting weights in the Council of Ministers qualified majority voting is usually taken into account. In contrast to that, in this paper we analyze models of consultation and co-decision procedures in decision-making of the European Union institutions: Commission, Council of Ministers and European Parliament. While consultation procedure is a "game" between Council and Commission with agenda setting role of Commission and consultation role of the European Parliament, co-decision procedure involves all three most important European institution providing each of them with unconditional veto right. Table 1 illustrates broad use of consultation and co-decision procedures in legislative acts decided by European Union institutions during 2000-2006. Consultation and co-decision are usual methods of European governance and Council of Ministers is not an exclusive decision maker in the EU. In this paper, using power indices methodology, a distribution of influence among Commission, Council and the Parliament under different decision making procedures is being evaluated, together with voting power of member states and European political parties.

Table 1
Number of legislative proposals under consultation and co-decision procedures 2000-2006

	2000	2001	2002	2003	2004	2005	2006
CNP	150	140	118	152	121	132	126
CDP	94	84	140	117	73	88	112

Source: PreLex database (http://ec.europa.eu/prelex/rech_simple.cfm?CL=en)
CNP = consultation procedure, CDP = co-decision procedure.

The inter-institutional distribution of power (among Commission, Council and European Parliament) in decision making procedures of the EU (consultation procedure, and co-decision procedure) had been analyzed in Widgrén (1996), Laruelle and Widgrén (1997) and Napel and Widgrén (2004). While in the first paper (Widgrén (1996)) traditional committee model is developed for consultation procedure (consultation procedure as a committee of n member states plus Commission with composite voting rule), other models are formulated in terms of three unitary actors (Commission, Council and Parliament) extensive form games, without decomposition of the Council into member states and the Parliament into party factions. European multi-cameral procedures were studied also by König and Bräuninger (2001) by explicit analysis of winning coalitions in multi-cameral decision making, but without formulation of corresponding voting game model. Traditional power indices approach to disaggregate modeling of consultation and co-decision procedure, allowing express both inter-institutional and intra-institutional influence was presented in Turnovec (2004, 2008a, 2008b). In this paper we extend this stream of models associating influence of member states governments in the Council of Ministers voting with inter-governmentalist attributes, and the influence of Commission and Parliament (European political parties) in basic legislative procedures with federalist attributes of the European Union.

2. Methodology: Committees and voting power

Let n be a positive integer, $\mathbf{w} = (w_1, w_2, \ldots, w_n)$ be a nonnegative real valued vector and q be a real number such that

$$\frac{1}{2}\sum_{i=1}^{n} w_i < q \leq \sum_{i=1}^{n} w_i$$

By a weighted majority game of n members (Owen 1982) we mean a triple [N, q, **w**] in which N = {1, 2, …, n}. Number w_i is called a weight of member i, q is called a quota, any subset S ⊆ N is called a coalition in [N, q, **w**]. Coalition S is called a winning one if $\sum_{i \in S} w_i \geq q$ and losing one otherwise. Weighted majority game provides a model of a simple voting committee (single camera committee in which each member has one weight).

Models of simple voting committees and committee systems are applicable to political science, as they provide instruments for analysis of a priori voting power of their members. Voting power analysis seeks an answer to the following question: Given a simple voting committee or a committee system, what is an influence of its members over the outcome of voting? Voting power of a member i is a probability that i will be decisive in the sense that such situation appears in which she would be able to reverse the outcome of voting by reversing her vote. To define a particular power measure means to identify some qualitative property (decisiveness) whose presence or absence in voting process can be established and quantified (e.g. Nurmi 1997).

Voting power analysis seeks an answer to the following question: Given a simple voting committee$[N, q, \mathbf{w}]$, what is an influence of its members over the outcome of voting? Absolute voting power of a member i is defined as a probability $\Pi_i[N, q, \mathbf{w}]$ that i will be decisive in the sense that such situation appears in which she would be able to decide the outcome of voting by her vote (Nurmi (1997)), and a relative voting power as

$$p_i[N, q, \mathbf{w}] = \frac{\Pi_i[N, q, \mathbf{w}]}{\sum_{k \in N} \Pi_k[N, q, \mathbf{w}]}.$$

Two basic concepts of decisiveness are used: ***swing position*** as an ability of individual voter to change by unilateral switch from YES to NO outcome of voting, and ***pivotal position***, such position of individual voter in a permutation of voters expressing ranking of attitudes of members to voted issue (from most preferable to least preferable) and corresponding order of forming of winning configuration, in which her vote YES means YES outcome of voting and her vote NO means NO outcome of voting in the committee.

Let us denote by $s_i(N, q, \mathbf{w})$ the number of swing positions of i-th member and by $p_i(N, q, \mathbf{w})$ the number of pivotal positions of i-th member in simple voting committee [N, q, w].

Assuming many voting acts and all configurations equally likely, it makes sense to evaluate a priori voting power of each member of the committee by probability to have a swing, measured by absolute Penrose-Banzhaf (PB) power index (Penrose (1946), Banzhaf (1965)):

$$\Pi_i^{PB}(N, q, \mathbf{w}) = \frac{s_i}{2^{n-1}}$$

(s_i is the number of swings of the member i and 2^{n-1} is the number of configurations with i).

To compare relative power of different committee members, relative form of PB power index is used:

$$p_i^{PB}(N, q, \mathbf{w}) = \frac{s_i}{\sum_{k \in N} s_k}$$

Assuming many voting acts and all possible preference orderings equally likely, it makes sense to evaluate an a priori voting power of each committee member as a probability of being in pivotal situation, measured by Shapley-Shubik (SS) power index (Shapley and Shubik (1954)):

$$\Pi_i^{SS}(N, q, \mathbf{w}) = \frac{p_i}{n!}$$

(p_i is the number of pivotal positions of the committee member i, and n! is the number of permutations of all committee members). Since $\sum_{i \in N} p_i = n!$, it holds that

$$p_i^{SS}(N, q, \mathbf{w}) = \frac{p_i}{\sum_{k \in N} p_k},$$

i.e. absolute and relative form of the SS-power index is the same.[1]

[1] Supporters of Penrose-Banzhaf power concept are sometimes refusing Shapley-Shubik index as a measure of voting power. Their objections to Shapley-Shubik power concept are based on classification of power measures on so called I-power (voter's potential influence over the outcome of voting) and P power (expected relative share in a fixed prize available to the winning group of committee members based on cooperative game theory) introduced by Felsenthal, Machover and Zwicker (1998). Shapley-Shubik power index was declared to represent P-power and as such unusable for measuring influence in voting. We tried to show (Turnovec (2007), Turnovec, Mercik, Mazurkiewicz (2008)) that objections against Shapley-Shubik power index, based on its interpretation as a P-power concept, are not sufficiently justified. Both Shapley-Shubik and Penrose-Banzhaf measure could be successfully derived as cooperative game values, and at the same time both of them can be interpreted as probabilties of being in some decisive position (pivot, swing) without using cooperative game theory at all

Let $C_1 = [N_1, q_1, \mathbf{w}_1]$ and $C_2 = [N_2, q_2, \mathbf{w}_2]$ be a pair of simple voting committees. Then w_{ij} (j = 1, 2) denotes the weight of member $i \in N_j$ in C_j, and q_j is the quota in committee C_j. Let $N = N_1 \cup N_2$. By $\overline{\mathbf{w}}_1$ and $\overline{\mathbf{w}}_2$ we denote zero extension of weight vectors $\mathbf{w}_1$, $\mathbf{w}_2$ with respect to $N = N_1 \cup N_2$ such that $\overline{w}_{ij} = w_{ij}$ if $i \in N_j$ and $\overline{w}_{ij} = 0$ if $i \notin N_j$. Let $S_1 \subseteq N_1$ be a coalition in C_1 and $S_2 \subseteq N_2$ be a coalition in C_2, then $S = S_1 \cup S_2 \subseteq N$ is a joint coalition of members of C_1 and C_2. We assume that the same members (if any) vote identically in both committees. Simple voting committee $\overline{C}_j = [N_1 \cup N_2, q_j, \overline{w}_j]$ we call a zero extension of C_j with respect to $N_1 \cup N_2$. Considering an interrelated system of two simple voting committees with different (possibly overlapping) sets of members in which final outcome of voting depends on result of voting in both committees we have to substitute the corresponding simple voting committees by their zero extensions with the same sets of members.

The union $C_1 \cup C_2$ of two committees $C_1 = [N_1, q_1, \mathbf{w}_1]$ and $C_2 = [N_2, q_2, \mathbf{w}_2]$ is the committee $\overline{C}_1 \cup \overline{C}_2 = [N_1 \cup N_2, q_1 \wedge q_2, \overline{\mathbf{w}}_1, \overline{\mathbf{w}}_2]$ with the following composite voting rule: a proposal to be passed has to obtain votes representing at least total weight q_1 in committee C_1 **or** at least total weight q_2 in committee C_2. A coalition $S \subseteq N_1 \cup N_2$ such that $S = S_1 \cup S_2$, $S_1 \subseteq N_1$, $S_2 \subseteq N_2$ is a winning coalition in $C_1 \cup C_2$ if S_1 is winning coalition in C_1 or S_2 is winning coalition in C_2, The set of all winning coalitions in $C_1 \cup C_2$ is equal to the union of the sets of all winning coalitions in $\overline{C}_1$ and $\overline{C}_2$.

The intersection $C_1 \cap C_2$ of two committees $C_1 = [N_1, q_1, \mathbf{w}_1]$ and $C_2 = [N_2, q_2, \mathbf{w}_2]$ is the committee $\overline{C}_1 \cap \overline{C}_2 = [N_1 \cup N_2, q_1 \vee q_2, \overline{\mathbf{w}}_1, \overline{\mathbf{w}}_2]$ with the following composite voting rule: a proposal to be passed has to obtain votes representing at least total weight q_1 in committee C_1 **and** at least total weight q_2 in committee C_2. A coalition $S \subseteq N_1 \cup N_2$ such that $S = S_1 \cup S_2$, $S_1 \subseteq N_1$, $S_2 \subseteq N_2$ is a winning coalition in $C_1 \cup C_2$ if S_1 is winning coalition in C_1 and S_2 is winning coalition in C_2, The set of all winning coalitions in $C_1 \cap C_2$ is equal to the intersection of the sets of all winning coalitions in $\overline{C}_1$ and $\overline{C}_2$.

Using union and intersection operations we can construct logical combinations of simple voting committees. For example, $[N_1 \cup N_2 \cup N_3, (q_1 \vee q_2) \wedge q_3, \overline{\mathbf{w}}_1, \overline{\mathbf{w}}_2, \overline{\mathbf{w}}_3]$ is a logical combination of three simple voting

committees [N_1, q_1, $\mathbf{w}_1$], [N_2, q_2, $\mathbf{w}_2$], [N_3, q_3, $\mathbf{w}_3$] with the following composite voting rule: a proposal to be passed has to obtain either at least q_1 weights in simple voting committee [N_1, q_1, $\mathbf{w}_1$] and at least q_2 weights in simple voting committee [N_2, q_2, $\mathbf{w}_2$], or at least q_3 weights in simple voting committee [N_3, q_3, $\mathbf{w}_3$]. Logical combinations of simple voting committees provide models of committee systems (committees in which each member has more weights or multi-camera committees consisting of several simple voting committees and complex voting rules).

Definition of swings and pivots can be easily extended for logical combinations of simple voting committees.

Proposition 1

Let C_1 = [N1, q1, w1] and C_2 = [N2, q2, w2] be two simple committees, $\overline{C}_1 \cap \overline{C}_2$ be their intersection, $\overline{C}_1 \cup \overline{C}_2$ be their union, $i \in N_1 \cup N_2$, s_i be the number of swings and p_i be the number of pivots of member i, then

$$s_i(\overline{C}_1 \cup \overline{C}_2) + s_i(\overline{C}_1 \cap \overline{C}_2) = s_i(\overline{C}_1) + s_i(\overline{C}_2)$$

and

$$p_i(\overline{C}_1 \cup \overline{C}_2) + p_i(\overline{C}_1 \cap \overline{C}_2) = p_i(\overline{C}_1) + p_i(\overline{C}_2)$$

Proof: see in Turnovec (2008a, 158)

From Proposition 1 it follows that

$$\Pi_i^{PB}(\overline{C}_1 \cup \overline{C}_2) + \Pi_i^{PB}(\overline{C}_1 \cap \overline{C}_2) = \Pi_i^{PB}(\overline{C}_1) + \Pi_i^{PB}(\overline{C}_2)$$

and

$$\Pi_i^{SS}(\overline{C}_1 \cup \overline{C}_2) + \Pi_i^{SS}(\overline{C}_1 \cap \overline{C}_2) = \Pi_i^{SS}(\overline{C}_1) + \Pi_i^{SS}(\overline{C}_2)$$

Proposition 2

Len N is the set of members of a simple voting committee and $\boldsymbol{\pi}^{SS}$ is the vector of Shapley-Shubik power indices (by definition its component p_i^{SS} is the probability that member i is in pivotal situation). If $R \subseteq N$ is a group of committee members, then $\sum_{i \in R} p_i^{SS}$ is the probability that group R is in pivotal situation in the sense that somebody of its members is pivotal.

From Proposition 2 it follows that using SS-power index measure we can evaluate power of any subgroups of members by sum of power in dices of its members. Penrose-Banzhaf power index does not have this property.

3. Models of qualified majority, consultation and co-decision procedures

We shall use concept of logical combinations of simple voting committees for construction of simplified models of the EU decision making and evaluation of influence of different actors (national governments, European political parties) and institutions (Council of Ministers, Commission, European Parliament). In the models we are using the following notations:

N set of members states (i = 1, 2, …, n),

$N \cup \{1\}$ set of actors in consultation procedure (member states governments plus Commission),

M set of factions in European Parliament (European political parties),

v_i number of votes assigned to member state i,

s_j number of seats of European political party j,

v vector of member states votes in the Council (vote weights, as defined in Nice),

p vector of shares of member states population,

e summation vector (one state – one vote weights),

s vector of "weights" (numbers of seats) of political parties in the European Parliament**,**

q votes quota in the Council (minimal number of votes required to pass a proposal),

c member states majority quota in the Council (minimal number of member states required to pass a proposal),

r a population majority quota in the Council (the countries supporting the proposal must represent at least r% of total population of the member states supporting the proposal),

t a majority quota in the European Parliament (minimal number of the members of EP required to pass a proposal).

$\mathbf{x}^{(-k)} \in R_{n+k}$ denotes left zero extension of x (first k components are equal zero),

$\mathbf{x}^{(+k)} \in R_{n+k}$ denotes right zero extension of x (last k components are equal zero),

$\mathbf{e}_{(n,j)} \in R_n$ denotes the n-dimensional unit vector with j-th component equal to 1, all other components equal 0.

In Table 2 we provide voting weights and quotas used in different procedures of European Union decision making.

Table 2, Weights and quotas in EU27

	Votes	Share (%)	Population (mil)	Share (%)	Country	Share (%)	Seats	Share (%)
Council of Ministers								
Germany	29	8,41	82,10	16,71	1	3,70		
France	29	8,41	61,40	12,49	1	3,70		
UK	29	8,41	60,50	12,31	1	3,70		
Italy	29	8,41	58,00	11,80	1	3,70		
Spain	27	7,83	44,70	9,10	1	3,70		
Poland	27	7,83	38,10	7,75	1	3,70		
Romania	14	4,06	21,70	4,42	1	3,70		
Netherlands	13	3,77	16,50	3,36	1	3,70		
Greece	12	3,48	11,10	2,26	1	3,70		
Portugal	12	3,48	10,60	2,16	1	3,70		
Belgium	12	3,48	10,40	2,12	1	3,70		
Czech R.	12	3,48	10,30	2,10	1	3,70		
Hungary	12	3,48	10,00	2,04	1	3,70		
Sweden	10	2,90	9,10	1,85	1	3,70		
Austria	10	2,90	8,30	1,69	1	3,70		
Bulgaria	10	2,90	7,70	1,57	1	3,70		
Slovakia	7	2,03	5,40	1,10	1	3,70		
Denmark	7	2,03	5,40	1,10	1	3,70		
Finland	7	2,03	5,20	1,06	1	3,70		
Island	7	2,03	4,20	0,85	1	3,70		
Lithuania	7	2,03	3,40	0,69	1	3,70		
Latvia	4	1,16	2,30	0,47	1	3,70		
Slovenia	4	1,16	2,00	0,41	1	3,70		
Estonia	4	1,16	1,30	0,26	1	3,70		
Cyprus	4	1,16	0,80	0,16	1	3,70		
Luxembourg	4	1,16	0,50	0,10	1	3,70		
Malta	3	0,87	0,40	0,08	1	3,70		
European Parliament								
EPP-ED							277	35,29
PES							218	27,77
ALDE							105	13,38
UEN							44	5,61
Greens-EFA							42	5,35
GUE-NGL							41	5,22
IND-DEM							23	2,93
ITS							21	2,68
NI							14	1,78
Total	345	100	491,40	100	27	100	785	100,00
Quotas								
quota Nice	255	73,91%	304,67	62%	14	50,01%	393	50,01
quota Lisbon			319,41	65%	15	55%	393	50,01
quota SR							393	50,01

Source: http://europa.eu/institutions/inst/index_en.htm

3.1 Council of Ministers: qualified majority problem

Most of the analyses of the EU decision making are focused on voting in the Council. Distribution of power in the EU Council of Ministers and European and the development associated with the 1995, 2004 and 2007 enlargement of the EU has been analyzed in Brams and Affuso (1985), Widgrén (1994, 1995), Turnovec (1996, 2001, 2002), Bindseil and Hantke (1997), Laruelle (1998), Steunenberg, Smidtchen and Koboldt (1999), Nurmi (2000), Nurmi, Meskanen and Pajala (2001), Kőnig and Brauninger (2001), Leech (2002), Felsenthal and Machover (2004a, 2004b), Hosli and Machover (2004), Plechanovová (2004), Baldwin and Widgrén (2004), Słomczyński and Życzkowski (2006, 2007), Hosli (2008), Leech and Azis (2008) and many others. Also in political discussions the problem of influence in Council voting is presented as the crucial one, as a corner stone of national influence in the EU decision making. Let us shortly resume models of qualified majority voting in terms of unions and intersections of simple voting committees.

3.1.1 Status quo qualified majority, the Nice Treaty

By Nice Treaty (2000) a qualified majority in the Council voting in recent EU is reached if the following three conditions are met:

a) minimum of 255 votes of member states is cast in favor of the proposal, out of a total of 345 votes,

b) a majority of Member states approve the proposal,[2]

c) votes in favor represent at least 62% of the total population of the Union.

Each member state has a fixed number of votes. The number of votes allocated to each country is roughly determined by its population, but progressively weighted in favor of less populated countries (see Table 2).

Let us consider three weighted majority games:

$$C_1 = [N, q, \mathbf{v}]$$
$$C_2 = [N, r, \mathbf{p}]$$
$$C_3 = [N, c, \mathbf{e}]$$

[2] In some cases (when the Council is not acting on a proposal of Commission) two-thirds majority is required.

where N is the set of member states (n = card (N) is the number of member states), q is the quota of votes, **v** is the vector of Member States votes, r is the population quota, **p** is the vector of Member States shares of population (in %), c = int (n/2) + 1 is the member states quota and **e** is a summation vector (one state one vote). The Nice qualified majority rule can be modeled as committee system generated by the intersection of C_1, C_2, and C_3:

$$C_{QMN} = C_1 \cap C_2 \cap C_3 = [N, q \vee r \vee c, \mathbf{v}, \mathbf{p}, \mathbf{e}]$$

In EU27 n = 27, q = 345, r = 62%, c = 14 (member states weights and quotas see in Table 2).

3.1.2 Controversial future, Lisbon Treaty qualified majority

If the Lisbon Treaty (2007) comes into force, qualified majority rule will be simplified. In this case, for passing a proposal in the Council, a "double majority" of at least 55% of the member states[3] that represent at least 65% of the population of the Union is required. In addition, a proposal backed by n-3 member states is always adopted, even if they do not represent 65% of population.

Let us consider three weighted majority games:

$$C_1 = [N, r, \mathbf{p}]$$
$$C_2 = [N, c_1, \mathbf{e}]$$
$$C_3 = [N, c_2, \mathbf{e}]$$

where N is the set of member states (n = card (N) is the number of member states), r is the population quota, **p** is the vector of Member States shares of population (in %), c_1 = int (55n/100) + 1 is the member states quota, c_2 = n-3 is alternative member states quota and **e** is a summation vector (one state one vote).The Lisbon qualified majority rule can be modeled as a committee system generated by the intersection of $C_1$and C_2, and union of $(C_1 \cap C_2)$ and C_3:

$$C_{QML} = (C_1 \cap C_2) \cup C_3 = [N, (r \vee c_1) \wedge c_2, \mathbf{p}, \mathbf{e}, \mathbf{e}], c_2 > c_1$$

[3] When the Council is not acting on a proposal of Commission, majority of 72% of member states is required.

In EU27 r = 65%, c_1 = 15, c_2 = 24 (member states weights and quotas see in Table 2).

3.2 Council and Commission: Consultation procedure

We assume that voting in the Commission is not influenced by citizenship of Commissioners and by their ideological preferences, Commission is deciding as a collective body and results of its voting are not known.

The European Commission sends its proposal to both the Council of Ministers and European Parliament, but it is the Council that officially consults Parliament and other bodies. However, the Council is not bound by Parliament's position, so the Parliament can not change the proposal or prevent its adoption. Then Council either approves the proposal by qualified majority or rejects it by blocking minority, or amends it by unanimity. Depending on the version of qualified majority in the Council we have three models of consultation procedure.

3.2.1 Status quo: Nice version of consultation procedure

From committee system for qualified majority C_{QMN} = [N, q∨r∨c, **v**, **p**, **e**] we obtain the following model of consultation procedure:

$$C_{CNPN} = [N\cup\{1\}, ((q\vee r\vee c)\vee 1)\wedge n, \mathbf{v}^{(+1)}, \mathbf{p}^{(+1)}, \mathbf{e}^{(+1)}, \mathbf{e}_{(n+1,n+1)}, \mathbf{e}^{(+1)}]$$

The proposal is accepted if it is supported by Commission and approved by Nice qualified majority in the Council (not less than q = 345 votes, at least r = 62% of population and at least c = 14 member states), or changed if it has unanimity support of all n member states in the Council, even if the change is not supported by Commission.

3.2.2 Lisbon version of consultation procedure

$$C_{CNPL} = [N\cup\{1\}, ((r\vee c_1)\wedge c_2)\vee 1)\wedge n, \mathbf{p}^{(+1)}, \mathbf{e}^{(+1)}), \mathbf{e}^{(+1)}, \mathbf{e}_{(n+1,n+1)}, \mathbf{e}^{(+1)}]$$

The proposal is accepted if it is supported by Commission and approved by Constitution qualified majority in the Council (at least r = 65% of population and at least c_1 = 55% of member states, or at least 24 member states even without population quota, or changed if it has unanimity support, even if the change is not supported by Commission).

3.3 Co-decision procedure

Co-decision procedure was introduced in 1992 (Maastricht) and modified in 1997 (Amsterdam).

New legislative proposal is drafted by Commission and submitted to the Council and the Parliament. In the first reading the Council adopts by qualified majority „common position", including amendments, and EP approves by simple majority its position including amendments. If the two institutions have agreed on the same amendments after the first reading, the proposal becomes law. Otherwise there is a second reading in each institution, where each considers the others' amendments. If the institutions are unable to reach agreement after second reading, a conciliation committee is set up with equal number of members of Parliament and Council. The committee attempts to negotiate a compromise text which must be approved by both institutions. Both Parliament and Council have the power to reject a proposal either in second reading or following conciliation, causing the proposal to fall. Commission may also withdraw its proposal in any time.

European Parliament of the EU of 27 has 785 members in 8 political groups (European political parties): European People's Party-European Democrats (EPP-ED), Group of the Party of European Socialists (PES), Alliance of Liberals and Democrats for Europe (ALDE), Union for Europe of the Nations (UEN), European Greens – European Free Alliance (Greens-EFA), European United Left – Nordic Green Left (GUE-NGL), Independence and Democracy (IND-DEM), Identity, Tradition, Sovereignty (ITS), Non Attached (NI).Distribution of seats among political groups see in Table 2, national representation in EP is roughly proportional to the population. Voting quota in EP is 393 votes (simple majority).

We assume that the European Parliament represents interests of citizens and acts on the basis of ideological principles expressed by European political parties, hence voting in the Parliament is in not necessarily correlated to the voting in the Council.

3.3.1 Nice version of co-decision procedure

From committee system for qualified majority $C_{QMN} = [N, q \vee r \vee c, \mathbf{v}, \mathbf{p}, \mathbf{e}]$ we obtain the model

$$C_{CDPN} = [N \cup \{1\} \cup M, ((q \vee r \vee c) \vee 1) \vee t, \mathbf{v}^{(m+1)}, \mathbf{p}^{(m+1)}, \mathbf{e}^{(m+1)}, \mathbf{e}_{(n+m+1,n+1)}, \mathbf{s}^{(-n-1)}]$$

The proposal is accepted if it is supported by Commission, approved by Nice qualified majority in the Council (more than q = 345 votes, at least r = 62% of population and at least c = 14 member states), and by required majority in the European Parliament (t = 393).

3.3.2 Lisbon version of co-decision procedure

The only difference in Lisbon version of co-decision procedure is in Council qualified majority $C_{QML} = (C_1 \cap C_2) \cup C_3 = [N, (r \vee c_1) \wedge c_2, \mathbf{p}, \mathbf{e}, \mathbf{e}]$, $c_2 > c_1$. In this case the model of co-decision procedure will look as follows:

$$C_{CDPL} = [N \cup \{1\} \cup M, ((r \vee c_1) \wedge c_2) \vee 1) \vee t, \mathbf{p}^{(m+1)}, \mathbf{e}^{(m+1)}, \mathbf{e}^{(m+1)}, \mathbf{e}_{(n+m+1,n+1)}, \mathbf{s}^{(-n-1)}].$$

The proposal is accepted if it is supported by Commission and approved by Lisbon qualified majority in the Council (at least r = 65% of population and at least c_1 = 55% of member states, or at least c_2 = 24 member states even without population quota), and by required majority in the European Parliament (t = 393).

4. Empirical findings

In Table 3 we provide Shapley-Shubik power indices calculated for three different procedures (qualified majority, consultation procedure and co-decision procedure) in two alternative settings (Nice, Lisbon). For calculations we applied Proposition 1, to evaluate aggregate voting power (influence) of different institutions, we applied Proposition 2. To follow development of inter-institutional division of influence in time, in Table 4 we provide results of EU15 based on before Nice Treaty decision making arrangement.

Table 3
Inter-institutional and intra-institutional power in EU27 legislative procedures (Shapley-Shubik index in Nice status quo rules and in Lisbon Treaty rules

	Qualified majority		Consultation procedure		Co-decision procedure	
	Nice SS power	Lisabon SS power	Nice SS power	Lisbon SS power	Nice SS power	Lisbon SS power
Germany	0,0875	0,1596	0,0651	0,1087	0,055	0,067
France	0,0871	0,1112	0,0648	0,0754	0,0546	0,0473
UK	0,0871	0,1094	0,0648	0,0742	0,0546	0,0465
Italy	0,0869	0,1044	0,0647	0,0708	0,0545	0,0444
Spain	0,0804	0,0784	0,0597	0,0532	0,0501	0,0349
Poland	0,0799	0,0674	0,0593	0,046	0,0497	0,0306
Romania	0,0398	0,0417	0,0299	0,0282	0,0243	0,0181
Netherlands	0,0367	0,0327	0,0275	0,0222	0,0222	0,0149
Greece	0,034	0,024	0,0256	0,0164	0,0206	0,0118
Portugal	0,034	0,0232	0,0256	0,0158	0,0206	0,0115
Belgium	0,034	0,0229	0,0256	0,0156	0,0206	0,0114
Czech R.	0,034	0,0227	0,0256	0,0155	0,0206	0,0113
Hungary	0,034	0,0223	0,0256	0,0152	0,0206	0,0111
Sweden	0,028	0,0208	0,0214	0,0143	0,0169	0,0107
Austria	0,028	0,0196	0,0214	0,0134	0,0169	0,0102
Bulgaria	0,028	0,0186	0,0214	0,0128	0,0169	0,0099
Slovakia	0,0195	0,015	0,0152	0,0105	0,0117	0,0086
Denmark	0,0195	0,015	0,0152	0,0105	0,0117	0,0086
Finland	0,0195	0,0147	0.0152	0,0102	0,0117	0,0085
Ireland	0,0195	0,0131	0,0152	0,0091	0,0117	0,0079
Lithuania	0,0195	0,0119	0,0152	0,0083	0,0117	0,0075
Latvia	0,011	0,0102	0,0152	0,0072	0,0117	0,0069
Slovenia	0,011	0,0098	0,0092	0,0069	0,0066	0,0068
Estonia	0,011	0,0087	0,0092	0,0062	0,0066	0,0064
Cyprus	0,011	0,0079	0,0092	0,0057	0,0066	0,0062
Luxembourg	0,011	0,0075	0,0092	0,0054	0,0065	0,0059
Malta	0,0081	0,0073	0,0071	0,0053	0,0048	0,0059
Council	100	100	0,7631	0,683	0,62	0,4708
Commission			0,2369	0,317	0,2547	0,3236
Parliament					0,1253	0,2056
EPP-ED	277				0,0504	0,079
PES	218				0,0306	0,0516
ALDE	105				0,0209	0,0327
UEN	44				0,0049	0,0121
Greens-EFA	42				0,0049	0,0121
GUE-NGL	41				0,0049	0,0121
IND-DEM	23				0,0029	0,002
ITS	21				0,0029	0,0,02
NI	14				0,0029	0,002
	785				0,1253	0,2056

Source: own calculations (Turnovec 2008a)

Table 4
Inter-institutional and intra-institutional power in EU15 legislative procedures (Shapley-Shubik power index) before Nice reform (in %)

	Weights Seats	Qualified Majority	Consultation procedure	Co-decision procedure
		SS power	SS power	SS power
Germany	10	0,1166	0,0851	0,0614
France	10	0,1166	0,0851	0,0614
UK	10	0,1166	0,0851	0,0614
Italy	10	0,1166	0,0851	0,0614
Spain	8	0,0955	0,0704	0,0456
Netherlands	5	0,0552	0,0418	0,0280
Greece	5	0,0552	0,0418	0,0280
Portugal	5	0,0552	0,0418	0,0280
Belgium	5	0,0552	0,0418	0,0280
Sweden	4	0,0454	0,0352	0,0241
Austria	4	0,0454	0,0352	0,0241
Denmark	3	0,0353	0,0284	0,0158
Finland	3	0,0353	0,0284	0,0158
Ireland	3	0,0353	0,0284	0,0158
Luxembourg	2	0,0206	0,0183	0,0117
Council	87	1,00	0,7519	0,5105
Commission			0,2481	0,3055
Parliament				0,1840
EPP	232			0,0743
PES	181			0,0400
UFE	30			0,0105
ELDR	52			0,0190
EUL/NGL	42			0,0142
GGEP	46			0,0161
IEN	16			0,0043
IND	19			0,0043
NA	8			0,0013
	626			

Source: Own calculations, Turnovec F. (2004, 2008b)
Abbreviations of political groups in the European Parliament: PES Party of European Socialists, EPP European Peoples Party, UFE Union for Europe, ELDR European Liberal, Democratic and Reform Party, EUL/NGL European United Left — Nordic Green Left, GGEP Green Group in the European Parliament, IEN Independent Europe of Nations, IND Independents, NA Not affiliated.

The qualified majority required at that time was at least 62 votes in the Council of Ministers out of 87 (for Member States weights see column "weights"). A simple majority in the European Parliament (electoral term 1994-2004) required at least 314 votes out of 626, and ideologically motivated voting is assumed (the distribution of seats among 9 factions of the European Parliament see the column "weights," Parliament section). The rules of consultation and co-decision procedures

were (except for the definition of a qualified majority) the same as described in section 3.

In case of consultation procedure Lisbon qualified majority rule increases power of Commission compared to Nice (and power of Council as an aggregate power of member states is declining). In co-decision procedure, where we have three institutional actors - Council, Commission and Parliament, we can observe the same tendency: Lisbon increases power of Commission and Parliament and decreases power of Council compared to Nice and decreases power of Council compared to Lisbon. Moreover, in the co-decision procedure the influence of big European political parties can be compared to the influence of big member states, so the political or ideological dimension of European Union decision making becomes measurably more important than in earlier stages of the EU development. The influence of member states is procedurally dependent and differs from their internal influence in the Council of Ministers internal voting not only by size, but also by structure.

In Table 5 we summarize inter-institutional influence in EU15 and EU27. In EU27 we consider two options: the effects of Nice Treaty rules (status quo) and Lisbon Treaty rules on inter-institutional division of influence.

Table 5
Intergovernmental versus federal elements in European Union decision making

	EU15			EU27					
	before Nice rules			Nice rules			Lisbon rules		
	QM	CNP	CDP	QM	CNP	CDP	QM	CNP	CDP
Council	1	0,7519	0,5105	1	0,7631	0,62	1	0,683	0,4708
Commission	0	0,2481	0,3055	0	0,2369	0,2547	0	0,317	0,3236
EP	0	0	0,184	0	0	0,1253	0	0	0,2056
Intergovernmental power	1	0,7519	0,5105	1	0,7631	0,62	1	0,683	0,4708
Federal power	0	0,2481	0,4895	0	0,2369	0,38	0	0,317	0,5292

Source: own calculations

Results demonstrate changes in inter-institutional influence of the three most important EU institutions – Council, Commission and Parliament.

In EU15 before Nice decision making rules the inter-governmental element of EU governance (power of Council) represent about 75% in consultation procedure and 51% in co-decision procedure. Nice rules in

extended EU27 increase inter-governmental character of the EU decision making (76% in consultation procedure and 62% in co-decision procedure). Lisbon Treaty rules decrease inter-governmental character of EU (68% in co-decision procedure and 47% in co-decision procedure) compared both to arrangement before Nice Treaty and Nice Treaty rules.

Comparison of power of Council to power of Commission and Parliament in different procedures provides a very rough proxy of inter-governmentalism and federalism evaluation. Let p_{CM}^{QM} is the power of Council of Ministers in unilateral decision making (not involving Commission and European Parliament), p_{CM}^{CNP} is the Council power in consultation procedure and p_{CM}^{CDP} is power of the Council in co-decision procedure. In the same way let us denote power of Commission and power of European Parliament in different procedures ($p_{Com}^{QM}, p_{Com}^{CNP}, p_{Com}^{QM}$ for Commission and $p_{EP}^{QM}, p_{EP}^{CNP}, p_{EP}^{QM}$ for Parliament). Denoting by l_{QM} share of issues decided exclusively by the Council, by l_{CNP} share of issues decided by consultation procedure, and by l_{CDP} share of issues decided by co-decision procedure, then the overall evaluation of the Council power equals to

$$l_{QM} p_{CM}^{QM} + l_{CNP} p_{CM}^{CNP} + l_{CDP} p_{CM}^{CDP}$$

By analogy,

$$l_{QM} p_{Com}^{QM} + l_{CNP} p_{Com}^{CNP} + l_{CDP} p_{Com}^{CDP}$$

is the overall Commission power and

$$l_{QM} p_{EP}^{QM} + l_{CNP} p_{EP}^{CNP} + l_{CDP} p_{EP}^{CDP}$$

is the overall European Parliament power. Then the index of federalism in the EU can be defined as follows:

$$l_{QM}(p_{Com}^{QM} + p_{EP}^{QM}) + l_{CNP}(p_{Com}^{CNP} + p_{EP}^{CNP}) + l_{CDP}(p_{Com}^{CDP} + p_{EP}^{CDP})$$

Since power of Commission and Parliament in Council exclusive decision making is zero and power of Parliament in consultation procedure is zero, the index of federalization reduces to

$$l_{CNP} p_{Com}^{CNP} + l_{CDP}(p_{Com}^{CDP} + p_{EP}^{CDP})$$

It is difficult to quantify shares of issues decided by different procedures. For example, if

$$l_{QM} = l_{CNP} = l_{CDP} = \frac{1}{3},$$

then, before Nice Treaty arrangement, the index of federalism would be

$$\frac{1}{3}0{,}2481+\frac{1}{3}0{,}4895=0{,}2443$$

i.e. about 25%, Nice Treaty federalism index would be

$$\frac{1}{3}0{,}2369+\frac{1}{3}0{,}38=0{,}2044$$

i.e. about 20%, and Lisbon Treaty federalism index would be

$$\frac{1}{3}0{,}317+\frac{1}{3}0{,}5292=0{,}2821$$

i.e. about 28%. So, the quantitative hypothesis (corresponding to the intuition) is that Lisbon Treaty increases federative elements in the EU. In fact, together with changes of voting weights and quotas we can observe shifts (increase) of shares of issues decided by consultation and co-decision procedures and henceforth the changes toward federalism will be more intensive than follows from our analysis.

5. Concluding remarks

The author is aware of the fact that used models of consultation and co-decision procedures are highly simplified (assumption about equal probability of all possible pivotal positions, they do not reflect multi-stage character of the voting games and complex amendment process). But, under hypothesis that the models reflect basic features of legislative procedures, they lead to interesting conclusions.

Influence of member states in European Union decision making cannot be reduced to relative voting power in qualified majority voting in the Council independently of used legislative procedures, involving Commission and European Parliament. Consultation procedure (with explicit interaction of Commission and Council, where Commission has agenda setting authority), and co-decision procedure involving Commission, Council and European Parliament (with de facto unconditional veto right of all three institutions) affects distribution of inter-institutional voting power of EU institutions and intra-institutional voting power of decision making actors (member states and European political parties).

Ceteris paribus (constant shares of agenda packages decided exclusively by the Council, consultation procedure and by co-decision procedure), the Lisbon Treaty rules increase federative elements in the European Union compared to Nice Treaty arrangement and before Nice Treaty arrangement. In fact, we can observe growing share of agendas

decided by consultation and co-decision procedures, what implies that increase of federalism index is stronger than indicated by our empirical findings.

Qualified majority, consultation and co-decision procedures can be modeled by instruments of weighted majority games and power indices methodology can be used. Power indices methodology has its critics. What exactly power indices are measuring is controversial, see e.g. arguments of Garrett and Tsebelis (1999) about ignoring preferences, and response of Holler and Widgrén (1999), but they are of general interest to political science because they may measure players' ability to get what they want. Admittedly significant share of decisions under the EU decision making procedures are taken without recourse to a formal vote. But it may well be the case that the outcome of negotiation is conditioned by the possibility that a vote could be taken, and than a priori evaluation of voting power matters. Moreover, analyses of institutional design of decision making could benefit from power indices methodology (Holler and Owen 2001, Lane and Berg 1999). Continuing research and deeper understanding of power indices methodology reflect an actual demand for amendment of traditional legal and political analysis of institutional problems by quantitative approaches and arguments.

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