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From Rome to Lisbon and Beyond: Member States' Power, Efficiency, and Proportionality in the EU Council of Ministers

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Abstract

This paper provides a comprehensive assessment of the evolution of EU member states' power, the EU's capability to act (efficiency), and the proportionality of the voting system in the Council of Ministers from the treaties of Rome in 1958 till the Treaty of Lisbon in 2009 and beyond, using a wide range of alternative power indices. Moreover, it considers explicitly the relevance of additional legal provisions (such as the 'Luxembourg Compromise', the 'Demographic Clause', and the 'Ioannina Compromise') and the implications of novel, more recently introduced voting rules such as reverse qualified majority voting.

Keywords: Council, Enlargement, Efficiency, EU, Member States, Power Index

JEL Codes: D72, K33, E61

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I Introduction

The power of EU member states in the Council is a recurring topic in debates of EU treaty reforms and has been extensively studied in the literature.¹ And while the relevance of power indices is still subject to debate in the academic literature², anecdotal evidence suggest that they have played a non-negligible role in the political bargaining process preceding the treaties of Nice and Lisbon. Moreover, Kauppi and Widgren (2007) find that voting power explains almost 90 percent of the variance in budget shares for the EU member states between 1976 and 2001.

The present paper provides a comprehensive reassessment of the consequences of treaty changes and (EC) EU enlargements on the power of EU member states, the EU's capability to act (efficiency), and the proportionality of the voting mechanism, focusing on the EU Council of Ministers. Apart from the Banzhaf (1965) and Shapley and Shubik (1954) measures, we use alternative indices that have been suggested in the literature: the Johnston (1978) index, the Deegan and Packel (1978) index, the Holler and Packel (1983) index, and the inclusiveness index (Nevison et al., 1978; König and Bräuning, 2000).

Regarding efficiency we use Coleman's (1971) measures of countries' power to initiate and prevent action, which are based on the assumptions underlying the Banzhaf approach, as well as Shapley-Shubik based efficiency measures recently introduced by Paterson (2005). The overall proportionality of the voting system will be judged in terms of the power gradient (Paterson, 1998; Paterson and Silàrszky, 1999), a non-parametric measure that resembles the Gini-index and will be calculated for each of the power indices.

Unlike previous studies, which mainly focus on a treaty-to-treaty comparison (see, for instance, Le Breton et al., 2012; Algaba et al., 2007; Bilbao et al., 2002; Baldwin et al., 2002; Hosli 1995), we start from the original six EC member states (treaties of Rome) and consider each regime shift (treaty change or enlargement) till the Treaty of Lisbon that came into force in 2009 and foresees changes in the voting procedures as of 2014.

Moreover, we account for the EU accession of Croatia, which took place on 1 July 2013, and consider the effects of possible EU enlargements by Turkey as well as further candidate countries (Iceland, Macedonia, Montenegro).

Finally, we also judge the relevance of additional legal provisions that have been in place in addition to the standard qualified majority voting regime, namely the 'Luxembourg Compromise', the 'Demographic Clause', the 'Ioannina Compromise', as well as more recently introduced enforcement mechanisms under the revised Stability and Growth Pact such as reverse qualified majority voting. Since these extra and new rules have been largely ignored in the quantitative literature so far, it is worth exploring the implied changes in our measures of power, efficiency, and proportionality.

The probabilistic interpretation of power indices (Straffin, 1977) reveals that the Banzhaf and the Shapley Shubik index both rely on strong distributional assumptions (such as independence and homogeneity). More recently, Paterson (2005) has shown that these assumptions can be stated equivalently in terms of the distribution of the voting polls (i.e., the distribution of the number of member states in favor of the proposal). As we show in the paper, these assumptions have strong implications, e.g., for measuring the EU's efficiency (capability to act).

The remainder of the paper is organized as follows: Section II briefly defines the measures of power, efficiency, and proportionality. Section III describes the 'rules of the game' in the EU Council of Ministers from 1958-2017 (and beyond) and provides quantitative results for the measures of power, proportionality, and efficiency. The final section summarizes the results and concludes.

¹ See e.g. Widgren (2009) for a survey of the literature.

² See, e.g., Garrett and Tsebelis (1999), Albert (2003) for a critical review of power indices.

II Measures of Power, Efficiency, and Proportionality

In the following we define the quantitative measures of power, efficiency, and proportionality that will be calculated for the EU Council of Ministers for the period from 1958-2014 (2017) and thereafter. We start by considering the Shapley-Shubik and Banzhaf indices (and the related Coleman indices), which are still the most widely used measures of power, and then turn to the definition of a number of modified measures (Johnston, Deegan-Packel, Holler-Packel, Inclusiveness index) that have been suggested in the literature.

1. Notation and Definition of the Power Indices

Throughout we assume a ‘yes-no’ voting system, where an assembly N of n different players may vote either ‘yes’ or ‘no’ under certain rules that determine under which conditions a proposal is adopted. In a weighted voting system each player is assigned a specific number of votes. A group of players (actors) voting with ‘yes’ is called coalition. A particular voting outcome is referred to as S . The number of yes-votes is given by $\|S\|$. Such a coalition is a ‘winning coalition’ if their ‘yes’-votes lead to the passage of a proposal under the rules of the game. Finally, we refer to the outcome of a voting process, expressed as number of players in favor of the proposal (s) as voting poll.³

1.1. Shapley-Shubik Index (SSI)

The Shapley-Shubik (1954) index of player i is defined as the number of orderings (permutations) of players for which i is pivotal (in the sense that it turns the coalition into a ‘winning coalition’), divided by the total number of possible orderings of players. For player i , we have

$$SSI_i = \sum_{S \subseteq N} \frac{(s-1)!(n-s)!}{n!} [\nu(S) - \nu(S \setminus \{i\})] \quad (1)$$

where S is a coalition (one particular voting outcome), s is the number of players forming the coalition S , and ν is a function so that $\nu(S) = 1$ if S is a winning coalition, and $\nu(S) = 0$ otherwise. Hence, the summation in the numerator is over all winning coalitions where the removal of player i makes them losing, which we call negative swings. By construction, it holds that $\sum_{i=1}^n SSI_i = 1$.

1.2. Banzhaf Index (BFI)

Banzhaf (1965) measures the power of a player i by the number of times player i is ‘critical’ without considering orderings. The absolute Banzhaf index⁴ of player i is defined as the the sum of all negative swings for i , divided by the number of coalitions including i (whether winning or not):⁵

$$BFI_i^a = \frac{\sum_{S \subseteq N} [\nu(S) - \nu(S \setminus \{i\})]}{2^{n-1}} \quad (2)$$

³ This is to be distinguished from the voting result: Depending on the rules of the game a particular voting poll may lead to acceptance or failure of a proposal.

⁴ The idea of the Banzhaf index was firstly introduced by Penrose (1946).

⁵ For notational simplicity, the obvious dependence of the indices on the rules of the game, reflected in the function ν , is omitted in the following.

Notice that the absolute Banzhaf index does not sum to 1. Its normalized variant is given by $BFI_i = \frac{BFI_i^a}{\sum_{j=1}^n BFI_j^a}$. To make the indices comparable, we will consider only normalized variants in the following, unless mentioned otherwise.

1.3. Coleman Indices of Power to Prevent (*CPI*) and Initiate Action (*CII*)

Alternative measures of voting power, which are closely related to the Banzhaf index have been suggested by Coleman (1971). The power of player i to prevent action is the likelihood that member i turns a winning coalition into a losing coalition and is defined by the number of potential negative swings divided by the number of winning coalitions:

$$CPI_i^a = \frac{\sum_{S \in N} [\nu(S) - \nu(S \setminus \{i\})]}{\sum_{S \in N} \nu(S)}, \quad (3a)$$

and its normalized variant is given by $CPI_i = CPI_i^a / \sum_{j=1}^n CPI_j^a$.

The power of player i to initiate action is the likelihood that member i turns a losing coalition into a winning coalition, i.e., the number of positive swings divided by the number of losing subsets (the complement to the number of winning coalitions):

$$CII_i^a = \frac{\sum_{S \in N} [\nu(S) - \nu(S \setminus \{i\})]}{2^n - \sum_{S \in N} \nu(S)}, \quad (3b)$$

and the normalized version is given by $CII_i = CII_i^a / \sum_{j=1}^n CII_j^a$.

Notice that while the Banzhaf index does not distinguish between power to prevent action and power to initiate action, it differs from the two Coleman-measures only by a scaling factor⁶. As a consequence, the normalized variants of these three indices are equal.

Finally, Coleman (1971) also suggests a measure of the overall decisiveness of a voting body, given its size, its decision rules and the weights of its members. The capability of a voting body to act (also referred to as efficiency) is defined as fraction of coalitions that are winning coalitions:

$$E_{BFI} = \frac{\sum_{S \in N} \nu(S)}{2^n}. \quad (4)$$

The subscript *BFI* indicates that the efficiency measure by Coleman relies on the same probabilistic assumptions as the Banzhaf index as will be outlined in more detail below.

1.4. Johnston Index (*JNI*)

Johnston (1978) modifies the Banzhaf index in order to account for the argument that a measure of power should depend on the number of critical players (swingers) in a coalition, because a player will be more powerful if he or she is the only critical player. The Johnston score (or absolute Johnston index) is given by:

$$JNI_i^a = \sum_{\substack{S \subseteq N \\ S \ni i}} \frac{1}{\kappa(S)} [\nu(S) - \nu(S \setminus \{i\})], \quad (5)$$

where $\kappa(S)$ denotes the number of critical players in a winning coalition S and $S \ni i$ denotes that player i is part of the coalition S . The normalized Johnston index is then obtained as $JNI_i = JNI_i^a / \sum_{j=1}^n JNI_j^a$.

⁶ In particular, it holds that $BFI_i^a = CPI_i \sum_{S \in N} \nu(S) / 2^{n-1} = CII_i (2^n - \sum_{S \in N} \nu(S)) / 2^{n-1}$.

1.5. Deegan-Packel Index (*DPI*)

Deegan and Packel (1978) introduced their power index based on the assumption that only minimal winning coalitions should be considered when determining the relative power of voters. A minimal winning coalition is a coalition where each player is ‘critical’, i.e., if any of the players leaves the coalition, it will not be a winning coalition anymore. Deegan and Packel state that if players are rational and have perfect information, they will not form coalitions with players that they do not need to win the vote, i.e., they will only form minimal winning coalitions (Deegan and Packel, 1978).

Furthermore, they assume that all minimal winning coalitions form with equal probability and that the amount of power a player derives from belonging to some minimal winning coalition is the same as that derived by any other player belonging to that same minimal winning coalition. Formally, the (absolute) Deegan-Packel index is defined as

$$DPI_i^a = \frac{1}{m(\nu)} \sum_{\substack{S \in M(\nu) \\ S \ni i}} \frac{1}{s} [\nu(S) - \nu(S \setminus \{i\})], \quad (6)$$

where $M(\nu)$ is the set of all minimal winning coalitions, $m(\nu)$ is the number of minimal winning coalitions, and $S \ni i$ denotes that player i is part of the minimal winning coalition. The normalized variant is given by $DPI_i = DPI_i^a / \sum_{j=1}^n DPI_j^a$.

1.6. Holler-Packel Index (*HPI*)

Holler and Packel (1983) argue that distributing the value of coalitions among their members might not be adequate if the coalition value is a collective good. They thus propose the ‘Public Good Index’, a modification of the Deegan-Packel index where all critical players in a minimal winning coalition also get all the ‘spoils’. The absolute Holler-Packel index is given by

$$HPI_i^a = \frac{1}{m(\nu)} \sum_{\substack{S \in M(\nu) \\ S \ni i}} [\nu(S) - \nu(S \setminus \{i\})], \quad (7)$$

and the normalized variant is $HPI_i = HPI_i^a / \sum_{j=1}^n HPI_j^a$.

Hence, the Holler-Packel index differs from the Deegan-Packel index just by the fact that it does not take into account the number of players in the minimal winning coalition.

1.7. Inclusiveness Index (*INC*)

Nevison et al. (1978) introduced the Zipke index which is equal to the absolute inclusiveness index proposed by König and Bräuninger (2001). It is meant to capture the expected gains from future decision-making and defined as

$$INC_i^a = \frac{\sum_{S \in N, S \ni i} \nu(S)}{\sum_{S \in N} \nu(S)} \quad (8)$$

where $\nu(S) = 1$ if S is winning. In other words the inclusiveness index is defined as actor i ’s number of participations in winning coalitions in relation to the number of all feasible winning coalitions. In contrast to the other power indices introduced above, the inclusiveness index thus does not measure the decisiveness of an actor (for example by being ‘pivotal’ or ‘critical’), but simply his inclusion in winning coalitions. König and Bräuninger (2000) argue that both decisiveness and inclusiveness should be taken into account when calculating power. Again a normalized variant can be defined as $INC_i = INC_i^a / \sum_{j=1}^n INC_j^a$.

2. Power Indices: A Probabilistic Statement

In the following we give a probabilistic interpretation of the Banzhaf and the Shapley-Shubik index, following Straffin (1977). The virtue of this approach is that it makes explicit the distributional assumptions underlying the measurement of power and allows a derivation of ‘Shapley-Shubik analogs’ to ‘Banzhaf-like’ efficiency measures.

Straffin (1977) focuses on the distributional assumptions regarding actors’ voting behavior. More recently, Paterson (2005) gives an alternative probabilistic interpretation of power indices, focusing on the probability distribution of voting outcomes (voting polls) rather than voting behavior. As already mentioned above, voting polls are expressed as number of actors in favor of the proposal, ranging from 0 to n (0 to 1).

Following Paterson (2005), we define the power of an actor as expected decisiveness (δ_i) of his or her vote for a given distribution of the voting polls:

$$\delta_i = \sum_{s=0}^n d_i(s)p(s). \quad (9a)$$

Decisiveness $d_i(s)$ of player i in a particular poll ($0 \leq s \leq n$) is the share of combinations (coalitions), that are \pm swing votes for player i . In formal terms, consider the outcome sets S_s with exactly s players in favor of the proposal. Moreover, define $S_i^* = S \setminus \{i\}$ if $i \in S$ and $S_i^* = S \cup \{i\}$ if $i \notin S$. Then

$$d_i(s) = \frac{1}{\binom{n}{s}} \sum_{S \subseteq S_s} |\nu(S) - \nu(S_i^*)|. \quad (9b)$$

Note that decisiveness (d_i) depends only on the parameters of the voting game, not on any probabilistic aspects, and is thus identical under the Banzhaf and Shapley-Shubik approach. Also note that d_i can be decomposed into positive and negative swings. In particular, it holds that the decisiveness d_i is the sum of the positive decisiveness (d_i^+) and negative decisiveness (d_i^-):

$$d_i = d_i^+ + d_i^-, \quad (10)$$

where $d_i^+ = \frac{1}{\binom{n}{s}} \sum_{S \subseteq S_s} [\nu(S) - \nu(S \setminus \{i\})]$ and $d_i^- = \frac{1}{\binom{n}{s}} \sum_{S \subseteq S_s} [\nu(S + \{i\}) - \nu(S)]$.

The voting poll distribution is described by the density function $p(s)$, $s = 0, \dots, n$, which assigns a probability of there being s votes in favour (and $n - s$ against it). The Banzhaf index assumes that the voting polls have a binomial distribution, with probability $1/2$, i.e.,

$$p_{BFI}(s) = \frac{\binom{n}{s}}{\sum_{s=0}^n \binom{n}{s}} = \binom{n}{s} \frac{1}{2^n}, s = 0, \dots, n. \quad (11a)$$

Hence, the Banzhaf approach assigns a probability close to zero to voting polls close to unanimity.

The Shapley-Shubik index assumes that all voting polls are equally likely and have a uniform distribution over the interval 0 to n , i.e.,

$$p_{SSI}(s) = \frac{1}{(n+1)}, s = 0, \dots, n. \quad (11b)$$

Hence, in terms of voting polls, the two indices can be defined as (See Paterson, 2005, Theorem 1):

$$BFI_i^a = \sum_{s=0}^n d_i(s)p_{BFI^a}(s), \text{ and} \quad (12a)$$

$$SSI_i = \sum_{s=0}^n d_i(s) p_{SSI}(s). \quad (12b)$$

Expected decisiveness (the two indices) can be additively decomposed into a positive swing balance (δ_i^+) and a negative swing balance (δ_i^-), both under the Banzhaf and Shapley-Shubik assumptions: $\delta_i = \delta_i^+ + \delta_i^-$, with $\delta_i^+ = \sum_{s=0}^n d_i^+(s) p(s)$ and $\delta_i^- = \sum_{s=0}^n d_i^-(s) p(s)$.⁷

The approach by Paterson (2005) is closely related to the one by Straffin (1977), which focuses on the distribution of voting behavior over all voting constellations, given by $p'(S) = p'(s)$, where $s = \|S\|$. Given the assumptions of the *SSI* and the *BFI*, we have

$$p'_{SSI}(S) = \frac{1}{(n+1)} \frac{1}{\binom{n}{s}} = \frac{(n-s)! s!}{(n+1) n!} = \frac{(n-s)! s!}{(n+1)!}, \quad (13a)$$

$$p'_{BFI^a}(S) = \frac{1}{2^n} \quad (13b)$$

and the power indices can be written equivalently as⁸

$$SSI_i = \sum_{S \subset N} |\nu(S) - \nu(S_i^*)| p'_{SSI}(S), \quad (14a)$$

$$BFI_i^a = \sum_{S \subset N} |\nu(S) - \nu(S_i^*)| p'_{BFI^a}(S) \quad (14b)$$

As outlined in the following, the Coleman measures are derived under the assumptions of the Banzhaf approach. Paterson (2005) also suggests a Shapley-Shubik analog of the capability to act (efficiency, E) based on the following generalized, encompassing concept of efficiency (E), defined as the probability of coalitions being winning coalitions:

$$E = \sum_{S \subset N} \nu(S) p'(S). \quad (15)$$

Using the distributional assumptions of the Banzhaf approach, the familiar Coleman measure given in equation (4) above is obtained.

$$E_{BFI} = \sum_{S \subset N} \nu(S) p'_{BFI^a}(S) = \sum_{S \subset N} \frac{\nu(S)}{2^n}. \quad (16a)$$

The Shapley-Shubik analog is given by

$$E_{SSI} = \sum_{S \subset N} \nu(S) p'_{SSI}(S) = \sum_{S \subset N} \nu(S) \frac{(n-s)! s!}{(n+1)!}. \quad (16b)$$

Under Shapley-Shubik assumptions, it turns out that efficiency is equal to the sum of the positive swing balances over countries or 1 minus the negative swing balance (see Paterson, 2005, Theorem 2):⁹

$$E_{SSI} = \sum_{i=1}^n \delta_{SSI,i}^+ = 1 - \sum_{i=1}^n \delta_{SSI,i}^- \quad (17)$$

⁷ Note that the positive and negative swing balance are the same under the Banzhaf approach, but not under Shapley-Shubik assumptions.

⁸ Here the summation is across all voting constellations rather than all voting polls.

⁹ This symmetry result does not hold for the Banzhaf approach.

By analogous reasoning, a generalized index of the power to prevent action or blocking leverage (PI_i) can be defined:

$$PI_i = \frac{\delta_i^-}{E}. \quad (18)$$

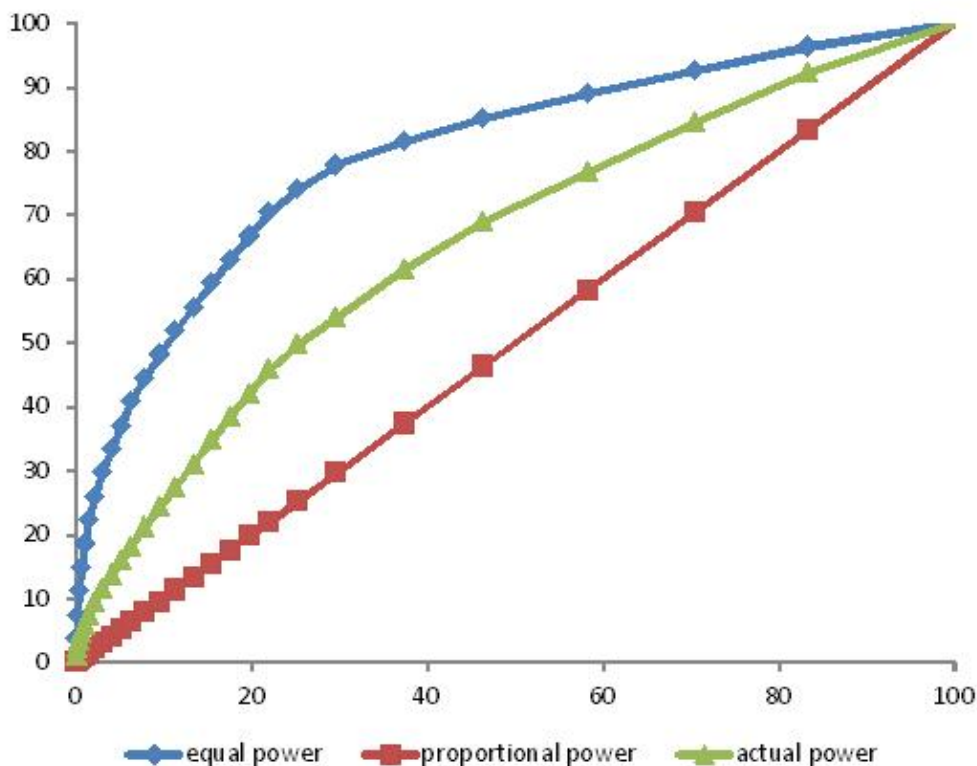
Under the Banzhaf assumptions, Coleman's measure to prevent action (CPI_i) is obtained. The Shapley-Shubik analog is given by (see Paterson, 2005, Theorem 3):

$$SPI_i = \frac{\delta_{SSI,i}^-}{E_{SSI}} = \frac{\delta_{SSI,i}^-}{\sum_{j=1}^n \delta_j^+}. \quad (19)$$

3. The Overall Proportionality of a Voting System

Apart from the individual power of single actors, a question of interest relates to the proportionality of a voting system. A natural approach is to compare countries' normalized power indices with their population shares. A summary measure of the differences between countries' voting power and their population share, referred to as power gradient (PG), has been suggested by Paterson (1998) and Paterson and Silárszky (1999). It can be defined for any power index and provides a convenient summary measure of the proportionality of a voting system, whose evolution can be traced over time.

Figure 1: Illustration of Power Gradient (BFI , EU27, 2007-10/2014)



The concept is best illustrated graphically. In Figure 1, the EU27 countries are arranged in ascending order of population size. The three lines plot the cumulative sum up to member state i of

voting power under three assumptions: equal power of each member state (one-country, one-vote), actual power of each member state (as defined by any normalized power index, in Figure 1 the normalized Banzhaf index for the current regime, EU27, qualified majority voting, see below for more details), and proportional power of each member state (in terms of its population share).

The power gradient is defined as the area between the equal-power line and the actual-power line, divided by the area between the equal- and proportional-power line. It is equal to zero, when all players have equal power, and it is equal to 1 if the countries' (normalized) power indices are equal to their population shares.

Arranging the players in ascending order of countries' population shares (p_i), the power gradient, based on any normalized power index (PI), is defined as

$$PG_{PI} = \frac{\sum_{i=1}^n p_i(1 - 2i + (I_i + I_{i-1})n)}{-n + \sum_{i=1}^n p_i(2i - 1)}, \quad (20)$$

where p_i is the population share of country i and I_i is the cumulative sum of the respective power index up to country i .

III Power, Efficiency, and Proportionality: Results for the EU Council of Ministers

Summing up the discussion in Section II, the following quantitative measures will be considered for the case of the EU Council of Ministers over the period 1958-2014 (and beyond):

Country-specific power indices: Banzhaf (BFI), Shapley-Shubik (SSI), Coleman power to initiate and prevent (CPI , CII), their Shapley-Shubik analogs (SPI , SII), Johnston (JNI), Deegan-Packel (DPI), Holler-Packel (HPI), and inclusiveness (INI). Note the all indices as used in the following are normalized such that they sum to one.

Indices relating to the EU Council of Ministers as a whole: efficiency in terms of Coleman's capability to act (E_{BFI}) and the Shapley-Shubik analog (E_{SSI}) and the proportionality of the voting system, i.e., the power gradient implied by each (country-specific) power index.

1. Voting Rules in the EU Council of Ministers

The indices will be calculated for all regimes (countries' voting weights and majority rules) in place since the establishment of the European Communities by the treaties of Rome in 1957 (in force 1958) till the latest revision through the Treaty of Lisbon in 2009. Table 1 gives an overview of the regimes in place.

1.1. Voting Weights and Majority Requirements in the EU Council of Ministers

Till the reform through the Treaty of Lisbon, a qualified majority weighted voting regime has been in place in the EU Council of Ministers. Thereby, each member state is assigned a certain number of votes and a certain threshold (around 70 percent) is required for the passage of a proposal (see the third column of Table 1).

The weighting of votes will be abolished as of March 2017 due to the Treaty of Lisbon and replaced by a double majority system. Then each vote has the same weight ('one country, one vote') and a qualified majority will require i) 55% of the EU member states (comprising at least 15 member states) of the Council representing 65% of the population of the EU. A blocking minority

requires i) either 13 members or ii) the votes of at least four Council members (Art 16 para 4 TEU) altogether representing more than 35% of the population of the EU. According to Article 3 para 2 of the Protocol on Transitional Provisions of the Treaty of Lisbon (Protocol No 36) a transitional rule applies between 1 November 2014 and 31 March 2017. Within this period of time upon request by one member state the former procedure shall be applied (255 out of 345 weighted votes).

Table 1: *Voting Rules in the EU Council of Ministers, 1958-2017 (and beyond)*

Regime	Time period	Rules, Treshold	Further Legal Provisions
EC6	1958-1972	QMV, 12 of 17 (70.6%)	Luxemburg Compromise, 1966-1987
EC9	1973-1980	QMV, 41 of 58 (70.7%)	Luxemburg Compromise, 1966-1987
EC10	1981-1985	QMV, 45 of 63 (71.4%)	Luxemburg Compromise, 1966-1987
EC12	1986-1994	QMV, 54 of 76 (71.1%)	Luxemburg Compromise, 1966-1987
EU15	1995-04/2004	QMV, 62 of 87 (71.3%)	Ioannina Compromise I, 1995-4/2004
EU25	05/2004-10/2004	QMV, 88 of 124 (71.0%)	-
EU25	11/2004-2006	QMV, 232 of 321 (72.3%)	Demographic Clause, 11/2004-4/2017
EU27	2007-10/2014	QMV, 255 of 345 (73.9%)	Demographic Clause 11/2004-4/2017
EU27	11/2014-3/2017	QMV / DMV (transition)	Ioannina Compromise II, 11/2014-3/2017
EU27	4/2017-	DMV	Ioannina Compromise III, 4/2017-

Notes: EC ... European Communities, EU ... European Union, QMV ... (weighted) qualified majority voting, DMV ... double majority voting (55% of member states, 65% of population).

As can be seen from the overview in Table 1, regime shifts took place either through enlargements of the EC (EU) or treaty revisions. Detailed information on the country-specific number of votes is given in Appendix A1. The results for the regime under the Lisbon Treaty will be given for the EU27 as well as for the EU28, including Croatia that joined the EU in 2013 before the Lisbon Treaty will come into force. In addition we will consider the consequences of possible further EU enlargements by the four remaining candidate countries (Iceland, Macedonia, Montenegro, Turkey), based on the double majority voting procedure and the population projections for 2020.

In the calculation of the power indices, it will be assumed throughout that all EU member states participate in the voting and vote either in favor or against a proposal, i.e., there are no abstentions. We regard this as most relevant and representative case, since it is reasonable to assume that countries will make full use of their voting power, in particular when important issues are at stake.¹⁰

Obviously, the complex and multifaceted procedure of EU legislation comprises more than qualified majority voting in the Council of Ministers, which limits the generality of our results. First, the EU Council of Ministers usually adopts legislative proposals by the EU Commission (or the High Representative of the Union for Foreign Affairs and Security Policy) in co-decision with the European parliament. With the Treaty of Lisbon, co-decision with the Parliament has become the ‘ordinary legislative procedure’ and thus the norm for most policy areas. It is based on the principle of parity and means that neither institution (European Parliament or Council) may adopt legislation without the other’s assent. Hence, by focusing on voting power in the Council, the (equally strong) role of the European Parliament is not considered.

Second, while Article 16 of the Treaty on European Union stipulates that the Council shall act by a qualified majority except where the Treaties provide otherwise and qualified majority

¹⁰Notice that under qualified majority voting, abstentions are counted as votes against a proposal, but are effectively the same as voting ‘no’. On the other hand, abstentions do not prevent the adoption of an act by unanimity (Article 238(4) TFEU).

voting has been extended steadily since the Single European Act in 1987, there are still matters requiring an unanimous vote, in particular in the intergovernmental ‘second pillar’ (foreign and security policy) and ‘third pillar’ (police and judicial cooperation) of the Treaty on European Union. Moreover, in (exceptional) cases, where the Council does not act on a proposal by the Commission or the High Representative, different (higher) thresholds than those stated in Table 1 apply under qualified majority requirement (Article 238 TFEU). On the other hand, there are also important policy areas where the qualified majority requirements are less stringent than the ones in Table 1, namely under the excessive deficit procedure, where a reverse qualified majority voting procedure has been recently introduced for the adoption of enforcement measures. Some special cases of interest where the rules of the game differ will be considered in Section III.3. below.

Finally, due to the so-called ‘culture of consensus’ in the Council, proposals typically only reach the voting stage if most of the initial conflicts between countries have been resolved (Heisenberg, 2005). However, while formal voting power cannot explain the interaction between the all relevant ‘players’ and describe the political negotiations preceding the actual voting, it is certainly an influential determinant of EU member states’ bargaining power at all stages of preparing and taking decisions (through so-called ‘shadow voting’).

Hence, notwithstanding the complexity of the process of EU legislation, the ‘standard qualified majority voting procedure’ summarized in Table 1 can be reasonably regarded as (maybe its single most) important element, and as predominant and most representative case for the part of EU legislation taking place in the EU Council of Ministers.

1.2. Additional Formal and Informal ‘Rules of the Game’

Apart from the standard voting rules given in Table 1 underlying the definition of the (function ν in the) aforementioned power indices, there have been (are) additional legal provisions in place affecting the power of EU member states and the EU’s efficiency (see the remarks in the rightmost column of Table 1). In the following these legal details and their treatment in the quantitative analysis will be discussed in more detail.

1.2.1. Luxemburg Compromise (1966-1987)

The so-called ‘Luxembourg Compromise’ of 29 January 1966 is an informal agreement, stating that when a decision was subject to qualified majority voting, the Commission would postpone a decision if any member state felt that very important interests were at risk. Under an extreme interpretation, this compromise assigns each member state a veto right and thus have equal power as under an unanimity requirement.

However, the prevailing view is that the Luxembourg Compromise is only a political declaration which did not amend the Treaty establishing the European Economic Community or other Treaties, leaving the Council’s legal powers fully intact (Dashwood, 1992). Moreover, the Single European Act did not mention the compromise anymore and since then qualified majority voting was gradually extended to more and more areas.¹¹ Hence the Luxemburg compromise can be argued to have been informally in place only until 1987. Another line of argument is that the Luxembourg compromise has never really been repealed and is still available as a sort of a threat that could still be invoked.

¹¹Furthermore, the adoption of Council’s Rules of Procedure (20 July 1987) expressly provided that the Council has to vote on the initiative of its president who is, furthermore, required to open voting proceedings on the invitation of a member of the Council or Commission, provided that a majority of the Council’s members so decides. See the Amendment of the Council’s Rules of procedure adopted by the Council on 20 July 1987, on the basis of Article 5 of the Treaty of 8 April 1965 establishing a Single Council and a Single Commission of the European Communities [15 October 1987] OJ L291.

Borchardt (2010), for example, argues that France relied on it in 1993 and 2008, and Poland in 2006, but according to Calliess and Ruffert (2011), it has become obsolete due to the Lisbon Treaty.

As a consequence the ‘Luxembourg Compromise’ will not be considered as a hard fact and thus ignored in the calculation of the power indices below, though it has to be borne in mind when interpreting the results. In principle its relevance might reemerge insofar as one member state (especially if it is a large one) invokes important interests (Kapteyn, Verloren and van Themaat, 1990; Wyatt and Dashwood, 1990). At least it has established a ‘culture of consensus’ in the Council of Ministers and close voting decisions are still rather the exception than the rule.

1.2.2. The Ioannina Compromise

The Ioannina Compromise dates back to an informal meeting of the member states’ foreign ministers in March 1994 in the Greek city Ioannina.¹² They agreed on a voting mode beyond the letter of the law, attenuating the requirements for a blocking minority.

Ioannina I (1995-4/2004)

The informal Ioannina Compromise from March 1994 was adopted as a Council decision in April 1994. In cases in which the opposing minority has only between 23 and 25 votes, the Council shall do ‘all within its power to reach, within a reasonable time and without prejudice to obligatory time limits laid down by the Treaties and by secondary legislation ..., a satisfactory solution which could be adopted by at least 68 votes’.¹³ To put it negatively, no more than 19 votes should be cast against this ‘satisfactory solution’. This agreement has got superseded by the new weighting of votes in the Council as a result of the Eastern enlargement of 2004 and was thus repealed in May 2004.¹⁴ Then it was out of force over a period of 10 years, but has been reintroduced in modified form through the Lisbon Treaty as of March 2014.

Ioannina II (11/2014-3/2017)

The new agreement (referred to as Ioannina II) is annexed to the Treaty of Lisbon as Declaration No 7. It stipulates that for the time from 1 November 2014 to 31 March 2017 the following rule applies: If at least $\frac{3}{4}$ of the population required for a blocking minority ($\frac{3}{4} \times 35\% \sim 26.3\%$) or at least $\frac{3}{4}$ of the number of member states required for a blocking minority ($\frac{3}{4} \times 13 \sim 10$ for the EU27; the same for EU28) ‘indicate their opposition’ to the Council decision, the Council shall discuss the issue (Art 1). To this end, the Council shall do all in its power to reach a ‘satisfactory solution’ (Art 2) ‘within a reasonable time and without prejudicing obligatory time limits’, arguably around 3 months (Deja and Baddenhausen, 2007; Baddenhausen et al. 2007). Although not explicitly defined, ‘satisfactory’ can be arguably understood as ‘unanimous’. As a consequence, also the Ioannina Compromise II waters down the requirements for a blocking minority providing member states with additional delaying power.

Ioannina III (04/2017-)

From 1 April 2017, the $\frac{3}{4}$ threshold watering down the requirements for a ‘blocking minority’ is further reduced to 55%, i.e., as of then a ‘delaying minority’ requires only $0.55 \times 35 \sim 19.3\%$ of the population or $0.55 \times 13 \sim 8$ member states for the EU 27; also for the EU28; Art 4). Notice that whether the four members’ threshold (in addition to $> 35\%$) provided for in Art 16 para 4 TEU

¹²For an account of the original Ioannina Compromise, see Peterson and Bomberg (1999).

¹³Council Decision of 13 April 1994 [1994] OJ C105/1, amended by [1995] OJ C1/1.

¹⁴Since the Ioannina Compromise (1994) is explicitly referring to the number of total votes given in a Union of 15 and to the thresholds for QMV and blocking minority respectively, the agreement was repealed as soon as further countries acceded the Union (that is by May 2004); this was expressly foreseen in declaration No 50 to the final act of the conference adopting the Amsterdam Treaty.

needs to be considered as well (75% of 4 would be 3; 55% would amount to 3 as well), is not clear from the wording of Declaration No 7, which does not mention it at all.

It should be added that, in contrast to the original Ioannina compromise, the scope of the reintroduced Ioannina Comprise (Ioannina II and III) is strongly limited, since it is only applicable to procedures in which the Council does not act on a proposal from the Commission or the High Representative (Article 238 para 2 TFEU), i.e., it does not apply to the ordinary legislative procedure.

Overall, the Ioannina Compromise gives additional delaying power to member states, on top of the standard power to prevent action as captured by the power indices. Implementing the lower requirements for a blocking minority in the function ν (see Section II) is straightforward. However, since the Ioannina compromise involves delaying rather than preventing power only and does not apply to the ordinary legislative procedure, it is not included in the calculation of the standard indices, but its consequences will be considered separately below.

1.2.3. Demographic Clause (11/2004 - 4/2017)

In contrast to the Luxembourg and Ioannina Compromise, the ‘Demographic Clause’ is a hard legal fact directly amending the requirements for the adoption of a proposal and involves blocking rather than only delaying power. According to Article 12 para 1(b) of the Treaty of Athens¹⁵ the following rule applies: If a decision was adopted by a qualified majority it shall be verified upon request of one member of the Council whether the qualified majority is representing at least 62% of the total population of the EU (so-called ‘Demographic Clause’, later on inserted into Article 205 TEC). If this threshold turns out not to have been met, the decision shall not be adopted.

According to Article 12 para 1(b) of the Accession Act 2003 the Demographic Clause takes effect as of 1 November 2004 and shall be perpetuated until 1 April 2017 (for the time from 1 November 2014 to 1 April 2017 only upon request by at least one member state). Since the Demographic Clause can be invoked at any time upon request of a single EU member state, it directly affects voting power and it will be accounted for in the calculation of the power indices for the period from 11/2005-5/2017. Specifically, this will be reflected in the function ν (see Section II), such that a coalition is only defined as winning if it exceeds the required voting threshold of 62 percent. Nevertheless, we will also evaluate its relevance by calculating power indices under the same regime for the hypothetical situation without the ‘Demographic Clause’ in place.

2. Basic Results

In the following we report the basic results from the calculation of the power measures defined in Section II from Rome to Lisbon. We start by considering country-specific results and then turn to measures for the EU Council of Ministers as a whole (efficiency, proportionality). Finally, we consider the relevance of the aforementioned additional legal provisions and more recently introduced voting regimes such as reverse qualified majority voting.

¹⁵Against this background, Article 3 para 1(a) ii) of the Protocol on the enlargement of the European Union (Protocol No 10) which equally provides for a new distribution of votes, though starting from 1 January 2005 only and not including the ten new member states after the Eastern round (169 votes + majority of members of the Council) appears to be irrelevant. Also Declaration No 20 to the Treaty of Nice has not been followed regarding the date of the entry into force of the new weighing of votes. Whereas the Declaration, just as Protocol No 10, claims this to be the 1 January 2005, the Treaty of Athens provides for the 1 November 2004.

2.1. Country-Specific Results

Tables 2 and 3 show of the (normalized) Banzhaf and Shapley-Shubik indices for EU member states under various regimes since the treaties of Rome. Detailed results for all other indices (*JNI*, *CII*, *CPI*, *DPI*, *HPI*, and *INC*) under the various regimes are reported in Appendix A1 (along with countries' population shares) and their similarities and differences compared with the results from the *BFI* and *SSI* will be discussed below. The indices given in Table 2 and 3 and Appendix A1 fully account for the Demographic Clause (but not for the Ioannina Compromise whose role will be considered separately below).

For the transitional regime during the period 11/2014-3/2017, during which both regimes will be in place (QMV and DMV), results for the EU27 are given for the DMV regime only, since the power indices under qualified majority voting are the same as those for the EU27 in the period 2007-10/2014.¹⁶ Since Croatia will join the EU on 1 July 2013, the results for the period as of 2014 are also reported for the EU28 including Croatia (under DMV using the population projections for 2015, since the voting weights of Croatia (if any) are not yet known). Finally, we also consider the effects of the potential EU enlargements by the candidate countries (Iceland, Macedonia, Montenegro and Turkey) using population projections for 2020. The key results can be summarized as follows:

- Obviously, with each EC (EU) accession the power of the incumbent member states was reduced as evident from the downward trend in member states' power indices.
- Clearly, the largest power is held by the large EU member states. However, the power indices of Germany (7.78% in terms of the *BFI* for the current regime, EU27 QMV), France (7.78%), Italy (7.78%), the United Kingdom (7.78%) and Spain (7.42%), are well below their population shares (16.62%, 12.85%, 11.94%, 12.27% and 8.98%, respectively) as shown in Table 2. The largest disproportionality (relative to the population shares) is shown by Germany. This qualitative result also holds up for the *SSI* in Table 3 and also for the remaining normalized indices reported in Table A.9 in Appendix A1.
- As a mirror image, the smaller member states show more than proportional power indices: e.g., the power indices of Malta (0.82% in terms of the *SSI* for the current regime, EU27 QMV), Cyprus (1.1%) and Estonia (1.1%) are much larger than their respective population shares (0.08%, 0.16% and 0.27%, respectively). But also medium-sized countries such as Belgium, Netherlands, Denmark, Ireland, Greece, Portugal, Austria, Finland, Sweden have power indices which are well above their population shares. This qualitative result also holds up for the *BFI* reported in Table 2 and the remaining normalized indices reported in Table A.9 in the Appendix.
- Regarding the evolution of the relative positions of the incumbent member states, we can see that the positions of the large players (Germany, France, Italy, and the United Kingdom) remained virtually unchanged over the period 1973-10/2004. This also evident from the fact that Germany, France, Italy, and the United Kingdom held the same number of votes throughout that period.
- With the introduction of the double majority voting system through the Treaty of Lisbon, we observe a reduction (though no elimination) of the disproportionality in the weighted QMV

¹⁶The only differences arises from the Demographic Clause and the fact that the indices reported for the period 2007-10/2014 are based on 2007 population figures, whereas the indices for the period 11/2014-3/2017 are based on 2015 population forecasts. We have calculated both variants and the results for the QMV regime turned out virtually identical.

Table 2: Evolution of EU Member States' Power from 1958-2017, Normalized Banzhaf Index (in %)

	EC6	EC9	EC10	EC12	EU15	EU25	EU25	EU27, QMV	EU27, DMV	EU28, DMV	EU32, DMV
	1958-72	1973-80	1981-85	1986-94	1995-4/2004	5/2004-10/04	11/2004-06	2007-10/14	11/2014-3/17	11/2014-	(2020)
Belgium	14.29	9.15	8.20	6.66	5.87	4.14	3.91	3.68	2.94	2.73	2.38
France	23.81	16.72	15.77	12.87	11.16	7.60	8.57	7.78	8.40	9.47	7.91
Germany	23.81	16.72	15.77	12.87	11.16	7.60	8.57	7.78	10.24	11.61	9.20
Italy	23.81	16.72	15.77	12.87	11.16	7.60	8.57	7.78	7.91	8.87	7.40
Luxembourg	0.00	1.58	4.10	1.80	2.26	1.69	1.32	1.25	1.90	1.40	1.35
Netherlands	14.29	9.15	8.20	6.66	5.87	4.14	4.23	3.97	3.49	3.44	2.90
Denmark		6.62	4.10	4.59	3.59	2.52	2.31	2.18	2.40	2.03	1.83
Ireland		6.62	4.10	4.59	3.59	2.52	2.31	2.18	2.30	1.90	1.75
Untd. Kingdom		16.72	15.77	12.87	11.16	7.60	8.57	7.78	8.16	9.18	7.75
Greece			8.20	6.66	5.87	4.14	3.91	3.68	2.96	2.75	2.38
Portugal				6.66	5.87	4.14	3.91	3.68	2.89	2.66	2.30
Spain				10.89	9.24	6.36	8.13	7.42	6.24	6.81	6.02
Austria					4.79	3.38	3.27	3.09	2.67	2.38	2.10
Finland					3.59	2.52	2.31	2.18	2.38	2.01	1.82
Sweden					4.79	3.38	3.27	3.09	2.79	2.54	2.24
Cyprus						1.69	1.32	1.25	1.93	1.44	1.37
Cz. Republic						4.14	3.91	3.68	2.89	2.66	2.31
Estonia						2.52	1.32	1.25	1.98	1.5	1.42
Hungary						4.14	3.91	3.68	2.82	2.57	2.23
Latvia						2.52	1.32	1.25	2.06	1.60	1.49
Lithuania						2.52	2.31	2.18	2.17	1.74	1.59
Malta						1.69	0.99	0.94	1.89	1.38	1.33
Poland						6.36	8.13	7.42	5.69	5.61	5.26
Slovakia						2.52	2.31	2.18	2.38	2.02	1.82
Slovenia						2.52	1.32	1.25	2.05	1.59	1.49
Bulgaria							3.09	3.09	2.56	2.25	1.96
Romania							4.26	4.26	3.91	3.99	3.25
Croatia										1.87	1.70
Iceland											1.32
Turkey											9.27
Macedonia											1.48
Montenegro											1.35

Notes: For an overview of the regimes, see Table 1. EU28 and EU32 (DMV) calculated with population projections for 2015 and 2020 respectively.

Table 3: Evolution of EU Member States' Power from 1958-2017, Shapley-Shubik index (in %)

	EC6	EC9	EC10	EC12	EU15	EU25	EU25	EU25	EU27, QMV	EU27, DMV	EU28, DMV	EU32, DMV
	1958-72	1973-80	1981-85	1986-94	1995-4/2004	5/2004-10/04	11/2004-06	2007-10/14	11/2014-3/17	11/2014-		(2020)
Belgium	15.00	8.10	7.14	6.37	5.52	3.97	3.65	3.41	2.46	2.29	2.29	2.03
France	23.33	17.86	17.38	13.42	11.67	8.30	9.29	8.67	10.86	11.68	11.68	9.91
Germany	23.33	17.86	17.38	13.42	11.67	8.30	9.29	8.67	13.74	14.90	14.90	11.95
Italy	23.33	17.86	17.38	13.42	11.67	8.30	9.29	8.67	10.07	10.78	10.78	9.13
Luxembourg	0.00	0.95	3.02	1.18	2.07	1.57	1.19	1.10	1.09	0.70	0.70	0.70
Netherlands	15.00	8.10	7.14	6.37	5.52	3.97	3.98	3.68	3.20	3.18	3.18	2.71
Denmark		5.71	3.02	4.26	3.53	2.34	2.10	1.96	1.73	1.45	1.45	1.32
Ireland		5.71	3.02	4.26	3.53	2.34	2.10	1.96	1.60	1.30	1.30	1.21
Untd. Kingdom		17.86	17.38	13.42	11.67	8.30	9.29	8.67	10.48	11.24	11.24	9.67
Greece			7.14	6.37	5.52	3.97	3.65	3.41	2.48	2.33	2.33	2.02
Portugal				6.37	5.52	3.97	3.65	3.41	2.38	2.21	2.21	1.93
Spain				11.13	9.55	6.51	8.61	8.00	7.68	8.02	8.02	6.96
Austria					4.54	3.25	3.02	2.82	2.10	1.88	1.88	1.67
Finland					3.53	2.34	2.10	1.96	1.71	1.43	1.43	1.30
Sweden					4.54	3.25	3.02	2.82	2.26	2.07	2.07	1.85
Cyprus						1.57	1.19	1.10	1.12	0.74	0.74	0.74
Cz. Republic						3.97	3.65	3.41	2.38	2.21	2.21	1.94
Estonia						2.34	1.19	1.10	1.19	0.82	0.82	0.79
Hungary						3.97	3.65	3.41	2.29	2.10	2.10	1.83
Latvia						2.34	1.19	1.10	1.29	0.94	0.94	0.89
Lithuania						2.34	2.10	1.96	1.43	1.10	1.10	1.01
Malta						1.57	0.89	0.82	1.07	0.68	0.68	0.68
Poland						6.51	8.61	8.00	6.65	6.73	6.73	5.45
Slovakia						2.34	2.10	1.96	1.72	1.43	1.43	1.30
Slovenia						2.34	1.19	1.10	1.28	0.93	0.93	0.89
Bulgaria								2.82	1.95	1.71	1.71	1.49
Romania								3.99	3.78	3.89	3.89	3.17
Croatia										1.26	1.26	1.15
Iceland												0.67
Turkey												12.07
Macedonia												0.88
Montenegro												0.71

Notes: For an overview of the regimes, see also Table 1. EU28 and EU32 (DMV) calculated with population projections for 2015 and 2020 respectively.

system in place up to 2014 (2017). For instance, the power index of Germany increases from 7.78% to 10.24% (in terms of the *BFI*), though it is still under its population share. On average, large EU countries gain relatively more in terms of power from the DMV system than small countries: This move towards proportionality will also be reflected in the results for the power gradients below.

- While the EU-accession of Croatia will have quantitatively only minor consequences, Turkey will - in case of its EU accession - appear as one of the most powerful players in the Council with a power index of 8.5% (10.72%) according to the *BFI (SSI)*, which is close to Germany with 9.67% (12.59%) and larger than the power of the United Kingdom with 8.13% (10.15%). In terms of the *BFI (SSI)*, Turkey would be the third (second) largest player, following Germany and France among the (potential) 32 member states. In terms of inclusiveness (4.04%), Turkey would appear as second largest player in the Council behind Germany (4.24%) and before France (4.01%).
- Regarding the other indices shown in Appendix A1, there are several common qualitative results: i) a downward trend in power through the entry of new member states, ii) a stable relative power distribution among incumbent member states, iii) a disproportionality between power and population shares, favoring relatively small countries, which has been partly reduced through the DMV by the Treaty of Lisbon. However, there are also differences. In terms of the *DPI* and *HPI*, which consider minimal coalitions only, the disproportionality is more pronounced in quantitative terms. A similar result holds for the inclusiveness index, which measures the potential gains from voting and ignores whether a country is critical in a winning coalition. Specifically, the normalized version of the inclusiveness index shows a sharp decline for the incumbent (big) member states due to enlargements till EU25 (11/2004-06). Thereafter, the declining trend is less pronounced and the normalized inclusiveness index ranges between 2.8% and 5.2% with an average of 3.62%.

2.2. Results for the EU Council of Ministers as a Whole

Having considered the power of EU member states, we now turn to the results for the EU Council of Ministers as a whole. Table 4 gives an overview of the evolution of the EU's efficiency defined by E_{BFI} (Coleman's measure of capability to act, see equation (16a)) and E_{SSI} (the Shapley-Shubik analog, see equation (16b)) and the proportionality in terms of the power gradient (PG) for alternative power indices (see equation (20)).

- As can be seen from Table 4, the EU's capability to act (in the Council of Ministers) declined over time in terms of both efficiency measures E_{BFI} and E_{SSI} , mainly as a result of EC (EU) enlargements by further countries. This downward trend in efficiency is also illustrated in Figure 2.
- The downward trend is much more pronounced for the Coleman measure (that relies on the Banzhaf assumptions): According to E_{BFI} , the passage probability of a vote reached a minimum of 2 percent under the Nice Treaty for the EU27 (and the transitional period from 2014-2017 under the Lisbon Treaty). In stark contrast, the Shapley-Shubik analog (E_{SSI}) suggests no reason to be worried; in fact, the index E_{SSI} has only slightly decreased since the treaties of Rome till 2014 (2017) to a value of 27.5 percent. This highlights the relevance of the distributional assumptions regarding voting behavior for the quantification of the EU's capability to act.

Table 4: The EU Council of Ministers: Efficiency and Proportionality, 1958-2007

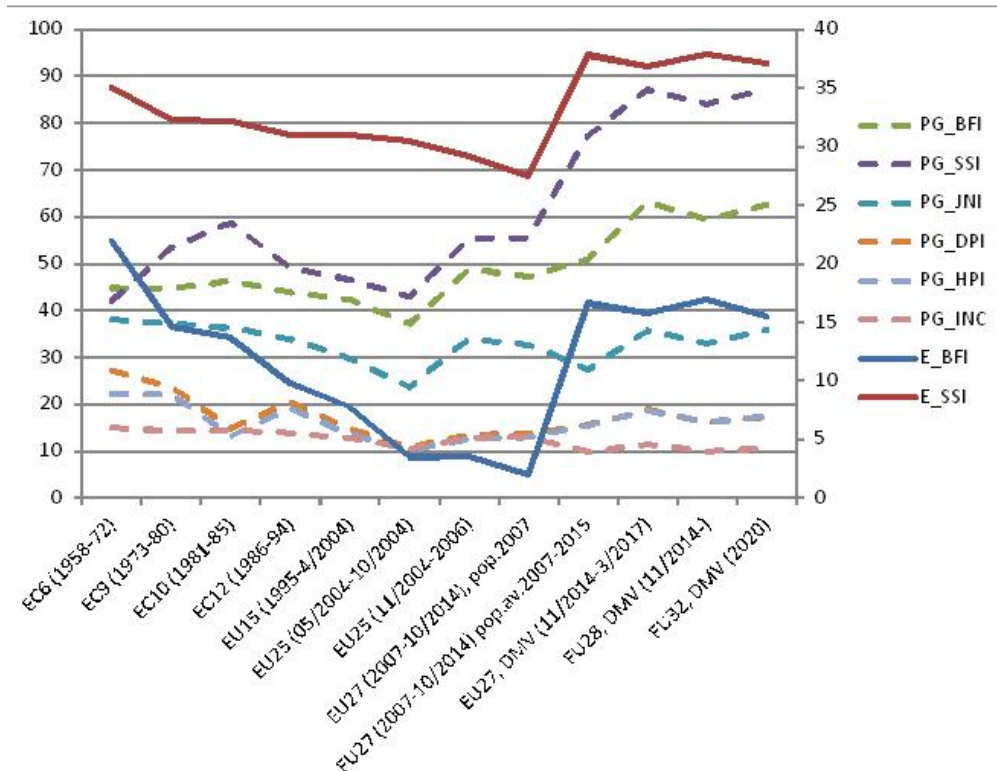
Regime	Period	Efficiency (%)		Power Gradient (%)					
		E_{BFI}	E_{SSI}	PG_{BFI}	PG_{SSI}	PG_{JNI}	PG_{DPI}	PG_{HPI}	PG_{INC}
EC6	1958-72	21.88	35.00	44.81	41.99	38.04	27.18	22.24	14.94
EC9	1973-80	14.65	32.30	44.69	53.44	37.21	23.69	22.13	14.28
EC10	1981-85	13.67	32.14	46.32	58.74	36.28	14.88	13.16	14.44
EC12	1986-94	9.81	31.03	43.87	49.02	33.84	20.35	19.08	13.84
EU15	1995-4/2004	7.78	31.03	42.32	46.53	29.81	14.78	13.55	12.79
EU25	5/2004-10/04	3.49	30.49	37.11	42.95	23.67	10.89	10.20	10.41
EU25	11/2004-2006	3.59	29.19	48.87	55.35	33.99	13.44	12.56	12.89
EU27	2007-10/14	2.03	27.50	47.19	55.47	32.75	13.76	13.00	13.09
EU27, DMV	11/2014-3/17	16.62	37.80	50.96	77.25	27.38	15.53	15.50	9.80
EU28, DMV	11/2014-	15.73	36.79	63.20	87.14	35.71	18.84	18.76	11.47
EU32, DMV	2020	16.96	37.93	59.35	84.07	32.87	16.12	16.08	9.96

Notes: E_{BFI} .. Coleman measure of capability to act, E_{SSI} ... capability to act (Shapley-Shubik analog), PG ... power gradients based on alterantive indices. (The PG based on CPI and CII are the same as under the normalized Banzhaf and not shown in the Table.

- Both indices of the capability to act show an increase with the shift from the qualified majority to the double majority voting that will come fully into force in 2017 (and co-exist with weighted qualified majority voting for the period 11/2014-3/17). Efficiency in terms of the E_{BFI} index increases to a value of 16.6 percent under DMV for the EU27, whereas its Shapley-Shubik analog even increases to 37.8 percent. Notably, this points to a passage probability that is higher than under the treaties of Rome for the original six member states.
- Further accessions by Croatia (and the candidate countries) will slightly reduce efficiency but have no sizeable effect on the EU's capability to act.
- It is interesting to note that the switch to the double majority system and the increase in efficiency goes hand in hand with a strong move towards proportionality. The power gradients remained fairly flat till 2014 (2017) and increased towards proportionality thereafter, in particular those based on the BFI and SSI .
- The sharpest increase in proportionality is shown by the power gradient based on the SSI (as also apparent from the country-specific results) which is closest to proportionality with a value of 50.96 under the current regime, EU27, 2007-10/2014 and 87.22 under the potential enlargement to the EU32 in 2020; the lowest degree of proportionality is indicated by the normalized inclusiveness and Holler-Packel index, which is in line with the country-specific results reported in the Tables in Appendix A1.

Summing up, the conclusions regarding efficiency (and also) proportionality are rather different under the Banzhaf and the Shapley-Shubik approach. The latter indicates a much more efficient and more proportional voting system. From a supranational perspective this is the most relevant result. Hence it will be of particular interest in future research i) to judge the plausibility of the distributional assumptions underlying the Banzhaf and Shapley-Shubik approach, and ii) to explore the changes in efficiency (and proportionality) against variations in the distributional assumptions, both in general terms and with respect to the EU Council of Ministers.

Figure 2: The EU Council of Ministers: Efficiency (%) and Proportionality (%), 1958-2020



Notes: Proportionality is measured on the left vertical axis, efficiency on the right vertical axis.

2.3. The Role of Additional Legal Provisions

In the following, we discuss the changes in the quantitative measures implied by the additional legal rules, namely the Demographic Clause and the Ioannina Compromise. As outlined above, the Demographic Clause and the Ioannina Compromise are different in nature. Both are legal provisions, but the Demographic Clause is a ‘hard legal fact’ that implies power to prevent (or initiate) action while the Ioannina Compromise implies delaying power only and is more limited in scope. Here, we focus on measures related to the Council of Ministers as a whole; country-specific power indices without the Demographic Clause and accounting for the Ioannina Compromise are given in Tables A.13-A.17 in the Appendices A2 and A3.

Demographic Clause

Regarding efficiency, it can be seen from Table 5 that the Demographic Clause for the EU27 regime (compared to the current regime, EU27, QMV in Table 4), by adding an additional majority requirement, does not change the capability to act in terms of E_{BFI} or E_{SSI} . Hence, in only a negligible number of cases (relative to the large number of coalitions) does it appear to be the case that the population threshold is decisive. Proportionality of the voting system also changed only slightly by the Demographic Clause, raising the power gradient in terms of the PG_{BFI} (PG_{SSI}) from 47.19 (55.47%) to 47.21% (55.52%). This can also be seen from the country-specific table in Appendix A2, where the Demographic Clause on average reduces (increases) the power of small (large) member states.

Table 5: Demographic Clause, Ioannina Compromise, Efficiency and Proportionality

Regime	Period	Efficiency (%)		Power gradients(%)					
		E_{BFI}	E_{SSI}	PG_{BFI}	PG_{SSI}	PG_{JNI}	PG_{DPI}	PG_{HPI}	PG_{INC}
Demographic Clause									
EU27, QMV	2007-10/2014	2.03	27.50	47.19	55.47	32.75	13.76	13.00	13.09
	without demographic clause	2.03	27.50	47.21	55.52	32.71	13.76	13.00	13.10
Ioannina Compromise									
EU15	1995-04/2004	7.78	31.03	42.32	46.53	29.81	14.78	13.55	12.79
	with Ioannina I	4.71	27.66	41.07	50.17	29.58	14.97	13.88	13.35
EU28	11/2014	15.73	36.79	63.20	87.14	35.71	18.84	18.76	11.47
(DMV)	with Ioannina II	7.03	33.37	56.02	65.64	30.49	12.65	11.12	12.57
	with Ioannina III	2.19	28.33	62.42	43.31	36.37	11.92	9.38	15.58
EU32	2020-	16.96	37.93	59.35	84.07	32.87	16.12	16.08	9.96
(DMV)	with Ioannina III	2.11	30.12	49.62	39.37	25.9	6.84	5.41	12.41

Notes: Ioannina III comes into force in 2017, but its consequences are given for the EU27 in the period 11/2014-3/2017 to ensure comparability.

Ioannina Compromise

Table 5 also shows the implications of the three variants of the Ioannina Compromise for efficiency and proportionality. For instance, in the case of EU28, the capability to act declines substantially from 15.73% to 7.03% in terms of E_{BFI} and from 36.79% to 33.37% in terms of E_{SSI} . Since the Ioannina compromise II gives a group of small countries additional power, it tends to decrease the proportionality of the voting system, lowering the power gradient in terms of the PG_{BFI} (PG_{SSI}) from 63.20% (87.14%) to 56.02% (65.64%). As with the Ioannina Compromise III an even smaller number of countries is needed to form a blocking minority, the efficiency and proportionality measures are decreased further. This can also be seen from the country-specific tables in Appendix A3, where the Ioannina Compromise on average increases (reduces) the power of small (large) member states.

3. EU Governance Reform during the Sovereign Debt Crisis

As a consequence of the euro area sovereign debt crises several reforms, most notably the so called ‘Six-Pack’ and ‘Two-Pack’ regulations, have been implemented at the European level. Table 6 summarizes the increasing complexity in EU decision-making that has come with these reforms. On 13 December 2011, the revised Stability and Growth Pact (SGP) came into force with a new set of rules for economic and fiscal surveillance. The so-called ‘Six-Pack’ is made up of five regulations and one directive proposed by the European Commission and approved by all 27 member states and the European Parliament in October 2011 (Regulation (EU) 1173/2011 to 1177/2011 and Council Directive 2011/85/EU). It comprises an early warning mechanism related to measures of public finance (and macroeconomic imbalances), triggering Council recommendations to take corrective actions, and is backed up by enforcement measures in case of non-compliance under the so-called excessive deficit (imbalances) procedure.

Table 6: Increasingly Complex Decision-Making in the EU

‘Six-Pack’ Item	Regulation/ Directive No.	‘Six-Pack’ Regulation	Applies to	Voting Rule
1	1175/2011	Improving budgetary positions and economic policies	EU27 (with minor exceptions that apply to euro area+ERM2 countries)	1
2	1177/2011	Improving the excessive deficit procedure	EU27, ECB surveillance only applies to euro area+ERM2 countries	N/A
3	2011/85/EU (Directive)	Budgetary frameworks requirements	EU27, the UK does not have to abide by Articles 5 to 7 (concerning numerical fiscal rules)	N/A
4	1176/2011	Macroeconomic Imbalances	EU27	2
5	1173/2011	Enforcing euro area budgetary surveillance	euro area	2
6	1174/2011	Correcting excessive imbalances	euro area	3
‘Two-Pack’ Item	Regulation No.	‘Two-Pack’ Regulation		
1	385/2011	Surveillance for member states with financial stability difficulties	euro area	3
2		Common provisions for draft budgetary plans and excessive deficit correction	euro area in general (with minor exceptions for members subject to macro-economic adjustment programmes or an excessive deficit procedure)	3
Agreement				
		Fiscal Compact (TSCG)	EU25 (the UK and the Czech Republic are left out)	4
		European Stability Mechanism (ESM) Treaty	euro area	5

Notes: ECB ... European Central Bank, ERM ... Exchange Rate Mechanism. Voting rules: 1 = Qualified Majority Voting (QMV), excluding the member state concerned (only euro area countries vote on euro area members), Council can reject Commission recommendation by simple majority. 2 = QMV, excluding the member state concerned. 3 = QMV of euro area countries, excluding the member state concerned. 4 = Reversed QMV (euro area countries). 5 = QMV or mutual agreement by the Board of Directors and the Board of Governors. See European Union (2011); Pisani-Ferry et al. (2012).

Of particular interest in the present context are the changes related to the enforcement measures, for which a reverse qualified majority voting procedure has been introduced in order ‘to take all the relevant decisions leading up to sanctions. This semi-automatic decision-making procedure makes it very difficult for member states to form a blocking majority.’ (European Union, 2011).

In case of a persistent failure to respect the rules of the pact, the Commission will draft a recommendation to the member state to take corrective action, which is adopted by the Council through a reverse qualified majority voting procedure, i.e., unless a qualified majority of member states votes against it (see below).

For euro area member states, the recommendation will be backed by an enforcement mechanism (based on Article 136 of the Treaty) in the form of an interest-bearing deposit amounting to 0.2% of GDP, which can also be converted into a fine. These enforcement measures are also adopted by reverse majority voting. In case the member state concerned faces a notice under Article 126(9), the financial sanction will be adopted by qualified majority voting as foreseen by the Treaty. Table 7 gives an overview of the enforcement measures underpinning the Stability and Growth Pact and the voting procedures.

Table 7: Enforcement Mechanisms under the Revised Stability and Growth Pact

Enforcement Measures Underpinning the SGP in the Euro Area		
Trigger of the Sanction	Sanction	Adoption
Council decision establishing failure to take action in response to a Council recommendation under Art. 121(4).	Interest-bearing deposit (as a rule 0.2% of GDP)	Reverse Qualified Majority Voting
Council decision based on Art.126(6) of the Treaty (i.e. existence of an excessive deficit), only if the Member States had already lodged an interest-bearing deposit (i.e. in case of non-compliance with the preventive arm provisions) or in case of particularly serious non-compliance with the rules	Non-interest-bearing deposit (as a rule 0.2% of GDP)	Reverse Qualified Majority Voting
Council decision based on Art.126(8) of the Treaty (i.e. non-effective action in response to the recommendation to correct the excessive deficit under Art. 126(7))	Fine (as a rule 0.2% of GDP)	Reverse Qualified Majority Voting
Council decision based on Art.126(11) of the Treaty (i.e. non-effective action in response to the notice to correct the excessive deficit under Art. 126(9))	Fine 0.2% of GDP + variable component)	Qualified Majority Voting

Notes: See European Union (2011).

Most of the ‘Six-Pack’ reforms are based on the Lisbon Treaty and therefore perpetuate the clear distinction between euro area and non-euro area countries. In particular, regulation 1175/2011 on the strengthening of the surveillance of budgetary positions applies to the EU27, but the associated sanctions refer to the euro area. Regulation 1176/2011 on the prevention and correction of macroeconomic imbalances also applies to the whole EU. However, the alert mechanism, which is part of the regulation, is, in accordance with Article 121(3) of the TFEU, discussed in the eurogroup for the euro area countries. Finally, the enforcement mechanism to correct excessive macroeconomic

imbalances adopted as part of the ‘Six-Pack’ is exclusively addressed to euro area countries (Regulation 1174/2011). For the most part, the regulations require qualified majority voting (QMV) by the Council to adopt a European Commission recommendation. For euro area countries, only euro area countries vote. But as shown in Table 7 for some regulations more complex voting schemes have been implemented.

Summing up, five main different voting regimes can arise from these new regulations, which will be considered quantitatively in the following:

- The usual qualified majority vote (QMV) of all 27 member states (EU27),
- QMV with all 27 countries, excluding the member state concerned,
- Qualified majority vote of the 17 euro area countries,
- QMV with only euro area countries, excluding the member state concerned,
- reverse QMV (RQMV) with only euro area countries (excluding the member state concerned).

The voting weights and threshold percentages stay the same as before. The respective absolute thresholds for majorities and total vote counts change though and are presented in Table 8. Thereby, countries with identical number of votes (see Table A1 in the Appendix) are grouped together in the respective rows, whereas the figures under voting without the member state concerned exclude only one of these countries at a time.

Qualified Majority Voting (QMV) in the EU27 and the Euro Area

We apply these changed thresholds and voting rules using the power measures introduced above. Table 9 gives an overview the efficiency and proportionality of the EU Council of Ministers under the various QMV regimes. Full tables with country-specific results are given in Appendix A4.

Independently of the underlying set of countries (EU27 or euro area) the exclusion of a country increases the efficiency of the scheme relying on the Banzhaf measure (E_{BFI}) and decreases for the Shapley-Shubik analog (E_{SSI}). This is another case in point where the two indices differ regarding their implications for efficiency.¹⁷ Although the power gradients are only comparable within each set of countries (EU27 and euro area) in Table 9, we see that proportionality increases for most of the indices when medium sized countries are excluded, but decreases when small or big countries are not allowed to vote.

¹⁷This result is in line with those of section II, where we found the Shapley-Shubik efficiency measure (E_{SSI}) to be much less sensitive against the accession of further countries.

Table 8: Thresholds and Total Votes under Different QMV Regimes

	EU27 QMV		Euro Area QMV		Euro Area Reverse QMV	
	Threshold	Total Votes	Threshold	Total Votes	Threshold	Total Votes
All	255	345	157	213	57	213
Excluding FR / DE / IT / UK (29)	233	316	136	184	49	184
Excluding ES / PL (27)	235	318	137	186	50	186
Excluding NL (13)	245	332	148	200	53	200
Excluding RO (14)	244	331				
Excluding BE / CZ / GR / HU / PT (12)	246	333	148	201	54	201
Excluding AT / BG / SE (10)	247	335	150	203	54	203
Excluding DK / IE / FI / LT / SK (7)	250	338	152	206	55	206
Excluding CY / EE / SI / LU / LV (4)	252	341	154	209	56	209
Excluding MT (3)	253	342	155	210	56	210

Notes: Voting regimes excluding a particular country are grouped by countries with identical number of votes (given in parentheses, see Table A1), whereas for the calculation only one country is excluded at a time. Under QMV, the threshold is the number of votes required for the adoption of a proposal. Under Reverse QMV, the same threshold is required to prevent a proposal, such that the ‘acceptance threshold’ under Reverse QMV (reported in the Table) is equal to the total number of votes minus the ‘prevention threshold’ plus one vote.

Table 9: Efficiency and Proportionality under Different QMV Regimes

Regime	Efficiency (%)		Power Gradients (%)					
	E_{BFI}	E_{SSI}	PG_{BFI}	PG_{SSI}	PG_{JNI}	PG_{DPI}	PG_{HPI}	PG_{INC}
<i>EU27 QMV</i>								
All	2.03	27.50	47.19	55.47	32.75	13.76	13.00	13.09
Excluding FR / DE / IT / UK	2.32	22.53	45.81	54.75	71.27	13.47	12.70	12.71
Excluding ES / PL	2.28	21.41	45.59	54.62	70.41	13.41	12.65	12.65
Excluding NL	2.37	22.28	47.66	55.32	69.34	13.78	12.97	13.10
Excluding RO	2.42	22.97	48.08	55.91	69.74	13.93	13.12	13.26
Excluding BE / CZ / GR / HU / PT	2.32	21.66	48.05	56.00	69.82	13.89	13.09	13.25
Excluding AT / BG / SE	2.36	22.56	47.52	55.62	69.42	13.94	13.15	13.26
Excluding DK / IE / FI / LT / SK	2.19	20.52	47.28	55.43	69.89	14.07	13.28	13.29
Excluding CY / EE / SI / LU / LV	2.15	20.79	46.93	55.09	69.68	13.74	12.95	13.25
Excluding MT	2.08	20.09	47.21	55.53	69.94	13.76	13.00	13.10
<i>Only euro area countries QMV</i>								
All	6.25	93.67	49.93	58.46	69.22	14.83	13.34	13.80
Excluding FR / DE / IT	6.90	89.64	47.55	54.16	69.73	15.22	13.84	13.18
Excluding ES	7.26	91.31	49.05	54.48	71.68	15.41	13.88	13.41
Excluding NL	6.89	89.78	50.47	57.98	68.45	14.34	12.59	13.91
Excluding BE / GR / PT	7.13	91.19	51.44	59.86	69.80	14.61	12.88	14.12
Excluding AT	6.80	89.68	50.69	59.55	68.73	13.87	12.26	14.09
Excluding IE / FI / SK	6.71	89.28	51.34	60.19	69.50	15.72	13.97	14.33
Excluding CY / EE / SI / LU	6.61	89.34	50.40	60.52	69.30	16.05	14.39	14.24
Excluding MT	6.37	88.29	50.08	59.94	69.43	14.69	13.07	14.26

Notes: Results for voting regimes excluding a particular country are grouped by countries with identical number of votes in QMV, whereas for the calculation only one country is excluded at a time. There is a small (though quantitatively negligible) difference in the power gradients when excluding different countries from one row (with the same number of votes), because population size differs across countries.

Reverse Qualified Majority Voting (Reverse QMV) in the Economic Governance Package

One characteristic of the economic governance package is the use of a particular voting system that is referred to as reverse qualified majority voting. Under this voting procedure proposed by the Commission in the context of the economic governance package, a Commission recommendation is deemed to be adopted unless the Council decides by qualified majority to reject the recommendation within a given deadline that starts to run from the adoption of such a recommendation by the Commission. The current rules for the calculation of a qualified majority are contained in Article 3 of Protocol (No 36) on transitional provisions¹⁸.

Under reverse QMV, if the Council decides to vote on the Commission recommendation, the weighted votes of member states as laid down by the Treaties will remain unchanged. Hence, the ‘acceptance threshold’ becomes a ‘prevention threshold’ and the ‘acceptance threshold’ under reverse QMV is equal to the total number of votes minus the number of votes required for preventing the proposal plus one vote (see Table A8).

Table 10 gives an overview of member states’ power to prevent in terms of the Coleman measure (*CPI*) and its Shapley Shubik analog (*SPI*) under the old regime (QMV) and the new regime (reverse QMV). The lower panel also reports the implied efficiency of the Council of Ministers as a whole.¹⁹

Table 10: Reverse Qualified Majority Voting Regime, Euro Area Countries

	QMV		Reverse QMV	
	<i>CPI</i>	<i>SPI</i>	<i>CPI</i>	<i>SPI</i>
FR / DE / IT	84.55	53.24	5.64	9.98
ES	80.89	48.44	5.39	9.08
NL	41.33	23.12	2.76	4.33
BE / GR / PT	37.50	21.07	2.50	3.95
AT	32.37	17.53	2.16	3.29
IE / FI / SK	22.46	11.95	1.50	2.24
CY / EE / SI / LU	12.85	6.91	0.86	1.29
MT	9.77	5.11	0.65	0.96
	<i>E_{BFI}</i>	<i>E_{SSI}</i>		
QMV	6.25	93.67		
Reverse QMV	93.75	99.79		

Notes: Results for voting regimes excluding a particular country are grouped by countries with identical number of votes in QMV, whereas for the calculation only one country is excluded at a time. E.g., in the first line the figures indicate Germany’s and Italy’s power to prevent action when France is excluded from the voting, etc.

As expected Table 10 shows that the capability to act in terms of the Coleman measures of efficiency sees a tremendous increase, as far more acceptance coalitions are possible with the much lower threshold; to put it differently, much less blocking coalitions are possible. At the same time, the

¹⁸Different rules will apply from 1 November 2014 (see Article 16(4) TEU and Article 238(2) and (3) TFEU).

¹⁹Notice that that country-specific power measures, such as the Banzhaf or Shapley-Shubik index are not changed numerically under the reverse QMV regime (with the same countries and weights), the only change being that the interpretation becomes different: positive swings of a country making the coalition winning in the sense that a Commission proposal can be successfully blocked.

country-specific power to prevent proposals countries shrinks drastically due to the much higher threshold requirement under the reverse QMV regime. The overall efficiency of the Council increases dramatically both in terms of E_{BFI} and E_{SSI} . Hence, our quantitative results confirm that the introduction of the reverse QMV mechanisms achieves the Commissions' declared goal to introduce a 'semi-automatic decision-making procedure [that] makes it very difficult for member states to form a blocking majority.' (European Union, 2011).

IV Conclusions

This paper provide a comprehensive reassessment of the consequences of past treaty changes and previous and upcoming (EC) EU enlargements for its member states' power, the EU's capability to act (efficiency), and the overall proportionality of the voting mechanism in the EU Council of Ministers. We employ the most widely used measures of power, such as the Banzhaf (1965) and Shapley and Shubik (1954) indices, as well as alternative indices that have been suggested in the literature. Regarding efficiency (the capability to act), we use Coleman's (1971) measures, which are based on the assumptions underlying the Banzhaf approach, and Shapley-Shubik analogs more recently introduced by Paterson (2005). The overall proportionality of the voting system is also judged in terms of the power gradient (Paterson, 1998).

Moreover, we also judge the relevance of additional legal provisions that have been in place in addition to the standard qualified majority voting regime, namely the 'Luxembourg Compromise', the 'Demographic Clause', and the 'Ioannina Compromise', as well as more recently introduced enforcement mechanisms under the revised Stability and Growth Pact such as reverse qualified majority voting.

Our results show in quantitative terms, how the accession of new member states over time has diluted voting power of the incumbents and led to a reduction in the EU's capability to act, which has been resurrected by the introduction of the double majority voting system in the Lisbon Treaty.

While the results implied by alternative power indices show many similarities, there are large differences between the Banzhaf and Shapley-Shubik approach when it comes to measuring the EU's capability to act. Hence, further theoretical and empirical research on the validity of the assumptions underlying the two approaches seems warranted.

Regarding the extra rules we find the 'Demographic Clause' to be materially irrelevant in quantitative terms, whereas the 'Ioannina compromise' provides small EU member state with additional delaying power. We also highlight the increasing complexity and variety of voting rules in the EU and quantify the large increase in efficiency implied by the introduction of the reverse majority voting procedure in the area of economic governance.

Literature

- Albert, M. (2003), 'The Voting Power Approach. Measurement without Theory', European Union Politics **4(3)**, 351–66.
- Algaba, E., Bilbao, J. M. and Fernández, J. R. (2007), 'The Distribution of Power in the European Constitution', European Journal of Operational Research **176(3)**, 1752–1766.
- Baddenhausen, H., Gey, T. and Harbou, F. (2007), 'Der Vertrag von Lissabon. Europa-Thema der wissenschaftlichen Dienste des Bundestages', **01/08**.

- Baldwin, R. E., Francois, J. F. and Portes, R. (2002), 'The Costs and Benefits of Eastern Enlargement: the Impact on the EU and Central Europe', *Journal of Economic Surveys* **12(24)**, 125–176.
- Banzhaf, J. F. (1965), 'Weighted Voting Doesn't Work: A Mathematical Analysis', *Rutgers Law Review* **19(1965)**, 317–43.
- Bilbao, J. M., R., F. J., Jiménez, N. and López, J. J. (2002), 'Voting Power in the European Union Enlargement', *European Journal of Operational Research* **143(1)**, 181–196.
- Borchardt, K.-D. (2010), 'Die rechtlichen Grundlagen der Europäischen Union', *UTB Uni-Taschenbücher Verlag; 4th Edition* .
- Calliess, C. and Ruffert, M., eds (2011), *Kommentar zu EUV und EGV [commentary on TEU and TFEU]*, Beck-Verlag, 4th ed.
- Coleman, J. S. (1971), 'Control of Collectives and the Power of a Collectivity to Act', in: Bernhardt Lieberman (ed.), *Social Choice*, New York: Gordon and Breach. .
- Dashwood, A. (1992), 'Majority Voting in the Council', In: Schwarze, J. (ed.) *Legislation for Europe. de Gruyter.* .
- Deegan, J. and Packel, E. W. (1978), 'A New Index of Power for Simple N-Person Games', *International Journal of Game Theory* **7(2)**, 113–23.
- Deja, M. and Baddenhausen, H. (2007), 'Der Vertrag von Lissabon und die Ioannina Klausel. Europa-Thema der wissenschaftlichen Dienste des Bundestages, 29/07.'.
- European Union (2011), 'EU Economic Governance 'Six-Pack' - State of Play', Memo/11/627, Brussels, Belgium.
- Garrett, G. and Tsebelis, G. (1999), 'Why Resist the Temptation to Apply Power Indices to the European Union?', *Journal of Theoretical Politics* **11(3)**, 291–308.
- Heisenberg, D. (2005), 'The Institution of 'Consensus' in the European Union: Formal versus Informal Decision-Making in the Council', *European Journal of Political Research* **44(1)**, 65–90.
- Holler, M. J. and Packel, E. W. (1983), 'Power, Luck and the Right Index', *Journal of Economics* **43(1)**, 21–29.
- Hosli, M. O. (1995), 'The Balance between Small and Large: Effects of a Double-Majority System on Voting Power in the European Union', **39 (3)**, 351–370.
- Johnston, R. J. (1978), 'On the Measurement of Power: Some Reactions to Laver', *Environment and Planning A* **10(8)**, 907–14.
- Kapteyn, P., Verloren, P. and van Themaat (1990), *Introduction to the Law of the European Communities*, Sweet & Maxwell.
- Kauppi, H. and Widgren, M. (2007), 'Voting Rules and Budget Allocation in the Enlarged EU', *European Journal of Political Economy* **23(3)**, 693–706.
- König, T. and Bräuninger, T. (2000), 'Decisiveness and Inclusiveness: Two Aspects of the Inter-governmental Choice of European Voting Rules', *Homo oeconomicus* **17(1/2)**, 107–23.

- König, T. and Bräuninger, T. (2001), Decisiveness and Inclusiveness: Intergovernmental Choice of European Decision Rules, Kluwer. Dordrecht., chapter Power Indices and Coalition Formation, pp. 273–290.
- Le Breton, M., Montero, M. and Zaporozhets, V. (2012), ‘Voting Power in the EU Council of Ministers and Fair Decision Making in Distributive Politics’, Mathematical Social Sciences **63(2)**, 159–173.
- Nevison, C., Zicht, B. and Schoepke, S. (1978), ‘A Naive Approach to the Banzhaf Index of Power’, Behavioral Science **23**, 130–131.
- Paterson, I. (1998), ‘Vote Weighting in the European Union – Confronting the Dilemma of Dilution. Institute for Advanced Studies, Vienna, East European Series No. 54.’.
- Paterson, I. (2005), ‘A Lesser Known Probabilistic Approach to the Shapley-Shubik Index and Useful Related Voting Measures. Paper presented at the EPCS, Durham, March 31 - April 3, 2005.’.
- Paterson, I. and Silàrszky, P. (1999), ‘Redesigning the Institution of the Council of Ministers in Advance of EU Enlargement – Issues and Options. Journal of Institutional Innovation, Development, and Transition (IB Review), 3.’.
- Penrose, L. S. (1946), ‘The Elementary Statistics of Majority Voting’, Journal of the Royal Statistical Society **109(1)**, 53–57.
- Peterson, J. and Bomberg, E. (1999), Decision-Making in the European Union, London: Macmillan.
- Pisani-Ferry, J., Sapir, A. and Wolff, G. B. (2012), ‘The Messy Rebuilding of Europe’, Bruegel Policy Brief 2012/01, .
- Shapley, L. S. and Shubik, M. (1954), ‘A Method for Evaluating the Distribution of Power in a Committee System’, The American Political Science Review **48(3)**, 787–92.
- Straffin, P. D. (1977), ‘Homogeneity, Independence, and Power indices’, Public Choice **30(1)**, 107–18.
- Widgren, M. (2009), ‘The Impact of Council Voting Rules on EU Decision-Making’, CESifo Economic Studies (2009) **55 (1)**, 30–56.
- Wyatt, D. and Dashwood, A. (1990), The Substantive Law of the EEC, Sweet & Maxwell, 46.

APPENDIX

A Voting Weights and Power Indices of EU Member States, 1958-2020

Table A.1: Voting Weights under Qualified Majority Voting, 1958-2004

	EC6 1958-72	EC9 1973-80	EC10 1981-85	EC12 1986-94	EU15 1995- 4/2004	EU25 05/2004- 10/2004	EU25 11/2004- 2006	EU27 2007- 10/2014
Belgium	2	5	5	5	5	5	12	12
France	4	10	10	10	10	10	29	29
Germany	4	10	10	10	10	10	29	29
Italy	4	10	10	10	10	10	29	29
Luxembourg	1	2	2	2	2	2	4	4
Netherlands	2	5	5	5	5	5	13	13
Denmark	-	3	3	3	3	3	7	7
Ireland	-	3	3	3	3	3	7	7
Un. Kingdom	-	10	10	10	10	10	29	29
Greece	-	-	5	5	5	5	12	12
Portugal	-	-	-	5	5	5	12	12
Spain	-	-	-	8	8	8	27	27
Austria	-	-	-	-	4	4	10	10
Finland	-	-	-	-	3	3	7	7
Sweden	-	-	-	-	4	4	10	10
Cyprus	-	-	-	-	-	2	4	4
Cz. Republic	-	-	-	-	-	5	12	12
Estonia	-	-	-	-	-	3	4	4
Hungary	-	-	-	-	-	5	12	12
Latvia	-	-	-	-	-	3	4	4
Lithuania	-	-	-	-	-	3	7	7
Malta	-	-	-	-	-	2	3	3
Poland	-	-	-	-	-	8	27	27
Slovakia	-	-	-	-	-	3	7	7
Slovenia	-	-	-	-	-	3	4	4
Bulgaria								10
Romania								14
Total	17	58	63	76	87	124	321	345
Majority rules	QMV	QMV	QMV	QMV	QMV	QMV	QMV	QMV, DMV
Threshold	12	41	45	54	62	88	232	255
%	70.6	70.7	71.4	71.1	71.3	71	72.3	73.9

Notes: QMV ... qualified majority voting, DMV ... double majority voting (55% of MS, 65% of population) . After the transitional period from 11/2014-03/2017, weighted voting will be replaced by double majority voting.

A1 Country-Specific Power Measures by Regime (Time Period)

Table A.2: Country-Specific Power Indices (%), EC6 (1958-1972)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	4.75	14.29	15.00	15.38	16.00	18.75	20.00	15.87	71.43
France	24.48	23.81	23.33	23.08	22.67	20.83	20.00	19.05	85.71
Germany	38.16	23.81	23.33	23.08	22.67	20.83	20.00	19.05	85.71
Italy	26.24	23.81	23.33	23.08	22.67	20.83	20.00	19.05	85.71
Luxembourg	0.17	0.00	0.00	0.00	0.00	0.00	0.00	11.11	50.00
Netherlands	6.21	14.29	15.00	15.38	16.00	18.75	20.00	15.87	71.43

Notes: *BFI* ... Banzhaf index (which is equal to the normalized Coleman measures *CPI* and *CII*), *SSI* ... Shapley-Shubik index, *CPI* ... Coleman power to prevent index, *CII* ... Coleman power to initiate action index, *SPI* ... power to prevent index (Shapley-Shubik analog), *JNI* .. Johnston index, *DPI* ... Deegan-Packel index, *HPI* ... Holler Packel index, *INC* ... inclusiveness. All indices are normalized; only inclusiveness is reported both as normalized (*INC*) and as absolute index (*INC^a*). Population shares (*POP*) are based on average population over the period 1958-1972 (Source: Eurostat).

Table A.3: Country-Specific Power Indices (%), EC9 (1973-1980)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	3.56	9.15	8.10	7.85	10.03	11.47	11.72	10.48	69.33
France	19.20	16.72	17.86	18.11	15.74	14.00	13.79	12.90	85.33
Germany	28.49	16.72	17.86	18.11	15.74	14.00	13.79	12.90	85.33
Italy	20.19	16.72	17.86	18.11	15.74	14.00	13.79	12.90	85.33
Luxembourg	0.13	1.58	0.95	0.82	1.76	3.47	3.45	8.06	53.33
Netherlands	4.99	9.15	8.10	7.85	10.03	11.47	11.72	10.48	69.33
Denmark	1.84	6.62	5.71	5.51	7.60	8.80	8.97	9.68	64.00
Ireland	1.17	6.62	5.71	5.51	7.60	8.80	8.97	9.68	64.00
Un. Kingdom	20.41	16.72	17.86	18.11	15.74	14.00	13.79	12.90	85.33

Notes: See Table A.2. Population shares are based on average population over the period 1973-1980 (Source: Eurostat).

Table A.4: Country-Specific Power Indices (%), EC10 (1981-1985)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	3.41	8.20	7.14	6.90	9.02	9.34	9.39	9.44	68.57
France	18.92	15.77	17.38	17.72	14.48	11.86	11.65	11.80	85.71
Germany	27.08	15.77	17.38	17.72	14.48	11.86	11.65	11.80	85.71
Italy	19.59	15.77	17.38	17.72	14.48	11.86	11.65	11.80	85.71
Luxembourg	0.13	4.10	3.02	2.81	5.01	8.18	8.41	8.16	59.29
Netherlands	4.97	8.20	7.14	6.90	9.02	9.34	9.39	9.44	68.57
Denmark	1.77	4.10	3.02	2.81	5.01	8.18	8.41	8.16	59.29
Ireland	1.21	4.10	3.02	2.81	5.01	8.18	8.41	8.16	59.29
Un. Kingdom	19.53	15.77	17.38	17.72	14.48	11.86	11.65	11.80	85.71
Greece	3.40	8.20	7.14	6.90	9.02	9.34	9.39	9.44	68.57

Notes: See Table A.2. Population shares are based on average population over the period 1981-1985 (Source: Eurostat).

Table A.5: Country-Specific Power Indices (%), EC12 (1986-1995)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.91	6.66	6.37	6.33	7.42	8.08	8.19	7.81	68.41
France	16.50	12.87	13.42	13.51	11.77	10.37	10.23	9.76	85.57
Germany	23.13	12.87	13.42	13.51	11.77	10.37	10.23	9.76	85.57
Italy	16.55	12.87	13.42	13.51	11.77	10.37	10.23	9.76	85.57
Luxembourg	0.11	1.80	1.18	1.09	2.09	3.67	3.72	6.27	54.98
Netherlands	4.35	6.66	6.37	6.33	7.42	8.08	8.19	7.81	68.41
Denmark	1.50	4.59	4.26	4.21	5.34	6.50	6.60	7.15	62.69
Ireland	1.03	4.59	4.26	4.21	5.34	6.50	6.60	7.15	62.69
Un. Kingdom	16.69	12.87	13.42	13.51	11.77	10.37	10.23	9.76	85.57
Greece	2.97	6.66	6.37	6.33	7.42	8.08	8.19	7.81	68.41
Portugal	2.92	6.66	6.37	6.33	7.42	8.08	8.19	7.81	68.41
Spain	11.34	10.89	11.13	11.16	10.47	9.54	9.40	9.14	80.10

Notes: See Table A.2. Population shares are based on average population over the period 1986-1995 (Source: Eurostat).

Table A.6: Country-Specific Power Indices (%), EU15 (1995-04/2004)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.72	5.87	5.52	5.46	6.43	6.47	6.50	6.43	69.09
France	15.67	11.16	11.67	11.74	9.74	8.22	8.09	8.03	86.27
Germany	21.85	11.16	11.67	11.74	9.74	8.22	8.09	8.03	86.27
Italy	15.18	11.16	11.67	11.74	9.74	8.22	8.09	8.03	86.27
Luxembourg	0.11	2.26	2.07	2.05	2.75	4.40	4.50	5.34	57.36
Netherlands	4.21	5.87	5.52	5.46	6.43	6.47	6.50	6.43	69.09
Denmark	1.41	3.59	3.53	3.51	4.33	5.72	5.82	5.74	61.67
Ireland	1.01	3.59	3.53	3.51	4.33	5.72	5.82	5.74	61.67
Un. Kingdom	15.63	11.16	11.67	11.74	9.74	8.22	8.09	8.03	86.27
Greece	2.89	5.87	5.52	5.46	6.43	6.47	6.50	6.43	69.09
Portugal	2.72	5.87	5.52	5.46	6.43	6.47	6.50	6.43	69.09
Spain	10.73	9.24	9.55	9.60	8.60	7.51	7.43	7.45	80.03
Austria	2.13	4.79	4.54	4.50	5.49	6.08	6.13	6.10	65.56
Finland	1.37	3.59	3.53	3.51	4.33	5.72	5.82	5.74	61.67
Sweden	2.36	4.79	4.54	4.50	5.49	6.08	6.13	6.10	65.56

Notes: See Table A.2. Population shares are based on average population over the period 1995-2004 (Source: Eurostat).

Table A.7: Country-Specific Power Indices (%), EU25 (05/2004-10/2004)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.26	4.14	3.97	3.96	4.34	4.03	4.03	4.04	70.18
France	13.56	7.60	8.30	8.37	6.18	5.06	5.00	5.01	87.05
Germany	17.97	7.60	8.30	8.37	6.18	5.06	5.00	5.01	87.05
Italy	12.6	7.60	8.30	8.37	6.18	5.06	5.00	5.01	87.05
Luxembourg	0.10	1.69	1.57	1.56	2.10	3.26	3.31	3.35	58.25
Netherlands	3.54	4.14	3.97	3.96	4.34	4.03	4.03	4.04	70.18
Denmark	1.18	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Ireland	0.88	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Un. Kingdom	13.00	7.60	8.30	8.37	6.18	5.06	5.00	5.01	87.05
Greece	2.40	4.14	3.97	3.96	4.34	4.03	4.03	4.04	70.18
Portugal	2.28	4.14	3.97	3.96	4.34	4.03	4.03	4.04	70.18
Spain	9.22	6.36	6.51	6.53	5.56	4.68	4.63	4.66	80.99
Austria	1.77	3.38	3.25	3.24	3.76	3.81	3.82	3.83	66.48
Finland	1.14	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Sweden	1.95	3.38	3.25	3.24	3.76	3.81	3.82	3.83	66.48
Cyprus	0.16	1.69	1.57	1.56	2.10	3.26	3.31	3.35	58.25
Cz. Republic	2.22	4.14	3.97	3.96	4.34	4.03	4.03	4.04	70.18
Estonia	0.29	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Hungary	2.20	4.14	3.97	3.96	4.34	4.03	4.03	4.04	70.18
Latvia	0.50	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Lithuania	0.75	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Malta	0.09	1.69	1.57	1.56	2.10	3.26	3.31	3.35	58.25
Poland	8.32	6.36	6.51	6.53	5.56	4.68	4.63	4.66	80.99
Slovakia	1.17	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28
Slovenia	0.43	2.52	2.34	2.32	3.04	3.60	3.63	3.59	62.28

Notes: See Table A.2. Population shares are based on population for 2004 (Source: Eurostat).

Table A.8: Country-Specific Power Indices (%), EU25 (QMV, 11/2004-2006)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.26	3.91	3.65	3.62	4.29	3.97	3.97	3.98	67.52
France	13.56	8.57	9.29	9.37	7.04	5.26	5.18	5.20	88.37
Germany	17.97	8.57	9.29	9.37	7.04	5.26	5.18	5.20	88.37
Italy	12.60	8.57	9.29	9.37	7.04	5.26	5.18	5.20	88.37
Luxembourg	0.10	1.32	1.19	1.17	1.79	3.31	3.36	3.29	55.93
Netherlands	3.54	4.23	3.98	3.96	4.49	4.05	4.04	4.06	68.95
Denmark	1.18	2.31	2.10	2.07	2.89	3.57	3.60	3.55	60.33
Ireland	0.88	2.31	2.10	2.07	2.89	3.57	3.60	3.55	60.33
Un. Kingdom	13.00	8.57	9.29	9.37	7.04	5.26	5.18	5.20	88.37
Greece	2.40	3.91	3.65	3.62	4.29	3.97	3.97	3.98	67.52
Portugal	2.28	3.91	3.65	3.62	4.29	3.97	3.97	3.98	67.52
Spain	9.22	8.13	8.61	8.67	6.80	5.12	5.05	5.09	86.41
Austria	1.77	3.27	3.02	3.00	3.76	3.81	3.82	3.81	64.65
Finland	1.14	2.31	2.10	2.07	2.89	3.57	3.60	3.55	60.33
Sweden	1.95	3.27	3.02	3.00	3.76	3.81	3.82	3.81	64.65
Cyprus	0.16	1.32	1.19	1.17	1.79	3.31	3.36	3.29	55.93
Cz. Republic	2.22	3.91	3.65	3.62	4.29	3.97	3.97	3.98	67.52
Estonia	0.29	1.32	1.19	1.17	1.79	3.31	3.36	3.29	55.93
Hungary	2.20	3.91	3.65	3.62	4.29	3.97	3.97	3.98	67.52
Latvia	0.50	1.32	1.19	1.17	1.79	3.31	3.36	3.29	55.93
Lithuania	0.75	2.31	2.10	2.07	2.89	3.57	3.60	3.55	60.33
Malta	0.09	0.99	0.89	0.88	1.35	2.81	2.87	3.21	54.42
Poland	8.32	8.13	8.61	8.67	6.80	5.12	5.05	5.09	86.41
Slovakia	1.17	2.31	2.10	2.07	2.89	3.57	3.60	3.55	60.33
Slovenia	0.43	1.32	1.19	1.17	1.79	3.31	3.36	3.29	55.93

Notes: See Table A.2. Population shares are based on average population over the period 2005-2006 (Source: Eurostat). Indices account for the demographic clause.

Table A.9: Country-Specific Power Indices (%), EU27 (QMV, 2007-10/2014)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.14	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
France	12.85	7.78	8.69	8.77	6.39	4.90	4.83	4.84	90.34
Germany	16.62	7.78	8.69	8.77	6.39	4.90	4.83	4.84	90.34
Italy	11.94	7.78	8.67	8.75	6.39	4.90	4.83	4.84	90.34
Luxembourg	0.10	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Netherlands	3.30	3.97	3.68	3.66	4.19	3.77	3.76	3.78	70.60
Denmark	1.10	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Ireland	0.87	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Un. Kingdom	12.27	7.78	8.69	8.77	6.39	4.90	4.83	4.84	90.34
Greece	2.26	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Portugal	2.14	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Spain	8.98	7.42	8.00	8.05	6.19	4.78	4.72	4.73	88.46
Austria	1.67	3.09	2.82	2.79	3.52	3.53	3.54	3.53	66.03
Finland	1.07	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Sweden	1.84	3.09	2.82	2.79	3.52	3.53	3.54	3.53	66.03
Cyprus	0.16	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Cz. Republic	2.08	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Estonia	0.27	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Hungary	2.03	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Latvia	0.46	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Lithuania	0.68	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Malta	0.08	0.94	0.82	0.80	1.25	2.59	2.64	2.94	54.88
Poland	7.70	7.42	8.00	8.05	6.19	4.78	4.72	4.73	88.46
Slovakia	1.09	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Slovenia	0.41	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Bulgaria	1.55	3.09	2.82	2.79	3.52	3.53	3.54	3.53	66.03
Romania	4.35	4.26	3.99	3.97	4.36	3.85	3.83	3.86	72.08

Notes: See Table A.2. Population shares are based on population in year 2007 (Source: Eurostat). Indices account for the demographic clause.

Table A.10: Country-Specific Power Indices (%), EU27 (11/2014-03/2017)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.21	2.94	2.46	2.37	3.48	3.48	3.48	3.56	59.45
France	13.06	8.40	10.86	11.31	6.18	5.14	5.14	4.61	77.01
Germany	15.93	10.24	13.74	14.38	6.75	5.68	5.68	4.96	82.90
Italy	12.16	7.91	10.07	10.46	5.99	5.00	5.00	4.51	75.42
Luxembourg	0.11	1.90	1.09	0.95	2.44	3.14	3.14	3.36	56.11
Netherlands	3.34	3.49	3.20	3.14	3.82	3.65	3.65	3.66	61.22
Denmark	1.11	2.40	1.73	1.62	3.01	3.31	3.31	3.45	57.70
Ireland	0.91	2.30	1.60	1.48	2.90	3.28	3.28	3.43	57.38
Un. Kingdom	12.62	8.16	10.48	10.89	6.09	5.07	5.07	4.56	76.24
Greece	2.25	2.96	2.48	2.39	3.49	3.48	3.48	3.56	59.51
Portugal	2.10	2.89	2.38	2.29	3.44	3.46	3.46	3.55	59.27
Spain	9.23	6.24	7.68	7.93	5.26	4.48	4.48	4.19	70.05
Austria	1.67	2.67	2.10	1.99	3.26	3.39	3.39	3.51	58.58
Finland	1.08	2.38	1.71	1.60	2.99	3.3	3.30	3.45	57.65
Sweden	1.91	2.79	2.26	2.16	3.37	3.43	3.43	3.53	58.98
Cyprus	0.17	1.93	1.12	0.98	2.47	3.16	3.16	3.36	56.21
Cz. Republic	2.10	2.89	2.38	2.29	3.44	3.46	3.46	3.55	59.28
Estonia	0.26	1.98	1.19	1.05	2.54	3.18	3.18	3.37	56.36
Hungary	1.96	2.82	2.29	2.19	3.39	3.44	3.44	3.53	59.05
Latvia	0.43	2.06	1.29	1.16	2.64	3.2	3.20	3.39	56.63
Lithuania	0.64	2.17	1.43	1.30	2.76	3.23	3.24	3.41	56.96
Malta	0.08	1.89	1.07	0.93	2.42	3.13	3.13	3.35	56.07
Poland	7.55	5.69	6.65	6.8	5.01	4.26	4.26	4.09	68.28
Slovakia	1.08	2.38	1.72	1.60	3.00	3.30	3.30	3.45	57.66
Slovenia	0.41	2.05	1.28	1.15	2.63	3.20	3.20	3.39	56.60
Bulgaria	1.45	2.56	1.95	1.85	3.17	3.36	3.36	3.48	58.24
Romania	4.18	3.91	3.78	3.74	4.05	3.77	3.77	3.74	62.56

Notes: See Table A.2. Population shares are based on population projections for 2015 (Source: Eurostat). Indices based on DMV regime.

Table A.11: Country-Specific Power Indices (%), EU28 (11/2014-)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.19	2.73	2.29	2.21	3.36	3.33	3.33	3.42	58.46
France	12.95	9.47	11.68	12.06	6.81	5.35	5.35	4.64	79.40
Germany	15.79	11.61	14.90	15.47	7.53	5.88	5.87	5.03	86.03
Italy	12.05	8.87	10.78	11.11	6.57	5.17	5.17	4.53	77.52
Luxembourg	0.11	1.40	0.70	0.59	1.92	2.90	2.90	3.18	54.34
Netherlands	3.31	3.44	3.18	3.13	3.81	3.54	3.55	3.55	60.67
Denmark	1.10	2.03	1.45	1.35	2.73	3.11	3.12	3.29	56.31
Ireland	0.90	1.90	1.30	1.20	2.58	3.07	3.08	3.27	55.91
Un. Kingdom	12.51	9.18	11.24	11.60	6.70	5.26	5.26	4.59	78.47
Greece	2.23	2.75	2.33	2.25	3.38	3.33	3.34	3.42	58.54
Portugal	2.09	2.66	2.21	2.13	3.31	3.31	3.31	3.41	58.25
Spain	9.15	6.81	8.02	8.24	5.62	4.62	4.61	4.16	71.15
Austria	1.65	2.38	1.88	1.79	3.07	3.22	3.22	3.36	57.40
Finland	1.07	2.01	1.43	1.33	2.71	3.11	3.11	3.29	56.25
Sweden	1.90	2.54	2.07	1.98	3.21	3.27	3.27	3.38	57.88
Cyprus	0.16	1.44	0.74	0.63	1.98	2.92	2.92	3.18	54.46
Cz. Republic	2.09	2.66	2.21	2.13	3.31	3.31	3.31	3.41	58.25
Estonia	0.26	1.50	0.82	0.70	2.07	2.94	2.95	3.20	54.65
Hungary	1.94	2.57	2.10	2.01	3.24	3.28	3.28	3.39	57.97
Latvia	0.43	1.60	0.94	0.84	2.21	2.98	2.98	3.21	54.98
Lithuania	0.63	1.74	1.10	0.99	2.38	3.02	3.02	3.24	55.39
Malta	0.08	1.38	0.68	0.57	1.90	2.88	2.88	3.17	54.29
Poland	7.49	5.61	6.73	6.91	5.07	4.13	4.13	3.94	67.42
Slovakia	1.08	2.02	1.43	1.33	2.71	3.11	3.11	3.29	56.26
Slovenia	0.41	1.59	0.93	0.82	2.20	2.98	2.98	3.21	54.95
Bulgaria	1.44	2.25	1.71	1.61	2.94	3.18	3.18	3.33	56.97
Romania	4.15	3.99	3.89	3.85	4.14	3.72	3.72	3.65	62.37
Croatia	0.85	1.87	1.26	1.16	2.55	3.06	3.07	3.26	55.82

Notes: See Table A.2. Population shares are based on population projections for 2015 (Source: Eurostat)

Table A.12: Country-Specific Power Indices (%), EU32 (2020-)

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	1.92	2.38	2.03	1.97	2.93	2.93	2.93	3.00	57.69
France	11.26	7.91	9.91	10.25	5.77	4.43	4.42	3.93	75.51
Germany	13.3	9.20	11.95	12.44	6.21	4.76	4.76	4.14	79.68
Italy	10.44	7.40	9.13	9.42	5.56	4.29	4.29	3.84	73.88
Luxembourg	0.10	1.35	0.70	0.59	1.88	2.63	2.63	2.83	54.34
Netherlands	2.86	2.9	2.71	2.68	3.25	3.08	3.08	3.09	59.37
Denmark	0.95	1.83	1.32	1.23	2.46	2.77	2.77	2.91	55.91
Ireland	0.80	1.75	1.21	1.12	2.37	2.75	2.75	2.89	55.64
Un. Kingdom	11.00	7.75	9.67	9.99	5.71	4.38	4.38	3.90	75.00
Greece	1.91	2.38	2.02	1.96	2.93	2.93	2.93	3.00	57.67
Portugal	1.78	2.30	1.93	1.86	2.88	2.91	2.91	2.99	57.43
Spain	7.96	6.02	6.96	7.09	4.94	3.88	3.88	3.61	69.44
Austria	1.43	2.10	1.67	1.59	2.71	2.85	2.85	2.95	56.78
Finland	0.93	1.82	1.3	1.22	2.45	2.77	2.77	2.91	55.87
Sweden	1.67	2.24	1.85	1.78	2.83	2.89	2.89	2.98	57.23
Cyprus	0.15	1.37	0.74	0.63	1.92	2.64	2.64	2.83	54.44
Cz. Republic	1.80	2.31	1.94	1.87	2.88	2.91	2.91	2.99	57.45
Estonia	0.22	1.42	0.79	0.69	1.97	2.66	2.66	2.84	54.57
Hungary	1.64	2.23	1.83	1.76	2.81	2.89	2.89	2.97	57.18
Latvia	0.36	1.49	0.89	0.79	2.08	2.68	2.68	2.85	54.82
Lithuania	0.53	1.59	1.01	0.92	2.19	2.71	2.71	2.87	55.14
Malta	0.07	1.33	0.68	0.57	1.85	2.63	2.63	2.82	54.29
Poland	6.37	5.26	5.45	5.46	4.51	3.76	3.75	3.48	66.96
Slovakia	0.93	1.82	1.30	1.22	2.45	2.77	2.77	2.91	55.87
Slovenia	0.36	1.49	0.89	0.79	2.08	2.68	2.68	2.85	54.82
Bulgaria	1.18	1.96	1.49	1.41	2.58	2.81	2.81	2.93	56.34
Romania	3.49	3.25	3.17	3.15	3.45	3.18	3.18	3.15	60.48
Croatia	0.72	1.70	1.15	1.06	2.32	2.74	2.74	2.89	55.48
Iceland	0.06	1.32	0.67	0.57	1.85	2.62	2.62	2.82	54.27
Turkey	13.40	9.27	12.07	12.56	6.24	4.78	4.78	4.16	79.90
Macedonia	0.34	1.48	0.88	0.78	2.06	2.68	2.68	2.85	54.79
Montenegro	0.11	1.35	0.71	0.6	1.89	2.64	2.64	2.83	54.36

Notes: See Table A.2. Population shares are based on population projections for 2020 (Source: Eurostat).

A2 Implications of the Demographic Clause

Table A.13: Country-Specific Power Indices (%), EU27 (2007-10/2004) - Without Demographic Clause

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.14	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.1
France	12.85	7.78	8.67	8.76	6.39	4.90	4.83	4.84	90.34
Germany	16.62	7.78	8.67	8.76	6.39	4.90	4.83	4.84	90.34
Italy	11.94	7.78	8.67	8.76	6.39	4.90	4.83	4.84	90.34
Luxembourg	0.10	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Netherlands	3.30	3.97	3.68	3.66	4.19	3.77	3.76	3.78	70.60
Denmark	1.10	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Ireland	0.87	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Un. Kingdom	12.27	7.78	8.67	8.76	6.39	4.90	4.83	4.84	90.34
Greece	2.26	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Portugal	2.14	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Spain	8.98	7.42	8.00	8.05	6.19	4.78	4.72	4.73	88.46
Austria	1.67	3.09	2.82	2.79	3.52	3.53	3.54	3.53	66.03
Finland	1.07	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Sweden	1.84	3.09	2.82	2.79	3.52	3.53	3.54	3.53	66.03
Cyprus	0.16	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Cz. Republic	2.08	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Estonia	0.27	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Hungary	2.03	3.68	3.41	3.38	4.01	3.69	3.69	3.70	69.10
Latvia	0.46	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Lithuania	0.68	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Malta	0.08	0.94	0.82	0.80	1.25	2.59	2.64	2.94	54.88
Poland	7.70	7.42	8.00	8.05	6.19	4.78	4.72	4.73	88.46
Slovakia	1.09	2.18	1.96	1.94	2.68	3.29	3.32	3.28	61.30
Slovenia	0.41	1.25	1.10	1.09	1.65	3.03	3.07	3.02	56.48
Bulgaria	1.55	3.09	2.82	2.79	3.52	3.53	3.54	3.53	66.03
Romania	4.35	4.26	3.99	3.97	4.36	3.85	3.83	3.86	72.08

A3 Implications of the Ioannina Compromise

Table A.14: Country-Specific Power Indices (%), EU15 (1995-04/2004) - Ioannina I

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.72	6.02	5.66	5.61	6.50	6.47	6.49	6.46	71.74
France	15.67	11.01	12.06	12.19	9.72	8.24	8.12	8.08	89.76
Germany	21.85	11.01	12.06	12.19	9.72	8.24	8.12	8.08	89.76
Italy	15.18	11.01	12.06	12.19	9.72	8.24	8.12	8.08	89.76
Luxembourg	0.11	2.48	1.85	1.77	2.99	4.55	4.66	5.31	58.98
Netherlands	4.21	6.02	5.66	5.61	6.50	6.47	6.49	6.46	71.74
Denmark	1.41	3.69	3.32	3.27	4.38	5.70	5.78	5.70	63.32
Ireland	1.01	3.69	3.32	3.27	4.38	5.70	5.78	5.70	63.32
United Kingdom	15.63	11.01	12.06	12.19	9.72	8.24	8.12	8.08	89.76
Greece	2.89	6.02	5.66	5.61	6.50	6.47	6.49	6.46	71.74
Portugal	2.72	6.02	5.66	5.61	6.50	6.47	6.49	6.46	71.74
Spain	10.73	9.27	9.36	9.37	8.62	7.58	7.50	7.51	83.47
Austria	2.13	4.55	3.98	3.92	5.20	5.97	6.02	5.98	66.43
Finland	1.37	3.69	3.32	3.27	4.38	5.70	5.78	5.70	63.32
Sweden	2.36	4.55	3.98	3.92	5.20	5.97	6.02	5.98	66.43

Notes: See Table A.2. Population shares are based on average population over the period 1995-2004 (Source: Eurostat).

Table A.15: Country-Specific Power Indices (%), EU28 (11/2014-) - Ioannina II

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.19	2.87	2.60	2.55	3.41	3.43	3.44	3.41	61.60
France	12.95	8.84	9.69	9.89	6.32	4.80	4.65	4.75	85.77
Germany	15.79	10.12	11.84	12.17	6.78	5.02	4.87	5.04	90.95
Italy	12.05	8.33	9.01	9.18	6.12	4.69	4.55	4.64	83.73
Luxembourg	0.11	1.52	1.37	1.32	2.12	3.08	3.14	3.11	56.15
Netherlands	3.31	3.60	3.30	3.25	3.83	3.61	3.60	3.58	64.57
Denmark	1.10	2.16	1.95	1.90	2.83	3.26	3.30	3.26	58.75
Ireland	0.90	2.03	1.83	1.78	2.70	3.23	3.28	3.23	58.22
Un. Kingdom	12.51	8.60	9.36	9.55	6.23	4.76	4.61	4.70	84.81
Greece	2.23	2.89	2.63	2.58	3.43	3.43	3.45	3.42	61.71
Portugal	2.09	2.80	2.54	2.49	3.36	3.41	3.43	3.40	61.32
Spain	9.15	6.61	7.08	7.20	5.39	4.17	4.08	4.25	76.74
Austria	1.65	2.52	2.28	2.23	3.15	3.35	3.37	3.34	60.19
Finland	1.07	2.14	1.93	1.88	2.81	3.26	3.30	3.25	58.67
Sweden	1.90	2.68	2.42	2.37	3.27	3.38	3.41	3.37	60.83
Cyprus	0.16	1.56	1.41	1.36	2.16	3.11	3.17	3.12	56.30
Cz. Republic	2.09	2.80	2.54	2.49	3.36	3.41	3.43	3.40	61.32
Estonia	0.26	1.62	1.46	1.41	2.24	3.13	3.19	3.13	56.56
Hungary	1.94	2.70	2.45	2.40	3.30	3.39	3.41	3.38	60.95
Latvia	0.43	1.73	1.56	1.51	2.37	3.16	3.21	3.16	56.99
Lithuania	0.63	1.86	1.68	1.63	2.52	3.19	3.24	3.19	57.53
Malta	0.08	1.50	1.36	1.31	2.09	3.07	3.13	3.11	56.08
Poland	7.49	6.12	6.43	6.49	5.18	3.96	3.89	4.14	74.78
Slovakia	1.08	2.15	1.93	1.89	2.82	3.26	3.30	3.25	58.69
Slovenia	0.41	1.72	1.55	1.50	2.36	3.16	3.21	3.16	56.95
Bulgaria	1.44	2.38	2.15	2.10	3.03	3.31	3.35	3.30	59.63
Romania	4.15	4.17	3.87	3.82	4.14	3.73	3.71	3.71	66.89
Croatia	0.85	2.00	1.80	1.76	2.67	3.22	3.27	3.22	58.10

Notes: See Table A.2. Population shares are based on population projections for 2015 (Source: Eurostat)

Table A.16: Country-Specific Power Indices (%), EU28 (11/2014-) - Ioannina III

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	2.19	2.74	2.94	2.93	3.35	3.40	3.43	3.36	62.76
France	12.95	9.59	7.77	7.78	6.94	4.65	4.41	5.07	94.65
Germany	15.79	9.75	8.59	8.67	7.03	4.68	4.45	5.11	95.41
Italy	12.05	9.44	7.44	7.43	6.86	4.65	4.42	5.04	93.96
Luxembourg	0.11	1.23	2.10	2.11	1.85	3.07	3.18	2.99	55.74
Netherlands	3.31	3.48	3.37	3.35	3.80	3.55	3.55	3.55	66.21
Denmark	1.10	1.96	2.50	2.50	2.68	3.26	3.33	3.17	59.13
Ireland	0.90	1.81	2.42	2.42	2.53	3.23	3.31	3.13	58.45
Un. Kingdom	12.51	9.53	7.62	7.61	6.91	4.65	4.42	5.06	94.36
Greece	2.23	2.77	2.96	2.95	3.36	3.41	3.44	3.37	62.89
Portugal	2.09	2.67	2.90	2.89	3.29	3.39	3.42	3.35	62.41
Spain	9.15	8.13	6.12	6.09	6.15	4.63	4.42	4.71	87.85
Austria	1.65	2.36	2.73	2.72	3.05	3.33	3.38	3.27	60.99
Finland	1.07	1.94	2.49	2.49	2.66	3.25	3.32	3.16	59.02
Sweden	1.90	2.53	2.82	2.82	3.19	3.36	3.40	3.31	61.80
Cyprus	0.16	1.28	2.12	2.13	1.91	3.10	3.20	3.00	55.94
Cz. Republic	2.09	2.67	2.90	2.89	3.29	3.39	3.42	3.35	62.42
Estonia	0.26	1.35	2.16	2.17	2.00	3.13	3.23	3.02	56.27
Hungary	1.94	2.57	2.84	2.83	3.22	3.37	3.41	3.32	61.95
Latvia	0.43	1.47	2.23	2.24	2.15	3.17	3.26	3.05	56.85
Lithuania	0.63	1.62	2.31	2.32	2.32	3.20	3.28	3.08	57.55
Malta	0.08	1.21	2.09	2.10	1.83	3.05	3.15	2.98	55.65
Poland	7.49	6.59	5.13	5.10	5.35	4.50	4.32	4.32	80.68
Slovakia	1.08	1.94	2.49	2.49	2.67	3.26	3.32	3.17	59.05
Slovenia	0.41	1.46	2.22	2.23	2.13	3.16	3.26	3.04	56.79
Bulgaria	1.44	2.21	2.64	2.63	2.91	3.30	3.36	3.23	60.27
Romania	4.15	3.94	3.71	3.69	4.07	3.64	3.62	3.66	68.33
Croatia	0.85	1.78	2.40	2.40	2.50	3.23	3.30	3.12	58.29

Notes: See Table A.2. Population shares are based on population projections for 2015 (Source: Eurostat)

Table A.17: Country-Specific Power Indices (%), EU32 (2020-) - Ioannina III

Country	<i>POP</i>	<i>BFI</i>	<i>SSI</i>	<i>SPI</i>	<i>JNI</i>	<i>DPI</i>	<i>HPI</i>	<i>INC</i>	<i>INC^a</i>
Belgium	1.92	2.64	2.67	2.65	3.05	3.03	3.05	3.00	64.06
France	11.26	7.41	6.38	6.43	5.28	3.72	3.60	4.20	89.52
Germany	13.30	7.77	7.22	7.33	5.44	3.74	3.62	4.29	91.44
Italy	10.44	7.14	6.02	6.05	5.16	3.71	3.59	4.13	88.09
Luxembourg	0.10	1.49	1.96	1.95	2.07	2.91	2.96	2.72	57.96
Netherlands	2.86	3.2	3.03	3.01	3.36	3.09	3.09	3.14	67.04
Denmark	0.95	2.03	2.29	2.28	2.61	2.97	3.00	2.85	60.83
Ireland	0.80	1.94	2.23	2.22	2.52	2.96	3.00	2.83	60.33
Un. Kingdom	11.00	7.34	6.27	6.32	5.25	3.72	3.59	4.18	89.12
Greece	1.91	2.63	2.66	2.64	3.05	3.03	3.05	3.00	64.03
Portugal	1.78	2.55	2.61	2.59	3.00	3.02	3.04	2.98	63.59
Spain	7.96	5.76	4.71	4.70	4.54	3.61	3.50	3.78	80.7
Austria	1.43	2.33	2.47	2.46	2.84	3.00	3.02	2.93	62.42
Finland	0.93	2.02	2.28	2.27	2.59	2.97	3.00	2.85	60.75
Sweden	1.67	2.48	2.57	2.55	2.95	3.02	3.04	2.96	63.23
Cyprus	0.15	1.53	1.98	1.97	2.11	2.92	2.97	2.73	58.14
Cz. Republic	1.80	2.56	2.62	2.60	3.00	3.02	3.04	2.98	63.64
Estonia	0.22	1.57	2.01	2.00	2.16	2.93	2.97	2.74	58.38
Hungary	1.64	2.46	2.56	2.54	2.94	3.01	3.03	2.96	63.14
Latvia	0.36	1.66	2.06	2.05	2.25	2.93	2.98	2.76	58.84
Lithuania	0.53	1.77	2.12	2.11	2.36	2.95	2.99	2.79	59.42
Malta	0.07	1.48	1.95	1.94	2.05	2.90	2.95	2.71	57.87
Poland	6.37	4.57	3.94	3.93	4.01	3.37	3.30	3.49	74.35
Slovakia	0.93	2.02	2.28	2.27	2.59	2.97	3.00	2.85	60.75
Slovenia	0.36	1.66	2.06	2.05	2.25	2.93	2.98	2.76	58.84
Bulgaria	1.18	2.18	2.38	2.36	2.72	2.98	3.01	2.89	61.61
Romania	3.49	3.57	3.27	3.25	3.55	3.13	3.12	3.24	69.02
Croatia	0.72	1.88	2.20	2.19	2.47	2.96	2.99	2.81	60.05
Iceland	0.06	1.47	1.94	1.93	2.04	2.90	2.95	2.71	57.84
Turkey	13.40	7.78	7.26	7.37	5.45	3.75	3.62	4.29	91.50
Macedonia	0.34	1.65	2.05	2.04	2.24	2.93	2.98	2.76	58.78
Montenegro	0.11	1.50	1.96	1.95	2.08	2.91	2.96	2.72	58.00

Notes: See Table A.2. Population shares are based on population projections for 2020 (Source: Eurostat).

A4 Special Cases

Table A.18: Country-Specific Banzhaf Power Indices (%), EU27 QMV with Special Cases

Country	EU27	FR / DE / IT / UK	ES / PL	NL	RO	BE / CZ / GR / HU / PT	AT / BG / SE	DK / IE / FI / LT / SK	CY / EE / SI / LU / LV	MT
FR / DE / IT / UK	7.78	8.38	8.36	8.14	8.17	8.11	8.07	7.98	7.90	7.86
ES / PL	7.42	8.01	7.99	7.75	7.77	7.73	7.69	7.60	7.52	7.50
NL	3.97	4.32	4.30		4.13	4.11	4.08	4.06	4.01	4.01
RO	4.26	4.63	4.61	4.42		4.41	4.38	4.35	4.31	4.30
BE / CZ / GR / HU / PT	3.68	4.01	3.99	3.83	3.84	3.82	3.79	3.76	3.72	3.71
AT / BG / SE	3.09	3.37	3.35	3.21	3.22	3.20	3.17	3.15	3.12	3.12
DK / IE / FI / LT / SK	2.18	2.38	2.37	2.26	2.27	2.26	2.24	2.22	2.21	2.20
CY / EE / SI / LU / LV	1.25	1.37	1.36	1.29	1.30	1.29	1.29	1.28	1.27	1.26
MT	0.94	1.03	1.02	0.98	0.98	0.97	0.96	0.96	0.95	

Notes: Results for voting regimes excluding a particular country, grouped by countries with identical number of votes. For the calculation only one country is excluded at a time.

Table A.19: Country-Specific Shapley Shubik Power Indices (%), EU27 QMV with Special Cases

Country	EU27	FR / DE / IT / UK	ES / PL	NL	RO	BE / CZ / GR / HU / PT	AT / BG / SE	DK / IE / FI / LT / SK	CY / EE / SI / LU / LV	MT
FR / DE / IT / UK	8.67	9.54	9.47	8.99	9.02	8.96	8.92	8.84	8.75	8.72
ES / PL	8.00	8.79	8.75	8.30	8.33	8.28	8.27	8.19	8.10	8.08
NL	3.68	4.01	3.97	3.85	3.85	3.82	3.78	3.75	3.77	3.75
RO	3.99	4.37	4.33	4.15	4.15	4.13	4.10	4.06	4.03	4.02
BE / CZ / GR / HU / PT	3.41	3.72	3.70	3.53	3.54	3.52	3.49	3.46	3.44	3.43
AT / BG / SE	2.82	3.08	3.05	2.92	2.94	2.91	2.90	2.88	2.86	2.85
DK / IE / FI / LT / SK	1.96	2.13	2.11	2.03	2.04	2.03	2.02	2.01	1.98	1.97
CY / EE / SI / LU / LV	1.10	1.21	1.19	1.18	1.17	1.16	1.13	1.12	1.12	1.12
MT	0.82	0.90	0.90	0.86	0.88	0.87	0.85	0.83	0.85	0.85

Notes: Results for voting regimes excluding a particular country, grouped by countries with identical number of votes. For the calculation only one country is excluded at a time.

Table A.20: Country-Specific Banzhaf Power Indices (%), Euro area QMV with Special Cases

Country	EU17	AT	BE	CY	EE	FI	FR	DE	GR	IE	IT	LU	MT	NL	PT	SK	SI	ES
Austria	4.99		5.12	5.04	5.04	4.92	5.63	5.63	5.12	4.92	5.63	5.04	4.90	5.18	5.12	5.04	4.92	5.47
Belgium	5.78	6.07		5.90	5.90	6.11	6.75	6.75	6.06	6.11	6.75	5.90	5.95	6.14	6.06	5.90	6.11	6.47
Cyprus	1.98	2.09	2.16	2.08	2.08	1.98	2.27	2.27	2.16	1.98	2.27	2.08	2.02	2.15	2.16	2.08	1.98	2.25
Estonia	1.98	2.09	2.16	2.08		1.98	2.27	2.27	2.16	1.98	2.27	2.08	2.02	2.15	2.16	2.08	1.98	2.25
Finland	3.46	3.71	3.70	3.49	3.49		3.95	3.95	3.70	3.60	3.95	3.49	3.47	3.67	3.70	3.49	3.60	3.99
France	13.02	13.68	13.93	13.34	13.34	13.61		14.91	13.93	13.61	14.91	13.34	13.31	13.95	13.93	13.34	13.61	15.07
Germany	13.02	13.68	13.93	13.34	13.34	13.61	14.91		13.93	13.61	14.91	13.34	13.31	13.95	13.93	13.34	13.61	15.07
Greece	5.78	6.07	6.06	5.90	5.90	6.11	6.75	6.75	3.70	6.11	6.75	5.90	5.95	6.14	6.06	5.90	6.11	6.47
Ireland	3.46	3.71	3.70	3.49	3.49	3.60	3.95	3.95	3.70	3.60	3.95	3.49	3.47	3.67	3.70	3.49	3.60	3.99
Italy	13.02	13.68	13.93	13.34	13.34	13.61	14.91	14.91	13.93	13.61		13.34	13.31	13.95	13.93	13.34	13.61	15.07
Luxembourg	1.98	2.09	2.16	2.08	2.08	1.98	2.27	2.27	2.16	1.98	2.27		2.02	2.15	2.16	2.08	1.98	2.25
Malta	1.51	1.65	1.55	1.40	1.40	1.58	1.68	1.68	1.55	1.58	1.68	1.40		1.59	1.55	1.40	1.58	1.69
Netherlands	6.37	6.59	6.52	6.45	6.45	6.44	7.25	7.25	6.52	6.44	7.25	6.45	6.31	6.14	6.52	6.45	6.44	7.23
Portugal	5.78	6.07	6.06	5.90	5.90	6.11	6.75	6.75	6.06	6.11	6.75	5.90	5.95	6.14		5.90	6.11	6.47
Slovakia	3.46	3.71	3.70	3.49	3.49	3.6	3.95	3.95	3.70	3.60	3.95	3.49	3.47	3.67	3.70		1.98	3.99
Slovenia	1.98	2.09	2.16	2.08	2.08	1.98	2.27	2.27	2.16	1.98	2.27	2.08	2.02	2.15	2.16	3.49		2.25
Spain	12.46	13.03	13.17	12.65	12.65	12.79	14.44	14.44	13.17	12.79	14.44	12.65	12.52	13.38	13.17	12.65	12.79	

Notes: Results for voting regimes excluding a particular country, grouped by countries with identical number of votes. For the calculation only one country is excluded at a time.

Table A.21: Country-Specific Shapley Shubik Power Indices (%), Euro area QMV with Special Cases

Country	EU17	AT	BE	CY	EE	FI	FR	DE	GR	IE	IT	LU	MT	NL	PT	SK	SI	ES
Austria	4.41		4.66	4.29	4.29	4.46	5.46	5.46	4.66	4.46	5.46	4.29	4.18	4.86	4.66	4.29	4.46	5.63
Belgium	5.35	5.56		5.24	5.24	5.48	6.33	6.33	5.66	5.48	6.33	5.24	5.25	5.86	5.66	5.24	5.48	6.20
Cyprus	1.75	1.70	1.77	1.74	1.74	1.72	2.05	2.05	1.77	1.72	2.05	1.74	1.74	1.73	1.77	1.74	1.72	2.00
Estonia	1.75	1.70	1.77	1.74	2.92	1.72	2.05	2.05	1.77	1.72	2.05	1.74	1.74	1.73	1.77	1.74	1.72	2.00
Finland	3.00	3.09	3.07	2.92		3.55	3.55	3.55	3.07	2.97	3.55	2.92	2.91	3.10	3.07	2.92	2.97	3.65
France	14.51	15.09	15.27	14.94	14.94	15.05	16.43	16.43	15.27	15.05	16.43	14.94	14.87	15.16	15.27	14.94	15.05	16.19
Germany	14.51	15.09	15.27	14.94	14.94	15.05	16.43		15.27	15.05	16.43	14.94	14.87	15.16	15.27	14.94	15.05	16.19
Greece	5.35	5.56	5.66	5.24	5.24	5.48	6.33	6.33	5.48	5.48	6.33	5.24	5.25	5.86	5.66	5.24	5.48	6.20
Ireland	3.00	3.09	3.07	2.92	2.92	2.97	3.55	3.55	3.07		3.55	2.92	2.91	3.10	3.07	2.92	2.97	3.65
Italy	14.51	15.09	15.27	14.94	14.94	15.05	16.43	16.43	15.27	15.05		14.94	14.87	15.16	15.27	14.94	15.05	16.19
Luxembourg	1.75	1.70	1.77	1.74	1.74	1.72	2.05	2.05	1.77	1.72	2.05		1.74	1.73	1.77	1.74	1.72	2.00
Malta	1.29	1.39	1.31	1.19	1.19	1.34	1.48	1.48	1.31	1.34	1.48	1.19		1.39	1.31	1.19	1.34	1.49
Netherlands	5.87	6.30	6.24	5.91	5.91	5.73	7.10	7.10	6.24	5.73	7.10	5.91	5.83		6.24	5.91	5.73	6.78
Portugal	5.35	5.56	5.66	5.24	5.24	5.48	6.33	6.33	5.66	5.48	6.33	5.24	5.25	5.86		5.24	5.48	6.20
Slovakia	3.00	3.09	3.07	2.92	2.92	2.97	3.55	3.55	3.07	2.97	3.55	2.92	2.91	3.10	3.07		1.72	3.65
Slovenia	1.75	1.70	1.77	1.74	1.74	1.72	2.05	2.05	1.77	1.72	2.05	1.74	1.74	1.73	1.77	2.92		2.00
Spain	12.83	14.30	14.36	14.12	14.12	14.09	15.28	15.28	14.36	14.09	15.28	14.12	13.95	14.45	14.36	14.12	14.09	

Notes: Results for voting regimes excluding a particular country, grouped by countries with identical number of votes. For the calculation only one country is excluded at a time.