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bloc stability, confessional power, Lebanese Parliament, party power, Penrose-Banzhaf measure, power, voting

JEL codes:

C71, D72

The Distribution of Power in the Lebanese Parliament Revisited*

Mostapha Diss[†] Frank Steffen[‡]

This version: September 13, 2017

Abstract

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1 Introduction

Many political analysts consider the Lebanese Republic to be one of the most democratic nations in the Arab world. The governance structure of the Lebanese Republic is particularly characterized by the long history of the confessional nature of its constitution. Confessions play an important role and are a determining factor of the composition of Lebanese Parliament. The constitution guarantees a pre-defined representation of Christians and Muslims and its sectarian subgroups in parliament, composed by a unique legislative chamber.¹ In this sense, the composition of the parliament is based on the allocation of a specific number of seats to each of the two major religious groups and its 18 recognized sectarian subgroups: there exist 12 different Christian and 6 different Muslim sectarian subgroups representing about 99% of the population.² By its nature, the ratio being used to assign seats to these sectarian subgroups and the total size of the parliament have been subject of intensive discussions by Lebanese political parties and political scientists over decades.

In all parliamentary elections held after independence between 1943 and 1972 under the so-called National Pact, seats were apportioned between Christians and Muslims in a 6:5 ratio in favor of the Christians. Moreover, further ratios inside the Christian and Muslim sectarian subgroups were applied - all being roughly proportional to respective shares in the population. This dominance of the Christians and, in particular, its largest sectarian subgroup, namely the Maronite,³ played a prominent role in the beginning of the Lebanese civil war in 1975. Finally, after almost 15 years of civil war, and further demographic changes and migrations, the Taif Agreement⁴ from 1989 put an end to the armed conflicts in 1990 and introduced a revised confessional structure. The Taif Agreement maintains the spirit of the previous confessional governance structure, but 're-equilibrated' the relationship between Muslims and Christians by introducing a fifty-fifty ratio for the allocation of parliamentary seats. Currently, the distribution of parliamentary seats provided by the Taif Agreement is formally still in place, but the last elections were only conducted in 2009. Since then, several attempts to find a consensual electoral law have failed until in June 2017 finally an agreement for a new electoral law has been reached. According to this law new elections will take place in May 2018. For these elections the rules of the Taif Agreement will be applied for one more time, while for the subsequent elections in 2022 onwards the ideas contained the so-called Orthodox Proposal will be adopted. This proposal aims to strengthen the position of Muslims even sticking to the fifty-fifty ratio for the allocation of parliamentary seats between Christians and Muslims.

The main criticism of Lebanon's previous distributions of parliamentary seats, as well as the new electoral law, is that they are not representative. Indeed, the efforts are complicated by the fact that parliamentary seats have to be allocated such that both major religious groups (as well as its sectarian subgroups) are on equal footing. The tacit

¹In addition, the main public offices are allocated along confessional lines, with the top three positions assigned as follows: the President for a Maronite Christian, the Prime Minister for a Sunni Muslim, and the Speaker of the parliament for a Shia Muslim.

²While, in general, the adjectives 'religious', 'sectarian', 'confessional' are used as synonyms, for conceptual clarity, in this paper we use 'religious' when we refer to the distinction between the major groups, i.e., Christians and Muslims, 'sectarian' when we refer to their sectarian subgroups, and 'confessional' when we refer to both, i.e., groups and subgroups.

³Another aspect of this dominance is due to the significant executive powers which had been given to the President (Maronite): he nominates the Prime Minister and the members of Cabinet after consultation, he presides the Council of Ministers, etc.

⁴The Taif Agreement was negotiated in Taif, Saudi Arabia, in September 1989 and approved in November 1989 by the surviving members of Lebanon's 1972 parliament.

assumption behind this suggestion is a strong (if not total) positive linear correlation of the share of seats in parliament and the share of power attached to them. However, as it is well-known from the theory of voting power, this tacit assumption does, in general, not hold.⁵ Recently, [Diss and Zouache \(2015\)](#) have provided the first study of the confessional power implications for the Lebanese Parliament. Applying the Penrose-Banzhaf ([Banzhaf, 1965](#); [Penrose, 1946](#)) and Shapley-Shubik ([Shapley and Shubik, 1954](#)) indices they investigate the relative confessional power distributions resulting from the current seat distribution and the Orthodox Proposal and present some paradoxical results.

By this paper we provide a threefold extension of their analysis. Firstly, our analysis includes the latest Pre-Taif composition of seats and the composition under the new electoral law from June 2017. Secondly, our study makes use of the Penrose-Banzhaf measure ([Dubey and Shapley, 1979](#)). In addition to the indices employed by [Diss and Zouache \(2015\)](#) this allows not only to study the relative power distribution inside the parliament under each of the three compositions, but also to analyze the total changes in power between Muslims and Christians and its sectarian subgroups when moving from one composition to another. This produces insights which, in general, are helpful to assess the effects of past, very recent, and potential further future reforms of the Lebanese electoral law and, in particular, are useful to shed light on the implications of an implementation of the new electoral law. We demonstrate that, even under our non-normalized approach, some of the paradoxical results found by [Diss and Zouache \(2015\)](#) remain to exist. Thirdly, we study the distribution of party power in the current parliament. The political situation in parliament is characterized by the existence of two large blocs, ‘March 8’ and ‘March 14’, containing members from different parties and sectarian subgroups across the major religious groups. However, currently, in Lebanese politics and in the public discussion, despite its formal existence, the practical existence and usefulness of these blocs are put into question. We analyze the implications of the existence of both blocs and their stability conditions from the party and confessional perspective to provide a scientific foundation for the current public and political discussion. Applying an approach suggested by [Felsenthal and Machover \(2002a,b, 2008\)](#) our analysis demonstrates that the current bloc formation is *a priori* disadvantageous from a party as well as from a confessional perspective, i.e., in terms of power for some parties and some confessions, being member of the blocs, it would be beneficial if the blocs would cease to exist.

The rest of this paper is structured as follows. Section 2 contains an overview of the confessional governance structure in Lebanon which merely concerns the main aspects required for the present paper. In Section 3 we provide a brief description of the framework for the measurement of (voting) power which we apply for analysis. In Section 4 we present our results and in Section 5 we wrap up the paper with some concluding remarks.

2 The Confessional Governance Structure of Lebanese Republic

The origins of the confessional governance structure in Lebanon can be traced back to the Ottoman Empire (1515-1918), where it was first recognized that the presence of many different confessions in the same small territory necessitated certain mediatory measures. During the French mandate period (1920-1943) a further development of the confessional structure took place. Since the independence and the so-called National Pact in 1943, many reforms have been proposed in order to foster the transition of the

⁵For a comprehensive introduction see, for instance, [Felsenthal and Machover \(1998\)](#).

Lebanese governance structure towards a 'pure' democracy. However, despite the 1989 Taif Agreement's stipulation to eventually abolish the confessional structure, no reform has yet been passed in this direction and Lebanon still is well known for the confessional nature of its governance structure.

As previously noticed in Section 1, representation in the Lebanese Parliament was set at a 6:5 ratio in favor of the Christians under the National Pact. This has been the basis for the distribution of parliamentary seats for many decades. The main reason for the 6:5 ratio can be traced back to the existence of a demographic dominance of Christians in the past. The ratio was established according to demographic data from the national census of 1932, the latest national census in Lebanon, which took still place under the French mandate. Due to the fact that the ratio was fixed in the constitution, parliamentary representation did not account for subsequent demographic changes, which resulted in a Muslim majority. During the 1960s, Muslims became largely dissatisfied with the existing constitution and as a result many reforms were conducted. However, the reforms carried out stayed well within the confessional 'power-balancing' framework with the same 6:5 ratio. The seat distribution called Pre-Taif in Table 1 represents seats allocation during the four successive elections of 1960, 1964, 1968, and 1972.⁶ Only since during this period, the Maronites, the major sectarian subgroup of the Christians, had 30 seats which is the highest rate. Furthermore, the Alawites, a small Muslim minority, were even not recognized as a sectarian subgroup in the parliament.

In the 1970's, in particular due to demographic effects, the so-far existing population ratio between Christians and Muslims changed in favor of Muslims.⁷ As a consequence, the distribution of political power, which was based on the 1932 census, ceased to reflect demographic realities, and these developments augmented the Muslim demand for institutional reform. Most political scientists believe this was one of the main reasons for the Lebanese civil war.⁸ The Taif Agreement, that put an end to the civil war, is not considered as the best arrangement for launching the process of rebuilding a more stable governance structure despite the fact that, by its terms, the power of the president was then reduced in favor of the prime minister and the speaker of the parliament.⁹ More precisely, Lebanon preserved a confessional parliament but, under this agreement, the parliamentary seats were equally distributed between Christians and Muslims. At the same time the size of parliament increased from 99 to 128 seats. The distribution called 'Taif & 2018' in Table 1 represents seats allocation for all elections held in Lebanon since 1992, the first parliamentary election under the Taif Agreement.

⁶This seat distribution is based on the 6:5 ratio contained in the National Pact. Before the 1960 elections the number of seats changed four times since the 1943 elections: 55 from 1943 to 1947, 77 in 1951, 44 in 1953 and 66 in 1957. For a detailed discussion about the ratios used in order to allocate seats among sectarian subgroups in the Lebanese Parliament, the reader is referred to, for instance, Koch (2012), Najem (2012), and Salamey (2014).

⁷While during this period there was a strong emigration movements by Christians for many reasons, the Shia had the highest birth rate, followed by the Sunnis.

⁸For more details about the Lebanese civil war, see, for instance, Makdisi and Sadaka (2003) and Haugbolle (2010).

⁹More precisely, with respect to the main public offices (see footnote 1), the Sunni prime minister and the ministerial cabinet took over some of previous responsibilities of the presidency for whom the 'power' diminished. Furthermore, the 'power' of the President of parliament, a Muslim Shia, was reinforced.

Table 1: Three Distributions of Seats in the Lebanese Parliament

Confession	Pre-Taif		Taif & 2018		2022 onwards	
	Seats	(in %)	Seats	(in %)	Seats	(in %)
Maronite	30	(30.30)	34	(26.25)	34	(25.37)
Greek Orthodox	11	(11.11)	14	(10.94)	14	(10.45)
Greek Catholic	6	(6.06)	8	(6.25)	8	(5.97)
Armenian Orthodox	4	(4.04)	5	(3.91)	5	(3.73)
Armenian Catholic	1	(1.01)	1	(0.78)	1	(0.75)
Protestants	1	(1.01)	1	(0.78)	1	(0.75)
Other Christian Groups	1	(1.01)	1	(0.78)	4	(2.99)
Total Christians	54	(54.55)	64	(50)	67	(50)
Sunni	20	(20.20)	27	(21.09)	28	(20.90)
Shia	19	(6.06)	27	(21.09)	28	(20.90)
Druze	6	(6.06)	8	(6.25)	9	(6.72)
Alawite	0	(0)	2	(1.56)	2	(1.49)
Total Muslims	45	(45.45)	64	(50)	67	(50)
Total	99	(100)	128	(100)	134	(100)

Since 2005 (see footnote 18) Lebanon has experienced a series of political crises. After the parliamentary elections in 2009, the next elections, formerly planned for 2013, were canceled and the parliament continued to extend its mandate for a number of years. This decision was justified by the failure to reach a consensus over an electoral reform and under the pretext that the security situation did not favor holding elections. In order to work out a new electoral law the parliament even created a national commission which discussed various proposals during the recent years. Only in June 2017 an agreement was reached after the newly elected president threatened to dissolve the parliament.¹⁰ According to the new electoral law the mandate of the current parliament is extended further until the next elections which will take place in May 2018. While for these elections the current rules will be applied again one more time, for the subsequent 2022 elections the so-called Orthodox Proposal (submitted by a Greek Orthodox) will be implemented. Before the agreement has been reached this proposal has already been regarded as one of the most important and promising proposals as it aims to recognize the increased share of Muslims in the population by strengthening the position of Muslims in parliament without deviating from the fifty-fifty ratio. In order to achieve this a further increase of the size of parliament from 128 to 134 seats allocating 3 more seats to each religious group has been suggested by the Orthodox Proposal and agreed for the elections taking place in 2022 onwards. More precisely, one additional seat is allocated to each of the three largest Muslim sectarian subgroups (namely, Sunni, Shia and Druze). Furthermore, all 3 Christian seats are allocated to the so-called ‘Other Christian Groups’ while the number of seats for all other sectarian subgroups are kept at the same level. In this way the relative position of the larger Muslim sectarian subgroups in parliament should be strengthened, while the relative position of the major Christian sectarian subgroups should be weakened. The resulting seat distribution can be found in Table 1 denoted as the seat distribution ‘2022 onwards’.

Finally, we have to address the decision-making procedures applied in the Lebanese parliament. The parliament makes use of two different (simultaneous) decision rules. The first decision rule is the simple majority rule used for ordinary legislation as well as the

¹⁰After president Michel Suleiman stepped down at the end of his term in May 2014, Lebanon had to wait until October 2016 to fill a post of president.

second and next rounds of the presidential election which takes place in the parliament. The second decision rule is the 2/3-majority rule adopted for constitutional changes and for the first round of the presidential election.

3 Measuring Power

In this section, we present a brief description of the framework for the measurement of (voting) power, required for the rest of this paper. The starting point is some arbitrary simple voting game (SVG) (Shapley, 1962) which is used to represent simultaneous binary decision-making rules as applied in the Lebanese parliament, i.e., if a decision has to be made in favor or against a suggested proposal.¹¹ An SVG denoted by \mathcal{W} , is a collection of subsets \mathcal{W} of a finite set N , satisfying: (i) $N \in \mathcal{W}$, (ii) $\emptyset \notin \mathcal{W}$, and (iii) **Monotonicity**: whenever $X \subseteq Y \subseteq N$ and $X \in \mathcal{W}$ then also $Y \in \mathcal{W}$. \mathcal{W} is called *proper* if, in addition, it satisfies: whenever $X \in \mathcal{W}$ and $Y \in \mathcal{W}$ then $X \cap Y \neq \emptyset$. Otherwise, \mathcal{W} is called *improper*. N , called the assembly, denotes the largest set in \mathcal{W} . $a \in N$ are the agents (in our case confessions or parties) of \mathcal{W} . S , called a coalition, denotes a subset of N : $S \subseteq N$. It is called a winning coalition if $S \in \mathcal{W}$, while if $S \in \mathcal{L} = \mathcal{P}(N) - \mathcal{W}$ it is called a losing coalition. Moreover, note that there exist 2^{n-1} ways in which agents in an proper SVG can be partitioned into two complementary coalitions such that either one belonging to \mathcal{W} and one to \mathcal{L} , or both to \mathcal{L} . Hence, S can be seen as an ‘index’ for those agents who join the same view on a proposal. At the same time 2^{n-1} is also the number of coalitions S to which can agent a belongs to.

An SVG \mathcal{W} itself can be represented by a weighted voting game (WVG) $\mathcal{W} = (q, w)$, with w denoting the vector of weights (seats) of each agent a , i.e., $w_a \in w = (w_1, \dots, w_n)$, and q being the majority quota such that $0 \leq q < 1$. $S \in \mathcal{W}$ if $\sum_{i \in S} w_i > q$, where \mathcal{W} is called the set of winning coalitions, and $S \in \mathcal{L}$ if $\sum_{i \in S} w_i \leq q$, where \mathcal{L} is called the set of losing coalitions.

In an WVG \mathcal{W} power is ascribed to an agent a , $\mathcal{P}\mathcal{A}_a(S \in \mathcal{W})$, if a has a swing, i.e., if given the coalition memberships of all other agents, a by changing its originally membership in coalition $S \in \mathcal{W}$ to the complementary coalition $N - S$ has the ability to alter the status quo of a coalition from a winning to a losing coalition, i.e., altering the collective outcome from $\{acceptance\}$ to $\{rejection\}$ against some resistance of others. This resistance comes from the members of $S - \{a\}$, whose view on the proposal is now no longer in line with the view of i being now a member of $N - S + \{a\}$.¹² Hence:

$$\mathcal{P}\mathcal{A}_a(S \in \mathcal{W}) = \begin{cases} 1 & \text{if } a \text{ has a swing in } S \\ 0 & \text{otherwise} \end{cases} \quad \text{for all } a \in N. \quad (1)$$

Summing up the power ascription for agent a over all winning coalitions containing agent a , we obtain a 's power score, $\eta_a(\mathcal{W})$:

$$\eta_a(\mathcal{W}) = \sum_{S \in \mathcal{W}, S \ni a} \mathcal{P}\mathcal{A}_a(S \in \mathcal{W}) \quad \text{for all } a \in N. \quad (2)$$

¹¹For background on SVG, the reader is referred to Felsenthal and Machover (1998). See also Taylor and Zwicker (1999).

¹²For further details see van den Brink and Steffen (2008) referring to Harré and Madden (1975) and Morriss (2002).

Assuming - in line with the principle of insufficient reason - that all coalitions S are equally likely, we divide the power score of an agent by 2^{n-1} , i.e., the number of coalitions a is a member of and, hence, could have a swing, we obtain a 's Penrose-Banzhaf Power Measure (Dubey and Shapley, 1979), $\beta'_a(\mathcal{W})$.¹³

$$\beta'_a(\mathcal{W}) = \frac{\eta_a(\mathcal{W})}{2^{n-1}} \quad \text{for all } a \in N. \quad (3)$$

This formula will be applied in order to calculate the Penrose-Banzhaf measure of each confession taking into consideration the three distributions of seats considered throughout the paper as well as the Penrose-Banzhaf measure of each political party without bloc formation.¹⁴

Example 1 Let $\mathcal{W} = [2; 2, 1, 1]$ be an WVG with assembly $N = \{a, b, c\}$. Hence, $\mathcal{W} = \{ab, ac, abc\}$ and $\mathcal{L} = \{\emptyset, a, b, c, bc\}$. Here a has a swing in the coalitions $\{a, b\}$, $\{a, c\}$, and $\{a, b, c\}$, therefore: $\eta_a(\mathcal{W}) = 3$. Correspondingly, b has a swing in $\{a, b\}$ and c in $\{a, c\}$, resulting in $\eta_b(\mathcal{W}) = \eta_c(\mathcal{W}) = 1$. Dividing the individual power scores of the agents by $2^{3-1} = 4$ we obtain the Penrose-Banzhaf power measure $\beta'(\mathcal{W}) = (0.75, 0.25, 0.25)$.

To calculate the distribution of power under bloc formation we need to extend our framework. With some minor adjustments we adopt in this paper the same notations and terminology of Felsenthal and Machover (1998, 2002a). Henceforth, the notation $\mathcal{W} | \&_S$ denotes the SVG that results from \mathcal{W} when the members of a given coalition S choose to form a voting bloc in order to coordinate their voting behavior. In other words, all members of S agree to vote always in the same way.

As a consequence, this gives rise to a new SVG and if \mathcal{W} is an WVG, then so is $\mathcal{W} | \&_S$. In this new setting, the weight of $\&_S$ is equal to the sum of the weights that the members of S has in the game \mathcal{W} , while the weights of all other members in $N - S$ as well as the required quota are kept unchanged as in \mathcal{W} . In addition, the assembly of $\mathcal{W} | \&_S$ is given by $(N - S) \cup \{\&_S\}$, which means that all the members of S are removed from N and henceforth a new agent $\&_S$ (i.e., the bloc of S) is added. Naturally, the winning coalitions of $\mathcal{W} | \&_S$ are all those $X \subseteq N - S$ such that X is a winning coalition of \mathcal{W} and additionally all coalitions $X \cup \{\&_S\}$ for which $X \cup S$ is a winning coalition in \mathcal{W} .

In order to correctly analyze the problem of voluntary bloc formation appropriately, the internal decision rule fixed by the bloc in order to decide about any proposal inside the bloc has to be considered. Following Felsenthal and Machover (1998, 2002a), we postulate that when a bloc $\&_S$ is formed, the members also fix a particular internal SVG henceforth denoted \mathcal{W}_S whose assembly is S . Felsenthal and Machover (1998, 2002a) use the term *alliance* for the structure of a bloc $\&_S$ together with an internal SVG. The aim of the internal SVG of this alliance is to decide, for each proposal, how the bloc $\&_S$ (or its delegate) will vote in the game $\mathcal{W} | \&_S$. When the members of S form a bloc whose internal SVG is \mathcal{W}_S , this leads to a new composite SVG, which we shall denote by $\mathcal{W} || \mathcal{W}_S$.

This new SVG works as follows: when a proposal is suggested, the members of S having formed the bloc $\&_S$ decide to vote for or against it using \mathcal{W}_S , the internal SVG of their alliance. Then, when the proposal is brought before the assembly of \mathcal{W} , all the members of S vote as a bloc, in accordance with their internal decision. Said differently, the final

¹³Also called the absolute Banzhaf index or absolute Banzhaf-Coleman index. See Felsenthal and Machover (1998) for a discussion about the designation of the measure.

¹⁴The Penrose-Banzhaf measures reported in this paper have been computed using the program *ipgenf*, which is available at <http://homepages.warwick.ac.uk/~ecaee/ipgenf.html>.

outcome is the same as it would have been in $\mathcal{W} \mid \&_S$ with the bloc $\&_S$ voting according to the internal decision. The assembly of $\mathcal{W} \parallel \mathcal{W}_S$ is N , the same as that of \mathcal{W} . The winning coalitions of $\mathcal{W} \parallel \mathcal{W}_S$ are all sets of the form $X \cup Y$, with $X \subseteq S$ and $Y \subseteq N - S$, satisfying at least one of the following two conditions: (i) Y is a winning coalition of \mathcal{W} ; (ii) X is a winning coalition of \mathcal{W}_S and $S \cup Y$ is a winning coalition of \mathcal{W} .

Similarly to (3), we can define the Penrose-Banzhaf measure $\beta'_a[\mathcal{W} \mid \&_S]$ of any agent a in the new game $\mathcal{W} \mid \&_S$ when the bloc $\&_S$ arises. Moreover, it is tempting to jump to the conclusion that the Penrose-Banzhaf measure in $\mathcal{W} \parallel \mathcal{W}_S$ are the same as in $\mathcal{W} \mid \&_S$. This is not generally true. Indeed, each member of S now has direct power in the SVG \mathcal{W}_S , but as well as indirect power in $\mathcal{W} \parallel \mathcal{W}_S$, which s/he exercises via the bloc $\&_S$. Following [Felsenthal and Machover \(2002a\)](#), to obtain the indirect Penrose-Banzhaf measure of an agent a in the whole game $\mathcal{W} \parallel \mathcal{W}_S$, one has to multiply the direct Penrose-Banzhaf measure of the agent a in \mathcal{W}_S by the Penrose-Banzhaf measure of the bloc $\&_S$ in $\mathcal{W} \mid \&_S$. Formally, this result is stated as follows:

Theorem 1 ([Felsenthal and Machover, 2002a](#)). *For every agent $a \in S$*

$$\beta'_a[\mathcal{W} \parallel \mathcal{W}_S] = \beta'_a[\mathcal{W}_S] \cdot \beta'_{\&_S}[\mathcal{W} \mid \&_S]. \quad (4)$$

By doing so, we can henceforth compare the voting power of each agent when the nature of the voting body changes as a result of the formation of voting blocs. Clearly, the bloc $\&_S$ will be advantageous to all the members of S if after forming $\&_S$ every one of them will be able to exercise more influence over the outcome than s/he was able to exercise originally in \mathcal{W} . In other words, when the members of S consider forming a bloc, they are well advised to compare their prospective indirect powers in (4) with the direct powers they have in (3) in the original SVG \mathcal{W} . Following [Felsenthal and Machover \(2002a\)](#), we shall therefore say that an alliance with an internal SVG \mathcal{W}_S is *expedient* (or *feasible*) if

$$\beta'_a[\mathcal{W} \parallel \mathcal{W}_S] > \beta'_a[\mathcal{W}] \quad \text{for all } a \in S. \quad (5)$$

Moreover, a bloc is said to be expedient if there exists some internal SVG such that the resulting alliance is expedient, respectively. We shall summarize these notions in the following example, which is from [Felsenthal and Machover \(1998, 2002a\)](#) who made a particularly interesting observations about possible scenarios of expedient alliances.¹⁵ For more details and examples, the reader is referred to the original papers.

Example 2 Let $\mathcal{W} = [3; 1, 1, 1, 1, 1, 1]$ be an WVG with assembly $N = \{a, b, c, d, e, f\}$. That is, each agent in N has weight 1, and the quota is 4. Here the Penrose-Banzhaf power of each agent is $\frac{5}{16}$. Now suppose that the first three agents form a bloc $\&_{\{a,b,c\}}$. We get a new game $\mathcal{W} \mid \&_S = [3; 3, 1, 1, 1]$. Here the bloc being one agent has Penrose-Banzhaf power $\frac{7}{8}$ and each of the remaining agents has $\frac{1}{8}$. Note that the Penrose-Banzhaf power of the bloc is smaller than the sum of the original Penrose-Banzhaf powers of the three partners. Despite this remark, we cannot conclude that the bloc is not advantageous to all three partners. Indeed, if we put $\mathcal{W}_{\{a,b,c\}} = [1; 1, 1, 1]$, the Penrose-Banzhaf power of each partner in this internal WVG is $\frac{1}{2}$. In addition, by [Theorem 1](#) each of the three agents has

¹⁵Notice that [Felsenthal and Machover \(2002a\)](#) call an alliance as *expedient* if $\beta'_a[\mathcal{W} \parallel \mathcal{W}_S] \geq \beta'_a[\mathcal{W}]$ for all $a \in S$. This case is ignored in our paper since the equality between $\beta'_a[\mathcal{W} \parallel \mathcal{W}_S]$ and $\beta'_a[\mathcal{W}]$ should only occur in very rare cases.

an indirect Penrose-Banzhaf power of $\frac{7}{16}$ in the composite $\mathcal{W} \parallel \mathcal{W}_{\{a,b,c\}}$. This makes such an alliance expedient.

On the other hand, if we were to choose $\mathcal{W}_{\{a,b,c\}} = [2; 1, 1, 1]$ so that the internal decisions of the alliance are taken by the unanimity rule, then the direct Penrose-Banzhaf power of each partner would be $\frac{1}{4}$. This would give each of them indirect Penrose-Banzhaf power $\frac{7}{32}$ in the composite $\mathcal{W} \parallel \mathcal{W}_{\{a,b,c\}}$, which is smaller than the power in \mathcal{W} making such an alliance inexpedient. Note also that, in this case, each of the agents d, e, f would have Penrose-Banzhaf power $\frac{1}{32}$ in the composite $\mathcal{W} \parallel \mathcal{W}_{\{a,b,c\}}$, which is much less than they have in \mathcal{W} .

4 Results

In this section we analyze the confessional and party related power from both decision rules applied in the Lebanese Parliament and put our results in the context of the development of the Lebanese political system.

4.1 Confessional Power in the Lebanese Parliament

We commence our analysis applying the Penrose-Banzhaf measure in order to analyze the confessional distribution of power in the Lebanese Parliament for the three alternative seat distributions, i.e., prior to the Taif Agreement since 1960 (Pre-Taif), under the Taif Agreement and for the 2018 elections under the electoral law (Taif & 2018), and for 2022 onwards. Our results for the simple majority rule are displayed in Table 2 and for the 2/3-majority rule in Table 3.

Comparing and contrasting the situation of Christians and Muslims under each of the three seat distributions, our calculations demonstrate that under the Pre-Taif situation Christians are more powerful than Muslims. This result is in line with the seat ratio under the Pre-Taif distribution of seats which is 6:5 in favor of Christians. In this context one has to remember that the basic idea behind the confessional nature of the Lebanese electoral law was that the impact of confessions in parliament should reflect (at least roughly) their share in the population and that the dominant role of Christians in the Lebanese governance structure is regarded to have played a prominent role in the beginning of the Lebanese civil war in 1975.

When it came to the Taif Agreement in 1989 the demographic situation in Lebanon was characterized by the fact that the share of Muslims in the population was larger than the share of Christians. However, in the Taif Agreement the Christians representatives did not agree to a swap of the ratio in favor of Muslims, but only agreed to an equal split of seats for both religious groups in parliament. However, our analysis reveals that in terms of power, i.e., regarding the ability of a confession in parliament to affect the outcome of the parliamentary decision-making, the picture looks different. Muslims have partially achieved their desired swap in terms of impact. Under the simple majority rule, i.e., for ordinary legislation and the second and next rounds of the presidential elections, the Muslims became more powerful than the Christians, while under the 2/3-majority rule, i.e., for constitutional changes and for the first round of the presidential elections, Christians lost power, even the revised composition of the parliament did not change the relative power relation between Christians and Muslims: Christians remained still to be more powerful.

The very recent discussion about the electoral reform has been characterized by the aim of the Muslims to abolish the perceived equal split of impact on the parliamentary decision-making by Christians and Muslims and to strengthen their position in line with their larger share in the population. The Christians, instead, have tried to defend the apparently equal split. While under the new electoral law the ratio between both major religious groups remains unchanged in future, from 2022 it foresees an increase in the number of seats for certain sectarian subgroups. While the three largest Muslim sectarian subgroups will gain one seat each, the number of seats for the three largest Christian sectarian subgroups will remain constant. Instead three seats will be allocated to other Christian sectarian (minority) groups. This increase in terms of seats strengthens the relative position of the three largest Muslim sectarian subgroups while weakens the relative position of the three largest Christian sectarian subgroups.

Our calculations demonstrate that once the second stage of the new electoral law comes into force in 2022, in terms of power the strengthening of the larger Muslim sectarian subgroups and weakening the larger Christian sectarian subgroups is achieved, while still leaving the equal split of seats between Christians and Muslims constant. Moreover our results show that both, Christians and Muslims, as a group will also benefit from the new electoral law in terms of power from 2022 onwards, but that the benefit for Muslims will overall be significantly larger than for the Christians. In detail: under both majority rules, all three largest Christian sectarian subgroups lose power. Moreover, also all other Christian sectarian subgroups suffer from the same effect with two exceptions: the other Christian sectarian (minority) groups who received three additional seats gain power under both majority rules and also the Armenian Orthodox gain power under the 2/3-majority rule. Concerning the Muslims, we find that the three largest Muslim sectarian subgroups are empowered, while the fourth Muslim sectarian subgroup represented in parliament, the Alawites, suffers from this change in the composition of the parliament: they lose power under both majority rules.

Over all it can be stated that, moving from the Pre-Taif to the Taif Agreement, the total power of Christians decreases and slightly increases again moving from the first to the second stage of the new electoral law in 2022 without reaching its initial level. Concerning the Muslims, we find that the total power for Muslims increases from Pre-Taif to Taif but also from the first to the second stage of the new electoral law.¹⁶

Aside from these power implications closely linked to the political situation and debates in Lebanon, applying Pearson's correlation coefficient r by comparing Table 1 with tables 2 and 3, our results in tables 4 and 5 demonstrate that the tacit assumption of a very strong positive linear correlation between the share of seats of each sectarian subgroup and their power under the simple and 2/3-majority rule holds for the Lebanese Parliament ($r \geq 0.9880$). In other words, the difference between the share of seats and the relative share of the Penrose-Banzhaf power is negligible under both rules. However, a closer look at the tables 4 and 5 reveals that this strong overall correlation conceals the fact that comparing the Taif & 2018 distribution of seats with the 2022 onwards distribution of seats we can observe a significant difference between Christians and Muslims. Under the simple majority rule Table 4 shows that Muslims under the Taif & 2018 seat distribution have 2.34 and under the 2022 onwards distribution 2.92 %-points more power while the Christians

¹⁶Moreover, it appears worthwhile to note that the over all power in the parliament, i.e., the total ability of the parliament to affect the outcome of its decision, increased from Pre-Taif to Taif under the simple majority rule and will increase again moving from the first to the second stage of the new electoral law, while under the 2/3-majority rule it decreased from Pre-Taif to Taif, but would slightly increase again moving from the first to the second stage of the new electoral law without reaching its initial level.

have correspondingly less power compared to their share of seats. Hence, we have an power advantage for the Muslims. Under the 2/3-majority rule we can find a reversal of this observation. Table 5 illustrates that Christians under the Taif & 2018 seat distribution have 2.03 and under the 2022 onwards distribution 2.09 %-points more power while the Muslims have correspondingly less power compared to their share of seats.

Furthermore, our analysis reveals some paradoxical power effects by moving from one seat distribution to another. Moving from the Pre-Taif to Taif & 2018 distribution of seats the Maronite, Greek Orthodox, Greek Catholics, Armenian Orthodox, Sunni, Shia and Druze gained additional seats in the parliament. Moreover, the Alawite entered the parliament as a new sectarian subgroup, or in other words: their number of seats increased from zero to a positive number. Even the number of seats for the three remaining sectarian subgroups, the Armenian Catholics, the Protestants and the other minor Christian groups remained constant, their power under both majority rules increased. At the same time the power of the Maronite, Greek Orthodox decreased under both majority rules as well as the power of the Armenian Orthodox under the 2/3-majority rule. This observed phenomenon is an instance of the well-known ‘Paradox of Redistribution’ (Dreyer and Schotter, 1980; Fischer and Schotter, 1978; Schotter, 1981).¹⁷

Table 2: Power and Power Changes Under the Simple Majority Rule in Parliament.

Confession	Power			Change in Power		
	Pre-Taif (1)	Taif & 2018 (2)	2022 onwards (3)	(2) - (1)	(3) - (2)	(3) - (1)
Maronite	0.6289	0.5459	0.5261	-0.0830	-0.0198	-0.1028
Greek Orthodox	0.1367	0.1240	0.1165	-0.0127	-0.0076	-0.0203
Greek Catholic	0.0664	0.1006	0.0989	0.0342	-0.0017	0.0325
Armenian Orthodox	0.0586	0.0635	0.0608	0.0049	-0.0027	0.0022
Armenian Catholic	0.0117	0.0166	0.0137	0.0049	-0.0029	0.0020
Protestants	0.0117	0.0166	0.0137	0.0049	-0.0029	0.0020
Other Christian Groups	0.0117	0.0166	0.0137 × 4	0.0049	0.0381	0.0430
Total Christians	0.9258	0.8838	0.8843	-0.0420	0.0005	-0.0415
Sunnite	0.3711	0.4150	0.4287	0.0439	0.0137	0.0576
Shia	0.3633	0.4150	0.4287	0.0518	0.0137	0.0654
Druze	0.0664	0.1006	0.1091	0.0342	0.0085	0.0427
Alawite	0.0000	0.0400	0.0276	0.0400	-0.0125	0.0276
Total Muslims	0.8008	0.9707	0.9941	0.1699	0.0234	0.1934
Total	1.7266	1.8545	1.8784	0.1279	0.0239	0.1519

¹⁷For a detailed discussion of the paradox, we refer the reader to Felsenthal and Machover (1995, 1998).

Table 3: Power and Power Changes Under the 2/3-Majority Rule in Parliament.

Confession	Power			Change in Power		
	Pre-Taif (1)	Taif & 2018 (2)	2022 onwards (3)	(2) - (1)	(3) - (2)	(3) - (1)
Maronite	0.4727	0.3848	0.3658	-0.0879	-0.0189	-0.1068
Greek Orthodox	0.1953	0.1777	0.1688	-0.0176	-0.0089	-0.0265
Greek Catholic	0.0859	0.0977	0.0880	0.0117	-0.0096	0.0021
Armenian Orthodox	0.0664	0.0449	0.0568	-0.0215	0.0118	-0.0096
Armenian Catholic	0.0078	0.0156	0.0126	0.0078	-0.0031	0.0048
Protestants	0.0078	0.0156	0.0126	0.0078	-0.0031	0.0048
Other Christian Groups	0.0078	0.0156	0.0126 × 4	0.0078	0.0347	0.0425
Total Christians	0.8437	0.7520	0.7549	-0.0918	0.0029	-0.0889
Sunnite	0.2734	0.2793	0.2821	0.0059	0.0028	0.0087
Shia	0.2578	0.2793	0.2821	0.0215	0.0028	0.0243
Druze	0.0859	0.0977	0.1051	0.0117	0.0074	0.0192
Alawite	0.0000	0.0371	0.0250	0.0371	-0.0121	0.0250
Total Muslims	0.6172	0.6934	0.6943	0.0762	0.0010	0.0771
Total	1.4609	1.4453	1.4492	-0.0156	0.0039	-0.0117

Table 4: Shares of Seats and Power (Simple Majority Rule) for the Three Distributions of Seats in the Lebanese Parliament

Confession	Pre-Taif		Taif & 2018		2022 onwards	
	Share of Seats in %	Share of Power in %	Share of Seats in %	Share of Power in %	Share of Seats in %	Share of Power in %
Maronite	30.30	36.43	26.56	29.44	25.37	28.01
Greek Orthodox	11.11	7.92	10.94	6.69	10.45	6.20
Greek Catholic	6.06	3.85	6.25	5.42	5.97	5.26
Armenian Orthodox	4.04	3.39	3.91	3.42	3.73	3.24
Armenian Catholic	1.01	0.68	0.78	0.90	0.75	0.73
Protestants	1.01	0.68	0.78	0.90	0.75	0.73
Other Christian Groups	1.01	0.68	0.78	0.90	2.99	2.91
Total Christians	54.55	53.62	50.00	47.66	50.00	47.08
Sunni	20.20	21.49	21.09	22.38	20.90	22.82
Shia	19.19	21.04	21.09	22.38	20.90	22.82
Druze	6.06	3.85	6.25	5.42	6.72	5.81
Alawite	0.00	0.00	1.56	2.16	1.49	1.47
Total Muslims	45.45	46.38	50.00	52.34	50.00	52.92
Total	100.00	100.00	100.00	100.00	100.00	100.00
Pearson's r	0.9892		0.9880		0.9884	

Table 5: Shares of Seats and Power (2/3-Majority Rule) for the Three Distributions of Seats in the Lebanese Parliament

Confession	Pre-Taif		Taif & 2018		2022 onwards	
	Share of Seats in %	Share of Power in %	Share of Seats in %	Share of Power in %	Share of Seats in %	Share of Power in %
Maronite	30.30	32.35	26.56	26.62	25.37	25.24
Greek Orthodox	11.11	13.37	10.94	12.30	10.45	11.65
Greek Catholic	6.06	5.88	6.25	6.76	5.97	6.07
Armenian Orthodox	4.04	4.55	3.91	3.11	3.73	3.92
Armenian Catholic	1.01	0.53	0.78	1.08	0.75	0.87
Protestants	1.01	0.53	0.78	1.08	0.75	0.87
Other Christian Groups	1.01	0.53	0.78	1.08	2.99	3.47
Total Christians	54.55	57.75	50.00	52.03	50.00	52.09
Sunni	20.20	18.72	21.09	19.32	20.90	19.47
Shia	19.19	17.65	21.09	19.32	20.90	19.47
Druze	6.06	5.88	6.25	6.76	6.72	7.25
Alawite	0.00	0.00	1.56	2.57	1.49	1.73
Total Muslims	45.45	42.25	50.00	47.97	50.00	47.91
Total	100.00	100.00	100.00	100.00	100.00	100.00
Pearson's <i>r</i>	0.9933		0.9954		0.9974	

4.2 Party Power in the Present Lebanese Parliament Without Bloc Formation

As mentioned in Section 1, the last parliamentary elections were held in 2009. The parliament term is supposed to be four years but it extended its own term several times. The extension was prompted by the failure of the politicians to agree on a new electoral law until June 2017. Lebanon has a large number of active political parties, which include aspects of confession-based cadre and mass-based parties. However, it is important to note that nearly all large parties belong primarily to single-sect constituencies. In the 2009 election, 7 confessional parties out of all 21 parties represented in parliament won 90 (70%) of 128 seats. In addition to this organization into political parties, most parliamentary members are organized within two parliamentary blocs. Their existence goes back to events in 2005¹⁸ where Lebanon split in two opposing camps according to whether they had been in favor or against the Syrian military presence in Lebanon (Ekmekji, 2012). The March 14 (M14) bloc, being named after the date of the Cedar Revolution, is a diverse alliance of groups seeking to assert Lebanese sovereignty as independent from Syria and militating for democratic reforms. The M14 bloc includes the (Sunni) Future Movement, the (Druze) Progressive Socialist Party, the (Christian) Lebanese Forces and Kataeb, as well as other small parties and numerous independents. The March 8 (M8) bloc, being named after the date of the demonstration thanking Syria for helping to end the Lebanese Civil War, and is a predominantly Shia pro-Syrian/Iranian movement. The M8 bloc consists primarily of

¹⁸In February 2005, the former Sunni Prime Minister Rafic Hariri was assassinated in central Beirut. The United Nations established the Special Tribunal for Lebanon for pursuing the investigation, and the prosecutor named members of Hezbollah in connection with the bombing attack. Recall that Hezbollah (Party of God in Arabic) is a major political party in Lebanon that represents the Shia Muslims. Its organization is based on both political and military elements and its armed branch, which is supported by both Syria and Iran, is considered as the most powerful militant organization in Lebanon. Soon after the prime minister's death, the United Nations investigators task was to find links between Syria's government and Hariri's assassination. During the following month, an estimated one million Lebanese protested in Beirut against the Syria's military presence in Lebanon. Called the Cedar Revolution, the protests had been combined with pressure from the international community and ended three decades (1976-2005) of military domination of Lebanon by Syria.

the (Christian) Free Patriotic Movement along with the two main Shia parties, the Amal Movement and Hizbollah, in addition to a few smaller parties and one independent member.

Table 6 provides the members of each bloc as well as the non-bloc members and their number of seats after the 2009 election. As it is clear from this table, 125 out of the 128 members of parliament either belong to the M8 or M14 bloc. The allies of the M14 bloc took 68 seats in parliament, while the M8 bloc won 57 seats and 3 seats were assigned to non-bloc members. Table 6 also gives the Penrose-Banzhaf power of each political party and each independent member without taking into consideration the bloc formation. The main fact that can be deduced from this table is that the tacit assumption of a very strong positive linear correlation between the share of seats of each party (or independent member) and their power under the simple and 2/3-majority rule nearly holds in this case ($r_{\text{simple majority}} = 0.9959, r_{\text{2/3-majority}} = 0.9996$). In other words, the difference between the share of seats and the relative share of the Penrose-Banzhaf power is negligible under both rules. Moreover, we can make the following observation for the parliament containing 21 parties and 9 independent members: 5 parties, holding 11 or more seats and owing together 63 % of the seats in parliament, own 65 % of the total power in parliament under the simple majority rule and 63 % under the 2/3-majority rule. Finally, notice that Table 6 will be particularly important to compare the power changes of each party after bloc formation, which is addressed in the next sub-section.

Table 6: Power in the Lebanese Parliament After 2009 Elections: Party Level (Without Bloc Formation).

March 14 Bloc Members (Party/Independent)	Seats	(in %)	Power			
			Simple Majority	(in %)	2/3-Majority	(in %)
Future Movement	26	(20.31)	0.5783	(23.22)	0.2928	(19.22)
Progressive Socialist Party	11	(8.59)	0.2084	(8.37)	0.1318	(8.65)
Lebanese Forces	8	(6.25)	0.1514	(6.08)	0.0921	(6.04)
Kataeb	5	(3.91)	0.0923	(3.70)	0.0609	(3.99)
Zahle Bloc	3	(2.34)	0.0552	(2.22)	0.0361	(2.37)
Hanchak	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
National Entente Bloc	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
National Liberal Party	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Ramgavar	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Jamaa Islamiya	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Democratic Left Movement	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Pharaon, M. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Tueni, N. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Salam, T. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Kabbara, M. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Fadel, R. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Harb, B. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Ghanem, R. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Sub-total	68	(53.13)	1.3612	(54.65)	0.7935	(52.09)
March 8 Bloc Members (Party/Independent)	Seats	(in %)	Power			
			Simple Majority	(in %)	2/3-Majority	(in %)
Free Patriotic Movement	19	(14.84)	0.3594	(14.43)	0.2391	(15.69)
Amal	13	(10.16)	0.2486	(9.98)	0.1556	(10.21)
Hizbollah	12	(9.38)	0.2275	(9.14)	0.1433	(9.41)
Marada	3	(2.34)	0.0552	(2.22)	0.0361	(2.37)
Lebanese Democratic Party	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
Syrian Social Nationalist Party	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
Tachnak	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
Baath	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
Solidarity Party	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Farhat, B. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Sub-total	57	(44.53)	1.0745	(43.14)	0.6941	(45.55)
Non-Bloc Members (Party/Independent)	Seats	(in %)	Power			
			Simple Majority	(in %)	2/3-Majority	(in %)
Tripoli Solidarity Bloc	2	(1.56)	0.0368	(1.48)	0.0240	(1.58)
Al-Murr, M. (Indep.)	1	(0.78)	0.0184	(0.74)	0.0120	(0.79)
Total	128	(100)	2.4908	(100)	1.5236	(100)

4.3 Party Power in the Present Lebanese Parliament With Bloc Formation

Taking into account the blocs our results show that under simple majority rule, M14 is all powerful, while under the 2/3-majority rule, power is split equally between both blocs (see Table 7).

Table 7: Power in the Lebanese Parliament After 2009 Elections: Bloc Level.

Bloc/Party/Independent	Seats	Power	
		Simple Majority	2/3-Majority
March 14	68	1.0000	0.5000
March 8	57	0.0000	0.5000
Tripoli Solidarity Bloc	2	0.0000	0.0000
Al-Murr, M. (Indep.)	1	0.0000	0.0000
Total	128	1.0000	1.0000

Comparing these results with the total power of the bloc members without bloc formation (see Table 8) it appears that in absolute terms the power of the M8 and M14 members declined for both blocs and under both majority rules applied in parliament, i.e., that we face instances of the Paradox of (Large) Size (Brams, 1975). This paradox demonstrates that after bloc formation the total power of the bloc members can diminish after bloc formation, or, in other words, that the ‘conventional wisdom that the whole is greater than - or at least equal to - the sum of its parts, is clearly violated.’ (Brams, 1975, page 178).

Table 8: Power and Power Changes Due to Bloc Formation: Bloc Level.

	Simple Majority in Parliament		
	Power Without Bloc Formation	Power With Bloc Formation	Change in Power
March 8	1.0745	0.0000	-1.0745
March 14	1.3612	1.0000	-0.3612
	2/3-Majority in Parliament		
	Power Without Bloc Formation	Power With Bloc Formation	Change in Power
March 8	0.6941	0.5000	-0.1941
March 14	0.7935	0.5000	-0.2935

As pointed out by Felsenthal and Machover (1998, 2002a) and explained in Section 3, the above analysis is inappropriate as it neglects internal power effects resulting out of the decision rule applied inside each bloc. Instead our analysis has to apply the approach introduced in Section 3 which takes the indirect power of bloc members into account when assessing the bloc members’ power in parliament. From the underlying formula it is obvious that this approach requires the knowledge of the internal decision rule of each bloc which is not available in our case. This implies that we are not able to analyze the ‘actual’ power of the members of parliament under the current bloc formation. However, we are still able to analyze whether from a power point of view the current blocs can be theoretically justified, i.e., whether there exist internal decision rules which make these blocs expedient. For this purpose we assume that each bloc has agreed on its own on a decision rule which can be represented by a WVG \mathcal{W}_S in which the internal majority quota will be named q and the weights are the seats of the bloc members in parliament.¹⁹ Based on this assumption we have calculated the power effects for the members of each bloc under alternative majority quotas q from simple majority to unanimity. Table 10 (Appendix) displays the power effects under a selection of different quotas compared to the situation without bloc formation as given by Table 6. Overall, our analysis revealed that for each bloc no quota exists which can ensure that the bloc is expedient under both decision rules applied in parliament. However, for M14 we found that a quota of $q = 44$ and $q = 45$, both being close to a 2/3-majority quota of $q = 46$, ensure that M14 is expedient under the simple majority rule in parliament, i.e., for decisions on the ordinary legislation and the second and next rounds of the presidential election, where the latter results overall in a higher total amount power for the bloc, i.e., it is the optimal quota; $q^* = 45$. Furthermore, under the 2/3-majority rule in parliament, i.e., for

¹⁹In order to a potential confusion with the decision rules applied in parliament when referring to the internal decision rules of a bloc, we will use the term ‘majority quota’ when referring to the internal decision rules and will continue to speak about ‘majority rules’ when referring to the decision rules in applied parliament.

decision on constitutional changes and for the first round of the presidential election, this quota is optimal in the sense that it minimizes the loss in power due to the bloc formation.

Regarding M8, it is obvious that no quota q exists which can ensure that M8 is expedient as the total power of the bloc in parliament is 0 under the simple majority rule. However, the questions remain if there exists at least a quota q which makes M8 expedient under the 2/3-majority quota in parliament. Our calculation shows that this is not the case, but applying a simple majority rule inside the bloc, $q = 29$, the total gain of power from bloc formation is positive and reaches its maximum. Under this quota the three largest bloc members gain from bloc formation, while all other ten bloc members lose. Instead for a quota of $q = 35$ the total gain of power from bloc formation is positive and maximized under the constrained that the number of bloc members losing from bloc formation should be minimized. In comparison to the simple majority rule now, eight members of the bloc gain power and only two lose power, but these are the members with the second and third largest number of seats in parliament. Now, one could argue that in parliament the simple majority rule could usually be regarded to be more relevant as this is the one applied for ordinary legislation. Then it could be inferred, that the fact that M14 is non expedient under the 2/3-majority quota in parliament is negligible, implying that the existence of M14 is theoretical justifiable on the basis of its power effects. However, this does not hold for M8, i.e., M8 in this respect is an infeasible bloc under both majority quotas in parliament, i.e., there does not exist any quota under which its members under bloc formation have at least the same power as without bloc formation. Thus, from a power point of view, M8 should be dissolved.

Taking this into account, we have investigated the effect of the dissolution of M8 on the power of M14. On the bloc level the results are displayed by Table 9. It contains the resulting distribution of power for the M14 and former M8 members as well as for the members of parliament who were never belonging to a bloc. Under the simple majority rule in parliament there is no change as M14 remains to be all powerful. Under the 2/3-majority rule, total power in parliament increases and M14 gains power in absolute and relative terms. Moreover, given the existence of M14, also the former members of M8 gain power in absolute terms compared to being organized in the M8 bloc, but lose in terms of relative power.

Table 9: Power in the Lebanese Parliament After 2009 Elections: Bloc Level (Without Existence of March 8).

Bloc/Party/Independent	Seats	Power	
		Simple Majority	2/3-Majority
March 14	68	1.0000	0.8367
Free Patriotic Movement	19	0.0000	0.1633
Amal	13	0.0000	0.1355
Hizbollah	12	0.0000	0.1145
Marada	3	0.0000	0.0305
Lebanese Democratic Party	2	0.0000	0.0208
Syrian Social Nationalist Party	2	0.0000	0.0208
Tachnak	2	0.0000	0.0208
Baath	2	0.0000	0.0208
Solidarity Party	1	0.0000	0.0105
Farhat, B. (Indep.)	1	0.0000	0.0105
Tripoli Solidarity Bloc	2	0.0000	0.0208
Al-Murr, M. (Indep.)	1	0.0000	0.0105
Total	128	1.0000	1.4158

The results of the dissolution of M8 on the party level for the M14 members are displayed

in Table 11 (Appendix). Investigating the power effect on each member of M14 it turns out that not only M14 as a bloc gains power under the 2/3-majority quota, but also that each individual bloc member gains power from the dissolution of M8. Now the internal majority quotas from $q = 40$ to $q = 49$ ensure an increase of power of all individual bloc members compared to a situation without bloc formation. The quota $q = 45$ still maximizes the total gain of M14 under the 2/3-majority quota in parliament. Moreover, while before - under the presence of M8 - all bloc members of M14 except the two largest members of M14 were suffering from bloc formation under the quota of $q = 45$, they are now all gaining power from the existence of M14. It has now become an expedient bloc.

4.4 Confessional Power in the Lebanese Parliament Under Bloc Formation on the Party Level

Having previously investigated the stability of bloc formation on the party level, in this section we draw our attention on the power implications of the bloc formation on the confessional level. For both blocs we analyze the power effects under different internal majority quotas on the party level, i.e., simple, 2/3-, and 3/4-majority as well as the previously identified ‘optimal’ quotas. The effect on the confessional power under the existence of M8 and M14 is displayed by Table 12 (Appendix). It compares the confessional power with bloc formation with the corresponding results without bloc formation, as given by Table 2 and Table 3. The following observations can be made: applying the ‘optimal’ quotas on the party level in both blocs, the Muslims slightly gain from the bloc formation (+ 0.0312) under the 2/3-majority rule in parliament, while under the simple majority rule in parliament they suffer from the strongest negative effect observed under all scenarios (- 0.6152). Instead the Christians suffer more or less equally under both majority rules (- 0.1465 under simple and - 0.1489 under 2/3-majority). The results are somehow similar or even worse for the other scenarios. With one exception, both religious groups suffer from bloc formation. The only exception is the case where the simple majority rule is applied as the internal majority quota in both blocs. In this case the Christians slightly benefit under simple majority in parliament (+ 0.0283). Thus, overall, also for the two religious groups, the co-existence of the two blocs is not advantageous. Shifting our focus to the sectarian level, it is worthwhile to notice that in most cases under simple majority, in particular, the smaller sectarian subgroups gain from the bloc formation, while the effect on the two largest sectarian subgroups for both blocs varies.

As our results in Section 4.3 have shown that M8 is inexpedient, Table 13 (Appendix) displays the results after the dissolution of M8 on the confessional level and Table 14 (Appendix) displays the power effects compared to the existing situation with M8 as given by Table 12. Given that after the dissolution of M8 the M14 bloc is still all powerful under the simple majority rule in parliament, there is also no effect on the confessional level. However, under the 2/3-majority rule in parliament effects can be identified in the case of simple majority or the ‘optimal’ quotas were applied as internal bloc quotas on the party level inside the blocs. In both cases, the Muslims suffer from the dissolution of M8 while the Christians gain from it. In particular, on the sectarian level, all Muslim sectarian subgroups suffer from it with one exception: there is no effect on Alawites being the smallest sectarian subgroup among the Muslims. Instead under the Christian sectarian subgroups the Maronites being the largest and most powerful sectarian subgroup in parliament without bloc formation gains from the dissolution of M8. Instead the Greek Orthodox and Greek Catholics, being the second and third largest and powerful Christian sectarian subgroups in parliament without bloc formation, suffer from the disappearance of M8.

Thus, while before with the existence of M8 they gain power from bloc formation, they are now worse off than without bloc formation sharing the fate of the other smaller Christian sectarian groups under bloc formation if the 2/3-majority rule is applied in parliament.

5 Concluding remarks

In the current paper we studied the confessional and party related distribution of power in the Lebanese Parliament. We began with the Pre-Taif composition of the parliament characterized by a 6:5 ratio in favor of the Christians. For this composition we obtained the expected result that the Christians are more powerful than the Muslims, even we found an instance of the Paradox of Redistribution on the sectarian subgroup level. In the face of the demographic changes in Lebanon which led to Muslim majority in the population, under the Taif Agreement Christians accepted an equal split of the parliamentary seats between Christians and Muslims. However, our results demonstrate that under the simple majority rule in parliament this resulted in a reversal of the power relations, i.e., the Muslims became more powerful than the Christians. Regarding the 2/3-majority rule the Christians remained to be more powerful than the Muslims, but faced a significant loss of power while Muslims significantly gained power. Afterwards we addressed the effects of the new electoral law, which for the elections from 2022 onwards sticks to equal distribution of seats between Christians and Muslims, but aims to strengthen the relative position of the larger Muslim sectarian subgroups while weakening the relative position of the major Christian subgroups. We demonstrated that in terms of power the implementation of the new electoral law achieves this aim from 2022 onwards. Moreover, we showed that both Muslims and Christians, as a group gain power from 2022 onwards, while the benefit for the Muslims is overall significantly larger than for the Christians. We found that, overall, moving from the Pre-Taif to the Taif & 2018 distribution of seats the total power of Christians decreases and slightly increases again from Taif & 2018 to the 2022 onwards distribution without reaching its initial level. Concerning the Muslims, we found that the total power for Muslims increases from Pre-Taif to Taif & 2018, but also from Taif & 2018 to 2022 onwards.

In the subsequent part of the paper we put our attention on the power of the parties in present parliament. The political situation of the parties in the parliament is characterized by the existence of two large blocs. We showed that in terms of power it is infeasible for both blocs to be overall expedient, i.e., that there do not exist any internal decision rules for both blocs such that all members of both blocs benefit from their bloc membership under both decision rules applied in parliament. However, we were able to identify 'optimal' internal majority quotas for both blocs and both majority rules in parliament. In case of M14 we even obtained a quota which makes the bloc *ceteris paribus* expedient in terms of the commonly more important simple majority rule in parliament. However, in case of the 2/3-majority rule in parliament and in case of M8 we were only able to identify internal quotas which reduce the total loss of power of the bloc to a minimum. Taking into account this insight we investigated the effect of a dissolution of M8 on M14. Assuming that no new alternative bloc would be formed, we found that now some quotas exist which make M14 even expedient under the 2/3-majority rule in parliament with the formal optimal internal majority quota remaining to be optimal, but now ensuring that all M14 members also gain from their bloc membership under the 2/3-majority rule in parliament. Finally, we studied the effect of the bloc formation on the confessional power in the parliament. We demonstrated that for the Christians and Muslims the existence of the two blocs is not advantageous.

Our results on the stability of the bloc formation are somehow in line and might even explain the current situation of the blocs in Lebanon. Even they are, currently, officially still existing, their practical impact and functioning is limited. However, there exist some conjectures why M8 may be still existent. From a confessional perspective we already pointed out earlier that the Muslims suffer over all from the dissolution of M8, while Christians gain from it. Hence, Muslims, forming also the majority in the population, might have no incentive to dissolve M8. Furthermore, it is worthwhile to notice that in the Lebanese government, which consists of 30 ministers, M8 is represented with 17 ministers while only 13 are affiliated with M14. This reverses the distribution of power among both blocs in government compared to the situation in the parliament: while in parliament M14 is all powerful under the simple majority rule, for the government this is M8. Thus, in some sense the *status quo* ensures a kind of balance of power between both blocs.²⁰

References

- J. F. Banzhaf. Weighted voting doesn't work: A mathematical analysis. *Rutgers Law Review*, 19(2):317–343, 1965.
- S.J. Brams. *Game theory and politics*. The Free Press, New York, 1975.
- M. Diss and A. Zouache. Une étude de la répartition du pouvoir confessionnel au Liban. *Revue d'économie politique*, 125:527–546, 2015.
- J. Dreyer and A. Schotter. Power relationship in the international monetary fund: The consequences of quota changes. *Review of Economics and Statistics*, 62:97–106, 1980.
- P. Dubey and L.S. Shapley. Mathematical properties of the Banzhaf power index. *Mathematics of Operations Research*, 4:99–131, 1979.
- A.A. Ekmekji. Confessionalism and electoral reform in Lebanon. Technical report, Aspen Institute and Lebanon Renaissance Foundation, 2012.
- D.S. Felsenthal and M. Machover. Postulates and paradoxes of relative voting power - a critical re-appraisal. *Theory and Decision*, 38:195–229, 1995.
- D.S. Felsenthal and M. Machover. *The Measurement of Voting Power: Theory and Practice, Problems and Paradoxes*. Edward Elgar, Cheltenham, 1998.
- D.S. Felsenthal and M. Machover. Annexations and alliances: When are blocs advantageous a priori? *Social Choice and Welfare*, 19:295–312, 2002a.
- D.S. Felsenthal and M. Machover. *The Whole and the Sum of its Parts*, pages 279–291. In: Holler, M.J. et al. (eds) *Jahrbuch Fur Neue Politische Okonomie: Power and Fairness*, 2002b.
- D.S. Felsenthal and M. Machover. *Further Reflections on the Expediency and Stability of Alliances*, pages 39–55. In: Braham, M. and Steffen, F. (eds) *Power, Freedom, and Voting*, Springer, 2008.

²⁰Note that while both blocs claim merely similar policy on domestic issues, the sharpest distinction between the blocs is their foreign policy issues (Nelson, 2013; Sensenig-Dabbous, 2009): M14 represents a large religiously diverse portion of Lebanese society which prefers to see Lebanon's national sovereignty respected by its neighbours, while M8 represents a proportion of the Lebanese population which prefers to continue close ties with the Muslim Assad regime in Syria.

- D. Fischer and A. Schotter. The paradox of redistribution in the allocation of voting weights. *Public Choice*, 33:49–67, 1978.
- H.R. Harré and E.H. Madden. *Causal powers*. Oxford, GB: Blackwell, 1975.
- S. Haugbolle. *War and Memory in Lebanon*. Cambridge University Press, 2010.
- C. Koch. *The Separation of Power in a Fragmented State: The Case of the Lebanon*, pages 387–402. In: Grote, R. and Roder, T.J. (eds) *Constitutionalism in Islamic Countries*, Oxford University Press, 2012.
- S. Makdisi and R. Sadaka. The lebanese civil war. *Lecture and Working Paper Series, Institute of Financial Economics : American University of Beirut*, pages 1–53, 2003.
- P. Morriss. *Power: a philosophical analysis*. Manchester University Press, 2002.
- T. Najem. *Lebanon: The Politics of a Penetrated Society*. Routledge, 2012.
- S. Nelson. Is lebanon’s confessional system sustainable? *Journal of Politics & International Studies*, 9:332–387, 2013.
- L. Penrose. The elementary statistics of majority voting. *Journal of the Royal Statistical Society*, 109(1):53–57, 1946.
- I. Salamey. *Government and Politics of Lebanon*. Routledge, 2014.
- A. Schotter. *The Paradox of Redistribution: Some Theoretical and Empirical Results*, pages 324–338. In: Holler, M.J. (ed) *Power, Voting, and Voting Power*, Physica-Verlag, Würzburg (Germany), 1981.
- E. Sensenig-Dabbous. The lebanese political party system. Technical report, Middle East Political and Economic Institute, 2009.
- L.S. Shapley. Simple games: An outline of the descriptive theory. *Behavioral Science*, 7: 59–66, 1962.
- L.S. Shapley and M. Shubik. A method for evaluating the distribution of power in a committee system. *American Political Science Review*, 48:787–792, 1954.
- A.D. Taylor and W.S. Zwicker. *Simple Games: Desirability Relations, Trading, Pseudoweightings*. Princeton University Press, Princeton, 1999.
- R. van den Brink and F. Steffen. *Positional power in hierarchies*, pages 57–81. In: M. Braham and F. Steffen (eds), *Power, freedom, and voting*, Springer Berlin Heidelberg, 2008.

Appendix

Table 10: Power Changes After Bloc Formation for Bloc Members After 2009 Elections.

Party/Independent	Seats	Power Changes Under Simple Majority in Parliament										Power Changes Under 2/3-Majority in Parliament									
		q=35 (SM)	q=38	q=43	q=44	q=45	q=46 (2/3-QM)	q=51 (3/4-QM)	q=35 (SM)	q=38	q=43	q=44	q=45	q=46 (2/3-QM)	q=51 (3/4-QM)						
March 14 Bloc																					
Future Movement	26	0.3291	0.2893	0.1267	0.0843	0.0396	-0.0068	-0.2409	0.1609	0.1410	0.0597	0.0385	0.0162	-0.0070	-0.1241						
Progressive Socialist Party	11	-0.1158	-0.0760	0.0626	0.0840	0.0995	0.1092	0.0840	-0.0855	-0.0656	0.0037	0.0144	0.0221	0.0270	0.0144						
Lebanese Forces	8	-0.0588	-0.0229	0.0326	0.0322	0.0299	0.0271	0.0322	-0.0458	-0.0279	-0.0001	-0.0003	-0.0015	-0.0028	-0.0003						
Kataeb	5	-0.0046	-0.0046	-0.0064	0.0081	0.0257	0.0415	0.0081	-0.0170	-0.0170	-0.0179	-0.0107	-0.0019	0.0060	-0.0107						
Zahle Bloc	3	0.0039	-0.0111	0.0069	0.0102	0.0133	0.0163	0.0102	-0.0065	-0.0140	-0.0050	-0.0034	-0.0018	-0.0003	-0.0034						
Hanchak	2	0.0004	-0.0054	0.0045	0.0071	0.0091	0.0105	0.0071	-0.0054	-0.0083	-0.0034	-0.0021	-0.0011	-0.0004	-0.0021						
National Entente Bloc	2	0.0004	-0.0054	0.0045	0.0071	0.0091	0.0105	0.0071	-0.0054	-0.0083	-0.0034	-0.0021	-0.0011	-0.0004	-0.0021						
National Liberal Party	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Ramgavar	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Jamaa Islamiya	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Democratic Left Movement	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Pharaon, M. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Tuoni, N. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Salam, T. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Kabbara, M. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Fadel, R. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Harb, B. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Ghanem, R. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	-0.0028	-0.0040	-0.0017	-0.0011	-0.0006	-0.0002	-0.0011						
Total	68	0.1548	0.1365	0.2553	0.2711	0.2756	0.2655	-0.0541	-0.0355	-0.0446	0.0147	0.0227	0.0249	0.0199	-0.1400						
March 8 Bloc																					
Power Changes Under Simple Majority in Parliament																					
Party/Independent	Seats	q=29 (SM)	q=31	q=34	q=35	q=38 (2/3-QM)	q=40	q=43 (3/4-QM)	q=29 (SM)	q=31	q=34	q=35	q=38 (2/3-QM)	q=40	q=43 (3/4-QM)						
Free Patriotic Movement	19	-0.3594	-0.3594	-0.3594	-0.3594	-0.3594	-0.3594	-0.3594	0.0441	0.0587	0.0968	0.0949	0.0275	-0.0409	-0.1034						
Amal	13	-0.2486	-0.2486	-0.2486	-0.2486	-0.2486	-0.2486	-0.2486	0.2168	0.0465	0.0026	-0.0052	-0.0120	-0.0140	-0.0257						
Hizbollah	12	-0.2275	-0.2275	-0.2275	-0.2275	-0.2275	-0.2275	-0.2275	0.2168	0.0588	0.0051	-0.0105	-0.0349	-0.0349	-0.0232						
Marada	3	-0.0552	-0.0552	-0.0552	-0.0552	-0.0552	-0.0552	-0.0552	-0.0068	-0.0038	-0.0029	0.0011	0.0255	0.0157	-0.0253						
Lebanese Democratic Party	2	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0025	-0.0035	-0.0006	0.0033	0.0141	0.0082	-0.0152						
Syrian Social Nationalist Party	2	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0025	-0.0035	-0.0006	0.0033	0.0141	0.0082	-0.0152						
Tachnak	2	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0025	-0.0035	-0.0006	0.0033	0.0141	0.0082	-0.0152						
Baath	2	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0368	-0.0025	-0.0035	-0.0006	0.0033	0.0141	0.0082	-0.0152						
Solidarity Party	1	-0.0184	-0.0184	-0.0184	-0.0184	-0.0184	-0.0184	-0.0184	-0.0022	-0.0013	-0.0003	0.0017	0.0066	0.0046	-0.0071						
Farhat, B. (Indep.)	1	-0.0184	-0.0184	-0.0184	-0.0184	-0.0184	-0.0184	-0.0184	-0.0022	-0.0013	-0.0003	0.0017	0.0066	0.0046	-0.0071						
Total	57	-1.0745	-1.0745	-1.0745	-1.0745	-1.0745	-1.0745	-1.0745	0.4564	0.1438	0.0989	0.0969	0.0755	-0.0320	-0.2527						

Table 11: Power Changes for Bloc Members of March 14 After 2009 Elections (Without Existence of March 8).

Party/Independent	Seats	Power Changes Under Simple Majority in Parliament							Power Changes under 2/3-Majority in Parliament						
		q=35 (SM)	q=38	q=43	q=44	q=45	q=46 (2/3-QM)	q=51 (3/4-QM)	q=35 (SM)	q=38	q=43	q=44	q=45	q=46 (2/3-QM)	q=51 (3/4-QM)
Future Movement	26	0.3291	0.2893	0.1287	0.0843	0.0396	-0.0068	-0.2409	0.4664	0.4332	0.2971	0.2616	0.2242	0.1854	-0.0105
Progressive Socialist Party	11	-0.1158	-0.0760	0.0626	0.0840	0.0995	0.1092	0.0840	-0.0543	-0.0211	0.0950	0.1129	0.1258	0.1339	0.1129
Lebanese Forces	8	-0.0588	-0.0229	0.0326	0.0322	0.0299	0.0271	0.0322	-0.0147	0.0154	0.0619	0.0615	0.0596	0.0573	0.0615
Kataeb	5	-0.0046	-0.0046	-0.0064	0.0081	0.0257	0.0415	0.0081	0.0124	0.0125	0.0109	0.0231	0.0378	0.0511	0.0231
Zahle Bloc	3	0.0039	-0.0111	0.0069	0.0102	0.0133	0.0163	0.0102	0.0133	0.0009	0.0159	0.0186	0.0213	0.0237	0.0186
Hanchak	2	0.0004	-0.0054	0.0045	0.0071	0.0091	0.0105	0.0071	0.0071	0.0022	0.0105	0.0127	0.0144	0.0156	0.0127
National Entente Bloc	2	0.0004	-0.0054	0.0045	0.0071	0.0091	0.0105	0.0071	0.0071	0.0022	0.0105	0.0127	0.0144	0.0156	0.0127
National Liberal Party	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Rangavar	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Jamaa Islamiya	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Democratic Left Movement	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Pharson, M. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Tueni, N. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Salam, T. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Kabbara, M. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Fadel, R. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Harb, B. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Ghanem, R. (Indep.)	1	0.0000	-0.0025	0.0022	0.0035	0.0045	0.0052	0.0035	0.0034	0.0013	0.0052	0.0063	0.0071	0.0077	0.0063
Total	68	0.1548	0.1365	0.2553	0.2711	0.2756	0.2655	-0.0541	0.4749	0.4596	0.5589	0.5722	0.5759	0.5675	0.3001

Table 12: Power Changes After Bloc Formation for Confessions After 2009 Elections.

Confession	Seats	Power Changes Under Simple Majority in Parliament				Power Changes Under 2/3-Majority in Parliament			
		Internal Quotas March 14				Internal Quotas March 14			
		q=35	q=45	q=46	q=51	q=35	q=45	q=46	q=51
		SM	opt. party quota	2/3-QM	3/4-QM	SM	opt. party quota	2/3-QM	3/4-QM
				Internal Quotas March 8					
		q=29	q=29	q=38	q=43	q=29	q=29	q=38	q=43
		SM	opt. party quota	2/3-QM	3/4-QM	SM	opt. party quota	2/3-QM	3/4-QM
Maronite	34	-0.2022	-0.2031	-0.2061	-0.2598	-0.1036	-0.1040	0.0351	0.0083
Greek Orthodox	14	0.2100	0.0410	0.0381	0.0742	0.0362	-0.0483	-0.0966	-0.0786
Greek Catholic	8	-0.0068	-0.0078	-0.0108	-0.0488	0.0273	0.0268	-0.0645	-0.0718
Armenian Orthodox	5	0.0068	0.0058	0.0029	-0.0215	-0.0097	-0.0102	-0.0117	-0.0239
Armenian Catholic	1	0.0068	0.0059	0.0049	-0.0039	-0.0039	-0.0044	-0.0049	-0.0093
Protestants	1	0.0068	0.0059	0.0049	-0.0039	-0.0039	-0.0044	-0.0049	-0.0093
Other Christian Groups	1	0.0068	0.0059	0.0049	-0.0039	-0.0039	-0.0044	-0.0049	-0.0093
Total Christians	64	0.0283	-0.1465	-0.1611	-0.2676	-0.0615	-0.1489	-0.1523	-0.1938
Sunnite	27	0.2413	-0.3457	0.0635	-0.1132	0.1270	-0.1665	-0.0400	-0.1284
Shia	27	-0.3447	-0.2929	-0.3486	-0.3730	0.1465	0.1724	0.0039	-0.0083
Druze	8	0.0224	0.0215	0.0185	-0.0410	0.0419	0.0415	-0.0381	-0.0679
Alawite	2	0.0030	0.0020	-0.0009	-0.0097	-0.0156	-0.0161	-0.0176	-0.0220
Total Muslims	64	-0.0781	-0.6152	-0.2676	-0.5371	0.2998	0.0312	-0.0918	-0.2266

Table 13: Power Changes After Bloc Formation for Confessions After 2009 Elections (Without Existence of March 8).

Confession	Seats	Power Changes Under Simple Majority in Parliament					Power Changes Under 2/3-Majority in Parliament						
		Internal Quotas March 14					Internal Quotas March 14						
		q=35	q=45	q=46	q=51	q=35	q=45	q=46	q=51	q=35	q=45	q=46	q=51
		SM	Opt. Party Quota	2/3-QM	3/4-QM	SM	Qpt. Party Quota	2/3-QM	3/4-QM	SM	Qpt. Party Quota	2/3-QM	3/4-QM
Maronite	34	-0.2022	-0.2031	-0.2061	-0.2598	0.0371	0.0366	0.0351	0.0083	0.0371	0.0366	0.0351	0.0083
Greek Orthodox	14	0.2100	0.0410	0.0381	0.0742	-0.0107	-0.0952	-0.0966	-0.0786	-0.0107	-0.0952	-0.0966	-0.0786
Greek Catholic	8	-0.0068	-0.0078	-0.0108	-0.0488	-0.0508	-0.0513	-0.0645	-0.0718	-0.0508	-0.0513	-0.0645	-0.0718
Armenian Orthodox	5	0.0068	0.0058	0.0029	-0.0215	-0.0097	-0.0102	-0.0117	-0.0239	-0.0097	-0.0102	-0.0117	-0.0239
Armenian Catholic	1	0.0068	0.0059	0.0049	-0.0039	-0.0039	-0.0044	-0.0049	-0.0093	-0.0039	-0.0044	-0.0049	-0.0093
Protestants	1	0.0068	0.0059	0.0049	-0.0039	-0.0039	-0.0044	-0.0049	-0.0093	-0.0039	-0.0044	-0.0049	-0.0093
Other Christian Groups	1	0.0068	0.0059	0.0049	-0.0039	-0.0039	-0.0044	-0.0049	-0.0093	-0.0039	-0.0044	-0.0049	-0.0093
Total Christians	64	0.0283	-0.1465	-0.1611	-0.2676	-0.0458	-0.1333	-0.1523	-0.1938	-0.0458	-0.1333	-0.1523	-0.1938
Sunnite	27	0.2413	-0.3457	0.0635	-0.1132	0.0488	-0.2446	-0.0400	-0.1284	0.0488	-0.2446	-0.0400	-0.1284
Shia	27	-0.3447	-0.2929	-0.3486	-0.3730	0.0059	0.0317	0.0039	-0.0083	0.0059	0.0317	0.0039	-0.0083
Druze	8	0.0224	0.0215	0.0185	-0.0410	-0.0362	-0.0367	-0.0381	-0.0679	-0.0362	-0.0367	-0.0381	-0.0679
Alawite	2	0.0030	0.0020	-0.0009	-0.0097	-0.0156	-0.0161	-0.0176	-0.0220	-0.0156	-0.0161	-0.0176	-0.0220
Total Muslims	64	-0.0781	-0.6152	-0.2676	-0.5371	0.0029	-0.2657	-0.0918	-0.2266	0.0029	-0.2657	-0.0918	-0.2266

Table 14: Power Differences After Bloc Formation for Confession After 2009 Elections (Effect of Dissolving March 8).

Confession	Seats	Power Differences Under Simple Majority in Parliament						Power Differences Under 2/3-Majority in Parliament									
		Internal Quotas March 14						Internal Quotas March 14									
		q=35	q=45	q=46	q=51	SM	Opt. Party Quota	2/3-QM	3/4-QM	q=35	q=45	q=46	q=51	SM	Opt. Party Quota	2/3-QM	3/4-QM
Maronite	34	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Greek Orthodox	14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0469	0.0000	0.0000	0.0000
Greek Catholic	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0781	0.0000	0.0000	0.0000
Armenian Orthodox	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Armenian Catholic	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Protestants	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Christian Groups	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Christians	64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0156	0.0156	0.0000	0.0000
Sunnite	27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0781	-0.0781	0.0000	0.0000
Shia	27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.1406	-0.1406	0.0000	0.0000
Druze	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0781	-0.0781	0.0000	0.0000
Alawite	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Muslims	64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.2969	-0.2969	0.0000	0.0000