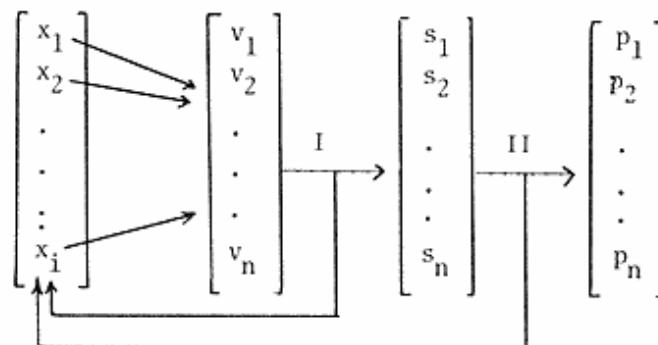# Research Note

The Distribution of Power in the Scandinavian Parliaments *

Markku Laakso, University of Helsinki

1. Introduction

Representative democracy ideally requires that the strength of every opinion in the representative assembly should be proportional to its share of popular support. The *electoral system* can be defined as a *transformation system* which converts parties' votes into parliamentary seats. By studying this transformation process we analyse the *proportionality* of elections. But the political system contains another important transformation process. The *decision-making system* in a parliament transforms parties' seats into certain 'power values' (Laakso 1980). To make decisions is to form coalitions. The coalition formation process means that parties' possibilities to influence decision-making are not equal to their number of seats. To increase the number of seats is to increase the decision-making capacity, but this relationship is not linear.

The study of 'power' in a parliament presupposes that the two transformation processes mentioned above have been taken into account. Let the vote, seat and power shares of parties $A_1, A_2, \ldots, A_n$ be $v_1, v_2, \ldots, v_n$; $s_1, s_2, \ldots, s_n$ and $p_1, p_2, \ldots, p_n$ respectively. Now the transformation processes can be identified as follows:
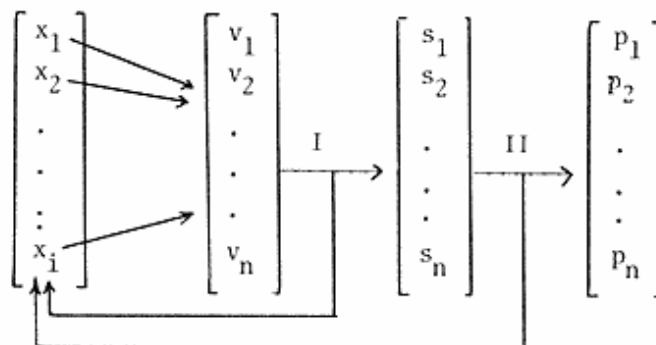
Research Note

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Representative democracy ideally requires that the strength of every opinion in the representative assembly should be proportional to its share of popular support. The *electoral system* can be defined as a *transformation system* which converts parties' votes into parliamentary seats. By studying this transformation process we analyse the *proportionality* of elections. But the political system contains another important transformation process. The *decision-making system* in a parliament transforms parties' seats into certain 'power values' (Laakso 1980). To make decisions is to form coalitions. The coalition formation process means that parties' possibilities to influence decision-making are not equal to their number of seats. To increase the number of seats is to increase the decision-making capacity, but this relationship is not linear.

The study of 'power' in a parliament presupposes that the two transformation processes mentioned above have been taken into account. Let the vote, seat and power shares of parties $A_1, A_2, \ldots, A_n$ be $v_1, v_2, \ldots, v_n$; $s_1, s_2, \ldots, s_n$ and $p_1, p_2, \ldots, p_n$ respectively. Now the transformation processes can be identified as follows:

There are several factors (denoted by $x_1, \ldots, x_n$) which influence the support of different parties. These variables are, however, excluded from this analysis. The denotion 'I' symbolises the electoral system which transforms parties' vote shares $(v_1, v_2, \ldots, v_n)$ into their seat shares $(s_1, s_2, \ldots, s_n)$ in a parliament. The second transformator is the decision-making system (denoted by 'II') which in turn transforms parties' seat shares $(s_1, s_2, \ldots, s_n)$ into their 'power' shares $(p_1, p_2, \ldots, p_n$. The transformation systems (I and II), on the other hand, are factors influencing parties' support in elections. For example, the additional seats system gives small parties an opportunity to succeed in elections; the vote-threshold, again, weakens their position. These components of an electoral system certainly influence the voter's decision to support a certain party. In the same way the decision-making system may favour certain parties in parliament and influence their electoral success.

The factors influencing the parties' power shares in the model are the parties' vote shares $(v_1, v_2, \ldots, v_n)$, the electoral system, the parties' seat shares $(s_1, s_2, \ldots, s_n)$ and the decision-making system. The relationship between parties' vote and seat shares determines the *proportionality of elections*. The exact proportionality holds if, and only if, for all the n parties

$$v_i = s_i$$

The relationship between parties' seat shares $(s_1, \ldots, s_n)$ and power shares $(p_1, \ldots, p_n)$ has no well-established meaning. We may call this relationship the *equivalence of power*. Perfect equivalence presupposes that for all the n parties

$$s_i = p_i$$

Finally, we can speak of the *justice of elections*, when considering the relationship between parties' vote and power shares (for details, see Laakso 1980). If, for every party

$$v_i = p_i$$

then we can speak of the exact justice of elections.

The power structure of a parliament depends on the proportionality of elections, the equivalence of power and the justice of elections if we use the basic model presented above. In this article the power structure of parliaments is analysed in the Scandinavian countries. These countries form a homogenous area which has some common historical, cultural and political experience. The Scandinavian countries are the only geographical area in the Western Europe which allows comparison using the variables critical to our analysis; all the Nordic countries have both a proportional electoral system and a multi-party system.

2. Empirical Data and Methods

The empirical data consist of all the elections after the First World War in the five Scandinavian countries. It is necessary to take into account the main changes in

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the electoral system, and therefore the empirical data have been divided into different periods which are presented in Table I:

Table I. The development of the electoral system in the five Scandinavian countries: the time period, the number of elections and the characteristics of the electoral systems.

	number of elections	characteristics of the electoral system
DENMARK		
1920–53	14	d'Hondt & the adjustment seats system (32 seats)
1953–75	9	the mod. Sainte Lague & the adjustment seats system (40 seats) with a 2% vote threshold
FINLAND		
1919–75	19	d'Hondt & electoral alliances
ICELAND		
1927–59	12	d'Hondt & plurality and the adjustment seats system
1959–74	5	d'Hondt & the adjustment seats system
NORWAY		
1921–27	3	d'Hondt
1930–49	5	d'Hondt & electoral alliances (listeforbund)
1953–1973	6	the mod. Sainte Lague; electoral alliances forbidden
SWEDEN		
1920–48	9	d'Hondt & electoral cartells
1952–68	6	the mod. Sainte Lague
1970–76	3	the mod. Sainte Lague & the adjustment seats system (39 seats) with a 4% vote threshold

'Power', and its measurability, is one of the most elusive concepts of political science. The earliest index of potential power in decision-making is that defined by Shapley and Shubik (1954). The simplest form of the Shapley power index $\emptyset_i$ for the i-th party is

$$\emptyset_i = \frac{r_i}{n!}$$

where r_i is the number of permutations in which the i-th party is pivotal in changing a minority into a majority, and n! is the number of all possible permutations of n parties. The index values add up to unity by definition.

Some years ago Banzhaf and Coleman presented their measures of power which

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have aroused wide attention (Banzhaf 1965 and 1968, Coleman 1971). Measurement-theoretical investigations have revealed some unfavourable properties in all the measures presented so far. Nurmi has shown that none of the indices mentioned can be considered a measure of power, as they do not satisfy the condition of an additive measure (Nurmi 1978). Compared with the Shapley and Banzhaf indices, the Coleman index has some unfavourable properties (for details, see Nurmi 1978).

It is difficult to choose an appropriate index on the basis of theoretical results. The choice has to be based on other criteria. In an earlier study (Laakso 1978), I have shown that the Banzhaf index gives values against 'common sense' when considering parties' situation on different decision rules. Because the decision rules are in a very central position in measuring the electoral justice of different systems of P.R., it seems justified to select the Shapley index.

The definitions of proportionality, equivalence of power and the justice of elections have only one meaning and the construction of the corresponding index is easily constructed. Thus the *deviation from perfect proportionality* (D) is defined (see Loosemore and Hanby 1971):

$$D = \frac{1}{2} \sum_{i=1}^{n} \left| v_i - s_i \right|$$

The minimum and maximum values of the D index are zero and one respectively.

Analogously, the measures of *equivalence of power* (E) and the *justice of elections* (J) are defined as follows:

$$E = \frac{1}{2} \sum_{i=1}^{n} \left| s_i - p_i \right|$$

$$J = \frac{1}{2} \sum_{i=1}^{n} \left| v_i - p_i \right|$$

The analysis so far is based largely on individual parties, although all the indices presented (D, E and J) are summed up for the whole party system. But how can one take into account the trends in a party system? One way to measure the concentration and fractionalization tendencies is to determine the number of effective parties with the following formula:

$$N = \frac{1}{\displaystyle\sum_{i=1}^{n} x_i^2}$$

where x_i is the fractional share (of votes, of seats or of power) of the i-th party (see Laakso 1977, Laakso and Taagepera 1979: 4–5). The summation covers all n parties which obtain seats or votes. If all shares are equal, N equals the actual number of parties. The Herfindahl-Hirschman concentration index and the Rae and Taylor fractionalization index can readily be converted to N and vice versa (for details, see Laakso and Taagepera 1979:4). Since N can be easily visualized as an effective number of parties, it may tell people more than the more abstract concentration or fractionalization indices, although the information conveyed is exactly the same.

3. Empirical Results

3.1. The macro perspective

Table II presents the proportionality of elections, the equivalence of power, the justice of elections and the effective number of parties in the five Scandinavian countries under different electoral systems.

Table II. The proportionality of elections (D), the equivalence of power (E), the justice of elections (J) and the number of effective parties (N) in the five Scandinavian countries under different electoral systems (mean values)

	(D)	(E)	(J)	(Nv)	(Ns)	(Np)	(Np/Nv)
DENMARK							
1920–53	.020	.132	.136	3.77	3.68	3.23	.857
1953–75	.033	.111	.130	4.59	4.32	3.70	.806
FINLAND							
1919–75	.049	.097	.119	5.04	4.66	4.29	.851
ICELAND							
1927–59	.120	.182	.201	3.48	3.16	2.91	.836
1959–74	.036	.119	.114	3.68	3.51	3.19	.867
NORWAY							
1921–27	.086	.117	.155	4.47	3.98	3.19	.714
1930–49	.081	.245	.308	3.92	3.27	2.32	.592
1953–73	.061	.280	.313	3.78	3.35	1.94	.513
SWEDEN							
1920–48	.054	.222	.184	.3.55	3.21	2.47	.696
1952–68	.036	.214	.134	3.30	3.09	2.38	.721
1970–76	.021	.151	.164	3.52	3.37	2.76	.784

All the electoral systems are quite proportional with the exception of Iceland from 1927 to 1959. The deviation from perfect proportionality is only 2.0–8.6%. Iceland's high disproportionality (12.0%) is explained by her 'mixed' electoral system where the majority rule was also applied. Because the results and interpretation of observations concerning the proportonality of elections in Scan-

dinavia have been presented in another article (Laakso and Taagepera 1978) this analysis is omitted from this paper.

The equivalence values (E) differ markedly from the D index. The results show that parties' power is not equal to their seat shares. Thus it is expected that the justice values (J) clearly exceed the D index. The J index in turn is slightly larger than the E index (exceptions: Iceland 1959–74 and Sweden 1920–68). The three index values are, as we shall see later, explained by the concentration of seats and power to large parties.

Figure 1 is a summary of the results presented in Table II. The D index values show that every change in an electoral system in the Scandinavian countries has been towards greater proportionality. The change in the E and J index is generally in the same direction. However, Norway constitutes an important exception. Both the E and J values for Norway show an increase, although the electoral system has moved towards greater proportionality. This is explained later on the basis of the position of single parties in elections and the decision-making system.

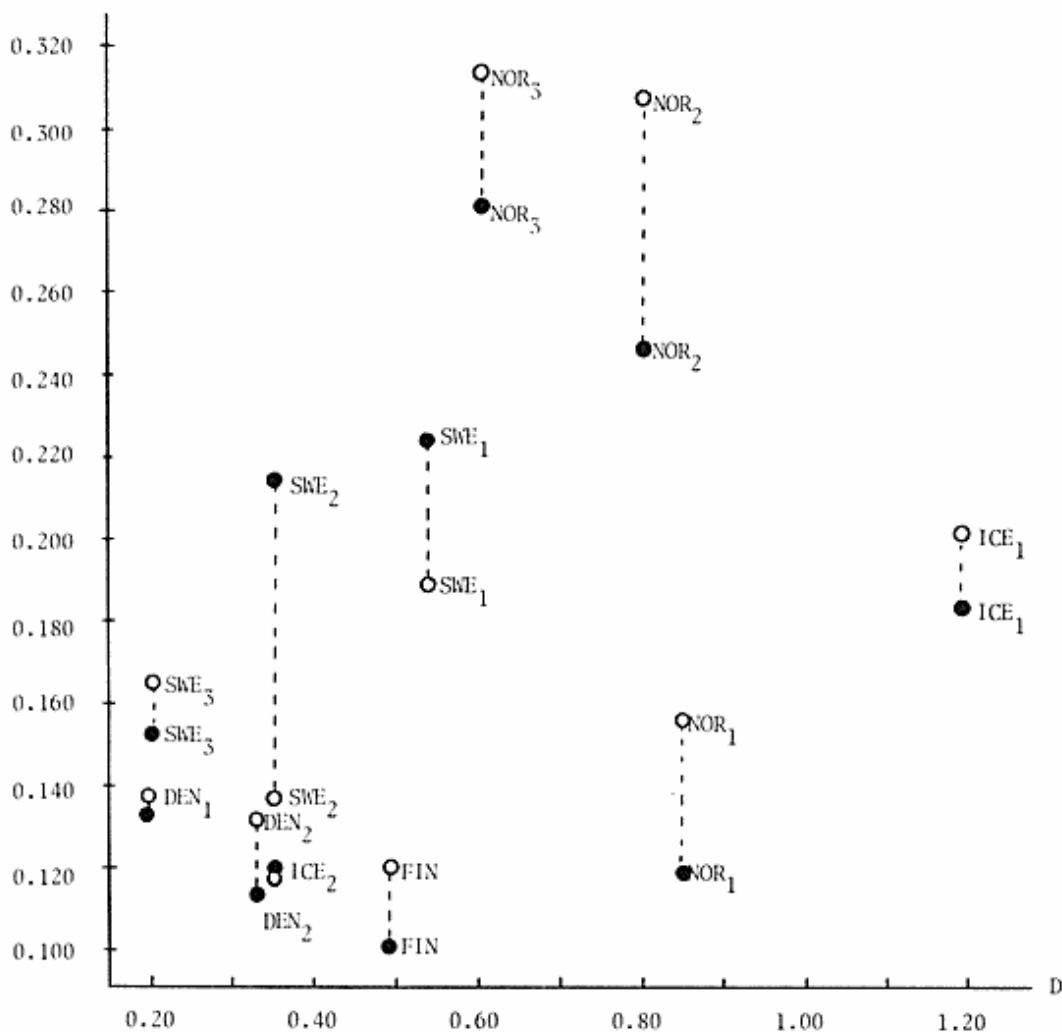Figure 1. The E (●) and J (○) indices as a function of the D index in the Scandinavian countries

Table II and Figure 1 show that high proportionality does not necessarily imply greater justice of the elections nor perfect equivalence of power. There seems to be no correlation between the D index and the J or E indices.

The electoral system applied does not seem to have a systematic effect on the E and J values. As we shall see below, the most important factor in this respect is the structure of the party system. Therefore, the analysis based on the effective number of parties is the necessary following step in explaining the concentration of power in the five Scandinavian countries.

How do changes in electoral systems affect the fragmentation of a party system? The effective number of parties in the five Scandinavian countries is presented in Table II. *Finland* has the most fragmented party system, with about five effective parties at the vote level N_v (mean value). In all the countries considered $N_v > N_s$ and $N_s > N_P$; this demonstrates a clear concentration of seats and power with a few parties. The development especially in *Denmark* and *Iceland* is towards greater fractionalization of the party system at the vote, seat and power level. In *Norway*, on the other hand, this tendency is reversed. The reduction of the effective number of parties is clear in moving from the vote level to the seat level and especially from the seat level to the power level. During the period 1953–73 the number of effective parties decreased by 51 per cent! (from N_v to N_P). This result is explained for the most part by the central position of the Labour Party; twice the party has held a majority of seats, and therefore all the power. In *Sweden* there is no systematic trend of development. However, the reduction in the number of effective parties follows the other four countries: the change from N_s to N_P clearly exceeds the change from N_v to N_s, demonstrating the cumulation of power in the second transformation process (decision-making under the simple-majority rule).

The ratio N_P/N_v describes the concentration of power as compared to the effective number of parties at the vote level. The lower the N_P/N_v ratio, the more fragmented the party system. The N_P/N_v index values correspond to the interpretation presented earlier on the basis of the N_v, N_s and N_P values.

3.2 *The success of parties of the Scandinavian countries under different electoral systems*
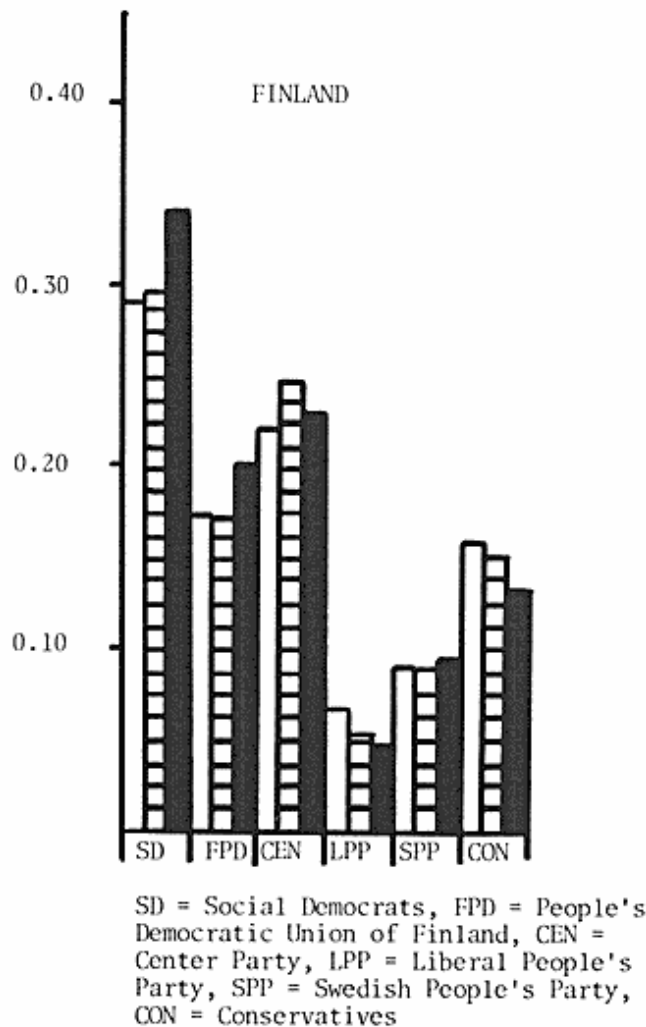
Figure 2 shows the vote, seat and power shares of parties in the five Scandinavian countries under different electoral systems (mean values). Only those parties are considered which have participated in every election during the periods analysed. *Denmark*. The Social Democratic Party has been the largest party during both periods considered. The Social Democrats have also had the largest share of seats and especially of power. This 'largest party effect' also holds true in the other Scandinavian countries. The electoral system also favours the Liberal Party but the second transformation process is non-beneficial: the Liberals' power share is considerably lower than the party's vote share. The Conservative Party has a seat share fairly equal to its vote share, but during the first period (1920–53) the party's power share is markedly larger than its electoral support. However, during the second period (1953–75) the Conservative Party's power share is somewhat lower compared with its vote and seat share. The position of the Radical Liberals has been stable; the party's vote, seat and power share is approximately 10 per cent in both periods.

Figure 2. The vote (□), seat (⊟) and power (■) shares of the most important parties in the Scandinavian countries after World War I under different electoral systems (mean values)

DENMARK

LIB = Liberals, SD = Social Democrats, CON = Conservatives,
RL = Radical Liberals
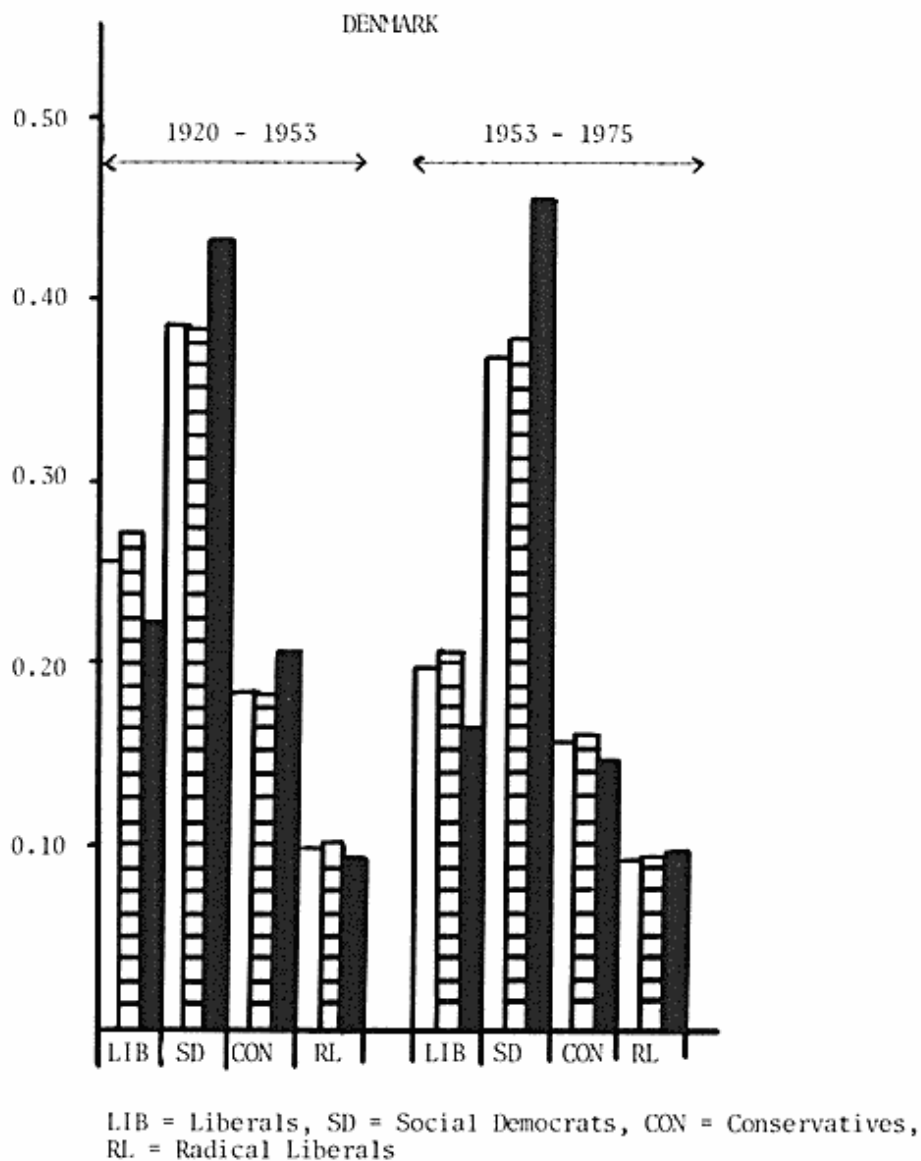
Finland. The main principles of the Finnish electoral system have remained unchanged since the First World War. The Social Democratic Party has also in Finland been the largest party, judged by its vote shares. The electoral system has given a certain bonus to this party, and the decision-making system has been particularly beneficial to the Social Democrats. The Agrarian (since 1965 the Center Party) Party has been in the most favourable position under the electoral system applied. However, the decision-making system has flattened this success. The p_i/v_i ratio for the Center Party, however, is greater than one showing that the party's power share is greater than its vote share. The Liberal Party has been in a very unfavourable position. Their seat share is smaller than their vote and the

Figure 2 (b)

SD = Social Democrats, FPD = People's
Democratic Union of Finland, CEN =
Center Party, LPP = Liberal People's
Party, SPP = Swedish People's Party,
CON = Conservatives

party's power share is also smaller than its seat share. The Conservative Party
shows a similar profile; both the electoral system and the decision-making system
put the party in an unfavourable position. The results for the Communist Party and
the Swedish People's Party resemble each other. These parties' seat and vote
shares differ only slightly from each other, but both parties benefit from the
decision-making system.

Iceland. The electoral system of Iceland during the period from 1927 to 1959 differs
considerably from those of the other Scandinavian countries. Iceland used the
d'Hondt and plurality system with adjustment seats. The proportional electoral
system was taken into use as late as in 1959. The only rule applied thus far is
d'Hondt. The results during the first period (1927–59) are quite difficult to inter-
pret. We see no 'large party effect'. The Independent Party had 41% of votes, but
only 38% of seats and 37% of the power. On the other hand, the Progressive Party
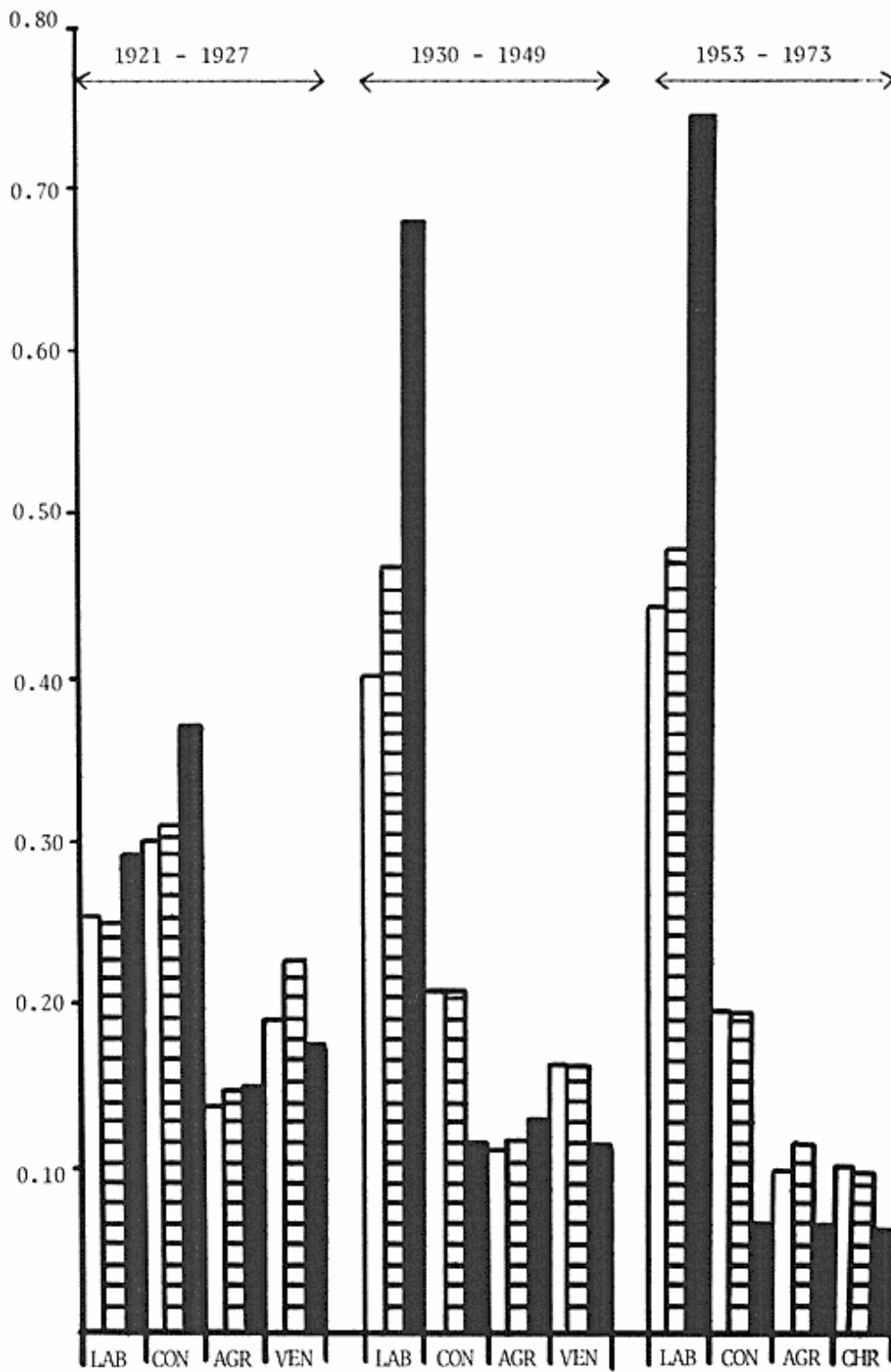
Figure 2 (c)

ICELAND

IP = Indepenence Party, PRO = Progressives,
SD = Social Democrats
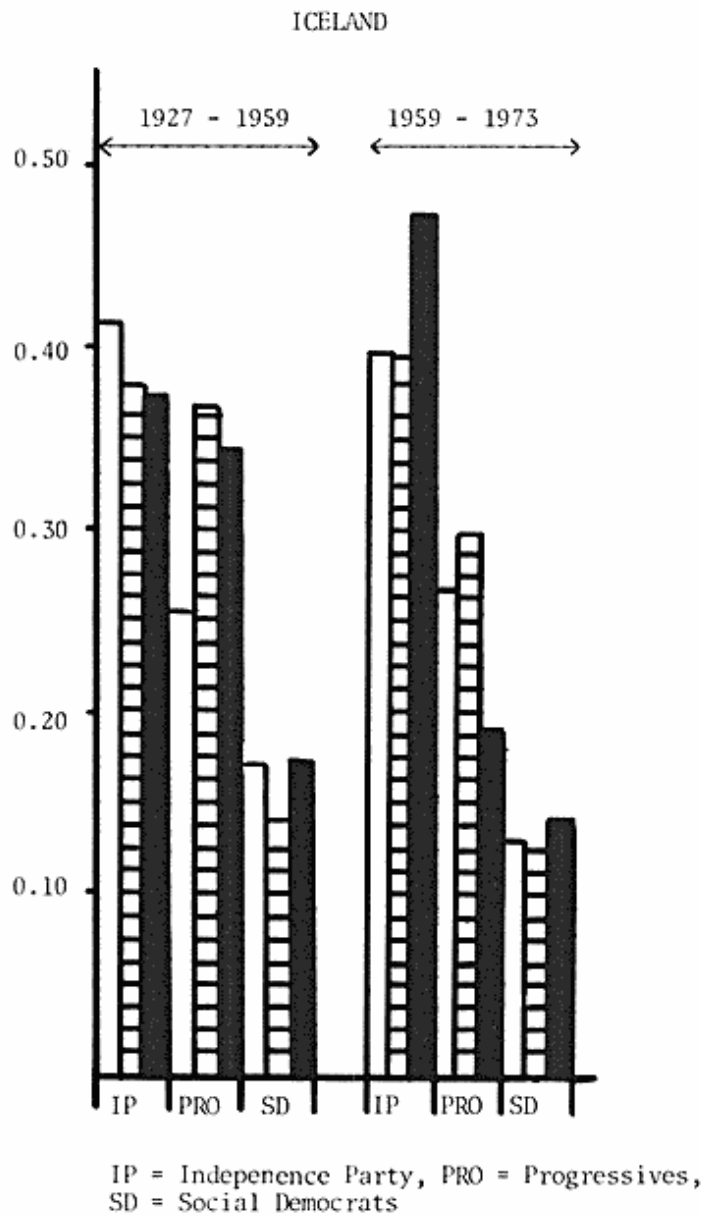
with 25% of the votes had 38% of the seats and 34% of the power. The situation changed markedly during the second period (1959–73). The largest party, the Independent Party, with 40% of the votes, had about 47% of the power. The electoral system to a certain degree favours the Progressives, but the decision-making system places them in a less advantageous position. The Progressives' power share is only 19%, as compared with their vote share of 26%. The Social Democratic Party maintained a stable position during both periods analysed.
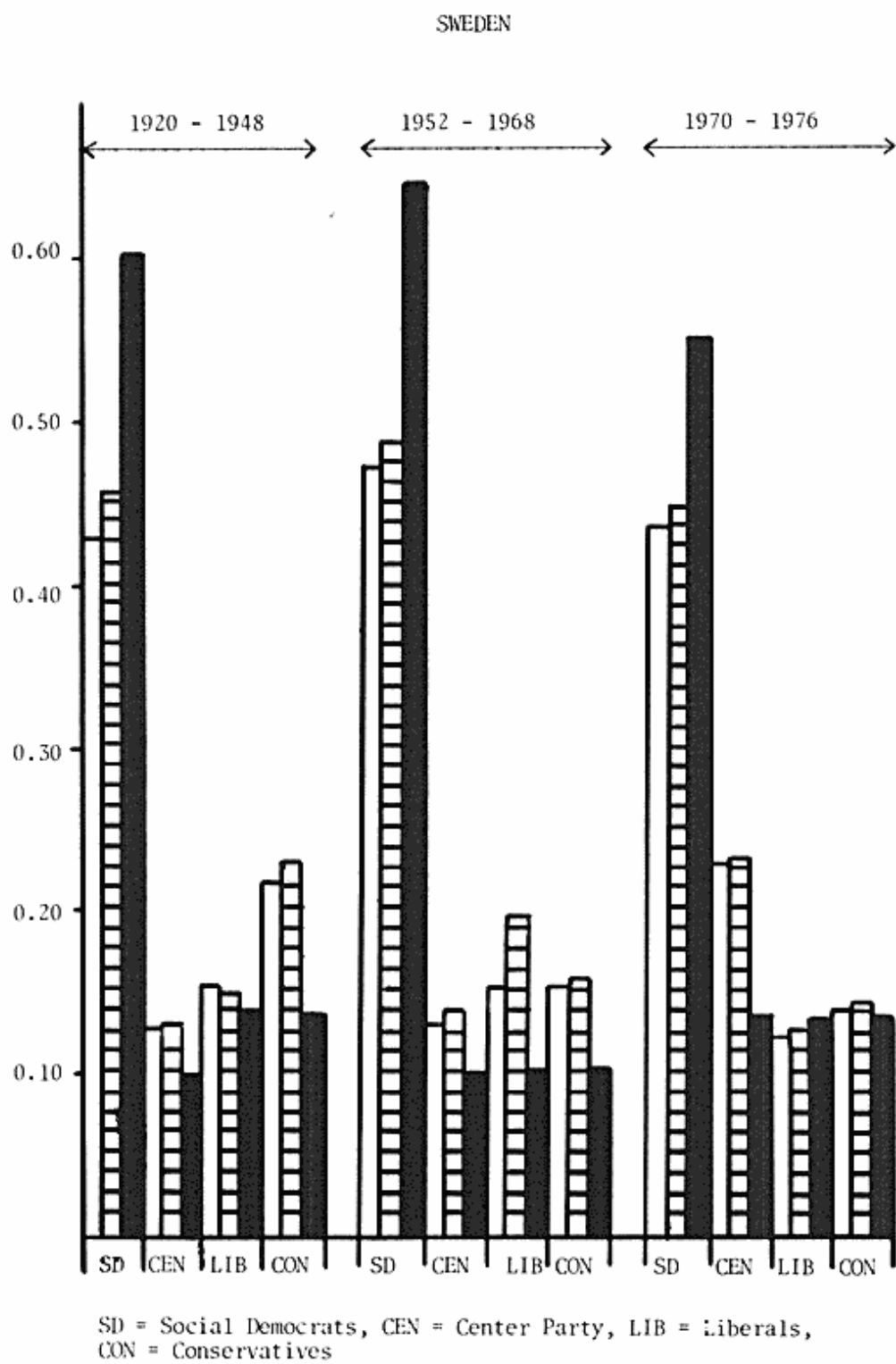
Figure 2 (d)

NORWAY

LAB = Labour Party, CON = Conservatives, AGR = Agrarians,
VEN = Venstre, CHR = Christian People's Party

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Figure 2 (e)

SWEDEN

SD = Social Democrats, CEN = Center Party, LIB = Liberals,
CON = Conservatives

Norway. The Norwegian elections have been divided into three time-periods. The position of the parties seems to be almost the same regardless of the electoral system applied. The largest party always has the largest share of seats and power. The Labour Party has a central position and both the electoral system and especially the decision-making system is very beneficial to this party. During the period 1930–49 Social Democrats, with 40 % of the votes, had as much as 46 % of the seats and 68 % of the power. The Labour Party has strengthened its position during the time-period (1953–73). The party's vote share has been about 44 %, its share of seats 48 % and its power share 74 %. The Conservatives were the leading party from 1921 to 1927 and their vote, seat and power shares show cumulative growth like that of the Social Democrats during the two most recent time-periods. The electoral system has given a slight bonus to the Agrarian Party, but the decision-making system during the third period (1953–73), in turn, has been unfavourable, because the party's power share is only 6 % compared with a vote share of 10 %. The power shares for Venstre and the Christians have also been markedly lower than their vote share presupposes.

Sweden. The Social Democrats have been in a dominant position during the whole iperiod considered (from 1920 to 1976). Their share of seats has been somewhat larger and their power share considerably larger than their vote share. This 'largest party effect' is very clear: with 43–47 % of the votes the Social Democratic Party has acquired 60–64 % of the power during the first two time-periods. In the three most recent elections (1970–76), the party's power share has decreased (to 55 %) although electoral success has been about the same as previously. The Center Party's position has remained reasonably stable irrespective of changes in the electoral system. The electoral system has always somewhat favoured this party, but on the other hand the decision-making system has been unfavourable; the party's power share has in every period been markedly lower than it vote and seat shares. The Conservatives' success resembles that of the Social Democratic Party; they have benefitted slightly from both the electoral system and the decision-making system. The Liberal Party's position has been quite sensitive to changes in the electoral system. The introduction of the Sainte Laguë method increased the party's seat share markedly, although its vote share remained almost the same (about 15 %). The adjustment seats system, in turn, has weakened the bonus-effect of the electoral system. However, since the latest electoral reform the Liberals' power share is larger than its vote share for the first time.

3.3 *Types of transformation processes*

The two transformation processes considered can be either beneficial (+) or non-beneficial (-) for a given party i as compared to its vote share. All possible combinations of the two transformation processes are:

transformation II

	+	−
+	1 ++	2 +−
−	3 −+	4 −−

trans-
formation I

The first cell describes the situation when a party's share of seats and power are both larger than its vote share. In this case we may speak of *concentration of power*. The transformations are *strongly cumulative* if for a given party i the following holds true: $p_i > s_i > v_i$. The transformation is weakly cumulative, if on the other hand $p_i > v_i$ and $s_i > v_i$ but $s_i < p_i$. In cell 3 a party also gets a power share that exceeds its electoral support ($p_i > v_i$) even though the first transformation is negative ($s_i < v_i$). In the two other cases the party i loses power (cells 2 and 4). The *losing of power* is *strong* when both transformation processes are non-beneficial (cell 4) and *weak* when the first transformation puts a given party in a favourable position but the decision-making system (transformation II) is non-beneficial (cell 2).

It is easy to understand that the *proportionality* of elections presupposes that the first transformation gives each party a share of seats which corresponds perfectly to its vote share. Thus, the elections always contain disproportionality when a given party is located in one of the cells of the square. In the same way the justice of elections presupposes that the two transformation processes which influence the power distribution allow a given party a power share equal to its share of votes. The cumulation of power or the losing of power always increases the injustice of elections.

In Table III the most important parties of the five Scandinavian countries are presented according to their location on the two transformation processes under the different electoral systems examined.

In *Denmark* the electoral reform has changed the picture totally. Strongly cumulative concentration of power for especially Social Democrats and also for the Radical Liberals is a new phenomenon in Danish politics. The Liberals, Radical Liberals (the first period) and Conservatives (the second period) win seats but lose power as compared to their vote share.

In *Finland* the transformation is strongly cumulative only for the Social Democrats. For the Center Party both transformation processes are also beneficial, but the party's power share is smaller than its seat share. Both transformation processes are negative for the Liberals and Conservatives. The electoral system suppresses the Communist Party and the Swedish People's Party, but gives them a favourable position in decision-making with a simple majority.

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Table III. The distribution of parties according to their location in the two transformation processes in Scandinavia under different electoral systems

DENMARK

transformation I	transformation II +	transformation II −
+	SD₂ RL₂	LIB CON₂ RL₂
−	SD₁ CON₁	

FINLAND

transformation I	transformation II +	transformation II −
+	SD CEN	
−	FDP SPP	LPP CON

ICELAND

transformation I	transformation II +	transformation II −
+	PRO₁	PRO₂
−	IP₂ SD	IP₁

NORWAY

transformation I	transformation II +	transformation II −
+	LAB₂,₃ CON₁ AGR₁,₂	VEN₁,₂ AGR₃
−	LAB₁	CON₂,₃ CHR₃

SWEDEN

transformation I	transformation II +	transformation II −
+	SD LIB₃	CEN CON
−	LIB₂	LIB₁

The following symbols are used: DENMARK: LIB = Liberals, SD = Social Democrats, CON = Conservatives, RL = Radical Liberals, 1 = the time period 1920–53, 2 = the time period 1953–75; FINLAND: SD = Social Democrats, FPD = People's Democratic Union of Finland, CEN = Center Party, LPP = Liberal People's Party, SPP = Swedish People's Party, CON = Conservatives; ICELAND: PRO = Progressives, IP = Independence Party, SD = Social Democrats, 1 = the time period 1927–59, 2 = the time period 1959–73; NORWAY: LAB = Labour Party, CON = Conservatives, AGR = Agrarians, VEN = Venstre, CHR = Christian People's Party, 1 = 1921–27, 2 = 1930–49, 3 = 1953–59; SWEDEN: SD = Social Democrats, CEN = Center Party, LIB = Liberals, CON = Conservatives, 1 = the time period 1920–48, 2 = the time period 1952–68, 3 = the time period 1970–76.

In *Iceland* the time period from 1927 to 1959 differs markedly from the other Scandinavian countries. There seems to be no systematic distribution of votes, seats and power for parties. The Independent Party, as the largest party, loses power. On the other hand, the electoral system puts the Progressive Party in a very favourable position. During the second period (1959–74), however, the largest party (the Independents) also gets the largest share of power. The Social Democratic Party is the only party whose position has remained stable; the electoral system is always non-beneficial, but the decision-making system gives it a certain bonus as compared with its vote share.

In *Norway* the Labour Party has been dominant ever since the second period (1930–49). The concentration of power is very clear, and the party's position has strengthened still further during the third period. For the Agrarian Party, the two transformations also show a cumulation of power, although the last period analysed shows a decrease in the party's possibilities of influencing decision-making. The Conservative Party has been in the least beneficial position: it has markedly lost power in the last two periods considered.

In *Sweden* the position of the parties has been stable irrespective of the electoral system applied. Only the Liberal Party is sensitive to changes in the electoral system. The Center Party and Conservatives consistently lose power but win seats compared with their vote shares.

3.4 *The concentration of power*

Table IV shows the p_i/v_i ratio for different parties in the five Scandinavian countries considered under the different electoral systems. If $p_i/v_i > 1$ party i has a power value which exceeds its support in elections. Thus, the greater the p_i/v_i value, the higher the concentration of power to party i. As was expected, the empirical results show 'the largest party effect'. The Labour Party in Norway and the Social Democrats in Sweden have the highest p_i/v_i ratios. The concentrations of power to other big parties is also self-evident, although the p_i/v_i ratio is much lower. The Social Democrats in Denmark and Finland and the Independents in Iceland are also in a very favourable position in the decision-making process compared with their vote shares.

The relatively non-beneficial position of the bourgeois parties in Scandinavia is remarkable. Although this observation is partly explained by the Socialist parties' central position in all the countries considered, this phenomenon nonetheless raises many questions. Are the political center and right too fragmented to participate effectively in parliamentary decision-making? Are bourgeois parties too weak to form long-standing cabinet coalitions? In this paper, these questions remain unanswered. However, the results presented show that, for example, in explaining the coalition formation process within a real parliamentary or cabinet decision-making process, the 'power' aspect must be taken into account.

Figure 3 shows the vote and power share for the biggest party in elections in Scandinavia after the First World War. According to these results, we can draw certain detailed conclusions about 'the large party effect'. In *Denmark*, the Social Democrats have been the biggest party since 1924. With the exception of the 1926 and 1950 elections, the Social Democrats also have power ratio $p_i/v_i > 1$ showing

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Table IV. The pi/vi ratio (mean values) for different parties in the Scandinavian countries after World War I

the pi/vi ratio	party	country	period
1.69	Labour Party	Norway	1930–49
1.68	Labour Party	Norway	1953–73
1.40	Social Democrats	Sweden	1920–48
1.37	Social Democrats	Sweden	1952–68
1.25	Social Democrats	Sweden	1970–76
1.35	Progressives	Iceland	1927–59
1.23	Conservatives	Norway	1921–27
1.23	Social Democrats	Denmark	1953–75
1.19	Independency Party	Iceland	1959–74
1.18	Social Democrats	Finland	1919–75
1.16	People's Democratic Union of Finland	Finland	1919–75
1.13	Conservatives	Denmark	1920–53
1.13	Labour Party	Norway	1921–27
1.12	Social Democrats	Denmark	1920–53
1.11	Agrarians	Norway	1930–49
1.09	Liberals	Sweden	1970–76
1.06	Social Democrats	Iceland	1959–74
1.06	Swedish People's Party	Finland	1919–75
1.05	Agrarians	Norway	1921–27
1.05	Center Party (Agr.)	Finland	1919–75
1.05	Radical Liberals	Denmark	1953–75
1.02	Social Democrats	Iceland	1927–59
0.96	Conservatives	Sweden	1970–76
0.95	Venstre	Norway	1921–27
0.90	Independence Party	Iceland	1927–59
0.90	Radical Liberals	Denmark	1920–53
0.89	Conservatives	Denmark	1953–75
0.86	Liberals	Denmark	1920–53
0.86	Liberals	Sweden	1920–48
0.83	Liberals	Denmark	1953–75
0.82	Conservatives	Finland	1919–75
0.79	Center Party (Agr.)	Sweden	1952–68
0.76	Center Party (Agr.)	Sweden	1920–48
0.73	Venstre	Norway	1930–49
0.71	Progressives	Iceland	1959–74
0.68	Liberals	Finland	1919–75
0.66	Liberals	Sweden	1952–68
0.63	Agrarian Party	Norway	1953–73
0.63	Conservatives	Sweden	1952–68
0.61	Christian People's Party	Norway	1953–73
0.61	Conservatives	Sweden	1920–48
0.58	Center Party	Sweden	1970–76
0.57	Conservatives	Norway	1930–49
0.32	Conservatives	Norway	1953–73

the party's favourable position. Particularly from 1966 to 1971 the Social Democrats had a great deal of power compared with their vote share. In the elections of 1920, the Liberals were the biggest party, but in spite of this their power share in general was lower than its vote share.

Figure 3. The vote (□) and power (■) share for the biggest party in elections in the Scandinavian countries after World War I under different electoral systems (mean values)
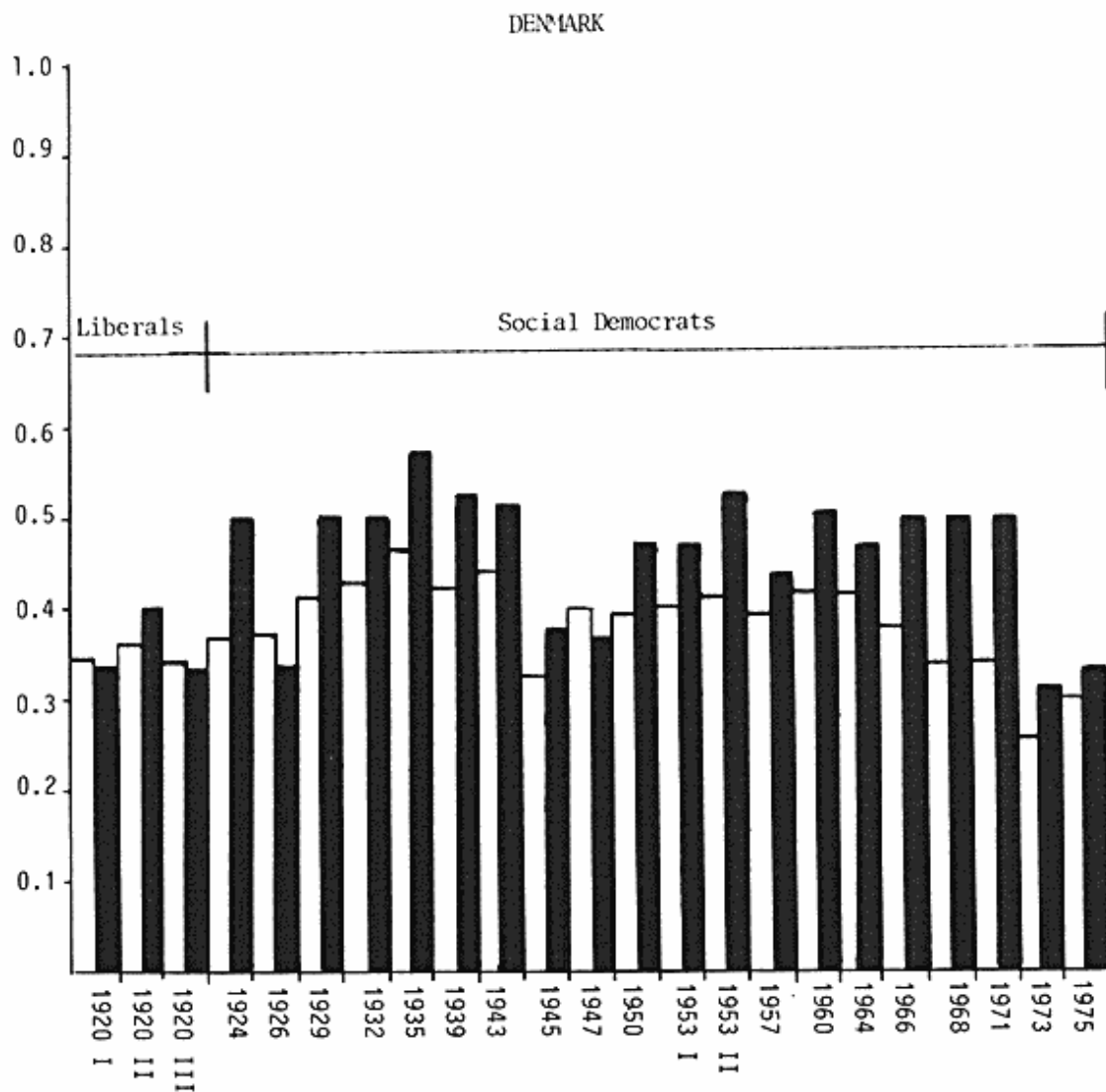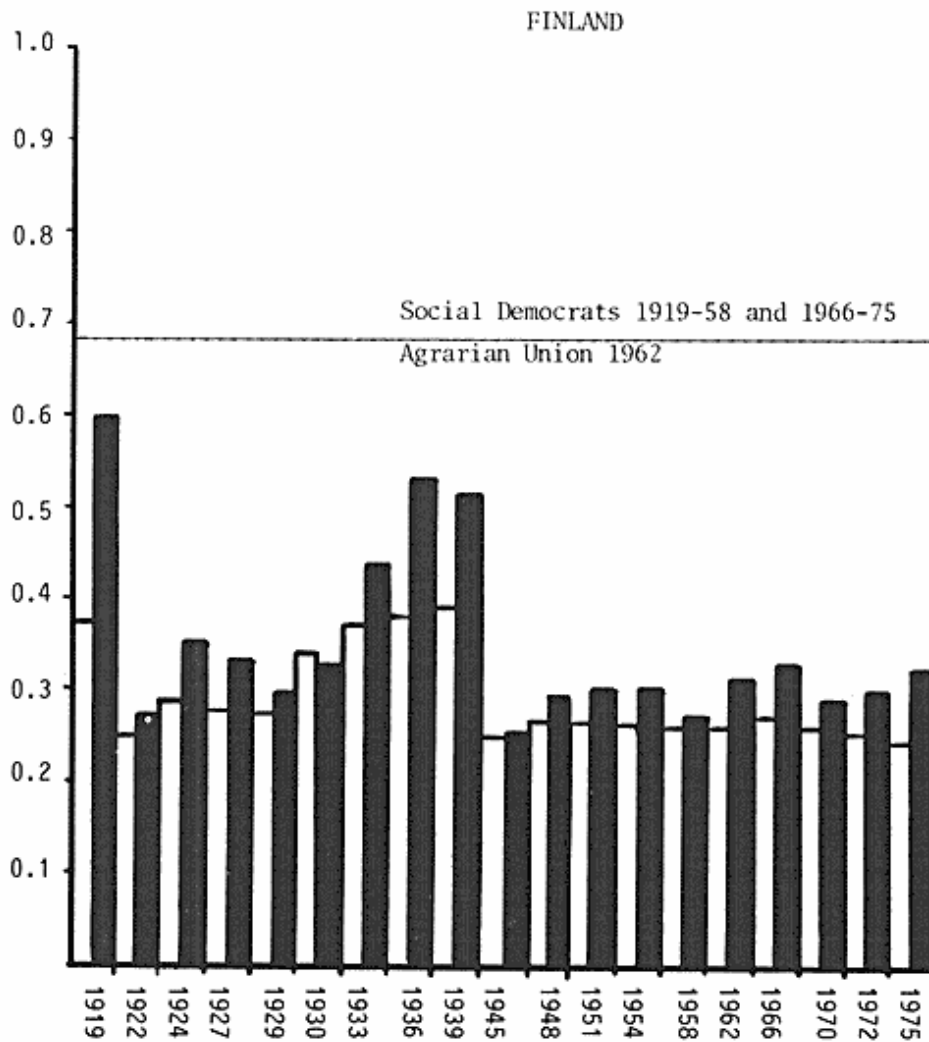
DENMARK

Figure 3 (b)

FINLAND

In *Finland* the biggest party according to its vote share has been the Social Democratic Party with the exception of the 1962 elections when the Agrarian Party received the most votes. In every case but 1930 there is also a certain slight 'large party effect'. This effect is clearly dependent on electoral support. The greater the vote share for the largest party, the greater its relative power share.

Iceland forms a sharp contrast to all the other Scandinavian countries during the period from 1927 to 1959, as already noted above. In elections from 1927 to 1942 the largest party (the Progressives in 1927 and the Independents thereafter) consistently had a power share clearly smaller than its vote share; e.g. in 1931 the Independents got 43.8% of votes but none of the power because the Progressives with 35.9% of the votes won a majority of seats and therefore all the potential power. After the electoral reform in 1959 the situation changed completely. Since then the biggest party has always received the largest share of power, which considerably exceeds its electoral support.
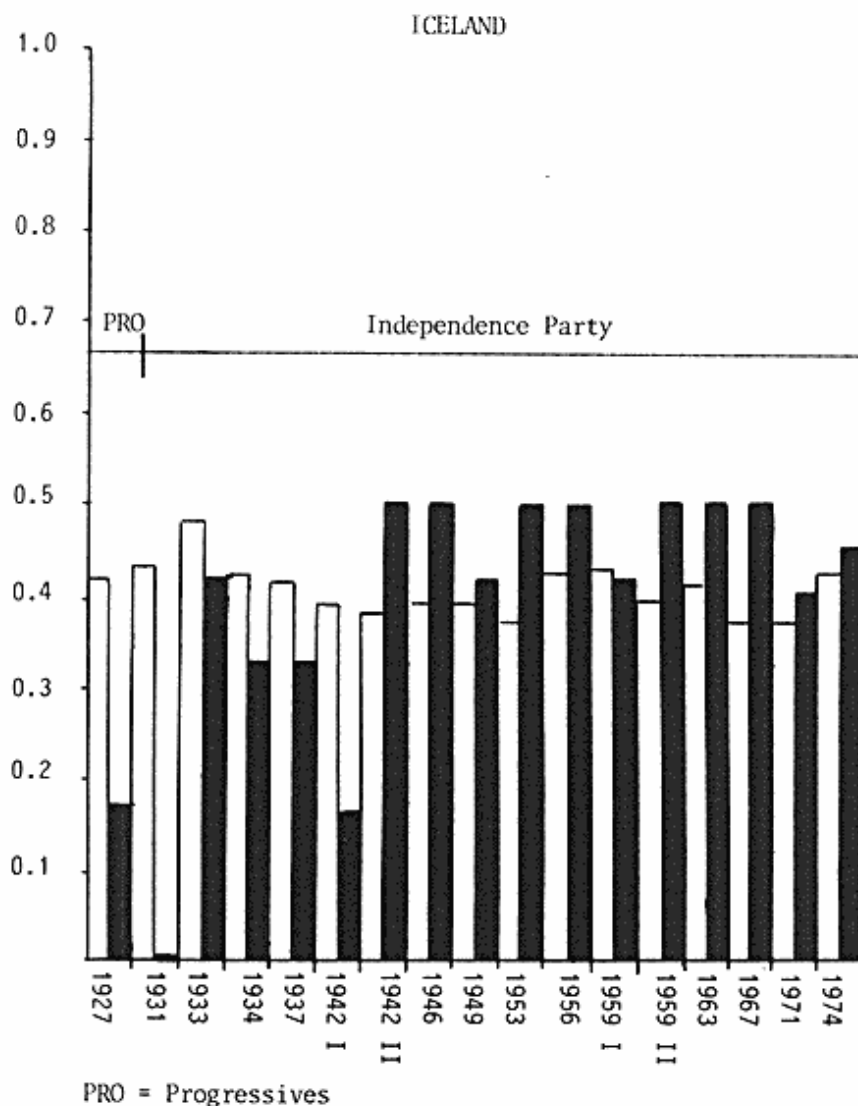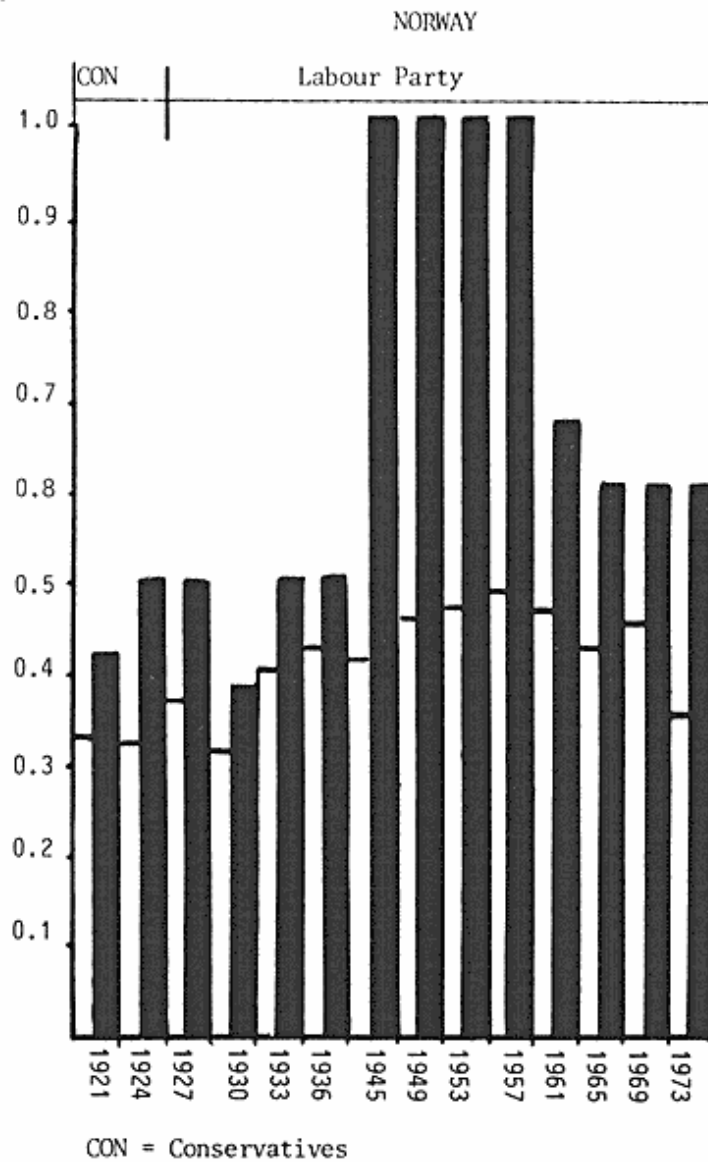
Figure 3 (c)

ICELAND

PRO = Progressives

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Figure 3 (d)

NORWAY

In *Norway* the 'largest party effect' is the most remarkable of the Scandinavian countries. In elections from 1945 to 1957, the Social Democrats won the majority of seats and therefore also all the power. After 1961, the Social Democrats were still the biggest party, but with a slightly reduced vote share. The party's power share, however, has weakened greatly to the level of 60%.

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In *Sweden* the Social Democrats have also dominated the party picture ever since 1920. With the exception of the elections in 1920, the party's power share has considerably exceeded its electoral support. In the elections of 1940 and 1968 the Social Democrats won the majority of seats and therefore all the power. The latest electoral reform, in 1970, slightly weakened the party's position.

Figure 3 (e)

SWEDEN

Social Democrats
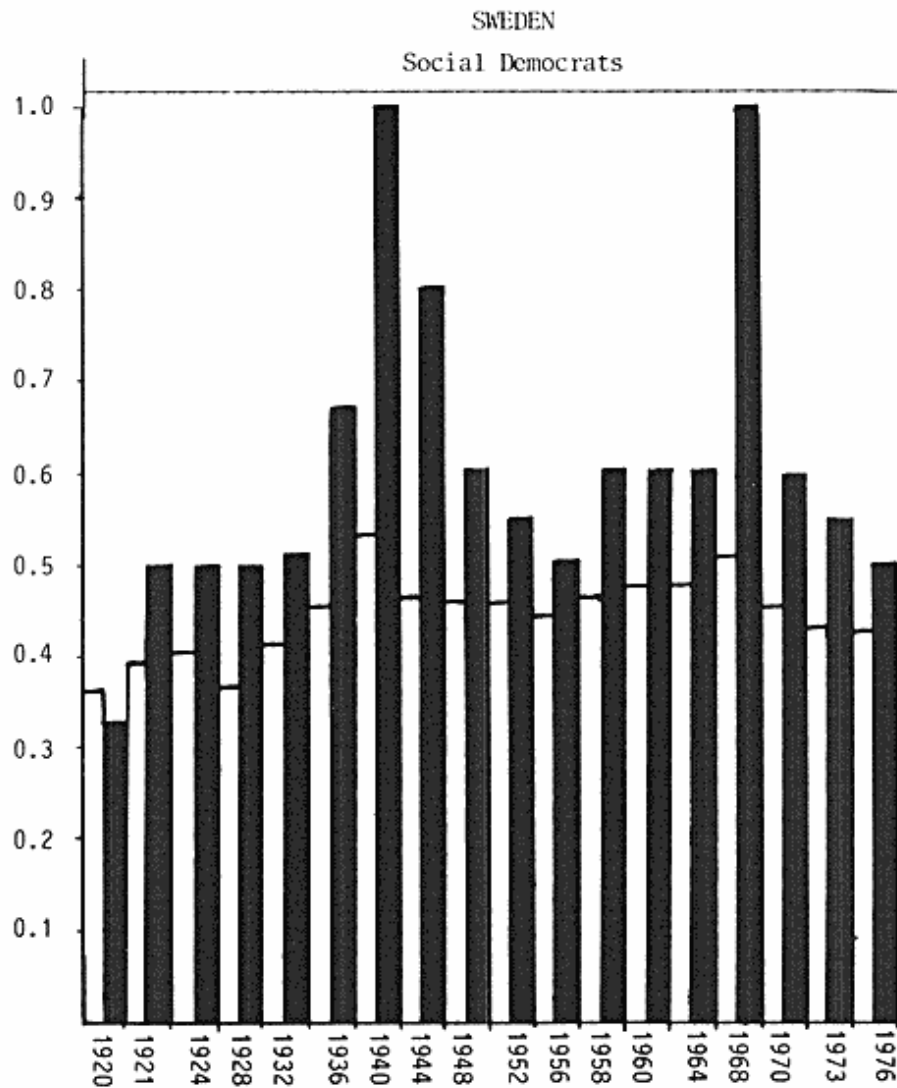
4. Conclusions

Table V is a summary of our results concerning the concentration of power, fragmentation of the party system and proportionality of elections in Scandinavia under different electoral systems. The mean values of the N_v, N_P/N_v and D indices are used as a cutting-point in dividing the countries into the different cells of Table V.

Table V. Concentration of power, fragmentation of the party system and proportionality of elections in Scandinavia under the different electoral systems examined

	N_P/N_v			
	>.779		≤.779	
	D		D	
	.054	.054	.054	.054
≤4.04	1 DEN₁ ICE₂ SWE₃	2 ICE₁	3 SWE₁ SWE₂	4 NOR₂ NOR₃
>4.04	5 DEN₂ FIN	6	7	8 NOR₁

(Nv is shown at the left spanning the ≤4.04 / >4.04 rows.)

DEN₁ = Denmark 1920–53, DEN₂ = Denmark 1953–75, FIN = Finland 1919–75, ICE₁ = Iceland 1927–59, ICE₂ Y Iceland 1959–74, NOR₁ = Norway 1921–27, NOR₂ = Norway 1930–49, NOR₃ = Norway 1953–73, SWE₁ = Sweden 1920–48, SWE₂ = Sweden 1952–68, SWE₃ = Sweden 1970–76

In cell (1) the elections are proportional, fragmentation of the party system is low and there is no concentration of power to few parties. Denmark from 1920 to 1953, Iceland from 1959 to 1974 and Sweden from 1970 to 1976 belong to this category. In contrast, in cell (8) the elections are disproportional, the party system is highly fragmented and power is concentrated to a few parties. Norway from 1921 to 1927 belongs to this category.

In general, elections in all the Scandinavian countries have been proportional, with the exception of Iceland from 1927 to 1959. In Norway the elections have also been quite disproportional if we use the mean value of all the elections analysed as a cutting-point. Finland, Norway from 1921 to 1927 and Denmark from 1953 to 1975 have the most fragmented party systems. The concentration of power is typical of Norway and Sweden.

To explain these results one must analyse the party system of the Scandinavian countries. The concentration of power is for the most part explained by the central position of the Social Democrats or the Labour Party. In Norway and Sweden this

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party has then had a majority of votes and seats, and therefore also all the power, as measured by the Shapley index. The 'large party effect' seems to be typical of each Scandinavian country; the biggest party nearly always gets a share of power which greatly exceeds its vote and seat shares. Changes in the electoral system naturally also influence the position of the different parties.

It is worth noting that the 'large party effect' seems to be typical of the two transformations processes analysed in this paper. Large parties usually get a certain benefit from the electoral systems examined (transformation I). However, the additional seats system naturally weakens this tendency, although it does not entirely eliminate it. The second transformation system (decision-making by simple majority rule) seems even more to suppress small parties, consequently further reducing the effective number of parties.

The results obtained in this article show that the analysis of the proportionality of elections is meaningless without also taking the decision-making system (and the justice of elections) into account. In the same way, we may conclude that the analysis of power is meaningless without considering the proportionality of elections. The model presented at the beginning of this paper provides us with an opportunity to analyse and understand better the characteristics of a parliamentary system. Although Scandinavia forms a homogenous area in this respect, there are no obstacles to applying the model and methods presented here to the study of other parliamentary systems.

REFERENCES

Banzhaf, J.F. 1965. 'Weighted Voting Doesn't Work: A Mathematical Analysis', *Rutgers Law Review 19*, 329–330.

Banzhaf, J.F. 1968. 'One Man, 3,312 Votes: A Mathematical Analysis of the Electoral College', *Villanova Law Review 14*, 304–332.

Coleman, J.S. 1971. 'Control of Collectivities and the Power of a Collectivity to Act', in B. Lieberman (ed.), *Social Choice*. New York.

Laakso, M. 1977. 'Proportional Methods of Representation and Fragmentation of the Finnish Party System' (in Finnish), *Politiikka 3*, 202–225.

Laakso, M. 1980 The Paradoxes of Voting Indices (In Finnish). *Research Reports, Series A. Institute of Political Science, University of Helsinki* N 49/1978.

Laakso, M. 1980. 'Electoral Justice as a Criterion for Different Systems of Proportional Representation', *Scandinavian Political Studies 3* (new series), 249–264.

Laakso, M. and Taagepera, R. 1979. 'Effective Number of Parties: A Measure with Application to West Europe', *Comparative Political Studies 12*, 3–27.

Loosemore, J. and Hanby, V. 1971. 'The Theoretical Limits of Maximum Distortion: Some Analytic Expressions for Electoral Systems', *British Journal of Political Science 1*, 467–477.

Nurmi, H. 1978. 'Measuring Power', manuscript.

Shapley, L.S. and Shubik, M. 1954. 'A Method of Evaluating the Distribution of Power in a Committee System, *American Political Science Review 48*, 787–792.