

The Macro-Economic Aspects of Government and Opposition Popularity in Denmark 1957-78

Martin Paldam and Friedrich Schneider

Økonomisk Institut, Aarhus Universitet / Institut für Empirische Wirtschaftsforschung, Universität Zürich

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I. The concept of the popularity function

There are many reasons to expect that the popularities of political parties are functions of the economic conditions. Below we shall analyse the economic factors in the quarterly development of the longest popularity series available in Denmark (the Gallup polls), covering a total of 13 parties and 87 quarters. In the quantitative analysis we shall concentrate on the "normal" *short-run* fluctuations of the popularity

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indices as compared with the short-run fluctuations in the main macro-economic indicators. The long-run trends will be almost entirely disregarded, and the major structural change in the party system, which happened in the early 1970s, will only be briefly discussed in addition to the quantitative analysis.

The study of the economics of voters behaviour is a relatively new field, but already a considerable literature exists. A comprehensive recent survey of the literature is found in Schneider (1978) both as regards *vote functions*¹ explaining election results and *popularity functions*² explaining the more frequently measured popularity indices.

Section II will discuss a set of problems which takes a special character when analysed in a complex multi-party system as the Danish one. Before we turn to these problems, a few *general remarks* will be made on the concept of the popularity function and some of the problems involved in its derivation – a more detailed survey of these problems is found in Paldam (1980).

The main basis for the empirical research is the responsibility hypothesis saying that the voters hold the government responsible for the changes in the economic situation. Within this hypothesis we expect that government popularity increases when economic conditions improve (in the voters eyes) and vice versa. This actually is one main result found in nearly all the studies mentioned. A couple of general objections and qualifications should nevertheless be made:

(a) The economic variables can provide *a partial explanation* only of the fluctuations in popularity indices. We know that these indices often react quite strongly to matters which are hard to relate to economic conditions.

(b) For reasons of data availability we shall work with – at most – one *aggregate* function for each party. This could be a problem as the level of popularity for each party normally varies rather much for different socio-economic groups and regions. On the other hand, most of the information available shows that normally the developments over time for the party-popularities are remarkably alike both across

1. Vote functions were first analysed by Kramer (1971) and later Stiegler (1973). Arcelus & Meltzer (1975), Fair (1978) and others discussed the American case. Scandinavian data are analysed by Madsen (1979), while a comparative study of 17 OECD-countries is provided by Paldam (1980).

2. For popularity functions the first study was Goodhart & Bhansali (1970). Later studies of the UK are Miller & Mackie (1973), Frey & Schneider (1978a) and Alt (1979). The USA is analysed by e.g. Frey & Schneider (1978b), Hibbs (1979) & (1980) etc. France by Lafay (1977) & (1980). Germany and Switzerland by Frey, Schneider, Kirchgässner and Pommerehne in several studies. Of the Scandinavian countries only Sweden has been studied, cf. Jonung & Wadensjö (1979) and Kirchgässner (1979).

regional and even socio-economic groups. Thus, the popularity functions might, in fact, be aggregable as time-series functions.

(c) It is easy to advance a number of reasons to expect the popularity functions to be highly dynamic ones. Here the evidence is still quite inconclusive especially as regards the crucial processes by which expectations are formed. We shall return to this problem.

The reader will see that we have not endeavoured to find stable functions for the whole period for which we have data. On the one hand, however, the changes in the functions appear to follow the pattern found in other studies, and on the other hand the changes make sense when seen as a result of the special Danish experience³:

Our analysis starts in mid 1957 about the same time as the big upswing for the Danish economy following the stagnation of the 50s. Till the late 60s the economy prospered as never before and the political party-system remained very stable. Towards the late 60s the balance of payments deteriorated, inflation rates increased, the tax pressure escalated, etc. At the same time the two traditional government possibilities *both* alienated their supporters: The Social Democrats over the emotional issue of the Common Market entry and the Liberal-Conservative coalition when they raised income taxes more than any other government on record during the "VKR-government" (with the Radicals) from 1968 to 71⁴.

This mixture of a strongly destabilizing economic development and a weakening of traditional party loyalties was probably the main causal factors which led to the dramatic break in the party-system so that the number of parties actually doubled between the elections of 1971 and 1973. The Appendix-Table contain a list of all Danish parties in the period. Thus, Denmark was already in a bad balance of payments situation and had just received a chaotic new parliament when the "oil crisis" hit the economy. It is no wonder that the crisis has been relatively severe in Denmark since then.

II. Multiparty complexities and the dimension of stability

By comparing popularity functions from different countries, and from Paldam (1980), it appears that the character of the party-system matters a great deal for

3. When seen in a general OECD-perspective, the Danish experience is not, perhaps, all that special. As a general rule we can describe the Danish economic-political history as a *delayed*, but *particularly strong* version of the normal OECD-story.

4. The story of the VKR-government is still lacking a thorough analysis, but it appears to have been a rather clear case of a government dominated by the dynamics of events producing the typical electoral cycle – cf. the survey of the electoral cycle literature in Paldam (1979b). First the new government tried to do all the "good things" the parties had dreamed of doing when in opposition (for 15 years). Then the economy "ran away" and it all ended in a (rather pathetic) attempt to re-gain control. In the process the election was lost.

voters' reactions to economic events. As already stressed, Denmark has had *two rather different party-systems* in the period analysed – separated by the remarkably sharp break around 1972/73.

Till the break – i.e. including the election in 1971 – Denmark could be said to have a fairly simple and very stable party-system with around 5 parties. Many voters, no doubt, perceived this system as a two-block system with a Social Democrat-Radical government alternative to the one side and a Liberal-Conservative alternative to the other.

From 1973 a much more volatile and complex system with 10-12 parties has persisted. While the Social Democrats are still one governmental possibility, there has not been an obvious alternative government. There are some signs that the system has started to swing back to the old pattern, but the process till now has been rather slow⁵.

In spite of the international literature on popularity functions no systematic analysis has been previously attempted in Denmark, but many people have, of course, been interested in these matters. On the basis of casual observation a great deal of speculation and conjectures exist among politicians, journalists and civil servants – an unusually explicit recent statement is found in Gelting (1978) based on an analysis as the one contained in Figure 1.

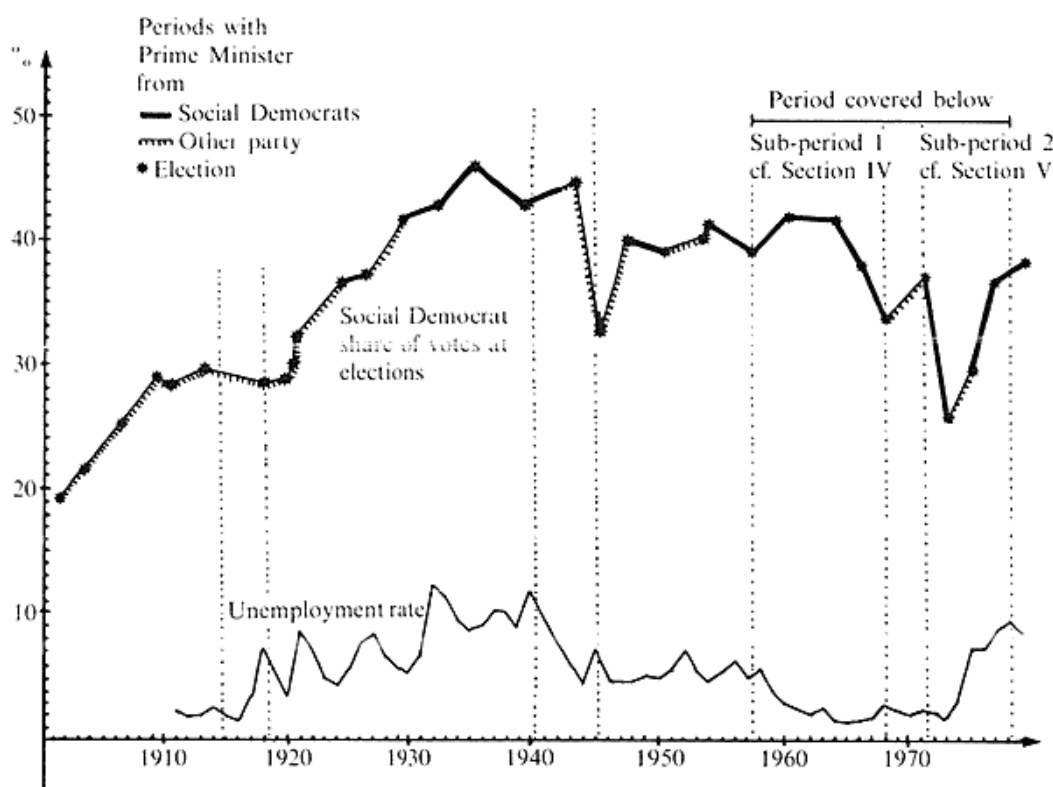
In this “proverbial” tradition the *responsibility pattern* is perhaps, once more, the prevailing view. However, as is often the case in such traditions, the antithesis is almost equally popular. It argues for a pattern which we shall term the *stability pattern*. It will be formulated as a testable hypothesis in Section III, but before we reach this definition we shall try to develop the theory behind the pattern⁶.

Starting from the responsibility pattern we note that it presumes that the voters – or at least a sizable group of swingvoters – choose between two reasonably similar governmental alternatives. If the ruling one, of these alternatives, is perceived as doing a bad job, these voters turn to the other one. When there are many parties, the dimension of stability enters into the choice as the parties tend to have different character: Some of the parties are, by necessity, unlikely government participants, i.e. they have clear ideological stands, they concentrate on single issues, they are centered

5. This sequence of volatility has been dramatically illustrated in a set of studies of the gross migration of voters between the parties. In the 1971-election and, as far as it is known, the previous elections about 20% of the voters changed parties. In the 1973-elections this figure jumped to 40% – since then it has slowly decreased to reach about 30% at the 1979-elections. For a survey of the results cf. Borre (1979).

6. Some aspects of the stability pattern is found in Alt (1979), Kirchgässner (1979), and in Hibbs (1980). The pattern also appears in Paldam (1980) in a comparative set-up. Our argument above is not, however, found in any single source.

Figure 1. The long-term trends in the support for the Social Democrats and the unemployment rate.



Note: The long unemployment series is the consistent series recently presented by Peder J. Pedersen (1979). For an analysis of these vote data cf. Madsen (1979).

around a colourful personality, they tend to stress the protest dimension etc. One could say that such parties are the more "exciting" parties. Other parties have the character of being the more likely governmental parties. For a number of reasons such parties tend to lose a clear ideological profile, but instead they gain a reputation for "solidity" and "responsibility".

The central idea, behind the stability pattern, now is that *when times are good, people might feel that they can afford to vote for the more exciting parties, but when times get bad, they rally around (or return to) the more responsible parties.*

If we are looking at an opposition party, which is a likely alternative government, both the stability and the responsibility pattern will give the same results: good times decrease the party popularity while bad times increase the popularity. The interesting case occurs for a government party – here the two patterns give the reverse results. E.g.

if unemployment rise, the responsibility pattern should cause the popularity to *fall* while the stability reaction would be a *rise* in the popularity.

By far the largest and the most frequent government party in Denmark is the Social Democratic one. Also it is a party which certainly stand for responsibility – even for a certain lack-lustre solidity. Here the choice between the two reactions becomes crucial. Before we turn to the exact testing procedures and model formulations, three points are important to keep in mind:

(i) The first point is related to Fig. 1 – when the more sophisticated observers have tended to claim that there is a positive correlation between the size of the Social Democrats share of the voters and the unemployment rate, it is, no doubt, due to observations like the one in the figure.⁷ It is always a difficult question how well a short-term model, as we shall apply, can catch a long-term relationship as the one appearing on Fig. 1. This brings us to the next point.

(ii) In the long-term relationship a number of complex socio-economic processes enters. Processes which are outside the frame of our analysis. We try to include these processes by including *trends*. When the two possible patterns of reactions are considered, it appears that the responsibility pattern clearly has a *concrete* direction: the voters are satisfied or dissatisfied with particular developments in the economy. The responsibility pattern is less concrete and might appear as trends away from the government party when times are good and towards the party when times are bad. We have consequently included coefficients to trend variables among the ones tested below. As the trends are *also* meant to catch purely *political* factors, some caution is necessary in the interpretation of the coefficients to the trend-variables.⁸

(iii) This brings us back to the break in political stability, which occurred around 1972. There exists an important argument that *sustained* full employment will eventually lead to a loss of political stability. This was first predicted by Kalecki (1943), but a number of related theories to the same effects has later been developed, cf. Paldam (1978a). Perhaps these theories could be used to develop a more general theory, which explains both the short-run fluctuations and the structural break – this we shall not try at present.

7. Including the last 20-22 election years in the analysis we find a correlation coefficient of about 0.35 between the two series – this falls a little short of significance, but if we delete the extreme observation from 1945 and smoothe a little over the big swings in 1973, the positive correlation actually becomes significant.

8. Apart from the trends we have included *economic* variables only in the analysis. There consequently should be ample space for our colleagues in political science to improve the model by including some political variables.

III. Formulation of the estimation equation

The analysis will be based on the following linear, additive formulation of the popularity function for the popularity of party i :

$$\begin{aligned} POP-PARTY_t^i = & \alpha_1 POP-PARTY_{t-1}^i + \alpha_2 \Delta RCP_{t-1} + \alpha_3 \Delta RU_{t-1} + \\ & \alpha_4 \Delta RRW_{t-1} + \alpha_5 \Delta BP_{t-1} + \alpha_6 INTR_{t-1} + \alpha_7 DRTR_{t-1} + \\ & \alpha_8 TR_t + \alpha_9 CONST + \varepsilon_t^i \end{aligned}$$

Here t is time, and $t-1$ indicates a lag, while Δ is a first difference, $CONST$ is used for the constant and ε_t^i is the error term for party i . The other variables are:

$POP-PARTY_{t-1}^i$ is the left-hand side variable lagged one quarter, thus indicating a Koyck-transformed equation. The smaller the estimated coefficient α_1 (where $0 \leq \alpha_1 \leq 1$) turns out to be, the shorter is the implied memory of the voter. In this formulation all past events (economic and others) are discounted with the same weight (α_1).

The next four variables are all taken as a first difference to *rates* indicating that we presume that people get accustomed to rates – unemployment rates, growth rates, inflation rates etc. – but react to *changes* in the rates. This would appear the logical formulation in a growing economy and some experiments with the “plain” variables actually showed slightly inferior results. Note further that these variables – and the other economic variables – are all lagged one quarter indicating that voters need a couple of months to react to the changes in the economic situation.

ΔRCP_{t-1} Changes in the quarterly growth rate of the consumer price index.⁹

ΔRU_{t-1} First difference of the rate of unemployment – the standard series using the Danish definition.

ΔRRW_{t-1} First difference for the growth rate of the *real* wage rate – the standard series from the Employers’ Federation (DA), deflated with RCP .

ΔBP_{t-1} First difference for a balance of payment indicator. We have here used the trade-balance (being always, of course, negative) as a ratio of the GNP .¹⁰

9. All 6 economic variables are seasonally adjusted by the standard moving average program included in the ISIS-econometric system.

10. It is presumed that the trade-balance data are the ones receiving the most publicity during the year. They are actually a good indicator for the final balance of payment results including services and other autonomous items.

The inclusion of the first three indicators ΔRCP , ΔRU and ΔRRW is hardly surprising. We would have preferred the growth rate in total real incomes to ΔRRW , but for most of the parties ΔRRW would appear the relevant pre-tax concept to use. The balance of payment indicator ΔBP is included as many – if not most – well informed observers will agree that the balance of payment deficit is as important an economic problem as unemployment. It receives considerable coverage in the news media and often a deterioration of the balance of payments has actually caused economic tightenings. The well-informed and rational voter should therefore react to ΔBP in much the same way as to the other variables.¹¹

The next two variables are the tax-pressure variables. Here we suggest that the *absolute level* is crucial. In spite of the arguments of Bent Hansen (1955) and most later writers, we do not use tax-rates, but tax-revenues (as ratios of *GNP*) as our measures. It is assumed that these ratios give a (crude) expression of the weighted sum of all rates and rules of the tax system operating. A few capital levies, land taxes and corporate taxes are not included in the analysis:

- $INTR_{t-1}$ Burden of indirect taxes as ratio of *GNP*.
- $DRTR_{t-1}$ $TOLD_{t-1}$ or $TPAYE_{t-1}$ are direct taxes on persons as ratios of *GNP*. Before 1970 the series is termed $TOLD_{t-1}$ indicating the old tax system, where incomes were assessed after the end of the year and then taxed a quarter later – the actual payments being spread out over one year. After 1970 we use $TPAYE_{t-1}$ for the new *PAYE*-tax system, where incomes are taxed as they are earned with a regulation app. 10 months after the end of each year.
- TR_t Is the trend variable included to catch socio-economic and purely political factors.

As discussed in Section II we shall mainly test two hypotheses by means of this popularity function:

H1 termed the responsibility hypotheses: It suggests that the voters hold the government responsible for changes in the economic and non-economic situation. Here government support becomes less (or more) when the economic and non-

11. On the other hand, we note that the balance of payment is an abstract concept to most people. When consumer prices *RCP* change, people *see* that the prices of bread and beer change; when unemployment *RU* rises, many people will *know* somebody who becomes unemployed etc. When our balance of payment indicator *BP* changes, people *read* about it in the newspapers. In the proverbial tradition of civil servants the expression exists that "the balance of payment is a town in Siberia." The reader will see that our calculations tend to support such a cynical view.

economic situation gets worse (or better) and when the tax burden increases (or decreases). Thus for *H1* we expect to find the following signs to the popularity of a party in government:

$$\alpha_2, \alpha_3, \alpha_6, \alpha_7 \text{ and } \alpha_8 < 0 \quad \text{and } \alpha_4 \text{ and } \alpha_5 > 0$$

For an opposition party we expect the opposite sign.

H2 termed the stability hypothesis: Here it is suggested that the voters recognize that the political situation is unstable with weak minority governments, frequent elections, no obvious alternatives to the government etc. In this situation the voters might react to a deteriorating economic situation by rallying around the parties which stand for responsibility and solidity. Good times might conversely allow people to turn to the more exciting parties. In the Danish system *H2* should show up most clearly for the Social Democrats and here perhaps especially for α_3 – the coefficient to unemployment – as unemployment is likely to be the main worry for the Social Democrat voter. We consequently expect *H2* to give the following signs for a party in government:

$$\alpha_2, \alpha_3, \alpha_6, \alpha_7 \text{ and } \alpha_8 > 0 \quad \text{and } \alpha_4 \text{ and } \alpha_5 < 0$$

With this equation a number of experiments were made covering the full 87 quarters from 1957.2 to 1978.4. The results were unsatisfactory indicating (not surprisingly) that major structural changes took place. After some experiments it was decided to divide the period in subperiods of reasonably homogeneous character. First, we deleted the periods without Social Democratic government as too short for proper testing. This left us with three periods, all under a Social Democratic government:

- (a) 1957.2 – 1968.1 with 44 observations.
 - (b) 1971.4 – 1973.4
 - (c) 1975.2 – 1978.4
- } with 9 + 15 = 24 observations.

Here (a) belongs to the politically stable and prosperous period before the stagflational wave hit Denmark as discussed in Sections I & II. (b) and (c) both belong to the politically unstable period of the 1970s, where Denmark was hit by inflation and the oil crisis. Also the tax-pressure is considerably higher in the second period.

IV. Empirical results for the period 1957-1968

The empirical results for the popularity of the coalition of Social Democrats and other parties (Radicals and Georgists) are first shown as Equation 1 in Table 1

Table 1: Government and opposition popularity functions in Denmark; 1957,2-1968,1, quarterly dates.

No. of eq.	Dependent variable popularity	Lagged variable POP_{t-1}	Changes (first differences) of $t - (t-4) = \Delta$					Indirect taxes as ratio of the GNP $INTR_{t-1}$	Direct taxes (TOLD) as ratio of GNP $DRTR_{t-1}$	Trend variable TR_t	Constant term	Test-Stat.		
			Rate of cons. prices $ARCP_{t-1}$	Rate of unempl. ARU_{t-1}	Rate of real wages $ARRW_{t-1}$	Balance of payment ΔBP_{t-1}	z_2					z_3	z_4	z_5
1	Gov. POP. (Coalition)	0.70** (6.41)	-0.31 (-1.56)	-0.78** (-2.98)	0.24* (2.56)	0.19 (0.64)	-	-	-1.06** (-3.02)	9.05 (5.03)	0.90	1.03	37	
2	Opp. POP.LEFT	0.85** (9.81)	0.12 (1.27)	0.43** (2.77)	-0.14* (-2.40)	-0.10 (-0.78)	-	-	0.21* (2.30)	2.08 (1.99)	0.83	1.27	37	
3	Opp. POP.RIGHT	0.72** (7.51)	0.19** (1.69)	0.35** (3.01)	-0.10* (-2.64)	-0.09 (-0.54)	-	-	0.85** (3.47)	10.25 (5.03)	0.76	1.09	37	
4	Gov. POP. (Coalition)	0.70** (6.47)	-0.28 (-1.58)	-0.79** (-2.99)	0.26* (2.64)	0.13 (0.48)	-0.41 (-1.03)	-0.65* (-2.42)	14.39 (5.02)	0.92	0.91	35		
5	Opp. POP.LEFT	0.86** (9.87)	0.10 (1.31)	0.44** (2.82)	-0.15* (-2.51)	-0.08 (-0.32)	0.09 (0.65)	0.12 (0.78)	2.66 (2.31)	0.82	1.20	35		
6	Opp. POP.RIGHT	0.73** (7.84)	0.18** (1.69)	0.35** (3.06)	-0.11* (-2.58)	-0.05 (-0.54)	0.32 (1.27)	0.53** (2.89)	8.92 (6.00)	0.78	1.03	35		
7	Gov. POP. (Coalition)	0.71** (6.56)	-0.29 (-1.55)	-0.79** (-3.01)	0.25* (2.61)	-	-	-0.67* (-2.56)	14.53 (5.22)	0.92	0.96	37		
8	Opp. POP.LEFT	0.85** (9.83)	0.11 (1.29)	0.44** (2.86)	-0.15* (-2.54)	-	-	0.13 (0.84)	2.40 (2.07)	0.82	1.17	37		
9	Opp. POP.RIGHT	0.73** (7.88)	0.18** (1.69)	0.35** (3.09)	-0.10* (-2.51)	-	-	0.54** (2.94)	9.14 (6.33)	0.78	1.03	37		

Note: The figures in parentheses below the parameter estimates indicate the t -value. One asterisk indicates statistical significance at the 95%, two asterisks at the 99%, confidence level, using a two tailed test; \bar{R}^2 is the corrected coefficient of determination; h indicates the h -test against autocorrelation of the residuals with lagged dependent variables, and df shows the degree of freedom. As it is assumed that there is an exchange of votes between government and opposition parties and by definition the party popularity shares have to sum up to 100%, it is likely that the three sets of disturbances are highly correlated. If so, the technique of multivariate regression (GLS-technique, as provided by the TSP-programme version 3.4 available in Zürich) gives more efficient estimates and is used here.

Equations 2 & 3 are the same equation estimated for the opposition parties to the left and to the right. These three equations are estimated together as one set, where the sum of the three estimates of each coefficient from x_2 and x_8 is forced to add up to zero, as they should by definition. The same applies to the set of Equation 4-6 and the set of Equations 7-9.

The first point of interest is the highly significant influence of the lagged endogenous variable. In Table 1 – and in the following tables too – we consistently find values of α_1 around 0.75 indicating that voters discount (forget) political and economic events within four to five quarters. A result which is well in line with most findings reported in the international literature.

In Equations 1 to 3 the government and two opposition popularity functions are simultaneously estimated without the influence of the two tax burden variables. This *GLS*-estimation clearly confirms the responsibility hypothesis *H1*:

All signs are actually as expected: A rise in the inflation rate makes the voters move from the government to the two opposition blocks, and so does a rise in the rate of unemployment. Conversely a rise in the rate of real wage increases makes voters move from the opposition parties to the government parties and so does an improvement in the balance of payments.

Only two of these four economic effects on the popularities are significant – and they are highly significant. These are unemployment and real wages. The results consequently indicate that, under certain *ceteris paribus* conditions one percentage point increase in unemployment leads to a decrease of 0.78 percentage points of the government popularity. This loss accrues to the opposition with a little more to the left than to the right. In the same way the opposition to the left loses slightly more to the government when real incomes increase than does the right.

In this period inflation was not such an important issue as later, but nevertheless the coefficient α_2 to changes in the inflation-rate becomes nearly significant – especially to the parties of the opposition to the right. The balance of payments is far from significant. The last important point is that the popularity of the coalition shows a strong and highly significant negative trend over time where the voters lost by the government parties move mainly to the right opposition.

When the tax burden variables are included, in Eqs. 4-6, only the *direct* tax burden variable has a significant coefficient, even if both variables obtain the signs expected under the responsibility hypothesis. Not surprisingly the right opposition is the main winner when voters desert the government thanks to tax rises – the right wing here gains app. 80% of the government losses.

If one compares the explained variance (corrected for degrees of freedom) for the estimates with and without the tax burden variables, the explained variance rises for

Table 2: Party popularity functions in Denmark, 1957.2-1968.1, quarterly data.

No. of variable: eq. popularity	Dependent variable: popularity	Lagged dependent variable POP_{t-1}	Changed (first differences) of $t - (t-4) = \Delta$				Indirect taxes as ratio of the GNP $INTR_{t-1}$	Direct taxes (TOLD) as ratio of GNP $DRTR_{t-1}$	Trend variable TR_t	Constant term	Test-Stat.		
			Rate of cons. prices ΔRCP_{t-1}	Rate of unempl. ARU_{t-1}	Rate of real wages $ARRW_{t-1}$	Balance of payment ABP_{t-1}					z_6	z_8	R^2
		z_1	z_2	z_3	z_4	z_5	z_6	z_7	z_8	z_9			
10	POP-SOC Gov. Party	0.67** (5.78)	-0.41* (-2.37)	-0.73** (-3.01)	0.19* (2.41)	0.10 (0.58)	-0.32 (-1.04)	-0.51* (-2.43)	-0.38* (-2.06)	11.78 (3.77)	0.92	1.03	35
11	POP- OTHER P. in gov.	0.77** (7.36)	0.13 (1.07)	-0.06 (-1.08)	0.07 (1.40)	0.03 (0.09)	-0.09 (-0.27)	-0.14** (-1.69)	-0.44* (-2.56)	0.43 (1.88)	0.60	1.37	35
12	POP-COM Opp.P.-left	0.84** (9.49)	-0.02 (-0.69)	-0.10** (-1.70)	-0.07** (-1.73)	-0.01 (-0.31)	0.04 (0.39)	0.05 (0.63)	-0.04 (-0.91)	0.38 (0.12)	0.57	1.33	35
13	POP-PSO Opp.P.-left	0.89** (10.43)	0.12 (1.27)	0.54** (2.96)	-0.08** (-1.85)	-0.07 (-1.09)	0.05 (0.74)	0.07 (0.94)	0.19* (2.56)	3.08 (2.12)	0.64	1.26	35
14	POP-LIB Opp.P.-right	0.76** (8.04)	0.13** (1.77)	0.14* (2.44)	-0.09** (-1.98)	-0.02 (-0.27)	0.14 (1.36)	0.21* (2.43)	-0.12** (-1.82)	5.25 (2.47)	0.74	1.03	35
15	POP-CON Opp.P.-right	0.66** (4.12)	0.14** (1.83)	0.15* (2.96)	-0.04 (-1.59)	-0.02 (-0.23)	0.12 (1.19)	0.24* (2.56)	0.65** (3.29)	1.43 (1.40)	0.80	0.96	35
16	POP-IND + OTH. Opp.P.-right	0.74** (6.83)	-0.08 (-1.03)	0.06** (1.73)	0.02 (0.33)	-0.01 (-0.33)	0.06 (1.02)	0.08** (1.69)	0.14** (1.93)	0.49 (0.64)	0.69	1.09	35

For notes see Table 1. Parties are listed in the Appendix-Table after Section V.

the government and the right opposition parties by (only) two percentage points – to be recalled in Section V.

Finally it should be stressed that the lagged endogenous variable and the trend contribute a lot to the high \bar{R}^2 -values of the table – The contribution of the economic variables is “only” around $\frac{1}{4}$ - $\frac{1}{3}$ of the total variance explained. On the other hand we did not find multicollinearity to be a serious problem in the model-formulation used.¹²

The next step investigated is how the gains and losses of the blocks look like when estimated for the individual parties. This is done in Table 2 where the seven equations are *all* estimated together in one *GLS*-estimate.¹³

Looking at the governing parties one clearly sees that only the Social Democrats were made responsible for a change in the economic situation. The only really significant coefficient for the other governmental parties is the strong negative trend which is even stronger than the one for the Social Democrats. In this period the economic situation developed generally very well so that we note that the large governmental party here got all the credit for the improvement.

Turning to the two parties of the left opposition we note that the Peoples’ Socialist Party is the big winner when unemployment goes up – they even appear to win something from the Communists. The two large opposition parties to the right win equally when unemployment rises, but much less than the Peoples’ Socialists do. The Liberals and the Conservatives are, however, relatively big winners when prices and taxes rise.

If one looks at the estimated coefficients to the trend variable, it is obvious that there are important shifts between the parties which are unrelated to the economic situation. While the losses of the government parties might be recognized as the (political) costs of government, the unequal gains of the opposition parties have to be explained differently. The most interesting case here occurs for the two main opposition parties, the Liberals and the Conservatives, who have almost exactly the same coefficients to the economic variables. Here we note that the Liberals even loose on the trend, while the Conservatives are the biggest winner – a fact which can be well explained by the movements from the rural to urban areas, cf Thomsen (1979).

12. There is considerable correlation between the annual observations of the series analysed, but this correlation decreases a lot when quarterly data are used. We have thus found no signs that multicollinearity is a serious problem for the estimates presented.

13. For the various coalition partners of the Social Democrats one series had to be constructed (*POP-OTHER* in gov.). When these parties were not in government, they were added to *POP-IND+OTH*.

Table 3: Government and opposition party popularity functions in Denmark (1971.4-1973.4) and (1975.2 to 1978.4), quarterly data.

No. Dependent variable eq. popularity	Lagged dependent variable POP_{t-1}	Changes (first differences) of $t - (t-4) = \Delta$					Indirect taxes as ratio of the GNP $INTR_{t-1}$	Direct taxes (TPAYE) as ratio of GNP $DRTR_{t-1}$	Trend variable TR_t	Constant term	Test-Stat.			
		Rate of cons. prices ΔRCP_{t-1}	Rate of unempl. ΔRU_{t-1}	Rate of real wages ΔRRW_{t-1}	Balance of payment ΔBP_{t-1}	z_2					z_3	z_4	z_5	z_6
17	POP-SOC = gov. pop	-1.34* (-2.59)	0.35 (1.64)	1.59* (2.46)	0.84 (1.43)	-	-	-	1.10* (2.11)	15.40 (2.27)	0.65	1.29	17	
18	POP-OPP, left	-0.12 (-1.47)	-0.16** (-1.71)	-0.53* (-2.40)	-0.30 (-1.27)	-	-	-	-0.15 (-0.68)	2.43 (1.81)	0.63	1.24	17	
19	POP-OPP, centre	0.28* (2.51)	-0.09 (-1.51)	-0.34* (-1.84)	-0.14 (-0.84)	-	-	-	-0.38* (-2.51)	1.40 (1.50)	0.58	1.38	17	
20	POP-OPP, right	1.18* (2.68)	-0.10 (-1.47)	-0.72* (-2.36)	-0.40** (1.75)	-	-	-	-0.57* (-2.34)	8.36 (2.99)	0.64	1.27	17	
21	POP-SOC = gov. pop	-1.40* (-2.66)	0.21 (1.01)	1.75* (2.68)	0.40 (0.86)	-0.65* (-2.58)	-1.10** (-3.67)	0.84* (2.06)	21.37 (3.16)	0.75	1.03	15		
22	POP-OPP, left	-0.13 (-1.49)	-0.10 (-1.60)	-0.54* (-2.43)	-0.15 (-0.58)	0.12 (0.78)	0.16 (1.13)	-0.10 (-0.57)	2.46 (1.19)	0.60	1.27	15		
23	POP-OPP, centre	0.39* (2.57)	-0.05 (-1.07)	-0.41** (-1.96)	-0.07 (-0.53)	0.21* (2.64)	0.32** (3.78)	-0.24* (-2.17)	0.43 (0.69)	0.69	1.08	15		
24	POP-OPP, right	1.14* (2.64)	-0.06 (-1.22)	-0.80* (-2.54)	-0.19 (-0.94)	0.32** (2.93)	0.62** (4.03)	-0.50* (-2.19)	6.49 (2.55)	0.76	0.94	15		

For note see Table 1.

The main conclusion emerging from the period of political stability and prosperity from 1957 to 1968 clearly is *that the responsibility hypothesis provides a rather good explanation* of the development in the popularities of the parties.

V. Empirical results for the period 1972-1978

We now turn to the period of economic difficulties and a complex multi-party system with large shifts between the parties. Furthermore, we analyse a shorter period of 24 quarters only.¹⁴ Compared to the first period our results from the second period have three characteristics: (i) they are different, (ii) they explain appreciably less of the variance and (iii) as regards the two hypotheses our clear results become quite ambiguous.

The main results are presented in Table 3, where we estimate 2 sets of equations – each set consisting of 4 equations representing party-blocks.¹⁵ In Table 4 the party-blocks are broken up to give ten single parties. We first look at Table 3.

For consumer prices and real wage-rises the responsibility pattern still prevails. The coefficients even increase, and we note that while all other party-blocks gain equally strongly at the expense of the Social Democrats when real incomes deteriorate, the right wing is the main winner when the inflation rate goes up. Here the left wing even obtains a negative coefficient. The large sizes of the coefficients suggest the strong increase of the importance of the problems of inflation and stagnation in the eyes of voters. I.e. we note that 1% extra inflation (under certain *ceteris paribus* conditions) moves as many as 1.3% points of the voters away from the Social Democrats – almost all of these voters end up as an increase in the share of the right wing.

Two coefficients *change signs* and obtain the sign predicted by the stability pattern. It is (not unexpectedly) the coefficients to unemployment and to the trend. While the positive coefficient to the trend becomes highly significant, the one to unemployment just fails to become significant. Not only does the coefficient to unemployment change signs, but also it is interesting to note that numerically it changes from being

14. The six quarters of the “narrow” Liberal government from December 1973 to January 1975 are deleted, as too short for analysis. There are no signs that a structural break occurred in this period.

15. During this period the Social Democrats were standing between a left and a center block. To the right of the four small center parties we have merged the three parties together: the Liberals and the Conservatives and also the Progressives. This is done to enable us to disregard the large shifts between these three parties – shifts which are hardly caused by economic factors, cf. here Table 4.

Table 4: Party popularity functions in Denmark, (1971.4-1975.4) and (1975.2 to 1978.4), quarterly data.

No. Dependent of variable: eq. popularity	Lagged dependent variable POP_{t-1}	Changes (first differences) of $i - (i-4) = \Delta$					Indirect taxes as ratio of the GNP $INTR_{t-1}$	Direct taxes (TPAYE) as ratio of GNP $DRTR_{t-1}$	Trend variable TR_t	Constant term	Test-Stat.			
		Rate of cons. prices ΔRCP_{t-1}	Rate of unempl. ARU_{t-1}	Rate of real wages $ARRW_{t-1}$	Balance of payment ΔBP_{t-1}	α_2					α_3	α_4	α_5	α_6
25	POP-LSO	0.81** (8.95)	α_1	-0.04 (-0.84)	-0.02 (-0.94)	-0.15* (-2.09)	-0.04 (-0.36)	0.03 (0.65)	0.05 (0.99)	0.08* (2.24)	0.39 (0.81)	0.54	1.39	15
26	POP-COM	0.74** (7.56)		-0.05 (-1.13)	-0.05 (-1.49)	-0.19* (-2.56)	-0.06 (-0.64)	0.04 (0.98)	0.06 (1.32)	-0.09 (-0.68)	1.53 (1.31)	0.59	1.21	15
27	POP-PSO	0.75** (8.15)		-0.06 (-1.51)	-0.03 (-1.06)	-0.20* (-2.47)	-0.05 (-0.61)	0.05 (1.03)	0.05 (1.08)	-0.09 (-1.36)	2.36 (1.49)	0.62	1.17	15
28	POP-RAD	0.91** (9.78)		0.10* (2.43)	-0.02 (-0.74)	-0.14** (-1.91)	0.02 (-0.46)	-0.05 (-0.94)	-0.09 (-1.53)	-0.31* (-2.71)	0.47 (0.73)	0.60	1.27	15
29	POP-GEO	0.90** (9.43)		0.09** (1.84)	-0.01 (-0.48)	-0.12** (-1.86)	0.03 (-0.51)	0.16* (2.70)	0.21** (3.99)	0.09* (1.81)	0.38 (0.49)	0.71	0.91	15
30	POP-CEN +CHR	0.84** (8.47)		0.20* (2.71)	-0.02 (-0.96)	-0.15* (2.07)	-0.02 (-0.55)	0.10* (2.64)	0.20** (4.03)	-0.02 (-0.68)	0.68 (1.33)	0.70	1.15	15
31	POP-LIB	0.69** (5.53)		0.51* (2.70)	-0.03 (-1.07)	-0.31* (-2.51)	-0.16** (-1.79)	0.08* (2.36)	0.10* (2.58)	-0.26* (-2.21)	2.32 (2.20)	0.76	0.95	15
32	POP-CON	0.68** (5.47)		0.52* (2.63)	-0.04 (-1.06)	-0.34* (-2.47)	-0.04 (-0.54)	0.06* (2.21)	0.05* (2.18)	-0.19* (2.18)	1.59 (1.00)	0.74	0.91	15
33	POP-PRO +IND.	0.54** (4.06)		0.11** (1.88)	0.01 (0.58)	-0.15** (-1.91)	0.01 (0.36)	0.18** (3.03)	0.47** (4.08)	-0.05 (-0.63)	3.47 (2.14)	0.79	0.83	15
34	POP-SOC Gov.par.	0.64** (5.06)		-1.38* (-2.64)	0.21 (1.06)	1.75* (2.70)	0.41 (0.88)	-0.65* (-2.59)	-1.10** (-3.69)	0.84* (2.08)	12.86 (3.04)	0.75	1.06	15

For notes see Table 1.

the largest into being the smallest of the four "economic" coefficients estimated.¹⁶ This indicates – as many observers have suggested – that people care much less about unemployment. Several explanations are here possible, but the large increase (from 0.6 to 0.85) in unemployment compensation relative to the wage level is likely to be a main factor.

Turning to the second half of Table 3, where the two tax pressure variables are added to the model, another important difference between the two periods turns up. Except for the left-wing block the inclusion of the tax-variables improves the explanatory power of the equation considerably. Also it decreases the importance of most of the other variables.

Here both tax-variables obtain significant coefficients – except for the left wing block – and the highly significant signs are in accordance with the responsibility pattern. When the direct tax pressure is increased by one percentage point (of *GNP*), on percentage point of the voters desert the Social Democrat government – of these 2/3 go to the right parties.

Finally it is interesting to see that even in this period, where the balance of payment difficulties are often declared the main economic problem, we fail to find significant coefficients to the balance of payment indicator included.

A few additional results emerge when the party-blocks are broken up and the full 10-party system is estimated (as one set) in Table 4. Especially the three right wing parties clearly prove to be different. The normal economic variables have a much stronger impact on the two traditional right-wing parties than on the Progress Party. The Progress Party has its main stand as an anti tax – and in particular an anti income tax – protest movement. The Progress Party actually turns out to be the largest gainer when income taxes (and indirect taxes too) are raised.

When these results are summarized as regards the two main hypotheses, the results are less clear than in Section IV. The responsibility hypotheses still holds for inflation, the growth of real incomes and taxes. On the other side the voters did not blame the government for the high unemployment or for the other, more long-run, developments. Here the reactions appear more like predicted in the stability hypothesis.

(Text continued after appendix-table).

16. Perhaps the most relevant comparison would be to see whether the estimates to the same variable in Tables 1 & 3 are different. Comparing Equations 1 & 17 only, we find that α_1 , α_5 and α_9 are likely to be the same in the two tables, α_2 and α_4 are significantly different at the 5% level, while α_3 and α_8 have changed with a probability of more than 99%.

Appendix-Table. Danish political parties with parliamentary representation 1957-1979.

Our name (Code)	Danish name (Literal translation)	Formed year	Represented years	Size	Note
A: The left wing – hardly governmental support except sometimes PSo.					
(1) <i>Left Socialists</i> (LSo)	Venstresocialisterne	1967	68/71 and since 75	1-4%	Splinter party from PSo on question of compromising with Soc.
(2) <i>Communists</i> (Com)	Dk's Kommunistiske Parti	1919	To 60 and 73/79	1-3%	Popular former leader (Aksel Larsen) ex- pelled in 58. Forms PSo. Dies in 68.
(3) <i>Peoples' Socialists</i> (PSo)	Socialistisk Folkeparti (Socialist Peoples' Party)	1959	From 60	3-10%	Tries to be left support of Soc, but always divided on compromises.
B: Moderate left – most governments.					
(4) <i>Social Democrats</i> (Soc)	Socialdemokratiet	1871	Largest party since 1913	30-42%	In most governments since 1920, often with Rad.
C: Center Parties – often governmental support, but small parties.					
(5) <i>Radicals</i> (Rad)	Radikale Venstre ^(a) (Radical Left)	1905	Throughout	3-10%	Often in government mostly with Soc, but once with Lib + Con. Moderately pacifist.
(6) <i>Liberal Center</i> (Lic)	Liberal Centrum	1965	65/68 dis- solved 68	0-3%	Technocrat splinter group from Lib, broke away to support Soc.
(7) <i>Georgists^(b)</i> (Geo)	Retsforbundet (Justice Union)	1919	To 60, in 74 since 77	1-3%	Used to have right and left wing, once in Soc Gov. Now left-center.
(8) <i>Center Democrats</i> (Cen)	Centrum Demokraterne	1973	Since 73	3-8%	Splinter party from right wing Soc – around popular leader (Erhard Jakobsen).
(9) <i>Christians</i> (Chr)	Kristeligt Folkeparti (Christian Peoples' Party)	1970	Since 73	1-4%	Formed on anti-abortion and anti- pornography, but moderate.

VI. A final note of caution

In the present article we have tried to apply the concept of the popularity function to analyse how the Danish voters react to short-run changes in the economic situation. Our analysis is the first one applying this technique to the very complex and volatile Danish political system and much remains to be done. The three main weaknesses are:

(1) We have not found stable functions over the full period, but *if* a more general model could be developed, we have, at least, demonstrated what it should be able to explain for certain periods. (2) We have included the longer run socio-economic and the purely political factors as simple trends only. (3) We have included no series for public expenditures.

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- (* indicates that only preliminary, working versions of the paper have been available to the authors).
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