

## Macroeconomic Policy and Government Popularity in Norway 1963–1986\*

Rune Jørgen Sørensen, University of Oslo

Following the mainstream modelling of 'politico-economic interaction', the author reviews the major analyses of the Scandinavian countries. Noting that empirical findings diverge, both for the reaction function and the popularity function, the article estimates these relations on Norwegian data. For the *popularity function*, the analysis suggests that rates of inflation have a weak, but statistically significant impact on the popularity of governments. For the recent non-socialist governments, the analysis suggests greater impact of unemployment and real wage growth as well. The results for the *reaction function* support the mainstream notion that declining rates of inflation and increasing unemployment tend to cause more expansionary government policies. The estimated equations do not support the proposition that the election cycle or government's position on the opinion polls influences economic decision-making. Finally, the findings are discussed in the light of traditional normative positions.

The purpose of the present study is to test some propositions about the interaction between macroeconomic policy and electoral support to the government parties in Norway. The theoretical basis for this research is the politico-economic framework. The approach aspires towards theoretical specification of the interaction between the economy and the polity, and empirical estimation of the model. Government behaviour is analysed by the reaction function (or policy function), whereas the popularity function (or vote function) models short-term fluctuations in electoral preferences.

The assumption that government maximizes utility function subject to economic and political constraints yields the *reaction function*. The use of government instruments relates to macroeconomic variables, usually unemployment figures, inflation, real private disposable income, and indicators related to the balance of payments. Furthermore, the political situation influences government decisions. In particular, variables describing the ideology of the incumbent party, the parliamentary situation, and governments' stand in the opinion polls are included in the reaction function.

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\* Presented at the workshop *Økonomisk politikk og politisk økonomi*, Nordisk Forbund for Statskundskap, København, 16–19 August 1987.

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The *popularity function* relates government popularity (i.e. the Gallup score of the incumbent party or parties) to government's performance, commonly measured by unemployment figures, the rate of inflation, and the growth-rate of real disposable income.<sup>1</sup>

The first part of the paper briefly reviews previous empirical analysis of politico-economic models, paying special attention to the Scandinavian countries. The second part presents estimates for the popularity function and for the policy function. The models are estimated by means of monthly data for the period 1963–1986. Finally, the paper discusses the results obtained in relation to previous studies and relates the findings to some general normative positions.

## Empirical Studies of Politico-Economic Interaction in Scandinavia

### *The Popularity Function*

As indicated above, the popularity function focuses on governmental support as a function of macroeconomic indicators, usually unemployment, price inflation and the growth of real disposable income. Other variables may be entered as well, e.g. the balance of payments, strike activity, and various exogenous shocks such as the OPEC oil price shock, the Watergate scandal and so on.

Numerous empirical studies have been performed, including analyses of Australia, Denmark, France, Germany, Norway, the Netherlands, Sweden, Switzerland, the UK and USA. These have been reviewed in Whiteley (1980), Hibbs & Fassbender (1981), Paldam (1981b), Frey & Schneider (1979), Lybeck (1985) and Whiteley (1986). It is held that the core proposition in the popularity function has received substantial support. For example, Hibbs (1981, 8) suggests that the empirical evidence '... indicates rather convincingly that public support for political authorities in a wide range of institutional settings responds quite systematically to macroeconomic conditions'. Paldam (1981b, 194) concludes that the '... very existence of the VP function (Vote-Popularity function) should no longer be doubted', and Kirchgaessner (1985, 155) claims that '... the empirical evidence seems to be overwhelming'.

It should be noticed, as do Paldam (1981a), Lybeck (1985, 72) and others, that the parameter estimates vary quite considerably across different studies. Furthermore, it has been suggested that the only explanatory variables significantly 'robust' between nations are the rate of inflation, unemployment and real income growth. Even this proposition has been challenged, notably by Whiteley (1986, 81). Employing convincing econo-

metric techniques on data for the United Kingdom, the United States and the Federal Republic of Germany, he finds that

. . . an incumbent administration is not in a position to manipulate the economy for political purposes, even supposing it could manage the economy in this way. Since the popularity series is dominated by 'shocks', then any strategy designed to increase public support by manipulating the economy prior to an election could easily be thwarted by unexpected circumstances. (Whiteley 1986, 81)

Let us take a closer look at the results obtained for the Scandinavian countries.

Madsen (1980, 15–47) analyses *election* outcomes in Denmark, Norway and Sweden. In the Swedish case, Madsen finds some support for the proposition that the voters respond to changing economic conditions, especially increasing unemployment and economic growth. In the Danish and Norwegian cases the results are negative:

The Danish and Norwegian electorates – the latter in particular – have shown little or no systematic response to economic conditions as measured by our aggregate indicators. (Madsen 1980, 23)

Paldam (1981b, 186) suggests that economic conditions affect opinion polls more than they influence election results: During the election campaign, the voters are exposed to a massive flow of political information. According to Paldam, the information leads the electorate to put less emphasis on short-term economic conditions, presumably due to the increasing significance of 'ideological' actors of the pre-election period.

Empirical analysis of Scandinavian *gallup data* yields rather mixed evidence for this hypothesis. For the *Swedish* case, Jonung & Wadensjø (1979) find that inflation and unemployment have some impact on the popularity of government, whereas real income growth has no influence. Hibbs & Madsen (1981) investigate the impact of macroeconomic conditions on the popularity of the governing parties in Sweden. Their analysis indicates that economic variables do influence electoral preferences.

On the other hand, an analysis by Lybeck (1985) does not support the hypothesis that economic variables affect the popularity of the government party. The only economic variable to exert some influence on popularity is the rate of unemployment, and even the impact of this variable is quite unstable.

For the *Danish* case, Paldam & Schneider (1980) find both the rate of inflation and real income growth to carry some weight. Changing rates of unemployment are not related to fluctuations in government popularity.

For the *Norwegian* case, an analysis by Wickstrøm (1984) indicates that the impact of economic variables is fairly weak, and that the popularity function is unstable over time. The *classical* popularity function is rejected. Wickstrøm finds discrete political events (such as the Vietnam issue, the

EEC referendum) influencing government popularity. For our purposes, however, the study suggests a negative conclusion – in line with Madsen's analysis of the Norwegian vote function.

Consequently, the research on the Scandinavian countries does not provide overwhelming evidence for the proposition that economic variables play some role in shaping electoral preferences.

#### *The Reaction Function*

There are few Scandinavian studies analysing macroeconomic policy-making from a politico-economic perspective.<sup>2</sup> The analysis by Madsen (1980) defines the rate of unemployment and the growth of general government expenditures as the dependent variables. A model is estimated on Norwegian and Swedish data. Although for both countries the estimates obtained are insignificant and quite uncertain, substantial conclusions are reached.

In the Norwegian case, unemployment appears to decline in proximity to elections, while public spending shows an upturn in the period preceding elections. Hence, it appears that Norwegian politicians attempt to influence electoral behaviour by means of macroeconomic policies, whereas it seems that economic conditions do *not* influence the behaviour of the voters! To the extent this interpretation is a valid one, the re-election efforts pursued by the incumbent party do not improve the re-election probability.

Madsen (1981) does not find that variations in macroeconomic outcomes reflect inter-party differences, that is, non-socialist governments do not pursue policies of higher unemployment and lower rates of government growth compared to social-democratic parties. For Sweden, the analysis does not support the election cycle proposition regarding either unemployment or public expenditures.

Sørensen (1986) employs 'events data' to analyse economic policy in Norway in the period 1964 to 1984. The probability of an expansive decision is a function of unemployment rates, whereas the balance of payments and rates of inflation do not yield significant estimates. The proposition of an election cycle receives mixed support. There is a tendency to make expansive decisions in proximity to local elections. Government popularity does not influence economic policies, whereas ideological differences between different governments appear to be fairly insignificant.

Lybeck (1985) performs a time-series analysis on Swedish data. Incorporating the policy function into a simultaneous model which includes the popularity function (see above) and the structure of the economy, Lybeck draws essentially negative conclusions. The politico-economic model receives little support. Increasing rates of unemployment tend to raise government expenditures and budgetary deficits. On the other hand, there is little evidence of an election cycle in economic policies; unpopular

governments do not pursue more expansionary policies relative to popular governments; and there are only minor differences between socialist and non-socialist governments.

Finally, Alt (1987) focuses on economic policies in Britain and Norway, discussing the impact of oil revenues and international competitiveness in the two countries. Although the study does not estimate a traditional politico-economic reaction function, it suggests exchange rate policies to be important in explaining the ability to control unemployment in Norway. Comparing the two countries, Alt suggests that loss of competitiveness has less dramatic consequences for Norway. Although international markets have some effect on rates of unemployment, the impact has been moderate:

Norway's success in containing unemployment appears to owe most to its ability to resist speculative effects on the currency rather than to prevent short-term responses to changing international conditions in her very open economy. (Alt 1987, 186)

One implication of this finding could be that the traditional instrument variables play an indirect role in macroeconomic policy, whereas exchange rate policies, and possibly interest rate policies could be the important policy instruments. I shall return to this subject in the empirical analysis below.

## Model Formulation

The politico-economic models distinguish between three categories of variables: Those influencing popularity which are beyond the control of central government, the variables assumed to be under direct government control (the instrument variables), and finally government target variables. The first equation to be commented on below is the *popularity function*, focusing on government popularity. Secondly, economic policy is analysed as a *reaction function*.

### *The Popularity Function*

The *popularity model* defines the percentage of the electorate supporting the incumbent party (or alliance of parties) as the dependent variable. Some fraction of the voters are hypothesized to switch their support from the government to the opposition party if the voter does not approve of the government's economic performance. Therefore, macroeconomic 'performance' plays a crucial role in shaping electoral preferences. Unemployment, inflation, real wage growth are held to be the government objectives relevant to the explanation of political support.<sup>3</sup> Following Frey & Schneider (1979, 33), governmental popularity (POP) is a function of the rate of unemployment (UR), inflation (IR) and the growth of real disposable income (YDG).

*Variable list:*

- Pop(t): The popularity of incumbent party (or parties), measured in percentages, monthly opinion polls.<sup>4</sup>
- UR(t): The registered number of unemployed (in 1000 persons).
- IR(t): The (domestic) consumer price index (1970 = 100).
- YDG(t): The level of real wage growth at constant prices. Quarterly data.
- R<sub>k</sub>: Dummy variable, R<sub>k</sub> equals 1 if government *k* is in office, 0 otherwise
- EEC: Dummy variable, equals 0 before the EEC referendum in 1972 and 1 after the referendum.

Thus, the classical popularity model assumes the support of the government parties to be a function of three macroeconomic conditions:

$$(1) \text{Pop}(t) = f \{ \bar{U}R, \bar{I}R, Y\bar{D}G \} \text{ Classical Popularity Model}$$

The signs above the variables indicate that governmental popularity is hypothesized to decline when the rate of unemployment increases, when the rate of inflation grows, and to increase as the real wage rate grows.

The popularity model can be estimated by various methods. One alternative is the common linear additive model used by Frey & Schneider (1979, 33). The model assumes the popularity of the incumbent party to fluctuate around a normal level, measured by the constant terms and dummy variables in the model. The model assumes the absolute level of government support to depend on *current* levels of unemployment growth (or levels of unemployment), the current rate of inflation, the current growth of real wage and of the tax-rate or tax-rate changes.<sup>5</sup>

The present model (2) assumes changes in government popularity over one quarter to be a function of lagged increases of unemployment, price inflation, and real wage increases. The impacts of the three independent variables over the first three quarters' period are expected to influence changes in the popularity over one quarter. The following model has been estimated.

$$(2) \text{Pop}(t) - \text{Pop}(t - 3) = \alpha_0 + \alpha_k \sum R_k + \alpha_{k+1} \cdot \text{EEC} + \beta_1 \cdot \{ \text{YDG}(t - 3) - \text{YDG}(t - 12) \} \cdot 100 / \text{YDG}(t - 12) \\ + \beta_2 \cdot \{ \text{IR}(t - 3) - \text{IR}(t - 12) \} \cdot 100 / \text{IR}(t - 12) \\ + \beta_3 \cdot \{ \text{UR}(t - 3) - \text{UR}(t - 12) \} \cdot 100 / \text{UR}(t - 12) \\ + e(t)$$

*Classical Popularity Model*

Equation (2) has been estimated assuming an autoregressive process of 12 degrees. Table 1 yields the parameter estimates.<sup>6</sup>

Table 1. Government Popularity in Norway 1963–1986. Classical Popularity Function.

	Parameter	T-value
Intercept plus dummy-variables		
Real wage growth	0.096	2.03
Inflation	-0.208	-2.22
Unemployment	-0.0002	-0.14
REG RSQ	0.06	
TOTAL RSQ	0.63	
RMSE	1.42	

The explanatory power of the model is quite low, about 6 per cent. (The total R-square test statistic equals 62 per cent, including the autoregressive process.) Even when taking into account the fact that a substantial amount of variation in popularity is due to sampling error, the exogenous variables account for a small fraction of the variation in government popularity.

On the other hand, the three exogenous variables have the expected signs. The rate of inflation has a significantly negative impact on popularity, whereas the growth of real disposable income has a significantly positive impact. When controlling for the other variables, unemployment does not have a statistically significant influence.

The parameter estimates are quite small. If governments are able to reduce inflation by 1 per cent, the popularity will increase by 0.2 per cent. An increase in real disposable income by 1 per cent increases government support by 0.08 per cent. In other words, it appears unlikely that a government can increase its support substantially by reducing inflation or unemployment, or by increasing real disposable income.

How robust are these findings? The model has been re-estimated using greater lags on (the first difference of) the dependent variable (up to 6 months) and greater lags on the independent variables (up to 15 months). This did not alter the estimates very much. Neither did different assumptions about the autoregressive model on the residual variable change the results substantially. Finally, unemployment figures tend to vary quite a lot over the year. Considering the lagging of the independent variables, one would not expect this to influence the findings. When using a seasonal adjustment of unemployment, the impact of both real disposable income and unemployment were somewhat reduced.

Previous research indicates that the popularity function varies between different governments. To test the stability of the estimates, the model has been re-estimated for each government separately. Table 2 yields the results of the re-estimation, which suggest that the popularity function is a very unstable one. Of 15 estimated parameters 10 take the correct sign. The rate of inflation has a significant negative impact for four governments.



Table 2. Government Popularity in Norway 1983–1986. Classical Popularity Function for Separate Governments.

Government: Prime Minister: Type of government	(1) Gerhardsen Social-democratic minority government	(2) Borten Non-socialist majority government
Intercept	0.32	0.50
Real wage growth	0.002	-0.031
Inflation	-0.185*	-0.153*
Unemployment	-0.0004	0.0009
REG RSQ	0.39	0.09
TOTAL RSQ	0.87	0.70
RMSE	0.30	0.91

  

Government: Prime Minister: Type of government	(3) Bratteli Social-democratic minority government	(4) Korvald Non-socialist minority government
Intercept	-4.50	Too few degrees of freedom
Real wage growth	0.06	
Inflation	0.61	
Unemployment	0.02	
REG RSQ	0.31	
TOTAL RSQ	0.80	
RMSE	1.77	

  

Government: Prime minister: Type of government	(5) Nordli/Bruntland Social-democratic minority government	(6) Willoch Non-socialist majority government (81–85)
Intercept	2.16	0.19
Real wage growth	-0.024	1.05*
Inflation	-0.202*	-1.43*
Unemployment	-0.015	-0.002
REG RSQ	0.07	0.66
TOTAL RSQ	0.66	0.74
RMSE	1.97	1.54

\* Significantly different from 0 at 10 per cent level.

Additionally, real wage growth has a significant positive influence for the Willoch period.<sup>7</sup>

Thus, there is some evidence of a popularity function – particularly for the non-socialist government from 1981 to 1985. In this period all three

parameters leave the hypothesized signs. Unemployment appears to play a modest role, whereas decreasing inflation and increasing real wage growth appear to increase government popularity. Again the influence of unemployment is negligible. The estimates indicate that a reduction in inflation of 1 per cent would increase government popularity by 1.4 per cent, whereas an increase in real wage growth of 1 per cent gives a popularity gain of 1.43 per cent. These estimates are considerably higher than those obtained in Table 1 for the whole period.

Taking the period as a whole, our findings do *not* support the proposition of a *politically* significant popularity function. In the period analysed, the support to Norwegian governments bears a weak relation with real wage growth, the rate of inflation and unemployment. Although the effects of these variables are small and generally unstable, we find some evidence of a *statistically* significant influence (cf. Table 1). The rate of inflation influences government support. The impacts of real wage growth and inflation are considerable for the non-socialist majority government in the period 1981–1985. This could be due to two factors. First, the Willoch government could rely on a majority in parliament. The voters are probably more inclined to hold a majority government responsible for economic policies than a minority government. Second, unemployment, inflation, and private incomes have varied quite dramatically during this government. Unemployment increased from about 30,000 registered unemployed to over 70,000 out of work, the rate of inflation declined 13.6 per cent in 1981 to 5.7 per cent in 1985, and real incomes increased by 1 to 2 per cent from 1980 to 1984, and by 7.5 per cent in 1985! Finally, the essential focus of the Willoch government was on economic policy. The fact that the government aimed at reducing inflation and restoring international competitiveness could increase electoral awareness about economic performance.

Our interpretation is that the electorate is sensitive to relatively large fluctuations in economic performance, provided that government relies on a majority in parliament and the economic performance is a major policy issue.

#### *The Reaction Function*

Following Johansen (1977, 55f.), the state of the economy ( $x$ ) can be modelled as a function of government policies ( $a$ ) and variables which influence the economy, but are beyond direct government control ( $z$ ). Assuming that a government (or the central authority in Johansen's terminology) pursues specific goals (that is  $x = x^0$ ), or the central authority maximizes a preference or welfare function ( $W = W(x)$ ), a reaction function can be derived. The usage of government instruments ( $a$ ) is modelled as a function of the exogenous variables ( $z$ ) and the relevant aspects of the state

of the economy ( $x$ ). If the target values or the preference functions differ between governments or otherwise, indicators reflecting changing preferences of the central authority could be taken into the reaction function.

In the politico-economic framework, governments' use of macro-economic instruments is a function of two sets of independent variables. First, the *target* variables, mainly the growth of private income, the rate of inflation, unemployment, and the balance of trade, influence governments' instrument variables. Secondly, the politico-economic proposition suggests *proximity to elections, governments' rating at the opinion polls, and ideological factors* play a role for economic decision-making.

*Instrument variables:*

- G: Total government spending, constant prices
- GTR: Government transfers to the consumers, constant prices
- GS: Subsidies, constant prices
- GC: Government consumption, constant prices
- M: Money supply (M1 – not quasi money or credit to the economy), current prices

Data for government spending were converted to constant 1970 prices using the consumer price index for GS (subsidies) and GTR (transfers) and the public consumption price index for G (total government spending) and GC (government consumption) and GI (government investments).

The expansiveness of governments' policy is measured by the *growth rate* of government consumption, transfers, subsidies, and the money supply.<sup>8</sup>

*Independent variables:*

- UNEMP: Percentage growth of people being unemployed (1000s)
- TRADE: The surplus in the balance of payments (export–import) measured in constant prices
- WAGE: Index for male hourly wage earnings in manufacturing industries
- PD: The percentage yearly growth of domestic consumer price index
- PI: The percentage yearly growth of OECD consumer price index
- POP: The ruling party's (or coalition's) popularity as measured in opinion polls
- POP<sub>0</sub>: Initial government popularity, that is, popularity at the time government enters office
- Q: Indicator variable equal 1 during periods of popularity deficit [ $POP_0 - POP > 0$ ], and equal 0 if government enjoys a popularity surplus [ $POP_0 - POP < 0$ ].

$R_k$ :	Indicator variable coded 1 if government $k$ is in office, otherwise 0
SOCGOV:	Indicator variable equal 1 if a socialist government is in power, and equal 0 if a non-socialist government is in power
PAREL:	Number of months to the next parliamentary election
LOCEL:	Number of months to the next local government elections

Quarterly data for these variables were collected for the period 1963 to 1986. The present formation follows the mainstream modelling of politico-economic reaction functions.

First, it is commonly assumed that 'popularity deficit' influences government decisions. If the current popularity is smaller than that necessary for re-election, government will attempt to improve re-election prospects by embarking on expansive policies. This can be an appropriate proposition in systems of mainly majority governments. In the Norwegian case, minority governments have been the rule rather than the exception. The period analysed here covers eight governments; only two have been majority governments. Using the conventional indicator of a popularity deficit would yield large popularity deficits for some governments, although the government parties could do comparatively well on the opinion polls. Governments with smaller deficits could have declining popularity. (The popularity 'surplus' computed here is the difference between current popularity and the popularity at the time the party (or alliance of parties) entered governmental office.)

Second, the conventional theory about the political business cycle suggests that economic policies tend to be increasingly expansive as the parliamentary election is coming up. A utility-maximizing government will increase private consumption and decrease unemployment, postponing the price effects till after the election. Paldam (1981a) labels this theory the *alfa* theory. The competing proposition, derived from the *beta* theory, suggests that economic policy tends to be more expansive in the second year of the election term:

... the decisive element is the boosts of ideological fervour generated by the election campaigns or, expressed slightly differently, the promises which the competitive pressures during the campaign force the parties into making. Then the election promises of the newly elected government are carried into an atmosphere of victory and supported by the post-election popularity rise for the new government. This all leads to the second year expansion and to the subsequent increases in the rate of inflation. (Paldam 1981a, 300)

In the Norwegian system, local election and parliament election are held alternately every second year. (Election dates in the Norwegian system are fixed, beyond the control of government.)

According to the conventional *alfa* theory, one would expect expansiveness to increase in proximity to parliamentary elections, possibly also

local elections. Following Paldam's *beta* theory, one would expect expansiveness to increase after the parliamentary election. The local elections are probably less relevant for the *beta* theory.

Third, the model includes four economic variables: the domestic rate of inflation, domestic inflation relative to OECD inflation, real wages, unemployment and the export surplus. The lagged growth rates of these variables are related to the instrument variables. The growth rates from month  $t - 14$  to month 2 are assumed to influence the money supply, government deficit and government spending. The level of export surplus relative to GDP is lagged 8 months. As a first approximation, a linear and additive model is estimated as follows:

$$(3) \quad \log[Y(t)/Y(t - 4)] =$$

$$\begin{aligned} & \gamma_0 \\ & + \gamma_1 \cdot \text{TRADE}(t - 4) \\ & + \gamma_2 \cdot \text{UNEMP}(t - 4) \\ & + \gamma_3 \cdot \log[\text{PD}(t)/\text{PI}(t)] \\ & + \gamma_4 \cdot \log[\text{WAGE}(t)/\text{WAGE}(t - 4)] \\ & + \gamma_5 \cdot \text{PAREL}(t) \\ & + \gamma_6 \cdot \text{LOCEL}(t) \\ & + \gamma_7 \cdot Q \cdot [\text{POP}_0 - \text{POP}]^2 \\ & + \sum_k \mu_k \cdot R_k \\ & + e(t) \end{aligned}$$

Y(t): G(t), GC(t), GTR(t), GS(t), M(t)  
e(t): Residual variable modelled as an autoregressive process of maximum 8 degrees using backward elimination.

#### *Politico-Economic Reaction Function*

According to traditional Keynesian thinking, we expect to find more expansive policies in times of low or moderate wage growth, when domestic and relative rates of inflation are low, when unemployment is increasing, and when exports are high compared to imports. Following the conventional propositions about political influences, economic policy is more expansive the nearer one gets to an election and during times of 'popularity deficit'. Paldam's *beta* theory implies a reverse election cycle.

Different government instruments are used for different purposes. Monetary policies appear to play an increasingly important role, whereas the scope for stabilization policy through public budgets seems to decline (Cowart 1978a, b). This is probably much the same for public consumption and government transfers to consumers (mainly pensions), whereas discretion is greater for taxation and government subsidies. Even so, we

expect monetary policy to be the main instrument both for stabilizing the economy and for the manipulation of public opinion.

Finally, the development of international markets does play a decisive role for domestic policies in small, open economies. In the Norwegian case, the oil revenues or expectations about future oil may influence this linkage quite significantly. During the slump in 1975 to 1978, Norway pursued quite expansive policies to keep unemployment low. Imports grew rapidly compared to exports as did the rate of inflation. Government expected future oil revenues to finance the trade deficit. However, the international economy did not recover, and the government was forced to pursue more contractive policies from 1978 onwards. Thus, we could find the estimates for domestic inflation relative to OECD inflation and the trade deficit to deviate from the proposed. Table 3 provides the estimates for the policy functions.

Table 3 indicates that the growth of *total public spending* ( $G$ ) is significantly related to macroeconomic variables. Increasing levels of unemployment tend to accelerate the rate of government spending. (The  $T$ -value is relatively low, but a one-sided  $T$ -test justifies the conclusion.) Furthermore, the rate of relative inflation reduces the growth rate significantly.

On the other hand, the growth of real wages has a significantly positive impact. Wages growth tends to increase government revenues, which could explain the expansive impact on government spending. Moreover, wage increases above productivity can generate unemployment. The positive parameter in model (3) suggests that governments react by pursuing more expansive policies in order to avoid unemployment. Surprisingly, the export surplus yields a negative parameter. This can probably be explained by the role of oil money in the Norwegian economy, as well as the moderate lagging of the independent variable.

The election cycle has a minor impact on fiscal policies in Norway. Neither the conventional *alfa* propositions nor Paldam's *beta* theory receives substantial support. The popularity surplus does not yield a statistically significant parameter. An increase in squared popularity in times of a popularity deficit does not increase the rate of government growth.

The 'government-dummies' indicate significant differences in fiscal policies. The social-democratic government of Bruntland II is scaled to 0. Both the Gerhardsen/Bratteli (social democratic) and Korvald/Borten (non-socialist) governments pursued more expansive policies, while the estimate for the first Willoch government (Willoch I, non-socialist) indicates a more contractive fiscal policy. Willoch II falls close to the Nordli/Bruntland period.

The R-square statistics indicate a nice fit to the data. Including the autoregressive part, 80 per cent of total variance is explained by the model

Table 3. Macroeconomic Policies in Norway 1963–1985. Parameter Estimates for Politico-Economic Reaction Function.

Independent variables:	Dependent variables:			
	G	GC	GTR	GS
Constant term	0.059 (4.0)	0.050 (2.6)	0.079 (4.5)	-0.016 (-0.4)
TRADE(t - 4)	- 0.0096 (-2.8)	-0.0063 (-1.3)	- 0.0080 (-2.0)	-0.028 (-3.2)
UNEMP(t - 4)	0.00085 (1.6)	0.00052 (0.8)	0.00083 (1.3)	0.0022 (1.6)
log[PD(t)/PI(t)]	-0.038 (-4.6)	- 0.035 (-3.1)	-0.016 (-1.4)	-0.099 (-3.8)
log[WAGE(t)/WAGE(t - 4)]	0.179 (2.7)	0.191 (2.1)	-0.060 (-0.7)	0.816 (4.7)
LOCEL(t)	-0.0002 (-0.9)	- 0.00004 (-0.2)	-0.0001 (-0.5)	-0.0003 (-0.5)
PAREL(t)	- 0.0001 (-0.3)	0.00009 (0.3)	-0.0001 (-0.6)	- 0.0002 (-0.4)
Q*[POP <sub>0</sub> - POP(t)] <sup>2</sup>	-0.0001 (-0.4)	- 0.0004 (-1.3)	- 0.00004 (-0.01)	- 0.0001 (-0.2)
<i>Indicator variables for each government:</i>				
R <sub>1</sub> Gerhardsen (Soc.)	0.011 (0.8)	0.020 (1.1)	-0.004 (-0.3)	0.063 (1.8)
R <sub>2</sub> Borten (Bor.)	0.015 (1.3)	0.007 (0.4)	0.038 (2.9)	0.035 (1.3)
R <sub>3</sub> Bratteli (Soc.)	0.024 (1.5)	0.038 (1.8)	0.036 (1.9)	0.013 (0.3)
R <sub>4</sub> Korvald (Bor.)	0.004 (0.2)	0.010 (0.6)	-0.010 (-0.5)	0.032 (0.8)
R <sub>5</sub> Nordli/Bruntland (Soc.)	-0.028 (-2.9)	- 0.029 (-2.2)	-0.021 (-1.8)	-0.015 (-0.6)
R <sub>6</sub> Willoch I (Bor.)	-0.034 (-2.4)	-0.031 (-1.7)	-0.026 (-1.5)	-0.039 (-1.0)
R <sub>7</sub> Willoch II (Bor.)	-0.028 (-1.3)	-0.024 (-0.9)	-0.021 (-0.8)	-0.031 (-0.5)
R <sub>8</sub> Bruntland II (Soc.)	0	0	0	0
Total RSQ	0.80	0.73	0.79	0.74
Regression RSQ	0.50	0.32	0.52	0.56
RMSE	0.016	0.020	0.019	0.046
Degr. of fr.	64	64	63	63

T-values are presented in parentheses below the estimates.

(total RSQ). About 50 per cent is due to the structural part of the model, that is, the specified independent variables (regression RSQ).

As might be expected, *government consumption* (GC) does not fit the reaction function equally well. Most of the variance is captured by the autoregressive component, and the structural model accounts for 32 per cent by the structural part of the model. The estimates indicate that

macroeconomic considerations are less relevant for government consumption. The public service supply is labour intensive, suggesting one reason why the stabilization model gives a weaker fit to data.

However, the rate of inflation produces a negative estimate. Higher unemployment appears (not significant) to increase the growth of government consumption. Finally, the impact of political variables is rather small. There is some evidence that the social democratic governments (Gerhardsen, Bratteli, Nordli/Bruntland) increased government spending at a faster rate than the non-socialist governments (Borten, Korvald, Willoch I, II).

The analysis for *government transfers* (GTR) to consumers (pensions, etc.) resembles that for total government spending. The relative rate of inflation, unemployment, wages, and the export surplus take similar signs as for total government expenditures. The T-values are somewhat lower.

There is little sign of an election cycle. The estimate for popularity surplus suggests that an improvement in the opinion polls tends to produce higher growth for transfers. The impact is relatively small and statistically insignificant.

Comparing the different governments, we find that the non-socialist governments have increased transfers almost as fast as the social democratic governments.

*Government subsidies* (GS) is very much a function of the macroeconomic situation. Again we find the rates of relative inflation to be negatively related to the growth rate of expenditures. An increase in real wages increases government subsidies, while the export surplus yields a fairly high negative estimate.

The election cycle indicators suggest that government subsidies does not accelerate in proximity to elections. As for the other models, the parameters are small and generally insignificant.

Clearly, the different governments have pursued quite different policies vis-à-vis subsidies. The growth rate has declined considerably during the recent governments. Table 4 presents the estimates for the growth of the money supply. Monetary policies did not play a major role in the stabilization of the economy in the 1960s and 1970s. Governments kept tight control of the credit markets, and aimed at keeping the interest level low. During the last decade monetary instruments have come to play a role comparable to that of the traditional fiscal instrument variables. Therefore, this model has been analysed separately for the whole period and for the last decade.

The model does *not* fit the *money supply* (M) well for the whole period (1963–1985). Only 24 per cent of the total variance is explained by the model. The estimates in Table 4 indicate that none of the economic indicators has a significant influence on monetary policy. Moreover, the monetary policy is not subject to an election cycle. We do find that a



Table 4. Macroeconomic Policies in Norway 1963–1985. Parameter Estimates for Politico-Economic Reaction Function – Supply of Money (M).

Independent variables:	Estimation period:	
	(1963–1985)	(1977–1985)
Constant term	0.0412 (1.2)	0.0841 (2.3)
TRADE (t – 4)	-0.003 (-0.3)	0.010 (1.3)
UNEMP (t – 4)	-0.0006 (-0.6)	0.0009 (1.0)
log[PD(t)/PI(t)]	0.0019 (0.1)	-0.045 (-1.5)
log[WAGE(t)/WAGE(t – 4)]	-0.0004 (-0.3)	-0.004 (-2.2)
LOCEL(t)	0.0003 (0.5)	-0.0007 (-1.2)
PAREL(t)	-0.0003 (-0.4)	-0.0001 (-0.1)
Q*[POP <sub>0</sub> – POP(t)] <sup>2</sup>	-0.0015 (-1.7)	-0.0014 (-1.6)
<i>Indicator variables for each government:</i>		
R <sub>1</sub> Gerhardsen (Soc.)	0.046 1.5	(mis)
R <sub>2</sub> Borten (Bor.)	0.020 1.3	(mis)
R <sub>3</sub> Bratteli (Soc.)	0.074 1.9	(mis)
R <sub>4</sub> Korvald (Bor.)	-0.007 -0.2	(mis)
R <sub>5</sub> Nordli/Bruntland (Soc.)	0.000 (mis)	(mis)
R <sub>6</sub> Willoch I (Bor.)	-0.006 (-0.2)	0.005 (0.2)
R <sub>7</sub> Willoch II (Bor.)	0.096 (2.1)	0.054 (1.2)
R <sub>8</sub> Bruntland II (Soc.)	0	0
Total RSQ	0.24	0.84
Regression RSQ	0.24	0.84
RMSE	0.0052	0.025
Degr. of fr.	70	21

T-values are presented in parentheses below the estimates.

popularity surplus causes a significant decrease in the money supply. When government has a popularity deficit, increasing deficits tend to produce an increase in the growth of the money supply.

Turning to the last decade (1977–1985), the model fits considerably better. The model captures an explained variance of 84 per cent. Although

the T-values are quite low, mainly due to few degrees of freedom, some substantial conclusions can be reached.

The balance of trade and rates of unemployment have a minor impact, whereas increasing relative rate of inflation tends to reduce the growth rate of the money supply and the real wage growth tends to reduce the money supply. These findings are broadly compatible with common notions of the role of monetary stabilization policies.

Furthermore, the electron cycle indicators yield minor and insignificant results. The popularity indicator takes a negative turn comparable to that of the previous model. Thus, there seems to be some weak support for the impact of opinion polls on government monetary policies.

## The Significance of Politico-Economic Interaction in Norway

As far as the *popularity function* is concerned, it seems safe to conclude that the electorate – or at least some aggregate expression of the voters – keeps the incumbent party responsible for the state of economic affairs. It is possible to trace statistically significant effects of macroeconomic indicators on the popularity series. On the other hand, the general impact is a *weak one*. The overall experience suggests that it is difficult to manipulate economic conditions towards bringing about an important increase in government popularity.

Second, even if the above answer is a negative one, the findings should not be interpreted such that the electorate is *indifferent* to macroeconomic situations. The analysis shows that the preferences have not been *revealed* as a function between government support (as measured in opinion polls) and the economic variables analysed. The answers reported on opinion polls are probably perceived as less serious than the casting of the vote. Other ways of measuring electoral preferences could yield totally different results.

Third, the economic situation has remained relatively stable throughout the period analysed. No dramatic changes in important variables have occurred. Unemployment in Norway has remained low, by international standards extremely low, throughout the period analysed. The modest variations have not influenced the voters' preferences. It is interesting, though, that the rates of unemployment actually experienced have not influenced government support. For rates of inflation, the voters have been allowed to adjust to new levels of these variables.

Fourth, the findings reached here are in fact *consistent* with Madsen's (1981) research on election outcomes in Norway, they are compatible with Wickstrøm's (1984) analysis which did not include the Willoch period, and

with Lybeck's findings for the Swedish case.<sup>9</sup> On the other hand, the results diverge from those of Jonung & Wadensjø (1979) for Sweden, and the analysis of Paldam & Schneider (1980) for the Danish case. Therefore, it appears premature to state any general conclusion for the Scandinavian countries.

The crucial assumption about the *reaction function* is the assumption that government thinks it is able to manipulate the economy, to fine-tune the target variables in the short run. The actual management, however, is an extremely difficult task, even when restricting oneself to the traditional stabilization policies in a closed economy. The challenge is even greater when politicians strive to adjust the economy to election dates and opinion polls. Finally, the Norwegian economy is highly exposed to the shocks of international markets. Thus, the government's ability to influence macro-economic targets is subject to important structural limitations.

Second, the policy function is quite sensitive to the relative rates of inflation. Both fiscal policies and monetary instruments are more contractive the more the domestic rate of inflation is greater than that of OECD countries. In our models, unemployment rates do affect government policy very much, although the impact is fairly weak. This could be due to counter-cyclical policies by means of exchange rate adjustments, possibly also to a negative Phillips-curve correlation between unemployment and inflation (cf. Alt 1987). Contrary to expectations, government responds expansively to a deterioration of the balance of trade. In the short run, Norwegian governments stimulate the economy as exports decline relative to imports.

Third, previous research suggests that Norwegian governments employ expansive policies in proximity to elections (Madsen 1981), whereas other studies provide more mixed support for the 'classical' proposition (Sørensen 1986). The present results indicate that governments pursue rational policies in the sense that no political business cycles exist and in the sense that opinion polls do not influence government decision-making. (The possible exception is the impact of government popularity on monetary policies.)

Taking the results from the popularity function at face value, and assuming government to be able to manipulate the economy, knowledge about electoral behaviour would not change government behaviour. Assuming rational and well-informed actors, the reaction-function and the popularity function are consistent.

## Normative Implications of the 'Popularity Function' and the 'Political Reaction Function'

From the perspective of *classical welfare economics*, research on the factors shaping electoral preferences reveals information about preferable policies

as judged from the voters' point of view. One assumes the voters know best what is preferable for themselves and society as a whole. Therefore, the ideal democracy is one in which each voter can express his or her preferences on a wide spectrum of topics. An aggregate expression of these preferences, the social welfare function, constitutes the basis for political decision-making.

The opinion polls from which the popularity function is derived, is one way in which the voters express their satisfaction or dissatisfaction with present and past policies. It is arguable whether the estimation of a popularity function will yield information similar to what one would have liked to see in the abstract versions of the social welfare function<sup>10</sup>

Partly developed as a critique of the social welfare function, *public choice* theory focuses on the 'public sector failures'. It is argued that even if the politicians attempt to comply with electoral preferences, for example to maximize the re-election prospects, the outcome may be suboptimal for society (cf. for example Whiteley 1980, 4). One of the reasons for these political imperfections is the systematic misperceptions of government policies, such as 'fiscal illusions' or voters' 'myopia'. This could lead the politicians to decide on suboptimal levels of public spending (Downs 1960). Electoral 'myopia' combined with the popularity function is the basis for vote-maximization by means of the 'political business cycle'.

The third approach rejects the normative assumption that political decision-making should aggregate individual preferences, and transform them into public policies. The basic idea of representative democracy is that political parties should try to carry out a distinct political programme supported by a general *ideological* superstructure. Governments should rule rather than be ruled, government politicians should make decisions according to their own preferences, even if these may diverge from those of the citizens. And, governments should provide 'merit goods' not represented in the individual voters' preference function.

In what sense can the empirical models estimated here say anything about these groups of theory? On the one hand, it seems fairly clear that the estimated models do not support the pessimistic propositions derived from public choice theory. On the other hand, the popularity function estimated here has probably little to say about the 'social welfare function'. Economic variables, in particular the rate of inflation, do play a role for electoral preferences. However, there is too much 'noise' in the popularity function for it to be of much relevance for the 'social welfare function'. Finally, different governments do pursue different economic policies. In the Norwegian setting it is hard to interpret these differences in terms of a clear left-right dimension in macroeconomic policy.

## NOTES

1. Other variables have been taken into the model, e.g. personal tax rates, strike activity, and special events such as the EEC issue in Norway and the Watergate scandal in the USA. We call this particular version of the popularity the *classical* popularity function.
2. I have restricted the review to studies explicitly focusing on the Scandinavian cases. These countries have also been analysed within a broader sample of countries, notably in Paldam (1981a), Alt (1986) and Soh (1986). These studies are not commented on here.
3. The model comprises a fairly narrow set of government objectives. As noted by Paldam (1981a), the models are dominated by easily available economic indicators, whereas the impact of less tangible political target variables remains to be tested. What is the role of welfare-state policies to equalize incomes across different socio-economic groups? Perhaps the system of taxation, the role of direct taxation relative to indirect taxation, is relevant for explaining fluctuations in voter preferences. Or, one may ask whether a government's priority between different public services has some influence on the popularity of various political parties. An extensive discussion of these variables would take us beyond the limits of this article.
4. The data are taken from 'Norsk Gallup Institutt'. The respondents were asked to indicate their party preference at a potential general election tomorrow. The percentage support for all the parties in power gives the popularity variable.
5. The model can also be formulated by means of a *Koyck-scheme*, that is, under the assumption that the dependent variable POP(t) is influenced both by the present and lagged explanatory variables. It is assumed that the impact tends to be weaker the greater the lag. The voters put stronger emphasis on present than past policies.
6. The models presented in the article have been estimated by the SAS/ETS statistical programme.
7. Some of the variables represent both government objectives and instrument variables. Governments prefer public versus private spending. The fact that the public sector accounts for about 50 per cent of gross domestic product indicates that fluctuations in the level of public goods and services as well as transfers to consumers (public pensions) may be important in influencing electoral attitudes.
8. The findings do *not* support the proposition that economic conditions affect the polls more strongly than they affect election outcomes.
9. For example, Hibbs (1982) estimates a popularity function in which the '... elasticities reveal the public's marginal proportional aversion to, or "demand" for, various economic outcomes'. It appears to be difficult to establish such a function in that the relative weight put to inflation, unemployment and disposable incomes varies over time and over different governments. The voter's demand function appears to be an unstable one.

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