

Do Local Politicians Respond to Citizens' Demands? A Microanalysis of Norwegian Local Government¹

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The correspondence between citizens' preferences and the preferences of the elected politicians is a critical concern of democratic institutions. Models founded on the central tendency of politicians' behaviour in elections, such as the median-voter model and the model of the "uncovered set", predict that politicians respond to local demands. Other models, notably those that assume imperfectly informed citizens and representatives, predict lack of response. The present article relies on a demand model. We estimate the model by combining survey data for 80 Norwegian municipalities with information on economic, social and demographic factors. The study uses independent surveys to measure the spending preferences of citizens and representatives. The politicians' and the citizens' demand functions are structurally similar, and the article demonstrates that the spending preferences of the representatives are positively related to preferences of the electorate. Alternative interpretations of these findings are discussed.

Introduction

The main justification for local government is responsiveness. Democratic institutions at the local level are supposed to reflect the electorate's demands in a specific municipality more accurately than the national government does. This is because of the homogeneity of preferences within the municipality. Since the local residents share a relatively uniform economic, demographic and cultural background, their preferences are supposed to be more homogeneous within smaller geographical units than in the nation as a whole. Therefore, local politicians can allocate services that meet comparatively uniform local preferences, rather than some national average preferences to which the national government caters (Oates 1972).²

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Introduction

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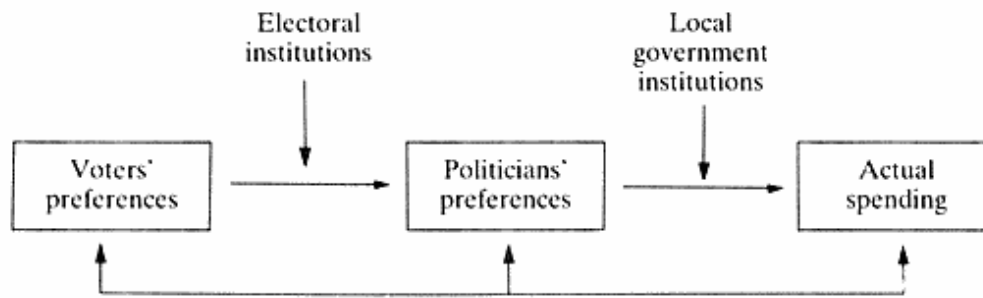


Fig. 1. Framework for the Analysis.

(Inman 1978). European research (Rattsø 1989; Sørensen 1989) models the local government as a unitary actor which maximizes a demand function over local public goods conditioned by socio-economic factors. The effects of voters' preferences, politicians' preferences and political party priorities are not made explicit in these models. This research relies on *assumptions* of pivotal median voters or of dominant parties.³ The political process is inadequately modelled.

Figure 1 provides a framework for discussing the relationship between constituencies' preferences, politicians' preferences and actual spending. The present model assumes that the spending of the electorate is exogenous, while we assess the extent to which representatives' preferences are positively related to those of the citizens. Though this assumption has been empirically challenged (Gerber & Jackson 1993), it is a simplification that can be justified in order to analyse similarities and deviations between citizens' and politicians' preferences. Two types of institutions "intervene" in the political process, as depicted in Fig. 1. The electoral institutions are the channel for aggregating voters' preferences into politicians' preferences. The local government institutions aggregate individual preferences into policy objectives that are implemented through spending decisions. This article addresses the first step in the causal chain, the correspondence between voters' and politicians' preferences: Do local politicians respond to the citizens' demands?

In the following section we discuss the problem in a broad context. Models founded on central tendencies of politicians' behaviour in elections predict that politicians act in the interests of the voters. However, lack of information may prevent representatives from adjusting to the voters' preferences, and voters may be insufficiently informed to be able to control the elected politicians. Therefore, politicians may behave paternalistically and pursue personal definitions of what is the public interest.

The theoretical approach is a demand model for local allocation of resources. The third section assumes that the citizens' and politicians' preferred levels of services are functions of the actual level of spending and of local characteristics. In contrast to a simple correlation between citizens' and politicians' preferences the demand model allows us to analyse both the reaction of different groups to demographic factors and their reactions to differences in local government revenues. This approach facilitates a direct empirical test of the degree to which politicians respond to citizens' demands.

The fourth section presents the empirical results. We implement the model using data from Norwegian local government. On the basis of extensive micro data from 80 municipalities, we estimate the preferred spending level of local residents and of elected politicians.

Preference Correspondence and Information

The Downs–Hotelling model (Downs 1957; Hotelling 1929) assumes two-candidate competition for votes in a unidimensional policy space where voters have single-peaked preferences, know candidate locations, and vote for the candidate whose location is nearest to the voters' ideal point. This leads to the well-known median voter result: Candidates converge to the position of the median voter's ideal point.

Erikson, Wright & McIver (1989) provide an empirical analysis that corroborates this interpretation. Using American survey data, they find that the states' opinions correlate weakly with party control. The significant effect of local opinion on public policy is mediated by the parties' responsiveness to opinions of the state. Local parties adapt to the ideological climate in each state. In brief, indirect democracy, by means of the processes of selection and adaptation, ensures that the elected politicians reflect the demands of their citizens. The findings of Erikson et al. are based on unidimensional indices of preferences.

The unidimensionality assumption is questionable. Elections are multidimensional and, in general, equilibria do not exist in multidimensional settings.⁴ Recent progress in game theory has offered several solutions to the problem. For example, Miller (1980) and McKelvey (1986) develop the concept of the "uncovered set". The uncovered set re-establishes the central tendency in majority elections in multidimensional settings. Candidates will choose strategies at or near the median, and the attractiveness of the centre of public opinion is maintained (Ordeshook 1986). The uncovered set predicts that politicians respond to voters' demands. In a multiparty

system the same central tendency is obtained if voters' preferences are reasonably homogeneous (Cox 1990a, b). As in the study by Erikson et al. (1989), politicians' preferences will then correlate weakly with party control. Local politicians will adapt to the ideological climate of the specific community. We shall pursue this hypothesis in the empirical section of the article.

The theories presented above are based on assumptions of perfectly informed voters and politicians. Yet voters frequently lack information about politicians' standpoints and elected politicians lack adequate information about voter preferences. Various kind of information problems are likely to generate mismatches between the preferences of the voters and those of the politicians.

First, democratic government includes an element of paternalism. If politicians believe that voter attitudes are based upon deficient information and faulty knowledge about the costs and gains of particular public programmes and simultaneously believe that they themselves are better informed, then it is legitimate to deviate from the citizens' desires. The representatives should behave like "trustees" (Fenno 1978) and articulate the "common good", or "civilized priorities" (Maass 1983; March & Olsen 1989, 124–129). This permits politicians to provide services that are not highly regarded among the electorate.

In another version of the paternalistic explanation, the politicians lack adequate information about voter preferences. Despite a considerable amount of informal communication between citizens and representatives, and more frequent use of opinion polls to tap consumer attitudes, politicians usually know relatively little about spending preferences. Groups of citizens disagree about the priorities of the government, and politicians often differ in their interpretation of the preferences of the voters. This can also lead to a search for the "common good".

A second and less heroic interpretation relies on the principal-agent framework: imperfectly informed citizens are unable to control their agents, the elected politicians. Kalt & Zupan (1990) argue that representatives seek to pursue personal definitions of the public interest which deviate from the view of the electorate. This contributes to the "psychological well-being" of the politicians. They can act as they do because the voters lack information about political activities. The politicians become "principal-agent shirkers" (Goff & Grier 1993). This situation can be reinforced by the socialization of politicians within the government institutions (Payne 1990; Frey 1992). They become an insulated "political class" rather than spokesmen for their constituency. Frey (1992) maintains that direct democracy is the only way to maintain efficient electoral control of the policy-making process. Direct participation (referendum) "breaks up the politicians' coalition" (Frey 1992, 218), and causes the publicly supplied goods

to correspond better to the demands of the citizens. The fact that the spending level is lower in authorities that are subject to direct voter participation is supposed to show that direct democracy creates more responsive politicians. Even if we accept the validity of this test, the empirical results have been quite mixed. Some find that direct voter control has a direct impact on public spending levels (i.e. Pommerehne 1978; Santerre 1986, 1989), others reach ambiguous results (for a brief review, see Sass (1991, 71–72)).

Third, reactive voting, i.e. the ability to punish and reward the incumbent party, is the major instrument of voter control. Kristensen (1982, 36–38) suggests that the voters are insufficiently informed about the issues that persuade them to vote for one specific party in preference of another. Voters are overwhelmed by the immense complexity of the government sector. Public debate focuses on problems of particular spending programmes rather than on overall budgetary priorities. This weakens the citizens' capacity to perceive the overall budgetary trade-offs, and they tend to demand improved public services without showing due concern for costs and budgetary constraints. The Norwegian system of local government reinforces this information problem. Because the local governments do not have the authority to decide tax rates, the left–right dimension cannot be spelled out at local level. Since the party ideologies are relatively irrelevant to the priorities made in the local government budget process, the voters are ill-equipped to hold politicians responsible.

Fourth, mobile citizen-consumers may choose to settle in communities that provide services and impose taxes which match their individual tastes, thereby facilitating the responsiveness of local governments (Tiebout 1956). The spatial sorting process promotes enhanced allocative effectiveness. This theory is supported by US macro studies which show greater effectiveness in polycentric areas than in encompassing, monocentric local governments. The information assumption is crucial to the operation of the exit–entry process at the micro level. Some researchers claim that people are unaware of alternative service-tax bundles, and that migration has little bearing on local government behaviour (Lowery & Lyons 1989). Others maintain that the competitive process works when a subset of mobile citizens are well-informed (Teske et al. 1993).

Two contradictory propositions evolve from this discussion: the theories of local government that assume perfectly informed politicians and voters predict that politicians are responsive to voters demands. The citizens' spending preferences correspond to those of the elected assembly. On the other hand, theories that assume imperfect information suggest that representatives respond imperfectly. The proposition is that the spending preferences of the elected politicians correlate weakly or not at all with the preferences of the citizens.

The Basic Model of Politicians' and Citizens' Demands

The spending preferences of citizens and politicians are studied within a demand framework. The initial model of individual demand functions for local public services was developed by Bergstrom & Goodman (1973), and the major contributions have been reviewed by Inman (1979) and Rubinfeld (1987).

The local decision-maker maximizes a preference function over K types of services which are measured in quantities $Q_t = (Q_{1t}, Q_{2t}, \dots, Q_{Kt})$. The subscript t denotes authority t . The preference function can be interpreted as that of an elected politician or a citizen, and is conditioned by characteristics that describe the aggregate demand of the local community. The vector Z_t of social and demographic indicators is assumed to represent various characteristics of the local residents that influence the aggregate demand. The preference function of a politician (or citizen) v in municipality t can be written:

$$U_{tv} = U_{tv}(Q_t; Z_t). \quad (1)$$

Following Rattsø (1989) and others, the preference function contains no trade-off between provision of public services and private consumption. Norwegian local authorities have little influence over local revenues. All municipalities use the maximum tax rate stipulated by the central government. Another source of revenue is central government grants. A third is fees and charges, which account for about 10 percent of the local revenues. We assume that local revenue R_t is an exogenous variable. The (net) prices $q_t = q_{1t}, \dots, q_{Kt}$ are exogenous variables in the model. Revenues are used to finance the service supply (current spending purposes) E_t , and for other purposes O_t (investments, interest on loans, etc.). This suggests a simple budget constraint:

$$R_t - O_t = E_t = \sum_{k=1}^K q_{kt} Q_{kt}. \quad (2)$$

The first order conditions are derived by maximizing (1) subject to (2). They define the citizens' and politicians' preferred quantities of local government services Q_{ktv}^* as a function of total expenditures (E_t), prices (q_{kt}), and residential demands (Z_t). The optimal budget shares of politician (or citizen) v are defined by $A_{ktv}^* = q_{kt} Q_{ktv}^* / E_t$. We assume that the individual demand functions can be decomposed into a structural component that is common to all representatives (or citizens), and a stochastic residual that represents the idiosyncratic factors. The random component is assumed to have given variance and a zero expected value:

$$A_{ktv}^* = g_k[E_t, Z_{kt}, q_{kt}] + v_{ktv}; \quad k = 1, 2, \dots, K; \quad t = 1, 2, \dots, T; \quad v_t = 1, 2, \dots, N_t. \quad (3)$$

We define the preferred budget shares of the elected council (constituency) as the unweighed average of the representatives' (citizens') preferred budget shares (N_t denotes the number of representatives (citizens) in municipality t , that is $v_t = 1, 2, \dots, N_t$):

$$A_{kt}^* = g_k[E_t, z_{kt}, q_{kt}] + \varepsilon_{kt}$$

where

$$\varepsilon_{kt} = \frac{1}{N_t} \sum_{v_t=1}^{N_t} (v_{ktv_t}); k = 1, 2, \dots, K;$$

$$t = 1, 2, \dots, T; v_t = 1, 2, \dots, N_t \quad (4)$$

The aggregation of politicians' spending preferences is reasonable given the institutional set-up. The local authorities (except Oslo) apply the *Alderman model* for aggregating politicians' preferences. The parties are proportionally represented on the Municipal Board of Alderman, which facilitates compromises and bargained solutions rather than dominance by the majority party.

Previous studies of local government resource allocation *assume* that the desired resource allocation is equivalent to the actual allocation (Sharpe & Newton 1984; Boyne 1988). There is a perfect implementation of electoral demands and politicians' policy preferences. The present approach allows for deviations between preferred and actual budget shares (Bergstrom, Rubinfeld & Shapiro 1982; Mouritzen 1987a; Rubinfeld 1987; Rongen 1994; Sørensen 1995). Suppose that the preferred share A_{kt}^* is significantly larger than the actual expenditure share A_{kt} . This is a situation in which the politicians (citizens) prefer a higher spending level. Conversely, if A_{kt}^* is smaller than A_{kt} they prefer a lower spending level.

Let S_{ktv} equal 1 if the representative (citizen) v in municipality t prefers a *higher* budget share for programme k , S_{ktv} equals 0.5 if the representative prefers the *same* spending as at present, and 0 if the representative prefers *lower* spending. The politicians' (citizens') preference index, S_{kt} , is obtained by aggregating the local decision-makers' preference indices:

$$S_{kt} = \frac{1}{N_v} \sum_{v=1}^k S_{ktv}. \quad (5)$$

We can then specify the relation between actual and preferred spending levels:

$$S_{kt}^* = \log \left[\frac{S_{kt}}{1 - S_{kt}} \right] = \lambda_k (A_{kt}^* - A_{kt}) + \rho_{kt},$$

$$\text{where } \lambda_k > 0. \quad (6)$$

Equation (6) defines a measurement model that relates stated spending preferences measured by S_{kt} to actual budget shares (A_{kt}), and preferred budget share (A_{kt}^*). The logit transformation simplifies the subsequent empirical analysis. The logit of S implies that S^* varies between plus and minus infinity, which is consistent with the ordinary regression assumptions. ρ_{kt} represents a random variable that includes random measurement errors and individual differences in the response pattern. We make the usual assumptions about expectation and variance.

Increasing values of S_{kt} imply that local representatives (citizens) have a stronger preference for additional resources to sector k compared to the present resource allocation. For example, if all members of the council wish to reduce the budget share of a particular sector, the preference index equals 0. We expect $\lambda_k > 0$ for all sectors, ($k = 1, 2, \dots, K$). This implies that the elected representatives (citizens) systematically relate actual demand to the current resource allocation. The result that $\lambda_k = 0$ implies that variations in spending preferences are not related to actual spending levels, and that an optimum spending level cannot be empirically assessed. The higher the value of λ_k , the stronger the influence of inter-jurisdictional preference heterogeneity.

Substituting (4) into (6) yields the politicians' (citizens') demand function (7):

$$S_{kt}^* = -\lambda_k A_{kt} + \lambda_k g_k(E_k, Z_{kt}, q_{kt}) + e_{kt},$$

where $e_{kt} = \lambda_k \varepsilon_{kt} + \rho_{kt}$. (7)

The citizens' demand function is derived by assuming that the local residents face a decision-making situation identical to that of the elected politicians: The voter maximizes a similar utility function subject to an identical budget constraint, from which we derive a latent demand function similar to that of (4). The citizens' preference index S_{kt} represents the (average) citizens' preference for a higher or lower spending level in sector k , and has been measured in the same way as described above.

We can then write an equation that allows analysis of differences in the demand pattern of politicians and citizens. Suppose that $h(\cdot)$ denotes the citizens demand for local government goods. The dummy variable Q is included to account for differences between the two groups (Citizens: $Q = 0$ for citizens; Politicians: $Q = 1$):

$$S_{kt}^* = Q[-\lambda_k A_{kt} + \lambda_k g_k(E_t, Z_{kt}, q_{kt})] + (1 - Q)[- \kappa_k A_{kt} + \kappa_k h_k(E_t, Z_{kt}, q_{kt})] + Q \varepsilon_{kt} + (1 - Q) \varepsilon_{kt}. \quad (8)$$

Given appropriate data on preferences and the other variables in the demand system, the model formalized in (8) can be empirically assessed.

Note that the residuals both capture the impact of measurement errors and idiosyncratic factors of the demand functions. The equation does not permit separation of the two components of the residual variable. The fact that we use aggregated preference indicators is likely to reduce the measurement errors.

Model Implementation and Empirical Results

The empirical estimation is based on a sample of 80 Norwegian municipalities (1990). We focus on the five major local government sectors: basic education (age 7–15 years); health and social welfare services; day-care centres; culture; and construction. Data on expenditure levels and other social and demographic factors were obtained from Statistics Norway and from the Ministry of Local Government. The socio-demographic indicators include the age composition of the population, and its size.

Information about the politicians' preferences was collected by means of a questionnaire. We used an open-ended question to tap political preferences. The question did not contain information about the level of the actual supply, and the elected representatives were asked to indicate which sectors they believed should receive a *higher* level of appropriations, and which should receive a *lower* level. The respondents indicated up to three sectors where they would like to see expansion, and up to three areas where they felt the municipality could manage with a lower budget. The S_k -indexes ($k = 1, 2, \dots, 5$) were estimated by an unweighed mean based on all the representatives in each local council.

Data on the residents spending preferences were collected by a similar survey in the same set of 80 municipalities ($N = 1000$). The questions contained information about the expenditure level in each municipality relative to the national average. We used fixed response alternatives on a five-point scale.⁵

Table 1 displays the mean budget shares, and the average values of the preference indices for the citizens and the politicians. Note that the mean values are computed as averages across municipalities.

Education and health care take about two-thirds of the local government budgets, while child care and cultural services are relatively small sectors in terms of budget shares. The average council wishes to maintain, or possibly reduce, the budget share for education, while the average constituency wants to increase this share slightly. Both groups prefer to spend more resources on health services, the representatives more so than the citizens. Child care (*kindergartens*) is less popular. Citizens and politicians believe that child care should receive a lower share of the budget. Cultural services are thought to take too large a slice of the public pie, and both

Table 1. Budget Shares of Local Government (N = 80), and Average Values For Spending Index For Municipal Politicians (N = 80) and Residents (N = 35).

		Budget share	Spending index: Politicians	Spending index: Inhabitants
Education	Mean	0.312	0.438	0.576
	Std.	0.056	0.082	0.060
Health care	Mean	0.422	0.624	0.535
	Std.	0.051	0.074	0.044
Child care	Mean	0.062	0.375	0.462
	Std.	0.023	0.067	0.066
Culture	Mean	0.065	0.311	0.311
	Std.	0.020	0.120	0.086
Construction	Mean	0.139	0.441	0.366
	Std.	0.029	0.148	0.060

Mean: Average score from sample of 80 municipalities.

Std: Standard deviation from sample of 80 municipalities.

groups would like to reduce spending in this sector. Finally, it appears that construction is slightly more popular than culture. Nevertheless, representatives and voters alike want construction to take up a lower share of the total budget.

There is considerable variation in spending preferences between municipalities. For example, the minimum index value for education is 0.27 (politicians) and 0.45 (citizens), and the maximum values are 0.61 (politicians) and 0.69 (citizens).

Estimation of the Demand Model

The demand system (8) has been estimated by regressing S^* for each sector against the actual budget shares, the demographic variables (logarithmic scale), and the local revenues (logarithmic scale). The dummy variables are used to discriminate between politicians and citizens:

$$\begin{aligned}
 S_{kt}^* = & Q[-\lambda_k A_{kt} + \lambda_k(\beta_{0k} + \beta_{1k} \log(E_t) \\
 & + \sum_j \beta_{2kj} \log(Z_{jt}) + \sum_{l=1}^K \beta_{3kl} \log(q_{lt}))] + (1 - Q) [-\kappa_k A_{kt} \\
 & + \kappa_k(\alpha_{0k} + \alpha_{1k} \log(E_t) + \sum_j \alpha_{2kj} \log(Z_{jt}) \\
 & + \sum_{l=1}^K \alpha_{3kl} \log(q_{lt}))] + Q \varepsilon_{kt} + (1 - Q) \varepsilon_{kt}.
 \end{aligned} \tag{9}$$

The budget constraint causes cross-equation correlations of residuals, and the seemingly unrelated regression procedure (SUR) takes this into account (Zellner 1962). Following Rattsø (1989), the prices were initially computed as current outlays (including wages) per man-year for each service sector. In accordance with a related study (Sørensen 1995), we estimated the direct price elasticities to be negative. Since the inclusion of prices did not affect the impact of the other variables in the model they were excluded in the final analysis. Table 2 shows the empirical results.

The demand system fits the data well, since the model accounts for 64 percent of the overall variation. The coefficients of the *budget share* take negative signs for all sectors, indicating that the preferred spending levels decrease with a higher actual level of services. Preliminary testing revealed no significant differences for these parameters between politicians and citizens, and λ_k was restricted equal to κ_k . The effects are significantly negative for all sectors except child care, and the desired budget share for *kindergartens* cannot be estimated accurately.

We find that the demographic variables impact as expected. Both the politicians' and the citizens' preferred demand for education is higher in municipalities with a young population. It is particularly evident that the demand for child care is greater in authorities that serve cohorts aged 0–6 years. However, few of the coefficients of the demographic variables are significant.

The impact of municipal revenue appears to be negative for education and positive for health care. Although the parameters for politicians and citizens are marginally significant, this finding corroborates previous research on the actual allocation of resources. Rattsø (1989), Borge & Rattsø (1992) find that the demand for education is inelastic and the demand for health care is elastic. Survey data designs (Rongen 1994; Sørensen 1994) suggest similar conclusions.

The above model permits direct comparison of the demand of the electorate and that of the politicians. We can compare the demand functions of citizens and representatives. The proposition that the politicians represent the demand of the electorate can be formalized by testing whether the α -parameters in the citizens' demand equation equal the β s of the politicians' demand equation. This test assesses to what degree citizens and politicians respond similarly to exogenous factors.

Table 3 displays three sets of F-tests for structural similarity in the demand system (9). The first reveals whether the *level* of demand differs between the two groups of respondents ($\alpha_{0k} = \beta_{0k}$, $k = 1, 2..5$); the second test examines the similarity of the income elasticities ($\alpha_{1k} = \beta_{1k}$, $k = 1, 2..5$); and the third investigates whether politicians and citizens respond similarly to changes in demographic conditions ($\alpha_{jk} = \beta_{jk}$, $j = 2, 3, 4$; $k = 1, 2..5$).

First, the intercepts differ significantly between the service sectors. As

Table 2. The Desired Budget Shares of Elected Politicians and Citizens (1990). Number of Local Governments, N, for Politicians: N = 80, for Citizens: N = 35. (Estimation Method: Iterated SUR, T-values in Parentheses.) System weighted R-Square: 0.64

	Education	Health care	Child care	Culture	Construction
Constant (politicians)	2.381 (1.34)	0.050 (0.04)	-1.017 (-0.87)	1.849 (0.91)	1.457 (0.71)
Constant (citizens)	9.168 (2.84)	-4.359 (-1.65)	2.955 (2.60)	-2.021 (-0.43)	-6.783 (-1.39)
Budget share (pol.)	-2.956 (-5.62)	-2.865 (-8.04)	-1.094 (-0.88)	-11.232 (-5.19)	-7.833 (-5.72)
Budget share (cit.)	-2.956 (-5.62)	-2.865 (-8.04)	-1.094 (-0.88)	-11.232 (-5.19)	-7.833 (-5.72)
% 0-6 years (pol.)	0.446 (1.05)	0.038 (0.09)	0.256 (0.64)	1.512 (2.09)	-1.303 (-1.76)
% 0-6 years (cit.)	1.930 (2.10)	-1.227 (-1.37)	1.619 (1.79)	-0.586 (-0.37)	-1.586 (-1.00)
% 7-15 (pol.)	0.044 (0.92)	0.040 (0.09)	-0.609 (-1.38)	-1.337 (-1.69)	0.199 (0.24)
% 7-15 (cit.)	-0.229 (-0.27)	-0.464 (-0.59)	-0.994 (-1.26)	-0.227 (-0.20)	1.404 (0.98)
% 80-+ (pol.)	-0.224 (-1.76)	0.068 (0.55)	-0.230 (-1.85)	0.015 (0.07)	0.043 (0.19)
% 80-+ (cit.)	0.179 (0.83)	-0.007 (-0.04)	0.177 (0.87)	-0.247 (-0.69)	-0.504 (-1.33)
Population (pol.)	-0.069 (-1.59)	0.089 (2.23)	-0.007 (-0.19)	-0.185 (2.62)	-0.106 (-1.46)
Population (cit.)	-0.082 (-0.91)	0.060 (0.71)	0.041 (0.48)	-0.054 (-0.36)	0.032 (0.85)
Revenues (pol.)	-0.236 (-0.94)	0.456 (1.93)	-0.287 (-1.16)	0.209 (0.48)	-0.810 (-1.89)
Revenues (cit.)	-0.876 (-1.52)	0.411 (0.75)	-0.382 (-0.70)	-0.142 (-0.15)	1.670 (1.67)
Adj. R-Square	0.91	0.92	0.77	0.93	0.87

Cit.: Citizens, Pol.: Politicians.

might be expected from Table 1, the politicians demand a significantly lower level of educational spending than do the citizens. The F-tests suggest that the demand functions may deviate with respect to health care, child care and construction. The representatives appear to prefer a somewhat higher level of health care spending. The citizens want a marginally higher spending level than the politicians for day-care centres, and the politicians demand a relatively higher level of spending for construction purposes. There are no differences in the intercepts in the culture demand functions.

Table 3. Tests for the Responsiveness of Politicians to Citizen's Demands. F-tests for Structural Equality of Demand System. F-Values. (Significance Probability in Parentheses.)

Test	Education	Health care	Child care	Culture	Construction
Equal intercepts	5.15 (0.02)	2.39 (0.12)	1.95 (0.16)	0.58 (0.45)	2.50 (0.11)
Equal responses to demographic conditions	0.98 (0.41)	2.22 (0.07)	1.12 (0.35)	0.45 (0.78)	1.22 (0.30)
Equal income elasticities	1.06 (0.30)	0.006 (0.94)	0.03 (0.87)	0.11 (0.74)	5.26 (0.02)

Second, demographic conditions appear to impact similarly. The age structure does not seem to impact differently on the politicians' and the citizens' demand functions. Finally, the politicians' demand for construction services appears to be more income-elastic than the citizens' demand. Otherwise, the income elasticities take similar values in the two demand systems.

Responsiveness and the Role of Political Parties

We can further examine whether politicians respond to the demands of the citizens. The model outlined in (10) suggests that the preferences of local politicians are linear functions of residents' spending preferences:

$$A_{kt}^{*P} - A_{kt} = \zeta_k^0 + \zeta_k^1[A_{kt}^{*C} - A_{kt}] \quad k = 1, 2, \dots, 5. \quad (10)$$

P: Politicians, C: Citizens

A criterion of democracy is that the desired demand of elected representatives reflects the demands of the electorate. If the citizens in a particular municipality wish to increase a particular budget share, the politicians' spending preferences should change accordingly. This is the hypothesis of *perfect responsiveness*, implying that $\zeta_k^0 = 0$ and $\zeta_k^1 = 0$ ($k = 1, 2, \dots, 5$). The preferred spending levels of the politicians do not deviate from those of the citizens.

An alternative proposition suggests that politicians respond *partially* to the citizens' demands. Increasing levels of residents' demands generate greater spending demands at political level, but differences in the politicians' responses do not reflect the variations in the residents' pref-

Table 4. The Responsiveness of Politicians. The Desired Budgetary Change of Elected Politicians as a Function of the Desired Change of Citizens. N = 34 (Standard Errors in Parentheses. Iterated Seemingly Unrelated Regression).

	Intercept	Responsiveness coefficient
Education	-0.105** (0.023)	0.423** (0.136)
Health care	0.170** (0.019)	0.379* (0.143)
Child care	-0.431** (0.040)	-0.003 (0.133)
Culture	-0.070** (0.012)	0.375* (0.149)
Construction	-0.0014 (0.021)	0.758** (0.241)

** Significantly different from zero, 1% level.

* Significantly different from zero, 5% level.

erences perfectly. We would expect the responsiveness coefficients to take positive values that are less than one ($0 < \zeta_k^1 < 1$).

The final proposition suggests that politicians are *insensitive* to electoral demands. Local preference variations at the electoral level bear no relation to the differences at the representative level ($\zeta_k^1 \approx 0$). The desired spending level of politicians deviates systematically from the level preferred by the citizens ($\zeta_k^1 \neq 0$). Equation (10) can be estimated by regressing the logit S-values for politicians against the logit S-values for citizens. Table 4 provides the empirical testing.

All intercepts with the exception of construction are significantly different from zero. This indicates that the levels of demand are systematically different in the two groups of respondents, which is consistent with the results in Table 3. More interestingly, four of the five responsiveness coefficients are significantly positive. The parameter estimate is not significantly different from one in the construction sector, which suggests that politicians respond reasonably accurately to citizens' preferences. The responsiveness coefficients approximate 0.4 for the other local sectors, which corresponds nicely to the interpretation of partial adaptation. Note that there is randomness attached to the measurement of citizens' preferences, leading to a deflation of the regression coefficient. This suggests that the actual values of the responsiveness coefficients are closer to one, which further warrants the following conclusion: there is a large degree of preference correspondence of individual municipalities. The findings are contrary to the arguments of Kristensen (1982), Frey (1992) and others:

Politicians and citizens in a representative democracy react similarly to demographic conditions and budgetary constraints, and variations in citizens' spending preferences are positively related to the preferences of the elected politicians.⁶

Local politicians are both representatives of a community and members of a (national) party organization. If political parties have some autonomy in defining spending policies, we would expect the numerical strength of the parties to affect the local resource allocation when controlling for electoral preferences. This would lend some empirical support to the *party model* of local governance (Inman 1979; Sharpe & Newton 1984; Boyne 1988). The contrasting proposition suggests that the parties respond to the preferences of the local electorate. The numerical strength of the parties is of no consequence for policy-making; the only information needed to predict the position of the elected assembly is the preferences of the citizens. The *central tendency* of politicians' preferences "eliminates" the role of party politics (Downs 1957; Ordeshook 1986). The impact of party strength can be explored by examining equation (11):

$$A_{kt}^{*P} - \eta_{kt}^0 = \eta_k^1 A_{kt}^{*C} + \eta_k^2 S_t + \eta_k^3 R_t \quad k = 1, 2, \dots, 5. \quad (11)$$

P: Politicians, C: Citizens

The model suggests that the politicians' preferences are functions of the voters' preferences and the party composition of the local government. *S* is the share of representatives from the centre parties. *R* is the share of representatives from the right-wing parties. The share of representatives from the socialist parties serves as a reference group.⁷

Suppose that political parties are national movements with distinctive and consistent policies, and that party affiliation is important in shaping the preferences of both politicians and citizens. The composition of the local council would reflect local preferences, and the strength of the parties would determine the preferences of the representatives. We would expect *S* and *R* to impact on the spending preferences of the politicians, and the measures of party strength to cancel out the impact of citizen preferences. Suppose that local parties adapt to the local ideological climate and the demands of the residents. This would mean that party strength has little bearing on citizens' and politicians' preferences, and that *S* and *R* have no significant impact in equation (11). Table 5 shows the results.

None of the party parameter estimates differs significantly from zero, and the estimated responsiveness coefficients remain similar to those obtained in Table 4. This indicates that local representatives adapt to the local preference profile independently of the numerical strength of parties.⁸ Local representatives respond to the demands of local citizens rather than to the signals of the national party organization. This finding is consistent with

Table 5. Desired Budget Shares of Elected Politicians as a Function of Citizens' Desires and Party Composition (1990). N = 80 for Politicians, N = 35 for Citizens. (Estimation Method: Iterated SUR, T-values in Parentheses.) System weighted R-Square: 0.17.

	Education	Health care	Child care	Culture	Construction
Constant	-0.135 (-1.40)	0.159 (1.69)	-0.571 (-3.07)	-0.074 (-2.07)	-0.098 (-1.51)
Citizens desires	0.351 (2.55)	0.531 (3.25)	0.028 (0.20)	0.394 (2.55)	0.584 (2.49)
Centre parties	0.061 (0.31)	0.008 (0.05)	-0.010 (-0.27)	-0.016 (-0.22)	0.229 (1.790)
Right wing parties	0.073 (0.36)	0.004 (0.02)	0.486 (1.32)	0.027 (0.37)	0.101 (0.772)
Adj. R-Square	0.94	0.97	0.63	0.99	0.98

results found for Danish local government (Mouritzen 1987b) and in the USA (Erikson et al. 1989).

Conclusion

The transmittal of citizens' demands into government policies is a key issue of political economy. Yet it appears that much empirical research suffers from lack of both micro data and a consistent model that facilitates comparison of citizens' and elected politicians' preferences. Much of the US literature relies on the median voter model. It tends to disregard the preferences of politicians and citizens, and addresses the actual resource allocation directly.

The approach outlined here permits analysis of preferred spending shares. We combine a formal measurement model with a micro demand model. This approach facilitates analysis of preferred spending levels. The empirical evaluation is based on Norwegian data on local government, and lends considerable support to the overall validity of the model. The desired changes in budgets are systematically related to actual budget shares, and the impact of demographic factors and local revenues is reasonable.

The approach is employed to examine the politicians' responsiveness to electoral demands, that is the (mis)match between citizens' and politicians' spending preferences. The analysis indicates that local politicians are generally responsive to the demands of the local residents. The politicians' and the citizens' demand functions are structurally similar, and we demonstrate that the spending preferences of the representatives are positively related to the preferences of the electorate. There is some evidence of structural

differences in the politicians' and the citizens' demand, and "partial" adjustment to the demands of the electorate. Party politics appears to have little bearing on the adjustment process.

NOTES

1. This article forms part of the projects *Local Government Budgeting in the 1990s* and *Agency Relations in the Public Sector*. The research is funded by the Research Council of Norway (NFR). We have benefited from generous and useful comments from Lars-Erik Borge, Robert Inman and Jørn Rattsø and from participants at *The Second Annual Åsgårdstrand Conference on Local Public Finance*, Åsgårdstrand, 20–22 June 1993 and *The 10th Nordic Political Science Congress*, Oslo, 19–21 August 1993. The article has also benefited from criticism and suggestions by two anonymous reviewers.
2. In societies with high mobility, homogeneity might be reinforced by the in-migration of persons who prefer the local policy profile, and by out-migration of persons who dislike it (Tiebout 1956).
3. There are some exceptions here. The use of survey data facilitates the estimation of individual demand functions for citizens, and the estimation does not rely on the median-voter assumptions. Bergstrom et al. (1982), Gramlich & Rubinfeld (1989), and Rubinfeld & Shapiro (1989) estimate demand functions for public school spending. These studies provide elasticity estimates that are broadly comparable to studies based on the traditional median voter model. This suggests some degree of correspondence between electoral spending preferences and public policy in the sense that the US school districts adjust to the demands of the median voter.
4. This result is derived in models with full information and full participation. In some models with imperfect information equilibrium results can be obtained.
5. The survey instrument did take the budget constraint properly into account. Some representatives and residents preferred to increase spending in most sectors. Using individual level data we computed a weighted average of the spending indices using budget shares as weights. Revised indices for both groups of respondents were computed by subtracting the weighted average from the original values and adding a constant 0.5. The descriptive statistics in Table 1 are based on the modified spending measures.
6. At this stage, we are not in a position to explain variation in responsiveness between municipalities. Section 2 provides testable hypotheses for future research.
7. The left-wing parties comprise the Socialist Left Party and the Labour Party; the centre parties are the Centre Party, the Christian Democratic Party, the Liberal Party; and, the right-wing parties are the Progress Party and the Conservative Party.
8. Party affiliation affects the politicians spending preferences (Sørensen 1984). The present result suggests that the effect of parties is due to citizens' preferences, and that the strength of the parties has no independent effect when controlling for this variable in the regression.

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