Size and local democracy:
A summary of findings from Switzerland, Norway, Denmark and the Netherlands

Poul Erik Mouritzen, Lawrence E. Rose and Bas Denters
Size and local democracy:
A summary of findings from Switzerland, Norway, Denmark and the Netherlands

Poul Erik Mouritzen, Lawrence E. Rose and Bas Denters

Abstract

The issue of the appropriate scale for local government has regularly appeared on the agenda of public sector reformers. In the empirical work devoted to this issue, the principal focus has been on the implications of size for efficiency in local service provision. Relatively less emphasis has been placed on the implications of size for the character and vitality of local democracy. This paper summarizes findings from a comparative research project which has sought to redress this imbalance by means of undertaking a closer inspection of relationships between municipal size and a set of indicators regarding the character of local democracy in four European countries. Analyses are based on cross-section interview data collected by means of a nested sample design consistent with the hierarchical nature of the issues involved. The inquiry is based on a strategy whereby theoretical models are developed and investigated for each indicator in a successive, cumulative fashion employing a “funnel of causality” logic. The overall conclusion from these analyses is that the size of the local political system has a significant negative effect on the character of local democracy in about half of the models estimated. Where such effects are found, however, they are relatively weak and are most pronounced in the smallest municipalities such as those found in Switzerland and Norway.
Size and local democracy:
A summary of findings from Switzerland, Norway, Denmark and the Netherlands

Poul Erik Mouritzen, Lawrence E. Rose and Bas Denters

Introduction

The appropriate scale for democratic government is an issue that has exercised the minds of scholars and public sector reformers alike since antiquity. Aristotle, for example, in his famous treatise ‘The Politics’, considered the effects of size on the quality of governance. On the one hand Aristotle held that a viable polis should be a self-sufficient and autonomous unit large enough to provide its citizens with the goods and services they need and demand. On the other hand Aristotle also thought that a polis should be small enough to permit responsible citizenship which implied active involvement in the management of collective social life.

Since the end of World War II the proper scale of government, especially subnational government, has figured prominently on the public sector reform agendas of many countries, and many have chosen to implement changes in the population size of local government units (see, for example, Martins 1995). The concerns that pervade public debates surrounding such changes mirror those identified by Aristotle. Within the academic literature these concerns are perhaps best known from the work of Dahl and Tufte (1973), in which they consider the democratic effects of variations in the size of governments in terms of two basic dimensions: system capacity (a substantive dimension) and citizen effectiveness (a procedural dimension). After an extensive review of theoretical arguments and available empirical evidence, Dahl and Tufte came to the perhaps somewhat discouraging conclusion that ‘[n]o single type or size of unit is optimal for achieving the twin goals of citizen effectiveness and system capacity’ (Dahl & Tufte 1973:138). There is, they

---

1 This paper draws on the concluding chapter of a research monograph being prepared for publication (Denters et al. forthcoming) on the basis of a cross-national research project investigating relationships between municipal size and various characteristics of local democracy in the four countries noted in the title of this paper. Other members of the project coordinating team with whom we have worked very closely over a number of years are Michael Goldsmith (Salford University), and Andreas Ladner (Institut de hautes études en administration publique, Lausanne). Peter Geurts at the University of Twente has also provided invaluable support to the project. All three have been close colleagues and collaborators without whom this paper could not have been written.

2 For accounts of the debates surrounding developments in a variety of European democracies in recent years, see Baldersheim & Rose, forthcoming).

3 System capacity refers to the requirement that a system should ‘have the capacity to respond fully to the collective preferences of its citizens’, whereas citizen effectiveness refers to the extent to which citizens ‘acting responsibly and competently fully control the decisions of the polity’ (Dahl & Tufte 1973:20).
suggest, something of a tradeoff. In many respects the smaller the polity’s population size, the greater is citizen effectiveness in controlling political decisions. But at the same time small polities may lack the problem-solving capacity needed to deal with major community issues. Overall, however, the authors were cautious in drawing conclusions because, as they noted, their research was seriously hampered by ‘a lamentable paucity of data’ (1973:61).

At the outset of the new millennium political science has not made much progress in establishing more conclusive evidence on the issue of size and democracy. Keating (1995:131) has argued that: ‘[t]his is partly for lack of data, partly because of difficulties in measurement’. To be sure some national studies on the relation between size and various aspects of local democracy are available (e.g. Baldersheim et al. 2003; Bjørklund & Sørensen 1990; Denters, et al. 1990; Denters & Geurts 1998; Jamil 1991; Kjær & Mouritzen 2003; Ladner & Bühlmann 2007; Mouritzen 1989; Newton 1982; Oliver 2000 and 2001), but the external validity of these studies is typically limited, both in terms of the dimensions of local democracy considered and in terms of the peculiarities of the national systems of local government examined.

Equally important in explaining the lack of progress in achieving a better understanding of the implications of local government reorganization, however, is the fact that the principal focus in much of the empirical work has been on the implications of size for efficiency in local service provision. Relatively less emphasis has been placed on the implications of size for the character and vitality of local democracy. The present paper draws on a research project which has sought to fill this lacuna. Using a common template, national surveys were carried out in four countries – Switzerland, Norway, Denmark and the Netherlands. These four countries differ substantially in terms of the scale of their local governments: when the surveys were conducted (in 2001), the average population size of municipalities in Switzerland was 2,600 inhabitants, whereas the average population size of Dutch municipalities was more than 32,000. Moreover, these four countries differ

---

4 Although the debate about the effects of size involves both substantive criteria (e.g. system capacity) and procedural criteria (e.g. citizen effectiveness), on normative grounds the procedural aspects of democracy are arguably more fundamental. In order to qualify as a democracy a political system has to allow its citizens effective control of its political agenda and the decisions rendered (government by the people). Even if a political system effectively and efficiently provides policies, services and facilities in perfect agreement with the needs and demands of its citizens (government for the people), such a system can not be considered genuinely democratic if its citizens are excluded from processes of political decision making. The primary concern of the comparative research project on which this paper is based has therefore been with citizen effectiveness and the control dimension.

5 The first phase of the project was one that sought to exploit existing data to provide a more comparative perspective on the significance of municipal size for selected aspects of local democracy. Findings from the initial phase are reported in a special issue of Government and Policy. See Denters (2002), Frandsen (2002) and Rose (2002).

6 The order in which the four countries are named here has been consciously chosen and will be used throughout this paper inasmuch as it reflects an increasing average size of municipalities, going from the country with the smallest municipalities (Switzerland) to the country with the largest municipalities (the Netherlands).
with respect to the context in which local governments perform different functions under varying degrees of autonomy vis-à-vis central government. These systems also show important variations in local democratic institutions. By comparing findings across these countries, the intent has been to see whether possible size effects are robust across different national settings. If there is a genuine effect of size per se, in short, it should be evident independent of contextual variations relating to differences in political systems.

In order to identify more accurately the effects of macro-level factors – such as municipal size – as distinguished from the effects of micro-level variables relating to a variety of individual characteristics, it is appropriate to use data that reflect the hierarchical character of the substantive issues involved. To achieve this end, a two-stage nested sampling procedure was used in conducting the surveys: first a subset of municipalities was selected in each country, and then a random sample of the population living within each of these municipalities was drawn. The design stipulated that at least 50 municipalities were to be selected in each country and a target was set of achieving 30 complete interviews in each municipality, thereby providing the basis for undertaking multilevel regression analyses.

In what follows we briefly outline alternative theoretical perspectives relating to the relationship between size and the democratic quality of local government, after which we describe the analytical approach that was used to address and assess these alternative perspectives. Following this we set forth our overall conclusion and summarize the four types of evidence upon which the conclusion rests. The paper then concludes with some reflections upon the meaning of our findings.

---

7 The sampling procedure used to select municipalities was designed to assure maximum dispersion in the population size of municipalities selected in each of the four countries. This was accomplished by stratifying all municipalities according to size and then selecting a predetermined number of municipalities within each stratum by means of a fixed sampling interval using a randomly determined starting point within each stratum. Once the sample of municipalities was determined, a random sample of residents was selected from each municipality. For more information on the research design and data collection procedures used in the study, see the methodological appendix in Denters et al. (forthcoming).

8 Although there are no fixed requirements with regard to the number of observations necessary at each hierarchical level in order to undertake multilevel analysis, these stipulations are in keeping with recommendations typically found in the literature (see Hox 2002; Stoker & Bowers 2002).

The number of municipalities actually sampled was 50 in Switzerland, 64 in Norway, 60 in Denmark, and 54 in the Netherlands. Data collection was carried out with a combination of personal interview (either face-to-face in the case of the Netherlands or by telephone in the other three countries) and, with the exception of Switzerland, a follow up written questionnaire. The number of complete interviews in each country was as follows: Switzerland – 1690; Norway – 1625; Denmark – 1837; Netherlands – 1060.
Theoretical perspectives – a brief overview

A variety of theoretically plausible claims and counter-claims regarding the effects of size on various aspects of democratic government are encountered in the literature. These claims rest on what are essentially three different lines of argument. The first line of argument implies that the size of local authorities is likely to have negative effects on the quality of local democracy. This line of argument essentially highlights the advantages of small scale government. Inspired by the first book of Jonathan Swift’s satirist novel *Gulliver’s Travels* (1726), this line of reasoning may be termed the Lilliput argument. The second group of arguments essentially implies just the opposite; size of local authorities is likely to have positive effect on the quality of local democracy: Big is Beautiful! Again Jonathan’s Swift’s novel offers an imaginative label to characterize this narrative. In book II of Gulliver’s travels, much less widely known than book I, Gulliver finds himself stuck in the Kingdom of Brobdingnag where everything is of colossal size. He discovers that the initially frightening Brobdingnagians were in fact as kind-hearted, generous and freedom-loving as they were gigantic. It therefore seems quite appropriate to refer to the arguments of those advocating large-scale local government as the Brobdingnag argument.

Although these two lines of argument are very different in their expectations about democratic effects of municipal size, they both imply that size – either directly or more indirectly through other intervening variables – has a causal impact on democratically relevant political attitudes and political behaviours. There is, however, also a third line of argument that implies that municipal size is not likely to have any effect (neither positive nor negative) on the quality of local democracy. This possibility is one that arises insofar as size co-varies with the socio-demographic composition of the municipality (e.g. in terms of level of education). Under such circumstances, the association of size with measures of democratic performance may be exclusively the result of differences in the composition of local residents. If this is the case, the relationship between municipal size and the quality of local democracy will disappear after appropriate statistical control for compositional variables.

**Analytical approach**

Based on these theoretical foundations and the fact that some effects of size may occur indirectly, by way of other intervening factors, the analytical challenge is to disentangle the jumble of direct, indirect and compositional effects potentially linking the main independent variable (municipal...
size) to a variety of intervening and dependent variables. In the present research this challenge has been met by seeking to carefully decompose any extant bivariate relationship between size and relevant dependent variables into direct and indirect causal effects. This has been done by means of a meticulous mapping of all theoretically plausible paths through which municipal size could be expected to affect democratic performance and then subjecting the theoretical expectations to empirical analysis.

In pursuing this approach, and constructing theoretical arguments about the possible impact of size on local democracy, there is a vast body of literature to draw upon. To deal with the complexity encountered, it was useful to have a framework to organize our thinking. Ideally such a framework should satisfy two criteria: it should be sufficiently abstract and general so as to serve as a tool for integrating different theoretical approaches, and it should help to understand sequences of events (causal chains) that lead from the key explanatory factor – size – to democratically relevant political orientations and political behaviors. The ‘funnel of causality’ developed by Campbell et al. (1960) provided us with such a tool for these purposes (see Figure 1).

Figure 1 in about here

This framework is aimed at charting the factors that help to explain citizens’ political behavior, the rightmost variable in the figure. The starting point for this framework is the assumption that behavior is a ‘function of the individual’s own “definition of the situation”’ (Campbell et al. 1960:27). Arguably what is most critical in defining the situation, and hence stands in closest direct antecedent proximity to political behavior, are individual political competencies and orientations, as indicated by their placement immediately to the left of political behavior in Figure 1. But such competencies and orientations, which are intrinsically important from a democratic perspective, are themselves the result of an interplay of various other factors, some of which are personal socio-economic background characteristics (e.g. age, education, occupation, etc.), while others are individual social relations (integration into a neighborhood, associational involvement, etc.) and more general social orientations held by individuals (identification with diverse social communities, interpersonal trust, etc.). And the size of local government may in one way or another, either directly or indirectly, be related to and have an impact on all of these variables.

The framework was initially developed for the analysis of voting behavior, but it is also useful for the analysis of other forms of political orientations and political activity. Obviously the nature and appropriateness of such a framework can be debated – among other things on the basis of causal ordering and possibilities of reciprocal causal influence (see, for example, Davis 1985; Finkel 1985; Gerring 2005). But for the present work such debates are set aside; the general framework portrayed in Figure 1 is assumed to provide a reasonable point of departure for analytical purposes. The principal effort has rather been devoted to identifying and untangling the ways by which the size of local authorities may exert an impact on variables contained in other blocks found in the model.
In utilizing this framework, the strategy adopted has been to work from left to right in the funnel of causality, first investigating relationships between size and the nature of individual social relations and then subsequently, taking these initial empirical findings into account, moving on to consider relationships between size and social orientations, and so forth, until the end of the funnel is reached and the relationships between size and individual political behavior can be analyzed in light of all previous findings.

The research strategy, in other words, has involved a cumulative logic in which investigation of the impact of size on variables further to the right in the funnel of causality build on findings from earlier stages in which the focus has been on the impact of size on variables that are found to their left. Our primary intent has been one of attempting to specify and explore all theoretically plausible means by which municipal size may have an effect on different indicators of local democracy, including those relating to local political behavior. The present paper, therefore, builds upon an elaborate set of theoretical arguments and empirical analyses which, for reasons of space, cannot be presented in detail here. These arguments and findings, which are spelled out in a forthcoming research monograph (Denters et al. forthcoming), must be taken as given. Before turning to our conclusions, however, it is useful to note the indicators of local democracy and describe briefly how each of these has been subject to closer scrutiny (following a “left-to-right” causal logic).

Our point of departure has been a presumption that a political system, in order to qualify as a democracy, has to allow its citizens effective control of its political agenda and decision making (government by the people). Within this context, accountability and responsiveness are arguably two essential principles in establishing citizen control. On the basis of these principles we therefore identified four dimensions (citizen competence, political confidence, citizen satisfaction and active participation) and seven (sets of) indicators for measuring the democratic quality of local political systems. These indicators were as follows:

- Local political interest
- Local political knowledge
- Personal political competence
- Confidence in local politicians
- Satisfaction with local government performance
- Local electoral participation (turnout and local distinctiveness)\(^{10}\)
- Local non-electoral participation (contacting, party activities, community action).

\(^{10}\) In the case of Switzerland additional indicators relating to direct democratic practices found only in Switzerland – participation in assembly meetings, and participation in ballots in assembly and in parliamentary systems – were considered.
For each of these different (sets of) indicators we have tried to answer the question about possible effects of the population size of municipalities. Relevant theoretical arguments were explicated for each indicator. Models based on these arguments and findings relating to indicators already investigated were then analyzed using a multilevel regression procedure for each of the four countries considered independently. The analytical procedures employed actually involved eight different steps, steps designed to allow consideration of compositional effects and to investigate more closely how possible effects of municipal size are transmitted through the causal chains analyzed either directly or indirectly (see Box 1). The first step consisted of specifying the so-called empty model, that is a model with no independent variables. The intent here was to identify the total variation in the relevant dependent variable. In step 2 municipal population size is included as the only independent variable. This allows us to assess the bivariate effect of size on the dependent variable. In step 3 macro-level contextual characteristics, to the extent any of these are specified as being relevant in the theoretical model, are also included. Then in step 4 the macro-level contextual characteristics were removed and the individual level characteristics were added to size. Following this, in step 5, all of the variables found in the theoretical model up to this point – both macro-level contextual characteristics and individual level characteristics – are included in the analysis. From this point on additional independent or intervening variables were added in up to three steps (steps 6, 7 and 8). Social relations and orientations were typically added in step 6 while political competences, orientations and behaviors are added in the remaining steps following in the order implied in the funnel of causality depicted in Figure 1.

Box 1 in about here

Use of multiple steps in this manner made it possible to follow in a detailed fashion the way the relationship between municipal population size and the dependent variable develops as a function of which variables are sequentially included in the analyses. Thus, the multivariate regression coefficients for municipal population size emerging from step 4 provide an estimate of what can be considered the total effect of size which exists independent of any impact of the standard set of individual socio-demographic characteristics that could give rise to compositional effects.\footnote{It could be argued that the mapping of total effects requires control for macro-level variables as well, that is, that estimates should be based on the size coefficients obtained in step 5. This is true for most of the macro-level variables used for our analyses, variables relating to population density and four measures of social needs (percentage non-western, unemployment rate, dependent population and percent with low education). These variables cannot be interpreted as “caused” by size, but they do co-vary with municipal population size. These exogenous macro-level variables, however, are used selectively in only two chapters of the monograph and results show that in none of the cases does it change our conclusions about compositional effects if coefficients from step 5 are used. In the remaining analyses (covering eight of the ten democratic indicators) only one macro-level variable is used – namely political}
Subsequent steps then permit closer identification of direct as opposed to indirect effects of size on the dependent variable in question. Direct effects are those that remain after controlling for all intervening variables, whereas indirect effects are those which are exerted by means of independent variables (other than individual socio-demographic characteristics) intervening between municipal population size and the respective dependent variable. Stated in a slightly different fashion, the multivariate regression coefficient for size found in step 8 in our analyses constitutes what is interpreted as a direct effect of municipal population size, whereas the difference between the multiple regression coefficient for size from step 4 and the direct effect constitutes the sum of the various indirect effects.\footnote{In this interpretation we of course have to disregard possible spurious effects not emanating from the standard set of individual characteristics. As these remarks otherwise suggest, our approach follows in the tradition of path analysis (cf. Alwin and Hauser 1975; Davis 1985, Duncan 1975, Wright 1921, 1934). Due to the complexity found in many of our theoretical models, however, our approach is an adaptation of this tradition; we make no attempt to identify and quantify all of the indirect paths, choosing instead to rely on a simplification offered by the logic underlying path analysis and the decomposition of causal effects. To track down and identify the magnitude of all indirect paths, while possible using various forms of structural equation modeling techniques and statistical packages designed for this purpose, is an enterprise of subsidiary interest and would require a voluminous report well beyond the dimensions of our research monograph.}

If the predictions developed and depicted in our initial theoretical models are of a universal character, the empirical findings should presumably reflect a similar structure across all four countries. The absolute magnitudes of the multivariate regression coefficients might well vary, but the pattern of findings with respect to which variables are significant and which are insignificant should be nominally comparable. Empirical results, however, are rarely so clean and neat; some variation from one setting to another is more typically observed. To deal with this “messy” situation and nonetheless be able to offer a summary indication of the primary tendency observed across all four countries, the following rules of interpretation and terminology were developed. In comparing the findings across countries, results are characterized as being consistent if the regression coefficients were significant (p < .10) in three or four countries in the direction theoretically predicted, whereas results that were statistically significant in the direction predicted in only two countries are labelled as being more or less consistent. In both cases this characterization is based on the further premise that there are no significant findings in the wrong direction.
Size and local democracy: An overall conclusion

On the basis of our findings we can formulate a threefold conclusion:

- There is some rather weak empirical support for the validity of the Lovely Lilliput argument. For a number of indicators we find evidence that population size indeed has a negative effect on the quality of local democracy. Where we find these effects, however, they are not robust, typically being weak (both in a relative and an absolute sense), and these effects are most pronounced in the smallest municipalities such as those found in Switzerland and Norway.

- The Beautiful Brobdinag argument is disconfirmed. No consistent positive size effects were found.

- The Compositional Effect argument is essentially disconfirmed. Only occasionally was there evidence where a bivariate association between size and a dependent variable disappeared after controls for compositional variables.

This conclusion rests on four types of evidence presented in subsequent sections of this paper:

1. A summary of the conclusions from analyses found in individual chapters where we use the labels consistent and more or less consistent as a marker of the number of expected relationships which were found to be statistically significant;
2. A summary of the robustness of findings across the different dimensions per country;
3. An analysis of the relative magnitude of the effects of the size factor as compared to other factors; and
4. An overview of the absolute magnitude of the size effects.

Consistency of findings

In Table 1 results relating to the ten indicators of local democracy are summarized using the conventions developed whereby we distinguish between consistent and more or less consistent findings. As is evident, we find consistent evidence that municipal population size has a total causal effect on four out of the ten indicators of local democracy – i.e. personal political competence, satisfaction with local government, local party activity, and contacting of local officials. And we find more or less consistent evidence (i.e. significant in two countries) for a causal size effect in two more instances: for local political confidence and for the distinctiveness of local voting. In all these instances this effect is negative as was predicted by the Lovely Lilliput argument. When it comes to local political interest, local political knowledge, the likelihood of voting in local elections and local community action, size has no consistent effect.
These findings not only provide some corroboration for the Lovely Lilliput argument; by implication they also contradict the general thrust of the Beautiful Brobdingnag argument. In no instance do we find “consistent” or “more or less consistent” support for a positive democratic size effect. Moreover, if we look more closely at the four instances where population size did not have a (more or less) consistent total effect, there is no evidence for the validity of the Compositional Effect argument. If this would have been the case there should have been a significant bivariate relation between size and these dependent variables that would disappear after controls for compositional variables. In our analyses we found only four instances where this was the case.\textsuperscript{13}

The results in the second column of Table 1 also allow for another conclusion. An ambition in the research project has been to provide an understanding of the causal mechanisms producing size effects. Ideally this should have resulted in explanatory models where all direct effects of size were eliminated and replaced by a comprehensive series of indirect effects through relevant intervening factors. The results in the second column clearly indicate that – despite all our efforts – we have not been totally successful in this respect. Only for satisfaction with local government and the distinctiveness of local voting we can conclude that we successfully identified the main paths through which size affected a particular aspect of the quality of local democracy. In both of these instances we see that there is a total effect (column 1) in combination with an inconsistent or non-existent direct effect (column 2, final row).

**Robustness of findings**

The evidence just cited makes clear that empirically both the Beautiful Brobdingnag argument and the Compositional Effect argument are essentially disconfirmed. In this and subsequent sections of the paper we therefore concentrate on the Lovely Lilliput argument. As our main conclusion indicates, this model has some empirical validity. But the validity is limited in a number of respects. A first qualification to the empirical validity of the Lovely Lilliput argument pertains to the robustness of the results within each of the four countries. Table 2 contains a summary of the results for each of the four countries.

\[\textsuperscript{13}\] In total we analysed 43 models: 4 countries * 10 indicators of democracy, plus three models for the Swiss case: assembly participation; ballot voting in assembly systems and ballot voting in parliamentary systems. The four cases where we found some evidence for compositional effects were local political interest (Norway) local political knowledge (Switzerland & Norway) and distinctiveness of local voting (Denmark).
On the basis of the results in this table we are able to draw three main conclusions. First, we can conclude that only in two domains did we find a significant total size effect (either with or without an indirect effect) that occurs in all four countries. This is the case for local political competence and for political contacting, which are negatively related to size in all four countries. Moreover, for political satisfaction and party activism, we find significant effects in three of the four countries analyzed. On the other hand, local political knowledge is unrelated to municipal size in all four countries; whereas size effects are limited to one country for three indicators: local political interest, the likelihood of voting in local elections, and local community action.

Second, we find that the range over which size has a significant democratic impact differs considerably between the countries. In the top two rows of the table we find indicators where there is evidence for the existence of a total effect of size (either with or without an indirect effect). In the cases of Switzerland and Denmark the democratic effects of size are limited to merely four domains, whereas in the case of Norway and the Netherlands the range of effects is more extensive – encompassing seven domains in Norway and six in the Netherlands. Both of these conclusions make it clear that the negative size effects are not robust.

Table 2 also allows for a third conclusion. The upper row of the table presents the cases where we found a causal effect of municipal population size, without evidence of a significant direct size effect. Here the total causal effect of size is the result of indirect effects operating through various intervening variables. In these cases we therefore seem to have a model where we have more or less successfully met our ambition to eliminate the direct size effect and have replaced this effect by specifying the relevant causal paths. In this respect we have had the highest rate of success in Norway and the Netherlands, as three out of the ten models with an initial (partial) effect are found in this category.

The conclusion at this point is that size does have a negative effect on a number of important features of local democracy, but it does not affect all aspects of democracy in the same fashion. Size in particular seems to affect political competence, satisfaction with local government, party activity

---

14 The Swiss record improves somewhat when we take the three extra indicators of democratic participation into account. Then the "score" improves to six out of thirteen indicators.
and contacting local officials. In terms of the number of significant coefficients, size has a broader impact in Norway and the Netherlands than in Switzerland and Denmark.

**Relative magnitude of the size effects**

A second qualification with respect to our conclusion about the empirical validity of the Lovely Lilliput argument pertains to the relative magnitude of the negative democratic size effects we have found. In order to simplify the discussion of this rather complicated issue, we may focus on two “critical” dimensions of democracy where the magnitude of the size effect is found relatively speaking to be most important. From among the indicators of “political competencies and political orientations” we consider political satisfaction, whereas from among the indicators of “political participation” we consider political contacting. Within their respective categories, these two indicators exhibited, on the average, the strongest total effects of size.

Table 3 in about here

Table 3 contains some information about the relative effects of municipal population size on these two dependent variables. The first row in the table presents the bivariate association found between municipal size and the two dependent variables (from step 2 of our analyses). The second row lists the total effect of size, after controlling for possible compositional effects (from step 4 of our analyses). The third row then shows the direct effect of size, after having controlled for both compositional effects and the indirect effects of size through all potential intervening variables specified in our theoretical model (from step 8 of our analyses).

Several features of the findings presented in Table 3 are worth emphasizing. First of all it is clear that for neither of the two dependent variables are there compositional effects. When the bivariate associations found in row 1 are compared with the total effects found in row 2, there are no major differences in the size of the coefficients. The table also shows that the causal effect of size on satisfaction with government in Norway, Denmark and the Netherlands is indirect – which is evident from the absence of direct effects in row 3 (from the final full model estimated in step 8). On the other hand in three of our four countries the causal effect of size on local contacting is mainly direct – which is clear when we compare the total effect estimate found in row 2 and the direct effect estimate found in row 3. The only exception is in the Dutch case, where the effect proves to be essentially indirect. In addition to these observations, it should also be noted that the magnitude of the causal effects of municipal size found in row 2 (after controlling for possible
compositional effects) are comparatively weak. The reported coefficients are standardized regression coefficients that can take on values between – 1.00 and + 1.00. Hence, the actual values of the significant coefficients are rather weak, being between 0.07 and 0.14 for satisfaction, and between 0.10 and 0.19 for contacting.

The relative weakness of the size effects is also confirmed if we look at two other indicators. To begin with we have calculated how large the total size effect is when compared with the sum of other significant factors in the full model (row 4 in the table). Again the values indicate that size has a rather weak impact with a maximum value of 12.4 for Norway in the model for satisfaction, and a maximum score of 17.1, again for Norway in the contacting model. In other words, of all the effects accounted for in the model explaining satisfaction in Norway, municipal population size accounts for 12.4 percent.

Finally the relative importance of size effects may be assessed with the help of a measure for the contribution of municipal size to the total (pseudo) R-square for the respective theoretical models. In Table 3 we have included both the total (pseudo) R-square and the contribution of size to this proportion. For both models we can observe that size at best makes only a modest contribution to the explanatory power of our models. For the satisfaction model, size contributes a maximum of 6.8 percent to the total explanatory power (2.4 of a total of 35.2) and 17.2 percent (3.9 of a total of 22.6) for the contacting model.

In interpreting the results in Table 3 it is important to emphasize that these figures present a “best case scenario” in which we have selected the models and the cases where the size effects were most pronounced, and where the assumptions underlying our calculations (see notes under table 3) were also favourable for bringing out any size effects. Even under these favourable conditions, however, the magnitude of the size effect is rather weak.

**Absolute magnitude of size effects**

A final qualification of our main conclusion pertains to the absolute magnitude of the negative size effects we have established. The absolute magnitude of the coefficients is especially relevant for practical purposes. After all, effects may be statistically significant but quite trivial for all practical purposes. We therefore present some illustrative figures to help the reader in getting an impression about the absolute magnitude of the size effects found in our analyses. In order to avoid an excess of information, we again concentrate on two of the indicators where relatively strong size effects were found – political satisfaction and political contacting. What difference do size variations make
for the satisfaction of citizens with their local government and for the frequency of their contacts with local government?

In Table 4 we have estimated the total effect of size in absolute terms on a scale from 0 to 100. For both democratic indicators we have calculated the absolute value of the dependent variable in different size categories ranging from 500 to 100,000 inhabitants (upper part of Table 4) and the value for four size values where we have taken the median size of municipalities in each country as the point of reference (lower part of Table 4). This table gives us an impression of the ‘democratic effects’ if one moves from a municipality of a particular size to a municipality of a different size. Thus, considering the two extremes found in the table, moving from a municipality of 500 inhabitants to a municipality of 100,000 in the case of Norway would on the average, imply a decline in overall satisfaction with the performance of local government from a score of 60.1 to 50.9 – a (rather small) decline of 9.2 points on a scale from 0 to 100. For the other three countries the declines are even smaller. For contacting local officials the differences are more typically larger. Here the largest differences are found in Switzerland where there is a decline from 42.0 to 18.0, a drop of 24.0. Similar differences may be evaluated for other countries, not only between the extremes, but also in movements from a municipality of one size category to another.

Table 4 in about here

Of course, by only comparing the extremes (largest and smallest municipalities), we are in danger of presenting a somewhat misleading picture of the substantive impact of variations in size, exaggerating what is more likely to be the case. We have therefore added the lower portion of Table 4. In this section we provide an indication of what impact any one of three changes in municipal population size would have for the two indicators of local democracy when compared with comparable scores for the existing median size municipality in each country. Thus, a tripling of the size of a municipality in Norway from the median size of 4,390 inhabitants to 13,170 (three times

---

15 The correct method of calculating these effects would have been to use the results from step 4 from our analyses (based on the unstandardized variables) using the average value for all individual level variables in each country with their relevant estimates. In order not to complicate the calculation unnecessarily, however, the calculation was instead made using the results from step 2, where we only have a constant and an estimate for the size effect. With this estimate for the size effect, the following formula was used to calculate the scores displayed in Table 4:

\[ Y = a + b \times \ln(x) \]

where

- \( Y \) is the estimated value of the dependent variable (satisfaction or contacting)
- \( a \) = constant
- \( b \) = estimate
- \( x \) = size in absolute terms (since the multilevel analysis was performed with \( \ln(\text{size}) \) as the dependent variable)
the median size) would, according to our estimates, result in a reduction in the score for the frequency of contacting local officials from 27.1 to 22.6. Similarly, an increase in municipal size from around 10,000 to 30,000 inhabitants in Denmark leads to an estimated reduction in the index for contacting local officials from 26.0 to 22.4, that is, 3.6 points on a scale from 0 to 100. For Switzerland the findings are consistent with this general tendency, but the reduction is still no more than 7.8 points (41.6 versus 33.8) on a scale from 0 to 100 if we compare the tendency to contact officials in municipalities with 435 inhabitants (half the median size) with municipalities having 2,610 inhabitants (three times the median size).

In reading Table 4 it is important to bear in mind the size of municipalities in the four countries, both in the sample as well as in each of the countries as such. It is particularly important to note that Swiss municipalities are very small. Any large scale amalgamation of municipalities in Switzerland is therefore bound to have a relatively large effect on democratic performance, since they would involve the merger of many very small municipalities where the absolute effects on our indicators are the largest. The same tendency, albeit not quite so pronounced, is to be observed in Norway, where more than half the municipalities have less than 5,000 inhabitants. In Norway, in other words, a majority of municipalities still have a size where amalgamations on a grand scale would have some negative democratic effects according to some of the indicators used in this study. On the other hand, we have two other countries – Denmark and the Netherlands – where, after previous amalgamations, municipalities were already relatively large. Hence there are rather few municipalities in the categories where size seems to have an absolute effect of some magnitude. In Denmark, for example, only 17 of the 275 municipalities existing at the time of the survey had fewer than 5,000 inhabitants, whereas in the Netherlands only 20 out of 537 municipalities in the Netherlands are in this size category.

To be sure, the conclusion that size effects are most pronounced in the smallest municipalities such as those found in Switzerland and Norway (as compared with the Danish and Dutch municipalities) reflects the operationalization of the size variable in our models. For substantive and statistical reasons (cf. Taagepera 1999), we have used a logarithmic transformation of population size rather than the absolute values of size or another transformation of the size variable. We have checked the appropriateness of this operation and have found that the best overall specification of the size factor was generally the logarithmic transformation of the absolute population size. In only five out of the 43 models estimated with a focus on democracy (ten for each country plus three models specifically

16 Obviously such effects may be even more pronounced since geographical dividing lines may show up in larger rural municipalities in Switzerland.
run with respect to conditions of direct democracy found in Switzerland) would some non-
significant estimates perhaps be significant effect were a different operationalization of size have
been used.\textsuperscript{17}

On the basis of the same logic as that which underlies Table 4 we can also make an empirically
based assessment of the expected democratic effects of amalgamation reforms. Again the Danish
case may be taken as an example. After the data collection for this study was carried out, the Danish
government initiated a major reform of its system of local government. This reform resulted in a
reduction of the number of municipalities from 271 to 98. As a result, the average size of
municipalities increased from around 19,200 to 55,000 inhabitants. According to our estimate of
size effects for the Danish case, the score on the index of satisfaction with local government for a
municipality with 19,200 inhabitants stands at 64.2 as compared to 62.7 for a municipality with
55,000 inhabitants, a decline of 1.5 points on a scale that ranges from 0 to 100. By comparison, the
drop in the value of the contacting score is somewhat larger, declining from 24.0 to 20.6.

How these findings are to be valued is obviously a subjective decision that must be left open to the
reader’s judgment. In absolute terms the differences brought to light here are not large. Moreover,
they are differences that occur in connection with two indicators of local democracy in which the
effects of size were most pronounced. Should similar calculations be made using other indicators,
the absolute effects would typically be even smaller. For some observers such differences may be
negligible, hardly worthy of second thought. Others, however, will consider such differences – even
if they are relatively small – as important. Those of the latter opinion can, after all, point to the fact
that in (virtually) all respects where we have analyzed the democratic effects of an increase in the
size of local governments, the consequences are negative; they represent what may be seen as
deterioration in the quality of local democracy. It should be noted, moreover, that the negative
democratic size effects tend to be relatively larger at the lower end of the size dimension – precisely
among those municipalities that are likely to be subject to amalgamation should reform efforts be
undertaken.

\textsuperscript{17} This check was done by using the SPSS curve fit option with absolute population size run against each of the
democratic indicator variables. The relevant instances in which this was found were with respect to local political
knowledge and personal political competence in the Netherlands (where a cubic and inverse transformation respectively
gave a better fit), with respect to analyses of voting behaviour in Denmark and Norway (where a better fit was found
with an inverse and quadratic transformation respectively), and finally in Switzerland in the analysis of political
satisfaction, where a quadratic transformation could have been considered. The curve fitting was done on the bivariate
relationships which only give an impressionistic impression of the fit of the log transformed size in the final multi-
variate models, but there is no reason to expect that results would be dramatically different in multivariate analyses.
Some afterthoughts

After having summarized and discussed the results of our study, it is now time to take a step back and reflect a bit upon the findings. First, we will discuss some broader issues concerning the relation between size and democracy. Then we will broaden our scope by addressing the wider issue of the relation between the quality of democratic life and system capacity and some implications for the local government reform agenda that we referred to in the opening paragraphs of this paper.

Does size matter?

Dahl and Tufte (1973) rightly observe that issues of size and democracy have engaged scholars over literally thousands of years. As noted, it is possible to distinguished two fundamentally different positions in the debate. On the one side, there is the Lilliput is Lovely camp of people who hold the view that increasing the size of political units is likely to have essentially negative effects on the democratic quality of (local) political life. On the opposite side we find the Brobdingnag is Beautiful adherents who claim that increasing system size is likely to have benign effects. Different as these positions may be, both camps are united by a firm conviction that size matters: changes in the population size of local government – either as a consequences of social processes such as population growth and urbanization or as a result of planned change in the form of amalgamation reforms – are thought to have a major impact (for better or for worse) on the democratic quality of these governments. Both camps also claim that empirical research supports their claims. Against the backdrop of this heated debate and the claims and counterclaims regarding the saliency of size effects made therein, the results of our study may come as something of an anticlimax. There may be several reactions to this.

First of all, we should again point to the fact that what are to be considered small and large effects is highly dependent on the “eye of the beholder”. In a way this is true for any empirical observation, as in the well-known example of the (half-empty, half-full) glass of milk. But this kind of confusion is likely to be magnified in discussions within this field of study. Democracy is a school example of an essentially contested concept – normatively as well as empirically. It should not surprise us, therefore, that whether or not to refer to a particular democratic effect as “strong” or “weak” is likely to be obfuscated by a variety of normative appreciations of the democratic value affected.

Second, we should point to the fact that we are working in a field of study in which “an ample supply of common knowledge about the subject” is combined with “relatively little hard information” (Newton 1982:205) about relevant facts. In such a field the results of empirical
research are always likely to be sobering. For firm believers in the Lilliput and Brobdingnag camp these findings may come as a surprise. But on the basis of some previous studies, our conclusions are not entirely surprising. More than 25 years ago, for example, Kenneth Newton concluded that “local authorities of different sizes, whether urban or rural, do not differ by more than a small amount, if they differ at all, on many measures of functional effectiveness and democracy” (1982:205). He even goes one step further by claiming that “size is irrelevant to many aspects of functional effectiveness and democracy”.

Although our conclusions about the magnitude of size effects are rather similar to those formulated by Newton, we should also point to a number of important differences. To begin with, we have found statistically significant size effects in more than just a few instances, whereas Newton suggests that size effects are rare. Moreover, although we – much as Newton – have emphasized that the size effects found were of small magnitude, we have been careful to avoid making normative claims in terms of the relevance or irrelevance of these effects. Finally, our findings also are clearly at odds with Newton’s bold assertion that “so far as size does make a difference, large units seem to have something of an advantage in some respects”. According to Newton, large units may have “something of an advantage when it comes to organized (as opposed to individual) participation in politics, namely that of community groups, political parties, and the media” (Newton 1982:205). Our findings point in a different direction: wherever we found (more or less) consistent democratic size effects in the four countries under study, these effects were negative rather than positive. This is even true in the case of indirect forms of political participation, e.g. through parties and in elections, i.e. forms of participation where Newton claims advantages for large scale units.

Finally, Newton also argues that in the literature “democratic merits of small units of government have often been exaggerated and romanticized” (1982:191). While we have found a number of relatively weak negative democratic size effects, it might well be the case that in a fast-changing world the impact that size may have had in the past could very well have decreased over time, and might decrease even further in the near future. This suggestion is of course only speculative. Against the backdrop of our previous observation that we are in short supply of “hard information”

18 We should emphasise that unlike older studies, we have also employed multilevel analysis (MLA) techniques that provide more valid estimates of possible size effects. Previous studies may have suffered from a bias towards a rejection of the null hypothesis and therefore wrongly inferred significant size effects, since the number of observations at the aggregate (municipal) level has been grossly inflated.

19 It should also be noted that the use in our study of the MLA technique does not affect the absolute magnitude of our estimates in comparison to traditional estimates based on ordinary least squares (OLS) estimation techniques.
about democratic size effects, there is little genuinely comparable evidence to allow for such general conclusions about changes in the magnitude of size effects over time. Our conclusion is that the effects of size variations are more sizeable in countries with more traditional systems of local government based on relatively small-scale units (as is the case in Switzerland and Norway) as compared to countries that have “modernized” their local government systems and introduced larger municipalities. By inference this suggests that at least in Denmark and the Netherlands previous processes of modernization may have diminished the impact of size over time.

Of further note is the fact that in the countries considered within our study, but presumably also elsewhere, small municipalities have been given economic muscle by central government in order for the welfare state to be spread to every corner of society. Local governments have also been professionalized to a degree that no one could possibly have foreseen in the years immediately following World War II. The Danish case provides us with a telling illustration of this trend. A few years after the war around 800 of the 1300 Danish municipalities existing at the time did not have a single administrator on the payroll. All decisions was prepared and made by lay politicians. A highly experienced local politician in Denmark (with 37 years in a local council) recalled his first year in local politics during this earlier in the following way:

This was the time when the nine elected council members every two weeks crowded in a room under the roof of the home for the elderly and went through every single case in a fog of cigar smoke so thick that we now and then had to go outside to breathe some fresh air.20

Obviously this was in contrast to the situation in town and cities that for years had had professional administrators to support the elected officials. Today any municipality in Denmark is manned by large numbers of university trained bureaucrats who know every trick of the trade.

On top of the homogenization of local government, furthermore, comes a considerable homogenization of people’s daily life. Commuting is an everyday phenomenon for many. In fact around 40 percent of the roughly 8,300 respondents in our surveys work outside the municipality in which they live. The tendency to live in a small or medium sized rural municipality and commute to work in a larger town or city – which is more pronounced in Switzerland and Denmark than in Norway and the Netherlands – is likely to have had a number of consequences. At the same time these changes may have undercut traditional attachments to the locality and the neighbourhood, attachments that in this study were found to be positively associated with a variety of democratic

indicators. This weakening of traditional bonds with territorially defined communities has in all likelihood been boosted by an increasing exposure of citizens to information from the outside world which has intensified manifold with the development of the internet.

Although many of these observations are highly conjectural and lack backing in the form of “hard information” it seems plausible that the magnitude of size effects may have declined over the past decades. The homogenization trends discussed are likely to have effect both in terms of a decrease in differences in municipal system capacity and in terms of the quality of local democratic life.

**Citizen effectiveness versus system capacity?**

Finally we can return to our starting point. Much of the debate about the appropriate size of local political authorities has been phrased in terms of an apparent trade-off between procedural and substantive considerations – i.e. between the democratic quality of local government in terms of citizen effectiveness versus the capacity of local government to respond to challenges and perform according to citizen expectations. In our project we have explicitly (and intentionally) concentrated on procedural concerns regarding the degree to which citizens are in a position to exercise control of local decisions and express satisfaction with the outcomes. In concluding, however, it is appropriate to consider the implications of our findings for the broader issue. On the one hand, Dahl and Tufte argued that the smaller the population size, the greater citizens’ effectiveness in controlling political decisions. At the same time, however, they also argued that small polities would lack the problem-solving capacity needed to deal with major community issues. If, for the sake of argument, we assume that conventional wisdom regarding system capacity holds – i.e. that increasing size will go hand-in-hand with greater system capacity– the findings of the present study may be illustrated by means of an adaptation of a figure originally presented by Dahl and Tufte (1973:21).

Figure 2 in about here

Dahl and Tufte (1973:20ff) discuss how points along a line (represented by the straight line a in Figure 2) constitute a trade-off between the two overarching concerns of system capacity and citizens’ effectiveness. As size increases, what is foregone in terms of effectiveness is gained in terms of system capacity (a movement up and to the left along line a in the figure), and the assumption is that the trade-off is constant. Our main finding, however, is that this trade-off is not the same irrespective of where one is in the diagram. Rather the relative loss of citizen effectiveness depends upon where along a size continuum one may be. This situation is depicted by a curvilinear
relation: the curved line b in Figure 2. Thus, when municipalities are quite small, making them larger has a negative effect on some indicators of local democracy; citizen effectiveness declines. But after a certain point, denoted by X in the diagram, increasing the size further has little or no effect. Just what X stands for depends on the specific indicator being investigated, but our findings suggest a relatively small size of just a few thousand inhabitants is what we are talking about in most cases as our discussion earlier on Norway and Switzerland suggests. If we cast this argument in terms of our previous discussions this suggests that “Lilliput may be lovely, only as long as Lilliput remains rather small !!!

Our findings, however, are not only represented by the curvilinear line b. On some indicators of local democracy they are better represented by the almost vertical line c, since no significant size effects were found. This seems to be the case – without any qualifications – for people’s local political interest and knowledge, their likelihood of voting and their participation in community actions (cf. Table 1).

The curves in Figure 2 rest on what we called conventional wisdom concerning the relationship between political-administrative size and system capacity. The underlying theoretical argument essentially reflects Brobdingnag’s creed about the beauty of bigness. Obviously we are on thin ice here. We have neither subjected this nexus to a thorough empirical investigation, nor can we build on conclusive and unequivocal results from previous studies that testify to a clear positive relationship. Theoretically the argument about positive size effects on system capacity might refer to at least three different aspects. First, one might define system capacity in terms of the availability of adequate staff to perform a set of tasks. From this perspective there seems to be little doubt that larger units will be able to hire more and presumably better qualified staff, and possibly also have a larger pool of qualified candidates for elected public offices. In the Netherlands several studies have shown that from this perspective there is indeed a clear and positive relation between size and system capacity (e.g. Denters et al. 1990).

But the recalcitrant sceptic might argue that employing an extensive and expensive army of bureaucrats is not necessarily an unmixed blessing. It is therefore appropriate that system capacity has also been defined in terms of actual performance. In terms of actual performance it is first of all important to see whether small and large units differ in the extent to which they are effective in solving local problems. The empirical evidence regarding this dimension of system capacity is sparse. There are a number of single country investigations that are typically limited in terms of
their functional scope, referring to only a few municipal tasks and services. In the 1990s, for example, a few Dutch studies (Derksen et al. 1987; Denters et al. 1990) were undertaken where the effectiveness of large and small municipalities was compared. Although these studies should not be presented as being conclusive, the results justify some scepticism vis-à-vis the conventional wisdoms regarding the size – system capacity nexus. Findings from a more recent study in Norway (Baldersheim et al. 2003:93-116) are similar in this respect. Such doubts are all the more legitimate in the light of our results regarding the (negative) relation between size and citizens’ satisfaction with their local government.

Finally, system capacity has also been interpreted in terms of the efficiency of local government. Here there is a relatively voluminous literature on the relation between size and efficiency in the delivery of public services (e.g. Paddison 1983; Hirsch 1968; Boyne 1995; Houlberg 1995, 2000). On the basis of this Bailey (2001:341) has argued that where local governments typically are responsible for a wide array of functions, “the scale that achieves economies of scale for some services, may lead to diseconomies of scale for others”. All in all, therefore we have to conclude that there is no conclusive and unambiguous evidence in favour of the Brobdingnag argument that bigness results in increased system capacity. Future analyses on the effect of size, it would seem, should definitely take a closer cross-national, multi-indicator look at the relationship between size and system capacity.

This recommendation is all the more pertinent because the driving force behind reform efforts in several European countries (see Baldersheim & Rose, forthcoming) is a belief or assumption that increasing the size of sub-national authorities will produce local governments with greater system capacity. Such beliefs are often argued in an undifferentiated fashion, failing to recognize differences that may obtain with respect to, for example, the challenges associated with providing human services versus technical infra-structures. Of course some may come to the (normative) conclusion that the relatively small negative size democratic effects found in our study do not provide enough argument against amalgamation reforms. But in our view this conclusion does not in its own right provide a sufficient basis for undertaking amalgamation reforms. Such policy decisions should also be based an evidence-based conviction that there are sufficient positive effects of increased size with respect to effectiveness and/or efficiency to outweigh the negative democratic costs of amalgamations.
References


Figure 1: A framework for investigating the effects of local government size on the character of local democracy

Box 1: Steps in the multilevel analysis

Step 1: Empty model
Step 2: Population size (log) included
Step 3: Selected macro-level contextual variables added to step 2
Step 4: Macro-level contextual variables removed and individual characteristics added to step 2
Step 5: Selected macro-level contextual variables and individual characteristics added to step 2
Step 6: Social embeddedness and “perceived problems” variables added to step 5
Step 7: Subset of competencies and orientation variables added to step 6
Step 8: Final variables added to step 7 resulting in the full model
Table 1: Summary of total and direct size effects across ten indicators of local democracy *

<table>
<thead>
<tr>
<th>Consistent</th>
<th>Total (causal) effects</th>
<th>Direct (causal) effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Personal political competence</td>
<td>• Local party activity</td>
</tr>
<tr>
<td></td>
<td>• Satisfaction with local government</td>
<td>• Contacting of local officials</td>
</tr>
<tr>
<td></td>
<td>• Local party activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Contacting of local officials</td>
<td></td>
</tr>
<tr>
<td>More or less consistent</td>
<td>• Confidence in local politicians</td>
<td>• Personal political competence</td>
</tr>
<tr>
<td></td>
<td>• Distinctiveness of local voting</td>
<td>• Confidence in local politicians</td>
</tr>
<tr>
<td>Not consistent or non-existing</td>
<td>• Local political interest</td>
<td>• Local political interest</td>
</tr>
<tr>
<td></td>
<td>• Political knowledge</td>
<td>• Political knowledge</td>
</tr>
<tr>
<td></td>
<td>• Likelihood of voting in local elections</td>
<td>• Satisfaction with local government</td>
</tr>
<tr>
<td></td>
<td>• Local community action</td>
<td>• Likelihood of voting in local elections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Distinctiveness of local voting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Local community action</td>
</tr>
</tbody>
</table>

* Relationships between the ten indicators in this table and size are in all cases negative.
Table 2: Summary of total and direct size effects across ten indicators of local democracy by country*

<table>
<thead>
<tr>
<th>Switzerland**</th>
<th>Norway</th>
<th>Denmark</th>
<th>The Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant total effect (but no direct effect)</td>
<td>Competence Satisfaction</td>
<td>Satisfaction</td>
<td>Competence Satisfaction</td>
</tr>
<tr>
<td></td>
<td>Distinctiveness</td>
<td></td>
<td>Distinctiveness</td>
</tr>
<tr>
<td>Significant total as well as direct effect</td>
<td>Competence Confidence</td>
<td>Confidence</td>
<td>Voting likelihood</td>
</tr>
<tr>
<td></td>
<td>Party activity</td>
<td>Party activity</td>
<td>Party activity</td>
</tr>
<tr>
<td></td>
<td>Community action</td>
<td>Contacting</td>
<td>Contacting</td>
</tr>
<tr>
<td>Significant direct effect only</td>
<td>Interest</td>
<td>Interest</td>
<td>Not found</td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
<td>Knowledge</td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td>Knowledge</td>
<td>Confidence</td>
</tr>
<tr>
<td>No significant effects</td>
<td>Voting likelihood</td>
<td>Voting likelihood</td>
<td>Voting likelihood Distinctiveness</td>
</tr>
<tr>
<td></td>
<td>Distinctiveness</td>
<td>Distinctiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community action</td>
<td>Community action</td>
<td>Community action</td>
</tr>
</tbody>
</table>

* Normal typeface = negative relationships; italic bold typeface = positive relationships (not expected)
Table 3: Effect coefficients, relative effects and contribution to $R^2$ by size variables on two indicators of local democracy in four countries.*

<table>
<thead>
<tr>
<th></th>
<th>Satisfaction</th>
<th></th>
<th>Contacting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CH</td>
<td>NO</td>
<td>DK</td>
<td>NL</td>
</tr>
<tr>
<td>Standardized regression coefficients for size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Initial bivariate effect (Step 2)</td>
<td>0.00</td>
<td>0.16</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>• Total effect after control for compositional effect variables (Step 4)</td>
<td>0.00</td>
<td>0.14</td>
<td>0.07</td>
<td>0.12</td>
</tr>
<tr>
<td>• Direct effect after control for all variables in the model (Step 8)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Relative effect of size</td>
<td>0.0</td>
<td>12.4</td>
<td>7.7</td>
<td>10.9</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>19.4</td>
<td>35.2</td>
<td>38.1</td>
<td>38.0</td>
</tr>
<tr>
<td>Contribution of size to total $R^2$</td>
<td>0.1</td>
<td>2.4</td>
<td>0.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

* Only significant coefficients (10% level) have been included in the first three rows of the table. Zeros are thus indicative of non-significant coefficients.

The relative effect of size has been calculated by dividing the size coefficient from step 2 with the sum the significant coefficients in step 8 where the size coefficient from step 2 takes the place of the size coefficient from step 8. Using the step 2 size coefficient in the numerator as well as the denominator may seem awkward, because it might allow possible compositional effects to be counted as size effects. But by doing this we have created conditions most favourable for finding a substantive size effect. Also we allow for the total effect to be accounted for in the assessment of the size effect.

Total $R^2$ has been taken from tables in chapters in which these indicators of local democracy have been analyzed. Contribution of size to total $R^2$ is in effect $R^2$ after step 2 where size is the only variable in the equation. This means that possible compositional effects again are counted as size effects slightly overestimating the size effect.
Table 4:  Estimated scores for satisfaction with local government and contacting behaviour in municipalities of different sizes for four countries (0-100 scale).*

<table>
<thead>
<tr>
<th>Population size</th>
<th>Satisfaction</th>
<th></th>
<th></th>
<th></th>
<th>Contacting</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CH</td>
<td>NO</td>
<td>DK</td>
<td>NL</td>
<td>CH</td>
<td>NO</td>
<td>DK</td>
<td>NL</td>
</tr>
<tr>
<td>500</td>
<td>64.8</td>
<td>60.1</td>
<td></td>
<td></td>
<td>41.0</td>
<td>35.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 000</td>
<td>64.6</td>
<td>58.9</td>
<td></td>
<td></td>
<td>38.0</td>
<td>33.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 500</td>
<td>64.4</td>
<td>57.3</td>
<td>67.2</td>
<td>64.0</td>
<td>34.0</td>
<td>29.4</td>
<td>30.6</td>
<td>26.7</td>
</tr>
<tr>
<td>5 000</td>
<td>64.2</td>
<td>56.1</td>
<td>66.1</td>
<td>62.5</td>
<td>31.0</td>
<td>26.6</td>
<td>28.4</td>
<td>24.8</td>
</tr>
<tr>
<td>7 500</td>
<td>64.0</td>
<td>55.4</td>
<td>65.6</td>
<td>61.6</td>
<td>29.2</td>
<td>24.9</td>
<td>27.0</td>
<td>23.6</td>
</tr>
<tr>
<td>10 000</td>
<td>64.0</td>
<td>54.9</td>
<td>65.1</td>
<td>60.9</td>
<td>28.0</td>
<td>23.8</td>
<td>26.1</td>
<td>22.8</td>
</tr>
<tr>
<td>15 000</td>
<td>63.8</td>
<td>54.2</td>
<td>64.6</td>
<td>60.0</td>
<td>26.2</td>
<td>22.1</td>
<td>24.8</td>
<td>21.7</td>
</tr>
<tr>
<td>25 000</td>
<td>63.7</td>
<td>53.3</td>
<td>63.8</td>
<td>58.9</td>
<td>24.0</td>
<td>20.0</td>
<td>23.1</td>
<td>20.2</td>
</tr>
<tr>
<td>50 000</td>
<td>63.5</td>
<td>52.1</td>
<td>62.8</td>
<td>57.3</td>
<td>21.0</td>
<td>17.2</td>
<td>20.9</td>
<td>18.2</td>
</tr>
<tr>
<td>75 000</td>
<td>63.4</td>
<td>51.4</td>
<td>62.2</td>
<td>56.4</td>
<td>19.2</td>
<td>15.6</td>
<td>19.5</td>
<td>17.1</td>
</tr>
<tr>
<td>100 000</td>
<td>63.3</td>
<td>50.9</td>
<td>61.8</td>
<td>55.8</td>
<td>18.0</td>
<td>14.4</td>
<td>18.6</td>
<td>16.3</td>
</tr>
</tbody>
</table>

|     | Median / 2 |     |     |     | Median     |     |     |     | Median * 2 |     |     |     | Median * 3 |     |     |     |
|     |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |
|     | 64.9        | 57.6| 66.1| 61.7| 41.6       | 29.9| 28.3| 23.7| 64.5        | 55.2| 64.1| 58.6| 35.6        | 24.3| 23.8| 19.8|
|     | 64.7        | 56.4| 65.1| 60.1| 38.6       | 27.1| 26.0| 21.8| 64.3        | 54.5| 63.5| 57.7| 33.8        | 22.6| 22.4| 18.7|

* All bivariate size estimates except for satisfaction in Switzerland were significant (p<.10).

Median for the four countries was Switzerland: 870; Norway: 4,390; Denmark: 10,267; the Netherlands: 14,400 (cf. Table 3.1).
Figure 2: The trade-off between system capacity and citizens’ effectiveness

System capacity

Citizens’ effectiveness

Low

High

Low

High

a

b

X

c

30