The External Networking Behaviour of Public Managers

The Missing Link of Weak Ties

Hansen, Morten Balle; Villadsen, Anders Ryom

Published in:
Public Management Review

DOI (link to publication from Publisher):
10.1080/14719037.2017.1299200

Publication date:
2017

Document Version
Accepted author manuscript, peer reviewed version

Preprint version:

This is an Accepted Manuscript of an article published by Taylor & Francis in Public Management Review. To cite this article:
Morten Balle Hansen & Anders R. Villadsen (2017): The external networking behaviour of public managers - the missing link of weak ties, Public Management Review
To link to this article: http://dx.doi.org/10.1080/14719037.2017.1299200

The External Networking Behaviour of Public Managers
The Missing Link of Weak Ties

Abstract

There has been an increasing focus on managerial external networking behaviour within public administration. While most previous quantitative research has analysed such behaviour one-dimensionally, we suggest a two-dimensional conceptualization based on the concepts of weak and strong ties. Utilizing measures resembling previous research, we explore the utility of the approach in an exploratory study of Danish local government. Our findings suggest that the two dimensions of external networking behaviour are distinct. We discuss our approach compared to previous approaches and argue that a conceptualization based on the distinction between strong and weak ties provides a promising framework for future research.

INTRODUCTION

A clear general tendency in otherwise separate strands of recent theorizing and empirical work within public administration research has been an increasing emphasis on the importance of the networks of governance and inter-organizational collaboration (Meier and O'Toole 2001, Pollitt and Bouckaert 2011, Rhodes and Marsh 1992, Rhodes 1996, Sabatier 2000, Sorensen and Torfing 2005, Sorensen and Torfing 2011). There may be manifold reasons behind this tendency, but an often emphasized one is that simple hierarchical accounts of the features of public administration are no longer sufficient and perhaps never have been (Rhodes 1994). Increasingly, decisions are made, public tasks are solved, and public services

delivered through complex networks of mutually interdependent actors from the public, private, and voluntary sectors.

In this paper we focus on the part of the public administration literature on network governance that involves external networking behaviour of public managers (Andrews et al. 2011a, Meier and O'Toole 2001, Meier and O'Toole 2005, Torenvlied et al. 2013, Walker, O'Toole and Meier 2007). By external networking we refer to managers' interaction with actors outside the formal boundaries of the organization – e.g. customers, suppliers, the media, and managers in other organizations.

It has recently been pointed out that most existing studies fail to recognize the multidimensionality of networking (Torenvlied et al. 2013). In this paper we elaborate on the notion of multidimensionality and suggest an alternative approach based on the classical distinction between strong and weak ties (Granovetter 1973, Granovetter 1983). Existing studies tend to focus on the frequency with which a manager is in contact with a range of different external stakeholders. This conceptualization of networking overlooks the fact that weak ties and infrequent contact with more distant actors may be an important part of a manager's networking behaviour and that such ties have been found to be related to the gathering of non-redundant information and innovation. We argue that networking based on strong ties tends to focus on better exploiting existing resources and capabilities, while networking based on weak ties tends to be aimed at exploring novel opportunities and enhancing long-term adaptation. This approach recognizes that external networking can take different forms and serve different purposes. To better understand this process, we develop hypotheses that predict different forms of networking on the basis of individual and organizational factors.

Previous research indicates how external managerial networking tends to be linked to organizational performance both directly (Meier and O'Toole 2001) and by moderating the impact of other variables (Hicklin, O'Toole and Meier 2008, Meier and O'Toole 2010). Somewhat surprisingly, however, our knowledge of the antecedents of external managerial networking remains limited – both within public administration (Andrews et al. 2011a) and outside, for instance, in the entrepreneurship literature (Gedajlovic et al. 2013).

To explore the validity of the proposed theoretical framework, we analyse antecedents of external managerial networking and explore factors that tend to enhance or inhibit specific types of networking behaviour. We argue that enhancing knowledge of the antecedents of managerial external networking behaviour is increasingly important as networking becomes an increasingly fundamental part of managerial work in public agencies.

With this study we make two important contributions. First, we develop a theoretical model distinguishing between two purposes of external managerial networking. Second, we propose how this model can be used empirically to better understand antecedents of managerial networking. Specifically, we highlight the important role of weak ties, which tend to be overlooked in existing studies of managerial networking in public administration. Infrequent relations to an external actor do not necessarily mean the absence of networking; rather, they may indicate a *different* kind of networking.

In what follows, we first provide a review of theory and previous research. On the background of this review, we elaborate on a new approach to managerial external networking. Second, we briefly present the empirical context of Danish local government. Third, we present an illustrative example of the use of our conceptual framework and some findings about Danish public sector managers. Fourth, we discuss our findings in relation to our theoretical model and how it may be further elaborated and tested in other empirical settings. Finally, we discuss limitations of our approach.

THEORY – REVIEW AND EXPLANATORY MODEL

Research on the External Networking Behaviour of Public Managers

In a seminal article (Meier and O'Toole 2001), Meier and O'Toole spurred a research agenda by formulating a model of the behaviour of public managers in networks and showing how it could be empirically tested in large-N studies in an analysis of the relation between managerial external networking and organizational performance. The context they analysed was public school districts in Texas and the measure they used of managerial networking behaviour was the frequency of interaction with actors in the environment. Meier and O'Toole did find a significant impact of managerial networking on their measure of performance, and later studies, although there are relatively few, tend to confirm such a positive relation ((Meier and O'Toole 2003, Meier et al. 2010, Schalk, Torenvlied and Allen 2010). Typically using a measure of the frequency with which (top) managers are in contact with a range of different salient actors in their environments merged into one composite measure of frequency of contacts, this line of studies tends to demonstrate a positive relation between the amount of managerial networking and indicators of organizational performance.

One of the questions raised by the Meier and O'Toole 2001 study was: "What conditions lead a manager to devote resources to network management rather than internal management?" (p. 291). This question is important, and not only because managerial external networking seems to be significantly related to specific outcome measures of organizational performance. Many different strands of research bear witness to the increasing importance of external managerial networking. While managing the network of inter-related actors has always been important, it has become increasingly so for most public organizations (Goldsmith and Eggers 2004). Rainey (2009) cites a variety of reasons that have spurred this trend, including (a) increased contracting of public services, (b) greater use of co-production and involvement of non-profits, and (not least) (c) the increased complexity and uncertainty surrounding many public service challenges that make them exceed the capacity of a single organization to solve. Due to increasingly complex interdependencies of public policies, which entail tasks being solved in public-private partnerships or in cooperation between multiple layers of government (national-regional-local government), the external networking activity of public managers has become increasingly important.

As one of the few studies explicitly seeking to identify determinants of networking behaviour among public managers, Andrews and colleagues (2011) find "… that both environmental characteristics and organizational ones influence external networking" (p. 369). This is an important contribution that underlines how networking behaviour seems to be undertaken in response to organizational and environmental contingencies. Still, the study includes variables at the organization and environment levels only and no specific information about the managers performing the

networking. An important next step, therefore, is to include such information in order to more closely characterize the network managers (Forret and Dougherty 2001). Other studies provide empirical knowledge of antecedents of the external networking behaviour of public managers. Juenke (2005) reports a negative correlation between manager experience and tenure on networking behaviour among Texas School district superintendents. This indicates that managerial networking is an evolutionary process, in which managers need to spend time early on in developing a large network. Another study of antecedents (Meier, O'Toole and Goerdel 2006) reports no gender differences in external networking behaviour using the same empirical setting. In a comprehensive study of English local government managers, Walker, Meier, and O'Toole (2007) find that networking behaviour seems to vary with managerial level. Taken together, this research suggests a steadily increasing understanding of antecedents to networking behaviour. What, however, is still missing in the ongoing characterization of managerial networking is an explicit attention to personal and job-related factors as well as comprehensive investigation, where such a focus is studied along with organizational factors in order to further isolate which factors are determinants of managerial networking and which are simply correlates of other factors.

Until recently, external managerial networking was measured more or less as interaction with external actors bundled into one composite measure. By introducing a distinction between different dimensions of external networking, however, a recent article (Torenvlied et al. 2013) suggests that "… managerial networking is not a one-dimensional phenomenon. The multidimensional nature of managerial networking activity logically follows from the assumption that managers have only limited time

and resources available and weigh the relative costs and benefits of maintaining a relationship with an external actor" (p.266). Combining theoretical arguments and empirical testing, they find three dimensions in their empirical analysis of the external networking behaviour of Texas School superintendents. Frequent interactions with local business leaders and state legislators are interpreted as *political support*. Frequent interactions with the Texas Education Agency and Federal Education Officers are interpreted as *Bureaucratic coping*, while frequent interactions with Parent Groups and Teacher associations are interpreted as *Coproduction*.

Essential points from the review are summarized in table 1 below.

Insert table 1 around here

In this paper we build on this important line of research and maintain the focus on how to better characterize and explain the networking behaviour of public managers. We suggest that it is not only important to distinguish different types of actors as targets of networking (as suggested by Torenvlied et al., 2013) but also to focus on the frequency of interactions as an indication of tie strength (Granovetter 1973, Granovetter 1983). In what follows, we introduce the important notion of weak ties and argue that previous research in Public Managerial networking has focused on strong ties and neglected the weak ties perspective.

A Model of External Networking

Dimensions of external networking and effective leadership

A first step in the process of identifying different types of managerial networking is to more closely characterize this concept itself. As indicated in the introduction, our interpretation of the external networking behaviour of public managers is based on Granovetter's distinction between strong and weak ties (Granovetter 1973, Granovetter 1983).

In his seminal article "the strength of weak ties", Granovetter defines the strength of a tie as "a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (Granovetter 1973:1361). Granovetter furthermore hypothesizes that "overlap in their friendship circles is predicted to be least when their tie is absent, most when it is strong, and intermediate when it is weak" (Granovetter 1973:1362). The hypothesis is supported by logical argument and empirical evidence in the article as well as later studies. Thus a strong tie is characterized by overlapping networks and frequent interaction.

Since previous studies of managerial networking in the public sector have used frequency of interaction as a basic measure, we suggest that those studies, in Granovetter's conceptualization, have used a partial measure of the strength of ties to external actors. Translated to Granovetter's strong/weak ties distinction, the PA literature reviewed above tends to find that stronger ties (measured as more frequent interaction with external actors) are positively related to measures of organizational performance. Yet as existing studies focus only on frequency and not on the nature of the other actor involved and whether social networks are likely to be overlapping, there is at best a partial link to tie strength. We suggest that the quantitative literature on public managerial networking has ignored the "strength of weak ties argument"

prominent in social network analysis (Borgatti and Foster 2003, Granovetter 1973, Granovetter 1983, Hansen 1999, Levin and Cross 2004) . In the paper we explore the implications of including such a perspective in the interpretation of the networking behaviour of public managers. We argue that weak ties may be intimately related to the leader being able to lead change processes, enhance innovation and adapt new knowledge to the organization and that contingencies in the task environment of an organization may explain the extent to which this type of networking is performed. Below we elaborate how the two dimensions of tie strength, the frequency of interaction, and the similarity of the actors involved are relevant in a public management setting.

Frequency of interaction.

Strong ties involve frequent interaction between actors, often accompanied by an emotional attachment. While frequent interactions tend to enhance a relationship built on trust, support, and mutual benefit, the novelties in the exchange of information are likely to diminish as frequency increases. Infrequent interactions characterize a distinctively different type of relationship. These types of relations are likely to be focused on either very specific problems, which a specific actor can assist in solving, or a developmental issue, for which new knowledge or perspectives are sought. In infrequent interaction, possibilities for creating trust and support are lower while opportunities for getting new information from a different social circle are higher. Thus less frequent interactions indicate non-redundant information exchange, especially in the case of interaction between dissimilar actors, and thus the likelihood of enhancing the exploration of novel combinations of ideas and resources.

Relations to similar or dissimilar external actors.

The second element in tie strength concerns whether ties are to actors with overlapping networks and thus less likely to offer non-redundant information. Public managers interact with a range of external actors. Importantly, however, salient external actors can be of both similar and dissimilar types. For a public organization, similar types may be peer organizations (e.g. another municipality) or other public agencies, which are needed to accomplish core tasks. Dissimilar types in the public administration context include non-public sector actors such as business managers and media representatives, who are met more or less frequently. A focus on relative differences and similarities of external actors in terms of resources and ideas is closely related to the redundant versus non-redundant information argument discussed above. As little new knowledge is disseminated between similar types of actors, this type of networking relates more to an exploitation objective.

While Granovetter's theory is sociological in nature, it has previously been applied in a managerial setting with a focus analogous to the one used here (e.g. Hansen 1999).

Antecedents of weak and strong ties in external networking

Below we use the two dimensions of tie strength to develop propositions for determinants of different types of networking. We argue that the more managerial networking is based on frequent interactions with similar other actors, the more it is based on strong ties. Conversely, the more managerial networking consists of infrequent interactions with dissimilar other actors, the more it is based on weak ties. As argued above, different gains can be accrued from the different types of networking. Consequently, we propose that markedly different processes are likely to

explain their relative uses. Importantly, we do not say that managers use either one or the other type of external networking. The two objectives may be complementary or may both be little used by inward oriented managers.

Strong tie networking

Following our conceptualization, most previous research on networking can be said to be based on a partial conception of strong ties as they estimate higher values on a factor of networking frequency. This means that existing research provides an avenue for speculation about determinants of strong tie networking, yet the division into two dimensions proposed above provides room for a slightly different theorizing of them. Particularly, we suggest that we need a better understanding of individuals' motivation and needs, which we will focus on below.

Andrews and colleagues state: "Any effort to explain external organizational networking begins with the notion that public organizations are interdependent with the actors and forces in their environment" (2011: 357). While environmental forces are important determinants of organizational action, this statement seems to overlook the fact that organizational networking is a conceptual abstraction and in practice, networking is about individuals being in contact with other individuals. As described above, strong ties are used to build trust to get things done. This suggests that especially individual level factors are likely to determine this type of external networking, and that exploiting external networking resources is more likely among individuals who need help to get things done.

Experience

That experience in a system is relevant for external networking was pointed out by Juenke (2005). He proposed that it takes time to build a network and that networking will be more effective for more experienced managers. While Juenke found support for these hypotheses, he also reported negative correlations between networking and organizational experience (significant) and management tenure (insignificant). This suggests that increasing experience is associated with quantitatively less focus on using strong ties. This is consistent with our theorizing. More inexperienced managers will face more challenges and questions about how things are done. They will also need to spend time with relevant actors to build trust and mutual understanding. This will lead them to develop strong ties to peers and colleagues in other similar organizations in order to develop solutions and build trust. As experience increases and their reputation has become well established, managers will need to spend less time engaged in this type of networking. Therefore, we expect:

Hypothesis 1: Previous management experience is related to lower degrees of strong-tie networking.

Education

The need for networking focused on improving organizational operations is also a function of possible access to relevant actors and personal ability. Although it varies somewhat between national contexts, most high-ranking civil servants in public administration have similar educational backgrounds (Klausen and Magnier 1998). In the Danish municipal case, they typically have a degree in political science, economics, or law (Hansen 2013, Hansen, Opstrup and Villadsen 2013). In the formative years of developing a professional identity, individuals with this type of

education will have opportunities to build social relations that can later become valuable and form the basis for trust and mutual support. This may also mean, however, that the need to cultivate multiple bonding relations is lower and that relations are more informal. Furthermore, we may expect managers with an educational background outside traditional administrative programs to work harder to build a reputation of being reliable and trustworthy.

Administrative education also prepares individuals for a work life in public administration. While theory and practice are different things, it is still likely that the knowledge gained through education will lower the need for frequent subsequent networking.

Hypothesis 2: An education background outside traditional administrative programs is related to higher degrees of strong-tie networking.

Position

That managers' engagement in external networking varies at different hierarchical levels was pointed out by Walker and colleagues (2007). This relation has also been found in leadership studies outside public administration (Forret and Dougherty 2001, Michael and Yukl 1993). Such differences have to do with the different responsibilities that rest at different managerial levels. A particular responsibility lies with the top executive to both coordinate task-related activities with external organizations and to engage in strategic thinking and development (Hambrick and Mason 1984) to secure efficient operations now and in the future. To be effective in inter-organizational cooperation concerning task-related activities, top managers may engage in cross-sectoral decision-making fora and more informal networks. Such

task-related networks are typically more frequent for top managers than for lower ranking managers.

Together this suggests:

Hypothesis 3: Top executives engage in more strong-tie networking than managers at lower levels

Weak-tie networking

Determinants of weak-tie networking, as defined here, have not been studied in the public administration literature. This type of networking is aimed at managers gaining new knowledge and perspectives that can lead to innovation and change. We suggest that this type of networking is predominantly determined by organizational needs. The individual managers themselves will rarely need radically different ideas to succeed in the job in normal situations, and weak-tie networking may take time and focus away from core operations. However, special organizational characteristics, we speculate, may enhance external networking based on weak ties with actors outside the public sector. While much more work is needed to properly understand this type of behaviour of public managers, here we will begin by focusing on a few well-known organizational factors.

Environmental complexity

Environmental determinants have previously been found to be important for external networking. Andrews et al. (2011) found that objective environment measures mattered little to networking activity, whereas the perceived environment did. On the

basis of the typology proposed above, it may be possible to speculate in more detail about when and why the environment may affect managerial networking, and especially, when objective factors in the environment are important.

As the environment of organizations normally changes relatively slowly, environmental characteristics may have little impact on the need for strong-tie networking, which, we argue, is shaped by specific cases and daily challenges. This may explain the non-findings of objective environmental factors reported by Andrews et al. (2011). On the other hand, the environment of an organization may be an important contingency, informing about organizations' needs to engage in innovation and the renewal of practices or services. As Andrews et al. state: "…environments seen to be complex can overwhelm the cognitive capacity of an organization's managerial cadre" (2011: 358). High environmental complexity is likely to enhance the need for strategic management from an organization's managers and thus the need to explore new opportunities. This involves making plans for action but also boundary spanning activities. As these challenges are not about solving day-to-day issues, they are more likely to lead to increased weak-tie networking. With this distinction in mind, we put forward the following hypothesis.

Hypothesis 4: A higher level of environmental complexity is related to a higher degree of weak-tie networking.

Organization size

Finally, organization size may be an important factor to consider as organizations differ in their need for boundary spanning activities on the part of their executives. Especially smaller organizations are likely to suffer from a lack of internal

developmental capabilities because of a smaller administrative capacity. High-ranking managers in smaller organizations, consequently, are more likely to seek external inspiration when new knowledge or ideas are needed than high-ranking managers in larger organizations.

Smaller organizations are also less likely to have built a formal system for boundary spanning with actors outside the public sector. Where larger organizations build communications or PR units, such tasks are likely to be part of the managerial job in smaller organizations. We expect:

Hypothesis 5: The size of a municipality is negatively related to a higher degree of weak-tie networking among its managers.

ILLUSTRATIVE CASE: MANAGERIAL NETWORKING IN DANISH LOCAL GOVERNMENT

We believe that the framework offered above constitutes an important contribution to current thinking about managerial networking and we want to follow it up with an illustrative study of how the framework can be employed empirically. We have chosen to conduct an illustrative study for two reasons. First, we wanted to use similar data to previous studies of external managerial networking. This allows for comparison but also serves as an illustration of how existing data may be used in a different way. This comes at the expense of a more thorough operationalization of the dependent variable. Second, we believe that a more nuanced understanding of external managerial networking is important, both conceptually and empirically. In this paper we have focused on the conceptual development associated with an

illustrative study. In future research we believe new empirical operationalizations of key networking variables should be explored.

We draw on networking data from an existing questionnaire resembling the measures of managerial networking previously used in PA research. Data for this study were drawn from an email survey of top managers in Danish local authorities conducted in the autumn of 2008 among all 98 local governments (see description of data collection below). Danish municipalities are multi-purpose organizations that take care of a number of services, of which the three most important are: (a) technical services (e.g. park and road services); (b) school and culture services (e.g. primary schools and libraries); and (c) social services (e.g. elderly care and disadvantaged families).

The municipal administrations are headed by a city manager. At the next level, a small number of directors are in charge of individual service areas. In each area, a few other top managers support these managers.

Our survey respondents included the highest-ranking civil servants in Danish local government. First, the city manager (in Danish "Kommunaldirektør") cooperates closely with the mayor and is equivalent to a CEO. Second, we include the top directors in charge of the three most important service areas in terms of size and salience within local government: school and culture managers (SCM), managers of technical services, and managers of social services. Together with the mayor, these managers form the administrative board of directors in most Danish municipalities.

Setting and Data Collection

To explore the hypotheses, we conducted empirical analyses built on a survey from 2008. With the objective of reaching the population of top-tier municipal managers,

the survey was distributed to the members of four Danish local government manager associations, including almost all top-tier municipal managers in Denmark. While membership of these associations is not mandatory, it is very rare that managers are not members of these professional communities. The few non-members in the four top positions were also included in the survey. Among the 1105 members of the four associations, 81 % (n=896) have answered the survey, including 76 % (n=74) of the city managers, 83 % (n=81) of the child and culture managers, 71 % (n=70) of the technical service managers, and 77 % (n=75) of the social service managers in Denmark. Additionally, 168 other top civil servants with other administrative functions and 407 other local government managers responded to the survey but are not included in this study. The study is fairly representative of the top tiers of local government managers in Denmark (Hansen, Jensen and Pedersen 2009). In our analyses, n is between 240 and 256 executives, representing all 98 local governments.

The data collection is subject to some of the ordinary caveats about survey data. First, self-reported data may be biased because respondents for a variety of reasons do not answer questions truthfully. As almost all variables relate to objective facts, which in principle could be fact-checked (see description of variables below), this problem should be minimized in this study (Meier and O'Toole 2013).

Second, survey based studies will often be subject to questionable causality claims as variables are measured concurrently. As most explanatory variables relate to previous facts like education and work history, we do not consider this a major problem here (even though with this non-experimental setting we cannot entirely rule out endogeneity caused by omitted variables). Finally, single source bias may be a problem when most variables are collected from the same questionnaire. For the

reasons stated above we do not consider this a major problem. To further ensure this, we conducted a Harman's one-factor test and found no indications of single source bias.

Variables

Dependent variable. Our dependent variable is managerial networking, conceptualized according to our focus on strong and weak ties. We suggest that the proposed conceptual framework may inspire a slightly different way of utilizing otherwise traditional data to illuminate a more nuanced perspective on managerial networking. We follow a range of previous studies (see Meier & O'Toole 2001 and our citations above for more recent examples) and use an item indicating the frequency with which a manager interacts with a range of external actors. A five-point scale was used, spanning from "daily" to "rarely/never". We focus on interactions with a range of actors in the immediate task environment of the municipalities, including managers in other municipalities, the central government, and the professional interest association Municipalities Denmark, as well as actors in the institutional environment (Scott and Davies 2007) on which municipalities rely for support and legitimacy, namely, the press, local businesses, unions, and voluntary organizations.

As described above, in this empirical illustration we distinguish between external networking based on strong and weak ties. Strong-tie networking involves frequent relations with similar external actors. These types of relations aim at improving organizational effectiveness. We construct the variable *Strong-tie Networking* as the sum of public sector actors with whom a given manager has at least weekly contact.

This operationalization takes into consideration both of the theoretical dimensions we use to define strong ties, namely, the type of actor and the frequency of interactions.

Weak-tie networking involves infrequent relations with dissimilar external actors. These ties may be focused on obtaining new information. We constructed the variable *Weak-tie Networking* as the sum of non-public sector actors with whom a given actor has less than weekly, but at least monthly contact.

While this two-dimensional operationalization of tie strength is well-aligned with the theoretical literature, we acknowledge that what constitutes similarity and frequency is context specific and somewhat debatable. For this particular illustrative purpose, it makes sense to distinguish between public and non-public actors, the former type clearly being closer to the municipalities' management in nature. While this measure is not perfect, it does have some face validity. See table 2 for a description of the actors included in each variable.

Likewise, we suggest that at least weekly relations are frequent enough to make the exchange of redundant information likely. On the other hand, monthly relations are frequent enough to establish some kind of relation while still infrequent enough to make it likely that new non-redundant information is exchanged. Again, this operationalization has face validity but should be further explored in future research.

Both variables measure the number of external actors of a given kind that a focal actor is in contact with at a given frequency. Five similar actors are included, characterized by being public sector. Four dissimilar actors are included, characterized by not being

part of the public sector. This means that the variables range from 0 to 5 or 0 to 4, respectively, with high values indicating substantial networking activity of a given type.

A considerable advantage of this approach is that what is estimated is very intuitive. A factor analysis is based on a complex aggregated score, where the absolute value provides relatively little knowledge; our approach provides very direct measures of different types of networking activities. What is estimated is the number of actors of a given type with whom a focal actor has contact with a given frequency.

Independent variables. A range of independent variables are used in the study. Most are operationalized quite intuitively. They are all described in Table 2 below.

Insert table 2 about here

While the personal and job-related variables are quite straightforward, some comments should be attached to the organizational level variables. We focus on two dimensions of the objective environmental complexity. We include an aggregated measure of socio-economic conditions in the municipality developed by the Danish Ministry of the Interior. Further, we include the percentage of non-Western immigrants in the municipality, which has previously been used to indicate environmental complexity (Andrews et al. 2011b)

Control variables. To better isolate the effects of the hypotheses, we include a number of control variables. First, we include the gender and age of the respondents. Next, we include a measure of whether they have work experience in the private sector or the central government, and their tenure in the current position. Finally, we include a measure of the extent of contracting in the municipality, as this may affect the need for external networking activities.

Estimation

Because our dependent variables are count variables measuring the number of external actors that a focal actor is in contact with, we use Poisson regressions for our estimations. This means that coefficients indicate the expected increase in (log) number of relations of a particular type (type and frequency) that a respondent reports a relation with. As multiple respondents from each municipality are included, we cluster standard errors by the municipality.

Our data has a nested structure, with managers being nested within municipalities. As a robustness test, we also estimated the main models as multilevel models with a municipality-specific intercept (not shown – available from authors). For strong ties networking results were very similar to the ones reported, even a bit stronger. However, the multi-level model estimating weak ties networking was not able to converge. We suspect this was due to very low with-in municipality variance that makes multi-level modelling difficult.

FINDINGS

Before moving on to results of regression analyses, it is worth considering the descriptive statistics in table 3.

Insert table 3 about here

Note that the average value for strong-tie networking is 0.93, indicating that, of the five potential public sector relations, our respondents are in close contact with less than one on average. The average value for weak ties is higher. Of the potential maximum four weak-tie relations, our respondents are in occasional contact with 1.88. To conserve space, we do not report correlations (these can be provided by the authors on request). We do, however, want to point to a negative correlation of -0.15 ($p<0.05$) between our measures of strong ties and weak ties. This provides an early indication that these two measures actually tap into different dimensions of managerial networking behaviour.

Results of Poisson regression analyses are presented in table 4 below.

Insert table 4 about here

Four models are presented in table 4. Models 1 and 2 present the results of the hypothesis tests regarding determinants of strong-tie networking. Models 3 and 4 present results for weak-tie networking.

For each type of networking, the first model includes only control variables, while variables related to hypotheses are included in subsequent models. Recall that the dependent variables indicate the number of actors of a certain type with whom a given manager is in contact.

Hypotheses 1 to 3 involve strong-tie networking and are explored in model 2. Hypothesis 1 posited that managers with previous management experience are likely to engage less extensively in strong-tie networking. Negative and significant coefficients indicate support for this hypothesis if managers have previous managerial experience from the same or another municipality. In hypothesis 2, it was proposed that managers with an educational background in the social sciences would engage in less strong-tie networking. There is some limited support for this as the coefficient is negative, yet only marginally significant, indicating that a degree within traditional administrative disciplines is associated with fewer expected strong-tie relations. Finally, hypothesis 3 suggested that the CEO engages more in strong ties than lower level (top) managers. The findings lend considerable support to this hypothesis, with a positive and significant coefficient. The coefficient should be interpreted in relation to lower level managers, who constitute the omitted group. To better understand the practical implications of the results, we have calculated the predicted number of strong-tie relations associated with different values of our variables of interest. They are reported in table 5.

Insert table 5 about here

As indicated in model 2, municipal managerial experience is related to less strong-tie networking. The table shows that other types of experience are related to around 0.5 more strong-tie relations on average. Similarly, when considering educational degrees, we see that having an education outside the social sciences is associated with

a substantially larger expected number of strong-tie relations. The most pronounced effect is from position. The CEOs in the study are predicted to have more than double the number of strong-tie relations than non-CEOs, indicating the complexity of the top management position.

The multilevel specification (not shown) is consistent with the findings in model 2.

The next hypotheses involved organizational factors related to weak-tie networking. The analyses are reported in model 4. First, in hypothesis 4, environmental complexity was expected to be positively related to weak ties. There is mixed support for this. The coefficient for the general socio-economic index is negative, but only marginally significant. However, there is a strong and positive relation between non-Western immigrants and weak-tie networking. Finally, hypothesis 5 suggests that weak ties would be more pronounced for managers in smaller organizations. There is support for this expectation with a negative and significant coefficient, indicating that managers in smaller organizations have weak-tie relations with a higher number of actors.

Again, we want to interpret the substantial impact of these coefficients by calculating predicted counts on the dependent variable. As the three variables are continuous, we illustrate this graphically in figure 1.

Insert figure 1 about here

We first consider the socio-economic index. As indicated by the negative coefficient, we see that weak ties are far more prevalent when the index is low and socio-economic conditions poor. Next we turn to the proportion of non-Western immigrants. Again, there is a clear and sizeable effect. When the proportion of immigrants is near the observed maximum of 0.13, the model predicts that managers will have weak-tie relations to all four possible actors. Finally, we turn to size. Again, there is a clear negative effect, illustrating that weak-tie networking is much more pronounced among managers in smaller municipalities.

We want to make a specific note that our operationalization of weak ties and strong ties, simple as it is, still seems to discriminate well between managers. Different factors are related to the two fundamentally different types of networking. Individual factors are mainly related to strong-tie networking, while organizational factors tend to be related to weak-tie networking.

DISCUSSION

Understanding the nature of inter-organizational relations and external networks in public management has been a central challenge to much recent research in the public administration literature. Researchers have forcefully demonstrated how and when managerial networking behaviour is associated with better organizational outcomes. With this paper we propose a conceptual typology to increase our understanding of managerial networking in the public sector. Our suggestion is to build a more complex approach to the quantitative analysis of external managerial networking on the theory of the strength of weak ties (Granovetter 1973). We claim that previous quantitative research in the external networking of public managers, by measuring

only frequency of interaction, has focused on strong ties (Granovetter 1971) and missed the strength of weak ties and thus the explorative part of external managerial networking. While theoretically we build on Granovetter, it should be noted that other theoretical frameworks such as social capital theory (Burt 2005), boundary spanner theory (Williams 2012), and the distinction between exploitative and explorative learning (March 1991) include notions somewhat resembling the ideas put forward in this paper. Empirically, we suggest that a focus on both tie strength and actor type is necessary to capture the two dimensions of external networking.

We argue that commonly used data-driven approaches fail to discriminate effectively between strong-tie and weak-tie types of networking. Most existing studies rely on a factor analysis of the managerial relations to a range of actors. This approach limits generalizability, as factor analysis is highly context dependent and difficult to compare across studies. Further, observed factor scores can only be interpreted relatively and are hard to assign substantial meaning. Instead, we propose a theoretically grounded understanding of managerial networking and suggest an empirical operationalization.

As the typology is based on two dimensions, similarity of networking actors and frequency of interaction (tie strength), the operationalization involves researcher discretion in determining which actors to include and what constitutes frequent and less frequent interaction. This opens for a more nuanced understanding of managerial networking, where empirical specificities of a setting are made comparable across studies by a clear theoretical linkage. In the present empirical study, we contend that our measurement of external networking, while similar to most existing studies, may not be optimal in illuminating differences between strong and weak ties. As mentioned, we wanted to focus on the theoretical part here and use data to illustrate,

which is a familiar approach in this research tradition. Yet, the operationalization is not without validity as it does capture dimensions of tie frequency and closeness, which have been used in previous research to indicate tie strength – also among managers (Burt 1992; Hansen 1999). Yet, we believe it is an important task for future research to develop and validate measures of tie strength in the external networking behaviour of public managers.

Based on a study of Danish municipal top managers, our findings indeed suggest that our proposed conceptualization and preliminary empirical operationalization can discriminate between different types of networking. Importantly, we find that measures of strong-tie and weak-tie networking are weakly and negatively correlated, suggesting that they constitute different dimensions of networking. Further, the two measures are found to vary in ways predicted by theory, suggesting satisfactory convergent validity. In this way, the paper contributes with a theoretically grounded yet new way of assessing managerial networking as well as an increased understanding of individual and organizational level antecedents.

This study indicates that much can still be learned by incorporating theoretical ideas from other fields into public administration theorizing. Only recently it was suggested that the nature of actors should be incorporated into studies of managerial networking (Torenvlied et al. 2013). By building a focus on tie strength on top of that thinking, this paper has provided a way in which to translate an established theory of the strength of weak ties into very operational public administration research.

Strong-tie networking was argued to consist of frequent interactions to similar other actors. Theory predicted this type of networking to be about building trust and getting things done. Indeed, we found that experience and position were two important factors in explaining this behaviour. This points to the fragility of new managers, who need to build trust in their capability and explore how to get things done through external networks. We find two lines of future research based on this important. First, we need to build a better understanding of how new public managers succeed on the job (Petrovsky, James and Boyne 2015). Suffering from time constraints, it would be interesting to know more about which type of networking is most productive and how the profiles of new managers affect subsequent networking activities. For instance, multidimensional analysis, such as cluster analysis, may be useful in identifying different managerial profiles when it comes to external networking. Second, we should also investigate why strong-tie networking declines as managers become more experienced. This likely reflects a learning curve but could indicate inertia and a focus that is too internal.

Based on the strength of weak ties argument, weak-tie networking was contended to involve less frequent relations with dissimilar outside actors. It was found that organizational factors such as environmental complexity and organizational smallness were positively associated with this type of action. This is not surprising as these organizations are especially in need of thinking in new ways and creating support for innovative ideas. Still, our findings were mixed and future research should look more into the role of weak-tie networking for public managers. It would be especially interesting to investigate the relation between weak-tie networking and organizational innovation more directly.

In this paper we have proposed a framework for better characterizing managerial networking in quantitative survey research. We have developed this theoretically and proposed hypotheses for determinants of different types of networking behaviour. We hope future research will build on this typology to enable an increased understanding of different aspects of networking. This involves understanding networking itself, but also its antecedents and consequences. In particular, it would be interesting to see studies of how the performance outcomes of networking may differ across different types. On the basis of the typology, we would expect strong-tie networking to enhance efficiency and weak-tie networking to promote innovation. While our approach is primarily directed towards quantitative research, it is also our hope that the typology can be useful in qualitative work. Such work could substantially enhance our understanding of the processes underlying external networking in public managerial networking.

REFERENCES

Andrews, R., G. A. Boyne, K. J. Meier, L. J. O'Toole and R. M. Walker. 2011a. "Environmental and Organizational Determinants of External Networking." *American Review of Public Administration* 41(4):355-74. doi: 10.1177/0275074010382036.

Andrews, R., G. A. Boyne, K. J. Meier, L. J. O'Toole and R. M. Walker. 2011b. "Environmental and Organizational Determinants of External Networking." *The American Review of Public Administration* 41(4):355-74.

Borgatti, S. P. and P. C. Foster. 2003. "The Network Paradigm in Organizational Research: A Review and Typology." *Journal of Management* 29(6):991-1013. doi: 10.1016/s0149-2063(03)00087-4.

Burt, R. S. 2005. "Brokerage and Closure: An Introduction to Social Capital." Oxford: Oxford University Press. Retrieved.

Forret, M. L. and T. W. Dougherty. 2001. "Correlates of Networking Behavior for Managerial and Professional Employees." *Group & Organization Management* 26(3):283-311.

Gedajlovic, Eric, Benson Honig, Curt B. Moore, G. Tyge Payne and Mike Wright. 2013. "Social Capital and Entrepreneurship: A Schema and Research Agenda." *Entrepreneurship Theory and Practice* 37(3):455-78. doi: 10.1111/etap.12042.

Goldsmith, S. and W. D. Eggers. 2004. *Governing by Network: The New Shape of the Public Sector*: Brookings Institution Press.

Granovetter, M. S. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78(6):1360-80.

Granovetter, Mark. 1983. "The Strength of Weak Ties: A Network Theory Revisited." *Sociological Theory* 1(1):201-33.

Hambrick, D. C. and P. A. Mason. 1984. "Upper Echelons - the Organization as a Reflection of Its Top Managers." *Academy of Management Review* 9(2):193-206.

Hansen, M. B., C. P. Jensen and J. T. Pedersen. I. f. statskundskab. 2009. "Kommunernes Administrative Lederskab Efter Kommunalreformen. Spørgeskemaundersøgelse Til Medlemmerne Af De Kommunale Chefforeninger, Efteråret 2008." Vol. *Kommunalpolitiske Studier.* 24. Odense: Syddansk Universitet, Institut for Statskundskab.

Hansen, M. B. 2013. "The Evolution and Challenges of the Danish Civil Service System." *Journal of Policy Science* 7:7-24.

Hansen, M. B., N. Opstrup and A. R. Villadsen. 2013. "En Administrativ Elite under Forandring. Udviklingen I Danske Kommunale Topchefers Kollektive Profil Fra 1970 Til 2008." *Politica* 45(2):178-94.

Hansen, Morten T. 1999. "The Search-Transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits." *Administrative Science Quarterly* 44(1):82-111.

Hicklin, A., L. J. O'Toole and K. J. Meier. 2008. "Serpents in the Sand: Managerial Networking and Nonlinear Influences on Organizational Performance." *Journal of Public Administration Research and Theory* 18(2):253-73.

Juenke, E. G. 2005. "Management Tenure and Network Time: How Experience Affects Bureaucratic Dynamics." *Journal of Public Administration Research and Theory* 15(1):113-31.

Klausen, Kurt Klaudi and Annick Magnier. 1998. *The Anonymous Leader - Appointed Ceos in Western Local Government*. Odense: Odense University Press.

Levin, D. Z. and R. Cross. 2004. "The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer." *Management Science* 50(11):1477-90. doi: 10.1287/mnsc.1030.0136.

March, James G. 1991. "Exploration and Exploitation in Organizational Learning." *Organization Science* 2(1):71-87.

Meier, K. J. and L. J. O'Toole. 2001. "Managerial Strategies and Behavior in Networks: A Model with Evidence from Us Public Education." *Journal of Public Administration Research and Theory* 11(3):271.

Meier, K. J. and L. J. O'Toole. 2003. "Public Management and Educational Performance: The Impact of Managerial Networking." *Public Administration Review* 63(6):689-99.

Meier, K. J. and L. J. O'Toole. 2005. "Managerial Networking - Issues of Measurement and Research Design." *Administration & Society* 37(5):523-41. doi: 10.1177/0095399705277142.

Meier, K. J., L. J. O'Toole and H. T. Goerdel. 2006. "Management Activity and Program Performance: Gender as Management Capital." *Public Administration Review* 66(1):24-36.

Meier, K. J., L. J. O'Toole, G. A. Boyne, R. M. Walker and R. Andrews. 2010. "Alignment and Results:Testing the Interaction Effects of Strategy, Structure, and Environment from Miles and Snow." *Administration & Society* 42(2):160-92. doi: 10.1177/0095399710362717.

Meier, K. J. and L. J. O'Toole. 2010. "Beware of Managers Not Bearing Gifts: How Management Capacity Augments the Impact of Managerial Networking." *Public Administration* 88(4):1025-44.

Meier, K. J. and L. J. O'Toole. 2013. "Subjective Organizational Performance and Measurement Error: Common Source Bias and Spurious Relationships." *Journal of Public Administration Research and Theory* 23(2):429-56. doi: 10.1093/jopart/mus057.

Michael, J. and G. Yukl. 1993. "Managerial Level and Subunit Function as Determinants of Networking Behavior in Organizations." *Group & Organization Management* 18:328-51.

Petrovsky, Nicolai, Oliver James and George A Boyne. 2015. "New Leaders' Managerial Background and the Performance of Public Organizations: The Theory of Publicness Fit." *Journal of Public Administration Research and Theory* 25(1):217-36.

Pollitt, C. and G. Bouckaert. 2011. *Public Management Reform. Comparative Analysis of New Public Management, Governance and the Neo-Weberian State*. Oxford: Oxford University Press.

Rainey, H. G. 2009. *Understanding and Managing Public Organizations*: John Wiley & Sons.

Rhodes, R. A. W. and David Marsh. 1992. "New Directions in the Study of Policy Networks." *European Journal of Political Research* 21:1:181-205.

Rhodes, R. A. W. 1994. "The Hollowing out of the State - the Changing Nature of the Public-Service in Britain." *Political Quarterly* 65(2):138-51.

Rhodes, R. A. W. 1996. "The New Governance: Governing without Government." *Political Studies* 44 (4):652-67.

Sabatier, P. 2000. "Theories of the Policy Process." *Journal of European Public Policy* 7(1):135-40.

Schalk, J., R. Torenvlied and J. Allen. 2010. "Network Embeddedness and Public Agency Performance: The Strength of Strong Ties in Dutch Higher Education." *Journal of Public Administration Research and Theory* 20(3):629-53. doi: 10.1093/jopart/mup018.

Sorensen, E. and J. Torfing. 2005. "The Democratic Anchorage of Governance Networks." *Scandinavian Political Studies* 28(3):195-218.

Sorensen, E. and J. Torfing. 2011. "Enhancing Collaborative Innovation in the Public Sector." *Administration & Society* 43(8):842-68. doi: 10.1177/0095399711418768.

Torenvlied, R., A. Akkerman, K. J. Meier and L. J. O'Toole. 2013. "The Multiple Dimensions of Managerial Networking." *American Review of Public Administration* 43(3):251-72. doi: 10.1177/0275074012440497.

Walker, R. M., L. J. O'Toole and K. J. Meier. 2007. "It's Where You Are That Matters: The Networking Behaviour of English Local Government Officers." *Public Administration* 85(3):739-56. doi: 10.1111/j.1467-9299.2007.00667.x.

Williams, P. 2012. *Collaboration in Public Policy and Practice: Perspectives on Boundary Spanners*: Policy Press.

Table 1: Summary of research on the antecedents of external managerial behaviour

Study	**Measure of external networking**	**Correlates of external networking**	**Empirical context**	**Findings related to antecedents of networking**
1. (Meier *et al.* 2001)	Frequency of interaction with one index of external actors (five actors)	Performance (percentage of students passing exams);	Managers in public school districts in Texas	Networking positively related to performance
2. (Andrews *et al.* 2011)	Frequency of interaction with one index of external actors (ten actors)	External environment (munificence, heterogeneity, unpredictability) Organizational strategy (prospector, reactor) Organizational structure (centralization, formalization, and specialization)	Managers in English local government	Perceived diverse stakeholder demands positively related to networking. Perceived unpredictable stakeholder demands negatively related to networking. Organizations focusing on core services network less Reactive strategy network less. Low formalization and high specialization positively related to networking.
3. (Juenke 2005)	Frequency of interaction with one index of external actors (five actors)	Management quality; Time in District; Tenure	Managers in public school districts in Texas	Experienced and high quality managers network less. Tenure not significant
4. (Meier *et al.* 2006)	Frequency of interaction with one index of external actors (four actors)	Gender	Managers in public school districts in Texas	Gender not significantly related to external networking
5. (Walker *et al.* 2007)	Frequency of interaction with eight external actor groups (no index)	Managerial function	Managers in English local government	Patterns of external networking vary systematically by managerial function
6. (Torenvlied *et al.* 2013)	Frequency of interaction with three indexes of external actors: Political support (two actors); Bureaucratic coping (two actors), and Coproduction (two actors)	Performance (Pass rates for latino students)	Managers in public school districts in Texas	Bureaucratic coping and interaction variable (Bureaucratic coping X Political Support) significantly related to performance

1. Meier, K. J. and L. J. O'Toole. 2001. "Managerial strategies and behavior in networks: A model with evidence from US public education." *Journal of Public Administration Research and Theory* 11:271-293.
2. Andrews, R., G. A. Boyne, K. J. Meier, L. J. O'Toole, and R. M. Walker. 2011. "Environmental and Organizational Determinants of External Networking." *American Review of Public Administration* 41:355-374.
3. Juenke, E. G. 2005. "Management tenure and network time: How experience affects bureaucratic dynamics. "*Journal of Public Administration Research and Theory* 15:113-131.
4. Meier, K. J., L. J. O'Toole, and H. T. Goerdel. 2006. "Management activity and program performance: Gender as management capital." *Public Administration Review* 66:24-36.
5. Walker, R. M., L. J. O'Toole, and K. J. Meier. 2007. "It's where you are that matters: The networking behaviour of english local government officers." *Public Administration* 85:739-756.
6. Torenvlied, R., A. Akkerman, K. J. Meier, and L. J. O'Toole. 2013. "The Multiple Dimensions of Managerial Networking." *American Review of Public Administration* 43:251-272.

Table 2: Variables in the Analyses

Variables	**Measurement**
Dependent variables	
Strong-tie networking	Number of public sector actors with whom a manager has at least weekly contact. The actors are: (1) CEOs in other municipalities, (2) managers in other municipalities, (3) employees in central government; (4) employees in regional government; (5) the professional organization Municipalities Denmark.
Weak-tie networking	Number of non-public sector actors with whom a manager has less than weekly but more than monthly contact. The actors are: (1) local business leaders, (2) members of the press, (3) union representatives, (4) leaders in voluntary organizations.
Independent variables	
H1: Previous management experience	Previous position manager in current or other municipality
H2: Education outside social science	Main education not social science degree
H3: Executive position	Dummy variables for the positions immediately below the CEO. CEO is omitted category
H4: Environmental complexity	i) Socio-economic index calculated by Ministry of the Interior ii) Proportion of non-Western immigrants
H5: Organizational size	Number of inhabitants
Controls	
Job tenure	Years in current job
Age	Age of respondent
Gender	Gender of respondent
Central Government Experience	Previous work experience in central government
Private Sector Experience	Previous work experience in the private sector
Contracting	Proportion of services contracted out

TABLE 3: Descriptive Statistics.

	Mean	SD	Min	Max
Strong-tie networking	0.93	1.19	0.00	5.00
Weak-tie networking	1.88	1.18	0.00	4.00
Age	52.11	1.25	30.00	66.00
Gender (women =2)	1.22	0.42	1.00	2.00
Central government experience	0.16	0.37	0.00	1.00
Private sector experience	0.12	0.33	0.00	1.00
Tenure: 0-1 years	0.13	0.33	0.00	1.00
Tenure: 2-4 years	0.31	0.46	0.00	1.00
Tenure: 5-7 years	0.17	0.38	0.00	1.00
Private providers (proportion)	24.72	3.95	16.00	38.80
Population (ln)	10.72	0.69	7.60	13.16
Socio-Economic Index	0.95	0.25	0.46	1.81
Non-Western Immigrants	0.03	0.02	0.00	0.13

Table 4: Determinants of External Networking among Public Sector Top Managers

	Strong-tie Networking		Weak-tie Networking	
	Model 1 Poisson regression	Model 2 Poisson regression	Model 3 Poisson regression	Model 4 Poisson regression
Previous position = manager this municipality		-0.71** (0.22)	0.11 (0.11)	0.10 (0.11)
Previous position = manager other municipality		-0.50** (0.19)	0.09 (0.11)	0.06 (0.11)
Social Science Education		-0.36* (0.18)	-0.05 (0.08)	-0.02 (0.08)
CEO		0.86** (0.17)	-0.10 (0.08)	-0.12 (0.08)
Socio-Economic Index	0.79+ (0.42)	0.76+ (0.42)		-0.31 (0.20)
Non-Western Immigrants	-11.10 (8.61)	-8.95 (7.78)		7.46** (2.44)
Population (ln)	0.03 (0.13)	0.11 (0.12)		-0.11+ (0.06)
Age	-0.07 (0.07)	-0.16+ (0.08)	-0.07* (0.03)	-0.08* (0.03)
Gender (female =1)	-0.48* (0.21)	-0.38+ (0.21)	0.05 (0.08)	0.02 (0.08)
Experience central government	0.41* (0.20)	0.39* (0.19)	0.05 (0.11)	0.01 (0.11)
Experience private sector	0.21 (0.18)	0.03 (0.17)	-0.12 (0.12)	-0.11 (0.12)
Tenure	0.02 (0.01)	0.03* (0.01)	-0.00 (0.01)	-0.00 (0.01)
Private providers	0.01 (0.03)	0.01 (0.03)	-0.01 (0.01)	-0.02 (0.01)
Constant	-0.47 (1.90)	-0.63 (1.75)	1.18** (0.38)	2.71** (0.83)
Random effects parameters				
Municipality effect				
N	242	239	255	255
Chi2	24.73	88.98	12.98	29.85
Log likelihood	-321.89	-296.88	-400.19	-397.16

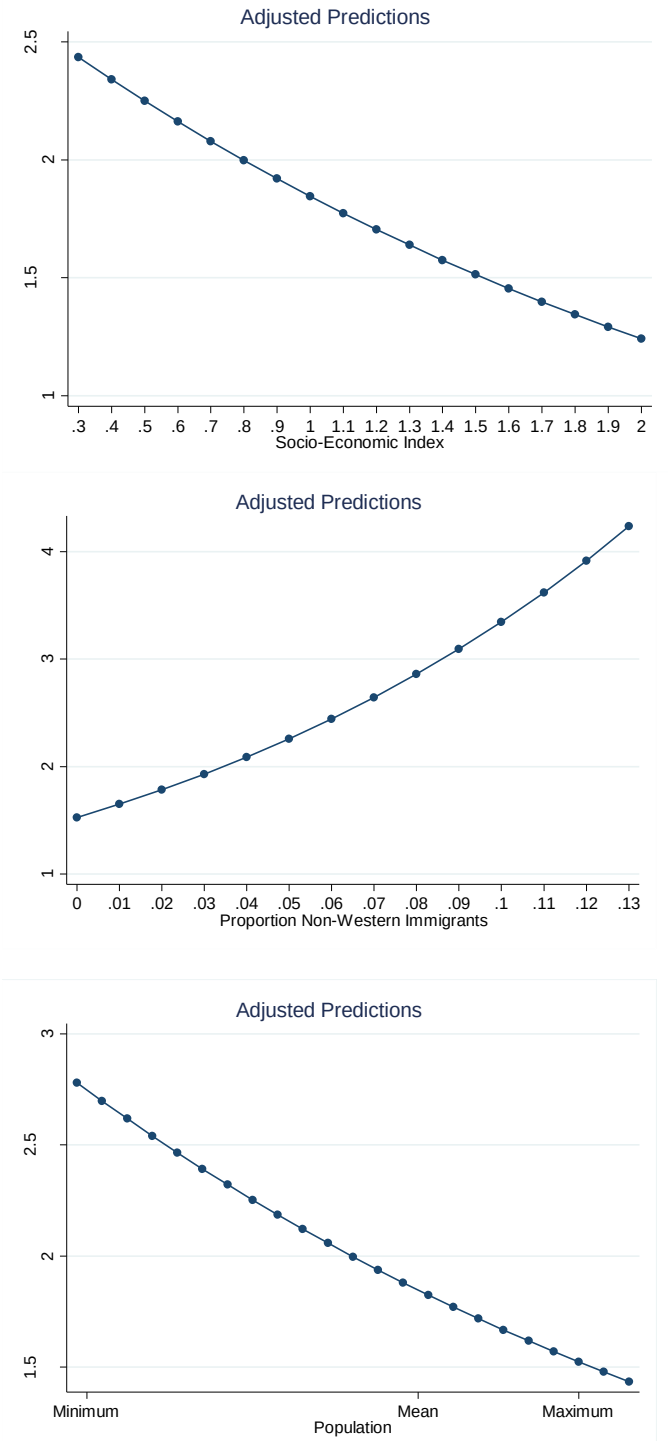
Standard errors in parentheses. Standard errors are clustered on the municipality.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

TABLE 5: Predicted Number of Strong-tie networking Relations

	Previous Position	**Education**	**Position**
Manager same municipality	0.62		
Manager other municipality	0.76		
Other	1.23		
No social science degree		0.91	
Social science degree		0.66	
Not CEO			0.64
CEO			1.49

Calculated based on table 3 with all other variables at their means. Strong-tie networking ranges from 0-5. All values are different from zero ($p<0.01$). Strong-tie networking actors are: CEOs in other municipalities, managers in other municipalities, employees in central government; employees in regional government; the professional organization Municipalities Denmark.

FIGURE 1: Predicted number of weak-tie networking relations



Calculated on the basis of table 4 with all other variables at their means. Weak-tie networking ranges from 0-4. Weak-tie networking actors are: local business leaders, members of the press, union representatives, leaders of voluntary organizations.