# The Hardcore Brokers: Core-Periphery Structure and Political Representation in Denmark's Corporate Elite Network

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**Abstract:** Who represents the corporate elite in democratic governance? In his seminal work on the corporate "inner circle," Useem (1986) studied three network-related mechanisms from corporate interlocks that together shaped the ideology and political organization of American and British corporate elites during the postwar era in crucial ways: corporate brokerage, elite social cohesion, and network centrality. Subsequent research has found similar dynamics at play across a variety of democratic capitalist societies. However, all existing studies on corporate elite representation in democratic governance rest on analyses of the top ranks at very large corporations. We cast a wider net. Analyzing new population data on all members of corporate boards in the Danish economy (~200,000 directors in ~120,000 boards), we locate ~1,500 directors who operate as brokers between local corporate networks and measure their network coreness using $k$-core detection. We find a highly connected network core of ~275 directors, half of whom are affiliated with smaller companies or subsidiaries and then document the power of director coreness in predicting government committee attendance, a key form of political representation in Denmark's social-corporatist model of governance. We find a large political premium for directors in very large companies but show that within the network core the gap between directors of smaller and large companies is closed, suggesting that the network core levels the playing field in corporate access to the legislative process.

**Keywords:** corporate elite networks; political representation; core-periphery structure; brokerage

WHO represents the corporate elite in democratic societies? The representation of corporate interests in democratic governance has been a key concern in sociology and political economy since the turn of the twentieth century (Comet 2019; Domhoff 1967; Hilferding 1910; Larsen and Ellersgaard 2018; Marx 1959; Mills 1956; Mills and Domhoff 2023; Useem 1986). A large empirical literature documents the central role of elite networks from corporate interlocks in shaping the involvement and political orientation of corporate leaders in democratic governance. Focus has especially been on how cross-firm board interactions (brokerage) modify the political orientation of corporate executives, how clustering in board connections

(cohesion) enhances the efficacy of elite collective action, how highly boarded directors' leverage their central network position to gain political status and power (centrality), and how these mechanisms together can position the corporate elite as an influential actor in democratic governance (Burris 2010; Mills and Domhoff 2023; Mizruchi 2013; Mizruchi and Hyman 2014; Mokken and Stokman 1978; Useem 1986). More recently, researchers have become preoccupied with the causes and consequences of network fracturing in the corporate elite (Benton 2016; Benton and Cobb 2019; Chu and Davis 2016; Heemskerk and Fennema 2009; Mizruchi 2013; Rossier et al. 2022), and these studies maintain that the association between the structure of corporate elite networks and how corporate interests are orchestrated are closely intertwined.

To date, the empirical scope of this literature has been limited however in considering only a relative narrow network sample of corporate leaders from the top ranks of the largest corporations in the economies being investigated. We combine a new administrative register on the population of directors (~200,000) of all corporate boards (~120,000) in the Danish economy with a hand-collected data set on the government committees epitomizing Denmark's social-corporatist governance model.[1] These data allow us to investigate how the network structure of an elite population affects elite members' involvement in democratic governance. We propose that local network brokerage and the network's core-periphery structure are powerful indicators of the kinds of elite social capital that promote access to political-legislative influence. Our analyses identify a highly cohesive network core among the most well-connected board directors and a strong association between network coreness and government committee attendance, net of company and director characteristics. Our analyses also show that although directors of large companies have higher odds of attending committees than directors of smaller companies and subsidiaries, there is no added benefit of being on the board of several large companies and when accounting for directors' local brokerage and network coreness, the political premium of board affiliations with large companies almost disappears. In addition, we show that directors of smaller companies and subsidiaries benefit relatively more from their network coreness than directors of large companies. We argue that the network core represents an alternative elite social capital route into politics for a segment of the corporate elite, which particularly does not have significant claims to economic capital. Although this form of corporate elite politics should be understood in the context of Denmark's social-corporatist mode of governance structure, the rise of new corporate elite actors such as consultancies and investment funds globally suggests that our method might prove useful as a means of identifying political representatives among a broader strata of corporate elite actors above and beyond the Danish context.

## The Corporate Elite Network and Political Representation

Since publication, Useem's (1986) book on the corporate "inner circle" network has been particularly influential in research on corporate elite representation in democratic governance. He traced the emergence of a cohesive network of leaders from the largest American and British corporations connected through inter-firm

board interlocks during the 1960s and 1970s. Useem's work showed that when these corporate connections form a cohesive network structure, it can become an infrastructure for elite collective action, first because the network constraints the ideological orientation of corporate leaders integrated in it (who become more aware of wider perspectives on economic and political issues) and, second, because integration in the network itself becomes a route of recruitment into political legislative decision-making fora (Useem 1986, 1978).

The inner circle network and its implications for elite collective action and involvement in democratic governance has since been studied across a wide array of socioeconomic contexts (Benton 2019; Chu and Davis 2016; Chung 2003; Comet 2019; Heerwig and Murray 2019; Hong, Lee, and Yoo 2021; Larsen and Ellersgaard 2018; Mills and Domhoff 2023; Mizruchi 2013). Although more recent research from the United States (Benton 2019; Chu and Davis 2016; Mizruchi 2013), the Netherlands (Heemskerk and Fennema 2009) and Switzerland (Rossier et al. 2022) document increasing fragmentation in the corporate elite network, studies from the European Union overall (Heemskerk, Daolio, and Tomassino 2013) and specifically from France (Comet 2019) and Denmark (Larsen and Ellersgaard 2018) find a persistently cohesive inner circle network, which remains an infrastructure for elite collective action and a central pathway into democratic governance for corporate leaders.

All the above research follows Useem's original recipe for identifying the boundaries and network structure of the "corporate inner circle": A sample of the largest corporations in the economy is identified from an *ex ante* set of elite corporate actors and the network structure is then traced by mapping the connections among directors from corporate interlocks. Useem (1978) himself recognized the limitations of focusing exclusively on the largest corporations: "Since the degree of control may range from influence over a few companies to a voice in the policies of many, the boundary between the inner group and the remainder of the capitalist class is diffuse rather than sharp" (P. 227). Even before then Allen (1974) argued that while "it is possible to construct a saturation sample of a population which has been delimited in accordance with relevant theoretical criteria [...] [t]he most satisfactory sampling design for structural analysis is a saturation sample of the entire universe or population" (P. 396).

Despite these early cautions, most contemporary research into corporate elite networks present no explicit or convincing theoretical argument for the strict empirical focus on large corporations. From a network analytic perspective, this is potentially problematic because the structural properties of networks essentially reflect the selection of actors and relations for analysis (Kossinets 2006; Laumann, Marsden, and Prensky 1989). For example, Barnes (2017) points to key arenas of elite connectivity beyond the largest corporations, including the boards of non-profits, where business leaders coordinate elite political action. In a recent study of 3,500 Canadian boards, Huijzer and Heemskerk (2021) also found sample restrictions based on firm size strongly affect the observed structural properties of the sampled network, suggesting that data completeness is essential to reach accurate estimates of structure in inter-firm networks.

The choice of focusing on the leaders of large corporations was meaningful for Useem in his analyses of the 1970s inner circle network in the sense that he saw corporate concentration and the rise of centralized managerial power in firms as

key contingencies allowing the corporate elite to emerge as a collective actor in the first place. Although the concentration of corporate control has accelerated in most capitalist countries since the 1970s, which would justify the sustained focus on large firms in the contemporary literature, many corporations are also restructuring their activities and governance structure in significant ways along several axis, which may have implications for what leaders to consider as corporate representatives in the public policy domain. Organizational analysts have long stressed the increased "blurring," or "fissuring," of firm boundaries reconfiguring the power structure of corporations (Davis 2022), including vertical disintegration and the rise of network firms (Podolny and Page 1998; Powell 1987; Weil 2014; Whitford 2005; Whitford and Zirpoli 2016), internationalization (Murray 2017), and financialization (Davis and Kim 2015; Davis and Mizruchi 1999; Seabrooke and Wigan 2022). At the same time, institutional complexities challenge the prerogative of centralized managerial power in corporations and increasingly result in a diversification of managerial power (Alvarez and Svejenova 2005, 2022) and mounting share and stakeholder pressures (Benton 2019, 2016; see also Davis 1991). The implications of such organizational and managerial reconfigurations for the structure of corporate elite networks are understudied. In addition, the strict focus on large corporations has also precluded scholars from investigating the role of the economy's "undergrowth" in democratic governance.

Research on corporate networks may benefit from a more exploratory stance on what actors and relations to include in analyses of corporate elites and from pursuing more open-ended investigations of who represents corporate interests in democratic governance. The increased availability of large-scale corporate governance databases and registries that extends beyond the social connections of large-firm directors presents an opportunity to gain insights about how corporate networks in the wider business community are structured, and whether the structure of these expansive networks can help researchers better understand who represents corporate interests in democratic governance and why. Recent political economy scholarship on the structure of global corporate networks have made good use of more inclusive board and ownership data (Heemskerk et al. 2018), for example, with analyses of asset concentration (Fichtner, Heemskerk, and Garcia-Bernardo 2017; Vitali, Glattfelder, and Battiston 2011) and transnational elite community structures and centralization (Takes and Heemskerk 2016), but we are still to see how such data may inform studies of political representation among national corporate elites. In what follows, we develop a new approach for identifying the political representatives in the corporate elite network based on the universe of companies in a national economy.

## The Network Elite of Corporate Directors: The Core of Brokers

Our key aim is to explore the extend to which the political actors in the corporate elite can be inferred entirely from the network structure of the population-wide business community and how much the political status of company directors depends on the network structure versus the characteristics of companies and

directors in the network. We propose an approach that identifies the corporate elite from the core-periphery structure of the country's entire corporate interlock network. The core-periphery structure, the organization of a network into a well-connected community of core actors and a lesser-connected periphery, is a powerful image describing many large-scale social, biological, and technological networks (Alba and Moore 1978; Borgatti and Everett 2000; Gallagher, Young, and Welles 2021; Laumann and Pappi 2013; Malvestio, Cardillo, and Masuda 2020). The term network core centers on two key network-positional characteristics already stressed in corporate elite research as predictors of elite integration and political representation: cohesion and centrality (Batagelj and Zaversnik 2003; Borgatti and Everett 2000).

Consider a weighted undirected network of corporate directors, where $i$ is connected to $j$ with weight $= 1$, if they serve on at least one board together at time $t$, and where $i$ is connected to $j$ with weight $= 0.5$, if they share a common connection at a board but do not themselves serve on the same board. Apply a weighted $k$-core decomposition on this network that identifies the nested structure of successively more and more connected-and-cohesive elite groups in the largest network component at each time point $t$ (see also Ellersgaard and Larsen 2023, Larsen and Ellersgaard 2017). The $k$-core decomposition prunes a network by sequentially removing nodes with a minimum degree $k$ (the sum of weights in $i$'s ego network) up until the point of network degeneracy, that is, when the network disintegrates entirely. The innermost $k$-core of the network is characterized by having the degeneracy $k$ minus the network's minimum weight, which is the maximum $k$-core in the network. The $k$-core score of nodes is otherwise known as coreness.

One elegant property of $k$-core decomposition is that it identifies the discrete inner core of the network (to the extent that the network is structured along a single core-periphery axis), which reveals a strongly integrated cluster where all directors are connected to at least $k$ directors in the cluster (Heemskerk, Daolio, and Tomassino 2013; Huijzer and Heemskerk 2021; Larsen and Ellersgaard 2017). Maximal $k$ cores are highly resilient network structures that effectively diffuse information and norms, propel collective action, and are robust to external chocks (Al-garadi, Varathan, and Ravana 2017; Kong et al. 2019; Malliaros et al. 2020). At the same time, the approach recognizes that core-periphery structures are in the last instance nested community or authority structures (Benton 2016), with actors occupying positions closer to or further from the innermost core of the network (Gallagher et al. 2021). Although membership of the maximal $k$-core of a network will indicate extraordinarily high connectivity-and-cohesion, the relative proximity to this center indicates important variation in actors' relative connectivity-and-cohesion (Csermely et al. 2013). If the boundaries around elites are fuzzy, coreness will indicate an actor's relative position in an elite status hierarchy.

The $k$-core approach differs from most approaches for locating elite communities in a network, which most frequently consider degree centrality distributions. In work on corporate elite networks in general and on the political business elite in particular, research has highlighted the influence of super-connectors who command a disproportionately high span of corporate control (Chu and Davis 2016; Heemskerk et al. 2016; Murray 2017; Useem 1986). Notions of super-connectivity are associated

with Matthew effects, power, and Pareto law models (Barabási and Albert 1999; Hu et al. 2006), which focus on accumulative advantage mechanisms among the most central nodes. However, while degree centrality indicates the amount of direct exposure to other directors and firms, super-connectors can principally derive their status from a wide set of directors who are not mutually connected and therefore not necessarily embedded in a cohesive elite community characterized by network closure or cohesion.

Instead, other studies discuss the community structure of corporate elites, focusing mainly on network cohesion within network regions. Benton (2016) (see also Benton and Cobb 2019) deploys a structural cohesion lens to get at the nested authority structure of U.S.-based inter-firm networks, borrowing from Moody and White (2003) who define structural cohesion as "the extent that multiple independent relational paths among all pairs of members hold it together" (P. 107). Structural cohesion highlights a network block's ability to resist disintegration or being "pulled apart by the removal of a subset of members" (White and Harary 2001). Cohesive network blocks make up tightly knit structures of overlapping cliques, a structural feature associated with robust elite collective action (Benton 2016; Benton and Cobb 2019; Heemskerk, Daolio and Tomassino 2013). Where structural cohesion algorithms locate local cohesive blocks, the iterative deletion of nodes in the *k*-core decomposition identifies the global core-periphery structure, with actors high in coreness characterized by high global nested authority.

However, studies show that the accuracy of the *k*-core method in determining actor coreness within networks is sensitive to the presence of core-like clusters with a high *k*-core index but with very little cross-cluster connectivity or "spreading efficiency" (Liu et al. 2015). In our case, when highly overlapping clusters of large boards become sufficiently large, directors with many redundant connections within them begin to dominate the overall degree distribution of the network even if their connectivity is exclusively local. Because the overall *k*-core distribution of a network is partially tied to the network's degree distribution, local peaks in the degree distribution possibly distort identification of the overall core-periphery structure. The logic here being that for actors to be considered valuable network agents beyond their local clique, they should provide unique connectivity to more distant actors, connecting parts of the network that would otherwise not be connected (Doreian and Woodard 1994; Freeman, Borgatti, and White 1991).

We adapt Liu's et al. (2015) measure of diffusion importance based on local betweenness to identify what we term local brokerage. More specifically, we define the local brokerage for director *i* in an undirected network:

$$Local\ brokerage_i = \frac{local\ betweenness_i}{degree_i},$$

where the local betweenness of *i* is the sum of paths $i - j - h$, where *i* is not directly connected to *h* and where the degree *i* is the sum of direct connections of *i*. We apply a brokerage threshold of 1 iteratively, thus filtering out directors with a value smaller than 1.

Apart from improving the accuracy of the *k*-core index, this method has the added benefit of extending Useem's (1986) notion of "linkers" (multi-positionality directors) with a network structural feature commonly associated with organiza-

tional elites, namely brokerage power (Burt 1992, 2010). Because scholars from this elite theoretical perspective tend to work with relatively small sample sizes containing only large and relatively discrete corporate entities, multi-positionality constitutes a significant network signal. In our highly granular company-level board data, which contain a substantial number of large and highly overlapping clusters[2], multi-positional directors do not necessarily contribute to overall elite social cohesion. The brokerage measure helps locate multi-positionals who are effectively cross-cluster brokers in the network.

# Core-Periphery Analysis

## *Network Sample and Data Sources*

We use data on board of directors from Statistics Denmark's corporate governance registry (*Deltagerregisteret*), which contain time-stamped board of director data for all companies legally required to have a board.[3] The data contain descriptions of board roles ("executive," "chair," and "ordinary member") linked to unique company identifiers ("cvrnr"). We construct monthly weighted adjacency matrices according to the network definition laid out above.

We begin from an exhaustive sample of 157,521 unique boards with more than one serving director in legally registered Danish companies from 2010 to 2015. This period is chosen because this is when our data on corporate directors' political representation were collected (more on these data below). The total sample contains 222,783 unique directors. We restrict this sample to include only boards of public and private businesses classified as operating in a market for profit, amounting to 117,564 unique boards, 199,690 unique directors, and 436,405 unique director-board positions across the period, an average of about 2.2 board positions per director.[4] This is our full analytic sample. To deal with seasonality in board turnover, our units of observation are board positions by month, where a position is active in a month if the director serves for at least one day during that month.

## *Results from the Core-Periphery Analysis*

Figure 1 plots the fraction of the largest component remaining after each step of the local brokerage pruning. The first step excludes 77 percent of locally redundant directors in the largest component and the subsequent steps additionally exclude 20 percent. On average, across the months, 1,550 local brokers remain after our filtering (range 1169–1892). Therefore, the overwhelming majority of company directors have very limited brokerage capacity. The remaining sample of local brokers enters the *k*-core decomposition.

As described above, we apply the *k*-core algorithm to the monthly adjacency matrices where directors are connected to their first (weight $= 1$) and second neighborhood (weight $= 0.5$). A director with 5 first neighborhood connections and 10 second neighborhood connections then has a reach degree of $k = 10$.

Figure 2 reports the results from the *k*-core decomposition. Figure 2 (panels A1–A4) shows the nested structure of *k* cores at selected *k* steps and the core-periphery structure for the month of October 2015. Panel A1 shows the full network where all
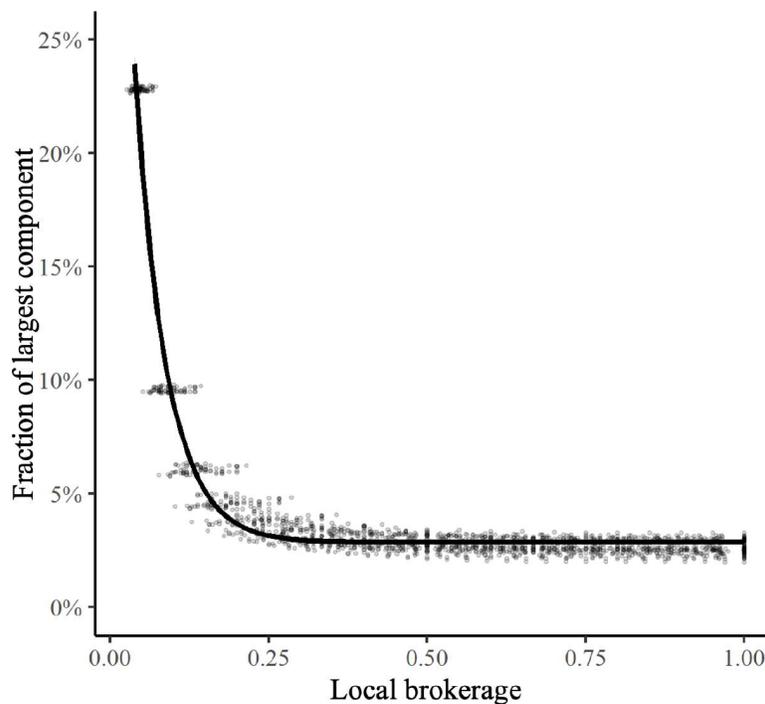
**Figure 1:** Fraction of the largest component identified as local brokers. *Note:* The figure plots the fraction of directors in the largest component who remain at each step of the local brokerage pruning.

brokers have at least *k* 7.5. Panels A2 and A3 emphasize the *k* cores at thresholds $k = 20$ and $k = 23$, respectively. Panel A4 shows the nodes with maximal *k*-core score $k = 26$, where degeneracy is 26.5–0.5. Figure 2 (panel A5) shows the fraction of brokers remaining at each step of the *k*-core decomposition for all months in the data and panel A6 shows the evolution of the average maximal coreness (with an average of 23 and a range of 20.5–27.5) and the number of directors with maximal coreness (with an average of 278 and a range of 164–393).[5]

Because the coreness distribution varies across months, we standardize the measure to range from 0 and 1 within each month, where values close to zero represent directors with a low *k* value and where the value 1 represents directors with the maximal value *k*. This variable expresses the continuous coreness of directors, with the value 0 indicating that directors are not in the largest component or not local brokers. For use in subsequent statistical analyses, we construct a discrete categorical variable that takes on the value 1 if directors are not in the largest component, 2 if they are in the largest component but not local brokers, 3 if they are in the largest component and local brokers, and 4 if they are in the innermost core (coreness $= 1$).

Figure 3 contrasts the "inner circle" approach with our "network core" approach. The leftmost panels display results from a "conventional" analytical approach for detecting the "inner circle" in the context of Denmark's corporate network. Here, we consider the network of director's based on the boards of the 500 largest companies. The "inner circle" has one large, connected component and 15 smaller

**A1**

**A2**

K-score >= 7.5 (minimum)                                          K-score >= 20

**A3**

**A4**

K-score >= 23                                          K-score = 26 (maximum)

**A5**

**A6**
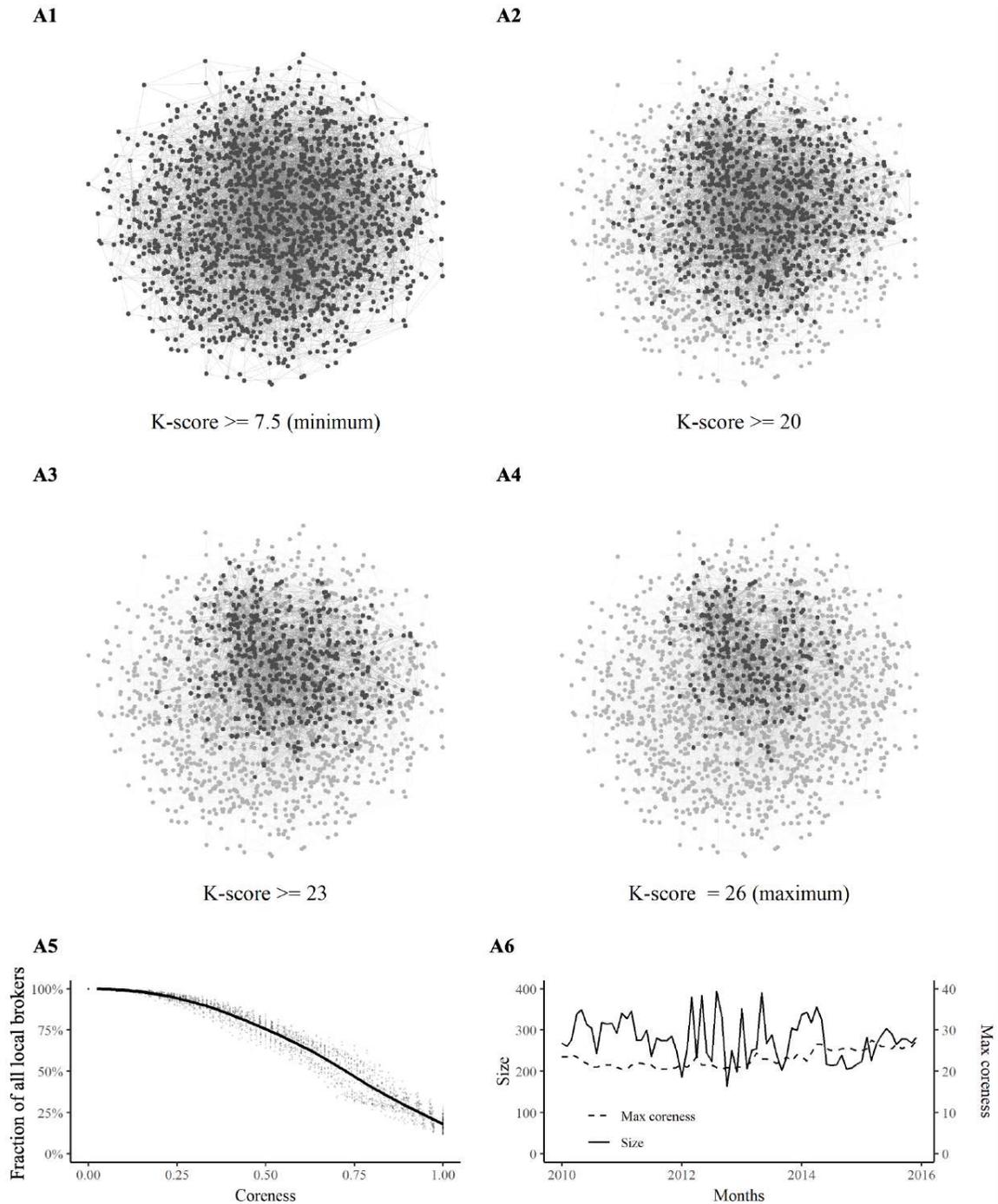
**Figure 2:** Results from *k*-core decomposition. *Note:* Panels A1–A4 show the stepwise *k*-core decomposition. Panel A1 plots the full network of local brokers in October 2015 using the default setting in the Fruchterman–Rheingold algorithm of the Igraph R-package. Panels A2–A4 highlight the directors remaining at select *k* steps in the decomposition (from low to max), with panel A4 stressing the maximal *k*-core. Panel A5 reports the average fraction of efficient interlockers remaining at each standardized coreness value across the months. Panel A6 plots the number of nodes *i* with maximal *k* by each month.

Top 500 companies                                       All companies
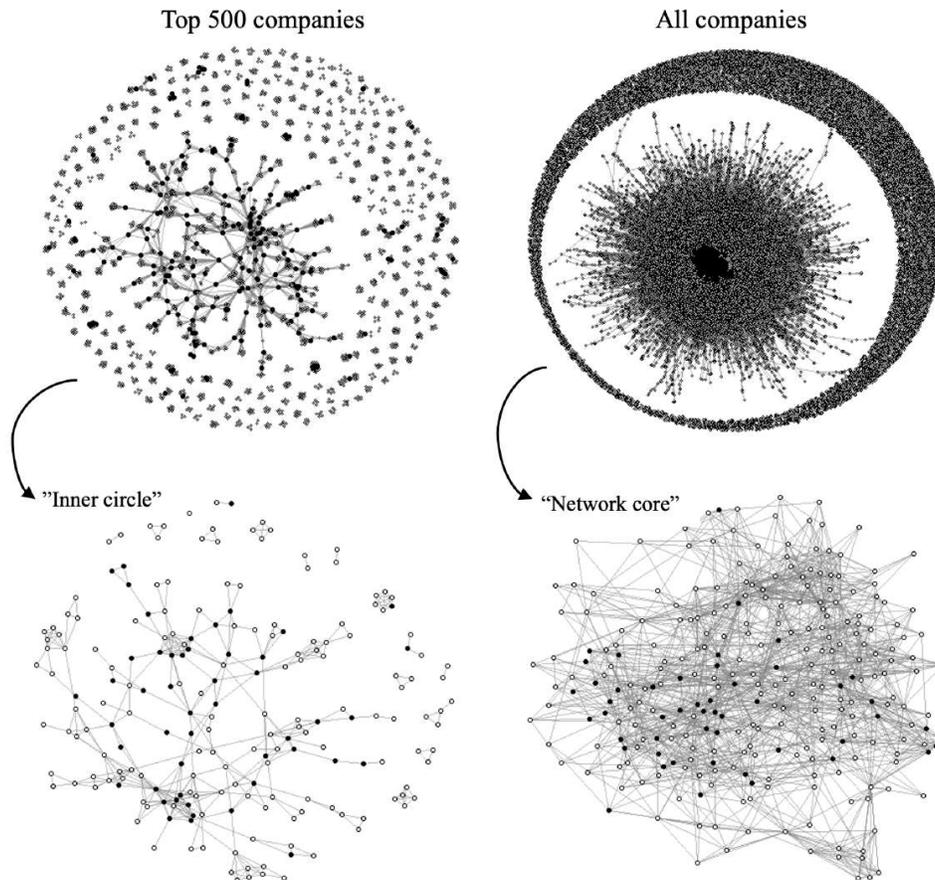


**Figure 3:** Director network illustrations. The "inner circle" versus the *k*-core approach. *Note:* The figure contrasts the "inner circle" approach to elite detection with the *k*-core approach. In the leftmost panels, we display an analytical process that begins from the full director network of the top 500 companies and ends with the "inner circle," which is the subset of director with multiple board positions (emphasized in black in the full network of top 500 directors). The rightmost panels begin with the full director network of all companies in the population sample and end with the network core, which is the subset of directors with the maximal *k*-core score (emphasized in black in the full network of all directors). In the bottom panels, we highlight the contrast between the "inner circle" and the "network core" by emphasizing nodes in black that are in the other subset. For the "inner circle" illustration, we show directors who are also in the core in black. For the "network core" illustration, we show directors who are also in the inner circle in black. All networks displayed are for the month of October 2015.

components. The "network core" naturally consists of just one large component, which by extension is much denser and therefore characterized by higher internal cohesion and greater overall reach centrality. The bottom panels highlight the distinctive nature of the two elite networks by emphasizing nodes in each network that also figure in the other. In the next section, we go on to report on statistical analyses of the extent to which the core-periphery structure and company size are associated with the likelihood of joining a government committee.

# Political Representation

## *Political–Institutional Context*

The aim of our statistical analysis is to investigate the extent to which the network core captures corporate elite representation in government committees, with committees being a key arena for business influence on policymaking and legislative-regulatory processes in Denmark. Most prior work on corporate networks and political representation is U.S.-based and focuses on party donations, lobbying, and positions on industry roundtables and/or policy commissions (Burris 2005; Heerwig and Murray 2019; Mizruchi and Hyman 2014; Murray 2017). We study Denmark, a coordinated market economy with a strong Social-Democratic variant of corporatist governance (Campbell and Pedersen 2007; Hall and Soskice 2001; Katzenstein 1985; Thelen 2014), centered on a mix of market- and state-based economic governance (Amin and Thomas 1996), which sets it apart from more state-centered variants such as Germany and France.

On the one hand, the Danish economy is governed through decentralized associational decision-making with authority distributed across public and private institutions that interact via inter-institutional dialogue. Compared to other coordinated market economies such as Germany, the state has historically played a less dominant role in regulating the economy. Instead, direct negotiations between labor and capital have played a prominent role in policy and reform processes. For example, since the beginning of the twentieth century labor and capital have pretty autonomously, and with only occasional interference by the state, reached binding agreements concerning the regulation of wages and other important political-economic issues (Jessop and Pedersen 1993; Nielsen and Pedersen 1991).

On the other hand, the Danish state followed the corporatist trajectory seen in a host of European countries during the post-war period. On matters of broader economic and industrial policy, the state develops policies via intermediation between umbrella interest organizations (Amin and Thomas 1996; Ibsen and Thelen 2017; Nielsen and Pedersen 1991). After the Second World War—the pinnacle of Denmark's corporatism—the Danish Trade Union Confederation (Landsorganisationen i Danmark) and Confederation of Danish Employers (Dansk Arbejdsgiverforening) exercised de facto decision-making power over most major policies and regulations in the Danish economy (Blom-Hansen 2001; Pedersen 2006), with shifting minority governments seeking input and support from the two interest organizations on major reforms related to wage moderation, employment policy, and fiscal policy (Lembruch and Schmitter 1982). At the same time, a more decentralized web of permanent and ad hoc legislative committees and policy commissions with substantial everyday expert and interest group participation has since evolved to provide systematic inputs and legitimacy around the ongoing legislative process—both in the agenda setting, policy formulation, and implementation stage (Andersen, Dølvik, and Ibsen 2014; Anthonsen, Lindvall, and Schmidt-Hansen 2011; Due et al. 1994). Although this system has been subject to minor ongoing reform, it has proved resilient and is still a key trait of democratic governance in Denmark.

Recent studies of interest group representation in the Danish political arena using survey data describe a system of "privileged pluralism," where multiple

interests have access to the legislative process and opportunities to influence it, but where access and influence are unequally distributed and highly centralized around a few privileged interest groups, notably the prominent labor unions and business associations (Binderkrantz 2005; Binderkrantz and Christiansen 2015; Binderkrantz, Christiansen, and Pedersen 2015). The same interest groups have, together with big corporations and key actors from the central state administration, been identified as Denmark's "power elite" (Ellersgaard and Larsen 2023). Studies also find that private business interests in Denmark prefer lobbying legislation via formal corporatist channels and are less keen on informal lobbying and media-based agenda setting (Binderkrantz 2008). Previous research on the central circle of Denmark's largest corporations found that these directors frequently participate in policy planning (Larsen and Ellersgaard 2018). However, no prior studies have systematically traced what representatives from the wider population of corporate elite individuals participate most intensely in democratic governance.

## Dependent Variable

We model the entire director network's likelihood of attending government committees as a function of their position in the core-periphery structure. Furthermore, our analyses investigate if the political value of network coreness is derived mainly from the traits and resources of directors and the companies they are affiliated with, or if coreness in and of itself can predict if directors become committee members. Our dependent variable is membership of government committees, which we identify using the Danish Elite Network Database (DEN). DEN was collected in the period of 2013–2015 and again in the period of 2016–2017 (Ellersgaard and Larsen 2023). The data set consists of the names and addresses of the members of all 650 government committees active in the two periods. We conducted a name and address match between the list of committee members in DEN and the list of directors in the corporate governance registry (*Deltagerregisteret*). This match identified 597 committees with at least one director. For example, *the Competition Legislation Committee* (Udvalg om Konkurrencelovgivning) has 20 members who are also directors and provides advice on legislation to the *Ministry of Business Affairs*. About half of the members are public officials and legal experts, and about half represent business interests and labor. Six members are appointed directly by major business associations including the Confederation of Danish Industry (*Dansk Industri*) and Denmark's Business Association (*Dansk Erhverv*) and for these members executive business experience is required. For board directors who were active from 2010 to 2012, we conducted a name and address match on the list of government committees' members active during 2013–2015, and for directors active from 2013 to 2015, we repeated the match for members of government committees active from 2016 to 2017. Of all active directors, we identify 3,000 unique directors who are at some point a committee member.

We estimate the odds of government committee memberships using logistics regression. To enhance comparability across different model specifications, we report the average marginal effects of the coefficients, which can be interpreted as the predicted change in the probability of joining a committee given a one-unit change in the independent variable. Although our model is not identifying a causal

relationship in the strict sense of the word and does not rule out endogeneity between corporate networks and political representation, two observations lead us to believe that the dominant causal pathway goes from corporate networks to committee memberships. First, Useem's (1986) theory of the inner circle laid out a historical process where the formation of a cohesive elite network of business leaders from the large corporations preceded their ascendance as a collective political agent in American politics. Second, and more importantly, the institutional–political context that this article is investigating reinforce this interpretation. As described above, members of government committees who are not public officials or fixed members of business and trade associations are formally selected due to their leadership and industry experience and status (their position in the corporate network likely expresses this). This means that we would expect this experience to precede committee selection. Nevertheless, we cannot rule out cases of directors that are well-connected due to their experience but are not in the network core, who then are selected to act on a committee, which affords them with new connections that lead to additional board recruitment, which then in turn moves them into the core. Even if such reverse causality may be at play to some extent, the model is still useful for assessing the pathways between corporate elite networks and democratic governance and for investigating the extent to which director and firm characteristics moderate these pathways. It is these characteristics that we now turn to.

### Independent Variables

*Core-periphery network structure.* As described above, we constructed a categorical measure that classifies the population of directors into four discrete categories ranging from least to most elite. The first category consists of directors who in each month are not integrated in the largest component. The second category consists of redundant directors from the largest component who did not qualify as local brokers. The third category consists of directors who qualified as local brokers but did not qualify as maximally core, thus situated somewhere in the semi-periphery of the network of brokers. The fourth category consists of directors who qualified as belonging to the innermost *k*-core.

*Company size, director roles, and the "inner circle."* All existing research on corporate elite networks emphasizes the role of company size, but because this work focuses solely on large corporations there is very little work that explores variability in company size, network structure, and political representation (Huijzer and Heemskerk 2021). To capture these relationships, we calculate an annual composite rank based on three company size indicators: number of employees, total revenue, and total assets. To do so, we draw on accounting data from Statistics Denmark's company registry (*FIRM*). We apply principal component analysis (PCA) to the population of companies in our data and order them by rank from top to bottom according to the first dimension identified in the PCA. The first dimension of the PCA captures 68 percent of the total between-company variation in the three variables. Because directors can have multiple board position, each director is assigned the rank of their highest ranked company in the board portfolio. Figure 4 plots the cumulative share of total employment, revenue, and assets along the rank distribution
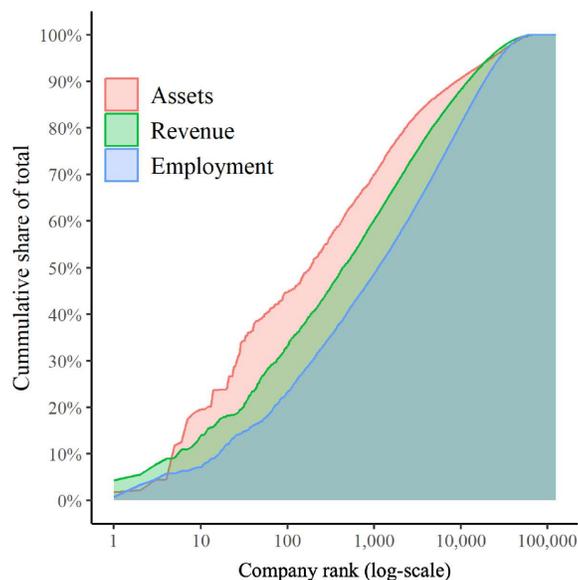
**Figure 4:** Corporate concentration and company rank in Denmark's economy. *Note:* The figure reports the cumulative share of assets, revenue, and employment for all companies from top to bottom ranked companies (for details on the rank measure, see description of the PCA-ranking method above).

described above and shows the concentration of economic resources around the largest companies Denmark. We classify director company rank into four categories: "top 1–50," "top 51–500," "top 501–5,000," and "top 5,000-." We performed an equivalent ranking of *corporations* based on the three variables aggregated across *companies*, where a nominally small company gets the rank of its corporation.[6] We used the corporation registry (*Koncernregistret*), which links all subsidiaries in FIRM to its ultimate parent. We also ran statistical analyses based on this corporation rank measure, and results are extremely similar to the main results.

Next, we coded indicator variables for director roles as chair or executive (whether a director in at least one "executive" role and one "chair" role) and also classified director roles by company size. To approximate existing operationalizations of the "inner circle" (Useem 1986), we coded dummy variables for top linkers, that is, directors with multiple positions in top 50 and top 500 companies (see also Fig. 3).

*Tripartite interest group actors.* As mentioned above, Denmark's social-corporatist mode of governance is baked into the government committee system. Above and beyond elected politicians, committees consist of standing members from business associations, trade union, and/or public servants. To absorb the increased odds of being selected to committees for directors who also hold high-level positions in any of these three organizations, we identify the primary job of all directors from the employment registry Registerbaseret Arbejdsstyrkestatistik (*RAS*). We include binary indicators for directors who currently are, or previously have been elected politicians, leaders of business associations and/or leaders of labor unions.[7] We also control for business association committee membership recorded during the

2012–2017 period drawing on DEN, because these members are also likely to have standing roles in government committees due to their interest group affiliation. Of the 414 business association committees consisting of 6,122 unique individuals figuring in DEN, 397 consists of at least one match from our director sample. For example, *The Executive Committee at Confederation of Danish Industries* (Forretningsudvalget, Dansk Industri) consists of 33 corporate representatives. Overall, we find that of the 130,000 directors in our sample, 1,300 figure on business association committees after performing our name and address match procedure.

### Control Variables

*Company controls.* For a directors' highest ranked board, we distinguish subsidiaries and publicly traded companies with indicator variables, company age with a categorical variable ("1–11 years," "12–25 years," "26–50 years," and "50 and above years"), and a categorical variable for industry (1-digit NACE).[8]

*Director controls.* We control for directors' demographic characteristics by including an indicator for female directors, a categorical migrant status variable ("native," "immigrant," and "descendant of immigrant"), and a categorical variable for director age ("18–30 years," "31–44 years," "45–59 years," "60–74 years," and "75 and above years"). We also control for the broad socio-economic status of directors through indicators of college and master level degrees, binary indicators for whether directors are in the top 0.1 percentile of the national income and wealth distribution, and finally a categorical class origin measure that indicates the highest occupation of a directors' parents ("employer," "manager," "professional," and "other").

### Is the Network Core Politically Distinct from the Inner Circle?

Tables 1A and 1B contrast directors (and linkers) among, respectively, top 50 and top 500 companies and the network core. The network core is populated by (a monthly average of) 278 directors. A major part of the network core is affiliated with a large corporation. 80 percent of all its directors sit on the board of a company that has a top 500 company as the ultimate owner, and 38 percent sit on the board of a company that has a top 50 corporation as the ultimate owner. However, a significant proportion of the network core consists of directors in small companies. 20 percent consists of directors entirely unaffiliated with large corporations, 35 percent do not hold a position in a top 500 company, and 80 percent do not hold a position in a top 50 company. Therefore, a significant proportion of the directors in the network core are either directors in smaller independent companies or smaller subsidiaries.

Are connections among top directors a good proxy for network core membership? Tables 1A and 1B show that most directors in top companies sit on multiple top boards. However, most of these so-called linkers connect smaller subsidiaries within or between large corporations. Just 11 percent of all directors on the board of a top 50 company (256) sit on the board of multiple top 50 companies (29) and just 15 percent of all directors on the board of a top 500 company (1,899) sit on multiple top 500 boards (294). These linkers make up a minority of the network. Although

**Table 1A:** Top 50 and the network core.

| | | Director Type | | | | Linker Type | | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Within Top 50 Corp. Group | Within Top 50 Company | Executive within Top 50 Company | Chair within Top 50 Company | Between Subs. of Top 50 Corp. Group | Between Top 50 Companies | Between Subs. across Top 50 Corp. Groups | Between Subs. within Top 50 Corp. Group |
| Total directors | 149,691 | 1,096 | 256 | 111 | 50 | 1,064 | 29 | 484 | 1,062 |
| Share of directors | | | | | | | | | |
| Business committee | 0.5% | 4.8% | 9.0% | 14% | 20% | 4.5% | 10% | 6.2% | 4.5% |
| Government committee | 0.4% | 4.7% | 12.5% | 17% | 6.0% | 4.3% | 21% | 5.8% | 4.3% |
| Current leader of business association | 0.1% | 0.3% | 0.4% | 0.0% | 0.0% | 0.02% | 0.0% | 0.0% | 0.02 |
| Previous leader of business association | 1.5% | 5.7% | 8.6% | 8.1% | 8.0% | 5.5% | 6.9% | 7.0% | 5.5% |
| Current leader of labor union | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Previous leader of labor union | 0.5% | 0.6% | 0.8% | 0.0% | 2.0% | 0.6% | 3.4% | 0.6% | 0.6% |
| Current elected politician | 0.6% | 0.6% | 0.4% | 0.0% | 0.0% | 0.7% | 0.0% | 0.6% | 0.6% |
| Previous elected politician | 1.3% | 2.0% | 2.0% | 0.0% | 0.0% | 1.9% | 0.0% | 2.1% | 1.9% |
| Network core | 278 | 106 | 58 | 20 | 21 | 100 | 13 | 71 | 100 |
| Share of network core | | | | | | | | | |
| Business committee | 9.0% | 8.5% | 8.6% | 20% | 29% | 9.0% | 15% | 9.9% | 9.0% |
| Government committee | 19% | 19% | 21% | 25% | 5.0% | 18% | 23% | 17% | 18% |
| Current leader of business association | 1.7% | 0.1% | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Previous leader of business association | 18% | 16% | 17% | 15% | 10% | 15% | 7.7% | 14% | 15% |
| Current leader of labor union | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Previous leader of labor union | 5.7% | 1.9% | 1.7% | 0.0% | 5.0% | 2.0% | 7.7% | 1.4% | 2.0% |
| Current elected politician | 4.3% | 1.0% | 1.7% | 0.0% | 0.0% | 1.0% | 0.0% | 1.4% | 1.0% |
| Previous elected politician | 6.1% | 2.8% | 3.4% | 0.0% | 0.0% | 3.0% | 0.0% | 1.4% | 3.0% |

**Table 1B:** Top 500 and the network core.

| | | Director Type | | | | Linker Type | | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Within Top 500 Corp. Group | Within Top 500 Company | Executive within Top 500 Company | Chair within Top 500 Company | Between Subs. of Top 500 Corp. Group | Between Top 500 Companies | Between Subs. across Top 500 Corp. Groups | Between Subs. within Top 500 Corp. Group |
| Total directors | 149,691 | 4,549 | 1,899 | 756 | 392 | 4,139 | 294 | 2,074 | 4,107 |
| Share of directors | | | | | | | | | |
| Business committee | 0.5% | 4.4% | 6.7% | 9.8% | 7.1% | 4.2% | 9.5% | 5.9% | 4.2% |
| Government committee | 0.4% | 3.6% | 6.2% | 6.6% | 9.1% | 3.4% | 11% | 4.3% | 3.4% |
| Current leader of business association | 0.1% | 0.3% | 0.5% | 0.0% | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% |
| Previous leader of business association | 1.5% | 6.0% | 8.7% | 6.8% | 13% | 5.6% | 12.6% | 6.3% | 5.5% |
| Current leader of labor union | 0.1% | 0.2% | 0.04% | 0.0% | 0.5% | 0.03% | 0.03% | 0.01% | 0.03% |
| Previous leader of labor union | 0.5% | 1.3% | 1.5% | 0.5% | 1.8% | 1.3% | 1.7% | 1.1% | 1.3% |
| Current elected politician | 0.6% | 2.3% | 4.5% | 0.0% | 7.1% | 1.3% | 5.1% | 1.3% | 1.0% |
| Previous elected politician | 1.3% | 3.9% | 6.8% | 0.0% | 12% | 2.7% | 7.5% | 2.6% | 2.3% |
| Network core | 278 | 224 | 179 | 62 | 79 | 217 | 87 | 180 | 216 |
| Share of network core | | | | | | | | | |
| Business committee | 9.0% | 9.4% | 10% | 15% | 8.8% | 9.7% | 10% | 9.4%% | 9.7% |
| Government committee | 19% | 18% | 18% | 18% | 20% | 18% | 20% | 17% | 18% |
| Current leader of business association | 1.8% | 1.3% | 1.1% | 0.0% | 0.0% | 1.4% | 1.1% | 1.1% | 1.4% |
| Previous leader of business association | 18% | 16% | 17% | 13% | 16% | 16% | 16% | 16% | 16% |
| Current leader of labor union | 1.7% | 1.3% | 1.7% | 0.0% | 1.3% | 1.4% | 1.1% | 0.6% | 1.4% |
| Previous leader of labor union | 5.7% | 4.0% | 4.5% | 1.6% | 3.8% | 4.1% | 2.3% | 2.8% | 4.2% |
| Current elected politician | 4.3% | 2.2% | 2.2% | 0.0% | 3.8% | 1.8% | 1.1% | 1.7% | 1.9% |
| Previous elected politician | 6.1% | 4.5% | 4.5% | 0.0% | 6.3% | 3.2% | 2.3% | 2.2% | 3.2% |

about half of the linkers between top 50 companies (29) are also in the network core (13), they make up just five percent of the overall network core (278). About 30 percent of the linkers between top 500 companies (294) are also in the network core (87), and they make up 30 percent of the network core. If we define top linkers more broadly as consisting of directors that sit on two boards of any company (subsidiary or parent) within a top corporation (corporate group), we find that the network core consists of, respectively, 78 percent top 500 linkers and 36 percent top 50 linkers. However, 90 percent of the overall population of broad company-based top 50 linkers, and 95 percent of the broad firm-based top 500 linkers, are not in the network core. In sum, while linkers of top companies and corporations are more likely to enter the network core than non-linkers, the network core represents a distinct subset of directors that cannot just be inferred from the connections among top directors.

Tables 1A and 1B also show the distinct political characteristics of top directors and the network core. The network core stands out as distinctly political. 19 percent of the directors in the network core (278) sit on government committees (52), 18 percent are previous leaders of business associations (50), and nine percent are members of business association committees (25). We also observe six percent previously elected politicians (17) and previous leaders of labor unions (16), which indicate that their political capital is an asset for companies and likely provide the business community with valuable political connections.[9] The overall proportion of political directors among top companies is lower even when it comes to the linkers (typically considered as "the inner circle"). In sum, the network core stands out as consisting of directors with distinctly political attributes, especially those in the network core who are also executives in or linkers between top 50 companies. When it comes to members of government and business association committees' executives of and linkers between top 50 companies is the group that comes closest to the network core in terms of relative representation, yet these directors represent a markedly smaller group and do not to the same extent embed powerful actors from the social-corporatist system that characterize Denmark's democratic governance.

In Figure 5, we visualize the concentration of political directors across the coreness distribution in the overall director network. In panel A, we see that the coreness structure is particularly strongly associated with an increase in the leaders of business associations and labor unions, which is tripled when moving from the set of directors with no coreness to directors with maximum coreness (the network core). In panels B and C, we see that the proportion of directors in government committees and business committees also increases substantially as their coreness goes up. The panels all show that the concentration gradient becomes steeper the closer directors are to the innermost core of the network.

*Model results*. To identify the relative strength of coreness and company rank in predicting government committee membership, we now present results from our logistic regressions. To reiterate, Table 2 reports marginal effects from the model results. This eases comparison of estimates across models and can be interpreted as the change in the predicted probabilities of joining a government committee associated with a one-unit change in the independent variable. Model 1 is a univariate model that contains only the elite network variable. This model estimates change
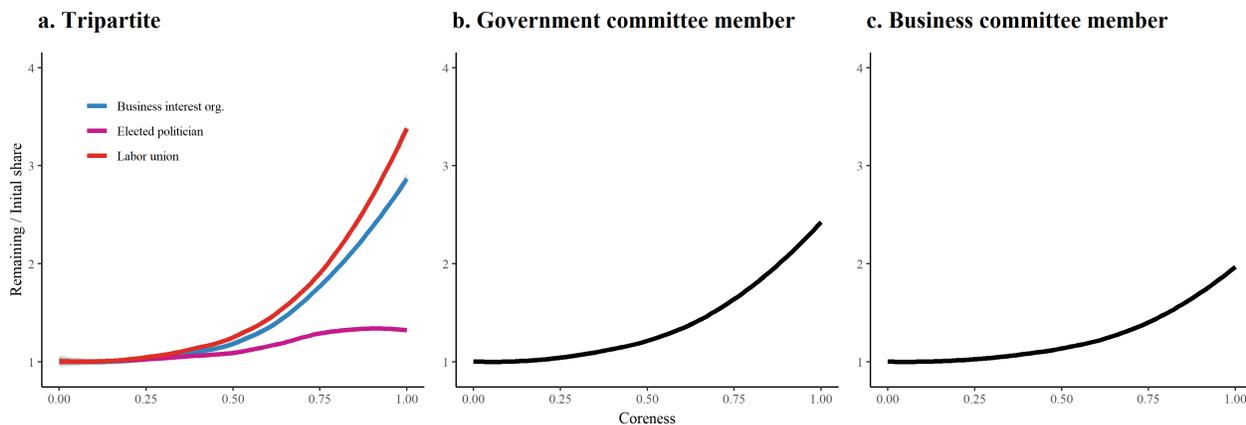
**a. Tripartite**        **b. Government committee member**        **c. Business committee member**



**Figure 5:** Concentration of political directors in the core-periphery structure. *Note:* The figure plots the relative increase in the share of directors at each value of standardized coreness. The baseline share is calculated on the full sample of efficient directors. The line represents the average over all 72 months.

in the predicted probability of joining a government committee as a function of moving from outside the largest component into respectively the network core, to being a local broker, and to a position in the largest component. The mean probability of being member of a government committee across the analytical director sample is 0.007, or 0.7 percent, across the periods. If a director moves from outside the largest component into the network core, we expect a 24-percentage point increase in probability. Local brokers are also significantly advantaged by an increase in probability of 6 percentage points. Directors in the largest component are significantly less likely to join a government committee than local brokers or directors in the network core, but still about twice as likely as directors outside the largest component with an increase of about 0.7 percentage points. These estimates are reduced somewhat but all remain large and significant when controlling for the number of board positions a director has in model 2.

Model 3 estimates the probability increases of top linkers. This model shows that directors who sit on multiple top 50 boards are as advantaged as directors in the network core. However, this group of directors is almost 10 times smaller than the network core (29 vs. 278; see Tables 1A and 1B). Model 4 shows that the top linker advantage is almost fully accounted for by adjusting for the position in the core-periphery structure. Model 5 focuses on company rank. This model estimates a strong increase of about 15 percentage points for top 50 directors over directors of small boards (>top 5,001, which is the reference category) and we also find a strong though diminishing increase for top 500 and top 5,000 directors. Model 6 shows that increases remain positive and significant even after accounting for the rank of corporate groups. Model 7 focuses on director roles net of rank and top linker status and shows that executives and chairs of top boards are somewhat advantaged over ordinary board members (both with an increase of 0.8 percentage points). This model also shows that the top linker measures are almost fully accounted for by rank and role: The model shows that being a top 50 linker contributes only with a 0.2 percentage point increase or about 1/3 of the baseline probability. These estimates indicate that the economic resources of companies help propel directors

**Table 2:** Predicted change in the probability of government committee, models 1–13.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Elite network (ref = not in largest component)** | | | | | | | | | | | | | |
| Network core | 0.239*** | 0.199*** | | 0.205*** | | | | 0.097*** | 0.101*** | 0.104*** | 0.056*** | 0.068*** | 0.045*** |
| | (0.233 − 0.245) | (0.192 − 0.205) | | (0.198 − 0.211) | | | | (0.093 − 0.101) | (0.096 − 0.106) | (0.099 − 0.109) | (0.053 − 0.058) | (0.064 − 0.071) | (0.042 − 0.047) |
| Local brokerage | 0.063*** | 0.051*** | | 0.060*** | | | | 0.036*** | 0.036*** | 0.037*** | 0.028*** | 0.028*** | 0.024*** |
| | (0.061 − 0.064) | (0.049 − 0.053) | | (0.059 − 0.062) | | | | (0.034 − 0.037) | (0.034 − 0.037) | (0.036 − 0.039) | (0.027 − 0.030) | (0.027 − 0.029) | (0.023 − 0.025) |
| Largest component | 0.007*** | 0.006*** | | 0.007*** | | | | 0.006*** | 0.006*** | 0.006*** | 0.006*** | 0.005*** | 0.005*** |
| | (0.007 − 0.007) | (0.006 − 0.006) | | (0.007 − 0.007) | | | | (0.006 − 0.006) | (0.006 − 0.006) | (0.006 − 0.006) | (0.005 − 0.006) | (0.005 − 0.005) | (0.005 − 0.005) |
| Top 50 linker (=1) | | | 0.238*** | 0.010*** | | | 0.002*** | | −0.002*** | −0.002*** | | | |
| | | | (0.219 − 0.256) | (0.008 − 0.013) | | | (0.001 − 0.003) | | (−0.003 to −0.002) | (−0.003 to −0.002) | | | |
| Top 500 linker (=1) | | | 0.114*** | 0.003*** | | | 0.001*** | | −0.002*** | −0.002*** | | | |
| | | | (0.109 − 0.119) | (0.003 − 0.004) | | | (0.001 − 0.002) | | (−0.003 to −0.002) | (−0.002 to −0.002) | | | |
| **Top rank board (ref = top 5,001 −)** | | | | | | | | | | | | | |
| Top 50 | | | | | 0.145*** | 0.027*** | 0.060*** | 0.023*** | 0.012*** | 0.010*** | 0.015*** | 0.007*** | 0.013*** |
| | | | | | (0.140 − 0.150) | (0.025 − 0.028) | (0.056 − 0.065) | (0.021 − 0.024) | (0.011 − 0.014) | (0.009 − 0.012) | (0.013 − 0.016) | (0.006 − 0.008) | (0.011 − 0.014) |
| Top 51–500 | | | | | 0.048*** | 0.006*** | 0.031*** | 0.010*** | 0.006*** | 0.006*** | 0.009*** | 0.005*** | 0.007*** |
| | | | | | (0.047 − 0.049) | (0.006 − 0.007) | (0.030 − 0.033) | (0.009 − 0.010) | (0.006 − 0.007) | (0.005 − 0.006) | (0.008 − 0.009) | (0.004 − 0.005) | (0.007 − 0.008) |
| Top 501–5,000 | | | | | 0.010*** | 0.001*** | 0.010*** | 0.003*** | 0.003*** | 0.003*** | 0.004*** | 0.002*** | 0.003*** |
| | | | | | (0.009 − 0.010) | (0.001 − 0.001) | (0.009 − 0.010) | (0.003 − 0.003) | (0.003 − 0.003) | (0.002 − 0.003) | (0.004 − 0.004) | (0.002 − 0.002) | (0.003 − 0.004) |
| Top 50 executive (=1) | | | | | | | 0.008*** | | 0.012*** | 0.012*** | 0.010*** | 0.009*** | 0.008*** |
| | | | | | | | (0.007 − 0.009) | | (0.010 − 0.013) | (0.010 − 0.014) | (0.009 − 0.012) | (0.007 − 0.010) | (0.007 − 0.010) |
| Top 50 chair (=1) | | | | | | | 0.008*** | | 0.003*** | 0.004*** | 0.003*** | 0.002*** | 0.003*** |
| | | | | | | | (0.007 − 0.010) | | (0.002 − 0.004) | (0.003 − 0.005) | (0.002 − 0.004) | (0.001 − 0.003) | (0.002 − 0.004) |
| Top 500 executive (=1) | | | | | | | 0.002*** | | 0.003*** | 0.002*** | 0.002*** | 0.001*** | 0.002*** |
| | | | | | | | (0.001 − 0.002) | | (0.003 − 0.003) | (0.002 − 0.003) | (0.002 − 0.003) | (0.001 − 0.002) | (0.001 − 0.002) |
| Top 500 chair (=1) | | | | | | | 0.010*** | | 0.006*** | 0.006*** | 0.006*** | 0.005*** | 0.005*** |
| | | | | | | | (0.009 − 0.011) | | (0.005 − 0.006) | (0.006 − 0.007) | (0.005 − 0.006) | (0.004 − 0.005) | (0.004 − 0.006) |
| Director-month observations | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 |
| Pseudo $R^2$ | 0.123 | 0.132 | 0.019 | 0.124 | 0.076 | 0.091 | 0.080 | 0.141 | 0.143 | 0.151 | 0.186 | 0.185 | 0.211 |
| Number of boards FE | No | Yes | No | No | No | No | No | No | No | Yes | Yes | Yes | Yes |
| Corporate group rank | No | No | No | No | No | Yes | No | No | No | No | Yes | No | No |
| Company controls | No | No | No | No | No | No | No | No | No | No | No | Yes | Yes |
| Director controls | No | No | No | No | No | No | No | No | No | No | No | Yes | Yes |

*Note:* Robust 95% confidence intervals in parentheses; significance levels: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

**Table 3:** Predicted change in the probability of government committee, models 14–19.

| | (14) | (15) | (16) | (17) | (18) | (19) |
|---|---|---|---|---|---|---|
| Elite network (ref = not in largest component) | | | | | | |
| *Network core* | 0.084*** | 0.070*** | 0.081*** | 0.083*** | 0.048*** | 0.025*** |
| | (0.080 – 0.089) | (0.066 – 0.073) | (0.077 – 0.085) | (0.079 – 0.087) | (0.045 – 0.050) | (0.024 – 0.027) |
| *Local brokerage* | 0.034*** | 0.029*** | 0.035*** | 0.030*** | 0.023*** | 0.016*** |
| | (0.032 – 0.035) | (0.028 – 0.031) | (0.034 – 0.037) | (0.029 – 0.032) | (0.022 – 0.024) | (0.015 – 0.016) |
| *Largest component* | 0.006*** | 0.005*** | 0.006*** | 0.006*** | 0.005*** | 0.004*** |
| | (0.006 – 0.006) | (0.005 – 0.006) | (0.006 – 0.006) | (0.005 – 0.006) | (0.005 – 0.005) | (0.004 – 0.004) |
| Top rank board (ref = top 5,001–) | | | | | | |
| *Top 50* | 0.006*** | 0.008*** | 0.009*** | 0.010*** | 0.008*** | 0.009*** |
| | (0.005 – 0.007) | (0.007 – 0.009) | (0.008 – 0.010) | (0.009 – 0.011) | (0.007 – 0.009) | (0.008 – 0.010) |
| *Top 51–500* | 0.005*** | 0.005*** | 0.006*** | 0.007*** | 0.005*** | 0.005*** |
| | (0.004 – 0.005) | (0.004 – 0.005) | (0.005 – 0.006) | (0.006 – 0.007) | (0.004 – 0.005) | (0.004 – 0.005) |
| *Top 501–5,000* | 0.002*** | 0.002*** | 0.002*** | 0.003*** | 0.002*** | 0.002*** |
| | (0.002 – 0.002) | (0.002 – 0.002) | (0.002 – 0.002) | (0.002 – 0.003) | (0.001 – 0.002) | (0.002 – 0.002) |
| Top 50 executive (=1) | 0.007*** | 0.012*** | 0.012*** | 0.013*** | 0.011*** | 0.006*** |
| | (0.006 – 0.009) | (0.011 – 0.014) | (0.010 – 0.013) | (0.011 – 0.015) | (0.009 – 0.012) | (0.005 – 0.007) |
| Top 50 chair (=1) | 0.004*** | 0.004*** | 0.003*** | 0.003*** | 0.005*** | 0.003*** |
| | (0.002 – 0.005) | (0.003 – 0.005) | (0.002 – 0.004) | (0.002 – 0.004) | (0.003 – 0.006) | (0.002 – 0.004) |
| Top 500 executive (=1) | −0.001*** | 0.003*** | 0.002*** | 0.003*** | 0.001*** | 0.001*** |
| | (−0.001–0.001) | (0.002 – 0.003) | (0.002 – 0.003) | (0.003 – 0.004) | (0.001 – 0.002) | (0.000 – 0.001) |
| Top 500 chair (=1) | 0.004*** | 0.004*** | 0.005*** | 0.003*** | 0.003*** | 0.002*** |
| | (0.004 – 0.005) | (0.004 – 0.005) | (0.005 – 0.006) | (0.003 – 0.003) | (0.002 – 0.003) | (0.002 – 0.003) |
| Business committee member (=1) | 0.035*** | | | | 0.020*** | 0.016*** |
| | (0.034 – 0.036) | | | | (0.019 – 0.021) | (0.016 – 0.017) |
| Leader business association (current = 1) | | 0.017*** | | | 0.019*** | 0.010*** |
| | | (0.016 – 0.018) | | | (0.017 – 0.020) | (0.009 – 0.011) |
| Leader business association (previous = 1) | | 0.023*** | | | 0.010*** | 0.010*** |
| | | (0.022 – 0.024) | | | (0.010 – 0.011) | (0.009 – 0.010) |
| Leader labor union (current = 1) | | | 0.012*** | | 0.025*** | 0.025*** |
| | | | (0.011 – 0.013) | | (0.023 – 0.027) | (0.023 – 0.027) |
| Leader labor union (previous = 1) | | | 0.029*** | | 0.014*** | 0.010*** |
| | | | (0.027 – 0.030) | | (0.014 – 0.015) | (0.009 – 0.010) |
| Elected politician (current = 1) | | | | 0.013*** | 0.013*** | 0.013*** |
| | | | | (0.012 – 0.014) | (0.012 – 0.014) | (0.012 – 0.014) |
| Elected politician (previous = 1) | | | | 0.012*** | 0.006*** | 0.007*** |
| | | | | (0.011 – 0.013) | (0.006 – 0.007) | (0.007 – 0.008) |
| Director-month observations | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 | 9,466,836 |
| Pseudo $R^2$ | 0.177 | 0.190 | 0.171 | 0.184 | 0.249 | 0.298 |
| Number of boards FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Company controls | No | No | No | No | No | Yes |
| Director controls | No | No | No | No | No | Yes |

*Note*: Robust 95% confidence intervals in parentheses; significance levels: $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

into government committees, but that connections across top ranked boards add little advantage net of company rank.

Model 8 estimates the independent probability increase of elite network and firm rank together. The elite network estimates remain very strong and positive with an increase of about 10 percentage points. Contrasting with model 1, we see that about 60 percent of the advantage stemming from elite networks is accounted for by rank. The rank measure also remains strong but significantly less strong than the elite network measure, with an increase of about 2 percentage points for top 50 directors. Contrasting model with model 5, we see that about 85 percent of the advantage stemming from rank is accounted for by elite networks, a higher proportion than vice versa.

Model 9 includes all elite network, top linker, rank, and role measures simultaneously, showing that the strongest independent increase stems from the network core and the local brokers. These estimates are entirely robust to the inclusion of fixed effects for a director's number of boards (see model 10), indicating that network coreness captures elite characteristics above and beyond degree centrality. Models 11 and 12 introduce company and director controls separately and model 13 includes them simultaneously. In these models, the network core estimates remain strong and significant. Contrasting models 10 and 11 with model 9, we see that company controls account for more of the independent effect of network core in model 9 than director controls do. Both variable classes are nevertheless strong mediators of the network core advantage, suggesting that both firm types and socio-demographic as well as broader class characteristics are important explanations of political advantage in the corporate elite.

Policymaking in Denmark is heavily influenced by social-corporatist institutions where capital and labor interests are baked into the system of governance. As shown in the descriptive analysis above (see Tables 1A and 1B), this structure is reflected in the composition of the network core. Table 3 shows estimates from models accounting for leading roles in interest groups. Models 14–17 introduce different roles separately and model 18 includes all roles simultaneously. Contrasting these models with model 10, we see that leading roles in interest organization reduce the network core estimate additionally (by 20–25 percent). Not surprisingly, the variables adjusting for leadership roles in business associations are the strongest mediator. This suggests that one pathway into government committees for the network core is through representation of business associations. We also see from these models that directors from interest organizations are strongly advantaged net of elite network and company rank. In the final model 19, we include all variables and controls. This model explains about 1/3 of the overall variation (as measured by the pseudo $R^2$). In this model, the effect of network core is substantially reduced to a 2.5 percentage point increase, still more than three times higher than the baseline probability, but 10 times less than in the initial univariate model (model 1).

*Coreness–company rank interactions*. Network coreness and rank both strongly predict if directors join government committees. Does network coreness compensate the initial political disadvantage of directors that are not in top ranked firms, or do directors of large corporations located in the network core experience a double advantage? Figure 5 shows the marginal effects from models interacting the

continuous coreness measure with company rank. Next, we calculate change in predicted probability but now differentially for directors of varying company rank and at coreness values ranging from zero to one (0, 0.25, 0.50, 0.75, and 1). The top and mid panels of Figure 6 show that directors of all ranks benefit substantially from coreness, but directors of smaller companies benefit significantly more from coreness than directors of large companies—even when considering the aggregated rank of the entire corporation. In fact, the total advantage for directors of very small companies exceeds that of directors in larger companies (or corporations) once they are part of the network core (coreness = 1). This suggests that network coreness fully compensates for the lesser economic resources among directors of smaller companies, and that in fact directors of larger companies are somewhat penalized by their high rank. The lower panel presents results from a model including a three-way interaction between coreness, company rank, and corporate group rank. Based on this model, we calculated the advantage for small companies (rank >5,000) across the coreness and corporate group rank distribution. The plot shows that directors of small subsidiaries within large corporate groups enjoy a distinct advantage suggesting that these directors play a surprisingly strategic role as political representatives for large corporations. This may be a particularly important feature of how corporate control is structured in Denmark's largest corporations, where a significant proportion is ultimately controlled by foundations that are nominally not large. This indicates that those who ultimately control long-term ownership are more likely to be political brokers for this subset of companies than the managerial elite within the publicly traded part of the company (Thomsen et al. 2018; Thomsen 1999).

## *What Industries and Company Types Are Best Represented Politically?*

To further understand what type of companies are best represented politically through the network core, Figure 7 shows the frequency and share of network core directors in government committees by industry and company type. Note here that each core director in a government committee represents multiple company types at the same time and one company can be represented by multiple directors in the same or different committees.

The leftmost tables contain the frequencies of directors (first column) and executive directors (second column) for companies that are in the network core and subsequently in government committees. This first table reveals that especially business services, sales and transportation, real estate, insurance and pensions, manufacturing and extraction, and financial services (in ranked order of importance) have many core directors from small companies and subsidiaries within small companies that subsequently attend government committees. For all other categories of companies, manufacturing and extraction have the highest frequency of directors, which reflects the concentrated distribution of economic activities in large companies within these industries. The second table reveals a similar pattern for the executive director subset although here we see that the frequency of directors for large manufacturing and extraction companies is higher in relative terms, indicating that executive leadership has strength in numbers.
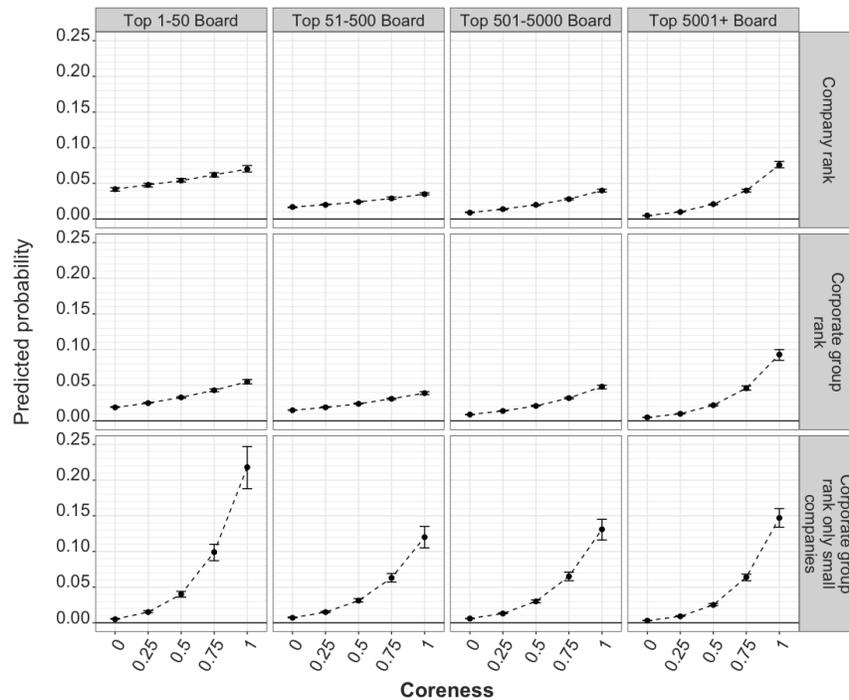
**Figure 6:** Predicted change in probability of government committee over rank. *Note:* Prediction from full model with interaction terms. Error bars represent 95 percent confidence intervals.

The rightmost tables contain the share of the total unitwise director population that sits in the network core and attend government committees subsequently by, respectively, industry-company type (third column) and industry (fourth column). These tables provide a view of how relatively prominent specific company types are represented in democratic governance and how industries' political representatives are distributed organizationally. The third table shows that the politically active network core is dominated by directors of large (and very large) companies, but that within the politically active subsample of the network core from small companies and subsidiaries insurance and pension, financial services, agriculture, and health and social services stand out as most strongly represented. If instead we look at the share of director across entire industries, the insurance and pensions industry stand out as particularly reliant on smaller companies for political representation. These findings correspond to these industries playing an important political role in welfare and economic policies (Pedersen et al. 2018). Pension politics is a central pillar in Denmark's social-corporatist governance, and pension funds administering collectively agreed mandatory savings for employees on the Danish labor market (the so-called "labor market pensions") are jointly governed by representatives of labor unions and employer organizations (Andersen 2011; Ebbinghaus and Wiss 2011). Although these pensions funds are large companies, their institutional centrality likely create political spillovers for smaller players in the industry ecosystem. Agriculture is another example of an industry that pushes above its weight politically, and the reasons for this are likely historical. In the first
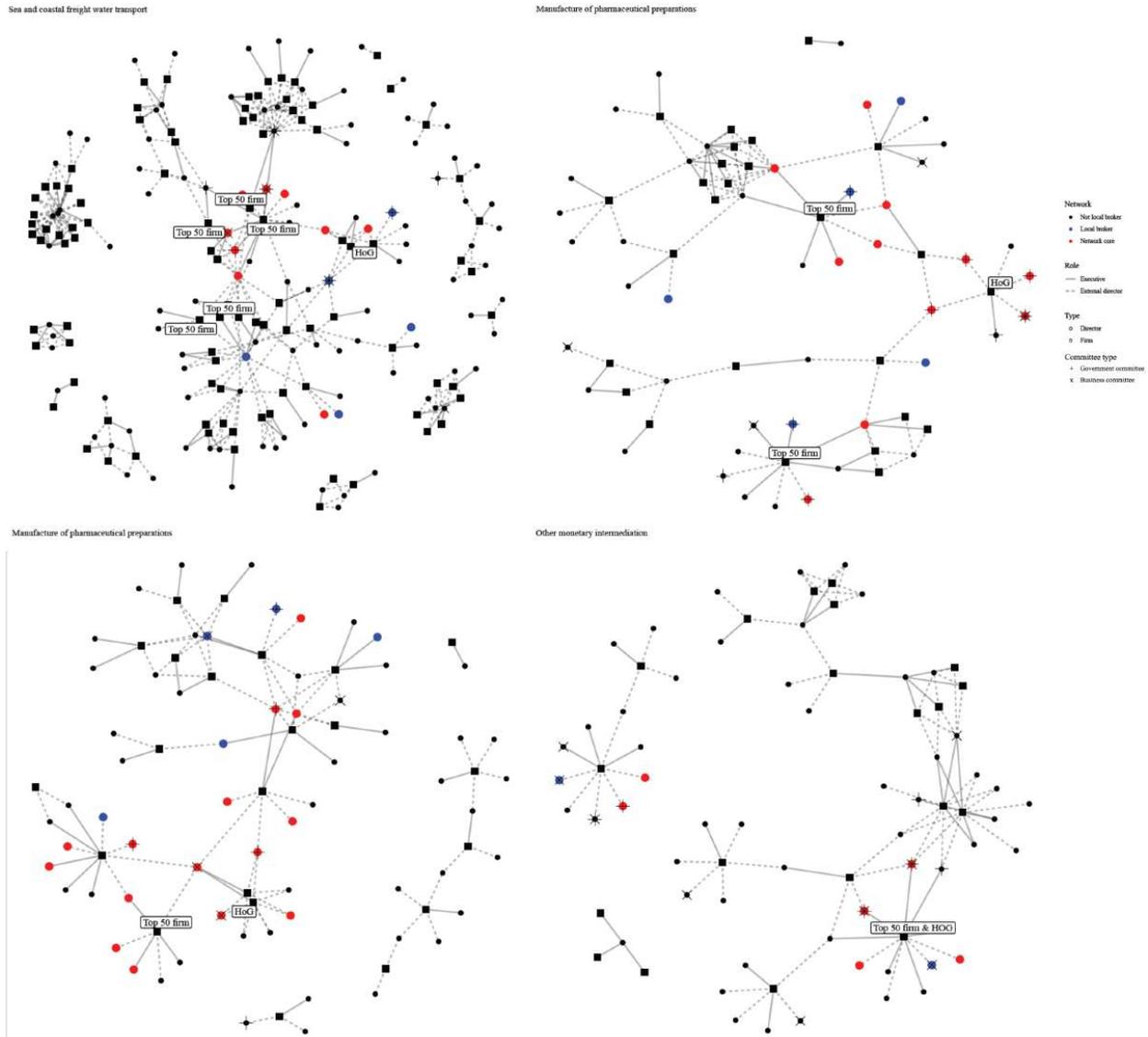
| | Frequency: Core directors in committee | | | | | Frequency: Core executive directors in committee | | | | | Share: Industry-company type's directors in network core and committee | | | | | Share: Industry's directors in network core and committee | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Very large company | Small subs. in v. large firm | Large company | Small subs. in large firms | Small companies + small subs. in small firms | Very large company | Small subs. in v. large firm | Large company | Small subs. in large firms | Small companies + small subs. in small firms | Very large company | Small subs. in v. large firm | Large company | Small subs. in large firms | Small companies + small subs. in small firms | Very large company | Small subs. in v. large firm | Large company | Small subs. in large firms | Small companies + small subs. in small firms |
| Manufacturing and extraction | 154 | 177 | 206 | 242 | 1044 | 82 | 43 | 35 | 28 | 151 | 0.15 | 0.07 | 0.06 | 0.03 | 0.01 | 0.001 | 0.002 | 0.002 | 0.002 | 0.01 |
| Agriculture | | | 4 | 1 | 233 | | | 3 | 1 | 51 | | | 0.1 | 0.15 | 0.02 | | | | | 0.018 |
| Construction | | 2 | 20 | 25 | 234 | | 0 | 6 | 4 | 62 | | 0.01 | 0.07 | 0.03 | | | | | | 0.005 |
| Sales and transportation | 87 | 166 | 194 | 93 | 1368 | 42 | 11 | 31 | 19 | 238 | 0.15 | 0.05 | 0.06 | 0.01 | 0.01 | | 0.001 | 0.001 | 0.001 | 0.008 |
| Real estate | | | 11 | 45 | 1150 | | | 1 | 5 | 145 | | | 0.05 | 0.05 | 0.01 | | | | 0.001 | 0.015 |
| Financial services | 28 | 73 | 150 | 150 | 822 | 18 | 14 | 44 | 34 | 62 | 0.23 | 0.09 | 0.22 | 0.11 | 0.03 | 0.001 | 0.002 | 0.005 | 0.005 | 0.025 |
| Insurance and pensions | | | 71 | 146 | 1139 | | | 9 | 22 | 120 | | | 0.21 | 0.12 | 0.12 | | | 0.006 | 0.013 | 0.103 |
| Business services | 4 | 21 | 164 | 179 | 1437 | 4 | 0 | 54 | 33 | 273 | 0.13 | 0.09 | 0.12 | 0.07 | 0.02 | | | 0.002 | 0.002 | 0.015 |
| Information services | 35 | 18 | 84 | 73 | 552 | 22 | 8 | 15 | 5 | 73 | 0.28 | 0.05 | 0.11 | 0.03 | 0.01 | 0.001 | | 0.002 | 0.002 | 0.013 |
| R&D and education | | | 0 | 0 | 369 | | | 0 | 0 | 26 | | | 0.02 | | 0.04 | | | | | 0.04 |
| Health and social services | 9 | | 0 | 2 | 537 | 5 | | 0 | 1 | 31 | 0.29 | | | 0.18 | 0.04 | 0.001 | | | | 0.038 |
| Entertainment and hospitality | | | 16 | 22 | 324 | | | 0 | 1 | 14 | | | 0.12 | 0.06 | 0.02 | | | 0.001 | 0.001 | 0.019 |
| Holding companies | | | | | 415 | | | | | 51 | | | | | 0.01 | | | | | 0.013 |
| Unknown sector | | | | | 255 | | | | | 47 | | | | | 0.01 | | | | | 0.009 |

**Figure 7:** Heatmap of frequencies and proportions of network core committee members over industries and company types.

part of the twentieth century, agriculture was the dominant industry in Denmark, and while largely made up of smallholders the industry was highly organized in a movement-like manner (also known as the "coop movement") and like labor became an institutionalized force in Danish interest politics (Christiansen 2012). In more recent years, the industry's prominence has declined but it is still known as highly organized politically. The prominence of directors in smaller companies in this industry could express spillovers from the industry's political power overall, and its peak industry organization as a channel into government decision-making.

An interesting finding from our statistical analyses is that directors of smaller companies within large corporations are particularly advantaged in their access to government committees. This explanation for this finding should be investigated further in future research. Here, we simply illustrate this point visually through four visualizations of the two-mode interlocking directorates network of four corporate groups that have directors that figure prominently in the network core and government committees. We chose four relatively distinct configurations among the largest 50 corporate groups in Denmark in 2015 to display variability in the corporate group-internal board network structure and the positions of members of the network core and government committees. Panel A of Figure 8 shows a large transport and logistics group, which reveals a core-periphery structure that we might call an *integrated hierarchy* because the large companies in themselves form cohesive overlapping clusters. This is a case of a corporate group that consists of

**Figure 8:** Network configurations of four corporate groups. *Note:* These figures are constructed from publicly available data from Orbis on four select top 50 corporate groups in the Danish economy, combining 2015 director data from Orbis on parent and subsidiary entities of the largest corporate groups in Denmark merged with the Ellersgaard and Larsen (2015) data on the Danish power elite.

several large companies and a series of smaller ones, and where the large companies are tightly integrated at the top through interlocking boards and where the directors at the top figure prominently in the network core and government committees. Panel B shows a large pharmaceutical group that consists of one connected component (except one minor, disconnected company with just one director on the board) and where several large companies connected with the parent company but not connected directly with each other. Here, the political elite are like to former also centered around the largest companies but are not cross-integrated independently

of the parent company. We might call this type *divisionalized hierarchy*. Panel C again shows a large pharmaceutical group, consisting of a large component consisting of a large top 50 company, the parent and a series of smaller companies, and then a set of smaller components. Here, the political elite is all held within the large component but is not restricted to integration in the top or parent companies but spread across smaller entities too. Panel D shows a financial group with a more fragmented and polycentric structure, and where the political elite is dispersed across different fragments. Where the former might be called integrated dispersion, the latter could be termed fragmented dispersion.

## Concluding Discussion

Previous research on the political representation of corporate elites has focused on the network structure of directors connecting a country's largest corporations (Burris 2005; Comet 2019; Heemskerk and Fennema 2009; Larsen and Ellersgaard 2018; Mills 1956; Mizruchi 2013; Useem 1986). We proposed a method that simultaneously captures the network qualities of brokerage, centrality, and cohesion: a two-step network decomposition that locates the coreness of local brokers. Analyzing the population network of all Danish company directors, we identify a core-periphery that emerges from connections among a wide distribution of directors in companies of varying size. Statistical analyses show that a position in the network core and at a board of a large company are both strongly associated with attendance at government committees and that strong positive associations for network core members persist net of directors' company rank. Although the effect associated with company rank is almost entirely accounted for by directors' positions in the core-periphery structure, these positions have large independent effects net of company rank. In contrast to existing research on the political prominence of inner circle directors at large corporation, we do not find that directors who serve on multiple boards of large corporations are particularly well-represented in government committees. Instead, the directors at large companies who participate in government committee work are those positioned centrally in the core-periphery network made up from connections derived from companies across the company rank distribution. Our analyses also found that current and former representatives of industry associations and labor unions—the social parties of social-corporatist Denmark—figure prominently in network core and at government committees. Finally, we found evidence that directors of smaller companies in the network core are frequently from the pensions and insurance and agriculture industries, which further emphasize the political traits of the core-periphery structure.

Our results have implications for studies of corporate elite networks. Sampling strategies matter greatly in how well elite networks are measured and with increased access to large-scale network data from administrative data measurement will likely improve. Our study shows that network connections at the tail end of the company rank distribution contribute to elite cohesion and integration of corporate elites both higher-ranking and lower-ranking companies. The analyses also point to the potential of using large-scale network data to identify powerful brokers within the complex networks of large corporate groups, which are not

necessarily top executives as well as smaller elite companies that are nominally not as well-resourced. Corporate restructuring in market economies around the world warrant researchers of corporate elites to develop new methods of capturing key actors across different political-economic contexts. Comparative research should seek to establish if corporate elites in other countries too are organized in a network core of brokers and if not what scope conditions may apply.

Several scope conditions of Denmark's social-corporatist economy the influence of broader business interests. Albeit more economic resources concentrate around a few large Danish corporations (such as Novo Nordisk, Mærsk, and Danske Bank), Denmark still have relatively few large companies and top 500 ranked companies employ as little as 200 employees. Therefore, the economy rests on a significant component of small-to-medium sized (particularly export oriented) companies that play an important role in Denmark's economic performance (Kristensen and Sabel 1997). Denmark's political institutions are in some measure designed to give voice to a wide network of agricultural smallholders. This economic structure likely gives way to a principle of elite organizing that hinge more strongly on local connections among smaller units, but which also selects local representatives into field-level political processes (Boberg-Fazlic et al. 2023). Denmark's corporatist system of governance provides many entry points for corporate interests to have voice in policymaking and the legislative process. This possibly opens space for a wider and more heterogeneous set of actor interests in the exercise of corporate political influence. Our article shows that above and beyond interest organizations, the network core is a key point of selectivity in how these interests become connected with policymaking. Whether actors from the wider business community are equally influential in contexts of larger corporate concentration and institutional contexts with less entry points into politics should be investigated. Few comparative studies exist on variability in corporate elite organizing (for an exception, see Cárdenas [2012]) and future work should make use of new large scale data sets becoming available for more and more countries, which will allow researchers to study when and why the wider business community matter.

More research is also needed on how corporations exercise informal influence on political ideas, large-scale political reforms, and critical junctures for government decision-makers (such as during the Covid crises). Our study documents formal positions of influence in a social-corporatist context, but we do not consider informal or larger-scale influence. Large-scale reform programs are typically negotiated with the large industry associations and labor, and previous research on Denmark's "power elite" documents that top executives at large corporations are significantly favored in such negotiations (Ellersgaard and Larsen 2023; Ibsen, Ellersgaard, and Larsen 2021). In the Danish context, the density of cross-class and cross-institutional connections is mirrored in the structure and composition of the corporate elite network. The network core in the wider business community provides actors with numerous chances to interact and communicate across class-based and institutional divides. This likely has consequences for how the corporate elite operates strategically and what normative orientations they develop in view of influencing national policies. In his studies of the United States and the UK, Useem (1986) described how the inner circle developed a "class-wide rationality" cutting across companies and

sectors within the corporate sector. For Denmark, this observation may extent to a "cross-class rationality" where political elites representing capital and labor develop a shared elite identity and a normative consensus around what constitutes appropriate policies and reforms, with corporate interests in the driver's seat in more recent decades (Ibsen et al. 2021). Still, the Danish consensus-based policy model with extensive co-participation by capital and labor in the legislative process requires business leaders who are compromising not only with their market competitors but also with organized labor and representatives of the state apparatus.

Although our findings show that the economic resources of companies together with the structure of wider elite networks together determine access to political influence, the independent effect of elite networks may to some extent be explained by the existence of this social-corporatist consensus model. Perhaps directors with prominent positions in the core-periphery structure of the wider business community have a higher degree of public legitimacy, than the faces of large corporations perceived as representing vested interests?

Nevertheless, large companies send less prominent actors from their internal network into positions of political influence. How restructuring of the corporate landscape affects elite networks is an important topic requiring detailed analyses of longitudinal data. Going forward studies of corporate elites would benefit from more micro-level studies on the internal network structure of large corporations (corporate groups) and whether strategic positions within these networks afford directors with social capital to exercise influence within society and politics more broadly. Large corporations may wish to delegate different political roles across the complex network organizations depending on business strategic considerations. We exemplified how this could be explored in the future through a visualization of four large corporations in our data and the political characteristics of their directors (see Fig. 8). These are just a few of the questions that large-scale data on corporate elite networks can provide novel answers to.

## Notes

1 Here, 92 percent of the government committees have at least one member that is also a corporate director in them.

2 Sometimes these large overlapping clusters express strongly connected firms within corporate groups and sometimes they express business-group like structures but with no mutual legal ownership.

3 Independent business companies (defined in Danish legislation as "single-owner" companies or "stakeholder companies") (companies with personal ownership shared between two owners) are not legally required to set up a board of directors, and very rarely do so. Although limited liability companies are also not legally required to set up a board of directors, 99.9% of these companies do according to our data.

4 We recognize that social cohesion in the corporate elite may stem from a host of other sources than corporate interlocks. Domhoff's (1967) showed that the corporate elite not only forges internal connections through board interlocks but also through shared memberships of non-profit organizations and social and cultural institutions. Barnes (2017) demonstrates that such shared memberships continue to be an important source

of social cohesion in the American corporate elite. We restrict our analyses to firms operating for a profit because we wish to highlight the potential role of smaller business firms in generating elite social cohesion and to make a succinct contribution to the board interlock literature.

5 In the appendices, we conduct sample sensitivity analyses of $k$-core decompositions. Appendix Figure A1 shows that our analyses require a highly inclusive set of companies to identify the core-periphery structure, suggesting that the nested hierarchy of $k$ cores is structured by a wide substratum of director ties. Appendix Figure A2 shows that the decompositions are very robust to the exclusion of large companies. In Appendix Figure A3, we reproduce results altering the local brokerage threshold and Appendix Figure A4 shows the effect of altering the threshold on the efficacy of identifying political directors.

6 In this paper, we distinguish between *company* (the legal entity registered for regulatory and accounting purposes, in Danish *virksomhed*) and *corporation*, which consists of the corporate group (in Danish *koncern*) including parent company and all subsidiaries.

7 In the main models, we only restrict this measure to ISCO-1 managers in business associations and unions. We ran alternative models where we include all employees in business associations or unions and results are extremely similar. We identify elected politicians from the election database (VALG), which record all elected politicians dating back to 1992.

8 Next, we ran additional analyses where all subsidiaries were coded according to the parent company's characteristics, and estimates were extremely similar.

9 Current politicians and leaders of interest organization figure less frequently, which is likely due to norms about corporate impartiality linked to such political roles. Nevertheless, elected politicians occasionally serve on the boards of firms where public authorities have some direct ownership or indirect stakes.

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