

Who you know: The classed structure of social capital

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Abstract

This article focuses on the social structuring of social capital, understood as resources embedded in social networks. The analysis integrates key theoretical–methodological insights from two distinct approaches concerned with social capital and inequality: the position-generator approach associated with Nan Lin and the spatial approach associated with Pierre Bourdieu. Empirically, we exploit the possibilities of survey data containing detailed information about the social ties of a representative sample of the Norwegian adult population ($N = 4007$). By means of Multiple Correspondence Analysis (MCA), we construct a space of social ties, a spatial representation of systematic similarities and differences between individuals' social ties to a set of 33 occupational positions. In this space, social capital is structured according to two primary dimensions: (i) the level of social ties, in terms of individuals' number of contacts; and (ii), the quality of social ties, in terms of a division between being connected to others in high-status positions and others in low-status positions. By means of Ascending Hierarchical Cluster analysis, five clusters are identified within the space of social ties: a homogenous working-class cluster, a well-connected working-class cluster, a cluster of high-status ties, a homog-

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enous high-status cluster and a low-volume cluster. Moreover, the analysis clearly indicates that the structure of social capital is connected to respondents' class positions, their volumes of cultural and economic capital and their class origin. The analysis thus draws attention to the role of social capital in processes of social closure, regarding both resource monopolization and class formation.

KEYWORDS

class, cultural capital, economic capital, inequality, MCA, position generator, social closure, social network, social ties, status, stratification

1 | INTRODUCTION

Does who we know—our families, friends and acquaintances—affect how we get on in life? Specifically, do individuals' connections to personal social networks entail systematic social inequality in accessing scarce resources? If so, does this pertain to distinct social divisions not just between social classes, but also within them? Such questions are at the core of contemporary class and stratification research centered on the notion of social capital (see e.g., Flap & Volker, 2008; Li et al., 2008; Otero et al., 2021; Savage et al., 2015).

Social capital is, however, a notoriously contested concept, both in its theoretical underpinnings and its operationalization in empirical inquiry (for overviews, see Field, 2016; Li, 2015; Son, 2020; Ponthieux, 2006). While we acknowledge that social capital is a multifaceted concept applicable to many purposes in the social sciences, our concern here relates specifically to the critical stream of sociological research that views social capital as intimately linked to power structures and social inequality (see e.g., Bourdieu, 1986; Burt, 2000; Granovetter, 1973; Li et al., 2008; Lin & Erickson, 2010).

In this article, we take Lin's (2001) influential network approach to social capital as our point of departure, viewing social capital as access to resources embedded in personal networks of social ties. However, although the Linian network approach to social capital has contributed much to the sociological understanding of social capital, there are some important limitations and potential for further theoretical and methodological development. First, we argue that this approach unnecessarily restricts its scope in viewing social capital as an individual asset primarily functioning at the micro level as a means of opportunity hoarding and resource monopolization (cf. Tilly, 1998). Although this is of course a central aspect of social capital, this focus has been accompanied—unfortunately, in our view—by less theoretical and empirical attention to how social capital may also function as a group asset at the meso level, for instance pertaining to processes of class formation and closure (cf. Scott, 2002).

Second, we argue that previous usage of the influential technique developed by Lin to map individuals' access to social capital—the position generator (Lin et al., 2001)—is built on the problematic assumption that the social position of individuals' social contacts can be ordered according to one single hierarchical dimension, inherent in occupational prestige scores. In our view, this assumption is problematic, since important internal divisions at any given level in this assumed one-dimensional hierarchy may be overlooked. While we recognize important contributions in previous research—for instance measurements mapping the 'range', 'extensivity' and 'upper reachability' of personal social networks (cf. Lin et al., 2001)—there is arguably further potential to map how these properties may be polarized along multiple dimensions.

These limitations, we argue, can be remedied by combining the Linian position-generator approach with theoretical insights from Bourdieu's spatial approach to class and stratification, as well as methodological insights from the

tradition of Geometric Data Analysis (GDA). Specifically, we demonstrate how the use of Multiple Correspondence Analysis (MCA) and Ascending Hierarchical Cluster Analysis (HCA) (Hjellbrekke, 2018; Le Roux & Rouanet, 2004, 2010), can be used to inspect: (i) social networks as latent multidimensional structures; and (ii), how these dimensions correspond to key structures of social inequality, such as class and the social distribution of cultural and economic capital. Crucially, this approach facilitates the mapping of social capital as a potentially multidimensional phenomenon, thus avoiding the a priori assumption that social capital constitutes a one-dimensional hierarchy.

Empirically, we focus on the case of contemporary Norway and exploit the possibilities of survey data containing detailed information about the social ties of a representative sample of the Norwegian adult population ($N = 4007$). We use these data to construct and explore what we call a *space of social ties*—a spatial representation of systematic similarities and differences between individuals' social ties to a set of 33 occupational positions.

We address four main research questions. Our first aim is to uncover the dimensionality of social capital, that is, to examine whether and how personal network connections are polarized along multiple dimensions. We thus ask:

- (i) Along how many dimensions are personal social ties structured, and what substantive divisions do the primary dimensions represent in accessing resources embedded in personal social networks?

Second, since access to key network positions may facilitate resource investment and mobilization, social capital may have the capacity to increase the value of and return on other forms of capital. We thus ask:

- (ii) How is the space of social ties connected to other inequality structures, for example, economic and cultural capital structures?

Third, since social ties can be inherited by offspring from parents, and since the social ties of one's parents can constitute valuable resources in themselves, we ask:

- (iii) How is the space of social ties connected to respondents' social backgrounds in terms of parents' education levels and class positions?

Fourth, since homogenous social networks may be indicative of class closure in terms of both resource monopolization and class formation, we ask:

- (iv) Are there signs of class closure in terms of class homogeneity within identifiable subgroups characterized by similar social ties?

The Norwegian case is arguably apt for mapping such connections. Although previous research has demonstrated marked class divisions in social mobility, education, marriage patterns and lifestyles (see e.g., Flemmen et al., 2017; Hansen & Wiborg, 2019; Helland & Wiborg, 2019; Hjellbrekke & Korsnes, 2004; Toft & Jarness, 2020), Norway is still comparatively egalitarian due to characteristics such as a compressed wage distribution and extensive and universal welfare services (see e.g., Esping-Andersen, 2015). Egalitarian societal perceptions are also prominent (Hjellbrekke et al., 2015).

Moreover, since social ties result not only from subjective preferences and mutual attraction and recognition, but also from external conditions and circumstances that facilitate or impede the probability of social encounters and interaction, there are several aspects of Norwegian society that arguably facilitate the formation of socially diverse networks. First, residential segregation is comparatively low except for in the largest cities (Ljunggren & Andersen, 2015). Second, Norway is distinctive in terms of perceived equality and anti-elitist sentiments linked to an interactional style whereby 'sameness' is emphasized and class differences are tactfully downplayed (Gullestad, 1992; Hjellbrekke et al., 2015; Jarness, 2013). Third, the Norwegian education system is organized around the ideal of a

unified 'school for all', where there are no private elite schools; school districts are defined geographically; tuition fees for private schools are strictly capped and regulated by law; and, the tracking of students does not occur before the age of 16 (Imsen & Volckmar, 2014). Thus, the largely institutionalized facilitation of cross-class encounters and interaction is arguably more marked in Norway than in societies in which key societal institutions are more strongly socially stratified. Given these comparatively egalitarian traits, we argue that Norway constitutes a suitable case for analyzing how subjective preferences are manifested in the creation and maintenance of social ties, and whether such preferences are socially conditioned, for instance by class position and class origin.

2 | APPROACHES TO SOCIAL CAPITAL

According to Son's (2020) recent review, the major divide in the literature may be found between one understanding of social capital as primarily a collective resource and a second understanding that social capital is primarily an individual resource. The first is associated with theories that emphasize social coordination, cooperation, integration and norms of reciprocity, while the second is mainly associated with theories focusing on individuals' access to and returns on network-embedded resources, although some perspectives also discuss trust and norms of reciprocity at the individual level.

2.1 | Putnam's communitarian approach

The understanding of social capital as a collective resource is first and foremost associated with the work of Putnam (see e.g., 1995; 2000). Drawing on Coleman's (1988) pioneering work, Putnam's communitarian approach primarily focus on social capital as a source of social coordination, trust and integration. While it is recognized that relations of trust can be both micro-level relations (between individuals) and relations between individuals and institutions (e.g., individuals' trust in political institutions), Putnam has mainly focused on outcomes at the macro level, for example, economic development, democracy, communities and civic society. Even though Putnam has briefly discussed the 'dark side of social capital' (see e.g., Putnam, 2000, pp. 350–365), he views the societal effects of social capital as largely positive; 'life is easier in a community blessed with a substantial stock of social capital' (Putnam, 1995, p. 67).

His approach has, however, faced criticism for lacking clear conceptions and systematic empirical accounts of who the holders of social capital are; what the sources of social capital are; under what circumstances resources and properties function as a form of capital; what the negative effects of social capital are; and, how social capital may also be a private good subject to monopolization and exclusion, thus pertinent to processes of social closure, social stratification and inequality (see e.g., Fine, 2010; Gargiulo & Benassi, 1999; McLean et al., 2002; Ostrom, 2000; Portes & Landolt, 2000). While we acknowledge that social capital is a multifaceted concept, and that communitarian approaches like Putnam's have generated much valuable insight into the functioning of social capital at the macro level, notions of social capital as a collective resource are less pertinent to our primary concerns in this article: that is, how personal social ties are connected to social stratification and class closure.

2.2 | Lin's network approach

The other dominant understanding views social capital primarily as individuals' access to valuable resources in and through their social networks (see e.g., Burt, 2005; Granovetter, 1973; Lin, 2001; Lin & Erickson, 2010). Although various forms of networks are emphasized across the literature about social capital, Lin's approach to mapping networks in terms of individuals' personal social ties is most pertinent to our discussion here.

Drawing on Granovetter's (1973) seminal work, Lin (1999, p. 35) defines social capital as 'resources embedded in a social structure which are accessed and/or mobilized in purposive actions'. According to this influential definition, individuals' membership of a given social network means that advantages and privileges may accrue from social ties with resourceful others in the network which, by the same token, means that non-members are excluded from these resources. Thus, network theorists emphasize social capital as a source of social closure in and though resource monopolization and opportunity hoarding (cf. Tilly, 1998). Moreover, Lin's definition highlights that the accumulation of social capital is driven by individuals' purposive actions, meaning that social actors intentionally use their social ties as a means to generate profits of various sorts and, like many other network theorists, he draws on Coleman's (1988) more general Rational Action Theory.

Individuals' networks of social ties are typically mapped empirically by using the position generator (for an overview, see Lin & Erickson, 2010). Social ties are surveyed by asking respondents questions about their connections to a select set of occupations. Types of social ties are often differentiated qualitatively (e.g., family, friends and acquaintances) and the occupations are ranked according to occupational prestige scales, such as the ISEI scale (Ganzeboom & Treiman, 1996).

There are three main measurement techniques for calculating such accessibility (see Lin et al., 2001, p. 63). The range of accessibility to different social positions is measured by calculating the difference between the highest and lowest prestige score of the positions accessed; the extensity of accessibility is measured by the number of positions accessed; and, upper reachability of accessibility refers to the prestige score of the highest position accessed. The position generator has been used to study how different levels of social capital influence various outcomes. For instance, studies have shown how the possession of social capital is associated with civic participation and activism (Magee, 2008; Tindall et al., 2012); social trust (Alecu, 2021; Li et al., 2005); and, attachment and labor-market outcomes (Flap & Boxman, 2001; Hällsten et al., 2017; Lin & Ao, 2008).

Although the Linian approach has become highly influential in empirical research focusing on social capital as an individual resource, several authors have pointed to problems attached to it (see e.g., Field, 2016; Portes, 1998; Son, 2020; Woolcock, 2004). For our purposes here, we will highlight two. Our first point pertains to Lin's view of social capital as an individual asset. While we agree that this is an important aspect of social capital, the prime focus on individuals may unfortunately entail less theoretical and empirical attention to how social capital may also function as a *group asset* at the meso level, for instance pertaining to processes of class formation. Although class position is seen by Lin as an external factor that may facilitate or constrain individuals' accumulation of social capital, the concern with class formation is scarce in this stream of research. They have tended to neglect social closure between classes in terms of group formation and the extent to which social networks are 'closed' to outsiders, for instance in terms of a high density of upper-class individuals. Indeed, Lin (1999, p. 34) has explicitly argued against perspectives on social capital that stress the importance of network density or closure, suggesting that this is 'not necessary or realistic' for the utility of social capital.

While we do not doubt that class-heterogeneous networks may sometimes provide individuals with comparatively better access to information and other types of resources not already possessed—such as access to jobs (cf. Granovetter, 1973)—the sociological significance of the class homogeneity of networks arguably stretches beyond a concern with individuals' resource accumulation and opportunity hoarding. Indeed, from the point of view of class analysis, the extent to which networks are class homogenous may be seen as an important indicator of whether people in similar class positions are formed as 'real' social groups in and through social frequentation and circulation (see the discussion below). As can be seen from our research questions above, we do not restrict our analysis to individuals' potential resource accumulation, but also assess class closure in terms of class homogeneity among identifiable groups of respondents characterized by similar social ties.

Our second point is linked to the construction of the position generator. Lin's approach diverges from much class and stratification research that has highlighted the multidimensionality of social hierarchies and capital structures (though in different ways within different theoretical–methodological frameworks). The position-generator method-ology draws heavily on the American status attainment tradition in stratification research (e.g., Blau & Duncan, 1967)

that essentially seeks to uncover *one* hierarchical dimension along which occupations are structured (see the discussion in Scott, 1996). This body of research has tended to fuse economic, social and cultural aspects of stratification in and through the notion of 'socioeconomic status'. Primarily referring to self-perceptions of prestige, the notion of socioeconomic status represents an attempt to construct scales that reflect the general hierarchical structure of society, ranging from 'low' to 'high' prestige scores.

While the position-generator approach includes several ways of measuring the social positions of an individual's social contacts—for example, the range, extensity and upper reachability—these measures are all calculated on the basis of occupations' prestige scores along one single dimension. Thus, an assumption about a unidimensional structuring of the socioeconomic status order is inherent in the methodology. This constitutes an unfortunate preconstruction of the research object. In our view, the dimensionality of social ties (e.g., the potential horizontal structuration thereof) should be subjected to direct empirical scrutiny, as should its structuration across multiple capital dimensions or hierarchies. On their own, none of Lin's proposed measures can be adequately used for such purposes. As we will argue below, both the problems linked to Lin's individualist conceptualization of social capital and the problems inherent in the one-dimensional ordering of social ties can be remedied by combining the position-generator approach with theoretical insights from Bourdieu's spatial approach to class and stratification, as well methodological insights from the tradition of Geometric Data Analysis (GDA).

2.3 | Class analysis and Bourdieu's spatial approach

While the term 'social capital' is a relatively new one—and inquiries into social capital now constitute a distinct research field with its own theoretical and methodological debates—the sociological concern with social ties and 'who knows whom' dates back to at least Weber's (1946) pioneering brand of class and stratification analysis. Although class analysis has had several foci throughout its existence, a key concern since Weber has been class formation in terms of how classes are demographically bounded as social entities, that is, how individuals who occupy specific class situations are tied into broad social aggregates that are more or less clearly bounded from other aggregates (see the discussion in Scott, 2002). Although social-mobility closure is often regarded as the key indicator of class formation (see e.g., Goldthorpe et al., 1987), other indicators include assortative mating in family formation and solidaristic patterns of friendship and acceptance. As argued by Scott (2002: 31), 'whenever these relations of circulation and association reinforce one another in such a way as to create regular and predictable patterns of connection among the people in a set of class situations, these people form part of a single social class'.

In contemporary class analysis, such concerns with class closure and research questions about whether theoretically identifiable classes are formed as 'real' groups in social life have been a prime concern in what has been dubbed 'cultural class analysis', a strand of class and stratification research that has taken its main leads from Bourdieu's work (see the account in Savage, 2003).¹ Although cultural class analysis has been geared primarily toward mapping whether classes are characterized by distinct lifestyles (see e.g., Bennett et al., 2009; Friedman et al., 2015; Prieur et al., 2008), recent accounts have argued in favor of incorporating theoretical-methodological insights from the research field centered on the notion of social capital (see e.g., Denord, 2015; Li et al., 2008; Savage et al., 2015).

Unlike other strands of class analysis concerned with differential association, Bourdieu explicitly uses the term 'social capital'. Although social capital received far less attention than other forms of capital in Bourdieu's own empirical work, his theoretical account is recognized as an important contribution to the field of social capital research (see e.g., Field, 2016; Son, 2020). Much like Lin and similar network theorists, Bourdieu (1986, p. 248) defines social capital as 'the aggregate of actual or potential resources which are linked to the possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition'. In Bourdieu's framework, social capital is, alongside economic and cultural capital, one of the three major forms of capital that constitute the main 'conditions of existence' that are unequally distributed across the class structure, or the 'social space' in Bourdieusian parlance.

Although Bourdieu (1986, p. 249) argues that social capital is not 'completely independent' of economic and cultural capital, meaning that it partly derives its value from the economic and cultural capital embedded in a given social network, he also argues that social capital is 'relatively irreducible' to other forms of capital. For instance, among individuals or groups who are comparable in economic and cultural capital, the possession of social capital can make a difference. Through membership of resourceful social networks, it may be possible to increase or *multiply* the returns from one's own resources, for instance economic or political returns on an education from a Clarendon Nine school, or social esteem from economically benevolent acts such as sponsorships or charity. This 'multiplier-effect' hypothesis states that membership of or access to exclusive networks may increase the value of social actors' other capital possessions and also propel their careers through their access to forms of capital and resources embedded in the network (Bourdieu, 1986, p. 249).²

Moreover, as noted by Denord et al. (2011), social capital may not only be inherited from one generation to the next, but may also have the potential to be a *compensatory* form of capital, in the sense that membership of valuable networks can provide social actors who lack other forms of capital with social recognition flowing from social ties with prestigious others. Thus, it is not given that network density and closure are preconditions for the utility of social capital. Although closed networks are arguably an advantage for upper-class individuals who are already privileged (since this can consolidate resources and group identity among people in similar class positions), diverse networks may be more advantageous for individuals situated lower down in social space (since this may give access to resources not already possessed).

Another distinctive feature in Bourdieu's framework is that it draws crucial attention to how social capital works at the meso level, in particular its connection to processes of closure between social classes. Social capital is viewed simultaneously as an individual asset and as a group asset accumulated and maintained by collective entities, such as classes and social estates (Bourdieu, 1986, p. 251; see also Denord, 2015). This is especially so for the dominant class, endowed with large amounts of other forms of capital, who, strategically or otherwise, maintain and reproduce group solidarity and perpetuate the group's dominant position in and through formal and informal restrictions on social interaction and circulation.

In other words, dense and socially homogenous networks may, according to Bourdieu, reinforce processes of class closure, both in terms of opportunity hoarding and group formation. If a social group is united, this is not simply because it provides its members with access to resources embedded in their social networks, but also because they have a number of properties in common that bring them together socially in terms of relationships of 'mutual acquaintance and recognition' (Bourdieu, 1986, p. 248; see also Denord, 2020). Thus, a crucial feature of Bourdieu's theory of social capital is that classes (understood as structural locations in the social space) tend to take the form of 'realized' social groups, meaning that social groups tend to be created and maintained in and through personal social ties between people in close proximity to each other in the social space.

Although Bourdieu is highly influential in contemporary class analysis, and although he has been influential in theorizing social capital within the distinct field of social capital research, there have been few quantitative empirical accounts of how social capital is connected to social class in the Bourdieusian scholarship. There are, however, some notable exceptions. Focusing on the UK, Li et al. (2008) and Savage et al. (2015) have demonstrated how access to social capital varies according to respondents' and their parents' class position, and that it is especially high among second-generation members of the service class, and correspondingly low among those in lower-class positions. Otero et al. (2021) have shown that upper-class individuals in Chile have larger networks and can access more varied and prestigious resources than their middle- and lower-class counterparts, while the middle class functions as a 'bridge' between the segregated upper and lower classes. Bian et al. (2005) study of urban China indicates that individuals located in different class positions are less likely to have contact with one another. Employing Dutch panel data, Volker (2020) has demonstrated that although most people maintain access to social capital throughout the life course, the gap between the highly educated and the less educated widens over time.

In this article, we build on these studies to incorporate the use of the position generator into a Bourdieusian framework to investigate the connection between social capital and class. However, in our view, Bourdieu's claims

about opportunity hoarding and group formation necessitate a more detailed examination of the structures of what we call the *space of social ties*, a multidimensional, spatial representation of systematic similarities and differences between individuals' social ties to a set of occupational positions. The reason for this is three-fold. First, individuals in similar class positions who are also located close to each other in the space of social ties will arguably have an even higher probability of forming distinct social groups. Second, an examination of the relations and oppositions within this space renders possible a more finely grained investigation of how otherwise homogenous groups may be internally hierarchized in ways that not only affect their life chances (Li et al., 2008), but also their potential to access 'inner circles' of societal elites (Useem, 1986). Finally, by examining the connections between the structures of the space of social ties and other inequality structures, such as the social space, hierarchies between (and within) social classes or groups can be revealed. In this way, we can distinguish the 'insiders' from the 'outsiders' and map how this division plays out within different regions of the class structure.

Before we move on to a discussion of our methodological approach, we will briefly sum up some key expectations based on our discussion so far. Although we perform an inductive, bottom-up mapping of a space of social ties to explore its dimensionality and substantive divisions, some initial expectations can be developed from the literature.

First, we expect that the space of social ties will exhibit hierarchical structures, both in terms of the level of social ties (i.e., the number of respondents' reported connections), and the quality of social ties (i.e., ties to high-status positions vs. ties to low-status positions). These two aspects of people's personal networks are present in both Lin's and Bourdieu's theoretical outlines of social capital, but to our knowledge, previous studies have not assessed the dimensionality of such structures, nor analyzed such dimensions in conjunction.

Second, we expect that the patterning revealed in the space of social ties will be connected to other inequality structures, such as the respondents' class position and possession of other forms of capital, meaning that individuals' potential access to resources embedded in social networks is classed. This main expectation is emphasized in both Lin's and Bourdieu's theoretical frameworks. Bourdieu's theory does, however, contain a crucial specification that guides our expectations about classed access to social capital. Given Bourdieu's (1984) notion of a two-dimensional class structure—the social space, with a vertical dimension ('capital volume') and a horizontal dimension ('capital composition'), crosscutting each main class into class fractions—we would expect that both of these dimensions of class will correspond to the space of social ties. To our knowledge, no previous empirical study has assessed connections between Bourdieu's model of the social space and individuals' access to social capital.

Third, given Bourdieu's insistence on social capital being potentially 'hereditary' (i.e., intergenerationally reproduced), we also expect that respondents' class background will map similarly onto the space of social ties as their own class position, that is, according to the structures of the two-dimensional social space.

Our final expectation has to do with class formation and is based on Bourdieu's theory alone, since this aspect of social capital is out of Lin's scope. Given Bourdieu's emphasis on the role of social capital in class formation, we expect that identifiable subgroups of respondents characterized by similar social ties will also be homogenous in their class positions. By the same token, we expect that otherwise homogenous social classes will be internally polarized with respect to access to social capital, thus creating class-internal divisions between those who are well connected and those who are less so within each main class.

3 | DATA, METHODS AND ANALYTICAL STRATEGY

We use data from the 'Protrust' survey, distributed to a representative sample of the Norwegian adult population aged 18–80 ($N = 4007$, response rate: 41%). The survey was developed with the position generator in mind. Position-generator questions are quite extensive and generally not included in international surveys covering social stratification and inequality. To our knowledge, this is also the first survey to use these questions in Norway. Moreover, data on social capital in Norway and other high-income, high-trust and comparatively egalitarian countries are scarce (see the discussions in Denord et al., 2011; Rothstein, 2013). The data were collected through online questionnaires

in October and November 2015. Dropout analyses reveal an under-representation of the youngest age groups, but additional analyses indicate that the main substantive results are robust (see Alecu, 2020).³ Thus, we have decided not to weight the data.

In adapting the position generator to the Norwegian case, we initially included 34 occupations (see Figure A1 in Appendix). These occupations have (i) a substantial number of employees; (ii) varied gender dominance; (iii) they require different levels of education; (iv) they encompass both new and traditional types of work; and (v), they range from low to high occupational prestige, ranking from 16 (cleaner) to 90 (judge) on the ISEI scale. Although ISEI is an effective way to map occupational prestige, the hierarchical ordering of occupations may vary across national contexts and according to the composition of the occupations (Magnusson, 2009). However, studies indicate that the occupational prestige order in Norway is quite similar to other European countries (Helland & Ljunggren, 2021; Treiman, 1977). Following Lin and Erickson's (2010, p. 9) advice about avoiding using occupations with few occupants, personal trainer was dropped from the active set of variables.⁴

The survey questionnaire was designed to capture whether respondents knew someone from each of the selected occupations as family, friends or acquaintances. For each occupation, the respondents were asked to select only the type of connection closest to them. For instance, if a respondent had a nurse both in the family and as a friend, we only capture the family connection (if this is reported by the respondent as the closest relation). We thus minimize the risk of capturing redundant ties (cf. Burt, 1992). Although this may lead to an underestimation of the total number of social ties and limit analyses of finely grained differences in types of connections, it does not pose a problem for our examination of whether the respondents have access to valuable resources embedded in their social networks. This is captured by the know/do not know distinction.

The analysis proceeds in four main steps. First, standard descriptive measures are used to find the range of accessibility to different social positions, the extensivity of accessibility to different positions and the upper reachability of the social capital accessed (cf. Lin et al., 2001, p. 63).

Second, we use Specific MCA (Hjellbrekke, 2018; Le Roux & Rouanet, 2010) to construct a space of social ties, a multidimensional geometric space depicting the structure of respondents' ties to the set of occupations selected. MCA is a statistical technique that provides a geometric model of categorical data by revealing and visually representing latent structures or oppositions in a large matrix. The chi-square distances between the row/column categories in the matrix or table are calculated, the oppositions between the row or column categories are maximized and the latent structures or axes that best describe the oppositions between the row or column categories are revealed.

The space is constructed from the active variables. These are the variables that are included in the calculation of the distances between categories and between individuals or cases. The oppositions within this space are summed up by the principal axes. Axis 1 describes the most dominant opposition, Axis 2 the second most dominant, etc. The detailed interpretation is based on information about two clouds of points: a cloud of categories that represents difference and similarity between categories of the active variables, and a cloud of individuals that reflects difference and similarity between the individuals. The interpretation of the axes and the cloud of categories is based on the contributions from the categories to the axes. Special emphasis is given to variables (Q) and categories (K) with contributions above average—known as explicative points. Categories that tend to 'share' many of the same individuals will be located in proximity to each other, and categories with no or only a few individuals in common will be located far away from each other.

Similarly, in the cloud of individuals (displayed in the Appendix: Supplementary material and in Figure 6), individuals with similar response profiles will be located close to one another, and individuals with very different profiles distant from one another. In this way, each point's position in the cloud must be interpreted in relation to all the other points belonging to the same cloud. Thus, the geometric spaces produced by MCA facilitate the modeling of the way in which the various categories of the variables relate to each other: the positions of individuals and their properties can be understood only in terms of their relationship to all others; and whereas the cloud of categories permits an examination of the interclass variance, the cloud of individuals permits a detailed and multidimensional investigation of the intraclass variance.

However, like all statistical techniques, MCA has its limitations. First, all active variables must be categorical. Metric variables must therefore be recoded. Second, categories with low frequencies (<5%) tend to destabilize the results. These, too, must therefore be recoded, and either merged with other categories or defined as passive categories. Third, variables with a high number of categories will also have a strong contribution to the total variance in the cloud. If variables or blocks of variables are not 'balanced out' (i.e., recoded into a fairly similar number of active categories), they may also dominate the analysis a priori. Finally, the original eigenvalues produce a far too conservative idea of how much of the variance they have summed up. When interpreting the importance of the axes, Benzécri's modified rates should therefore be calculated (for details, see Hjellbrekke, 2018; Le Roux & Rouanet, 2010).

In our analysis, each of the 33 occupations included in the position generator is defined as an active variable in the MCA. The variables are coded into four categories: (i) 'do not know'; (ii) 'know as acquaintance'; (iii) 'know as friend'; and (iv) 'know as family'. Due to low relative frequencies (<5.0), the categories 'know as friend' and 'know as family' were merged for the variables 'judge' and 'economist'. Because of stability issues, the variable 'judge' is set as passive, meaning that while the position of its categories can be assessed in the space of social ties, they have not contributed to the construction of the structures in the space.

In the analysis below, there are 33 active variables ($Q = 33$) and 129 active categories ($K = 129$). The threshold value for variables is 3% ($1/33 \times 100$) and 0.8% ($1/129 \times 100$) for categories, that is, the average contribution from a variable or a category to an axis. Respondents with almost identical response profiles (e.g., answering 'family' for all 33 occupations) across the set of active variables have been filtered out of the active dataset. We regard these either as outliers or as individuals with responses that pose reliability and validity issues. Even so, the filter is specified so that at least 95% of the respondents are included. Respondents with missing values are also defined as supplementary individuals. After filtering, the total number of respondents is 3120, that is, 78% of the initial sample.

Supplementary variables are ones that are projected onto the space without determining the orientation of its axes. In this way, associations between sets of variables (e.g., one set for social capital and one or more sets for economic and cultural capital) can be examined and interpreted. If the associations are strong, the axes in the space of social ties will separate between types and/or volumes of cultural capital, economic capital, etc. on one or more axes. In this way, whether and how the space of social ties is systematically connected to the respondents' own class position, class origin, income and education level can be investigated. By calculating the scaled deviations between supplementary categories (categories belonging to a supplementary variable), more information about the statistical importance of an opposition can also be found. As a rule of thumb, distances >0.5 are considered notable and distances >1.0 are regarded as large (Le Roux & Rouanet, 2010).

We operationalize class by using the ORDC class scheme (Hansen et al., 2009). Inspired by Bourdieu's (1984) model of the social space, it has a vertical dimension of capital volume and differentiates between four main classes: the upper, the upper-middle, the lower-middle and the working class. The horizontal dimension of capital composition crosscuts these: the three highest classes are divided into cultural, economic and balanced fractions. Our application of the ORDC is adjusted for the analysis of survey data and relies on occupational classification as reported by the respondents.⁵ To further assess how the space of social ties is connected to the social distribution of respondents' possession of cultural and economic capital, we also project education level and personal income onto the space as supplementary variables.⁶

Although this step of the analysis gives us an opportunity to assess differences in terms of horizontal intraclass divisions—often lacking in research on social capital and class—our dataset is imbued with an important limitation in this regard. Although the ORDC class scheme readily allows for differentiating between respondents according to the horizontal dimension of capital composition, the opportunity to differentiate between their contacts along this dimension is limited. Of the 33 occupations used in the position generator, only one occupation—MSc in Business ('*siviløkonom*')—is indicative of a position in the economic fraction of the upper class. This lack of occupations representing the economic fraction will necessarily limit the possibilities of finding fraction-specific social ties, for example, that ties to occupations in the economic fraction of the upper class are over-represented among respondents in that class category.

In the fourth and final step, we identify subgroups within the space of social ties by means of an Ascending Hierarchical Cluster Analysis (HCA) on the cloud of individuals. The individuals' coordinates on 37 axes from the MCA are first saved as new variables. Thereafter, by means of Ward's (1963) method—that is, minimizing the total within-cluster variance—clusters of individuals can be identified. The composition of these clusters can be described in detail by their over- and under-representation of both the active and the supplementary categories included in the analysis. The clusters can also be located within the space of social ties, both by their mean category points and by their concentration ellipses. In a two-dimensional distribution (i.e., a factorial plane), a concentration ellipse will sum up 86.7% of the respondents. This final step of the analysis is not only a means to validate the main findings of the two first steps, but also a means to assess further whether there are tendencies for social closure between (or within) classes.

4 | RESULTS

4.1 | Extensity, reachability and range of social networks

Table 1 depicts the most and least accessible occupations included in the analysis. The social gradient in accessibility is clear: the five least accessible occupations all have high prestige scores. The five most accessible occupations are, on the other hand, either public-facing occupations (teacher and nurse) or manual or non-manual labor occupations.

Table 2 represents extensity in the number of social ties. Again, a clear pattern is revealed: the number of acquaintances is much higher than the number of friend or family connections. On average, with an average network size of 17.4, half of these ties stem from acquaintances, and the other half from family or friendship ties.

In the MCA below, this distinction is taken into account. Even though more distant acquaintances may provide otherwise inaccessible information, it is the close ties one usually will meet on a more or less daily basis. For most people, people one knows, either as friends or as family members, constitute a closer social circle.

Table 3 shows the reachability of access to social capital. Whereas the differences in the average ISEI scores are minimal, both the upper and lower reachability is substantially higher or lower for acquaintances than for friends or family. The difference in mean reachability is at least 11 ISEI points upwards and at least 6 ISEI points downwards.

Table 4 depicts the range of access to social capital. The differences in mean range for family or friendly ties are minimal (below 2 ISEI points). Even though the range scores themselves—above 30 ISEI points for both family and friends—indicate a relatively low degree of social closure, the heterogeneity in contacts is far greater than for acquaintances. With a mean ISEI score of 50.77, the range is 17–19 points higher than for the two other categories. Thus, while occupational homogeneity seems to characterize friend and family ties, occupational heterogeneity dominates the more socially distant contacts.

TABLE 1 The least and the most accessible occupations

	Least accessible, most exclusive	Most accessible, least exclusive
1	Judge: 12.3%	Teacher: 87.3%
2	Social economist: 20.5%	Nurse: 86.2%
3	Headmaster: 29.1%	Shop clerk: 75.4%
4	Professor: 31.5%	Carpenter: 74.6%
5	Priest: 32.3%	Electrician: 72.7%

TABLE 2 Number of social ties (acquaintance, friend and family)

Know as	N	Minimum	Maximum	Mean	SD
Acquaintance	3120	0	17	8.62	4.13
Friend	3120	0	13	4.64	3.46
Family	3120	0	9	4.12	2.43
Total number	3120	3	32	17.38	5.81

TABLE 3 Average, minimum and maximum ISEI scores, contacts

Know as	N	Min	Max	ISEI scores		Minimum ISEI scores		Maximum ISEI scores	
				Mean	SD	Mean	SD	Mean	SD
Acquaintance	3044	16	90	50.65	8.09	27.29	9.46	78.06	13.11
Friend	2770	16	90	49.39	11.25	33.81	12.23	67.01	17.37
Family	2929	16	90	50.24	11.32	34.95	12.39	66.75	16.34

4.2 | The space of social ties

As shown in Table 5, the first two axes produced by the MCA sum up 83% according to Benzecri's modified inertia rates (see Hjellbrekke, 2018; Le Roux & Rouanet, 2010). Accounting for only 6.3% of the modified rate, Axis 3 is clearly a secondary axis. We thus retain only the first two dimensions for interpretation. Variables with contributions above the threshold to Axis 1 and/or Axis 2 are listed in Table 6.

Axis 1 is fairly balanced in terms of the occupations' ISEI scores. It receives contributions mostly from public-facing occupations, for instance occupations connected to the education system, the health-care system and the judicial system. Axis 2 is also balanced in the contributing occupations' ISEI scores. It receives contributions from high-status occupations like lawyer, professor and medical doctor, low-status occupations like cleaner and postal worker and several manual working-class occupations.⁷

Figure 1A shows the categories with the highest contributions to the horizontal Axis 1. The mean category points indicating various forms of social ties to these occupations—either as family, friends or as acquaintances—are consistently located to the left of the map, while the mean category points indicating *not* having social ties with these occupations are located to the right without exception. The axis thus describes a systematic opposition between knowing (left-hand side of the axis) and not knowing (right-hand side of the axis) a wide range of occupations included in the position generator. As this indicates, the axis is also a hierarchical dimension with respect to having versus not having social ties to the positions included in the position generator.

To facilitate the interpretation of the axis, we have projected categories depicting respondents' number of social ties onto the space as a supplementary variable (see Figure 1B). In line with our initial interpretation above, the positioning of the mean category points depicts a perfect rank order along the axis: categories indicating many social ties are located to the left, whereas few or no contacts are located to the right. Thus, the axis does not only describe an opposition between 'the have' and 'the have nots'; it is also a dimension reflecting unequal levels of social ties. Moving from the right to the left in the figure, the number of social ties increases systematically.

The categories with the highest contributions to the vertical Axis 2 are shown in Figure 2. At first glance, the results might seem more confusing than for Axis 1: mean category points indicating both having and not having social ties are located on each side of the axis. Upon closer inspection, however, a distinct opposition is revealed. Categories reflecting not knowing people in high-status occupations are systematically located at the top of the axis, and so are categories reflecting knowing people in low-status occupations. For many respondents, not knowing people in high-status occupations is thus accompanied by knowing people in low-status occupation; to us, this is a clear indication of social closure.

TABLE 4 Range, ISEI scores, contacts

Know as	N	Minimum	Maximum	Mean	SD
Acquaintance	3044	16	74	50.77	16.62
Friend	2770	16	74	33.26	20.26
Family	2929	16	74	31.80	18.91

TABLE 5 Results, MCA, Axes 1–5. Eigenvalues, explained variance and modified rates

Axis	Eigenvalue	Percentage of explained variance	Cumulated percentage of explained variance	Benzecri's modified rate	Cumulated modified rate
Axis 1	0.1574	5.41	5.4	62.8	62.8
Axis 2	0.1022	3.51	8.9	20.2	83.0
Axis 3	0.0702	2.41	11.2	6.3	89.6
Axis 4	0.0552	1.90	13.1	2.4	92.0
Axis 5	0.0485	1.67	14.8	1.3	93.3

Conversely, categories reflecting not knowing people in low-status occupations, and knowing people in high-status occupations, are systematically located at the bottom of the axis, that is, the exact opposite form of closure than the one indicated in the two upper quadrants. Thus, Axis 2 is clearly a dimension reflecting different qualities of social ties in terms of the prestige of respondents' contacts.⁸

When viewing the two primary dimensions of the space of social ties together in factorial planes 1–2, a crucial division is revealed along one of the diagonals of the space, separating between high and low volumes of high-status ties. The lower-left quadrant of the space is clearly the local center of gravity of high-status ties: it is populated by respondents connected to social networks providing exclusive access to people in prestigious occupations. Respondents connected to low-status social networks, meanwhile, populate the upper-right quadrant. Thus, factorial plane 1–2 clearly reveals an opposition between 'the haves' and 'the have nots' in terms of resources embedded in social networks.

As a further assessment of the rareness and exclusivity of social ties, we examine how differences in the minimum, maximum and mean prestige scores of respondents' friends map onto the two primary dimensions of our constructed space.⁹ As we can see from Figure 3, the projected categories are ranked from the lowest to the highest values along Axis 1 (the level dimension). They also vary systematically along Axis 2 (the quality dimension).

Categories indicating friendly relations with high-status occupations are once again located in the lower quadrants, and categories indicating the opposite are located in the upper quadrants. As discussed above, one of the reasons why social capital is sociologically important is due to its potential 'multiplier effect' on the other forms of capital, that is, its inherent capacity to increase the access to and return on the other forms of capital. The structuring of the space of social ties indicates that while the level of social ties may be similar across groups, the resources these social ties give access to vary considerably. This highlights that the distribution of social capital cannot reasonably be seen one-dimensionally, since this would conflate the crucial analytical distinction between the level and quality of respondents' social ties.

4.3 | The space of social ties and other inequality structures

Next, we turn to the question of whether social capital is connected to class closure. Specifically, we examine potentials for class formation and resource monopolization by assessing whether and how variables on respondents' class, capital possession, educational and class origin map onto the two primary dimensions of our constructed space—the

TABLE 6 Results, MCA, Axes 1–3. Categories with contributions to the axes above the threshold value (0.8%) in descending order

Variables with contributions >3% to Axis 1	Variables with contributions >3% to Axis 2	Variables with contributions >3% to Axis 3
Preschool teacher: 4.9%	Business economist: 7.6%	Kindergarten teacher: 6.8%
Police officer: 4.7%	Civil engineer: 6.3%	Nurse: 6.7%
Engineer: 4.6%	Social economist: 6.3%	Electrician: 6.2%
Teacher: 4.4%	Cleaner: 5.8%	Auxiliary nurse: 6.2%
High school teacher: 4.2%	Industrial worker: 5.7%	Shop clerk: 6.1%
Physicist: 4.2%	Taxi driver: 5.7%	Hairdresser: 5.7%
Child protection officer: 4.1%	Medical doctor: 5.2%	Carpenter: 5.2%
Nurse: 4.1%	Professor: 5.0%	Engineer: 5.1%
Medical doctor: 4.1%	Lawyer: 4.4%	Plumber: 3.9%
Carpenter: 3.9%	Postal worker: 4.3%	Industrial worker: 3.7%
Journalist: 3.8%	Hairdresser: 4.1%	Teacher: 3.7%
Social worker: 3.8%	High school teacher: 4.0%	Cleaner: 3.2%
Rector: 3.6%	Carpenter: 3.8%	Social Worker: 3.1%
Kindergarten teacher: 3.1%	Electrician: 3.8%	
	Shop clerk: 3.7%	
	Auxiliary nurse: 3.4%	
	Plumber: 3.1%	

level and the quality of social ties. In Figure 4A–C, we can see that the mean category points for respondents in working-class and lower-middle-class positions, respondents with low personal income and respondents with few educational credentials are located in upper quadrants of the space.

In the lower quadrants, the opposite is the case: the mean category points for respondents in upper-class and upper-middle class positions, respondents with high personal income and respondents with higher education are all located in these quadrants. Axis 2, the vertical axis, is therefore clearly an axis describing a class, income and educational hierarchy. The oppositions with respect to educational origins are also clear.

In Figure 5A–C, we can see that the mean category points for respondents with highly educated parents are not only systematically located in the lower quadrants of the plane; Axis 2 also describes an almost perfect rank order from the lowest to the highest levels of education for both the respondents' parents and their partners. Thus, the space of social ties is clearly and strongly linked to intergenerationally reproduced inequalities in institutionalized cultural capital. Summed up, 'birds of a feather flock together' among parents and their offspring.

Moreover, many of the mean category points are systematically located along the diagonal, separating high and low volumes of high-status ties. In the upper-right quadrant of the space—the 'hub' of low-status ties—we find the mean category points indicative of the lowest class positions in the sample, for example, unskilled workers, those outside the labor market, those with only compulsory education and those earning less than NOK 300,000 per year (approx. GBP 25,400). In the lower-left quadrant—the 'hub' of high-status ties—we find the mean category points indicative of the highest class positions, for example, the cultural upper class, those with at least 4 years of higher education and those who earn more than NOK 1,000,000 per year (approx. GBP 84,700).

To gain a more precise understanding of these oppositions, we have calculated the scaled deviations between a select subset of categories on the axes in this space (see above). The distances between several of the mean category points exceed the threshold for large distances [e.g., unskilled working class vs. the cultural upper class (>1.2); income NOK 200,000–299,000 versus income above NOK 1,000,000 (>.90); and, primary education versus at least 4 years of higher education (>.65)].

As we can see from Figure 5A–C, the respondents' class and educational origins follow the same pattern. Here too, we find notable or large distances (e.g., father unskilled working class vs. father cultural upper-middle class (>.90); versus father professional upper class (>1.2); and versus father economic upper (>.90). We interpret this as yet another clear indication of the intergenerational reproduction of social capital in the Norwegian social space.

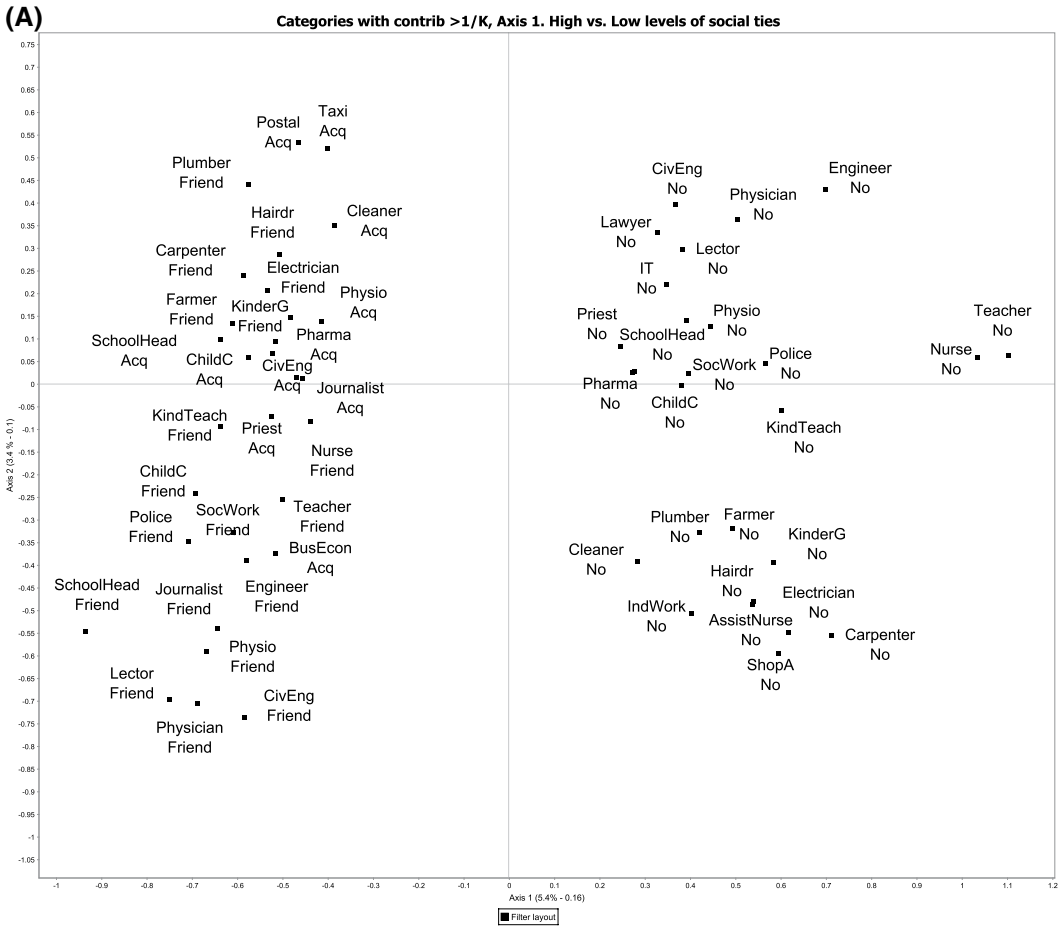


FIGURE 1 (A) Categories with the highest contributions to Axis 1. (B) Number of contacts ranked along Axis 1

Thus, the structure of the space of social ties is clearly connected to vertical class divisions not only in terms of respondents' personal possession of cultural and economic capital, but also in terms of class origins and inherited cultural capital (parents' education). We do not, however, find traces of horizontal class divisions between the cultural, economic and balanced fractions within the upper and middle classes: the distances between these categories do not exceed the threshold for notable distances. We would, however, highlight the point made above about the limited opportunity to differentiate between the respondents' contacts according to the horizontal capital composition dimension. The strength of Axis 1 might, however, point to clear, class-internal divisions. This means that social capital may not only have the capacity to separate hierarchically *between* classes but also *within* them: some members of a given class are more well-connected than others.

4.4 | The exclusivity of social capital

We now turn to the final step in our analysis and to the question whether socially homogenous subgroups can be identified within the space of social ties. The Ascending Hierarchical Cluster Analysis of the individuals' coordinates on the first 37 axes, that is, the threshold when calculating Benzécri's modified rates, suggests that five clusters are optimal in accounting for the variance of the space of social ties, the cluster-internal homogeneity, as well as the

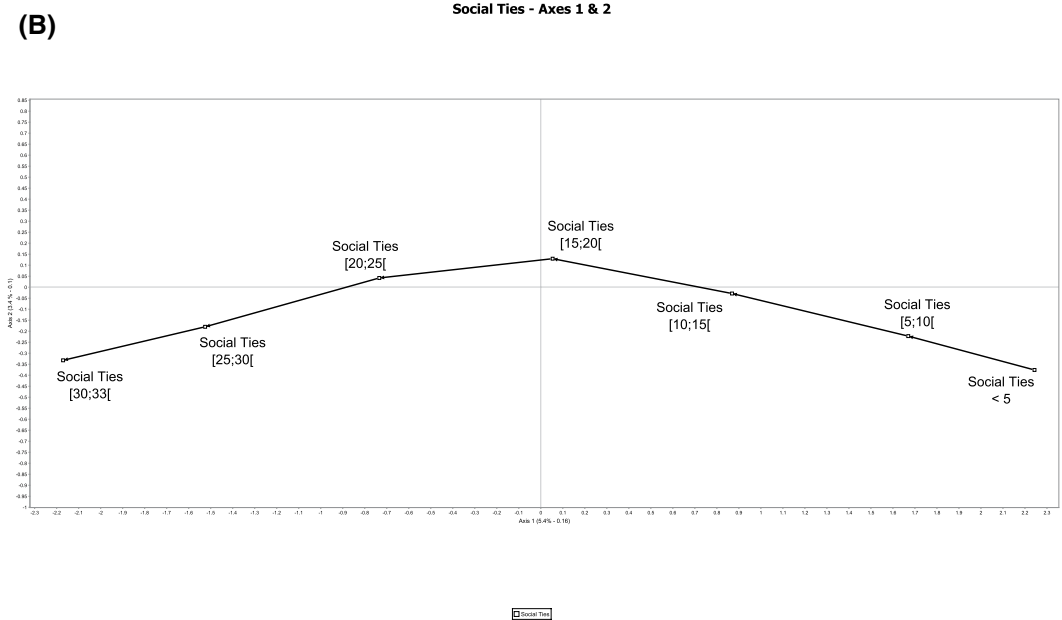


FIGURE 1 (Continued)

level of distinctiveness from other clusters. Figure 6, which also displays the full cloud of individuals, shows the clear separation both within and between the clusters when these are projected onto factorial plane 1–2 of the space of social ties.

As outlined above, the interpretation of the clusters is based both on the active and the supplementary variables. Categories with an over- or under-representation $>5.0\%$ and a p value $<.05$ are considered as either over- or under-represented (see Denord et al., 2011).

We dub Cluster 1 (21.7% of the respondents) the 'low level cluster'. Categories indicating no connection to the occupations included in the position generator are systematically over-represented. Respondents living without a partner and respondents aged 60–70 years are also over-represented, further underlining the lack of social ties within this cluster. However, apart from a slight over-representation of those with only compulsory education, the cluster has no clear profile in terms of respondents' class position, class origin and other characteristics. Thus, compared to the others, the cluster is more composite, in the sense that it is populated by socially diverse respondents. In Figure 6, we can see that the cluster is clearly drawn toward the low-volume pole of Axis 1. While the mean category point is located in a quite indistinct position along Axis 2, the cluster is nonetheless internally polarized along this dimension, indicating diversity in the social prestige of the contacts they (do not) have ties to. Even so, the area it occupies in Figure 6 also indicates a comparatively low degree of dispersion of its individuals.

Cluster 2 (25.1%) is dominated by working-class respondents with social ties to other low-status and working-class occupations. The respondents have few or no contacts with high-status occupations, or with occupations that demand higher education. Categories indicating low education levels and manual working-class positions are over-represented. The social reproduction seems strong: respondents with working-class origins are over-represented, and so are respondents with parents with only compulsory education. In this sense, Cluster 2 is a cluster of 'the homogenous working class'. As is clear from the graph, this cluster is drawn toward the low-prestige pole of Axis 2, and is in a quite indistinct position along Axis 1. The size of the concentration ellipse indicates that these respondents are quite homogeneous in their exclusive low-status ties but they are more heterogeneous in the level of such ties.

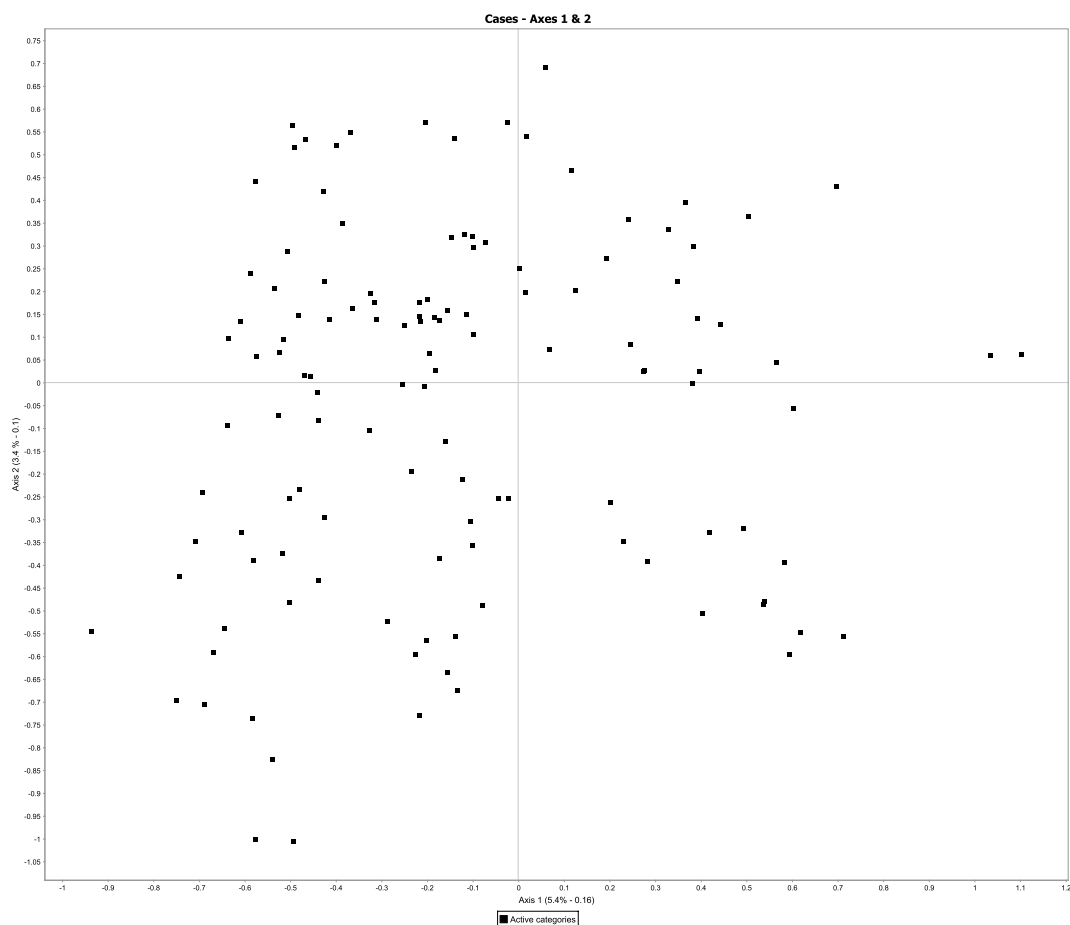


FIGURE 2 Categories with the highest contributions to Axis 2

Cluster 3 (21.2%) is also a working-class cluster. But in this case, it is more often categories indicating *friendly* ties to other working-class occupations that are strongly over-represented, as are the categories indicating *family* ties to the same set of occupations. We have therefore labeled this cluster 'the well-connected working class'. Skilled workers, and unsurprisingly respondents with vocational educations, are over-represented. But in contrast to Cluster 2, members of the well-connected working class more often report being acquainted with people in high-status occupations, for example, medical doctor, priest and lawyer. This indicates that social capital creates an internal hierarchy within the Norwegian working class. The size of the concentration ellipse, which clearly shows a higher degree of dispersion of its members in the factorial plane than for Cluster 1 and Cluster 2, lends support this conclusion.

Cluster 4 (14.8%) is a cluster of the 'highly educated with high-status social ties'. Respondents typically have many social ties, but more often with occupations in the upper echelons of the status hierarchy than in the lower. Conversely, categories indicating no relation to a broad specter of occupations are under-represented. Respondents with higher education are strongly over-represented, and so are respondents with highly educated partners. Categories indicating highly educated parents are slightly over-represented. Its diagonal position in Figure 6 also indicates an internal polarity along both Axis 1 and Axis 2, that is, in terms of both the level and quality of social ties.

Finally, we call Cluster 5 (17.3%) 'the homogenous high-status cluster'. Much like Cluster 3, categories indicating family ties are strongly and systematically over-represented, in this case having family ties to others in high-status occupations. Moreover, respondents with highly educated partners and respondents with parents with the highest

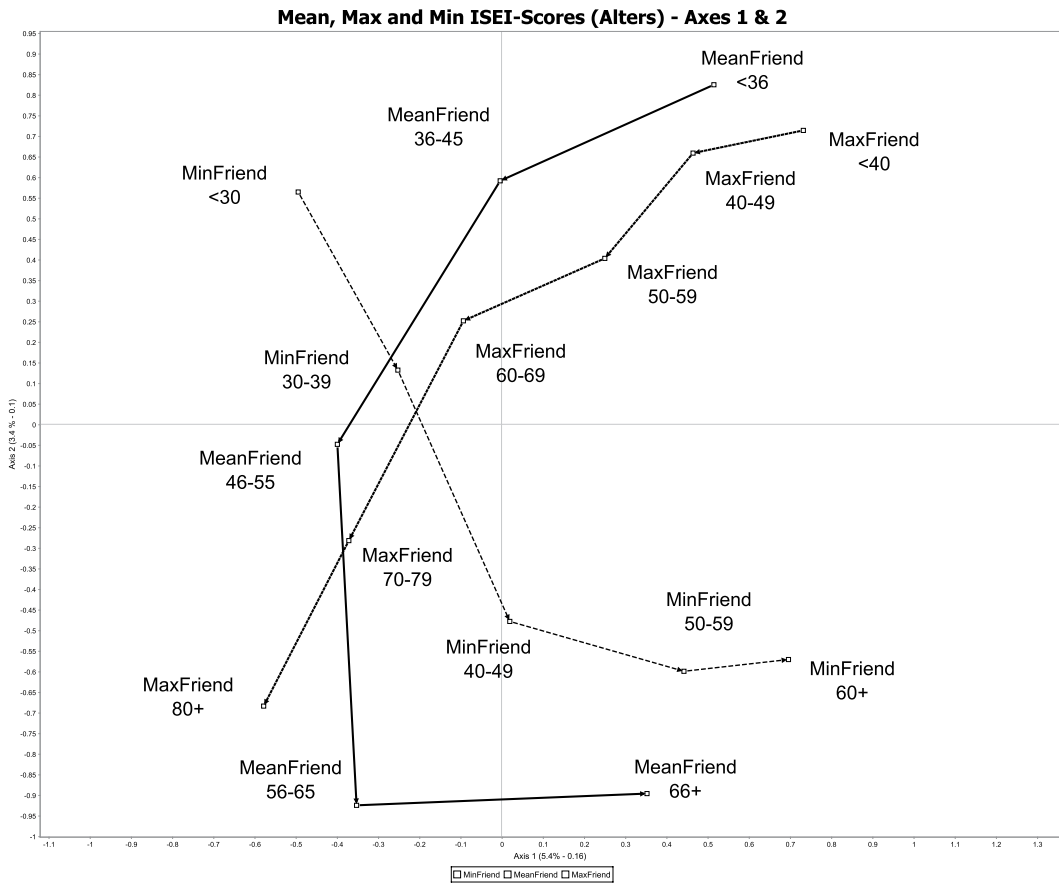


FIGURE 3 Minimum, maximum and mean ISEI scores of contacts (friends)

educations are strongly over-represented. However, the cluster is not only a cluster of inheritors of institutionalized cultural capital (cf. Bourdieu, 1986) but also a cluster of family-dynastic, cultural-capital relations. Ties to working-class occupations are far weaker. The tendency for upper-class social reproduction is thus accompanied by a clear tendency for upper-class closure. The cluster is more strongly polarized along Axis 1 (the level of social ties) than along Axis 2 (the quality of social ties).

In sum, the cluster analysis suggests that five subgroups can be identified within the space of social ties. Expanding on the first steps of our analysis, we have found that four of the clusters are distinct in terms of the social profile of the respondents, and that social capital has the potential to create class-internal hierarchies. The results highlight the connection between social inequality and social capital in general, and social class and social capital in particular. Specifically, the most socially prestigious and resourceful networks tend to be reserved for individuals who are themselves in privileged class positions. Conversely, the least prestigious and resourceful networks tend to be reserved for individuals who are themselves in non-privileged class positions.

5 | CONCLUDING DISCUSSION

In this analysis, we have demonstrated that by combining Lin's and Bourdieu's approaches, new insights into the structuring of social capital and its connection to social class in contemporary society can be gained. First, the results highlight that social ties are structured multidimensionally. The structure of what we call the space of social ties is

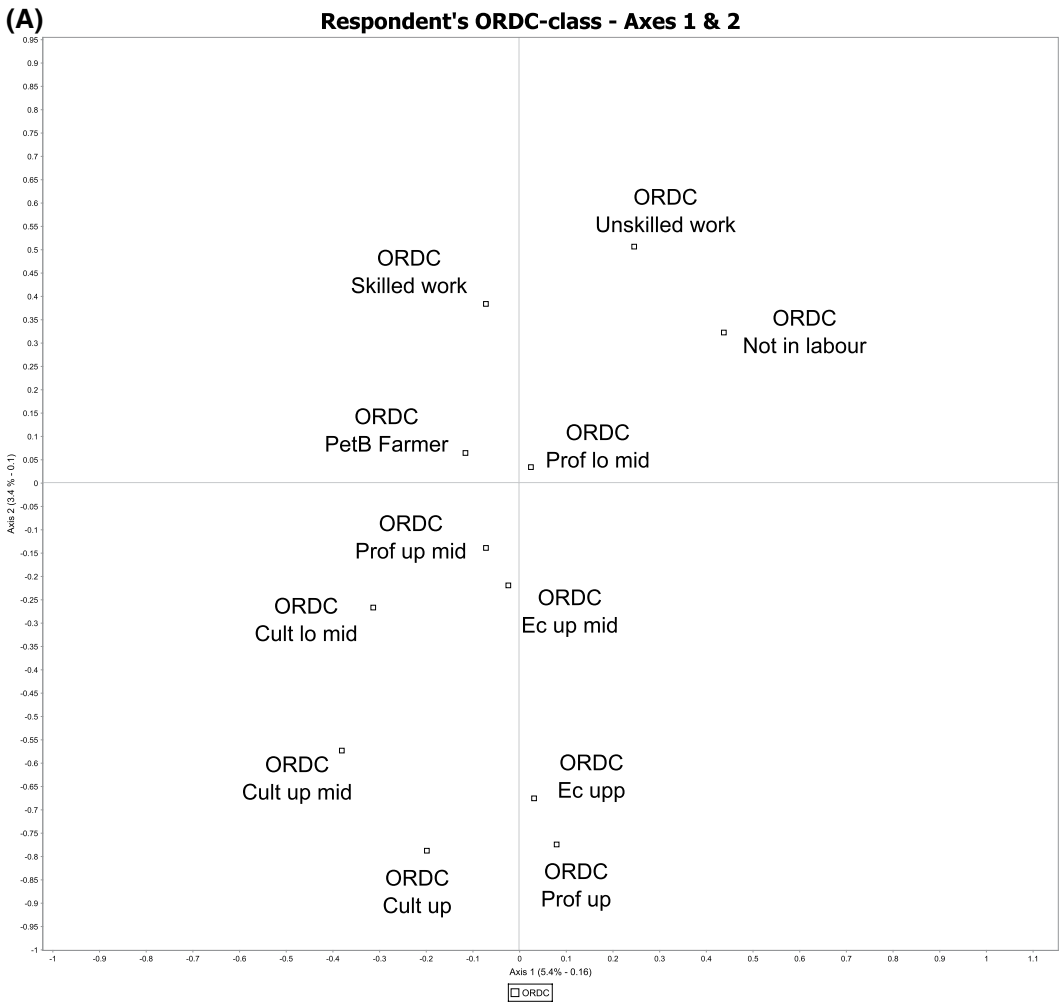


FIGURE 4 (A) Respondent's ORDC class. (B) Respondent's personal income. (C) Respondent's highest education

structured according to two primary dimensions: the level of social ties in respondents' reported connections to a diverse set of 33 occupations, and the quality of social ties in terms of a division between respondents' exclusive ties to contacts in high-status positions and exclusive ties to contacts in low-status positions. The latter dimension clearly indicates a hierarchical structure of personal ties, ranked systematically according to the occupational prestige scores of the positions. Moreover, when viewing the two primary dimensions of the space of social ties together, a crucial division is revealed along one of the diagonals of the space, separating high and low levels of high-status ties.

Although these patterns do not contradict studies of social capital in the Linian tradition, our space of social ties has taken the analysis one step further by unpacking how various dimensions of social ties are related to one another. This structuring of the space resonates well with Bourdieu's (1986, p. 249) notion that the volume of the social capital possessed by a given social actor depends on both the size of the network of connections he/she can effectively mobilize, and on the volume of capital (e.g., economic or cultural) embedded in the network.

Second, our analysis demonstrates how the structure of the space of social ties is connected systematically to other inequality structures, such as the social distribution of economic and cultural capital. This suggests that the access to various scarce resources embedded in social networks is itself socially hierarchized. Specifically, the level

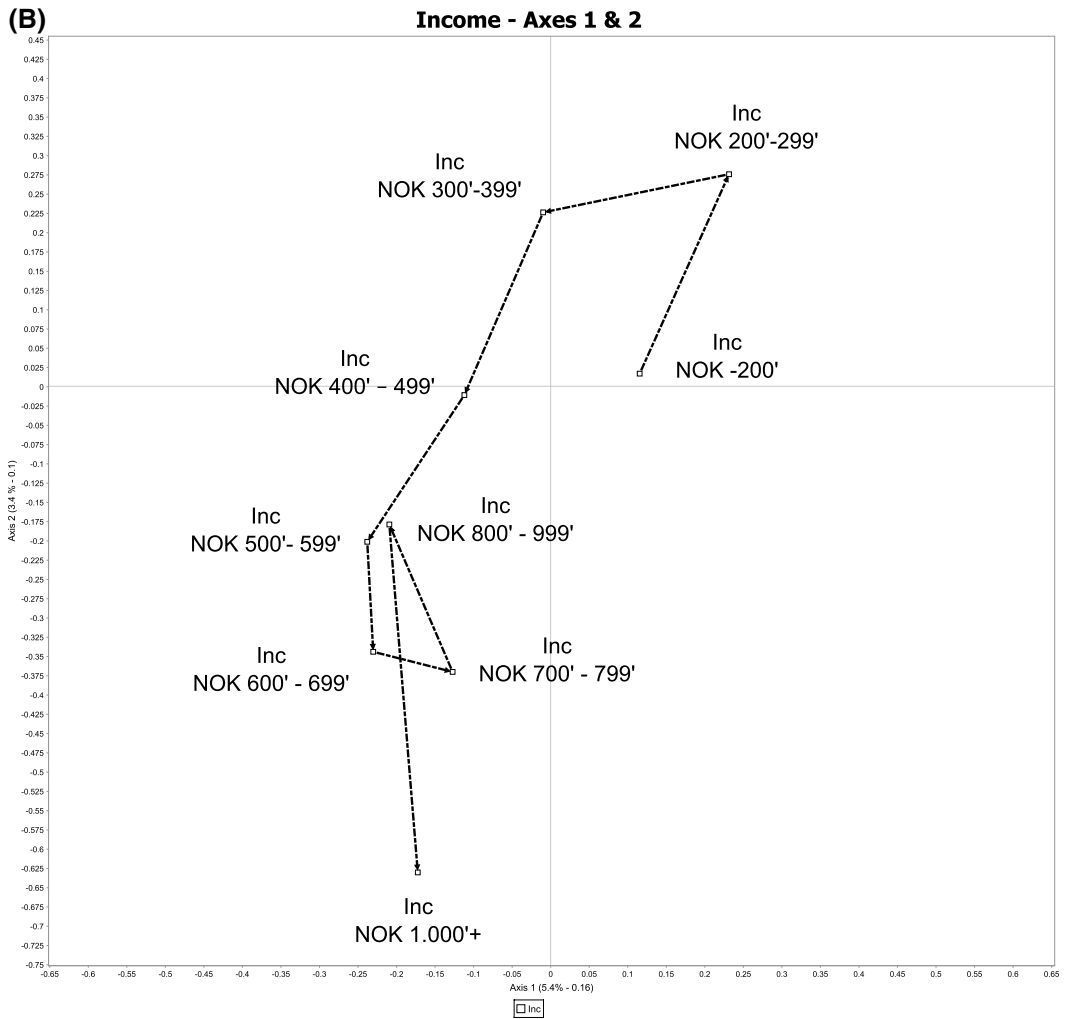


FIGURE 4 (Continued)

and quality of respondents' social ties are systematically connected to a hierarchical structure of their possession of private capital: moving along the diagonal of the space of social ties—from the quadrant of the space characterized by capital-poor contacts to the quadrant characterized by capital-rich ones—the various indicators of respondents' capital possession increase accordingly. The analysis thus draws attention to the potential 'multiplier effect' of social capital, that is, that membership of resourceful networks tends to propel people's access to other forms of capital embedded in the network (cf. Bourdieu, 1986). In other words, membership of rare and exclusive networks indicates what is known as 'the Matthew principle': 'For to everyone who has will more be given, and he will have abundance; but from him who has not, even what he has will be taken away' Matthew 25:29) (Merton, 1968). While we do not have data on whether and how the respondents actually mobilize resources embedded in their personal networks, it seems clear that respondents already rich in capital have comparatively better potential access to such resources.

However, our expectations about the connection between the space of social ties and Bourdieu's (1984) model of a two-dimensional class structure—the social space—are only partially met. Although respondents' vertical class position maps neatly onto the space, this is not the case with their horizontal class position. Specifically, we do not find clear traces of horizontal class divisions in terms of capital composition between the cultural, economic and balanced fractions of the upper and middle classes. We would, however, highlight the point made above about the

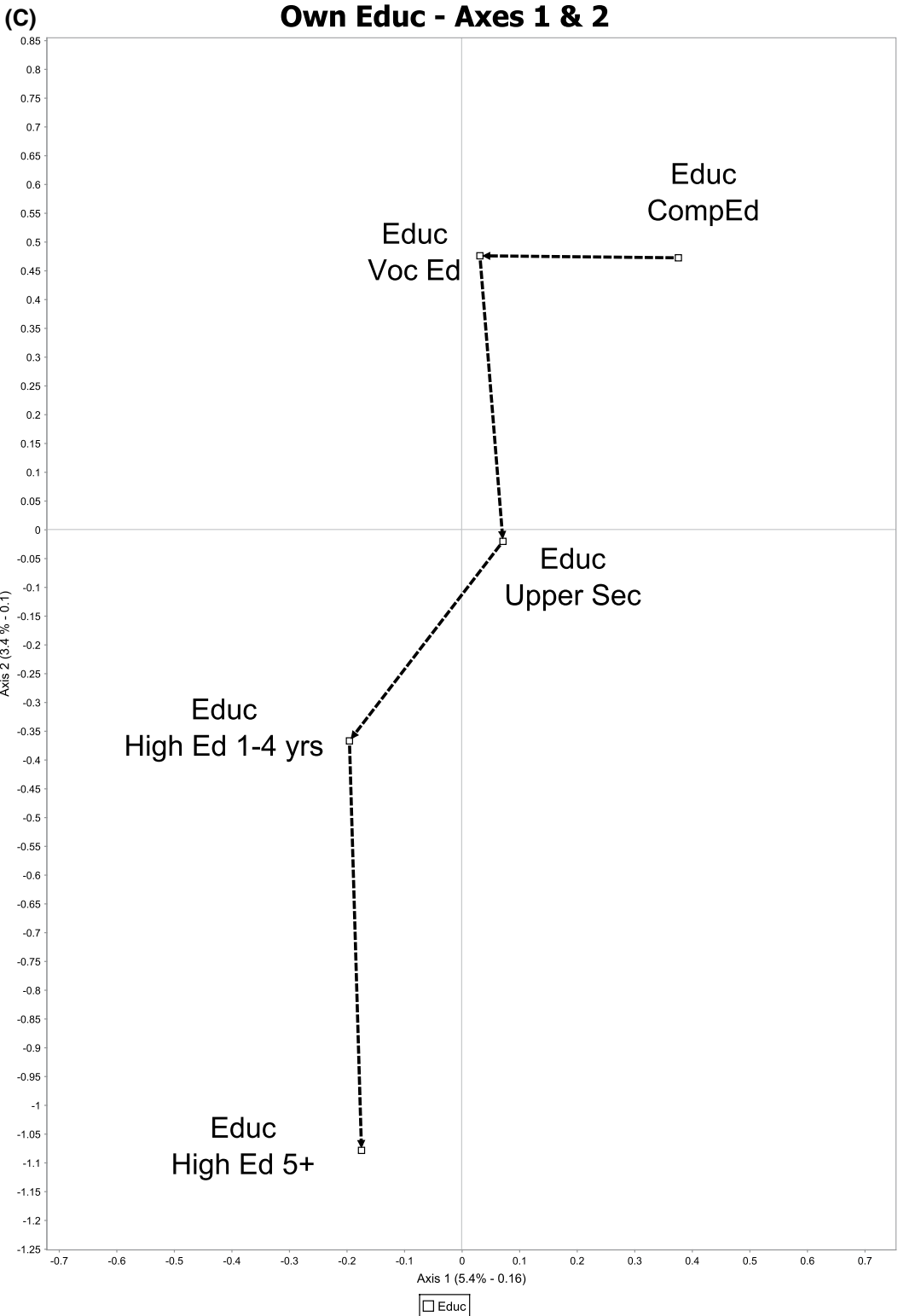


FIGURE 4 (Continued)

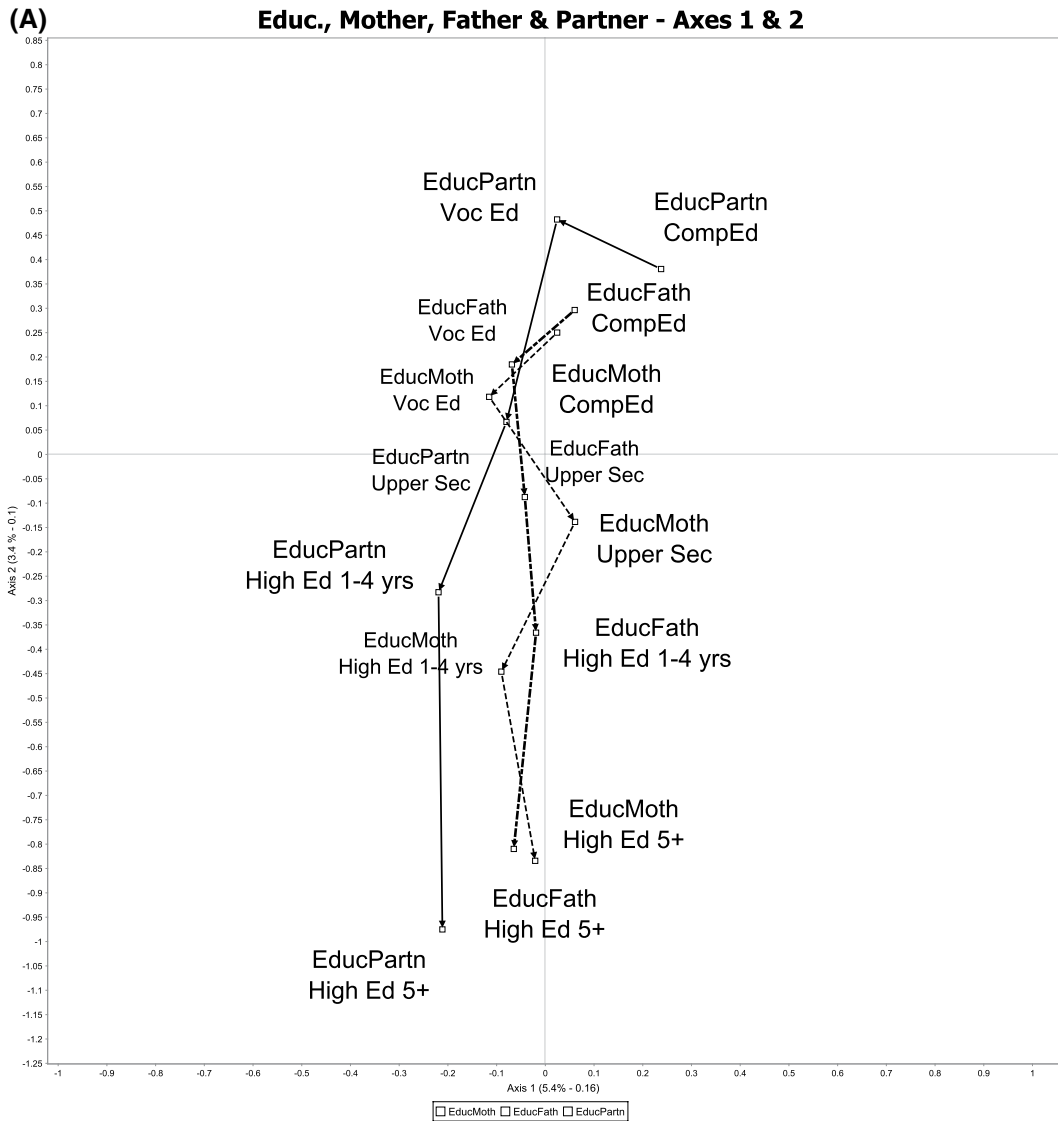


FIGURE 5 (A) Partner's, father's and mother's highest education. (B) Father's ORDC class. (C) Mother's ORDC class

limited opportunity to differentiate between the respondents' contacts according to the horizontal capital composition dimension. Thus, it would be unfounded to interpret this as 'hard' evidence against horizontal class divisions in accessing social capital.

Third, we find that the space of social ties is clearly connected to respondents' social background in terms of parents' education levels and class positions. This chimes with previous research about social capital and class mobility (see e.g., Li et al., 2008; Savage et al., 2015) and suggests that social capital is partly inherited from parents by their offspring. It also resonates with Hjellbrekke and Korsnes' (2005) study of the Norwegian field of power, indicating that such reproduction is not a tendency restricted to elite circles, but a more general characteristic of the wider Norwegian class structure. Our data do not, however, allow for the assessment of whether social ties are inherited directly (e.g., that respondents know specific individuals through their parents, or that parents have in some way facilitated entrance into specific social networks) or indirectly (e.g., that parents, through certain parenting styles,

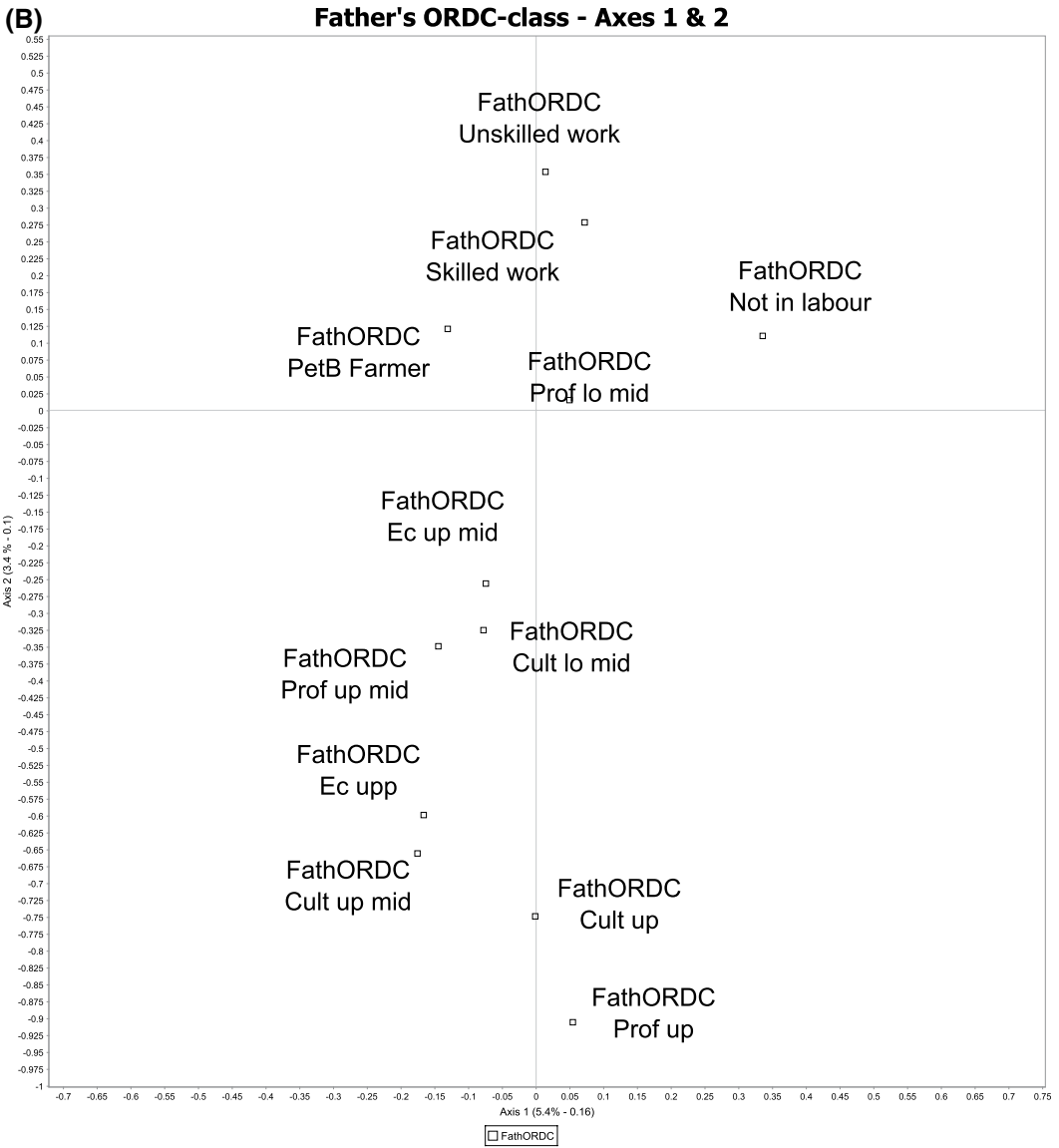


FIGURE 5 (Continued)

have instilled in their offspring certain modes of sociability that facilitate the accumulation of social capital). It should also be noted that, like respondents' own class position, it is only parents' vertical class position that corresponds systematically to the space of social ties.

Fourth, our results not only indicate that individuals' access to social capital is classed; the cluster analysis also suggests some degree of class formation in and through social frequentation and circulation. The cluster analysis indicates that most socially prestigious and resourceful networks tend to be reserved for individuals who are themselves in privileged class positions, whereas the least prestigious and least resourceful networks tend to be reserved for individuals who are themselves in non-privileged class positions. In particular, the position of Cluster 5 indicates that upper-class respondents tend to disproportionately intermingle and socialize with other privileged individuals. This resonates with recent accounts of class and assortative mating in Norway, showing that members of the upper

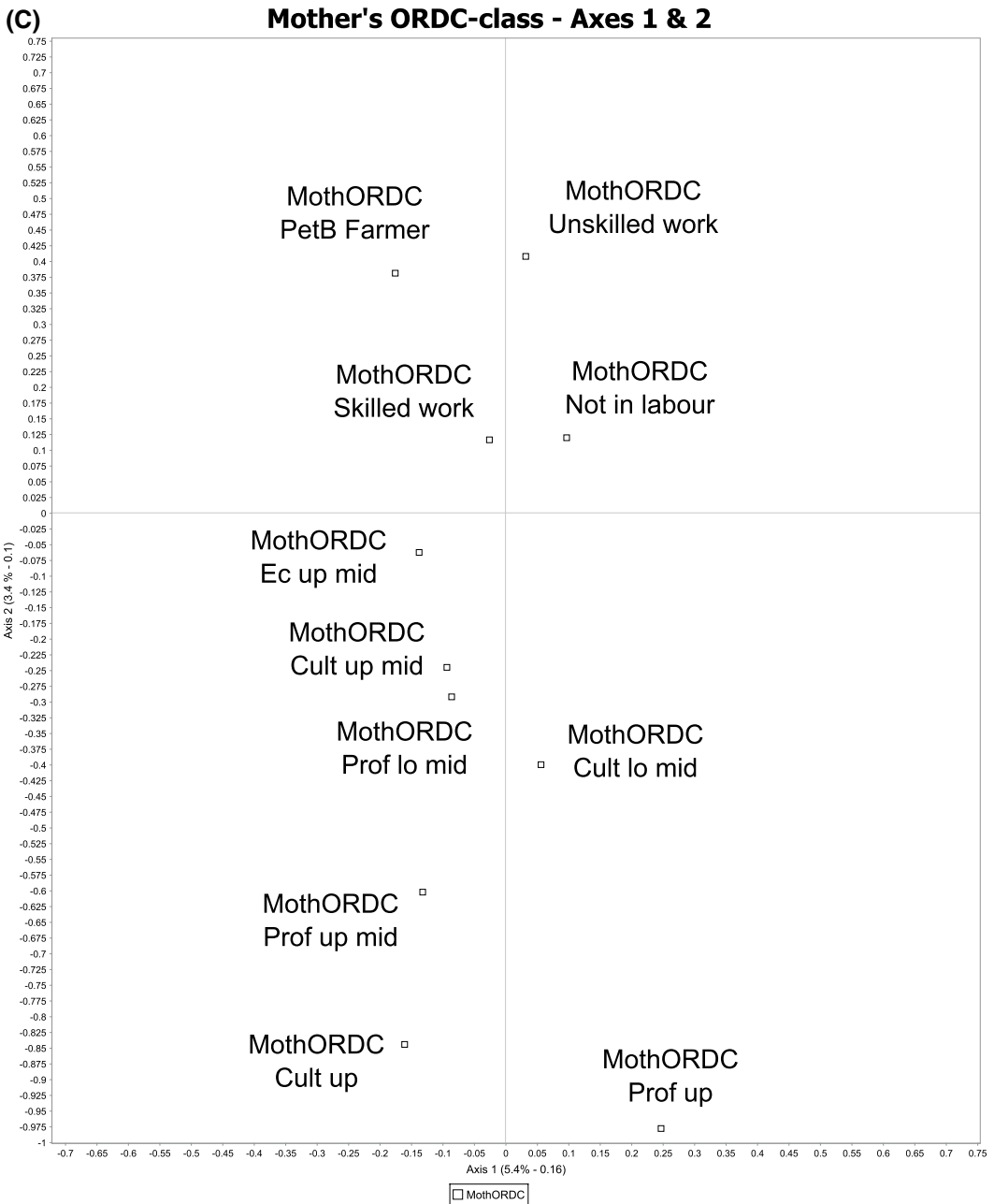


FIGURE 5 (Continued)

class have a tendency to find their romantic partners within their own class (see e.g., Toft & Jarness, 2020). 'Birds of a feather' seem to 'flock together', even in comparatively egalitarian Norwegian society.

The fact that such patterns are revealed in comparatively egalitarian Norway is, we would argue, quite interesting. The fact that key societal institutions—in particular the education system—facilitate cross-class encounters and interaction, may suggest that a considerable part of the patterns revealed in this analysis can be attributed to classed personal *preferences*. In societies more strongly characterized by a stratified and selective institutional order (e.g., private and expensive 'elite' schools, highly segregated cities and neighborhoods), one could argue that classed

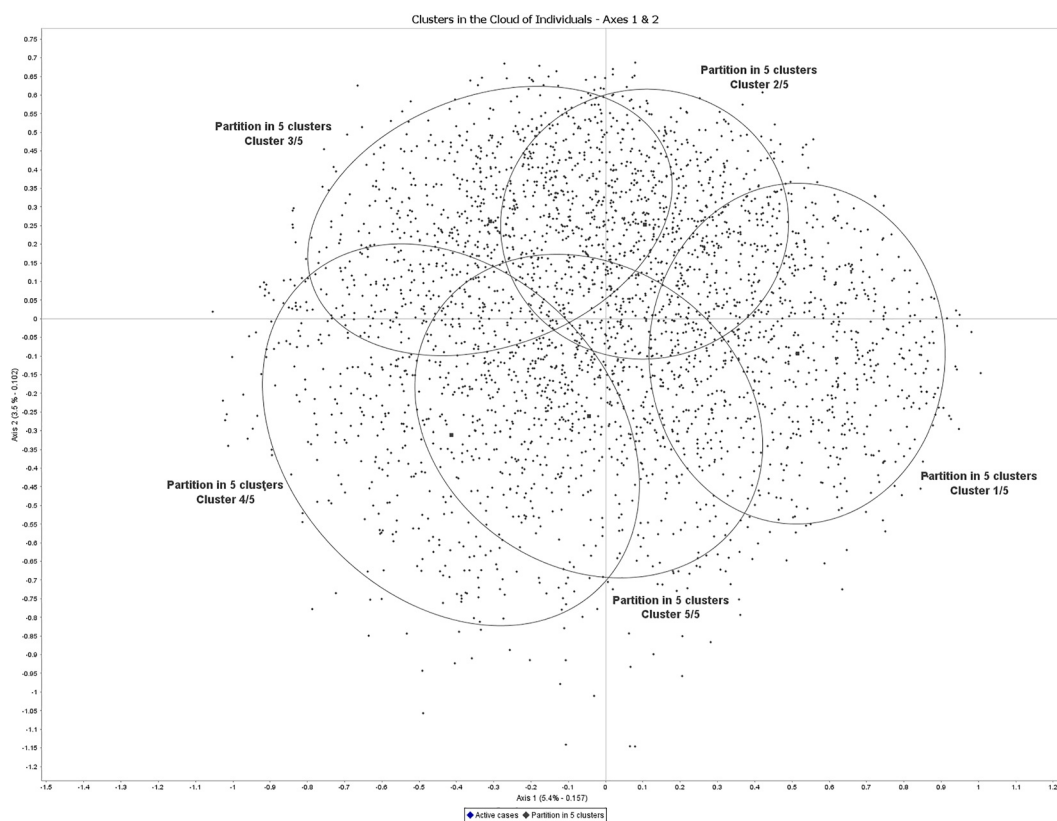


FIGURE 6 Five clusters in the space of social ties

social networks largely arise from *external* constraints and circumstances, that is, who one meets in neighborhoods, at school or at work. However, since there is a clear association between people's class position and the social profile of their social ties, even in comparatively egalitarian Norway, this may indicate support for the notion that at least *part* of this association can be attributed to classed dispositions. In other words, while we do not doubt that social actors are *flocked* together by external circumstances beyond their control, it seems plausible that many *flock* together on account of their internalized, class-conditioned dispositions to do so.

Fifth, we would emphasize some methodological implications of our study. Expanding on pioneering endeavors in class analysis to map the connection between class and networks of social ties (see e.g., Li et al., 2005, 2008; Savage et al., 2015), our way of incorporating the position generator into a GDA framework arguably offers several advantages. Crucially, this approach allows for the inductive mapping of the patterning of respondents' ties to all the occupations included in the position generator. Instead of assuming a hierarchical structuring of social ties in the prestige scores of the occupations, our approach has allowed for a multidimensional mapping of the relational structuring of individuals' ties to these occupations. Notably, the prestige scores of the occupations have not been used as active variables in the construction of the space of social ties but have been projected onto the space as supplementary points in the next step of the analysis. This has rendered possible an empirical investigation of whether and how social ties are in fact structured hierarchically.

Our approach has also allowed us to analyze the different dimensions of social ties in conjunction. Although the substantive meaning of each of the primary axes in our analysis does not contradict that produced by conventional uses of the position generator, we have taken the analysis a step further by detailing factorial planes manifested by crosscutting axes. Specifically, the factorial plane constituted by two given axes enables the inspection of the

diagonals of the plane and, further, the ability to inspect the patterning of structuring factors, such as class and other forms of capital. Although our specific analysis yields two axes for interpretation (and thus one factorial plane), this analytical strategy can be applied to any number of axes determined by an MCA solution. Thus, the methodological approach of making use of the position generator within a GDA framework is, we would argue, a fruitful way to bridge the gap between two strong research traditions in mutually beneficial ways. It is of course an open empirical question whether the dimensionality and substantive polarities vary across contexts, and it is our hope that the approach proposed here can be helpful in such assessments in the future.

Finally, and more generally, we would argue that our combination of insights from Lin and Bourdieu offers further potential for cross-fertilization in research about social capital and class closure. Although our analysis here is necessarily restricted to the dataset scrutinized, there is arguably more potential in the combination proposed that can be exploited more fully in future research. For instance, it would be interesting to examine whether and how subgroups characterized by similar social ties—like those obtained in our cluster analysis—correlate with different outcomes, such as labor-market opportunities, trust, subjective judgments and conceptions of social status, political attitudes and lifestyles. Such assessments could potentially unpack further processes of social closure, both in terms of opportunity hoarding (e.g., the multiplier effect of social capital) and class formation (e.g., the social distinctiveness of classes and class fractions).

Relatedly, it seems pertinent to examine such closure processes in terms of individuals' self-perceptions and meaning-making with regard to their friendships and acquaintances. Although both Lin and Bourdieu emphasize some form of *strategic action* in this regard, Lin primarily emphasizes 'purposeful' motivations and actions in terms of individuals' rational utility maximation (see e.g., Lin, 2001, pp. 41–54), while Bourdieu emphasizes largely routinized and 'unconscious' mental processes on account of the 'practical sense' embodied in the habitus (see e.g., Bourdieu, 1984, pp. 169–225). However, as argued by Schmitz (2016), these two perspectives are not necessarily mutually exclusive, in the sense that rational utility maximation may be one of several modes of sociability. Thus, it would be interesting to assess empirically whether and how people are in fact strategic in their everyday-life intermingling and 'networking', and whether different modes of sociability are distributed unequally across the class structure.

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DATA AVAILABILITY STATEMENT

The data employed in this paper are hosted at the Centre for the Study of Professions, Oslo Metropolitan University. As the data contain information about third parties (parents, partners) who have not explicitly expressed consent during the data collection process, under the university's current data protection assessment, the data cannot be hosted on a public repository. Access to the data employed in the current study, and replication material can be given to data can be given to researchers upon reasonable written request. The person who requests the data must have appropriate infrastructure to store the data. Please contact the corresponding author for further details on data access.

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ENDNOTES

- ¹ This is not to say that Bourdieusians are the only ones concerned with how classes are formed as 'real' groups based on relations of social circulation and frequentation (see e.g., Bottero & Prandy, 2003; Wright & Cho, 1992). However, as noted by Scott (2002, p. 32), such connections have tended to be neglected or 'glossed over' in much contemporary class analysis. Somewhat surprisingly, Goldthorpe—who views mobility closure as an indicator of class formation—has insisted that relations of circulation and association are part and parcel of a distinct form of stratification (the 'status order'), thus precluding the question of whether classes are bounded by such relations (see e.g., Chan & Goldthorpe, 2007).
- ² As pointed out by Laird (2006), social capital in terms of network access has been of key importance in the making or breaking of business careers in the US since the times of Benjamin Franklin.
- ³ Results are available upon request.
- ⁴ Although the number of personal trainers has risen significantly since the survey was carried out, there were very few registered personal trainers in Norway in 2015. A low frequency is also reflected in our data.
- ⁵ We use the father's ORDC position as indicative of class origin. We have also run the analysis using the mother's ORDC position, with very similar results. These are available upon request.
- ⁶ We have followed the same procedure with gender, age and ethnicity, but since none of these variables corresponds systematically to the space of social ties, we do not present these graphs in the analysis. The results are available upon request.
- ⁷ Axis 3, the secondary axis, is strongly dominated by contributions from low-status occupations.
- ⁸ Axis 3 (not shown) is defined by an opposition between categories indicating close contacts to working-class occupations ('friend') versus more distant contacts ('acquaintance'). Given that the axis is a secondary axis, we have chosen not to interpret it in further detail.
- ⁹ We regard friendly relations as a stricter test of social ties indicative of group closure, since family is not *chosen* by individuals, and relations of acquaintanceship are somewhat looser than relations of friendship.

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APPENDIX: SUPPLEMENTARY MATERIAL

Data and data collection

Our empirical analyses are based on the ProTrust survey, which is a Norwegian survey carried out in October/November of 2015. The electronic survey was sent to a probability sample that is representative of the adult (18–80 years) Norwegian population in terms of gender, age, education and geographical place of residence, without an opt-in option. The response rate was 41%, with a total of 4007 respondents. The response rate is comparable to the response rate of other electronic surveys carried at the time.

As with most survey material, the raw data under- and over-represent some groups. Although the distribution of sociodemographic characteristics is comparable to that of the population—the unweighted data slightly over-rep-

resent the proportion of immigrants with higher education and slightly under-represent individuals who are younger and who have completed only mandatory education. Additional analyses of dropout rates show that the group with the highest dropout rate is composed of males under 30 years of age from the eastern part of Norway. Furthermore, we note that while 32% in the age group below 30 years have responded, 54% of those in the age group of 60 years and above have completed the questionnaire.

Variables

Occupations included in the position generator: doctor, judge, professor, lawyer, civil engineer, engineer, civil economist, police, principal in primary school, associate professor, social economist, IT consultant, pharmacist/pharmacist, physiotherapist, nurse, teacher, priest, journalist, electrician, plumber, carpenter, child welfare worker, social worker, preschool teacher, nurse, industrial worker, farmer, personal trainer, hairdresser, daycare assistant, post office/shop clerk, taxi driver and cleaner.

Level of education: the level of education is measured by asking the individuals about the highest level of completed education at the time of the survey. Individuals chose between the categories: mandatory only; upper secondary—general university admissions certification; vocational training; Bachelor's degree; Master's degree. Our data include the level of education for the respondent, their parents (differentiated between mother and father) and of the respondent's partner, where applicable.

Income is measured by asking the respondents their income level. Respondents can choose one of the following categories: under 200.000 NOK; 200.000–299.999 NOK; 300.000–399.000 NOK; 400.000–499.999 NOK; 500.000–599.999 NOK; 600.000–699.999 NOK; 700.000–799.999 NOK; 800.000–999.999 NOK; 1.000.000 NOK or more. This question also has a 'do not want to answer' category, chosen by about 8% of the respondents. This question was not asked about parents or partners.

Occupation: In the survey, we asked respondents about their main current occupation, and individuals outside the labor market (such as pensioners) were asked about their previous main occupation. The survey also included questions about the main occupation of the respondents' mothers and fathers. The respondents answered in free text. The coding of the responses into the occupational codes (ISCO codes) was automated and each answer was

additionally checked by at least one of the authors. For occupational titles that, for various reasons, were difficult to translate into ISCO directly (for instance, occupations that no longer exist or that have no direct ISCO correspondent), the occupations were mapped directly onto the class scheme where possible. For ambiguous occupations, we also used the respondents' level of education, level of income and the industry in which they were employed.

Descriptive statistics

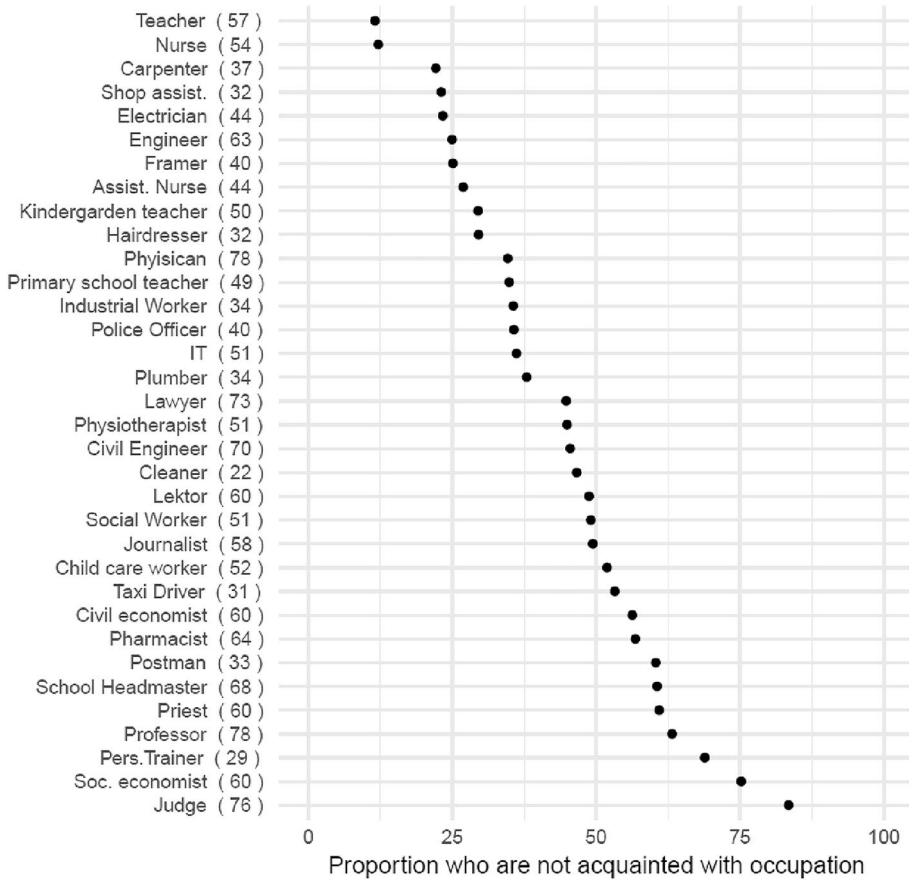


FIGURE A1 Proportion of respondents who are acquainted with the occupations included in the position generator