

Social closure mechanisms in income inequality

A Danish study in micro classes

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Abstract

This paper analyses social closure mechanisms in families with regard to the transmission of income inequality and social class. The analysis uses register data of the population of Danish men born between 1967 and 1977 who were active in the labour market in 2007 (n = 46,169). In order to identify local forms of social closure the class structure is decomposed into micro class level. By applying geometric data analysis the paper determines distinctive patterns of social closure mechanisms which not only stresses the relationship of income level from one generation to another but also the significance of assortative mating and the income level of siblings as important factors when explaining transmission of inequality. The analysis reveals that income inequality in Denmark is structured by different forms of social closure dependent on class membership that stand in close relation to the income level of the individual's family background as well as the partner's family background.

Key words: social class, income inequality, social mobility, assortative mating, geometric data analysis.

Introduction

Social scientists have throughout the 20th century developed many different instruments to measure the inheritance of inequality. Whereas economists tend to use income or wealth to analyse changes in economic status between generations (Atkinson, 1970; Solon 2004; Björklund, Lindahl and Plug 2006; Corak 2006; Raaum et al. 2007), sociologists tend to use a notion of social class or status group as the foundation for their analyses of intergenerational transmission of inequality (Bourdieu, 1984; Grusky and Hauser, 1984; Hout, 1988; Erikson and Goldthorpe, 2002; Breen, 2004). The difference means that economists use continuous measurements of wealth that can be analysed with correlation coefficients or regression models and sociologists measures inequality in discrete categories that can be analysed through log-linear models, latent class analysis or multiple correspondence analyses.

Given the widespread concern about inheritance of inequality, surprisingly few attempts have been made to integrate an economic approach of income correlations with a sociological approach of social class or status groups (a notable exception is Blau and Duncan's (1967) sociological study of the intergenerational transmission of socioeconomic status in which they apply regression analysis together with discrete measurements of occupational groups). Though sociologist have begun to acknowledge the importance of a more integrative approach between continuous and discrete measures of inequality (Erikson and Goldthorpe, 2002; Breen and Jonsson, 2005; McIntosh and Munk, 2009a), economist already in the 1980s argued that research in intergenerational income mobility should include a greater emphasis on social and cultural factors such as the

family composition (Becker, 1981; Becker and Tomes, 1976, see Chadwick and Solon, 2002 and Ermisch et al., 2006 for more recent studies).

While both traditions stress family as an important factor for explaining persistence of inequality, they have different views on how to conceptualise family strategies for making children succeed in life. The economical tradition assumes that families consist of identical men and identical women whom are in the market for one another and hereby produce a ‘composite good’ for their children to succeed in life in terms of economic and human capital (Becker, 1981; Goldberger, 1989). In contrast, the sociological tradition perceives families and their strategies in a more differentiated perspective in which neither husbands nor wives are regarded to be identical (Savage, 2000). Sociologists regard family strategies as differentiated according to social class that dispositions families to act in certain ways (Bourdieu, 1984). According to such theories white-collar parents raise children in another way than blue-collar parents that disposition their children to have other aspirations later in life compared to children of middle class families. For example, lower working class children tend to find nonmanual occupations boring and meaningless compared to ‘real’ manual work (Lareau, 2011).

However, an important limitation in existing research on measures of the transmission of inequality within families is that most economical and sociological studies tend to limit the analysis to the relationship between father (origin) and son (destination). Although the existing research provides methodological innovations in how to measure inequality (Zimmerman, 1992; Solon, 1992; Xie, 1992; Björklund and Jänti, 1997), little is known about the transmission of inequality of the rest of the family members. A recent Danish

study by Hussain et al. (2011) shed some light on the transmission of inequality between family members. The authors report high rates of assortative mating among top income people in Denmark and include, besides father-son income mobility and father-daughter income mobility, also correlations between father and son-in-law and daughter-in-law. The study suggests that families have social closure mechanisms that insure a high persistence of intergenerational inequality. A notion of social closure mechanisms within families is strengthened by other studies that find high rates of assortative mating in terms of educational level (Mare, 1991; Goldstein and Harknet, 2006) which means that family income is becoming more homogenous between husband and wife (Björklund, 1992).

This paper goes further in elaborating on the notion of social mechanisms in the intergenerational transmission of inequality by arguing for three theoretical and methodological contributions. The first contribution is that the analysis includes information of income level of all family members when analysing the pattern of intergenerational transmission of income inequality. I use register data from Statistic Denmark to analyse income inequality of a generation of Danes born between the years 1967 to 1977. The analysis includes information of the income level of their closest sibling (in terms of age), partner, parents and parents-in-law. The unique research design allows me to analyse intergenerational transmission of inequality between parents and child simultaneously with an analysis of assortative mating patterns.

The article's second contribution integrates a continuous approach to inequality with a discrete approach to inequality by using class as a concept to frame the analysis of social closure mechanisms of families' economic status. The combination of the two approaches

enables an analysis of the transmission of income inequality in a theoretical framework that attaches individual variation in income with a notion of different social class family strategies as part of the explanation.

The relevance of social class has however been subject of serious disputes. Critics argue that contemporary society is becoming increasingly differentiated and characterised by subcultures formed by social institutions that are unrelated to large aggregated groups such as class (Inglehart, 1990; Pakulski and Waters, 1996). Yet an emphasis on institutions and subcultures is not necessarily incommensurable with a concept of class. Rather, as Sørensen and Grusky (1998) argue, class theorists and class sceptics should pay more attention to the micro-level association between and within classes. Recent studies have found that intergenerational reproduction mechanism is in fact explained better at a disaggregated level closer to occupational groupings than at more aggregated class levels (McIntosh and Munk, 2009a, 2009b; Jonsson et al., 2011). This paper will thus use a disaggregated class level to analyse the more local forms of social closure mechanisms within the families.

The paper's third contribution is a methodological one in which I argue that class family strategies for social reproduction has to be analysed in a multidimensional perspective. Instead of the conventional regression approach as applied in the economic inequality studies (Zimmerman, 1992; Solon, 1992; Björklund and Jänti, 1997), I use multivariate scaling methods from the French tradition of geometric data analysis to identify the different family strategies. The French tradition stresses a relational approach that

combines graphical representations with statistical tools for analysing the relation in data (Le Roux and Rouanet, 2004).

In what follows the next section presents the theoretical argument of the analysis and relates the notions of family closure mechanisms and micro classes to previous research. Third section presents data and methodology. Section fourth presents the two stage analysis. First the paper analyses inheritance of inequality by addressing the social closure mechanisms of intergenerational transmission of income between generations. Second, the paper show how these family social closure mechanisms are related to disaggregated micro classes. Finally section five concludes and discusses how further studies can benefit in using a notion of social mechanisms in the family for studying the intergenerational transmission of inequality.

Theory and Previous Research

Social closure mechanism in the family

One of the earliest (explicit) sociological formulations of family strategies comes from Durkheim who conceptualised families as the complete system of relations between kin, spouse, children, labour market and the state (Durkheim, 1978: 208). According to Durkheim family strategies for succeeding in life depend on society and the family's occupation. Stratification theories follow a similar notion in which families are conceptualised as units where each family member seeks to increase the status of the family by participating on the labour market (Sorokin, 1959).

However, empirical stratification research tend to divide analyses of families into a myriad of specialised analyses such as analyses of the transmission of socioeconomic status between father and son (i.e. intergenerational mobility studies) or analyses of the relationship between husband and wife (i.e. studies of assortative mating). The specialised analyses which moreover use different measures of inequality and social class make it difficult to gather the empirical findings into a consistent theory of the family as the centre of the analysis.

Grusky argues in collaboration with Sørensen that empirical social stratification research by changing perspective to a more disaggregated class level can stress a notion of the family as a unit with distinctive subcultures (Sørensen and Grusky, 1998). The authors draw on Parkin who argues that strategies for maintaining or increasing the social status of the family are dependent on the occupational order (Parkin, 1971). According to Parkin, occupations form distinctive patterns of social closure mechanism of maintaining social status that can be identified in the family structure as different cultural practices and political opinions. The transmission of educational level, income level and aggregated class membership are all factors that, in the last instance, depend on the occupational level of the family. The occupational order also affects marriage strategies since families tend to marry according to social status (Parkin, 1974).

In this perspective, not only differences between classes but also differences within classes (e.g. class fractions) are because of different occupational interest within the classes that struggle for social power and recognition. For example families of one working class occupation can be troubled by high rates of unemployed while another

working class occupation experience wage increase. Abbot (1988) has moreover explained how occupational groups are interdependent systems that fight against each other for social power by monopolizing their occupational traits.

A similar argumentation is found in Bourdieu's analysis of the social stratification in France in the 1960s (Bourdieu, 1984). Bourdieu argues that the French occupational groups have distinctive cultural preferences and fight against other occupational groups in terms of material and symbolic goods. Bourdieu had already in his earlier studies of peasants found statistical regularities in the reproduction of families' social status by analysis marriage strategies (Bourdieu, 1976). In *Distinction* he links the statistical regularities of family patterns and occupational patterns together in a theory of 'habitus'. Social actions are in the habitus theory explained as product of 'collective memory' formed by upbringing and occupational trajectory (Bourdieu, 1984; see also Halbwachs, 1958).¹ I present in the next section Grusky's theory of micro classes that can be used to identify social closure mechanism within families accordingly to Parkin and Bourdieu's notion on occupational groups.

The Micro class scheme

Grusky's micro class scheme can be conceptualized as a third way between the American tradition of social mobility based on occupational groups (Blau & Duncan 1967;

¹ Other and more recent studies outside of France have drawn similar conclusions. For example Sørensen found that children of the self-employed did not themselves enter self-employment because of a privileged access to their parent's financial or social capital, but because of parental role modelling through their upbringing (Sørensen 2007).

Featherman and Hauser, 1978; Hout, 1983) and the European tradition based on class (especially Erikson and Goldthorpe, 1992).

On the one hand, Grusky wishes to defend class theory from postmodern criticism of ‘the death of class’ (Inglehart, 1990; Pakulski and Waters, 1996). But on the other hand Grusky finds that the class concept since Marx has been overloaded with normative demands and meanings (Grusky and Sørensen, 1998 referring to Giddens, 1973: 10). Instead of leaving the class concept entirely or construct a new theoretical aggregated class scheme, Grusky turns the perspective upside down. In contrast to the deductive aggregated class schemes, micro classes are defined by the *de facto* institutionalized occupational groups in society (Jonsson et al., 2009).

The change in perspective from large aggregated classes to the disaggregated institutionalized occupation groups results in a change in explanation of social reproduction. While structural factors such as ‘mode of production’ or education are regarded as the dominating factor behind aggregated class reproduction, family is the primary social factor behind micro class reproduction (Grusky and Sørensen, 1998). Traditional class theories are formulated on a deductive approach stressing particular conceptual arguments; for example the neo-Marxist class scheme of ‘exploitation’ (Wright, 1985) or the Weberian inspired emphasis on ‘employment relations’ (Erikson and Goldthorpe, 1992).

In contrast micro classes are constructed by a more inductive approach following the methodology of Durkheim. Rather than a fixed number of classes, based on theoretical

arguments, micro classes are based on the actual institutionalized occupational groupings of society. Thus instead of constructing a finite abstract theoretical system, the micro class scheme (hereafter the JGDPB-scheme) is defined by the institutional local circumstances of the occupations (Grusky and Sørensen, 1998: 1201). In other words, the disaggregated micro class scheme captures the different forms local ‘structuration’ (Giddens, 1986) within the different occupations which, Grusky argues, are lost at more aggregated class levels (Grusky & Sørensen, 1998: 1220).

The JGDPB-scheme has been applied in a comparative study of the transmission of inequality in United States of America, Sweden, Germany and Japan. Although the occupational structure of Denmark and Sweden are very similar it has not been possible to code the classes in the same way. The reason is that the Swedish data has been coded by the three digits Swedish (Nordic) Standard Occupational Classification [Nordisk Yrkesklassificering] which is not available in Denmark. I have therefore coded the Danish data by using the ISCO-classification (see appendix A).

Grusky’s micro class theory has, however, been criticised for losing sight of the more macro levels of society (Adams 2002; Birkelund 2002; Goldthorpe 2002). For example, although Grusky argues for an inductive approach to class, he applies the same class scheme when analysis societies with fundamental different division of labour as United States, Sweden, Germany, and Japan (Johnson et al. 2009). The problem is that Grusky and his colleagues never explain why nations with different labour market can be said to have a common class structure without having the need for a (deductive) theory. The lack

of a theoretical deductive argumentation means that it becomes unclear how many micro classes a society actually consist of.

In order to address this form of criticism I argue that the micro level must include a higher macro level that consist of class structure determined with an (explicit) deductive approach. Inspired by Erikson and Goldthorpe's deductive argument, I assign micro classes to five aggregated macro classes that are determined by their employment relation: professional managerial, proprietors, routine non-manual workers, manual workers and people in the primary sector. Each of these aggregated macro classes have characteristics in terms of whether people in the class perform manual or non-manual labour, industrial sector, and the amount of necessary skills to perform the occupation. I thus regard micro classes as a deductive approach that stresses local forms of structuration. The micro class scheme as well as the four aggregated macro classes is shown in table 1.

- TABLE 1 ABOUT HERE –

Though Scandinavian women has been part of the labour market in the last five decades, Erikson and Goldthorpe find that the conventional approach of class assignment in which all members of a family are assigned to one class position according to the employment relation of the family head still has strong empirical evidence (Erikson and Goldthorpe 1992a). Based on this finding, I operationalize each family to a micro class according to the occupation of the husband.²

² I the micro class of the wives in the Appendix. The analysis of the women confirms Erikson and Goldthorpes' hypothesis that class membership of the husband is of more importance than the

Data and methods

Data

Data for the analysis consist of the population of married first born men between 1967 and 1977 who have at least one sibling (regardless of gender) which means a data set of 43,169 individuals. All income data come from Danish registers for tax assessments. Income is measured by the annual gross income. I take the average of three years to account for fluctuations in the income distribution.³ The years 2005, 2006 and 2007 are used to determine the average income for IP, his partner and his sibling while the parents' income are determined by the average gross income for the years 1981, 1982 and 1983. Table 2 reports the descriptive statistics for the Danish samples.

- TABLE 2 ABOUT HERE -

Methodology

Compared to the sociological, discrete, measures continuous measurements give a simple metric of the persistence of inequality based on the correlation between income levels of the two generations. Estimates of intergenerational correlation of the transmission of income inequality have traditionally been founded on simple models based on OLS that can be written as (Solon, 1992):

class membership of the women when categorising the class level of the family (Erikson and Goldthorpe 1992a).

³ To reduce bias in measurement of annual income more years are included in the measurement of income: $\bar{y} = \frac{1}{T} \sum_{t=1}^T y_{it}$ (Björklund and Jäntti 1997).

$$y_i = \rho y_0 + \varepsilon_i$$

The intergenerational correlation ρ can hereby be estimated by either $\hat{\rho}$ the estimated slope coefficient or by the square root of the R^2 statistic. This simple model is, however, only seen as the part of departure for income studies since $\hat{\rho}$ is expected to be biased due to correlations between the error term and other unexplained factors (see Zimmerman, 1992; Solon, 1992; Björklund and Jänti, 1997 for elaborations on more advanced models).

This paper argues for a new approach to handle the error term by applying principal component analysis (PCA). The methodological change from a model approach to a geometric data analysis approach means that instead of regressing one linear relationship to a model with potential bias in the error term the analysis uses matrix algorithms to identify all possible linear relationship. PCA is a multidimensional method in which a symmetric matrix is diagonalised for reducing the number relevant dimensions that explain the variation in the matrix. Instead of analysing the relationship of an independent variable (e.g. son's income level) to a number of independent variables (e.g. father's income level and wife's income level) this paper analyses how variables measuring all family members' income level are related to each other.

PCA has been integrated as a part of the French tradition of geometric data analysis (Le Roux and Rouanet 2004). In the French tradition the result of PCA is presented graphically in relation to a notion of a 'geometric space' where the relation between each individual position according to their variable values is mapped. The geometric space is constructed by a calculation procedure in which each individual value across the variables,

are transformed into Euclidian distances that together form a cloud of individuals. The dimension of the space is formed by the internal pattern of relations within data. I will use the method to construct a geometric space formed by the relationship between income levels of the different family members. The Euclidian distance between two variables or ‘profiles’ ($q_{kk'}$) is determined in according to the average of the two variables (x^j and $x^{j'}$) (Le Roux and Rouanet, 2004: 131):

$$q_{kk'} = \left(\sum_{k \in K} \sum_{k' \in K} q_{kk'} (x^{jk} - x^{j'k}) (x^{jk} - x^{jk'}) \right)^{1/2}$$

The measurement can be seen as the linear correlation between two variables that has been transformed into a Euclidian distance in order to graphically map the relation between the two variables. The variables are projected into the Euclidian space with respect to the mean point (G) of the total distances of the variables M^J . Hence all distances between the variables in the analysis are centred on the same mean point of the principal dimension.

In contrast to other multivariate scaling techniques such as factor analysis, the French PCA allows the inclusion of supplementary variables to be mapped in the geometric space together with the ‘active’ variables that constructs the space. I start my analysis by constructing the geometric space of income relations between family members to determine the underlying patterns of social closure mechanisms and hereafter insert class membership as a supplementary variable in the geometric space. The information necessary to map a supplementary variable x^{jk_s} is given by the values $(x^{jk_s})_{j \in J}$ on the active individuals.

The coordinate of modalities of a supplementary categorical variable can be represented by the mean individual per modality. Hence the supplementary variables does not explain any of the variance in the space but can be used to illustrate how active individuals who have certain characteristics of the supplementary variable are positioned in the space. In this analysis micro class membership is used as a supplementary variable to illustrate how Danish micro classes have distinctive family closure mechanisms.

Geometric data analysis has developed a measure to determine how well these supplementary variables are projected into the geometric space. The quality measure is calculated as the squared cosine between the projected point and the axis (Le Roux and Rouanet 2004). The quality of representation of supplementary individual (j_s) on Axis ι is equal to $y_\iota^{j_s} = \sum_{k \in K} a_{k\iota} (x^{j_s k} - \bar{x}^k)$.

Another measurement of the supplementary variables is the concentration ellipses that use the statistical properties of the geometric space to construct ellipses that accounts for 86% of the individuals within each category: A two dimensional ellipse (κ^2) can be calculated by the variance of the coordinates of the individuals per modality (v_ι) and their coordinates (m_ι) (Chiche and Le Roux, 2010):

$$\kappa^2 = \frac{v_2(y_1 - m_1)^2 2c(y_1 - m_1)v_1(y_2 - m_2)^2 2c(y_2 - m_2)}{v_1 v_2 - c^2}$$

Concentration ellipses can be seen as a graphical representation of the variation within supplementary categorical variables. I can analyse variation within these class schemes by

including more an aggregated class scheme as a supplementary variable, I will moreover use the measure of the squared cosine and the concentration ellipses to discuss the results of my analysis.

Analysis

I start the analysis by determine a correlation matrix between the family members' income level shown in Table 3. The correlation matrix gives the impression that the transmission of inequality between family members is not particularly high. The highest correlation is between IP and his father (.15).

- TABLE 3 ABOUT HERE –

Becker and Tomes (1986) found similar statistical relationship between parents' and their children's later income. The authors concluded that earning advantages and -disadvantages losses its impact across three generations. However, as Bowles and Gintis argue, simple correlations are artefacts of measurement errors and analyses of intergenerational transmission of economic status therefore have to use more advanced statistical methods that can account for the 'heterogeneous collection of mechanisms' (Bowles and Gintis, 2002: 2). Low correlations can thus be explained by a heterogeneous sample of families that mix low income families with high income families. For example studies of top income families in Sweden have found correlations coefficients as high as .5 (Björklund and Jäntti, 1996) and correlation coefficients of about .20 for top income families in Denmark (Hussain et al. 2011).

The correlation coefficients shown in Table 3 can therefore be seen as a rough measurement of the intergenerational transmission of inequality. Since the correlation is positive it means that IP will earn more if his father had a high income and likewise earn less than the average income if his father had a low income.

I perform the PCA to determine the underlying patterns in the family relations. The analysis shows that the correlation matrix can be transposed into two principal components that explain 34.5% of the total variation in data. The two components are determined according to the Kaiser criterion in which I only retain components with eigenvalues greater than 1. The remaining components have eigenvalues below 1 which means that they do not explain more variance than the original variables and are therefore removed from the analysis.

- TABLE 4 ABOUT HERE -

The first component has a high correlation to father's income level (.618), IP's income (.607), sibling's income level (.596) and mother's income level (.320). Hence the first component is determined as measuring the social closure mechanism in terms of income level within IP's family. The second component measures the social closure mechanism in terms of income level for the partner's family since this component has high correlations to mother-in-laws' income level (.680), father-in-law's income level (.608) and partner's income level (.496). The result of the PCA is similar to other studies that have found that the income level of father means the most for the husband while the income level of the mother-in-law means the most for the wife (Hussain et al. 2011).

The next stage of my analysis concerns the variation of the family social closure mechanism according to class membership. Figure 1 maps the supplementary micro class categories to the two dimensions. The x-axis measures the income level of the husbands' family and the y-axis measures the income level of the wives' family. Though only economic indicators have been used to construct the space, the map shows clear distinction between manual and non-manual occupations.

Higher non-manual micro classes are all positioned with positive x-coordinates because of their high income. Micro classes of health professionals and jurists are characterised by family closure patterns in which both the husbands' family and the wife's family have a particularly high income (e.g. both positive x-coordinates and y-coordinates). Classes that depend on high educational attainment such as architects, journalist, professors, social scientist and natural scientist are likewise characterised by family patterns where both sides of the family have a high income. This finding indicates that the occupational order can in fact explain other forms of inequality such as differences in the attainment of higher education.

Although proprietors have a higher income in average than these micro classes their family in-law has a lower income level and the micro class is therefore positioned on the negative side of the y-axis together with other male dominated micro classes such as commercial managers, longshoremen and farmers.

- FIGURE 1 ABOUT HERE -

Low status micro classes such as textile workers, transport conductors and truck drivers are positioned in the area of the space where the family composition is characterised by were both husband's family and wife's family have low income. The graphical representation of the analysis also identifies micro classes where the wife's family earns more money than the husband's family. This involves such different micro classes as telephone operators, creative artists and librarians.

The quality of the graphical representation of the supplementary variable measuring husbands' class membership is analysed by calculating the squared cosine values. The result of these calculating show that some micro classes are better represented than others. For example jurists have a squared cosine value of .879 on the first dimension while workers in religion only have a squared cosine value of .170. However, the average squared cosine of the representation of husbands' class membership on the first dimension is .528 which means that the micro classes are in general acceptable represented (Jambu 1991). I therefore conclude, given the high squared cosine values, that micro class can be used to identify different social closure mechanisms for Danish families with regard to transmission of economic inequality.

The last part of the analysis between class structure and family social closure mechanisms is an analysis of whether a more aggregated class scheme is able to account for the micro class variation. For this purpose, I insert a second supplementary variable that measures an aggregated class level of the micro classes (i.e. the five aggregated macro classes). The projection of the secondary variable can be seen in Figure 2.

- FIGURE 2 ABOUT HERE -

All five ellipses of the macro classes have a considerably amount of variation within the classes. Besides the macro class of the proprietors none of the five macro classes consist of micro classes that all have the same type of family social closure pattern. The macro class of proprietors is characterised by a type of family closure in which only the family members from the husbands' side have high incomes. The macro class of the primary sector is less homogenous and consists one the one side of farmers who come from wealthy families but are married to families with lower income and on the other side of fishermen, and farm labours that both come from less wealthy families.

The macro class of professionals is characterised by two types of family closure: either that both sides of the families have high income (especially if the husband belongs to a micro class that requires high education) or that only the husband belongs to a wealthy family. The macro class of non-manual routine workers is, when it comes to family social closure mechanisms, the most heterogeneous of the five classes. The centre of its ellipse (marked with a round circle) is positioned almost in the centre of the map which means that this class category characterises the average of the individuals' income level in the analysis. The macro class can be described by three general patterns of social closure within the family. Some of the non-manual routine micro classes such as teachers and jewellers have high income families on both sides of the family while other micro classes of the same macro class such as printers and book keepers have wives who come from lower income families. A third group of micro classes characterised by this macro class

come from low income families but marries into relatively more wealthy families. This involves micro classes of telephone operators and cashiers. The macro class of manual workers has the lowest income level of the four macro classes. Micro classes in this macro category are characterised by a family pattern where either both sides of the family have low incomes or where only that the husband's family have a particularly low income.

The analysis of the internal variation in terms of family social closure patterns shows that macro classes are not very homogeneous. Especially, when it comes to nonmanual macro classes the family pattern are highly heterogeneous. For example, although commercial managers belong to the macro class of professional they have a family pattern that is closer to the family pattern of the macro class of proprietors. Other micro class families have patterns that are more radically than the macro class imply. This concerns the micro class of health professionals and jurists whom both have a distinctive family closure mechanism compared to other micro classes within the macro class of professionals that insures a particularly high persistence of income inequality.

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TABLES

Table 1: The micro class scheme

I. Professional-managerial	II. Proprietors	III. Routine non-manual	IV. Manual	V. Primary
A. Classical professions 1. Jurists 2. Health professionals 3. Professors and instructors 4. Natural scientists 5. Statistical and social scientists 6. Architects 7. Accountants 8. Authors and journalists 9. Engineers B. Managers and officials 1. Officials, govt. and non-profit orgs. 2. Other managers 3. Commercial managers 4. Building managers and proprietors C. Other professions 1. Systems analysts and programmers 2. Aircraft pilots and navigators 3. Personnel and labor relations workers 4. Elementary and secondary teachers 5. Librarians 6. Creative artists 7. Ship officers 8. Professional 9. Social worker 10. Workers in religion 11. Nonmedical technicians 12. Health semiprofessionals 13. Hospital attendants 14. Nursery school teachers and aides	A. Proprietors	A. Sales 1. Real estate agents 2. Agents 3. Insurance agents 4. Cashiers 5. Sales workers B. Clerical 1. Telephone operators 2. Bookkeepers 3. Office workers 4. Postal clerks	A. Craft 1. Craftsmen 2. Foremen 3. Electronics service 4. Printers 5. Locomotive operators 6. Electricians 7. Tailors 8. Vehicle mechanics 9. Blacksmiths and machinists 10. Jewellers 11. Other mechanics 12. Plumbers and pipe-fitters 13. Cabinetmakers 14. Bakers 15. Welders 16. Painters 17. Butchers 18. Stationary engine operators 19. Bricklayers and carpenters 20. Heavy machine Operators B. Lower manual 1. Truck drivers 2. Chemical worker 3. Miners and related work 4. Longshoremen 5. Food processing workers 6. Textile workers 7. Sawyers 8. Metal processors 9. Operatives worker 10. Forestry workers C. Service workers 1. Protective service 2. Transport conductors 3. Guards and watchmen 4. Food service workers 5. Mass transportation operators 6. Service workers, 7. Hairdressers 8. Newsboys and deliverymen 9. Launderers 10. Housekeeping 11. Janitors and cleaners 12. Gardeners	1. Fishermen 2. Farmer:

Table 2: Descriptive statistics for Danish population of married men born between 1967 and 1977.

	Fathers	Mothers	Father in-law	Mother in-law	Sons	Partners	Sibling
Log earnings in 1981	11.85 (0.65)	11.00 (0.91)	11.81 (0.68)	10.99 (0.98)	- -	- -	- -
Log earnings in 1982	11.95 (0.68)	11.14 (0.91)	11.92 (0.72)	11.13 (0.99)	- -	- -	- -
Log earnings in 1983	12.01 (0.67)	11.13 (1.32)	11.98 (0.72)	11.12 (1.40)	- -	- -	- -
Log earnings in 2005	- -	- -	- -	- -	12.71 (0.57)	12.31 (0.65)	12.41 (0.81)
Log earnings in 2006	- -	- -	- -	- -	12.77 (0.58)	12.37 (0.66)	12.48 (0.79)
Log earnings in 2007	- -	- -	- -	- -	12.83 (0.62)	12.42 (0.68)	12.54 (0.79)
Age in 1981	35.53 (5.43)	34.40 (4.98)	32.07 (6.41)	30.83 (6.40)	- -	- -	- -
Age in 2007	- -	- -	- -	- -	36.66 (3.07)	35.46 (4.35)	36.64 (6.32)

Table 3: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Personal income	1						
(2) Partner's income	.11	1					
(3) Sibling's income	.11	.05	1				
(4) Father's income	.15	.04	.08	1			
(5) Mother's income	.04	.03	.03	.05	1		
(6) Father in-law's income	.09	.09	.03	.08	.03	1	
(7) Mother in-law's income	.04	.05	.02	.03	.02	.07	1

Table 3: Principal component analysis

	Component I	Component II
Eigenvalues	1.303	1.162
Explained variance	19.8%	14.7%
Cumulatively explained variance	19.8%	34.5%
<i>Component loading</i>		
Personal income	.607	
Partner's income		.496
Sibling's income	.596	
Father's income	.618	
Mother's income	.320	
Father in-law's income		.608
Mother in-law's income		.680
Number of observations	43,169	

Figure 1: Geometric space of social closure pattern with husbands' micro class membership as supplementary variable

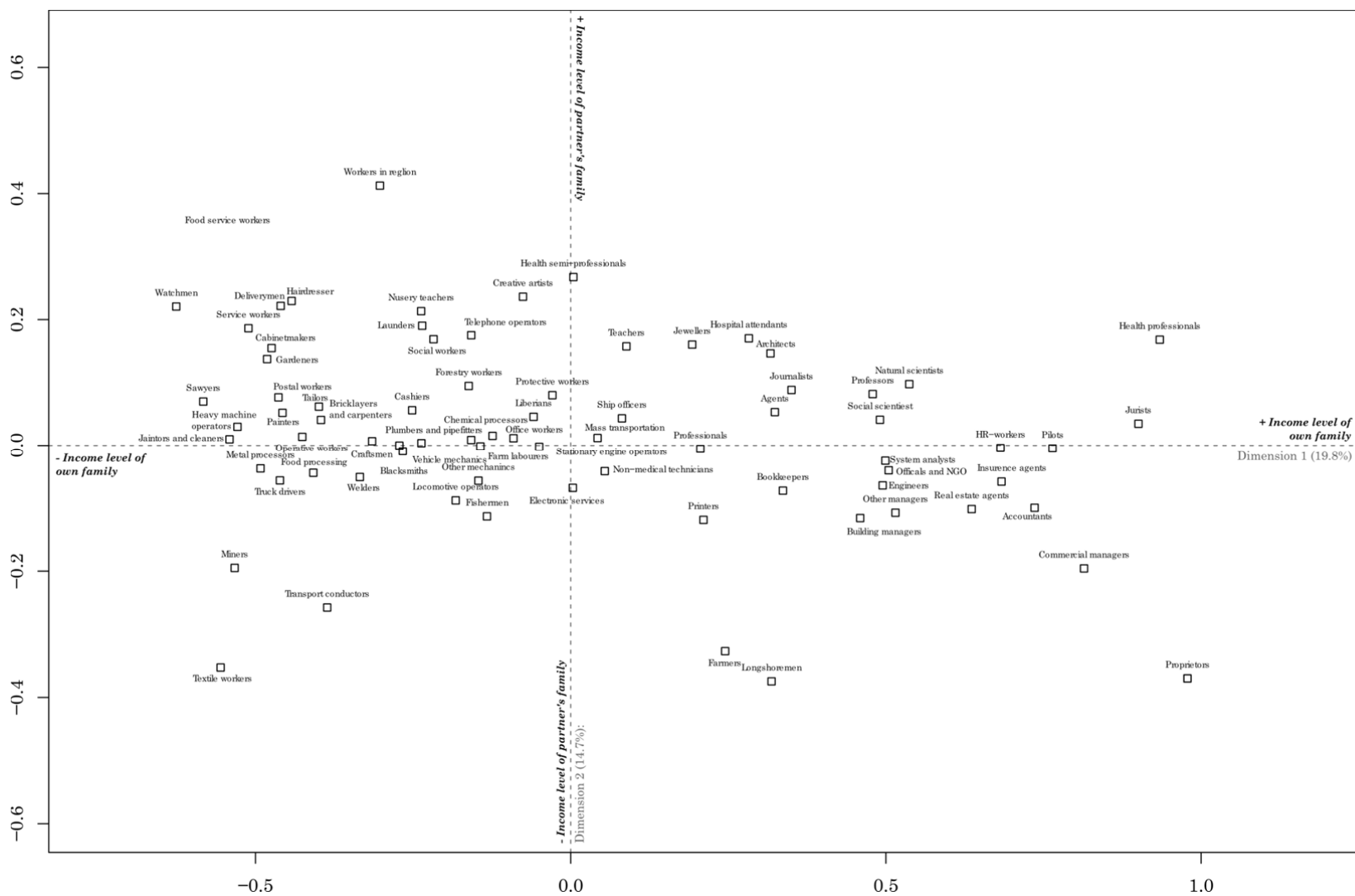
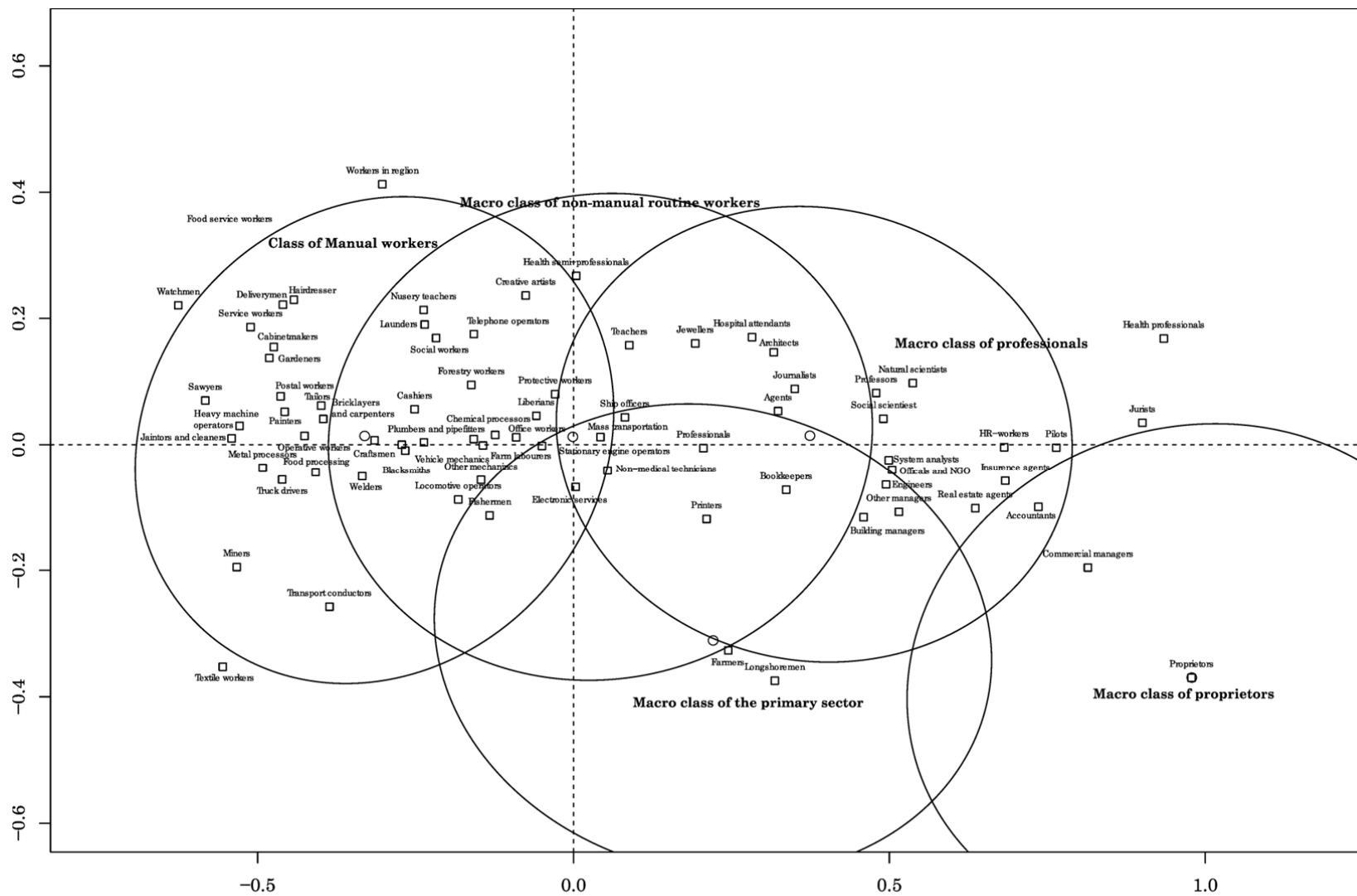


Figure 2: Ellipses of husbands' aggregated class membership



Appendix

Figure 4: Geometric space of social closure patterns with wife's micro class membership as supplementary variable

