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**Intergenerational Educational Mobility in the Comprehensive
Danish Welfare State: Testing the Primacy of
Non-Monetary Social Origin Effects**

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2006-05

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State: Testing the primacy of non-monetary social origin effects

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Abstract:

The aim of this paper is investigate the extent to which monetary and non-monetary social background factors explain intergenerational educational attainment in Denmark. The main hypothesis tested is that non-monetary social background factors (cultural, social, and cognitive parental resources) are particularly important relative to economic factors within the institutional context of the comprehensive and highly redistributive Danish welfare state. Drawing on the notion of ‘capital’ by Pierre Bourdieu and a longitudinal Danish data set, we find that parental economic capital is of little importance in explaining educational outcomes, while different non-monetary social background resources, and especially cultural capital, are very important. Our findings then indicate that a particular Scandinavian institutional “mobility regime” may exist in which educational inequalities are predominantly generated by non-monetary forms of stratification. Several suggestions for future research are also discussed.

Keywords: Intergenerational educational mobility, Denmark, mobility regimes, Bourdieu, forms of capital, mixed logit model, concomitant variables, confirmatory factor analysis.

1. Introduction

Recent comparative studies of intergenerational educational attainment (see Erikson and Jonsson, 1996; Lauer, 2003; Müller et al., 1989, 1993; Shavit and Blossfeld, 1993) and occupational mobility (see Breen, 2004; Erikson and Goldthorpe, 1992; Esping-Andersen, 1993a; Li and Singelmann, 1998) emphasize the persistence of inequalities in life chances across countries and over time. Indeed, one of the recurrent findings in the literature is that the Western, industrialized countries, while highly diverse in terms of the scope of welfare state programs, redistributive policies, political economies, and cultural backgrounds, all display considerable social inequalities in intergenerational educational outcomes.

Nowhere is this paradox more evident than in the Scandinavian countries. Here, welfare states and public social security, redistribution of incomes, and educational policies were established with the aim of providing a high level of social security and equal opportunity with respect to educational choices (Erikson and Hansen, 1987; Kautto et al., 2001). Hence, *in principle* one would anticipate the association between social origin and educational outcomes to be significantly weaker in the Scandinavian countries than in other Western, industrialized countries. However, the empirical literature tells a different story. While the Scandinavian countries display comparatively high levels of *absolute* educational mobility, then *relative* inequalities in educational opportunity have shown relatively little change over time. Thus, recent studies on the effect of social class background on educational attainment in Sweden (see Breen and Jonsson, 2000; Dryler, 1998; Erikson and Jonsson, 1996; Jonsson, 1987, 1993), Norway (see Hansen, 1997; Lindbekk, 1998), Finland (see Kivinen and Rinne, 1996; Kivinen et al., 2001), and Denmark (see Davies et al., 2002; Jæger and Holm, 2004; Jæger et al., 2003) all confirm the perseverance of strong educational inequalities in the Scandinavian countries.

The concept of social class serves as an aggregate proxy for apprehending the systematically uneven distribution of socioeconomic resources (income, assets, occupational position and prestige) in the population (see Scott, 2002; Sørensen, 2000). Obviously, the problem of interpreting what social class variables actually represent applies in all national settings, but in the Scandinavian context of comprehensive social security, low income inequality, and dispersion we argue that this problem gains particular significance. In this paper we therefore argue that the concept of social class as the main theoretical perspective for understanding intergenerational educational inequality in the Scandinavian context may be ill-suited for two important reasons relating to the interpretability and heuristic utility of the concept.

First, as income inequality is comparatively low in the Scandinavian countries, observed social class differences in educational attainment may be interpreted as primarily reflecting the effect of economic and socioeconomic differences among citizens, even when this may not be the case. Social class variables in empirical studies also act as proxies for a range of unobserved aspects of social origin other than the strictly socioeconomic ones which they purportedly measure, e.g. “cultural capital”, social networks, or other stratifying mechanisms. If variables relating to these qualitatively different aspects of social origins are not controlled, and the appropriate methods to dealing with the influence of unobserved variables not implemented, then researchers may draw misleading conclusions on the empirical nature of intergenerational inequality in educational attainment.

Since the dominant social class perspective deals with inequality in educational attainment arising from economic and occupational stratification, then social class variables may not tell us very much

about the defining features of intergenerational educational stratification in the Scandinavian countries and “mobility regime” (DiPrete et al., 1997; Diprete, 2002) in the first place. In the Scandinavian context of low income inequality, comprehensive public social security, and where the direct costs of education are borne almost exclusively by the state, it is not theoretically plausible that parents’ economic resources and occupational status, as implied by social class, are the main generators of educational inequalities. Hence, in order to explain the persistency of intergenerational inequalities in educational attainment in Scandinavia, we clearly need theoretical explanations giving explicit priority to other factors than those based on economic and occupational stratification.

Based on these considerations, the aim of this paper is to shed more light on the mechanisms that are pivotal in preserving educational inequality in the comprehensive Scandinavian welfare state. We use Denmark as a test case for this investigation. Drawing on the recent literature on the impact of institutions on social stratification, in the following sections we describe the structural conditions under which intergenerational educational mobility may be hypothesized to take place in the so-called “Scandinavian mobility regime” (DiPrete et. al., 1997; DiPrete, 2002). This approach also justifies paying more explicit attention to non-monetary social background resources in the Scandinavian context. Furthermore, rather than the social class perspective most often taken in studies on educational mobility in Scandinavia, we “disaggregate” social class and investigate the impact of four types of parental resources: economic, cultural, social, and cognitive “capital”, on children’s educational outcomes. Using an extremely rich Danish longitudinal data on the educational careers of cohorts born in the late 1970s, we develop and test several hypotheses relating to the impact of each of the four types of parental resources on children’s educational attainment within a country closely conforming to this mobility regime. The aim of the empirical

analysis is to examine the extent to which these four types of parental resources are of significance in explaining educational stratification in Denmark, and, in particular, the relative importance of monetary versus non-monetary parental resources in shaping educational inequality. Finally, in terms of methodology our analysis improves on the previous literature in two respects. First, we utilize a mixed logit model which corrects for the influence of unobserved heterogeneity on educational mobility, thereby avoiding biased estimates of the parameters of interest due to variables erroneously measuring other aspects of social origins than those intended. Second, we allow for simultaneous influence of both observed and unobserved parental influences on educational attainment by modeling the correlation between observed and unobserved explanatory variables. This aim is achieved by extending the mixed logit model with a finite mixture, concomitant variable framework.

In the following section we present the theoretical approach, as well as the defining features of the Danish welfare state and education system. In section 3 we delineate the theoretical concepts of social background “capital” as the alternative to social class. The data set, variables and our methodological considerations are presented in section 4, while in section 5 we analyze how four types of parental capital affect children’s educational attainment in Denmark. Finally, in section 6 we discuss the empirical findings and provide some suggestions for future research.

2. Educational mobility in the Scandinavian welfare state

2.1 Mobility regimes

Recent studies have emphasized how cross-national variation in countries’ institutional arrangements impact on social mobility in the Western, industrialized countries. In particular, the welfare state constitutes a key institution in that it redistributes incomes and wealth in the

population, delivers social security, and provides education and health care (Kerckhoff, 1995). The comparative literature on occupational (see Erikson and Goldthorpe, 1992; Esping-Andersen, 1993a; Sobel et al., 1998) and income mobility (see Björklund and Jännti, 2001; Solon, 2002) has identified systematic cross-national differences in intergenerational mobility patterns which are argued to be linked to institutional divergences among countries. These findings have facilitated the identification of distinct “mobility regimes” (DiPrete et al., 1997; DiPrete, 2002; Esping-Andersen, 1993b); that is, empirical “clusters” of countries in which similar institutional arrangements tend to produce similar structural conditions for intergenerational social mobility. These mobility regimes are conceptually familiar to Esping-Andersen’s (1990, 1999) famous distinction between the Social Democratic, Conservative/Corporatist, and Liberal welfare state regimes.

Denmark conforms to a large extent to the theoretical ideal typical features of the Scandinavian welfare state and mobility regime. Public social expenditure on social security ranges around 30 percent of GDP and very high compared to the rest of the OECD area (but roughly similar to the other Scandinavian countries like Sweden and Norway), and levels of income inequality and poverty are very low compared to other OECD countries (Burniaux et al., 1998). Cash benefits and social services are comprehensive and generous by international standards, and access is based on universalism and social rights rather than income and means testing (see Hansen, 2002; Kautto et al., 2001). The bulk of welfare state programs are financed through income taxes, and the provision of cash benefits and social services is handled almost exclusively in the public sector, as is also the case for the education system.

2.2 The Danish education system

In Denmark, elementary school consists of 9 years of compulsory schooling. A 10th year is optional, and roughly 65 percent of all pupils also attend the 10th grade. Children normally begin school at age 6. There are no forms of tracking or differentiation of pupils anywhere in the elementary school system.¹ Upon completing elementary school at around age 16, pupils may either drop out (approximately 15 percent of a cohort does this) or enter secondary education (Andersen, 1997).

There are two branches of secondary education: Upper secondary educational and vocational secondary education. Upper secondary education is the “academic” branch of secondary education which typically takes three years to complete and provides direct access to most types of tertiary or higher education. Alternatively, vocational secondary education is an option. Vocational education in Denmark resembles the German “dual system” in that the student shifts between school-based training in branch-specific schools (e.g. carpentry, bricklaying, and mechanics) and practical training as an apprentice with an employer. Most types of vocational secondary education take three or four years to complete.

Tertiary education in Denmark is normally classified into of three levels of education: Lower, intermediate and higher tertiary education. Admission criteria are based on meritocratic principles, that is, average grade marks from upper secondary education. There are no tuition fees or other direct costs. *Lower tertiary educations* (LTE; 1-2 years in length) are in many respects similar to vocational educations in that they embrace a wide range of technical educations and educations directed towards lower-level public sector occupations (e.g. social and health services, agricultural

¹ Until 1958, differentiation of pupils in elementary school in general and academic tracks took place from the 5th grade (*mellemskolen*), and from 1958 to 1975 from the 7th grade (*realskolen*). From 1975 onwards, a mandatory minimum of 9 years of schooling was instated, and all forms of differentiation were abolished.

or industrial diplomas, and some mercantile educations). The main difference is that LTE is usually taken “on top” of, or as supplement to other form of education. *Intermediate tertiary educations* (ITE; 3-4 years in length) comprise a large group of educations typically aimed at the public welfare and health sectors (e.g. nurse, elementary school teacher, child care worker, physiotherapist, and midwife). In addition, a significant number of technical educations, e.g. electrical and mechanical engineering belong in this group. *Higher tertiary educations* (HTE; 5-6 years in length) make up all types of education at the university level (Bachelor’s, Master’s and PhD programs). These educations normally take 5-6 years to complete (a PhD degree is an additional 3 years on top of the master’s degree), and since 1993 they have been divided into a bachelor’s program (normally 3 years) followed by a master program (normally 2 years).

It should be noted that, unlike many, and especially Anglo-American type education systems, the different levels of tertiary education in Denmark only to a very limited degree constitutes a “ladder” type of progression that allows for continual upgrading of educational qualifications. That is, the three levels of tertiary education are highly different with respects to which types of education are offered (theoretical/practical), curricula, and to which sectors of the labour market graduates are typically channelled. Also, institutional “closure” with respect to credential recognition and internal mobility between the three levels of tertiary education tends to be very strong. For example, a person educated as child care worker (ITE) would receive no merit for this type of education if wanting to study e.g. pedagogy or psychology at the university level. Consequently, Danish tertiary education is highly compartmentalized in that it consists of three levels of qualitatively different types of education. As a consequence, initial educational decisions at the tertiary level are often definitive in the Danish education system in the sense that obtaining a higher level of tertiary education (e.g. advancing from ITE to HTE) requires a massive investment in time and often

implies a loss of income that is not feasible. Not surprisingly, internal mobility among the three types of tertiary education is very limited in Denmark.

3. Parental resources as capital

3.1 Capital

Rather than applying a social class perspective, in this paper we “disaggregate” social class through the use of Pierre Bourdieu’s (1986) theoretical concepts of various forms of *capital*: that is, qualitatively different types of monetary and non-monetary resources which parents possess in different amounts and compositions and which may influence their children’s educational outcomes. This approach has the advantage of “decomposing” the effect of social class into conceptually distinct types of background resources and thereby allow for a more detailed analysis of the impact of social origins, and especially non-monetary resources, on educational attainment.

First, according to Bourdieu, *economic capital* includes wages or other form of monetary assets (capital, stock, property etc.; Bourdieu, 1984, pp. 114-15). Economic capital may promote children’s educational outcomes either by direct investment (e.g. through payment of tuition fees, allowing entry into prestigious education institutions) or by indirect investments (i.e. through economic support for children during their studies). Second, *cultural capital* is primarily comprised from the accumulation of education and knowledge, but also from tastes, preferences, and general “know-how” in the education system (Bourdieu 1977, 1984). This form of capital may be of importance in educational attainment since the home acts as a “learning lab” in the development of children’s cognitive skills and educational aspirations. Third, *social capital* is defined as the total extent and quality of social networks and connections that may be utilized in order to promote one’s interests (Bourdieu, 1986; see also Coleman, 1988; McNeal, 1999; Sandefur et al., 1999,

forthcoming). Social capital may be of direct importance with respect to educational attainment in Denmark as some types of (and, in particular, vocational) educations require obtaining apprenticeship positions in order to be successfully completed. Parents may possess social connections which could facilitate the acquisition of such apprenticeship positions. In addition, social capital may take a more indirect form in the sense of parents knowing the “right people” that could help children with finding accommodation, relevant part-time employment, or give advice on strategic choices with respect to educational career planning. Finally, in addition to Bourdieu’s original taxonomy of capitals, we also include *cognitive capital* in our analysis. Cognitive capital is the amount of scholastic ability transferred from parents to children, either by genetics or by upbringing. Cognitive capital is related to educational attainment in that high cognitive ability arguably makes it easier to acquire scholastic knowledge and thereby complete any type of education (see Breen and Goldthorpe, 2001; Hauser and Huang, 1997; Plug and Vijverberg, 2003).

3.2 *Research hypotheses*

In this section we present our hypotheses on the significance of the relative importance of each of the four types of parental capital. In the Social democratic welfare state and mobility regime, the comprehensive welfare state to a considerable degree has curtailed socioeconomic and income differences in the population, as well as reduced the impact of various social risks (unemployment, single parenthood, loss of work capacity, etc.) on citizens’ life chances (DiPrete et al., 1997; DiPrete, 2002; Esping-Andersen, 1990, 1999). But how do these particular structural conditions translate into expectations of the significance of the different forms of parental capital on children’s educational attainment?

First, we do not expect parents' *economic capital* to be a central vehicle for educational stratification in Denmark. Previous research has found that in countries belonging to especially the 'liberal' welfare state and mobility regime with less comprehensive public social security and education systems, parents' economic resources are important predictors of children's educational attainment (see Clark-Kauffman et al., 2003; Duncan and Brooks-Gunn, 1997; Gregg and Machin, 2001 for evidence from the US and Britain). Previous studies have also identified a weak effect of parental income in Sweden and Norway (Erikson and Jonsson, 1996; Hansen 1997, 1999).

However, since education and education grants are funded almost exclusively by the state in Denmark and the other Scandinavian countries, we anticipate that parents would find it hard to make any direct monetary investments in order to promote their children's educational chances. In Denmark, one 'direct' option would be to admit children into private rather than public elementary schools. Private schools account for around 12 percent of elementary school pupils in Denmark, and they are only to a very limited extent financed through user fees (around 10-15 % of total cost, Undervisningsministeriet, 2004). However, private schools do not perform better than public schools in terms of pupils' test scores or grade levels, and hence sending children to private elementary school does not automatically ensure that they stand better chances of success in post-elementary education (Rangvid, 2003). Second, as elementary schools are funded and run by local public authorities, expenditure on elementary school varies to some extent but is positively correlated with the average income of the inhabitants in the municipality in which the school is located (i.e. "rich" municipalities spend more on schools than do "poor" municipalities). However, recent evidence indicates that per capita expenditure on elementary school is only very weakly correlated with pupils' subsequent educational performance (Heinesen et al., 1999; Heinesen and Graversen, 2005). Therefore, it follows that sending your child to school in a "rich" neighborhood or municipality also does not result in any substantial improvements in their subsequent educational

chances. Finally, since also all post-elementary educations are funded almost exclusively by the state, we do not expect parents' economic capital to be of significance in explaining children's educational chances in our analysis.²

On the other hand, there are good reasons to expect parents' non-monetary resources to be of comparatively greater significance in explaining the persistent intergenerational inequality in educational attainment in Denmark. This is because non-monetary parental resources like cultural, social, and cognitive capital are arguably particularly powerful background assets in Denmark and in the Scandinavian mobility regime compared to elsewhere. First, *cultural capital* has previously been found to be of particular significance in determining young people's educational outcomes in Denmark (Andreasen et al., 1997; Hansen, 1995; Jensen et al., 1997; Jæger and Holm, 2004) as well as in most other Western countries (Aschaffenburg and Maas, 1997; de Graaf, 1986; De Graaf et al., 2000; de Graaf and Kalmijn, 2001; Jonsson, 1987; Sullivan, 2001). Here, we hypothesize that cultural capital is of particular significance with respect to attaining upper secondary education and all forms of tertiary education (and especially ITE and HTE) because 1) these educations are based on scholastically based admission criteria (GPA), 2) have quite explicated "academic" curricula, and 3) are part of a compartmentalized education system which requires some level of informational

² In addition, in Denmark a state benefit known as The State Educational Grant is available to all students from age 18 that engage in post-elementary education (Anthony 1999). The grant benefit is very generous by European standards and is not subject to reimbursement (Daniel et al. 1999). State financial aid for students is also more egalitarian in Denmark than both in Sweden and Norway. This is because, compared to Sweden and Norway, in Denmark the State Educational Grants (which are not liable for reimbursement and thus 'free' for the student) take up a much larger share of public expenditure on students than do loans compared to the public expenditure profiles in Sweden and Norway (in 1997 grants covered 66 percent of expenses in Denmark while loans covered the remaining 34 percent. In Sweden, the figures are 28/72 percent (grants/loans) and in Norway 26/74 percent) (Guille 2000).

capital to maneuver successfully (cf. section 2.2). Second, *social capital*, on the other hand, we hypothesize to be of principal importance with respect to vocational educations in Denmark since successful completion of these is partly dependent on finding an apprenticeship position with an employer. Parents who themselves have vocational educations or work in these professions are more likely to have the social connections necessary to getting their children an apprenticeship position (Jæger and Holm, 2004). Social capital may also be of broader significance to educational chances to the extent that social connections may help with providing e.g. accommodation and part-time employment (see also McNeal, 1999; Morgan and Sørensen, 1999; Sandefur et al., 1999, forthcoming; Stanton-Salazar and Dornbusch, 1995; Sun 1999). Finally, in line with previous studies, we hypothesize that parental *cognitive capital* is positively related to children completing all types of post-elementary education (see Bond and Saunders, 1999; Breen and Goldthorpe, 2001; Hauser and Daymont, 1977; Hauser and Huang, 1997; Plug and Vijverberg, 2003; Savage and Egerton, 1997). It should be noted that in our context the hypothesized effect of parental cognitive capital relates to transmissions of cognitive aptitude *over and above* the influence running through parental cultural capital. That is, since in our data set parental cognitive ability is observed at age 14 (see section 4.2 below), i.e. before parents themselves acquired further education, and because subsequent cultural capital in adulthood is also controlled, our measure of cognitive capital is less likely to be influenced from later educational experience (see Winship and Korenman, 1997).

4. Data, variables, and methods

4.1 Data

Data for this study comes from the Youth Longitudinal Study (YLS). The YLS consists of an original nationally representative sample of 3,151 Danish respondents all of which were born in or around 1954 (83 percent of the respondents were born in 1954; 12 percent in 1953 and 5 percent in

1955). The respondents were first interviewed in 1968 at age 14 when they attended 7th grade of elementary school. Additional waves were carried out in 1969, 1970, 1973, 1976, 1992, and finally in 2001 when respondents were around 47 years old. In the paper we use information taken from the 1968, 1992, and 2001 waves. The YLS contains extremely rich longitudinal information on a wide range of respondents' monetary and non-monetary resources at different stages of adulthood. This particular feature of the data means that it provides ample opportunity of developing and testing parental 'capital', in our case the four types of economic, cultural, social, and cognitive capital. The variables utilized in the analysis are described below.

In the paper we analyze as the main dependent variable the educational attainment of the respondents' oldest *child*, provided that this child is *at least* 20 years old at the time of the interview. This yields an effective sample size of 1,383 observations with complete observations on respondents and their children. Respondents themselves provided information on the educational careers of their children. On average, the children of the respondents were born in the late 1970s, which means that they typically progressed through the education system in the 1980s and 1990s and grew up with the comprehensive Danish welfare state. Attrition to the panel over time is comparatively low. In 2001, 33 years after the first wave, 2,507 of the original sample of 3,151 respondents were successfully re-interviewed. This yields a response rate of 79.6 percent.

However, it should be noted that the sample analyzed here is not completely representative of the Danish population. This is because the respondents in the sample, in order to fulfill the criterion that the oldest child be at least 20 years old, all share the feature that they had their first child at a fairly young age. This means that there is an under-representation of respondents with higher education (which tend to start families at a comparatively high age) and an over-representation of women.

Hence, some caution should be exercised with respect to the generalizability of the empirical

findings, since in the data we have comparatively fewer respondents with higher education and of high socioeconomic status. On the other hand, as is described below, despite these limitations the qualitative richness of the data makes it well-suited for our purpose.

4.2 Variables

Two types of variables are deployed in the analysis. First, we use a number of indicator items to capture the four types of monetary and non-monetary parental capital (see also Jæger and Holm, 2004). As did Bourdieu, we conceptualize the forms of capital as latent variables and use confirmatory factor analysis to investigate the overall distribution and accumulation of each of the four forms of capital. In the second step, we use these capital measures, along with a number of control variables, as explanatory variables when analyzing children's educational attainment. Table 1 presents the items used to capture parents' economic, cultural, social, and cognitive capital. Descriptive statistics of each item is shown in appendix table 1.

TABLE 1 HERE

In order to measure respondents' *economic capital* we use four categorical items: (1) the respondent's gross monthly income in DKK (Danish *kroner*, where 6 DKK \approx 1 USD), (2) if the respondent owns his or her own home and the estimated value of this property, (3) if the respondent owns a car and the estimated value of this car, and finally (4) if the respondent, in addition to the permanent residence, owns a summerhouse. These items then reflect both wage income as well as other material possessions. For *cultural capital* we use five categorical indicators: (1) respondent's level of education measured on a 5-point ordered scale, (2) number of foreign languages spoken, (3) number of newspaper subscriptions, (4) a dummy variable indicating if the respondent reads

fictional books, and (5) a dummy variable indicating if the respondent is interested in visual arts. These items then embrace formal educational credentials as well as more informal cultural endowments (see Aschaffenburg and Maas, 1997; De Graaf et al., 2000). For *social capital* we use 5 dummy variables indicating if respondents report possessing social connections that might help their *children* with (1) finding part- or full-time employment, (2) finding an apprenticeship position, (3) finding a place of residence, (4) give advice on children's educational choices, and (5) provide help if the child wants to study in another country. Together, these variables indicate the presence of social connections that may be used to promote children's educational opportunities. Compared to the more general social capital indicators typically available in survey data (social participation, involvement in schools etc.), an advantage of our indicators is that they relate *specifically* to children's socioeconomic and educational opportunities. As a consequence, they are likely to convey more accurate information on the aspects of social capital which is relevant in explaining children's educational attainment. Finally, in order to capture respondents' *cognitive capital* that may be transmitted to their children, we utilize the test score results from three standardized intelligence tests taken in 1968 when respondents were 14 years old. These tests measured the number of correct answers to a range of (1) verbal, (2) spatial, and (3) inductive tests (see Härnqvist 1968 for more details on the tests). As is evident from the analyses presented below, the three test scores are highly correlated and indicate the presence of a general cognitive ability measure.

TABLE 2 HERE

As shown in table 2, children's educational attainment, our main dependent variable, is measured with five discrete categories: (1) none beyond elementary school, (2) upper secondary education (3) vocational secondary education, (4) LTE and ITE, and finally (5) HTE. LTE and ITE were merged

because there were only few observations in the LTE category. At the time of the interview children may either have completed or being engaged in completing the different levels of education.³ Furthermore, as control variables pertaining to the child we include gender and age. Additional control variables relating to respondents include gender and family status. As has been asserted in previous studies, family relations and especially growing up in single or step-parent households has a negative impact on children's educational outcomes (see Biblarz and Raftery, 1999; Ermisch and Francesconi, 2001; Jonsson and Gähler, 1997; Kuo and Hauser, 1997). Finally, we also include the social class position of the respondent's parents (i.e. the "grandparent" generation) using a 5-fold classification of the Erikson-Goldthorpe-Portocarero (EGP) class scheme proposed by Halpin (1999). These social class variables are of no analytical interest, but they serve as instrumental variables in the identification of the unobserved part of the statistical model, as is described in the methodology section below.

4.3 Methodology

In order to investigate of the impact of parental capital on children's educational attainment we utilize a two-step approach. First, from the data we identify the four forms of parental capital, the degree of interrelationship among the different capitals, and finally the "quantity" of each type of

³ Obviously, this approach entails some level of measurement error stemming from two sources. First, children may at a later point in time reach a higher level of education than the one registered in our data (this is particularly the case for those with upper secondary education as the highest current level of education). Second, they may drop out and never finish the type of education with which they are registered. However, the marginal distribution of children's educational attainment (cf. table 2) does not raise any particular concern that a major problem exists (a similar approach to that taken here is e.g. Hansen 1999).

capital held by the respondents. As mentioned above, we use a confirmatory factor analysis (CFA) to carry out this part of the analysis. Second, we develop a discrete choice regression framework to analyze the impact of parental capital on children's educational attainment.

4.4 An empirical model of educational attainment

The description of the Danish education system indicates that it is not appropriate to view the different educational types as ordered in the sense that students naturally progress through successive stages of education. As a consequence, in our analysis we model educational attainment by means of a multinomial rather than an ordered logit framework.⁴ However, the standard multinomial logit model (MLM) suffers from two drawbacks with respect to our application.

The first drawback of the standard MLM in our application is the assumption of "irrelevance of independent alternatives" (IIA), stating that choosing the j 'th educational alternative against the baseline alternative only depends on the characteristics of these two alternatives and not on the other alternatives in the model (see Chipman, 1960; Train, 2003). This assumption is equal to hypothesizing that if omitting one type of education from the choice set, those who occupy this type of education will spread evenly across the remaining alternatives. This is clearly an unrealistic assumption in our application as well as in most non-experimental settings. As an alternative, we adopt the logit mixture model which does not presume the IIA structure (Train, 2003).

⁴ The multinomial logit model is routinely used in studies on educational attainment and in different countries; see, for example, Ngyen and Taylor (2003) for the U.S., Breen and Yaish (forthcoming) for the UK, Breen and Jonsson (2000) for Sweden, Need and de Jong (2001) for the Netherlands, and Smyth (1999) for Ireland.

The second drawback of the standard MLM is that we only observe a full set of covariates for one parent, but never both. In the 2001 wave, approximately 85 percent of the respondents reported being either married or cohabitating, and we need to take into consideration that fact that both (biological and step-) parents influence children's educational choices. In methodological terms, this situation indicates that we would expect substantial effects from unobserved variables in the model. The standard way of dealing with this problem would be to use a random effects model to correct for unobserved heterogeneity (see Cameron and Heckman, 1998; Lucas, 2001). However, because spouses in Denmark are relatively homogenous with respect to level of education, income and other socioeconomic characteristics (see Leth-Sørensen, 2003; Smits et al., 1998), it is highly likely that the characteristics of the unobserved parent is correlated with the characteristics of the observed parent.⁵ This situation clearly violates the assumptions of the random effects approach and leads to biased estimates of the parameters of interest.

To accommodate these two problems, we propose an extension of the mixture logit model which does not presuppose IIA and allows for a correlation between observed and unobserved covariates. One such model is the finite mixture or Latent Class Multinomial Logit Model (LCMLM; see Clogg, 1995; Muthén and Shedden, 1999). The LCMLM in our application is defined as follows. Let l denote the l 'th type of education. We then define the model for the probability that the child obtains this type of education as

⁵ Strong evidence of marital homogamy exists in the data. For example, the gamma coefficient of the bivariate relationship between spouses' level of education is .48 ($p < .001$). Spouses are also significantly homogenous with respect to occupational status and level of income.

$$P(Y = l | \tilde{x}, e) = \frac{\exp(\alpha_l + \beta_{lf}' x_f + \beta_{lm}' x_m + \beta_l' x + e_l)}{1 + \sum_s \exp(\alpha_s + \beta_{sf}' x_f + \beta_{sm}' x_m + \beta_s' x + e_s)} \quad (1),$$

where $\tilde{x} = x_f, x_m, x$, $l = 1, \dots, 4$; $P(Y = 0 | \tilde{x}, e) = 1 - \sum_{l=1}^{l=4} P(Y = l | \tilde{x}, e)$, where $P(Y = l | \tilde{x}, e)$ is the probability that the child obtains the l 'th type of education, conditional on observed covariates x and a realization of the vector of random effects $e = \{e_1, e_2, e_3, e_4\}$, and where the probability of not reaching any education beyond elementary school is the reference category. The β 's are vectors of regression coefficients for a vector of regression variables, the \tilde{x} 's, (here the four types of parental resources and control variables), and v is a random effect capturing the effect of unobserved variables affecting educational attainment. Subscript l in the right hand side of (1) is type-specific indices where subscripts m and f indicate whether the coefficients and variables represent covariates pertaining to respectively mothers' or fathers' characteristics. Note that, so far, the model is presented as if the full set of characteristics of both parents is observed simultaneously. As mentioned above, this never happens in our data (and, indeed, this is often the case in empirical applications). As a consequence, the random effect that actually enters the model is more complex

$$v_{lf} = \beta_{lm}' x_m + e_l; \text{ if the father is respondent (2a), and}$$

$$v_{lm} = \beta_{lf}' x_f + e_l; \text{ if the mother is respondent (2b),}$$

$l = 1, \dots, 4$. In our analysis, we apply a non-parametric, discrete estimator for the random effects, where the discrete distribution of the random effects can be thought of as an approximation to any unknown distribution of the random effects that enters the model (Lindsay, 1983a, b). This amounts to the latent class model where the respondents may be grouped according to K latent classes.

Accordingly, the probability of belonging to latent class j is then

$P(V_{1f} = v_{1f}^j, V_{4f} = v_{4f}^j) = p_j$; if the father is respondent (3a), and

$P(V_{1m} = v_{1m}^j, V_{4m} = v_{4m}^j) = p_j$; if the mother is respondent (3b)

where $j = 1, \dots, K$ and $v_{1f}^j, \dots, v_{4f}^j, v_{1m}^j, \dots, v_{4m}^j, j = 1, \dots, K, l = f, m$ are parameters to be estimated.

Finally, in order to model marital homogamy with respect to capital accumulation and other socioeconomic characteristics among parents, we propose the following logit specification for latent class membership that allows for a correlation between the observed and unobserved parental characteristics

$$p_j(z_g, z) = \frac{\exp(a_j + b_{jg}z_g + b_jz)}{1 + \sum_s \exp(a_s + b_{sg}z_g + b_sz)}, \quad (4),$$

$j = 1, \dots, K$, where $g = m, f$ indicates whether the mother or father is observed and where z_g is a vector of covariates where subscript g indicates whether we use observed information of the father (f) or the mother (m) to predict unobserved class membership. Finally, z is a vector of covariates observed irrespectively of whether we observe the mother or the father, e.g. the age and gender of the child. Allowing this relationship between class membership and the observed covariates, we essentially propose a distribution of class membership conditional on the observed covariates (see Dayton and MacCreedy 1988; Formann 1992; Peng et al. 1996).

5. Results

This section is divided into two parts. First, we describe the findings from the CFA model of economic, cultural, social, and cognitive capital among respondents. In the second part of the section we analyze the impact of each of the four types of parental resources on children's educational attainment.

5.1 The distribution of capital

In figure 1 we present the results of the CFA model. Since we have a combination of categorical and continuous indicators, the model was estimated using polychoric correlations as the input matrix with Weighted Least Squares with robust standard errors as the estimation method. The variance of each of the four factors was fixed at 1 such that factor loadings for all items could be estimated freely. Finally, we imposed the constraint on the parameters that only items hypothesized to proxy each of the four types of capital (economic, cultural, social, and cognitive capital) were allowed to load on that latent factor. The fit indices (Comparative Fit Index/Tucker-Lewis Index, Root Mean Square of Approximation; see Bentler, 1990) also reported in figure 1 indicate that this model has an acceptable fit to the data.

FIGURE 1 HERE

From figure 1 we find that the items load significantly and as anticipated on each of the four latent factors of parental capital. This suggests that the CFA model captures the four qualitatively different types of parental resources quite well. Three items, “summerhouse”, fictional “books”, and interested in “visual arts”, display comparatively low factor loadings (around 0.30), but since all three items are binary variables this is not very surprising. Also of interest, we find that the different types of capital tend to be positively correlated. Especially, economic and cultural capital are

strongly interrelated ($r = 0.616$), but also the other types of capital are correlated. The only two forms of capitals not significantly correlated are social and cognitive capital. Hence, this finding suggests that having high cognitive ability and being well connected do not tend to be associated characteristics.

5.2 Determinants of educational attainment

In this section we present the results of the latent class multinomial logit model (LCMLM) of educational attainment. For comparison, we also estimated an ordinary multinomial logit model (MLM). In our application, the MLM is adjusted to allow different intercept terms when information on either mothers or fathers is available. The essential difference between the LCMLM and the MLM is that in the latter, the distribution of unobservables is degenerate to a single latent class captured by the constant term. This means that the average effect of the unobserved variables of the missing parent and other unobservables, $v_{lf} = \beta_{lm}'x_m + e_l$ for fathers and $v_{lf} = \beta_{lm}'x_m + e_l$ for mothers, is constant by respondents. However, there is no reason to assume that these effects should also be equal. Therefore, we allow for different constant terms in the MLM depending on which parent is unobserved in the data.

In order to obtain non-parametric identification of the probability of latent class membership instrumental variables are required. More specifically, we need instrumental variables that affect the observed and unobserved respondents' capital formation, but which have no direct effect on children's educational attainment when respondents' characteristics are controlled (see Angrist et al., 1996). For this purpose, we move back one generation and utilize information on the social class position of the respondents' parents, i.e. the "grandparent" generation. Since we need instruments that provide exogenous variation in respondents' socioeconomic origins in the model, we judged

that the social class position of the “grandparents” constituted suitable instruments. Finally, when comparing the LCMLM to the MLM, we also include grandparents’ social class in the MLM. This was done, first, to test of the validity of the instruments, and, second, to ensure that there is the same amount of observed information both in the LCMLM and the MLM.

TABLE 4 HERE

The results of the two model specifications of the impact of economic, cultural, social, and cognitive capital as well as the control variables are shown in table 4. As expected, among fathers we find no significant effects of *economic capital* on children’s educational outcomes in the LCMLM. This finding supports the hypothesis that economic resources in themselves are of no particular importance with respect to educational attainment in Denmark. On the other hand, among mothers the result is less clear since we find economic capital to be a significant predictor of acquiring vocational education (positive coefficient) and HTE education (negative coefficient). With respect to vocational education, our findings then state suggest that the child has a higher probability of obtaining this type of education over no education beyond elementary school if mothers possess high economic capital. This result indicates that among mothers economic resources are related to children’s educational attainment in a way similar to that found in some other studies in the Scandinavian context (see Hansen, 1997, 1999), i.e. that “money matters” even in the Social democratic mobility regime. More puzzling, we also find a significant negative coefficient of mothers’ economic capital on the probability of the child acquiring university-level education. This result is in apparent contrast to theoretical expectations. Maybe this finding could explained by the fact that mothers with high economic capital, due to the prevalence of marital homogamy in Denmark, also are likely to be married to or cohabitating with a high-capital husband,

and that this ‘dual career’ spousal combination somehow has a negative impact on children’s probability of obtaining university-level qualifications. Mothers with high economic capital in Denmark are also likely to work more than full time, which in turn mean that they have less time for parenting and catering for the cognitive and social development of their children. It is revealing, first, that this effect does not appear in the MLM but is highly significant in the LCMLM, in which marital homogamy with respect to the accumulation and distribution of the four types of capital is modeled explicitly, and, second, that this ‘penalty’ on children’s educational attainment only applies to mothers (but not fathers). Unfortunately, as we do not have information in the data on both spouses’ working hours it is not possible to investigate this peculiar in more detail.

As expected, parents’ *cultural capital* is a highly important predictor of children’s educational attainment in Denmark, and especially for mothers. Among mothers, cultural capital is significantly related to obtaining all types of post-elementary education, while for fathers this trend is only significant with respect to university-level HTE. Therefore, in accordance with theoretical expectations, there is strong evidence that cultural capital constitutes a significant source of educational stratification in Denmark. The reason why we observe stronger effects of cultural capital for mothers than fathers could be that the transmission of mothers’ cultural capital is stronger since she is likely to spend more time with the child, and hence her level of cultural capital has a stronger influence on the initial cognitive and aspirational development of the child.

Alternatively, also sample selection may play a role since the sample of mothers on which the estimations are based is somewhat larger than the sample of fathers, thereby making it easier to find significant effects. Furthermore, it is also of interest that cultural capital is especially important (both among fathers and mothers) with respect to children’s probability of acquiring university-level education. Since there are no economic costs related to enrolling in university in Denmark,

this is the one branch of the education system in which we would expect the mechanisms of cultural capital in the form of transmitted knowledge and aspirations to be especially potent.

On the other hand, we find that *social capital* is not significant in any of the models when the other forms of capital are controlled. It would then seem that social connections or relations do not have any impact on children's educational chances in this data.⁶ Finally, with respect to *cognitive capital*, we find that mothers' cognitive capital has a negative impact on the probability of children choosing particularly vocational, but also LTE/ITE. This suggests that children opt for other types of education than vocational education and LTE/ITE if mothers have high cognitive capital, net of the effect of the other forms of capital. Furthermore, for fathers high cognitive capital is negatively associated with children achieving upper secondary education. These effects of cognitive capital are not found in the MLM. We have no immediate explanation of why parental cognitive capital has this unexpected effect on children's educational attainment.

Taken together, the analysis provides some, but not decisive support for the hypothesized relative significance of each of the four types of parental capital in explaining educational outcomes in Denmark. First, economic capital was found to be significant only for mothers and with a positive effect for vocational education but a negative effect for HTE. When controlling for the unobserved parents characteristics we find that mothers with high economic capital (and a high likelihood of having a partner with high economic capital) face a penalty on their child's probability of attaining

⁶ The zero-order correlation between social capital and children's educational attainment is highly significant and in the expected direction. In a previous paper with a less developed statistical model (Jæger and Holm 2004), we found a significant and positive effect of fathers' social capital on children choosing vocational education over no educational beyond elementary school.

HTE. On the other hand, among fathers economic resources did not have any impact on children's educational outcomes. On the other hand, the amount of cultural capital held by parents seems to be strongly related to children's educational outcomes at all levels, and particularly for university-level education. These findings suggest that cultural capital is indeed a strong predictor of reaching higher levels of education in Denmark. The amount of social capital possessed by parents does not explain the type of education taken by children, while cognitive capital does play a role, although not in the way anticipated by theory. Overall, we also find more significant effects of parental capital among mothers than fathers. As was noted above, this may in part be because we have a larger sample of mothers than fathers, which makes it harder to identify statistically significant differences among fathers.

Turning to the control variables we find significant negative effects of single parenthood on children's educational attainment, and especially for children's probability of attaining HTE. This finding is consistent with previous studies suggesting that single parenthood implies both a financial as well as a 'time' penalty on children's educational chances, as single parents typically have less money and time to cater for their children's educational progress (see Biblarz and Gottainer, 2000; Ermisch and Francesconi, 2001; Jonsson and Gähler, 1997). Also, the age and gender of the child are significant, but these effects mostly reflect structural differences in the educational profiles of boys and girls and are of less substantive interest in our analysis.

6. Discussion

The aim of this paper, using Denmark as a test case, was to provide new insights into the complex social mechanisms that generate intergenerational inequalities in educational attainment in the Scandinavian welfare state regime. Previous studies have identified strong social class effects on

educational attainment in the Scandinavian countries, but in the paper we argue that the traditional focus on social class is misleading in this context. Because of comprehensive public social security, redistribution of incomes, and egalitarian educational policies, it is not evident that stratification based on income and occupational prestige, as implied by the concept of social class, are the major sources of inequality preservation in this Scandinavian “mobility regime”. Rather, our argument is that in order to explain the persistent intergenerational inequalities in the Scandinavian countries, we need to pay explicit attention to non-monetary aspects of social origins that affect educational attainment. In Scandinavia it’s not about how much money you have got – but rather about other types of capital.

Therefore we take a different approach in this paper, and “decompose” social class effects into four types of social origin resources: economic, cultural, social, and cognitive “capitals”. These four types of capital embrace a wider range of social background factors than social class, and from this perspective we may arguably learn more about the particular features of intergenerational educational mobility in the Scandinavian welfare state. Using a rich longitudinal Danish data on cohorts born in the late 1970s, we test the significance of each of the four types of parental capital on young people’s educational attainment. Our empirical analysis provides some evidences that non-monetary aspects of social origin are more important than economic resources in shaping educational inequality in Denmark. Economic capital possessed by parents has little effect on children’s educational performance in Denmark when other resources are controlled. The same result was found for social capital. On the other hand, we find that parental cultural capital turns out to be the most important predictor of children’s educational attainment, especially for mothers. Cognitive capital provides somewhat mixed results, but growing up in a single-parent household also has a significantly negative impact on children’s educational attainment.

But what may be learnt from our analysis? First, at the general level, our approach underlines the importance of taking into account how institutional structures: welfare states, education systems, and redistributive policies shape educational stratification (DiPrete, 2002; Esping-Andersen, 1993a; Kerckhoff, 1995). Using Denmark as the case study, we outlined what would be the expected trends in the Scandinavian mobility regime in which the comprehensive welfare state must be assumed to play a key role. Being a single country study, our findings obviously have limited generalizability in terms of delineating the defining features of the Scandinavian mobility regime. However, given their fairly similar commitment to public welfare provision, educational policies and levels of inequality (see Kautto et al., 2001), we would expect broadly similar trends to exist in the other Scandinavian countries. More comparative research is needed to confirm if the trend found in our analysis also pertains to the other Scandinavian countries, and, more generally, if systematic cross-national differences in the impact of institutions on educational stratification exist. This logical next step for comparative research might then focus on the qualitatively different impacts of social origins on educational attainment across different mobility regimes rather than simply stating that social origins matters in most countries and across time, as has been the main trend in the literature (Müller et al., 1989; Müller and Karle, 1993; Shavit and Blossfeld, 1993; Treiman and Yip, 1989).

Second, in terms of methodology our analysis also underscores the importance of a careful specification of the empirical model. Recent studies have emphasized the need to correct for unobserved heterogeneity in statistical models on intergenerational educational attainment in order to obtain unbiased parameter estimates (see Cameron and Heckman, 1998; Lucas, 2001). Conventional mixture models provide this option but typically imply the unrealistic assumption that the unobserved social background component is not related to the observed variables. The

methodological framework proposed here overcomes this limitation by modeling the correlation between the observed and unobserved variables, thereby effectively accounting for both observed and unobserved parental influences on children's educational outcomes. This modeling approach thus comes closer to reality in capturing the total impact of family background on educational destinations.

Acknowledgements:

This paper was presented at the RC28 Spring Meeting "Welfare States and Social Inequality", May 5-8, University of Oslo, Norway. We thank Hanna Ayalon, Niels Ploug, Kim Sønderskov, Thomas Boje, and Signe Hald Andersen for comments.

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Table 1. Items used to calculate four types of parental capital

Form of capital	Item
Economic capital	(1) Gross monthly income, (2) Homeowner and value of property, (3) Owns car and value of car, (4) Owns summerhouse.
Cultural capital	(1) Level of education, (2) Number of foreign languages spoken, (3) Number of newspaper subscriptions, (4) Reads fictional books, (5) Interested in visual arts.
Social capital	Respondent has social connections that might help children with ... (1) Finding part/full-time employment, (2) Finding an apprenticeship, (3) Finding residence, (4) Give advice on children's choice of education, (5) Providing help if child wants to pursue education abroad.
Cognitive capital	(1) Number of corrects answers on verbal test, (2) Number of corrects answers on spatial test, (3) Number of corrects answers on inductive test.

Table 2. Percentages, means and standard deviations of variables in the analysis.

	Percent	N/SD
	/Mean	
<i>Dependent variable:</i>		
Child's level of education		
Elementary school	15.1	201
Upper secondary	20.5	272
Vocational secondary	33.0	437
Short/intermediate tertiary	18.2	241
Higher tertiary	13.2	175
<i>Explanatory variables:</i>		
Parental capital		
Economic capital	0.04	0.02
Cultural capital	0.05	0.02
Social capital	0.08	0.02
Cognitive capital	0.00	0.03
<i>Control variables:</i>		
Child's gender		
Man	49.6	686
Woman	50.4	697
Age of child in years	23.8	2.67
Respondent's gender		
Man	38.7	535
Woman	61.3	848

Respondent's family status		
Married/cohabitating	85.0	1.175
Single	15.0	208
Grandmother's social class (EGP5)*		
<i>I/II (Professional and managerial employees, self-employed with 10 or more employees)</i>	13.7	188
<i>III (Routine non-manual professionals)</i>	12.4	169
<i>IV (Self-employed and small employers (1-9 employees))</i>	27.4	375
<i>V/VI (Skilled workers)</i>	11.8	162
<i>VII (Unskilled and semi-skilled workers)</i>	34.7	475
Grandfather's social class (EGP5)		
<i>I/II</i>	18.6	250
<i>III</i>	9.2	124
<i>IV</i>	29.3	393
<i>V/VI</i>	17.6	236
<i>VII</i>	25.3	339

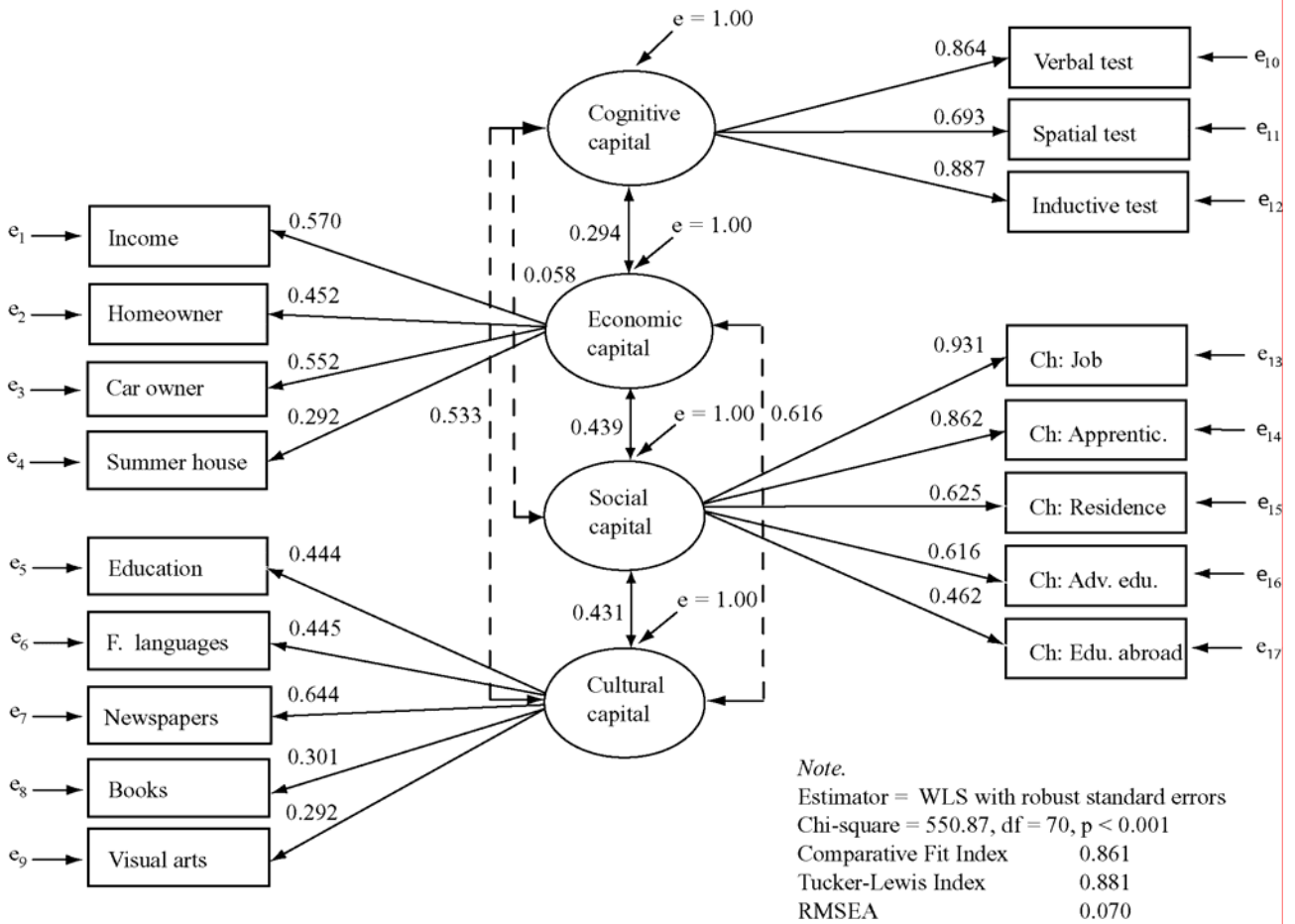
Note. * Grandfather's social class was used if grandmother's occupation was housewife.

Table 3. Determinants of children's educational attainment. Standard and latent class multinomial logit model with no education beyond elementary schooling as the reference category. Parameter estimates and standard errors in parenthesis.

Level of education	MULTINOMIAL LOGIT MODEL (MLM)				LATENT CLASS MULTINOMIAL LOGIT MODEL (LCMLM)			
	High school	Vocational	LTE/ITE	HTE	High school	Vocational	LTE/ITE	HTE
Constant	7.96 (1.13)***	-0.62 (0.95)	-2.36 (1.12)***	-1.12 (1.24)	7.63 (2.10)**	-0.90 (1.37)	-1.39 (1.40)	2.09 (1.35)
FATHERS								
Economic capital	0.25 (0.35)	0.33 (0.31)	-0.26 (0.34)	0.24 (0.37)	0.29 (0.37)	0.35 (0.32)	-0.26 (0.34)	0.30 (0.38)
Cultural capital	0.36 (0.41)	-0.64 (0.37)	0.61 (0.40)	1.58 (0.47)**	0.56 (0.44)	-0.52 (0.38)	0.58 (0.40)	1.62 (0.44)***
Social capital	0.18 (0.24)	0.55 (0.21)	0.14 (0.24)	-0.18 (0.26)	-0.10 (0.27)	0.36 (0.24)	0.15 (0.24)	-0.28 (0.27)
Cognitive capital	-0.16 (0.23)	0.23 (0.21)	0.18 (0.24)	-0.47 (0.26)*	-0.48 (0.28)*	0.03 (0.25)	0.19 (0.25)	-0.31 (0.27)
Lone parent	0.04 (0.35)	-0.53 (0.31)	-0.28 (0.34)	-1.15 (0.47)**	-0.22 (0.39)	-0.79 (0.34)**	-0.21 (0.35)	-1.50 (0.52)***
<i>Grandfather's social class (linear)</i>	-0.06 (0.15)	-0.01 (0.13)	-0.11 (0.15)	-0.17 (0.16)	-	-	-	-
<i>Grandmother's social class (linear)</i>	-0.06 (0.15)	-0.08 (0.13)	0.09 (0.15)	0.12 (0.16)	-	-	-	-
Latent class II	-	-	-	-	2.47 (1.79)	0.93 (0.76)	-0.01 (0.81)	-2.32 (0.73)***
Latent class III	-	-	-	-	6.39 (4.45)	4.36 (4.42)	-1.64 (6.50)	-2.89 (5.09)
MOTHERS								
Economic capital	0.01 (0.80)	0.23 (0.53)	-0.33 (0.60)	-0.37 (0.64)	-0.31 (0.56)	1.21 (3.07)***	-0.05 (0.52)	-1.10 (0.26)***
Cultural capital	1.02 (0.71)	-0.14 (0.56)	1.10 (0.61)*	1.26 (0.67)*	1.29 (0.58)**	1.87 (0.72)**	2.14 (0.65)**	1.24 (0.67)*
Social capital	-0.34 (0.28)	0.05 (0.25)	0.24 (0.30)	0.14 (0.34)	-0.43 (0.30)	-0.41 (0.38)	0.02 (0.33)	0.32 (0.38)
Cognitive capital	-0.25 (0.29)	-0.26 (0.26)	-0.26 (0.30)	0.07 (0.36)	-0.26 (0.39)	-1.53 (0.36)***	-0.87 (0.31)***	0.06 (0.45)
Lone parent	-0.46 (0.58)	-0.33 (0.27)	0.07 (0.55)	-1.88 (0.98)*	-0.88 (0.63)	-0.37 (1.85)	0.26 (0.97)	-2.79 (1.10)**
<i>Grandfather's social class (linear)</i>	0.06 (0.20)	-0.13 (0.19)	-0.12 (0.25)	0.01 (0.30)	-	-	-	-
<i>Grandmother's social class (linear)</i>	-0.18 (0.21)	-0.10 (0.20)	0.00 (0.28)	-0.18 (0.29)	-	-	-	-
Latent class II ^a	-0.40 (0.97)	0.21 (0.87)	0.02 (1.24)	-0.05 (1.25)	2.30 (1.87)	-2.55 (0.87)***	-1.52 (0.59)***	-2.25 (0.79)***
Latent class III	-	-	-	-	2.17 (1.87)	1.97 (0.99)*	0.38 (1.07)	-3.24 (0.44)***
CONTROLS								
Child's age in years	-0.38 (0.20)*	0.41 (0.18)**	-0.78 (0.20)***	-0.65 (0.23)	-0.43 (0.21)**	0.33 (0.19)*	-0.81 (0.21)***	-0.68 (0.24)***
Child's gender (1=male)	-0.30 (0.05)***	0.07 (0.04)***	0.13 (0.04)***	0.07 (0.05)	-0.41 (0.05)***	0.03 (0.04)	0.09 (0.04)**	0.02 (0.05)

Note. *** $p < .01$, ** $p < .05$, * $p < .10$. The (-2LL) likelihood function has value -1820.34 (df = 1254) for the MLM and -1762.69 (df = 1226) for the LCMLM. The Bayesian Information Criterion (BIC) is 3309715.59 for the MLM and 3103243.55 for the LCMLM. A likelihood ratio test for the LCMLM against the MLM has $p < .01$. ^a For the MLM we allow the constant term to differ when either information on mothers and fathers is missing. This was done by estimating a deviance term when information on mothers is observed compared to the common constant term. This allows for the possibility that mothers' and fathers' partners on average are different.

Fig. 1. Confirmative factor model for 4 types of capital



8. Appendix tables

Table 1. Percent/mean for items used to calculate parental capital

	Percent	N	Description
<i>Economic capital</i>			
Gross monthly income			
0-12.999	22.8	301	Gross monthly income in 1992
13.000-15.999	21.9	289	in DKK.
16.000-17.599	14.9	196	
17.600-19.999	23.0	304	
20.000 or more	17.4	230	
Homeowner			
Does not own home	20.7	287	Ownership (with spouse) and
0-800.000	20.8	287	value of own home in 2001 in
801-1.100.000	22.5	311	DKK
1.101-1.500.000	21.8	301	
1.501.000 or more	14.2	197	
Car ownership			
Does not own a car	12.9	179	Ownership (with spouse) and
0.50.000	25.5	352	value of car in 2001 in DKK
51-95.000	16.6	230	
96-150.000	26.7	369	
151.000 or more	18.3	253	
Summerhouse ownership			
Owns summerhouse	13.7	190	Owns summerhouse (with
Does not own summerhouse	86.3	1.193	spouse) in 2001
<i>Cultural capital</i>			
Level of education			

Elementary school	20.7	273	Level of education in 1992
Vocational	34.7	458	
Lower tertiary	27.7	365	
Intermediate tertiary	13.6	180	
Higher tertiary	3.3	44	
Number of foreign languages spoken			
Does not speak any foreign language	35.6	470	Number of foreign languages
1 foreign language	31.8	420	spoken in 1992
2 foreign languages	27.7	366	
3 or more foreign languages	4.9	64	
Number of newspaper subscriptions			Number of newspapers
Does not subscribe to any newspapers	39.4	545	respondent subscribes to in 1992
Subscribes to 1 newspaper	51.6	714	
Subscribes to 2 or more newspapers	9.0	124	
Reads fictional books			
Yes	34.1	450	Reads fictional books in 1992
No	65.9	870	
Interested in visual arts			
Yes	57.3	756	Interested in visual arts 1992
No	42.7	564	
<i>Social capital</i>			
<i>Does parent have social connections in 2001 that</i>			
<i>might help in the following situations ... (= yes)</i>			
Finding a full/part time job	43.7	605	
Finding an apprenticeship	54.2	750	
Finding residence	67.7	936	
Give advice on choice of education	54.3	751	
Provide help if child wants to pursue education	65.5	906	
abroad			

<i>Cognitive capital</i>	Mean	SD	
Verbal test score	35.0	0.27	Number of correct answers in verbal test in 1968
Spatial test score	21.8	0.22	Number of correct answers in spatial test in 1968
Inductive test score	21.3	0.24	Number of correct answers in inductive test in 1968
