



The intergenerational transmission of social advantage and disadvantage: comprehensive evidence on the association of parents' and children's educational attainments, class, earnings, and status

Arne Mastekaasa & Gunn E. Birkelund

To cite this article: Arne Mastekaasa & Gunn E. Birkelund (2022): The intergenerational transmission of social advantage and disadvantage: comprehensive evidence on the association of parents' and children's educational attainments, class, earnings, and status, *European Societies*, DOI: [10.1080/14616696.2022.2059542](https://doi.org/10.1080/14616696.2022.2059542)

To link to this article: <https://doi.org/10.1080/14616696.2022.2059542>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



[View supplementary material](#)



Published online: 11 Apr 2022.



[Submit your article to this journal](#)



Article views: 945



[View related articles](#)



[View Crossmark data](#)

The intergenerational transmission of social advantage and disadvantage: comprehensive evidence on the association of parents' and children's educational attainments, class, earnings, and status

Arne Mastekaasa and Gunn E. Birkelund

Department of Sociology and Human Geography, University of Oslo, Oslo, Norway



ABSTRACT


In recent years, multidimensional conceptualizations of social origin have become increasingly common in social stratification research. We provide evidence on the associations between four origin measures, parents' class, status, earnings and education on the one hand and the corresponding offspring measures on the other. We also extend previous research on differences in origin effects at different levels of the children's educational attainment and compare the predictive power of the social origin measures with regard to children's top and bottom attainments on all outcome variables. We use Norwegian administrative data for nearly 500,000 individuals born between 1961 and 1970. The analyses show that parents' education is a much stronger predictor for all outcomes than are their social class and status positions – both taken separately and together. Parental education also outperforms parents' earnings, except when the offspring variable is also earnings. Thus, parents' premarket characteristics seem to be more important than their labour market achievements for their children's outcomes. A second major finding is that the predictive power of social origins is often quite similar for advantaged and disadvantaged outcomes. However, bottom earnings are much less strongly associated with social origins than are top earnings.

ARTICLE HISTORY Received 12 April 2021; Accepted 25 March 2022

EDITED BY Patrick Präg

KEYWORDS Intergenerational transmission of advantage; social origin dimensions; social class; top and bottom earnings; social status

CONTACT Arne Mastekaasa  arnema@sosgeo.uio.no  Department of Sociology and Human Geography, University of Oslo, P.O.Box 1096 Blindern, Oslo, 0317 Norway

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/14616696.2022.2059542>.

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

Introduction

The association between social origins and adult life outcomes has long been a central field of sociological research. In European sociology, scholars have focussed strongly on social class mobility, i.e. the association between parental class on the one hand and their daughters' and sons' class positions or educational attainments on the other (Breen 2004; Breen and Luijckx 2004; Bukodi and Goldthorpe 2013; Bukodi *et al.* 2018; Erikson and Goldthorpe 1992). Thus, an explicit or implicit assumption has been that one particular variable, class, is an adequate measure of social origin (Mood 2017). However, during the last decade or so, a number of scholars have argued in favour of a multidimensional conceptualisation of social origin. Theoretically, these arguments have often been linked to Bourdieu's capital types (Bourdieu 1986; Jæger 2007), or to Weber's distinction between class and status (Chan and Goldthorpe 2004). Empirically, this 'multidimensional turn' has implied the inclusion of measures of parents' social status and level of education (Barone and Ruggera 2018; Blossfeld 2018; Bukodi and Goldthorpe 2013; Jæger 2007; Meraviglia and Buis 2015), and, in a few studies, parents' income or earnings (Erikson 2016; Pensiero and Schoon 2019; Thaning 2021; Thaning and Hällsten 2020). In terms of outcomes, these studies have most often addressed offspring educational attainment, although there are also a few studies on children's socioeconomic positions (Erola *et al.* 2016) or earnings (Andrade 2016; Mood 2017). As far as we know, only a couple of studies have included class, education and earnings for both parents and children (Thaning 2021; Thaning and Hällsten 2020), and no study seems to have included, in addition to these variables, parents' and children's social status.

Most of the studies that have taken a multidimensional approach have used some type of linear regression, thus assuming that the social origin variables have identical impact irrespective of the level of the outcome variable. When using offspring educational attainment as the outcome variable, however, a few studies have compared results across different cut points, e.g. whether the association with social origins is stronger when the distinction is made between upper secondary and tertiary than when it is made between lower and upper secondary (Bukodi and Goldthorpe 2013; Bukodi *et al.* 2018; Pensiero and Schoon 2019). However, there seems to be no reason why similar questions about the impact on attainment at different levels of the outcome should not also be relevant with regard to other outcome variables than education.

Theoretically, such differential impacts of origin variables may be understood in terms of compensation and multiplication effects (Erola and Kilpi-Jakonen 2017). Parents may, e.g. make extra efforts to help children who are likely to end up with very low education or earnings, thus compensating for low cognitive or non-cognitive skills (cf. the discussion in Grätz and Wiborg 2020). Such behaviour would also be in line with Breen's and Goldthorpe's (1997) rational action theory of mobility in which actors are assumed to be primarily concerned with avoiding downward mobility (and not with achieving upward mobility).

Using register data covering the Norwegian population born between 1961 and 1970 we examine the associations between mother's and father's class, status, earnings and education on the one hand and the corresponding four offspring measures on the other. The original idea in the early contributions of both Bukodi and Goldthorpe (2013) and Jæger (2007) was to disentangle the independent contributions of the origin dimensions or resources by estimating the net effect of each when controlling for the others. However, many later studies have considered both gross and net associations, and we follow this practice. Due to space limitations, however, the net estimates are only provided in an Online Supplement.

Our study adds to the literature in two ways. First, by presenting separate models for three levels of attainment on each of the four outcome variables, we extend previous research which has investigated such variation with regard to educational attainment only. Second, to the best of our knowledge, the present paper is the first to include all four commonly suggested stratification measures (class, status, earnings and education) for both parents and children.

The next section describes the main approaches to multidimensionality in social stratification research. This is followed by a brief review of previous empirical findings. We then present our data and statistical methods before turning to a presentation and discussion of the results.

Approaches to multidimensionality

In contemporary stratification research, the general idea of a multidimensional approach seems to have gained wide acceptance – at least, we have not been able to find any contribution in the recent literature that have argued in favour of unidimensionality. Thus, the debate is mainly on the more specific issues involved in the selection of dimensions and empirical measures.

Taking Bourdieu's (1986) theory of capital types as his point of departure, Jæger (2007) suggested that social class often acts as a proxy for parents' economic, cultural and social capital. Thus, more direct measures of the capital types should preferably be included. As empirical indicators of the capital types, Jæger included not only standard origin measures such as parents' income (as a measure of economic capital) and education (cultural capital), but also additional measures such as home and car ownership (economic), newspaper subscription (cultural), and reported availability of social contacts that might be helpful to the respondent's children (social). Without necessarily relating to Bourdieu and his capital types, a number of other studies have also focused primarily on class (or socio-economic status), income (or earnings) and education (Andrade 2016; Erola *et al.* 2016; Mood 2017; Thaning 2021; Thaning and Hällsten 2020).

In line with Goldthorpe's earlier discussions of class, Erikson and Goldthorpe (1992) argue that class should be understood in terms of employment relations, in particular the distinction between service and labour contracts. Building on this narrower definition of social class, Chan and Goldthorpe (2004) introduced social status as another measure of social origin. With regard to offspring educational attainment (and perhaps intergenerational mobility more generally), the assumption seems to be that the effect of parents' class operates mainly through its influence on the economic situation of the family, i.e. parents' (current) income, but even more through income security, income stability and income prospects (Bukodi and Goldthorpe 2013). Non-economic aspects of social origin should be taken into account through other measures, in particular social status as conceptualised by Max Weber (2010 [1921]). Bukodi and Goldthorpe (2013:1025) describe status as 'grounded in relations of perceived social superiority, equality, and inferiority, and expressed in patterns of inclusion in, and exclusion from, more intimate kinds of association and distinctive lifestyles of social honour'. The empirical measure of status is based on a scaling of occupations in terms of the frequency of friendships between individuals with different occupations (Chan and Goldthorpe 2004, 2007).

Bukodi and Goldthorpe (2013) argue that parents' educational attainment should also be included as a measure of social origin. When included along with class and status, the idea is that parents' education will primarily capture parents' capacity to participate directly in furthering their children's educational careers, for instance by creating a supportive home environment. In contrast to Bourdieu-inspired studies in

which education is regarded as primarily an indicator of cultural capital, Bukodi and Goldthorpe (2013:1025–1026) argue that family ‘sociocultural resources in terms of parents’ social contacts and networks and their cultural tastes and forms of sociocultural participation’ are primarily indexed by social status. Following this lead, social status has been included in a number of later studies (Blossfeld 2019; Bukodi *et al.* 2018; Erikson 2016; Meraviglia and Buis 2015; Pensiero and Schoon 2019).

In terms of analytical methods, the dominant approach has been to carry out multiple regressions where the origin measures in question are included as regressors, either simultaneously (to estimate net associations) or one by one (gross associations). Evaluations of the strength of the associations are sometimes based primarily on the marginal effects or the coefficients (e.g. Bukodi *et al.* 2018; Pensiero and Schoon 2019), but more often on some kind of variance decomposition. The most straightforward approach is to evaluate changes in R^2 or ‘explained variance’ when adding the variable(s) in question to the regression equation (e.g. Erikson 2016). A variant of this approach is to use data on siblings and to assess the degree to which the origin variables can account for the between-sibship part of the variance and not the total variance (Andrade 2016; Erola *et al.* 2016; Thaning 2021; Thaning and Hällsten 2020).

Earlier studies comparing social origin measures

Among the previous studies employing a multidimensional approach, a Swedish study by Thaning (2021; see also Thaning and Hällsten 2020) is the most comprehensive since it considered education, socio-economic status (SES) and income as both predictors and outcome variables.¹ The main finding was that the dimension specific associations (origin SES with offspring SES, etc.) were generally stronger than the cross-dimension associations.

Most other studies have been limited to one outcome dimension only, particularly *offspring educational attainment*. Also using Swedish data, Erikson (2016) concluded that parents’ education and social class contributed more to the explained variance in offspring educational attainment than did parents’ status and earnings, although significant

¹The set of origin variables also included parents’ microclass and, in a supplementary analysis, social status in the Chan and Goldthorpe sense.

contributions were found for all four predictors. With data from the European Social Survey, Meraviglia and Buis (2015) found that father's and mother's education tended to be the strongest predictors of offspring education, when compared to class and status. There was also evidence that status was a better predictor than class, but considerable variation between countries.

Several other studies have also examined the associations of parents' class, education and status with offspring education, but the strength of the associations is not reported in terms of a standardised metric such as contributions to explained variance, so the results are less easy to compare (Barone and Ruggera 2018; Blossfeld 2018; Bukodi and Goldthorpe 2013; Bukodi *et al.* 2018; Pensiero and Schoon 2019). Nevertheless, the four-country study by Bukodi *et al.* (2018) indicates that there is considerable cross-national variation, with parents' class being relatively important in Britain and Sweden, and parents' status and education in Germany and Italy (cf. Meraviglia and Buis 2015).

A few previous studies have analysed differences in the predictive power of parents' class and parents' income for *offspring earnings*. Both with and without control for other social origin variables, both Mood (2017) and Thaning (2021) found offspring earnings to be more strongly associated with parents' earnings than with parents' education or social class or SES. Andrade (2016), relying on Danish data, found no significant difference in predictive power between parents' class and parents' earnings, but both were more strongly related to offspring earnings than was parents' education.

Thaning (2021) found *offspring SES* to be best predicted by parents' SES and social class. Using Finnish data, however, Erola *et al.* (2016) found offspring SES to be most strongly associated with parents' education, followed by parents' class, and with the weakest estimates for parents' income.

As noted above, some studies of offspring educational attainment have allowed social origin effects to depend on the level of attainment, but no clear pattern has emerged (Bukodi and Goldthorpe 2013; Bukodi *et al.* 2018; Pensiero and Schoon 2019). We may note, however, that a recent study of educational performance (as measured by grades or test scores), provided evidence of weaker associations at higher performance levels with all included origin characteristics, viz. parents' education, SES, earnings and wealth (Grätz and Wiborg 2020).

In summary, the extant literature reveals substantial cross-national variation, yet parents' *educational attainment* seems to be the origin

dimension that is most strongly associated with offspring educational attainment, whereas parents' earnings may be less important. Swedish studies suggest that the within dimension associations tend to be stronger than across dimension associations also for *income* (or earnings), but there is little evidence from other countries. With regard to *class* and *socio-economic status (ISEI)*, there is again Swedish support for the prominence of the within dimension associations, but a Finnish study found parents' education to be the best predictor for offspring ISEI.

Data and variables

The data are based on merged information from two censuses (1970 and 1980) and administrative register data covering the complete Norwegian population. All data are provided by Statistics Norway.² The population analysed here covers people born between 1961 and 1970.³ In line with recent recommendations in the literature (Thaning and Hällsten 2020), all social origin variables are measured separately for mother and father and included as such in the analyses. Moreover, this information refers to the child's registered mother and father (biological or adoptive), irrespective of whether the child lives with or has lived with them. Within data constraints we attempted to measure all social origin variables when the offspring was 10 to 19 years of age and when the parents themselves accordingly typically were in their late 30's or in their 40's (the median age at child's birth was 26 for mothers and 29 for fathers).⁴ Outcomes were measured as far as possible when the offspring was in her or his early 40's (for details, see below). Measurement at these ages is in line with recommendations in the income mobility literature (Haider and Solon 2006; Markussen and Røed 2019; Nybom and Stuhler 2016). Measurement of parental characteristics when the child is 10–19 is also in keeping with the thorough examination of this issue in Erola *et al.* (2016).⁵

²The data were provided to the project 'Ethnic segregation in schools and neighbourhoods: consequences and dynamics'. An Online Replication Package provides Stata code for the necessary data preparation and estimations. However, the data are the property of Statistics Norway, and research projects are not allowed to provide access to the data to third parties.

³Due to data limitations, we include only people who were born in Norway.

⁴To avoid measuring earnings at ages where many parents are pensioners, we included only sons and daughters born when both mother and father were at most 44 years.

⁵The ideal age interval in Erola *et al.* (2016) differed somewhat between mothers and fathers and between variables, but if the same age interval is to be used for both parents and all variables (which is also desirable), 10–19 seems to be a very good choice.

Table 1. Frequency distributions for the main predictors.

Class	Father	Mother
1. Large employers, higher grade prof., adm. and managerial	12.3	2.0
2. Lower grade professional, administrative and managerial	17.9	20.7
3. Intermediate occupations	4.6	5.2
4. Small employers and self-employed outside agriculture	10.1	4.0
5. Small employers and self-employed in agriculture	7.2	3.0
6. Lower supervisory and lower technician occupations	0.5	0.7
7. Lower services, sales and clerical occupations	5.0	17.5
8. Lower technical occupations	16.9	15.0
9. Routine occupations	25.5	32.0
Total	100.0	100.0
N	510,918	329,122
Status	Father	Mother
1. Lowest approximate decile	12.8	10.6
2	7.8	10.0
3	10.1	12.4
4	10.1	13.3
5	9.5	4.6
6	10.4	17.5
7	10.0	6.7
8	12.5	7.5
9	7.0	10.2
10. Highest approximate decile	9.8	7.4
Total	100.0	100.0
N	510,918	327,183
Education	Father	Mother
1. Compulsory education only (NUS codes 0-2) ^a	35.1	42.1
2. Some upper secondary (NUS 3)	31.4	41.8
3. Completed upper secondary (NUS 4)	14.4	4.5
4. Post-secondary (NUS 5)	2.4	1.0
5. Bachelor level (NUS 6)	10.8	9.9
6. Master level or above (NUS 7-9)	5.6	0.7
Total	0.4	0.0
N	100.0	100.0

Note: The percentage in each status category deviates from ten because of the large number of ties of the original variable. The low N's for mother's class and status are due to their lower rate of employment. The distributions of father's and mother's earnings are not shown since there are exactly 10 percent in each category (exact deciles).

^aNUS is the Norwegian Standard Classification of Education (<https://www.ssb.no/en/klasse/klassifikasjoner/36>).

Social class

We use the European Socio-economic Classification (ESeC; Rose and Harrison 2010), see Table 1. Since information on supervisory responsibility and size of establishment is unavailable, we rely mainly on the 'simplified' coding method, which only uses information on occupational codes (Harrison and Rose 2006), for parents, however, supplemented by tax data to identify self-employed individuals.

Information on mothers' and fathers' occupations was taken from the 1980 census (1970 if missing). Since a considerable number of women were not occupationally active in either of the censuses, all models include a dummy variable representing this group.

For offspring class, we use register data covering all employment relationships in Norway. This information is available for the years 2003 to 2014. We primarily measure class at age 42 (those born in 1961 were 42 in 2003), but supplement with data for later years if data for this age is missing. Overall, class was measured at age 42 for 77% of the sample and in the 42 to 49 age range for 99%.

Earnings

We measured mother's and father's average earnings over the ten-year period when their offspring was 10–19 years of age. Offspring earnings are measured by averaging over the years in which the individuals were 40 to 44 years of age. In line with recent research on earnings mobility (e.g. Chetty *et al.* 2014), we analyse earnings in terms of deciles within each birth cohort's earnings distribution. The conversion into deciles was carried out separately for men and women.

Social status

As measure of social status, we use the CAMSIS (Cambridge Social Interaction and Stratification) scale (Lambert and Griffiths 2018).⁶ As for class, data on mothers' and fathers' occupations are primarily from the 1980 Census, or the 1970 Census if 1980 data were missing. For offspring, the same register data on occupation were used as for class (see above). As for earnings, all status variables were converted to deciles.

Educational attainment

Level of educational attainment is based on the first digit of the Norwegian standard classification of education (NUS).⁷ Because of very few observations, the categories 'no education' and 'primary education' were included in the lower secondary category (corresponding to compulsory education in Norway), which is then treated as the bottom category. The categories are given in Table 1. In the supplementary OLS analyses, the categories for offspring education are recoded to approximate number of years of schooling.

⁶As no version of this scale has been developed specifically for Norway, we used the version developed for neighbouring Sweden (<http://www.camsis.stir.ac.uk/versions.html#Sweden>). We prefer Camsis to the alternative Chan and Goldthorpe scale, since the present Norwegian version of the latter (Chan *et al.* 2011) leads to a substantially greater number of missing values.

⁷<https://www.ssb.no/en/klasse/klasseklassifikasjoner/36>

Analyses

Since we want to assess whether the predictive power of the various origin measures is stronger or weaker at different levels of the outcomes, the analyses are carried out for three sets of outcomes. More specifically, we create indicator (dummy) variables for top (Class 1 versus others), top to medium (Classes 1 to 3 versus others) and bottom (Class 9 versus others) class position; top decile (versus lower), above median (versus below median) and bottom decile (versus higher) status; top decile (versus lower), above median (versus below median) and bottom decile (versus higher) earnings; and top (master level or above versus lower), medium to top (post-secondary or above versus lower) and bottom (lower secondary or lower versus higher) education. In line with most earlier studies of categorical stratification outcomes, we apply logistic regression.

As noted above, much of the extant literature relies mainly on some sort of variance decomposition, either decomposing the total variance (or, equivalently, R^2) or the between-sibship variance (if sibling models are applied). Since we analyse dichotomous outcomes, these methods cannot be directly applied. However, if a dichotomous outcome can be regarded as a realisation of an underlying latent variable, a decomposition of the variance of this latent variable can be done using the coefficient of determination suggested by McKelvey and Zavoina (R_{MZ}^2) (McKelvey and Zavoina 1975; Breen *et al.* 2014). With regard to educational attainment, Breen *et al.* (2014) suggest that the latent variable can be interpreted as an individual's propensity to make a given educational transition. In our case, we can likewise think in terms of propensities for obtaining, for instance, high or low social status or high or low earnings.

We obtained results from two regression models for each outcome. In the first model, only the dummy variables representing mother's and father's positions on one specific origin dimension (class, status, earnings or educational attainment) are included, and the R_{MZ}^2 then provides a measure of the 'gross associations'. The 'net association' is measured by the change in R_{MZ}^2 that occurs if the variables representing a particular origin dimension are added to a regression containing all the other predictors.

In addition to the logistic regression analyses of the dichotomised outcome variables, OLS results for the original outcomes (transformed to percentiles in the case of social status and earnings) are provided in the Online Supplement. These analyses are not carried out for class, since treatment of this variable as continuous is problematic (Erikson

Table 2. Means of the outcome variables (coded 0 and 1) for men and women.

		Men		Women	
		Mean	N	Mean	N
Class	Class 1	0.16	215,404	0.09	202,900
	Class 9	0.17	215,404	0.08	202,900
	Class 1–3	0.45	215,404	0.59	202,900
Status	Top decile	0.09	201,455	0.09	197,461
	Bottom decile	0.10	201,455	0.13	197,461
	Above median	0.50	201,455	0.50	197,461
Earnings	Top decile	0.10	251,031	0.10	241,662
	Bottom decile	0.10	251,031	0.10	241,662
	Above median	0.50	251,031	0.50	241,662
Education	Master level or more	0.10	261,610	0.08	249,308
	Lower secondary or less	0.21	261,610	0.20	249,308
	Post-secondary or more	0.37	261,597	0.43	249,299

Note: N's vary mainly because occupational information (class and status) is not available for the self-employed.

and Goldthorpe 1992:44).⁸ The Online Supplement also contains some other sensitivity checks.

Results

Descriptive statistics

Frequency distributions for the social origin variables are presented in Table 1 and means for outcome variables in Table 2.⁹ (Correlations between the origin variables are shown in the Online Supplement.) Social status and earnings are transformed into deciles. In principle,

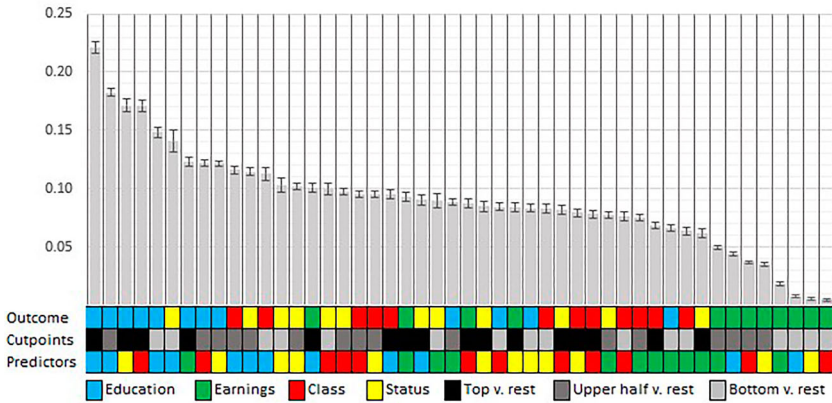


Figure 1. Intergenerational associations for different combinations of parental predictors and son's outcomes, at three different cutpoints of the outcomes. The columns show R^2_{MZ} from logistic regressions with 95% confidence intervals based on bootstrapping with 500 replications.

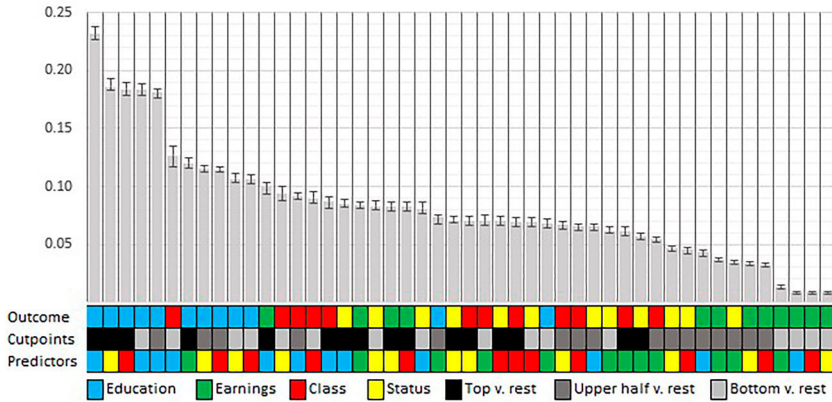


Figure 2. Intergenerational associations for different combinations of parental predictors and daughter's outcomes, at three different cutpoints of the outcomes. The columns show R^2_{MZ} from logistic regressions with 95% confidence intervals based on bootstrapping with 500 replications.

the proportion of individuals in each category should therefore be ten percent. This holds for earnings, so this frequency distribution is not informative and therefore omitted from the table. The measurement of social status is less fine-grained, so in this case the deciles are not perfect, as can be seen. This is also the case for the outcome variables, although in this case quite exact deciles were obtained for men (Table 2).

Regression results

The main results are presented in Figure 1 (men) and Figure 2 (women); for more details, see Tables A2 and A3 in the Online Supplement. Each figure gives the R^2_{MZ} 's (with bootstrapped confidence intervals) for 48 regression models (4 outcomes \times 3 outcome cutpoints \times 4 sets of predictors), with the R^2_{MZ} 's arranged in terms of declining size. Thus, the left-most column of Figure 1 represents the largest R^2_{MZ} of .221, which was obtained for the regression of son's top education (master level or more) on mother's and father's education (with each of the parental variables represented by five dummy variables). Similarly, the rightmost column represents an R^2_{MZ} of .007 for the regression of son's bottom decile earnings (i.e. with cutpoint between the bottom decile on the

⁸Percentiles instead of deciles are used for these variables to increase precision.

⁹The percentage in Class 6 is very low. This is so since supervisors cannot be identified in our data. Similar results for Class 6 are reported for other European countries (e.g., Davies and Elias 2010).

one hand and the remaining nine deciles on the other) and mother's and father's class (each represented by eight dummy variables).

In [Figure 1](#), most of the R_{MZ}^2 's are in the .06 to .12 range, but a few particularly large and particularly small correlations stand out. With one exception, the nine largest values are all obtained in regressions with son's education as the outcome variable. At the other extreme, all eight lowest values are from regressions with son's earnings as outcome. Thus, there is a clear tendency for son's education to be the outcome most strongly related to social origins and for offspring earnings to be the most weakly related, with son's class and status falling in between these. [Figure 1](#) also suggests that son's social status may be more strongly related to social origins than is social class, but the difference between the results for these two outcome variables is very small.

With regard to choice of cutpoints, there seems to be some tendency for top outcomes to be more strongly related to social origins than are bottom outcomes. However, this pattern is only found for earnings outcomes and to a lesser extent for education outcomes, and not when class or status is used as the outcome. With regard to son's earnings, it is noteworthy that the low predictability noted above applies only to low and (to a lesser extent) medium earnings, and not to top decile earnings, which do not stand out as being particularly weakly related to the social origin variables.

With regard to the predictors, the pattern is also quite clear – mother's and father's education are generally most predictive of the outcomes. Indeed, a more detailed inspection of [Figure 1](#) reveals that mother's and father's education are the best predictors of all outcomes except son's bottom decile and above/below median earnings, which are most strongly related to mother's and father's earnings. For outcomes other than earnings, parents' earnings tend to be weakest predictors. The predictive power of parents' status and class tend to be intermediate between that of parents' education on the one hand and parents' earnings on the other. The results for class and status as predictors are generally very similar – as one would expect since these origin variables are strongly correlated with one another.

The hypothesis of resource specificity suggests that each offspring dimension is best predicted by the same origin dimension. The finding that mother's and father's education are the best predictors not only for offspring education, but also for offspring class, status and top decile earnings gives little support to this idea.

The results for daughters (Figure 2) are generally very similar to those for sons. However, it may be noted that the relatively strong predictive power of mother's and father's education is even more striking here than it was for sons, since bottom decile earnings is now the only outcome that is not best predicted by parents' education.

Figures 1 and 2 present only the gross associations of parents' education, class, status and earnings, respectively. Net associations (increases in R^2_{MZ} when adding a particular origin dimension to a model already including the other origin dimensions) are presented in the online supplement (Table A3), and we only comment on them briefly here. When comparing the predictors with one another (and averaging across the outcomes), the average net associations are as low as .002 for parents' class and status and .005 to .007 for earnings, whereas they are .023 to .025 for parents' education. These results show that, overall, the social origin variables have very little *independent* predictive power. However, the associations involving education as either predictor, outcome or both still stand out as much stronger than the rest. The particularly small net associations when class or status are used as predictors reflect the very high correlation between these variables. However, even when parents' class and status are added simultaneously to the other predictors (mother's and father's education and earnings), the increase in R^2_{MZ} is .009 or less.

Supplementary analyses

As noted above, R^2 and R^2_{MZ} can both be interpreted in terms of the proportion of variance accounted for, although with the difference that this is the variance of the observed outcome variable in the case of R^2 and the variance of the hypothetical underlying latent variable in the case of R^2_{MZ} . To improve comparability with previous research we also carried out OLS regressions for sons' and daughters' social status, earnings and education, treating these outcome variables as continuous. R^2 's from these regressions are presented in the Online Supplement (Tables A4 and A5). Overall, the OLS results are very similar to the results with the outcome variables dichotomised at their medians. This holds in particular for the net associations, where the OLS (R^2) and logit (R^2_{MZ}) results with few exceptions differ by .001 or less.

Since several earlier studies employ sibling models and decompositions of the intraclass correlation, the Online Supplement also includes such decompositions, again treating the outcomes as continuous

variables (Table A6). The results are very similar to our main results. In particular, parents' education is the strongest predictor of both sons' and daughters' education and status. In three out of four analyses, offspring earnings are best predicted by parents' earnings; in terms of gross associations, however, daughters' earnings are most strongly associated with parents' education. This is also in line with the earlier analyses.

In view of the very low predictability of offspring bottom decile earnings, the Online Supplement also includes analyses of receipt of disability benefits. Disability benefits are provided to persons who are for health-related reasons considered unable to support themselves through gainful employment, and receipt of such benefits can thus be considered as an alternative indicator of weak labour market achievements. The results when using this outcome variable are very similar to those obtained for offspring bottom decile earnings (Table A7).

Discussion

With few exceptions (bottom decile earnings and median split earnings for sons and bottom decile earnings for daughters), the analyses have shown parents' education to be a stronger predictor than either parents' class, status or earnings in terms of gross as well as net associations. This is evident when assessed in terms of increments in R_{MZ}^2 , but also if OLS R^2 s or sibling correlations are used.

As far as offspring education is concerned, these findings are largely in line with most earlier studies with which sufficiently detailed comparisons are possible (Meraviglia and Buis 2015; Thaning 2021; Thaning and Hällsten 2020). Nevertheless, the differences in predictive power between parents' education on the one hand and the other origin measures on the other seem to be larger in our study than in these previous studies.

With regard to other outcomes, parents' education was found to be the strongest predictor of offspring SES in the Finnish context by Erola *et al.* (2016). The Swedish studies by Thaning and Hällsten (2020) and Thaning (2021), on the other hand, showed offspring SES to be more strongly related to parents' SES than to parents' education. The results for our occupational measures (social class and social status) are in line with the Finnish study.

Regarding offspring earnings, our findings are quite well in line with Swedish studies (Mood 2017; Thaning 2021; Thaning and Hällsten 2020), although parents' education once again appears to be a slightly

stronger predictor in our data than in these studies. Both the Swedish studies and our study differ from Andrade's (2016) Danish study, where parents' income was found to be a relatively weak predictor of son's income.

Thaning (2021) found that offspring education was best predicted by parents' education, offspring SES by parents' SES, and offspring earnings by parents' earnings, a pattern he referred to as resource specificity. Our results on earnings are to some extent in line with this. One might argue that the results for offspring education are also an example of resource specificity, as parents' education is clearly the best predictor of offspring education. However, in line with Erola *et al.* (2016) we found that parents' education was the strongest predictor even for offspring class and status; thus, in our case a general prominence of parents' education seems to be a more appropriate interpretation.

For all outcomes, the gross associations of parents' class and parents' status are very similar (as might be expected given the very high correlations between class and status). Moreover, the net associations are all very small. Although the idea behind including both parents' class and parents' status in the analyses is not to maximise explained variance, the utility of including both these occupation-based measures might seem questionable. It should be kept in mind, however, that in Bukodi and Goldthorpe's (2013) model, class is assumed to capture the economic situation of the parents, and parents' earnings or income is not included. Although our analyses suggest that earnings are a better measure of economic resources than class is, the case for including both class and status is clearly strengthened if parents' earnings or income is for some reason not included.

Like the previous literature to which we relate here, the present study is descriptive rather than causal. Nevertheless, it is of interest to note that parents' class, parents' status and parents' earnings all mainly reflect parents' labour market achievements, whereas their educational attainments are largely determined before the start of their work careers. Thus, our findings suggest that parents' pre-market characteristics may be more important for crucial offspring outcomes than the parents' later achievements seem to be.

For both men and women, bottom decile earnings are particularly weakly related to all social origin variables (although the association with parents' earnings is not entirely ignorable). Although to a much lesser extent, weaker predictability of disadvantaged than of advantaged outcomes is also found for offspring education. Top decile earnings, on the other hand, are equally strongly associated with social origins as

are class or status. Apart from these cases, the predictive power of social origins is mostly quite similar for top and bottom positions on the outcome variables.

A possible explanation for these patterns is that earnings and education are both measured for almost the whole population whereas class and status are measured only for those who are occupationally active during some time interval, thus excluding the arguably most disadvantaged. It is consistent with this understanding that analyses of offspring permanent disability (see Table A7 in the Online Supplement) yield results that are very similar to those obtained for offspring bottom decile earnings.

The descriptive nature of our study should again be underscored. It may nevertheless be noted that the results show few signs of compensation effects. The results on offspring earnings and offspring education are instead more suggestive of cumulative advantage (or *multiplicative accumulation* in the terminology of Erola and Kilpi-Jakonen 2017). In other words, having parents with high educational or socio-economic achievements seem to be more helpful for those who would attain a relatively high level of education and earnings anyway than for those who would not.

Both sociological and economic research on intergenerational mobility have revealed considerable variation between countries (Torche 2015). Thus, there is reason to be sceptical about possibilities for broad generalisations of findings from any given country. However, the Nordic countries are arguably quite similar in many ways, in particular with regard to a relatively high level of intergenerational mobility. Our study differs from previous studies in some important ways, particularly in allowing intergenerational associations to be different at different levels of the outcome variables. To the extent that the studies can be compared, however, our impression is that the findings are quite similar. Perhaps the most striking difference is that parents' education seems to be a relatively stronger predictor in our study and in Erola *et al.*'s (2016) Finnish study than in the Swedish (Mood 2017; Thaning 2021; Thaning and Hällsten 2020) and Danish studies (Andrade 2016). More research is needed to tease out these differences, preferably with truly comparative designs.

Conclusion

Recent sociological literature on intergenerational mobility has stressed the need to take into account several stratification dimensions, the ones

most frequently mentioned being social class, education, social status and income or earnings. To the best of our knowledge, the present study is the first that has included all these dimensions, on both the parental and the offspring side.

A main finding is the relatively strong predictive power of parents' education. This origin variable is a stronger predictor than social class and social status for nearly all outcomes. It has also much more predictive power than parents' earnings, except when the offspring variable is also earnings. We interpret this finding as an indication that parents' premarket characteristics are of primary importance for their children's outcomes, whereas parents' own labour market achievements may be of less importance. However, since our study (like the previous literature to which we relate) does not provide a causal identification of parameters, the preliminary character of this interpretation should be underscored.

The predictive power of the social origin variables is often quite similar for top and bottom positions on the outcome variables. However, a notable exception is that children's bottom earnings are much less associated with their social origins than are children's top earnings. To some extent, a similar pattern is found for offspring education.

In general, the degree to which our results can be generalised beyond Norway is an open question. As noted above, previous studies suggest that there may be considerable variation between European countries and there is some variation even between studies undertaken in the Nordic countries.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The research reported here was in part funded by The Research Council of Norway (grant numbers 236793 and 300917).

Notes on contributors

Arne Mastekaasa is Professor of Sociology at the University of Oslo. Important fields of research are social mobility and stratification and labour markets. Recent articles have appeared in *European Sociological Review*, *Journal of Public Administration Research and Theory* and *Social Forces*.

Gunn Elisabeth Birkelund is a Professor of Sociology at University of Oslo. Her main research interests include analytical sociology, labor market studies, social inequalities, and population dynamics. She is a Fellow at The European Academy of Sociology, and Secretary General at the Norwegian Academy of Science and Letters. Her articles have appeared in *European Sociological Review*, *Social Forces*, *International Migration Review*, *European Societies*, and, earlier, in *American Journal of Sociology* and *American Sociological Review*.

References

- Andrade, S. B. (2016) 'Class origin and sibling similarities in long-term income', *Acta Sociologica* 59: 309–31.
- Barone, C. and Ruggera, L. (2018) 'Educational equalization stalled? Trends in inequality of educational opportunity between 1930 and 1980 across 26 European nations', *European Societies* 20: 1–25.
- Blossfeld, P. N. (2018) *Changes in Inequality of Educational Opportunity: The Long-Term Development in Germany*, Wiesbaden: Springer.
- Blossfeld, P. N. (2019) 'A multidimensional measure of social origin: Theoretical perspectives, operationalization and empirical application in the field of educational inequality research', *Quality & Quantity* 53: 1347–67.
- Bourdieu, P. (1986) 'The forms of capital', in J. G. Richardson (ed.), *Handbook of Theory and Research in the Sociology of Education*, New York: Greenwood Press, pp. 241–58.
- Breen, R. (ed.). (2004). *Social Mobility in Europe*, Oxford: Oxford University Press.
- Breen, R. and Goldthorpe, J. H. (1997) 'Explaining educational differentials: Towards a formal rational action theory', *Rationality and Society* 9: 275–305.
- Breen, R. and Luijckx, R. (2004) 'Social mobility in Europe between 1970 and 2000', in R. Breen (ed.), *Social Class in Europe: An Introduction to The European Socio-Economic Classification*. London: Routledge, pp. 37–75.
- Breen, R., Holm, A. and Karlson, K. B. (2014) 'Correlations and nonlinear probability models', *Sociological Methods & Research* 43: 571–605.
- Bukodi, E. and Goldthorpe, J. H. (2013) 'Decomposing "social origins": The effects of parents' class, status, and education on the educational attainment of their children', *European Sociological Review* 29: 1024–39.
- Bukodi, E., Eibl, F., Buchholz, S., Marzadro, S., Minello, A., Wahler, S., Blossfeld, H.-P., Erikson, R. and Schizzerotto, A. (2018) 'Linking the macro to the micro: A multidimensional approach to educational inequalities in four European countries', *European Societies* 20: 26–64.
- Chan, T.-W. and Goldthorpe, J. H. (2004) 'Is there a status order in contemporary British society? Evidence from the occupational structure of friendship', *European Sociological Review* 20: 383–401.
- Chan, T.-W. and Goldthorpe, J. H. (2007) 'Class and status: The conceptual distinction and its empirical relevance', *American Sociological Review* 72: 512–32.
- Chan, T.-W., Birkelund, G. E., Aas, A. K. and Wiborg, Ø. (2011) 'Social status in Norway', *European Sociological Review* 27: 451–68.

- Chetty, R., Hendren, N., Kline, P., Saez, E. and Turner, N. (2014) 'Is the United States still a land of opportunity? Recent trends in intergenerational mobility', *American Economic Review* 104: 141–7.
- Davies, R. and Elias, P. (2010) 'The application of ESeC to three sources of comparative European data', in D. Rose and E. Harrison (eds.), *Social Class in Europe: An Introduction to The European Socio-Economic Classification*. London: Routledge, pp. 61–86.
- Erikson, R. (2016) 'Is it enough to be bright? Parental background, cognitive ability and educational attainment', *European Societies* 18: 117–35.
- Erikson, R. and Goldthorpe, J. H. (1992) *The Constant Flux: A Study of Class Mobility in Industrial Societies*, Oxford: Clarendon.
- Erola, J. and Kilpi-Jakonen, E. (2017) 'Compensation and other forms of accumulation in intergenerational social inequality', in J. Erola and E. Kilpi-Jakonen (eds.), *Social Inequality Across the Generations. The Role of Compensation and Multiplication in Resource Accumulation*, Cheltenham: Edward Elgar, pp. 3–24.
- Erola, J., Jalonen, S. and Lehti, H. (2016) 'Parental education, class and income over early life course and children's achievement', *Research in Social Stratification and Mobility* 44: 33–43.
- Grätz, M. and Wiborg, Ø. N. (2020) 'Reinforcing at the top or compensating at the bottom? Family background and academic performance in Germany, Norway, and the United States', *European Sociological Review* 36: 381–94.
- Haider, S. and Solon, G. (2006) 'Life-cycle variation in the association between current and lifetime earnings', *American Economic Review* 96: 1308–20.
- Harrison, E. and Rose, D. (2006) 'The European Socio-economic Classification (ESeC) User Guide', mimeo, Institute for Social and Economic Research, University of Essex Colchester, UK. (<https://www.iser.essex.ac.uk/files/esec/guide/docs/UserGuide.pdf>).
- Jæger, M. M. (2007) 'Educational mobility across three generations: The changing impact of parental social class, economic, cultural and social capital', *European Societies* 9: 527–50.
- Lambert, P. S. and Griffiths, D. (2018) *Social Inequalities and Occupational Stratification: Methods and Concepts in the Analysis of Social Distance*, Basingstoke: Palgrave.
- Markussen, S. and Røed, K. (2019) 'Economic mobility under pressure', *Journal of the European Economic Association* 18: 1844–85.
- McKelvey, R. D. and Zavoina, W. (1975) 'A statistical model for the analysis of ordinal level dependent variables', *Journal of Mathematical Sociology* 4: 103–20.
- Meraviglia, C. and Buis, M. L. (2015) 'Class, status, and education: The influence of parental resources on IEO in Europe, 1893–1987', *International Review of Social Research* 5: 35–60.
- Mood, C. (2017) 'More than money: Social class, income, and the intergenerational persistence of advantage', *Sociological Science* 4: 263–87.
- Nybom, M. and Stuhler, J. (2016) 'Heterogeneous income profiles and lifecycle bias in intergenerational mobility estimation', *Journal of Human Resources* 51: 239–68.

- Pensiero, N. and Schoon, I. (2019) 'Social inequalities in educational attainment: The changing impact of parents' social class, social status, education and family income, England 1986 and 2010', *Longitudinal and Life Course Studies* 10: 87–108.
- Rose, D. and Harrison, E. (eds.). (2010). *Social Class in Europe: An Introduction to The European Socio-Economic Classification*, London: Routledge.
- Thaning, M. (2021) 'Resource specificity in intergenerational inequality: The case of education, occupation, and income', *Research in Social Stratification and Mobility* 75: 100644.
- Thaning, M. and Hällsten, M. (2020) 'The end of dominance? Evaluating measures of socio-economic background in stratification research', *European Sociological Review* 36: 533–47.
- Torche, F. (2015) 'Analyses of intergenerational mobility: An interdisciplinary review', *Annals of the American Academy of Political and Social Science* 657: 37–62.
- Weber, M. (2010 [1921]) 'The distribution of power within the community: Classes, Stände, Parties', *Journal of Classical Sociology* 10: 137–15.