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Educational Fields of Study and the Intergenerational Mobility Process in Comparative Perspective

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Abstract
This article examines the importance of educational field of study, in addition to educational level, for explaining intergenerational class mobility in four countries: France, Germany, the UK and the Netherlands. Starting from standard models that only include educational level, we increase the complexity of the educational measure by differentiating between fields of study within levels. Contrary to our expectations, including field of study does not substantially reduce the partial effect of class origin on class destination. This seems to be due to the limited association between class origin and field choice, and between field choice and class destination. Implications for stratification and mobility studies are discussed.

Key words: class destination • class origin • education • field of study • intergenerational mobility

INTRODUCTION

In recent years sociological research has provided greater insight into the role of education in processes of social stratification and mobility. While, traditionally, social stratification and mobility research has focused on the study of vertical educational differentiation (higher versus lower levels of schooling), sociologists

are recognizing the need to move beyond this narrow conception of educational attainment. One extension has been the emphasis on distinctions between vocational and generic types of schooling *within* the same vertical level, as was extensively studied in the CASMIN project (e.g. Brauns et al., 1999; Shavit and Müller, 1998). This distinction has proved to be very useful, and has great relevance for studies of social inequalities in educational attainment and the role of education in occupational attainment. Furthermore, the distinction is particularly relevant from a cross-national perspective, as our understanding of institutional differences in the organization of educational systems is greatly enhanced by this framework.

One area where education plays an important role is in the process of intergenerational social mobility. In trying to explain the association between class origin and class destination, traditional mobility studies have focused primarily on the role of educational attainment. 'Educational attainment' is usually operationalized through measures of levels of schooling, sometimes with the inclusion of additional distinctions between general and vocational tracks. In this article we will examine how far employing a yet further elaborated measure of educational attainment improves our understanding of processes of intergenerational social mobility. In contrast to most existing studies (e.g. Breen, 2004; Ishida et al., 1995; Marshall et al., 1997), we move from the standard operationalization of educational attainment in purely hierarchical terms to one that takes both vertical and horizontal differentiation into account. Specifically, we distinguish between different fields of study within educational levels.

The relevance of educational fields of study for issues of social inequality has been demonstrated in a number of research papers. For example, researchers have studied the impact of gender and social origin on choices of subjects (e.g. Bradley, 2000; Dryler, 1998; Hansen, 1997; Jacobs, 1995; Jonsson, 1999; Polachek, 1978; Smyth, 1999; van de Werfhorst et al., 2001, 2003), the impact of fields of study on labour market opportunities (Daymont and Andrisani, 1984; Hansen, 2001; Kalmijn and van der Lippe, 1997; van de Werfhorst, 2002a) and on value orientations and lifestyle (Nilsson and Ekehammar, 1986; van de Werfhorst and Kraaykamp, 2001). We therefore have good reason to ask whether field of study is also relevant to the social mobility process.

Looking at education in a more fine-grained way, that is, by examining variations in levels and fields of education, is important for two reasons. First, it may shed new light on the extent to which advantage is passed on from parents to children through education, or to what extent parents affect their offspring's opportunities independent of schooling. One central finding of social mobility studies is that social class origin affects children's social class position even after controlling for education. This means that children of advantaged backgrounds have better opportunities than children of less advantaged backgrounds partly because of their higher level of educational attainment, but also when they have similar levels of schooling. Thus, social origin has both a direct and, via schooling, an indirect effect

on children's occupational and class attainment (Blau and Duncan, 1967; Breen, 2004; Marshall et al., 1997). But our estimates of the direct and indirect effects of class origin may be misleading if we ignore horizontal educational differentiation. A fuller investigation of educational choices may reveal that a larger share of parents' influence is captured by differential educational choices, thereby diminishing the direct effect on children's opportunities (Erikson and Jonsson, 1998). Second, including horizontal educational differentiations in mobility studies is important because we might gain further insight into the educational choices that children make as part of their mobility strategies (van de Werfhorst, 2002b). In this regard it is relevant to examine whether in some fields of study children are more advantaged by their class background than in other fields (Hansen, 1996; Hansen and Mastekaasa, 2006).

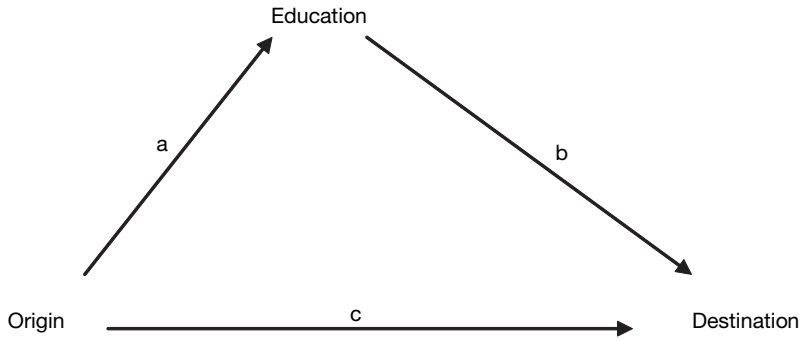
Our central research question is, therefore, does including educational field of study in our analyses of the mobility process alter the magnitude of the direct effect of class origin on class destination? The analysis is carried out for four Western European countries: France, Germany, the UK and the Netherlands. This allows us to examine cross-national variations in patterns of educational choice and social mobility.

RECENT RESEARCH ON THE ROLE OF EDUCATION IN THE INTERGENERATIONAL MOBILITY PROCESS

Following pioneering work by Duncan and Hodge (1963) as well as Blau and Duncan (1967), the status attainment literature has for a long time investigated the role of education in the intergenerational mobility process. Figure 1 shows the hypothesized relationship between social origin, educational attainment and social destination under the status attainment model. We see that the mobility process can usefully be conceived of as a set of two pathways. First, fathers (or parents) transmit their occupational status to their children via education: this is so because social background influences educational attainment (arrow a), and educational attainment to a significant extent influences occupational outcomes in modern societies (arrow b). Second, fathers (or parents) can transmit their occupational status to their children in a direct way, for instance when a transfer of proprietorship occurs. More generally, arrow c represents all the channels by which fathers (or parents) can influence the occupational status of their offspring *controlling for* education.

In a comparative study on *Social Mobility in Europe*, Breen and colleagues (2004) tracked trends in social mobility in the last quarter of the 20th century. For six out of 11 countries (France, Germany, the UK, Ireland, Sweden, and the Netherlands), the volume presented detailed studies on the changing relationships between class origin, educational attainment, and class destination over time – with the following results (see also Breen and Jonsson, 2007; Breen and Luijkx, 2007).[1] First, as regards the path from origins to education (arrow a), class inequality in educational attainment has declined in France, Germany, the

Figure 1 Origin, education, and destination: the OED triangle



Netherlands and Sweden, but not in the UK and Ireland. Second, the association between education and class destination, controlling for class origin (arrow b), has declined in all six countries. Third, the association between origin class and destination class, controlling for education (arrow c), has remained constant in Germany, the UK and Ireland, whereas it has declined in the Netherlands. Fourth, there is a compositional effect, in which the general increase in social fluidity is seen to result from increasing numbers of highly-qualified individuals in the population, for whom the association between origin and destination is weaker. This weaker origin-destination association for highly-qualified individuals has been demonstrated in a period perspective for the United States (Hout, 1988) and France (Vallet, 2004) and in a cohort perspective for Sweden (Breen and Jonsson, 2007) and Germany (Breen and Luijkx, 2007).

The whole research field reviewed here has measured educational attainment using the CASMIN educational schema that combines level of education with a distinction between general and vocational tracks. It is therefore the primary goal of the present paper to investigate whether introducing the field-of-study dimension sheds new light on analysis of the 'Origin-Education-Destination triangle'.

FIELDS OF STUDY AND SOCIAL MOBILITY

While the specific question of the role of educational field of study in social mobility is rarely addressed, social scientists have long recognized that field of study is important for outcomes of interest to stratification researchers. For example, field of study has been shown to be important for wage attainment (e.g. Daymont and Andrisani, 1984; Gerber and Schaefer, 2004; Kalmijn and Van der Lippe, 1997; van de Werfhorst, 2002a; Wilson, 1978; Wilson and Smyth-Lovin, 1983). Fields of study vary in the wage returns that they provide, with the professional fields (medicine, business, law) usually paying off rather more than fields

in social studies and humanities (for more on this, see the contribution of Reimer et al. in this special issue). This pattern has been demonstrated for a number of Western countries.

More recently, sociological studies of inequality and stratification have formulated research questions about the impact of social origin on educational fields of study, and how this affects intergenerational social mobility (Ayalon and Yogev, 2007; Hansen, 1997; van de Werfhorst et al., 2001). Davies and Guppy (1997) found for the United States that, controlling for academic ability, university students of *lower* socio-economic status families more often enrol in 'lucrative' fields of study with a high labour market pay-off. This led them to conclude that, among working-class students who enrol in university, education is seen as a 'route to upward mobility'. Parents' cultural resources, operationalized as family reading behaviour, did not affect enrolment in economically lucrative fields, even if no controls were included for academic ability.

Only a few studies have looked at the role of educational field of study in the whole origin-education-destination triangle. Erikson and Jonsson (1998) showed for Sweden that the effect of social class origin on class destination reduces sharply after controlling for both educational level and field. People with degrees in teaching, social sciences and health had the relatively highest chance of ending up in the service class, while the social sciences also have a relatively high pay off in terms of income.

Van de Werfhorst (2002b) analysed the detailed role of education in the class mobility process, and showed that children of different social classes choose fields that improve their chances of attaining the same class as their parents. Children of farmers often choose the agricultural field, children of skilled manual workers often select technical fields at the lower and intermediate level, children of self-employed parents often enrol in economically oriented fields at the intermediate level, and children of the service class more often enrol in professional fields like law and medicine. Additionally, it was shown that a model that included educational fields of study (in addition to level of schooling) decreased the partial (direct) effect of social origin on class attainment. This is the only study that has thus far examined this relative balance between direct and indirect effects when employing a measure of field of study.

DIFFERENTIAL EFFECTS OF SOCIAL ORIGIN ACROSS FIELDS

Hansen (1996) has studied the differential impact of social origin on wage attainment across different educational fields and different occupational groups. The general hypothesis underlying this study was that social origin has a differential effect on wages across subgroups. Because of network effects and differential cultural traits, people were expected to benefit most in the fields similar to their parents. Some support for the hypothesis was found: for example, those educated in the field of business benefit most from their field if they originate in

the class of managers and business executives. Along similar lines, Hansen and Mastekaasa (2006) showed that children from advantaged backgrounds perform better in universities than children from less advantaged backgrounds, but particularly in the cultural and professional fields of study. This might be explained by the fact that the requirements for performing well in such fields are much more vague than in technical fields, so that the benefits reaped from a cultured background can be more easily put to use. Skills like speaking in public, writing, and argumentation are more important in these fields, and people develop these skills partly in their parental home.

Generalizing from this 'differential advantage hypothesis' of the Norwegian studies, it can be expected that the impact of social origin on achievement varies across domains. Applying this to social class attainment, it is plausible to believe that the benefits of a high social background extend towards the integration into higher-level occupations, but more so in some fields than in others. Children educated in the humanities may benefit more from a high-class background than children educated in more technically oriented disciplines. This implies more class inequality among the people educated in the humanities in terms of reaching attractive social class positions. On the other hand, among people educated in technical fields, class attainment is unlikely to be heavily affected by social background. First, because technical fields can be seen as 'routes to upward mobility' (Davies and Guppy, 1997), it is unlikely that cultural capital has achieved a dominant role in selection and allocation processes in technical firms. Second, the types of occupations that technical fields prepare for demand fewer skills that are partly achieved in the home, such as social and language skills, and personal style. Given that schools are more important for mathematics achievement than for language achievement, whereas families are more important for language achievement (Brandsma and Knuver, 1989; van de Werfhorst et al., 2003), the fields that put a stronger emphasis on mathematical skills may be more meritocratic than fields where language skills are important.

DESIGN

Data, Variables and Models

We analyse survey data from four countries: France, Germany, the UK and the Netherlands. For France, we use the Formation-Qualification Professionnelle 2003 Survey. For the UK, we use the General Household Surveys of 1991 and 1992. For Germany, we employ the German Socioeconomic Panel (GSOEP) collected in different years. For the Netherlands, we pool several surveys: The Amenities and Services Utilization Survey (AVO) 1999, the Family Surveys of the Dutch Population of 1992, 1998 and 2000, and the Households in the Netherlands survey 1995 (HIN). See Table 1 for the sample sizes.

We distinguish between four educational levels **E**: primary or lower secondary, upper secondary, vocational college/short tertiary, and university. The educational classification that we use can be considered to be a simplified version

Table 1 Analytical sample sizes

	Netherlands	Germany	UK	France	Total
Men	6239	2872	8119	15,620	32,850
Women	5889	2332	7173	15,310	30,704
Total	12,128	5204	15,292	30,930	63,554

of the CASMIN educational schema (due to data constraints it was not possible to use the full schema).

For schooling up to lower secondary level it is not possible to distinguish between fields of study. However, from upper secondary level upwards we can distinguish between the following fields:

- General (only applicable for upper secondary education, as higher qualifications are always within a particular field);
- Humanities/Care/Health/Teaching/Social-Cultural;
- Technical/Engineering/Sciences/Agriculture;
- Economics/Business/Law.

The combined variable on educational level and field of study is called **F**, and has 11 categories for France and the Netherlands. Because of data restrictions, it has only eight categories for Germany and six categories for the UK.

For origin **O** and destination **D** we use the six-class version of the Erikson and Goldthorpe class schema: I–II, IIIab, IVab, IVc, V–VI, VIIab (Erikson and Goldthorpe, 1992). With this version we follow earlier conventions in mobility research. This way, we can strictly build upon common practice, and see to what extent field of study advances our knowledge of the mobility process. Although we acknowledge that a further disaggregation of classes, in particular distinguishing classes I and II, would be beneficial, further differentiation was not possible given the sample sizes available to us.

We also distinguish between three birth cohorts **C** in each country: individuals born before 1951; born in the years 1951–60; born after 1960.

RESULTS

To analyse the association between these categorical variables, we employ log-linear and log-multiplicative models. These models are particularly useful for studying class mobility (e.g. Breen, 2004; Ishida et al., 1995; Erikson and Goldthorpe, 1992; Ganzeboom et al., 1989).

We set up our analyses in two mobility tables. In the first, we have cohort by class origin by educational level by class destination (COED), in the second, we have cohort by class origin by educational level and field of study by class destination (COFD). We fit a model that allows for cohort changes in the origin – educational variable association and in the educational variable – destination association, but we do not allow for change in the partial origin – destination association, that is,

we estimate {COE CED OD} and {COF CFD OD} respectively. As is standard practice, we fit models separately for men and women. In most gender-by-country combinations, this model affords the best compromise between parsimony and fit.[2] To get a synthetic view of the strength of the OD association in these models (using effect coding), we follow Hagenaars (1990) who proposes two overall measures: the maximum difference within the corresponding set of log-linear parameters and the arithmetic mean of the absolute parameters (Table 2). While the former measure relies on the extremes and may be sensitive to outliers, the latter one is likely to be less sensitive, as it is affected by all parameters of the OD association.

In each country, the partial OD association is weaker among women than among men, a finding that perhaps results from the more frequent use of father's occupation to measure origin class. Considering the arithmetic mean of the absolute parameters, the partial OD association is weakest in the Netherlands and strongest in Germany (for men) or the UK (for women), with France in an intermediate position. However, and most strikingly, Table 2 reveals that the strength of the partial OD association is remarkably similar whether we include only level of education, or both level and field of education. Evidently, we do *not* observe any consistent pattern suggesting that the partial association between origin and destination is significantly reduced when a more detailed measurement of education is included. The only exception to this pattern is in the case of Dutch men.

In order to test the differential advantage hypothesis derived from Hansen and others (Hansen, 1996; Hansen and Mastekaasa, 2006), we let the partial OD association of the previous model vary across our level and fields of education variable, that is, we introduce a three-way interaction between origin, destination, and level and fields of education. As the German data are not sufficiently numerous to carry out these analyses in a reliable way, we now analyse data from the three other countries only. For these three countries, we compare model

Table 2 Overall association measures based on the partial OD log-linear parameters

	Level of education only		Both level and field of education	
	Maximum difference	**Arithmetic mean of the absolute parameters**	**Maximum difference**	**Arithmetic mean of the absolute parameters**
Men				
France	3.846	0.414	3.808	0.406
Germany	4.008	0.597	4.013	0.641
UK	5.302	0.523	5.301	0.524
Netherlands	3.681	0.357	3.448	0.344
Women				
France	2.604	0.318	2.586	0.317
Germany	2.297	0.395	2.343	0.394
UK	3.768	0.438	3.782	0.438
Netherlands	2.271	0.270	2.366	0.276

{COF CFD OD} with model {COF CFD ϕ_FOD}. While the former posits that the partial association between origin and destination is constant across cohorts and constant across categories of F (the level and fields of study variable) the latter assumes a common odds-ratio pattern, of varying strength across combinations of levels and fields for the same association (Xie, 1992). We estimate two versions of that log-multiplicative model: an unconstrained one (in which the strength of the partial OD association varies freely over all categories of F) and a constrained one (which assumes that strength varies across fields of study, but is constant over levels for the same field).[3]

In France, the fit of the unconstrained model is a significant improvement over the constant model for both men ($L^2 = 26.0$, 10 d.f., $p < 0.01$) and women ($L^2 = 30.5$, 10 d.f., $p < 0.001$); and the constrained version is not significantly worse than the unconstrained one, for men ($L^2 = 12.1$, 6 d.f., $p > 0.05$) or for women ($L^2 = 9.9$, 6 d.f., $p > 0.10$). In the Netherlands, the unconstrained model does not significantly improve over the constant model, for men ($L^2 = 7.7$, 10 d.f., $p > 0.10$) or for women ($L^2 = 15.2$, 10 d.f., $p > 0.10$); and the result is the same when the constrained version is compared with the constant model for men ($L^2 = 2.8$, 4 d.f., $p > 0.10$), but not for women ($L^2 = 8.1$, 4 d.f., $p < 0.10$). We therefore have clear empirical evidence that the strength of the partial OD association varies across fields of study in France, but only limited evidence for the Netherlands. Table 3 presents the corresponding log-multiplicative parameters for both countries.

In France, for both men and women, the constrained model reveals that the strength of the association between origin and destination is weaker in the Humanities/Care/Health/Teaching/Social-Cultural field of education than in the Technical/Engineering/Sciences/Agriculture field. It is also somewhat larger in the Economics/Business/Law field than in the Technical one. The unconstrained models generally confirm these results and they also suggest that the difference between the Humanities and Technical fields is strongly reduced at the university level of education. However, the Netherlands displays the opposite pattern: for both men and women, in the constrained as well as the unconstrained model, the partial OD association tends to be consistently stronger among people educated in the humanities than among those who received a technically oriented education, but the overall effect is not significant.

In the UK data, it is only at the university level that fields of study can be identified. The fit of the log-multiplicative model does not significantly improve over the constant model for men ($L^2 = 7.8$, 5 d.f., $p > 0.10$) or for women ($L^2 = 7.8$, 5 d.f., $p > 0.10$). Notwithstanding, parameters estimated at the university level suggest a pattern similar to the French one, that is, they are larger in the technical field (0.91 for men and 0.94 for women) than in the humanities field (0.30 for men and 0.92 for women).

All in all, the differential advantage hypothesis receives limited support. Only in the Netherlands is the partial association between class origin and destination *stronger* in the humanities field than in the technical field, but that difference is

Table 3 Log-multiplicative parameters for the OD association across levels and fields of education (constrained and unconstrained models)

	France				The Netherlands			
	Men		Women		Men		Women	
Levels and fields of education	**Constr.**	**Unconstr.**	**Constr.**	**Unconstr.**	**Constr.**	**Unconstr.**	**Constr.**	**Unconstr.**
Primary/Lower secondary	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upper second./General	0.76	0.75	0.51	0.51	1.19	1.21	0.77	0.71
Upper second./Humanities	0.39	0.33	0.46	0.69	1.52	1.31	0.70	0.80
Upper second./Technical	0.89	1.00	0.70	1.17	1.02	1.03	0.27	0.41
Upper second./Economics	1.07	1.18	0.74	0.63	1.12	1.36	1.02	1.13
Short tertiary/Humanities	0.39	0.11	0.46	0.08	1.52	2.40	0.70	0.42
Short tertiary/Technical	0.89	0.85	0.70	0.30	1.02	1.06	0.27	0.06
Short tertiary/Economics	1.07	1.29	0.74	0.75	1.12	0.65	1.02	−0.29
University/Humanities	0.39	0.52	0.46	0.62	1.52	1.37	0.70	1.04
University/Technical	0.89	0.54	0.70	0.64	1.02	0.85	0.27	−0.12
University/Economics	1.07	0.77	0.74	0.96	1.12	1.65	1.02	2.04

not consistently significant. Moreover, France and the UK display the opposite pattern, and differences between fields of study prove to be statistically significant in the former country. We will discuss possible explanations of these contrasting results below.

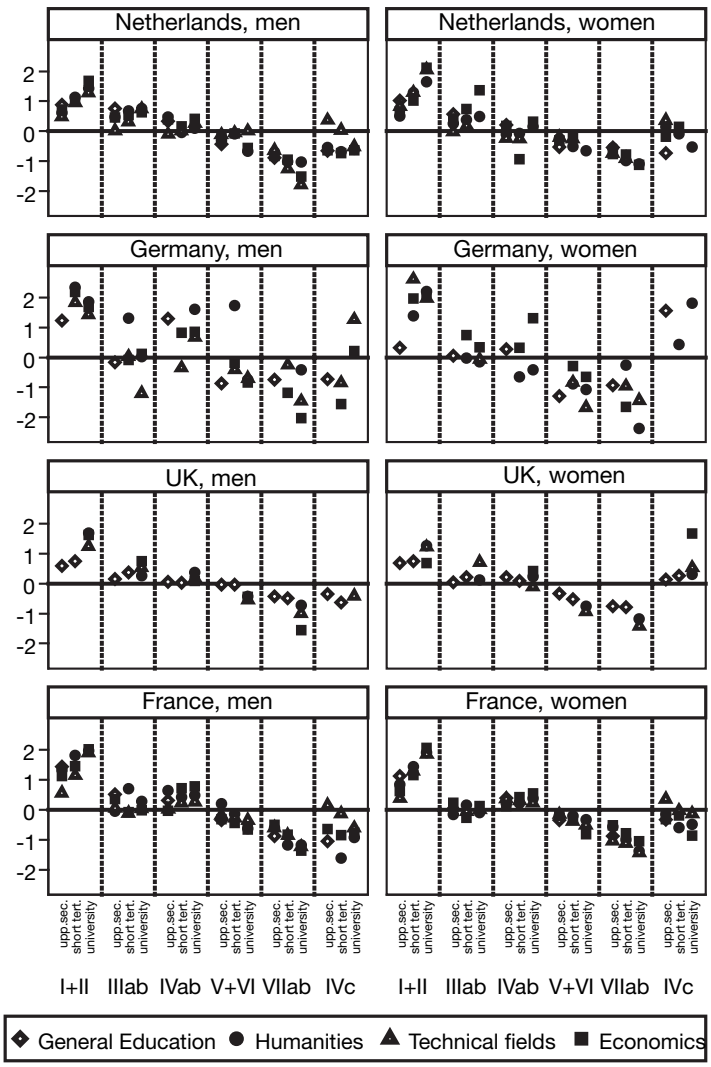
EXAMINING THE ORIGIN-EDUCATION AND EDUCATION-DESTINATION RELATIONSHIPS

In the previous section, we found that the strength of the partial OD association is much the same whether we use a measure only of level of education, or whether we use a measure of both level *and* field of study. In order to understand why this should be the case, we now investigate the underlying relationships between origin and education, and education and destination.

In Figure 2, we present the 'average' association parameters between social origin and our field of study variable across cohorts.[4] The markers in the graph indicate the log-odds of completing a certain field-of-study within a certain level of education compared to having only primary/lower secondary education.[5] For example, for Dutch men of class I + II, the odds of holding a university degree in economics are $e^{1.7} = 5.4$ times higher than having only primary or lower secondary education, while the odds of having a university degree in the technical fields are $e^{1.3} = 3.6$ times higher compared to primary/lower secondary education. Likewise, for Dutch men of unskilled working-class background (VIIab), the odds of graduating from a university in the technical fields is only about one sixth ($e^{-1.8} = .17$) compared to having only primary/lower secondary education.[6]

Looking at the coefficient patterns, we can easily find support for the findings of previous research on educational inequality. With respect to level of education, children from the service classes (I + II) always have higher odds of reaching upper secondary or tertiary education than leaving the educational system with compulsory or lower secondary schooling. In contrast, children from the unskilled working classes (VIIab) always have lower odds of holding an advanced degree. For our purposes, it is more interesting to look for systematic patterns in the association between origins and fields of study within educational levels. The immediate impression is that the coefficients for fields of study within an educational level are very close to one other: the variations from top to bottom are very limited in the graph. Hence, there seems to be hardly any additional effect of fields of study within a given level of education. This finding is especially true for France, the UK and for most associations for the Netherlands. Larger differences can only be found in Germany, in a pattern consistent with earlier research: men of lower class origins are over-represented in the technical fields (van de Werfhorst, 2002b).[7] If we were pressed to search for some regularity in the pattern of association between origins and educational field of study, we might consider the following in relation to the impact of origins on the choice of technical fields: while (mainly male) students from classes I + II, IIIab, and IVab tend to be underrepresented in technical fields, students with a farm background are more likely to opt for

Figure 2 Log-odds for origin to field of study association



technical fields (which include the field of agriculture, where many children of farmers end up; van de Werfhorst et al., 2001). And one could observe that children from the petty bourgeoisie seem to choose tertiary-level education in economics more often than children from other classes do. These differences, however, are very small. Hence, the results of this analysis suggest that including a field of study measure in addition to a level of education measure adds very little to our understanding of the overall association between social origins and education.

We move on to examine the second association in the OFD triangle that has potential to influence the origin-destination association. In Figure 3 we present the 'average' log-odds across cohorts for the partial association between our

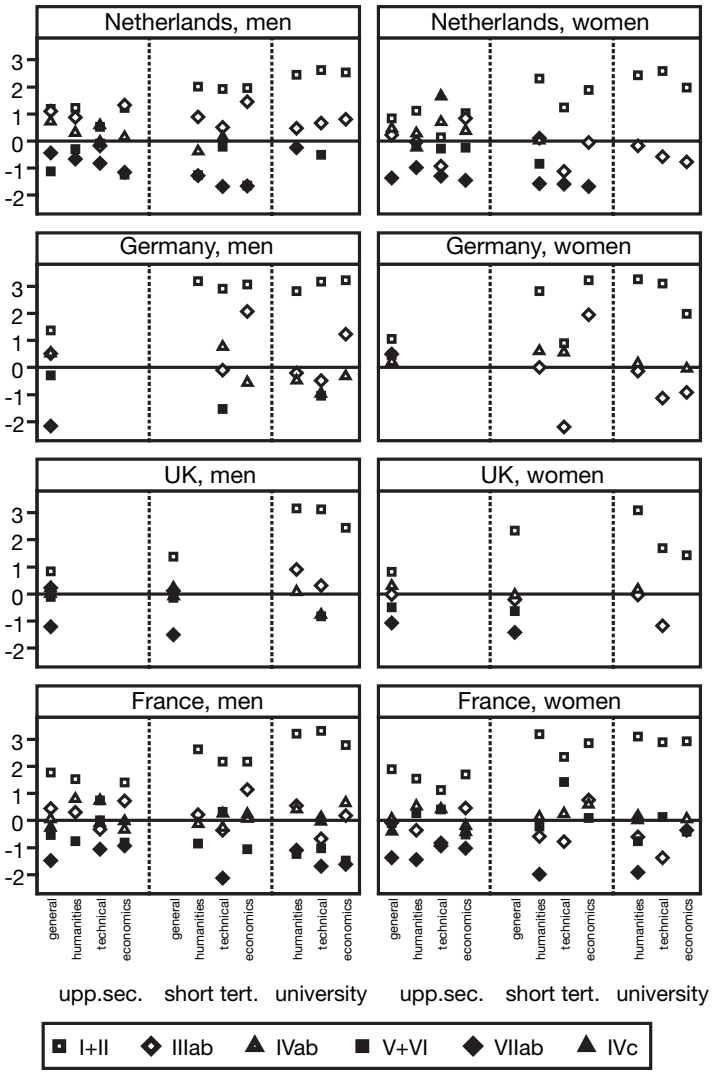
field of study variable and class destination.[8] Controlling for class origin, the log-odds refer to the odds of reaching a certain class position, given a certain educational level and field of study, relative to having primary/lower secondary education. As an example, the odds of Dutch men with a short tertiary degree in the humanities reaching a service-class position (I + II) are about $e^{1.9} = 6.8$ times higher than the odds for those with compulsory/lower secondary education. At the same time, the odds of these men ending up in the unskilled working class (VIIab) are only about one fifth ($e^{-1.7} = .19$) compared to those with only primary/lower secondary education. We can see for all countries that the level of education is important for reaching the higher classes.[9] In particular, any form of tertiary education strongly raises the odds of entering the service class (I + II).

Since we are mainly interested in the additional effects of fields of study, we need to consider the class coefficients within a given level of education across fields of study. Upon first glance, the overall picture seems to be somewhat less structured than in the previous graph. However, if we take a closer look at the coefficients within educational levels, we find most class coefficients to be in a more or less identical order, with the service class (I + II) at the top and the unskilled working class at the bottom. And, in fact, within a given educational level, most panels show a fairly undiscriminating pattern in the class coefficients for the service class (I + II) and for the unskilled working class (VIIab). There is one notable exception to this pattern. At all three levels of education, we observe a generally lower association between technical fields and class IIIab (routine non-manuals). This effect is probably due to the composition of the routine non-manual class, which does not include manual employees (manual workers and technicians instead go into the skilled working classes (V + VI)).

Overall, we find that by adding a measurement of field of study to the level of education measure, we do not gain much additional information on the partial association between education and class outcome. To be sure, the association will be somewhat stronger compared to an association that only considers educational levels. But this effect is quite limited, and probably too small to cause a change in the partial association between origins and destinations in our COFD table.

Taking this finding together with our finding that field of study adds little to our understanding of the origin-educational attainment relationship (Figure 2), we now have a better appreciation of why we have not been able to find a weakening in the partial OD association. Using a combination of level and field of education does not seem to add much information about the underlying partial associations between origin – education and education – destination, at least for the operationalization at hand. We do not find support for the idea that children from certain class origins choose particular fields to promote their class attainment strategically. And neither do we find much support for the idea that certain fields provide a competitive advantage for certain class destinations. It stands to reason that if hardly any more information is provided by the (partial) associations, the partial origin-destination association should not be expected to change to any great extent either.[10]

Figure 3 Log-odds for field of study to class destination association



CONCLUSIONS

Our aim in this article has been to examine how far introducing a horizontal dimension (i.e. field of study) to our measurement of education makes a difference when it comes to understanding processes of social mobility. As we argued, the classical approach to studying mobility, as encapsulated in the 'OED triangle', implies that the vertical dimension of educational attainment is the only dimension of importance in explaining the association between class origin and class destination. However, in the real world, educational attainment is not a single dimensional variable, and it encompasses choices made at the horizontal as well as

vertical level; individuals make choices about the field of study that they wish to specialize in, as well as about the level of education that they wish to study for.

Contrary to our expectations, it is not the case that the partial effect of class origin on class destination decreases once we control for educational field of study in addition to level of schooling. Only for Dutch men do we find weak evidence in favour of this. Inspecting the underlying patterns of associations between origin and field of study, and between field of study and class destination, we see that these associations do not deliver much more insight into the relationships between origin and education and between education and class destination.

To address the view that class origin may be more beneficial in cultural and professional fields than in other fields (what we call the 'differential advantage hypothesis', developed from Hansen, 1996; Hansen and Mastekaasa, 2006), we examined whether the impact of class origin on class destination was stronger in the humanities relative to the technical field. We did not find support for this hypothesis. For France and the UK, the results revealed that a stronger impact of class origin is actually found in the technical fields, and a *weaker* effect is found in the humanities. In the Netherlands the pattern confirmed the differential advantage hypothesis, but the differences across fields in the partial OD association were minor. Perhaps the most appropriate conclusion to draw relating to this hypothesis is that the strength of the partial OD association *does* seem to differ depending on field of study, but that there is no systematic pattern to the strength or direction of this difference across the countries that we have studied.

One important conclusion that our results point towards is that it is unwise to insist that any single measure of a concept will be appropriate in all circumstances, and for all countries. Clearly, field of study adds to our understanding of the role of education in mobility processes in the Netherlands and France. But it is equally important to recognize that in other country contexts, such as the UK, field of study does not appear to add to our understanding of these processes to any great extent. Therefore, in deciding whether to include horizontal differentiation in the measurement of educational attainment, full consideration must be given to the appropriateness of the measure for the country involved (and the question at hand). In some circumstances, this decision may involve a trade-off between full information and parsimony.

So why is it that the inclusion of field of study alongside a vertical measure of educational attainment fails to result in a significant increase in explanatory power in most of the models presented here? One reason might be that there are countervailing forces acting on students (and families) when it comes to the choice of field of study. While some fields (such as medicine) have strong links with the labour market, and would therefore appear to be a 'good bet' for lower class children who aspire to be successful, these fields are often more risky (in terms of high failure rates), more financially demanding, and may be seen as the preserve of the higher classes. Similarly, cultural fields may be stereotypically

perceived as those where high levels of cultural capital are important for success, suggesting that the risk of failure might be higher for lower class students, but the admission criteria for these courses is often lower than for courses in technical fields, which may increase the numbers of lower class students taking courses in cultural fields.

To relate this argument to the countries under study in this article, we may note that, given that admissions criteria are more or less the same across fields of study in the Netherlands (conditional on the right preparatory school type), it may be that the technical fields are relatively more attractive to lower class students than in other countries. This may lead to a greater relevance of the cultural capital argument in the Netherlands. The fact that in the Netherlands the direct impact of class origin on class destination is stronger in the cultural fields than in other fields, and that this is not the case in France, is in line with this reasoning. In consequence, it is therefore difficult to argue that we should expect any consistent pattern cross-nationally, as the way in which educational field of study affects social mobility is likely to depend heavily on the national context of selection into fields of study; an issue that merits further research.

A second explanation of our findings might be that our measures of field of study and social class are too aggregated to identify the patterns of interest. Fields of study can only be identified at a relatively aggregated level, yet we know that within these fields of study there are important (and possibly consequential) differences between individual subjects. When it comes to social class, we may well have found a stronger effect of field of study if we had classified occupations using finer-grained occupational groups (of the type favoured by Grusky and colleagues, e.g. Grusky and Weeden, 2001; Weeden and Grusky, 2005), rather than the big classes of the EGP schema. The horizontal differentiation by which levels of education are split up into particular subjects must be seen, in part, as a response to a labour market which demands occupationally specific skills and qualifications. But big classes encompass a whole range of occupations, so while in any one class some occupations and fields of study will have strong links, other occupations within the same class will have weaker links with those fields of study. The overall effect of any particular field of study will therefore be an unsatisfactory average effect over the occupations comprising each big class. Subsequently, we would expect that mobility between fine-grained occupational groups will be affected to a far greater extent by field of study than mobility between big classes. Data constraints unfortunately mean that these more detailed analyses are not feasible, particularly in a comparative context.

A third explanation for our weak effects is that many of the people included in our cross-sectional survey data are educated at (lower) levels where there is no differentiation between fields of study. As a consequence of continuing educational expansion in the surveyed countries, in the future we would expect a larger proportion of the population to be educated at higher levels, where field differences may matter more.

To conclude, we have not found evidence to suggest that field of study should routinely be included in cross-national studies of social mobility. However, we would urge caution in using the findings of the analyses presented here to argue that field of study is irrelevant to mobility processes, for the reasons discussed above. The safest conclusion at this time would be to say that the importance of field of study for social mobility is not proven.

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NOTES

1 Most of the studies in Breen (2004) adopt a period perspective (France, the UK, Ireland, the Netherlands and Sweden), while in the case of Germany, a cohort perspective is used. Breen and Jonsson (2007) and Breen and Luijkx (2007) use a period by cohort perspective for their studies on Sweden, the UK and Germany.
2 All fit statistics are available from the authors upon request.
3 For reasons of identification the φ-parameter for the first educational category (primary or lower secondary level) is fixed at 1.
4 Within the COF table, we fit {CO CF OF}. The OF parameters are presented in Figure 2.
5 Note that we use effect coding for class, so the log-odds are indeed log-odds rather than log-odds ratios.
6 We are not able to show coefficients for all four fields of study for all levels of education. This is partly due to the fact that some fields are not offered at some levels of education (for example, there is no general education at the university level in all four countries), and partly due to the sparseness of our data. In order to make sure that our coefficients are robust, we only present coefficients that are represented by at least five observations per cell. We tested a higher threshold of considering only coefficients with at least 15 observations per cell. The overall patterns do not change, and the interpretations based on at least five observations appear to be reliable.
7 The German data set is the smallest data set in our analyses, so the coefficients might be volatile. However, if we restrict the results to those cases with more than 15 observations per cell, the pattern for Germany is still more scattered than in other countries. Apparently, social origins have a stronger impact on the choice of field of study in Germany than in France, the UK or the Netherlands.
8 In the COFD table, we model {COF COD FD} and present the FD parameters.
9 As in the previous figure, we only display coefficients that are based on a minimum of five observations per cell.
10 We have already ruled out the possibility of strong compositional effects that might have an effect on the partial OD association.

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