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Abstract

Recent research into educational inequalities has shown the importance of decomposing social origins into parental class, status and education, representing economic, socio-cultural and educational family resources, respectively. But we know scarcely nothing about how inequalities in educational attainment at the micro-level map onto institutional characteristics of educational systems at the macro-level, if we treat social origins in a multidimensional way. Drawing on the rich over-time variation in educational systems in four European countries – Britain, Sweden, Germany and Italy – this paper develops and tests a number of hypotheses regarding the effects of the three components of social origins on individuals' educational attainment in different institutional contexts. Our results clearly show that all three components of social origins have distinctive and independent effects on individuals' educational attainment in all four countries. But our findings also demonstrate that macro-institutional setups do matter, and changes in institutional characteristics of educational systems to some extent reinforce or offset social processes that generate inequalities in education at the micro-level.

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Introduction

Past research (Bukodi and Goldthorpe 2013) has shown that parental class, status, and education have independent and distinctive effects on children's educational attainment. Rather than representing interchangeable indicators of the same concept of 'social origin', the three components capture different dimensions of social background and specific mechanisms through which they affect individuals' educational attainment. Parental class reflects a family's endowment with economic resources. Parental status indicates the extent of family socio-cultural resources available to support children's education as through parents' social contacts and networks and their cultural tastes and forms of cultural participation. Parental education represents educational resources that parents have available to help their children; for example, their ability to create a favourable home-learning environment, including assistance with homework, and to provide their children with informed guidance through the educational system in regard to choice of schools, subjects, courses and examinations to take.

While the effects of these components of social origins have been demonstrated in some individual country cases (Bukodi, Erikson, and Goldthorpe 2014; Marzadro and Schizzerotto 2014), in this paper we test their relevance in a comparative setting, using longitudinal data from four European countries: Britain, Sweden, Germany, and Italy. The rationale for choosing a comparative approach is twofold. First, we aim to explore to what extent the effects of different components of social origins on individuals' educational attainment vary in different societal contexts. Second, as we will elaborate at length in the following sections, we wish to investigate whether the three components of social origins interact with various properties of educational systems in a different, yet systematic fashion. Distinguishing between stratification, decommodification, and standardisation as dimensions of educational systems, we will be able to match a multidimensional understanding of social origins with a multidimensional conceptualisation of educational institutions and, as a result, we will be able

to propose fine-grained hypotheses regarding the expected variation of the effects of social origins on individuals' education, both across countries and time. In other words, our objective is to explore how far different educational institutions increase or decrease the effects of different components of social origins on individuals' educational attainment. Note, however, that we will *not* test the causal effects of specific institutional features on educational inequalities; this would require a different research design, and, most importantly, a prior account of the empirical regularities that we are interested in. Likewise, we will *not* address the relative importance of institutional properties to individual-level factors (see Breen and Jonsson 2005); i.e., the degree to which educational institutions can have an independent effect on social inequalities in educational attainment, over and above the prevailing forms of the distribution of social advantage and power.

Our *central* research questions are the following. Do the effects of parental class, status and education on individuals' educational attainment vary over time in Britain, Sweden, Germany and Italy, and if so, do they vary following changes in the countries' educational systems? Do the three properties of educational systems that we consider – stratification, decommodification and standardisation – affect the effects of parental class, status and education differently?

But before turning to these two central questions, there is a prior research question that needs to be addressed: we should establish whether or not parental class, status and education have independent and distinctive effects on individuals' educational attainment in all four countries, and if so, how far these effects show up in a similar fashion.

While our main concern is to see whether different properties of educational systems strengthen or weaken the associations between different components of individuals' social origins and their educational attainment, we believe that it is also important to show the extent

to which the effects of parental class, status and education *taken together* differentiate individuals' educational attainment, and whether the combined effect of social origins is similar or different in the four countries, depending on the characteristics of their educational systems. This will be our final research question.

Regarding case selection, we were driven by the aim to maximise variation in the three institutional dimensions, whilst ensuring the availability of high-quality longitudinal micro-data. While educational systems in all four countries were characterised by elitism, strong selection, and stratification in the aftermath of WWII, reforms of the 1960s and 1970s have introduced comprehensive education in Britain and Sweden, whereas the architecture of the German system has largely remained untouched. Italy, in this respect, takes an intermediate position.

The paper proceeds as follows. In the following section, we make the case why educational institutions and, more specifically, the dimensions of stratification, decommodification, and standardisation, matter for educational inequality. The subsequent section outlines the indicators that we use to measure the changes of the educational systems of our four countries in the last six decades with regard to the aforementioned dimensions. We then describe our data and variables, and present the results. We conclude with a summary of the results and a discussion of the micro-macro linkages suggested by our findings.

Why do institutions matter?

The sociological literature has predominantly focused on individual-level determinants of educational attainment (e.g., Breen, Luijkx, Müller, and Pollak 2009, 2010), whereas the political science literature has, save for a few notable exceptions (e.g., Ansell and Lindvall 2013; Busemeyer and Iversen 2014), largely neglected education as a topic of research (Gift

and Wibbels 2014). This has created some doubt as to what extent educational institutions actually matter for educational inequality. One could argue that if institutional context were meaningless, one should find near-constancy in the association between social origin and educational attainment, and the effect of social origin should exhibit a uniform pattern across countries, which is not unequivocally the case (Pfeffer 2008, 545). Insofar as institutions alter the costs and benefits associated with educational choices,[1] and increase or decrease the probability of succeeding in a specific educational trajectory (Beblavy, Thum, and Veselkova 2013; Peter, Edgerton, and Roberts 2010), they constitute an important mediating variable in explaining the relationship between social origin and educational outcomes. The key question is how exactly institutions interact with individual-level factors.

In this paper, we focus on institutional features of the educational system as these most immediately affect students' performance and inform decisions in the course of different educational cycles.[2] More specifically, we focus our attention mainly on institutional arrangement at the primary and secondary level of education as students spend most time at these levels and the decision whether or not to carry on to upper secondary level is known to be a critical juncture in school careers. In the light of the literature, we take into account three dimensions of educational systems, which have received most theoretical and empirical attention; these are stratification, decommodification, and standardisation. We briefly outline how each of these dimensions is expected to interact with our three parental background variables – class, status, and education. *Table 1* provides an overview of the different expected effects.

[1] Whether institutions actually change the real costs of educational choices or merely affect the perception of these in the eyes of those making educational choices is empirically equivalent in the sense that both will influence individuals' behaviour in a systematic manner.

[2] We adopt a rather narrow understanding of institutions as encompassing public policies and legal frameworks with the potential to alter the cost-benefit calculations of educational decisions and/or the ability to affect the performance of students in different educational trajectories.

Stratification (adapted from Allmendinger 1989) denotes the differentiation of the educational system into different strata with varying degrees of permeability between these strata. It comprises two important sub-dimensions, which are tracking and selectivity.[3]

Tracking has been widely scrutinised in the literature (e.g., Ammermüller 2005; Brunello and Checchi 2007; Hanushek and Ludger 2005) and generally been viewed as exacerbating educational inequalities (Van De Werfhorst and Mijs 2010, 407). To explain this effect, past research (for instance, Le Donne 2014; Pfeffer 2008) has emphasised the interaction between parental education and tracking, as educated parents may use their strategic knowledge of educational pathways to guide their children through the system. We take this on board but see a second potential interaction with parental status. Thus, high-status parents could use their strategic connections and networks to provide their children with information about the potential labour-market returns of various degrees, thereby enabling them to make the optimal educational decisions in order to maintain their social positions and avoid downward mobility (Breen and Goldthorpe 1997). This mechanism is considered particularly relevant when it comes to making choices about tertiary education.

Drawing on Gamoran (1992), we distinguish selectivity of educational paths as a second sub-dimension of stratification, which is expected to positively interact with all three of our parental background variables, but via different mechanisms. Parental education enables parents to provide a supportive home-learning environment and thus makes it easier for children to pass admission thresholds (Schütz, Ursprung, and Woessmann 2005). Parental status furnishes cultural resources which, in turn, help improve children's academic performance and pass admission thresholds. This effect is expected to be particularly pronounced if selection hinges on a child's reproduction of cultural knowledge and mastering

[3] The concepts of tracks and streams are used interchangeably.

of an established *culture générale*. Finally, parental class provides economic resources to enrol children in extra-curricular activities or to provide private tuition that put children in a better position to pass admission tests.[4]

Decommodification as a dimension of educational systems denotes the extent to which education is provided by the state in the form of a public good, rather than being purchased as a private good on the market. We acknowledge that in all four countries analysed in this paper, education – in particular primary and secondary – is predominantly provided as a public good under the supervision of public authorities. However, the extent and the quality of public education critically hinges on the allocation of financial resources, which has varied a great deal both across time and across countries. More specifically, we deem three sub-dimensions of decommodification to be particularly important. First, if the level of public expenditures on education is low, higher class parents may use their financial resources to purchase private education in the form of extra-curricular activities, thus supplementing low-quality public education (Ammermüller 2005; Schlicht, Stadelmann-Steffen, and Freitag 2010; Schütz, Ursprung, and Woessmann 2005). Second, higher class parents may decide to 'opt out' of the public system entirely if private education is prevalent and offers high-quality alternatives to public education (Busemeyer and Iversen 2014). Third, in systems where access to tertiary education is associated with considerable direct costs, the availability of economic resources to pay for these fees is expected to influence whether or not students enrol in higher education. In sum, decommodification is expected to play an important role in moderating the effect of parents' unequal endowment with economic resources and, hence, the effect of class background on educational attainment.

[4] A number of authors (Bernardi 2012; Contini and Scagni 2013; Shavit and Müller 1998) have pointed out that stratification can also serve as an important signalling device for the labour market. It is unclear, however, to what extent this signalling function affects the educational attainment of pupils with different parental backgrounds.

Standardisation characterises the degree to which educational systems follow common, nation-wide standards and are controlled by central government as opposed to local authorities or schools. While tests of the overall effect of standardisation on attainment have yielded mixed results (see Pfeffer 2008; Horn 2009; Van De Werfhorst and Mijs 2010), we expect three aspects of standardisation – budget making, examination, and curriculum – to modify the effect of parental background in the following fashion.

To the extent that decentralised budget making means that school budgets rely on local taxes, the economic profile of the local community and, by extension, the class profile of parents affects the resources available to schools (Gingrich and Ansell 2014). This, in turn, results in better-equipped schools and better learning environments, such as smaller class sizes, in more affluent neighbourhoods (Kerckhoff 1995; see also Krueger 2003; Wößmann 2003). In addition, decentralised budget making at the local level opens the door for parental lobbying, which enables higher status parents to use their networks and connections to channel funding towards elite tracks of the educational system.

Parental lobbying is also important with regard to examinations. In contexts where examinations are set by local authorities or schools, high-status parents may employ their lobbying potential to strategically shape the type and content of exams, tilting them towards their own socio-cultural characteristics and thus favouring their children's success. Regarding parental education, decentralised examinations can attenuate its effect on individuals' educational attainment, as it would be more difficult for parents to use their strategic knowledge of the education system and, hence, their own experience with exams to advance their children's education. On the other hand, it is conceivable that the parental education effect is in fact more pronounced if examinations are decentralised. Higher educated parents may invest more time and effort than lower educated parents in accumulating strategic and

practical knowledge on the structure and rules of local examinations. This would then mean that they are in a better position than their lower educated counterparts to guide their children through the hurdles of school examinations. Similarly, one can argue that less centralised school curricula would enhance the effect of parental education, chiefly because it is easier for higher educated parents than the lower educated ones to familiarise themselves with the peculiarities of the curricula, so they could help their children with homework and assignments. On the other hand, less centralised curricula may make it more difficult for even highly educated parents to help their children with homework, given that the content of curricula may be less transparent, prone to changes, and rather different from their own experience.

Overall, stronger standardisation is expected to attenuate the effect of parental class and status, whilst we do not have clear prediction as to the effect of parental education.

We acknowledge that there are a number of institutions and policies that also affect educational attainment in interaction with parental background. For instance, family policies and policies regulating early childhood education have been found to moderate the effect of parental background on cognitive development and, by extension, on educational attainment (Heckman and Kautz 2013; Schlicht, Stadelmann-Steffen and Freitag 2010). Given that welfare states have placed varying emphasis on early childhood development (Esping-Andersen 2007), we should expect these differences to play a role in alleviating or exacerbating social background effects on educational attainment.

Besides, wider socio-economic conditions can also shape students' and parents' reasoning about and decisions of which educational trajectory to pursue. Higher unemployment rates, for instance, can encourage students to prolong education until an expected economic recovery, or disincentive students to pursue lengthy tertiary education if the labour market

payoffs of a degree are uncertain. Recently, the impact of income inequality on educational attainment and, by extension, intergenerational social mobility has received renewed attention (e.g. Corak 2013; Mitnik, Cumberworth, and Grusky 2013; Smeeding 2013; Jerrim and Macmillan 2014). Greater income inequality may entail that more affluent parents are able to invest more resources in their children's human capital. In societies where income inequality is higher, we therefore expect a greater effect of parental class as an indicator of a family's economic resources.

Table 1: Hypothesised associations between the three properties of educational systems and the three indicators of social origins

Properties of educational systems	Parental class	Parental status	Parental education
Stratification			
…in *highly* tracked systems	no effect	**positive**	**positive**
…in *highly* selected systems	**positive**	**positive**	**positive**
Decommodification			
…public expenditure on primary and secondary education is *low*	**positive**	no effect	no effect
…private education is *prevalent*	**positive**	no effect	no effect
…direct costs associated with attending tertiary education is *high*	**positive**	no effect	no effect
Standardisation			
…budget making at primary and secondary level is *de*-centralised	**positive**	**positive**	no effect
…examinations/tests are *less* centralised	no effect	**positive**	no clear prediction
…school curriculum is *less* centralised	no effect	no effect	no clear prediction

Educational institutions across the four countries

In view of a time frame spanning six decades (1950s until 2000s), comparing educational systems across four countries is a rather daunting task. Unlike recent studies that have analysed educational institutions in a shorter time frame (e.g., Le Donné 2014; Pfeffer 2008), this study cannot rely on easily accessible, off-the-shelf indicators. Moreover, whilst some aspects of education, such as spending, easily lend themselves to quantification, other institutional features necessitate a more qualitative assessment based on case studies, historical narratives, and other secondary accounts. We therefore rely on a number of country-specific sources to measure the properties of educational systems we are interested in.[5] To ensure the comparability of our indicators over time, we code every sub-dimension of stratification, decommodification, and standardisation on an ordinal scale, ranging from low (=0) to high (=1) for every decade since the 1950s. Depending on the level of detail of each indicator, the ordinal scale is either a 5-point or a 3-point scale.[6] Since we do not attribute a particular weight to any specific sub-dimension, we take the average to derive an overall indicator for each decade.[7] *Table 2* summarises the indicators we used to derive our ordinal scales for each sub-dimension.

[5] We detail all our sources in the *Appendix*.

[6] The 5-point scale ranges from low (=0), to medium-low (0.25), to medium (=0.5), to medium-high (=0.75), to high (=1). The 3-point scale omits the intermediate steps and only includes low, medium, and high.

[7] If educational reforms occurred during a decade, we coded the characteristics of the educational system prevalent in most of the years of the decade. If reform occurred in the middle of a decade, we took the average.

Table 2: Indicators used to construct indices for the three properties of educational systems

	Indicators
Stratification	
tracking	• number of tracks at secondary level • duration of tracking at secondary level
selection	• whether or not access to upper secondary is based on tests/grades at primary/lower secondary level • whether or not access to upper secondary is based on teachers' recommendations at primary/lower secondary level
Decommodification	
public expenditure	• total spending on public education as % of GDP • total spending on secondary education as % of GDP
private education	• % of students enrolled in private institutions at secondary level
direct costs of tertiary education	• level of annual tuition fees as % of annual disposable household income
Standardisation	
budget making	• whether budget made at local, central, or mixed level
examinations	• whether examinations fully, partly, or not standardised
school curriculum	• whether school curricula fully, partly, or not standardised

Starting with our *stratification* index, we measure the extent of tracking in an educational system by taking into account both the number of tracks and the duration of tracking at the secondary level. We then map the extent of tracking onto our 5-point scale as shown in *Table 3*. As it becomes clear from our coding rules, we attribute a greater importance to duration of tracking than the number of tracks, considering that earlier tracking has a more long-lasting impact on students' educational attainment. As for selectivity, we follow a similar procedure by taking into account whether access to upper secondary education is based on academic performance assessed by tests, and whether specific tracks within upper secondary education

are restricted to high-performing students. We also take into account the fact that there might be more than just one entry barrier to upper secondary education. For instance, selection could take place both at the end of primary and lower secondary education. On the whole, we deem the first criterion – general accessibility – to be more important, as such entry barriers bifurcate the student population into those with and without access. The coding rules are shown in *Table 3*.

Table 3: Coding rules for stratification

Score	Tracking	Selectivity
low (0)	no tracking	guaranteed progression, free access to all upper secondary tracks
medium-low (0.25)	tracking after lower secondary level and few tracks (≤ 2)	guaranteed progression, restricted access to some upper secondary tracks
medium (0.5)	tracking after lower secondary level and many tracks (>2)	limited progression (one selection barrier), free access to all upper secondary tracks
medium-high (0.75)	tracking after primary level and few tracks	limited progression (one selection barrier), restricted access to some upper secondary tracks
high (1.0)	tracking after primary level and many tracks	limited progression (two or more selection barriers)

Regarding *decommodification*, we take into account four different sub-dimensions. Total spending on public education and spending on secondary education, both as a share of GDP, capture a country's commitment to providing high-quality education as a public good. The percentage of privately educated students at the secondary level measures to what extent parents have the option to opt out of public education in favour of a, supposedly, higher-quality private alternative. Finally, we also take into consideration the direct costs of

attending tertiary education in the form of tuition fees. Although this indicator captures a feature of tertiary rather than secondary education, the costs of higher education influence parents' and students' decisions about whether or not to pursue upper secondary education, and thus should be included in the decommodification index.

To map the interval-scale data on spending and private education onto our 5-point ordinal scale ranging from low to high, we first use a logistic function to fit the raw data in-between 0 and 1, with a cross-over point of 0.5 at the medium level (Ragin 2008). This medium level reflects the OECD spending average for total education spending, secondary education spending, and private education.[8] The upper and lower boundaries reflect spending levels in the top tier and bottom tier, or, in the case of private education, the share in heavily privatised and exclusively public education systems.[9] The logistically transformed values were then rounded to map onto our 5-point scale. Regarding the direct of costs of attending tertiary education, we coded the country decades according to the level of annual tuition fees relative to the annual disposable household income. The coding rules are displayed in *Table 4*.

Table 4: Coding rules for direct costs of attending tertiary education (decommodification)

Score	Description
low (0)	no tuition fees
medium-low (0.25)	tuition fees less than 5% of annual disposable household income
medium (0.5)	tuition fees between 5% and 10% of annual disposable household income
medium-high (0.75)	tuition fees between 10% and 15% of annual disposable household income
high (1.0)	tuition fees greater than 15% of annual disposable household income

[8] For total education spending, the threshold is 5 per cent of GDP; for secondary spending, the threshold lies at 2 per cent; and for private education, the threshold is 10 per cent.

[9] The upper and lower boundaries for total education spending are 7.5 and 2 per cent of GDP; 4 and 0.5 per cent of GDP for secondary spending; and 20 and 0 per cent for private education.

Regarding *standardisation*, we take into account three sub-dimensions to create our index. First, we code whether budget making for primary and secondary education takes places at the local, central, or a mixed intermediate level. Second, we assess the degree of standardisation of examinations and tests, ranging from unstandardised, to partly standardised, to fully standardised. Third, we consider the standardisation of school curricula, again on the same 3-point ordinal scale. Using secondary accounts, we qualitatively code these dimensions for each country-decade following the coding rules shown in *Table 5*.

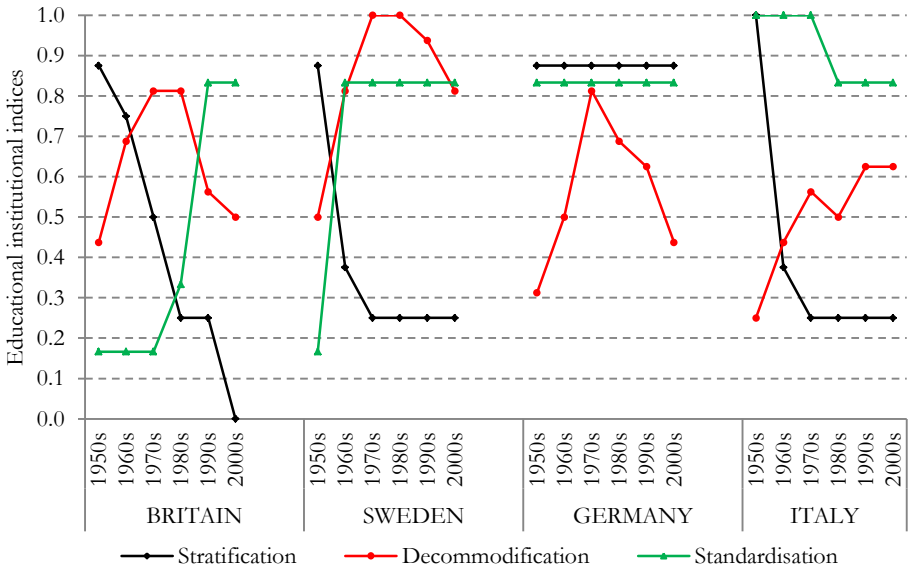
Table 5: Coding rules for standardisation

Score	Budget making	Examinations	Curricula
low (0)	local	unstandardised	unstandardised
medium (0.5)	local/central mix	partly standardised	partly standardised
high (1.0)	central	standardised	standardised

With regard to our four countries, the three indices reveal an interesting picture of institutional variation across the last six decades. In view of the pattern shown in *Figure 1*, both trends of divergence and convergence can be observed[10].

[10] The individual scores for each sub-dimension are presented in the *Appendix*.

Figure 1: Institutional variation of education systems over time



Looking at each country in turn, the *British* trajectory is characterised by a gradual elimination of selectivity and tracking in the educational system. In the 1950s, the existing tripartite system streamed students into an academic and non-academic track based on intelligence tests as well as attainment in English and maths at the age of eleven (11+ examination). Furthermore, access to upper secondary level was conditional upon obtaining O-level qualifications or successful completion the General Certificate of Education (GCE) at the age of 16.[11] Education was thus characterised by early tracking and a high degree of selectivity. Following the introduction of comprehensive schools by a growing number of Local Educational Authorities (LEAs), the central government officially endorsed comprehensive education in 1965 and encouraged the establishment of comprehensive schools across the UK. Whilst this heralded the end of selection of the educational system, it needs to be pointed out that the transition to comprehensive education happened very gradually and faced considerable opposition in some regions, particularly in England and

[11] There was a general understanding that the upper secondary level should be reserved for the top 25 per cent of the ability range (Gillard 2014).

Northern Ireland (Jones 2003, 78; Simon 1999, 299).[12] The pattern of decommodification is bell-shaped driven by increasing outlays for education in the 1960s and 1970s, followed by declining spending levels and the introduction of university tuition fees in the late 1990s. The share of privately educated students, by contrast, has experienced very little change since the 1950s, remaining at moderately low levels of about 6 per cent. As regards standardisation, the British education system initially featured a very low level of standardisation owing to the mixed local-central budget making, decentralised examination, and the absence of a national curriculum. The introduction of a national curriculum in 1987 and the gradual standardisation of examinations starting in the 1980s changed the character of British education, from a largely decentralised to a mostly centralised education system. Budget making, on the other hand, has remained a mixed domain of both local and central government policy making.

The development of the *Swedish* educational system resembles the British case in that public education turned from a highly selective, early tracked system to a largely untracked, highly permeable system. Selectivity at the upper secondary level was particularly high in the 1950s, with students having to pass two admission thresholds – from primary to lower secondary and from lower secondary to upper secondary – in order to reach upper secondary education. Transfer from lower to upper secondary levels was by no means a natural step (Erikson and Jonsson 1996, 71). After a gradual introduction of comprehensive schools in the 1950s and 1960s, access to upper secondary education became nearly universal in the 1970s.[13] As a result, Swedish education changed from an early-tracking to a late-tracking system, with a common comprehensive stream until the upper secondary level. However, in some contrast to the British system, education in Sweden retained a higher degree of selectivity and tracking,

[12] In the 1980s, for example, a third of all pupils was still educated in the tripartite system and private sector (Schneider 2008, 284). This gradualism is reflected in our coding of tracking and selectivity for the UK.

[13] Compared to the British case, educational reform was implemented more swiftly, with the major transformation occurring within the 1960s, which is reflected in our coding.

insofar as students are streamed into different upper secondary tracks at the end of lower secondary education and access to specific tracks is granted based on their average grade points (Halldén 2008, 256; Rudolphi 2013, 188). Institutional reform was accompanied by a remarkable increase of public expenditures for education, in particular from the 1960s until the 1980s, which is reflected in the rapid rise of our decommodification index. Private education has historically been very low in Sweden, but has experienced a relatively strong increase in the 2000s, which explains the dip in the country's decommodification score. Regarding standardisation, Sweden switched from a rather unstandardised to a rather standardised system in the wake of the 1962 educational reform, which introduced a national curriculum and standardised examinations. Budget making, however, has remained unchanged, consisting of a local-central mixed procedure.

In stark contrast, the *German* educational system has not experienced a comparable systemic overhaul (Schneider 2006, 76), and its highly stratified nature has remained a constant feature since the early 1950s (Neugebauaer, Reimer, Schindler, and Stocké 2013, 57). Differentiation into a number of different tracks occurs early, such that the student population is early segmented into different strata. To gain access to upper secondary education, students normally need to succeed in joining the *Gymnasium*, for which selection occurs either after four or six years of primary education, depending on the federal state. In this transition process, teacher-assigned marks function as the key selection mechanism, though it should be noted that teacher recommendations have been binding in only one third of all federal states. Another path into upper secondary education is through 'upgrading' from *Realschule* (middle school) or *Houptschulabschluss* (lower secondary school) to *Gymnasium* after grade 10[14]. Yet, again, this transition is conditional upon sufficiently high marks in the lower secondary

[14] In fact, a significant proportion of individuals, overall 27 per cent, upgraded their initial level of secondary education in the time period we consider (Buchholz and Schier forthcoming).

examination. Moreover, selection continues even within the Gymnasium as drop-out rates entail a downgrading for those students who leave the *Gymnasium* for other school types, such as the *Realschule* or the *Fachoberschule*.[15] As for decommodification, the German pattern bears resemblance to the UK in that spending levels swiftly increased from low levels, followed by a gradual decline since the 1980s. Direct costs for tertiary education followed a similar pattern as university tuition fees (*Hörgelder*) – amounting to 12 and 5 per cent of annual household income in the 1950s and 60s respectively – were abolished in the 1970s and then reintroduced by some federal states in the 2000s.[16] Private education, though on a slow long-term rise since the 1950s, has only played a marginal role in the education system. Regarding standardisation, centralised budget making at the *Bundesländer* level and a standardised curriculum have both been persistent features of the German educational system. Owing to its federal structure, examinations have exhibited varying levels of standardisation, depending on the specific federal state.

Finally, *Italy* occupies a middle position with regard to our three indicators. The country started with a highly elitist educational system in the 1950s where access to upper secondary education was reserved to those with no immediate need to work, which meant selection based on academic performance and parental income (OECD 1969, 47). Specifically, to gain access to upper secondary education, students had to make two transitions, from primary school to the academic track of lower secondary education and then to upper secondary education, both of which involved performance-based entrance barriers. In the early 1960s, educational reform eliminated these institutional entrance barriers to upper secondary education (Barone 2009, 96). Thus, a leaving certificate from the newly created

[15] Taken together, the German system can be considered to have more than one de facto selection barrier, which would yield a selectivity score of 1 (high). However, considering that the teacher recommendation is not binding in all federal states, we code selectivity in Germany at 0.75 (medium-high).

[16] This development was, again, short-lived as all federal states had rescinded tuition fees as of 2012.

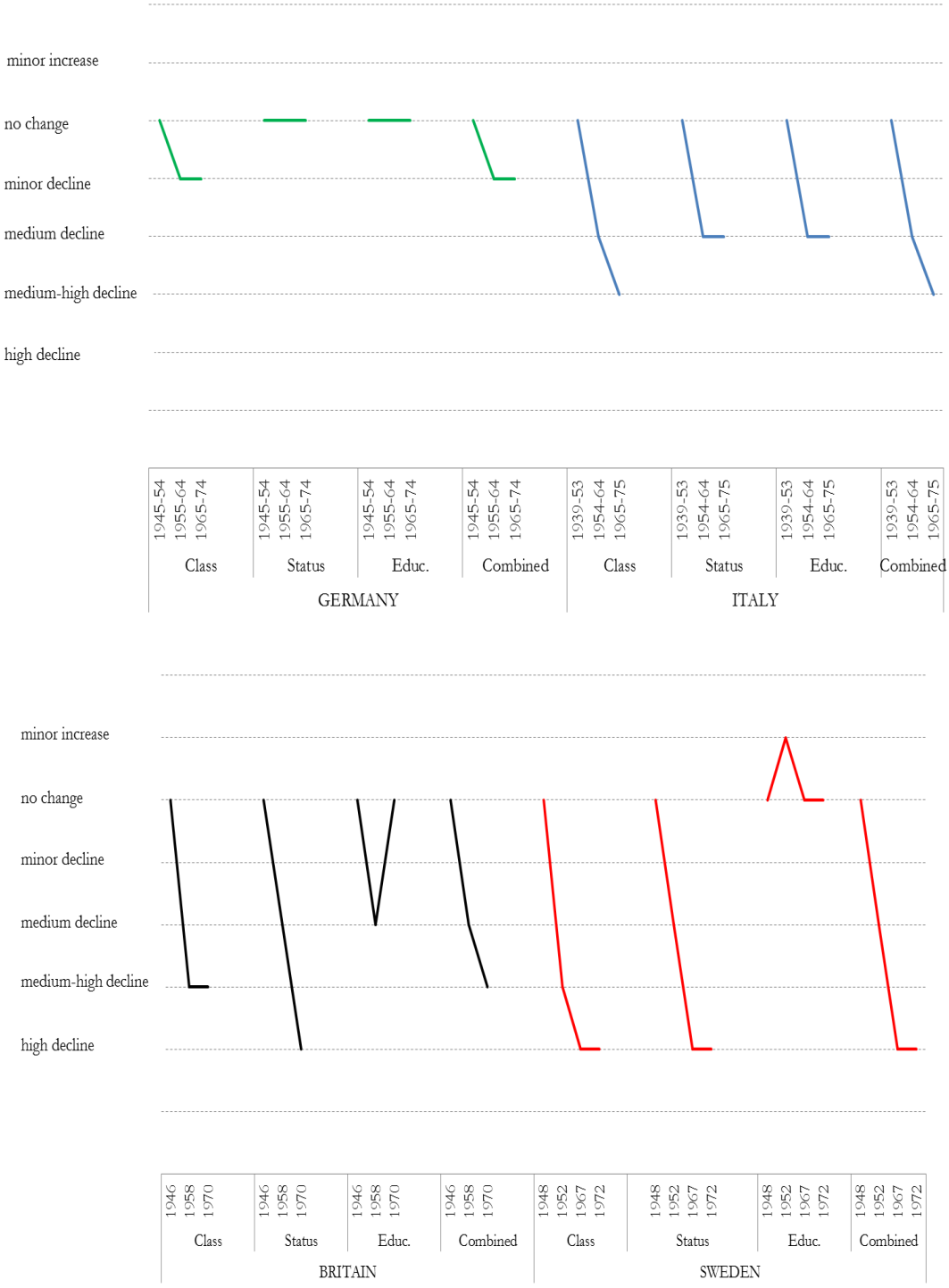
comprehensive middle school now enabled students to choose any of the available upper secondary tracks without having to pass any further entrance examination (OECD 1985, 30). The 1962 reform also reduced the degree of tracking in secondary education by abolishing the four existing tracks at the lower secondary level and replacing them with a three-year comprehensive middle school. However, at the upper secondary level, tracking in the form of a de facto tripartite system of academic and vocational tracks still exists (Barone and Schizzerotto 2008, 151). Regarding decommodification, Italy followed a more linear trajectory as spending levels gradually climbed up from very low post-WWII levels and the historically high levels of private education gradually declined. In contrast to the UK and Germany, Italy has also refrained from introducing university fees. Finally, as for standardisation, education in Italy has historically been highly standardised, giving the central government ultimate control over exams, curriculum, and the budget. However, standardisation slightly declined in the wake of a devolution process granting limited budget making competences to the regional level.

Based on the proposed link between the three components of social origins and the three dimensions of educational systems (*Table 1*), we can now formulate hypotheses about the expected effects of parental background variables in our four countries. The hypotheses are graphically summarised in *Figure 2*. Before spelling out the hypotheses, a few explanatory notes are in order. Given that, at the individual level, we work with educational cohort data in each country, the hypotheses should refer to country cohorts rather than decades. Organised by birth, these cohorts are 1946, 1958, and 1970 for Britain; 1948, 1952 1967, and 1972 for Sweden; 1945-54, 1955-64, and 1965-74 for Germany; and 1939-53, 1954-64, and 1965-75 for Italy. As we explain the data and the choice of the time spans in detail in the following section, we focus at this point only on how we linked the institutional information – measured for each country-decade – to the cohorts. Bearing in mind our emphasis on upper secondary

education as the pivotal point in an educational career, we first determined the time span in which each cohort received upper secondary education, choosing the age span from 14 to 20 as a reasonable approximation. To give an example, the Italian 1954-64 cohort thus received upper secondary education from 1968 until 1984. Based on this information, we then looked at the institutional setting in which each cohort was educated and the changes this setting underwent over the same period, to derive our hypotheses about the effects of parental background.

We are anxious to point out that the outlined effects are *stylised* representations of complex social processes, in which parental background is likely to interact with a number of intermediating conditions, amongst them educational institutions. Thus, the actual effects are unlikely to exactly follow the predicted pattern. On the other hand, if educational institutions have any effect in moderating parental background, we should see trends at least similar to the ones outlined in *Figure 2*. Also note that the initial effect of all institutions is set at the same level. This reflects our uncertainty regarding the relative size of the initial effect across countries. By contrast, we are relatively confident about the expected within-country change and the size of this change relative to other countries, which is visible in the different patterns of the line plots of *Figure 2*.

Figure 2: Hypothesised effects of social origins on educational attainment over time



Turning to our hypotheses, we expect a sustained decline of parental class only in Italy. For Britain and Sweden, an overall decline is expected, without much change, however, between the most recent cohorts. For Germany, we only predict a minimal decline of the importance of parental class. As regards the effect of parental status, we predict a sustained decline for Britain and an overall decline for Italy and Sweden, with little change between the most recent cohorts in the two latter cases. In Germany, no change is expected. Regarding parental education, the pattern is less uniform. In Britain, the countervailing effects of decreasing stratification and increasing centralisation since the 1980s would lead us to expect a weaker effect of parental education for the 1958 cohort, followed by a reversal of this trend for the 1970 cohort. In Sweden and Germany, the effect of parental education is expected to be relatively persistent, with a slight increase in Sweden for the 1952 cohort as a result of educational reform in the 1960s. In the Italian case, the effect of parental education should exhibit a moderate decline. Overall, the combined effect of parental background, that is taking into account all three components, on individuals' educational attainment should decline visibly in all countries, save for Germany where we expect only a minimal decline.

Data and variables

The British data are taken from three birth-cohort studies: the Medical Research Council Survey of Health and Development, the National Child Development Study, and the British Cohort Study. The studies follow children born in one week in 1946, 1958, and 1970 respectively through their lives (For more information, see Elliott and Shepherd 2006; Power and Elliott 2006; Wadsworth, Kuh, Richards, and Hardy 2006).

The Swedish data come from four longitudinal studies on Swedish pupils born in 1948, 1953, 1967, and 1972 respectively. The studies, conducted by the Department of Education at the

University of Gothenburg (Härnqvist 2000), selected a representative sample of 10 per cent of all pupils reaching Grade 6, that is, around age 13. Data on parents' education and occupations were obtained from the Censuses between 1960 and 1990 and from an Education Register started in 1985. Data on pupils' educational attainment were drawn from the same Register.

Data for Germany are taken from the adult cohort of the German National Educational Panel Study (NEPS), which includes circa 11,000 individuals of working age born between the mid-1940s and the late-1980s. Based on a multi-cohort sequence design, the NEPS contains detailed retrospective monthly information on respondents' educational trajectories and family histories, including our variables of interest. For our purposes, we group the respondents into three birth cohorts spanning the years 1945-54, 1955-54, and 1965-74 respectively. Since the institutional background of East Germans education was very different from the one described above, we include individuals born in West Germany only.

As for the Italian data, we relied on the 2005 Italian section of EU-SILC (It-Silc.05). The dataset includes individuals born between 1939 and 1988 and provides information on educational attainment and parental background. For our purposes, we selected a sub-sample of 26,655 respondents born between 1939 and 1975 and grouped them into three birth cohorts: 1939-53, 1954-64, and 1965-75. The cut-off points for the cohorts align with the institutional changes in the Italian educational system.

In all four countries, we measure educational attainment – our dependent variable – between the ages of 35 and 40, which maximises the chances that individuals have attained their highest possible qualifications. Besides, we only include respondents into the analysis on whom we have complete information on all variables described below. This is particularly relevant for the British and Swedish cases, since the longitudinal nature of the datasets

inevitably leads to attrition of some individuals over time. While this is likely to entail some under-representation of respondents from disadvantaged family backgrounds, we are confident that this will not induce serious bias in our estimations.[17]

Regarding the measurement of our dependent variable, as said, we focus on the respondents' highest educational attainment. To facilitate cross-country comparison, we construct two binary variables measuring whether or not an individual has completed at least upper secondary education, or whether or not an individual has completed tertiary education. The distribution of individuals according to these two attainment thresholds is displayed in *Table 6*.

The table reveals three main trends: first, in each country we see a significant expansion at the upper secondary level. Second, expansion at the tertiary level has been more sluggish and predominantly benefitted women rather than men. Third, in the latest cohort women either outstrip men in terms of educational attainment (Sweden, Italy) or are at least on par with men (Britain, Germany).

Our independent variables are parental class, parental status, and parental education. Information on these variables was collected when children were aged 10-11 (Britain), 7-13 (Sweden), 15 (Germany), or 14 (Italy). In the British case information was gathered by interviewing the parents directly, in the Swedish case it comes from administrative registers, whereas information was collected retrospectively from the respondent in the German and Italian data.

[17] Non-response rates in the Swedish data are very low, varying between 1.8 and 7.4 per cent. In the British case, additional tests with multiply imputed data for incomplete cases have yielded substantively similar results. These results are available upon request.

Table 6: Distribution of respondents by two educational thresholds (%)

		Men			Women		
		Upper secondary or higher	Tertiary	N	Upper secondary or higher	Tertiary	N
Britain	1946	24.8	8.3	1879	9.9	2.7	1705
	1958	28.6	12.3	4182	27.2	9.5	4071
	1970	34.7	17.8	4075	32.7	17.5	4236
Sweden	1948	36.5	16.9	4037	36.7	16.7	3903
	1952	38.4	14.5	3785	41.3	15.0	3736
	1967	39.7	13.2	3489	50.0	18.6	3388
	1972	45.6	17.4	3308	57.5	28.0	3095
Germany	1945-54	38.6	28.6	734	24.7	16.8	679
	1955-64	48.0	31.3	1177	38.4	20.1	1335
	1965-74	47.7	30.4	863	47.2	22.3	955
Italy	1939-53	38.1	10.1	4055	29.8	7.5	4280
	1954-64	53.3	12.5	3666	52.0	11.1	3849
	1965-75	60.8	13.7	4011	66.8	16.8	4131

Note: In Germany, applied tertiary degrees are also included in the tertiary category. Including university degrees only would have resulted in a problematically low number of observations.

Regarding parental class, we use the National Statistics Socio-Economic Classification (NS-SEC) for Britain (Office for National Statistics 2005), the Erikson-Goldthorpe-Portocarero (EGP) scheme for Sweden and Germany (Erikson, Goldthorpe, and Portocarero 1979; Erikson and Goldthorpe 1992), and the European Socio-economic Classification (ESeC) developed by Rose and Harrison (2014) for Italy. It is important to note that all three classifications use the same theoretical basis. In Britain, Sweden, and Italy, we used the dominance approach of class allocation (Erikson 1984) whenever both parents were in employment at the moment of data collection. In practice, this means that we choose the class category of the parent working full-time or, if both parents work full-time, we chose the higher category. In Germany, given that mothers rarely worked, let alone in higher class

positions than fathers for the cohorts in question, the default was to use the father's class, save for individuals for whom this information was missing, in which case we used the mother's class. In essence, this procedure corresponds to the dominance approach, except for the consideration for full- or part-time employment. This results in a six-fold classification for Sweden and Britain, and a seven-fold classification for Germany and Italy. While we could, in theory, collapse the German and Italian data into a six-fold category, we refrain from doing so because, first, for socio-historic reasons it is important to distinguish between farmers and other forms of self-employment in Italy, and, second, the bottom category of workers in Germany (unqualified non-manual workers) is significantly worse off than the next-to-bottom category (unqualified manual workers) and thus they should not be collapsed. Overall, we were aiming to construct variables that reflect the national situation as closely as possible, rather than working with nominally identical indicators.

With regard to parental status, we aim to capture the Weberian idea of status as being grounded in relations of perceived social superiority, equality and inferiority, as expressed in patterns of inclusion in and exclusion from more intimate forms of association and distinctive life-styles. For this purpose, we use national versions of the CAMSIS scale (Prandy and Lambert 2003) for Sweden, Germany, and Italy. The CAMSIS scale is based on the occupational structure of marriages and uses multidimensional scaling to derive scores. For Britain, we use the status order developed by Chan and Goldthorpe (2004), which is based on the occupational structure of relations of close friendship.[18] Like the CAMSIS scale, the Chan-Goldthorpe scheme uses multidimensional scaling to derive status scores. We used the dominance approach for all of our cases to assign a parental status score. To facilitate comparison across cases, all measures were standardised between 0 and 1, with higher scores indicating higher status.

[18] The correlation between both scales is very high, 0.9 (Chan 2010).

As for parental education, we use seven ordered categories in each country. Whilst these categories reflect the specificities of the respective educational systems, they all capture key qualification thresholds, such as upper secondary or tertiary level, and are thus broadly comparable. For Britain, Germany, and Italy, the variable represents parents' educational qualifications considered in combination, whilst in the Swedish case parental education represents the level of education of the parent who attained the highest qualification.[19] Given that our study spans several decades in which the distribution of education changed dramatically, we prefer a *relative* measure of education rather than accounting for education in absolute terms (see Bukodi and Goldthorpe 2015). We therefore score parental education according to the proportion of parents falling below that specific category in the cumulative distribution for their children's cohort. Representing a proportion, the resulting measure ranges from 0 to 1. Summary statistics showing the distributions of each of the parental background variables and the correlation between them are available in the *Appendix*.[20]

Results

If not stated otherwise, our findings are based on a binary logistic regression model using the two educational thresholds outlined above as dependent variables and the three parental background indicators as independent variables. The models further include cohort dummies and are estimated separately by country for men and women.[21]

[19] We decided to use this divergent approach due to the high similarity in parents' education.

[20] Regarding the correlation between parental background variables, the pattern is very similar across countries with coefficients ranging between 0.4 and 0.7.

[21] We investigated the possibility of using ordinal logistic regression which would constrain the effects of independent variables to be the same across the two thresholds, but the required assumptions were not met in any of the four countries.

Do parental class, status and education have independent effects?

Before turning to our central research questions, we ask whether parental class, status, and education have distinctive effects in each country and whether these effects would show up in a similar fashion. Based on our logistic regressions, we present our findings graphically in *Figure 3* for men and *Figure 4* for women.[22] Both graphs display the *net* average marginal effects (AMEs) of our parental background variables on the likelihood of exceeding or not either the upper secondary or the tertiary education threshold. Considering that parental class is a categorical variable, we had to choose two class categories for comparison in order to plot the AMEs. We therefore decided to plot the class category exhibiting the highest net AME in comparison to routine/unqualified occupations.[23] Note that no effect is plotted in the case of insignificant AMEs.

Both figures highlight the importance of all three dimensions of parental background in all four countries: parental class, status, and education exert distinctive significant effects on men's and women's educational attainment. But the findings also reveal that the dimensions of parental background matter somewhat differently across countries. Specifically, the parental class effects are clearly greater in Britain and Sweden than in Germany and Italy. For example, in the case of men, the maximum values of average marginal effects range between 15 and 30 per cent in Sweden, as compared to 10 and 13 per cent in Germany. A reverse

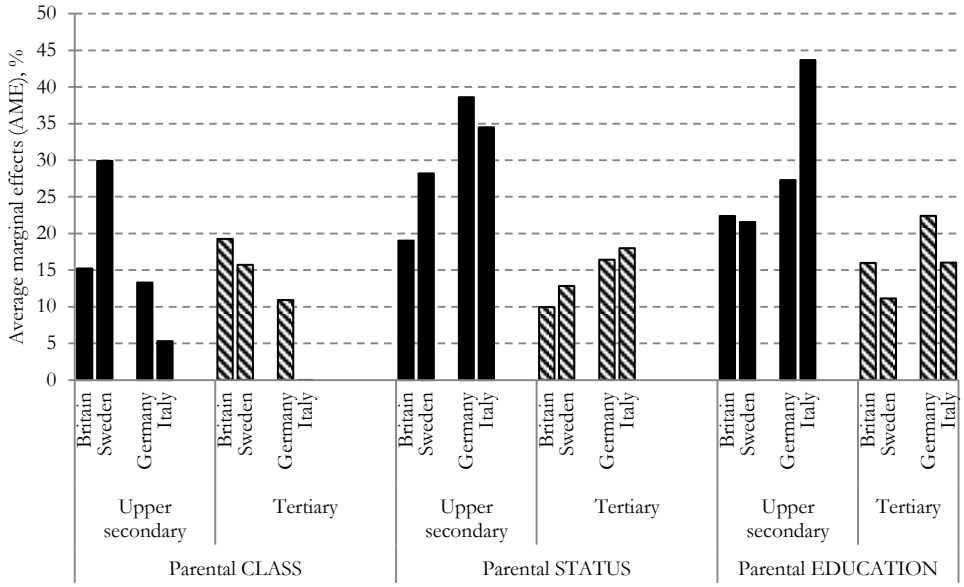
[22] The full results are shown in tabular form in the *Appendix*.

[23] The *gross* effects of parental class show up in the same fashion in all four countries: the highest AME is always observed for the higher salariat (NS-SeC Class 1, EGP I) (available upon request). But there are country differences in the pattern of the *net* effects, due to cross-country differences in the relationship between parental class, status and education. In Britain and Sweden, although the magnitudes of net AMEs are smaller than that of gross AMEs, the highest value always shows up for the higher salariat. For German men, the highest AMEs are observed for qualified routine non-manual workers (EGP IIIa) for the upper secondary, and for the lower salariat (EGP II) for the tertiary threshold. For German women, the net effect of parental class is insignificant. For Italian men, the categories with the highest AME are intermediate occupations (ESeC Class 3) for the upper secondary threshold; the parental class effect is insignificant for the tertiary threshold. For Italian women, the highest AMEs are observed among the higher salariat (EGP I) at upper secondary level and the lower salariat (EGP II) at tertiary level.

pattern, however, shows up for parental status and education; these components of social origins apparently matter more in Germany and Italy than in the other two countries. For instance, in Italy the effect of parental education on the probability of exceeding the upper secondary threshold is about twice as large as in Britain and Sweden[24].

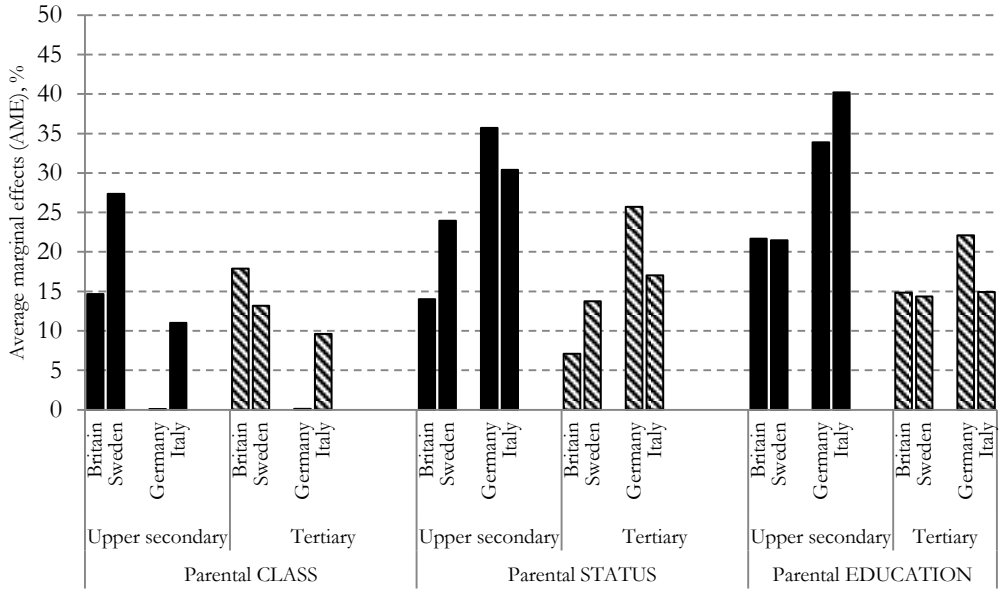
The results thus suggest a differential effect of parental background, either class-based or status- and education-based, depending on the country. We also find that the effects of nearly all parental background variables are greater for the upper secondary as opposed to the tertiary education threshold, confirming that upper secondary education is a critical juncture in educational careers in all four countries.

Figure 3: Binary logistic regression of exceeding (or not) two educational thresholds, on parental class, status and education (average marginal effects in per cent), men



[24] This is in line with the results reported by Triventi *et al.* (2015), who find a larger parental education effect, compared to the class of origin effect, on individuals' educational attainment in Italy.

Figure 4: Binary logistic regression of exceeding (or not) two educational thresholds, on parental class, status and education (average marginal effects in per cent), women



Note: Average marginal effects (AMEs) are calculated under a model that includes parental class, status and education along with cohort dummies. For parental class, the highest AMEs, in comparison with routine/unqualified workers, are plotted.

Do the effects of parental class, status and education vary over time?

One of our central research questions is concerned with the time variation in the effects of the three parental background characteristics and differences in this variation across countries. In view of the foregoing institutional comparison, we are particularly interested to see whether the variation is aligned with macro-institutional changes in the educational system we have described and thus confirms or disconfirms our hypotheses. To illustrate changes in the effects of the three parental background indicators over time, we compare the differences in the predicted probabilities of exceeding or not our education thresholds for individuals from most advantaged and least advantaged backgrounds with regard to the specific parental background variable, whilst holding the other two background variables constant at an intermediate level.[25] We therefore assigned each parental background variable to one of three

[25] The predicted probabilities are derived from the binary logistic models that were discussed in the previous sub-section.

levels, representing either the most advantaged or the least advantaged or the intermediate level. The construction rules for each background variable are detailed in *Table 7*.

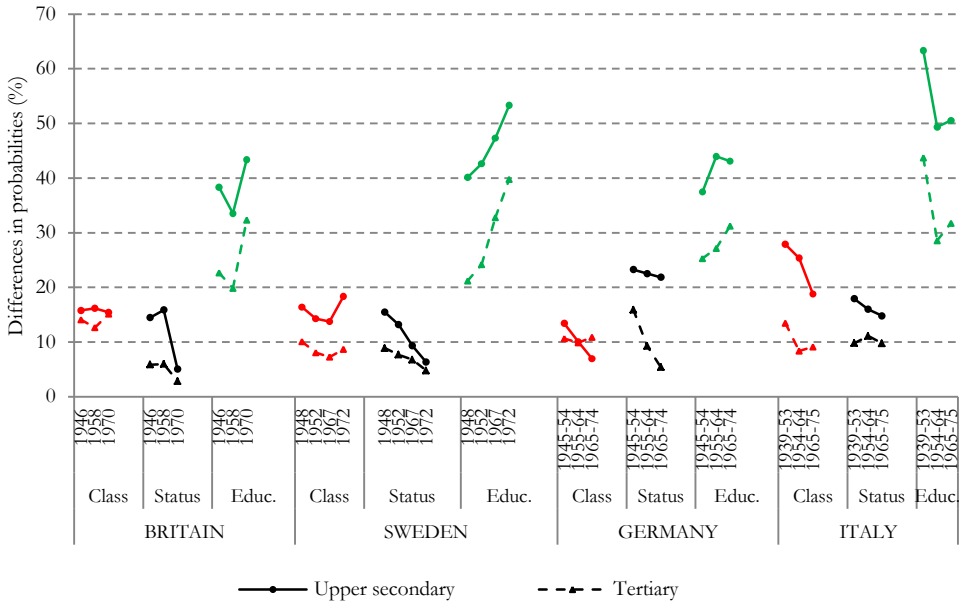
Table 7: Derivation of three parental groups

	Britain	Sweden	Germany	Italy
		Parental class		
	NS-SeC	EGP	EGP	ESeC
Level 1	1, 2	I, II	I, II	1, 2
Level 2	3, 4, 5	III, IV, V-VI	III, IV, V-VI	3, 4, 5, 6
Level 3	6, 7	VII	VII	7, 8, 9
		Parental status		
Level 1		top third		
Level 2		middle third		
Level 3		bottom third		
		Parental education		
Level 1	tertiary	tertiary	tertiary	tertiary
Level 2	below tertiary	below tertiary	below tertiary	below tertiary
Level 3	no qualification	compulsory only	lower secondary only	no qualification

To give an example for parental education in Britain, we compare the difference in the predicted probabilities of exceeding the upper secondary or the tertiary threshold for the following two hypothetical individuals: an individual with parents having a degree as compared to an individual with parents having no qualification, whilst holding the two other parental variables constant at the intermediate level. We then reiterate this process for each parental variable in each country for each educational threshold. Given very similar regression results for men and women, we decided to average over the predicted probabilities of men and

women and, for presentational purposes, show the combined probabilities in one graph. The results are displayed in *Figure 5*. Graphs for men and women separately are available in the *Appendix*.

Figure 5: Differences in probabilities between individuals with *most* and *least* advantaged parental class/status/education backgrounds of exceeding (or not) two educational thresholds (%)



Note: When calculating the predicted probabilities for one dimension of parental background, the other two dimensions were held constant at the intermediate level.

Looking at each parental variable in turn, we find a sustained decline of the parental class effect only in Italy; this is clearly visible for the upper secondary threshold. In contrast, in Britain, there is no change at all in the effects of parental class and for Germany only some moderate decline shows up at the upper secondary level. The Swedish case displays a U-shape pattern for the upper secondary threshold: the parental class effect somewhat declines over the first three cohorts and then resurges for the 1972 cohort. In general, for the tertiary thresholds, parental class exhibits no or minimal fluctuations in all four countries.

With regard to our hypotheses, the picture is then mixed. In Britain, we would have expected a noticeable decline in the effects of parental class, which is not borne out in the results. In Sweden, we predicted a decline at decreasing rates over cohorts, but the resurgence of the class effect in the 1972 cohort is not entirely aligned with our expectations. Also, considering the dramatic increase of education spending in Sweden, we would have expected a more substantial reduction of the parental class effect. As for Germany, the moderate decline of the class effect at the upper secondary level is in line with our predictions, whilst the persistency at the tertiary level was not expected. But the declining parental class effects in Italy, overall, confirm our prior expectations.

Turning to the effect of parental status, in Sweden we observe a sustained decline for both the upper secondary and the tertiary thresholds. In Britain, we find an overall declining effect and this is due to a sharp drop between the last two cohorts. In the Italian case, the effect of parental status at the upper secondary level declines only slightly, with no change at the tertiary level. In Germany, the parental status effect remains constant at the upper secondary level, whereas there is a rather sharp decrease at the tertiary level.

By and large, the patterns align with our predictions in that a sharp decline shows up in Britain and Sweden, some slight decline in Italy, and persistence in Germany, although only for the upper secondary threshold. But we should note that based on our macro-institutional scales, we expected a more pronounced decline in the parental status effect for Italy and a persistence for both educational thresholds in Germany.

As for parental education, we find a strengthening effect over time in all countries except for Italy, where the effect of parental education declines sharply between the first and the second cohort, but does not change between the two latest cohorts. In Sweden, the increase in the effect of parental education is marked and sustained at constant rates throughout all cohorts.

Thus, the effect increased from 40 to 53 per cent (upper secondary) and 21 to 40 per cent (tertiary) between the 1948 and the 1972 cohort. The German case shows a less pronounced increase, which, for the latest cohort, flattens out at the upper secondary level. Britain's pattern is V-shaped with the effect being noticeably highest in the latest cohort.

Taken together, our hypotheses receive moderate support by the data. The V-shaped pattern in Britain nicely aligns with our prediction. Similarly, the L-shaped Italian pattern broadly follows in size and shape the predicted over-time change. However, as it stands, the sharp increase in Sweden and the more moderate increase in Germany are not entirely aligned with the changes in the three characteristics of the educational institutions, where we expected overall persistence.

Do the three properties of educational systems affect the effects of parental class, status and education differently?

As shown above, in case of parental class we find only a moderate alignment between our predictions based on the macro-institutional characteristics and the micro-level results. As for parental status, our predictions fare relatively well, with Britain and Sweden experiencing a sharp decline in the effect, contrasting with some moderate decrease in Germany and Italy. As regards parental education, we see decline in the effect only in Italy, and apparent increases in Germany and Sweden, which only partly confirms our expectations. As a next step, we formally model how the macro-level – the three properties of educational systems – maps onto the micro-level, the social inequalities in educational attainment. We use OLS regressions to tackle this question. As dependent variable, we take the differences in the predicated probabilities as calculated above, separately for the two thresholds, for each cohort

in each country and for men and women. This means that we have 52 observations in total in our dataset.

As independent variables, we use the scores of our three dimensions of educational systems – stratification, decommodification, and standardisation – for the respective country-cohort, that is, when cohort members were aged 14-20 (see *Figure 1*). In sum, this setup essentially seeks to test whether the observed differences between individuals with different backgrounds in the likelihood to attain certain education thresholds are systematically correlated with varying institutional arrangements of educational systems. To control for potential confounders, such as income inequality and educational expansion, we also add a GINI coefficient for each cohort taken from OECD (2014), and standardised between 0 and 1. As for the effects of educational expansion, we standardise the proportion of respondents exceeding our two thresholds across cohorts and add this measure to the regression, on a 0-1 scale. In terms of the modelling strategy, we first present bivariate regression results, followed by Model 1, including only the three characteristics of educational systems, and Model 2, adding the controls. Our findings are displayed in *Table 8*.

Table 8: Effects of various characteristics of educational systems on differences between individuals with most advantaged and least advantaged class/status/education origins in probabilities of exceeding (or not) two educational thresholds (OLS regression)

	Social origins measured via …																	
	class						status						education					
	Bivariate			Model1			Model2			Bivariate			Model1			Model2		
Properties of educational systems:																		
Stratification (0-1)	-2.32			-5.98			-4.29			10.66	**		9.73	**		9.53	**	
	[3.01]			[3.00]			[2.97]			[2.82]			[2.99]			[2.83]		
Decommodification (0-1)	-10.32	*		-13.87	**		-16.74	**		-9.63	*		-3.83			-4.18		
	[3.92]			[4.17]			[4.16]			[4.21]			[4.20]			[3.96]		
Standardisation (0-1)	-0.62			-2.45			-3.86			4.45			4.15			-1.17		
	[3.08]			[2.87]			[3.50]			[3.20]			[2.88]			[3.33]		
Income inequality (GINI) (0-1)	57.94	**					-20.76			18.43						13.05		
	[19.81]						[22.62]			[22.51]						[21.52]		
Educational expansion (0-1)	12.95	**					16.28	**		17.48	**					19.18	**	
	[4.72]						[4.41]			[4.75]						[4.19]		
Constant				28.31	**		33.48	**					6.47			0.52		
				[4.74]			[8.40]						[4.77]			[7.99]		
R^2				19.70%			38.81%						27.43%			50.45%		
N	52																	

	Social origins measured via …					
	education					
	Bivariate			Model1			Model2		
Properties of educational systems:									
Stratification (0-1)	-3.44			-6.68			0.96		
	[6.18]			[6.16]			[4.93]		
Decommodification (0-1)	-13.4			-13.4			-15.4		
	[8.35]			[8.63]			[9.90]		
Standardisation (0-1)	16.36	**		14.57	*		15.33	*	
	[5.87]			[5.94]			[5.80]		
Income inequality (GINI) (0-1)	20.76						-17.7		
	[34.45]						[37.52]		
Educational expansion (0-1)	48.44	**					46.31	**	
	[7.77]						[7.31]		
Constant				39.57	**		69.87	**	
				[9.81]			[13.94]		
R^2				18.04%			59.78%		
N									

Note: Explanatory variables (properties of the educational systems) are measured at respondents' age 14-20.
Standard errors are in parenthesis.

*: p<0.05; **: p<0.01

Although we take the presented findings as descriptive and only suggestive of the importance of educational institutions for explaining micro-level inequalities in educational attainment, the results *do support* our theoretical argument that the different dimensions of educational systems 'switch on' different components of social origins. *Table 8* clearly shows that decommodification as an indicator of the costs of education attenuates the effect of parental class as an indicator of family economic resources, regardless of the chosen model specification. Likewise, as we predicted, highly stratified educational systems reinforce the effect of parental status, i.e. parents' ability to support their children's educational progression through social contacts, networks and various forms of cultural participation. Finally, in more standardised educational systems parental education as a resource clearly matters more than in

less standardised systems. This suggests that in standardised systems it is in fact easier for higher educated parents to advance their children's school careers through favourable home-learning environments and/or informed guidance through the educational system. Overall, we take these results as an encouraging sign that the mechanisms attributed to educational institutions empirically play out in a fashion that is similar to the one suggested by our theoretical argument.

Are the combined effects of social origins different in the four countries?

Our final research question looks at the cumulative effect of the three background variables over time and asks to what extent the combined effect of social background has changed across cohorts within countries, and how far these changes map onto changes in the countries' educational systems. To address this issue, we follow the same approach as above, i.e. we plot the relative difference in the predicted probabilities of exceeding or not the two thresholds, for individuals from consistently advantaged and consistently disadvantaged backgrounds *with regard to all three dimensions of parental background*.[26]

We therefore assign respondents to different types of social background, taking into account the combination of parental class, status, and education. The derivation rules for these combined levels of parental background are shown in *Table 9*. In a nutshell, what we did was to assign respondents to the *consistently disadvantaged* background if at least 2 out of 3 dimensions of parental background were at the most disadvantaged level, i.e. at Level 3, as shown in *Table 7*. Likewise, individuals are considered to be from a *consistently advantaged* background if at least 2 out of 3 dimensions of parental background are at the most advantaged level, i.e. at Level 1, as indicated in *Table 7*. As for the *intermediate* level, we coded any other combination of parental background variables as intermediate. Having

[26] We again used our baseline binary logistic model to predict the probabilities.

derived these social origin types, we then compared the predicted probabilities of exceeding or not the two educational thresholds for consistently advantaged individuals to those from consistently disadvantaged backgrounds. As before, *Figure 6* presents average probabilities for men and women combined and we relegate the separate graphs by gender to the *Appendix*.

Table 9: Derivation of combined origins

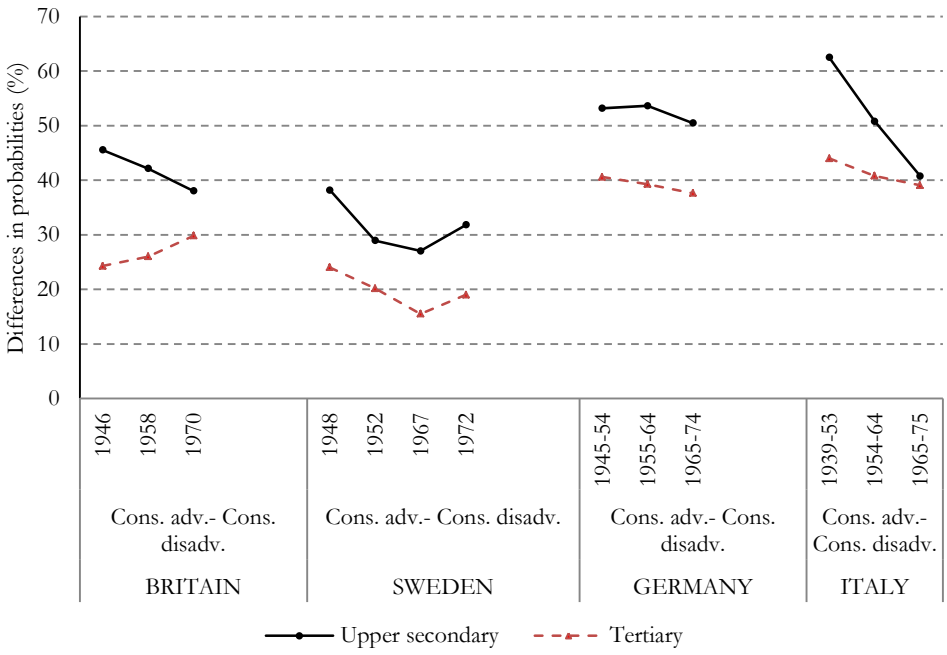
Combined origins	Components of parental background		
	class	status	education
Consistently advantaged	Level 1	Level 1	Level 1
	Level 1	Level 2	Level 1
	Level 1	Level 1	Level 2
	Level 2	Level 1	Level 1
Intermediate	Other combinations of the three components of parental background		
Consistently disadvantaged	Level 3	Level 3	Level 3
	Level 3	Level 2	Level 3
	Level 3	Level 3	Level 2
	Level 2	Level 3	Level 3

Note: The construction rules of Level 1, 2, and 3 are shown in Table 7.

The plot reveals two interesting points. So far as the *size* of the combined effects is concerned, our four countries appear to form two groups: the effects are clearly greater in Germany and Italy than in the other two countries. For instance, in the latest cohort, the difference between individuals from consistently advantaged and disadvantaged origins of exceeding the tertiary threshold is around 40 percentage-points in Italy and Germany as compared to 30 percentage-points in Britain and 20 percentage-points in Sweden. So far as the cross-cohort *changes* are concerned, the results, by and large, are in line with our predictions. This is especially the case for upper secondary education. As predicted, there is a sharp decline in the combined

origins effects in Italy, a moderate decline in Britain and Sweden – although in Sweden we see a resurgence of the effect for the latest cohort. In Germany, we scarcely see any change. When it comes to the tertiary threshold, the decline in the combined origins effects is much less apparent, even in Italy; and in Britain we in fact see an increasing importance of the combined parental background.

Figure 6: Differences in probabilities between individuals with consistently advantaged and consistently disadvantaged origins of exceeding two education thresholds (%)



Note: Consistently advantaged origins designate parents with at least two dimensions at the highest level (Level 1); consistently disadvantaged origins designate parents with at least two dimensions at the lowest level (Level 3). The construction rules can be found in Table 7 and 9.

Finally, using a similar research design as in *Table 8*, we examine how the differences between individuals with different combined origins in the probability of exceeding the two education thresholds map onto the varying institutional arrangements of educational systems. As it is apparent from *Table 10*, the stratification, and the decommodification dimensions of educational systems in particular, are far more important than the standardisation dimension in affecting the overall level of inequalities in educational attainment, regardless of how we

specify our model. As expected, the more stratified the educational system, the more likely is it that children hailing from consistently advantaged backgrounds perform better than their counterparts coming from consistently disadvantaged families. Likewise, we find that decommodified educational systems significantly reduce the advantages of individuals from most privileged backgrounds, as compared to individuals from consistently disadvantaged families.[27] The extent of standardisation of educational systems, however, does not seem to affect at all the level of educational inequalities at the micro level.

Table 10: Effects of various characteristics of educational systems on differences between individuals with most advantaged and least advantaged combined origins in probabilities of exceeding (or not) two educational thresholds

	bivariate		Model1		Model2	
Property of educ. system:						
Stratification (0-1)	23.55	**	14.12	**	13.88	**
	[5.52]		[4.55]		[4.05]	
Decommodification (0-1)	-44.52	**	-36.39	**	-37.12	**
	[6.30]		[6.37]		[5.67]	
Standardisation (0-1)	9.04		4.75		-4.08	
	[6.44]		[4.38]		[4.76]	
Income inequality (GINI) (0-1)	136.4	**			20.43	
	[30.37]				[30.80]	
Educational expansion (0-1)	26.93	*			32.44	**
	[10.08]				[6.00]	
Constant			53.08	**	43.55	**
			[7.24]		[11.44]	
R^2			58.78%		74.97%	
N			52			

Note: Explanatory variables are measured at respondents' age 14-20.

*: p<0.05; **: p<0.01

[27] We repeated the analyses taking the probability differences between individuals from most advantaged and middling backgrounds, and the results were essentially the same (see *Appendix*).

Conclusions

In this paper, we have built on previous research that has argued for a more fine-grained understanding of social origin to fully appreciate its effect on individuals' educational attainment. On the basis of a multi-dimensional conceptualisation of social origin that decomposes it into three components – parental class, parental status, and parental education – we have posed four inter-related research questions regarding the effects of the three components and their variation over time in four European countries. Furthermore, drawing on the institutional variation in our four countries, we have linked the individual micro-level with institutional changes in the countries' educational systems at the macro-level and proposed a number of hypotheses about the expected variation of social origin effects over time, both within and across countries. In this process, our multifaceted conceptualisation of social origin has been particularly helpful as it has enabled us to theorise about the interaction of specific components of social origin with specific dimensions of the educational system and thus develop a more nuanced understanding of these micro-macro linkages. With regard to our research questions, our answers can be summarised as follows.

First, the results we have presented clearly show that all three components of social origin matter across the four countries. A multidimensional conceptualisation of social background, such as the one proposed in this paper, thus seems warranted and, indeed, preferable to fully capture the different sources of inequalities in education. The results further suggest important differences between countries in terms of the specific component of social origin that matters most. In Britain and Sweden, parental social class – i.e. family economic resources – appears to be a more important driving force behind educational inequalities than in Germany and Italy. In the latter two countries, parental status – i.e. socio-cultural endowments – and parental education – i.e. capacity to provide an effective home-learning environment and strategic knowledge of the educational system – clearly play a greater role than in Britain or

Sweden in children's educational attainment. This bifurcation of our four countries also emerges with regard to the effects of combined origins, which are considerably larger in Germany and Italy than in Britain and Sweden.

Second, we find that the effects of parental background have been subject to important changes over time. This applies to both the individual components and the combined effect of social origin. Moreover, and most importantly for the central aim of this paper, many of these changes at the micro-level seem to be aligned with changes in macro-institutions in the countries' educational systems. Overlaying the predicted and actual pattern of changes in educational inequalities in *Figure 7*, we find our hypotheses most fully borne out in Germany and Italy, whilst we generally overestimated the magnitude, rather than the direction, of the over-time changes in Britain and Sweden.

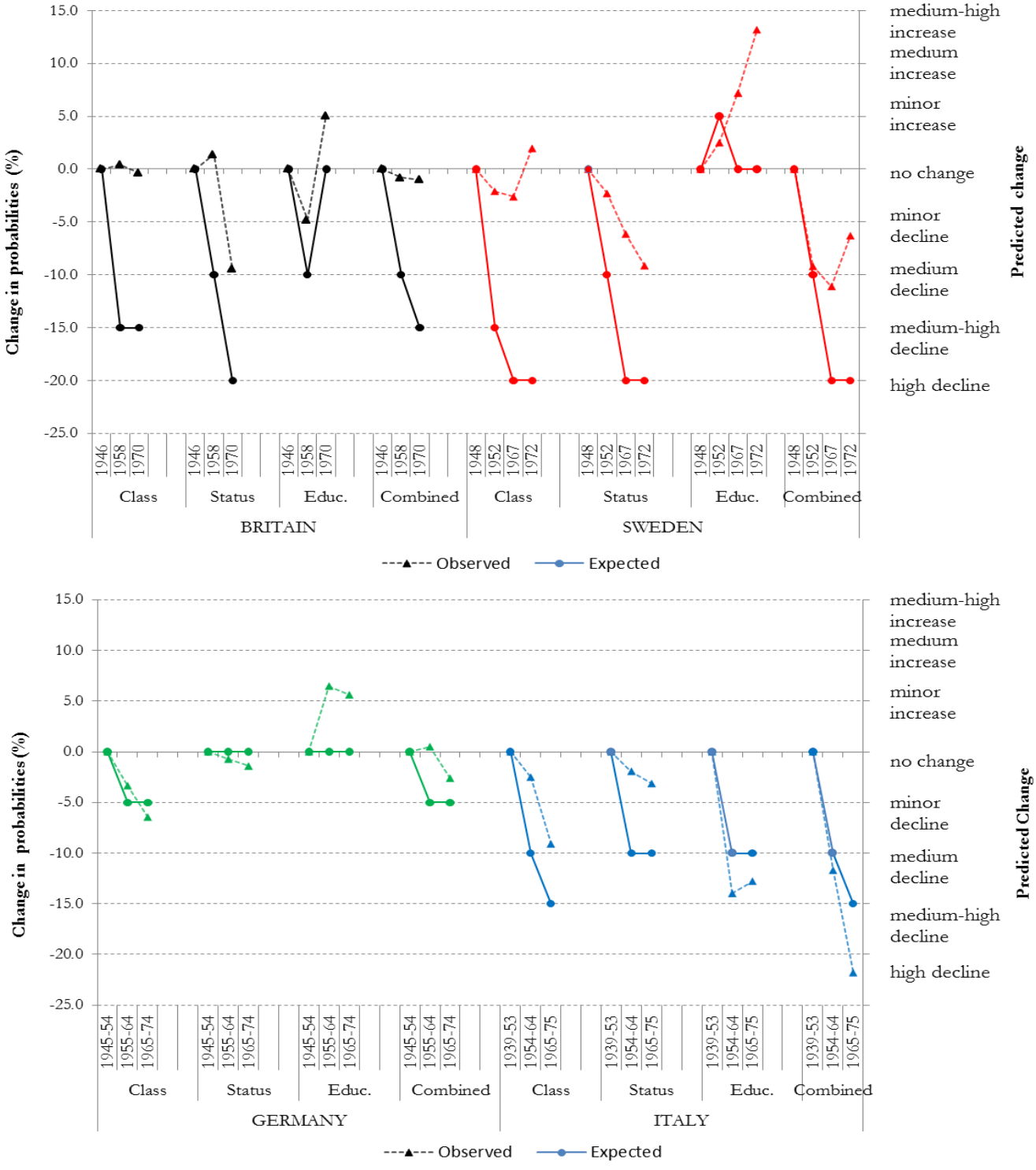
Regarding our three social origin components, we see the closest fit with our predictions in the case of social status in all four countries; the changes in the effect broadly confirm our expectations. By contrast, we overrated the effect of educational reforms that led to stronger decommodification on parental class, particularly for Britain and Sweden. While it may be possible that institutional changes are not able to dislodge pervasive effects of social class (cf. Goldthorpe 2013), other factors also come to mind which might have countervailed educational reforms. For example, increasing income inequality, especially in the more recent cohorts, might have impaired the effect of institutional change. With regard to parental education, our expectations bear out for periods of decline, yet fail to predict the increasing importance of parental education that we witness for the latest cohorts, in particular in Sweden. Again, it could be that institutional reforms are not well placed to affect the channels through which parental education reinforces inequality, such as beneficial home-learning environments, parental practices and attitudes towards education (cf. Bjorklund, Lindahl and

Lindquist 2010). In addition, the increasing effect of parental education might be related to the changes in the nature and amount of knowledge and skills that are passed on to students. Following this logic, differences in parental education would matter much more for more recent cohorts than they did for earlier cohorts.

Third, we have presented suggestive evidence that various properties of educational systems affect inequalities in individuals' educational attainment differently. More precisely, we found that the three properties of educational systems – stratification, decommodification and standardisation – operate through different components of social origins to affect inequalities in education at a micro level. The results suggest that decommodification is most efficient in attenuating social class effects, i.e., the effects of family economic resources; stratification reinforces the effect of parental status, i.e., the effects of family socio-cultural resources; and standardisation magnifies differences in parental education, i.e., in family educational resources. Concerning the combined effect of social origins on individuals' educational attainment, our results are in line with some of the previous research (Pfeffer 2008), which has found that measures of standardisation only have a very limited effect on educational equality. Rather, from a policy perspective, the emphasis should be placed on measures aiming to increase decommodification and/or reduce stratification of education systems, as these seem to have a palpable effect on inequalities in educational attainment.

Taken together, our findings reveal a great deal of cross-national similarities in that a persistent importance for individuals' educational attainment of parental class, status and education has been detected in all four countries. But our findings also reveal that macro-institutional setups do matter, and changes in institutional characteristics of educational systems can, to some extent, reinforce or offset social processes that generate inequalities in education at the micro level.

Figure 7: Observed and expected effects of social origins compared



Note: We plot the observed effects at upper secondary threshold if the effects at both educational thresholds point into the same direction. Otherwise we plot the average effects at upper secondary and tertiary thresholds.

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Appendix

Table A.1: Tracking at the upper secondary level – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0.75	0.75	0.5	0.25	0.25	0
Sweden	0.75	0.25	0.25	0.25	0.25	0.25
Germany	1.0	1.0	1.0	1.0	1.0	1.0
Italy	1.0	0.5	0.5	0.5	0.5	0.5

Sources: Britain (Gillard 2014; Jones 2003; Schneider 2008; Simon 1999); Sweden (Erikson and Jonsson 1996; Halldén 2008; Rudolphi 2013); Germany (Neugebauer, Reimer, Schindler, and Stocké 2013; Schneider 2006); Italy (Barone and Schizzerotto 2008; OECD 1969, 1985, 1998)

Table A.2: Selectivity at the upper secondary level – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	1.0	0.75	0.5	0.25	0.25	0
Sweden	1.0	0.5	0.25	0.25	0.25	0.25
Germany	0.75	0.75	0.75	0.75	0.75	0.75
Italy	1.0	0.25	0	0	0	0

Sources: Britain (Gillard 2014; Jones 2003; Schneider 2008; Simon 1999); Sweden (Erikson and Jonsson 1996; Halldén 2008; Rudolphi 2013); Germany (Neugebauer, Reimer, Schindler, and Stocké 2013; Schneider 2006); Italy (Barone and Schizzerotto 2008; OECD 1969, 1985, 1998)

Table A.3: Total spending on education – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0.25	0.5	0.75	0.75	0.5	0.75
Sweden	0	1.0	1.0	1.0	1.0	1.0
Germany	0	0.25	0.5	0.25	0.5	0.5
Italy	0	0.5	0.5	0.5	0.5	0.5

Source: Britain (Office for Budget Responsibility 2015); Sweden (OECD 1992, n.d.; Statistics Sweden n.d.; UNESCO n.d.); Germany (Diebolt 2000; OECD 1992); Italy (OECD n.d.; UNESCO n.d.)

Table A.4: Total spending on secondary education – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0	0.5	0.75	0.75	0.5	0.25
Sweden	0	0.25	1.0	1.0	0.75	0.75
Germany	0	0	1.0	0.75	0.25	0.25
Italy	0	0.25	0.75	0.25	0.75	0.75

Source: Britain (OECD 1992, n.d.; Office for National Statistics n.d.; UNESCO n.d.);
Sweden (OECD 1992, n.d.; Statistics Sweden n.d.; UNESCO n.d.);
Germany (OECD 1992, n.d.; UNESCO n.d.); Italy (OECD 1992, n.d.; UNESCO n.d.)

Table A5: Prevalence of private education at the secondary level – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0.5	0.25	0.25	0.25	0.25	0.25
Sweden	0	0	0	0	0	0.5
Germany	0	0	0.25	0.25	0.25	0.25
Italy	1.0	1.0	1.0	0.75	0.75	0.75

Source: Britain (Department of Education n.d.; OECD n.d.);
Sweden (OECD n.d.; Scarangello 1964); Germany (Köhler and Lundgreen 2014);
Italy (OECD n.d.; Scarangello 1964)

Table A6: Direct costs of attending tertiary education – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0	0	0	0	0.5	0.75
Sweden	0	0	0	0	0	0
Germany	0.75	0.25	0	0	0	0.25
Italy	0	0	0	0	0	0

Sources: Britain (Gillard 2014; Jones 2003; Schneider 2008; Simon 1999);
Sweden (Erikson and Jonsson 1996; Halldén 2008; Rudolphi 2013);
Germany (Neugebauaer, Reimer, Schindler, and Stocké 2013; Schneider 2006);
Italy (Barone and Schizzerotto 2008; OECD 1969, 1985, 1998)

Table A7: Centralisation of budget making – scores by decade

Country	*Decade*					
	1950s	*1960s*	*1970s*	*1980s*	*1990s*	*2000s*
UK	0.5	0.5	0.5	0.5	0.5	0.5
Sweden	0.5	0.5	0.5	0.5	0.5	0.5
Germany	1.0	1.0	1.0	1.0	1.0	1.0
Italy	1.0	1.0	1.0	0.5	0.5	0.5

Sources: Britain (Gillard 2014; Jones 2003; Schneider 2008; Simon 1999);
Sweden (Erikson and Jonsson 1996; Halldén 2008; Rudolphi 2013);
Germany (Neugebauaer, Reimer, Schindler, and Stocké 2013; Schneider 2006);
Italy (Barone and Schizzerotto 2008; OECD 1969, 1985, 1998)

Table A8: Centralisation of examinations – scores by decade

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0	0	0	0.5	1.0	1.0
Sweden	0	1.0	1.0	1.0	1.0	1.0
Germany	0.5	0.5	0.5	0.5	0.5	0.5
Italy	1.0	1.0	1.0	1.0	1.0	1.0

Sources: Britain (Gillard 2014; Jones 2003; Schneider 2008; Simon 1999);
Sweden (Erikson and Jonsson 1996; Halldén 2008; Rudolphi 2013);
Germany (Neugebauaer, Reimer, Schindler, and Stocké 2013; Schneider 2006);
Italy (Barone and Schizzerotto 2008; OECD 1969, 1985, 1998)

Table A9: Standardisation of school curriculum

Country	Decade					
	1950s	1960s	1970s	1980s	1990s	2000s
UK	0	0	0	0	1.0	1.0
Sweden	0	1.0	1.0	1.0	1.0	1.0
Germany	1.0	1.0	1.0	1.0	1.0	1.0
Italy	1.0	1.0	1.0	1.0	1.0	1.0

Sources: Britain (Gillard 2014; Jones 2003; Schneider 2008; Simon 1999);
Sweden (Erikson and Jonsson 1996; Halldén 2008; Rudolphi 2013);
Germany (Neugebauaer, Reimer, Schindler, and Stocké 2013; Schneider 2006);
Italy (Barone and Schizzerotto 2008; OECD 1969, 1985, 1998)

Table A10: Descriptive statistics for the three components of social origins, Britain

	1946 cohort	1958 cohort	1970 cohort
Parental class [NS-SEC] (%)			
higher managerial and professional occupations (Class 1)	4.3	5.5	11.5
lower managerial and professional occupations (Class 2)	8.1	17.8	20.9
intermediate occupations (Class 3)	8.6	16.8	8.6
small employers and own account workers (Class 4)	8.3	5.3	12.2
lower supervisory and technical occupations (Class 5)	17.9	27.7	19.2
routine and semi-routine occupations (Class 6-7)	52.9	26.9	27.6
Parental status			
mean	0.30	0.45	0.50
s.d.	0.24	0.23	0.24
Parental education			
mean	0.27	0.34	0.39
s.d.	0.33	0.33	0.33

Table A11: Descriptive statistics for the three components of social origins, Sweden

	1948 cohort	1953 cohort	1967 cohort	1972 cohort
Parental class [EGP] (%)				
higher salariat (I)	6.5	7.1	11.4	16.3
lower salariat (II)	11.0	15.0	20.0	23.1
routine non-manual employees (IIIa)	12.5	12.4	18.0	17.0
small employers and own account workers (IVabc)	21.5	18.0	13.2	7.2
lower supervisory and skilled manual workers (V+VI)	24.3	24.6	20.1	17.9
non-skilled workers (VIIab)	24.2	22.8	17.4	18.6
Parental status				
Mean	0.37	0.39	0.46	0.48
s.d.	0.16	0.16	0.15	0.15
Parental education				
Mean	0.24	0.28	0.38	0.39
s.d.	0.37	0.37	0.32	0.31

Table A12: Descriptive statistics for the three components of social origins, Germany

	1945-54	1955-64	1965-74
Parental class [EGP] (%)			
higher salariat (I)	8.6	10.8	12.5
lower salariat (II)	21.0	22.3	23.9
qualified routine non-manual workers (IIIa)	4.8	5.6	6.4
self-employed and farmers (IVabc)	13.5	11.3	10.3
skilled manual workers, technicians (V+VI)	22.2	19.9	18.3
unqualified manual workers (VIIa)	23.1	22.7	20.6
unqualified routine non-manual workers (VIIb)	6.7	7.4	7.8
Parental status			
Mean	0.45	0.45	0.47
s.d.	0.15	0.16	0.16
Parental education			
Mean	0.24	0.27	0.31
s.d.	0.37	0.38	0.38

Table A13: Descriptive statistics for the three components of social origins, Italy

	1939-53	1954-64	1965-75
Parental class [ESeC] (%)			
higher salariat (ESeC 1)	0.4	0.6	1.5
lower salariat (ESeC 2)	4.6	6.5	8.2
intermediate occupations, lower supervisory (ESeC 3, 6)	9.9	13.2	16.9
self-employed (not in agriculture) (ESeC 4)	17.5	21.2	23.3
farmers (ESeC 5)	20.1	11.8	7.1
lower technical and lower services occupations (ESeC 7-8)	19.7	21.7	21.0
routine occupations (EseC 9)	27.8	25.2	22.2
Parental status			
mean	0.27	0.30	0.33
s.d.	0.17	0.19	0.21
Parental education			
mean	0.26	0.25	0.30
s.d.	0.26	0.30	0.35

Table A14: Pearson correlations between the three components of social origins

	Britain		Sweden	
	Parental status	Parental education	Parental status	Parental education
Parental class (hierarchy)	0.68	0.46	0.71	0.50
Parental status		0.45		0.55
	Germany		Italy	
	Parental status	Parental education	Parental status	Parental education
Parental class (hierarchy)	0.50	0.38	0.72	0.44
Parental status		0.55		0.48

Table A15: Binary logistic regression of exceeding (or not) two educational thresholds, on parental status and education (average marginal effects)

	Men				Women			
	Higher secondary or higher vs. lower		Degree vs. lower		Higher secondary or higher vs. lower		Degree vs. lower	
Parental status								
Britain	0.190	**	0.099	**	0.140	**	0.071	**
Sweden	0.282	**	0.128	**	0.239	**	0.137	**
Germany	0.386	**	0.164	*	0.357	**	0.257	**
Italy	0.345	**	0.180	**	0.304	**	0.170	**
Parental education								
Britain	0.224	**	0.160	**	0.217	**	0.148	**
Sweden	0.215	**	0.111	**	0.215	**	0.143	**
Germany	0.273	**	0.224	**	0.339	**	0.221	**
Italy	0.437	**	0.160	**	0.402	**	0.149	**

Note: Parental class is also included in models.

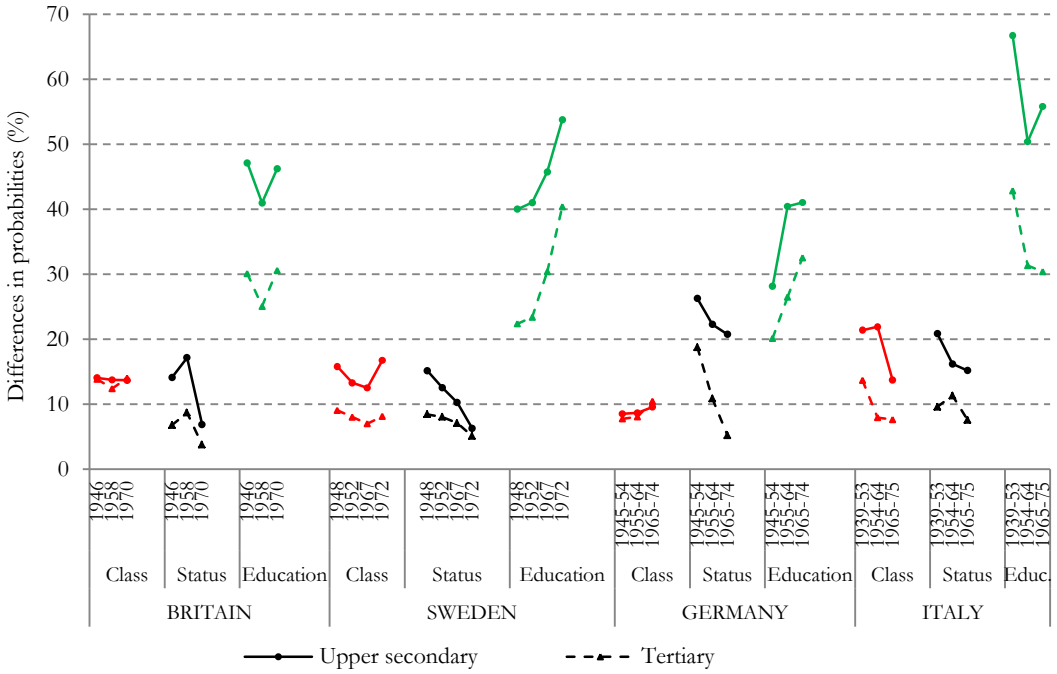
*: $p<0.05$; **: $p<0.01$

Table A16: Binary logistic regression of exceeding (or not) two educational thresholds, on parental class (average marginal effects)

	Men				Women			
	Higher secondary or higher vs. lower		Degree vs. lower		Higher secondary or higher vs. lower		Degree vs. lower	
Britain								
routine and semi-routine occupations (ref.)								
lower supervisory and technical occupations	0.060	**	0.018		0.026	*	0.017	
small employers and own account workers	0.029		0.026		0.063	**	0.038	**
intermediate occupations	0.085	**	0.052	**	0.066	**	0.034	**
lower managerial and professional occupations	0.071	**	0.050	**	0.109	**	0.058	**
higher managerial and professional occupations	0.152	**	0.192	**	0.146	**	0.179	**
Sweden								
routine and semi-routine occupations (ref.)								
lower supervisory and technical occupations	0.068	**	0.035	**	0.024	*	0.008	
small employers and own account workers	0.055	**	0.039	**	0.104	**	0.053	**
intermediate occupations	0.121	**	0.065	**	0.115	**	0.047	**
lower managerial and professional occupations	0.184	**	0.084	**	0.184	**	0.090	**
higher managerial and professional occupations	0.299	**	0.157	**	0.274	**	0.132	**
Germany								
unqualified workers (ref.)								
unqualified routine non-manual workers	0.111	*	0.065		0.099		0.025	
self-employed and farmers	-0.103	**	-0.030		0.000		0.009	
skilled manual workers, technicians	-0.016		-0.001		-0.018		-0.002	
qualified routine non-manual workers	0.133	**	0.074		0.049		-0.007	
lower salariat	0.110	*	0.109	**	0.049		0.047	
higher salariat	0.077		0.087	*	0.074		0.025	
Italy								
routine occupations (ref.)								
lower technical and lower services occupations	0.021		-0.002		0.015		-0.004	
farmers	-0.056	**	-0.012		-0.038	**	0.001	
self-employed (not in agriculture)	0.050	**	0.018		0.103	**	0.053	**
intermediate occupations, lower supervisory	0.053	*	0.015		0.078	**	0.047	**
lower salariat	0.068		0.053		0.047		0.096	**
higher salariat	0.037		0.035		0.110	**	0.044	*

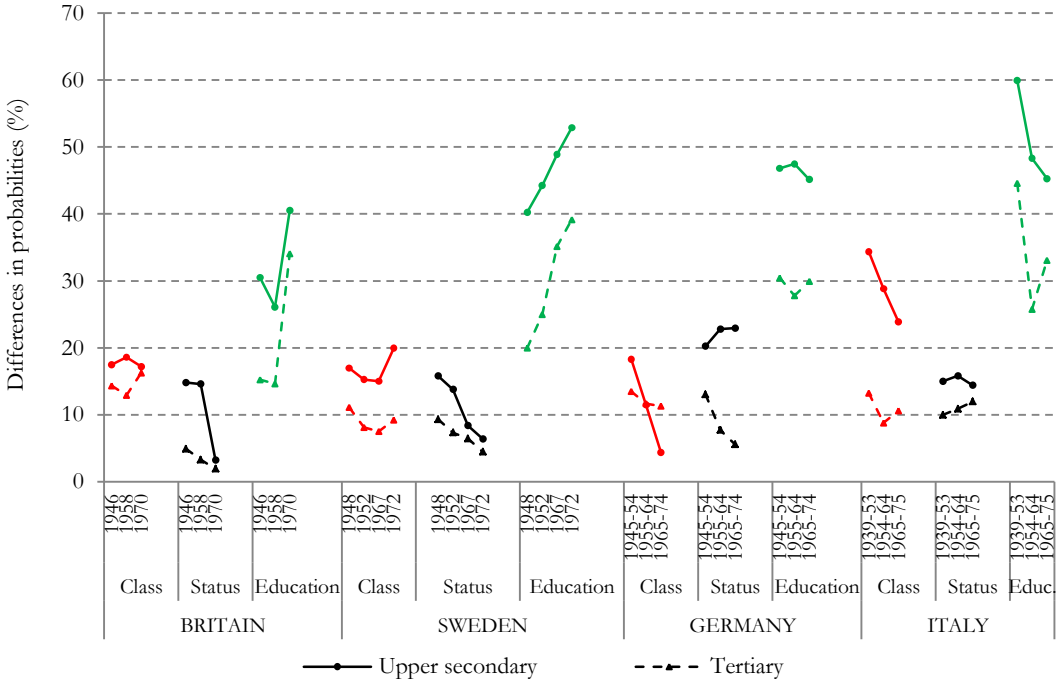
Note: Parental status and education are also included in models.
*: p<0.05; **: p<0.01

Figure A1: Differences in probabilities between *men* with most and least advantaged parental class/status/education backgrounds of exceeding (or not) two educational thresholds (%)



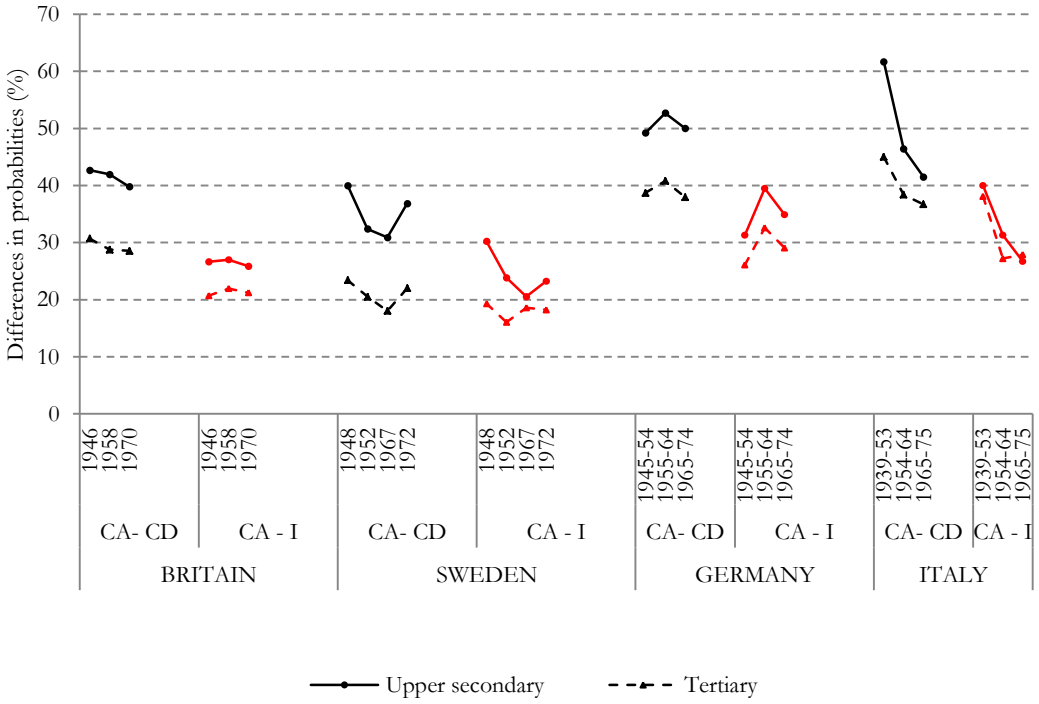
Note: When calculating the predicted probabilities for one dimension of parental background, the other two dimensions were held constant at the intermediate level.

Figure A2: Differences in probabilities between *women* with most and least advantaged parental class/status/education backgrounds of exceeding (or not) two educational thresholds (%)



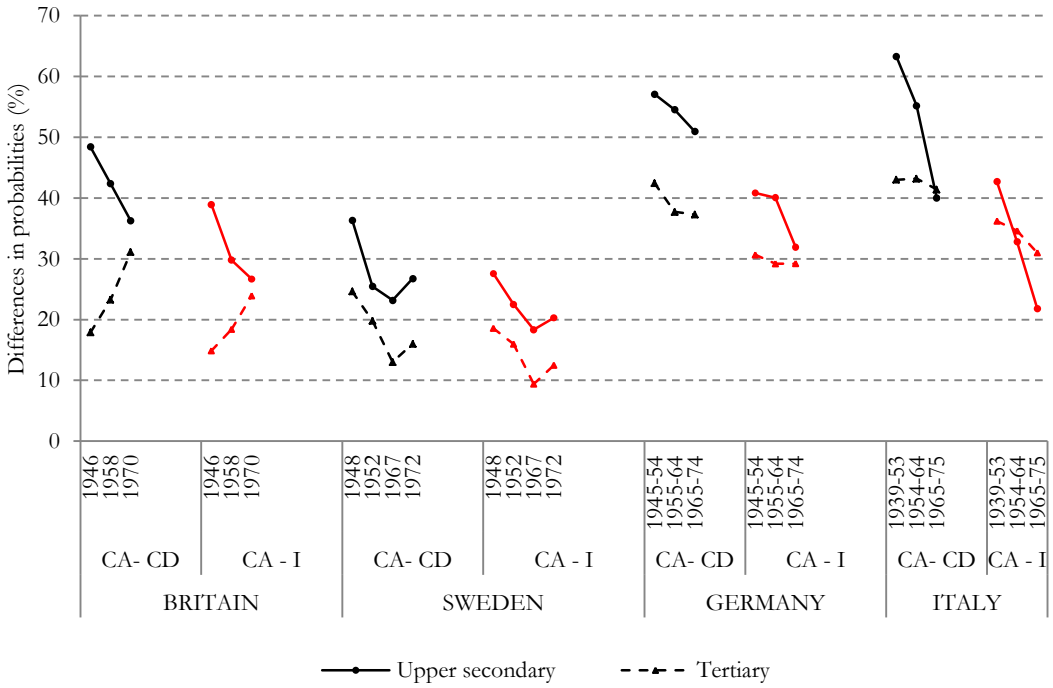
Note: When calculating the predicted probabilities for one dimension of parental background, the other two dimensions were held constant at the intermediate level

Figure A3: Differences in probabilities between *men* with consistently advantaged and consistently disadvantaged/intermediate origins of exceeding (or not) two education thresholds (%)



Note: CA: Consistently advantaged origin; CD: Consistently disadvantaged origin; I: Intermediate origin.
Consistently advantaged origins designate parents with at least two dimensions at the highest level (Level 1); consistently disadvantaged origins designate parents with at least two dimensions at the lowest level (Level 3); intermediate origins designates any other combination. The construction rules can be found in Table 7 & 9.

Figure A4: Differences in probabilities between *women* with consistently advantaged and consistently disadvantaged/intermediate origins of exceeding (or not) two education thresholds (%)



Note: CA: Consistently advantaged origin; CD: Consistently disadvantaged origin; I: Intermediate origin.
Consistently advantaged origins designate parents with at least two dimensions at the highest level (Level 1); consistently disadvantaged origins designate parents with at least two dimensions at the lowest level (Level 3); intermediate origins designates any other combination. The construction rules can be found in Table 7 & 9.

Table A17: Effects of various characteristics of educational systems on differences between individuals with *most advantaged* and *intermediate* combined origins in probabilities of exceeding (or not) two educational thresholds

	bivariate		Model1		Model2	
Property of educ. system:						
Stratification (0-1)	17.18	**	11.41	**	10.47	**
	[3.50]		[2.88]		[3.11]	
Decommodification (0-1)	-29.00	**	-22.33	**	-21.34	**
	[4.22]		[4.03]		[4.36]	
Standardisation (0-1)	6.86		4.29		0.16	
	[4.23]		[2.77]		[3.67]	
Income inequality (GINI) (0-1)	97.62	**			21.08	
	[19.35]				[23.71]	
Educational expansion (0-1)	7.99				9.75	*
	[7.03]				[4.62]	
Constant			34.30	**	26.64	**
			[4.58]		[8.81]	
R^2			62.09%		66.01%	
N			52			

Note: Explanatory variables are measured at respondents' age 14-20.

*: p<0.05; **: p<0.01