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Where DESO Disappears:

Spatial inequality and social stratification at labour market entry

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Abstract

At country-level, a host of evidence suggests there is a sizeable direct effect of social origin (DESO) on initial labour market outcomes, net of educational attainment. What is true at country-level is not always true below country-level, however. Using data from the UK Household Longitudinal Survey and the German Socio-Economic Panel, we show that variable spatial opportunity structures moderate the size of DESO at labour market entry, such that there are places where DESO disappears. Social origins assume greater importance as local labour market conditions deteriorate: in weak local labour markets, non-graduates are approximately 16 percentage points less likely to find employment if their parents are care workers rather than secondary school teachers, while graduates typically obtain first jobs that are 7-9 ISEI points lower in status. These findings highlight the distinctive geography of social stratification processes at labour market entry and potentially beyond.

Keywords: social origins, social stratification; social mobility; school-to-work; local labour market; spatial inequality

1. Introduction

Despite the optimistic predictions of modernisation theory (Treiman 1970), research suggests social origins remain an important determinant of occupational attainment at labour market entry and beyond (Goldthorpe 2003; Breen 2004; Torche 2011; Triventi 2013; Bernardi and Ballarino 2016). Across a host of countries, researchers have found that educational attainment does not fully mediate the raw association between social origins and occupational destinations, such that a direct effect of social origins (DESO) remains even when education has been accounted for.

What is true at country-level is not necessarily always true below country-level, however (Snyder 2001). Over the past five years, as national DESO estimates have continued to accumulate, so too has evidence of large sub-national heterogeneity in the origins-destination relationship (Chetty et al. 2014; Bratberg et al. 2017; Friedman and Laurison 2017; Heidrich 2017; Chetty and Hendren 2018a; 2018b; Corak 2019; Lindemann and Gangl 2019). In this light, we investigate whether country-level estimates mask substantial variation in the strength of DESO at labour market entry, identified as the nadir of inequality by Bernardi and Ballarino (2016) and therefore the point at which policy interventions to address such inequality are most likely to be successful. We ask: does spatial inequality – defined here as spatial variation in the number of available job vacancies¹ (Ezcurra and Rodríguez-Pose 2014) – moderate the size of DESO, such that there are circumstances in which DESO at this critical stage of the life course disappears?

We use data from the British Household Panel Study, the UK Household Longitudinal Survey and the German Socio-Economic Panel to conduct the first comparative test of the disappearing DESO hypothesis, building on previous single-country studies by Macmillan (2014) and Zwysen (2016). Multilevel models offer support in both the United Kingdom and Germany, two countries regarded as polar opposites in terms of the process by which labour market

entrants are matched to employment opportunities (Kerckhoff 1995). DESO on the probability of finding employment within two years of leaving education and the occupational status of first job either disappears entirely or is substantially reduced in strong local labour markets in both countries. However social origins penalties emerge and grow in both countries as local labour market conditions deteriorate, in ways that differ according to the educational attainment of labour market entrants. In weak local labour markets, we identify marked differences in the risk of unemployment for non-graduates and in the occupational status of the first job obtained by graduates from different social backgrounds, with advantaged young people maintaining their labour market position at the expense of similarly qualified peers from more disadvantaged backgrounds.

By incorporating a spatial dimension to the study of DESO at labour market entry and documenting similar and substantial sub-national variation in two contrasting institutional contexts, we make two contributions to the social stratification literature. First, we expand the remit of the compensatory advantage hypothesis (Bernardi 2014) to incorporate a geographical element with important policy implications: among labour market entrants, inequality by social background can be expected to be greatest in weak local labour markets. Second, we contribute a new angle to the ongoing debate about whether university education acts as a great equaliser (Karlson 2019; Zhou 2019). While education alone eliminates the risk of unemployment for graduates from disadvantaged backgrounds, spatial inequality moderates the status of the first job British and German graduates obtain after leaving education. Higher education is thus less of an equaliser in adverse local labour market circumstances.

2. Theoretical Considerations

In stratification research, labour market outcomes are considered meritocratic if individuals with the same education – understood here as the same highest educational qualification, following Mastekaasa (2011) and Bernardi and Ballarino (2016) – achieve similar occupational

outcomes, irrespective of their social origins. However if a residual or ‘direct effect’ (Mastekaasa 2011) of social origins (DESO) remains even after educational attainment has been accounted for then this is taken as evidence of the existence of non-meritocratic ‘class floors’ (McKnight 2015) that protect those from more privileged backgrounds and ‘class ceilings’ (Friedman, Laurison, and Miles 2015; Friedman and Laurison 2019) that constrain occupational achievement among the less privileged.

2.1 Country-Level DESO

Social stratification processes are usually studied at country-level and at this geographical scale there is substantial – though not indisputable – evidence that social origins remain an important determinant of occupational attainment, over and above achieved education. Researchers have documented the existence of a non-trivial DESO in a diverse array of studies, including single-country studies of France (Falcon and Bataille 2018), Germany (Klein 2011), Italy (Bernardi 2003; Bison 2011; Ballarino, Cantalini, and Panichella 2020), the Netherlands (Tolsma and Wolbers 2014), Norway (Hansen 2001; Mastekaasa 2011), Russia, Spain (Gil-Hernández, Marqués-Perales, and Fachelli 2017; Bernardi and Gil-Hernández 2021), Sweden (Erikson and Jonsson 1998; Härkönen and Bihagen 2011; Hällsten 2013) and the United Kingdom (Iannelli and Paterson 2007; Goldthorpe and Mills 2008; Bukodi and Goldthorpe 2011; Bukodi et al. 2015; Gugushvili, Bukodi, and Goldthorpe 2017). Similar conclusions emerge from cross-national comparative analysis covering an even broader range of countries (Bernardi and Ballarino 2016; Passaretta et al. 2018) and from much research focussed on graduates (Jacob, Klein, and Iannelli 2015; Witteveen and Attewell 2017; Zhou 2019; Witteveen and Attewell 2020), the group deemed most likely to obtain meritocratic labour market outcomes by modernisation theory.

Such research is not completely unanimous: it is well established that the size of DESO tends to decrease with educational attainment and a number of researchers have found that university

education, particularly at the highest level, is a great equaliser of labour market outcomes (Hout 1984; 1988; Stolzenberg 1994; Torche 2011; 2018; Karlson 2019). Others have argued DESO is a statistical artefact that disappears when educational attainment is defined and measured more precisely than highest educational qualification (Sullivan et al. 2018)². But on the basis of comparable data from 14 countries, Bernardi and Ballarino (2016) conclude there is a substantial DESO even at the earliest stage of the career, an effect that tends to increase in magnitude over the life course.

Taken together, these country-level estimates offer little indication of the predicted shift from ascription to achievement-based labour market success (Blau and Duncan 1967; Treiman 1970; Bell 1976). But as national DESO estimates continue to accumulate, so too does evidence from a parallel strand of inequality literature that suggests these country-level estimates may obscure large sub-national heterogeneity in the origins-destination relationship, net of educational attainment.

2.2 Spatially Heterogenous DESO?

Intergenerational income mobility – the extent to which individuals move up or down the income ladder relative to their parents, irrespective of educational attainment – is also usually studied at country-level. However a new strand of income mobility research increasingly suggests intergenerational reproduction processes do not operate in a uniform way within countries. In Canada (Corak 2019), Italy (Acciari, Polo, and Violante 2019), Sweden (Heidrich 2017), the United Kingdom (Bell, Blundell, and Machin 2018; Rohenkohl 2019; Carneiro et al. 2020) and the United States (Chetty et al. 2014; Bloome 2015; Chetty and Hendren 2018a; 2018b), researchers have documented the existence of substantial sub-national heterogeneity in intergenerational income mobility levels. In the United States for example, Chetty et al (2014) show that the probability of a child in the bottom quintile of the national income distribution reaching the top quintile ranges from 4.4% in Charlotte to 12.9% in San Jose.

Similarly in Italy, Acciari et al (2019) show the probability of a child born to parents in the bottom income quintile entering the top income quintile in adulthood ranges from 4.7% in Agrigento to 37.2% in Bolzano, against a national average of 10%.

Spatial variation of this order of magnitude raises the possibility that country-level DESO estimates mask a similar degree of variation, a prospect also hinted at in previous research on youth labour market outcomes. In England for example, Macmillan (2014) finds that variable local labour market conditions moderate the transmission of worklessness from fathers to sons, where worklessness is defined as being in neither education nor employment. Using data from the 1970 British Cohort Study, she shows that vulnerability to worklessness among young men aged 23-29 is low irrespective of father's employment status in strong local labour markets. However as the local unemployment rate increases, so too does the gap between young men based on father's employment status, such that young men with workless fathers spend up to 30% longer out of work than peers with employed fathers³.

A similar story emerges in West Germany, where Zwysen (2016) investigates whether young people from disadvantaged backgrounds are more sensitive to local labour market conditions in their early careers using SOEP data. He finds that similarly qualified 16-35 year olds achieve similar employment, job security and earnings in strong local labour markets, regardless of social origins. But as the local unemployment rate increases, differences based on family background emerge and then grow.

What these two studies point to is an inverse relationship between the strength of the local labour markets in which young people are located and the size of DESO at labour market entry, of the sort illustrated in graph A in Figure 1. This could reflect one of the two patterns depicted in graphs B and C: a fully compensatory pattern (B), whereby young people from advantaged backgrounds maintain their absolute labour market position and increase their relative advantage as local labour market conditions decline, or a partially compensatory pattern (C),

whereby their absolute position declines but at a slower rate than similarly qualified peers from less advantaged individuals increases.

[Figure 1 here]

2.3 Mechanisms of (Disappearing) DESO

Why are young people from more advantaged backgrounds generally held to obtain better labour market outcomes, and why might spatial inequality affect the intergenerational transmission of (dis)advantage at labour market entry?

Previous research has identified five channels through which DESO might emerge, four of which refer primarily to the attributes and resources of job applicants and their families and one to the hiring practices of employers (Erikson and Jonsson 1998; Hällsten 2013; Bernardi and Ballarino 2016). In terms of job seekers, researchers have argued that equally qualified applicants from different backgrounds may differ in terms of 1) their non-cognitive skills and personality traits, for example presentation skills and assertiveness; 2) their level of ambition and/or ability, linked to family resources, to make risky labour market choices such as holding out for a better job or higher salary; 3) their access to powerful social networks that offer useful information about suitable job vacancies; and 4) their likelihood of finding employment in a family business or receiving financial support for entrepreneurial activities.

While spatial inequality is unlikely to have any direct effect on the attributes and resources of job seekers, we posit that it can alter the incentives for and/or intensity of parental interventions to ensure children do not fall down the social ladder (Boudon 1974). The risk of downward mobility is likely to be perceived as small in strong labour markets, where applicants can be selective in the jobs they apply for and accept. But when opportunities become scarce, the risk of being locked out of the labour market or obtaining a first job considerably below expected status grows. Social reproduction theories suggest this increases incentives for intervention to reduce or eliminate this risk by upper class parents and other family members (Erola et al.

2018). Such action could take a variety of forms: the concerted mobilisation of social networks to ensure that children secure the best available job opportunities; variation in the intensity and range of job search; or financial support for the resource-intensive activities of long-distance job search, commuting and/or outward migration (Sjaastad 1962; Herzog, Hofler, and Schlottmann 1985), as well as entrepreneurialism.

In terms of the demand-side of the hiring equation, researchers have argued that employers may prioritise more advantaged applicants either as a consequence of the productivity benefits associated with particular non-cognitive skills and personality traits (Erikson and Goldthorpe 1992), or through simple favouritism (Jackson 2007; 2009; Rivera 2011; 2012; Thomas 2018) linked to cultural similarity or the more powerful social networks highlighted above. Drawing on labour queue theory (Thurow 1975), we posit that spatial inequality can also disrupt the intergenerational transmission of (dis)advantage at labour market entry by altering the screening criteria used by employers. In places with high levels of competition for available vacancies, it is plausible that employers pay greater attention to observable differences between equally qualified applicants as part of the process of determining their ‘correct’ position in the labour queue, a process that may well favour applicants from more advantaged backgrounds. However, in tight labour markets where the labour queue is short, the employer imperative is presumably to fill vacancies with qualified applicants, irrespective of their social background. Individually or in combination, these supply and demand-side factors could well lead to the reduction or even elimination of DESO in strong labour markets, the hypothesis tested here.

2.4 Cases and Labour Market Outcomes

We capitalise on the availability of comparable British and German panel data to conduct the first comparative test of the disappearing DESO hypothesis. An Anglo-German comparison is informative because both countries exhibit sizeable levels of spatial inequality but are also widely considered to be institutional polar opposites. This reflects profound and ongoing

differences in the uniformity, structure and labour-market orientation of the education and training systems (Allmendinger 1989; Shavit and Muller 1998) and related variation in labour market structures and social policies within each country (Maurice, Sellier, and Silvestre 1986; Marsden 1986; Esping-Andersen 1990; Hall and Soskice 2001).

In theory, the much higher degree of stratification and standardisation within the German education and training system means that a greater proportion of inequality should be channelled via educational qualifications. The more occupationally specific and coordinated nature of the German labour market also leaves less room for unanticipated downward mobility, of the sort believed to trigger concerted intervention by upper class families. But while the German labour market is often deemed to be more meritocratic once educational attainment has been accounted for (Duta and Iannelli 2018), the comparable country-level DESO estimates produced by Vandecasteele (2016) and Grätz and Pollak (2016) are notably similar. This, combined with the higher degree of spatial variation in labour demand within Germany, leaves open the possibility that DESO disappears (and reappears) in both contexts.

We explore different potential manifestations of disappearing DESO by considering two labour market outcomes. First, the probability of entering employment within two years of leaving full-time education or apprenticeship, since existing research has comprehensively established the importance of swift labour market entry following the completion of full-time education and training (Gregg and Tominey 2005; Mroz and Savage 2006; Bell and Blanchflower 2011; Strandh et al. 2014). Second, the occupational status of the first job obtained by labour market entrants, since young people enter the labour market in a dizzying array of roles and occupations, jobs that yield different socio-economic returns in the short-term and different opportunities for career progression and status attainment over the life course (Blau and Duncan 1967; Merton 1968; Mayer and Carroll 1987; Scherer 2004).

3. Data and Method

3.1 Data

Individual-level data are drawn from three sources: the British Household Panel Study and its successor the UK Household Longitudinal Study (University of Essex 2018a; 2018b; 2018c), and the German Socio-Economic Panel (DIW Berlin 2018). These broadly comparable longitudinal household surveys follow individuals aged 16 and above within a nationally representative sample of households and collect detailed information on respondents' employment status and residential location⁴.

The administrative units employed in this analysis are the 406 unitary authorities, metropolitan boroughs, non-metropolitan districts and London boroughs (Principal Authorities hereafter) in the UK and the 401 Landkreis, Kreis, Kreisfreie Stadt or Statkreis (Kreise hereafter) in Germany (see Figure A1, Supplementary Appendix). These units are selected partly due to their broad functional equivalence, and partly because preliminary analysis indicates that the vast majority of British and German respondents do not move away from their Principal Authority or Kreis in the two-year period following departure from full-time education or training. Administrative data for these units are taken from UK Nomis and INKAR, data repositories that provide official labour market statistics at sub-national level.

3.2 Sample

The sample comprises young British and German survey respondents born from 1975 onwards who are observed leaving full-time education between 1998⁵ and 2016, and for at least two subsequent survey waves. Leaving full-time education or apprenticeship training (and/or community and military service in Germany) is defined as leaving and not returning to these activities within the following two survey waves before age 25 in the United Kingdom and age 30 in Germany⁶. After listwise deletion and the exclusion of women who become mothers immediately after leaving education, the full sample comprises 3,835 respondents in the United

Kingdom and 3,267 respondents in Germany. In later analysis, the sample comprises 3,178 British and 2,616 German respondents who are observed entering first jobs with known occupational status⁷.

3.3 Variables

We consider two outcomes: the probability of entry into employment and the occupational status of the first job. The first dependent variable of entry into employment is a binary indicator which takes the value 1 if respondents are observed entering the labour market within two waves of leaving full-time education and training, and 0 otherwise⁸. For respondents who secure employment within this time, the second dependent variable of occupational status is measured via the International Socio-Economic Index (ISEI). ISEI is a continuous metric based on the weighted sum of the average income and educational attainment associated with particular occupations, where higher values indicate higher occupational status (Ganzeboom, De Graaf, and Treiman 1992) and hence higher location in social space (Treiman 1977)⁹.

Following Bernardi and Ballarino (2016), social origins are measured as parental ISEI in both countries, defined as the highest ISEI of the mother or father (Erikson and Goldthorpe 1992)¹⁰. Unfortunately, measuring educational attainment in a directly comparative manner is impossible owing to the absence of internationally comparable educational scales in UKHLS. Recognising that the use of broad categories would likely lead to an overestimation of DESO (Hällsten 2013; Sullivan et al. 2018), we use the most detailed classification available for each country, respectively a six-category UK-specific scale (1 no qualifications; 2 other qualifications; 3 GCSE; 4 A-Level; 5 other higher degree; 6 higher degree) and a six-category ISCED 1997 measure (1 inadequate; 2 general elementary; 3 middle vocational; 4 vocational + *Arbitur*; 5 higher vocational; 6 higher education) in Germany.

In line with existing research, labour market strength is proxied via the unemployment rate in the Principal Authority or Kreis of residence in the year that the respondent leaves full-time

education and training¹¹. UK Nomis and INKAR data show that the German unemployment rate tracked well above the UK one and also displayed more variance at Kreis-level over the period 1998-2016. This is reflected in the higher mean and standard deviation of the unemployment rate for the German sample, as shown in descriptive statistics for these and additional control variables of sex, age, minority status, previous work experience (usually in the form of a part-time job in the United Kingdom and apprenticeship training in Germany), migration away from initial Principal Authority / Kreis of residence, and graduation cohort displayed in Table 1.

[Table 1 here]

For the purpose of maximum comparability, we report raw unemployment rate coefficients in regression tables but utilise country-specific unemployment rate quintiles (illustrated in Figure 2) in all graphics. Graphically, we compare the labour market fortunes of the children of care workers (ISEI 25) and the children of secondary school teachers (ISEI 70), in strong (Quintile 1) and weak (Quintile 5) labour markets. This enables both between and within-country comparisons of expected labour market outcomes in different contexts.

3.4 Approach

We use multilevel modelling to account for the hierarchical data structure whereby individuals are nested in Principal Authority or Kreis areas. For ease of interpretation, we use linear models (estimated through maximum likelihood) to model entry into employment and occupational status of first job, but cross-check employment entry results with multilevel logistic models (Hellevik 2009) because the probability of employment entry is high (0.86 in the United Kingdom; 0.89 in Germany). Since models predicting first job status can only be estimated for the positively selected sub-sample of respondents who do find jobs within two waves of leaving education, we weight these models by the inverse probability of obtaining employment¹².

Analysis proceeds in three parts. We first estimate models with all controls in order to establish the size of DESO at country-level. We then introduce a cross-level interaction between parental ISEI and the local unemployment rate to test the disappearing DESO hypothesis, incorporating a random slope on parental ISEI as advised by Heisig and Schaeffer (2019). Lastly, we explore whether the effects identified are uniform across the educational distribution by creating a binary variable which distinguishes between graduates (defined as holders of higher and other higher degrees in the United Kingdom, and higher vocational and higher education in Germany) and non-graduates. We introduce this dummy variable as a further interaction with parental ISEI and the local unemployment rate, while still controlling for more detailed educational attainment.

4. Results and Discussion

4.1 Country-Level DESO

As expected, Models I and II in Table 2 indicate that there is a direct effect of social origins, net of educational attainment on the probability of finding employment and the status of first job in both the United Kingdom and Germany. Net of educational attainment, Figure 3 shows the children of care workers (ISEI 25) in the United Kingdom are 7 percentage points less likely to enter the labour market within two waves of leaving full-time education than the children of secondary school teachers (ISEI 70), while the equivalent figure for Germany is notably similar at 6 percentage points.

Among those who do obtain employment, Models III and IV in Table 2 show there is also an origins gap in first job status. Figure 4 indicates that the children of care workers (ISEI 25) typically obtain first jobs that are 3 ISEI points lower than the children of school teachers (ISEI 70) in the United Kingdom and 6 ISEI points lower in Germany.

4.2 Spatial Heterogeneity

When the cross-level interaction term between local unemployment and parental ISEI is introduced in Models V-VIII in Table 3, it quickly becomes clear that these country-level estimates conceal substantial variation in the strength of DESO on both the probability of finding employment and first job status within the UK and Germany, just as the disappearing DESO hypothesis predicts. This can be seen in Figures 5 and 6, which plot variation in the predicted probability of entering the labour market between the children of care workers and the children of secondary school teachers, in strong and weak labour markets.

Focussing first on employment, the overlapping Quintile 1 confidence intervals in Figure 5 show there is no meaningful difference in the probability of swift labour market entry by social origins in strong labour markets. However as local labour market conditions worsen, social origins assume greater importance and a fully compensatory pattern of DESO emerges. In weak labour markets (Quintile 5), young people are respectively 12 and 15 percentage points less likely to find employment within two years of leaving full-time education and training if their parents are care workers rather than teachers.

Among young people who do find employment in this time, Figure 6 shows that the social origins penalty associated with having care worker rather than teacher parents is eliminated in the strongest labour markets in the United Kingdom and eroded in Germany. But as the local unemployment rate increases, the labour market prospects of the children of teachers remain steady while those of the more disadvantaged decline. This produces the fully compensatory pattern shown in Figure 6: net of educational attainment, the children of care workers typically obtain first jobs that are 5 ISEI points lower in the United Kingdom and 8 points lower in Germany in Quintile 5, vis-à-vis the children of secondary school teachers.

4.3 Spatial and Educational Heterogeneity

Though these estimates make an important contribution to our understanding of the geography of social stratification processes, it is also the case that they assume the effects identified are uniform across the educational distribution. When we further distinguish between non-graduates and graduates in Table 4 and Figures 7 and 8, it transpires that that spatial inequality moderates the size of DESO on unemployment risk almost exclusively among non-graduates and first job status predominantly among graduates. This calls for a reformulation of the disappearing DESO hypothesis and helps shed light on the dynamics at work: social origins matter more in weak local economies, but in different ways according to prior educational attainment.

[Figures 7 and 8 here]

Among non-graduates, Figure 7 shows that the social origins penalty in struggling economies within the UK and Germany primarily takes the form of greater vulnerability to long periods of unemployment and inactivity. In both countries, non-graduates in weak local labour market are approximately 16 percentage points less likely to find employment if their parents are care workers rather than secondary school teachers, with origins gaps in first job status also tending to increase as local labour market conditions deteriorate. Among graduates, the risk is not of unemployment (education alone is enough to protect against this hazard) but of obtaining a lower status first job. Figure 8 shows that graduates from more disadvantaged backgrounds in weak economies typically obtain first jobs that are 7 ISEI points lower in the United Kingdom and 9 ISEI points lower in Germany. Taken together, these findings point at least partially to a dynamic of graduates from more disadvantaged backgrounds being offered and accepting jobs for which they are overqualified in weak local labour markets, thereby contributing to the crowding out of less qualified peers from similar backgrounds.

4.4 Sensitivity Analysis

We conduct a number of additional analyses in order to probe the robustness of our findings. Results are displayed in the Appendix: findings are robust to the use of logistic rather than linear multilevel models for entry into employment (Figures A2 and A3), the use of larger spatial units that may better reflect functional economic geography (Figures A4-A7), and the use of an alternative binary measure of social origins (Figures A8-A11) which takes value 1 if parents belong to the EGP service class and 0 otherwise (Erikson and Goldthorpe 1992). Our conclusions therefore remain as before: spatial inequality, in the form of spatial variation in the number of job opportunities available and the degree of competition for such vacancies, moderates the intergenerational transmission of (dis)advantage at labour market entry in a very similar way in the UK and Germany.

4.5 Discussion

Inspired by recent research which suggests country-level DESO estimates may obscure important variation in the strength in the origins-destination relationship, we investigate whether local labour market conditions moderate the size of DESO at labour market entry, such that there are places in which DESO disappears entirely. In both the contrasting institutional contexts of the United Kingdom and Germany, we find social origins are of little consequence in places where job vacancies are plentiful, but assume greater importance as local labour market conditions deteriorate. This can be seen to confirm and extend the core insight of the compensatory advantage hypothesis (Bernardi 2014): that inequality by social background tends to be greatest in the face of a negative event or adverse circumstances. We also find that estimates across the whole educational distribution mask important variation in the manifestation of DESO in weak local labour markets, findings which contribute a new angle to the ongoing debate about whether university education acts as a great equaliser (Karlson 2019; Zhou 2019).

Two further questions arise. First, which of the two channels posited in Section 2 – individual job search behaviour or employer hiring practices – best explains patterns of disappearing and reappearing DESO? To try and shed light on the underlying mechanisms, we explore whether the patterns documented above reflect social gradients in commuting or outward migration, activities that require substantial financial resources and which are – unlike the social network mobilisation, job search intensity, or financial support for entrepreneurialism mechanisms discussed in Section 2.3 – observable in the data. Analysis, displayed in Figures A12 to A15 in the Appendix, shows that the evidence for this is mixed. Though there is some evidence of social gradients in commuting distances in Germany, the outward migration decisions of young people from more advantaged backgrounds do not appear to respond to local labour market circumstances in either the United Kingdom or Germany, with point estimates remaining similar when analysis is restricted to non-movers only (Figures A16 to A19).

The fact that more advantaged young people generally maintain their labour market position in weak local labour markets without migrating away from their initial place of residence or commuting much longer distances suggests employer recruitment practices may well play an important role in the patterns of DESO documented here. Future research could usefully test this proposition through an experimental approach which manipulates the number of fictitious CVs with social origin signals that employers are asked to consider in a set window of time. Equally, there may be important social gradients to the job search process – for example variation in the number of applications made, type of jobs applied for or type of jobs accepted under different conditions – that only interviews with job seekers or field experiments can reveal. What does social network mobilisation look like? Do graduates from more disadvantaged backgrounds deliberately apply for lower status first jobs in weak labour markets, in order to reduce the greater risk of unemployment? And are patterns among non-

graduates the consequence of rejections received or applications not made, due to discouragement? These too are important areas for further social stratification research.

The second question that arises is how these early labour market (in)equalities unfold over time. In places where there is no DESO at labour market entry there are three plausible trajectories: non-appearance; slow emergence; or rapid emergence, of which slow emergence is perhaps the most plausible scenario. In places where there is substantial DESO there are four broad possibilities: attenuation; stabilisation; slow accumulation; or rapid accumulation, where slow accumulation is probably also the most plausible scenario. Disentangling these different possible trajectories will not be easy, but it is important to understand whether the disappearance of DESO in some places at labour market entry is permanent or whether the onset of inequality between similarly qualified individuals is merely delayed. It is equally imperative to establish whether the disadvantages for less privileged individuals in weak local labour markets fade over time or whether seeking employment in a weak labour market is a major source of cumulative disadvantage over the life course.

5. Conclusion

Inequality between young people with the same qualifications but different social origins is one of the most egregious form of inequality in contemporary society, a form that severely undermines Horace Mann's notion of education as 'the great equalizer of the conditions of men' and points to the continued existence of both class floors and class ceilings. But whereas country-level DESO estimates tend to imply that inequality at labour market entry is inevitable, our first contribution is to show that this is not the case in the dissimilar institutional contexts of the United Kingdom and Germany. When considering all labour market entrants, we find that DESO either disappears entirely or is substantially reduced in places where job vacancies are plentiful.

In line with the predictions of the compensatory advantage hypothesis, social origins assume greater importance as local labour market conditions deteriorate, but when we distinguish between graduates and non-graduates, it transpires that the manifestation of DESO differs according to prior educational attainment. Education insulates all graduates from the risk of unemployment, but spatial inequality has important implications for the quality of the first jobs that graduates from disadvantaged backgrounds obtain and, relatedly, for the risk of unemployment among non-graduates from similarly disadvantaged backgrounds. Our second contribution is thus to the fierce debate about whether university-level education acts as a great equaliser. Higher education is more of an equaliser in some places than in others.

6. Notes

¹ Local labour markets differ across a number of dimensions beyond their overall strength or weakness, including sectoral composition, occupational profile and the mix of large and small businesses. We focus on overall strength (as proxied by the local unemployment rate) on the basis that existing research indicates this is the most consequential dimension of variation for occupational outcomes (Macmillan 2014; Zwysen 2016; Lindemann and Gangl 2019).

² Sullivan et al (2018)'s exhaustive measure of educational attainment includes cognitive ability at ages 5, 10 and 16; secondary school type in 5 categories; GCSE attainment quartile and English and Maths grades; A-Level attainment; degree attainment and university type and field of study.

³ Lindemann and Gangl (2019) document a similar pattern for the transition into vocational training following the completion of compulsory schooling: the adverse impact of parental unemployment on youth transition chances only emerges in slack labour markets.

⁴ UK household location data are available under a UK Data Archive Special Licence; German data are only available through visiting DIW in Berlin or via SOEP Remote.

⁵ 1998 is the first year for which Kreis-level INKAR data is available for Germany

⁶ Respondents who return to education within two waves are classified as remaining in education and deemed not 'at risk' of employment, even if they are employed during this time.

⁷ Ideally analysis would focus on the very first job that respondents obtain after leaving full-time education and training rather than the first observed job i.e. the job in which they are employed at the time of interview. Unfortunately these data are not collected by UKHLS or SOEP.

⁸ Data limitations necessitate such an approach but time point measures of labour force status are inherently noisy. If, for example, respondents cycled through a number of short-term jobs which never coincided with the annual survey interview then they would be coded as not entering the labour market.

⁹ ISEI is not included in BHPS and UKHLS. For the United Kingdom, ISEI is calculated via 4 digit ISCO-88 occupational codes, using the isko.do Stata module (Hendrickx 2004).

¹⁰ Parental ISEI is not included in either the BHPS and UKHLS. For the UK, parental ISEI is calculated by converting SOC to ISCO88 codes via a Camsis crosswalk and then using the isko.do Stata module (Hendrickx 2004).

¹¹ Owing to large number of missing values for earlier years, missing UK data are imputed, based on the Job Seeker's Allowance (JSA) Claimant Rate in the year respondents become at risk of employment. JSA was a means-tested welfare benefit available to eligible unemployed people: it was generally two times lower than the official UK unemployment rate but very closely correlated with it.

¹² Inverse probability weights are constructed on the basis of a logistic model of the probability of obtaining employment on health status at the point of departure from full-time education plus all covariates. Ideally such weights would be based on a richer set of covariates such as cognitive ability and self-efficacy but these measures are unfortunately not (or not consistently) available in UKHLS and the SOEP.

7. Figures and Tables

Figure 1: Disappearing DESO?

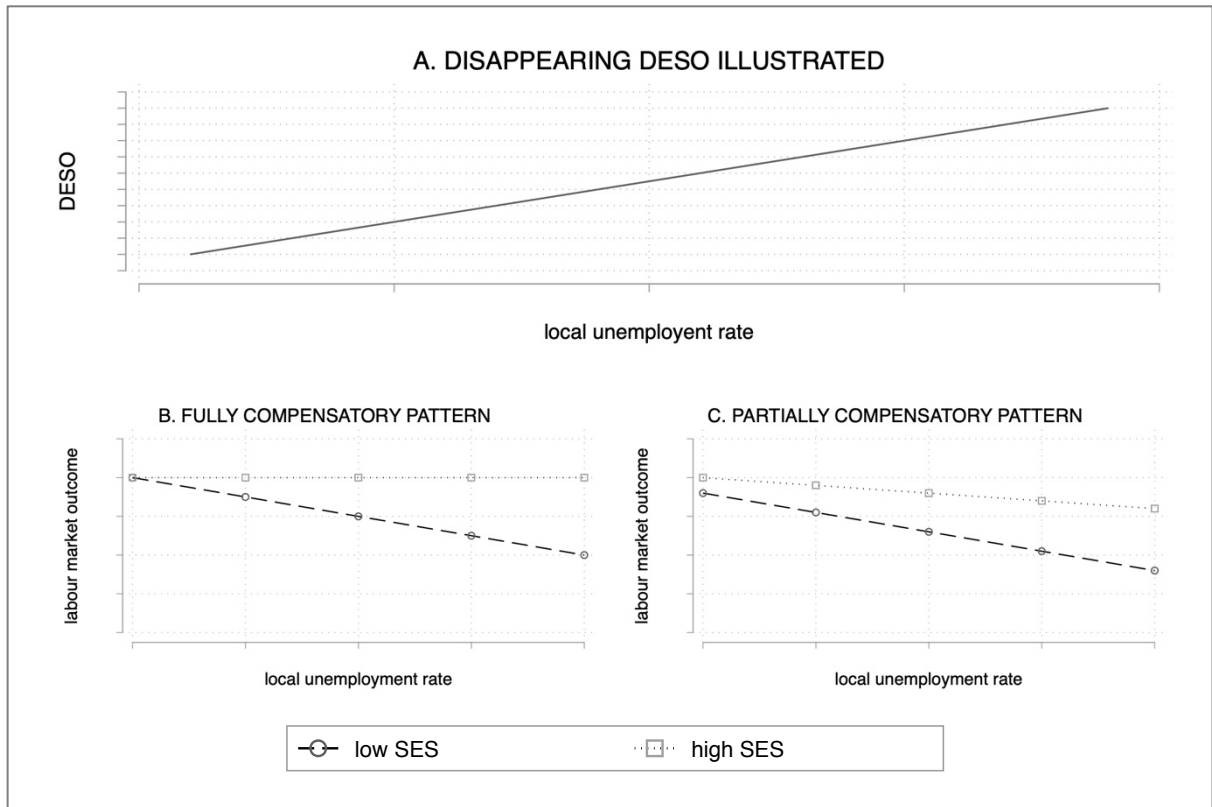


Figure 2: Country-specific unemployment rate quintiles

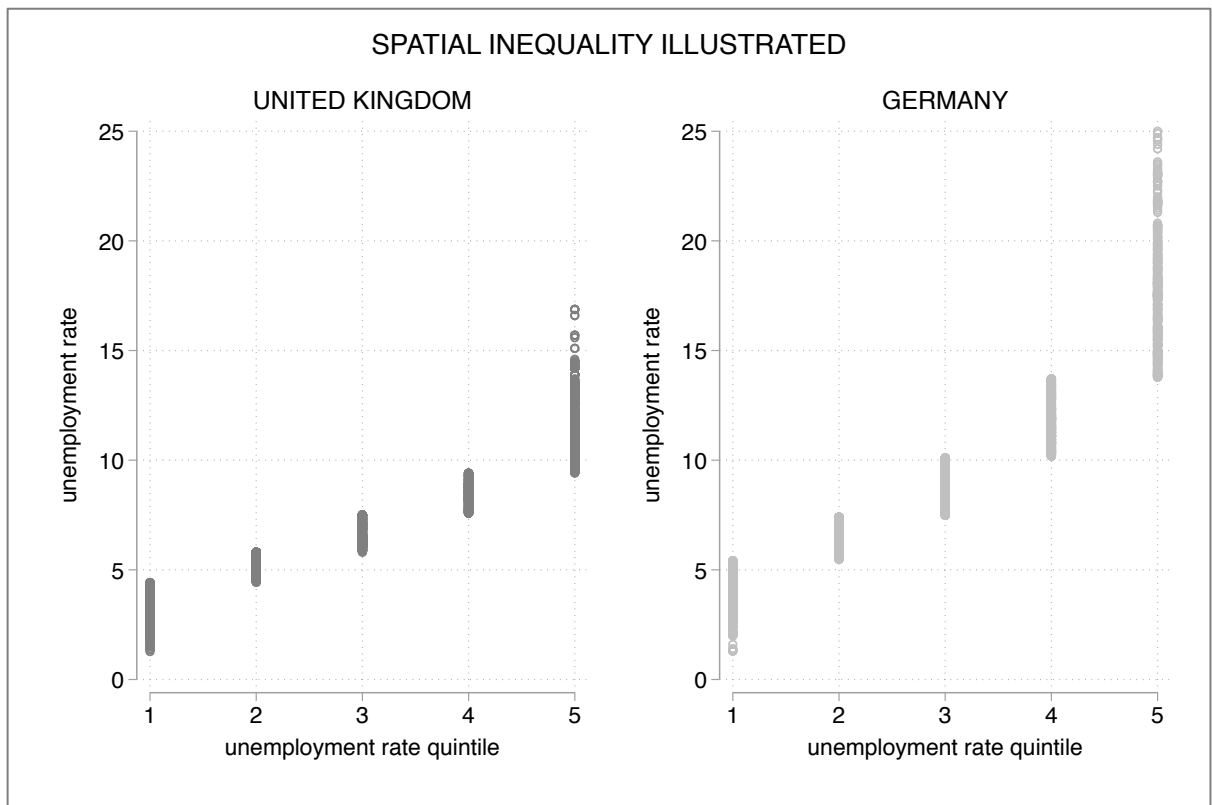


Table 1: Descriptive statistics for British and German samples

VARIABLE			UNITED KINGDOM		GERMANY	
	Min	Max	Mean	SD	Mean	SD
Educational attainment						
1 = no / inadequate			0.03		0.07	
2 = other qualification / general elementary			0.04		0.13	
3 = GCSEs / middle vocational	1	6	0.23		0.46	
4 = A-Levels / vocational + Arbitur			0.35		0.09	
5 = other higher degree / higher vocational			0.07		0.02	
6 = higher degree / higher education			0.29		0.23	
Parental ISEI	16	90	53.11	16.65	53.66	16.40
Unemployment rate	1	25	6.99	2.82	9.63	4.81
Gender						
0 = female	0	1	0.54		0.50	
1 = male			0.46		0.50	
Age	16	30	18.91	2.38	21.99	3.14
Minority status						
0 = ethnic majority / no migration background	0	1	0.85		0.78	
1 = ethnic minority / migration background			0.15		0.22	
Previous work experience						
0 = no	0	1	0.50		0.24	
1 = yes			0.50		0.76	
Moves away						
0 = no	0	1	0.87		0.89	
1 = yes			0.13		0.11	
Graduating cohort						
1 = 1998 - 2002			0.18		0.23	
2 = 2003 - 2007	1	4	0.20		0.31	
3 = 2008 - 2011			0.40		0.28	
4 = 2013 - 2016			0.23		0.17	
N			3,822		3,267	

Table 2: Linear mixed model of the probability of obtaining employment and first job status – country-level estimates

	(1) FIRST JOB		(2) FIRST JOB STATUS	
	(I) UNITED KINGDOM	(II) GERMANY	(III) UNITED KINGDOM	(IV) GERMANY
Qualifications (ref: none / ISCED 1)				
2	0.0825** (0.0037 - 0.1613)	0.0497** (0.0008 - 0.0985)	-2.8082 (-6.6053 - 0.9889)	0.0963 (-2.1766 - 2.3692)
3	0.1739*** (0.1121 - 0.2356)	0.1576*** (0.1134 - 0.2018)	0.2110 (-2.4884 - 2.9104)	3.6232*** (1.6381 - 5.6082)
4	0.2757*** (0.2140 - 0.3374)	0.1960*** (0.1397 - 0.2523)	1.0631 (-1.7184 - 3.8447)	7.6284*** (5.1870 - 10.0699)
5	0.3173*** (0.2456 - 0.3889)	0.2154*** (0.1274 - 0.3035)	0.2419 (-2.9069 - 3.3907)	3.2985 (-0.8796 - 7.4766)
6 higher degree	0.3334*** (0.2657 - 0.4012)	0.1777*** (0.1223 - 0.2330)	6.0546*** (2.9165 - 9.1927)	19.1963*** (16.6377 - 21.7549)
Parental ISEI	0.0015*** (0.0008 - 0.0021)	0.0012*** (0.0006 - 0.0019)	0.0669*** (0.0379 - 0.0958)	0.1368*** (0.1036 - 0.1701)
Unemployment rate	-0.0062*** (-0.0108 - -0.0015)	-0.0082*** (-0.0107 - -0.0058)	-0.2357** (-0.4427 - -0.0288)	-0.1120** (-0.2231 - -0.0010)
Gender: male	-0.0036 (-0.0240 - 0.0167)	-0.0600*** (-0.0806 - -0.0394)	-0.8011 (-1.8237 - 0.2214)	-2.1196*** (-3.0848 - -1.1545)
Age	-0.0114*** (-0.0177 - -0.0052)	0.0104*** (0.0058 - 0.0150)	1.5038*** (1.1494 - 1.8582)	0.7230*** (0.4659 - 0.9802)
Minority status	-0.0068 (-0.0397 - 0.0261)	-0.0077 (-0.0338 - 0.0184)	1.8736** (0.2960 - 3.4512)	-0.0740 (-1.3659 - 1.2178)
Prior LM experience (ref: no)	0.1297*** (0.1077 - 0.1518)	0.0595*** (0.0349 - 0.0843)	-0.8969* (-1.8144 - 0.0207)	-2.4781*** (-3.7851 - -1.1712)
Moved away (ref no)	0.0104 (-0.0216 - 0.0424)	0.0190 (-0.0145 - 0.0525)	2.4114*** (0.8212 - 4.0016)	2.0440*** (0.6366 - 3.4513)
Graduating cohort (ref 1998 – 2002)				
2003-2007	-0.0168 (-0.0502 - 0.0166)	-0.0264* (-0.0546 - 0.0018)	-1.9747*** (-3.4205 - -0.5289)	0.4686 (-0.7397 - 1.6769)
2008-2012	-0.0366** (-0.0687 - -0.0046)	-0.0151 (-0.0454 - 0.0152)	-4.7008*** (-6.1479 - -3.2536)	-0.3300 (-1.6072 - 0.9472)
2013-2016	-0.0172 (-0.0506 - 0.0162)	-0.0282 (-0.0624 - 0.0059)	-3.7417*** (-5.1003 - -2.3831)	-0.3587 (-1.9218 - 1.2043)
Constant	0.7514***	0.5328***	11.9479***	18.7411***
Parental ISEI				
LAD (constant)	0.0014	0.0007	2.6726	2.0949
Residual	0.0996	0.0862	175.8546	140.2745
Observations	3,822	3,267	3,178	2,616
Number of groups	398	384	391	378

Notes: Sample comprises a balanced panel of respondents observed for at least two waves after leaving full-time education and training; first job status estimates are weighted by the inverse probability of finding employment. Confidence intervals in parenthesis; *** p<0.001, ** p<0.01, * p<0.05

Figure 3: Predicted probability of entering employment within two waves of leaving full-time education or apprenticeship training at country-level

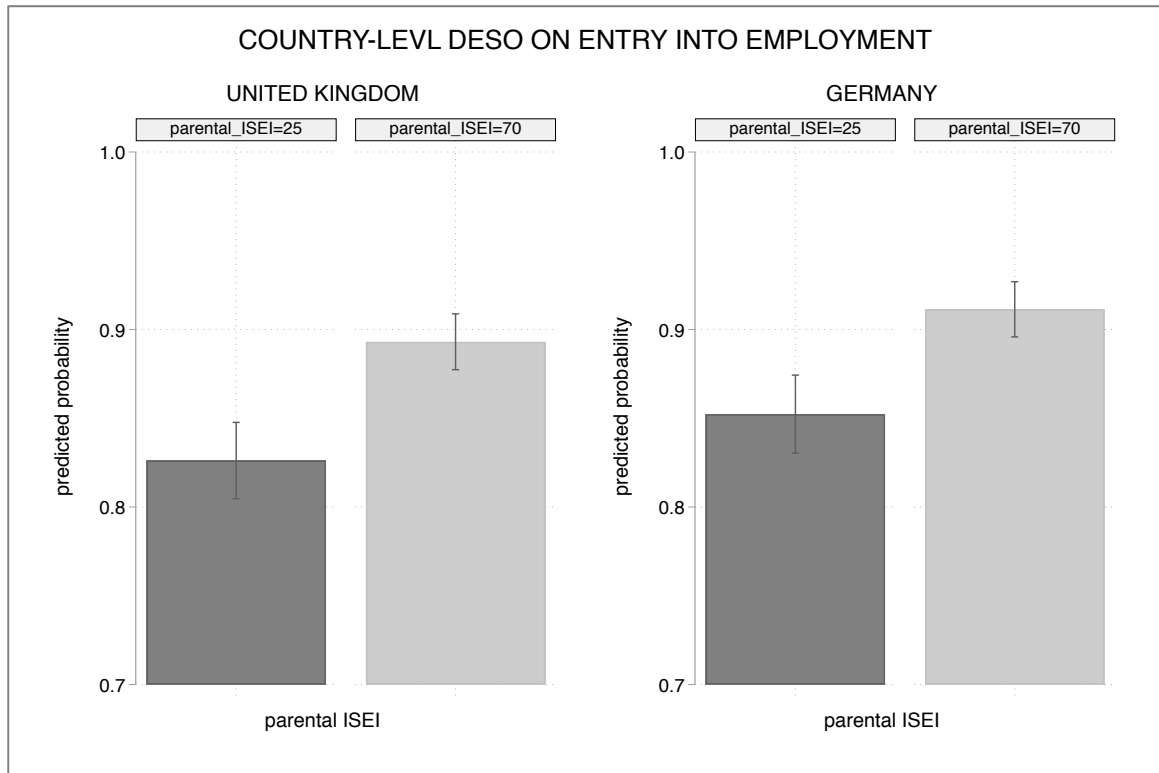


Figure 4: Predicted occupational status of first job obtained within two waves of leaving full-time education or apprenticeship training at country-level

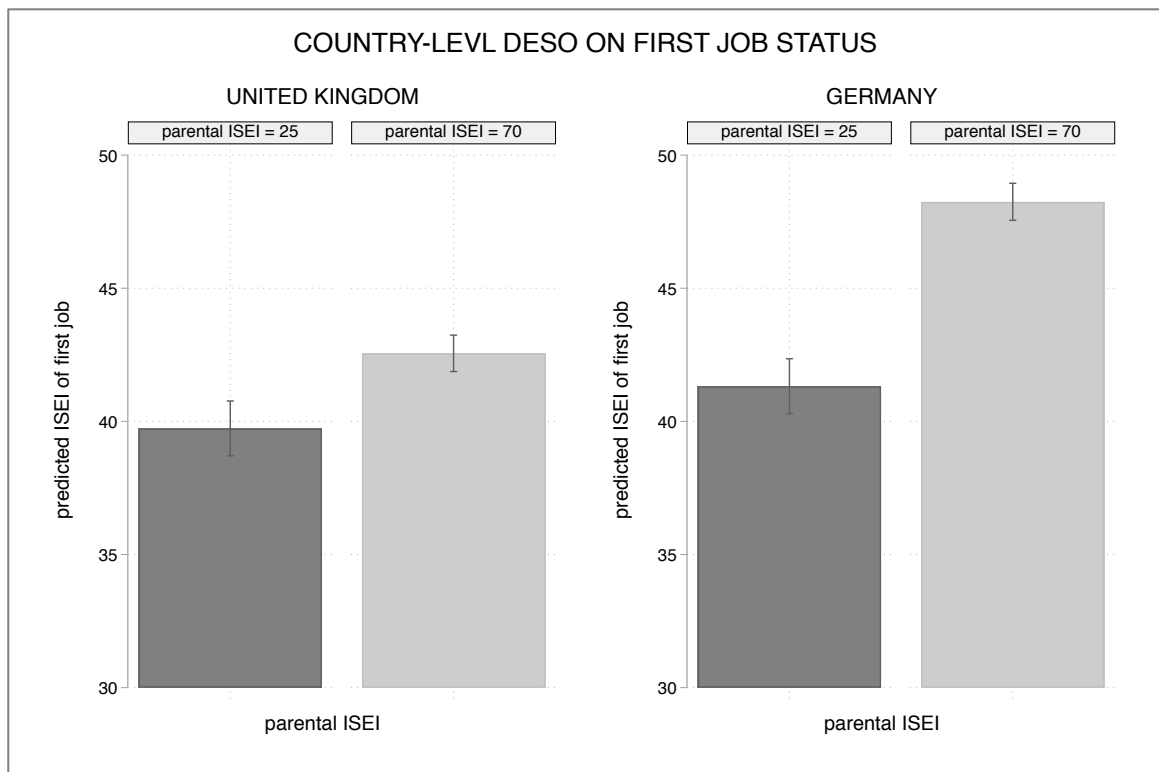


Table 3: Linear mixed model of obtaining employment and first job status – spatial heterogeneity

	(1) FIRST JOB		(2) FIRST JOB STATUS	
	(V) UNITED KINGDOM	(VI) GERMANY	(VII) UNITED KINGDOM	(VIII) GERMANY
Qualifications (ref: none / ISCED 1)				
2	0.0827** (0.0039 - 0.1615)	0.0462* (-0.0025 - 0.0948)	-2.7852 (-6.5857 - 1.0153)	0.0238 (-2.2261 - 2.2737)
3	0.1757*** (0.1139 - 0.2374)	0.1549*** (0.1108 - 0.1989)	0.2884 (-2.4329 - 3.0097)	3.6028*** (1.6402 - 5.5654)
4	0.2776*** (0.2159 - 0.3393)	0.1901*** (0.1340 - 0.2463)	1.1562 (-1.6493 - 3.9618)	7.6005*** (5.1713 - 10.0297)
5	0.3201*** (0.2484 - 0.3917)	0.2122*** (0.1245 - 0.2999)	0.3548 (-2.8205 - 3.5302)	3.3597 (-0.7927 - 7.5121)
6 higher degree	0.3343*** (0.0827**)	0.1744*** (0.1192 - 0.2296)	6.1071*** (2.9385 - 9.2757)	19.1906*** (16.6406 - 21.7406)
Parental ISEI	-0.0002 (-0.0019 - 0.0015)	-0.0020*** (-0.0034 - -0.0005)	-0.0075 (-0.0796 - 0.0647)	0.0826** (0.0139 - 0.1512)
Unemployment rate	-0.0185*** (-0.0307 - -0.0062)	-0.0259*** (-0.0333 - -0.0185)	-0.7822*** (-1.3274 - -0.2370)	-0.4153*** (-0.7270 - -0.1037)
Parental ISEI * Unemployment rate	0.0002** (0.0000 - 0.0004)	0.0003*** (0.0002 - 0.0005)	0.0104* (-0.0001 - 0.0209)	0.0055* (-0.0002 - 0.0113)
Gender: male (ref: female)	-0.0032 (-0.0235 - 0.0171)	-0.0594*** (-0.0799 - -0.0388)	-0.7748 (-1.8047 - 0.2551)	-2.1065*** (-3.0734 - -1.1396)
Age	-0.0114*** (-0.0176 - -0.0052)	0.0105*** (0.0059 - 0.0152)	1.5066*** (1.1526 - 1.8606)	0.7206*** (0.4638 - 0.9774)
Minority status (ref: no)	-0.0037 (-0.0367 - 0.0292)	-0.0128 (-0.0388 - 0.0133)	2.0431** (0.4281 - 3.6580)	-0.1529 (-1.4390 - 1.1331)
Prior LM experience (ref: no)	0.1303*** (0.1082 - 0.1523)	0.0604*** (0.0358 - 0.0850)	-0.8711* (-1.7905 - 0.0483)	-2.4589*** (-3.7603 - -1.1574)
Moves away	0.0114 (-0.0206 - 0.0434)	0.0203 (-0.0131 - 0.0537)	2.4465*** (0.8605 - 4.0325)	2.0657*** (0.6562 - 3.4751)
Graduating cohort (ref 1998 – 2002)				
2003-2007	-0.0170 (-0.0504 - 0.0164)	-0.0241* (-0.0522 - 0.0040)	-1.9793*** (-3.4225 - -0.5360)	0.5281 (-0.6785 - 1.7347)
2008-2012	-0.0366** (-0.0686 - -0.0046)	-0.0125 (-0.0428 - 0.0177)	-4.7096*** (-6.1546 - -3.2645)	-0.2887 (-1.5631 - 0.9856)
2013-2016	-0.0176 (-0.0509 - 0.0158)	-0.0279 (-0.0619 - 0.0061)	-3.7688*** (-5.1282 - -2.4093)	-0.3460 (-1.9073 - 1.2152)
Constant	0.8375***	0.7057***	15.7631***	21.7379***
Parental ISEI	0.0001	0.0001	0.0002	0.0008
LAD (constant)	0.0013	0.0007	2.1666	0.0001
Residual	0.0995	0.0856	175.5091	139.8339
Observations	3,822	3,267	3,178	2,616
Number of groups	398	384	391	378

Notes: Sample comprises a balanced panel of respondents observed for at least two waves after leaving full-time education and training; first job status estimates are weighted by the inverse probability of finding employment. Confidence intervals in parenthesis; *** p<0.001, ** p<0.01, * p<0.05

Figure 5: Predicted probability of entering employment within two waves of leaving full-time education or apprenticeship training by social origins and unemployment rate quintile

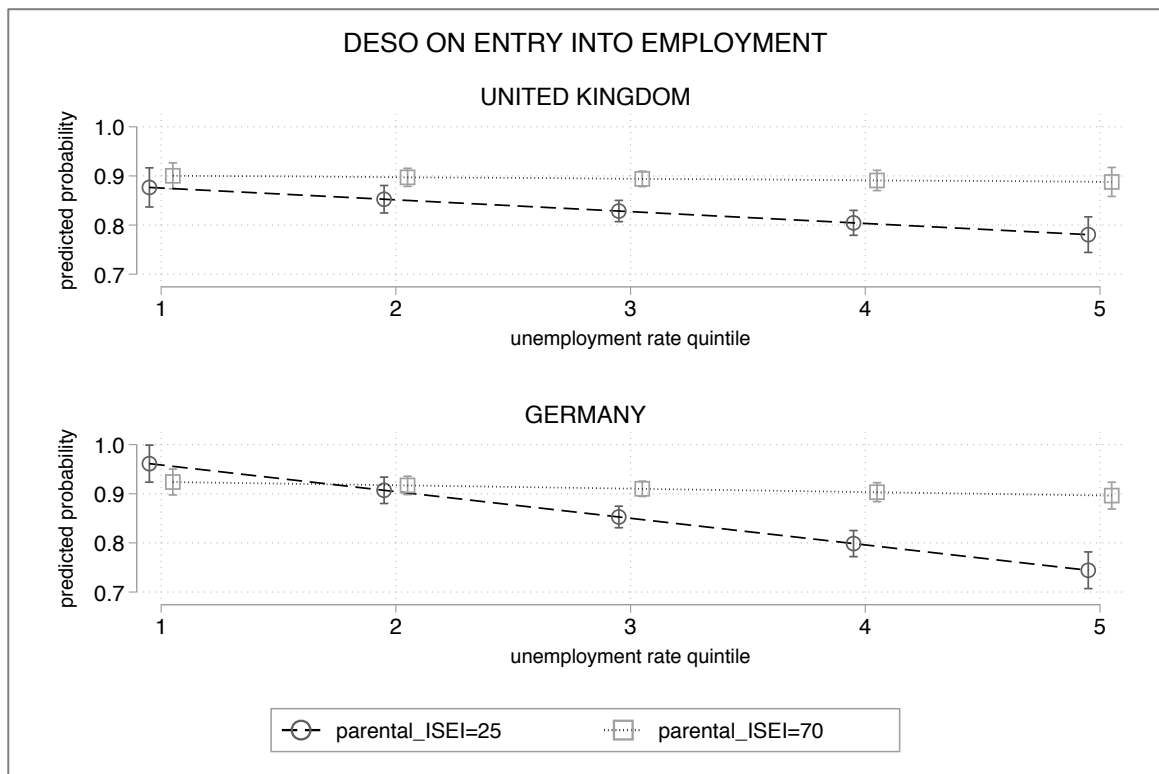


Figure 6: Predicted first job status by social origins and unemployment rate quintile

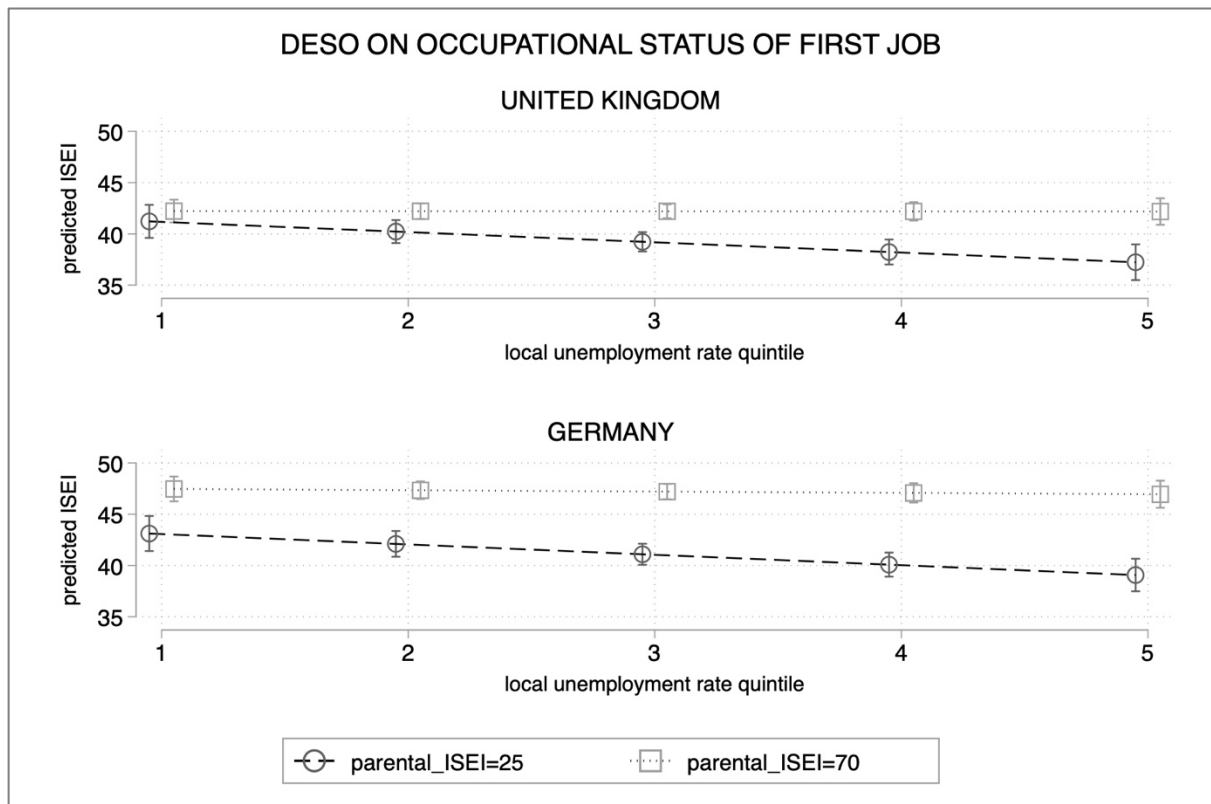


Table 4: Linear mixed models with three-way interaction to test heterogeneity by educational attainment

	(1) FIRST JOB		(2) FIRST JOB STATUS	
	(IX) UNITED KINGDOM	(X) GERMANY	(XI) UNITED KINGDOM	(XII) GERMANY
Qualifications (ref: none / ISCED 1)				
2	0.0844** (0.0059 - 0.1629)	0.0454* (-0.0033 - 0.0940)	-2.8444 (-6.6815 - 0.9926)	0.0231 (-2.2253 - 2.2715)
3	0.1748*** (0.1133 - 0.2363)	0.1531*** (0.1091 - 0.1971)	0.2464 (-2.4732 - 2.9661)	3.5915*** (1.6310 - 5.5520)
4	0.2736*** (0.2121 - 0.3351)	0.1864*** (0.1302 - 0.2427)	1.1143 (-1.6830 - 3.9116)	7.5420*** (5.1068 - 9.9772)
5	0.1928* (-0.0293 - 0.4148)	0.0765 (-0.1501 - 0.3032)	11.0743* (-1.3590 - 23.5075)	7.6934 (-3.4406 - 18.8273)
6 higher degree	0.2182* (-0.0036 - 0.4399)	0.0622 (-0.1543 - 0.2788)	16.7307*** (4.0763 - 29.3852)	23.5732*** (13.2620 - 33.8844)
Parental ISEI	0.0001 (-0.0019 - 0.0022)	-0.0017** (-0.0034 - -0.0000)	0.0308 (-0.0588 - 0.1204)	0.0878** (0.0073 - 0.1683)
Unemployment rate	-0.0263*** (-0.0410 - -0.0116)	-0.0275*** (-0.0357 - -0.0192)	-0.3701 (-1.0116 - 0.2714)	-0.3912** (-0.7429 - -0.0395)
Parental ISEI * Unemployment rate	0.0003** (0.0000 - 0.0006)	0.0003*** (0.0002 - 0.0005)	0.0046 (-0.0079 - 0.0171)	0.0056* (-0.0010 - 0.0121)
Graduate * Unemployment rate	0.0305** (0.0047 - 0.0563)	0.0215** (0.0011 - 0.0418)	-1.4404* (-2.9658 - 0.0849)	-0.3247 (-1.2694 - 0.6200)
Parental ISEI * Graduate	0.0002 (-0.0035 - 0.0038)	0.0009 (-0.0026 - 0.0043)	-0.1475 (-0.3560 - 0.0610)	-0.0527 (-0.2148 - 0.1094)
Parental ISEI * Graduate * Unemployment rate	-0.0003 (-0.0007 - 0.0002)	-0.0003 (-0.0006 - 0.0001)	0.0203 (-0.0080 - 0.0486)	0.0032 (-0.0122 - 0.0187)
Controls	YES	YES	YES	YES
Constant	0.8521***	0.6967***	13.3923**	21.3332***
Parental ISEI	0.0001	0.0001	0.0002	0.0008
LAD (constant)	0.0013	0.0007	2.2805	0.0001
Residual	0.0988	0.085	175.0803	139.7093
Observations	3,822	3,267	3,178	2,616
Number of groups	398	384	391	378

Notes: Includes controls for sex, age, minority status, prior labour market experience, moving away and graduation cohort; first job status estimates are weighted by the inverse probability of finding employment. Confidence intervals in parenthesis; *** p<0.001, ** p<0.01, * p<0.05

Figure 7: Predicted probability of entering employment within two waves of leaving full-time education or apprenticeship training – non-graduates v graduates

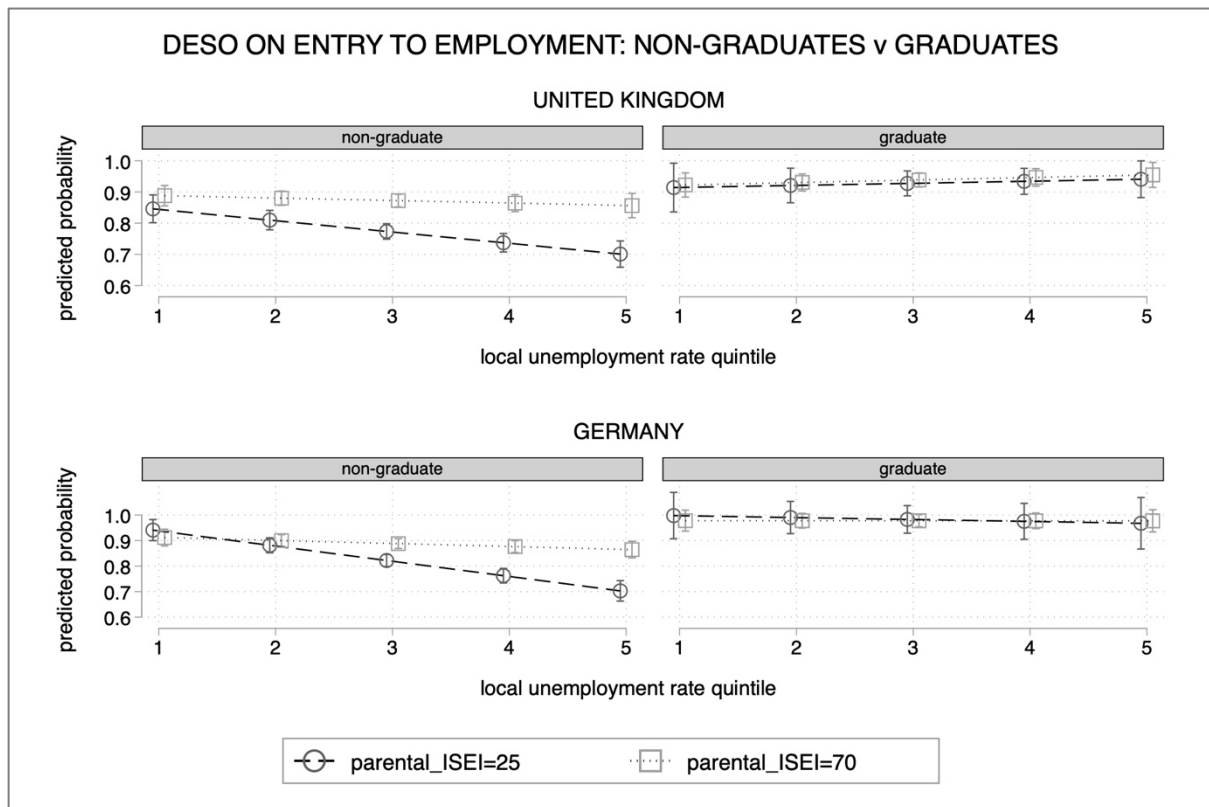
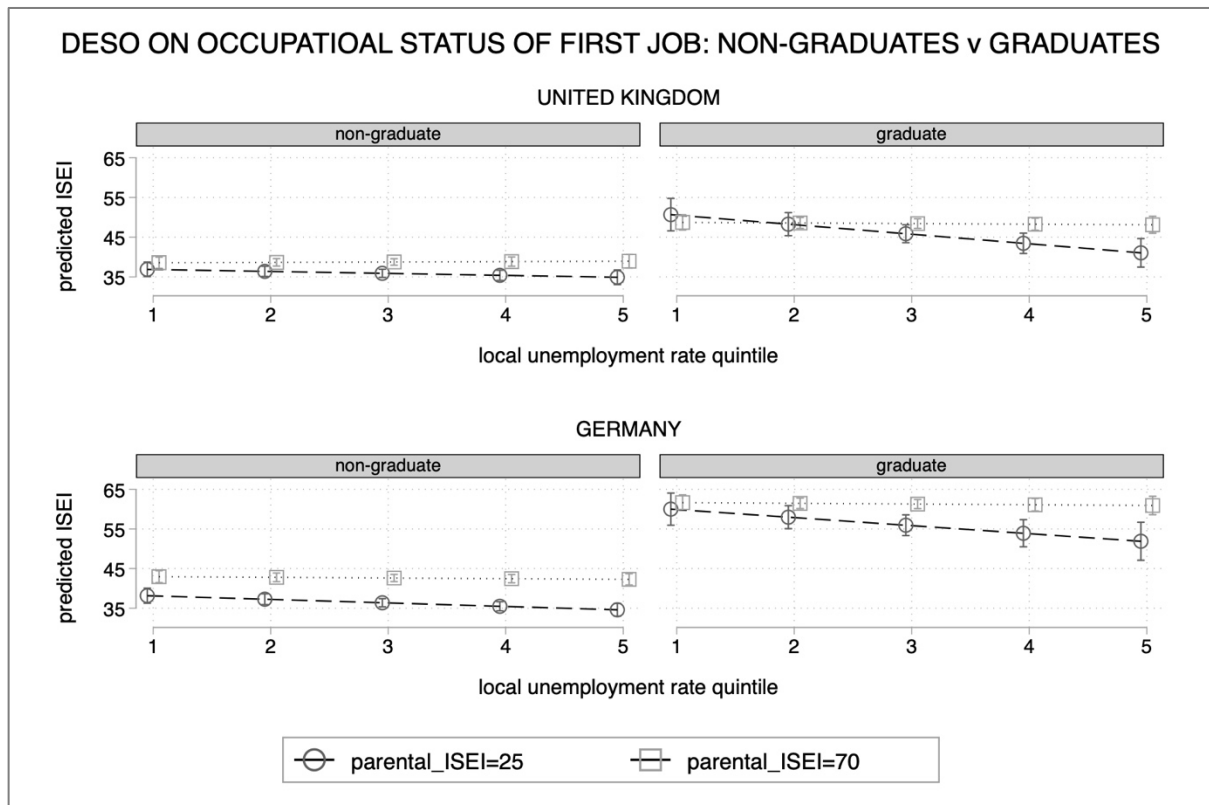


Figure 8: Predicted occupational status of first job – non-graduates v graduates



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