The early labour market returns to upper secondary qualifications track in England

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Abstract:

We explore the early labour market returns to following the academic track (e.g. A-levels) rather than the vocational track (e.g. NVQs) in upper secondary education in England. England is an interesting country case because students are 'free to choose' which upper secondary track they follow, unlike to many other European countries where standardised tests and teachers' recommendations play a much larger role. We draw on data from the longitudinal survey Next Steps and register data from the National Pupil Database. We consider occupational social class and net disposable income at age 25 as early labour market outcomes to explore to what extent the upper secondary qualification track has a net influence on them, controlling for pre-track measured ability, relevant sociodemographic characteristics and higher education participation. Our results show that following the academic track in upper secondary education is associated with higher chances of being employed in a service class occupation at age 25, compared to those with vocational upper secondary qualifications or no upper secondary qualifications at all. Subsequent participation in (prestigious) universities further improves the chances of service class membership. Interestingly, there does not seem to be a differentiated effect of following the academic rather than the vocational track by socioeconomic status, except for those that did not subsequently attend university. Unlike access to service class occupations, we find no net effect of upper secondary track on disposable income at age 25 after controlling for prior attainment at GCSE and subsequent participation in higher education.

Key words:

Upper secondary education; tracking; qualification type; university prestige; England

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Introduction

The secondary education system in England is generally considered to be one of the least formally tracked systems in Europe (Reichelt, Collischon and Eberl, 2019). From age 11 to 16 most pupils in England attend comprehensive schools, follow a national curriculum, and take nationally standardised examinations at the end of lower secondary school (GCSE[1]). Consequently, the contemporary English education system has been characterised in comparative terms as having structural features that do not play a strong formal role in channelling pupils towards different educational and social destinations, at least at lower secondary level (Blossfeld *et al.*, 2016). However, like that of other countries which typify the 'individual choice model' (Blossfeld *et al.*, 2016), such as the USA and Australia, the English secondary education system is not without forms of differentiation which are likely to contribute to intergenerational social reproduction in much the same way as early formal tracking does in other national systems, including beyond age 16.

Seminal academic work distinguishing between comprehensive and tracked educational systems in advanced economies (Allmendinger, 1989) and their differing implications for the school-to-work transition (Shavit and Müller, 1998), have inspired academics to look in detail at specific features of these two main types of education systems and their impact on educational and occupational attainment. In the English context, empirical research has mainly focused on the implications of different forms of between-school tracking (e.g. Green, Henseke and Vignoles, 2017), within-school ability grouping (e.g. Francis *et al.*, 2017) and subject choice at lower secondary education (e.g. Moulton *et al.*, 2018) and its implications for transitions to upper secondary education (e.g. Jackson, 2013). More limited attention has been devoted to the influence of these forms of tracking on subsequent occupational attainment (e.g. Burgess, Dickson and Macmillan, 2019).

In this paper we contribute to the previous literature on educational tracking and its association with differentiated labour market returns in England by focusing our attention on the relatively neglected phenomenon of upper secondary qualification tracking, distinguishing between those that followed the academic track (e.g. those who pursued A-level qualifications), the vocational track (e.g. the pursuit of NVQs), or a mixed route (e.g. combining academic A-levels with vocational qualifications) and assessing its differentiated consequences for early labour market outcomes. We also explore the potential influence of subsequent participation in relatively more and less prestigious higher education institutions, in addition to previous educational attainment (GCSEs) and socioeconomic background.

We particularly focus on the emergence of tracking at the beginning of upper secondary level in England, the point at which pupils can 'choose' between the pursuit of academic or vocational qualifications as well as a third option to exit formal education altogether[2]. Tracking by qualification type at upper secondary level is a relatively neglected dimension of educational tracking in research focused on the English system. This is surprising considering that tracking by qualification type is one of the most rigid forms of tracking, allowing pupils less scope to change tracks than other forms of tracking involving more limited curriculum differentiation. One important reason why switching between the academic and vocational track at upper secondary level is relatively rare is that the 'choice' between the two tracks is substantially determined by pupils' levels of achievement at GCSE, rather than being solely a matter of personal preference. A second important reason is that academic and vocational qualifications are often undertaken in different types of educational institutions. Figures for 2017 indicate that students pursuing academic A-level qualifications made up around four-fifths of all upper secondary students at sixth forms school and sixth form colleges, compared to just

[1] Known as GCSEs (General Certificate of Secondary Education) typically gained at the end of lower secondary education at age 15-16 in England and Wales.

[2] Note that from 2014 onwards English pupils are required by law to remain in some form of education or training until the age of 18 unless they are in paid work. Thus, the 'option' of exiting formal education at 16 has been restricted for recent cohorts.

one-fifth of all upper secondary students attending historically less well funded further education colleges (Belfield, Farquharson and Sibieta, 2018).

Literature Review

Triventi *et al.* (2016) usefully identified two key dimensions of educational tracking: (1) formal versus informal tracking – that is, features of an education system that are explicitly intended to place pupils on different educational trajectories versus those that do so unintentionally or only implicitly – and (2) tracking that occurs between schools versus tracking that takes place within them. Formal between-schools tracking concerns the placement of pupils into qualitatively different types of school, while formal within-schools tracking includes the different fields of study pupils choose and – our principal focus in this paper – the different types of qualification pupils pursue. Informal between-school tracking stems from differences in the reputation, resources, and pupil composition of schools often of the same nominal type, while informal within-school varieties of tracking include the allocation of pupils to ability-homogenous groups for instructional purposes (Triventi *et al.*, 2016, p. 11). Following Triventi *et al.* (2016) classification, below we summarise the literature on each of these forms of tracking in the English case.

a) Formal between-school tracking

One of the largest subsets of literature on secondary education tracking in England focuses on formal between-school tracking. The principal focus has been on the sorting of pupils into different school types based on tests of academic ability at age 11 to get access into grammar schools, with a secondary focus on attendance at private fee-paying schools rather than state-maintained schools. 'Comprehensivization' was not fully achieved throughout England, with a small but significant minority of local areas retaining the selective system (Dickson and Macmillan, 2020). Consequently, around five percent of all pupils aged 11-15 currently attend academically selective grammar schools in England (Danechi, 2020). These offer the same curriculum and qualifications as comprehensive schools but are considered more prestigious. Pupils from more socioeconomically advantaged families are substantially over-represented at these schools even after controlling for prior attainment (Burgess, Crawford and Macmillan, 2018).

Studies of the impact of grammar school attendance on educational outcomes, both in the heyday of the UK's selective education system (e.g. Galindo-Rueda and Vignoles, 2005; Manning and Pischke, 2006) and in more recent years (e.g. Gorard and Siddiqui, 2018) have typically found that, controlling for ability prior to selection and for social class background, grammar school attendance is not associated with higher academic attainment at secondary level (Gorard and Siddiqui, 2019) nor with a higher likelihood of subsequently accessing a top university (Sullivan, 2020). A smaller number of studies have focused on the impact of grammar school attendance on occupational outcomes (Sullivan *et al.*, 2017; Burgess, Dickson and Macmillan, 2019). A typical finding in English areas where this 'selective system' still exists has been that the labour market advantage associated with grammar school attendance is balanced by the labour market disadvantage associated with secondary modern school attendance (Boliver and Swift, 2011). Similarly, grammar school attendees have been shown to be no more likely than non-selective state school pupils to access high level occupations or to become very high earners after considering pre-track measures of ability and socioeconomic background (Sullivan, 2020). However, areas of England where grammar schools and secondary moderns still exist have wider earnings inequalities than is the case in areas where all schools are comprehensive after controlling for the characteristics of individuals (Burgess, Dickson and Macmillan, 2019). A related body of literature focused on the approximately 7% of young people who attend private fee-paying schools in England (Green, Henseke and Vignoles, 2017) demonstrate that private education, unlike grammar schooling, is strongly predictive of superior labour market outcomes, not least access to elite occupational positions (The Sutton Trust and Social Mobility Commission, 2019).

b) Informal between-school tracking

A body of research also exists in relation to informal tracking between schools in England of nominally the same kind but varying in terms of resources, reputation or pupil composition. Most

areas in England no longer have grammar schools, but UK comprehensive schools do not always serve socioeconomically diverse student bodies due to the high degree of residential segregation along socioeconomic lines (Taylor, 2002), coupled with the fact that state-maintained secondary schools typically restrict admission by 'school catchment area'[3] (Fitz, Gorard and Taylor, 2003; Gorard, 2009). The socioeconomic segregation of nominally comprehensive schools is an important source of informal sorting, which is correlated with and reciprocally related to the official quality assessment of schools as either 'Outstanding', 'Good', 'Requiring improvement' or 'Inadequate' by the Government Office for Standards in Education (Ofsted).

Schools in England are known to be highly segregated along socioeconomic and ethnic lines, such that 30% of all pupils eligible for free school meals (FSM, a widely used poverty measure) and 43% of all pupils from ethnic minority groups would need to switch schools in order to achieve an even balance across all schools in the same region of the country (Gorard, 2016). Studies indicate that some 10-30% of pupil attainment at lower secondary level is attributable to the characteristics of schools rather than those of individual pupils (Wilkinson, Bryson and Stokes, 2018). Importantly, schools in which disadvantaged pupils are heavily clustered have been found to display lower average levels of pupil attainment, net of the effects of individual pupil characteristics (Gorard and Siddiqui, 2019). Therefore, these disadvantages by socioeconomic and ethnic background are not neutral in the subsequent choice into upper secondary academic or vocational track.

c) Informal within-school tracking

A substantial literature also exists in relation to informal within-school tracking, which in the English case centres principally on the grouping of pupils by ability for instructional purposes. In English schools this typically takes the form of 'setting' for particular subjects based on tests of ability in those subjects rather than 'streaming' for all subjects based on a test of general ability. Research has found that many state-funded schools in England, both primary and secondary, group students into ability sets for core curriculum subjects, most notably Maths and English (Parsons and Hallam, 2011; Campbell, 2013; Hallam and Parsons, 2013b; Francis *et al.*, 2017). At secondary level, it is estimated that more than half of all pupils in state secondary schools are placed in ability sets for Maths, English and Science (Dracup, 2014). In addition to ability and cognitive performance, in the lower streams pupils who are summer born, from lower socioeconomic status (SES) backgrounds and from minority ethnic groups are overrepresented (Hallam and Parsons, 2013a; Parsons and Hallam, 2014). Thus, this overrepresentation of some specific social groups in lower streams and sets is likely to have an influence in subsequent choices and performance in the type of transition into upper secondary education.

d) Formal within-school tracking

Finally, a smaller body of research is focused on formal tracking within schools, the focus of the present paper. Much of this literature concerns pupils' choices in particular fields of study, rather than qualification type. A recent study of pupils' choices of optional subjects at GCSE found that pupils with more highly educated parents were more likely to choose academic over vocational subjects, and that those who chose academic subjects over vocational ones at GCSE were more likely to get higher GCSE grades and to progress to A-levels[4] (McMullin and Kulic, 2016). Similarly, among those taking A-levels, those whose parents are educated to degree level, are home-owners, or are in higher social class occupations, have been shown to be more likely to choose from among traditional subjects (Moulton *et al.*, 2018) – namely, English, History, Geography, Modern and Foreign Languages, Biology, Chemistry, Maths, and Physics – referred to collectively as 'facilitating subjects' by the prestigious Russell Group[5] of universities. A similar study focused on Scotland and Ireland also found

[3] In England primary and secondary state-maintained schools have a 'catchment area' of postcodes/addresses that are eligible to apply for access to that school.

[4] A-levels: Advanced levels, typically attained at the end of the upper secondary education 'academic track'.

[5] The Russell Group is an independent organisation that represents 24 "leading UK universities which are committed to maintaining the very best research, an outstanding teaching and learning experience and unrivalled links with business and the public sector" (The Russell Group, 2020).

that pupils from higher social class backgrounds were more likely to choose 'facilitating' and 'core' subjects of upper secondary level, and that these class differences in subject choices accounted for a substantial portion of the raw association between class origin and access to higher education (Klein, Iannelli and Smyth, 2016). There is also a considerable body of evidence to indicate that subject choice affects labour market outcomes. A study of those with A-level qualifications among the cohort born in 1958 found that those with an A-level in Maths had earnings that were about 7-10% higher by age 33 on average after controlling for ability and further studies at graduate and postgraduate level (Dolton and Vignoles 2002). A replication of this work for the cohort born in 1970 found a similarly sized 11% earnings return to A-level Maths (Adkins and Noyes 2016).

Within the subset of the research literature on formal within-school tracking in England, the pursuit of different types of qualification at upper secondary level is a notably neglected dimension. As outlined earlier, at upper secondary level formal tracking exists in relation to whether pupils follow an academically oriented curriculum leading to A-level qualifications or a more vocationally oriented curriculum leading to qualifications such as NVQs (National Vocational Qualifications) or BTECs (Business and Technology Education Council) or, more recently, Applied A-levels in vocational subjects. The pursuit of academic versus vocational qualifications at upper secondary level in England is often considered indicative of the 'choice-based' nature of the system, since it is based partly on decisions made by pupils rather than being wholly dictated by prior performance or teacher recommendations. However, the reality is more complex since pupils are usually required to have reached a certain level of attainment at lower secondary level to access the academic track in upper secondary education.

Previous research indicates that young people from more advantaged socioeconomic backgrounds as measured by parents' education, social class, income and homeownership are not only more likely to stay on in upper secondary education, but are also more likely to be pursuing academic A-level qualifications rather than vocational qualifications (Moulton *et al.*, 2018), and to continue to university (Jackson, 2013). A-levels have long been held to be the 'gold standard' when it comes to entry to higher education (Hodgson and Spours, 2010; Jackson, 2013). However, comparatively little is known about the labour market returns to A-level relative to vocational upper secondary qualifications, either before or after controlling for subsequent participation in higher education. One now-dated study drawing on data for those born in 1958 found that those who completed A-levels earned 6% more than those who only achieved lower secondary qualifications, specifically O-levels, after controlling for ethnicity, region, parental background, information about the nature of the school system in the local area, and attainment tests at age 7 and 11 (Blundell, Dearden and Sianesi, 2005). This study also found that wage returns were higher still for those with higher education qualifications compared to those whose highest qualifications were A-levels (23.5%).

In summary, this paper seeks to make a new contribution to the research literature in two main respects. First, we focus our attention on the important but relatively neglected phenomenon of within school formal tracking in upper secondary education, distinguishing between those who follow the academic track in pursuit of A-level qualifications and those who follow the vocational track, with a further comparison made with the significant share of English school pupils who attain a combination of academic and vocational qualifications, and with those that do not achieve any formal qualification in upper secondary education at all. Second, we focus principally on the early labour market returns to the upper secondary school track, and consider to what extent this is accounted for by subsequent participation in higher education, in addition to ability measures and socioeconomic background characteristics. Finally, we explore if there are any potential differences in following the academic rather than the vocational track at upper secondary education by socioeconomic background.

In particular, we set out to answer the following four research questions:

1) To what extent does following the academic track rather than the vocational qualifications track in upper secondary education affect occupational attainment and disposable income by age 25?

2) To what extent is the association between upper secondary education track and early labour market outcomes accounted for by pre-tracking educational attainment and for by socioeconomic background?

3) To what extent is the association between upper secondary education track and early labour market outcomes accounted for by higher education participation?

4) Does any effect of following the academic rather than the vocational track at upper secondary level differ for those from higher socioeconomic as compared to lower socioeconomic backgrounds?

Data and variables

We use Next Steps (University of London, Institute for Education, 2020), a longitudinal dataset that follows a representative cohort of individuals born in England in 1989/90. It began to collect data in 2004 when participants were aged 14 years old, and cohort members were surveyed annually until age 20 in 2010, and then once more at age 25 in 2015/16. The next sweep is scheduled to start collecting data in 2021, when cohort members will be aged 31. We use data from the last available sweep (i.e. 25 years old) to measure the early labour market outcomes for this cohort.

Since Next Steps does not provide any information about performance in national examinations, we link it to the National Pupil Database (NPD) records (University of London, Institute for Education, 2020). This administrative database provides information for cohort members' scores in national examinations taken at ages 11, 14, 16 and 18 (known as Key Stages 2, 3, 4 and 5). For this article we use NPD data corresponding to the GCSE grades achieved by cohort members at age 16 (KS4) as a pre-track measurement of ability, and the type of qualifications for which respondents were studying at age 18 (KS5) to classify cohort members as having taken either the academic (i.e. A-levels), the vocational track (e.g. NVQs), a mix of both qualifications types (e.g. 2 A levels and an Applied A-level) or do not have any upper secondary qualifications registered. This is our main predictor variable for upper secondary track (see Table 1 for descriptive statistics of all variables included in the analyses). We use the upper secondary qualifications registered in 2007, 2008 and 2009, since a small proportion of pupils take upper secondary qualifications exams a year earlier (2007) and others a year later (2009) than theoretically expected (2008) due to different circumstances. We consider those that have achieved only A-levels qualifications as having followed the academic track (39.6%), and those that have achieved only vocational qualifications as having pursued the vocational path (12.1%). We consider those that have academic and vocational qualifications registered (e.g. two A-levels and one Applied A-level) in the 'Mixed' upper secondary track (19.8%), while those that do not have any upper secondary qualifications registered are as such (i.e. no upper secondary qualifications), meaning that they probably left formal full-time education before the age of 18 (28.5%). It is worth pointing out that about 74% of those classified in the 'Mixed' upper secondary track have mostly A levels and fewer vocational qualifications.

We employ two outcome variables to capture the broad concept of occupational attainment of the survey participants at age 25:

1. ***Service class membership:*** we employ the NS-SEC[6] socioeconomic classification commonly used in British surveys, and select the two highest categories in the scheme, namely *'Higher and Lower managerial, administrative and professional occupations'* at age 25, and contrast these against the remaining categories (i.e. *Intermediate occupations, Small employers and own account workers, Lower supervisory and technical occupations, Semi-routine*

[6] NS-SEC: The National Statistics Socio-Economic Classification was constructed to measure the employment relations and conditions of occupations, based on the previous SOC2010 British classification.

occupations and Routine occupations - Never worked and long-term unemployed category not included because of small numbers). We retain a total of 6,199 cases that display data on this variable and the rest of relevant covariates considered for the analysis.

2. ***Disposable income at age 25:*** we use the log of the net weekly disposable income at age 25. We retain a total of 5,319 cases that display data on this variable and the rest of relevant covariates considered for the analysis.

Regarding the independent variables for this study, these can be classified in three groups:

1. ***Pre-tracking educational attainment:*** all students are expected to take their GCSEs (or equivalent) exams by the end of lower secondary education (aged 16, KS4). We use their grades in these exams as a pre-tracking measure of ability. Similarly to upper secondary qualifications, we also use data for three years (2005, 2006, 2007) to include those that took their GCSEs a year before (2005) or after (2007) the theoretically expected year (2006). Students generally take between seven and twelve GCSEs exams in a range of subjects. We use the NPD capped GCSE score variable, which is based on the top eight GCSE examination results. Each pupil has a GCSE points score, based on the grades they achieved in the GCSE or equivalent exam (A*= 58 points, A = 52 points, B = 46 points, C = 40 points, D = 34 points, E = 28 points, F = 22 points, G = 16 points, U/X/Q = 0 points). While students can take more than eight subjects, we decide to take the capped measure to make results comparable across pupils, as those that come from a more privileged social background tend to take more GCSEs than required and would display an overall GCSE score larger than the rest if not capped.
2. ***Sociodemographic background:*** we use gender (*male, female*), ethnicity (*White, Mixed, Indian, Pakistani, Bangladeshi, Black Caribbean, Black African, Other Ethnic Minority Groups*), type of school attended (*comprehensive, grammar, independent, other*), highest parental occupation (NS-SEC classification) and parents' highest educational qualification (*Higher education degree or equivalent, higher education below degree level, A-level or equivalent, GCSE grades A-C or equivalent, Level 1 or below, Other qualifications, No qualifications*) to control for socioeconomic background. We include them as dummy variables.
3. ***Attended (a comparatively more or less prestigious) university:*** although, formally, all UK higher education degrees are of equal value, informally there are distinctive clusters of higher and lower status universities (Boliver, 2015), with those affiliated to the Russell Group among the most prestigious ones. Therefore, we introduce a three-category variable related to university attendance, distinguishing between '*Did not attend university', 'Attended a non-Russell Group university'* and *'Attended a Russell Group university'*. We use the 'attending university' variable in our dataset rather than the 'degree attainment' variable because the former is asked in more than one sweep and, therefore, has much less missing data. We deem the 'attending university' variable to be a good proxy for degree attainment given that university drop-out rates are very low in the UK; just 6.5 percent of new entrants in 2008-09 did not continue in higher education after their first year (HESA, 2013).

Analytical strategy

We run a series of linear regression probability models with robust standard errors for service class membership at age 25 (Horrace and Oaxaca, 2006), and a series of classical multiple regression models for (log) net weekly disposable income at age 25. As suggested by the data owners (University of London, 2018), we use data weights corresponding to sweep 8 (i.e. age 25), which take account of the design weight and of attrition in all previous sweeps.

To address the first three research questions, we replicate the same four models for our two outcome variables (see Tables 2 and 3). Model 1 introduces our main predictor variable, namely upper

secondary track (*no upper secondary qualifications, vocational upper secondary qualifications, mixed upper secondary qualifications, academic upper secondary qualifications*); Model 2 controls for pre-tracking educational attainment (*maximum GCSE capped score points*); Model 3 controls for a range of sociodemographic variables (*sex, ethnicity, school type, parental social class, parental education*); and Model 4 adds the higher education university attendance variable.

Finally, to address the fourth research question, we run all four models including an interaction term between 'upper secondary track' and 'university attendance', first for all sample members, and then separately for those from higher and lower socioeconomic backgrounds (SES). Based on parental class, we consider as high SES those within the categories of 'Higher and Lower managerial, administrative and professional occupations, Intermediate occupations and Small employers and own account workers', while we consider the rest of categories as low SES (i.e. Lower supervisory and technical occupations, Semi-routine occupations and Routine occupations, Never worked and long-term unemployed). To facilitate comparison across groups and easily interpret the additive influence of specific variables included in the models, we display results as average marginal predicted probabilities of service class membership at age 25 by SES, upper secondary track and university attendance (see Figure 1).

Results and Discussion

Table 1 displays the distribution of variables for the largest sample we retain to conduct the analyses (i.e. 6,199 for service class membership at age 25). Regarding our main predictor variable, upper secondary track, 39.6% followed the academic path, 12.1% followed a vocational route, a further 19.8% studied a mixture of academic and vocational qualifications, while the remaining 28.5% did not achieve any qualification at upper secondary level, at least in the years considered. We observe a preponderance of the academic path over the vocational one, and that most of those in the 'mixed' upper secondary track have mostly academic qualifications.

By age 25 a considerable percentage of individuals are employed in higher managerial, administrative and professional occupations (14.4%) and a substantially larger share are in lower managerial, administrative and professional occupations (34.4%), this being the modal category. Therefore, about half of the sample (48.8%) are employed in the service class by age 25. The average (log) net weekly disposable income at age 25 is 5.69, with a standard deviation of 0.51.

With regards to the pre-tracking measure of educational attainment, the average GCSE points score is 331 (roughly equivalent to 7 Bs or 8 Cs) with a standard deviation of 84 points. Those who continued in upper secondary education in the academic track had slightly higher GCSE scores on average (382) than those who pursued a mixture of academic and vocational qualifications (364), somewhat higher GCSE scores than those who followed the vocational track (312), and substantially higher GCSE scores than those who did not continue in upper secondary education (247).

As to the distribution of university attendance, only 9.5% attended a Russell Group university, while 36.8% attended a non-Russell Group university and most of the sample (53.7%) did not attend university. Thus, the share of individuals attending university (46.3%) is slightly above the share of those who completed the academic path at upper secondary education (42%), suggesting that some individuals who did not complete the academic track might still be going into university, whereas some that completed the academic path may not have attended university.

Table 1: Descriptive statistics (only cases included in regression models)

	N	%
MAIN PREDICTOR VARIABLE		
Upper secondary track		
No upper secondary qualifications	1,765	28.5
Vocational upper secondary qualifications	748	12.1
Mixed (academic and vocational) upper secondary qualifications	1,229	19.8
Academic (A-levels) upper secondary qualifications	2,457	39.6
DEPENDENT VARIABLES		
Social class destination at age 25 (NS-SEC)		
Higher managerial, administrative and professional	892	14.4
Lower managerial, administrative and professional	2,135	34.4
Intermediate occupations	1,169	18.9
Small employers and own account workers	315	5.1
Lower supervisory and technical	504	8.1
Semi-routine occupations	842	13.6
Routine occupations	342	5.5
Disposable income at age 25	**Mean**	**SD**
Log net weekly disposable income	5.69	0.51
PRE-TRACKING EDUCATIONAL ATTAINMENT		
GCSE qualifications score	**Mean**	**SD**
Max capped GCSE points or equivalent (N=6,199)	331	84
No upper secondary qualifications – max capped GCSE points (N=1,765)	247	87
Vocational upper secondary qualifications – max capped GCSE points (N=748)	312	46
Mixed (academic and vocational) upper secondary qualifications – max capped GCSE points (N=1,229)	364	48
Academic (A-levels) upper secondary qualifications – max capped GCSE points (N=2,457)	382	46
SOCIODEMOGRAPHIC VARIABLES		
Sex		
Male	2,878	46.4
Female	3,321	53.6
Ethnicity		
White	4,310	69.5
Mixed	286	4.6
Indian	439	7.1
Pakistani	319	5.2
Bangladeshi	274	4.4
Black Caribbean	200	3.2
Black African	222	3.6
Other Ethnic Minority Groups	149	2.4
School type		
Comprehensive	5,563	89.7
Grammar	275	4.4
Independent	258	4.2
Other	103	1.7
Parental social class (NS-SEC)		
Higher managerial, administrative and professional	401	6.5
Lower managerial, administrative and professional	1,641	26.5

Intermediate occupations	911	14.7
Small employers and own account workers	505	8.2
Lower supervisory and technical	458	7.4
Semi-routine occupations	1,076	17.4
Routine occupations	608	9.8
Never worked / long-term unemployed	555	9.0
Not known	44	0.7
Parental education		
Degree or equivalent	866	14.0
HE below degree level	873	14.1
GCE A-level or equivalent	903	14.6
GCSE grades A-C or equivalent	1,736	28.0
Level 1 or below	460	7.4
Other qualifications	102	1.7
No qualifications	1,217	19.6
Not known	42	0.7
TERTIARY EDUCATION ATTENDANCE		
University attendance		
Did not attend university	3,330	53.7
Attended a non-Russell Group university	2,280	36.8
Attended a Russell Group university	589	9.5

Source: Authors' elaboration based on Next Steps and NPD data.

Table 2 shows the results of the linear probability regression models predicting service class membership by age 25, while Table 3 presents the corresponding multiple regression models for log net weekly disposable income by age 25. Starting with the results for service class membership, Model 1 (which only includes the main predictor variable upper secondary track) shows that, compared to those that did not attain any qualifications at upper secondary level, those that pursued the academic track are 42.1 percentage points more likely to be employed in service class occupations by age 25, while the corresponding figure for those who pursued a combination of academic and vocational qualifications is 36.8 percentage points. For those who followed the vocational track, the comparative advantage over those with no upper secondary qualifications is more modest, at 15.8 percentage points. Once we control for GCSE attainment (Model 2), the predictive power of upper secondary track declines to 23.8, 20.6 and 6.3 percentage points respectively. These coefficients are further reduced only slightly when we control for a range of sociodemographic characteristics in Model 3. The addition of university attendance in Model 4 reduces the coefficients further still for all tracks: to 17.2 for the academic track, 16.1 for the mixed track, and 4.5 for the vocational track (with the latter only significant at the 10% level). Model 4 shows that having attended a Russell Group university improves the chances of entering the service class by 16.6 percentage points compared to those that did not attend tertiary education, while the advantage for those who attended a non-Russell Group university is smaller at 10.1 percentage points. These findings indicate that part of the labour market return to pursuing academic qualifications at upper secondary level is influenced by higher levels of prior attainment at GCSE, and higher rates of subsequent participation in higher education. However, controlling for GCSE performance and university attendance, a significant net effect of pursuing academic qualifications (solely, or combined with vocational ones) remains, even when controlling for relevant sociodemographic characteristics. Even if not the focus of this paper, it is worth pointing out that, compared to those from White ethnic background, those from Indian (7.7 percentage points), Pakistani (7.6 p.p.) and Black African (7.4 p.p.) background have an advantage in service class membership at age 25, while those from Black Caribbean (-7.8 p.p.) have a comparative disadvantage. Similar advantages can be observed for those that attended grammar (7.5 p.p.) and private (9.1 p.p.) schools, compared to those that attended comprehensive ones.

Table 3 shows a somewhat different story in terms of disposable income. Model 1 results suggest that following the academic upper secondary track increases by 38.4% the net weekly disposable income at age 25[7] (the predicted log net weekly disposable income by 0.325), while for those who pursued a mixture of academic and vocational qualifications, and for those who followed the vocational track, the increase is 34.2% and 22.3% respectively. However, these returns are substantially reduced after controlling for GCSE attainment (Model 2), sociodemographic characteristics (Model 3), and university attendance (Model 4), decreasing to 5.4%, 7.8% and 7.6% respectively. Model 4 also shows that those who subsequently attended a Russell Group university had a 9.5% higher disposable income than those who did not progress to university at all, while those who attended a non-Russell Group universities enjoyed a more modest 3.5% disposable income return. Although these are statistically significant differences with respect to disposable income compared to those with no upper secondary qualifications, the percentage increase is relatively small in substantive terms. Moreover, there is no statistically significant difference between the coefficients for the three different upper secondary tracks. Overall, these results suggest that there is only a negligible net effect of any kind of upper secondary education on disposable income, at least at the relatively early career stage of age 25. Much of the gross effect of upper secondary schooling and track choice simply reflects corresponding differences in prior achievement at GCSE and subsequent participation in higher education. Interestingly, even at an early age in the career women show a 29.7% decrease in their weekly disposable income compared to men, even when accounting for the rest of variables considered in the analyses (Model 4).

[7] Percentage increases have been calculated computing the exponential of the coefficients, minus 1 and multiplied by 100, to ease the substantive interpretation of the results. For example 38.4%=(exp(0.325)-1)*100.

Table 2: Linear Probability Regression Model to analyse average partial effects of upper secondary school track placement on Service Class membership at age 25 (NS-SEC)

	Model 1 (Upper secondary track)		Model 2 (+ GCSE or equivalent capped points)		Model 3 (+ sociodemographic variables)		Model 4 (+ university attendance)	
Outcome: I+II service class destination at age 25								
No upper secondary qualifications (RC)								
Vocational upper secondary qualifications	0.158***	(0.023)	0.063***	(0.024)	0.065***	(0.024)	0.045*	(0.024)
Mixed upper secondary qualifications	0.368***	(0.020)	0.206***	(0.023)	0.198***	(0.024)	0.161***	(0.025)
Academic upper secondary qualifications	0.421***	(0.016)	0.238***	(0.022)	0.216***	(0.022)	0.172***	(0.023)
Max capped GCSE points or equivalent	-	-	0.001***	(9.62e-05)	0.001***	(0.000)	0.001***	(0.000)
Male (RC)								
Female	-	-	-	-	-0.007	(0.013)	-0.010	(0.013)
White (RC)								
Mixed	-	-	-	-	-0.022	(0.036)	-0.018	(0.036)
Indian	-	-	-	-	0.077***	(0.030)	0.058*	(0.030)
Pakistani	-	-	-	-	0.076**	(0.031)	0.058*	(0.030)
Bangladeshi	-	-	-	-	0.055	(0.039)	0.046	(0.040)
Black Caribbean	-	-	-	-	-0.078**	(0.036)	-0.080**	(0.036)
Black African	-	-	-	-	0.074*	(0.042)	0.067	(0.042)
Other Ethnic Minority Groups	-	-	-	-	-0.023	(0.046)	-0.032	(0.046)
Comprehensive school (RC)								
Grammar school	-	-	-	-	0.075**	(0.031)	0.058*	(0.031)
Independent school	-	-	-	-	0.091***	(0.032)	0.079**	(0.032)
Other school type	-	-	-	-	0.003	(0.057)	-0.017	(0.057)
Higher managerial, administrative and professional (RC)								
Lower managerial, administrative and professional	-	-	-	-	0.009	(0.031)	0.010	(0.031)
Intermediate occupations	-	-	-	-	0.015	(0.034)	0.016	(0.034)
Small employers and own account workers	-	-	-	-	0.027	(0.038)	0.031	(0.038)
Lower supervisory and technical	-	-	-	-	0.016	(0.037)	0.015	(0.037)
Semi-routine occupations	-	-	-	-	-0.024	(0.033)	-0.023	(0.034)
Routine occupations	-	-	-	-	-0.026	(0.038)	-0.025	(0.038)
Never worked / long-term unemployed	-	-	-	-	-0.045	(0.041)	-0.044	(0.041)
Degree or equivalent (RC)								
HE below degree level	-	-	-	-	-0.019	(0.025)	-0.006	(0.025)
GCE A-level or equivalent	-	-	-	-	-0.045*	(0.026)	-0.026	(0.026)
GCSE grades A-C or equivalent	-	-	-	-	-0.032	(0.024)	-0.010	(0.024)
Level 1 or below	-	-	-	-	-0.073**	(0.031)	-0.050	(0.031)

Other qualifications	-	-	-	-	0.006	(0.055)	0.033	(0.056)
No qualifications	-	-	-	-	-0.045	(0.029	-0.025	(0.028)
No university attendance (RC)								
Attended a non-Russell Group university	-	-	-	-	-	-	0.101***	(0.018)
Attended a Russell Group university	-	-	-	-	-	-	0.166***	(0.027)
Constant	-	-	-0.074***	(0.025)	-0.002	(0.042)	0.007	(0.041)
N	6,199		6,199		6,199		6,199	
R2	0.149		0.179		0.188		0.196	

Note1: *** p<0.01, **p<0.05, *p<0.1
Note2: Standard errors in parentheses.
Note3: Reference Category (RC).
Source: Authors' elaboration based on Next Steps and NPD data.

Table 3: Multiple Regression Model to analyse average partial effects of upper secondary school track placement on Log net weekly disposable income at age 25

	Model 1 (Upper secondary track)		Model 2 (+ GCSE or equivalent capped points)		Model 3 (+ sociodemographic variables)		Model 4 (+ university attendance)	
Outcome: Log net weekly disposable income at age 25								
No upper secondary qualifications (RC)								
Vocational upper secondary qualifications	0.201***	(0.030)	0.079***	(0.028)	0.078***	(0.026)	0.073***	(0.027)
Mixed upper secondary qualifications	0.294***	(0.028)	0.076**	(0.032)	0.086***	(0.031)	0.075**	(0.032)
Academic upper secondary qualifications	0.325***	(0.026)	0.079**	(0.033)	0.068**	(0.032)	0.053*	(0.032)
Max capped GCSE points or equivalent	-	-	0.002***	(0.000)	0.002***	(0.000)	0.002***	(0.000)
Male (RC)								
Female	-	-	-	-	-0.260***	(0.017)	-0.260***	(0.017)
White (RC)								
Mixed	-	-	-	-	-0.047	(0.049)	-0.046	(0.049)
Indian	-	-	-	-	0.058*	(0.032)	0.052	(0.032)
Pakistani	-	-	-	-	-0.049	(0.044)	-0.055	(0.044)
Bangladeshi	-	-	-	-	0.055	(0.048)	0.053	(0.048)
Black Caribbean	-	-	-	-	-0.007	(0.045)	-0.006	(0.045)
Black African	-	-	-	-	-0.016	(0.073)	-0.017	(0.073)
Other Ethnic Minority Groups	-	-	-	-	0.060	(0.069)	0.055	(0.070)
Comprehensive school (RC)								
Grammar school	-	-	-	-	0.022	(0.039)	0.011	(0.039)
Independent school	-	-	-	-	0.083**	(0.035)	0.078**	(0.035)
Other school type	-	-	-	-	0.035	(0.064)	0.028	(0.063)
Higher managerial, administrative and professional (RC)								
Lower managerial, administrative and professional	-	-	-	-	-0.079**	(0.035)	-0.077**	(0.035)
Intermediate occupations	-	-	-	-	-0.089*	(0.047)	-0.088*	(0.047)
Small employers and own account workers	-	-	-	-	-0.069	(0.046)	-0.067	(0.046)
Lower supervisory and technical	-	-	-	-	-0.073	(0.050)	-0.073	(0.050)
Semi-routine occupations	-	-	-	-	-0.067	(0.041)	-0.065	(0.041)
Routine occupations	-	-	-	-	-0.111**	(0.050)	-0.110**	(0.050)
Never worked / long-term unemployed	-	-	-	-	-0.152**	(0.060)	-0.151**	(0.059)

Degree or equivalent (RC)								
HE below degree level	-	-	-	-	-0.021	(0.027)	-0.013	(0.027)
GCE A-level or equivalent	-	-	-	-	-0.003	(0.029)	0.007	(0.029)
GCSE grades A-C or equivalent	-	-	-	-	0.018	(0.028)	0.030	(0.028)
Level 1 or below	-	-	-	-	-0.051	(0.055)	-0.039	(0.057)
Other qualifications	-	-	-	-	0.046	(0.062)	0.059	(0.062)
No qualifications	-	-	-	-	0.008	(0.035)	0.018	(0.035)
No university attendance (RC)								
Attended a non-Russell Group university	-	-	-	-	-	-	0.034*	(0.019)
Attended a Russell Group university	-	-	-	-	-	-	0.091***	(0.032)
Constant	-	-	5.067***	(0.074)	5.251***	(0.095)	5.255***	(0.096)
N	5,319		5,319		5,319		5,319	
R2	0.070		0.113		0.174		0.176	

Note1: *** p<0.01, **p<0.05, *p<0.1

Note2: Standard errors in parentheses.

Note3: Reference Category (RC).

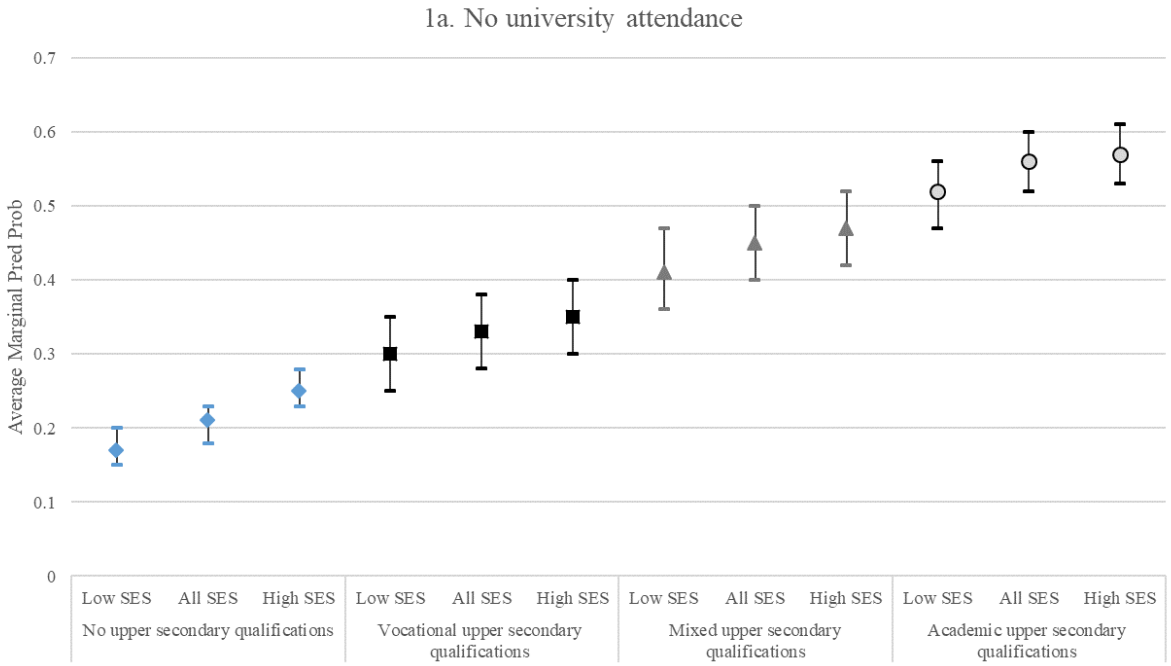
Source: Authors' elaboration based on Next Steps and NPD data.

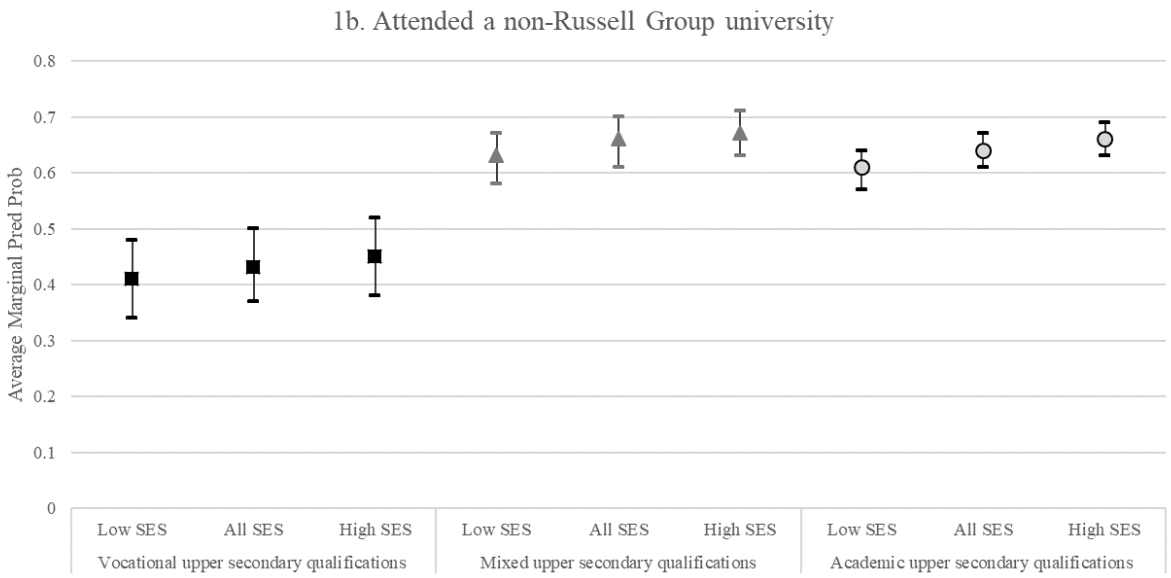
Finally, we explore if the net effect of following the academic rather than the vocational track at upper secondary level on the chances of being in a service class occupation differ by socioeconomic background (RQ4). Figure 1 shows the average marginal predicted probability of service class membership at age 25 by SES. Panel 1a focuses on those who did not attend university. Among those that did not attain any upper secondary qualifications, the probability of being employed in the service class by age 25 is significantly different for those from high SES (0.25) as compared to low SES (0.17) background. In contrast, among those who followed the various upper secondary tracks, there are no statistically significant differences in the chances of employment in the service class by SES.

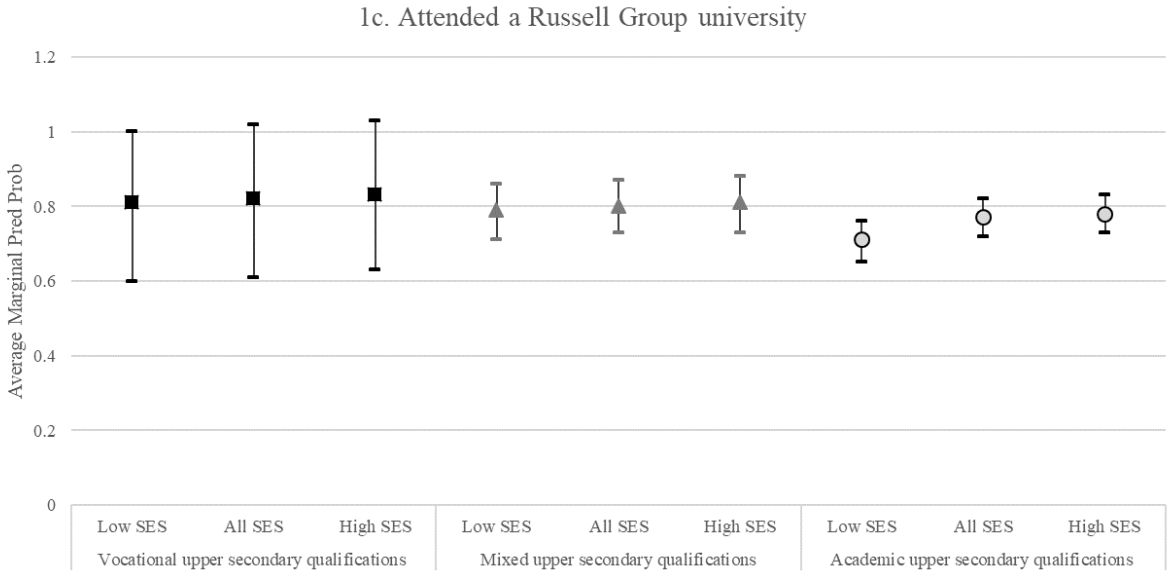
Figure 1b displays figures for those that attended a non-Russell Group university. Results suggest that attending the academic (or mixed) track rather than the vocational one increases the chances of being in the service class by age 25 to the same extent for those from different socioeconomic backgrounds. Similarly, Figure 1c shows that, among those who attended a Russell Group university, there are no statistically significant differences in the probability of service class membership at age 25 by socioeconomic background or upper secondary track. This suggests that, for those attending a comparatively more prestigious Russell Group university, their previous upper secondary education track and socioeconomic background is subsequently irrelevant as a predictor of their service class membership at age 25. However, it is important to note that both upper secondary track and socioeconomic background are predictors of the likelihood of attending a Russell Group university in the first place.

We conducted similar analyses for gender (not shown here) to explore any potential differences by educational track as, on average among younger cohorts, women tend to get higher educational attainment than men (McNabb, Pal and Sloane, 2002), and are usually overrepresented in the academic educational tracks, especially in comprehensive systems (Pekkarinen, 2008), but might not benefit as much as men from educational attainment in the labour market. However, our analyses generally showed no statistically significant differences by gender in the net effects of upper secondary track on the chances of being employed in the service class at age 25, controlling for GCSE grades, socioeconomic background, and university attendance.

Figure 1: Average marginal predicted probability of Service Class membership by SES groups, upper secondary qualification track and tertiary education, controlled by GCSE capped points, sex, ethnicity and school type







Source: Authors' elaboration based on Next Steps and NPD data.

Conclusions

Research on educational stratification and tracking has traditionally focused on formal and informal forms of within-school and between-school tracking in secondary education (e.g. van de Werfhorst and Mijs, 2010). More recently, efforts have been directed to explore potential tracking effects in upper secondary education. However, this still remains a relatively unexplored field, and we know little about the consequences of upper secondary tracking on labour market outcomes later on in life.

In England, a country with an education system characterised by the 'individual choice model', empirical research has mainly focused on between school tracking (e.g. Dickson and Macmillan, 2020), ability grouping (e.g. Francis *et al.*, 2017) and subject choice at lower secondary education (e.g. Moulton *et al.*, 2018). In this paper we used data from the Next Steps survey, linked to information from the National Pupil Database (NPD), to explore the relatively neglected phenomenon of upper secondary tracking, distinguishing between those that followed the academic (e.g. A-levels) and the vocational track (e.g. NVQs) or some combination of the two and assessing its differentiated consequences on early labour market outcomes. We also explored the effect of subsequent

participation in comparatively more or less prestigious universities, in addition to previous educational attainment (GCSEs) and sociodemographic background.

We find that following the academic track in upper secondary education, solely or in combination with vocational qualifications, is associated with higher chances of being employed in a service class occupation at age 25 compared to those with vocational upper secondary qualifications or no upper secondary qualifications at all. This advantage for academic upper secondary qualifications holders is maintained even after considering pre-track measures of ability and social background characteristics, and even after controlling for subsequent participation in higher education. Compared to exiting education with no upper secondary qualifications at age 16, attaining vocational upper secondary qualifications confers some advantage with respect to accessing service class occupations, but not as much compared to following the academic (or the 'mixed') upper secondary track. Subsequent participation in higher education, and particularly in comparatively more prestigious universities, further improves the chances of service class membership. More importantly, there does not seem to be a differentiated effect on access to service class occupations of following the academic rather than the vocational track by socioeconomic status, except for those that did not subsequently attend university.

Unlike access to service class occupations, we find no net effect of upper secondary track on weekly disposable income at age 25 after controlling for prior attainment at GCSE and subsequent participation in higher education. Indeed, the net disposable income returns to all upper secondary tracks are similar to one another and negligible in substantive terms. This is likely to be because age 25 is a relatively early career stage at which to measure income, especially for those who remained in upper secondary education, continued on into higher education, and first entered the labour market in their early 20s. We do find though quite a difference by gender, being women more disadvantaged than men. Previous research has shown that the incomes of graduates and non-graduates are quite similar during their early 20s, but diverge considerably thereafter until the mid-30s for women and the mid-40s for men (Britton et al., 2020). If we were able to observe disposable incomes a decade later we might see a larger net effect of having pursued the academic track at upper secondary level, as others have observed for degree holders.

Overall, the findings point to consequential effects of tracking at upper secondary level. The pursuit of academic upper secondary qualifications, solely or in combination with a vocational qualification, not only provides increased access to higher education, and to comparatively more prestigious Russell Group universities, but also confers a net effect with respect to access to service class occupations, albeit not to an initially higher disposable income. It is encouraging to see that high-SES and low-SES individuals benefit to the same degree from obtaining academic upper secondary qualifications if they subsequently attend university, but concerning to find that the returns to academic upper secondary qualifications are lower for low-SES individuals among those who do not continue to university. Our findings point to the need for policy measures that will enable more lower-SES individuals to pursue academic upper secondary qualifications, and to progress from these into degree level study.

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