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Upper Secondary Pathways and Progression to Further Study

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Upper secondary education is critical in preparing young people for further study. This paper explores how various upper-secondary education pathways influence students' progression to further study, shedding light on their effectiveness in expanding educational opportunities. Using linked English administrative data, we compare progression outcomes across a range of pathways, including the brand new T level vocational pathway and the increasingly popular mixed (academic and vocational) track. We consider progression across three dimensions – overall progression to further study, progression to high-quality further study and preparedness for further study, proxied by drop out rates. We find that students on the new T level pathway are more likely to progress to higher technical qualifications and advanced apprenticeships than all other pathways. However, T level students are significantly less likely to enter university and, when they do, are disproportionately represented in lower-tariff institutions and courses. This is despite policy promises that T levels would be a "springboard" to higher education (HE). Conditional on progressing to further study, T level students are well prepared for their chosen course of study and they drop out at significantly lower rates than other learners. We also show that some pathways are more effective at supporting low SES students in progressing to further study.

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Highlights

- An important element of upper-secondary education is ensuring students are well prepared for future study and the labour market. When students make choices about their upper-secondary education, they care about progression opportunities.
- We examine the transitions from upper-secondary education to further study for a range of upper-secondary pathways in England. We focus specifically on T levels – a new vocational pathways with promises of strong progression opportunities.
- We consider progression across three domains – access to any further study, access to high-quality further study and preparedness for further study.
- We find that T level students in the first cohort are significantly more likely to progress to higher technical study and advanced apprenticeships.
- However, they are less likely to progress to higher education and further study more broadly than similar learners on alternative pathways.
- We also show that T level students enter disproportionately lower tariff universities institutions, suggesting they have less access to high-quality HE.
- Conditional on progressing to further study, T level students are well prepared and drop-out at the lowest rates compared with all other pathways.

Why does this matter?

Understanding transitions between upper-secondary education and further study is critical for evaluating the effectiveness of upper-secondary education and recent policy changes in England.

Upper Secondary Pathways and Progression to Further Study

Robbie Maris*

August 12, 2025

Abstract

Upper secondary education is critical in preparing young people for further study. This paper explores how various upper-secondary education pathways influence students' progression to further study, shedding light on their effectiveness in expanding educational opportunities. Using linked English administrative data, we compare progression outcomes across a range of pathways, including the brand new T level vocational pathway and the increasingly popular mixed (academic and vocational) track. We consider progression across three dimensions – overall progression to further study, progression to high-quality further study and preparedness for further study, proxied by drop out rates. We find that students on the new T level pathway are more likely to progress to higher technical qualifications and advanced apprenticeships than all other pathways. However, T level students are significantly less likely to enter university and, when they do, are disproportionately represented in lower-tariff institutions and courses. This is despite policy promises that T levels would be a "springboard" to higher education (HE). Conditional on progressing to further study, T level students are well prepared for their chosen course of study and they drop out at significantly lower rates than other learners. We also show that some pathways are more effective at supporting low SES students in progressing to further study.

Keywords: Higher Education, Progression, Qualifications, UK, Vocational

JEL Codes: D38, I23, I26

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1 Introduction

Upper-secondary education plays a crucial role in supporting young people into further study. It is often the last stage of compulsory schooling before students are left to make choices about their future pathways. Millions of students make these transitions from upper-secondary education systems around the world. In the UK, around 300,000 18-year-olds make the transition from upper-secondary education to higher education (HE) each year (UCAS, 2024). Many students also progress to other forms of further study, including advanced vocational and technical training (Department for Education, 2025a). Clearly, an important element of upper-secondary education is facilitating transitions to further study and ensuring students are well prepared for their chosen pathway (OECD, 2024). Many studies have considered the importance of individual and institutional characteristics in promoting progression to further study, along with subject choice in upper-secondary (i.e., Arias Ortiz and Dehon, 2008; Brooman et al., 2014; Contini et al., 2018; Dilnot, 2018). However, relatively little research has evaluated the importance of different upper-secondary pathways on progression outcomes.

In this paper, we examine the transitions from upper-secondary education to further study for students in England. We explore how various upper-secondary pathways influence students' progression to further study, providing insight into the effectiveness of different pathways in expanding educational opportunities. Specifically, we exploit rich administrative data to examine progression outcomes for students starting upper-secondary in 2020/21. This coincides with the first cohort of students enrolling on a new vocational track in England: T levels. This new track represents a blend of existing vocational and academic tracks in England and was introduced in 2020. One of the promises of T levels is that they would be an effective pathway into further study. For example, the Department for Education (2025b) described them as a *"springboard"* into higher education.

We examine the first cohort of T level students' progression to further study and carefully compare progression outcomes with similar students on different pathways in the same

cohort. The other pathways we consider are: the academic track (A levels), the vocational track (BTECs)[1] and the mixed track (combination of A levels and BTECs). The mixed track is one that is growing in popularity among English students (Kelly, 2017; Tuckett, 2025) and little research has considered progression outcomes from this track.

We consider progression across three areas: progression to any further study, access to high-quality further study (proxied by HE tariff) and preparedness for further study (proxied by first-year drop-out). We also develop a simple theoretical model of how expected progression opportunities influence students' upper-secondary pathway choices and consider this in light of the introduction of T levels.

We find that students on the new T level pathway are more likely to pursue advanced vocational pathways, including higher technical qualifications and advanced apprenticeships. However, they are less likely to enter HE and, when they do, are disproportionately represented in lower-tariff institutions and courses. This is despite policy promises that T levels would be a *"springboard"* to HE and further study. Conditional on progressing to further study, T level students are well prepared for their chosen course of study and they drop out at significantly lower rates than other learners. We also show that some pathways are more effective at supporting low SES students in progressing to further study (this includes the existing vocational track and the increasingly popular mixed track).

There is a growing body of literature examining the predictors of successful transitions from upper-secondary education into further study (for example, Anderton et al., 2017; Atkinson, 2024; Contini et al., 2018; Engberg and Wolniak, 2010). One branch of the literature examines the individual student-level factors that correlate with success in higher education for school-leavers (i.e., Brooman et al., 2014; Contini et al., 2018; Dilnot et al., 2023). A number of papers find that students from lower SES backgrounds make less *smooth* transitions to HE. For instance, Dilnot et al. (2023) shows that low-SES students are more

[1]For simplicity, we use the term BTECs. In reality, the vocational track contains a range of vocational qualifications that are awarded by different awarding organisations. BTECs are one of the, if not the, most widely known vocational qualifications.

likely to drop-out and are less likely to achieve a first-class degree in the UK even after controlling for prior attainment. Contini et al. (2018) shows that disadvantaged students in Italy achieve worse outcomes in HE compared with non-disadvantaged students with similar prior attainment. Many other studies have also highlighted the important role of SES and family background in predicting successful transitions into HE (for examples, see Arias Ortiz and Dehon, 2008; Arulampalam et al., 2005; Venezia and Jaeger, 2013)

Another part of the literature considers the impacts of the upper-secondary school environment and how that correlates with successful transitions to HE (for example, Aynsley and Crossouard, 2010; Engberg and Wolniak, 2010; Smyth et al., 2007; Vandelannote and Demanet, 2024). Some of these studies focus on the cultures within secondary schools and how well these prepare students for transitions into university environments (for example, Vandelannote and Demanet, 2024). Other papers focus on the demographic characteristics (for instance, average level of deprivation) and the academic effectiveness of upper-secondary institutions (Engberg and Wolniak, 2010; Smyth et al., 2007).

Similarly, research has shown that the type of upper-secondary institution has a significant impact on subsequent success in HE (Atkinson, 2024; Contini et al., 2018; Hastings et al., 2023). In the UK, Smith and Naylor (2005) finds differences between state schools and independent schools in their ability to prepare students for HE. Again in the UK context, researchers have shown that FE colleges tend to be less well-equipped to support students in their transitions to HE (Atkinson, 2024; Hastings et al., 2023). Atkinson (2024) argues that there is a deficit of HE decision-making support in FE colleges in comparison with sixth-form colleges. They find that there is inconsistent choice support and this support often varies by college's competing priorities, relationships with local universities and structures of the vocational qualifications they offer (Atkinson, 2024). Hastings et al. (2023) look at sports and exercise students at a university in the UK and find there is less alignment in learning cultures between FE colleges and HE and sixth-form colleges and HE.

Another important factor is the *content* of upper-secondary education. This is a partic-

ularly relevant strand of the literature, given our focus on the differences between types of upper-secondary pathways and qualifications. Anderton et al. (2017) shows that students who study physical sciences and higher levels of maths in upper-secondary education tend to achieve higher GPAs in HE in Australia. Venezia and Jaeger (2013) emphasises the importance of the upper-secondary curricula and highlights that differences in curricula between schools contributes to the varying levels of success students achieve when transitioning to HE. Dilnot (2018) shows that A level subject choices in England have a significant relationship with the quality of the HE provider students attend.

A growing tranche of this literature focuses on the differences between the upper-secondary vocational and academic tracks in preparing students for further education.[2] In the UK, a number of papers have shown that students with upper-secondary vocational qualifications (i.e., BTECs) enter HE less often and achieve lower outcomes on average than students entering from the academic track (Dilnot et al., 2023; Hastings and Noyes, 2024; Hoelscher et al., 2008). In terms of mechanisms, aside from self-selection into pathways, researchers have shown that students on the academic track receive more targeted outreach from universities (Baker, 2020). Students on the vocational track also receive inconsistent levels of support in making decisions about HE (Atkinson, 2024). Katartzi et al. (2020) argue that students from a vocational background struggle more with the transition to HE because of different "epistemic positioning" during upper-secondary education. However, in Germany, Scholten and Tieben (2017) argue that upper-secondary vocational qualifications enable student to make better transitions to HE because they have a safety net. Specifically, they show that students with vocational qualifications do substantially better in the labour market if they drop out of HE than those with academic upper-secondary qualifications (Scholten and Tieben, 2017). Outcomes after dropping out are an important consideration given the number of school-leavers who transition to HE and then do not complete their degree (particularly relevant in the US, Hanson, 2024).

[2]This is related to the literature on institutions insofar as vocational qualifications (and the vocational track) tend to be taken at particular types of institutions (FE colleges in the UK).

Overall, the literature on transitions between upper-secondary education and HE covers a wide range of factors. However, there has been little work quantitatively analysing the impacts of upper-secondary pathways on transitions to HE and further study (exceptions include Dilnot et al., 2023; Gill, 2018; Hastings et al., 2023). One of the most closely related papers to our work is the paper by Gill (2018). They compare degree outcomes in 2013 for students coming from different post-16 pathways. They predict the likelihood of gaining a first-class degree after accounting for prior attainment and other demographic variables. Their results showed few significant differences, with A levels and extended projects (most academically inclined) delivering the best outcomes (Gill, 2018). Two of the largest and most popular vocational qualifications in the vocational track (OCR extended diplomas abd BTEC diplomas) were just as (or slightly less) effective at supporting students to achieve a first-class degree (Gill, 2018).

In this paper, we look at the impacts of different upper-secondary tracks on progression to further study in England. We add to the limited but growing literature on the progression from upper-secondary *vocational* pathways to higher education and further study. This is an important area to focus on, given the large number of students enrolled in upper secondary vocational tracks every year around the world (OECD, 2023). We also contribute to the literature on transitions from upper-secondary to further study by going beyond just HE and also considering progression to higher technical study and advanced apprenticeships. We are also the first paper to evaluate the progression routes of the new T level pathway relative to the existing alternative tracks in England. Finally, we also explicitly consider students on mixed tracks (studying combinations of academic and vocational qualifications). This is a track increasingly taken by students in the UK (Kelly, 2017) but one that is not usually considered empirically in the literature (for an exception, see Patrignani et al., 2019).

In the following section, we provide some background on the English education system and the introduction of T levels. We then present a simple theoretical model to illustrate how progression opportunities influence students' decisions about their educational pathways. We

then describe our data and methods, followed by results and a discussion.

2 Background

In England, Education or training is compulsory until age 18 - this was increased from 16 to 18 between 2013 and 2015. England's education system is organised into five *"Key Stages"*. The final two stages are part of secondary education. In Key Stage 4 (ages 14–16 - lower-secondary), students study for and sit their high-stakes GCSE exams at lower secondary schools (Machin et al., 2020). In Key Stage 5 (ages 16–18 - upper-secondary), students choose from a variety of post-16 pathways and qualifications.[3] Students can choose to study academic qualifications (such as A levels), vocational qualifications (such as BTECs), apprenticeships or combinations of academic and vocational qualifications (the increasingly popular mixed track - Tuckett, 2025).[4] One of the latest pathways to be introduced was the T level pathway.

2.1 T level reforms in England

T levels are a new set of post-16 vocational qualifications equivalent to three A levels in size. These qualifications combine elements of academic and technical education and include a substantial industry placement. They are part of a global trend towards hybridising upper-secondary education (combining academic and vocational pathways into one). They broadly reflect a combination of existing academic and vocational tracks in England (see the Appendix for more details). T levels were introduced to address a number of key issues with upper secondary vocational education in England. In particular, T levels were meant to help reduce the complexity of the qualifications landscape and raise the quality and esteem of

[3]These qualifications can be taken at a range of different institution types (for instance, school sixth forms, further education colleges and sixth form colleges).

[4]The pathways students have access to are strongly influenced by their GCSE results. While most students study level 3 qualifications during upper-secondary, some students will study at lower levels if they have lower prior attainment.

vocational education (for a full discussion, see Maris et al., 2024).

One of the key promises of T levels is that they would be an effective pathway into further study, including at higher education institutions (universities). This is important because past evidence has shown that some vocational qualifications close doors for students and effectively leave them with little opportunity for further study and labour market participation at 18 (Dearden et al., 2004; Hupkau et al., 2017; Wolf, 2011). This also further emphasises upper-secondary vocational education's role in promoting social mobility by providing additional routes to higher education.[5]

Each T level consists of three main components – the core component (the more academic, exam-assessed component), occupational specialism and industry placement. Students must complete all three components to be awarded a T level and their overall T level grade is determined by their grades in the core component and the occupational specialism (Pearson, 2024). Within each T level qualification, several occupational specialisms may exist. For example, in the Education and Early Years route, one can specialise in early years education or teaching assistance. In the Onsite Construction route, one could currently specialise in bricklaying, carpentry and joinery, painting and decorating, or in plastering. The content and structure for each T level and their occupational specialisms were co-designed with panels of relevant employers, professional bodies and providers to ensure the T level's content is relevant, high-quality and valued by industry (Department for Education, 2021a).[6]

Launched in September of 2020, the T Level rollout is ongoing, with more T level routes and specialisms added each year. In 2020, there were three T levels available in Digital Production, Design and Development, Education and Early Years, and Construction and the Built Environment (Department for Education, 2023b). As of September 2024, there were 21

[5]Research has shown that BTECs and other Applied General Qualifications (AGQs) have been an important pathway for supporting disadvantaged students into higher education (Dilnot et al., 2023; Education Committee, 2023).

[6]There is also a one-year preparatory course called the T level transition programme (TLTP) which is designed for level two learners who are not initially ready to take a T level at 16. The main purpose of the TLTP is to develop the broad range of skills, knowledge, experiences and behaviours students need to progress and succeed on a T level qualification (Department for Education, 2021b).

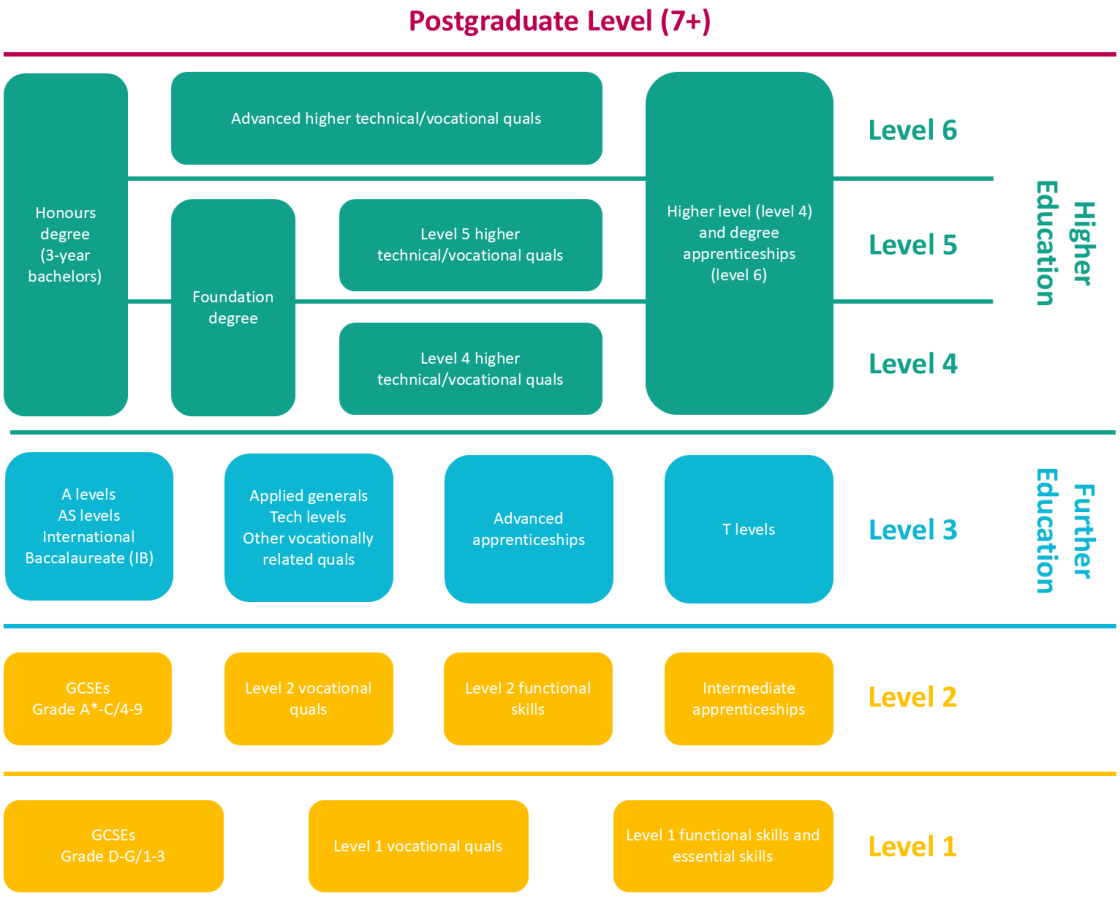


Figure 1: Qualification levels and landscapes for post-16 education in England

T level qualifications on offer and over 50 occupational specialisms. Around 1,300 students started a T level in September 2020 and around 25,500 started a T level in September of 2024. T levels still represent fewer than 3% of enrolments for incoming 16-year-olds and uptake has been lower than the government had anticipated (National Audit Office, 2025).

Figure 1 shows where T levels currently sit in the post-16 qualifications landscape in England. They currently sit alongside three other types of level 3 qualifications or programmes of study - academic level 3 qualifications (A levels, AS levels and the IB), vocational level 3 qualifications (i.e., applied generals and tech levels) and advanced apprenticeships. In this paper, we will be comparing the progression outcomes of T level students to similar students on these other tracks.

The T level reforms are part of a global push towards more "dual style" or "hybrid"

upper secondary education where academic and VET are combined into one pathway. The movement tends to be towards programmes that a) involve a substantial work experience component, b) have a significant classroom-based learning component and c) integrate academic or more general classroom study into the programme. This movement may come as no surprise given that these features are embodied in the German dual system which is heralded around the world (Deissinger, 2015). Furthermore, the importance of work experience and work placements in VET is widely recognised and advocated for (Oswald-Egg and Renold, 2021). Many researchers and policymakers have also argued that some general education is important for VET to ensure that VET graduates have broad transferrable skills alongside their specific occupational skills (Bertrand et al., 2021; Brunello and Rocco, 2017). This comes off the back of suggestions that the skills of purely VET-educated workers' are less flexible to changes in the economy (Hanushek et al., 2017; Krueger and Kumar, 2004).

2.2 T levels and progression to further study

One of the key goals of T levels was to provide a high-quality vocational route that provided students with the flexibity to progress to a range of pathways after their qualification.

England's Department for Education (DfE) state:

> *"T Levels are designed to equip students for skilled employment, whilst also providing a high-quality route to further study." (Department for Education, 2025b)*

DfE have also asserted that T levels are *"a springboard to higher education"* (Education Committee, 2023).

There have been a number of challenges with T levels since they were introduced in 2020. One of these has been the ability of T level students to access certain aspects of higher education because some institutions would not recognise or accept T levels as a suitable qualification for entry. This was not an unforeseen problem. At the start of T level rollout in September of 2020, TES reported that most Russell Group universities were undecided

on whether they would accept T level students and some had already decided they were not (Parker, 2020). Then in 2022, T level students, parents and colleges were left frustrated and confused when it came to light that less than half (46%) of universities would accept T levels (Camden, 2022). While there has been a significant rise in the number of universities that will "accept" T levels (Department for Education, 2024a), this masks some crucial details. Namely, DfE's list of institutions accepting T levels requires institutions to allow T levels as an acceptable entry qualification for **at least one** course. Therefore, it could be that only a few courses allow T levels as an entry qualification and T level students' choices are majorly constrained (this was also pointed out by Education Committee, 2023).

These issues with access to higher education have been acknowledged and reported by several organisations, including Ofsted (England's education standards body) and the Education Select Committee (Education Committee, 2023; Ofsted, 2023). In Ofsted's thematic review of T levels, many students reported being incredibly surprised and disappointed at the lack of acknowledgement of T levels within the university system. One student said:

> *"I was initially planning to go to university and was told by my college that it should be no issue going to university after doing the T level. But of all the universities I applied for, I only got one offer, with the reasons for rejection being that I went with the T level and not traditional A levels."* (Ofsted, 2023)

Ofsted (2023) concluded by saying:

> *"Many students who completed T-level courses have moved on to university to study a degree of their choice. However, some students were unable to go to their preferred university because it did not accept T levels as a valid entry qualification."*

In a more recent qualitative study with T level students who started in 2022 and 2023, the Edge Foundation reported that students felt misled about various components of T levels

(Dabbous et al., 2024). In particular, many had chosen T levels because they offered *"better prospects, including admission to university"*. After finishing their T level, one student said:

> *"That is so annoying, because that was not what we were told. We were told everywhere [universities] will accept T Levels and then you go to a place and they don't accept it."* (Dabbous et al., 2024)

Despite the publicity and salience of some of these issues, DfE and others have also praised T levels for their ability to support students in progressing to higher education and further study. Published statistics and T level action plans reveal a significant number of T level students apply and are then accepted into universities (Department for Education, 2024b). For instance, in the 2024 UCAS cycle, 83% of T level students who applied were accepted into a university (Department for Education, 2025b). Additionally, a report from the Education Policy Institute shows that T level students are more likely to progress to advanced and higher technical study that similar students on different pathways (Maris et al., 2024).

The Education Committee's report on T levels showed that 490 students in the first cohort had applied to HE by June of 2022 (Education Committee, 2023). In most recent T level action plan, praised T levels because almost all of the first cohort were in paid employment or further study.

> *"The most common destinations were employment – either paid work or an apprenticeship – or higher study including university study. Three-quarters of T Level completers had remained in the general field of their T Level, including almost all of those who were currently undertaking further study."* (Department for Education, 2024b)

Likewise, NatCen and NFER conducted surveys of level 3 learners (as part of the Tech Ed Learner Study) and reported that 44% of their sample of T level students (who completed their course) went on to a university degree (NatCen Social Research and NFER, 2024).

3 Theory

In this section, we describe a simple theoretical model to illustrate how students make decisions about their educational pathways and how differences in expectations and reality affect student welfare. We describe a simple model where students make choices over upper-secondary pathways (Q_j) based on their expectations about the progression opportunities associated with each pathway. We use this model to illustrate how students make decisions about their educational pathways and how differences in expectations and reality impact student welfare.

3.1 Model overview

We consider a setting in which students choose between two upper secondary pathways. One of these pathways is the new pathway (in our case, T levels - a new hybrid vocational pathway) and the other pathway is the student's next best alternative (or their default pathway). For simplicity, we do not identify explicitly what the next best alternative for student i is. We denote these two pathways as:

- Q_A: Alternative *default* pathway to the new pathway (e.g., in our case, A-levels, Vocational, Mixed).
- Q_T: The new pathway (here, T levels - a new hybrid vocational pathway).

Each individual student i at time t chooses the pathway $Q_j \in \{Q_A, Q_T\}$ that maximises their expected utility. Students gain utility from the transitions that pathway Q_j facilitates to higher education/further study or employment (for simplicity, we use employment as the key alternative outcome to further study). Individuals have varying preferences for transitions to further study and employment.

3.2 Further study progression opportunities

We consider progression opportunities for further study (p_{ij}) to include three key areas - a pathway Q_j's ability to provide individual i with:

- Access to any further study - A_{ij}
- Access to high-quality further study - H_{ij}
- Preparedness for further study - P_{ij}

The first two areas capture pathway Q_j's ability to facilitate transitions into further study (as a whole) and transitions into high-quality institutions and courses. The final area considers how well pathway Q_j prepares students for the transition to further study. This could include things like academic preparedness, study skills, and learning cultures (i.e., Vandelannote and Demanet, 2024). This could be measured through a survey or by observing further study outcomes directly (i.e., grades or likelihood of dropping out within HE).

We define $\hat{p}_{ij,t}$ as student i's expectation at time t about the overall progression opportunities arising from pathway Q_j. We treat this as a function of their expectations about access to any further study ($A_{ij,t}$), access to high-quality further study ($H_{ij,t}$) and preparedness for further study ($P_{ij,t}$) as discussed abvoe.

Specifically, we let:

$$\hat{p}_{ij,t} = f(A_{ij,t}, H_{ij,t}, P_{ij,t})$$

where $f(\cdot)$ is an increasing function in each argument. For simplicity, we assume that the weights (λ_n) on each aspect of progression are constant across students:

$$\hat{p}_{ij,t} = \lambda_1 A_{ij,t} + \lambda_2 H_{ij,t} + \lambda_3 P_{ij,t} \quad where\ \lambda_1 + \lambda_2 + \lambda_3 = 1$$

3.3 Decision function

Now, let u_{FS} denote the utility from progressing to further study, and u_{Emp} the utility from entering employment. We assume that the utility associated with each outcome (i.e., FS or Emp) is fixed but individuals place varying weights on these outcomes according to their preferences (the weights are denoted by θ_i and γ_i). These parameters capture individual $i's$ preferences for further study and employment respectively. In reality, u_{FS} will also vary by student's preparedness for further study (P_i) and the quality of the institution/course they attend (H_i). However, for simplicity, we treat u_{FS} as fixed and incorporate any heterogeneity across individuals within our preference weights and the progression opportunities variable p_{ij}. This means differences in utility arising from different levels of preparedness and further study quality are only captured indirectly through p_{ij}.

The expected utility for student i from choosing pathway Q_j at time t is:

$$\mathbb{E}[U_{ij,t}] = \theta_i \cdot u_{HE} \cdot \hat{p}_{ij,t} + \gamma_i \cdot u_{Emp} \cdot \hat{w}_{ij,t} - c_i(Q_j)$$

where:

- $\hat{p}_{ij,t}$ is student i's expectation at time t about the progression oppurtunities from pathway Q_j.
- $\hat{w}_{ij,t}$ is student i's expectation at time t about the probability of progression to the employment with pathway Q_j.
- θ_i and γ_i represent student i's individual weights (preferences) for further study vs employment (w).
- $c_i(Q_j)$ is the perceived cost of undertaking pathway Q_j, including the opportunity cost.

Expanding this equation out to show the different components of progression opportunities ($p_{ij,t}$) leads to:

$$\mathbb{E}[U_{ij,t}] = \theta_i \cdot u_{FS} \cdot (\lambda_1 \hat{A}_{ij,t} + \lambda_2 \hat{H}_{ij,t} + \lambda_3 \hat{P}_{ij,t}) + \gamma_i \cdot u_{Emp} \cdot \hat{w}_{ij,t} - c_i(Q_j)$$

Our focus is on how progression opportunities impact students' choices and we assume that all other characteristics of pathways are accounted for by the perceived cost of undertaking pathway Q_j. That is, $c_i(Q_j)$ captures the opportunity cost of pathway Q_j. So in summary, student i chooses a pathway based on its ability to support progression to further study or employment, how much student i values those different progression options and other perceived benefits and costs of the pathway (including features like class size, prestige and travel distance).

Students will choose the pathway that offers the higher expected utility:

$$Q_{i,t} = \arg \max_{j \in \{A,T\}} \mathbb{E}[U_{ij,t}]$$

The cohort of T level students starting at time t will be the subset of students where $\mathbb{E}[U_{iT,t}] > \mathbb{E}[U_{iA,t}]$ such that choosing $Q_j = Q_T$ maximises their utility.

3.4 Optimistic expectations

Given we are focusing on a period where a new pathway has been introduced (and evidence suggests student expectations have not been met) it is worth considering the impact of optimistic expectations on student choice.

At the time of the initial rollout of Q_T, we assume students form overly optimistic expectations ($\hat{p}_{iT,0}$) about further study progression from Q_T, influenced by advertising and policy signals. These overly optimistic expectations only occur for $Q_j = Q_T$ and for progression to further study (p_{ijt}), not progression to employment (w_{ijt}). These overly optimistic expectations could occur across any combination of the three aspects of progression. At this stage, we are agnostic to whether student's are overly optimistic about basic access to further study (A_{ij}), access to high-quality further study (H_{ij}) or preparedness for further study (P_{ij}).

After the first cohort of students complete Q_T, they observe lower-than-expected pro-

gression opportunities:

$$p_{iT,1}^{obs} < \hat{p}_{iT,0}$$

On the other hand, progression opportunities to the alternative desirable outcome (Alt) are as expected:

$$w_{iT,1}^{obs} = \hat{w}_{iT,0}$$

Since students are locked into their chosen pathway, those who chose pathway Q_T will experience a utility difference of:

$$\Delta U_i = \theta_i u_{HE} \cdot (p_{iT,1}^{obs} - \hat{p}_{iT,0})$$

It is worth noting that utility from employment (Emp) drops out of the equation above because expected utility at time $t = 0$ is equal to realised utility at time $t = 1$. For individuals i that value progression to further study more (θ_i is larger), the utility shortfall (or loss) will be greater. Moreover, the utility loss will be larger based on the relative size of the over-estimation of the three aspects of progression opportunities:

$$p_{iT,1}^{obs} - \hat{p}_{iT,0} = \lambda_1(A_{ij,t}^{obs} - \hat{A}_{ij,t}) + \lambda_2(H_{ij,t}^{obs} - \hat{H}_{ij,t}) + \lambda_3(P_{ij,t}^{obs} - \hat{P}_{ij,t})$$

where the equation above highlights that the difference between overall expectations and reality depend upon how misaligned expectations are for each aspect of progression (i.e., the misalignment of expectations about preparedness for further study - $P_{ij,t}^{obs} - \hat{P}_{ij,t}$) and the relative weights placed on these aspects of progression (λ). This setup allows individuals to both under and over-estimate various aspects of progression opportunities. For instance, $A_{ij,t}^{obs} - \hat{A}_{ij,t} < 0$, indicating an over-estimation of pathway Q_j's ability to provide access to any further study. However, this could occur while $H_{ij,t}^{obs} - \hat{H}_{ij,t} > 0$, indicating that pathway Q_j provides better access to high-quality further study than was initially expected.

The total shortfall in utility (assuming progression opportunities are over-estimated overall) will depend on the overall misalignment between progression expectations and reality and individual i's preference for progression to further study (θ_i). If the individual has zero preference for progression to further study (i.e., $\theta_i = 0$), there will be no shortfall in utility even if there is a very large misalignment between beliefs and reality. If the shortfall in utility ΔU_i is greater than the difference between the original expected utility from Q_T and Q_A, student i would not have chosen Q_j had they had correct information.

3.5 Model summary

The key takeaways from the model are:

- Students make decisions about their upper-secondary pathways (Q_j) based (in part) on the expected further study progression opportunities the pathway provides ($\hat{p}_{ij,t}$) and employment ($\hat{w}_{ij,t}$).

- Further study progression opportunities ($\hat{p}_{ij,t}$) consist of three elements. The ability of pathway Q_j to provide individual i with:
  - Access to any further study (A_{ij})
  - Access to high-quality further study (H_{ij})
  - Preparedness for further study (P_{ij})

- If further study progression opportunities are lower than students expected on their chosen pathway, they will experience a utility shortfall which has negative welfare implications. This utility shortfall depends upon:
  - Individual i's preferences for further study and employment (θ_i and γ_i)
  - The misalignment between the expectations about the three aspects of progression and reality
  - The relative weight placed on different aspects of progression

- If progression opportunities are sufficiently lower than expected and a student places

sufficient value on progression to further study, they may have made a different choice with accurate initial information.

3.6 Testable implications

Using our empirical strategy, we can identify the realised progression outcomes for T level students' and compare these with similar students on alternative pathways. We can identify whether students progress to further study (A_{ij}), the quality of the HE institution they attend (H_{ij}) and how likely they are to drop-out in their first year (a measure of preparedness P_{ij}). Unfortunately, our data sets do not contain students' initial beliefs about progression opportunities. However, we can test for whether observed progression was *likely* lower than expected in a few ways.

Firstly, for overall progression to higher education (HE - one element of A_{ij}), we can use external data from the Tech Ed Learner Study on student ambitions and expectations as a benchmark for expected progression (NatCen Social Research and NFER, 2023). This data shows that at the start of their study, 48% of T level students aspired to go on to further study (most of those - 85% - in a university). Only 27% planned to enter employment after their T level and 23% were undecided. So at a minimum, 48% had planned to go on to further study and at a maximum 71% (assuming all of those undecided students wanted to progress to further study). At the end of their study, students were surveyed again and asked about their planned next steps. At this stage, the majority of T level students aspired to some form of further study (62% in total). The key benchmark from this data is that somewhere between 50 and 60% of T level starters in 2020 aspired to undertake some form of further study. We can directly test whether absolute progression is lower or higher than was expected based on this benchmark.

Secondly, for progression to high-quality further study (H_{ij}), we can we can use the observed outcomes of similar students on different pathways as benchmarks for the average quality of institution we would expect T level students to enter. We can do this for HE

because HE administrative data contain information on all domestic students' UCAS tariff points. Conditional on progressing to HE, there are no clear *apriori* reasons to expect that T level students would believe they would attend lower-quality institutions than their peers. If we find that T level students attend lower-quality HE institutions than similar peers (proxied by lower average UCAS tariff points), this suggests that H_{ij} was over-estimated.

Finally, similar to above, for preparedness for further study (P_{ij}), we can use observed outcomes of similar students on different pathways as a benchmark for the expected rate of drop-out from further study. If we find that T level students drop-out more frequently than their peers, it suggests that preparedness (P_{ij}) was over-estimated.

4 Data

We combine data from the National Pupil Database (NPD), Individualised Learner Record (ILR) and Higher Education Statistics Agency (HESA) to study progression from upper-secondary education to HE and further study. Our sample consists of all 16-year-olds who finished their GCSEs in June of 2020 and started their post-16 education in September of 2020. This is approximately 500,000 students (around 50,000 additional students finish their GCSEs but go missing from the education system). This cohort coincides with the rollout of the first wave of T levels, which included a Construction, Education and Early Years and Digital T level. We track these students over time and observe what they are doing at the age of 18 (in the 2022/23 academic year).

4.1 Upper secondary choices

We start by identifying students' initial post-16 choices. We use students' learning aims from the ILR or the post-16 learning aims (PLAMs) dataset in the NPD (for students studying at school sixth forms). We filter to aims that were started between August and October of

2020 to capture initial decisions and we remove aims that last fewer than seven days.[7] Using data from the NPD on qualification size (see Appendix), we work out how many A level equivalent qualification/s students are taking. We classify them according to Table 1. We only have one broad group for students on less than a full level 3 qualification because we are interested in comparing T level students to similar learners. As such, the group of learners studying smaller level 3 qualifications or level 2 or below qualifications are of less interest here. The three key comparator groups are: a) Academic level 3 learners ("*Academic*"), b) Mixed level 3 learners ("*Mixed*") and c) Vocational level 3 learners ("*Vocational*").

Table 1: Defining upper-secondary study pathways

Classification	Rule
T level learner	Has a core T level aim
Academic level 3 learner	Is taking academic quals (A levels, AS levels or IB) that are equivalent to 2 A levels in size or more
Mixed level 3 learner	Is taking level 3 quals that are equivalent to 2 A levels in size or more and is taking between 0.5 and 2.0 A level equivalent academic quals
Vocational level 3 learner	Is taking level 3 quals that are equivalent to 2 A levels in size or more and less than 0.5 A level equivalents are academic
Less than a full level 3	Is taking no or less than 2 A level equivalent quals at level 3

Notes: Achieving 2 A levels is considered a full level 3 pass in the England.

4.2 Outcomes

For our outcomes, we use the 2022/23 versions of the ILR and HESA datasets to identify students who are studying at a higher education institution, undertaking higher technical study and doing an apprenticeship at level 3 or higher. Moreover, for those progressing to higher education, we measure institutional selectivity and course selectivity by averaging all incoming students' UCAS tariff points.[8] We treat this as a proxy for university and subject quality. For reference, T levels are worth approximately the same number of UCAS points

[7] This is to ensure we do not count aims that were enrolled on and changed before the semester started.

[8] We cap students' tariff points at 168, which is the number of points a student would receive if they held 3 A levels, all with A* grades. This is the highest possible entry requirement universities set in the UK for domestic students.

as 3 A levels. However, universities admit students onto courses using several criteria, of which UCAS points are only one. Table 2 reports the full list of outcomes we consider in this paper.

Table 2: Defining Outcomes

Outcome variable	Description
Absolute progression	
Higher education	Enrols in a course at a higher education institution
Higher technical study	Enrols in a level 4+ course at a provider covered by the ILR
Advanced apprenticeship	Progresses to an advanced (level 3) or higher level apprenticeship as recorded in the ILR
Higher study	Studying a course at level 4 or above (higher education, apprenticeship or higher technical study)
Higher study or appr.	Same as above but includes level 3 apprenticeships
Quality (HE only)	
Institution quality	Decile of HE institution based on average tariff of 18-year-olds
Subject quality	Decile of subject (CAH3-Tier 3) based on average tariff of 18-year-olds
Preparedness	
First-year drop-out	Whether a student drops out of their HE or higher study course within the first year

5 Methods

We take a simple approach to comparing the progression pathways of T level students with other students in the same cohort. We start by describing the average progression rates for students on different post-16 routes as defined in Table 1. We then estimate the following equation:

$$Y_i = \alpha + Z_i\lambda + X_i\beta + \varepsilon_i \tag{1}$$

where Y_i is a progression outcome for individual i, Z_i is a vector of post-16 pathway dummy variables, ε_i is the idiosyncratic error term and X_i is a vector of individual control

variables including disadvantage status, special educational needs or disability (SEND) status, IDACI score, prior attainment (GCSEs point score), ethnicity, English as an additional language (EAL) and gender. Therefore, λ shows the differences in progression probabilities between post-16 pathways after accounting for observable individual characteristics. Our measure of disadvantage is whether the study was eligible for free school meals (FSM) in the any of the six years leading up to their GCSEs at age 16. This is a commonly used measure in the literature, and combined with IDACI score, form our measures of socioeconomic status (SES) in this paper.

We estimate this equation as a linear probability model (LPM) for all binary outcomes. The results are robust to using a logistic regression, but we prefer LPMs for their simplicity, robustness to mis-specification and because we are interested in marginal effects rather than predicted probabilities (where predictions outside the 0-1 range are more of an issue).

We then estimate the relationship between upper-secondary pathways and the HE quality outcomes in Table 2. These outcomes are only measured for the subset of individuals that progress to HE. This is important to keep in mind when interpreting the results as there is likely to be differential selection into HE based on students' upper-secondary pathways. For example, students on the "Vocational" pathway who choose to go to HE might be a very specialised group of students that are not reflective of the broader cohort of "Vocational" learners.

We estimate the following two equations:

$$D_{uni,i} = \alpha + Z_i\theta + X_i\beta + \sigma D_{subject,i} + \varepsilon_i \; ; \text{ where } i \in HE \tag{2}$$

$$D_{subject,i} = \alpha + Z_i\psi + X_i\beta + \sigma D_{uni,i} + \varepsilon_i \; ; \text{ where } i \in HE \tag{3}$$

where $D_{uni,i}$ and $D_{subject,i}$ represent the decile of the HE institution and decile of the subject that individual i enrols in. Thus, θ and ψ represent the differences in average HE decile and subject decile after accounting for observable individual characteristics. As

previously, ε_i is the idiosyncratic error term and X_i is a vector of individual control variables

We run each model with and without controlling for course or HE decile (i.e., in the first equation, we run models that do and do not control for subject average quality). In the equations above, σ represents the correlation between HE decile $D_{uni,i}$ and course decile $D_{subject,i}$ This is important as it allows us to somewhat separate the effects of institution and subject choice. If, for instance, subject decile and HE decile were strongly correlated and correlated with pathway, a model of HE decile that does not control for the subject decile may under or over estimate the impacts of pathway on HE decile. We also run our models controlling for student i's tariff on entry.

To explore preparedness for higher study, we run the same models above where the outcome Y_i is dropping out within the first year of study. In these models, we only include students who progressed to higher study in the first instance (so these results are conditional on progressing).

Finally, across our main progression models, we also look at heterogeneity by disadvantaged status. Like Dilnot et al. (2023), we are interested in whether certain educational pathways promoted greater access to HE for those from lower SES backgrounds. To investigate potential heterogeneity by SES status, we run the following simple interaction:

$$Y_i = \alpha + Z_i\lambda + \rho Disadvantaged_i + Z_i * Disadvantaged_i\omega + X_i\beta + \varepsilon_i \tag{4}$$

where $Disadvantaged_i$ is an indicator for disadvantage, ρ is the impact of being disadvantaged on progression outcome Y_i for individuals in the base upper-secondary pathway and ω represents the differential impact of upper-secondary pathways on the effect of being disadvantaged on progression. If $\omega > 0$ for $Z_i = A$, disadvantaged students in pathway A are more likely to progress to outcome Y_i than students in the base pathway.

It is also worth noting that we are not claiming to estimate the causal effects of different pathways on progression to higher education. The choices of post-16 pathway and further study are strongly interlinked and determined by a range of observable and unob-

servable student-level and institution-level characteristics. Instead, we focus on reporting the raw differences between progression outcomes for different types of level 3 upper-secondary learners and then we examine the conditional differences once we have accounted for a large set of observable characteristics. This allows us to say that a student with characteristics X_i on pathway $Z_i = A$ is more (less) likely to progress to higher education on average than similar students on pathway $Z_i = B$.

5.1 Comparator group and impact of unobservables

There will, ultimately, still be unobservable characteristics associated with both upper-secondary choices and progression to further study. Therefore, it is useful to consider how we might expect these unobservables to affect the coefficients on each pathway. For simplicity, we are going to consider one unobservable characteristic which we call *"ability"* or *"propensity for further study"*. Ability is one of the most commonly considered and cited unobservables in the literature on the returns to schooling (i.e., Carneiro et al., 2011).

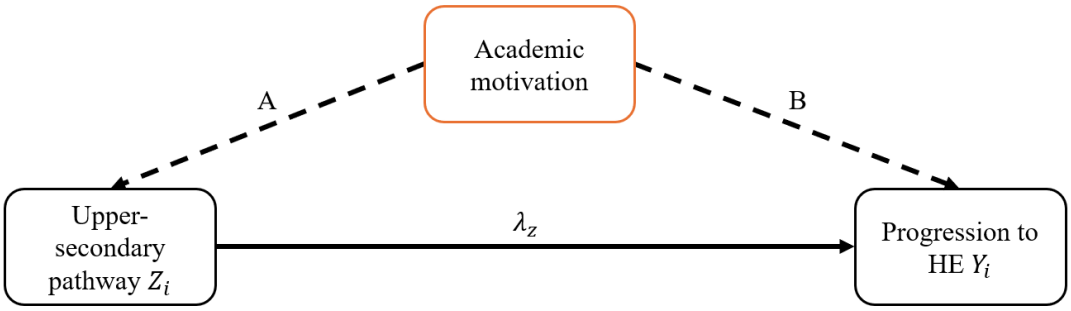
As we are evaluating the relationship between upper-secondary pathway and progression to further study, we must consider differencs in underlying ability across our upper-secondary pathways. We will argue that unobservable ability will be the highest among those on the academic track and lowest among those on the vocational track. T level and mixed students will sit in between these two groups but it is unclear where exactly T level students and mixed students sit on the ability spectrum.

For starters, students on the "Academic" upper-secondary pathway tend to have the highest level of prior attainment - this is consistent in our sample (see section 6) and across the literature (i.e., Jónsdóttir et al., 2023; Maris et al., 2024). Students taking academic qualifications also achieve higher upper-secondary point scores for their upper-secondary education (Department for Education, 2023). If we assume prior attainment (or test scores) is a good proxy for ability (a common approach in the literature - see Kejriwal et al., 2024), or at least the two are strongly correlated, those who take the academic track are likely to

have the greatest underlying academic ability and propensity to attend higher education. "Vocational" learners are likely to have lower underlying motivation and propensity for attending higher education given their qualifications focus more on preparing students to enter the labour market (Wolf, 2011). Moreover, several studies have shown students on the vocational track in England are less likely to attend HE than students on the academic upper-secondary track. UCAS (2021), for instance, shows that in 2019, 70% of academic learners progressed to HE compared with 49% of learners with vocational upper-secondary qualifications. Similarly, 3% of those vocational learners entered higher tariff universities compared with 27% of academic learners (UCAS, 2021).

So in summary, even after account for individual characteristics, it is likely that students on the upper-secondary academic pathway have higher latent levels of academic ability and propensity for further study.

It is unclear where T level students and "Mixed" students sit on this spectrum (see Figure 2). "Mixed" students have displayed a preference for keeping their options open by studying both A levels and vocational qualifications. T level students have displayed similar preferences, enrolling on a new vocational qualification that is more academically oriented and is advertised as promoting progression to higher education. However, there has been little work to date examining progression from these routes to further study and the average levels of prior attainment amongst these groups. Of the evidence that is available, mixed students and T level learners appear to have higher prior attainment than vocational learners but lower attainment than academic learners (Maris et al., 2024, shows this with a specific cohort of learners). Our descriptive results align with these findings (see Section 6). Moreover, UCAS (2017) show that the HE acceptance rate is much higher for mixed students than it is for vocational learners (but is still lower than academic students).



Pathway Z_i	Base Z_i	A	B	Impact	Coefficient
T levels	Academic	Negative	Positive	Downward bias	$\widehat{\lambda_z} < \lambda_z$
T levels	Mixed	Unknown	Positive	Unknown	$\widehat{\lambda_z} \sim \lambda_z$
T levels	Vocational	Positive	Positive	Upward bias	$\widehat{\lambda_z} > \lambda_z$

Figure 2: Omitted variable bias problem when comparing progression across upper-secondary pathways

We illustrate the impacts of unobserved *academic motivation* on our empirical associations in Figure 2. Academic motivation is an omitted unobservable variable that influences both the selection into upper-secondary pathway Z_i and progression to HE Y_i. λ_z is the unbiased relative impact of choosing pathway Z relative to a base pathway. As we are looking at discrete pathway choices, we need to compare choice Z_i with some other base Z choice. In Figure 2, we show that for T levels, there will be a downward bias introduced when comparing T level students with "Academic" learners ($\hat{\lambda_z} < \lambda_z$). In contrast, there will be an upward bias when comparing T level students with "Vocational" learners ($\hat{\lambda_z} > \lambda_z$). As discussed above, the direction of bias (if any) is uncertain when comparing T level learners with "Mixed" learners.

This discussion has important implications for our theoretical predictions and interpreting the results. In the Theory section, we described how we would compare T level students to similar students on different pathways. While we can compare students with similar observable characteristics using our empirical methodology, we can not explicitly control for unobservables. However, as we have argued above, T level students are probably most similar to those on a mixed level 3 pathway (both theoretically, based on course content,

and empirically, based on our descriptive results in the following section). Therefore, we will focus on the mixed group when making conclusions about missed expectations with respect to progression (as described in our theoretical model).

6 Results and Discussion

In this section, we will start by presenting a set of summary statistics characterising students on different pathways and showing raw differences in progression outcomes. We will then present our empirical results on the relationships between different upper-secondary pathways and progression to further study. We will consider all three aspects of progression that were outlined in our theoretical model. This includes: a) progression to any further study, b) progression to high-quality HE and c) preparedness for further study, proxied by first-year drop-out.

6.1 Descriptive stats - Overall sample

Table 3 shows descriptive statistics for our sample. Of the N = 507,506 students transitioning at 16 into post-16 study, 1,005 (0.2%) elect to study T levels. This is approximately 3.5% of level 3 learners. Just over 40% of students are studying less than a full level 3 (this could include some level 3 study, but is less than 2 A levels or equivalent). Of level 3 learners, most students (78%) are studying A levels under the "Academic" track, followed by the "Vocational" track (13%) and the "Mixed" track (9%).

In terms of demographics, we can see T level students look most similar to Mixed learners when considering KS4 point score (an indicator of academic ability), disadvantage, SEND and IDACI scores. T levels are the least diverse pathway (shown by ethnicity and EAL statistics), which is a finding that has been pointed out previously (MARIS). Students on the "Academic" track are less disadvantaged on average, are less likely to have SEND and have significantly higher prior attainment. The average prior attainment for students taking

Table 3: Summary of Variable Data Across Different Educational Pathways

Variable	Overall	Not full L3	Academic	Mixed	Vocational	T levels
N	505,655	217,265	224,080	26,400	36,905	1,005
Demographics						
White	75%	79%	71%	73%	71%	87%
Asian or Asian British	12%	8%	15%	13%	13%	7%
Black or Black British	6%	6%	6%	7%	9%	3%
Mixed ethnic groups	5%	5%	6%	5%	6%	3%
Other ethnic group	2%	2%	2%	2%	2%	2%
Disadvantaged	24%	34%	15%	22%	26%	24%
SEND	13%	23%	5%	7%	11%	8%
EAL	17%	15%	19%	19%	19%	11%
IDACI score	0.17 (0.12)	0.19 (0.12)	0.14 (0.11)	0.17 (0.12)	0.18 (0.12)	0.17 (0.12)
Female	50%	45%	55%	53%	48%	56%
KS4 pts std.	0.11 (0.93)	-0.74 (0.80)	0.75 (0.67)	0.045 (0.51)	-0.24 (0.52)	-0.058 (0.52)
KS4 pts	41 (16)	29 (13)	53 (10)	42 (8.1)	37 (8.1)	40 (8.2)
Progression outcomes						
Higher ed.	37%	14%	60%	46%	36%	33%
Higher technical study	2%	2%	2%	3%	3%	8%
Advanced apprent.	5%	7%	5%	8%	7%	13%
Higher study	38%	15%	61%	47%	38%	37%
Higher study or appren.	43%	21%	64%	53%	44%	43%
Still studying L3	20%	37%	12%	16%	18%	17%
Retention outcomes						
Dropped higher study	3%	2%	4%	6%	6%	3%
Dropped higher study or appren.	4%	3%	5%	6%	6%	4%

Notes: Standard deviations are reported in parentheses for continuous variables. New retention and dropout outcomes have been added.

any of the three technical or vocational pathways at level 3 varies from 37 to 42. For context, students often take between 8 and 10 GCSEs and a score of 40 would be equivalent to an average grade between 4 and 5 (a 4 is considered a "standard" pass and a 5 is considered a "strong" pass).

Table 3 also shows the average progression outcomes for students on each pathway. On average, 37% of students progress to HE at the age of 18. Across the pathways, "Academic" learners are the most likely to progress to HE (60%), followed by "Mixed" learners (46%) and "Vocational" learners (36%). T level students are less likely to progress to HE on average than all other level 3 pathways (33%). Progressing to higher technical study is an uncommon outcome (2% of all learners) and one that has received more attention recently as a promising pathway for further study and skills development (REF). T level students are considerably more likely to progress to higher technical study (7% vs approx. 2% across other pathways).

T level students are also more than twice as likely to progress on to an apprenticeship at level 3 or higher than other pathways.

These results suggest that some T level students may have experienced a mismatch between their expectations of the progression opportunities from T levels and the reality. In the theory section, we reported data showing that between 50 and 60% of T leve students aspired to further study. Table 3 reveals only 42% progressed to further study. The mixed pathway, which is likely to be the best comparator group for T levels, experienced a progression rate of 52% (in line with T level students' expectations).

6.2 Descriptive stats - HE sample

Next, we present summary statistics for the sample of students that progress to HE (Table 4. Mirroring the statistics earlier, T level students are still the least diverse set of students progressing to HE. Both the T level and Academic pathways see a decline in the proportion of disadvantaged students relative to the overall sample. On the other hand, the Mixed and Vocational pathways continue to have 22% and 26% disadvantage, respectively. This shows that disadvantaged students on these tracks are just as likely as non-disadvantaged students to progress to HE.

Like the overall sample, the students progressing to HE from T levels closely mirror students progressing from the Mixed pathway. These two groups have very similar IDACI scores, prior attainment, disadvantaged, SEND and female students. On the other hand, Vocational learners progressing to HE tend to be lower attaining and more disadvantaged and vice versa for Academic learners.

Table 4 also shows the HE outcomes for each set of HE students. On average, students progressing to HE attend a decile 7.1 institution and take a decile 5.5 subject. This equates to an average tariff of 127. Students on the Academic pathway in upper-secondary education end up at institutions with higher tariffs and enrol on courses with a higher average tariff score. Interestingly, students who did not enrol on a full level 3 course at the start of upper-

Table 4: Summary of Variable Data Across Different Educational Pathways

Variable	Overall	Not full L3	Academic	Mixed	Vocational	T levels
N	189,180	29,540	133,860	12,120	13,335	330
Demographics						
White	66%	66%	67%	63%	56%	76%
Asian or Asian British	18%	15%	18%	19%	20%	12%
Black or Black British	8%	11%	7%	11%	Supp	Supp
Mixed ethnic groups	6%	6%	6%	5%	Supp	Supp
Other ethnic group	3%	3%	2%	3%	Supp	Supp
Disadvantaged	17%	24%	13%	22%	26%	19%
SEND	6%	11%	4%	6%	10%	6%
EAL	23%	25%	21%	27%	29%	18%
IDACI score	0.15 (0.11)	0.18 (0.12)	0.14 (0.11)	0.18 (0.12)	0.19 (0.12)	0.18 (0.11)
Female	57%	57%	57%	57%	53%	56%
KS4 pts std.	0.62 (0.76)	-0.027 (0.71)	0.89 (0.64)	0.13 (0.52)	-0.14 (0.52)	0.13 (0.52)
KS4 pts abs.	51 (12)	40 (11)	55 (10)	43 (8.1)	39 (8.1)	43 (8.2)
HE Outcomes						
Decile of HE inst.	7 (2.1)	6 (2)	7.5 (2.1)	6.1 (1.8)	6 (1.8)	6 (1.8)
Average tariff HE inst.	123 (23)	112 (24)	128 (22)	115 (18)	113 (20)	113 (20)
Decile of HE subject	5.4 (2.2)	4.7 (1.9)	5.7 (2.3)	4.5 (1.8)	4.5 (1.8)	4.4 (1.9)
Average tariff HE subject	124 (11)	120 (10)	125 (11)	120 (9.4)	119 (9.3)	118 (10)
First year drop-out	9%	13%	8%	12%	15%	8%

Notes: Standard deviations are reported in parentheses for continuous variables. Some values are suppressed according to output clearance rules from the Office for National Statistics (ONS).

secondary education and then progress to HE at 18 end up at similar tariff institutions and courses as level 3 learners (except for the learners from the academic track).

6.3 Modelling results - progression to any further study

Here we show the changes in probability of progressing to HE and other outcomes by pathway. We start with an empty model and then add all our individual controls in.

Results in 5 show the impacts of pathway and our control variables on progression to HE. The first two columns include all students (and students not studying a full level 3 are the base category) and the second two columns report for only *full* level 3 students (the base group is academic). We find that students on the Academic track are the most likely to progress to HE, even after controlling for demographics and prior attainment. However, the differences between the Academic track and other pathways shrinks considerably once controlling for these characteristics. In comparison to Academic students with similar char-

acteristics, Mixed students and Vocational students are 1% and 6% less likely to progress to HE. On the other hand, T level students are 10% less likely to progress to HE. This means T level students are 9% less likely than Mixed students and 4% less likely that Vocational students to progress to HE. These differences are larger when we do not account for demographics and prior attainment.

Looking at the control variables, we find disadvantaged students are less likely to progress to HE, even after accounting for their pathway choice, prior attainment and other demographics. This is in line with other literature (Dilnot et al., 2023). Female students are significantly more likely to progress to HE, as are those with higher prior attainment and non-White students. Amongst level 3 learners, students with SEND are no more or less likely to progress to HE after accounting for other characteristics.

Table 5: Models predicting progression to HE

	All	**All (controls)**	**L3 only**	**L3 only (controls)**
Academic	0.461***	0.200***		
	(0.001)	(0.002)		
Level 3 Mixed	0.323***	0.181***	−0.138***	−0.010***
	(0.003)	(0.003)	(0.003)	(0.003)
Level 3 Vocational	0.225***	0.127***	−0.236***	−0.060***
	(0.003)	(0.003)	(0.003)	(0.003)
T level	0.190***	0.088***	−0.271***	−0.098***
	(0.015)	(0.014)	(0.015)	(0.014)
Disadvantaged		−0.022***		−0.041***
		(0.001)		(0.003)
Asian or Asian British		0.132***		0.144***
		(0.002)		(0.003)
Black, Black British, Caribbean or African		0.187***		0.225***
		(0.003)		(0.004)
Mixed or multiple ethnic groups		0.052***		0.057***
		(0.003)		(0.004)
Other ethnic group		0.114***		0.121***
		(0.005)		(0.007)
SEND		0.023***		0.001
		(0.002)		(0.004)
EAL		0.058***		0.061***
		(0.002)		(0.003)
IDACI Score		−0.076***		−0.098***
		(0.005)		(0.009)
KS4 Points (std.)		0.162***		0.171***
		(0.001)		(0.001)
Female		0.033***		0.031***
		(0.001)		(0.002)
Intercept	0.136***	0.223***	0.597***	0.419***
	(0.001)	(0.001)	(0.001)	(0.002)
Num. Obs.	505,650	497,935	288,385	284,190
R^2	0.200	0.279	0.029	0.107

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. For the first two columns, the base pathway is less than a full level 3. In the final two columns, the base category is academic. The second and fourth columns contain a full set of individual controls.

Next, we consider the impacts of pathway on our wider set of progression outcomes reported in Table 2. In the following set of results, we do not report the coefficients on control variables. These are largely similar to the trends we see in Table 5. Full tables can be found in the Appendix.

Table 6 shows that T level students are significantly more likely to progress to higher technical study and advanced apprenticeships than all other groups of learners. These effects

are large considering the proportion of total learners that pursue these pathways is small. T level students are 6% more likely than Academic students to progress to higher technical study - this is equivalent to a 300% increase on the sample average.

Of particular importance are the last two panels in Table 6. These show differences between pathways in progression to any higher study, acknowledging that progression to HE is only one of a number of beneficial progression pathways. We find that T level students are less likely to progress to higher study on average. Mixed students are approximately as likely as Academic learners to progress to some form of higher study (after accounting for demographics and attainment). T level students are 7% less likely to progress to higher study than Academic students with similar characteristics and 6% less likely than Mixed students. They are also less likely to progress to higher study than Vocational students with similar characteristics, but this is a relatively small difference. However, given our discussion in 4, we might expect this to be an underestimate of the true difference between these groups of students.

Table 6: Regression Coefficients for Group Variable Across Models

	All	All (controls)	L3 only	L3 only (controls)
Higher Technical Study				
Academic	0.010***	-0.007***		
	(0.000)	(0.001)		
Level 3 Mixed	0.011***	0.002**	0.001	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Level 3 Vocational	0.011***	0.005***	0.001	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)
T level	0.061***	0.054***	0.051***	0.058***
	(0.008)	(0.008)	(0.008)	(0.008)
R^2	0.002	0.007	0.000	0.005
Advanced Apprenticeship				
Academic	-0.018***	-0.035***		
	(0.001)	(0.001)		
Level 3 Mixed	0.015***	0.006***	0.033***	0.025***
	(0.002)	(0.002)	(0.002)	(0.002)
Level 3 Vocational	0.007***	0.002	0.025***	0.014***
	(0.001)	(0.002)	(0.001)	(0.002)
T level	0.060***	0.048***	0.078***	0.065***
	(0.010)	(0.011)	(0.010)	(0.011)
R^2	0.002	0.016	0.003	0.013
Higher Study				
Academic	0.462***	0.190***		
	(0.001)	(0.002)		
Level 3 Mixed	0.326***	0.178***	-0.136***	-0.006*
	(0.003)	(0.003)	(0.003)	(0.003)
Level 3 Vocational	0.231***	0.130***	-0.231***	-0.052***
	(0.003)	(0.003)	(0.003)	(0.003)
T level	0.221***	0.114***	-0.241***	-0.066***
	(0.015)	(0.015)	(0.015)	(0.015)
R^2	0.198	0.280	0.028	0.106
Higher Study or Apprenticeship				
Academic	0.430***	0.152***		
	(0.001)	(0.002)		
Level 3 Mixed	0.324***	0.173***	-0.106***	0.011***
	(0.003)	(0.003)	(0.003)	(0.003)
Level 3 Vocational	0.228***	0.124***	-0.202***	-0.041***
	(0.003)	(0.003)	(0.003)	(0.003)
T level	0.223***	0.109***	-0.207***	-0.050***
	(0.016)	(0.015)	(0.016)	(0.015)
R^2	0.167	0.243	0.021	0.084

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. For the first two columns, the base pathway is less than a full level 3. In the final two columns, the base category is academic.

We have summarised all of the results so far in Figure 3. This Figure shows the coefficients of the four level 3 pathways (relative to not studying a full level 3) for all five outcomes, with and without control variables. As we have discussed, adding controls significantly reduces the gaps between groups. In particular, it significantly reduces the gaps between the level 3 pathways and the not level 3 pathway (the coefficients get much closer to zero). However, we can still see clear differences between the level 3 pathways after accounting for demographics and prior attainment.

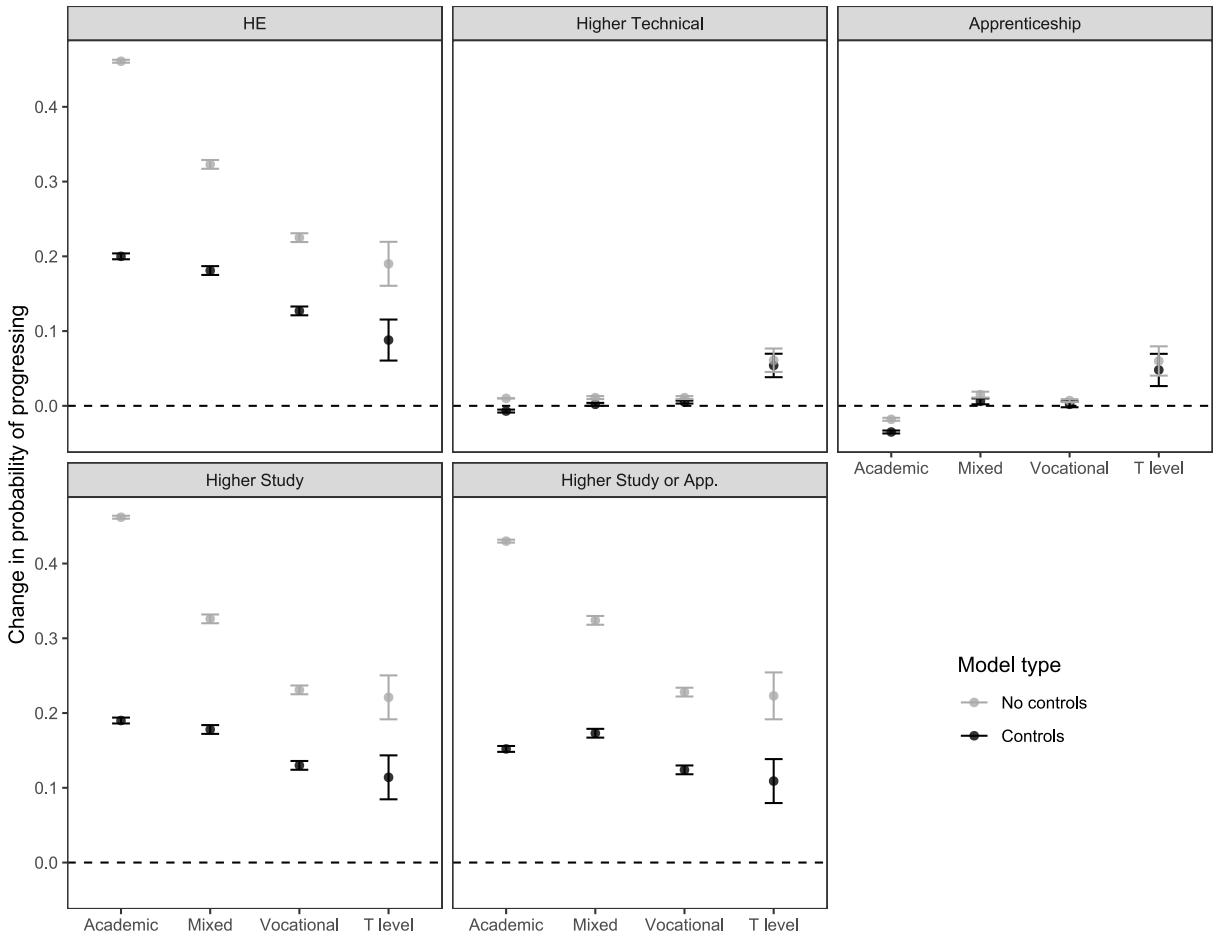


Figure 3: Impacts of level 3 pathways on probability of progressing to further study outcomes. The base category is students not at level 3.

6.4 Modelling results - quality of HE progression

Next, we look at our sample of students who progress to HE and examine the quality of the HE institution and subject using a proxy - the decile of the average UCAS tariff for each HE institution and HE subject area.

Table 7 reports on the impacts of different pathways on the decile of the HE institution individuals attend. Again, the full set of regression coefficients can be found in the Appendix. Some of the models include controls for subject quality or institution quality, as outlined previously in Section 4.

We find that Academic students and Level 3 Vocational students tend to go to higher tariff universities on average, after accounting for demographics and prior attainment. T level students consistently end up at lower tariff universities, even after accounting for subject quality and when comparing with Vocational and Mixed learners. T level students go to an HE institution with 0.25 of a decile lower average tariff than similar Academic students. We can also see that accounting for course quality consistently reduces the magnitudes of the pathway coefficient, suggesting that it is important to account for subject choice in our models of HE decile.

Table 7: Impacts of study pathways on decile of HE institution relative to academic learners

	No controls	**Ind. controls**	**Quality controls**	**Tariff controls**
Level 3 Mixed	−1.330***	−0.153***	−0.111***	−0.596***
	(0.017)	(0.018)	(0.018)	(0.018)
Level 3 Vocational	−1.483***	0.099***	0.092***	−0.700***
	(0.017)	(0.019)	(0.019)	(0.019)
T level	−1.489***	−0.298***	−0.227**	−0.273**
	(0.098)	(0.101)	(0.099)	(0.111)
Decile course			0.185***	0.132***
			(0.002)	(0.002)
HE tariff				0.026***
				(0.000)
Individual controls	Yes	Yes	Yes	Yes
Num. Obs.	159,640	157,365	157,365	157,365
R^2	0.060	0.265	0.299	0.431

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Our next Table shows the impact of different pathways on the decile of subject students enrol in (Table 8). Our results show that T level students, once again, attend lower tariff courses on average compared to all other groups of students (including students who were not undertaking full level 3 programmes at the age of 16). Academic students enrol in subject areas with approximately the same tariff as non-level 3 students.

As shown earlier, Vocational learners also appear just as likely to be on high tariff subjects as Academic students (see final two columns in Table 8).

An important caveat to these results is that they are based on selection into HE, which will differ by pathway. As our summary statistics show (Table 3), progression to HE varies by pathway and the characteristics of students entering HE also differs across pathways. For instance, students from the Vocational track enter HE with lower average KS4 point scores. While we control for all observable characteristics in our institution and course quality models, there may still be unobservable characteristics influencing our results (for instance, unobservable levels of *ability*).

Table 8: Impacts of study pathways on decile of HE subject

	No controls	**Ind. controls**	**Quality controls**	**Tariff controls**
Level 3 Mixed	−1.165***	−0.230***	−0.192***	−0.273***
	(0.018)	(0.019)	(0.019)	(0.019)
Level 3 Vocational	−1.210***	0.043**	0.018	−0.107***
	(0.017)	(0.019)	(0.019)	(0.019)
T level	−1.341***	−0.380***	−0.307***	−0.320***
	(0.104)	(0.108)	(0.106)	(0.105)
Decile university			0.248***	0.217***
			(0.003)	(0.003)
HE tariff				0.004***
				(0.000)
Individual controls	Yes	Yes	Yes	Yes
Num. Obs.	159,640	157,365	157,365	157,365
R^2	0.037	0.151	0.190	0.192

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.5 Modelling results - preparedness for higher study

In this section, we show how well different upper-secondary pathways prepare students for further study (conditional on progressing to further study). Our first table, Table 9, shows the drop-out rate among students who have progressed to HE. The first column contains no control variables, the second column has our full set of controls and the third column introduces fixed effects for each HE institution (acknowledging that drop-out may be higher at some institutions and these institutions may take more students from a particular pathway).

Our results show that conditional on progressing, students from the mixed and vocational tracks are significantly more likely to drop-out within their first year. On average, level 3 vocational learners are 3.8% more likely to drop out and level 3 mixed learners are 1.7% more likely to drop out, when compared with A level learners. In comparison, T level students are just as likely to drop-out as A level students (and may actually be less likely to drop-out based on the direction of the coefficient).

The coefficients on our control variables show that disadvantaged students are more likely to drop out, as are White students, male students and students from areas with high IDACI

scores. Students with SEND, EAL and higher KS4 prior attainment are less likely to drop out.

Table 9: Impacts of study pathways on first-year drop-out

	No controls	**Controls**	**HE fixed effects**
Level 3 Mixed	0.049***	0.018***	0.017***
	(0.003)	(0.003)	(0.004)
Level 3 Vocational	0.080***	0.038***	0.038***
	(0.003)	(0.003)	(0.004)
T level	0.012	−0.024	−0.021
	(0.015)	(0.015)	(0.016)
Disadvantaged		0.022***	0.020***
		(0.002)	(0.002)
Asian or Asian British		−0.009***	−0.011***
		(0.002)	(0.003)
Black, Black British, Caribbean or African		−0.019***	−0.019***
		(0.003)	(0.004)
Mixed or multiple ethnic groups		−0.011***	−0.010***
		(0.003)	(0.003)
Other ethnic group		0.000	−0.004
		(0.005)	(0.006)
SEND		−0.012***	−0.011***
		(0.003)	(0.004)
EAL		−0.009***	−0.012***
		(0.002)	(0.002)
IDACI score		0.064***	0.056***
		(0.007)	(0.008)
KS4 score (std)		−0.037***	−0.027***
		(0.001)	(0.002)
Female		−0.009***	−0.011***
		(0.001)	(0.002)
Intercept	0.070***	0.102***	
	(0.001)	(0.002)	
HE fixed effects	No	No	Yes
Num. Obs.	159,645	157,365	157,365
R^2	0.008	0.018	0.035

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Model 2 includes individual-level controls. Model 3 additionally includes HE fixed effects.

Next, Table 10 shows drop-out for higher study and higher study or apprenticeships more broadly. We see similar patterns to Table 9 for HE only. On average, after accounting

for our control variables, level 3 vocational learners are 3.6% more likely to drop-out and level 3 mixed learners are 1.8% more likely to drop-out of higher study when compared with academic learners. In contrast, T level students are 2.6% less likely to drop-out than academic learners (significant at the 10% level) and 6.2% less likely to drop-out than level 3 vocational learners.

Table 10: Drop-out from Higher Study and Higher Study or Apprenticeship

	Higher study		Higher study or App.	
	No controls	Controls	No controls	Controls
Level 3 Mixed	0.049***	0.018***	0.045***	0.014***
	(0.003)	(0.003)	(0.003)	(0.003)
Level 3 Vocational	0.079***	0.036***	0.073***	0.030***
	(0.003)	(0.003)	(0.003)	(0.003)
T level	0.011	−0.026*	0.014	−0.024*
	(0.014)	(0.014)	(0.013)	(0.013)
Disadvantaged		0.022***		0.022***
		(0.002)		(0.002)
Asian or Asian British		−0.009***		−0.009***
		(0.002)		(0.002)
Black, Black British, Caribbean or African		−0.019***		−0.018***
		(0.003)		(0.003)
Mixed or multiple ethnic groups		−0.010***		−0.008***
		(0.003)		(0.003)
Other ethnic group		0.001		0.002
		(0.005)		(0.005)
SEN		−0.012***		−0.009***
		(0.003)		(0.003)
EAL		−0.009***		−0.008***
		(0.002)		(0.002)
IDACI score		0.064***		0.064***
		(0.007)		(0.007)
KS4 attainment		−0.038***		−0.038***
		(0.001)		(0.001)
Female		−0.008***		−0.007***
		(0.001)		(0.001)
Intercept	0.070***	0.103***	0.072***	0.102***
	(0.001)	(0.002)	(0.001)	(0.002)
Num. Obs.	163,670	161,355	173,640	171,215
R^2	0.008	0.018	0.007	0.017

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Reference group is less than a full Level 3 and non-disadvantaged White British male.

6.6 Heterogeneity by disadvantage status

This final section presents our main progression results by disadvantaged status to investigate whether some pathways are better than others at supporting disadvantaged students to progress to further study. All the results in this section are based on the full sample which includes below level 3 as the base upper-secondary pathway.

Figure 4 shows the relationship between upper-secondary pathway, disadvantaged status and progression to further study outcomes. The coefficients represent the difference between progression for disadvantaged students relative to non-disadvantaged students with other similar characteristics (i.e. prior attainment) on the same pathway. The full regression results can be found in the Appendix.

We find that for progression to HE, disadvantaged students in the Academic and T level pathways are less likely to progress to HE than their non-disadvantaged counterparts. On the other hand, the progression rates for disadvantaged and non-disadvantaged students are very similar in the mixed, vocational and less than a full level 3 tracks. Across all outcomes, the T level interaction is the lowest indicating that the disadvantage gap in terms of progression to further study is highest for T levels. This remains the case when looking at progression to higher technical study and apprenticeships, which T levels are relatively effective in supporting. On the other hand, the vocational pathway has a positive coefficient on progression to HE and higher study, consistent with previous evidence that vocational qualifications (specifically, applied general qualifications) support progression to HE for disadvantaged students (Dilnot et al., 2023; Education Committee, 2023).

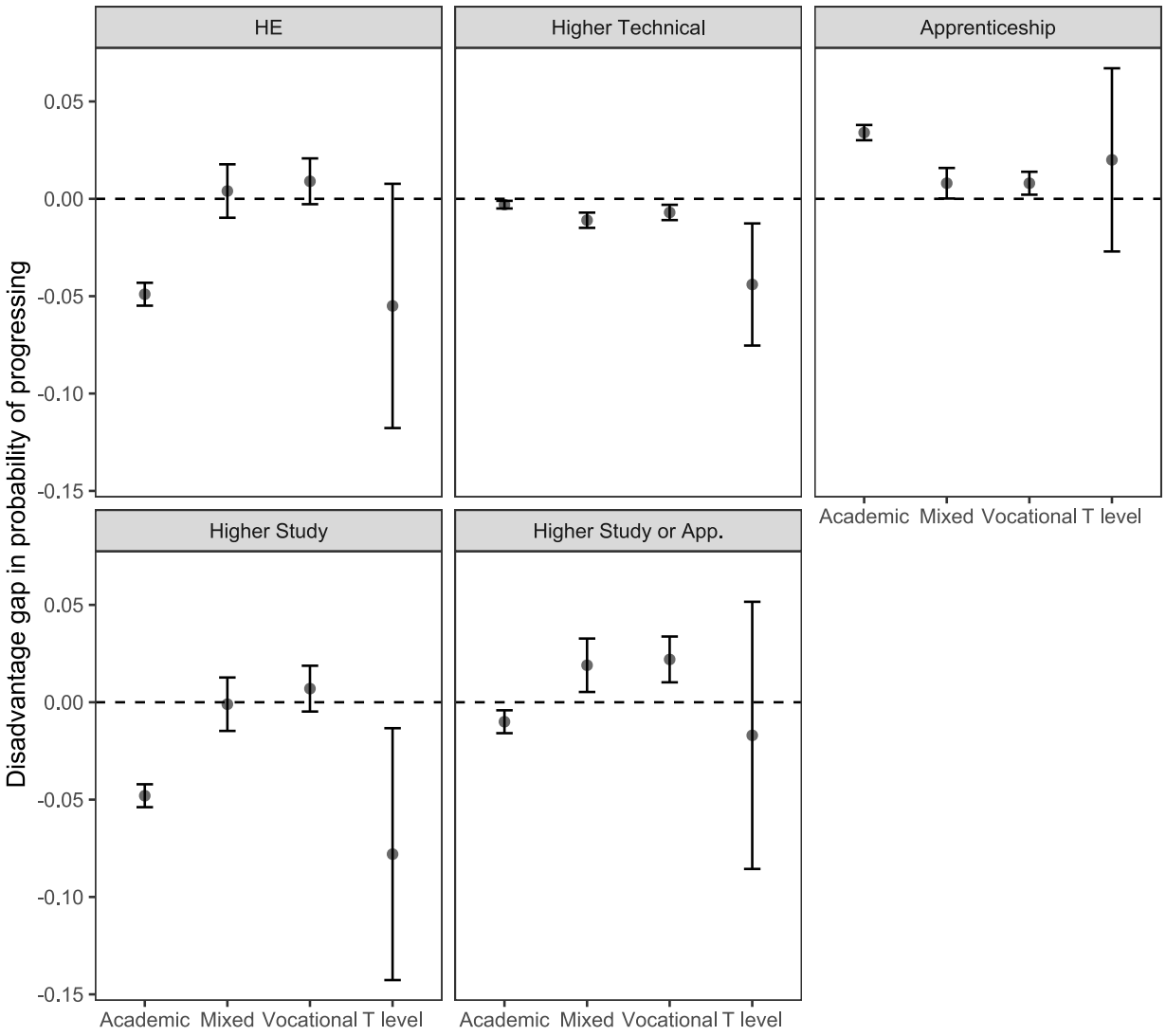


Figure 4: Impacts of level 3 pathways on probability of progressing to further study outcomes. The base category is students not at level 3.

7 Conclusion

Supporting progression to further study and training is an important aspect of upper-secondary education. In this paper, we look at the impacts of different upper-secondary pathways on progression to further study (including higher education, higher technical study and apprenticeships). Specifically, we look at the progression of students in England during the rollout of a new vocational pathway - T levels. T levels are more academic that existing

vocational qualifications and were designed specifically to support students in progressing to a wide range of outcomes (including higher education).

We consider progression across three domains - access to higher study, access to high-quality higher study and preparedness for higher study (proxied by drop-out). Our theoretical framework and methodology argues that T level students should see equivalent or higher progression outcomes based on their expectations when compared with other similar learners on the alternative mixed and vocational tracks.

We find that students studying T levels are significantly more likely to progress to higher technical study and apprenticeships. However, despite a significant number of students on the new T level pathway progressing to HE, significantly fewer students progress to HE that comparable students on other pathways. This includes the existing vocational route. This is despite the Department for Education (DfE) heralding T levels as *"a springboard to higher education"* (Education Committee, 2023).

Moreover, students on T levels who do progress to HE end up at lower tariff universities and study lower tariff subjects than students from all other pathways. This aligns with some of the challenges that students reported on the ground in getting into the courses and universities they wanted (Dabbous et al., 2024; Ofsted, 2023). Our results suggest that on average, T level students may have had to sacrifice on the quality of the institution and course they applied for at university.

However, when we consider preparedness for further study, conditional on progressing in the first instance, T level students appear to be among the best prepared for their higher level of study. T level students drop-out of higher study at the lowest rates of any of the level 3 pathways.

Taken together, our results suggest that the first cohort of T level students made less progress than was originally anticipated by students and this will have made some students worse off. However, conditional on progressing to further study, T level students are well prepared for their course of study and drop-out at significantly lower rates than other stu-

dents. It is worth noting that these results are for the first cohort of T level learners and the Department for Education have been making a number of changes to address ongoing issues with T levels that may change the nature of these results for future cohorts.

We also examined progression by disadvantaged status and found that the existing vocational track (and the mixed level 3 track) were relatively effective in supporting disadvantaged students to progress to further study and get into higher tariff institutions and subjects. This aligns with previous work showing that the level 3 vocational track is an important support for disadvantaged students to progress to HE in England (Dilnot et al., 2023). On the other hand, disadvantaged students on the academic track (studying A levels during upper-secondary) and those studying T levels were significantly less likely to progress to HE and further study than their non-disadvantaged peers. Previous research has shown that the disadvantage gap in attainment in upper-secondary education is largest for A levels (Tuckett et al., 2024). We show here that T levels appear to be creating disadvantage gaps of a similar magnitude to that of A levels. This is a concerning result given the strong global research and policy focus on reducing inequalities in outcomes between those from disadvantaged and non-disadvantaged backgrounds. This is also particularly relevant in light of the government's plans to defund many existing level 3 vocational qualifications (that have the best progression rates for disadvantaged students) and replace them with T levels.

This is one of the first studies to empirically compare progression to further study (beyond just HE) for a range of upper-secondary pathways in England. In particular, we are the first to assess the impacts of a new *hybrid* vocational track (T levels) and a mixed upper-secondary track, contributing to the growing literature on the hybridisation of upper-secondary education. However, due to the novelty of T levels, we are unable to track students beyond their first year of HE so we cannot look at degree outcomes. These outcomes are important for determining whether students have completed a successful transition to further study from upper-secondary education. We also do not have access to data on employment outcomes which means we can not say a great deal about the students who *do not* progress

to further study in our sample.

Additionally, we look at the first cohort of T level students which poses a number of limitations. Firstly, we know from engagement with the sector that the first cohort of students were strongly selected by institutions (the first cohort was oversubscribed). As such, the T level students in our sample may have higher levels of unobserved ability than we might expect and our results may be upward bias. On the other hand, the first cohort of a new qualification often experiences *"teething"* issues and this may put a downward bias on our results for T level students. It is unclear to what extent these competing factors interact or cancel each other out. Future research into subsequent cohorts of learners will be required to understand this better.

Despite these limitations, our results show clear disparities in progression to further study across upper-secondary pathways in England. Our findings in relation to England's new T levels points to both areas of strengths and weaknesses for the new pathway that may be useful to focus on as the pathway evolves.

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Appendix A. Method for determining pathway choices from qualification sizes

This Appendix describes the approach taken to classify students' post-16 choices. The aim is to create a group of mutually exclusive categories that defines what students choose to undertake at the start of their post-16 study. We start by merging the ILR, NPD and Ofqual qualifications data (which provides us with qualification titles, grading schemes, levels and types). We look at students aims at the start of the academic year to capture initial choices.

We use the Asize and Gsize variables in the key stage 5 exam file (in the NPD) rather than the width variables in the ILR. This has several advantages – firstly, the Asize and Gsize variables have greater coverage and fewer zeroes for qualifications. Secondly, the Asize and Gsize variables are consistent with UCAS points and awarding body websites that state the equivalence between qualifications and A levels or GCSEs. For example, a BTEC Extended Certificate will be worth 1 A level while a BTEC Diploma is worth 2 A levels. In the ILR, most vocational qualifications either have a zero for width (empty) or a 100 (meaning the qualification is worth 2 A levels).

The Asize and Gsize variables are still incomplete for some qualifications and these tend to be odd BTECs or other vocational qualifications. This is only around 1% of regulated and relevant (level wise) qualifications. To fill in these gaps, we did the following we created a taxonomy of vocational courses based on common key words (see below) and calculated the median Asize (for level 3 qualifications) and median Gsize (for level 2 qualifications) for aims in those broader groups. We then used these values to impute the missing Asize and Gsize values (Table A1).

Table A1: Qualification types and assigned A level size equivalence

Qualification keyword	Broader group	Assigned Asize
National Diploma	Larger Diplomas	100 (2 A levels eq.)
Extended Diploma	Larger Diplomas	100 (2 A levels eq.)
Subsidiary Diploma	Smaller Diplomas	50 (1 A level eq.)
Applied Diploma	Smaller Diplomas	50 (1 A level eq.)
Foundation Diploma	Smaller Diplomas	50 (1 A level eq.)
Diploma	Smaller Diplomas	50 (1 A level eq.)
Extended Certificate	Extended Certificates	50 (1 A level eq.)
Certificate	Certificates	25 (1 AS level eq.)
Award	Awards	25 (1 AS level eq.)
Other (small proportion)	Awards	25 (1 AS level eq.)

We then used the total Asize variable (which was complete for all qualifications) to

determine whether students fell into any of the following pathways:

- Academic level 3 learner (2 A-level equivalent academic qualification(s))
- Mixed level 3 learner (2 A-level equivalent level 3 qualifications with at least 0.5 A-level equivalent academic qualifications
- Vocational level 3 learner (2 A-level equivalent level 3 qualifications with less than 0.5 A-level equivalent academic qualifications)
- T level learner
- Below full level 3 (less than 2 A-level equivalent level 3 qualification(s))

Appendix B. Full regression results for progression to further study outcomes

Table B1: Models predicting progression to higher technical study

	All	**All (controls)**	**L3 only**	**L3 only (controls)**
Academic	0.009***	−0.006***		
	(0.000)	(0.001)		
Level 3 Mixed	0.010***	0.002**	0.001	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Level 3 Vocational	0.009***	0.004***	0.000	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
T level	0.058***	0.052***	0.048***	0.056***
	(0.008)	(0.008)	(0.008)	(0.008)
Disadvantaged		−0.004***		−0.006***
		(0.000)		(0.001)
Asian or Asian British		−0.001**		−0.001
		(0.001)		(0.001)
Black or Black British		−0.004***		−0.004***
		(0.001)		(0.001)
Mixed ethnic groups		−0.004***		−0.006***
		(0.001)		(0.001)
Other ethnic group		−0.005***		−0.007***
		(0.001)		(0.002)
SEND		−0.001***		−0.004***
		(0.000)		(0.001)
EAL		−0.004***		−0.004***
		(0.001)		(0.001)
IDACI Score		−0.016***		−0.022***
		(0.002)		(0.002)
KS4 Points (std.)		0.011***		0.007***
		(0.000)		(0.000)
Female		−0.010***		−0.014***
		(0.000)		(0.001)
Intercept	0.013***	0.029***	0.022***	0.030***
	(0.000)	(0.001)	(0.000)	(0.001)
Num. Obs.	507,505	499,745	288,385	284,190
R^2	0.002	0.007	0.000	0.005

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. For the first two columns, the base pathway is less than a full level 3. In the final two columns, the base category is academic. The second and fourth columns contain a full set of individual controls.

Table B2: Models predicting progression to advanced apprenticeships

	All	**All (controls)**	**L3 only**	**L3 only (controls)**
Academic	−0.018***	−0.036***		
	(0.001)	(0.001)		
Level 3 Mixed	0.011***	0.001	0.029***	0.023***
	(0.002)	(0.002)	(0.002)	(0.002)
Level 3 Vocational	0.003**	−0.003**	0.021***	0.013***
	(0.001)	(0.001)	(0.001)	(0.002)
T level	0.055***	0.043***	0.072***	0.062***
	(0.010)	(0.010)	(0.010)	(0.010)
Disadvantaged		−0.020***		−0.013***
		(0.001)		(0.001)
Asian or Asian British		−0.014***		−0.013***
		(0.001)		(0.001)
Black or Black British		−0.025***		−0.025***
		(0.001)		(0.001)
Mixed ethnic groups		−0.021***		−0.020***
		(0.001)		(0.001)
Other ethnic group		−0.022***		−0.023***
		(0.002)		(0.002)
SEND		−0.027***		−0.020***
		(0.001)		(0.002)
EAL		−0.023***		−0.016***
		(0.001)		(0.001)
IDACI Score		−0.034***		−0.013***
		(0.003)		(0.004)
KS4 Points (std.)		0.010***		−0.011***
		(0.000)		(0.001)
Female		−0.029***		−0.023***
		(0.001)		(0.001)
Intercept	0.061***	0.107***	0.043***	0.078***
	(0.001)	(0.001)	(0.000)	(0.001)
Num. Obs.	507,505	499,745	288,385	284,190
R^2	0.002	0.017	0.003	0.011

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. For the first two columns, the base pathway is less than a full level 3. In the final two columns, the base category is academic. The second and fourth columns contain a full set of individual controls.

Table B3: Models predicting progression to higher study

	All	**All (controls)**	**L3 only**	**L3 only (controls)**
Academic	0.463***	0.194***		
	(0.001)	(0.002)		
Level 3 Mixed	0.327***	0.181***	−0.137***	−0.006**
	(0.003)	(0.003)	(0.003)	(0.003)
Level 3 Vocational	0.231***	0.131***	−0.232***	−0.053***
	(0.003)	(0.003)	(0.003)	(0.003)
T level	0.221***	0.115***	−0.243***	−0.067***
	(0.015)	(0.015)	(0.015)	(0.015)
Disadvantaged		−0.024***		−0.044***
		(0.001)		(0.003)
Asian or Asian British		0.130***		0.142***
		(0.002)		(0.003)
Black or Black British		0.182***		0.221***
		(0.003)		(0.004)
Mixed ethnic groups		0.049***		0.054***
		(0.003)		(0.004)
Other ethnic group		0.110***		0.116***
		(0.005)		(0.007)
SEND		0.023***		0.000
		(0.002)		(0.004)
EAL		0.055***		0.059***
		(0.002)		(0.003)
IDACI Score		−0.081***		−0.108***
		(0.005)		(0.009)
KS4 Points (std.)		0.180***		0.187***
		(0.001)		(0.001)
Female		0.029***		0.024***
		(0.001)		(0.002)
Intercept	0.146***	0.220***	0.609***	0.413***
	(0.001)	(0.001)	(0.001)	(0.002)
Num. Obs.	507,505	499,745	288,385	284,190
R^2	0.200	0.281	0.028	0.107

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. For the first two columns, the base pathway is less than a full level 3. In the final two columns, the base category is academic. The second and fourth columns contain a full set of individual controls.

Table B4: Models predicting progression to higher study or an advanced apprenticeship

	All	**All (controls)**	**L3 only**	**L3 only (controls)**
Academic	0.433***	0.155***		
	(0.001)	(0.002)		
Level 3 Mixed	0.323***	0.172***	−0.110***	0.009***
	(0.003)	(0.003)	(0.003)	(0.003)
Level 3 Vocational	0.225***	0.123***	−0.208***	−0.043***
	(0.003)	(0.003)	(0.003)	(0.003)
T level	0.221***	0.108***	−0.212***	−0.052***
	(0.016)	(0.015)	(0.016)	(0.015)
Disadvantaged		−0.041***		−0.052***
		(0.001)		(0.003)
Asian or Asian British		0.115***		0.128***
		(0.002)		(0.003)
Black or Black British		0.159***		0.198***
		(0.003)		(0.004)
Mixed ethnic groups		0.033***		0.040***
		(0.003)		(0.004)
Other ethnic group		0.091***		0.097***
		(0.005)		(0.007)
SEND		−0.002		−0.014***
		(0.002)		(0.004)
EAL		0.036***		0.047***
		(0.002)		(0.003)
IDACI Score		−0.102***		−0.102***
		(0.005)		(0.009)
KS4 Points (std.)		0.182***		0.169***
		(0.001)		(0.001)
Female		0.010***		0.015***
		(0.001)		(0.002)
Intercept	0.201***	0.307***	0.634***	0.466***
	(0.001)	(0.002)	(0.001)	(0.002)
Num. Obs.	507,505	499,745	288,385	284,190
R^2	0.169	0.247	0.022	0.087

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. For the first two columns, the base pathway is less than a full level 3. In the final two columns, the base category is academic. The second and fourth columns contain a full set of individual controls.

Appendix C. Full regression results for decile of institution and course

Table C1: Models predicting decile of HE institution

	All	**All + course qual.**	**L3 only**	**L3 only + course qual.**
Academic	0.189***	0.187***		
	(0.012)	(0.012)		
Level 3 Mixed	−0.069***	0.003	−0.173***	−0.117***
	(0.018)	(0.017)	(0.016)	(0.016)
Level 3 Vocational	0.133***	0.156***	0.059***	0.061***
	(0.018)	(0.017)	(0.017)	(0.017)
T level	−0.235**	−0.134	−0.335***	−0.251***
	(0.092)	(0.089)	(0.092)	(0.089)
Disadvantaged	−0.081***	−0.084***	−0.093***	−0.095***
	(0.011)	(0.011)	(0.013)	(0.012)
Asian or Asian British	0.097***	0.080***	0.062***	0.046***
	(0.012)	(0.011)	(0.012)	(0.012)
Black or Black British	0.104***	0.067***	0.149***	0.111***
	(0.014)	(0.014)	(0.016)	(0.016)
Mixed ethnic groups	0.117***	0.097***	0.130***	0.110***
	(0.016)	(0.016)	(0.017)	(0.017)
Other ethnic group	0.062**	0.025	0.053*	0.016
	(0.026)	(0.026)	(0.029)	(0.028)
SEND	0.072***	0.016	0.022	−0.034*
	(0.016)	(0.016)	(0.019)	(0.019)
EAL	−0.034***	−0.045***	−0.010	−0.020*
	(0.011)	(0.011)	(0.012)	(0.012)
IDACI Score	−0.700***	−0.628***	−0.766***	−0.693***
	(0.038)	(0.037)	(0.041)	(0.040)
KS4 Points (std.)	1.471***	1.211***	1.586***	1.305***
	(0.006)	(0.007)	(0.007)	(0.007)
Female	−0.169***	−0.113***	−0.169***	−0.108***
	(0.007)	(0.007)	(0.008)	(0.008)
Decile course		0.191***		0.189***
		(0.002)		(0.002)
Intercept	6.140***	5.239***	6.229***	5.355***
	(0.012)	(0.015)	(0.011)	(0.013)
Num. Obs.	239,920	239,920	203,020	203,020
R^2	0.275	0.311	0.267	0.304

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C2: Models predicting decile of HE course

	All	**All + inst. qual.**	**L3 only**	**L3 only + inst. qual.**
Academic	0.012	−0.038***		
	(0.013)	(0.013)		
Level 3 Mixed	−0.375***	−0.357***	−0.294***	−0.247***
	(0.018)	(0.018)	(0.017)	(0.017)
Level 3 Vocational	−0.122***	−0.157***	−0.010	−0.026
	(0.018)	(0.018)	(0.017)	(0.017)
T level	−0.527***	−0.466***	−0.444***	−0.353***
	(0.111)	(0.108)	(0.112)	(0.108)
Ever FSM 6	0.020	0.041***	0.014	0.039***
	(0.012)	(0.012)	(0.014)	(0.014)
Asian or Asian British	0.086***	0.061***	0.086***	0.069***
	(0.014)	(0.014)	(0.015)	(0.015)
Black or Black British	0.191***	0.164***	0.202***	0.161***
	(0.017)	(0.017)	(0.019)	(0.019)
Mixed ethnic groups	0.102***	0.072***	0.106***	0.071***
	(0.019)	(0.018)	(0.020)	(0.020)
Other ethnic group	0.192***	0.176***	0.198***	0.183***
	(0.029)	(0.029)	(0.033)	(0.032)
SEND	0.290***	0.271***	0.293***	0.288***
	(0.018)	(0.018)	(0.022)	(0.022)
EAL	0.057***	0.066***	0.053***	0.056***
	(0.013)	(0.012)	(0.014)	(0.014)
IDACI Score	−0.377***	−0.194***	−0.390***	−0.182***
	(0.043)	(0.042)	(0.048)	(0.047)
KS4 Points (std.)	1.355***	0.970***	1.484***	1.054***
	(0.007)	(0.008)	(0.008)	(0.009)
Female	−0.292***	−0.247***	−0.322***	−0.276***
	(0.009)	(0.009)	(0.010)	(0.009)
Decile institution		0.262***		0.271***
		(0.002)		(0.003)
Intercept	4.704***	3.098***	4.612***	2.924***
	(0.013)	(0.020)	(0.013)	(0.020)
Num. Obs.	239,920	239,920	203,020	203,020
R^2	0.182	0.223	0.182	0.224

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix D. Comparison between upper-secondary qualifications in England

Table D1 makes some basic comparisons across typical level 3 programmes of study in England. These comparisons illustrate how the new T level pathway relates to existing alter-

natives in England. In particular, we can see that T levels have a large number of guided learning hours relative to alternative pathways, demonstrating that T levels are very large qualifications. The assessment style is a blend of the academic and vocational tracks with a combination of exams and coursework assessment types. The work placement component of the T levels creates some overlap with apprenticeships. However, T level students spend most of their time in the classroom (80%) whereas apprenticeship students spend most of their time on the job (80%). The learning approach of a T level is similar to the vocational track in that both practical and theoretical skills are developed. Students on T levels are relatively narrow in their focus - they have only one occupational specialism. This is the same as an apprenticeship and a large vocational alternative (BTEC). However, some students will choose to take a combination of smaller BTECs to give themselves a similar breadth to A level learners. Likewise, mixed learners tend to combine A levels with smaller BTECs to reach around 1080 guided learning hours.

Table D1: Comparison of upper-secondary qualification types in England

Typical Values	**Academic (A levels)**	**Vocational (i.e., BTECs)**	**Apprenticeship (Advanced)**	**T levels**
Guided learning hours	1080 (3×360)	1080 (1×1080 or 3×360)	560 (min. 200 off-job)	1530 (medium size)
Assessment style	Mostly exams	Mostly coursework	End-point assessment	Exams and coursework
Work placement	None	None	80% of time	20% of time
Learning approach	Mostly theoretical	Practical and theoretical	Mostly practical	Practical and theoretical
Breadth	3 subjects	Between 1 and 3 subjects	1 occupation	1 specialism

Appendix E. Disadvantage interaction results

In Table E1 we show the relationship between upper-secondary pathway, disadvantaged status and progression to further study outcomes. The first four sets of coefficients correspond to the impact of each upper-secondary pathway (relative to the less than a full level 3 pathway) for non-disadvantaged students. The disadvantaged coefficients show how that progress rate changes for disadvantaged students with similar prior attainment and other characteristics. The *"Disadvantaged"* coefficient is the impact of being disadvantaged on progression for those in the base pathway. The interactions represent how different this rate is for each of the other pathways.

Table E1: Models predicting progression to further study with disadvantage interactions (updated)

	(1) HE	(2) Higher Tech	(3) Adv App.	(4) Higher study	(5) (4) + App.
Academic	0.209***	−0.006***	−0.041***	0.199***	0.153***
	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Level 3 Mixed	0.181***	0.005***	0.003	0.180***	0.169***
	(0.004)	(0.001)	(0.002)	(0.004)	(0.004)
Level 3 Vocational	0.126***	0.007***	−0.001	0.129***	0.119***
	(0.003)	(0.001)	(0.002)	(0.003)	(0.003)
T level	0.103***	0.065***	0.043***	0.134***	0.113***
	(0.017)	(0.010)	(0.012)	(0.017)	(0.018)
Disadvantaged	−0.008***	−0.002***	−0.032***	−0.010***	−0.042***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Academic*Disadvantaged	−0.049***	−0.003***	0.034***	−0.048***	−0.010***
	(0.003)	(0.001)	(0.002)	(0.003)	(0.003)
Mixed*Disadvantaged	0.004	−0.011***	0.008**	−0.001	0.019***
	(0.007)	(0.002)	(0.004)	(0.007)	(0.007)
Vocational*Disadvantaged	0.009	−0.007***	0.008***	0.007	0.022***
	(0.006)	(0.002)	(0.003)	(0.006)	(0.006)
T level*Disadvantaged	−0.055*	−0.044***	0.020	−0.078**	−0.017
	(0.032)	(0.016)	(0.024)	(0.033)	(0.035)
Individual controls	Yes	Yes	Yes	Yes	Yes
Num. Obs.	497,935	497,935	497,935	497,935	497,935
R^2	0.280	0.007	0.016	0.281	0.243

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Reference group is less than a full Level 3 and non-disadvantaged.

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