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Does Combining Work and Study 'Pay Off'? Investigating Intersectional Effects of Term-Time Employment, First-Generation Status and Gender on Graduate Outcomes

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ABSTRACT

Despite globally increasing numbers of university students participating in paid employment during their studies, there is limited evidence on whether working during the lecture period (i.e., term-time) is beneficial for graduate outcomes, especially from an intersectional perspective. Using Austrian national administrative data on all university graduates between 2009 and 2018 ($N = 90{,}026$), we examine how student employment is associated with graduate outcomes for university graduates taking intersectional effects of 'first-generation status' and 'gender' into account. Our results extend existing research by showing that First-Generation graduate men and women tend to benefit differently from engaging in term-time employment. This accentuates the need for further research in higher education studies investigating graduate outcomes by taking intersectionality into account. Based on the results of this study, we discuss implications for policy and practice of employability-related activities at higher education institutions.

1 | Introduction

Employability of university graduates, that is, 'steps to promote the likelihood that graduates will gain what may be deemed as appropriate employment' (Holmes 2013, 541), has become increasingly important to higher education institutions globally (Allen et al. 2013). For the past 35 years, the debate on graduate employability has been the subject not only of wide-ranging research but also of higher education policies in general, with promoting employability becoming a key agenda for higher education institutions (HEIs) (Helyer and Lee 2014). Simultaneously, massification of higher education (Marginson 2016) and widening participation of historically underrepresented and disadvantaged groups (Fernando and Kenny 2021), such as those who are the first in their family to attend university (First-Generation students), has led to increasing student numbers worldwide (OECD 2023a, 2023b). These developments as well as additional wider challenges (e.g., intensifying global competition and labour market shocks) has resulted in an increasing pressure for students to boost their work-related experience while studying in order to enhance their employability and obtain work after graduation (Bathmaker et al. 2013; Groves et al. 2022; Isopahkala-Bouret et al. 2023). Therefore, gaining work experience has become a central strategy for many undergraduate students to help them obtain graduate employment (O'Shea 2020; Robotham 2013).

While it has traditionally been common for students to engage in employment during vacation periods, there has been a shift towards working during the lecture period (i.e., term-time) since the 1990s (Broadbridge and Swanson 2005). As a result, employment begins to compete with studying for students' time resources, resulting in students spending less time on taught studies and personal study time (Masevičiūtė et al. 2018).

This puts First-Generation students in particular in a vulnerable position, since they have a significantly higher risk of entering time-consuming employment (i.e., more than 10 h a week) and show lower retention rates compared to students with parents who have obtained a higher education degree (Henderson et al. 2019; Lessky and Unger 2022). Nevertheless, work experience can also help in mobilising educational credentials in the graduate labour market, which appears to be highly relevant for these students, since the labour market is characterised by inequalities putting those who do not have access to 'career relevant' capital at a disadvantage (Aslam and Lehmann 2021; Burke et al. 2020; Lehmann 2021).

While many studies have already investigated the effects of term-time employment on graduate outcomes (Argentin 2010; Baert et al. 2016; Geel and Backes-Gellner 2012; Helyer and Lee 2014) and highlighted disadvantages First-Generation students can face when entering graduate employment (Burke et al. 2020; Christie and Burke 2021; Lee 2021; O'Shea 2023), little is known about the intersectional effects of term-time employment and first-generation status. In addition, emerging research has started to emphasise that such intersectional effects might also differ according to gender, showing that parental educational background affects men's and women's career success and salaries differently (Reiss et al. 2023). Although little evidence is available yet, one recent study from the United Kingdom has shown that while among women, First-Generation graduates earn less on average than graduates whose parents have a university degree, men tend not to face such a 'First-Generation wage penalty' (Adamecz-Völgyi et al. 2023). According to the authors, this can be explained by certain characteristics, including First-Generation women having lower educational attainment, not attending an elite university, selecting particular degree courses, working in smaller firms, working in jobs that do not require their degree, and motherhood. While First-Generation graduate men also differ in their endowments from Continuing-Generation graduate men, they earn higher returns on their endowments than Continuing-Generation men and thus compensate for their relative social disadvantage (ibid.). This could point to mechanisms such as men being positively selected more frequently, which could partly explain why parental educational background and the ascribed social (dis)advantages affect men and women differently. However, further research on such interaction effects is urgently needed.

This leads us to critically investigate the following research questions: (1) *Does working alongside studying 'pay off'?* (2) *Do intersectional effects of first-generation status and term-time employment exist?* (3) *And if so, do these effects differ between men and women?* To answer these questions, we investigate graduate outcomes based on administrative data consisting of all higher education graduates from public universities in Austria between 2009 and 2018 ($N = 90{,}026$). The focus is on Austria, an understudied context where the share of working students is close to the European average (83%), but their work intensity is higher than in most western European countries (Hauschildt et al. 2021; Masevičiūtė et al. 2018). Thus, it can provide interesting comparative insights with more extensively researched countries. We estimate regressions with graduate labour market outcomes being measured in two ways: first, according to being employed 18 and 60 months after graduation, and second, according to the salary earned 18 and 60 months after graduation. The relationship between student employment and first-generation status is explored via interaction terms. While we cannot account for whether students' jobs are related to their field of study, we can account for work intensity—a highly important factor related to inequality in of students' social background (Weiss and Roksa 2016). Gender disparities are explored by estimating separate models for men and women. We chose this analytical strategy because we expect other control variables to vary by gender, such as the choice of field of study (as demonstrated by Adamecz-Völgyi et al. 2023; Binder 2024).

Our study contributes to existing research in higher education studies in the following ways: Firstly, we shed light on a group of graduates that in general tend to work a higher number of hours while studying, First-Generation graduates, but at the same time, can experience disadvantages when entering the graduate labour market. Secondly, we also take gender-related inequalities into account by investigating the intersectional effects of term-time employment, first-generation status, and gender of all graduates. And thirdly, we draw on comprehensive administrative data that gives us not only the ability to study heterogeneous effects among different groups of individuals, but it also provides us with very detailed and reliable information about employment and salaries for several time points. We use our findings to formulate implications for higher education policy and future research.

2 | Theoretical Background and Empirical Evidence

2.1 | Effects of Term-Time Employment on Graduate Outcomes

The relationship between students' work experience and their labour market outcomes has predominantly been theorised through three main approaches: Human Capital Theory (Becker 2009), Signalling Theory (Spence 1973) and Social Network Theory (Granovetter 1973, 1983). From the human capital perspective, taken simplistically, skill building activities improve productivity and lead to higher earnings (Becker 2009; Luchinskaya and Tzanakou 2025). With regard to student employment, it could be argued that working enhances marketable skills and knowledge (e.g., CV and interview preparation), which are expected to lead to additional returns on the graduate labour market (Monteiro et al. 2022; Passaretta and Triventi 2015).

From the signalling perspective, work experience serves as a signal of graduates' abilities. Whereas in the past a higher education degree itself used to act as a signal, massification of higher education has weakened this effect, and tertiary degrees have become less reliable signals of productivity (Tomlinson 2008).

It is argued that employers therefore may increasingly rely on students' work experience to assess candidates' potential occupational productivity in their hiring decisions, and that they perceive student work as a signal of intrinsic work motivation and students' ability to combine studying and working successfully (Baert et al. 2016; Passaretta and Triventi 2015; Spence 1973). Nevertheless, signal quality is paramount, reflected in the types of work students undertake while studying (e.g., competitive internships with a prestigious employer as opposed to casual work unrelated to their field of study) (Luchinskaya and Tzanakou 2025).

From the social network perspective, social capital (weak ties) is crucial when entering the graduate labour market (Granovetter 1983). Social capital relates to resources which are linked to being part of a durable network consisting of relationships of mutual acquaintance or recognition (Bourdieu 2012). In this view, student employment can be seen as a way to increase social capital and therefore help students to access relationships and social networks that, in turn, can help them to find graduate jobs or provide advice on navigating the labour market.

In light of these theoretical perspectives, empirical studies found positive relationships between student employment and wages after graduation as well as a reduced risk of unemployment (Argentin 2010; Light 1999, 2001; Witteveen and Attewell 2021). Others found negative effects on later wages (Hotz et al. 2002), and some studies showed no substantial effects (Carr et al. 1996; Parent 2006). However, the type of work experience matters. For example, Geel and Backes-Gellner (2012) found a positive relationship in Switzerland between months of student employment during tertiary education and labour market success (employment, wages and job responsibility) 1 and 5 years after graduation, but only for student work related to their field of study. This echoes research from Germany indicating that graduates do not profit from work experience unrelated to their field of study (Weiss et al. 2014). Nevertheless, Baert et al. (2016) found for Belgium that mentioning student work experience does not affect job candidates' probability of receiving a positive call-back from employers, and that positive call-backs did not vary by whether students' jobs were related to their field of study (Baert et al. 2016, 421).

While these reported findings are mixed, newer research points out that first-generation status and gender need to be taken into account when analysing effects of term-time employment on graduate outcomes, because work experience can vary significantly according to students' characteristics (Luchinskaya and Tzanakou 2025; Weiss and Roksa 2016). We discuss this in the next two sections by, first, explaining how graduate outcomes differ by first-generation status and gender, and second, reviewing literature on intersectional effects.

2.2 | Effects of First-Generation Status and Gender on Graduate Outcomes

Empirical evidence shows that First-Generation students face poorer graduate outcomes than their more privileged peers (Brooks et al. 2021; Christie et al. 2018; Ford 2018; Hurst 2018; Pitman et al. 2019; Tomaszewski et al. 2021). One main reason can be seen in the socially segregated choice of field of study and institution that contribute to the poorer graduate outcomes of disadvantaged students. First-Generation students tend to study subjects with lower labour market premia (e.g., education instead of medicine) and tend to attend less prestigious institutions (Bathmaker et al. 2016; Cappelli 2020; Codiroli Mcmaster 2019). While some studies have not found any effects of first-generation status on graduate outcomes (Torche 2011; Spexard et al. 2022), there is also evidence that shows disadvantages for First-Generation graduates even when controlling for field of study (Hällsten 2013; Manzoni and Streib 2019). Another influential factor on labour market outcomes are differences in motivation and career aspiration according to parental education attainment (Passaretta et al. 2018). We are mindful that 'first-generation status'—especially in quantitative studies—is often based on a binary definition, whereas other definitions, such as social class or socioeconomic status, can provide a more nuanced understanding by including other aspects in addition to parental educational attainment (e.g., parental occupation, economic resources) (Beattie 2018). However, parental educational attainment represents a key measure of family background and research has shown that it is more significantly linked to student learning and other college experiences than parental occupational attainment (Arum and Roksa 2011).

Regarding gender, research shows that women face unequal career opportunities and outcomes (Reiss et al. 2023; Blau and Kahn 2007; Mayrhofer et al. 2008; O'Brien et al. 2017; Rader Sipe et al. 2016) which are deeply rooted in enduring divisions of labour between men and women (Becker and Kortendiek 2010). For instance, entrenched gender biases lead to different career choices of men and women, with men choosing sectors that yield higher salaries compared to women (Binder 2024; Chevalier 2007). In addition, there is a persistent 'motherhood penalty' that women face when having children, because they scale back on paid work far more than men, who traditionally maintain the role of the main breadwinner (Morgenroth et al. 2021). Moreover, research shows that employers tend to discriminate on the basis of gender when assessing job applications (Correll et al. 2007; Foschi et al. 1994).

The reviewed literature shows that individual characteristics that are embedded in societal inequities, such as first-generation status and gender, have a multi-faceted influence on graduate outcomes. Newest research suggests, however, that the combination of such characteristics (intersectionality) also needs to be investigated instead of analysing them separately (Sprengholz and Hamjediers 2022; Bourabain 2021; Gazeley and Hinton-Smith 2023), which we discuss in the next section.

2.3 | Intersectional Effects on Graduate Outcomes

Regarding intersectional effects of educational background and gender on graduate outcomes, Lopez (2003) has shown for the United States that even when women and men come from similar socioeconomic backgrounds, they have different cumulative student experiences influencing their outlooks

on career opportunities. Another study examining the educational mobility of men and women indicates substantial differences between sons and daughters, with daughters notably outperforming sons in terms of educational mobility and human capital accumulation (Dacuycuy and Bayudan-Dacuycuy 2019). Rivera and Tilcsik (2016) show that men from higher social class backgrounds received significantly more call-backs than those from lower social class backgrounds. Interestingly, women from higher class backgrounds did not experience the same class-based advantage. Looking at business graduates, Reiss et al. (2023) find that socioeconomic background affects men's and women's objective career success differently: men from higher socioeconomic backgrounds benefit from higher earnings, while men from lower socioeconomic backgrounds receive lower salaries over the course of their careers. The women in their sample, however, do not suffer earnings penalties from lower socioeconomic backgrounds, nor do they benefit from higher socioeconomic origins.

As access to different types of work experience while studying can vary with student characteristics (Luchinskaya and Tzanakou 2025), we would expect different outcomes related to the intersection of term-time work, gender and first-generation status. As discussed earlier, horizontal gender segregation across fields of study may not only lead to gender differences with regard to graduate outcomes, but also work experience options while studying. Luchinskaya and Tzanakou (2025) argue that male students may be more likely to access employment related to engineering, which is also underpinned by more favourable labour market dynamics in which these employment opportunities operate. In contrast, female students may be more likely to access student employment related to the field of education (Adamecz-Völgyi et al. 2023). Regarding first-generation status, students may be less able to draw on their social networks to access competitive internships or work related to their field of study, which can impact their work experience as well as their graduate outcomes (Ingram et al. 2023). Since they also have to work more often due to financial necessity (Unger et al. 2020), they might have to take up casual paid work that is easier to find (e.g., in a bar or supermarket), but which may act as a weaker signal of ability (Luchinskaya and Tzanakou 2025). However, since First-Generation students tend to work longer hours than their peers (Lessky and Unger 2022) they may also enter the graduate labour market with more work experience, which could positively affect their outcomes (Passaretta and Triventi 2015).

To summarise, the reviewed theoretical considerations and empirical studies highlight the ambiguous role of student employment in graduate outcomes—especially regarding first-generation status and gender. While some studies have already taken intersectional effects of first-generation status and gender into account, many of them are critiqued for relying on small samples, drawing on data from only one institution or having questionable representativeness due to response bias (Luchinskaya and Tzanakou 2025). Therefore, we aim to investigate intersectional effects of term-time employment, first-generation status and gender on graduate outcomes at a national level. By using administrative data, we are able to illuminate whether university graduates benefit from their efforts in combining work and studying, and whether effects differ among First-Generation and Continuing-Generation graduate men and women.

3 | Study Context

This study investigates graduate outcomes of graduates in Austria. Higher education in Austria is divided into four sectors: public universities (including business schools), (public) universities of applied sciences ('Fachhochschulen'), teacher training colleges and private universities. In contrast to other countries, such as the United States, Australia and the United Kingdom, the Austrian higher education sector is comparatively less stratified (Lessky et al. 2022). However, attending university (ISCED level 6 or higher) is selective and less popular than in other countries (OECD 2023b, 140). One main reason lies in the school system, which—as in other central European countries—combines early tracking with a strong vocational education system consisting of a dual vocational training system and specialised middle and high schools (mainly business, engineering and IT, with the latter being considered short-cycle tertiary programmes in the ISCED 2013 classification).

Due to low educational attainment in the parental generation, the share of First-Generation students (61%) is among the highest in Europe (Unger et al. 2020, 133). However, they are considered to be underrepresented because their probability of entering higher education is much lower compared to those whose parents have obtained a higher education degree (ibid.: 123). While the share of working students in Austria is close to the European average (83%; Hauschildt et al. 2021, 150), their work intensity is higher than in most western European countries (Masevičiūtė et al. 2018). At the same time, only about 50% of working students in Austria assess their preparation for the national labour market as being (very) good (ibid.: 60).

With regard to the Austrian labour market, there is a strong link between job placement and educational certificates. In most occupations, collective agreements with guaranteed minimum wages are important. From 2010 to 2019, unemployment among higher education graduates has been relatively low (between 2.4% and 4% in the age group from 20 to 64 years; Eurostat 2024).

4 | Methodology

4.1 | Data

The analysis is based on ATRACK data ('*Absolvent:innen-Tracking*', graduate tracking) which combines different Austrian registries (Educational Statistics, Population Register, Public Employment Service Austria, Main Association of Austrian Social Security Institutions, Pay Slips and data of the Statistical Business Register). The data contain information on the higher education and labour market trajectories of graduates from Austrian higher education institutions from 2009/2010 to 2018/2019 (Huber et al. 2022). They also include information on higher education enrolment as well as individuals' labour market characteristics at several periodical cut-off dates over the

course of 8 years. The present study focuses its analysis on two cut-off dates: 18 months after the graduation date, in order to measure graduates' entry into the labour market; and 60 months after graduation, which is the longest point in time after graduation for which data are available, in order to measure how the graduates have managed to establish themselves in the labour market.

For the purpose of this paper, we analysed the most recent ISCED 7 degree ('Master' and 'Diplom') at public research universities, where 77% of students are enrolled (Unger et al. 2020, 18). Graduates who are still in a formal education below ISCED 8 (PhD) at the reference date as well as those who are older than the average Austrian retirement age (women older than 60 and men older than 65 years old) were excluded from the analysis. It should be noted that individuals who presumably are not living in Austria at the time of graduation are not part of the data set. This includes graduates with their principal residence in Austria, but without Austrian social security at the time of observation. Further, we had to exclude graduates without information on their employment status 1 year before graduation (living abroad or being self-employed).[1] Since labour market data is available up to 2020, we analyse cohorts up to 2017/2018 for 18 months after graduation, and up to 2014/2015 for 60 months after graduation. Using pooled data covering nearly a decade, we can control for economic cycles and thus enhance the external validity of the results.

However, using such high-quality administrative data comes with some limitations. First, the analysis is restricted to the data collected in these registries. The only indicator for social origin in the data at hand is parental education. Direct measures of skills, cognitive ability, and personality that could also further explain wage differences (see e.g., Hällsten 2013; Gugushvili et al. 2017) are not included. Due to data protection policies, there is also no information on higher education institutions. Nevertheless, we do not consider this a source of potential bias, since differences in prestige between public universities are low (Lessky et al. 2022).

Beside these limitations, the advantages of administrative data predominate as many survey problems, such as high non-response rates or over- and underreporting, are of no concern (Meyer et al. 2015). Furthermore, the analysis can draw on a sufficient number of graduates ($N = 90{,}026$) for complex analyses with many covariates, which also allows us to explore intersectional effects in more detail. Another advantage is that the administrative data contain very detailed and reliable measures for employment and wages for several time points, including before graduation, which allows us to measure effects of term-time employment on graduate outcomes.

4.2 | Methods and Variables

Our research interest lies in investigating the effects of student employment on graduate outcomes (measured by employment status and salary), differentiated by first-generation status and gender. For the dependent variable 'employment status' we calculated a linear probability model to estimate the risk of being out of work compared to being employed 18 and 60 months after graduation (including full-time, part-time and self-employment). Linear probability models are often chosen over logistic regression models for binary outcome variables because the coefficients of the linear probability models can easily be interpreted as a percentage-point change in the probability of the outcome (in this case, employment), even when interaction terms are included. Potential problems with linear probability models, such as predicted probabilities higher than 1 or lower than 0, heteroscedastic residuals and mis-specified functional forms, have been taken into consideration, but the literature and our analysis show that results hardly deviate from logistic regression models (Angrist and Pischke 2008; Mood 2010).[2] For the dependent variable 'salaries' we applied OLS models to the logarithm of monthly salaries of full-time employees.[3] Since using part-time salaries is not meaningful without information on the precise number of working hours, the salary models are limited to full-time employees.[4] In addition, after calculating these models, we added interaction terms for student employment and first-generation status. All models are first calculated for all university graduates and afterwards for women and men separately.

The two dependent variables were constructed as follows: For employment status, 42 different labour market statuses in the data were condensed into two categories: employed and not employed. Self-employment, full-time and part-time employment, as well as temporarily limited leaves (mainly parental and educational leaves with an employment contract) were categorised as employed. Not employed consists of unemployment, leaves without an employment contract, marginal employment, and other out of work statuses. The second dependent variable is the logarithm of the inflation-adjusted monthly gross salary of full-time wage earners. The terms wages and salaries are used interchangeably to represent the earnings from the main occupation that are subjected to social insurance contributions (including bonuses, but without tips).

The main explanatory variable is working while studying 1 year before graduation. Three different student employment statuses are distinguished: no employment, marginal employment, and part-time and full-time employment. Marginal employment is defined as an employment relationship in which the remuneration does not exceed the minimum salary threshold under social insurance law (€485.85 per month) (Austrian Economic Chambers 2023).

First-generation status is operationalised via parents' highest completed formal education. We further included gender[5] in the general model and calculated separate models for men and women. Since graduate outcomes can also differ greatly according to field of study (Argentin 2010; Binder 2024; Cappelli 2020; Triventi 2013), we control for 12 fields (based on the ISCED 2013 classification). Furthermore, we control for age at graduation (under 30 vs. 30 and older), nationality, number of degrees, and year of graduation.

Results of the multivariate analyses are reported as coefficients and significance values. When coefficients are above zero, a positive correlation is found. Coefficients below zero represent a negative one. It is important to note that the significance level depends on the sample size. This means that values can

TABLE 1 | Summary of linear probabiltiy models on being employed (vs. not employed) of university graduates.

	18 Months after graduation			60 Months after graduation		
	(1) Base model	(2) Employment model	(3) Interaction model	(4) Base model	(5) Employment model	(6) Interaction model
First-generation status (vs. non-FGS)	0.012***	0.010***	0.005	0.011***	0.010***	0.005
Women (vs. men)	−0.013***	−0.013***	−0.013***	−0.041***	−0.041***	−0.041***
Term-time employment						
Marginal employment (vs. no employment)		0.011***	0.005		0.017***	0.008
Part- and full-time employment (vs. no employment)		0.071***	0.067***		0.038***	0.036***
Interaction first-gen status × term-time employment						
First-gen status × marginal employment			0.011*			0.015*
First-gen status × part- and full-time employment			0.008			0.003
N	90,024	90,024	90,024	68,267	68,267	68,267
R^2	0.039	0.050	0.050	0.021	0.024	0.025

Note: All models control for age at graduation, nationality, double degree, year of graduation, field of study. For full models see Appendix S1 (Tables A2 and A3). Significance values are based on heteroskedasticity-robust standard errors. Data: ATRACK (STATISTICS AUSTRIA).
*$p < 0.05$.
***$p < 0.001$.

be significant even when the effect size is small. Furthermore, all tables present a measure for evaluating how well each model predicts the outcome (R^2) and the number of cases included (*N*). We run (1) a baseline model with first-generation status, gender, and several control variables, which we extend by (2) term-time employment and (3) interaction terms.

5 | Results

5.1 | Descriptive Statistics

In the general population of graduates, 88% are employed full-time or part-time 18 months after graduation (see Table A1). Regarding gender and first-generation status, descriptive results for all graduates show that men are more often employed than women (91% vs. 86%) and earn more on average (€3495 compared to women earning €3043) 18 months after graduation—these differences even increase over time. First-Generation graduates tend to work more often during their studies than Continuing-Generation peers (35% compared to 29% for the cohorts 2008/2009 to 2017/2018), and this is the case for both men and women. First-Generation and Continuing-Generation graduates are employed to almost the same extent after graduation (88% vs. 87% 18 months after graduation), but First-Generation graduates earn less on average than their peers with tertiary educated parents (€3208 vs. €3307). Even after catching up a little after 5 years, First-Generation graduates still earn 2% less (€3872 vs. €3948) than Continuing-Generation graduates.

5.2 | Multivariate Analyses

In this section we report the regression models for university graduates to address the first and second research questions of whether working alongside studies 'pays off' and whether intersectional effects of first-generation status and term-time employment exist. We then present the separate models for men and women to investigate the third research question of whether effects differ between men and women.

5.2.1 | University Graduates

After controlling for several characteristics such as field of study, age, nationality, double degrees and year of graduation

TABLE 2 | Summary of OLS regression on log-salaries of university graduates.

	18 Months after graduation			60 Months after graduation		
	(1) Base model	(2) Employment model	(3) Interaction model	(4) Base model	(5) Employment model	(6) Interaction model
First-generation status (vs. non-FGS)	0.009***	0.006**	−0.001	0.009**	0.005*	0.004
Women (vs. men)	−0.083***	−0.084***	−0.084***	−0.108***	−0.107***	−0.107***
Term-time employment						
Marginal employment (vs. no employment)		−0.006*	−0.007		0.001	0.008*
Part- and full-time employment (vs. no employment)		0.085***	0.072***		0.072***	0.062***
Interaction first-gen status × term-time employment						
First-gen status × marginal employment			0.002			−0.011
First-gen status × part- and full-time employment			0.021***			0.015*
N	56,982	56,982	56,982	41,436	41,436	41,436
R^2	0.351	0.366	0.366	0.293	0.303	0.306

Note: All models control for age at graduation, nationality, double degree, year of graduation, field of study. For full models see Appendix S1 (Tables A4 and A5). Data: ATRACK (STATISTICS AUSTRIA).
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

(for full models see Tables A2 and A3), the results of our multivariate regression analysis show that women are less likely to be employed than men at both time points (see Models 1 to 6 in Table 1). First-Generation graduates are slightly more likely to be employed than Continuing-Generation graduates, but this effect still exists after controlling for term-time employment (see Models 1, 2, 4 and 5 in Table 1). Regarding the impact of term-time employment, graduates who were employed part-time or full-time during their studies are 7% more likely to be employed 18 months after graduation; this effect decreases to 3.6 percentage points 60 months after graduation. The effect of marginal employment is rather small (1 percentage point; see Models 2 and 5 in Table 1). The interaction term for first-generation status and term-time employment reveals no statistically significant effect 18 and 60 months after graduation (see Models 3 and 6 in Table 1), meaning that First-Generation graduates and Continuing-Generation graduates in general both tend to benefit equally from working part-time or full-time during their studies when it comes to the probability of being employed after graduation. The effect of marginal employment is, again, very small (but significant due to the large sample size).

Results in Table 2 (full models see Tables A4 and A5) show that female graduates in general earn significantly less than male graduates at both time points (see Models 1 to 6 in Table 2).

However, as opposed to the descriptive statistics, we do not detect a salary disadvantage for First-Generation graduates in the multivariate analysis (see Models 1, 2, 4 and 5 in Table 2), mainly because of controlling for field of study. Regarding the effects of term-time employment, the Models 2 and 4 in Table 2 further show that those graduates who worked more than 10 h a week during their studies (part-time and full-time) earn significantly more than those who did not work alongside their studies and than those with marginal employment while studying. Interestingly, looking at the interaction term, we find that 18 months after graduation working while studying tends to benefit First-Generation graduates more than their Continuing-Generation peers (see Model 3 in Table 2). However, this effect

TABLE 3 | Summary of linear probability models on being employed (vs. not employed) by gender.

	18 Months after graduation		60 Months after graduation	
	(1) Women	(2) Men	(3) Women	(4) Men
First-generation status (vs. non-FGS)	0.007	0.002	0.004	0.007
Term-time employment				
Marginal employment (vs. no employment)	0.017**	−0.014*	0.014*	−0.001
Part- and full-time employment (vs. no employment)	0.077***	0.052***	0.036***	0.037***
Interaction first-gen status × term-time employment				
First-gen status × marginal employment	0.005	0.017*	0.009	0.022**
First-gen status × part- and full-time employment	0.005	0.011	−0.002	0.010
N	53,526	36,498	40,474	27,793
R^2	0.048	0.054	0.017	0.032

Note: All models control for age at graduation, nationality, double degree, year of graduation, field of study. For full models see Appendix S1 (Tables A2 and A3). Significance values are based on heteroskedasticity-robust standard errors ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$. Data: ATRACK (STATISTICS AUSTRIA).

TABLE 4 | Summary of OLS regression on log-salaries of university graduates by gender.

	18 Months after graduation		60 Months after graduation	
	(1) Women	(2) Men	(3) Women	(4) Men
First-generation status (vs. non-FGS)	−0.003	−0.001	−0.002	0.008
Term-time employment				
Marginal employment (vs. no employment)	0,001	−0.020**	0.013	0.003
Part- and full-time employment (vs. no employment)	0.073***	0.070***	0.055***	0.069***
Interaction first-gen status × term-time employment				
First-gen status × marginal employment	−0.006	0.014	−0.007	−0.017
First-gen status × part- and full-time employment	0.010	0.036***	0.007	0.025**
N	30,965	26,017	21,291	20,145
R^2	0.348	0.334	0.290	0.239

Note: All models control for age at graduation, nationality, double degree, year of graduation, field of study. For full models see Appendix S1 (Tables A4 and A5). Data: ATRACK (STATISTICS AUSTRIA).
**$p < 0.01$.
***$p < 0.001$.

diminishes over time, with salary differences being barely statistically significant 60 months after graduation (see Model 6 in Table 2).

5.2.2 | Male and Female University Graduates

In Tables 3 and 4 (for full models see Tables A2–A5), we present the results of estimating the probability of being employed and the salaries for women and men separately. This allows us to investigate not only differences in the influence of term-time employment among women and men, but also the intersection of educational heritage (i.e., first-generation status) and gender. Table 3 shows that in addition to part-time and full-time employment increasing the probability of being employed 18 months after graduation in the models for both women and men (see Models 1 and 3 in Table 3), the probability of being employed 60 months after graduation is higher for male First-Generation graduates who worked in marginal employment during their studies than male Continuing-Generation graduates (see Model 4 in Table 3).

In Table 4, we present the results of estimating the salary after graduation for women and men separately. Women and men who worked more than 10 h per week during their studies earn significantly more than women and men who did not work during their studies (see Models 1 and 3 in Table 4).

Interestingly, Models 2 and 4 in Table 4 show a significant interaction between first-generation status and term-time employment among male graduates: Working more than 10 h per week during their studies benefits First-Generation men more

than Continuing-Generation men 18 months after graduation in terms of salary. These differences still exist 60 months after graduation, but they are slightly smaller. For female graduates, no such effect was found (see Models 1 and 3 in Table 4).

6 | Discussion

This study investigated whether working alongside studying 'pays off' and whether intersectional effects of first-generation status, term-time employment and gender can be identified. Our study reveals three major findings:

First, our results show that only time-consuming employment seems to have a beneficial effect on the likelihood of being employed as well as the salary level after graduation, whereas marginal employment does not. This is consistent with signalling theory, emphasising that the type of work that students undertake matters (Weiss et al. 2014; Luchinskaya and Tzanakou 2025). As marginal employment is often associated with 'typical student jobs', such as working in the service sector, particularly in retail and hospitality (Broadbridge and Swanson 2005), it appears that it cannot serve as a positive signal of graduates' abilities or serve as a way to increase social capital in order to gain advantages when entering the graduate labour market. For those, however, who successfully manage to balance their studies and time-consuming paid work—term-time employment 'pays off'.

Second, our study shows that First-Generation graduates were not only more likely to be engaged in term-time employment during their studies than their Continuing-Generation peers, but that they also benefited slightly more from working alongside their studies in terms of salaries compared to Continuing-Generation graduates. However, this small effect decreases further 60 months after graduation. The (short-term) positive effect can be explained by First-Generation graduates probably entering the graduate labour market with more work experience, supporting human capital and signalling theories suggesting that working enhances marketable skills and knowledge, and social capital theory suggesting that student work can be used to build valuable relationships for entering graduate employment. We know from previous studies that work experience is unequally distributed among students with different social origins (Lessky and Unger 2022; Weiss and Roksa 2016; Triventi 2013), which has raised questions about whether this affects social inequalities: 'if lower class children are more likely to work during higher education and, at the same time, work experience gives access to better remunerated occupations, this effect may contribute to partially reducing inequalities among graduates with different social origins' (Passaretta and Triventi 2015, 233). Based on our findings, we argue, however, that even though First-Generation graduates were more often engaged in employment during their studies and therefore might have offset some of the disadvantages they face when entering the graduate labour market (see e.g., Ingram et al. 2023), this engagement does not translate into higher salaries or a sustainable advantage regarding graduate outcomes. Rather, both groups (First-Generation and Continuing-Generation graduates) tend to benefit from term-time employment and those from more privileged backgrounds are likely to catch up over time.

Third, we found differences in graduate outcomes between male and female First-Generation university graduates: While male First-Generation graduates tend to profit more from their student employment compared to male Continuing-Generation graduates, no differences were observed between female First-Generation and Continuing-Generation graduates. This is echoed by previous research showing that parental educational background and the ascribed social (dis)advantages affect men and women differently (Reiss et al. 2023; Adamecz-Völgyi et al. 2023). This can be partly explained by (1) male students maybe being more likely to access student employment related to certain fields that are underpinned by more favourable labour market dynamics in which these employment opportunities operate (such as STEM) (Luchinskaya and Tzanakou 2025); and (2) First-Generation men earning higher returns on their endowments than male Continuing-Generation graduates and thus compensating for their relative social disadvantage (Adamecz-Völgyi et al. 2023). Therefore, our findings underscore that the effects of educational heritage on graduate outcomes are gendered, which highlights the importance of further intersectional analyses in higher education studies and beyond.

7 | Limitations and Future Research

This study, however, has some limitations that need to be discussed. As demonstrated in the literature review, research suggests that especially field-related and voluntary work experience has positive effects on graduate outcomes (Weiss et al. 2014). Since we used administrative data, we have no information about the nature of student employment other than work intensity (marginal, part-time or full-time employment). In this regard, combining administrative data with survey data, as for example Li and Jackson (2024) did in their investigation of students' experiences of higher education in Australia, could be a key objective for future research to address this issue.

Due to data limitations, the present analysis is also constrained to the initial 5 years following graduation. However, our analysis shows that the impact of term-time employment on labour market success diminishes over time, which is echoed by other studies (see e.g., Weiss et al. 2014). Therefore, we expect that an extension of the observation period would not drastically change our results. When using register data, the labour market indicators that are available for consideration are limited to employment status and income. It is not possible to include other factors such as underemployment or job satisfaction. It could be worthwhile to expand the analysis in future studies to include these measurements, again via survey linkages (e.g., to EUROGRADUATE data).

In addition, only graduates who were successful in managing high workloads in both spheres—student employment and university studies—are investigated (i.e., high achievers). This could also explain the relatively small parental education effect on salaries in addition to the highly selective Austrian education system (Binder 2024). However, we still know little about those leaving prior to graduation and how the effects of term-time employment, first-generation status and gender are related to future labour market outcomes of those who leave university early. This marks another considerable gap for

future research. Furthermore, first-generation status is only a one-dimensional indicator for socioeconomic status or social class. However, latest research showed that parental education is the single most important indicator of social origins on educational attainment (Bukodi et al. 2021). Still, more nuanced research according to social origin and inequalities in graduate outcomes is desirable.

Another limitation of our study is emphasised by recent research arguing that graduate outcomes and their influencing factors need to be measured in a more complex manner, including career engagement strategies (e.g., career planning and networking), metacognitive awareness (knowledge and regulation of cognition) as well as non-financial components of job quality (Tuononen et al. 2024; Nathwani 2023). Nor did our study investigate differences between various academic disciplines, even though research suggests that the effects of student employment are likely to differ by discipline (Argentin 2010). For example, the labour market demand for practical skills could be lower for humanities graduates than graduates from other disciplines and the hiring processes in different fields could be more or less institutionalised (Passaretta and Triventi 2015). In this article, we were interested in the overall intersectional effects of student employment, first-generation status, and gender—independently from the field of study. However, taking this differentiation into account seems to represent a promising area for future research on this topic. Finally, we caution that the labour market that graduates enter is dynamic and complex. It is often not the case that graduates choose to enter jobs that neatly align with gaps in the labour market (Hewitt 2020). In the United Kingdom, for example, the underemployment rate for graduates is around 31% (level of education is higher than required for the job) (Savic 2019), while skill shortages still persist. This should be investigated further in future research drawing on additional information available in survey data as well as through country-comparative research.

8 | Concluding Remarks

This study shed light on a group of graduates that tend to work a higher number of hours during their studies, First-Generation graduates, but at the same time, can experience disadvantages when entering the graduate labour market (Bunn et al. 2022; Burke et al. 2020). By doing so, we gained a deeper understanding of how First-Generation graduates in Austria engaged in paid work while studying and the interrelationships between paid work, first-generation status, and gender.

Results showed that First-Generation graduates' work experience during their studies can lead to positive outcomes on the graduate labour market. However, these positive effects decrease over time. In order to make sure that First-Generation graduates can translate their degree into positive outcomes on the labour market, we need to recognise the crucial role of universities in foregrounding the acquisition of social capital (e.g., establishing networks among students and staff as well as partnerships with employers). Factors related to social capital formation are not yet sufficiently reflected in current administrative and graduate outcomes survey (GOS) data (Lessky and Dollinger 2025) despite the extensive amount of research pinpointing the importance of this form of capital for graduate outcomes—particularly with regard to first-generation status (McCafferty et al. 2024; O'Shea 2023). Higher education institutions are also responsible for enabling students to reflect on their (career) progress. Work-integrated learning (WIL) and career development learning (CDL) can help students to translate work experience into work-related capital (Jackson and Li 2024). Best practice principles can be found, for example, in an extensive report written by Austin et al. (2022).

With regard to gender, our findings support research emphasising the importance of continuing and strengthening measures aimed at reducing gendered field of study and career choices. We might particularly focus on how potential wage penalties for First-Generation women can be reduced. Lastly, we recommend that more information should be collected about the nature of students' paid work experiences (e.g., relation to field of study) to enable more in-depth analysis of hidden inequalities related to intersectional effects on graduate outcomes.

Author Contributions

Franziska Lessky: conceptualization, writing – original draft, writing – review and editing, funding acquisition, investigation, methodology, project administration, supervision. **David Binder:** investigation, funding acquisition, methodology, writing – review and editing, software, formal analysis, resources, data curation.

Ethics Statement

As a secondary analysis of administrative data, the research presented here is non-interventional. The scientific use of this administrative data is covered by the Austrian data protection legislation (Bundesstatistikgesetz § 31) and adheres to the GDPR. Access to the data was provided under an agreement predetermining the scientific purposes of the data usage with STATISTICS AUSTRIA. All outputs are controlled by STATISTICS AUSTRIA to guarantee compliance with data protection guidelines, thereby ensuring that the de-anonymisation of individuals is impossible.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from STATISTICS AUSTRIA. Restrictions apply to the availability of these data, which were used under license for this study.

Endnotes

[1] Since our main research interest is exploring the impact of work experience, we had to exclude those graduates. Furthermore, no information on income is provided for those living abroad or who are self-employed, which is why they were excluded.

[2] Heteroscedasticity-robust standard errors were used for calculating significance levels. Additionally, logistic models were calculated to check the robustness of our models. The outcomes of these computations are highly congruent.

[3] Because the models do not violate OLS model assumptions and since OLS regression offers straightforward interpretations, we chose to stick with the OLS model.

[4] Few unreasonably low values (<800€) and outliers (40 values >20,000€) were not considered for further analysis.

[5] While we acknowledge that a person's gender is not always congruent with a person's biological sex assigned at birth, this data only assesses the binary categories men versus women.

References

Adamecz-Völgyi, A., M. Henderson, and N. Shure. 2023. "The Labor Market Returns to 'First-In-Family' University Graduates." *Journal of Population Economics* 36, no. 3: 1395–1429.

Allen, K., J. Quinn, S. Hollingworth, and A. Rose. 2013. "Becoming Employable Students and 'Ideal' Creative Workers: Exclusion and Inequality in Higher Education Work Placements." *British Journal of Sociology of Education* 34, no. 3: 431–452.

Angrist, J., and J.-S. Pischke. 2008. *Mostly Harmlesss Econometrics: An Empiricist's Companion*. Princeton University Press.

Argentin, G. 2010. "University Pathways and Graduate Labour Market Outcomes in Italy: What Matters Where? Horizontal Stratification of Higher Education, Educational Performance, Previous Work Experience and Labour Market Transition." *Italian Journal of Sociology of Education* 2: 107–147.

Arum, R., and J. Roksa. 2011. *Academically Adrift: Limited Learning on College Campuses*. University of Chicago Press.

Aslam, A., and W. Lehmann. 2021. "The School-To-Work Transitions of Second-Generation Immigrant Youth." *Canadian Review of Sociology/Revue canadienne de sociologie* 58, no. 4: 492–512. https://doi.org/10.1111/cars.12359.

Austin, K., S. O'Shea, O. Groves, and J. Lamanna. 2022. *Best-Practice Career Education for Students From Low Socioeconomic Status Backgrounds: Final Report*. National Centre for Student Equity in Higher Education, Curtin University. https://www.acses.edu.au/app/uploads/2022/11/2022-NCSEHE-Austin-Final.pdf.

Austrian Economic Chambers. 2023. "Hiring Personnel—But the Right Way!" https://www.wko.at/oe/einstellen/hiringpersonnel-buttherightway.pdf.

Baert, S., O. Rotsaert, D. Verhaest, and E. Omey. 2016. "Student Employment and Later Labour Market Success: No Evidence for Higher Employment Chances." *Kyklos* 69, no. 3: 401–425. https://doi.org/10.1111/kykl.12115.

Bathmaker, A.-M., N. Ingram, J. Abrahams, A. Hoare, R. Waller, and H. Bradley. 2016. *Higher Education, Social Class and Social Mobility: The Degree Generation*. Springer eBook Collection Education, Palgrave Macmillan. https://doi.org/10.1057/978-1-137-53481-1.

Bathmaker, A.-M., N. Ingram, and R. Waller. 2013. "Higher Education, Social Class and the Mobilisation of Capitals: Recognising and Playing the Game." *British Journal of Sociology of Education* 34, no. 5–6: 723–743. https://doi.org/10.1080/01425692.2013.816041.

Beattie, I. R. 2018. "Sociological Perspectives on First-Generation College Students." In *Handbook of the Sociology of Education in the 21st Century*, edited by B. Schneider, 171–191. Springer.

Becker, G. S. 2009. *Human Capital: A Theoretical and Empirical Analysis, With Special Reference to Education*. 3rd ed. University of Chicago Press.

Becker, R., and B. Kortendiek, eds. 2010. *Handbuch Frauen- und Geschlechterforschung: Theorie, Methoden, Empirie*. 3nd ed. Springer VS.

Binder, D. 2024. "Why Do Parental Education Effects on Wages Differ by Study Fields? An Analysis of Bachelor- and Master Graduates in Austria." *European Journal of Higher Education*: 1–25. https://doi.org/10.1080/21568235.2024.2397972.

Blau, F. D., and L. M. Kahn. 2007. "The Gender Pay Gap: Have Women Gone as Far as They Can?" *Academy of Management Perspectives* 21, no. 1: 7–23.

Bourabain, D. 2021. "Everyday Sexism and Racism in the Ivory Tower: The Experiences of Early Career Researchers on the Intersection of Gender and Ethnicity in the Academic Workplace." *Gender, Work and Organization* 28, no. 1: 248–267.

Bourdieu, P. 2012. "Ökonomisches Kapital, kulturelles Kapital, soziales Kapital. In U. Bauer, U. H. Bittlingmayer, & A. Scherr (Eds.), Handbuch Bildungs- und Erziehungssoziologie (pp. 229-242). Springer VS. Erstveröffentlichung in: R. Kreckel (1983) (Hg.). Soziale Ungleichheiten." *Soziale Welt, Sonderband* 2: 183–198.

Broadbridge, A., and V. Swanson. 2005. "Earning and Learning: How Term-Time Employment Impacts on Students' Adjustment to University Life." *Journal of Education and Work* 18, no. 2: 235–249. https://doi.org/10.1080/13639080500086008.

Brooks, R., A. Gupta, and S. Jayadeva. 2021. "Higher Education Students' Aspirations for Their Post-University Lives: Evidence From Six European Nations." *Children's Geographies* 21: 1–190. https://doi.org/10.1080/14733285.2021.1934403.

Bukodi, E., J. H. Goldthorpe, and Y. Zhao. 2021. "Primary and Secondary Effects of Social Origins on Educational Attainment: New Findings for England." *British Journal of Sociology* 72, no. 3: 627–650. https://doi.org/10.1111/1468-4446.12845.

Bunn, M., P. J. Burke, and S. Threadgold. 2022. "Classed Trajectories in Higher Education and the Graduate Labour Market: Affective Affinities in a 'Meritocracy'." *British Journal of Sociology of Education* 43, no. 8: 1273–1287.

Burke, C., T. Scurry, and J. Blenkinsopp. 2020. "Navigating the Graduate Labour Market: The Impact of Social Class on Student Understandings of Graduate Careers and the Graduate Labour Market." *Studies in Higher Education* 45, no. 8: 1711–1722. https://doi.org/10.1080/03075079.2019.1702014.

Cappelli, P. 2020. "The Return on a College Degree: The US Experience." *Oxford Review of Education* 46, no. 1: 30–43. https://doi.org/10.1080/03054985.2019.1689939.

Carr, R. V., J. D. Wright, and C. J. Brody. 1996. "Effects of High School Work Experience a Decade Later: Evidence From the National Longitudinal Survey." *Sociology of Education* 69: 66–81.

Chevalier, A. 2007. "Education, Occupation and Career Expectations: Determinants of the Gender Pay Gap for UK Graduates." *Oxford Bulletin of Economics and Statistics* 69, no. 6: 819–842.

Christie, F., and C. Burke. 2021. "Stories of Family in Working-Class Graduates' Early Careers." *British Educational Research Journal* 47, no. 1: 85–104. https://doi.org/10.1002/berj.3689.

Christie, H., V. E. Cree, E. Mullins, and L. Tett. 2018. "'University Opened Up So Many Doors for Me': The Personal and Professional Development of Graduates From Non-Traditional Backgrounds." *Studies in Higher Education* 43, no. 11: 1938–1948. https://doi.org/10.1080/03075079.2017.1294577.

Codiroli Mcmaster, N. 2019. "What Role Do Students' Enjoyment and Perception of Ability Play in Social Disparities in Subject Choices at University?" *British Journal of Sociology of Education* 40, no. 3: 357–377. https://doi.org/10.1080/01425692.2018.1541311.

Correll, S. J., S. Benard, and I. Paik. 2007. "Getting a Job: Is There a Motherhood Penalty?" *American Journal of Sociology* 112, no. 5: 1297–1338. https://doi.org/10.1086/511799.

Dacuycuy, L. B., and C. Bayudan-Dacuycuy. 2019. "Understanding the Educational Mobility of Men and Women and the Schooling Progression of Boys and Girls in the Philippines: A Regional Perspective (Working Paper No. 2019-03)." PIDS Discussion Paper Series. https://www.econstor.eu/handle/10419/211077.

Eurostat. 2024. "Unemployment by Sex, Age and Educational Attainment (1998–2020)—Annual Data." https://ec.europa.eu/eurostat/databrowser/view/UNE_EDUC_A_H__custom_2709395/default/table?lang=en.

Fernando, D., and E. J. Kenny. 2021. "Negotiating a Sense of Fit in Elite Higher Education: Exploring the Identity Work of 'Widening Participation' Students." *Academy of Management Learning & Education* 20, no. 2: 133–155.

Ford, K. 2018. "Persisting Gaps: Labor Market Outcomes and Numeracy Skill Levels of First-Generation and Multi-Generation College Graduates in the United States." *Research in Social Stratification and Mobility* 56: 21–27. https://doi.org/10.1016/j.rssm.2018.06.003.

Foschi, M., L. Lai, and K. Sigerson. 1994. "Gender and Double Standards in the Assessment of Job Applicants." *Social Psychology Quarterly* 57: 326–339. https://doi.org/10.2307/2787159.

Gazeley, L., and T. Hinton-Smith. 2023. "Conceptualising Prospective First-Generation Entrants' Higher Education Decision-Making as an 'Ecology of Intersecting Influences' and an 'Elastic Plane'." *Higher Education Research and Development* 43, no. 1: 76–91.

Geel, R., and U. Backes-Gellner. 2012. "Earning While Learning: When and How Student Employment Is Beneficial." *Labour* 26, no. 3: 313–340. https://doi.org/10.1111/j.1467-9914.2012.00548.x.

Granovetter, M. 1983. "The Strength of Weak Ties: A Network Theory Revisited." *Sociological Theory* 1: 201. https://doi.org/10.2307/202051.

Granovetter, M. S. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78, no. 6: 1360–1380. https://doi.org/10.1086/225469.

Groves, O., S. O'Shea, and J. Delahunty. 2022. "'I Don't Understand It': First in Family Graduates Recognising and Mobilising Capitals for Employment." *Journal of Education and Work* 35, no. 3: 293–306. https://doi.org/10.1080/13639080.2022.2059454.

Gugushvili, A., E. Bukodi, and J. H. Goldthorpe. 2017. "The Direct Effect of Social Origins on Social Mobility Chances: 'Glass Floors' and 'Glass Ceilings' in Britain." *European Sociological Review* 33, no. 2: 305–316. https://doi.org/10.1093/esr/jcx043.

Hällsten, M. 2013. "The Class-Origin Wage Gap: Heterogeneity in Education and Variations Across Market Segments." *British Journal of Sociology* 64, no. 4: 662–690. https://doi.org/10.1111/1468-4446.12040.

Hauschildt, K., C. Gwosć, H. Schirmer, and F. Wartenbergh-Cras. 2021. "Social and Economic Conditions of Student Life in Europe: Eurostudent VII: Synopsis of Indicators 2018–2021." https://doi.org/10.3278/6001920dw.

Helyer, R., and D. Lee. 2014. "The Role of Work Experience in the Future Employability of Higher Education Graduates." *Higher Education Quarterly* 68, no. 3: 348–372. https://doi.org/10.1111/hequ.12055.

Henderson, M., N. Shure, and A. Adamecz-Volgyi. 2019. "'First in Family' University Graduates in England." IZA Institute of Labour Economics, Discussion Paper Series, Bonn: Germany.

Hewitt, R. 2020. "Getting on: Graduate Employment and its Influence on UK Higher Education: HEPI Report 126."

Holmes, L. 2013. "Competing Perspectives on Graduate Employability: Possession, Position or Process?" *Studies in Higher Education* 38, no. 4: 538–554. https://doi.org/10.1080/03075079.2011.587140.

Hotz, V. J., L. C. Xu, and M. Tienda. 2002. "Are There Returns to the Wages of Young Men From Working While in School?" *Review of Economics and Statistics* 84, no. 2: 221–236.

Huber, M., J. Zehetgruber, and J. Einfalt. 2022. "HRSM Project Graduate Tracking." https://www.statistik.at/fileadmin/pages/326/ATRACK_Projektbericht_2022-05-02_EN.pdf.

Hurst, A. L. 2018. "Classed Outcomes: How Class Differentiates the Careers of Liberal Arts College Graduates in the US." *British Journal of Sociology of Education* 39, no. 8: 1075–1093. https://doi.org/10.1080/01425692.2018.1455495.

Ingram, N., A.-M. Bathmaker, J. Abrahams, et al. 2023. "The Degree Generation." In *The Making of Unequal Graduate Lives*, 1st ed. Bristol University Press.

Isopahkala-Bouret, U., G. Tholen, and A. van Zanten. 2023. "Introduction to the Special Issue: Positionality and Social Inequality in Graduate Careers." *Journal of Education and Work* 36, no. 1: 1–8.

Jackson, D., and I. Li. 2024. "Perceived Skill Outcomes Among Coursework and Research Graduates and Evolution Over Time." *Journal of Further and Higher Education* 48, no. 4: 449–466.

Lee, J. 2021. "A Future of Endless Possibilities? Institutional Habitus and International Students' Post-Study Aspirations and Transitions." *British Journal of Sociology of Education* 42, no. 3: 404–418. https://doi.org/10.1080/01425692.2021.1886907.

Lehmann, W. 2021. "Conflict and Contentment: Case Study of the Social Mobility of Working-Class Students in Canada." *European Journal of Education* 56, no. 1: 41–52. https://doi.org/10.1111/ejed.12431.

Lessky, F., and M. Dollinger. 2025. "An International Comparison of Graduate Outcome Survey Instruments: A Critical Reflection." *Journal of Higher Education Policy and Management* 1–22: 1–22. https://doi.org/10.1080/1360080X.2025.2491884.

Lessky, F., E. Nairz, and M. Wurzer. 2022. "Social Selectivity and Gender-Segregation Across Fields of Study: Comparative Evidence From Austria." *International Journal of Comparative Sociology* 63, no. 4: 201–221. https://doi.org/10.1177/00207152221099171.

Lessky, F., and M. Unger. 2022. "Working Long Hours While Studying: A Higher Risk for First-In-Family Students and Students of Particular Fields of Study?" *European Journal of Higher Education* 13, no. 3: 347–366. https://doi.org/10.1080/21568235.2022.2047084.

Li, I. W., and D. Jackson. 2024. "Influence of Entry Pathway and Equity Group Status on Retention and the Student Experience in Higher Education." *Higher Education* 87, no. 5: 1411–1431.

Light, A. 1999. "High School Employment, High School Curriculum, and Post-School Wages." *Economics of Education Review* 18: 291–309.

Light, A. 2001. "In-School Work Experience and the Returns to Schooling." *Journal of Labor Economics* 19: 65–93.

Lopez, N. 2003. *Hopeful Girls, Troubled Boys: Race and Gender Disparity in Urban Education*. Psychology Press.

Luchinskaya, D., and C. Tzanakou. 2025. "Under (Employability and Financial) Pressure: The Unequal Effects of Work Experience on Graduate Earnings." *Studies in Higher Education* 50: 1–973. https://doi.org/10.1080/03075079.2025.2490801.

Manzoni, A., and J. Streib. 2019. "The Equalizing Power of a College Degree for First-Generation College Students: Disparities Across Institutions, Majors, and Achievement Levels." *Research in Higher Education* 60, no. 5: 577–605. https://doi.org/10.1007/s11162-018-9523-1.

Marginson, S. 2016. "The Worldwide Trend to High Participation Higher Education: Dynamics of Social Stratification in Inclusive Systems." *Higher Education* 72, no. 4: 413–434. https://doi.org/10.1007/s10734-016-0016-x.

Masevičiūtė, K., V. Šaukeckienė, and E. Ozolinčiūtė. 2018. *Combining Studies and Paid Jobs: Thematic Review*. UAB.

Mayrhofer, W., M. Meyer, M. Schiffinger, and A. Schmidt. 2008. "The Influence of Family Responsibilities, Career Fields and Gender on Career Success: An Empirical Study." *Journal of Managerial Psychology* 23, no. 3: 292–323.

McCafferty, H., M. Tomlinson, and S. Kirby. 2024. "'You Have to Work Ten Times Harder': First-In-Family Students, Employability and Capital Development." *Journal of Education and Work* 37, no. 1–4: 32–47. https://doi.org/10.1080/13639080.2024.2383561.

Meyer, B. D., W. K. C. Mok, and J. X. Sullivan. 2015. "Household Survey in Crisis." *Journal of Economic Perspectives* 29, no. 4: 199–226. https://doi.org/10.1257/jep.29.4.199.

Monteiro, S., L. Almeida, C. Gomes, and J. Sinval. 2022. "Employability Profiles of Higher Education Graduates: A Person-Oriented Approach." *Studies in Higher Education* 47, no. 3: 499–512.

Mood, C. 2010. "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It." *European Sociological Review* 26, no. 1: 67–82.

Morgenroth, T., M. K. Ryan, and A. L. Sønderlund. 2021. "Think Manager–Think Parent? Investigating the Fatherhood Advantage and the Motherhood Penalty Using the Think Manager–Think Male Paradigm." *Journal of Applied Social Psychology* 51, no. 3: 237–247.

Nathwani, T. 2023. *Adding Value to UK Graduate Labour Market Statistics: The Creation of a Non-Financial Composite Measure of Job Quality*. HESA.

O'Brien, K., T. W. Fitzsimmons, M. Crane, and B. Head. 2017. "Workplace Gender Inequality as a Wicked Problem: Implications for Research and Practice." *Academy of Management Proceedings* 2017: 14717.

OECD. 2023a. *Equity and Inclusion in Education: Finding Strength Through Diversity*. OECD Publishing. https://doi.org/10.1787/e9072e21-en.

OECD. 2023b. "Education at a Glance 2023." OECD Indicators. https://doi.org/10.1787/19991487.

O'Shea, S. 2020. *'Mind the Gap!' Exploring the Postgraduation Outcomes and Employment Mobility of Individuals Who are First in Their Family to Complete a University Degree. Final Report*. NCSEHE.

O'Shea, S. 2023. "'It Was Like Navigating Uncharted Waters': Exposing the Hidden Capitals and Capabilities of the Graduate Marketplace." *Journal of Higher Education Policy and Management*: 1–14. https://doi.org/10.1080/1360080X.2023.2180161.

Parent, D. 2006. "Work While in High School in Canada: Its Labour Market and Educational Attainment Effects." *Canadian Journal of Economics* 39: 1125–1150.

Passaretta, G., P. Barbieri, M. H. Wolbers, and M. Visser. 2018. "The Direct Effect of Social Origin on Men's Occupational Attainment Over the Early Life Course: An Italian–Dutch Comparison." *Research in Social Stratification and Mobility* 56: 1–11. https://doi.org/10.1016/j.rssm.2018.04.002.

Passaretta, G., and M. Triventi. 2015. "Work Experience During Higher Education and Post-Graduation Occupational Outcomes: A Comparative Study on Four European Countries." *International Journal of Comparative Sociology* 56, no. 3–4: 232–253. https://doi.org/10.1177/0020715215587772.

Pitman, T., L. Roberts, D. Bennett, and S. Richardson. 2019. "An Australian Study of Graduate Outcomes for Disadvantaged Students." *Journal of Further and Higher Education* 43: 45–57. https://doi.org/10.1080/0309877X.2017.1349895.

Rader Sipe, S., L. Larson, B. A. McKay, and J. Moss. 2016. "Taking Off the Blinders: A Comparative Study of University Students' Changing Perceptions of Gender Discrimination in the Workplace From 2006 to 2013." *Academy of Management Learning & Education* 15, no. 2: 232–249.

Reiss, L. K., M. Schiffinger, M. L. Rapp, and W. Mayrhofer. 2023. "Intersectional Income Inequality: A Longitudinal Study of Class and Gender Effects on Careers." *Culture and Organization*: 1–20. https://doi.org/10.1080/14759551.2023.2232505.

Rivera, L. A., and A. Tilcsik. 2016. "Class Advantage, Commitment Penalty:The Gendered Effect of Social Class Signals in an Elite Labor Market." *American Sociological Review* 81, no. 6: 1097–1131.

Robotham, D. 2013. "Students' Perspectives on Term-Time Employment: An Exploratory Qualitative Study." *Journal of Further and Higher Education* 37, no. 3: 431–442. https://doi.org/10.1080/0309877X.2012.666892.

Savic, M. 2019. "Overeducation and Hourly Wages in the UK Labour Market; 2006 to 2017." https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/april2019/overeducationandhourlywagesintheuklabourmarket2006to2017.

Spence, M. 1973. "Job Market Signaling." *Quarterly Journal of Economics* 87, no. 3: 355. https://doi.org/10.2307/1882010.

Spexard, A., D. Weichert, R. Warkotsch, and O. Engel. 2022. "Chancengleich vom Studium in den Beruf?" https://doi.org/10.18452/24413.

Sprengholz, M., and M. Hamjediers. 2022. "Intersections and Commonalities: Using Matching to Decompose Wage Gaps by Gender and Nativity in Germany." *Work and Occupations* 51: 1–38.

Tomlinson, M. 2008. "'The Degree Is Not Enough': Students' Perceptions of the Role of Higher Education Credentials for Graduate Work and Employability." *British Journal of Sociology of Education* 29, no. 1: 49–61. https://doi.org/10.1080/01425690701737457.

Tomaszewski, W., F. Perales, N. Xiang, and M. Kubler. 2021. "Beyond Graduation: Socio-Economic Background and Post-University Outcomes of Australian Graduates." *Research in Higher Education* 62, no. 1: 26–44. https://doi.org/10.1007/s11162-019-09578-4.

Torche, F. 2011. "Is a College Degree Still the Great Equalizer? Intergenerational Mobility Across Levels of Schooling in the United States." *American Journal of Sociology* 117, no. 3: 763–807. https://doi.org/10.1086/661904.

Triventi, M. 2013. "Stratification in Higher Education and Its Relationship With Social Inequality: A Comparative Study of 11 European Countries." *European Sociological Review* 29, no. 3: 489–502.

Tuononen, T., M. Räisänen, and H. Hyytinen. 2024. "Students' Work Experience in Relation to Their Career Engagement and Metacognitive Awareness." *Higher Education Research and Development* 43: 1–1415.

Unger, M., D. Binder, A. Dibiasi, et al. 2020. *Studierenden-Sozialerhebung 2019: Kernbericht*. Institute for Advanced Studies.

Weiss, F., M. Klein, and T. Grauenhorst. 2014. "The Effects of Work Experience During Higher Education on Labour Market Entry: Learning by Doing or an Entry Ticket?" *Work, Employment and Society* 28, no. 5: 788–807.

Weiss, F., and J. Roksa. 2016. "New Dimensions of Educational Inequality: Changing Patterns of Combining College and Work in the U.S. Over Time." *Research in Social Stratification and Mobility* 44: 44–53. https://doi.org/10.1016/j.rssm.2016.02.001.

Witteveen, D., and P. Attewell. 2021. "Delayed Time-to-Degree and Post-College Earnings." *Research in Higher Education* 62, no. 2: 230–257. https://doi.org/10.1007/s11162-019-09582-8.

Supporting Information

Additional supporting information can be found online in the Supporting Information section.