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RESEARCH ARTICLE



# Working long hours while studying: a higher risk for First-in-Family students and students of particular fields of study?

Franziska Lessky <sup>a</sup> and Martin Unger<sup>b</sup>

<sup>a</sup>Department for Higher Education Research, University for Continuing Education Krems, Krems, Austria;

<sup>b</sup>Research Group HER (Higher Education Research), Institute for Advanced Studies, Vienna, Austria

## ABSTRACT

Student employment has become widespread across many European countries, eliciting the question of how working while studying affects student retention. Previous research mostly agrees that it does by arguing that firstly, students who work long hours (i.e. more than 10 h per week) are more likely to leave university early, and also shows that students without academic family backgrounds (i.e. First-in-Family students) are more likely to enter term-time employment. However, little attention has been paid to investigating the factors predicting students' decision to enter time-consuming employment while studying, and little differentiating between fields of study. Our study, which is based on a sample of 47,228 university students in Austria, reveals that the risk of working long hours differs considerably among various groups of students. Besides financial necessity, the results show that seeking work experience and not coming from an academic family background are also strong predictors for entering time-consuming employment, especially for business students. We suggest that higher education educators should effectively address this issue by working more closely with employers, industry representatives, professionals and students. We stress that universities should support their students in building networks, gaining insights into entry-level work and bridging the gap to graduate employment.

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## KEYWORDS

Higher education; First-in-Family students; student employment; social inequality; fields of study

## 1. Introduction

Student employment has become a widespread phenomenon across many European countries and a common practice among university students in general (Bacher and Wetzelhütter 2014; Broadbridge and Swanson 2005; Darolia 2014; König 2018). According to EUROSTUDENT data, the percentage of working university students in European countries has risen to about 70% in the Netherlands, the Czech Republic and Germany (see Figure A1 in the appendix). As far as employment levels are concerned, working students in Western Europe spend an average of 23–28 h per week in a paid job, whereas working students in central and Eastern Europe may work up to and

**CONTACT** Franziska Lessky  [franziska.lessky@donau-uni.ac.at](mailto:franziska.lessky@donau-uni.ac.at)  @flessky

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exceeding 30 h per week during the semester (Masevičiūtė, Šaukeckienė, and Ozolinčiūtė 2018).

The growing number of working students can be attributed partly to changes in the student population with regard to socio-demographic and socio-economic characteristics. Most studies focus on characteristics such as gender, age, the educational attainment levels of parents or ethnicity, while others argue that new ways of understanding the university experience have emerged to shift attitudes towards combining academic studies with other experiences or responsibilities and have made these practices more common (Mägi et al. 2012; Sanchez-Gelabert, Figueroa, and Elias 2017). The growing number of working students have partly been caused by broadening access to university and the increased participation of previously underrepresented groups and students with specific needs in higher education (Holmegaard, Madsen, and Ulriksen 2017). Other reasons include rising cost of living, the increasingly competitive labour market and fundamental labour market upheavals in today's globalised and rapidly changing world (Callender 2008; Lairio, Puukari, and Kouvo 2013; Moreau and Leathwood 2006). Uncertainty regarding future career opportunities is another reason for students seeking work alongside their studies (Hall 2010). What is more, students increasingly recognise undertaking work experience as a good strategy for obtaining employment after graduation (O'Shea 2020; Robotham 2013).

A highly relevant question for policy-makers in this context is how term-time employment affects student retention, since previous research mostly agrees that – besides positive effects of term-time employment (e.g. gaining working experience) – students who work long hours are more likely to leave university early (Body, Bonnal, and Giret 2014; Bacher and Wetzelhütter 2014; Carney, McNeish, and McColl 2005; Curtis and Shani 2002; Darolia 2014; Hall 2010; Hovdhaugen 2015; König 2018; Landstedt et al. 2017; O'Shea 2020; Richardson et al. 2013; Riggert et al. 2006; Robotham 2013). According to recent research in Austria, once students work more than 10 h per week, their academic success decreases (Unger et al. 2020). This result echoes international research findings (Cinamon 2016; Darmody and Smyth 2008; Heublein et al. 2017), which is why 10 h can be seen as the threshold.

However, research on term-time student employment has paid little attention to the factors influencing students' decision to enter time-consuming employment (i.e. working more than 10 h per week). To our knowledge, previous studies have also neglected to analyse different groups of students – alongside educational background and fields of study – in more detail with regard to their employment levels (Callender 2008; Darmody and Smyth 2008; Hunt, Lincoln, and Walker 2004). Narrowing this research gap is of high relevance, since recent research stresses that studies need to pay more attention to the heterogeneity of the student population (Lessky, Nairz-Wirth, and Feldmann 2021; Pitman et al. 2019).

Our intent here is to look more critically at the factors that influence the decision to take on burdensome student employment. By taking various student groups alongside educational background (i.e. First-in-Family students) as well as fields of study (Education Sciences<sup>1</sup>, Business and Medicine) into account, we are able to draw a more differentiated picture and shed light on those students most likely to make this decision. The findings can be of value to policy makers and educators, who are committed to increasing

student success and dedicated to designing individualised and targeted student support that is effective in realising that goal.

Regarding the chosen empirical method, namely logistic regression modelling, we understand working more than 10 h per week as ‘time-consuming employment’. Our empirical data consists of a nation-wide representative sample from 2015 of 47,228 students in Austria (Austrian Student Social Survey). According to our methodological design and the selection of variables under investigation, we mainly draw on the theoretical model of Riggert et al. (2006) and current research findings (see Section 2). Our empirical model includes socio-economic characteristics (such as age, gender, educational attainment of parents, financial needs of students and personal motives for being a working student) as well as fields of study (Education Sciences, Business and Medicine). The selected fields of study vary according to the socio-economic background of their students (see also Table A1 in the appendix), course structure (e.g. number of small group formats with compulsory attendance vs. major events without compulsory attendance, etc.), institutional culture and prestige within academia and society.

By not only estimating one model that subsumes student groups (see research question 1 below), but by also calculating separate models for sub-samples e.g. First-in-Family students and students in different fields of study (see research question 2 below), we are able to investigate the following research questions: (1) Can students’ decision to enter time-consuming employment be predicted based on socio-economic characteristics and fields of study? (2) Do effects vary among different groups of students?

The article proceeds as follows: Section 2 reviews current research and theoretical considerations regarding effects of time-consuming employment on student retention. Section 3 describes the Austrian context by focusing on its national higher education system. Section 4 focuses on the illustration of the set of data, the applied methods and the explanatory variables. Section 5 presents the empirical results of the logistic regression analyses. Section 6 summarises and discusses the research findings and provides implications for future research and educational policy.

## **2. Review of empirical evidence and theoretical considerations: understanding the effects of term-time employment on student retention**

Previous research on term-time employment in the U.S. (Darolia 2014), Australia (Hall 2010), New Zealand (Richardson et al. 2013), the UK (Callender 2008; Carney, McNeish, and McColl 2005; Curtis and Shani 2002; Hunt, Lincoln, and Walker 2004) and Germany (Bacher and Wetzelhütter 2014) has shown that time-consuming student employment has an overall negative effect on academic success with regard to final year marks, degree results or credits, and that they are more likely to struggle with combining work and study (Broadbridge and Swanson 2005; Metcalf 2003).

As far as the subjective well-being of working students is concerned, qualitative studies have shown that students entering time-consuming employment are more likely to report increased likelihood of illness and sleeping problems (Broadbridge and Swanson 2006; Robotham 2013). In summary, it seems that the amount of work determines whether or not term-time employment has negative effects on combining study and employment or increases the risk of attrition (Callender 2008; Darmody and Smyth 2008; Hall 2010; Landstedt et al. 2017).

Previous research also indicates that less privileged students are more likely to be affected negatively by term-time employment (Darmody and Smyth 2008; Darolia 2014; Hunt, Lincoln, and Walker 2004; König 2018). An example for such a student group are students who are the first in their families to attend university (i.e. First-in-Family students). Besides other concepts such as First-Generation students, working-class students or non-traditional students that are also widely used in the literature, and which include for example also the financial background of students or the occupation of their parents (see e.g. Archer and Hutchings 2000; Reay 2018; Bathmaker, Ingram, and Waller 2013), we decided to use the concept First-in-Family students, since it refers to the fact that these students cannot draw on the university experience of their parents to transition into and navigate through university (Byrom and Lightfoot 2012; Moreau and Leathwood 2006; Lessky, Nairz-Wirth, and Feldmann 2021; O'Shea 2020).

Essentially, this cohort does not necessarily have ready access to [...] familial 'inheritance codes' around education, which often means that these individuals are 'break[ing] the intergenerational cycle' of university non-attendance (Gofen 2009, p. 104). This is not to imply that this is a homogenous group but rather to draw attention to the possibility of gaps in knowledge or capitals when compared to other student populations (O'Shea and Delahunty 2018, 1064).

In that sense, the concept refers to the biographical experiences shaping the students' perceptions of e.g. going to university and working term-time. Research on First-in-Family students has shown that choosing to work while studying is strongly shaped by the familial history and the habitual structures within the family. First-in-Family students have often started working at an early age and perceive it as part of their identity (Lessky 2021). This echoes in research not only showing that First-in-Family students tend to work more often and also higher hours than students from academic backgrounds (Unger et al. 2020; O'Shea 2020), but that term-time employment has also a high subjective status within their everyday lives (Broadbridge and Swanson 2005, 2006).

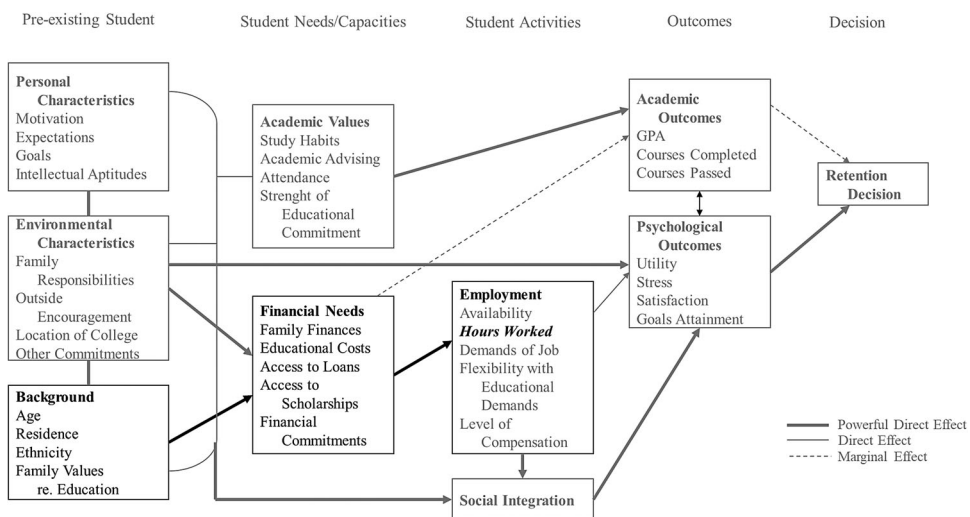
The group of First-in-Family students is of further interest, not only because of its growing proportion in almost all higher education systems, but also because of its lower academic success rates across most western countries (Nairz-Wirth and Feldmann 2015; Quinn 2013). In fact, there seems to be a strong link between low academic success rates with regard to retention and time-consuming employment (Spiegler and Bednarek 2013). Focusing on this group of students is crucial since student employment and student retention are related (see the theoretical model of Riggert et al. [2006] below).

In addition, integrating different fields of study in the analysis of time-consuming employment is required. Fields of study differ in terms of prestige and expected future labour market returns and research shows that students from different social backgrounds tend to choose different fields of study (Ayalon and Mcdossi 2019; Reimer and Pollak 2010). Students with a high socio-economic status are still strongly overrepresented in prestigious fields of study (Lörz, Schindler, and Walter 2011; Triventi, Vergolini, and Zanini 2017; Van de Werfhorst and Luijkx 2010). Furthermore, subjects that are associated with 'lucrative' professions (e.g. Medicine) are sought more often by economically privileged students (Helland and Wiborg 2019). Fields of study also differ according to how well or badly students are able to balance study and employment, e.g. attendance (e.g. in labs) is more demanded in some subjects, while in others self-study is more required. The more flexible a study programme is, the more likely study and employment

can be balanced. In addition, the time required for studying also differs among fields of study and thus affects the amount of time available for employment (DZHW 2018). For these reasons, we expect fields of study to play a crucial role in influencing students' participation in employment during the semester.

Regarding theoretical considerations on student employment, we draw on the theoretical model of Riggert et al. (2006). While various theoretical models are available regarding student and institutional characteristics related to student retention, employment mostly has not yet been addressed in a theoretical manner (Cinamon 2016). Riggert et al. (2006) developed a theoretical framework that represents a modified version of existing student retention-models (Bean and Metzner 1985; Tinto 1993) that takes the relationship between student employment and student retention into account. According to the model (see Figure 1), environmental (e.g. family responsibilities and location of college) and background characteristics (e.g. age and ethnicity) directly influence students' financial needs. In this regard, the following factors are crucial to how students finance their studies: a family's financial situation, the amount of study fees and other study-related costs, access to funding and scholarships as well as other financial responsibilities that students have to fulfil. These factors determine to what extent students need to work. Drawing on previous research, Riggert et al. (2006) argue that high levels of employment significantly affect students' capacity to socially integrate into the subgroups and culture of an institution. Social integration is considered of high importance with regard to psychological outcomes (e.g. stress or satisfaction), which, together with academic outcomes (e.g. completion of courses), are thought to play the most decisive role in the decision for retention (ibid.).

Regarding our methodological design, we mainly draw on parts of the model of Riggert et al. (2006) that are highlighted in black in Figure 1. Many quantitative empirical studies investigating the role of employment with regard to student retention use – at least to some extent – the student retention-models by Bean and Metzner (1985), Tinto (1993) or Heublein et al. (2017). However, as stated above, these theoretical



**Figure 1.** Model of the effects of student employment on student retention (Riggert et al. 2006, 74).

conceptualisations do not consider the role of student employment to a satisfactory extent (König 2018). By applying our empirical data on parts of the theoretical framework of Riggert et al. (2006), we are able to partly validate their model and further develop theoretical and empirical discussions on the influence of term-time employment on student retention.

In addition, our empirical model will be extended by considering other motives for being a working student, e.g. the wish to gain work experience or maintain a specific life-style (Unger et al. 2020), and fields of study (Education Sciences, Business and Medicine), which vary according to the socio-economic background of their students, course structure, institutional culture and prestige within academia and society.

Further, we compute not only one model including all valid cases, but we estimate separate models based on sub-samples (e.g. First-in-Family students, students in Education, etc.). By splitting the sample and analysing specific groups separately, we are able to investigate more clearly whether effects on working time-consumingly vary among different groups of students (see research question 2).

In summary, our study contributes to the existing literature in three ways: Firstly, we shed light on socio-economic factors that lead university students to enter time-consuming employment and fields of study that also influence students' decision to enter term-time employment. Secondly, by applying our empirical data to parts of the theoretical framework of Riggert et al. (2006), we partly validate this model that takes the relationship between term-time employment and student retention into account. We argue that the theoretical considerations need to be both validated and developed further in order to gain a deeper understanding of students experience and to explain the influence of several mechanisms on student retention. Thirdly, we are able to provide a differentiated analysis regarding different student groups by using a nation-wide sample of over 47,000 students.

### 3. Higher education in Austria

Around 350,000 people are studying at any given time at one of the more than 70 higher education institutions (HEIs) in Austria. The HEIs are divided into four sectors: public universities, (public) universities of applied sciences ('Fachhochschulen'), teacher training colleges and private universities. In contrast to other European countries, e.g. the UK, higher education in Austria only provides long-cycle courses above ISCED level 5. Short-cycle courses on ISCED level 5 are provided by high schools or other educational institutions. Since almost 80% of students are enrolled in public universities, this paper focuses on this higher education sector. Until 2005, public universities had to follow a strict open access policy, i.e. they had to accept any applicant with an upper secondary school leaving certificate (except for art and sports studies, where aptitude had to be proven). This led to several courses of study with a large number of students. In recent years, universities started to implement additional access restrictions for particular fields of study (e.g. medicine, psychology and teacher training). The new regulations are based on a targeted teacher-student-ratio per field of study.

EU citizens do not have to pay tuition fees at public universities as long as they do not exceed a certain duration of study. Domestic students can receive a study grant if their parents' income is not sufficient to support them or if they can prove that they have



maintained themselves through gainful employment for at least four years. This form of scholarship has also contributed to the fact that there is a relatively high proportion of students in Austria who start their university studies late, i.e. not immediately after leaving school. Therefore, the average age is 27 years (excluding doctoral students) and about 40% of students are older than 25 years (one of the highest proportions in Europe).

Officially, all students at public universities study full-time, as no part-time status formally exists. However, many students work during term time and are de facto part-time students. The proportion of working university students (62%, see Figure A1 in the appendix) and students who are struggling to balance study, employment and other areas of life (above 50%) is relatively high in Austria (Unger et al. 2020). The fact that Austrian universities have to date not offered a part-time student status aggravates the situation students are in. The resulting lack of attendance is often a reason students have to extend their studies to manage both working and studying. The continued neglect of the study of the correlation between longer study periods and term-time employment means the university system still perceives students as ‘traditional’ full-time students, whereby opportunities to combine work and study stay limited (ibid.). Although there is much empirical evidence suggesting that the student population in western countries no longer consists of traditional full-time students (Darmody and Fleming 2009; Unger et al. 2020), students are still seen as responsible themselves for balancing work and study.

## 4. Methods

In the following section we first describe the data collection. Secondly, we outline the variables and how they were integrated into the logistic regression models.

### 4.1. Data collection

We used data from the Austrian Student Social Survey, which is part of the broader EUROSTUDENT project and designed as a cross-sectional study. The survey provides representative data on 47,228 enrolled students with regard to their study situation and living conditions. For this article we used the data of students who gained their higher education entrance certificate in Austria and are completing their first course of study (Bachelor and diploma courses) at public universities (19,907 valid cases).

Besides the sample that is analysed in the basic regression model (model 1) to estimate whether students’ decision to enter time-consuming employment can be predicted based on socio-economic characteristics and fields of study (research question 1), we also split the sample into sub-samples to estimate whether effects vary among different groups of students (research question 2). By splitting the sample into sub-samples, we can not only analyse the effects of educational background and fields of study when controlling for other independent variables, but we can also compare the effects on working more than 10 h per week among different groups of students (e.g. the effect of age in Education Sciences vs. the effect of age in Medicine).

We constructed the following sub-samples: First-in-Family students (model 2), Non-First-in-Family students (model 3), students in Education Sciences (model 4), students in



Business (model 5) and students in Medicine (model 6). Our intent here is not to show a variation in the explanatory power of the models (Pseudo- $R^2$ ), but to compare the effect sizes of the same variables among the different groups of students.

## 4.2. Variables

We applied logistic regression models in order to estimate factors determining time-consuming employment. Students working for more than 10 h per week are regarded as having a time-consuming job ( $Y = 1$ ). Students who work fewer hours or do not work at all form the reference group ( $Y = 0$ ).<sup>2</sup> By defining time-consuming employment as working for more than 10 h per week, we draw upon existing empirical findings as well as theoretical considerations (see Section 2). Overall, 60% of students in our sample worked while they studied. Among the students who work term-time, almost 59% spend more than 10 h working per week, which is equivalent to almost 35% of the total student population (see Table A1 in the appendix).

The central independent variable (social background) is operationalised via the highest educational attainment of students' parents. Table A1 in the appendix illustrates descriptive statistics on the independent variables that are used. Firstly, the independent variables with regard to the number of students who entered time-consuming employment are depicted.<sup>3</sup> Secondly, descriptive statistics for students from non-academic families (FiF-students) and academic families (Non-FiF-students) are displayed and thirdly, the table shows data for students from three different fields of study (Education Sciences, Business and Medicine).

The first explanatory component (background) is additionally measured according to gender (male vs. female) and age (under 22 years old vs. several age groups). Age has been added as a categorical variable and not as a metric variable, as the latter is not proportional to the amount of working hours.<sup>4</sup> As far as the second explanatory component (financial needs) is concerned, two variables related to the students' financial needs – measured by whether or not students receive grants – were included. The first variable refers to a study grant in Austria ('Studienbeihilfe') that is particularly available for students whose parental income level is classified as being low and thus provides indirect information on families' finances (yes vs. no). The second variable refers to receiving a maintenance grant ('Selbsterhalterstipendium'). This grant is only available for students who had been supporting themselves financially for at least four years (yes vs. no). We expect students who receive these scholarships or grants to be less likely to participate in time-consuming employment.

Three variables related to motives for being a working student (subjective motives) were also included. The motives include financial necessity, gaining work experience and the desire to be able to afford a certain lifestyle (yes vs. no).<sup>5</sup> We also included three variables in the analyses to represent different fields of study.<sup>6</sup> The chosen fields of study are Education Sciences, Business and Medicine. These three fields were chosen for two main reasons: First, we selected these fields with regard to a maximum variation according to the proportion of First-in-Family students. Education Sciences has one of the highest proportion of First-in-Family students (above 80%), whereas in Business the proportion of First-in-Family students corresponds to the overall average proportion of First-in-Family students at public universities in Austria (about 69%).

The lowest proportion of First-in-Family students can be observed in Medicine (about 48%).<sup>7</sup>

Second, we selected these fields due to their relatively high case numbers (Education Sciences:  $N = 258$ , Business:  $N = 658$ , Medicine:  $N = 611$ ), which allow us to compute inferential statistics. In addition, those fields also vary according to course structure, institutional culture, and prestige (see Introduction).

There are two main limitations of our study: Firstly, psychological factors could not be included, because they are lacking empirical data. Secondly, we were also unable to include all variables suggested by the model of Riggert et al. (2006) due to multicollinearity between the independent variables. Therefore, we could only partly validate the model of Riggert et al. (2006).

## 5. Empirical findings

We did not only calculate a model that subsumes different groups of students (M1), but also separate models based on sub-samples: First-in-Family students (M2), Non-First-in-Family students (M3) and students of three different fields of study (Education Sciences, Business and Medicine [M4 to M6]). In this section, we discuss the results of different logistic regressions on the probability of working more than 10 h per week (M1 to M6 in Tables 1, 2 and 3). Furthermore, Tables 1, 2 and 3 show a measure for evaluating

**Table 1.** Determinants of working for more than 10 h per week: results of logistic regression (AME of basic model M1).

	Basic-model M1 (total sample)
Background	
Educational attainment of parents: academic family (vs. <i>First-in-Family</i> )	−2.8***
Gender: female (vs. <i>male</i> )	−0.8
Age: 22–23 years (vs. <22 years)	4.3***
Age: 24–25 years (vs. <22 years)	8.1***
Age: 26–27 years (vs. <22 years)	14.1***
Age: 28–29 years (vs. <22 years)	13.7***
Age: 30–34 years (vs. <22 years)	16.6***
Age: ≥35 years (vs. <22 years)	22.2***
Financial needs (received grants)	
Study assistance (vs. <i>no funding</i> )	−11.2***
Maintenance grant (vs. <i>no funding</i> )	−14.4***
Subjective motives for working term-time	
Financial necessity (vs. <i>not employed or not agreed</i> )	30.0***
Gaining work experience (vs. <i>not employed or not agreed</i> )	11.8***
Desire to afford a certain lifestyle (vs. <i>not employed or not agreed</i> )	6.8***
Institutional characteristics	
Education (vs. <i>all other fields of study</i> )	1.2
Business (vs. <i>all other fields of study</i> )	5.3***
Medicine (vs. <i>all other fields of study</i> )	−7.2***
$N$	9105
Nagelkerke's Pseudo- $R^2$	0.59

**Table 2.** Determinants of working for more than 10 h per week: results of logistic regressions (AME of models M2 and M3, based on sub-samples).

	Sub-samples: educational attainment of parents	
	M2 ( <i>FiF</i> )	M3 ( <i>Non-FiF</i> )
Background		
Gender: female ( <i>vs. male</i> )	−1.3	0.3
Age: 22–23 years ( <i>vs. &lt;22 years</i> )	5.1***	2.5
Age: 24–25 years ( <i>vs. &lt;22 years</i> )	7.3***	9.2***
Age: 26–27 years ( <i>vs. &lt;22 years</i> )	13.7***	15.0***
Age: 28–29 years ( <i>vs. &lt;22 years</i> )	14.9***	10.8***
Age: 30–34 years ( <i>vs. &lt;22 years</i> )	15.8***	18.2***
Age: ≥35 years ( <i>vs. &lt;22 years</i> )	22.9***	20.2***
Financial needs (received grants)		
Study assistance ( <i>vs. no funding</i> )	−12.7***	−5.8*
Maintenance grant ( <i>vs. no funding</i> )	−14.2***	−18.7***
Subjective motives for working term-time		
Financial necessity ( <i>vs. not employed or not agreed</i> )	31.9***	26.1***
Gaining work experience ( <i>vs. not employed or not agreed</i> )	12.2***	10.6***
Desire to afford a certain lifestyle ( <i>vs. not employed or not agreed</i> )	7.0***	6.4***
Institutional characteristics		
Education ( <i>vs. all other fields of study</i> )	0.5	3.6
Business ( <i>vs. all other fields of study</i> )	6.4***	3.0
Medicine ( <i>vs. all other fields of study</i> )	−6.3**	−8.4**
<i>N</i>	5947	3158
Nagelkerke's Pseudo- <i>R</i> <sup>2</sup>	0.60	0.53

**Table 3.** Determinants of working for more than 10 h per week: results of logistic regressions (AME of models M4, M5 and M6, based on sub-samples).

	Sub-samples: fields of study		
	M4 ( <i>Education Sciences</i> )	M5 ( <i>Business</i> )	M6 ( <i>Medicine</i> )
Background			
Educational attainment of parents: academic family ( <i>vs. First-in-Family</i> )	1.9	−8.0*	−3.7
Gender: female ( <i>vs. male</i> )	3.2	−0.6	−2.7
Age: 22–23 years ( <i>vs. &lt;22 years</i> )	15.1	2.6	−1.2
Age: 24–25 years ( <i>vs. &lt;22 years</i> )	2.6	6.5	3.7
Age: 26–27 years ( <i>vs. &lt;22 years</i> )	13.8	11.6*	6.4
Age: 28–29 years ( <i>vs. &lt;22 years</i> )	8.3	14.0	4.7
Age: 30–34 years ( <i>vs. &lt;22 years</i> )	14.2	14.4*	12.3**
Age: ≥35 years ( <i>vs. &lt;22 years</i> )	15.8*	15.7**	14.8**
Financial needs (received grants)			
Study assistance ( <i>vs. no funding</i> )	−18.4*	−15.7**	−7.6
Maintenance grant ( <i>vs. no funding</i> )	−13.4*	−12.4	−5.7
Subjective motives for working term-time			
Financial necessity ( <i>vs. not employed or not agreed</i> )	43.4***	29.0***	23.8***
Gaining work experience ( <i>vs. not employed or not agreed</i> )	−2.0	22.0***	1.9
Desire to afford a certain lifestyle ( <i>vs. not employed or not agreed</i> )	3.7	6.4	7.5*
<i>N</i>	258	658	611
Nagelkerke's Pseudo- <i>R</i> <sup>2</sup>	0.52	0.57	0.45

which model best predicts the outcome (Pseudo- $R^2$ ) and the number of cases included ( $N$ ).

In the tables we report the coefficients' effect size as average marginal effects (AME). We present the AME on a percentage scale for easier interpretation. An AME indicates the change in the probability of working more than 10 h with a change in the respective independent variable. A positive effect is found when the AME is above zero, meaning that the probability of working more than 10 h increases with a change in the respective independent variable. A negative effect shows an AME below zero, meaning that the risk of working more than 10 h per week decreases with a change in the respective independent variable.

The specific AME can be interpreted as follows: For example, the negative value of  $-2.8\%$  for the educational attainment of parents in [Table 1](#) signifies that moving from (baseline category) 'First-in-Family student' to 'student from an academically educated family' changes the predicted outcome (=percentage of working more than 10 h per week) by  $-2.8\%$ . This means that among students with parents who hold a higher education degree, the predicted proportion of working more than 10 h per week is  $2.8\%$  lower compared to the predicted proportion among First-in-Family students.

[Table 1](#), which represents the findings of the basic model, shows that students with an academic family background are less likely to enter time-consuming employment during the semester (see significant coefficient  $< 0$  in M1). This means that educational background has an explanatory power, even after controlling for age and other variables such as financial necessity. However, a closer look at the models of the sub-samples regarding different fields of study (M4 to M6, see [Table 3](#)), reveals that we only find significant differences with regard to educational background in Business (see significant coefficient  $< 0$  in M5); in Education Sciences and Medicine no significant differences were found (see [Table 3](#), coefficients in M4 and M6).

In addition, no significant differences were found with regard to gender in relation to time-consuming employment (see [Tables 1, 2](#) and [3](#), coefficients in M1 to M6). It was, however, found that the likelihood of time-consuming employment increases clearly with age (see [Table 1](#), significant coefficients  $> 0$  in M1). This applies both to students with academic family backgrounds and to First-in-Family students (see M2 and M3 in [Table 2](#)).

The age effect can be broadly explained by the fact that many students have to earn more money at a more mature age, especially in the 30–34 age group, because most financial aid is age-dependent and ends earlier, as well as due to caring responsibilities, and because they have already learned a profession in which they continue to work before they graduate (Unger et al. 2020).

The variables indicating whether or not students have received financial state support such as a study or maintenance grant suggest that the likelihood of entering time-consuming employment alongside studies decreases significantly if the students receive this support (see [Table 1](#), significant coefficients  $< 0$  in M1). When comparing the different student groups based on the sub-samples, this effect is significant for First-in-Family students and for students from academic families (see [Table 2](#)). With regard to the different models according to fields of study, these variables show a significant effect in Education Sciences and partly in Business as well (see [Table 3](#), coefficients in M4 and M5).

When interpreting the subjective assessment of the motives for seeking employment alongside a course of study, we found that – along with previous studies – financial necessity strongly increases the likelihood of entering time-consuming employment. This applies to all calculated models (see [Tables 1, 2 and 3](#), significant coefficients  $>0$  in M1 to M6). The other motives ‘gaining work experience’ and ‘desiring to afford a certain student lifestyle’ increase the likelihood of working more than 10 h per week as well (see [Tables 1 and 2](#), significant coefficients  $>0$  in M1 to M3). What was more surprising were the results from the differentiated models according to fields of study: M4 to M6 show that students in Education Sciences are very likely to enter time-consuming employment alongside their studies if they worked out of financial necessity (see [Table 3](#)). By contrast, we found that the likelihood of students of Business working for more than 10 h per week increased if they wanted to ‘gain work experience’, whereas students within the field of Medicine were more likely to enter time-consuming employment when they wished to ‘be able to afford more’.

The three fields of study were also included in M1 to M3 (see [Tables 1 and 2](#)) in order to illustrate the influence of different study structures and study conditions, i.e. contextual factors such as obligatory attendance and exam procedures. Findings show that there are no significant differences in students in Education Sciences compared to students in all other fields of study. By contrast, students in Business are more likely to enter time-consuming employment, whereas students in Medicine are less likely to enter time-consuming employment alongside their studies compared to students in all other fields of study.

## 6. Conclusion and discussion

Societal changes, such as a growing diversification of the student population and uncertain career perspectives for graduates, also contribute to a student’s decision to seek and enter term-time employment (Hall 2010; O’Shea 2020; Pitman et al. 2019). Working while studying can benefit students, e.g. in terms of employability, but research clearly shows that it can have a negative impact on academic success when students work excessively. This article addressed this complex phenomenon by exploring socio-economic factors and fields of study that influence students’ decision to enter time-consuming term-time employment (i.e. working more than 10 h per week).

By drawing theoretical considerations on the student retention-model of Riggert et al. (2006), we applied logistic regression analyses to answer the following research questions: (1) Can students’ decision to enter time-consuming employment be predicted based on socio-economic characteristics and fields of study? (2) Do effects vary among different groups of students? By using a nationally representative data-set comprising 47,228 university students in Austria, differentiated analyses were conducted with a particular focus on students who are the first in their families to attend university (i.e. First-in-Family students) and students of three different fields of study (Education Sciences, Business and Medicine).

According to educational background, the findings of the basic model are consistent with previous research that shows that First-in-Family students have a higher risk of working time-consumingly during studies (Unger et al. 2020; O’Shea 2020). This can not only be explained by the fact that First-in-Family students experience financial

constraints more often than students from academic families, but that they rather start working quite early during their educational pathway and that working has a high subjective status within their everyday lives (Lessky 2021; Broadbridge and Swanson 2005, 2006).

However, our findings of the regression models based on sub-samples reveal that the risk of working time-consuming during studies differs considerably among different student groups: First-in-Family students in Business have a significantly higher risk of entering time-consuming employment compared to students with academic family backgrounds, whereas in Education Sciences and Medicine no significant differences along educational background were found. These findings illustrated that it is necessary to pay attention to the heterogeneity of the group of First-in-Family students.

By analysing students in these three fields of study in more detail, we were able to show that especially in Business, 'gaining work experience' increases the risk of entering time-consuming employment during semester. This puts Business students, especially those who are the first in their families to attend university, into a difficult situation; on the one hand, they feel the need to develop networks and gather work experience, while on the other hand, they are particularly at risk of working long hours, which can negatively affect their studies. First-in-Family students might especially feel the need to put effort into building social capital, for example to establish contacts for their future labour market entrance, while students from academic families can more often draw on their parents' professional relationships to gain further employment post-graduation (Brändle and Häuberer 2014). In addition, the labour market that Business graduates usually enter is highly competitive, which is why gaining work experience during the semester can be even more crucial regarding employability. This appears to be a cycle of harm, where business students are challenged by simultaneously achieving good grades, managing workloads and positioning themselves for a successful transition to graduate work (Bennett et al. 2020a, 2020b).

According to the empirical analysis, it also appears that students in Education Sciences – whether First-in-Family or not – are struggling the most in financing their studies, while the opposite is true for medical students. Students in Medicine are therefore less likely to work long hours than students in Education Sciences and Business. This can also partly be explained by self-selection processes in the choice of fields of study. Since Medicine is typically known as a study with a high study duration (at least 12 semester) and a high learning effort (Unger et al. 2020), it more frequently attracts students that are economically privileged and can afford to study without relying on a time-consuming job. In Medicine, study courses are also characterised by high workload and compulsory attendance, thus limiting the opportunities to enter time-consuming term-time employment.

On the basis of these findings, we stress that policy interventions can only meet the needs of students when they are tailored and developed according to individual fields of study as well as other student characteristics (e.g. being First-in-Family and/or facing financial hardship). Potential measures would need to address the complex role that term-time employment can play in the lives of students (e.g. providing the economic means to make studying possible, developing networks and gaining work-experience to achieve further employment post-graduation). They also should approach the problem of universities and educators encouraging students to gain work experience while

knowing that working time-consumingly while studying can negatively affect student retention.

Firstly, we suggest that higher education educators, especially in Business, should be encouraged to work more closely with employers, industry representatives, professionals and their students, and be supported in doing so. These educators can play an integral part in supporting their students in building networks, gaining insights into entry-level work and bridging the gap to graduate employment. They also need to make sure that Career Development Practitioners come to their students rather than the other way around (Kinash 2020).

Secondly, work placements and other related activities should be included in the curriculum to ease students' transitions to the graduate labour market. Nevertheless, it is highly important that such measures do not sit outside the main curriculum and not positioned as 'add-ons' (O'Shea 2020). They should be delivered within the core curriculum, explicitly relevant to the design of possible future careers, and should be financially subsidised to enable all students to participate (Bennett et al. 2020a, 2020b; O'Shea 2020; Kinash 2020).

Thirdly, in order to better support those student groups, which are most at risk of attrition due to time-consuming employment, specific academic seminars can be implemented that focus on building and improving students' study-related self-efficacy (McNall and Michel 2011). We also believe that more support designed to help students in balancing work and study is needed, e.g. targeted student counselling (Bacher and Wetzelhütter 2014; Barron and Anastasiadou 2009; Cinamon 2016; Watts and Pickering 2000).

Our study, however, has two limitations. The first is that it was not possible to completely validate the theoretical model of Riggert et al. (2006) against the data available. Nevertheless, the model's predictive value (Pseudo- $R^2$  ranges between 0.45 and 0.60) indicates that precise theoretical considerations, where student employment is an integral part of the model, form a promising basis for empirical research.

The second limitation concerns the fact that the data only allowed a focus on paid work. As research suggests, there might be a high number of unpaid hours, particularly for older students with caring responsibilities (Unger et al. 2020). By only taking paid jobs into account, gender differences might also be neglected, as research indicates that females tend to do more unpaid work than men (Wheatley, Lawton, and Hardil 2018).

However, our study shows that in order to develop a broader understanding of time-consuming student employment and its potential effects on student retention, the heterogeneity of the student population as well as fields of study must be taken into account. Especially fields of study should be analysed separately since effect sizes can vary significantly even though fields of study might show similar socio-demographic characteristics of their student population. 'Universities cannot expect all students to fit the stereotype of a full-time student' (Romito, Pilutti, and Contini 2020, 468). Universities should meet the needs of their students by incorporating appropriate support beyond the initial access and participation stage to increase student success of all students (Pitman et al. 2019). This has become even more important since leveraging degrees into discipline-related employment is now even more difficult in the context of the current pandemic (Kinash 2020). In our view, it should not be the students alone who are responsible



for their future position in the labour market, as this positionality is strongly influenced by social conditions and institutional structures.

## Notes

1. See an explanation of Education Sciences according to ISCED in footnote 1 in the appendix.
2. See a clarification on the original nature of the variable in footnote 2 in the appendix.
3. See further explanations on how the independent variable were chosen in footnote 3 in the appendix.
4. See also footnote 4 in the appendix.
5. For further explanation see footnote 5 in the appendix.
6. For explanations on the 'one vs. all strategy' used, see footnote 6 in the appendix.
7. For further explanation on the proportion of First-in-Family students see footnote 7 in the appendix.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributors

**Franziska Lessky** is a postdoctoral researcher at the University for Continuing Education Krems. Her teaching and research interests are student equity in higher education and social inequalities in the academic profession.

**Martin Unger** is Head of the Research Group HER (Higher Education Research) at the Institute for Advanced Studies Vienna. His main areas of research are students' social situations, the performance of dropouts and graduates on the labour market as well as the diversification of higher education systems.

## ORCID

Franziska Lessky  <http://orcid.org/0000-0003-4075-5080>

## References

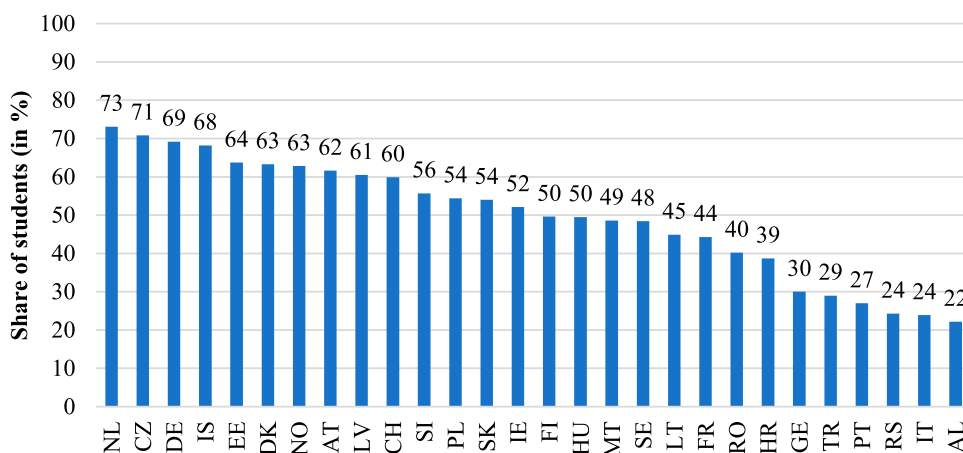
- Archer, L., and M. Hutchings. 2000. "Bettering Yourself? Discourses of Risk, Cost and Benefit in Ethnically Diverse, Young Working-Class Non-Participants' Constructions of Higher Education." *British Journal of Sociology of Education* 21 (4): 555–574.
- Ayalon, H., and O. Mcdossi. 2019. "Economic Achievements of Nonacademic Parents and Patterns of Enrollment in Higher Education of Their Children: The Case of Israel." *Higher Education* 77 (1): 135–153.
- Bacher, J., and D. Wetzelhütter. 2014. "Erwerbstätigkeit von Studierenden und Schwierigkeiten der Vereinbarkeit von Studium und Beruf Ergebnisse der JKU-Studierendenbefragung 2012/2013." *WISO* 37 (Sonderheft): 113–141.
- Barron, P., and C. Anastasiadou. 2009. "Student Part-Time Employment: Implications, Challenges and Opportunities for Higher Education." *International Journal of Contemporary Hospitality Management* 21 (2): 140–153.
- 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 (5-6): 723–743.

- Bean, J. P., and B. S. Metzner. 1985. "A Conceptual Model of Nontraditional Undergraduate Student Attrition." *Review of Educational Research* 55 (4): 485–540.
- Bennett, D., E. Knight, A. M. Dockery, and S. Bawa. 2020a. "Pedagogies for Employability: Understanding the Needs of STEM Students through a New Approach to Employability Development." *Higher Education Pedagogies* 5 (1): 340–359.
- Bennett, D., E. Knight, C. Jevons, and S. Ananthram. 2020b. "Business Students' Thinking about Their Studies and Future Careers." *Perspectives: Policy and Practice in Higher Education* 24 (3): 96–101.
- Body, K. M.-D., L. Bonnal, and J.-F. Giret. 2014. "Does Student Employment Really Impact Academic Achievement? The Case of France." *Applied Economics* 46 (25): 3061–3073.
- Brändle, T., and J. Häuberer. 2014. "Social Capital of Non-Traditional Students at a German University. Do Traditional and Non-Traditional Students Access Different Social Resources?" *International Journal of Higher Education* 4 (1): 92–105.
- 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 (2): 235–249.
- Broadbridge, A., and V. Swanson. 2006. "Managing Two Roles." *Community, Work & Family* 9 (2): 159–179.
- Byrom, T., and N. Lightfoot. 2012. "Transformation or Transgression? Institutional Habitus and Working Class Student Identity." *Journal of Social Sciences* 8 (2): 126–134.
- Callender, C. 2008. "The Impact of Term-Time Employment on Higher Education Students' Academic Attainment and Achievement." *Journal of Education Policy* 23 (4): 359–377.
- Carney, C., S. McNeish, and J. McColl. 2005. "The Impact of Part Time Employment on Students' Health and Academic Performance: A Scottish Perspective." *Journal of Further and Higher Education* 29 (4): 307–319.
- Cinamon, R. G. 2016. "Integrating Work and Study Among Young Adults." *Journal of Career Assessment* 24 (3): 527–542.
- Curtis, S., and N. Shani. 2002. "The Effect of Taking Paid Employment During Term-Time on Students' Academic Studies." *Journal of Further and Higher Education* 26 (2): 129–138.
- Darmody, M., and B. Fleming. 2009. "'The Balancing Act' – Irish Part-Time Undergraduate Students in Higher Education." *Irish Educational Studies* 28 (1): 67–83.
- Darmody, M., and E. Smyth. 2008. "Full-Time Students? Term-Time Employment among Higher Education Students in Ireland." *Journal of Education and Work* 21 (4): 349–362.
- Darolia, R. 2014. "Working (and Studying) Day and Night: Heterogeneous Effects of Working on the Academic Performance of Full-Time and Part-Time Students." *Economics of Education Review* 38: 38–50.
- DZHW, ed. 2018. *Social and Economic Conditions of Student Life in Europe: EUROSTUDENT IV 2016-2018 Synopsis of Indicators*. Bielefeld: Bertelsmann Verlag.
- Fromm, S. 2010. *Datenanalyse mit SPSS für Fortgeschrittene 2: Multivariate Verfahren für Querschnittsdaten*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Gofen, A. 2009. "Family Capital: How First-Generation Higher Education Students Break the Intergenerational Cycle." *Family Relations* 58: 104–120.
- Hall, R. 2010. "The Work–Study Relationship: Experiences of Full-Time University Students Undertaking Part-Time Employment." *Journal of Education and Work* 23 (5): 439–449.
- Helland, H., and Ø. N. Wiborg. 2019. "How Do Parents' Educational Fields Affect the Choice of Educational Field?" *The British Journal of Sociology* 70 (2): 481–501.
- Heublein, U., J. Ebert, C. Hutzsch, and S. Isleib. 2017. *Zwischen Studienerwartungen und Studienwirklichkeit*. Hannover: DZHW.
- Holmegaard, H. T., L. M. Madsen, and L. Ulriksen. 2017. "Why Should European Higher Education Care about the Retention of Non-Traditional Students?" *European Educational Research Journal* 16 (1): 3–11.
- Hovdhaugen, E. 2015. "Working While Studying: The Impact of Term-Time Employment on Dropout Rates." *Journal of Education and Work* 26 (3): 1–21.

- Hunt, A., I. Lincoln, and A. Walker. 2004. "Term-Time Employment and Academic Attainment: Evidence from a Large-Scale Survey of Undergraduates at Northumbria University." *Journal of Further and Higher Education* 28 (1): 3–18.
- Kinash, S. 2020. "Time for Universities to Step-Up on Graduate Employment." *Campus Morning Mail*, September 20. <https://campusmorningmail.com.au/news/time-for-universities-to-step-up-on-graduate-employment/>.
- König, R. 2018. "Studienbegleitende Erwerbstätigkeit – ein Hindernis auf dem Weg zu einem erfolgreichen Studienabschluss?" In *Dimensionen studentischer Vielfalt: Empirische Befunde zu heterogenen Studien- und Lebensarrangements*, edited by K. Becker, and S. Heißenberg, 251–268. Bielefeld: wbv.
- Lairio, M., S. Puukari, and A. Kouvo. 2013. "Studying at University as Part of Student Life and Identity Construction." *Scandinavian Journal of Educational Research* 57 (2): 115–131.
- Landstedt, E., J. Coffey, J. Wyn, H. Cuervo, and D. Woodman. 2017. "The Complex Relationship between Mental Health and Social Conditions in the Lives of Young Australians Mixing Work and Study." *YOUNG* 25 (4): 339–358.
- Lessky, F. 2021. "Study as a Balancing Act – Everyday Life of Working First-in-Family University Student." Doctoral thesis, Vienna University of Economics and Business, Vienna.
- Lessky, F., E. Nairz-Wirth, and K. Feldmann. 2021. "Informational Capital and the Transition to University: First-in-Family Students' Experiences in Austrian Higher Education." *European Journal of Education* 56 (1): 27–40.
- Lörz, M., S. Schindler, and J. G. Walter. 2011. "Gender Inequalities in Higher Education: Extent, Development and Mechanisms of Gender Differences in Enrolment and Field of Study Choice." *Irish Educational Studies* 30 (2): 179–198.
- Mägi, E., K. Jaakson, A. Aidla, L. Kirss, and A. Reino. 2012. "Full-Time Employed Students as University Consumers – Consequences and Triggers of Marketisation of Higher Education." *European Journal of Higher Education* 2 (2-3): 248–266.
- Masevičiūtė, K., V. Šaukeckienė, and E. Ozolinčiūtė. 2018. *Combining Studies and Paid Jobs: Thematic Review*. Lithuania: DZHW.
- McNall, L. A., and J. S. Michel. 2011. "A Dispositional Approach to Work–School Conflict and Enrichment." *Journal of Business and Psychology* 26 (3): 397–411.
- Metcalf, H. 2003. "Increasing Inequality in Higher Education: The Role of Term-Time Working." *Oxford Review of Education* 29 (3): 315–329.
- Moreau, M.-P., and Leathwood, C. 2006. "Balancing Paid Work and Studies: Working (-Class) Students in Higher Education." *Studies in Higher Education* 31 (1): 23–42.
- Nairz-Wirth, E., and K. Feldmann. 2015. "Dropping out of University: Obstacles to Overcome for Non-Traditional Students." Paper presented in track 3 at the EAIR 37th Annual Forum: 1–10.
- 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*. Perth: National Centre for Student Equity in Higher Education.
- O'Shea, S., and J. Delahunty. 2018. "Getting through the Day and Still Having a Smile on My Face! How Do Students Define Success in the University Learning Environment?" *Higher Education Research & Development* 37 (5): 1062–1075.
- 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 (1): 1–13.
- Quinn, J. 2013. *Drop-Out and Completion in Higher Education in Europe: among Students from under-Represented Groups*. Brussels: European Commission.
- Reay, D. 2018. "Working Class Educational Transitions to University: The Limits of Success." *European Journal of Education* 53 (4): 528–540.
- Reimer, D., and R. Pollak. 2010. "Educational Expansion and Its Consequences for Vertical and Horizontal Inequalities in Access to Higher Education in West Germany." *European Sociological Review* 26 (4): 415–430.
- Richardson, J., S. Kemp, S. Malinen, and S. Haultain. 2013. "The Academic Achievement of Students in a New Zealand University: Does It pay to Work?" *Journal of Further and Higher Education* 37 (6): 864–882.

- Riggert, S. C., M. Boyle, J. M. Petrosko, D. Ash, and C. Rude-Parkins. 2006. "Student Employment and Higher Education: Empiricism and Contradiction." *Review of Educational Research* 76 (1): 63–92.
- Robotham, D. 2013. "Students' Perspectives on Term-Time Employment: An Exploratory Qualitative Study." *Journal of Further and Higher Education* 37 (3): 431–442.
- Romito, M., S. Pilutti, and D. Contini. 2020. "Why Do Students Leave University? Qualitative Research at an Italian Higher Education Institution." *European Journal of Education* 55 (3): 456–470.
- Sanchez-Gelabert, A., M. Figueroa, and M. Elias. 2017. "Working Whilst Studying in Higher Education: The Impact of the Economic Crisis on Academic and Labour Market Success." *European Journal of Education* 52 (2): 232–245.
- Spiegler, T., and A. Bednarek. 2013. "First-Generation Students: What We Ask, What we Know and What It Means: An International Review of the State of Research." *International Studies in Sociology of Education* 23 (4): 318–337.
- Tinto, V. 1993. *Leaving College: Rethinking the Causes and Cures of Student Attrition*. Chicago: University of Chicago Press.
- Triventi, M., L. Vergolini, and N. Zanini. 2017. "Do Individuals with High Social Background Graduate from More Rewarding Fields of Study? Changing Patterns Before and After the 'Bologna Process'." *Research in Social Stratification and Mobility* 51: 28–40.
- Unger, M., D. Binder, A. Dibiasi, J. Engleder, N. Schubert, B. Terzieva, B. Thaler, S. Zaussinger, V. Zucha. 2020. *Studierenden-Sozialerhebung 2019: Kernbericht*. Vienna: Austrian Institute of Advanced Studies (IHS).
- Van de Werfhorst, H. G., and R. Luijkx. 2010. "Educational Field of Study and Social Mobility: Disaggregating Social Origin and Education." *Sociology* 44 (4): 695–715.
- Watts, C., and A. Pickering. 2000. "Pay as You Learn: Student Employment and Academic Progress." *Education+Training* 42 (3): 129–135.
- Wheatley, D., C. Lawton, and I. Hardil. 2018. "Gender Differences in Paid and Unpaid Work." In *Hidden Inequalities in the Workplace: A Guide to the Current Challenges, Issues and Business Solutions*, edited by V. Caven, and S. Nachmias, 181–214. Cham: Palgrave Macmillan.

## Appendix



**Figure A1.** Proportion of university students (in %) with paid jobs during semester. Data source: EUROSTUDENT, available at <http://database.eurostudent.eu> (authors' calculations).

**Table A1.** Description of the dependent variable and the explanatory independent variables.

Component	Variable	Social groups and fields of study					
		Total sample	Sub-samples				
			FiF	Non-FiF	Education	Business	Medicine
Employment	Amount of working hours: >10 h/week	34.7%	38.8%	26.6%	42.0%	41.6%	19.2%
Background	Educational attainment of parents: below HE (FiF)	67.2%	100.0%	0.0%	80.3%	69.2%	48.5%
	Gender: female	53.0%	53.8%	51.4%	83.8%	49.3%	48.5%
	Age: <22 years	30.8%	26.6%	39.1%	25.1%	30.7%	26.5%
	Age: 22–23 years	21.3%	21.0%	22.0%	20.1%	26.1%	24.2%
	Age: 24–25 years	14.7%	14.6%	14.9%	11.0%	14.1%	21.2%
	Age: 26–27 years	8.9%	9.5%	7.6%	7.7%	9.9%	9.5%
	Age: 28–29 years	5.3%	5.7%	4.6%	5.8%	4.7%	4.7%
	Age: 30–34 years	10.4%	11.9%	7.5%	14.1%	7.9%	9.1%
	Age: ≥35 years	8.6%	10.7%	4.3%	16.2%	6.6%	4.8%
Financial needs (received grants)	Study assistance	12.3%	15.0%	6.8%	15.2%	10.7%	13.4%
	Maintenance grant	5.7%	7.3%	2.1%	15.2%	5.7%	4.0%
Subjective motives for being a working student	Financial necessity	43.9%	48.7%	34.7%	54.1%	45.5%	29.2%
	Gaining work experience	26.2%	26.1%	27.0%	29.2%	38.6%	19.0%
	Desire to be able to afford a certain lifestyle	37.4%	38.4%	36.2%	41.8%	45.7%	33.7%

Data source: Austrian Student Social Survey 2015 (authors' calculations).

Footnote 1: According to ISCED, Education Sciences is the study of the learning process and the theories, methods and techniques of imparting knowledge to others. Programmes and qualifications with the following main content are classified here: Curriculum studies; Didactics; Educational assessment, testing and measurement; Educational evaluation and research; Pedagogical sciences. Regarding this classification, Education Sciences is not part of the humanities and is not the same as teacher education.

Footnote 2: Initially, this variable was a metric one, but it was dichotomised, because requirements for linear regression could not be met. However, logistic regression is actually a more suitable model to describe behaviour, as a change in the independent variable does not always cause a proportional change of the dependent variable (see Fromm 2010, 111).

Footnote 3: The independent variables were also chosen based both on the theoretical model of Riggert et al. (2006) and current research findings (see Section 2). When selecting the variables, the statistical requirements (multicollinearity and type of correlations) were also checked. Consequently, variables that should have been integrated based on the theoretical model used were not included in this model, as the correlation between them and other variables was too strong. For instance, the variable housing data was not included as it correlates strongly with the variable of financing studies. Including the variable on housing data would have caused issues with regard to the multicollinearity between the independent variables, which is why the time students took up a course of study (direct vs. delayed) was also excluded in this empirical model.

Footnote 4: Dividing students into age groups is also useful, as factors such as family allowance ending at the age of 24 or other student discounts at 26 can lead to an increase in working hours.

Footnote 5: As far as the motives for seeking employment are concerned, it should be noted that working students mostly agreed to at least one of the motives, whereas non-working students are referred to as 'non-agreeing' since they are not employed and therefore cannot agree to any of the motives. This means that a person agreeing to one or more motives is more likely to be allocated to the group of working students entering time-consuming employment than someone who disagrees because they are unemployed.

Footnote 6: We used a 'one vs. all strategy' and included the following three dummy-variables into the model: Education Sciences (yes vs. other fields of study), Business (yes vs. other fields of study) and Medicine (yes vs. other fields of study). The category 'other fields of study' includes students from e.g. STEM-fields, teacher training, natural sciences and social sciences.

Footnote 7: On an international comparison, the relatively high proportion of First-in-Family students in Austria can be explained by the low proportion of students with parents holding an academic degree. However, the recruitment quotas, which provide information about the likelihood of taking up a course of study, show that students with an academic family background are on average 2.7 times more likely to enter a course of study than students from a non-academic family background.