Non-traditional Students Between Online and Offline: Which Way Forward for Higher Education?

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Abstract: The expansion of higher education has led to a more diverse student population, theorized around the concept of the non-traditional student. This term is used to describe students whose socio-demographic characteristics, motivations, study engagement and experiences differ from those of traditional higher education participants. The non-traditional student population is a highly heterogeneous group in which the individual student presents with specific motivations, needs, and constraints, but a common requirement is for more flexible teaching and learning methods to meet their complex educational needs. We here examine this demand for flexibility through the preferences students express for online teaching methods, and we investigate whether differences between traditional and non-traditional students are mainly due to inequalities, the role of parental education in particular, or on the contrary, whether they are related to certain characteristics such as age, employment and residential status. The data used in this investigation was collected during the period characterized by the containment measures linked to the Covid-19 pandemic from students enrolled at the University of Bologna. The results of the investigation presented below confirm that non-traditional students exhibit a clear preference for online as opposed to face-to-face learning and that parental education is particularly relevant for those under 25.

Keywords: Higher Education, Online Teaching, Non-traditional Students, University of Bologna

1. Introduction

The percentage of the population with access to tertiary education has grown steadily in recent decades in all developed countries (UNESCO, 2020), as is the case in Italy (Anvur, 2023).

This large-scale expansion in student enrolment has led to greater diversity within the student population. In other words, quantitative growth has been accompanied by a qualitative change: the composition of university students today is generally more diverse in terms of previous educational pathways, social and family background, gender, age, living condition, study motivation, and employment profiles. As pointed out by Hauschildt *et al.* (2021), at the European level students over 25 years of age (indicating a non-linear educational pathway) are no longer a minority group. Similarly, the numbers of in-work and off-campus students are increasingly relevant.

This greater heterogeneity has been theorized in the literature around the concept of the *non-traditional student*, which has increased in importance over time and that is characterized by considerable fluidity (Ogren, 2003): it was more easily identifiable before the expansion of mass higher education, being perceived as an under represented and marginalized group. In recent years the concept of the *non-traditional student* has come to encompass those who:
- did not access higher education directly from secondary school;
- are not in the dominant social categories in terms of gender, socio-economic status or ethnic origin; or
- do not pursue full-time, classroom-based studies.

The term is used to describe students whose socio-demographic characteristics, motivations, study commitment and experiences at university differ from those of traditional participants in higher education. Recognizing non-traditional students is important not just because they are a growing reality in all Western societies: not only as a consequence of policies aimed at widening access to higher education but also because they may have different needs from traditional students. This challenges higher education institutions to develop support strategies that enable successful learning experiences and high retention rates across the whole student population (Bell, 2012).

Theoretically, the concept of the non-traditional student can be attributed to different analytical perspectives. In the context of the equality of opportunity perspective, it often refers to those who are socially or educationally disadvantaged: such as those from working class backgrounds; certain ethnic minority groups; immigrants; and, historically, women. In the context of the life course framework, non-traditional tends to include

older students with work experience, discontinuities in their educational trajectories, or other students with unconventional educational backgrounds (Schuetze & Slowey, 2002).

A common feature of this heterogeneous category is the demand it places on universities to adopt more flexible teaching and learning methods in order to meet their specific educational needs. Many non-traditional students have to deal with work related time constraints, live far from the place of study, and/or have care-giving responsibilities that also limit available study time. Consequently, they may face difficulties in engaging with conventional teaching and learning formats, which require attendance on campus at specific times.

This demand for flexibility in teaching and learning methods has been partly met by an increased supply of online higher education, which has more than doubled in Italy in the last decade, compared with an increase of around 10% in the number of online courses offered by traditional universities. Indeed, students enrolled in online universities tend to be older and have more irregular educational careers compared to students enrolled in traditional universities.

However, *bricks and mortar* universities, especially in the aftermath of the pandemic, are questioning how to meet the educational needs of an unprecedentedly diverse group of learners. The transition from face-to-face to online lectures, which became necessary after March 2020, took place with little or no strategic planning, being no more than the construction of a set of tools and practices for emergency remote teaching (Hodges *et al.,* 2020).

In the aftermath of the Covid-19 pandemic, and partly in response to student demand, universities have continued to exploit the potential of information and communication technologies to provide interactive channels for distance and on-demand learning, along with the introduction of flexible modes of study, such as part-time, modular courses and credit transfer.

The literature on the educational preferences of non-traditional students is limited, especially in relation to the online mode. Scholars have pointed out that distance learning enables students, with work or care-giving responsibilities, to access educational and relational resources that wouldn't normally be available to them (Stone *et al.,* 2016; O'Shea *et al.,* 2024). As Park and Choi (2009) argued, distance learning, when coupled with appropriate organizational support, allows adult learners with work, family and/or other responsibilities to update their knowledge and skills within a flexible schedule. Online study also provides first-generation students with the opportunity to study alongside work whilst maintaining a balanced lifestyle (Michael, 2012). In terms of graduation and dropout probabilities,

the data for traditional students is clear: online teaching contributes to a higher risk of dropping out and a lower probability of graduation (Xu and Jaggars, 2014). However, the results are less clear for non-traditional students, for whom online education makes balancing family, work and study easier.

Further research, including among students who did not choose to study online but were forced to do so as a result of the spread of the Covid-19 pandemic, has shown that flexibility is particularly valued by older students with family, care-giving and paid work responsibilities, and those with socio-demographic characteristics traditionally under-represented in higher education (James *et al.,* 2021; Marković *et al.,* 2021). The introduction of distance learning in universities, first in its full form and later as hybrid and blended learning, has enabled working students and other types of disadvantaged students to take courses they were otherwise unlikely to in normal times (Gremigni, 2023).

In this paper we investigate the demand for flexibility in teaching and learning through the attitudes of university students towards teaching methods that do not require their presence in the classroom nor a direct relationship with the lecturer, i.e., *blended* or *fully online* teaching. The first research question is to what extent do traditional and non-traditional students differ in terms of their orientation towards the modes of online teaching used in the emergency phase, distinguishing between the *blended* and *fully online* modes.

The second research question is whether non-traditional students have a more positive attitude towards online learning, as the literature suggests, and with a view to the development of specific policies for each type of student, which types of non-traditional student are more attracted to online learning.

In keeping with the high degree of heterogeneity of the concept itself, the individual non-traditional student presents with specific motivations, needs, and constraints. For those with little spare time, due to family and professional responsibilities, online teaching is a useful enabler. On the contrary, for first-generation students (the first in their families to attend university) who may find it difficult to understand the mechanisms and dynamics that characterize university life – particularly because of lower social and cultural capital (Bourdieu & Passeron 1977) – online teaching may make integration into university life even more challenging.

The concluding research question is whether these internal differences within the fluid macro-category of non-traditional students mainly due to inequalities, and the role played by parental education in particular, or on the contrary, whether they are linked to characteristics such as age, employment and residential status. These dimensions are certainly influenced

by socio-economic background and the financial difficulties associated with it, but are then structured in different ways.

The investigation was carried out on data collected from students enrolled in the University of Bologna – a traditional "bricks and mortar" university –during the Covid-19 pandemic, when all universities were forced into online only teaching. The preferences surveyed are therefore not abstract orientations, but are based on the concrete experiences of students, deepened by an ad hoc survey that permits specific aspects not present in other datasets to be studied, such as the type of paid work carried out, parental socio-cultural background and the residential status of the student.

2. Non-traditional students

The profile of university students was for a long time characterized by common features: direct entry into higher education as a result of successful secondary schooling by students from high socio-economic backgrounds; a daily life lived in the university town or city; and a commitment to study full-time (Choy, 2002). However, changes in tertiary education in recent times, most notably mass access to higher education, have led to the presence of a highly heterogeneous student population: students who do not have privileged profiles have gradually become the norm (Devlin, 2010). The term *non-traditional student* is commonly used in higher education research to denote one of these profiles, though its definition is not always a precise one.

This term first appeared in the aftermath of World War II, when social, political, and economic changes led to a more diverse student population in higher education. It has been used to identify students who are new to higher education, who were not served by traditional colleges and universities (Ogren, 2003). However, several student groups previously seen as *non-traditional* have grown significantly in size and are increasingly viewed as *traditional*: for example, women and students with a working-class or migrant background (Bell, 2012).

Despite societal changes, the definition of the non-traditional student does not appear to have changed significantly from the 1980s to the present. This suggests that the use of the term today does not necessarily reflect an under-representation of any particular student group, rather it is a fluid concept whose meaning may vary according to the social, geographical and institutional context. At the same time, recognizing non-traditional students is important as their requirements may be different from those of traditional students and, while some issues associated with poor rates of participation for some groups of non-traditional students have been wide-

ly understood and acknowledged for many years, others have not been explored to the same extent (Devlin, 2010).

Bell (2012) identified three challenges that characterize non-traditional students. *Institutional barriers* are practices and procedures that may discourage or exclude students from pursuing post-secondary education, such as scheduling or transportation issues, the provision of courses that lack relevance or practicality, and bureaucratic problems. *Situational barriers* are conditions that limit a student's ability to access and pursue higher education: time and cost are the most often cited. *Dispositional barriers* are perceptions students hold of their ability to access and complete learning activities: older students may have negative perceptions of their leaning abilities and be concerned about how they are perceived by younger students, while students with poor educational experiences may lack interest in learning activities.

A systematic review of the literature by Chung *et al.* (2014) has specified the different factors in the definition of non-traditional students: age; commuting; having to simultaneously fulfil different roles; and the mode of study.

In this paper we use the following four dimensions to define the profile of the non-traditional student. Understanding the interactions between these dimensions, something ignored in the literature, is the main objective of this paper.

a. First-generation students

The concept of *first-generation* is now quite widespread in the literature, both in the US (Beattie, 2018) and Europe (Thomas & Quinn, 2007). However, with the exception of Romito (2021), it is still little used in Italian academic literature. Unlike similar definitions, such as *first-in-family*, which also takes into account the educational qualifications of the closest relatives (Wainwright & Watts, 2019), the *first-generation* label is only applied to students with neither parent having obtained a university degree.

For a long time, much of the literature that has examined university pathways – in terms of access, attrition, and subsequent labor market outcomes – has focused on the constructs of social class or parental socio-economic background. Where parental education has been taken into account, it has never been the subject of independent treatment but has tended to be seen as a proxy for the socio-cultural background of the student (Romito, 2021). This is the case despite much of the literature on social inequalities, starting with Bourdieu's theorizations (1979), recognizing the key role of cultural capital in the generational transmission of cognitive schemes, belief systems, aspirations, language and skills that are all crucial to success within formal educational institutions.

If cultural capital is understood as the set of resources – of a cultural nature – that are transmitted from one generation to the next and through which actors can gain access to privileges of a social and economic nature (Bourdieu, 1986), it is clear that first-generation students, although not excluded tout court from advancing their intergenerational status, risk encountering closed systems with which they experience specific problems. These include difficulties in accessing useful resources to support choice and orientation processes due to their previous schooling and the nature of the social networks – family and peers – in which they are immersed, or greater relational isolation linked to the typical homophily mechanisms that characterize the formation of networks (Romito, 2021).

Researchers have found a strong link between the educational trajectories of students and the educational attainment of their parents: students from families with highly educated parents, where the financial circumstances and academic performance of both parents are the same, are more likely to enroll in higher education and less likely to drop out of university (Pascarella & Terenzini, 2005). On the other hand, students who are the first in their family to attend university face a range of educational, cultural, and financial challenges (Cardoza, 2016). Several empirical studies have shown that the most important predictor of university access is precisely parental educational attainment. Having at least one parent with a bachelor's degree significantly increases the likelihood of going to university (Lehmann, 2009) while the mere fact that neither parent experienced tertiary education reduces the likelihood of university enrollment (Horn & Nunez 2000).

Several studies that have focused on the university careers of first-generation students have highlighted how they are characterized by greater marginality: less interest in extracurricular university activities; less time spent studying; and less involvement in relational life. At the same time, more attention is paid to family, care-giving or work obligations (Checkoway, 2018). The experience of first-generation students thus seems to be characterized by difficulty in learning the codes of university life and developing the identity and role expected by university institutions – without these being made explicit (Bourdieu & Passeron, 1977; Briggs *et al.,* 2012). The sense of confusion and difficulty in fully understanding their role as a university student is intertwined with a sense of inadequacy, accompanied by experiences of isolation and loneliness (O'Shea *et al.,* 2024).

b. Employment

Any student obliged to combine study with paid work, whether full-time or part-time, by choice or by necessity, is clearly a *non-traditional* student.

Though still lower than in the US, which has seen an increase in student employment since the early 1960s (Stern & Nakata, 1991), earning while learning is becoming more common in many European countries (Lessky & Unger, 2022). The Eurostudent survey shows that, on average, 60% of students are in paid employment during the academic year, while 18% of students only work during the summer. However, Italian figures show much lower proportions than for Europe in general, with only 24.2% of students in employment during term time (Hauschildt *et al.,* 2021). For this reason, even if the numbers are increasing, we can still speak of a characteristic that affects a minority of students and which further reinforces the idea of *non-traditional.*

Despite its importance, the relationship between higher education and concurrent employment – in a context where the youth labor market is becoming increasingly heterogeneous – has received little attention in academic literature. Most research has focused on the relationship between work and academic path. The evidence suggests that working while studying has a negative impact on university performance, increasing the risk of non-graduation or prolonging the time to degree (Callender, 2008; Triventi, 2014), although there is no clear and linear pattern (Hunt *et al.,* 2004; Passaretta & Triventi, 2015). While some scholars argue that the decision to work is primarily driven by the desire to become independent or to gain practical experience and skills (Irwin *et al.,* 2019), a significant body of literature points to the importance of economic factors, particularly for students from low-income families (Broton *et al.,* 2016).

Though the number of studies that take into account the nature of the work performed by students is limited, having a paid job is generally associated in the literature with the non-traditional profile. In some cases only those students in full-time employment are considered non-traditional (Macari *et al.*, 2006), while sometimes those who work part-time are also included (Adebayo, 2006). However, it is recognized that high levels of work-study conflict can negatively affect the well-being and quality of life of all student workers (Brunel & Grima, 2010).

There are many different ways in which working and studying can co-exist: in addition to the widely researched distinction between on-campus and off-campus work experience (Forsyth & Cowap, 2017; Woods & Frogge, 2017), there may be full-time, full-life workers who choose to enroll in a university course for a variety of reasons (the ideal typical case of worker/student), regardless of how well their academic pathway aligns with their work experience. Other students may enter the labor market after starting higher education, in work areas consistent with their field of study, by capitalizing on the skills they have acquired while studying, with positive effects on their future careers. On the other hand, some students may

choose to work outside their field of study in order to meet their educational expenses or fund other activities as well as their studies. Since the requirements of these jobs are limited to certain times of the week or year, they are less rigid – they may also be informal in some situations – than full- or part-time jobs and are therefore more compatible with attendance in class and study in general.

It is therefore of paramount importance to take into account the needs and constraints of working students, who are older than average (Eurostudent, 2021) and whose biographies are highly diverse.

c. Age

Age is an important variable to consider in higher education: the lives of older students, for instance, tend to be more stable than those of younger students (Arnett, 2000). Age is not only linked to highly individualized life histories and pathways, but in some contexts can be crucial in determining potential eligibility for financial support or alternative routes into higher education (Hauschildt *et al.,* 2021).

The review conducted by Chung *et al.* (2014) highlighted that age is the most common variable used to identify the non-traditional student. More specifically, this label is often applied to those students who are above a certain age: 25 is the most frequently adopted (see, among others, Christie, 2009; Norris, 2011).

On the European level, however, the proportion of students aged under 25 is not extremely high (64% on average): in all countries, older students are most likely to have entered tertiary education late or through alternative routes, and to have parents lacking a tertiary education (Hauschildt *et al.,* 2021). As Italy has a higher percentage (80%) of students under 26 enrolled in *traditional* Italian universities (Anvur, 2023), it is justifiable to include students over 25 in the non-traditional category purely on a numerical basis.

One would expect a certain correlation between this and the first variable, since first-generation students tend to have a higher average age than traditional students. In the Italian context in particular, the average age of students having parents with a low level of education is 2.5 years higher than those with parents possessing a university degree (Eurostudent, 2021). This difference may be explained by both delayed access to university studies for the former and a faster progression for the latter, who are supported by a socio-cultural environment of origin that favors a more regular pathway into university: Bourdieu's theory of social reproduction (1979) views school age (i.e. the age at which a given level of education is reached) as a form of inherited cultural capital.

d. Residential status and spatial mobility

Spatial mobility is a criteria cited as relevant to the non-traditional category by scholars in several geographical contexts. In addition to the more identity-related aspects that characterize the experience of students who move away from their home city, which can be interpreted in terms of a transition to adulthood and a search for independence (Mitchell, 2003), research shows that students who move to the cities where their studies are based tend to be those with better educational qualifications and greater motivation. They benefit from greater economic and socio-cultural capital (Christie, 2007) and have the opportunity to develop meaningful relationships in the urban context in which they live their daily lives. For commuters[1] however, their daily lives may be disadvantaged by longer journeys – in terms of distance and time – from home to the place of study (Jarvis, 2005; Spiess & Wrohlich, 2008). The commuting time of students living in the parental home can also negatively affect their study time (Orr, 2016). Also, as highlighted by Newbold *et al.* (2010), commuters encounter hurdles that the non-commuting student usually avoids, such as feelings of isolation, multiple life roles and different support systems.

The percentage of Italian students living with their parents is 68%, which is twice the European average of 34%, though it is decreasing (Hauschildt *et al.,* 2021). Of those who live with their parents, only one in four attends university in their hometown; all the others are commuters (Eurostudent, 2021). Commuting is a *survival strategy* for students who do not want to abandon their studies, but faced with the high cost of studying and the limited support capacity of their families, make study choices that are commensurate with their situation and available resources. In doing so, they forego more ambitious choices such as studying away from home and thereby reinforce the localism – at least partly forced – of their choices.

Although the elevated rate of commuting characterizes the Italian student situation, there are several reasons for including commuters in the category of non-traditional students as they share many of the same characteristics (Lowe & Gayle, 2007). Several research studies have suggested that the need to leave home or incur significant travel costs to attend university is a significant deterrent for young people with families in which tertiary education is not the norm (i.e., first-generation students). The cost involved in commuting, in terms of time and money, is a substantial burden for those least able to support it (Park & Choi, 2009; Michael, 2012). Scholars have observed that students from the most disadvantaged social classes tend to choose degree programs that are closer to the parental home since it saves on the cost of housing, one of the biggest expenses for students:

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[1] We refer to commuters as students who either live with their parents or rent within commuting distance of their place of study, but not actually in the University town.

particularly so in Italian where there is a shortage of on-campus halls of residence (Triventi & Trivellato, 2008). In addition, it has been observed that students living with their parents – regardless of whether they live in the city where they study or commute – are more likely to work than those living away from home, thus indicating a possible correlation with the *employment* variable considered above. (Hunt *et al.*, 2004; Callender, 2008). For this reasons, and in line with other studies (Forbus *et al.*, 2011), all students who live in the family home are included in the category of non-traditional students.

3. Data, variables and analytical strategy

The analyses presented in this paper rely on data coming from the HousINgBO survey distributed to a sample of students enrolled at the University of Bologna in the Spring (May-June) of 2021. In total, 9,337 questionnaires were returned and the characteristics of the resulting sample are a good match to the overall student population (see Table A1 in the Appendix).

The main objective of the HousINgBO survey was to investigate the living conditions of students enrolled at the University of Bologna, but at the same time it permits enquiry into several dimensions beyond the socio-demographic such as the well-being of the students, their expenditures and consumption, and their experience of online education (participation, satisfaction, difficulties). It is on these last aspects that the following analyses focus.

The HousINgBO has several advantages with respect to other surveys of Italian university students (e.g., the surveys on high school leavers and on university graduates conducted by ISTAT). First, it is more up-to-date and allows us to analyse recent developments in the organization of teaching, such as the possibility of attending lectures online due to the Covid-19 pandemic. Secondly, it contains detailed information on the socio-economic background of the students, their school career, employment characteristics, and teaching mode preferences, all of which are crucial to our research questions. The main limitation of the data is its local dimension, which precludes a generalization of the results to the overall Italian context.

The University of Bologna is a singular case due to its size, its history, and its ability to attract students from other regions. It is the second largest university in Italy and one half of the 83,647 students enrolled in the 2020/21 academic year came from other regions of Italy. In addition to this broad appeal, the University is characterized by an extremely diverse population, comprising most fields of academia (see Table A1 in the

Appendix). This is relevant to us since the way teaching is delivered can vary significantly depending on the field of study involved. In addition, the presence of a well-developed system of financial aid and tuition waivers helps to attract students from diverse socioeconomic backgrounds: more than half the student body – 43,108 students – received fee waivers for the 2020/21 academic year.

As discussed previously, the outcome of interest is the preferred teaching mode, which is coded as: i) face-to-face; ii) blended; iii) fully online. The main independent variables are those needed to identify the non-traditional student, which the literature review identified as parental education, employment, residential status and age. Specifically, parental education is measured according to the dominance criterion (i.e., it is determined by the higher educational degree of the two parents) in three categories: i) tertiary degree; ii) upper secondary diploma; iii) compulsory education. Employment is coded as i) full-time or part-time job ii) occasional job; iii) no job. Full-time and part-time jobs are considered together because their workload and organization can cause problems with attending lectures and participating in university life. On the other hand, occasional jobs may be done on the weekend or in the evening hence avoiding any overlap with university activities. The student's residential status is coded as i) away from home; ii) commuter; iii) hometown. Age is a 2-category variable: i) under 25; ii) 25 and over. Table A2, in the Appendix, reports the descriptive statistics of these variables.

Our empirical strategy is organised in three steps. First, we consider the preference for the mode of teaching as a 3-category variable, contrasting *face-to-face* with *blended* and *fully online* with the aim of understanding not only the differences between *face-to-face* and the online possibilities but also between *blended* and *fully online* themselves. In this step, we rely on a multinomial logistic regression on the teaching mode. Formally, we model the odds, , the probability that student *i* prefers the teaching mode *j* as opposed to the probability of the baseline teaching mode (, i.e., preference for the online mode):

$$\eta_{ij} = ln\left(\frac{\pi_{ij}}{\pi_{iJ}}\right) = \alpha_j + \beta_j Peduc_i + \gamma_j Work_i + \delta_j Cond_i + \phi_j Age_i + \vartheta_j X_i \quad (1)$$

where *Peduc* represents a set of dummy variables for parental education; *Work* and *Cond* are each a set of dummy variables for employment and residential status respectively; *Age* represents the age group; while *X* is a vector for the other variables acting as a control.[2]

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[2]   These variables are gender; geographical area of birth; upper secondary school track;

In the second step, we consider the *fully online* and *blended* categories together to supply a general picture of the preferences regarding the teaching mode. We rely on a binomial logistic regression adopting a six-model specification. The first four models consider the main independent variables separately, controlling for a rich set of covariates, while the fifth model includes all these variables together. The final model analyses the interaction between the main independent variables in order to identify the profile of students who are more likely to prefer *face-to-face* teaching. To facilitate the comparison across models we rely on average marginal effects[3] (Mood, 2010). Formally, we model the odds, , the probability that student *i* prefers *face-to-face* teaching as opposed to the probability of preferring online modes (i.e., *fully online* and *blended* combined). The specification of the model follows equation (1) with the only difference being the coding of the dependent variable.

The third and final step is a mediation analysis to better understand the role played by parental education. In the previous specifications, it was not possible to directly compare the size of the coefficients since they represent direct or total effects. In fact, the main independent variables can be considered as potential mediators between parental education and teaching mode preferences. For example, having highly educated parents can influence the decision to take on a job at university, the location of the university, as well as the age the student enrols at the university. Usually, those coming from advantaged socio-economic backgrounds tend to enrol at the university immediately after attaining the upper secondary school diploma. More precisely, as shown in Figure 1, we may reasonably assume that parental education is antecedent to all the other variables, while residential status, employment, and age[4] may be considered concomitant with each other. In the previous models, according to the assumptions depicted in Figure 1, the coefficient expressing the influence of parental education is a direct effect, while the coefficient for the other variables can be interpreted as total effects (Pisati, 2003).

The mediation analysis is carried out with the KHB method to decompose the total effect of parental education (Karlson *et al.*, 2012). This method offers a feasible solution to the impossibility of comparing the coefficient of a logistic regression across nested models (Allison, 1999; Mood, 2010).

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field of study; financial aid; the length of degree program; and the year of enrolment on the course. See Table A.1 in the Appendix for the descriptive statistics.

[3] Moreover, AME eases the interpretation since all the coefficients are interpretable in terms of differences in percentage points (pp).

[4] In our framework, age is used as an indicator of enrolment in university immediately after upper secondary education. In this sense, it is not a mistake to consider it as potentially influenced by parental education.

Figure 1. Assumptions about the relationship between the main independent variables.
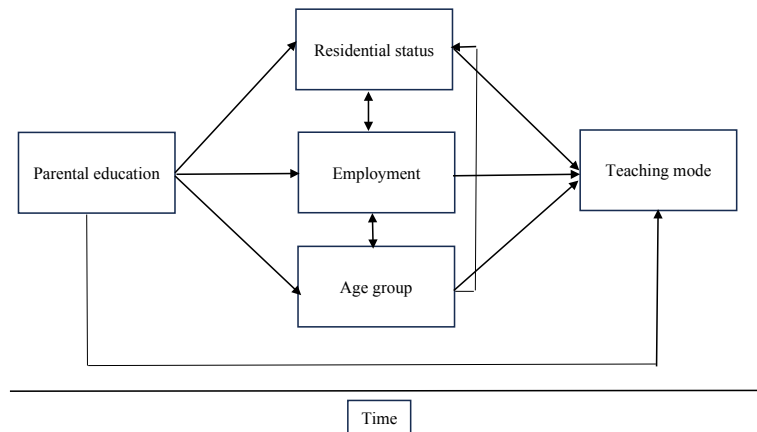
4. Results

The first set of findings details student preferences for the teaching modes adopted during the Covid-19 pandemic, distinguishing between *face-to-face*, *blended* and *fully online*. It should be remembered that traditional Italian universities tended to provide only face-to-face teaching, with online universities being established precisely to make up for this shortfall in provision.

Table 1 shows the results of a multinomial logistic regression in which the reference category is the preference for the *fully online* teaching mode. The limited influence of parental education is noticeable: only those with parents with a tertiary education prefer face-to-face teaching over online teaching, 1.4 times higher than for students with parents not going beyond compulsory schooling. The limited influence of parental education can easily be explained by the fact that the other main independent variables mediate part of its influence, as will be discussed later in this section.

The other three variables give statistically significant results, showing that non-traditional students tend to prefer the *fully online* teaching mode to the other two possibilities. More precisely, commuters are 3.3 times[5] less likely to prefer *face-to-face* teaching over *fully online* and are also less likely (1.6 times) to prefer *blended* over *fully online* teaching. Similar results emerge when we look at *employment*. Non-working students (and even those with occasional jobs) clearly prefer *face-to-face* teaching, and *blended* learning is

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[5]   The coefficients in Table 1 are expressed as relative risk ratios that vary from 0 to (theoretically) infinite. A value from 0 to 1 indicates a negative association between the independent variable and the outcome, while if it is greater than 1 the association is positive. To ease the interpretation, when the coefficient is lower than 1, the reciprocal () can be taken to obtain 3.3.

preferred to *fully online*. These results also can be extended to working students, using the relative risk ratio, by calculating the inverse of the parameters: and . Working students would rather take their courses entirely online, with the *blended* mode being only slightly more preferable to the *face-to-face* mode.

Table 1. Multinomial logistic regression on teaching mode. Relative risk ratio (RRR) and standard errors (SE) for selected variables.

	face-to-face		Blended	
	RRR	SE	RRR	SE
Parental education				
Compulsory (ref.)	0	-	0	-
Upper secondary	1.102	0.105	0.963	0.087
Tertiary	1.403***	0.141	0.997	0.097
Residential status				
Away from home	0	-	0	-
Commuter	0.303***	0.026	0.619***	0.052
Hometown	0.549***	0.059	0.780***	0.084
Employment				
Full-time and part-time jobs	0	-	0	-
Occasional jobs	2.843***	0.334	1.660***	0.179
No job	2.901***	0.294	1.618***	0.147
Age group				
Greater than or equal to 25	0	-	0	-
Less than 25	2.285***	0.207	1.430***	0.124
Constant	0.786	0.161	0.992	0.193
N	6,946			
Pseudo R^2	0.067			

*Note: the category "fully online" acts as reference category. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The model controls for the covariates listed in footnote 3 (see Table A3 in the Appendix for the complete model).*

The same argument holds for *age*, with younger students more inclined to *face-to-face* teaching than older ones. The overall picture that emerges is that nobody likes the middle ground. For non-traditional students it is rational to prefer *fully online* over *blended*: the experience of the pandemic has probably shown that professors, in the latter case, pay more attention to students present in the classroom and that active participation is more feasible in the fully online class.

The second step in our analysis considers preference for teaching mode as a dummy variable, a choice that is largely justified by the results above. Table 2 presents 5 models. The first four show the association between the main independent variables in turn, and the last one considers all the variables together. From a substantive point of view, it is interesting to note that all the coefficients associated with the variables used to identify non-traditional students are statistically significant and very large. For example, non-working students are more likely (+16.8 pp) to prefer *face-to-face* teaching to the online alternative. In any case, the results confirm the findings of the multinomial logistic regression of Table 1 and underline, once again, the unpopularity of the *blended* option among students.

It can be seen that both commuters (+19.7 pp) and hometown students (+9.9 pp) prefer the online mode of teaching, but the latter are much less likely to do so than the former. It may be that hometown students are a somewhat heterogeneous category. Indeed, there may be students who have chosen to attend the University because they do not have enough resources to move to another city. However, it could also be a choice motivated by the fact that University offers most fields of study and that the quality is certified by national and international rankings.

The results answer the first research question, telling us that non-traditional students definitely prefer a teaching mode based on online classes, and also that the blended option is a kind of middle ground that does not satisfy the needs of all students, including traditional ones.

The answers to the second research question regarding how the different indicators of non-traditional students interact with each other – the sixth model of the second step of our analytical approach – are reported in Figure 2.[6]

The graph, which has been restricted to students aged under 25[7] for ease of reading, shows the predicted probabilities of the possible combinations of parental education, residential status and employment. It shows a set of clear-cut results with the emergence of three blocks of student preferences.

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[6]   We opt to recode parental education in a dummy variable jointly considering the categories of "compulsory" and "upper secondary". In the Appendix (Figure A1) we report the results with the original coding of parental education.
[7]   See Figure A2, in the Appendix, for the results concerning the older students.

Table 2. Binomial logistic regression on teaching mode. Average marginal effects (AME) and standard errors (SE) for selected variables.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AME	SE	AME	SE	AME	SE	AME	SE	AME	SE
Parental education										
Compulsory (ref.)	0	-							0	-
Upper secondary	0.049***	0.016							0.027*	0.016
Tertiary	0.120***	0.017							0.075***	0.017
Residential status										
Away from home			0	-					0	-
Commuter			-0.231***	0.014					-0.197***	0.014
Hometown			-0.131***	0.018					-0.099***	0.018
Employment										
Full-time and part-time jobs					0	-			0	-
Occasional jobs					0.201***	0.019			0.159***	0.020
No job					0.238***	0.016			0.168***	0.017
Age group										
Greater than or equal to 25							0	-	0	-
Less than 25							0.183***	0.015	0.131***	0.015
N	6946		6946		6946		6946		6946	
Pseudo R^2	0.034		0.056		0.049		0.044		0.082	

*Note: * p < 0.10, ** p < 0.05, *** p < 0.01. The models control for the covariates listed in footnote 3 (see Table A4 in the Appendix for the complete models).*

The commuters lie in the first two (i.e., the blocks with the lower likelihood of preferring *face-to-face* teaching), while the away from home students mostly prefer *face-to-face* teaching. The hometown students are more dispersed, and this is consistent with the reasoning regarding their potential heterogeneity. This analysis helps to distinguish those who decided to stay in Bologna because of financial constraints (Home-Job) from those who simply prefer Bologna because of the academic offer (Home-NoJob and Home-Occas).

Another relevant result concerns the role of having a full-time or part-time job: working students tend to be concentrated in the first block with the exception of those who are living away from home. Finally, students with well-educated parents tend to prefer *face-to-face* teaching more, although differences with those from lower socio-economic backgrounds are not statistically significant.

Figure 2. Predicted probabilities and corresponding 95% confidence intervals of preferring face-to-face teaching according to the combination of parental education, employment and residential status. Sample restricted to students under 25.
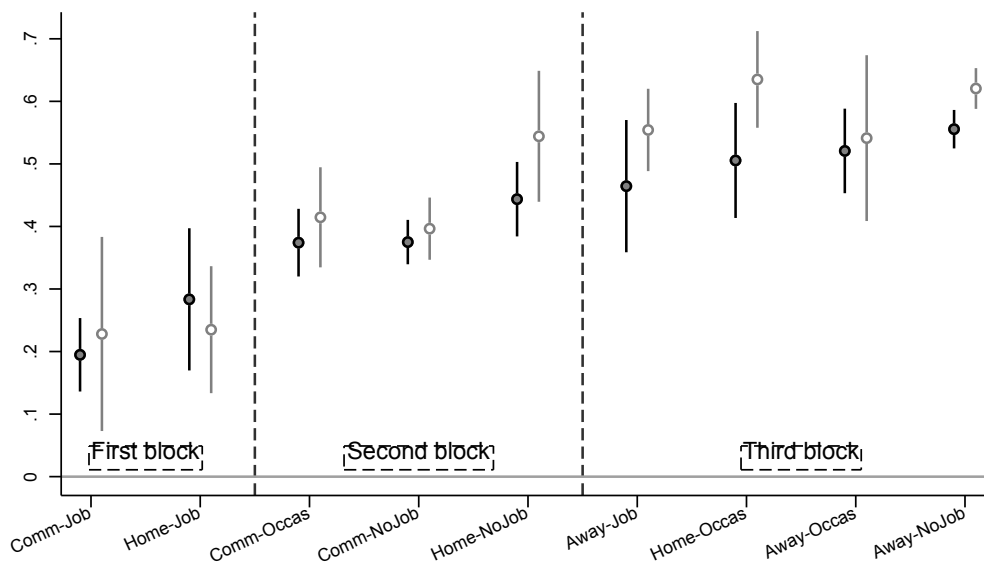
Legend: filled circles represent students with lower educated parents (i.e., upper secondary diploma or lower), while the hollow ones represent students with at least one parent with a tertiary degree.
The labels on the X axis have the following meaning: Comm = commuters; Home = hometown; Away = away from home; Job = full-time or part-time jobs; Occas = occasional jobs; NoJob = no job.
Note: the predicted probabilities come from the model presented in Table 2 with the addition of the interactions between parental education, employment and residential status (see Table A5 in the Appendix for the complete model).

The analysis of the interactions between the different characteristics of non-traditional students therefore highlights the relevance of factors such as residential status and employment condition in influencing their preferences for teaching methods, while the role of family background seems to be less relevant. For this reason, the final step in our analytical strategy is dedicated to quantifying the influence of *parental education* and how much of this relationship is explained by *employment* and *residential status*.

Table 3 shows the results of the KHB decomposition by *age group*. More precisely, the direct effect is the coefficient of *parental education* controlling for all covariates, while the total effect is the same coefficient excluding the mediators. The difference is simply the total effect minus the direct one and can be interpreted as a measure of the indirect effect. For the younger students (first column of Table 3), we see that parental education increases the log odds of preferring *face-to-face* teaching by 0.256. Controlling for *employment* and *residential status*, the effect of *parental education* reduces to 0.195, leaving an indirect effect of 0.061. Moreover, Table 3 tells us that 23.8% of the total effect exerted by *parental education* is due to *employment* and *residential status* and that the latter is the mediator that weighs the most. This information can be retrieved from the last two rows of Table 3, which report the contribution of each mediator to the indirect effect. A further important aspect emerging from our analyses is that working class students who move to Bologna to attend the University prefer *face-to-face* teaching.

Table 3. KHB decomposition: the mediating role of residential status and employment.

	Less than 25		Greater than or equal to 25	
	Coeff.	SE	Coeff.	SE
Total effect	0.256***	0.043	0.190***	0.073
Direct effect	0.195***	0.043	0.108	0.074
Difference	0.061***	0.010	0.082***	0.020
Percent explained by the mediators	23.8		43.1	
Component of difference				
Employment	25.2		47.9	
Residential status	74.8		52.1	
N	5,050		1,896	

Note: the coefficients are expressed in log-od

This may be explained by at least two related aspects: these students (and their families) have probably invested a lot into the opportunity of attending their preferred university and, at the same time, it is likely that they have access to financial aid. As a final point, it is interesting to note that the indirect effect for the older students (second column of Table 3) is much larger (43.1%) than that observed for the younger students, and that the contribution to the indirect effects of the two mediators changes dramatically. In fact, for older students, employment and residential status are of equal importance. It emerges that for older students, the role played by parental education is lower, leaving more room for achieved characteristics and in particular for employment condition. These students did not enrol at the university immediately after the end of upper secondary school and it is probable that their preferences are more influenced by obligations arising from their daily life.

5. Conclusion and policy implications

Italian universities experimented with online teaching on a large scale during the Covid-19 pandemic. To ensure continuity in the provision of teaching, universities introduced various innovations, though without much strategic planning. This resulted in diverse ways of using technology and digital communication tools in teaching and learning, and traditional (face-to-face) teaching was blended with online teaching. In the aftermath of the pandemic and driven in part by a significant demand for flexibility on the part of students, universities have continued to use the possibilities offered by modern information and communication technologies to create interactive platforms for distance and self-guided learning.

This paper explored student preferences for the online teaching methods implemented. Particular attention was paid to non-traditional students: indeed, scholars suggest that online teaching provides a valuable tool for non-traditional students to balance their studies with other responsibilities, such as work or family commitments.

The results show that non-traditional students express a clear preference for the *fully online* mode of learning, while traditional students prefer the *face-to-face* mode. For both groups, the blended teaching mode is the least appreciated. A clear pattern in this direction also emerges when analyzing the impact of key criteria in the definition of non-traditional students: first-generation students, commuters, students in employment and older students all express a preference for an online mode of teaching.

These findings tell us that traditional and non-traditional students express different preferences for the way teaching is delivered. Many non-traditional students work, have family responsibilities, and live some distance

from the university campus. As a result, they are often unable to participate in traditional forms of face-to-face learning on campuses and do not receive adequate support from services and schedules designed for traditional students. Rather than trying to bring these non-traditional students closer to traditional students, the existence of study modes that meet their need for flexibility are an important factor in their effective participation in tertiary education. Online teaching and the potential it offers for interactive channels for distance and self-learning enables students to continue attending classes who would otherwise have had to give up for reasons of work, health or care-giving responsibilities (Salmeri, 2022). In particular, socially disadvantaged students, who often have to work to support their studies, emphasize that distance learning enables them to attend lectures, better manage their time, and promotes an integration into university life previously denied them (Burgalassi & Casavecchia, 2021). On the contrary, face-to-face lectures seem to be a luxury that some students cannot afford (Gremigni, 2023).

However, scholars have pointed out that higher levels of university participation do not necessarily correspond to an increase in graduation rates, especially in the case of online education. Even if research has not reached conclusive results, online education tends to be associated with greater risks for students, such as poorer academic outcomes in the short term and worse financial results in the long term, when compared to traditional courses (McPherson & Bacow, 2015; Bettinger *et al.,* 2017). Moreover, attending online courses strongly influences the relational dimension that plays a central role in the educational career. Classmates and professors are fundamental resources for access to information, cultural codes and support networks. They are instrumental in the success of the educational path and, through a continuous exchange of ideas, opinions and experiences, facilitate growth and maturation in the life path of young people (Bozzetti & De Luigi, 2021).

Concerns about inequalities in access to new learning environments are highly relevant. While changing traditional face-to-face modes of participation and learning is seen as a means of widening access to educational opportunities for non-traditional students, the introduction of distance learning carries the risk of exacerbating inequalities, especially in terms of access to the necessary equipment and reliable connectivity (Burbules, 2020). The introduction of online teaching needs to be accompanied by the creation of a more inclusive and accessible learning environment that recognizes prior learning and life experiences, and provides flexible scheduling, mentorship programs, networking opportunities and specialized resources. Otherwise, the most likely outcome is that "as the world goes online, many get left behind" (Jackson, 2020, p. 23).

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Appendix

Table A1. Comparison between HousINgBO sample (N=6,946) and Alma Mater Studiorum − University of Bologna enrolees, A.Y. 2020/21 (N=83,647).

Main independent variables	HousINgBO sample	Alma Mater Studiorum – University of Bologna
Sex		
Male	33.8	44.1
Female	66.2	55.9
Type of degree		
Bachelor's	54.2	55.9
Master's	31.3	27.4
Unique cycle	14.6	16.7
Field of study		
Humanities	33.6	33.8
Social Sciences	25.9	26.3
STEM	32.9	32.0
Health	7.6	7.9
Course location (Campus)		
Bologna	77.8	76.4
Cesena	5.2	5.6
Forlì	8.0	7.8
Ravenna	4.8	4.3
Rimini	4.2	5.9
*Residential status**		
Away from home	48.3	47.9
Hometown (and commuter)	51.7	52.1

*Data on residence status are collected slightly differently between the HousINgBO sample and the administrative data. The HousINgBO sample is based on a student declaration, while the administrative data identify away from home students on the basis of the time taken to reach the place of study.

Table A2. Descriptive statistics for the outcome and the main independent variables (N= 6,946).

Outcome	
Teaching mode	%
Face-to-face	43.5
Blended	35.4
Fully online	21.1
Main independent variables	
Parental education	%
Tertiary degree	38.8
Upper secondary diploma	42.8
Compulsory education	18.4
Employment	%
Full-time and part-time jobs	14.9
Occasional jobs	19.3
No job	65.8
Students' condition	%
Away from home	48.3
Commuter	36.4
Hometown	15.3
Age group	%
Less than or equal to 24	72.7
Greater than or equal to 25	27.3

Table A3. Multinomial logistic regression on teaching mode. Relative risk ratio (RRR), standard errors (S.E.) and p-values. Complete model.

	Face-to-face			Blended		
	RRR	S.E.	p-value	RRR	S.E.	p-value
Parental education						
Compulsory (ref.)	0	-	-	0	-	-
Upper secondary	1.102	0.105	0.309	0.963	0.087	0.674
Tertiary	1.403	0.141	0.001	0.997	0.097	0.975
Student's residential status						
Away from home	0	-	-			
Commuter	0.303	0.026	0.000	0.619	0.052	0.000
Hometown	0.549	0.059	0.000	0.780	0.084	0.021
Employment						
Full-time and part-time jobs	0	-	-			
Occasional job	2.843	0.334	0.000	1.660	0.179	0.000
No job	2.901	0.294	0.000	1.618	0.147	0.000
Age group						
Above 25	0	-	-			
Under 25	2.285	0.207	0.000	1.430	0.124	0.000
Geographical area of residence						
North	0	-	-			
Centre	0.806	0.090	0.053	0.977	0.109	0.834
South and Island	0.571	0.057	0.000	0.867	0.086	0.149
Abroad	0.518	0.075	0.000	0.774	0.107	0.064
Sex						
Male	0	-	-			
Female	0.745	0.056	0.000	1.450	0.112	0.000

	Face-to-face			Blended		
	RRR	**S.E.**	**p-value**	**RRR**	**S.E.**	**p-value**
Upper secondary School track						
Academic	0	-	-			
Vocational	0.636	0.052	0.000	0.812	0.065	0.009
Field of study						
Humanities	0	-	-			
Social Sciences	0.967	0.091	0.720	0.863	0.081	0.117
Stem	0.799	0.071	0.012	0.909	0.080	0.279
Health	0.730	0.105	0.029	0.786	0.110	0.085
Financial aid						
No benefit	0	-	-			
Only tuition waiver	1.210	0.098	0.019	1.198	0.097	0.025
Grant and waiver	1.436	0.140	0.000	1.351	0.132	0.002
Year of enrolment						
On-time	0	-	-			
Outside prescribed time	1.284	0.158	0.042	0.956	0.107	0.690
Campus						
Other cities	0	-	-			
Bologna	0.964	0.082	0.670	0.924	0.077	0.347
Type of degree						
Bachelor's						
Master's	1.504	0.131	0.000	1.408	0.122	0.000
Unique cycle	1.062	0.115	0.577	1.115	0.117	0.300
Constant	0.786	0.161	0.241	0.992	0.193	0.967
N	6,946					
Pseudo R^2	0.067					

Table A4. Binomial logistic regression on teaching mode. Average marginal effects (AME) and standard errors (S.E.). Full models.

	Model 1		Model 2		Model 3		Model 4		Model 5	
Parental education										
Compulsory	0	-							0	-
Upper secondary	0.049***	(0.016)							0.027*	(0.016)
Tertiary	0.120***	(0.017)							0.075***	(0.017)
Student's residential status										
Away from home			0	-					0	-
Commuter			-0.231***	(0.014)					-0.197***	(0.014)
Hometown			-0.131***	(0.018)					-0.099***	(0.018)
Employment										
Full/part-time job					0	-			0	-
Occasional job					0.201***	(0.019)			0.159***	(0.020)
No job					0.238***	(0.016)			0.168***	(0.017)
Age group										
Greater than 25							0	-	0	-
Less than 24							0.183***	(0.015)	0.131***	(0.015)
Geographical area of birth										
North	0	-	0	-	0	-	0	-	0	-
Centre	0.034*	(0.018)	-0.039**	(0.018)	0.018	(0.017)	0.037**	(0.018)	-0.044**	(0.018)
South & Islands	-0.021	(0.015)	-0.106***	(0.016)	-0.041***	(0.015)	-0.011	(0.015)	-0.101***	(0.016)
Abroad	-0.071***	(0.025)	-0.118***	(0.024)	-0.075***	(0.025)	-0.036	(0.025)	-0.105***	(0.024)
Sex										
Male	0	-	0	-	0	-	0	-	0	-
Female	-0.120***	(0.013)	-0.123***	(0.013)	-0.122***	(0.013)	-0.132***	(0.013)	-0.118***	(0.013)

|	Model 1		Model 2		Model 3		Model 4		Model 5	
Upper secondary school track										
Academic	0	-	0	-	0	-	0	-	0	-
Vocational	-0.106***	(0.014)	-0.108***	(0.014)	-0.107***	(0.014)	-0.106***	(0.014)	-0.071***	(0.014)
Field of study										
Humanities	0	-	0	-	0	-	0	-	0	-
Social Sciences	0.048***	(0.016)	0.041***	(0.016)	0.043***	(0.016)	0.030*	(0.016)	0.014	(0.016)
Stem	-0.010	(0.015)	-0.006	(0.015)	-0.021	(0.015)	-0.021	(0.015)	-0.035**	(0.015)
Health	0.000	(0.025)	-0.007	(0.025)	-0.016	(0.025)	-0.003	(0.025)	-0.034	(0.024)
Financial aid										
No benefit	0	-	0	-	0	-	0	-	0	-
Only tuition waiver	0.021	(0.014)	0.009	(0.014)	0.010	(0.014)	0.003	(0.014)	0.016	(0.014)
Grant and waiver	0.063***	(0.016)	0.031**	(0.016)	0.038**	(0.016)	0.037**	(0.016)	0.036**	(0.016)
Year of enrolment										
Outside the prescribed times	0	-	0	-	0	-	0	-	0	-
On time	0.150***	(0.019)	0.136***	(0.020)	0.133***	(0.020)	0.080***	(0.022)	0.061***	(0.022)
Campus										
Other cities	0	-	0	-	0	-	0	-	0	-
Bologna	0.025*	(0.014)	0.003	(0.014)	0.030**	(0.014)	0.029**	(0.014)	0.004	(0.014)
Type of degree										
Bachelor's	0	-	0	-	0	-	0	-	0	-
Master's	-0.004	(0.013)	-0.019	(0.013)	0.003	(0.013)	0.064***	(0.014)	0.040***	(0.014)
Unique cycle	-0.029	(0.018)	-0.024	(0.018)	-0.021	(0.018)	0.000	(0.018)	-0.002	(0.018)
N	6,946		6,946		6,946		6,946		6,946	
Pseudo R^2	0.034		0.056		0.049		0.044		0.082	

Table A5. Binomial logistic regression on teaching mode. Logit coefficients and standard errors (S.E.). Full model with interactions. Restricted sample of students under 25 years of age.

	Model 6	
	Coeff.	S.E.
Parental education		
Upper secondary or lower	0	-
Tertiary	0.317	(0.359)
Student's residential status		
Away from home	0	-
Commuter	-1.309***	(0.296)
Hometown	-0.806**	(0.367)
Parental education X Student's residential status		
Tertiary # Commuter	-0.074	(0.501)
Tertiary # Hometown	-0.615	(0.651)
Employment		
Full/part-time job	0	-
Occasional job	0.232	(0.264)
No job	0.376	(0.232)
Parental education X Employment		
Tertiary # Occasional job	0.168	(0.423)
Tertiary # No job	-0.040	(0.370)
Commuter # Occasional job	0.693**	(0.348)
Commuter # No job	0.553*	(0.311)
Hometown # Occasional job	0.744*	(0.437)
Hometown # No job	0.343	(0.392)
Parental education X Student's residential status X Employment		
Tertiary # Commuter # Occasional job	-0.236	(0.588)
Tertiary # Commuter # No job	-0.110	(0.527)
Tertiary # Hometown # Occasional job	0.290	(0.747)
Tertiary # Hometown # No job	0.796	(0.683)
Geographic area of birth		
North	0	-
Centre	-0.178*	(0.094)
South & Islands	-0.409***	(0.088)
Abroad	-0.554***	(0.145)

|	Model 6	
	Coeff.	S.E.
Sex		
Male	0	-
Female	-0.544***	(0.067)
Upper secondary school track		
Academic	0	-
Vocational	-0.374***	(0.075)
Field of study		
Humanities	0	-
Social Sciences	0.060	(0.079)
Stem	-0.156**	(0.079)
Health	-0.148	(0.127)
Financial aid		
No benefit	0	-
Only tuition waiver	0.081	(0.069)
Grant and waiver	0.211***	(0.081)
Year of enrolment		
Outside prescribed time	0	-
On-time	0.648***	(0.172)
Campus		
Other cities	0	-
Bologna	0.060	(0.073)
Type of degree		
Bachelor's	0	-
Master's	-0.021	(0.076)
Unique cycle	-0.063	(0.094)
Constant	-0.245	(0.292)
N	5050	
Pseudo R^2	0.058	

Figure A1. Predicted probabilities and corresponding 95% confidence intervals of preferring the teaching in presence according to the combination of parental education (3-category coding), work activity and residence status.

Panel a. Students under 25 years of age
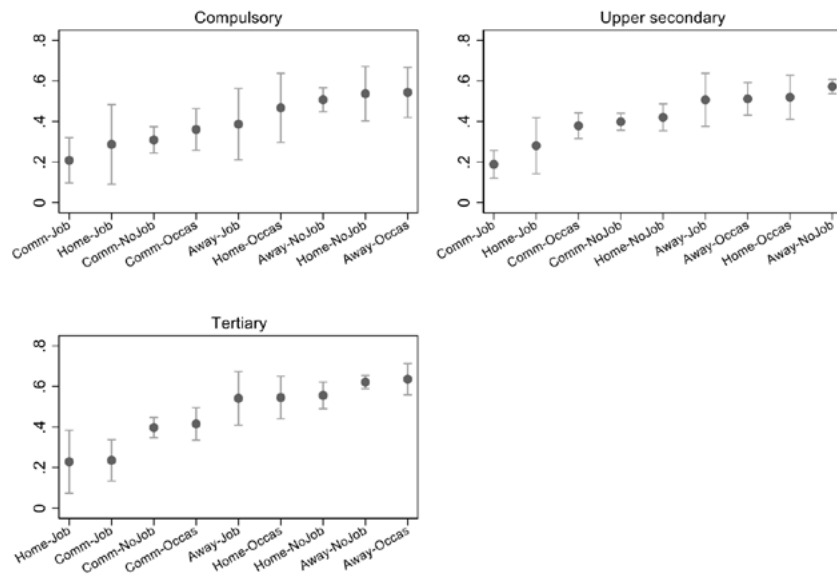
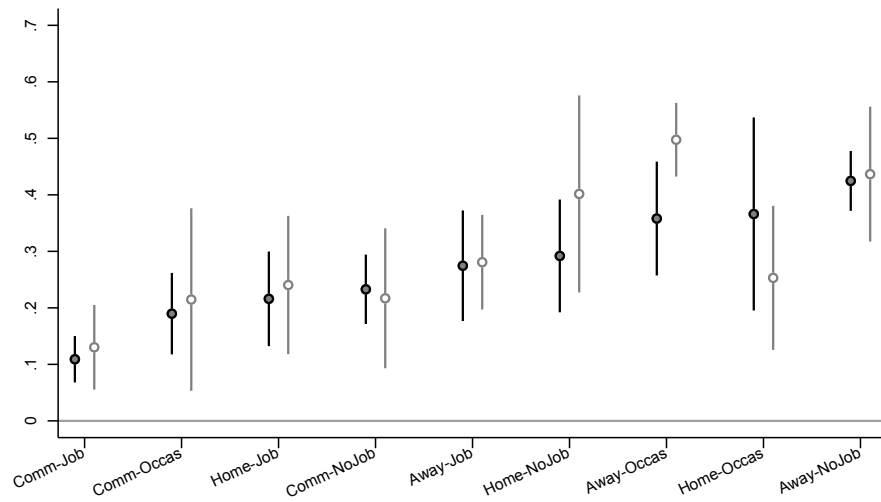### Panel b. Students above 25 years of age
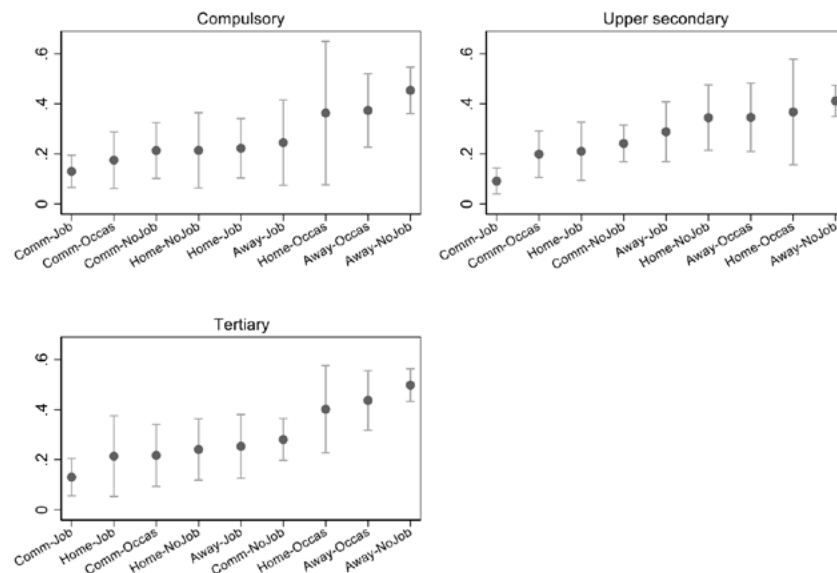
Figure A2. Predicted probabilities and corresponding 95% confidence intervals of pre-ferring the teaching in presence according to the combination of parental education, work activity and residence status. Restricted sample of students above 25 years of age.

Legend: filled circles represent student with lower educated parents (i.e., upper secondary diplo-ma or lower), while the hollow ones represent students with at least one parent with a tertiary degree.
The labels on the X axis have the following meaning: Comm = commuters; Home = Hometown; Away = away from home; Job = Full-time and part-time jobs; Occas = occasional jobs; NoJob = no job.