Extra-curricular internships and sorting by socio-economic status*

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Abstract

This paper investigates whether, and due to which channels, university students from different socioeconomic backgrounds differ in their propensity to start their career with an extra-curricular internship as opposed to a job contract. After presenting descriptive evidence from aggregate data that individuals from wealthier backgrounds are more likely to start an extra-curricular internship, I collect novel survey data from a sample of university students to estimate a model of contract choice. In the survey, I elicit both career choices in hypothetical but realistic scenarios, and beliefs on labor market returns conditional on different initial contract types. I find that individuals from different socioeconomic backgrounds have a comparable structure of beliefs, but differ in the weight they assign to present and future labor-market outcomes in their utility function, which is in line with the presence of liquidity constraints.

1 Introduction

The prevalence of internships as the first access point to the labor market for young workers has substantially expanded in recent years. According to the Italian national agency for the analysis of active labor market policies (Agenzia Nazionale Politiche Attive Lavoro, 2018), the number of internships has constantly increased between 2014 and 2017, with 1.2 million being activated over the period. Focusing on extra-curricular internships, aggregate data from Almalaurea[1] show that a consistently high percentage of university graduates participates in an internship or traineeship[2] in the five years following graduation, with figures ranging from slightly less than 20% for scientific degrees to more than 35% for Economics and Statistics. At the European level, the 2013 Eurobarometer survey (European Commission, 2013) reported that 45% of all EU citizens aged 18–35 had undertaken at least one internship, either during or after their studies.

Nevertheless, due to the very low compensation associated with internships[3], the increasing diffusion of this type of agreement as a first form of access to the labor market for young workers can represent an entry barrier, in particular for individuals from less wealthy backgrounds, contributing to widen income inequality and raising concerns for policy makers.

While several pieces of anecdotal evidence hint at the existence of a socioeconomic barrier to participation in the internship market (see, for instance, Curiale, 2010; Bennett, 2011; Leonard et al., 2016), more systematic evidence on the relationship between individuals' socioeconomic status and the likelihood of accepting an internship offer is still scant and not conclusive. In this paper, I thus set to identify the channels driving prospective graduates' choice of accepting an extra-curricular internship, measuring the differential impact of finan-

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[1]An inter-university institution collecting data on the universe of Italian university students. Available at: https://www2.almalaurea.it/cgi-php/universita/statistiche.

[2]Internships and traineeships are defined differently in different settings. In the Italian context, which is the main setting of this study, extra-curricular internships (*Stage extra-curriculari*) correspond to a period of on-the-job training (6 to 12 months) within a firm following graduation which may or may not be aimed at subsequent hiring in the same firm. They entail a usually low monetary compensation. In the same setting, traineeships (*praticantati*) refer to mandatory on-the-job training required for enrolment in professional registers in the context of regulated professions.

[3]Recently, following EU guidelines, national and regional governments in Europe have started imposing minimum monthly compensations, which however are still below the corresponding minimum wage for employment contracts.

cial constraints[4], individual beliefs concerning the effectiveness of internships in improving future labor market prospects and residual preferences.

The presence of a socioeconomic divide is particularly relevant if extracurricular internships are associated with better outcomes in the labor market. The increased prevalence of internship contracts would exacerbate income inequality by facilitating the access of wealthier young workers to higher-quality jobs, especially in the case in which such access becomes as a matter of fact conditional on having gone through an underpaid internship experience.

From a theoretical point of view, there are several channels through which internships could positively affect workers' labor market prospects. First, internships can enrich the skill set of perspective workers, by complementing the almost exclusively theoretical education provided by high schools and universities (Kapareliotis et al., 2019). Already in Becker (1962), and more recently in Garicano and Rayo (2017), unpaid or very low paid training periods at the beginning of employment contracts were mentioned as a possible solution to a pivotal trade-off faced by firms: namely, the need to provide industry-specific skills to employees which could be transferred to competitors in case of workers' resignation. Secondly, internships' short duration[5] allows firms to test the fit of potential employees at very low costs, thus representing an ideal screening mechanism[6]. Symmetrically, internships also allow young workers to test their own compatibility with the job, sending a positive signal to other firms in the same sector. Nevertheless, internships could also be associated with lower workers' quality if the best candidates were more likely to be offered and accept a job contract as opposed to an internship at the beginning of their career.

The coexistence of several theoretical channels with potentially opposite effects has left large scope for the empirical assessment of the sign and magnitude of the returns to internships for labor market outcomes, with no conclusive answer. Nunley et al. (2016) and Baert

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[4]Coffman et al. (2019) highlights how even short-term liquidity constraints can affect long-term career choices, supporting the idea that even a short period of foregone earnings can play a pivotal role in shaping the decision between different contracts

[5]Recent European-level regulations aimed at homogenizing the maximum duration of extra-curricular internships set a limit of 6 months, or 12 months in exceptional cases.

[6]The screening and signalling mechanisms are not qualitatively dissimilar from the ones explored by the seminal contribution of Spence (1973) for higher education, or by (Katz and Rosenberg, 2005) for time contributions to charitable organizations. Agenzia Nazionale Politiche Attive Lavoro (2018) also provides evidence supporting this channel, as only 60 % of the graduate interns who found a job within six months after the end of the internship did so in the same company.

et al. (2019) address the question with an experimental resume-study design. Limiting their analysis to curricular internships, they find evidence in favor of the positive signalling hypothesis, showing how the presence of a curricular internship in students' resumes results in a higher probability of being offered an interview for a job position. Similarly, Bittmann and Zorn (2020) compare the effect of mandatory versus voluntary curricular internships and find a positive impact only for the latter, adding support to the signalling role (the considered outcomes in the labor market are wages, degree of matching between job and skills, and overall on-the-job satisfaction). Differently from the studies mentioned so far, Cappellini et al. (2019) and Cerulli-Harms (2017) focus on extra-curricular internships, employing a propensity score matching design to control for observable drivers of selection. Cappellini et al. (2019) find that extracurricular internships positively affect the probability of obtaining a higher-quality, better paid job in the Italian market, despite a negative effect on the likelihood of finding any job. On the contrary, Cerulli-Harms (2017) highlights the existence of a negative short-term effect (vanishing within 5 years) of internships on both employment status and job quality, as measured by wage and satisfaction for other non-pecuniary aspects of the job, in the German context. These opposite findings can be explained by heterogeneous labor market structures and regulations across countries, which might result in different subsets of population selecting into different employment opportunities. In the Italian case, the fact that young workers are disproportionately offered fixed-term, low-protection contracts at the beginning of their career[7] makes internships relatively more attractive, possibly resulting in a lower, if any, negative selection on ability.

In this paper, focusing on the Italian setting, I first rely on data from an ISTAT survey on the professional placement of graduates to provide empirical evidence that university graduates[8] starting an extra-curricular internship are positively selected in terms of socioeconomic background. Building on this evidence, I employ a survey experimental design on a sample of 500 university students from Bocconi University in Milan, Italy, to identify the main factors driving individual career choices. Italy provides a compelling case study: first, the

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[7]See figure 2A1 for the prevalence of open-ended versus fixed-term contracts across cohorts.

[8]Although university graduates are arguably an already positively selected category in terms of socioeconomic background (see for instance Boneva et al., 2021; Boneva and Rauh, 2017 for the UK), they are an increasingly sizable fraction of the population. For instance, according to ISTAT, 33% of individuals aged 25 held at least one university degree in 2017 (http://dati.istat.it)

critical conditions of its labor market, particularly for young workers, make it essential to devise effective legislative tools to promote school-to-work transitions. Secondly, internships have become increasingly prevalent in the country, especially among highly educated young workers (Figure 2A1), calling for an evaluation of the ability of this contract to enhance labor market perspectives and its potential for generating inequitable outcomes.

In the survey, I elicit both students' choice between different labor market access options in hypothetical but realistic scenarios, and their beliefs on future outcomes conditional on the type of option chosen. On top of distinguishing between internships and job offers, I also add a second layer by specifying whether internships are for hiring purposes or not, as well as firm size to proxy for the offer quality. This allows to distinguish if internships are seen, from the students' perspective, as a trial period before hiring in the same firm, or a way to enrich one's cv by signalling higher motivation and job-readiness, and whether different socioeconomic groups are likely to differ in their motives for choosing an internship. Students' choices in hypothetical scenarios are likely to differ from observed career paths, which result from the interaction of supply- and demand-side factors. While the latter are certainly of interest, and possibly a subject for future research, abstracting from demand-side constraints allows to more effectively disentangle the contribution of supply-side constraints and preferences.

The presence of several different scenarios for each respondent allows to estimate a choice model controlling for individual-level factors, while the explicit elicitation of individual expectations allows to measure the role of beliefs in informing individual choices without imposing strong assumptions on the formation process and accuracy of individual expectations on conditional future outcomes.[9] To address the possible endogeneity concerns which arise from the elicitation of individual beliefs, which might be correlated with unobserved preferences for different contract types, I implement an information treatment to create an exogenous variation in beliefs. In particular, I present some relevant descriptive statistics on the labor market outcomes of Italian graduate workers conditional on having done an internship at the beginning of their career or not to a random sub-sample of two thirds of the respondents.

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[9]A large and growing strand of literature has highlighted how individual beliefs, and students' beliefs in particular, are often very different from the actual outcomes observed in comparable populations. See for instance Giustinelli (2022) for a review of the literature on students' expectations on the returns to education.

The treatment allows to achieve clean estimates of the preference parameters in the model by removing the time-invariant, individual-specific component of beliefs.[10]

I find that respondents tend to associate internships in large firms to better future labor market outcomes than fixed-term contracts in small firms, especially when internships are aimed at subsequent hiring in the same firm. Furthermore, beliefs on conditional future outcomes are similar across socioeconomic backgrounds. I also find that wage and firm size are stronger predictors of choice in the hypothetical scenarios, with higher wages and larger firms being associated with a higher probability of choice. Among the future outcomes, short-term outcomes and probability of having an open-ended contract are more important than long-term outcomes and wages. Differently from beliefs, preferences differ across socioeconomic backgrounds, with wealthier students assigning a relatively higher value to stability (the probability of having a permanent contract in the future) and long-term outcomes than to immediate financial compensation. Wealthier individuals are also characterized by a higher monetary value of unemployment, which in this setting corresponds to parental support in the absence of public unemployment benefits for individuals who have not yet accessed the labor market.

These results contribute, first, to the literature on the impact of expectations on individual choices (Jensen, 2010; Stinebrickner and Stinebrickner, 2008; Wiswall and Zafar, 2015; Giustinelli, 2016; Arcidiacono et al., 2020; Boneva et al., 2021; Delavande et al., 2022), complementing the existing evidence on the impact of the socioeconomic background on the decision to invest in higher education[11] by focusing on post-graduation employment decisions. Secondly, this paper contributes to the growing strand of literature that investigates the role of individual preferences for different contract features on labor market outcomes (Chapman, 1981; Maestas et al., 2017; Mas and Pallais, 2017; Wiswall and Zafar, 2018) by incorporating individual beliefs on conditional future outcomes.

The paper proceeds as follows: section 2 provides an overview of the setting and some motivating evidence based on existing administrative and survey data. Section 3 presents the model of contract choice, section 4 describes the structure of the survey and the sample

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[10]Wiswall and Zafar (2015) use this technique in the context of college major choices.

[11]For instance Boneva and Rauh (2017) and Boneva et al. (2021) investigate the channels driving the difference in the choice of pursuing post-graduate education between first and continuing-generation students

of university students, and section 5 presents the main results of the reduced form analysis and the model estimation. Section 6 concludes.

2 An overview of the context

Given the trade-off inherent in the defining characteristics of internship agreements, which aim to facilitate the transition of young graduates into the labor market while offering a very low or no compensation, policymakers have been trying to regulate the scope and conditions of such agreements. Problems related to the inequitable compensation accruing to interns have been recognized, among others, by the Italian National Agency for Active Labor Policies (Agenzia Nazionale Politiche Attive Lavoro, 2018), and by the US Department of Labor (US Department of Labor, 2018). In order to address these issues in the context of the European Union, the European Parliament has, since 2014, adopted several resolutions stressing the importance of a unified framework across the member states aimed at ensuring the educational value of internship spells, while preventing any related abuse (European Parliament. Directorate General for Parliamentary Research Services., 2022). As a consequence, legislation concerning internships has evolved constantly over the last decades also in the Italian setting. In particular, the January 2013 Agreement between the central and the regional governments updated the pre-existing definition of extra-curricular internships in order to further emphasize the difference with job contracts. Internships were defined as active labor policy measures consisting of on-the-job training periods, and a minimum national compensation for interns was introduced at €300 per month. While regional governments were allowed to set a higher level, and some of them internalized the national guidelines and raised the minimum compensation (up to €800 per month in Lazio), implementation of the national measure was discontinuous across regions, with the minimum statutory allowance often remaining well below the cost of living.

2.1 The ISTAT survey on the professional placement of graduates

In this section, I present some evidence on the selection into internships and the relevance of internship agreements for Italian graduates based on an existing survey conducted by

the Italian statistical institute (ISTAT) on a representative sample of the population of Italian university graduates. First, I document that respondents from a higher socioeconomic background are more likely to start their career with an internship rather than with a job contract. Secondly, I show that those who start their career with an internship were more likely to be employed but also to receive a lower wage and have a less permanent contract conditional on working three years after graduation. However, this effect might be driven by the short time frame considered.

The ISTAT survey on the professional placement of university graduates (*Indagine Campionaria sull'Inserimento Professionale dei Laureati*) was conducted in 2011 and 2015. The 2015 wave was administered to a sample of 73,000 respondents who had obtained a university degree in an Italian university between three and four years before the interview, in 2011. Aside from information on the demographic characteristics of the respondents, the questionnaire asked a detailed account of their university experience (reasons for choosing a certain field of study, regularity of class attendance, grades), subsequent labor market outcomes (wage, type of contract, satisfaction with different aspects of the job) and, importantly, family background (in terms of parental education and occupation). Table 2A1 reports the main descriptive statistics for the 2015 sample: women account for 58 per cent of the sample, while 99 percent of the respondents hold an Italian citizenship. Less than one fifth have university-educated parents. As expected, more than 70 percent of the respondents come from a *Liceo*, a type of high school which is preparatory for university, approximately one quarter comes from a technical high school, and only 4 percent have a professional high school diploma. One fifth of the respondents left university with only a Bachelor's degree, while the rest either concluded a five-year degree[12] or a Master's degree. More than 80 percent of the respondents accumulated some working experience during their studies. After graduation, 41 percent of the respondents started some form of internship, and the fraction remains relevant (26 percent) when excluding mandatory traineeships required for enrolment in professional registers[13]. At the moment of the interview, more than 70 percent of the respondents were working. Among those, 40 percent had a permanent contract and the average net monthly

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[12]*Laurea a Ciclo Unico*, equal in duration and educational value to the sum of a Bachelor's and Master's degree, and the only available format in some disciplines, such as Medicine, Law and Architecture.

[13]This is true in particular for graduates in the fields of medicine, architecture, law and psychology

wage was approximately €1200.

2.1.1 Selection into internships

Figure 1 reports the percentage of respondents having started an internship or traineeship after graduation[14], separately by the socioeconomic status (SES) of the family of origin in terms of parental education and job position[15]. The two groups are divided by a sizable and significant difference, with respondents from higher socioeconomic backgrounds being over six percentage points more likely to conclude an internship.

Appendix figure 2A3 shows the difference in internship take-up[16] by gender and ability as proxied by high school grade[17]. Without controlling for other factors, high-ability individuals are slightly more likely to start an internship.

Since socioeconomic status and ability might be correlated with other factors which can also affect the decision to start an internship (such as grades, graduation timing, field of study, and place of residence), I also run a logistic regression in order to control for a comprehensive set of observable characteristics[18].

The regression results reported in table 2A2 confirm the unconditional evidence on the positive predictive effect of the socioeconomic background on the probability of starting an internship presented in Figure 1. Both parental education and occupation are significant predictors of internship take-up; women are also more likely to start an internship, while the predictive contribution of ability (as measured by high school grades) becomes negligible. Finally, the field of study is a relevant predictor of the probability of starting an internship,

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[14]I exclude degree fields which are strongly associated with professions requiring mandatory traineeships before enrolling in the corresponding professional register, i.e. Medicine, Psychology, Architecture and Law. Results are robust when including respondents who started an internship without concluding it.

[15]Socioeconomic status is measured as a combination of parental level of education (on a scale of 0 to 4) and parental job position (on a scale of 0 to 3). On the education scale, the lowest value corresponds to elementary school or less, while the highest corresponds to a university degree or more; on the job position scale, the lowest level corresponds to laborers, while the highest corresponds to entrepreneurs or managers. The categories of *low* and *high SES* refer to individuals below and above the median level (2 for the level of education, and 1.5 for the job position)

[16]A binary variable which takes value 1 if the respondent started an internship after graduation and 0 otherwise.

[17]The selected threshold is the 50th percentile of the grade distribution, corresponding to a grade of 84 out of 100.

[18]I control for gender, high school grade, socioeconomic status as proxied by both education and job position of parents, region of residence, field of study and age at graduation.

Figure 1: Internship take-up by parental education and parental job position.
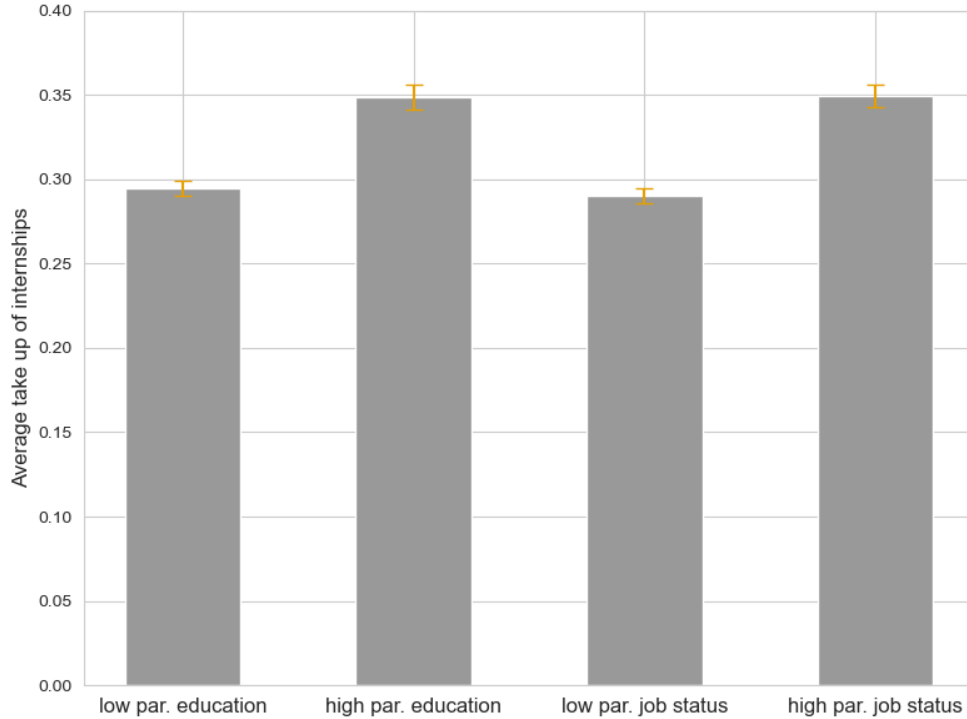
Notes: low and high parental education and job status are defined as being below or above the median of the corresponding variable.

with economic disciplines displaying the highest internship take-up levels.

2.1.2 Short-term labor market outcomes

Having established that graduates from higher socioeconomic backgrounds are more likely to start an internship after graduation, it is now important to measure the impact of internships on labor market outcomes approximately three years after graduation, when the questionnaire is conducted.

Since selection into internships is a relevant concern, I rely on an inverse probability of treatment weighting procedure to control for the observable dimensions of selection[19]. I first estimate the propensity score, that is the approximate conditional probability of receiving the treatment (i.e. concluding an extra-curricular internship[20]) given a vector of observable

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[19]Most empirical evidence on the effects of extra-curricular internships on subsequent labor market outcomes employ some form of propensity score matching, see for instance Cerulli-Harms (2017).

[20]For this part of the analysis I define the treatment as a binary variable that takes value 1 if the respondent

covariates, with the following logistic regression:

$$\ln \left(\frac{P(int_i = 1)}{1 - P(int_i = 1)} \right) = \beta X_i + \varepsilon_i \tag{1}$$

where $P(int_i = 1)$ is the probability of respondent i having concluded an extra-curricular internship and the vector X_i includes the respondent's gender, citizenship, parental education, parental professional status and region of residency as predetermined variables. The field of study at university, and dummies for graduating on time, participating in a study experience abroad and working while at university, an indicator for class participation, final grade and reasons for choosing the field of study are also included in order to approximate unobserved ability and personality traits, as well as to control for differences in labor market opportunities arising from different field choices and university experiences. Figure 2A4 shows that both treated and untreated respondents are present across the whole propensity score distribution, ensuring that the subsequent matching step can be implemented effectively, as for every treated individual there is a large enough pool of untreated respondents with similar scores to serve as a control group.

Each observation is then weighted by the inverse probability of treatment, that is:

$$w_i = \frac{int_i - e(x)_i}{e(x)_i(1 - e(x)_i)} \tag{2}$$

where the binary variable int_i represents the treatment, end $e(x)_i$ is the propensity score associated with individual i. A higher propensity score, that is a higher probability of treatment, will result in a lower weight for treated individuals, and a higher weight for untreated individuals. The average effect of the treatment[21] is then computed for each outcome of interest as the difference of the weighted average for the treated and control group.

Figure 2 shows the results of this exercise, reporting the average effect for the probabil-

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has concluded an internship, and 0 otherwise. Respondents who were still doing an internship at the time of the survey were excluded from the analysis.

[21]If the matching fully allowed to account for the selection into treatment this would correspond to the average treatment effect (ATE). Since unobserved individual characteristics are still likely to play a role in the decision to start an internship, this effect does not fully correspond to an ATE.

ity of employment, wage, and satisfaction for non-pecuniary aspects of the job measured three years after graduation. These results suggest that, when comparing individuals with similar observable characteristics, internships are associated with a higher probability of being employed at the time of the survey but also to lower average wages given employment and lower probability of having a permanent contract. Focusing on individual satisfaction for non-pecuniary outcomes, that survey respondents are asked to grade on a scale of 1 to 10, internships are positively associated with satisfaction for future career prospects, but negatively associated with the rating given to the type of tasks performed, the knowledge required on the job, responsibility and stability.

Although Propensity Score Matching cannot entirely rule out endogeneity concerns due to unobserved omitted variables, such as ability or social skills, which we can only approximate with indirect measures, these results can still be interpreted as interesting correlational evidence. Unfortunately, the structure of the ISTAT survey does not allow to address a second concern, namely the lack of evidence on long-term outcomes, as respondents are only interviewed at one point in time, three years after obtaining their degree.

The lack of evidence on long-term outcomes could at least partially explain why internships seem to have a positive effect on the probability of being employed and the perception of career prospects, but a negative effect on wage, contract type and other non-pecuniary aspects such as the degree of responsibility. Indeed, the delay in the start of the first job contract due to the internship period could translate into a later start in the wage progression, without ruling out a convergence (and possibly an overtaking) in the long term. Support for this explanation is also provided by the shorter duration of current job spells for graduates starting their career with an internship, shown in figure 2A5.

3   The choice model

To provide an interpretation of the stylized facts presented so far, and in particular to rationalize the observed differential in internship take-up across socioeconomic backgrounds, I develop a simple estimable model of contract choice.

In doing so, I will limit my analysis to supply-side factors, that is features, beliefs and

Figure 2: Average predictive effects of internships on short-term labor market outcomes.
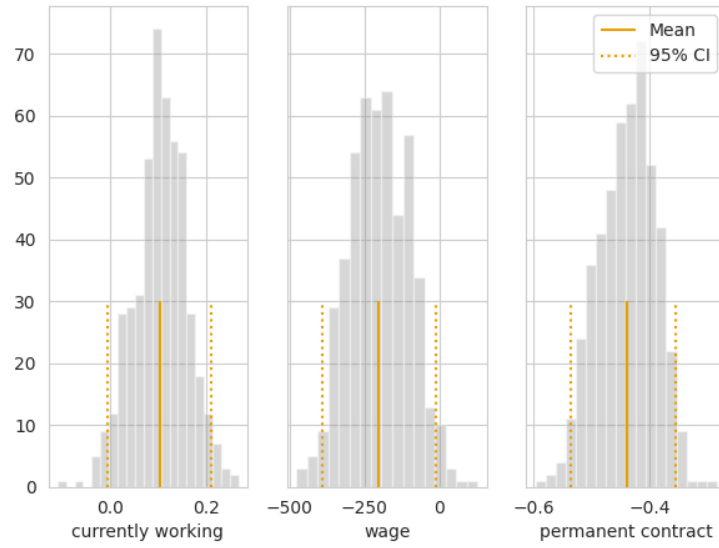
(a) Probability of being employed and wage given employment.
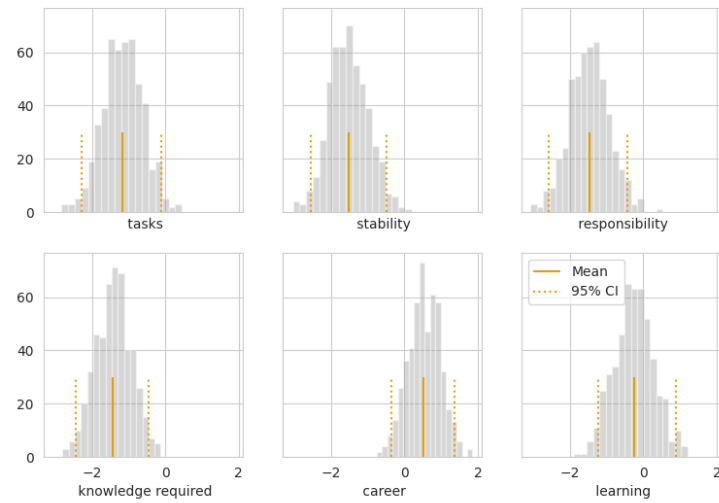
(b) Satisfaction with different aspects of the job.

Notes: The standard errors were estimated using bootstrapping with 500 resamples.

preferences characterizing prospective graduate workers, and the role of these factors in shaping their employment choices. The hypothetical nature of the choice scenarios presented in the survey allows to abstract from firms' decision processes, focusing instead on the impact of relevant individual characteristics, and particularly their socioeconomic background, and their beliefs and preferences. The same would of course not apply to observed choices, which result from the interaction of demand and supply-side factors[22].

3.1 Model

In this framework, individuals maximize their utility by choosing how to enter the labor market after graduation, out of a choice set $\mathbb{O}$ containing different options, indexed by o. In doing so, they consider both the immediate utility accruing from the characteristics of each option, and the utility associated with future labor market outcomes conditional on the current option choice.

A choice set $\mathbb{O}$ contains three different options: two contract options, labelled A and B, and an outside option, labelled U. Options A and B are bundles characterized by an employment category (which can be either an internship, with or without hiring purposes, or a fixed term contract), a firm size (a small-medium enterprise or a multinational firm) and a monetary compensation. The bundles are comparable for every other aspect. Finally, there are two types of outside options, characterized by different waiting periods before receiving any other job offer. The sum of the six possible contract types, obtained from the combination of the three employment categories and the two firm sizes, and the two unemployment spell durations, results in a total of eight option types, indexed by j[23].

The total utility from a bundle o of option type j for an individual i of socioeconomic status g[24] is the sum of a short-term component, including the utility from the monthly

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[22]In particular, demand-side factors could contribute to explain the higher observed take-up of internships among higher socioeconomic groups if networks developed thanks to the family of origin were particularly effective in securing internship offers. While testing this channel is beyond the scope of this paper, it is certainly an interesting subject for future research.

[23]These are: (i) internship for hiring purposes in a big firm, (ii) internship without hiring purposes in a big firm, (iii) internship for hiring purposes in a small firm, (iv) internship without hiring purposes in a small firm, (v) fixed-term contract in a big firm, (vi) fixed-term contract in a small firm, (vii) unemployment spell of 3 months and (viii) unemployment spell of 9 months.

[24]Decision makers are heterogeneous, and have different utility parameters. For estimation purposes, I allow structural utility parameters to vary according to the socioeconomic status of the respondent's family

compensation associated with option o plus an individual-specific taste component for the option type[25], and a long-term component. In order to allow for a more straightforward mapping between the survey and the model, the latter is in discrete time, each period corresponding to one month. In formula:

$$V_{ioj} = \frac{1 - \beta_g^{\tau_j}}{1 - \beta_g} \left[\frac{w_{oj}^{1-\rho_g}}{1 - \rho_g} + \gamma_{ij} \right] + EV_{ij}, \tag{3}$$

where w_{oj} is the monthly net wage or compensation characterizing option o of type j, β_g is the time discount factor[26], ρ_g is the degree of relative risk aversion, τ_j is the duration associated with option type j[27], EV_{ij} is the utility associated with future labor market outcomes conditional on choosing option type j at the beginning of one's career and γ_{ij} is a residual idiosyncratic component capturing the unconditional individual taste for the option type j.

In the case of the outside option, U, the monetary compensation w_{oj} is replaced by the individual-specific monthly financial support accruing during the unemployment spell, b_i. While this component would correspond to a publicly funded unemployment benefit in other settings, in the context of a first access to the labor market it is instead interpreted as a measure of parental support. This component, which is estimated separately for each individual, is particularly important as it allows to test the relevance of the liquidity constraint channel.

Finally, the future utility term EV_{ij} is the sum of a pecuniary component, namely the utility accruing from future labor income, and a non-pecuniary component, namely employment

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of origin, indexed by $g \in \{L, H\}$, where L stands for low SES and H for high SES. Socioeconomic background is defined based on the income of the family of origin, using a net monthly income of €4000 as threshold. Since the average net wage is approximately €2000 (from a gross figure of $40,800 according to OECD statistics, accessed at https://data.oecd.org/earnwage/average-wages.htm), the threshold is descriptive of a family where both parents earn the average wage.

[25]The enjoyment associated with unemployment is normalized to 0.

[26]The weight $\frac{1-\beta_g^{\tau_j}}{1-\beta_g}$ results from simplifying the geometric series $1 + \beta_g + \beta_g^2 + ... + \beta_g^{\tau_o}$.

[27]The duration is set to 6 months for internships, 12 months for fixed-term contracts and 3 or 9 months for the unemployment spell associated with the outside option U.

stability[28]. It can be expressed as follows[29]:

$$EV_{ij} = \sum_{t=\tau_j}^{\infty} \beta_g^t \left[\frac{w_{tij}^{1-\rho_g}}{1 - \rho_g} + \eta_g Pr_i(l_t = 1|j) \right],$$

(4)

where η_g represents the group-specific weight of the non-pecuniary component l, and w_{tij} and $Pr_i(l_t = 1|j)$ are individual beliefs concerning future wage and probability of having a permanent contract at time t conditional on having chosen option type j at the beginning of one's career. No assumption is made on the structure of these conditional beliefs, which are instead retrieved from the survey.

3.1.1 Contract choice and identification

When choosing between two contracts, A and B, and the outside option U, characterized by a waiting time τ_U, individuals maximize the sum of instantaneous and long-term expected utility.

More specifically, the probability of choosing a contract option, for instance option A, can be expressed as the probability that the inter-temporal utility derived from accepting that contract (A) is higher than the utility of accepting any other option (in this case, contract B and the outside option U), or:

$$\pi_A = Pr\left(V_A = \max_{j \in \{A,B,U\}} V_j\right)$$

(5)

In addition to the idiosyncratic taste component for each option type (γ_{ij}), which is unobserved by the researcher but constant and known to the respondent, the hypothetical

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[28]Stability is proxied by having an open-ended contract. This non-pecuniary outcome was chosen because of the availability of administrative data on this dimension for the information treatment.

[29]Since I cannot elicit the complete distribution of conditional outcomes over time, I focus on two points of the distribution: right after the end of the first contract (6 or 12 months after graduation) and further on in the future, when respondents are aged 35 (when they should have achieved a more stable position in the labor market). Then, we can rewrite EV_{ij} as follows:

$$EV_{ij} = \frac{\beta_g^\tau - \beta_g^T}{1 - \beta_g} \left[\frac{(w_\tau|j)^{1-\rho_g}}{1 - \rho_g} + \eta_g Pr_i(l_\tau = 1|j) \right]$$
$$+ \frac{\beta_g^T}{1 - \beta_g} \left[\frac{E_i(w_T|j)^{1-\rho_g}}{1 - \rho_g} + \eta_g Pr_i(l_T = 1|j) \right]$$

nature of the choice scenarios proposed in the survey results in a second layer of uncertainty, an idiosyncratic component that is unknown both to the researcher and to the respondent when the choice is elicited (the *resolvable uncertainty* component as labelled by Blass et al. (2008)). More specifically, this component accounts for the chronological and cognitive gap in the respondent's information set between the moment when the choice is elicited (the survey) and the moment when the choice is made in real life, which is resolvable because it will cease to exist when the actual choice is made.

Adding the resolvable uncertainty component, the log odds of individual i choosing contract A over contract B (an analogous expression can be used for the outside option U) can then be expressed as:

$$ln\left(\frac{\pi_A}{\pi_B}\right) = V_{iA} - V_{iB} + \varepsilon_i \qquad (6)$$

Assuming that the resolvable uncertainty component ε_i follows a type I extreme value distribution[30], and that each individual respondent makes the same assumption (following Manski et al. (1999)), equation 6 could in principle be estimated via nonlinear least squares to retrieve the structural parameters of the model.

However, as also highlighted in previous studies, in particular in Wiswall and Zafar (2015) for the choice among college majors, a direct estimation of equation 6 will result in biased estimates if respondents' beliefs on future returns to different contracts are correlated with the unobserved taste for different option types (the γ_{ij}'s).

Since the existence of such correlation cannot be theoretically ruled out, as both preferences and beliefs are the product of a joint cognitive process, I follow Wiswall and Zafar (2015) and devise an information treatment to create an exogenous shock to subjective beliefs. In particular, I provide information on earnings and contract types for relevant subsets of the Italian working population[31] conditional on having started one's career with an internship. I then use the change in beliefs of treated individuals to estimate the coefficients of the time-invariant components of the model (the structural parameters β, ρ and η) from

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[30]In making this assumption, I follow Wiswall and Zafar (2015) and Boneva et al. (2021).
[31]Selected according to gender, level of education and age group to be comparable to the respondents.

the following differenced equation:

$$ln\left(\frac{\pi_A'}{\pi_B'}\right) - ln\left(\frac{\pi_A}{\pi_B}\right) = EV_{iA}' - EV_{iB}' - EV_{iA} + EV_{iB} + \psi_i \qquad (7)$$

where $\psi_i = \varepsilon_i' - \varepsilon_i$. The equation, for which the full estimable version is available in the appendix (equation 9), can then be estimated via nonlinear least squares under the assumption that the error term ψ_i, i.e. the difference in the resolvable uncertainty components after and before the treatment, is not correlated with the observed change in beliefs.[32]

Finally, the estimated values of the structural parameters can be plugged back in the cross-sectional version of the model[33] (equation 6) to retrieve the unobserved taste components γ_{ij} and the financial value of unemployment b_i for each individual respondent, thus allowing to estimate the non-parametric distributions of these components.

4 Survey structure and data

To estimate the parameters of the model described above, I rely on a survey experiment administered to a sample of 500 university students from Bocconi University in Milan. The survey is organized in three blocks: (i) a section where individual beliefs on future labor market outcomes are elicited; (ii) a choice experiment asking respondents to allocate 100 probability points across different labor market access options in the context of hypothetical but realistic scenarios[34]; and (iii) a standard set of questions on demographic characteristics, socioeconomic status of the family of origin, and university career.

As an additional step, a fraction of the sample is also subjected to an information treatment. The treatment provides randomly selected respondents (corresponding to approximately two thirds of the sample) with information concerning labor market outcomes for

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[32]This assumption is reasonable in our setting, since the information provided in the information treatment should affect individual choices only through their beliefs concerning future returns to internships.

[33]I employ the beliefs elicited in the second part of the survey, corresponding to the post-information-treatment ones for treated individuals. More details on the estimated equation are presented in Appendix section A.

[34]Elicitation of individual choices in hypothetical scenarios has been increasingly employed to measure individual preferences for alternative work arrangements or levels and types of education, and subsequent real-life choices have been shown to validate survey responses (Maestas et al., 2017; Mas and Pallais, 2017; Wiswall and Zafar, 2018)

Italian workers of the same gender with a university degree, conditional on (i) starting their career with an internship and (ii) starting their career with any other employment contract. Both the choice experiment and the elicitation of expectations on future outcomes are repeated twice: before and after the treatment (or at the beginning and at the end of the survey for the control group).

4.1 The choice experiment

The choice experiment section consists of eight scenarios in which respondents are asked to allocate 100 probability points among three options: a contract A, a contract B and an outside option U which consists in waiting a specified number of months (3 or 9) until the next offer[35].

In each scenario, options A and B differ along three dimensions: type of contract (internship for hiring purposes, internship with no hiring purposes or fixed-term job contract[36]), firm size (described as "medium-small" and "multinational or leader in its sector") and wage (or compensation for internships). Two different types of internships are considered (for hiring purposes, or without hiring purposes) because the salience of this information, which is likely to be known to prospective interns by being either directly specified by the firm posting the internship offer or provided during the selection process, is particularly useful to shed light on whether students are mostly driven by the willingness to use internships as a positive signal of their motivation or ability, or by the hope to use them as stepping stones to more permanent employment in the same firm. In each scenario, respondents are instructed to consider that every other aspect of the job is identical for the two contract bundles, and it is also specified that there is no difference in the firms' geographic location[37].

While the theoretical choice set should comprise fifteen scenarios[38], respondents are presented with only eight of them in order to minimize the survey time and the associated

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[35]An example of choice scenario is shown in Appendix figure 2A6.

[36]Fixed-term contracts (as opposed to permanent contracts) are offered as an alternative to internships due to the much larger diffusion of this type of contract among workers with a university degree aged below 30 upon entry in the labor market, as shown in Figure 2A1.

[37]In particular, all jobs and internships are offered in the same place where the respondent attended university.

[38]There are 6 contract types. Since each scenario is characterized by a choice between two bundles, there are $\binom{6}{2} = 15$ possible combinations.

cognitive burden. The selected scenarios, which are listed in Table 1, are chosen in order to maximize the relevance of the trade-off between the two contract bundles, while providing enough data points to allow for estimation of the model parameters. More specifically, it is assumed that, everything else being equal, the choice-makers would always prefer an internship for hiring purposes to one without hiring purposes, and that internships in larger firms would be preferred to internships in smaller firms[39]. While the contract types are fixed across respondents (although presented in randomized order), the monetary compensation associated with each contract differs across respondents and scenarios[40].

Table 1: Option types in the survey scenarios

Contract description		Firm size		Wage range		Corresponding utility component γ	
A	B	A	B	A	B	A	B
Internship, no hiring	Internship, for hiring	Big[1]	Small-medium	€450-1000	€450-1000	γ_{IBN}	γ_{ISH}
Fixed term	Internship, for hiring	Small-medium	Big	€1000-1900	€450-1000	γ_{FS}	γ_{IBH}
Internship, for hiring	Fixed term	Big	Small-medium	€450-1000	€1000-1900	γ_{IBH}	γ_{FS}
Fixed term	Internship, no hiring	Small-medium	Big	€1000-1900	€450-1000	γ_{FS}	γ_{IBN}
Internship, no hiring	Fixed term	Big	Small-medium	€450-1000	€1000-1900	γ_{IBN}	γ_{FS}
Fixed term	Fixed term	Small-medium	Big	€1000-1900	€1100-2000	γ_{FS}	γ_{FB}
Internship, no hiring	Fixed term	Small-medium	Small-medium	€450-1000	€1100-2000	γ_{INS}	γ_{FS}
Internship, no hiring	Fixed term	Big	Big	€450-1000	€1100-2000	γ_{INB}	γ_{FB}

Notes: (1) Big firm size is described in the survey as referring to a firm which is multinational or leader in its sector

All the scenario-related questions are asked in probabilistic terms in order to account for resolvable uncertainty, representing the fraction of the overall uncertainty concerning utility components (such as conditional expectations on future outcomes and preference parameters) that would disappear in an actual choice scenario, that is if the respondent was asked to make the same choice in real life. The probabilities are selected on clickable sliders with no visible handle in order to reduce anchoring to a pre-selected value.

Table 2 reports the average probability of choosing different types of contract separately by

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[39]Since internships are interpreted as stepping stones to better employment opportunities, larger and better renowned firms are assumed to be preferred to similar experiences in small and medium firms, everything else equal. Secondly, larger firms are more likely to offer internship contracts, making choices between a job contract in a small firm and an internship contract in a large firm more empirically relevant. Figure 2A2 shows how interns represent a larger fraction of the labor force in large firms (100 employees or more) as opposed to small and medium enterprises.

[40]Contract wages and internship compensations are drawn from uniform distributions which differ across contract types. Fixed-term contract wages range between €1000 and €1900 for small and medium firms and between €1100 and €2000 for larger firms. Internships entail compensations between a minimum of €450 and a maximum of €1000 for all firms.

socioeconomic status of the respondents and degree type. While there is no sizable variation in behavior among undergraduate students from different socioeconomic backgrounds, the differences being small and not statistically significant, in the case of master's students the in-survey behavior is more dependent on socioeconomic status. In particular, students from wealthier backgrounds are slightly more likely to choose unemployment (the outside option in each scenario), while students from poorer backgrounds are substantially more likely to start an internship for hiring purposes, and particularly so when the internship is in a big firm (while they are equally likely to start any internship).

Interestingly, Appendix table 2A3 shows that there is a sizable difference in the likelihood of starting an internship by ability among Master's students. This finding differs from the one reported for the ISTAT sample, representative of the Italian graduate population at large, and might depend on the larger and qualitatively better supply of labor market opportunities offered to Bocconi graduates, and especially to the best performing ones, which might result in internships not being necessary in order to access better jobs in this setting.

Table 2: Elicited probabilities of choosing different type of contracts

	Family income below €4000	Family income above €4000	Difference (p value)
Undergraduate students			
Internship	34.09 (14.44)	33.43 (14.39)	0.67
Internship in big firm	27.52 (14.19)	27.04 (13.85)	0.76
Internship for hiring purposes	16.93 (6.98)	16.44 (6.81)	0.51
Internship for hiring purposes in big firm	12.28 (6.67)	11.84 (6.34)	0.53
Unemployment	9.08 (15.59)	8.60 (14.53)	0.77
Master's students			
Internship	34.97 (13.64)	34.54 (13.49)	0.85
Internship in big firm	28.71 (13.23)	27.75 (12.58)	0.65
Internship for hiring purposes	18.73 (7.74)	16.07 (6.51)	**0.02**
Internship for hiring purposes in big firm	14.05 (7.32)	11.44 (5.62)	**0.01**
Unemployment	8.84 (14.84)	9.51 (14.90)	0.79

Notes: The table reports, separately for low and high-SES respondents, the probability of choosing different types of contracts in the survey scenarios. The probabilities are averaged across the eight different pre-treatment scenarios, where each type of contract is part of a bundle and offered alongside a second bundle and an outside option. While the presented contract types are identical across respondents, different respondents are met with different bundles due to the wage or compensation being different.

4.2 Elicitation of beliefs on conditional outcomes

In this section respondents are asked to think about their life at two points in the future, one year after the end of their first contract[41] (short-term outcomes) and at age 35[42] (long-term outcomes).

For each of these points in time, I elicit respondents' beliefs concerning selected labor market outcomes conditional on finding themselves in each of eight possible situations upon their entry in the labor market. The eight situations correspond to six contract types (all the possible combinations of employment category and firm size[43]), and two unemployment spells (of duration 3 and 9 months, which correspond to the two types of outside options offered in the choice scenario section). The future outcomes upon which beliefs are elicited are: (i) monthly wage and (ii) the probability of having a permanent contract.

An example of this question type is provided in Appendix figure 2A7. As in the previous section, respondents are asked to select their preferred answers on a clickable slider without visible handle[44].

Table 3 and table 4 report the average beliefs concerning labor market returns to different initial contracts for the two socioeconomic groups of respondents. Table 3 compares the returns associated with different types of internships[45] with the ones associated to fixed term contracts in firms of any size, while table 4 compares the same types of internships with fixed term contracts in small firms only[46].

Overall, internships for hiring purposes in big firms are associated with a higher likelihood to improve future labor market prospects when compared to fixed-term contracts (and more

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[41]The first contract refers to one of the options offered in the hypothetical scenarios, all with limited duration between 3 and 12 months

[42]This arbitrary threshold is common in the literature, see, for instance, Boneva et al. (2021). The underlying assumption is that most individuals have resolved most of the career-related uncertainty, while being still reasonably close in the future.

[43]The contract types are (i) fixed term job contract, (ii) internship with and (iii) without hiring purposes; firm sizes are (i) small-medium and (ii) large-multinational.

[44]The minimum, maximum and intermediate values for the slider are selected according to the outcome. Probabilities range from 0 to 100, wages range from 0 to €8,000.

[45]I focus on internship types that are more likely to provide higher returns, either because they are associated with hiring purposes, and thus offer a safer path to a permanent form of employment, or because they are offered by big firms, which are usually associated with better career prospects.

[46]Master's and undergraduate students are pooled together to improve the clarity and precision of the results, but results reported separately for each course type are available in the appendix

so when the comparison group is restricted to small firms). This is particularly true for the probability of obtaining an open-ended contract one year after the end of the internship (the ratio to fixed-term contract in small firms being approximately 1.2) and for expected wage at age 35 (the ratio being slightly less than 1.1) The difference in beliefs across socioeconomic groups is instead minimal.

Table 3: Elicited beliefs on returns to different types of internships vs fixed term contracts in any firm

	Family income below €4000	Family income above €4000	Difference (p value)
Internship in big firm			
Permanent contract at age 35	0.94 (0.12)	0.92 (0.14)	0.26
Wage at age 35	0.97 (0.10)	0.96 (0.11)	0.23
Permanent contract, short term	0.83 (0.27)	0.86 (0.26)	0.37
Wage, short term	0.85 (0.17)	0.87 (0.17)	0.19
Internship for hiring purposes			
Permanent contract at age 35 job	0.96 (0.10)	0.94 (0.11)	0.14
Wage at age 35 job	0.95 (0.09)	0.94 (0.10)	0.42
Permanent contract, short term job	0.95 (0.25)	0.96 (0.22)	0.75
Wage, short term job	0.86 (0.16)	0.85 (0.16)	0.47
Internship for hiring purposes in big firm			
Permanent contract at age 35	0.99 (0.12)	0.98 (0.13)	0.69
Wage at age 35	1.01 (0.11)	1.00 (0.11)	0.36
Permanent contract, short term	1.02 (0.33)	1.04 (0.31)	0.68
Wage, short term	0.92 (0.18)	0.93 (0.17)	0.59

Note: The table reports, for three different types of internships, and for each future outcome, the average across respondents of the ratio of the belief on the outcome conditional on accepting the corresponding internship contract versus the belief on the outcome conditional on accepting a fixed-term job. The average is computed separately for low and high-SES individuals, and the p-value for the difference is reported in the last column.

Table 4: Elicited beliefs on returns to different types of internships vs fixed term contracts in small firms

	Family income below €4000	Family income above €4000	Difference (p value)
Internship in big firm			
Permanent contract at age 35	0.97 (0.15)	0.96 (0.16)	0.55
Wage at age 35	1.04 (0.15)	1.03 (0.14)	0.37
Permanent contract, short term	0.95 (0.43)	1.00 (0.45)	0.25
Wage, short term	0.95 (0.23)	0.95 (0.21)	0.98
Internship for hiring purposes			
Permanent contract at age 35	1.00 (0.13)	0.99 (0.13)	0.54
Wage at age 35	1.02 (0.13)	1.01 (0.12)	0.17
Permanent contract, short term	1.10 (0.44)	1.09 (0.41)	0.87
Wage, short term	0.93 (0.19)	0.93 (0.17)	0.88
Internship for hiring purposes in big firm			
Permanent contract at age 35	1.02 (0.15)	1.02 (0.15)	0.91
Wage at age 35	1.09 (0.17)	1.07 (0.16)	0.40
Permanent contract, short term	1.17 (0.61)	1.20 (0.57)	0.64
Wage, short term	1.01 (0.24)	1.01 (0.21)	0.74

Note: The table reports, for three different types of internships, and for each future outcome, the average across respondents of the ratio of the belief on the outcome conditional on accepting the corresponding internship contract versus the belief on the outcome conditional on accepting a fixed-term job in a small firm. The average is computed separately for low and high-SES individuals, and the p-value for the difference is reported in the last column.

4.3 The information treatment

The information treatment consists of a visual representation of stylized facts concerning actual labor market outcomes for relevant population groups. Treated respondents are shown summary statistics based on data from the Italian Ministry of Labor on a representative sample of all contracts activated between 2007 and 2021[47]. The summary statistics are gender-specific, and refer to those workers who have at least a Bachelor's degree, but less than a Doctoral degree, and are less than forty years old at the time when the last contract was registered. The selected outcomes are (i) the fraction of workers for whom the first working experience was an internship; (ii) the average wage for the last contract conditional on having or not having started one's career with an internship; and (iii) the fraction of open-ended contracts out of last contracts for individuals who have or have not started their career with an internship. The corresponding screen shown to female respondents is reported in figure 2A9.

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[47]The Campione Integrato delle Comunicazioni Obbligatorie.

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4.3.1 Sample description

The survey was administered to 500 respondents, recruited by the Bocconi Experimental Laboratory for Social Sciences. Respondents received a compensation of €7 for an estimated completion time of 30 minutes. Bocconi University is a large private university in Milan, in Northern Italy, which offers degree programs at both the Bachelor's and Master's level in economic, statistical and legal disciplines. Admission to degree programs is selective, and tuition fees are sizable compared to Italian public universities. These factors result in a positively selected sample in terms of socioeconomic background compared to the Italian population of university students. Table 5 compares the demographic characteristics of the Bocconi sample with the corresponding features of the average graduate in Economic disciplines in Italy as reported by Almalaurea.[48]

Table 5: Demographics: comparison with Almalaurea 2021 sample

	Bocconi sample	Almalaurea: Economics
Female	0.50	0.51
High school final grade (out of 100)	93.3	80.5
High school type (%)		
Scientific	0.62	0.37
Classic	0.19	0.08
Technical	0.09	0.36
Vocational	0.00	0.02
At least one parent with university degree	0.68	0.29
Both parents with university degree	0.60	0.11

Both samples are balanced in terms of gender, with approximately half of the respondents being female. As expected, respondents in the Bocconi sample are instead positively selected in terms of ability (proxied by the high school grade) and family background. The average high school grade is nearly 13 points higher in the Bocconi sample, and Bocconi students are more likely to have graduated from a Liceo than the Almalaurea students[49]. Bocconi

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[48]Summary statistics are computed by Almalaurea on a sample of 40.876 graduates in Economic disciplines, or 93% of the universe of graduates in Economic disciplines in 65 Italian universities. The universities sample excludes private Universities such as Bocconi. The statistics are available at https://www2.almalaurea.it/cgi-php/universita/statistiche

[49]In the Italian setting, Liceo is usually associated with a better theoretical background, and with an

students are also substantially less likely to be first generation students, as 68% of them have at least one parent who completed university education, while for 60% of them this is true for both parents. In comparison, only 29% of the Almalaurea students have at least one parent with university-level education, and for 11% of them both parents are highly educated. Since Bocconi is a selective private university, where admission is conditional on both High school grades and on the results of an entry test and enrollment fees are high by Italian standards[50], the presence of a pronounced positive selection is not surprising. However, this selection certainly affects the generality of the results that will be presented in the following sections[51].

5   Results

5.1   Reduced form results

5.1.1   Individual expectations and choices in hypothetical scenarios

I now assess the predictive power of contract features and individual beliefs for the probability of choosing between each option pair in the hypothetical scenarios.

In order to do do so, I estimate the following individual-level regression, where for each scenario and option pair (option A versus option B, option A versus outside option U and option B versus outside option U), the ratio of the probabilities of choosing each option is explained by two groups of variables: (i) the corresponding ratios of the main option features (firm size and wage) and (ii) the corresponding ratios of the respondent's beliefs on future labor market outcomes conditional on choosing each option.

$$\frac{Pr_{ios}}{Pr_{ims}} = \frac{w_o s}{w_m s} + Big_{jms} + \sum_{t \in \{T_0, T_1\}} \left[\frac{w_{ti}|o}{w_{ti}|m} + \frac{Pr_i(l_t = 1)|o)}{Pr_i(l_t = 1)|m} \right] + \varepsilon_{is} \qquad (8)$$

where o and m are two choice options, s refers to each scenario, w_o is the wage or com-

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easier transition to university studies.

[50]Approximately €13,000 per year compared with approximately €2,000 per year in a public university.

[51]In order to obtain more general results, it would be optimal to replicate this study on a sample of students from Italian public universities.

pensation associated with option o, Big_{oms} is an indicator for firm size[52] and the w_{ti} and Pr_i components are individual beliefs on future outcomes conditional on each contract option, for both short-term ($t = T_0$) and long-term ($t = T_1$) outcomes. Equation 8 diverges from the model formulation in section 3 (equations 3 and 4) because it aims to isolate the impact of individual ratios of option features and conditional beliefs on the choice ratio between options. Instead of estimating structural utility parameters based on the joint evaluation of the comprehensive option value, it assigns coefficient weights to each component. The results are reported in table 6.

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[52]Which takes value 1 if scenario o is in a big firm and m is not, -1 if the opposite is true, and 0 if neither contract or both contracts are in a big firm.

Table 6: Regression of choice probability on bundle features.

	(1)	(2)
Wage[1]	31.95***	0.03***
	(3.38)	(0.00)
Wage * High SES	-5.74	-0.00
	(4.16)	(0.00)
Firm size[2]	21.01***	6.90***
	(1.81)	(1.67)
Firm size * High SES	-1.47	-1.83
	(2.31)	(2.13)
Short-term wages	0.07***	-0.00
	(0.00)	(0.00)
Short-term wages * High SES	-0.06***	0.00
	(0.01)	(0.00)
Short-term permanent contract	19.67**	22.05***
	(7.83)	(4.43)
Short-term permanent contract * High SES	3.06	2.38
	(10.32)	(5.97)
Long-term wages	-0.01***	-0.01
	(0.00)	(0.00)
Long-term wages * High SES	0.04***	0.00
	(0.01)	(0.00)
Long-term permanent contract	12.39	10.76**
	(12.60)	(4.96)
Long-term permanent contract * High SES	27.92	12.99*
	(17.27)	(6.89)
Observations	3880	11640
R^2	0.28	0.29

Note: *p<0.1; **p<0.05; ***p<0.01. Probability ratios refer to the pre-treatment answers only, and are multiplied by 100; standard errors (in parentheses) are clustered at the individual level; column 1 only includes probability ratios for the choice between option bundles A and B while column 2 also includes probability ratios for the choices involving the outside option of waiting τ months before receiving another offer. (1) The wage ratio is equal to the wage of the contract A or B in the comparison with the outside option U. - (2) The firm size variable ratio in the comparison between A and B is equal to 1 if contract A is in a big firm and B is in a small firm, -1 if the opposite is true and 0 if the two contracts are in firms of the same size. In the comparison with the outside option U, it is equal to 1 if the contract is in a big firm and 0 otherwise

The first column reports results for all choices between option bundles A and B, while the second column also adds choices between each option bundle and the outside option specifying a number of months of unemployment before the next offer. As expected, the

ratio of the wages or compensations associated with the two option bundles is a strong predictor of the ratio of the corresponding choice probabilities, while it is less predictive of the choice between each contract and unemployment. The coefficient for the firm size is also positive and significant, supporting the idea that respondents prefer larger firms on average. As for prospective outcomes, conditional beliefs on both short-term wages and the probability of obtaining a permanent contract are a strong predictor of choice, while beliefs on long-term outcomes are less predictive and even turn negative for wages in the bundles-only choice.

It is also interesting to look in more detail at the heterogeneity in coefficients across socioeconomic backgrounds: a higher socioeconomic background is associated with a higher weight of assigned to one's conditional beliefs on long-term outcomes, both wages and the probability of obtaining a permanent contract. Instead, it negatively affects the predictive power of the current compensation and firm size (although the interaction terms are not significant at the conventional levels) and of short-term conditional beliefs on wages (for which the negative coefficient in the bundles-only column turns significant).

5.1.2 Beliefs updating after the information treatment

Since respondents' beliefs concerning future outcomes conditional on the initial contract type might be correlated with personal preferences for different contract types, which are unobserved, I rely on an information treatment to provide a source of exogenous variation to individual beliefs. More specifically, I present descriptive statistics on the two labor market outcomes considered in the analysis (wage and probability of having an open-ended contract) and on the fraction of the population entering the labor market with an internship. Table 7 summarises the provided information: according to these statistics, internships are associated with a lower probability of obtaining a permanent contract for both genders, and a lower wage for men. Wages conditional on having participated in an internship are instead slightly higher for women.

Table 7: Information treatment

	Wage (€)		Permanent contract (%)		Fraction doing internship
	With internship	No internship	With internship	No internship	
Women	1,481	1,454	22	32	23
Men	1,596	1,768	27	35	24

In order to analyse how individuals react to the exposure to the treatment I consider a measure of relative improvement in the accuracy of beliefs, namely the normalized difference between the pre- and post-treatment similarity to the relevant piece of information provided:

$$RI = \frac{|(y^{PRE} - y^{INFO})| - |(y^{POST} - y^{INFO})|}{y^{INFO}}.$$

where y^{PRE} and y^{POST} refer to the individual belief (or probability of choosing an internship), before and after the information treatment (or at the beginning and at the end of the survey for control subjects), and y^{INFO} refers to the relevant piece of information provided. A higher value of the indicator reflects a larger change in the second round of beliefs in the direction of the provided information. Since the information treatment is not as granular as the situations proposed in the belief elicitation section due to data limitations, I pool together different contract types when measuring y_{PRE} and y_{POST}. In particular, I pool together the different types of internships (with and without hiring purposes; in big and medium-small firms) and the two different types of fixed-term contracts (in big and small firms). For analogous reasons, I also keep the beliefs conditional on being unemployed at the beginning of one's career out of the analysis.

Table 8 reports the average value of the relative improvement by treatment status. As expected, relative improvement for treated individuals is always larger than its counterpart for the control group. As also observed above for the presence of any update, the impact of the treatment is larger for long-term outcomes, as the provided information pools together workers below the age of 40, and is thus more likely to be perceived as relevant for medium- and long-term labor market outcomes. It is also important to highlight that the information on the fraction of individuals doing an internship in the general population does not directly

affect the respondent's probability of choosing an internship[53], as the relative improvement in the treated group is, if anything, lower than the one in the control group.

Table 8: Relative improvement by treatment status

	Control group	Treated group	Difference (p value)
Probability of doing an internship	0.038 (0.70)	0.010 (0.68)	0.20
Permanent contract, short term, job	-0.128 (0.51)	-0.122 (0.59)	0.75
Permanent contract, short term, internship	-0.228 (0.71)	-0.196 (0.68)	0.15
Wage, short term, job	-0.050 (0.35)	-0.024 (0.35)	**0.02**
Wage, short term, internship	-0.039 (0.35)	0.001 (0.30)	**0.00**
Permanent contract at age 35, job	0.010 (0.34)	0.066 (0.44)	**0.00**
Permanent contract at age 35, internship	0.010 (0.59)	0.068 (0.72)	**0.01**
Wage at age 35, job	0.008 (0.36)	0.077 (0.48)	**0.00**
Wage at age 35, internship	0.014 (0.41)	0.065 (0.44)	**0.00**

To find out which subgroups actually update their beliefs I aggregate the relative improvement for the eight relevant outcome variables and construct a binary update variable which takes value 1 if the relative improvement is above the 75th percentile of the distribution. The results of a logistic regression (table 2A8) show that women and Bachelor's students are slightly more likely to update their beliefs, while the opposite is true for high SES and high ability students, although the results are not significant at the conventional levels due to the limited sample size.

5.2 Model estimation

I finally proceed with the estimation of the model presented in Section 3. Table 9 reports the estimates for the structural parameters β, ρ, and η, estimated separately by group (based on socioeconomic background). The parameter estimates are obtained applying a nonlinear least squares estimator to equation 7 and restricting the sample to the treated respondents[54]. The introduction of an exogenous shock to individual beliefs about the effects of choosing different career paths allows to abstract from individual-specific, time invariant taste components by exploiting the panel nature of the survey data. A downside of this strategy is that only the

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[53]Here the relative improvement is measured using individual probability to choose an internship and the fraction of individuals doing an internship in the population.

[54]The full estimable version of equation 7 is derived in the appendix (equation 9).

responses of individuals who did update their beliefs following the information treatment are actually contributing to the estimation procedure, limiting the validity of the estimates to the sub-sample of students who were more responsive to the treatment.

Consistently with the reduced-form results presented earlier in this section, both types of respondents (low and high SES) give present outcomes a considerably higher weight, with the monthly time discount factor β being close to 0.3 and statistically indistinguishable across sub-samples. The two groups also have similar coefficients of risk aversion (ρ) between 5.3 and 5.5 [55]. The estimates for the parameter η, representing the utility weight of future employment stability, are instead significantly different across groups, being large and positive for the high SES students (3.8 on average) and nearly 0 for the low SES ones.

Table 9: Structural utility parameters by socioeconomic status

	Family income below €4000	Family income above €4000	Difference (p value)
β	0.32 (0.22)	0.30 (0.25)	0.17
η	0.00 (0.00)	3.84 (4.53)	0.00
ρ	5.34 (3.92)	5.46 (4.12)	0.60

Parameter estimates for the time discount factor β, the risk aversion parameter ρ and the weight for the non-pecuniary component η. The estimation is performed using through a non-linear least squares procedure. Bounds are set for the variables, with the lower bound at 10^{-9} and the upper bound at 10. Standard error in parentheses are based on 500 sample bootstraps.

Plugging the estimates for the utility parameters back in equation 6 we can finally obtain the individual-level estimates for the residual taste parameters (the individual and contract-specific γ's) and the monetary benefit of unemployment b[56]. This last component is particularly interesting as it is a proxy for financial constraints, which are expected to differ across socioeconomic backgrounds[57]. Figure 3 displays the distributions of the six taste parameters (the γ's) and the monetary benefit of unemployment. The taste parameters are all positive on average[58], but larger for job contracts relative to internships and nearly 0 for internships

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[55]For comparison, Wiswall and Zafar (2015) find a similar value of 5 for their student sample.

[56]For these estimates, I use the whole sample, including both treated and control individuals, I estimate the taste parameters applying a nonlinear least squares estimator on the level version of equation 1, using the average of pre- and post-treatment responses to increase robustness.

[57]In this context, the monetary benefit of unemployment is mostly equivalent to parental support, as university students are unlikely to have access to publicly provided unemployment benefits

[58]The utility value of the outside option of waiting for another contract is normalized to 0.

for hiring purposes in big firms[59] while, as expected, the monetary benefit associated with unemployment (b) is higher for respondents from a wealthier background, who are indeed more likely to receive parental support in case of unemployment (on average 37.3 versus 20.9, nearly double in size).

Figure 3: Distribution of taste parameters and monetary benefit from unemployment
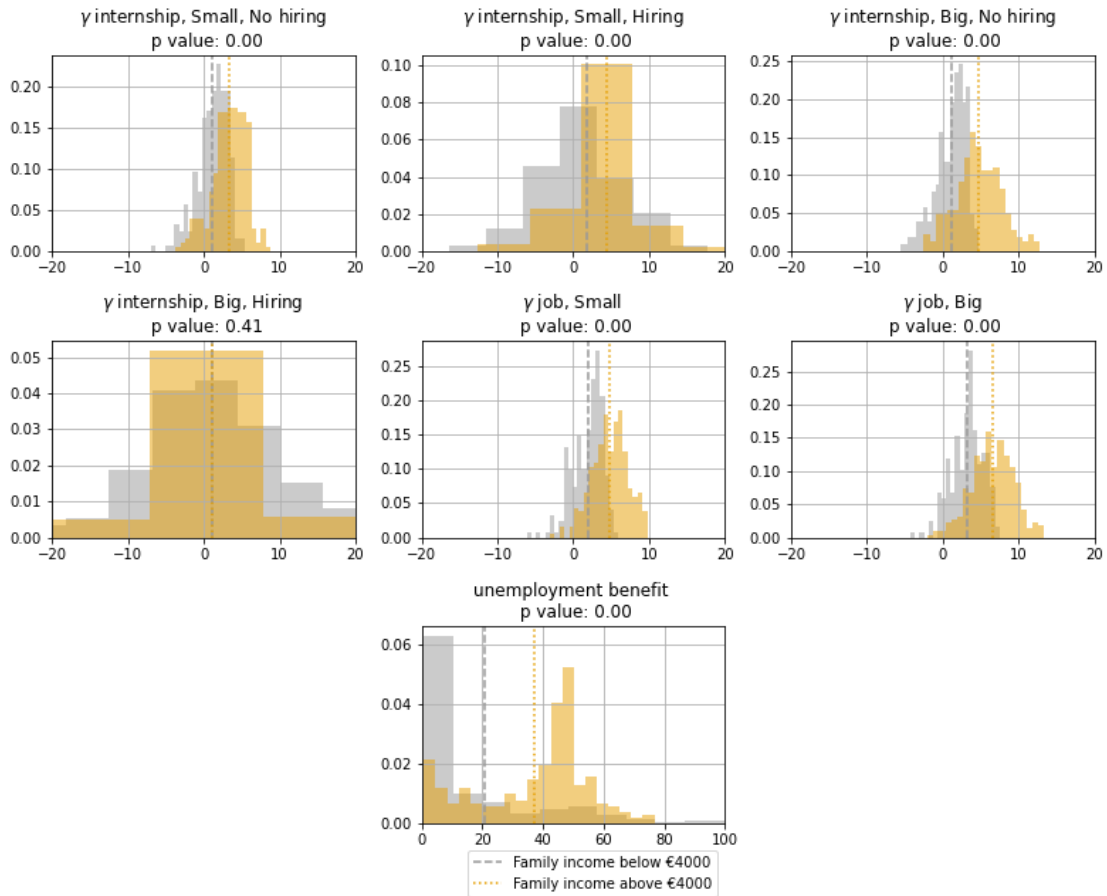
Notes: for each individual, I report the average result of 100 bootstrap repetitions performed on the 16 available observations (8 pre-treatment and 8 post-treatment scenarios). Estimates are obtained through non-linear least squares; p values are shown for the Mann-Whitney test for equality of distributions.

These results suggest that respondents from different socioeconomic backgrounds differ in their preferences. Individuals from wealthier backgrounds place a higher weight on future job stability compared to earnings, suggesting that they might value non-strictly monetary benefits more compared to individuals from lower socioeconomic backgrounds. It is also

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[59]For this option type, choice is mainly driven by the beliefs on its positive impact on future labor market outcomes, resulting in a smaller residual taste component.

apparent that the two socioeconomic groups face different financial constraints, as wealthier individuals enjoy higher monetary benefits from unemployment on average.

6   Conclusion

In this paper, starting from the empirical evidence that Italian university students from a wealthier background are more likely than their less wealthy peers to start an extracurricular internship after their graduation, I set to disentangle the effect of preferences, constraints and beliefs in informing the choice process of university students at the beginning of their labor market experience. In particular, I estimate a choice model to retrieve structural preference parameters separately by socioeconomic group, and individual-level taste parameters for different types of labor market opportunities.

In order to collect estimable data, I conduct a survey experiment on a sample of Italian university students from the Bocconi University. In the survey, I present respondents with hypothetical but realistic choice scenarios where different labor market opportunities are offered after graduation. I then collect their beliefs on relevant labor market outcomes in their future at two points in time, one year after the end of the chosen contract and at age 35, conditional on choosing different options upon entry in the labor market. In order to control for the endogeneity of beliefs concerning future outcomes conditional on contract types, I provide an information treatment to a fraction of the sample, consisting of a set of descriptive statistics on the labor market outcomes of a sample of Italian workers with comparable characteristics in terms of education and gender.

Among the Bocconi survey sample, differences in experimental behavior across groups (low versus high socioeconomic background and low versus high ability as measured by High School grades) are small, possibly reflecting the positive selection of Bocconi students concerning both family wealth and measured ability, and the larger supply of high quality labor market opportunities offered to Bocconi graduates compared to graduates from other Italian universities. For instance, higher ability individuals in the Bocconi sample are less likely to choose internship contracts, while socioeconomic status only affects the choice for different types of internships (with low socioeconomic status students choosing internships for hiring purposes comparatively more).

While it is pivotal to consider these aspects, and interpret the results in light of the positive selection of Bocconi students (in terms of both ability and socioeconomic background), this

implies that the differences in structural parameters and in the estimated taste for different contract types that result from the model estimation might actually represent a lower bound of the differences characterizing the population of university graduates at large.

While individuals from different socioeconomic backgrounds tend to hold qualitatively similar beliefs concerning the impact of different initial contracts on future labor market outcomes, I also find that they assign different utility weights to different types of outcomes, with students from wealthier backgrounds assigning a higher value to stability (probability of having a permanent contract) than to immediate financial compensation. As expected, students from lower socioeconomic backgrounds also have a much lower evaluation of the monetary benefits of unemployment on average. Overall, these results suggest that the differential presence of liquidity constraints and the different evaluation of monetary versus other types of labor market outcomes play a significant role in shaping individual choices.

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Appendix

A   Model estimation

In more detail, equation 7 can be estimated as the difference between the logarithm of the log odds after and before the treatment, or:

$$
\begin{aligned}
ln\left(\frac{\pi'_A}{\pi'_B}\right) - ln\left(\frac{\pi_A}{\pi_B}\right) &= EV'_{iA} - EV'_{iB} - EV_{iA} + EV_{iB} + \psi_i \\
EV_{iA} &= \frac{1 - \beta_g^{\tau_A}}{1 - \beta_g}\left(\frac{w_A^{1-\rho_g}}{1 - \rho_g} + \gamma_A\right) \\
&\quad + \frac{\beta_g^{\tau_A} - \beta_g^T}{1 - \beta_g}\left(\frac{E[w_{\tau_A}|A]^{1-\rho_g}}{1 - \rho_g} + \eta_g Pr_i(l_{\tau_A} = 1|A)\right) \\
&\quad + \frac{\beta_g^T}{1 - \beta_g}\left(\frac{E[w_T|A]^{1-\rho_g}}{1 - \rho_g} + \eta_g Pr_i(l_T = 1|A)\right) \\
\Rightarrow EV'_{iA} - EV_{iA} &= \frac{\beta_g^{\tau_A} - \beta_g^T}{1 - \beta_g}\left(\frac{(E'[w_{\tau_A}|A] - E[w_{\tau_A}|A])^{1-\rho_g}}{1 - \rho_g}\right. \\
&\quad + \eta_g\left(Pr'_i(l_{\tau_A} = 1|A) - Pr_i(l_{\tau_A} = 1|A)\right)\Bigg) \\
&\quad + \frac{\beta_g^T}{1 - \beta_g}\left(\frac{(E'[w_T|A] - E[w_T|A])^{1-\rho_g}}{1 - \rho_g}\right. \\
&\quad + \eta_g\left(Pr'_i(l_T = 1|A) - Pr_i(l_T = 1|A)\right)\Bigg) \\
ln\left(\frac{\pi'_A}{\pi'_B}\right) - ln\left(\frac{\pi_A}{\pi_B}\right) &\sim \frac{\beta_g^{\tau_A} - \beta_g^T}{1 - \beta_g}\left(\frac{(E'[w_{\tau_A}|A] - E[w_{\tau_A}|A])^{1-\rho_g}}{1 - \rho_g}\right. \\
&\quad + \eta_g\left(Pr'_i(l_{\tau_A} = 1|A) - Pr_i(l_{\tau_A} = 1|A)\right)\Bigg) \\
&\quad - \frac{\beta_g^{\tau_B} - \beta_g^T}{1 - \beta_g}\left(\frac{(E'[w_{\tau_B}|B] - E[w_{\tau_B}|B])^{1-\rho_g}}{1 - \rho_g}\right. \\
&\quad + \eta_g\left(Pr'_i(l_{\tau_B} = 1|B) - Pr_i(l_{\tau_B} = 1|B)\right)\Bigg) \\
&\quad + \frac{\beta_g^T}{1 - \beta_g}\left(\frac{(E'[w_T|A] - E[w_T|A])^{1-\rho_g}}{1 - \rho_g}\right. \\
&\quad - \frac{(E'[w_T|B] - E[w_T|B])^{1-\rho_g}}{1 - \rho_g} \\
&\quad + \eta_g\left(Pr'_i(l_T = 1|A) - Pr_i(l_T = 1|A)\right. \\
&\quad - Pr'_i(l_T = 1|B) + Pr_i(l_T = 1|B)\Big)\Bigg)
\end{aligned}
\tag{9}
$$

The same applies for the choice between each of the contracts (A and B) and the outside option U. For each individual there are 8 equations, resulting in a total of $8 * N_g^T$ equations per socioeconomic group (where N_g^T is the number of individuals subject to treatment and belonging to socioeconomic group g. The parameters β_g, η_g and ρ_g are estimated via non-linear least squares separately for the two socioeconomic groups, and excluding untreated respondents.

B Additional descriptive statistics on the Bocconi sample

Table 10 reports descriptive evidence on the university career for the Bocconi sample separately by socioeconomic status[60] and degree type (Bachelor's or Master's). Out of the original sample, 15 responses are discarded from the following analyses due to being enrolled in a 5-years course in Law[61], resulting in a sample size of 485 respondents. First, it is interesting to notice that students from wealthier families are more likely to be enrolled in an undergraduate degree then in a Master's degree (although this difference is not significant). While this finding is somewhat puzzling, given that more privileged backgrounds have been shown to correlate positively with the probability to continue studying[62], it can be rationalized in light of the fact that poorer students enrolled in Master courses appear to be positively selected in terms of ability as measured by the High school final grade, arguably justifying the investment in extra years of education.

This positive selection is instead not apparent among undergraduate students, for which a wealthier background seems to result in a slightly higher High school grade (although the difference is not statistically significant in this case).

As expected, the two socioeconomic groups differ significantly in terms of university financing: for both undergraduate and Master's degrees, students from wealthier backgrounds rely relatively more on family support (and, quite surprisingly in the case of undergraduate

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[60]The preferred measure of socioeconomic group is based on the net monthly income of the family of origin, however the results are robust to using parental education.

[61]Law students are required to complete a compulsory extra-curricular internship after the end of their studies in order to obtain a professional licence.

[62]For instance Boneva et al. (2021) show how being a first generation students negatively affects the reported probability of enrolling in a master's degree.

students, on savings from own work) and less on public subsidies[63]. Consistently with the reported sources of university financing, respondents from poorer backgrounds are not more likely to have had working experiences.

When looking at the reasons for choosing a given university curriculum, respondents from different socioeconomic groups assign slightly different weights to personal interest for the subject and career prospects (the residual category being "other reasons"). In particular, respondents from poorer families weight career prospects more; however, the difference is not statistically significant. Concerning expectations for graduation outcomes, high-SES respondents from both undergraduate and Master's courses tend to hold more optimistic beliefs in terms of grades, however the difference is only significant for undergraduates. Finally, the reported probability of graduating in time is also higher for wealthier undergraduates.

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[63]Income-based subsidies covering from 65% to 100% of the tuition costs are available for families reporting a low ISEE (an index of family wealth which is computed on the basis of parental income and properties).

Table 10: High school grade and university experience

		Family income < €4000	Family income > €4000	Difference (p value)
Undergraduate (number)		57	100	
Master's (number)		143	185	
Undergraduate (%)		28.5	34.1	0.14
High school final grade	Undergraduate	93.68 (10.38)	95.02 (7.53)	0.36
	Master's	94.12 (8.05)	91.91 (9.20)	**0.02**
Course is in English	Undergraduate	36.84 (48.67)	57.00 (49.76)	**0.01**
	Master's	62.94 (48.47)	67.57 (46.94)	0.38
Curricular internship	Undergraduate	31.58 (46.90)	34.00 (47.61)	0.76
	Master's	84.62 (36.21)	77.84 (41.65)	0.76
Ever worked	Undergraduate	52.63 (50.37)	52.00 (50.21)	0.94
	Master's	53.15 (50.08)	54.59 (49.92)	0.79
Any subsidy	Undergraduate	36.84 (48.67)	6.00 (23.87)	**0.00**
	Master's	39.86 (49.13)	13.51 (34.28)	**0.00**
Financing of university tuition				
Family support	Undergraduate	74.12 (30.60)	84.78 (24.60)	**0.02**
	Master's	68.17 (33.09)	81.43 (26.63)	**0.00**
Public subsidy	Undergraduate	15.35 (25.77)	2.72 (9.76)	**0.00**
	Master's	15.92 (25.46)	5.31 (16.55)	**0.00**
Own work savings	Undergraduate	4.98 (9.40)	9.54 (20.41)	0.11
	Master's	12.09 (20.89)	10.74 (19.33)	0.55
Financial credit	Undergraduate	5.54 (17.30)	2.96 (11.53)	0.26
	Master's	3.83 (12.27)	2.52 (10.89)	0.31
Reasons for choosing the university curriculum				
Career prospects	Undergraduate	51.39 (20.05)	49.28 (19.49)	0.52
	Master's	49.27 (19.90)	48.03 (18.66)	0.56
Interest for the subject	Undergraduate	43.53 (19.75)	45.40 (19.71)	0.57
	Master's	44.08 (19.93)	45.94 (18.47)	0.39
Expected graduation outcomes				
Expected degree grade (out of 110)	Undergraduate	100.53 (7.68)	103.40 (7.60)	**0.02**
	Master's	104.99 (4.85)	105.72 (4.55)	0.16
Graduating in time	Undergraduate	86.21 (21.23)	92.98 (13.19)	**0.01**
	Master's	94.52 (8.28)	92.95 (12.19)	0.19
Not graduating	Undergraduate	1.23 (2.73)	0.91 (2.99)	0.51
	Master's	0.70 (2.04)	0.70 (2.31)	0.99

Notes: standard errors in parentheses; the last column reports the p-value of the difference between SES groups.

A further interesting aspect to analyze is whether students differ in their post-graduation plans and beliefs concerning the probabilities of future events. Table 12 reports the probabilities that respondents assign to different post-graduation courses of action[64] and the probability assigned to labor market-related external events. Undergraduate students deem very likely that they will continue studying (approximately 80% of probability for both socioeconomic groups, with a small difference in favor of wealthier respondents), while Master's students assign a higher probability to start looking for a job. Although none of the differences between socioeconomic groups is statistically significant at the 10% level, both the

[64]Courses of action are not exhaustive, meaning that probabilities are not required to sum to 100.

probability of continuing studying and the probability of studying while working are more than 3 percentage points lower for low-SES Master's respondents, which is consistent with a lower investment capacity on post-master or PhD level education.

Table 11: Beliefs concerning future plans

	Family income < €4000	Family income > €4000	Difference (p value)
Currently enrolled in Bachelor's degree			
Studying while working	29.00 (26.83)	28.43 (28.53)	0.90
Starting own business	13.93 (21.75)	15.55 (23.02)	0.67
Searching for a job	31.33 (32.44)	29.31 (32.31)	0.71
Continue studying	79.70 (21.70)	82.20 (24.25)	0.52
Currently enrolled in Master's degree			
Studying while working	14.69 (21.38)	17.69 (24.54)	0.25
Starting own business	14.24 (19.14)	16.50 (20.87)	0.31
Searching for a job	73.92 (25.04)	74.43 (25.91)	0.86
Continue studying	19.52 (24.21)	23.58 (26.45)	0.15

Notes: standard errors in parentheses; the last column reports the p-value of the difference between SES groups.

Concerning labor market behavior and beliefs, Master's students are more likely to be searching for a job already when the survey is conducted (70% versus approximately 40% for undergraduates). The proportion of students searching is larger among high-SES students, the difference being more sizable for undergraduates (45 versus 37%) but not statistically significant. The two socioeconomic groups are also not statistically different concerning the reasons why they would start an extra-curricular internship, both deeming very important the possibility of enriching one's CV and relatively less important the opportunity to develop general abilities and to be hired in the same firm (although low-SES individuals select this last aspect as important slightly more often than their high-SES counterparts).

Focusing on the probability of choosing different courses of action concerning job search after graduation, Bachelor's students from less wealthy backgrounds seem to be willing to devote less effort (in terms of weekly hours) on searching for an opportunity in the labor market; however, they devote a much larger fraction of the total searching time to internship opportunities (48% against 40% for wealthier individuals). Finally, less wealthy students assign an overall lower value to the probability of receiving any job or internship offer within 3 months, and this is true for both undergraduate and master's students. Concerning the

relative probability of receiving a job offer rather than an internship offer, while all student groups (high and low-SES from both undergraduate and Master's courses) deem internship offers more likely, students from poorer backgrounds perceive the gap to be larger by almost 10 percentage points (although the difference is not statistically significant).

Table 12: Labor market-related beliefs and job search experience

		Family income < €4000	Family income > €4000	Difference (p value)
Already searching	Undergraduate	36.84 (48.67)	45.00 (50.00)	0.32
	Master's	70.63 (45.71)	71.35 (45.33)	0.89
Reasons for starting an internship (% of respondents selecting)				
Enriching CV	Undergraduate	92.98 (25.77)	94.00 (23.87)	0.80
	Master's	86.01 (34.81)	82.70 (37.93)	0.42
Developing general abilities	Undergraduate	57.89 (49.81)	61.00 (49.02)	0.70
	Master's	49.65 (50.17)	49.73 (50.14)	0.99
Developing specific abilities	Undergraduate	73.68 (44.42)	64.00 (48.24)	0.22
	Master's	67.83 (46.88)	63.24 (48.35)	0.39
Being hired in same firm	Undergraduate	43.86 (50.06)	38.00 (48.78)	0.47
	Master's	62.24 (48.65)	60.00 (49.12)	0.68
Understanding match with job type	Undergraduate	84.21 (36.79)	82.00 (38.61)	0.73
	Master's	81.81 (38.71)	83.24 (37.45)	0.74
Plans for job search after graduation				
Weekly hours spent on job search	Undergraduate	31.18 (19.27)	37.25 (20.65)	**0.07**
	Master's	38.78 (22.33)	36.61 (24.76)	0.41
Relative effort for internships	Undergraduate	48.44 (22.55)	40.91 (19.66)	**0.03**
	Master's	43.12 (22.88)	42.76 (20.78)	0.88
Beliefs on arrival rates of different opportunities				
Internship within 3 months	Undergraduate	60.44 (23.70)	71.58 (21.12)	**0.00**
	Master's	64.85 (26.11)	70.77 (22.46)	**0.03**
Job offer within 3 months	Undergraduate	47.95 (25.82)	58.84 (22.91)	**0.01**
	Master's	45.59 (28.18)	52.71 (26.93)	**0.02**
Probability ratio: job to internship	Undergraduate	79.58 (41.69)	86.20 (58.39)	0.46
	Master's	69.95 (48.75)	79.16 (71.66)	0.20
No offer for 3 months	Undergraduate	29.12 (22.96)	22.92 (17.56)	**0.06**
	Master's	19.21 (17.56)	18.44 (15.58)	0.68
No offer for 9 months	Undergraduate	13.89 (13.47)	11.86 (13.67)	0.37
	Master's	8.53 (11.90)	7.97 (10.47)	0.65

Notes: standard errors in parentheses; the last column reports the p-value of the difference between SES groups.

C   Figures and tables

Figure 2A1: Employment types as a fraction of total first contracts.

(a) Internships by year
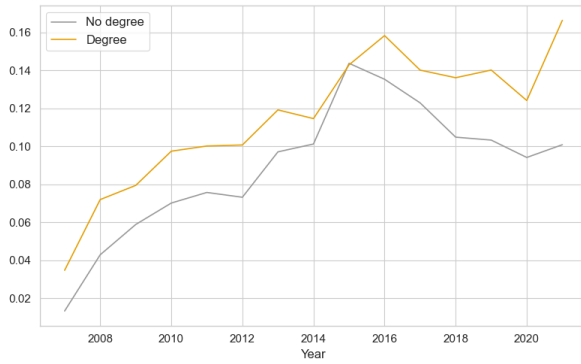
(b) Internships by cohort
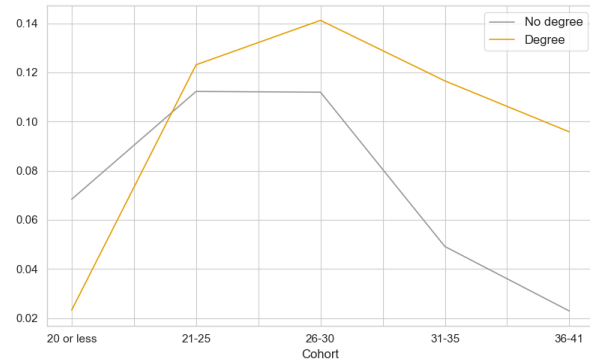
(c) open-ended contracts by cohort
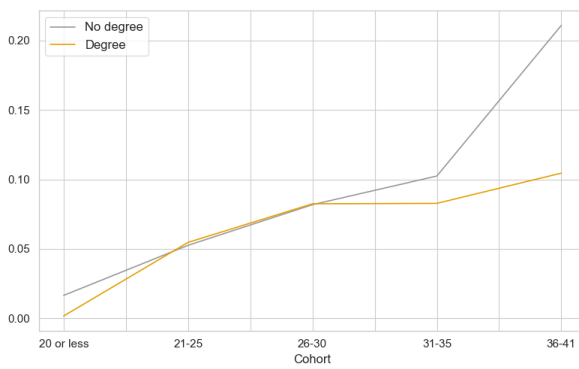
(d) Fixed-term contracts by cohort
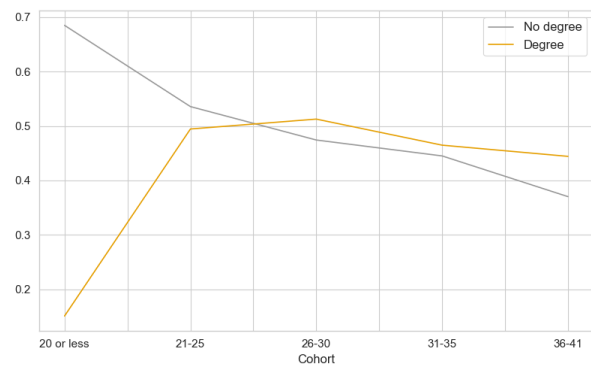
Source: Comunicazioni Obbligatorie from the Ministry of Labor, 2007 to 2021.

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Figure 2A2: Interns-to-employees ratio by firm size.
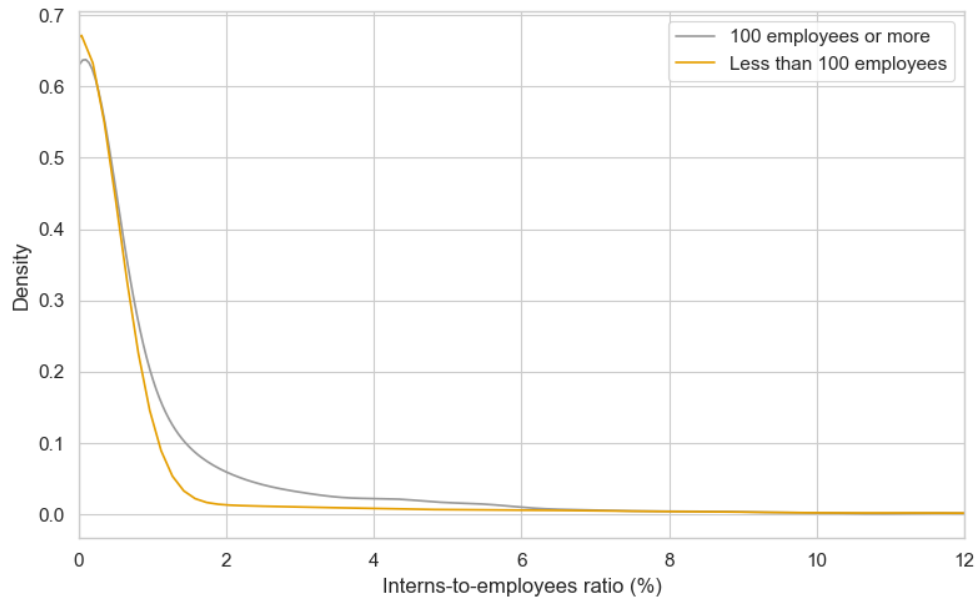
Figure 2A3: Internship take up by individual characteristics
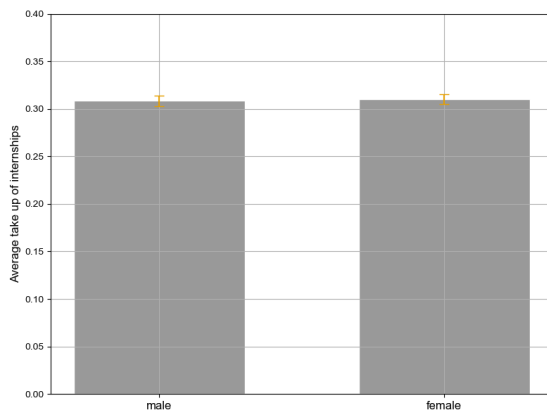
(a) By gender   (b) By ability
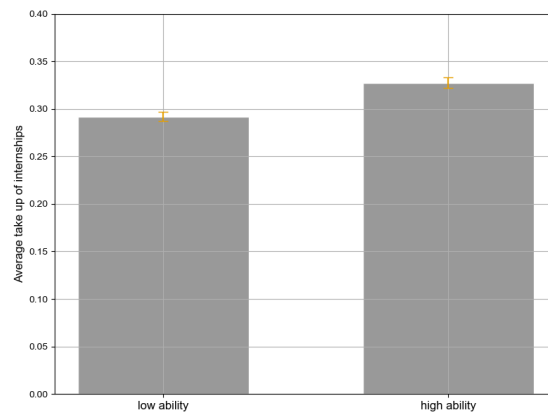
High ability students are defined as those who graduated high school with above-median grades (the threshold is 84 out of 100 in the sample).

Figure 2A4: Propensity score balancing
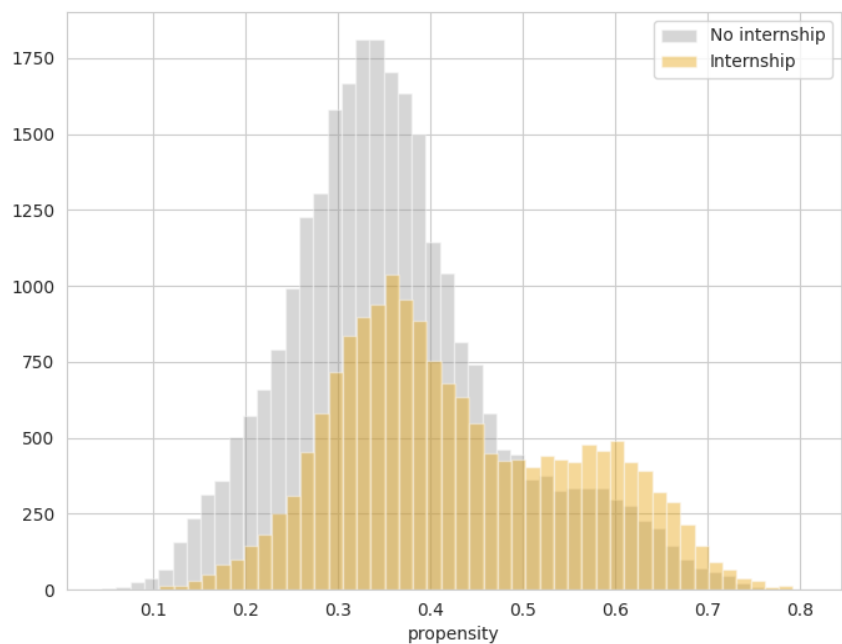
Distributions of propensity score by treatment status, where treatment is defined as having concluded an internship. The number of observations is reported on the y-axis.

Figure 2A5: Effect of internship treatment on current job spell duration.
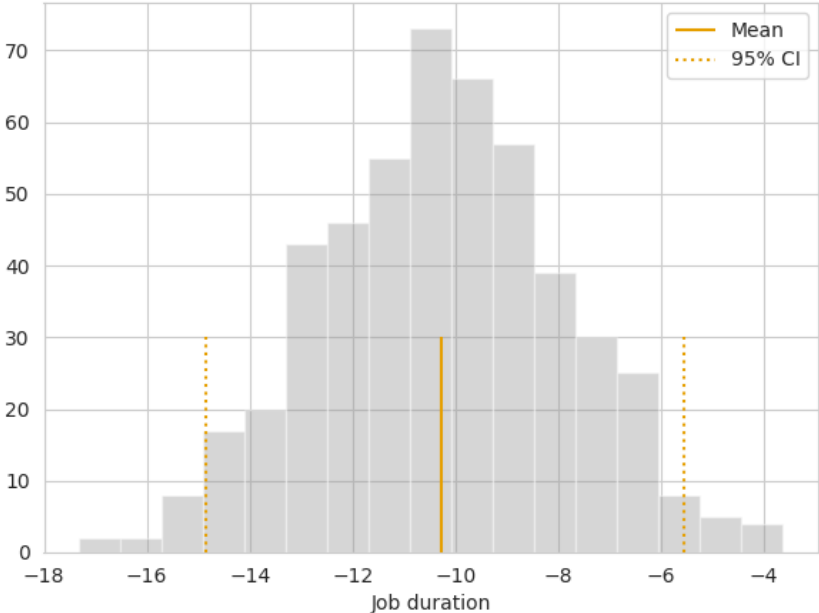
Differences between treated and control individuals are reported on the x-axis. Standard errors are bootstrapped.

C.1   Survey screens

Figure 2A6: Example of choice scenario in the survey

	A	B
Tipo di contratto	Stage a fini di assunzione	Contratto di lavoro di 12 mesi
Tipo di azienda	Multinazionale o leader nel settore	Medio-piccola
Compenso mensile netto	540	1550

Figure 2A7: Elicitation of expected probability of having an open-ended contract in the short term

Assegna per ciascuno dei seguenti scenari una probabilità da 0 a 100 all'evento "**il mio prossimo contratto di lavoro sarà a tempo indeterminato**".

Ricorda che puoi usare qualsiasi numero tra 0 e 100, dove 0 indica nessuna probabilità e 100 indica certezza assoluta.

| 0 | 20 | 40 | 60 | 80 | 100 |

Se sono trascorsi 6 mesi dalla laurea, in cui non hai avuto alcuna occupazione.

Se hai appena trascorso i 6 mesi successivi alla fine dell'università in uno **stage** con **prospettive di assunzione** in un'azienda **multinazionale**

Figure 2A8: Elicitation of expected probability of having an open-ended contract at age 35

Assegna per ciascuno dei seguenti scenari una probabilità da 0 a 100 all'evento "**avrò un contratto di lavoro a tempo indeterminato** all'età di 35 anni".

Ricorda che puoi usare qualsiasi numero tra 0 e 100, dove 0 indica nessuna probabilità e 100 indica certezza assoluta.

| 0 | 20 | 40 | 60 | 80 | 100 |

Se subito dopo la laurea **hai lavorato** (a tempo determinato) per 12 mesi in un'azienda **multinazionale**

Se subito dopo la laurea **hai lavorato** (a tempo determinato) per 12 mesi in un'azienda **medio-piccola**

Figure 2A9: Information treatment for female respondents
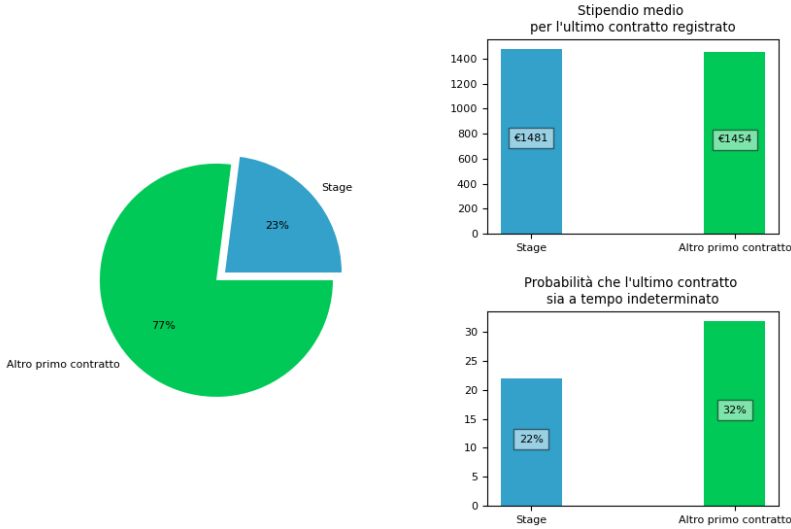
C.2 Additional tables

Table 2A1: Descriptive statistics for the 2015 ISTAT sample

Female	0.59
Italian citizenship	0.99
Father has at least a university degree	0.18
Mother has at least a university degree	0.16
Liceo	0.72
Technical high school	0.24
Vocational high school	0.04
High school grade	83.60
Had a study experience abroad	0.09
Worked during university	0.81
Only Bachelor's degree	0.20
Medicine, psychology, architecture and law[2] degrees	0.27
Economics degree	0.15
Engineering degree	0.12
Humanities degree	0.31
Scientific degree	0.10
Other degree fields	0.05
Graduated in time	0.53
University degree grade	102.66
Stage or compulsory traineeship	0.41
Stage excluding compulsory traineeships	0.28
Currently working	0.71

<center>Conditional on working</center>

Works as an employee	0.68
Has a permanent contract	0.40
Works in the private sector	0.79
Net monthly wage (€)	1202.28

Note: Respondents for which the high school grade or degree type are not reported are excluded from the analysis. (1) Fields of study that require a compulsory traineeship to enrol in the corresponding professional register.

Table 2A2: Logit regression of internship take-up on individual characteristics

	(1)
Average family education	0.087***
	(0.013)
Average family job status	0.073***
	(0.017)
Female	0.222***
	(0.023)
High school grade	-0.004***
	(0.001)
Italian citizenship	-0.248
	(0.151)
Economics degree	1.154***
	(0.045)
Engineering degree	0.303***
	(0.047)
Humanities degree	0.211***
	(0.043)
Scientific degree	0.040
	(0.046)
Degree grade	0.003**
	(0.002)
Observations	39,339

Note: *p<0.1; **p<0.05; ***p<0.01

Degrees requiring a compulsory traineeship for enrolment in professional registers (Medicine, Architecture, Law and Psychology) are excluded. Additional controls include age at graduation and region of residency.

Table 2A3: Elicited probabilities in the experiment

	High school grade of 95 or lower	High school grade above 95	Difference (p value)
Undergraduate students			
Internship	34.36 (13.23)	33.20 (15.28)	0.46
Internship in big firm	27.33 (13.15)	27.18 (14.65)	0.92
Internship for hiring purposes	16.81 (5.89)	16.52 (7.59)	0.70
Internship for hiring purposes in big firm	11.83 (5.84)	12.19 (6.97)	0.61
Unemployment	8.16 (13.55)	9.33 (16.04)	0.48
Master's students			
Internship	37.57 (13.41)	33.31 (13.39)	0.06
Internship in big firm	31.17 (12.10)	26.62 (12.90)	0.04
Internship for hiring purposes	17.47 (7.17)	16.82 (7.05)	0.59
Internship for hiring purposes in big firm	13.18 (6.13)	12.01 (6.51)	0.28
Unemployment	8.76 (16.04)	9.51 (14.29)	0.77

The table reports, separately for low and high-SES respondents, the probability of choosing different types of contracts in the survey scenarios. The probabilities are averaged across the eight different pre-treatment scenarios, where each type of contract is part of a bundle and offered alongside a second bundle and an outside option. While the structure of each scenario concerning contract types (i.e. internship versus fixed-term job, and firm size) is identical across respondents, different respondents are met with different bundles due to the wage or compensation being different.

Table 2A4: Elicited beliefs on returns to internships vs fixed term contracts

	Family income below €4000	Family income above €4000	Difference (p value)
Undergraduate students			
Permanent contract at age 35	0.87 (0.20)	0.88 (0.20)	0.81
Permanent contract at age 35, vs job in small firm	0.92 (0.24)	0.93 (0.20)	0.67
Wage at age 35	0.89 (0.17)	0.89 (0.14)	0.60
Wage at age 35, vs job in small firm	0.96 (0.20)	0.96 (0.15)	0.89
Permanent contract, short term	0.76 (0.34)	0.79 (0.27)	0.42
Permanent contract, short term, vs job in small firm	0.88 (0.53)	1.57 (4.09)	0.05
Wage, short term	0.79 (0.19)	0.77 (0.19)	0.42
Wage, short term, vs job in small firm	0.87 (0.23)	0.85 (0.21)	0.45
Master's students			
Permanent contract at age 35	0.89 (0.15)	0.90 (0.15)	0.60
Permanent contract at age 35, vs job in small firm	0.95 (0.16)	0.92 (0.18)	0.37
Wage at age 35	0.91 (0.15)	0.92 (0.11)	0.62
Wage at age 35, vs job in small firm	0.98 (0.15)	0.98 (0.13)	0.98
Permanent contract, short term	0.76 (0.28)	0.82 (0.30)	0.19
Permanent contract, short term, vs job in small firm	0.92 (0.39)	0.90 (0.47)	0.69
Wage, short term	0.76 (0.20)	0.79 (0.21)	0.47
Wage, short term, vs job in small firm	0.86 (0.24)	0.85 (0.23)	0.79

Note: The table reports, for three different types of internships, and for each future outcome, the average across respondents of the ratio of the belief on the outcome conditional on accepting the corresponding internship contract versus the belief on the outcome conditional on accepting a fixed-term job. The average is computed separately for low and high-SES individuals, and the p-value for the difference is reported in the last column.

Table 2A5: Elicited beliefs on returns to internships in a big firm vs fixed term contracts

	Family income below €4000	Family income above €4000	Difference (p value)
Undergraduate students			
Permanent contract at age 35	0.90 (0.23)	0.91 (0.20)	0.55
Permanent contract at age 35, vs job in small firm	0.93 (0.28)	0.97 (0.25)	0.20
Wage at age 35	0.95 (0.19)	0.94 (0.15)	0.92
Wage at age 35, vs job in small firm	1.02 (0.24)	1.03 (0.18)	0.81
Permanent contract, short term	0.79 (0.36)	0.87 (0.34)	0.05
Permanent contract, short term, vs job in small firm	0.96 (0.75)	1.80 (5.24)	0.06
Wage, short term	0.86 (0.22)	0.85 (0.21)	0.50
Wage, short term, vs job in small firm	0.94 (0.28)	0.94 (0.26)	0.89
Master's students			
Permanent contract at age 35	0.95 (0.14)	0.91 (0.17)	0.23
Permanent contract at age 35, vs job in small firm	1.00 (0.17)	0.93 (0.20)	0.03
Wage at age 35	0.95 (0.16)	0.96 (0.12)	0.53
Wage at age 35, vs job in small firm	1.03 (0.19)	1.03 (0.18)	0.91
Permanent contract, short term	0.86 (0.34)	0.86 (0.34)	0.98
Permanent contract, short term, vs job in small firm	1.06 (0.61)	0.97 (0.73)	0.40
Wage, short term	0.83 (0.22)	0.85 (0.23)	0.61
Wage, short term, vs job in small firm	0.93 (0.28)	0.92 (0.28)	0.85

Table 2A6: Elicited beliefs on returns to internships for hiring vs fixed term contracts

	Family income below €4000	Family income above €4000	Difference (p value)
Undergraduate students			
Permanent contract at age 35	0.93 (0.19)	0.94 (0.18)	0.81
Permanent contract at age 35, vs job in small firm	0.98 (0.25)	0.99 (0.20)	0.92
Wage at age 35	0.93 (0.17)	0.92 (0.14)	0.81
Wage at age 35, vs job in small firm	0.99 (0.21)	1.00 (0.17)	0.65
Permanent contract, short term	0.93 (0.35)	0.97 (0.33)	0.24
Permanent contract, short term, vs job in small firm	1.12 (0.79)	1.93 (4.95)	0.06
Wage, short term	0.85 (0.19)	0.82 (0.20)	0.21
Wage, short term, vs job in small firm	0.93 (0.24)	0.91 (0.23)	0.44
Master's students			
Permanent contract at age 35	0.94 (0.14)	0.95 (0.13)	0.85
Permanent contract at age 35, vs job in small firm	1.01 (0.18)	0.97 (0.16)	0.20
Wage at age 35	0.94 (0.16)	0.95 (0.11)	0.63
Wage at age 35, vs job in small firm	1.01 (0.17)	1.02 (0.15)	0.71
Permanent contract, short term	0.92 (0.35)	0.98 (0.38)	0.33
Permanent contract, short term, vs job in small firm	1.11 (0.56)	1.04 (0.54)	0.50
Wage, short term	0.81 (0.21)	0.84 (0.21)	0.40
Wage, short term, vs job in small firm	0.92 (0.25)	0.92 (0.24)	0.94

Table 2A7: Elicited beliefs on returns to internships for hiring in big firm vs fixed term contracts

	Family income below €4000	Family income above €4000	Difference (p value)
Undergraduate students			
Permanent contract at age 35	0.96 (0.23)	0.97 (0.20)	0.81
Permanent contract at age 35, vs job in small firm	1.00 (0.31)	1.03 (0.25)	0.50
Wage at age 35	0.99 (0.20)	0.99 (0.15)	0.85
Wage at age 35, vs job in small firm	1.07 (0.27)	1.08 (0.21)	0.75
Permanent contract, short term	0.99 (0.43)	1.07 (0.45)	0.11
Permanent contract, short term, vs job in small firm	1.23 (1.08)	2.20 (6.49)	0.08
Wage, short term	0.92 (0.22)	0.91 (0.21)	0.72
Wage, short term, vs job in small firm	1.02 (0.31)	1.00 (0.26)	0.55
Master's students			
Permanent contract at age 35	1.00 (0.16)	0.96 (0.17)	0.08
Permanent contract at age 35, vs job in small firm	1.07 (0.22)	0.98 (0.20)	0.02
Wage at age 35	0.99 (0.18)	1.01 (0.13)	0.55
Wage at age 35, vs job in small firm	1.08 (0.23)	1.08 (0.19)	0.99
Permanent contract, short term	1.02 (0.37)	0.99 (0.36)	0.61
Permanent contract, short term, vs job in small firm	1.31 (1.06)	1.12 (0.84)	0.21
Wage, short term	0.89 (0.24)	0.90 (0.23)	0.76
Wage, short term, vs job in small firm	1.00 (0.30)	0.99 (0.28)	0.80

Table 2A8: Logistic regression of relative improvement on socio-demographic characteristics

	Relative improvement $> 75^{th}$ percentile
Age	0.047
	(0.084)
Female	0.253
	(0.216)
High ability	-0.328
	(0.226)
High SES	-0.248
	(0.219)
Treated	0.300
	(0.223)
Bachelor's degree	0.489
	(0.324)
Observations	480

Note: *p<0.1; **p<0.05; ***p<0.01. Omitted controls also include region of residency (South, Centre, North-West, North-East).