Work Hard or Play Hard? Degree Class, Student Leadership and Employment Opportunities*

Abstract

This study investigates the impact on first hiring outcomes of two main curriculum vitae (CV) characteristics by which graduates with a tertiary education degree distinguish themselves from their peers: degree class and extra-curricular activities. These characteristics were randomly assigned to 2,800 fictitious job applications that were sent to real vacancies in Belgium. Academic performance and extra-curricular engagement enhance job interview rates by 7.0% (CI 95% [0.3%, 13.7%]) and 6.5% (CI 95% [-0.5%, 13.4%]), respectively. We did not find evidence for these CV characteristics to reinforce or reduce their effect.

Keywords: degree class; extra-curricular activities; hiring; field experiment.

JEL codes: J23; J24; I23; C93.

Word count: 11045 words.

1. Introduction

Across Organisation for Economic Co-operation and Development (OECD) countries, the proportion of labour market entrants with a tertiary education degree significantly increased over several decades. Between 2000 and 2016, the proportion of 25- to 34-year-olds with such degrees rose from 38% to 48% and 24% to 40% in the United States and 22 European OECD countries, respectively (OECD, 2017). Consequently, a tertiary education degree has become less of a distinction for labour market entrants. Scientific literature determined two main strategies pursued by students to suit future employers and distinguish themselves from their peers with a similar degree: spending more time on intra-curricular activities to obtain a high degree class[1] or investing in visible extra-curricular activities, such as partaking in student clubs or leading a student union.[2,3] The aim of this article is to investigate the (relative) effect of these strategies on the transition to employment success. To this end, we conduct a field experiment in which 2,800 fictitious job applications are sent to real vacancies in Belgium. By randomly assigning several levels of degree class and several forms of extra-curricular activities to these applications, we can evaluate their causal impact on

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[1] This is the final degree awarded to students completing university. In Belgium, where we conducted our experiment, similar to many North American universities, these classes are the Greatest Distinction (*summa cum laude*), Great Distinction (*magna cum laude*), Distinction (*cum laude*), and Satisfactory. Similarly, in most British universities, degrees are classified as First Class, Upper Second Class, Lower Second Class, Third Class, and Pass (Feng & Graetz, 2017).

[2] A review of the literature showed that there is no universal definition of extra-curricular activities, potentially because their modalities are highly dependent on the context in which they take place. Generally, they include extra-curricular activities that are (i) structured and (ii) non-obligatory activities undertaken by students (iii) in their leisure time with (iv) positive personal and interpersonal development experiences (Klemenčič, 2012; Nuijten, Poell, & Alfes, 2017; Rynes, Orlitzky, & Bretz, 1997).

[3] Besides these two main 'player' strategies, students may also invest in student jobs (Baert, Rotsaert, Verhaest, & Omey, 2016; Pinto & Ramalheira, 2017), or extra-curricular internships (Nunley, Pugh, Romero, & Seals, 2016) to suit future employers.

the chances to be invited for a job interview.

From a theoretical perspective, there are several reasons why both strategies could be fruitful. First, both intra- and extra-curricular activities may enhance the human capital of students. Following human capital theory (Becker, 1962), extra-curricular activities may endow individuals with soft skills, such as communication, leadership, creativity, time management, and self-promotion (Kuhn & Weinberger, 2005; Lau, Hsu, Acosta, & Hsu, 2014; Pinto & Ramalheira, 2017; Roulin & Bangerter, 2013; Rubin, Bommer, & Baldwin, 2002), which may enhance their productivity in the workplace (Feldman & Matjasko, 2005; Lundin, Skans, Nordström, & Zetterberg, 2018). Confronted with limited time to judge job applications containing limited information, employers may use the extra-curricular activities on one's curriculum vitae (CV) as a proxy for the soft skills acquired through these experiences (Lange, 2007). For similar reasons, a higher degree class is likely to be used as a proxy for higher levels of hard skills gained by candidates during their intra-curricular activities, such as cognitive- and domain-specific skills and knowledge.

Second, even when neither type of activity enhances human capital, they may improve labour market outcomes if they signal pre-existing abilities and characteristics. In line with Spence's (1973) signalling theory, participation in extra-curricular activities, such as being chair of a student union, may signal talents like leadership qualities and the ability to combine various tasks and activities. Additionally, employers may perceive these engagements as signalling other characteristics, such as prosocial behaviour and a primary orientation to work rather than school (Cole, Rubin, Feild, & Giles, 2007; Pinto & Ramalheira, 2017). Similarly, a higher degree class may signal higher intelligence (Protsch & Solga, 2015; Roth & Bobko, 2000), higher overall ability (Furnham, Chamorro-Premuzic, & McDougall, 2003; Kuncel, Hezlett, & Ones, 2004), an excellent motivation (Imose & Barber, 2015; Roth

& Bobko, 2000), better communication and mathematical skills (Brown & Campion, 1994), and enhanced trainability (Bernardi, 2003; Devaraj & Babu, 2004; Di Stasio, 2014).[4]

A third point, which is more relevant to explaining the labour market effects of extra-curricular activities than degree class, is related to social capital acquisition. In line with social network theory (Granovetter, 1973), extra-curricular activities may be associated with high-level contacts with peers and decision-makers inside and outside the university, that helps graduates find a better job match more quickly (Baert et al., 2016; Kramarz & Skans, 2014; Lundin et al., 2018; Merino, 2007). In a similar vein, business-oriented extra-curricular activities (e.g., company presentations at campus or sponsor recruitment events) may be used by employers to screen potential future workers (Stiglitz, 1975).

Several studies have confronted these theoretical expectations with empirical reality. Almost all of them have investigated the labour market effects of degree class, making abstractions of extra-curricular activities and vice versa. Moreover, the majority of the empirical work has been based on observational data, relating higher degree class to more beneficial labour market outcomes, such as a faster transition from education into work and higher wages and earnings (Feng & Graetz, 2017; Freier, Schumann, & Siedler, 2015; Khoo & Ost, 2018; Naylor, Smith, & Telhaj, 2016; Walker & Zhu, 2011).[5] Further, extra-curricular activities have been associated with higher employability, a faster school-to-work transition, and higher wages (Chia, 2005; Derous & Ryan, 2008; Di Pietro, 2017; Jones & Jackson, 1990; Kim & Bastedo, 2017; Kuhn & Weinberger, 2005; Lau et al., 2014; Lleras, 2008; Lundin et al.,

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[4] From a broader perspective, all arguments related to the returns to hard versus soft skills may apply here (Lievens & Sackett, 2012; Lindqvist & Vestman, 2011; Velasco, 2012).

[5] Other studies have related the more fine-grained measure of grade point average (GPA) to beneficial labour market outcomes (Bertrand, Goldin, & Katz, 2010; Kuncel et al., 2004), while Di Pietro (2010) did not find an effect of degree class on top of GPA.

2018; Tchibozo, 2007; van Ophem & Chin, 2017).[6] The most critical challenge for contributions to this literature based on observational data is to control for confounders. That is, degree class and extra-curricular activities may correlate with other determinants of labour market success (such as the characteristics mentioned above may signal; Kuhn & Weinberger, 2005). Moreover, they may correlate with each other (Mahoney, Cairns, & Farmer, 2003; Marsh, 1992). However, recent empirical contributions have applied effective identification strategies, such as matching, difference-in-difference estimators, and regression discontinuity designs (Feng & Graetz, 2017; Freier et al., 2015; Khoo & Ost, 2018; Lundin et al., 2018). Their results can only be given a causal interpretation under substantial assumptions.[7]

Somewhat comfortingly, the positive findings based on observational data have been confirmed by results from vignette studies. In these experiments, fictitious job applications, in which candidate characteristics are manipulated, are evaluated by participants in a laboratory context. Studies following this approach have found that applications with a higher degree class (Cole et al., 2007; Di Stasio, 2014; Humburg & van der Velden, 2015; McKinney, Carlson, Mecham, D'Angelo, & Connerley, 2003; Nemanick & Clark, 2002; Pinto & Ramalheira, 2017; Thoms, McMasters, Roberts, & Dombkowski, 1999) or more extra-curricular activities (Cole et al., 2007; Nemanick & Clark, 2002; Pinto & Ramalheira, 2017) were evaluated as more employable.[8] These experiments offer two significant advantages to quasi-experimental designs. First, the results can be given a causal interpretation without

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[6] Shulruf, Tumen, and Tolley (2008) did not find a significant association.

[7] In particular, concerning regression discontinuity designs, pupils with a GPA just below a specific degree class level may have a higher incentive to mention their GPA (besides their degree class) in their CV.

[8] Additionally, Protsch and Solga (2015) found a positive association between GPA and access to apprenticeships in Germany.

having to rely on strict exogeneity assumptions. Second, because these experiments focus on applying for jobs outside one's network, they allow the isolation of human capital and signalling effects from the effects resulting from networking and screening. However, the main criticism concerning these studies is the lack of clarity as to whether behaviour in the laboratory has predictive validity for behaviour outside the laboratory. That is, participants may act differently—in particular, in a socially desirable way—when not exposed to the urgency of real-life decision-making (Di Stasio, 2014; Van Belle, Di Stasio, Caers, De Couck, & Baert, 2018).

We complement this existing literature by measuring the effect of degree class and extra-curricular activities in the field instead of in an artificial setting. Moreover, by combining manipulations of degree class with manipulations of extra-curricular activities, we can measure their *relative* value in signalling both pre-existing and acquired human capital. This is our main research aim. Indeed, spending more time on one activity inevitably comes at the cost of time spent on other activities. Looking at both intra- and extra-curricular activities, thus allowing us to assess more directly the real-life trade-offs that individual students face in this respect. Next, by looking at both activities within the same study, we also indirectly contribute to the discussion about the relative importance of cognitive and social skills. Finally, the only two studies we are aware of that compared their importance (based on a vignette approach) provided mixed evidence; Pinto and Ramalheira (2017) found that degree class is more critical than extra-curricular activities, while Cole et al. (2007) suggested the opposite.

While finding observational data with convincing exogenous variation in (instruments of) degree class or extra-curricular activities is by no means obvious, as indicated earlier, it seems like an entirely utopian pursuit to find exogenous variation in *both* CV characteristics

in such data. By means of our experimental setting, we create this exogenous variation ourselves. Furthermore, this setting allows us to investigate how degree class and extra-curricular activities influence hiring outcomes. Therefore, the literature suggests that students see extra-curricular activities as a substitute for high academic performance (Roulin & Bangerter, 2013; Thompson, Clark, Walker, & Whyatt, 2013). Employers (may) believe that high-level productivity can only result from a combination of hard and soft skills, so that high degree class and extra-curricular activities may complement each other (Andrews & Higson, 2008; Chia, 2005; Cole et al., 2007; Thompson et al., 2013).[9] We directly test whether their effects are merely additive or whether they work as complements or substitutes. Finally, we contribute to the literature by investigating how the premium of degree class and/or extra-curricular activities varies by candidate characteristics (gender, educational level, and field) and vacancy characteristics (contract type and labour market tightness).

Our study provides answers to the following five questions:

Q1. Does degree class affect the job interview invitation rates of graduates?

Q2. Do extra-curricular activities affect the job interview invitation rates of graduates?

Q3. Are degree class and extra-curricular activities complements or substitutes in affecting the job interview invitation rates of graduates?

Q4. Which candidate characteristics moderate the relationship among degree class, extra-curricular activities, and job interview invitation rates of graduates?

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[9] Ramalheira and Pinto (2017) indeed found that extra-curricular activities positively affected one's employability only when they were combined with good study results. In contrast, Cole et al. (2007) did not find any significant interaction effects between academic performance and extra-curricular activities.

Q5. Which vacancy characteristics moderate the relationship among degree class, extra-curricular activities, and job interview invitation rates of graduates?

2. Methods

2.1 Correspondence Experimentation Framework

We run a field experiment that extends the correspondence experimentation framework of Bertrand and Mullainathan (2004). In general, in this type of experiment, fictitious job applications are sent to real vacancies. The applications essentially differ only in the experimentally manipulated characteristics. By monitoring subsequent job interview invitations, unequal treatment in first hiring decisions by these characteristics can be measured and given a causal interpretation (Baert, 2018; Neumark, 2018).

In the beginning, correspondence experiments were exclusively applied to the investigation of hiring discrimination on grounds based on which unequal treatment is forbidden, such as ethnic or gender discrimination (Baert, Cockx, Gheyle, & Vandamme, 2015; Bertrand & Mullainathan, 2004; Oreopoulos, 2011). More recently, however, scholars have employed this kind of experiment to study the causal impact on employment opportunities of other CV characteristics, including educational credentials and labour market-related activities (Darolia, Koedel, Martorell, Wilson, & Perez-Arce, 2015; Deming, Yuchtman, Abulafi, Goldin, & Katz, 2016; Eriksson & Rooth, 2014; Kroft, Lange, & Notowidigdo, 2013; Nunley et al., 2016; Verhaest, Bogaert, Dereymaeker, Mestdagh, & Baert, 2018). From a methodological viewpoint, our study is close to the latter set of studies. However, we are not aware of any correspondence experiments testing the effect of degree

class and extra-curricular activities on job interview invitation rates.

2.2 Data Gathering

We conducted our experiment between November 2015 and April 2016 in the labour market of Flanders, i.e. the northern part of Belgium. Two key characteristics of the labour market in Flanders are as follows. First, the competition for human capital is relatively high compared to other regions in Europe. In 2015, the job vacancy rate was 2.5% in Flanders,[10] while it was 1.7% in the European Union (source: Eurostat). Second, labour market contracts are heavily regulated (Cockx, Picchio, & Baert, 2019). Overall, the unemployment rate for the entire population aged 20–64 years in Flanders was 5.0% in 2015, while it was 9.2% in the European Union (source: Eurostat).

The fictitious job candidates' applications were sent to 700 vacancies selected from the Public Employment Agency of Flanders database, i.e. the region's leading job search channel. We sent out four applications per vacancy,[11] leading to an overall sample of 2,800 applications. These vacancies were randomly selected among those targeting graduates from 10 tertiary education programs. We distinguish between three business programmes (Bachelor in Office Management, Bachelor in Communication Management and Master in Business Economics), four technical programmes (Bachelor in Agro- and Biotechnology, Bachelor in Chemistry, Bachelor in Electromechanics, and Master in Industrial Engineering),

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[10] The job vacancy rate is defined as the proportion of the number of vacancies expressed as a percentage of this number and the number of occupied jobs.

[11] By sending out four applications per vacancy, we align with several other correspondence studies focusing on other CV characteristics related to one's educational and labour market career (e.g., Kroft et al., 2013; Deming et al., 2016; Nunley et al., 2016).

and three programs in health care (Bachelor in Nursing, Bachelor in Remedial Education and Master in Rehabilitation Sciences and Physiotherapy).[12] Testing diverging jobs by targeted educational level and field enables us to avoid the danger inherent in many former correspondence experiments in which one selected a particular occupation with, potentially, a low (or high) premium of the tested characteristic. Additionally, this design allows us to investigate whether the effects are heterogeneous regarding the graduate educational level and field (and thereby answer Q4).

For each programme, we construct four application templates ('type A,' 'type B,' 'type C,' and 'type D') comprising a CV and a motivation letter matching the general requirements of starter jobs targeting graduates with degrees related to these programmes. To ensure that our applications are realistic and representative, examples from the Public Employment Agency of Flanders are calibrated for our purposes. All fictitious applicants are born and lived in Antwerp, Ghent, Louvain, or Hasselt, i.e. four of Flanders' largest cities. The city closest to the workplace mentioned in the vacancy is chosen. They graduated from the same type of college or university, with comparable reputations, in the summer of 2015. Given that they had no grade retention experience, the candidates with a bachelor's degree were 21 years old. Those with a Master in Business Economics or Industrial Engineering (programs of four years) 22 years old and those with a Master in Rehabilitation Sciences and Physiotherapy (a programme of five years) 23 years old, as implicitly indicated by their mentioned date of birth.

Moreover, we add the following features to all the applications: a typical Flemish-sounding first name and surname; a random day and month of birth; the Belgian nationality;

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[12] The master level is the second-highest of eight levels in the International Standard Classification of Education (ISCED) of 2011—the highest one being the doctoral level. The bachelor level is the third-highest level.

a telephone number and an email address from major providers; a postal address with an existing street name, but a non-existent house number in a middle-class neighbourhood; adequate computer skills; adequate Dutch, English, and French language skills; a driver's license; and some sports and cultural interests. All of the motivation letters mentioned that the job applicant: (i) found the vacancy in the database of the Public Employment Agency of Flanders, (ii) had graduated with the requisite qualifications, (iii) was motivated to start the job, and (iv) was looking forward to attending a job interview. The four templates for each programme available on request differ concerning inessential peculiarities (e.g., various standard wording was used for the educational degrees) and layout to avoid detection.[13]

We randomly assign a high degree class to one applicant for each vacancy, significant extra-curricular activities to another, a combination of both to a third, and neither to a fourth applicant.[14] Because of this randomisation procedure, the correlation between these four experimental conditions and the CV template types is close to 0; we return to the actual correlation below. Consequently, the minimal differences between the four job application templates do not bias our job interview measures between these conditions.

The high degree class assigned to half of the applicants—so, those in the experimental conditions with only degree class or degree class combined with extra-curricular activities—was 'great distinction' or 'distinction' (randomly determined at the level of the application,

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[13] We are convinced that the share of employers who detected the experiment is negligible. If employers had detected the investigation, one would expect them to have given some indication of their discovery. Nevertheless, we have not received any response in this direction. Moreover, degree class and extra-curricular activities as a ground for unequal treatment in recruitment are not at all under discussion in Flanders (as opposed to, for example, gender and age), so that we do not think that employers would expect to be tested concerning these treatments.

[14] This, and later, randomisations were realised via the random number generator in Microsoft Excel.

both with a probability of 0.50).[15] The control applicant and the applicant with only extra-curricular activities did not mention any degree class.[16]

Further, one of four types of extra-curricular activities were assigned (randomly determined at the level of the application, with a probability of 0.25) to those in the experimental conditions with only extra-curricular activities or extra-curricular activities combined with degree class: (i) membership of the faculty's student union (without specifying one's particular role), (ii) chairmanship of the faculty's student union, (iii) membership of the executive committee ('praesidium') of the faculty's student club and (iv) chairmanship of the faculty's student club (being 'praeses'). While student unions defend the students' interests in college or university, (Flemish) student clubs are focused on organising social activities. Consequently, student leadership within the context of these two groups might signal other qualities and may, therefore, be appreciated differently by employers, which we test below. Similarly, a student union or presidency implies a higher intensity and prestige of student leadership since both groups consist of many members but have only one president.

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[15] At Ghent University—the university that occurred most frequently in the fictitious applications—29.9% of the regular master's degrees in the academic year 2017–2018 were handed out with a satisfactory degree, 41.2% with a distinction degree, 24.4% with a great distinction degree and 4.6% with a greatest distinction degree. Ghent University has 46000 students (https://www.ugent.be/en/ghentuniv/organization), 127 student clubs and 11 faculties. Based on the (Dutch) information on http://student.ugent.be/konventen/alle.php and https://gentsestudentenraad.be/over/ontdekjouwfsr, we estimate the number of praesidium members as 15 per club and the number of student representatives as 50 per faculty, yielding 1,905 praesidium members and 550 student union members. Taking into account a (conservative) maximum of 50% of student union members being also praesidium members, the overall number of student leaders is 2,130, or about 4.8% of the total population each year. For a median duration of a Master's program of 5 years, this would yield an overall probability of 21.8% (i.e. $1 - (1-0.048)^5$) in case selection into student leadership was random and only for one year. As neither student leadership for all years nor random selection for one year is realistic, we conclude that the genuine chance on any student leadership engagement should be somewhere between 10% and 15%.

[16] A sample of human resource managers confirmed that not mentioning any degree class is more realistic than mentioning a satisfactory degree.

Moreover, in view of answering Q4 on the heterogeneity of impacts across different candidates, we alternated between male and female quartets of applicants. Earlier evidence concerning gender differences in degree class and extra-curricular activities premiums was mixed. While Pinto and Ramalheira (2017) reported the positive effects of both CV qualities regarding employability to be homogeneous by gender, Feng and Graetz (2017) found a higher degree class effect on males' wages.

We sent the quartets of job candidates in a random order to the employers, with a 6- to 24-hour delay between two applications. We only applied to the same employer with one quartet of applications to avoid detection and ethical reasons. Responses from the employers were received via email and telephone voicemail. To minimise the inconvenience to these employers, we terminated the application procedure after obtaining a positive response.[17] All call-backs received later than 30 days after the date of application submission were discarded.[18] In line with the literature, our analysis outcome variables are binary: 1 if a fictitious applicant was (immediately) invited to a job interview and 0 if otherwise.

Finally, to test whether the effects are heterogeneous across different types of vacancies (Q5), we merged the experimentally gathered data with vacancy characteristics that could be derived from the posted advertisement. First, we register the offered contract type: temporary versus permanent jobs and part-time versus full-time jobs. Second, we construct a proxy for the regional labour market tightness. Utilising the work location mentioned in the vacancy, we assigned each vacancy to one of the 23 Flemish districts

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[17] Our focus on starter jobs is likely to minimise this inconvenience further since the screening of entry-level job candidates is generally considered to be less costly (Pager, 2007) and HR managers indicate to spend less than one minute per screened resume for these jobs (Lahey & Beasley, 2009).

[18] This turned out to be an unnecessary restriction, as we hardly received any (positive) responses after 30 days.

('arrondissementen'). The number of vacancies and the number of unemployed in 2015 for the districts could be calculated based on the Public Employment Agency of Flanders data. This ranged from 0.050 in the district of Maaseik to 0.361 in the district of Roeselare.[19] As in Baert et al. (2015), we hypothesised that employers would be less selective (in terms of degree class and extra-curricular activities) when filling temporary and part-time jobs and in times of high labour market tightness.

The Ethical Committee of the Faculty of Economics and Business Administration of Ghent University approved this research at its meeting on 9 July 2013, primarily based on the arguments mentioned in Riach and Rich (2004). Some CV combinations and examples of cover emails (original versions in Dutch and translated versions in English) can be found in the Online Appendix.

2.3 Summary Statistics

Table A1 (in the Online Appendix) describes the data analysed in Section 3. Panel A of this table shows, overall, 761 (27.2%) of the 2,800 applicants got an invitation to a job interview. Further, Panel B shows that the distribution of the degree class and extra-curricular activities conditions accords with the experimental design discussed above. Notably, the random assignment of the experimental conditions to the CV template types and the order in which the applications were sent out worked as intended. That is, actual correlations among degree class, extra-curricular activities, and the variables capturing the template type and

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[19] As proposed by an anonymous reviewer of a former version of our manuscript, we also used an alternative indicator of labour market tightness, i.e. the median duration time to fill vacancies in the occupation in 2015, as provided by the Public Employment Agency of Flanders. This indicator could be constructed for 61.9% of the tested vacancies. However, using this alternative proxy yielded similar empirical findings as those presented below.

application order were reasonably low. Nevertheless, these small correlations are controlled for in our regression analyses, which are discussed below. Finally, by design, there was no correlation among degree class, extra-curricular activities, and constant factors at the vacancy level, such as the gender of the candidate, the programme, and the vacancy characteristics.

3. Results

3.1 Overall Effects

Table 1 presents the experimental condition's interview rates at the full sample level and by gender and education level. Further, the ratios between these invitation probabilities are calculated and tested to determine whether these ratios are statistically significantly different from 1. Figure 1 and Figure A1 (in the Online Appendix) are graphical representations of the interview rates. Overall, applicants in the control condition were invited to a job interview in 25.3% of their applications. The job interview rate was 27.4% both for applicants mentioning a high degree class (but no extra-curricular activities) and for applicants mentioning extra-curricular activities (but no high degree class). Therefore, these CV characteristics enhance the job interview rate by 2.1 (= 27.4 − 25.3) percentage points, or about 8.5% (≈ 27.4 / 25.3 − 1). These differences are statistically significant at the 10% significance level (p = 0.087 with 95% CI [–1.2%, 19.1%] when comparing the high degree class condition with the control condition and p = 0.079 with 95% CI [–0.9%, 18.8%] when comparing extra-curricular activities condition with control condition). Applicants mentioning both a (great) distinction and student leadership were invited in 28.6% of their

applications: a premium in job interview rate of 3.3 percentage points, or 13.0%. This difference was statistically significant at the 1% significance level (p = 0.006; 95% CI [3.5%, 23.4%]). As can be seen from the two right histograms in Figure 1 and the middle rows of Table 1, these premiums are somewhat more dominant among the fictitious female (compared to male) candidates.

<Figure 1 about here>

To measure the independent effect of degree class and extra-curricular activities, in Table 2, we estimate five regression models. An invitation to a job interview is regressed on mentioning a high degree class (distinction or great distinction), mentioning extra-curricular activities (one of the four types mentioned above of student leadership), and an increasing number of control variables. In column (1), no additional controls are added. In column (2), the observed candidate and vacancy characteristics and controls for the CV template type used (reference category: CV type D) and the order of sending (reference category: fourth sent application) are included. Finally, in column (3), we also control fixed effects at the vacancy level.[20] Control variables that are constant at the vacancy level are saturated after including vacancy fixed effects.[21] As they are adequate for use with binary dependent variables (Angrist & Pischke, 2008) and easy to interpret, we estimate linear probability models with standard errors clustered at the vacancy level. However, logit and probit models yield the same empirical conclusions; the marginal effects of probit estimates are given in Table A3 (in the Online Appendix).

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[20] Models controlling for random effects yield the same conclusions.

[21] Additionally, models controlling for (i) indicators of all 10 master's programmes, (ii) indicators of all 23 districts and/or (iii) an indicator of districts with a labour market tightness above the mean (instead of a continuous variable capturing labour market tightness) were estimated. This yielded the same empirical conclusions.

<Table 2 about here>

The regression results in Table 2 are very similar across columns (1)–(3). The estimates concerning our main independent variables only change (to a negligible extent) after including controls for CV template type and order of sending. This is not surprising, as, by construction, degree class and extra-curricular activities are orthogonal to all variables that are fixed at the vacancy level. From column (3) on, the independent effects of a (great) distinction and student leadership are 0.018 and 0.016, respectively. That is, mentioning a (great) distinction increases the job interview probability by about 1.8 percentage points, and mentioning student leadership increases this probability by about 1.6 percentage points, *ceteris paribus*. The former effect is statistically significant at the 5% level (p = 0.036; 95% CI [0.001, 0.035]); the latter effect is significant at the 10% level (p = 0.063; 95% CI [–0.001, 0.034]).[22] These effects are equivalent to an increase in the job interview rate by 7.0% (CI 95% [0.3%, 13.7%]) and 6.5% (CI 95% [-0.5%, 13.4%]), respectively.[23] Not surprisingly, given that their values are very close to each other, the equality of both effects cannot be rejected using an *F*-test (p = 0.906).

Although the main result on student leadership is only weakly statistically significant, we do not believe this to be the consequence of insufficient statistical power. As reported in

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[22] Additional tests, reported in detail in the Online Appendix, do not indicate this to result from a higher chance of finding any significant effect when the effect of two (instead of one) CV characteristics are tested within the same framework. While a standard F-test (p = 0.017) rejects the null hypothesis that both effects are zero, adopting a Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995) with a false discovery rate of 10% leads to the rejection of the null for each of the two coefficients individually. Finally, also based on the more conservative Holm-Bonferroni correction (Holm, 1979), both effects are found to be statistically significant at the 10% level (but not at the 5% level).

[23] They are calculated by relying on the estimates reported in Table 2 (column (5)) and a value of 0.255 as an average estimate of the baseline interview rate for the control groups. The confidence bounds on the job interview ratios are estimated based on the delta method.

the Online Appendix and relying on the standard error of the coefficient (cf. Ioannidis, Stanley & Doucouliagos, 2017), the 'true' effect of student leadership should be at least 2.47 (2.19) percentage points to realise a power level of 80% in combination with a significance level of 5% (10%). As expressed in terms of an interview ratio (1.097 (1.086)), this minimal 'true' effect is well below the significant effects found in other correspondence experiments on related CV characteristics of one's educational career and extra-curricular activities.[24]

A related concern may be that we falsely reject the null hypothesis of no effect. Therefore, in line with Greenland (2019), we provide the reader with *s*-values of our main estimates. These *s*-values are the negative logarithm of the according *p*-value to base 2, also known as the Shannon information value (Shannon, 1948). They represent the number of bits of information embedded in the test statistic, which can be used as evidence against the null hypothesis. The *s*-values related to '(great) distinction' and 'student leadership' in column (3) of Table 2 are 4.796 ($\approx -\log_2(0.036)$) and 3.989 ($\approx -\log_2(0.063)$), respectively. The nearest integers to these numbers are 5 and 4, respectively, so that the effect found for a (great) distinction and student leadership is no more surprising than getting all heads in 5 and 4 fair coin tosses, respectively.

In summary, for research questions Q1 and Q2, on the average impact of high degree class and extra-curricular activities, we find (weak) evidence for comparable premiums of these two characteristics, as operationalised in our field experiment using the 2,800 tested vacancies. This finding is consistent with the results of Cole et al. (2007) and Pinto and Ramalheira (2017) mentioned in Section 1. The relatively higher degree class premium in

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[24] To be more specific, the 'true' effect could be as low as about two thirds (three fifths) of the smallest detected significant effect in the list of studies that are summarised in the Online Appendix (i.e. the effect of internships as found in Nunley et al. (2016)).

Pinto and Ramalheira (2017) is not surprising given that they seemed to compare relatively extreme degree class cases: a GPA of 18 out of 20 ('high GPA') versus a GPA of 11 out of 20 ('low GPA'). Moreover, the relatively higher extra-curricular activities premium in Cole et al. (2007) can be explained by their operationalisation: the fictitious job candidates in their vignette experiment mentioned up to five such engagements (compared to one in our case). Of course, the institutional context may also drive this difference in the findings—we return to this issue in Section 4.

In terms of economic significance, the measured effects of mentioning a (great) distinction and student leadership turn out to be relatively small compared to related CV characteristics in the same context. First, in terms of job interview rate with a high degree class or extra-curricular activities, the premium is substantially smaller than the premium of a master's degree (versus a bachelor's degree) for graduates applying for a vacancy at the bachelor's level, as found in a smaller correspondence experiment in Flanders in 2014–2015 (i.e., about 3.3 percentage points; Verhaest et al., 2018). Second, the premium from a high degree class or extra-curricular activities is lower than the premium in terms of job interview rate found for recent graduates over candidates with an unemployment duration of one year after the graduation of 3.4 percentage points by Baert and Verhaest (2019). Finally, expressed in terms of interview ratios (1.070 and 1.065, respectively), these effects are also well below those found outside Flanders for some other related CV characteristics, such as internships or university reputation (Nunley et al., 2016; Drydakis, 2016; see the Online Appendix for an overview).

Before focusing on the answers to the other research questions (Q3, Q4, and Q5), we discuss some secondary results. First, column (2) shows that, overall, quartets with a master's degree received substantially more invitations than quartets with a bachelor's

degree. This suggests that competition for workers is fiercer for jobs requiring higher levels of cognitive skills. However, this finding might also be explained by the fact that the master's versus bachelor's degrees give access to different occupations, with, potentially, other call-back probabilities. Yet another interpretation, put forward by an anonymous reviewer of a former version of the present article, is that individuals with a master's degree might signal a higher level of maturity, given their higher age (see above).

Second, candidates from a caring or technical programme received more invitations than candidates from a business programme. This might be explained by the relatively high numbers of bottleneck vacancies (with a high labour market tightness) in these occupations (Baert et al., 2015). Third, and not surprisingly, given the small differences between the CV template types, invitation rates do not substantially vary across these types. Fourth, in line with, for instance, Baert et al. (2016), invitation rates are lower for the quartet members that are sent latest.

Finally, as a robustness check, we re-estimate the models in Table 2 for an alternative dependent variable. This alternative outcome is 1 in the case of any positive response (i.e., an invitation to a job interview, the proposal of an alternative position, or a question to provide more information) and 0 otherwise. Overall, about 34% of our fictitious job applicants showed a positive response. The regression results for this alternative outcome are given in Table A2. The estimates are very similar to those of our benchmark analysis.

3.2 Substitutes or Complements?

We implicitly assumed that degree class and extra-curricular activities were perfect substitutes in our benchmark regression analysis. That is, no interactions between our main

independent variables were included. In column (4) of Table 2, we re-estimate column (3) after including such an interaction. However, this interaction turns out to be insignificant, both in statistical terms (p = 0.620; 95% CI [–0.043, 0.026]) and in economic terms (b = –0.009). The results of column (4) closely mimic the differences presented in Figure 1. For instance, the premium of both a high degree class and extra-curricular activities is 3.4 (= 2.2 + 2.1 – 0.9) percentage points, compared to the control condition of no such characteristics. This is virtually equal to the 3.3 percentage point difference mentioned when discussing Figure 1. In sum, for Q3, we cannot reject that degree class, and extra-curricular activities are perfect substitutes for generating job interviews.

Table A4 in the Online Appendix presents the results of additional analyses with alternative, independent variables. In column (1), we adopt four interactions instead of one by interacting (great) distinction with each of the four types of student leadership. No significant coefficients are found. In column (2), the relative premiums of the two high degree class types (great distinction and distinction) and the four extra-curricular activity types are investigated. Having graduated with a distinction and being a regular praesidium member are the reference categories for which the premiums are captured by the estimates of '(great) distinction' and 'student leadership.' In column (3), the four extra-curricular activities types are clustered in two categories ('student union membership' and 'praesidium membership,' irrespective of whether one had been a member as a president). In the latter model, 'praesidium membership' is the reference category, for which the estimate of 'student leadership' captures the premium.

The overall effect of high degree class and extra-curricular activities reported in Table 2 is not driven by its most prestigious categories (mentioning a great distinction or

engagement as head of the student union or engagement as head of the praesidium).[25] The premium of mentioning a distinction (b = 0.025; 95% CI [0.003, 0.047]) is insignificantly higher than that of a great distinction (b = 0.025 – 0.015). Additionally, the premium of the regular membership of the student union (b = 0.001 + 0.033) is the highest among the extra-curricular activities subcategories. Finally, as shown in column (3) of Table A4, the difference in premium between the two clustered extra-curricular activities categories is virtually 0 (b = 0.002; p = 0.887; 95% CI [–0.024, 0.028]).

At first glance, our finding that degree class and extra-curricular activities are perfect substitutes appears to challenge the idea that they signal different types of skills (cognitive versus social). Notably, our classification of perfect substitutes refers to the likelihood of an invitation for a job interview and not to the production process. In the first stage of the job interview process, employers probably assess the presence of each type of signal independently. Moreover, if the additive effect of both types of characteristics were explained by the presence of both (instead of just one of these) characteristics signalling more elevated levels of the same type of skills, one would also expect the more intensive and prestigious category of each characteristic to have a more pronounced effect. As we did not find this to be the case, we cannot exclude both types of characteristics, indeed, signal different skills.

3.3 Heterogeneous effects by candidate and vacancy characteristics

In Table 3, we address the questions on heterogeneous effects by the candidate (Q4) and vacancy characteristics (Q5). That is, we extend the specification in column (3) of Table 2

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[25] This finding is, to some extent, in line with Baert and Vujić (2018). They reported that the premium of volunteering in the Flemish labour market is homogenous by the number and type of engagements undertaken.

with interactions between our main independent variables and the observed candidate and vacancy characteristics. In columns (1)–(6), these interaction variables are included separately, and in column (7), they are adopted jointly. In what follows, we focus on the discussion of column (7).

It is important to stress that, while the estimates in bold in Table 2 can be given a causal interpretation due to our independent variables' random assignment, this is not the case for most interaction variables in Table 3. More specifically, the candidate's degree (and, therefore, the type of occupation for which (s)he applied) and the observed vacancy characteristics may correlate with unobserved vacancy characteristics that may also determine invitation rates. Consequently, except for interactions with the female gender, the coefficients of the interaction variables should be seen as associations.

The results reported in Table 3 suggest two dimensions of heterogeneity. First, in line with what was observed in Figure 1, we find weakly significant evidence that a high degree class is relatively more beneficial for female candidates ($p = 0.095$; 95% CI [–0.005, 0.062]). This contrasts with Feng and Graetz (2017), who determined a higher degree class premium for males, based on a regression discontinuity analysis of data from the United Kingdom. Second, we find a significantly higher premium of a high degree class for graduates with a master's (versus a bachelor's) degree ($p = 0.050$; 95% CI [0.000, 0.067]). This pattern is also observed in the raw experimental data (Figure A1 in the Online Appendix). Jobs requiring a master's degree are likely to be more complex. Therefore, the higher degree class premium may be explained by the fact that the value of cognitive skills increases with the job's complexity. This is less the case for the social skills signalled by extra-curricular activities. Alternatively, some employers might aim to hire graduates at the top of the cognitive skills distribution (as proxied by a master's degree combined with high scores).

Notably, we tested for a more extensive range of other heterogeneous effects. None of them was found to be statistically significant. Therefore, it is likely that the significance of the two first-mentioned interaction effects is merely accidental. Indeed, based on a standard F-test, we fail to reject the null hypothesis that all interaction effects in column (7) are zero (p = 0.689). Moreover, based on the Benjamini-Hochberg procedure, which assesses the influence of multiple testing for each effect individually, we fail to reject the null of no effect for any tested interactions.[26]

Overall, we fail to find much evidence of heterogeneity. However, an admittedly part of the explanation is the large standard errors of some of these differences (e.g., labour market tightness in the district and part-time contract). We believe this lack of evidence of considerable heterogeneity is not due to limited power. First, the interaction effects are identified based on quite high numbers of observations in each cell by candidate and vacancy characteristics. The lowest number of observations is observed for vacancies offering a temporary contract: 504 fictitious applications to 126 vacancies. Second, additional calculations reported in the Online Appendix indicate, for relatively low 'true' interaction effects, power levels ranging from 46.5% to 68.5% for a 10% significance threshold. While the risk of Type II errors is non-negligible in this case, one would nonetheless expect the detected dimensions of heterogeneity to be much more numerous.[27]

<Table 3 about here>

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[26] We standardly set the False Discovery rate (FDR) (i.e. the proportion of significant results that are false positives) at 10%. As reported in the Online Appendix, our conclusion also holds for a more elevated value of 25% for the FDR or when restricting the set of interactions to those with degree class only.

[27] Note also that these power levels would still be well above the power realised in most empirical economics studies (Ioannidis et al., 2017).

4. Conclusions

In this article, we investigated the fruitfulness of two main strategies used by students in tertiary education to distinguish themselves from their peers in view of a successful transition from education into the labour market. That is, we estimated, through a field experiment, the relative premiums of a high degree class and extra-curricular activities in terms of job interview invitation rates. More concretely, we analysed employer responses to 2,800 fictitious job applications, to which three levels of degree class (great distinction, distinction, or lesser degree) and five levels of extra-curricular activities (regular student union membership, being head of the student union, regular student club membership, being head of the student club, or no such engagement) were randomly assigned. Consequently, we complemented former contributions, based on observational and laboratory experimental data, which merely focused on one of both CV characteristics in isolation of the other.

A high degree class or extra-curricular activities turned out to increase graduate interview rates to a similar and moderate extent, both in statistical and economic terms, suggesting that both strategies are equally effective for distinguishing oneself from other graduates. Further, our results also suggested that both CV characteristics are perfect substitutes for improving interview rates and we did not find more elevated effects of more prestigious categories of degree class or extra-curricular activities. Although not entirely conclusive, we argued that these findings are consistent with the idea that employers use high degree class and extra-curricular activities as signals for distinct types of skills (cognitive versus social). Finally, we found little evidence for the effects of high degree class and extra-curricular activities being heterogeneous across candidate and vacancy characteristics.

Our findings have clear, practical implications. While both the private and social costs to obtain a tertiary education degree are substantial, increased participation rates in many countries may have eroded its signalling value. Our results show that partaking in a student club and striving for a higher degree class are equally effective strategies to cope with this problem. This is a necessary implication for students as the time spent on extra-curricular activities is likely to come at the cost of less time spent on intra-curricular activities. As well for other actors in society, like universities and educational institutions, there are implications. Our results provide arguments favouring policies that facilitate student organisations' operation and programs that support student excellence. However, a comparison of our results with those of other studies indicates that the effect of obtaining a more advanced university degree is still substantially more extensive. Therefore, policies aimed at increasing participation and reducing failure rates at universities should still be prioritised. Finally, our study also indirectly contributes to discussing the relative importance of cognitive and social skills. While we did not measure these skills directly, our results show that activities that are particularly expected to generate or signal cognitive skills may improve students' labour market outcomes in a similar way.

We end this article by acknowledging some limitations of our study. First, while we controlled all information concerning our fictitious candidates, we did not know any other potential candidates' characteristics. In particular, we did not know to what extent other candidates with a high degree class or extra-curricular activities also had candidated. The treatment effects measured for our candidates may depend on this (Baert, 2015; Heckman, 1998). However, to the extent that the vacancies tested were representative, which we believe was the case based on the random selection, our experiment shows that degree class and extra-curricular activities increase the chance of being invited to a job interview.

Second, while we benefitted from a research design that guaranteed causal measures, this came at the cost of giving up on scope. By analysing job interview invitation rates, we focused on the first stage of school-to-work transitions. Indeed, our measures cannot be translated into divergences in final job offers (let alone in wages) by degree class and extra-curricular activities. However, one could expect that increased interview rates translate into increased job offers, as being invited for a job interview is a necessary first step, and because employers are expected only to invite candidates with a substantial chance of finally getting the job (Baert et al., 2016; Bertrand & Mullainathan, 2004).

Third, but related, we only measured the premium of degree class and extra-curricular activities in terms of the transition to work success in jobs in Flanders' particular context. As the measured premiums cannot be easily generalised to other contexts, we believe we favour future studies with similar fieldwork in other contexts. However, the fact that we did not find evidence for the measured premiums to be heterogeneous by labour market tightness in the district or by the particular high degree class or extra-curricular activities mentioned may indicate that these premiums are rather context-independent.

Fourth, while our sample size is, both in terms of the number of vacancies and the number of applications, well above the sample sizes adopted in most of studies using correspondence experiments (for an overview, see Baert, 2018), we acknowledge that our sample is small compared to recent large-scale experiments involving around 10,000 applications (Kroft et al., 2013; Deming et al., 2016).

Finally, while our empirical findings are supported by the seminal theoretical frameworks discussed in Section 1, our experimental design did not allow us to disentangle which pre-existing candidate characteristics, or which aspects of acquired human capital,

were signalled in particular to the employers using degree class or extra-curricular activities. In our opinion, unravelling which signals are sent, in practice, by degree class and extra-curricular activities, thereby obtaining a more in-depth insight into why they are fruitful investments, is the logical next step to take.

References

Andrews, J., & Higson, H. (2008). Graduate employability, 'soft skills' versus 'hard' business knowledge: A European study. *Higher Education in Europe*, *33*, 411-422.

Angrist, J. D., & Pischke, J.-S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton, NJ: Princeton University Press.

Baert, S. (2015). Field Experimental Evidence on Gender Discrimination in Hiring: Biased as Heckman and Siegelman Predicted? *Economics: The Open-Access, Open-Assessment E-Journal*, *9*, 2013-25.

Baert, S. (2018). Hiring discrimination: An overview of (almost) all correspondence experiments since 2005. In M. Gaddis (Ed.), *Audit studies: Behind the scenes with theory, method, and nuance* (pp. 63-80). New York, NY: Springer.

Baert, S., & Vujić, S. (2018). Does it pay to care? Volunteering and employment opportunities. *Journal of Population Economics*, *31*, 819-836.

Baert, S., Cockx, B., Gheyle, N., & Vandamme, C. (2015). Is there less discrimination in occupations where recruitment is difficult? *ILR Review*, *68*, 467-500.

Baert, S., Rotsaert, O., Verhaest, D., & Omey, E. (2016). Student employment and later

labour market success: No evidence for higher employment chances. *Kyklos*, *69*, 401-425.

Baert, S., & Verhaest, D. (2019). Unemployment or Overeducation: Which Is a Worse Signal to Employers? *De Economist*, *167*, 1–21.

Becker, G. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, *70*, 9-49.

Benjamini, Y., & Hochberg, Y. (1995). Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing. *Journal of the Royal Statistical Society: Series B (Methodological), 57,* 289–300.

Bernardi, F. (2003). Returns to educational performance at entry into the Italian labour market. *European Sociological Review*, *19*, 25-40.

Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review*, *94*, 991-1013.

Bertrand, M., Goldin, C., & Katz, L. F. (2010). Dynamics of the gender gap for young professionals in the financial and corporate sectors. *American Economic Journal: Applied Economics*, *2*, 228-255.

Brown, B. K., & Campion, M. A. (1994). Biodata phenomenology: Recruiters' perceptions and use of biographical information in resume screening. *Journal of Applied Psychology, 79*, 897-908.

Chia Ming Y. (2005). Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting*

Education, *1*, 75-93.

Cockx, B., Picchio, M., & Baert, S. (2019). Modeling the effects of grade retention in high school. *Journal of Applied Econometrics, 34*, 403-424.

Cole, M. S., Rubin, R. S., Feild, H. S., & Giles, W. F. (2007). Recruiters' perceptions and use of applicant résumé information: Screening the recent graduate. *Applied Psychology: An International Review*, *56*, 319-343.

Darolia, R., Koedel, C., Martorell, P., Wilson, K., & Perez-Arce, F. (2015). Do employers prefer workers who attend for-profit colleges? Evidence from a field experiment. *Journal of Policy Analysis and Management*, *34*, 881-903.

Deming, D. J., Yuchtman, N., Abulafi, A., Goldin, C., & Katz, L. F. (2016). The value of postsecondary credentials in the labor market: An experimental study. *American Economic Review*, *106*, 778-806.

Derous, E., & Ryan, A. (2008). When earning is beneficial for learning: The relation of employment and leisure activities to academic outcomes. *Journal of Vocational Behavior*, *73*, 118-131.

Devaraj, S., & Babu, S. R. (2004). How to measure the relationship between training and job performance. *Communications of the ACM*, *47*, 62-67.

Di Pietro, G. (2010). The impact of degree class on the first destinations of graduates: A regression discontinuity approach. Discussion Paper No. 4836. Bonn: IZA.

Di Pietro, G. (2017). Degree classification and recent graduates' ability: Is there any signalling effect? *Journal of Education and Work*, *30*, 501-514.

Di Stasio, V. (2014). Education as a signal of trainability: Results from a vignette study with

Italian employers. *European Sociological Review*, *30*, 796-809.

Eriksson, S., & Rooth, D.-O. (2014). Do employers use unemployment as a sorting criterion when hiring? Evidence from a field experiment. *American Economic Review*, *104*, 1014-1039.

Feldman, A., & Matjasko, J. (2005). The role of school-based extracurricular activities in adolescent development: A comprehensive review in future directions. *Review of Educational Research*, *75*, 159-210.

Feng, A., & Graetz, G. (2017). A question of degree: The effects of degree class on labor market outcomes. *Economics of Education Review*, *61*, 140-161.

Freier, R., Schumann, M., & Siedler, T. (2015). The earnings return to graduating with honors - Evidence from law graduates. *Labour Economics*, *34*, 39-50.

Furnham, A., Chamorro-Premuzic, T., & McDougall, F. (2003). Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance. *Learning and Individual Differences*, *14*, 47-64.

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology, 78*, 1360-1380.

Greenland, S. (2019). Valid P-Values Behave Exactly as They Should: Some Misleading Criticisms of P-Values and Their Resolution With S-Values. *American Statistician*, *73*, 106-114.

Heckman, J. J. (1998). Detecting Discrimination. *Journal of Economic Perspectives*, *12*, 101-116.

Holm, S. (1979). A simple sequential rejective multiple test procedure. *Scandinavian Journal*

of Statistics, 6, 65-70.

Humburg, M., & van der Velden, R. (2015). Skills and the graduate recruitment process: Evidence from two discrete choice experiments. *Economics of Education Review*, *49*, 24-41.

Imose, R., & Barber, L. K. (2015). Using undergraduate grade point average as a selection tool: A synthesis of the literature. *Psychologist-Manager Journal*, *18*, 1-11.

Ioannidis, J. P. A., Stanley, T. D., & Doucouliagos, H. (2017). The Power of Bias in Economics Research. *The Economic Journal*, 127, F236–F265.

Jones, E., & Jackson, J. (1990). College grades and labor-market rewards. *Journal of Human Resources*, *25*, 253-266.

Khoo, P., & Ost, B. (2018). The effect of graduating with honors on earnings. *Labour Economics*, *55*, 149-162.

Kim, J., & Bastedo, M. N. (2017). Athletics, clubs, or music? The influence of college extracurricular activities on job prestige and satisfaction. *Journal of Education and Work*, *30*, 249-269.

Klemenčič, M. (2012). Student representation in Western Europe: Introduction to the special issue. *European Journal of Higher Education*, *2*, 2-19.

Kramarz, F., & Skans, O. N. (2014). When strong ties are strong: Networks and youth labour market entry. *Review of Economic Studies*, *81*, 1164-1200.

Kroft, K., Lange, F., & Notowidigdo, M. J. (2013). Duration dependence and labour market conditions: Evidence from a field experiment. *Quarterly Journal of Economics*, *128*, 1123-1167.

Kuhn, P., & Weinberger, C. (2005). Leadership skills and wages. *Journal of Labor Economics*, *23*, 395-436.

Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2004). Academic performance, career potential, creativity, and job performance: Can one construct predict them all? *Journal of Personality and Social Psychology*, *86*, 148-161.

Lange, F. (2007). The speed of employer learning. *Journal of Labor Economics*, *25*, 1-35.

Lau, H.-H., Hsu, H.-Y., Acosta, S., & Hsu, T.-L. (2014). Impact of participation in extra-curricular activities during college on graduate employability: An empirical study of graduates of Taiwanese business schools. *Educational Studies*, *40*, 26-47.

Lievens, F., & Sackett, P. R. (2012). The validity of interpersonal skills assessment via situational judgment tests for predicting academic success and job performance. *Journal of Applied Psychology*, *97*, 460-468.

Lindqvist, E., & Vestman, R. (2011). The labor market returns to cognitive and noncognitive ability: Evidence from the Swedish enlistment. *American Economic Journal: Applied Economics*, *3*, 101-128.

Lleras, C. (2008). Do skills and behaviors in high school matter? The contribution of noncognitive factors in explaining differences in educational attainment and earnings. *Social Science Research*, *37*, 888-902.

Lundin, M., Skans, O. N., Nordström, O., & Zetterberg, P. (2018). Leadership experiences, labor market entry, and early career trajectories. Discussion Papers No. 11434. Bonn: IZA.

Mahoney, J., Cairns, B., & Farmer, T. (2003). Promoting interpersonal competence and

educational success through extracurricular activity participation. *Journal of Educational Psychology*, *95*, 409-418.

Marsh, H. W. (1992). Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology*, *84*, 553-562.

McKinney, A. P., Carlson, K. D., Mecham, R. L., D'Angelo, N. C., & Connerley, M. L. (2003). Recruiters' use of GPA in initial screening decisions: Higher GPAs don't always make the cut. *Personnel Psychology*, *56*, 823-845.

Merino, R. (2007). Pathways from school to work: Can the competences acquired in leisure activities improve the construction of pathways? *Journal of Education and Work*, *2*, 139-159.

Naylor, R., Smith, J., & Telhaj, S. (2016). Graduate returns, degree class premia and higher education expansion in the UK. *Oxford Economic Papers*, *68*, 525-545.

Nemanick, R., & Clark, E. (2002). The differential effects of extracurricular activities on attribution in résumé evaluation. *International Journal of Selection and Assessment*, *10*, 206-217.

Neumark, D. (2018). Experimental research on labor market discrimination. *Journal of Economic Literature*, *56*, 799-866.

Nuijten, M. P. J., Poell, R. F., & Alfes, K. (2017). Extracurricular activities of Dutch university students and their effect on employment opportunities as perceived by both students and organizations. *International Journal of Selection and Assessment*, *25*, 360-370.

Nunley, J. M., Pugh, A., Romero, N., & Seals, R. A. (2016). College major, internship

experience, and employment opportunities. Estimates from a résumé audit. *Labour Economics*, *38*, 37-46.

OECD (2017). *Education at a glance 2017*. Paris: OECD.

Oreopoulos, P. (2011). Why do skilled immigrants struggle in the labor market? A field experiment with six thousand resumes. *American Economic Journal: Economic Policy*, *3*, 148-171.

Pinto, L. H., & Ramalheira, D. C. (2017). Perceived employability of business graduates: The effect of academic performance and extracurricular activities. *Journal of Vocational Behavior*, *99*, 165-178.

Protsch, P., & Solga, H. (2015). How employers use signals of cognitive and noncognitive skills at labour market entry: Insights from field experiments. *European Sociological Review*, *31*, 521-532.

Riach, P. A., & Rich, J. (2004). Deceptive field experiments of discrimination: Are they ethical? *Kyklos*, *57*, 457-470.

Roth, P. L., & Bobko, P. (2000). College grade point average as a personnel selection device: Ethnic group differences and potential adverse impact. *Journal of Applied Psychology*, *85*, 399-406.

Roulin, N., & Bangerter, A. (2013). Students' use of extra-curricular activities for positional advantage in competitive job markets. *Journal of Education and Work*, *26*, 21-47.

Rubin, R. S., Bommer, W. H., & Baldwin, T. T. (2002). Using extracurricular activity as an indicator of interpersonal skill: Prudent evaluation of recruiting malpractice? *Human Resource Management*, *41*, 441-454.

Rynes, S. L., Orlitzky, M. O., & Bretz, R. D. Jr. (1997). Experienced hiring versus college recruiting: Practices and emerging trends. *Personnel Psychology*, *50*, 309-339.

Shannon, C. E. (1948). A mathematical theory of communication. *Bell System Technical Journal*, 27, 379-423.

Shulruf, B., Tumen, S., & Tolley, H. (2008). Extracurricular activities in school, do they matter? *Children and Youth Services Review*, *30*, 418-426.

Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, *87*, 355-374.

Stiglitz, J. E. (1975). The theory of 'screening,' education, and the distribution of income. *American Economic Review*, *65*, 283-300.

Tchibozo, G. (2007). Extra-curricular activity and the transition from higher education to work: A survey of graduates in the United Kingdom. *Higher Education Quarterly*, *61*, 37-56.

Thompson, L. J., Clark, G., Walker, M., & Whyatt, J. D. (2013). It's just like an extra string to your bow: Exploring higher education students' perceptions and experiences of extra-curricular activity and employability. *Active Learning in Higher Education*, *14*, 135-147.

Thoms, P., McMasters, R., Roberts, M. R., & Dombkowski, D. A. (1999). Resume characteristics as predictors of an invitation to interview. *Journal of Business and Psychology*, *13*, 339-356.

Van Belle, E., Di Stasio, V., Caers, R., De Couck, M., & Baert, S. (2018). Why are employers put off by long spells of unemployment? *European Sociological Review*, *34*, 694-710.

van Ophem, J. C. M., & Chin, J. (2017). Extra-curricular educational activities: Do they pay off? Unpublished manuscript.

Velasco, M. S. (2012). More than just good grades: Candidates' perceptions about the skills and attributes employers seek in new graduates. *Journal of Business Economics and Management*, *13*, 499-517.

Verhaest, D., Bogaert, E., Dereymaeker, J., Mestdagh, L., & Baert, S. (2018). Do employers prefer overqualified graduates? A field experiment. *Industrial Relations: A Journal of Economy and Society*, *57*, 361-388.

Walker, I., & Zhu, Y. (2011). Differences by degree: Evidence of the net financial rates of return to undergraduate study for England and Wales. *Economics of Education Review*, *30*, 1177-1186.

Figure 1. Invitation rates by experimental condition and gender

All applicants (N = 2,800): Control 25.3%, (Great) distinction but no student leadership 27.4%, Student leadership but no (great) distinction 27.4%, (Great) distinction and student leadership 28.6%

Male applicants (N = 1,400): Control 25.7%, (Great) distinction but no student leadership 25.7%, Student leadership but no (great) distinction 26.9%, (Great) distinction and student leadership 27.4%

Female applicants (N = 1,400): Control 24.9%, (Great) distinction but no student leadership 29.1%, Student leadership but no (great) distinction 28.0%, (Great) distinction and student leadership 29.7%

☐ Control   ☐ (Great) distinction but no student leadership
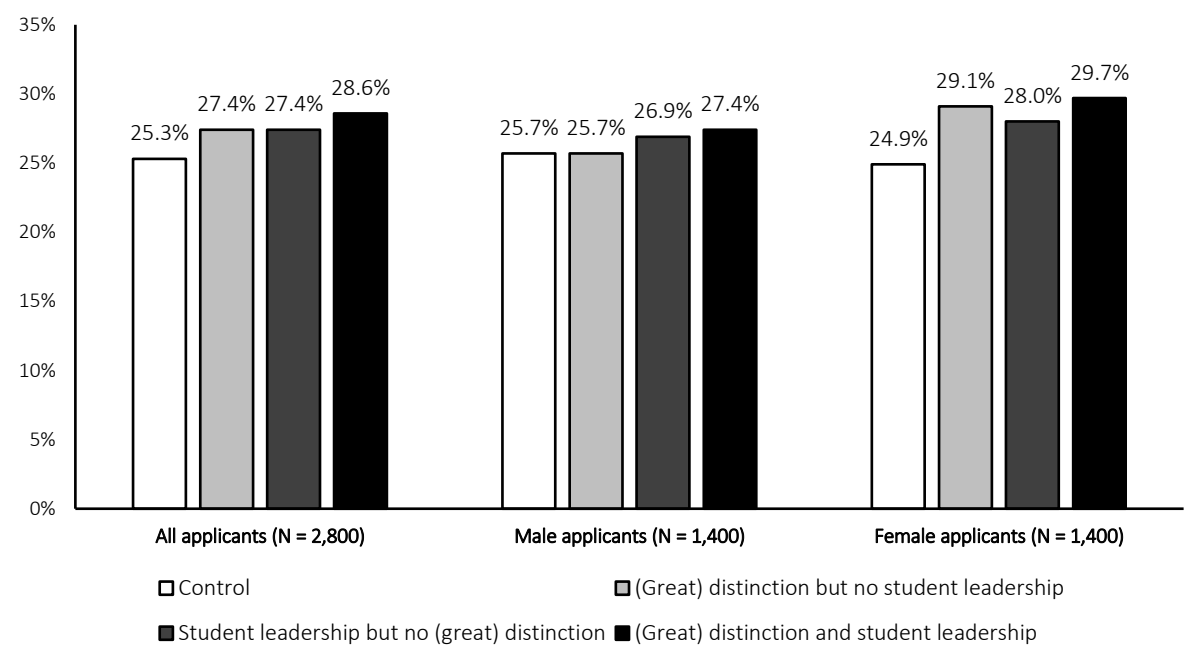■ Student leadership but no (great) distinction   ■ (Great) distinction and student leadership

Table 1. Invitation rates and ratios by experimental condition, gender, and degree level

	Invitation rates				Invitation ratios					
	Control (1)	(Great) distinction but no student leadership (2)	Student leadership but no (great) distinction (3)	(Great) distinction and student leadership (4)	(2)/(1)	(3)/(1)	(4)/(1)	(3)/(2)	(4)/(2)	(4)/(3)
All applicants	0.253	0.274	0.274	0.286	1.085*	1.085*	1.130***	1.000	1.042	1.042
Male applicants	0.257	0.257	0.269	0.274	1.000	1.044	1.067	1.044	1.067	1.021
Female applicants	0.249	0.291	0.280	0.297	1.172**	1.126*	1.195***	0.961	1.020	1.061
Applicants with bachelor's degree	0.228	0.238	0.258	0.253	1.044	1.132*	1.110	1.084	1.063	0.981
Applicants with master's degree	0.287	0.323	0.297	0.330	1.128*	1.035	1.151**	0.918	1.021	1.112*

Notes. '(Great) distinction' means that the fictitious candidate has a distinction or great distinction degree class. McNemar's chi-square tests are conducted to test whether the invitation rates are significantly different. *** (**) ((*)) indicate significance at the 1% (5%) ((10%)) level.

Table 2. Effect of degree class and extra-curricular activities on the probability of a job interview invitation: Benchmark regression analysis

	(1)	(2)	(3)	(4)
(Great) distinction	**0.016* (0.009)**	**0.018** (0.009)**	**0.018** (0.009)**	**0.022* (0.012)**
Student leadership	**0.016* (0.009)**	**0.016* (0.009)**	**0.016* (0.009)**	**0.021* (0.012)**
(Great) distinction and student leadership				**−0.009 (0.018)**
Female		0.016 (0.029)		
Master's degree		0.061** (0.030)		
Caring programme		0.189*** (0.041)		
Technical programme		0.081** (0.036)		
Vacancy: temporary contract		−0.070* (0.041)		
Vacancy: part-time contract		0.071 (0.045)		
Vacancy: labour market tightness in district		−0.053 (0.213)		
CV type A		−0.015 (0.012)	−0.015 (0.012)	−0.016 (0.012)
CV type B		−0.010 (0.013)	−0.010 (0.013)	−0.010 (0.013)
CV type C		0.001 (0.013)	0.001 (0.013)	0.000 (0.013)
First sent application		0.039*** (0.014)	0.039*** (0.014)	0.039*** (0.014)
Second sent application		0.032*** (0.012)	0.032*** (0.012)	0.032*** (0.012)
Third sent application		0.008 (0.012)	0.008 (0.012)	0.008 (0.013)
Intercept	0.255*** (0.016)	0.123** (0.051)	0.241*** (0.013)	0.239*** (0.014)
Fixed effects at vacancy level	No	No	Yes	Yes
N	2,800	2,800	2,800	2,800

Notes. See Section 2 for a description of the included variables. '(Great) distinction' means that the fictitious candidate has a distinction or great distinction degree class. The presented statistics are linear probability model estimates (in bold for the independent variables) and robust standard errors (clustered at the vacancy level and in parentheses). The dependent variable is being invited to a job interview. Control variables that are constant at the vacancy level are saturated after including vacancy fixed effects. *** (**) ((*)) indicate significance at the 1% (5%) ((10%)) level.

Table 3. Effect of degree class and extra-curricular activities on the probability of a job interview invitation: Regression analysis with heterogeneous effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(Great) distinction	0.004 (0.012)	0.004 (0.011)	0.032*** (0.012)	0.019** (0.009)	0.026*** (0.010)	0.019 (0.027)	0.011 (0.033)
(Great) distinction × Female	0.029* (0.017)						0.029* (0.017)
(Great) distinction × Master's degree		0.032* (0.017)					0.033** (0.017)
(Great) distinction × Caring programme			−0.033 (0.021)				−0.021 (0.025)
(Great) distinction × Technical programme			−0.007 (0.020)				−0.012 (0.020)
(Great) distinction × Vacancy: temporary contract				−0.007 (0.023)			0.009 (0.024)
(Great) distinction × Vacancy: part-time contract					−0.036* (0.021)		−0.030 (0.026)
(Great) distinction × Vacancy: labour market tightness in district						−0.005 (0.131)	−0.026 (0.130)
Student leadership	0.015 (0.013)	0.022* (0.011)	0.020 (0.013)	0.016 (0.010)	0.016 (0.010)	−0.004 (0.029)	0.001 (0.034)
Student leadership × Female	0.003 (0.018)						0.003 (0.018)
Student leadership × Master's degree		−0.012 (0.018)					−0.012 (0.019)
Student leadership × Caring programme			−0.003 (0.020)				−0.003 (0.026)
Student leadership × Technical programme			−0.009 (0.022)				−0.007 (0.022)
Student leadership × Vacancy: temporary contract				0.002 (0.023)			0.000 (0.024)
Student leadership × Vacancy: part-time contract					0.004 (0.022)		0.005 (0.028)
Student leadership × Vacancy: labour market tightness in district						0.104 (0.148)	0.107 (0.148)
Intercept	0.241*** (0.013)	0.241*** (0.013)	0.241²** (0.013)	0.241*** (0.013)	0.241*** (0.013)	0.241*** (0.013)	0.241*** (0.013)
Controls for CV type and sending order	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects at vacancy level	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,800	2,800	2,800	2,800	2,800	2,800	2,800

Notes. See Section 2 for a description of the included variables. '(Great) distinction' means that the fictitious candidate has a distinction or great distinction degree class. The presented statistics are linear probability model estimates (in bold for the independent variables) and robust standard errors (clustered at the vacancy level and in parentheses). The dependent variable is being invited to a job interview. Control variables that are constant at the vacancy level are saturated after including vacancy fixed effects. *** (**) ((*)) indicate significance at the 1% (5%) ((10%)) level. The magnitude of the coefficient on student leadership changes dramatically in column (6). This is because our measure of labour market tightness is continuous. More concretely, as mentioned in section 2.2, it ranges from 0.050 to 0.361. After including this interaction term, the variable 'Student leadership' captures the effect of leadership in the non-existing hypothetical situation where this variable is 0.