

Job preferences of business and economics students

Job preferences

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Abstract

Purpose – The purpose of this paper is to elicit young economists' job preferences through the use of a choice experiment (CE).

Design/methodology/approach – A CE conducted at a total of five universities in Spain, the Czech Republic and Germany. After estimating a random parameter logit model, the monetary value of the willingness to accept a specific job attribute is simulated.

Findings – The most important job characteristic, consistent across countries and universities, is a long-term career prospect at the company.

Originality/value – This is the first CE conducted on business and economics students' job preferences in three European countries. Using the same survey instrument allows for the comparison of students' job preferences across countries and also between private and public universities.

Keywords Employment, Choice experiment, Random parameter logit, Students' job preferences

Paper type Research paper

1. Introduction

Knowing job preferences of young job seekers can help companies to better understand the attributes that are significant for them. This becomes particularly important when the level of income is not the only or even the most important job attribute that counts. To attract suitable employees, companies might have to offer other, non-monetary job attributes to attract candidates that would fit the position and also the company, especially when companies are interested in medium- to long-term employees.

So far, simple forms of ranking and rating approaches have mainly been used to elicit students' preferences for their future jobs. These approaches, however, have some limitations. First of all, when job applicants look for jobs, they, generally, look at the whole combination of attributes that comes with the job, perhaps unknowingly evaluating each attribute individually. Thus, listing attributes and asking students to rank the importance of each one independently might not result in an accurate reflection of their true preferences in these situations. Second of all, simply listing the attribute, such as "the nature of work" or "job complexity" is very subjective. Telling companies that students think either of these two attributes is important does not properly quantify students' preferences.

Choice experiments (CEs) have been increasingly used to elicit individual preferences for different goods and services, varying from transportation, marketing to health as well as environmental quality. In general, respondents are asked to choose from a number of mutually exclusive, designed alternatives, e.g., different jobs, the alternative that they prefer the most. This way, they express their preferences simultaneously for the set of attributes that are used to describe the alternatives, a closer representation of the actual choice process, and are less prone to socially desirable answers, for example, that salary is not that important. Additionally, since a CE forces people to make trade-offs, substituting more of one good and choosing less of another good, it reveals how people value these



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goods (Freeman III, 2003). Furthermore, if one of the characteristics in the CE is a monetary attribute, the wages offered for each job, in our case, for example, then it is possible to express the preferences stated by respondents in wage differences between job alternatives. Finally, presenting the job characteristics in such a way, as opposed to individually, is likely to enhance respondent engagement and thus the reliability of the responses (Hainmueller *et al.*, 2015).

This study is, to the best of our knowledge, the first CE on job preferences of students conducted in different European countries. Therefore, it allows for cross-country comparisons. Specifically, the CE was carried out at public and private universities in Spain, the Czech Republic and Germany. These countries differ in cultures and in terms of labour market conditions, Spain has a very high unemployment rate of 20.1 per cent (OECD, 2016), while Germany and the Czech Republic have very low unemployment rates at 4.3 and 4.1 per cent (OECD, 2016), respectively. We find two differences in students' preferences, one due to cultural differences and another due to economic differences. First of all, commuting time is only important to students from the Spanish universities, most likely due to the close familial relationships inherent to the Spanish culture, as well as the lower willingness to change their place of residence. Second of all, we find a higher preference for a permanent contract in Spain, given the very high unemployment rate. Another interesting finding indicates that students from private universities prefer modern companies, depicted by a horizontal structured work environment. This outcome does not seem to depend on the country as the same effect is observed in Germany and Spain.

The results from these types of studies could benefit various companies differently. For example, large companies that are able to offer new employees various opportunities, such as training programmes, can use the results of the study to offer new employees the non-salary benefits they prefer since they have more resources to do so. Smaller companies that do not have these resources, on the other hand, can find the amount of money, from the survey results, new employees would have to be offered as compensation for not being able to offer these non-monetary benefits.

The rest of the paper is organised as follows. Section 2 reviews the literature, then, Section 3 presents the methodology. Section 4 contains the results, and finally, Section 5 presents the conclusion and discussion.

2. Literature review

Most of the studies in the literature have been conducted in the business and accounting fields and are not very quantitative. Main methodologies used to analyse students' job preferences have been ranking or rating job attributes. Ranking refers to arranging various job characteristics, or attributes, in order of preference, while the rating method asks respondents to evaluate attributes independently, by claiming if the attribute is important to them, or not.

First, focussing on ranking methods, Iacovou *et al.* (2011) analysed job preferences of undergraduate business and MBA students at a public university in the USA. They found that growth potential was the most important attribute for the students, followed by a benefits package, job responsibility, job variety or complexity and work flexibility. Turban *et al.* (1993) also used the ranking method, analysing preferences of chemical engineering students. The most important attribute found was the type of work, followed by advancement opportunities.

Rating methods are more common than ranking in the literature. Bundy and Norris (1992) studied the job preferences of upper-level accounting students. The most important attribute was job security, followed by if it is challenging and interesting work, advancement potential, employer-paid health insurance and the personalities of supervisors and co-workers. Similarly, Phillips *et al.* (1994) used a seven-point Likert scale on the importance of 23 job

attributes for students and found that the opportunity for advancement, job security and a good retirement plan were the three most important attributes. **Job preferences**

Studies on job preferences have also been conducted outside of English-speaking countries. Chan and Ho (2000) conducted a study in Hong Kong, where final year accounting students rated 30 job attributes on a scale from 1 to 5. The office atmosphere, friendliness of staff and the opportunity for advancement were found to be the three most important attributes. Lim and Soon (2006) researched job preferences of final year economics students in Malaysia. Students were asked to rate seven job selection criteria from 1, "not prefer", to 9, "prefer most". Long-term career prospect was found to be the most important job selection criterion. Job security was the second most important, followed by working environment and only then, salary.

Rating or ranking methods might not provide us with the most accurate results. As was mentioned earlier, considering attributes individually rather than in combination with other attributes, like they would see in the real world, might elicit different preferences. Butler *et al.* (2000) tested just that, asking whether students and recruiters have good self-insight. They used two methods to estimate the preferences of students' job attributes, first, respondents were asked to rate attributes individually and second, they were asked to rate job opportunities, which grouped all attributes together, assigning a level to each attribute. Their results showed that the difference in importance in the two methods was statistically significant, indicating that students are not good judges of what attributes they find important when considering them individually.

Wiswall and Zafar (2017) used a ranking method in which students did not have to think about the attributes individually. Students were asked to rank three hypothetical jobs at a time, grouping different attributes together for each job. They found that, in general, students have a dis-taste for higher job dismissal potential and preferred jobs that had the option of working part-time.

A CE to elicit students' job preferences is a methodology that is more comprehensive than simple rating or ranking methods. Usually applied in the fields of health (Morgan *et al.*, 2017; Veldwijk *et al.*, 2017; Mühlbacher *et al.*, 2017), transportation (Bahamonde-Birke *et al.*, 2017; Higgins *et al.*, 2017), marketing (Farsky *et al.*, 2017; Mahadevan and Chang, 2017; Confraria *et al.*, 2017) and environmental economics (Tait *et al.*, 2017; Chaikaew *et al.*, 2017; Nordén *et al.*, 2017), it is easily extended to the study of job preferences. This methodology takes into account the multidimensional nature of choosing between different job offers. The CE, in our case, allows us to portray hypothetical jobs in terms of specific levels of attributes, similar to a real-world scenario. Each student chooses one out of three hypothetical job alternatives ten times, allowing us to estimate his/her preferences with respect to the offered attributes.

With respect to students, CEs have been conducted regarding enrolment, for example, how students choose a degree (Sheppard and Smith, 2016), training posts (Cleland *et al.*, 2017) or higher education institutions (McManus *et al.*, 2017; Walsh *et al.*, 2017), among others (Goto and Kakihara, 2016; Greenacre *et al.*, 2014). CEs on in-class student preferences have also been carried out, namely, preferences for assignment systems (Flannery *et al.*, 2013), streaming video lectures (Flores and Savage, 2007), the redesign of the programme (Cunningham *et al.*, 2006) and module design (Meginnis and Campbell, 2017).

Montgomery and Ramus (2011) used a partial profile approach as every respondent did not see the same combination of attributes and their corresponding levels. Students from eight business schools in North America and three business schools in Europe chose between computer-generated sets of choices of job attributes, either two or three at a time. They found that intellectual challenge is the most important attribute, approximately 25 per cent greater than the financial package.

An interesting application of CEs, and very related to our case, is described in the study of Eriksson and Kristensen (2014). They estimate individuals' willingness to pay (WTP) for

fringe benefits and job amenities. Their conclusions support a key notion in the economic analysis of employment relationships, that non-monetary job attributes can be monetized. This is an important finding as it implies that models of incentives and pay can be applied also to non-monetary rewards like benefits and job amenities. They, however, do not focus on students but on Danish respondents within the age range of 25–64 who were likely to hold jobs and to receive job offers where remuneration potentially included fringe benefits and other non-monetary rewards.

To the best of our knowledge, only two CEs have been conducted on students' job preferences, both study how to attract health professionals to rural or remote areas. Blaauw *et al.* (2010) examined the factors that attract nursing students to certain positions in Kenya, South Africa and Thailand, while Efendi *et al.* (2016) studied job preferences of Indonesian health students to better recruit them to serve in remote areas. In the first study, each student had to choose between two labelled options: a rural job or an urban job. Seven attributes were included for each hypothetical job alternative: salary, type of facility, training opportunities, housing facilities, speed of promotion, additional benefits and workplace culture. They found that preferences varied between the three countries. In Kenya and South Africa, rural allowances and specialist training had the biggest impact, while in Thailand, better health insurance coverage would attract nurses to rural jobs. Efendi *et al.*'s (2016) CE also had two hypothetical job alternatives, although unlabelled, and included similar attributes: the quality of facility, housing, length of commitment, study assistance, salary and management. Results varied for the type of student. Medical students considered receiving study assistance as the most important, nursing students preferred a higher salary the most, and midwifery students gave the highest preference to advanced quality facilities. There are other studies conducted in the health field that have focussed on job preferences using CE's, but not among students (Hanson and Jack, 2010; Kolstad, 2011; Mangham and Hanson, 2008; Scott, 2001; Scott *et al.*, 2007; Ubach *et al.*, 2003; Wordsworth *et al.*, 2004).

3. Methodology

3.1 CE's: an introduction

There are three main stages to conducting a CE. The first stage is known as the survey design and consists of: characterizing a decision problem (e.g. what job characteristics do people prefer when applying for a job); defining attributes and their levels; setting the experimental design, that is, defining the utility functions used to measure preferences for the specific decision problem and generating the choice questions using a computer software; developing the questionnaire; and deciding on the correct sampling strategy and data collection mode. The second stage involves the econometric analysis of the choice data to determine the preferences of the individuals. Finally, the third stage focusses on policy analysis, obtaining welfare measures based on the second stage, usually in terms of the WTP or the willingness to accept (WTA).

3.2 Design of the CE

The objective was to mimic the decision young people make when entering the labour market, as closely as possible. That is, to choose a hypothetical job based on job attributes a person would normally be aware of *ex ante*. The attribute-based research began by analysing which job characteristics students found to be important in previous literature and through focus groups. A focus group of 15 people was conducted where students, teachers and administrators were invited to participate. Fourth year students made up the majority of the focus group, with a total of 10 (two from the University of Oviedo; three from Deusto Business School; and the rest from the University of the Basque Country, UPV/EHU), and were from various majors. Four professors attended, from both undergraduate and postgraduate levels,

along with one employee from the University of the Basque Employment Centre. The objective of this focus group was to make sure that all relevant job attributes were included. The participants of the focus group were asked to rank the importance of preliminarily chosen attributes from 1 to 5, and if there were any other attributes to be considered. Similarly, a focus group was conducted at the International School of Management in Germany, and at the University of Economics, Prague.

After conducting the focus group and determining which attributes are the most important, it is necessary to consider the number of attributes to be included in the CE. This is important since there is a trade-off between the number of attributes and the complexity of the design, that is to say, the more attributes included in the CE, the more difficulty the respondents will have answering the choice questions.

The chosen attributes were: gross salary, the total salary offered, in local currency, before tax; commuting time, the amount of time required to travel one-way from the respondent's home to their work, represented by four different lengths of time given in minutes; long-term career prospect at the company, the possibility to advance or grow at the company through promotions, represented by a simple yes/no option; education opportunity offered by the company (a masters), the tuition of an MBA covered by the company, also given as a yes/no option; type of contract, portraying the difficulty or ease of getting fired or not re-hired, represented as a temporary or permanent contract; work environment, in terms of relationships with co-workers and supervisors, as well as the organisational structure, represented as an old-fashioned company with a vertical structure, a dynamic company with a horizontal structure, or a mix of the two; and flexible schedule, indicating if one has the power to change, or at least modify their own schedule, given as a yes/no option. The choice card included pictures for every attribute level to facilitate the choice task understanding. Figure 1 presents these pictures together with the definition of each attribute, and Figure 2 presents the levels of each corresponding attribute. All these attributes were presented in three different hypothetical job alternatives.

Figure 3 presents the salary levels for each country, based on typical salary ranges of young people entering the labour market (Destatis, 2014; INE, 2014; Servulo, 2016;








Attributes		Descriptions
Gross Salary		The total salary offered before tax
Commuting Time		The amount of time required to travel one-way from home to work; transportation type is unspecified
Long-Term Career Prospect At The Company		The possibility to grow at the company through promotion opportunities
Education Opportunity At The Company (MBA)		The tuition of an MBA paid for by the company
Type of Contract		Permanent/temporary contract; difficult/easy to get fired (or not re-hired)
Work Environment		Relationships with co-workers and supervisors, and organisational structure
Flexible Schedule		To have the power to change, or at least modify, your schedule

Figure 1.
Attributes and their descriptions

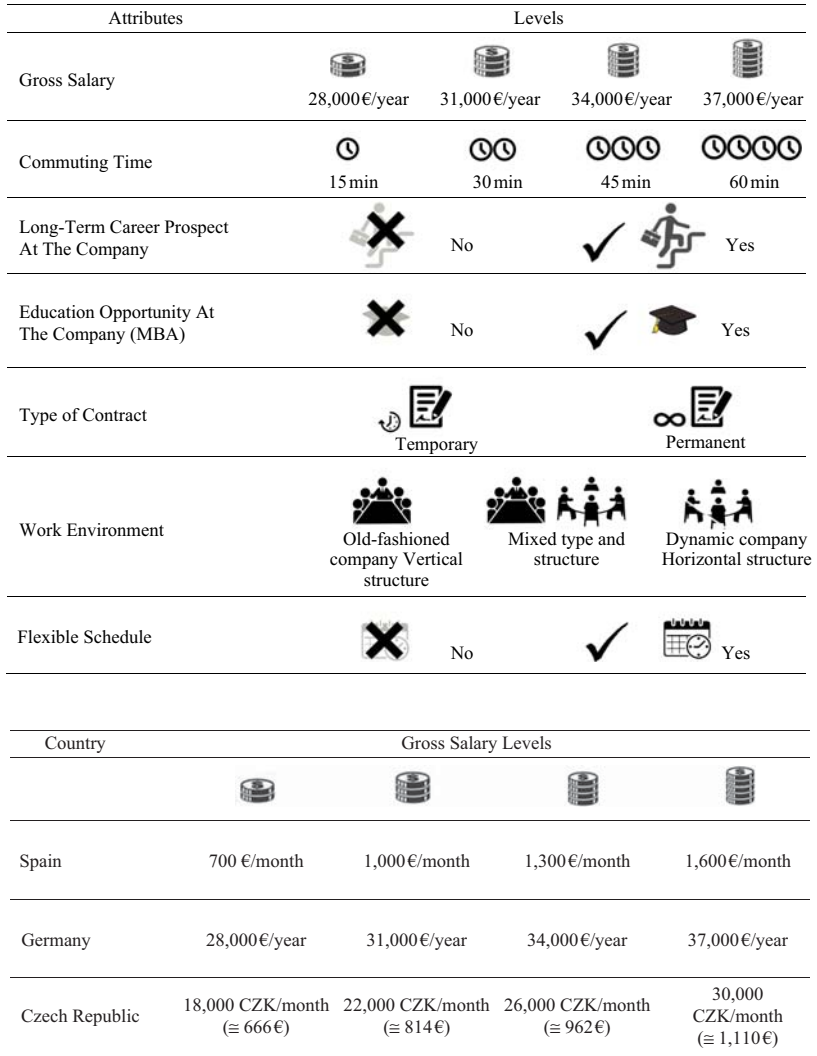


Figure 2.
Attributes and their levels

Figure 3.
Salary levels by country

Vlková, 2016). For Germany, the gross salary was represented annually, since that is more common, and in the Czech Republic, the salary was given in Czech Crowns, the local currency.

The seven attributes and their levels result in a large number of combinations ($4^2 \times 2^4 \times 3^1$) impeding a full factorial design. Thus, a subset of the full factorial was created using a D-efficient design for random parameter models such that the design did not have any dominant alternatives. That is to say, the experimental designs were checked to ensure that none of the alternatives were strictly better than the other two, meaning that each alternative had to have at least one attribute offering better conditions than the other two alternatives. The final design was obtained using Ngene (Rose and Bliemer, 2013) and comprised of 30 rows, blocked into three blocks as the number of choice occasions per individual was set to 10. The order of the choice cards was also randomly changed to avoid an order effect, with a total of six versions of each block. Figure 4 shows a sample choice






















	Alternative A	Alternative B	Alternative C
Gross Salary	 31,000€/year	 34,000€/year	 31,000€/year
Commuting Time	 45 min	 60 min	 30 min
Long-Term Career Prospect at the Company	 Yes	 No	 No
Education Opportunity at the Company	 Yes	 No	 Yes
Type of Contract	 Temporary	 Permanent	 Permanent
Work Environment	 Old-Fashioned Company Vertical Structure	 Mixed Type and Structure	 Old-Fashioned Company Vertical Structure
Flexible Schedule	 No	 Yes	 Yes
I Choose:	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>

Figure 4.
Sample choice task

card used in the questionnaire. The CE in our case describes three hypothetical unlabelled job alternatives characterised by the attributes described above. Alternative-specific constants (ASC) were included for two of the three alternatives, representing unobserved sources of utility. No opt-out alternative was offered because we assumed that all students at these universities will attempt to get a job once they finish their studies. Since students in many countries are not in a position to reject jobs offered, especially at the start of their career after university, choosing among a limited number of job alternatives is realistic. Thus, our experimental design mirrors the job market situation.

The final questionnaire contained four parts overall: the objective of the questionnaire, a description of the task students had to perform, the choice tasks, and lastly, some socio-demographic questions. A pilot survey was conducted at the University of the Basque Country (UPV/EHU) in Bilbao in February 2016 with 33 individuals, and showed that the survey was not too long or too difficult to understand. After making minor changes to the wording, the final survey was conducted between February and April 2016.

3.3 Sampling and data collection

The interviews were conducted among third or fourth year students at the end of class. The instructions were explained to them and all students' questions were attended to.

Classes were randomly chosen using a simple random sampling, where each class had an equal likelihood of being selected for the sample.

Data were collected at five universities. The University of the Basque Country (UPV/EHU) is a public university with various campuses in the Basque Country, Spain. The CE was conducted within the Faculty of Economics and Business at the Sarriko campus in Bilbao, a city of population 350,000 (950,000 metropolitan area). The Faculty on the Sarriko campus offers six degrees: Business Administration, Economics, Finance and Insurance, Taxation and Public Administration, Marketing, and a double degree in Business Administration and Law. The annual tuition fee for each degree is approximately €1,000. The Faculty of Economy and Business at the Sarriko campus has approximately 2,500 students in total. Classes are offered in Spanish, Basque or English.

Deusto Business School, also in the Basque Country, Spain, is part of a private university called Deusto University. Our CE was conducted within the Deusto Business School on the Deusto campus in Bilbao. The Business School on this campus offers four double degrees: Business Administration and Industrial Technology Engineering, Business Administration and Law, Business Administration with a Specialisation in Finance, and Business Administration and Management in Digital Environments. The annual tuition fee is between €9,000 and €10,000. The Deusto campus of the Deusto Business School has approximately 1,300 students in total. Classes are offered in Spanish, Basque or English.

The University of Oviedo is a public university in the province of Asturias in Spain. Our surveys were conducted at the Faculty of Economy and Business at the campus in Oviedo, a city of population 220,000. The Faculty on the Oviedo campus, with approximately 2,400 students, offers five degrees: Business Administration, Economics, Finance and Insurance, Human Resources and Labour Relations, and a double degree in Business Administration and Law. The annual tuition fee for each degree is approximately €1,000, and classes are offered in Spanish or English.

The University of Economics, Prague is a public university in Prague, Czech Republic. The CE was conducted at the main campus in Prague, a city of population 1,260,000 (2,150,000 metropolitan area); the University also has a smaller campus in another part of Prague, and a smaller campus in another Czech city. The University has 25 bachelor degrees offered by six faculties: the Faculty of Finance and Accounting, the Faculty of International Relations, the Faculty of Business Administration, the Faculty of Informatics and Statistics, the Faculty of Economics and the Faculty of Management. Classes are offered in Czech and the tuition is free, but students can request degrees to be taught in other languages, such as Russian or English, which cost approximately €3,500 per year, representing approximately 2 per cent of the total students (15,000).

The International School of Management is a private university in Germany, with campuses in Dortmund, Frankfurt, Munich, Hamburg, Cologne and Stuttgart. The CE was conducted at the campus in Dortmund, a city of population 580,000. The School has seven degrees: International Management, Tourism and Event Management, Marketing and Communications Management, Finance and Management, Psychology and Management, Global Brand and Fashion Management and Business Law. Classes are offered in German and English and the annual tuition is approximately €9,000 per year. There are approximately 4,000 students on the Dortmund campus.

Table AI presents the minimum number of responses and individuals needed to estimate the specific proportion of responses with a given precision level obtained following Louviere *et al.* (2000). Table AII presents the sample sizes used in the CE. Assuming that the true proportion is 0.3, a sample of 71 is needed to guarantee a precision level of 8 per cent with a 95 per cent probability, which, as can be seen from Table AII, is met by the University of the Basque Country (UPV/EHU) and the University of

Economics, Prague. The samples in Oviedo and Germany imply a precision level of 10 per cent, but unfortunately, the small Deusto Business School sample indicates a precision level of 16 per cent. Job preferences

3.4 Econometric analysis

In order to estimate students' job preferences, it is necessary to transform the individual choice responses to estimated parameters representing their preferences. This is done by the use of the random parameter logit (RPL) model, which allows for heterogeneous preferences, that is, unobserved random taste variations between people (Greene and Hensher, 2003; Train, 1998).

Including a monetary attribute, in the experimental design, allows for the calculation of WTP or WTA. Generally, in the literature, determining whether WTP or WTA should be used depends on the property rights of the good or service (Buckley *et al.*, 2009; Carson and Hanemann, 2005). If the individual does not have possession of the good, then WTP should be used, and if the person has possession of the good, then WTA should be used. Consequently, WTP is defined as the amount the individual would be willing to pay to obtain a marginal change of the good and WTA as the minimum amount the individual would be willing to accept as a result of a negative externality, or to give up for a marginal change of the good. However, our CE is slightly different in that the "service" in our case is a job, which will provide the individual with a salary, thus, changing the direction of the flow of money. Therefore, the interpretations of WTP and WTA are reversed, that is, if the respondent already has a job and is asked about a negative externality, WTP (out of the respondent's salary) would be more fitting, but if the respondent does not yet have the job, as in the present study, WTA is more appropriate.

In a classical CE setting, WTP values are typically calculated as the change in one attribute with respect to the cost (Train, 1998), or:

$$\text{WTP} = -\frac{\beta_{\text{attribute}}}{\beta_{\text{price}}}, \quad (1)$$

where $\beta_{\text{attribute}}$ is the coefficient of that corresponding attribute; and β_{price} the corresponding price coefficient in the underlying linear utility function (McFadden, 1974). However, as was mentioned earlier, in our case price is replaced by one's salary and our computed values are WTA. Since most of the job characteristics are binary coded, the interpretation of WTA is, in our case, the maximum reduction in salary the individual would accept in order to obtain a (better) job characteristic. For the WTA estimates, it is also necessary to take into account the random nature of the coefficients. For this purpose, the coefficients in (1) are simulated following Krinsky and Robb's (1986) procedure. For example, the Contract attribute is coded as 1 if permanent contract, and 0 if temporary contract. Thus, the generated WTA distribution for a permanent contract, with its parameter distribution as normal and the Salary attribute parameter as log-normal, is specified as:

$$\widehat{\text{WTA}}_C = \frac{\hat{\beta}_C + \hat{\sigma}_C \cdot v_C}{\exp(\hat{\beta}_{\text{Salary}} + \hat{\sigma}_{\text{Salary}} \cdot v_{\text{Salary}})}, \quad (2)$$

where $\hat{\beta}_C$ and $\hat{\beta}_{\text{Salary}}$ are the estimated means of the Contract and Salary random attribute parameters, respectively, $\hat{\sigma}_C$ and $\hat{\sigma}_{\text{Salary}}$ are their corresponding estimated standard deviations, and $v_C \sim N(0, 1)$ $v_{\text{Salary}} \sim N(0, 1)$.

4. Results

4.1 Basic statistics

Table I displays descriptive statistics of the sample respondents of each university. Approximately half of the participants are women, with a higher proportion at Deusto Business School (69 per cent). The mean age of the respondents is approximately 21 across all universities, with a family size of 4. The average university grades are quite similar among respondents across all universities; a 2.1 in the Czech Republic is approximately a 7 using the Spanish grading system, while the average grade among respondents in Germany is slightly higher at a 2.1 (approximately an 8). The entrance exam grades are similar between the University of the Basque Country (UPV/EHU) and the University of Oviedo, but are slightly higher at Deusto Business School and at the University of Economics, Prague (approximately an 8).

Other similarities exist between the respondents of the two public universities in Spain: the University of Oviedo and the University of the Basque Country (UPV/EHU). To begin with, they have a much lower English level in comparison to the respondents from the other three universities. The education level of both the father and the mother are lower, as are the proportions of both parents working. Finally, the household income is also lower among the respondents of these two universities in comparison to the others.

Regarding the language spoken at home, there is a mixture of languages spoken among respondents from all universities apart from the University of Oviedo, 97 per cent of whose respondents are Spanish-speaking. This was especially true for respondents from the university in Germany, with ten different languages recorded, and respondents from the university in the Czech Republic, recording seven different languages. Participants from different universities slightly differ in terms of ideology[1]; the most left-wing are respondents from the University of the Basque Country (UPV/EHU), who reported an average of 3 on the left-right ideology scale, and the most right-wing are respondents from the University of Economics, Prague, who reported an average of 7.

4.2 Estimation results

The RPL models have been estimated using Python Biogeme version 2.4 (Bierlaire, 2008). Tables AIII–AVII display the results of the RPL model for each of the universities. Each table presents the estimations of 18 parameters with their corresponding standard errors, together with the goodness of fit measures. The estimated parameters are the means of the assumed distributions (8), the estimated standard deviations (8) and the two ASC. The two alternative-specific constants (ASC2, ASC3) for Alternatives 2 and 3, respectively, were included, to allow for more flexibility of the estimated model. In an unlabelled CE, like the one in this study, the interpretation of the statistical significance of ASC2 and ASC3 is that, on average, people chose the second or third alternatives more/less often than the first. One example of this is “left-hand side” bias, where participants choose the alternative on the left-hand side more than the rest, since it is the first alternative they come across when reading left to right. All variables apart from salary and commuting time were coded as dummy variables. Specifically, long-term career is 1 if the hypothetical job includes this attribute and 0, otherwise; education and flexible schedule were coded the same way. The reference category for contract type is a temporary contract, and the reference category for both work environment variables is an old-fashioned company with a vertical structure.

The RPL models assume that the preferences differ among respondents, that is, the parameter of each individual can be different. This is achieved by assuming a distribution for each parameter; in our models, two random parameters are assumed to have a log-normal distribution (salary, commuting time), and the rest of the random parameters are assumed to have a normal distribution. As the log-normal distribution leads to only positive values, the sign for the commuting time parameter was reversed as a higher commuting

Variable	University of the Basque Country (UPV/EHU) 132			Deusto Business School 18			University of Oviedo 60			University of Economics, Prague 91			International School of Management 49		
	Mean	SD	Min; Max	Mean	SD	Min; Max	Mean	SD	Min; Max	Mean	SD	Min; Max	Mean	SD	Min; Max
Number of respondents	0.52	0.50	(0; 1)	0.69	0.46	(0; 1)	0.43	0.50	(0; 1)	0.40	0.49	(0; 1)	0.63	0.48	(0; 1)
Age	21.61	2.94	(19; 40)	21.50	0.71	(21; 23)	21.97	1.85	(20; 28)	21.14	1.31	(19; 25)	20.78	1.88	(18; 26)
University grade ^a	6.83	0.80	(5; 9.55)	7.30	0.56	(6.5; 8.5)	6.68	0.84	(5; 9)	2.09	0.38	(1.16; 3)	2.11	0.53	(1; 3.3)
Entrance exam grade ^b	0.70	0.11	(0.44; 0.98)	0.81	0.07	(0.71; 0.96)	0.73	0.12	(0.43; 1)	1.59	0.48	(1; 2.75)	na	na	na
High English level ^c (1 = yes)	0.08	0.27	(0; 1)	0.94	0.24	(0; 1)	0.12	0.32	(0; 1)	0.51	0.50	(0; 1)	0.67	0.47	(0; 1)
Father's Educ: primary (1 = yes)	0.15	0.36	(0; 1)	0.00	0.00	(0; 0)	0.19	0.39	(0; 1)	0.02	0.15	(0; 1)	0.06	0.24	(0; 1)
Father's Educ: university (1 = yes)	0.38	0.49	(0; 1)	0.75	0.43	(0; 1)	0.28	0.45	(0; 1)	0.51	0.50	(0; 1)	0.60	0.49	(0; 1)
Mother's Educ: primary (1 = yes)	0.16	0.37	(0; 1)	0.06	0.24	(0; 1)	0.15	0.36	(0; 1)	0.02	0.15	(0; 1)	0.02	0.14	(0; 1)
Mother's Educ: university (1 = yes)	0.38	0.48	(0; 1)	0.50	0.50	(0; 1)	0.37	0.48	(0; 1)	0.46	0.50	(0; 1)	0.54	0.50	(0; 1)
Father working (1 = yes)	0.80	0.40	(0; 1)	0.94	0.24	(0; 1)	0.72	0.45	(0; 1)	0.91	0.28	(0; 1)	0.96	0.20	(0; 1)
Mother working (1 = yes)	0.72	0.45	(0; 1)	0.88	0.33	(0; 1)	0.59	0.49	(0; 1)	0.87	0.34	(0; 1)	0.80	0.40	(0; 1)
Speak (language) at home ^d (1 = yes)	0.25	0.43	(0; 1)	0.13	0.33	(0; 1)	0.97	0.18	(0; 1)	0.74	0.44	(0; 1)	0.71	0.46	(0; 1)
Family size	3.78	0.84	(1; 7)	3.88	0.78	(3; 5)	3.86	1.08	(2; 7)	3.90	1.32	(1; 11)	3.69	0.86	(1; 5)
Ideology	3.24	1.82	(1; 9)	6.00	1.79	(3; 8)	4.92	2.20	(1; 10)	6.68	1.54	(3; 10)	5.60	1.81	(1; 10)
High income household (1 = yes)	0.63	0.48	(0; 1)	0.93	0.25	(0; 1)	0.52	0.50	(0; 1)	0.72	0.45	(0; 1)	0.74	0.44	(0; 1)

Notes: ^aIn Czech Republic, a different scale is used for both the University grade and the entrance exam grade: 1 (best)–4 (worst). In Germany, the scale is: 1 (best)–5 (worst); ^bthe entrance exam grades for Spain have been transformed to a grade out of 1 since Spanish entrance exams can either be out of 10 or 14; ^ca student is considered to have a high English level if he/she has either an advanced or proficiency qualification; ^dstudents at the University of the Basque Country (UPV/EHU) and the Deusto Business School were asked if they spoke Basque at home, students at the University of Oviedo were asked if they spoke Spanish at home, students at the University of Economics, Prague were asked if they spoke Czech, and students at ISM were asked if they spoke German

Table I.
Descriptive statistics
by university

time is expected to cause disutility for any rational respondent. The remaining parameters have been assumed to be normally distributed, so that the sign of their effects depends on the corresponding estimated mean and variance, that is, some respondents might prefer these attributes while others might dislike them. The estimated standard deviations represent unobserved preference heterogeneity among the respondents. Statistically significant and large standard deviations imply a high level of heterogeneity, that is to say, respondents' preferences for an attribute with a large and significant standard deviation differ greatly, some might have a strong preference for it, while others' preferences for it might be minimal. The last column in Tables AIII–AVII presents the proportion of respondents with negative coefficients (i.e. the part of the estimated distribution of each random parameter that falls on the left-hand side of 0). It can be considered as the estimated proportion of respondents with negative preferences. If the unobserved heterogeneity is very high, it is useful to disentangle the effects using different socio-demographic variables, thereby allowing for subgroup analysis of different groups of people targeted by specific policies, for example.

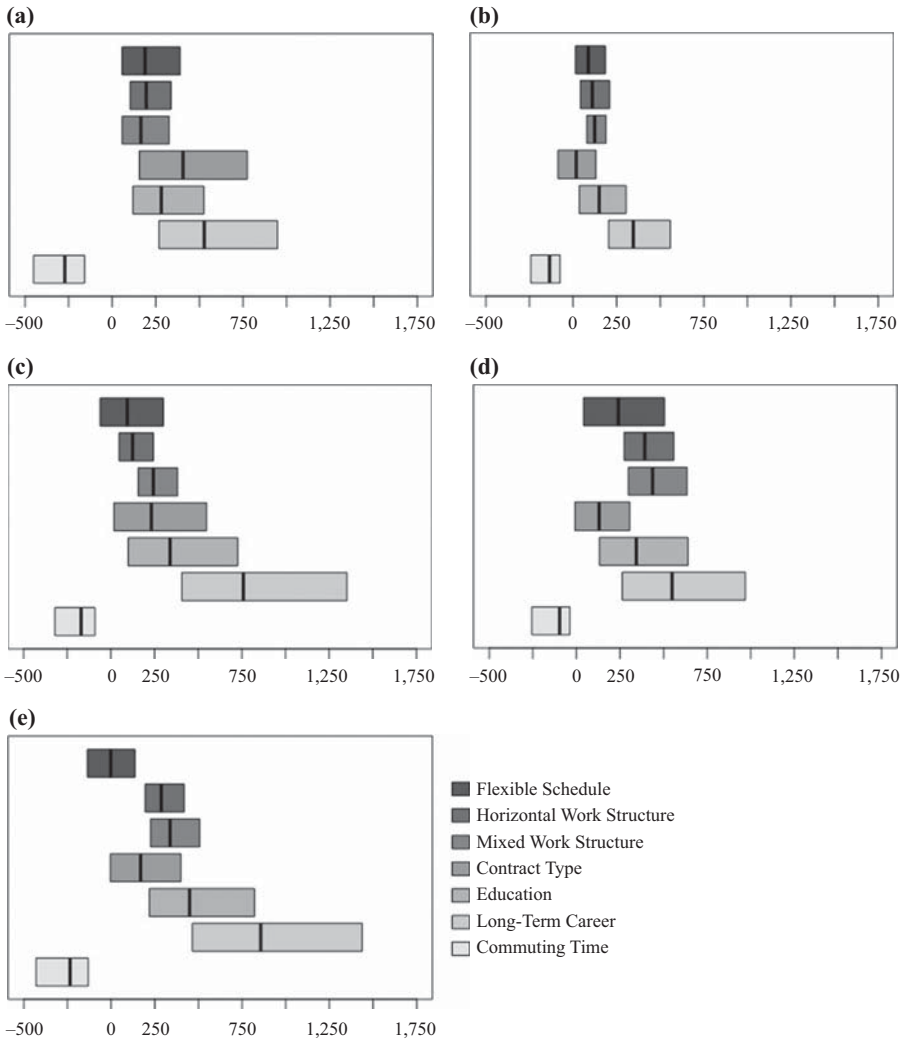
The RPL results for the University of the Basque Country (UPV/EHU), in Table AIII, show that all of the coefficients are statistically significant at the 5 per cent significance level, as expected. It can be seen that the effect of salary and commuting time on the respondent's utility is positive and negative, respectively, due to the assumed log-normal definition, with a changed sign for commuting time. The estimated means for the remaining coefficients with normal distributions are in line with our *a priori* hypotheses. Having long-term career or education opportunities, a permanent contract, a mixed or horizontal work environment or a flexible schedule increases respondents' utilities.

Tables AIV–AVII display the RPL model results for the University of Oviedo, Deusto Business School, the University of Economics, Prague and the International School of Management. Once again, the estimated means and standard deviations are very similar for all universities and they are in line with our *a priori* hypotheses. Generally, the estimated coefficients are statistically significant at the 5 per cent significance level. The last columns of Tables AIII–AVII show that a very small percentage of students have negative preferences for the possibility of a long-term career at a company, this is because it is the most important attribute for students at all universities, as will be shown in the next section. Negative preferences for a flexible schedule are somewhat high since young people most likely expect to work long hours when starting out in a new job, as will be discussed in the next section. Furthermore, there is quite a high percentage (44.6 per cent) of students at the university in Prague for whom a permanent contract causes disutility, this is most likely due to the fact that in the Czech Republic, young people do not expect to stay at their first job, it is just a means of getting experience.

Lastly, an interesting result can be observed regarding the McFadden's pseudo R^2 values in the last row of each table. These values are not directly comparable among Tables AIII–AVII due to the fact that they have been obtained with different data sets, nevertheless, they are sufficiently high as values between 0.2 and 0.4 are considered to be a very good fit (McFadden, 1979, p. 306).

4.3 Willingness to accept

In this section, the simulated WTA distributions derived from the estimated coefficients of the RPL models are presented. That is to say, using the estimated means and standard deviations from Tables AIII–AVII, along with the assumed distributions for each of the random parameters, 10,000 random draws from each estimated WTA distribution were generated and graphed in the form of box plots. This allows us to make a relative comparison between models, universities and countries. Figure 5 presents the WTA graphs for all universities. Each box plot shows the span between the 25th percentile to



Notes: The edges of the boxplots denote the 25th and the 75th percentiles of the WTA distributions together with the corresponding median values, represented by the vertical lines within the box plots. The WTA for commuting time is calculated for 30 min. (a) University of the Basque Country (UPV/EHU) Spain – public university; (b) University of Economics, Prague The CZ Rep – public university; (c) University of Oviedo Spain – public university; (d) International School of Management Germany – private university; (e) Deusto Business School Spain – private university

Figure 5. WTA distributions by university

the 75th percentile of the WTA distribution, denoted by the edges of the box plots, together with the corresponding median value, represented by the vertical lines in the box plots.

Looking at the universities overall, Figure 5 shows that the most important job characteristic is a long-term career opportunity. Not only is this consistent across all three countries, but also

across both public and private universities. This result is also, consistent with the findings of Lim and Soon (2006), who found that long-term career possibility was the most important job attribute for economics students in Malaysia. Education opportunity is also very important for students, and once again, independent of the type of university or the country.

Comparing Spanish and non-Spanish universities, particularly, Figure 5(a), (c), (e) with (b), (d), commuting time is of high importance to Spanish students, while it is one of the least important attributes to respondents in the Czech Republic and Germany, indicating that it is most likely due to a cultural difference. Additionally, contract type is of low importance to respondents from the Czech Republic and Germany, but of high importance to Spanish students, especially to those from public universities. The high unemployment rate in Spain is a likely explanatory factor, creating a sense of insecurity in the labour market.

Furthermore, comparing public and private universities, namely, Figure 5(d), (e) with (a)–(c), it can be seen that both the horizontal and mixed work environment is higher among respondents from private universities. One possible explanation for this result is based on some comments private university students made in our focus groups. They stated that their goal was to work at “A-level” companies which are known for their good work environments, for example, offering their employees free meals, play areas, massage rooms and free yoga classes.

Finally, the least important attribute for students is having a flexible schedule, consistent across all universities regardless of the type of university or country. This is most likely due to the fact that at the beginning of their careers, students know they will have to show their skills, abilities and devotion to the company, which sometimes leads to extra hours. Moreover, at this stage in their lives, young people do not require that much flexibility in their schedules, as they become older and have families; however, the demand for flexibility increases.

A pooled estimation was also conducted, for an overview of the results across all five universities. Figure A1 displays the WTA for all 360 students. The results are consistent with the general findings for each of the universities.

Subsequently, the differences in WTA between different socio-demographic groups were analysed through the use of the university specific estimations in Tables AIII–AVII. This subgroup analysis was conducted by estimating individual specific means of the conditional distributions, i.e., the means of the distributions of the specific subgroups. Using these individual specific means, the difference in preferences can be analysed within the university sample for each of the attributes. This was done using four socio-demographic variables: gender, grade, English level and ideology. A high grade was defined as anything higher than the 75th percentile for that university, whereas a low grade was anything below the 25th percentile. Students who reported having an advanced English level or higher (C1 or C2) were categorised as having a high English level, while the rest were considered as having a low English level (B2 or lower). Lastly, for ideology, participants who self-reported as a five or lower, on the one-to-ten left-right scale, were classified to be left wing, and anyone reporting to be a six or higher were identified as right wing.

Figures A2–A5 present the WTA distributions, by university, for each of the four subgroups. Subgroup analysis was not conducted for the Deusto Business School due to the small sample size. The figures show that gender, grade, English level and ideology do not have strong impacts on the differences in job preferences for the four universities. As a result of the large spread in the distributions, the null hypothesis that the means of each polarised pair for all four subgroups are equal is not rejected in any of the cases, most likely due to the limited sample sizes. Nevertheless, the differences in distributions by English level in Figure A2, and by grade in Figure A3 are larger than the rest, suggesting that these two socio-demographic variables probably have the biggest impact, out of the four studied, on job preferences in Spanish universities, specifically on the preference for a long-term career option.

5. Discussion and conclusions

In this analysis, students' job preferences are elicited in a more quantitative and rigorous method than had been previously used in the literature through the use of a CE. Taking into account students' job preferences, the WTA, based on RPL model estimations for students at five universities, in three countries, at both public and private universities, is simulated. The possibility of working at the company long-term is the most important attribute across countries and regardless of whether the university is public or private. It could be argued then, that if companies cannot offer applicants high salaries, they could offer them the possibility of working at the company long-term. Surprisingly, similar results were also found in Malaysia by Lim and Soon (2006), as well as most of the studies conducted among business students, which seems to suggest that students, in general, like to have the prospect of a long-term career at the company. Even though young employees might not choose to stay at the same job long-term, they would like that decision to be up to them rather than knowing their position at the company is stagnant.

Another important attribute for all students, regardless of the university, is the opportunity to further their education. Gaining work experience while at the same time further investing in their education is a good strategy in a labour market that is unstable with increasing demands. This is an obvious benefit for the company as well, if the company can afford it.

When comparing Spanish and non-Spanish universities, two differences are found. First, for Spanish students, commuting time is an important attribute, while for students in the Czech Republic and Germany it is not. This is most likely a cultural difference; perhaps Spanish students are influenced by close family relationships, important in their culture, and are less willing to move. Students in the Czech Republic and Germany, on the other hand, might simply move closer to the job, as was mentioned by students in our focus group in Germany. This suggests that opening an office close to a major transport hub, and thus cutting down commuting time, would be of great value in Spain. Second, the importance of having a permanent contract was higher among Spanish students, especially at the two public universities, than the rest. This is clearly a result of the ongoing economic recession and the high unemployment rate in Spain. Unfortunately, the effects of the 2008 economic recession still loom large, with a very high unemployment rate. Many companies in Spain are taking advantage of this, and are offering mostly temporary contracts, allowing them the freedom to hire and fire (or not re-hire) anyone they want. The only difference found between public and private universities was that for students at private universities, a better work environment was more important. Comments made by students in our focus groups at private universities suggest that work environment is important for them because their goal is to work at "A-level" companies, known for its modern work environment. Therefore, perhaps the biggest difference between students at public and private universities is the type of company they plan on applying to afterwards.

Analysing students' job preferences using a CE, we believe, can be beneficial for companies. Quantifying students' preferences could inform companies what attributes they should offer and if unable to do so, how much compensation is needed. Companies can take advantage of the knowledge of young people's job preferences so that they can try to adapt, thereby attracting more candidates and being able to choose a better employee. Naturally, companies cannot always afford to offer new employees their preferred conditions, but with these kinds of studies, they can decrease the probability of offering them job characteristics they find unimportant. An alternative way to interpret and use the results of a CE like this could be offering a higher salary as a compensation for some job characteristics a company cannot offer. The simulated WTA values indicate, in monetary units, how each of the job characteristic is assessed by the students. These values could be valuable information for the human resources departments of the companies in their attempt to hire the most appropriate employee for each job.

An issue for further research is analysing job preferences by socio-demographic factors with larger sample sizes, that is, to try to disentangle the preference heterogeneity by the means of individuals characteristics. Then, companies could offer specific job characteristics depending on the type of employee they are looking for. For example, companies looking to hire people with a high level of English, or high grades, could check which specific attributes they prefer, and offer those, to better attract them. The sample sizes in the present study were not large enough to detect differences between subgroups.

Our study is a start to analysing students' job preferences across various universities. The CE is a useful tool to study the multidimensional character of choosing a job, taking into account the heterogeneous preferences of the sample. Since participants have to make trade-offs, it allows us the simultaneous comparison of the different levels of attributes, allowing us to identify which attributes are preferred more than others. During a time of an aging Europe, where young people will have more and more leverage when seeking jobs, companies could greatly benefit from using this methodology in order to make themselves more competitive.

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Note

1. The ideology question contained a left-right scale going from one (left) to ten (right). It was worded as follows: "When people talk about politics, the terms left and right are usually used. Below there is a left-right axis. Where would you place yourself on this axis? Indicate it with an X".

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Further reading

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(The Appendix follows overleaf.)

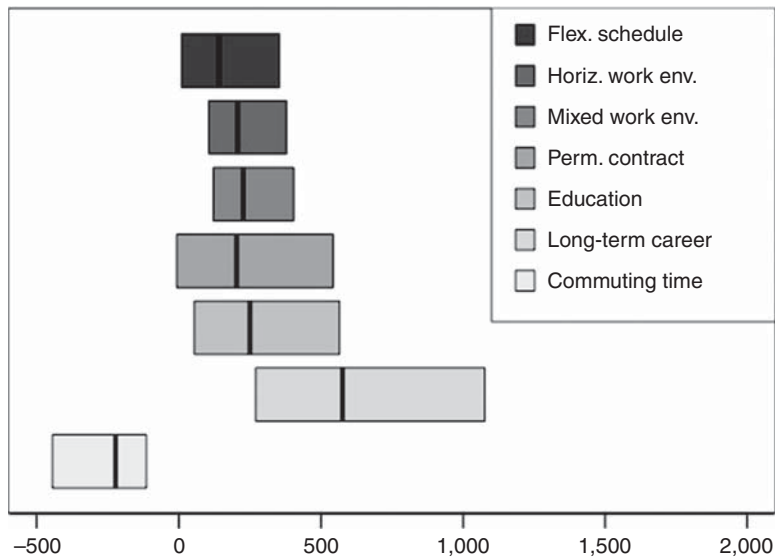
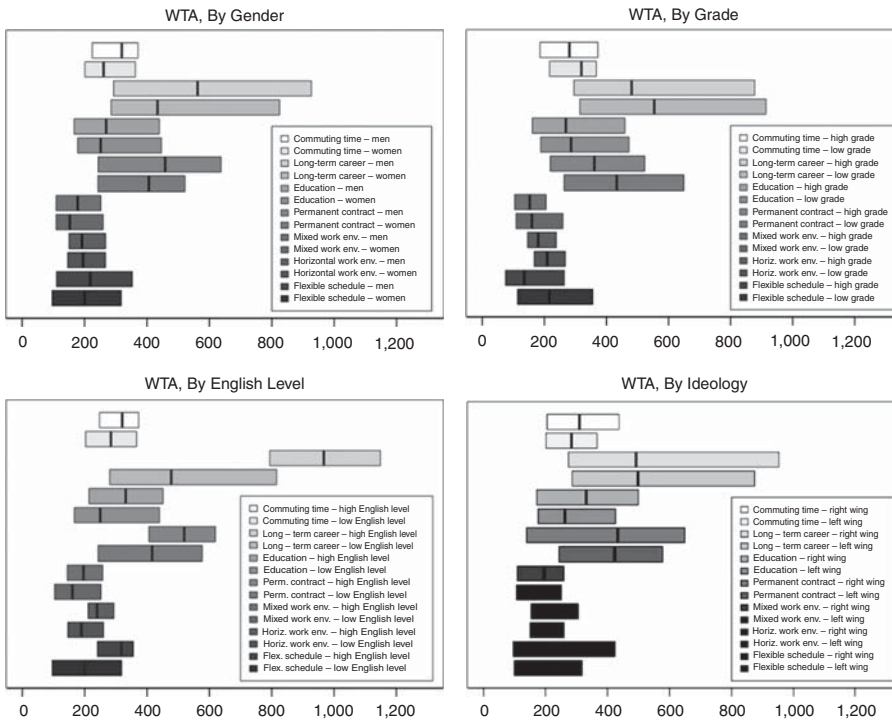


Figure A1.
WTA distributions for
all five universities

Notes: The edges of the boxplots denote the 25th and the 75th percentiles of the WTA distributions together with the corresponding median values, represented by the vertical lines within the box plots. The WTA for commuting time is calculated for 30 min



Notes: The edges of the boxplots denote the 25th and the 75th percentiles of the WTA distributions together with the corresponding median values, represented by the vertical lines within the box plots. The WTA for commuting time is calculated for 30 min

Figure A2.
WTA distributions by subgroups for the University of the Basque Country (UPV/EHU) in Spain

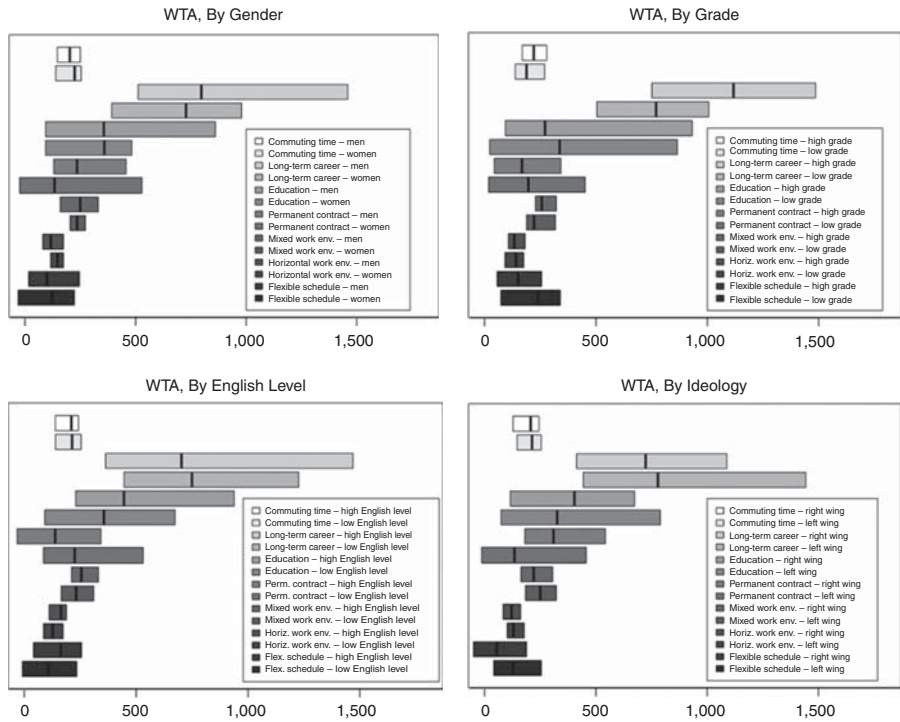
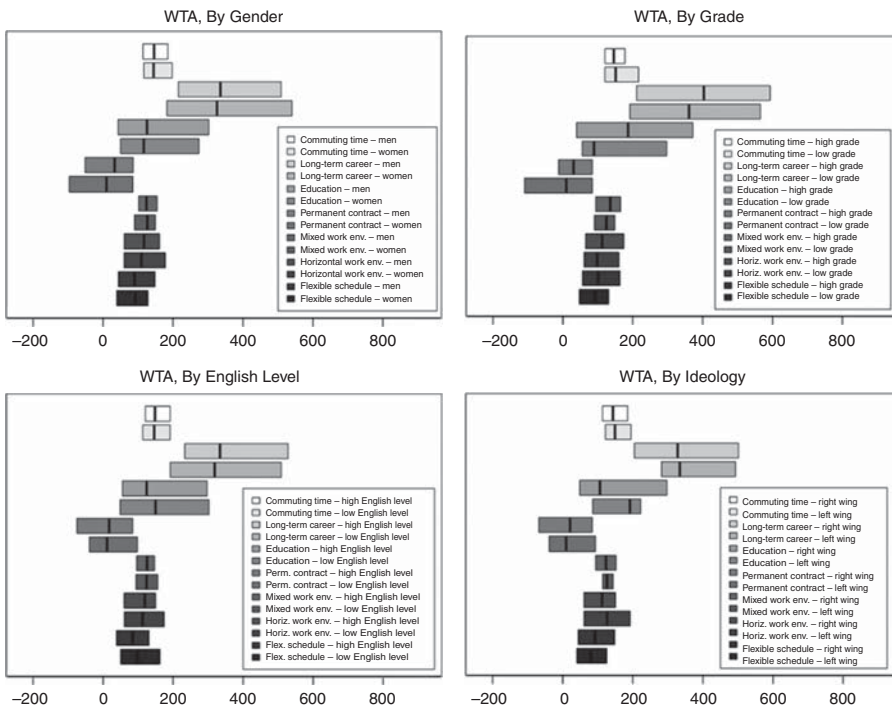


Figure A3.
WTA distributions by
subgroups for
the University of
Oviedo in Spain

Notes: The edges of the boxplots denote the 25th and the 75th percentiles of the WTA distributions together with the corresponding median values, represented by the vertical lines within the box plots. The WTA for commuting time is calculated for 30 min



Notes: The edges of the boxplots denote the 25th and the 75th percentiles of the WTA distributions together with the corresponding median values, represented by the vertical lines within the box plots. The WTA for commuting time is calculated for 30 min

Figure A4. WTA distributions by subgroups for the University of Economics, Prague in the Czech Republic

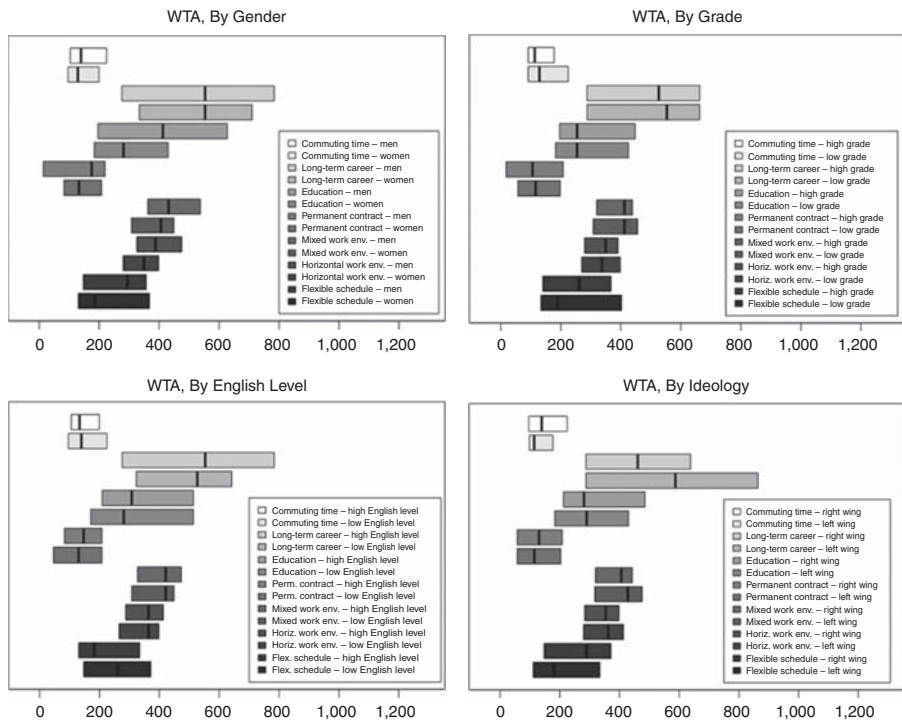


Figure A5.
WTA distributions
by subgroups for the
International School
of Management
in Germany

Notes: The edges of the boxplots denote the 25th and the 75th percentiles of the WTA distributions together with the corresponding median values, represented by the vertical lines within the box plots. The WTA for commuting time is calculated for 30 min

Table AI.
Minimum number of responses and individuals needed

Precision level Proportion	0.05		0.08		0.10		0.16	
	Responses	Indiv.	Responses	Indiv.	Responses	Indiv.	Responses	Indiv.
0.1	7,060	706	2,760	276	1,760	176	690	69
0.2	3,140	314	1,220	122	780	78	310	31
0.3	1,830	183	710	71	460	46	180	18
0.4	1,180	118	460	46	290	29	110	11
0.5	780	78	310	31	200	20	80	8

University	Location	Type of university	Number of students
University of the Basque Country (UPV/EHU)	Bilbao, Spain	Public	132
Deusto Business School	Bilbao, Spain	Private	18
University of Oviedo	Oviedo, Spain	Public	63
University of Economics	Prague, Czech Rep.	Public	95
International School of Management	Dortmund, Germany	Private	52

Table AII.
Sample sizes by university

	Est. mean	SE	SD	SE	Negative preferences (%)
ASC2	0.217**	(0.101)			
ASC3	0.100	(0.103)			
<i>Random parameters</i>					
<i>Log-normal distribution</i>					
Salary	1.210***	(0.103)	0.588***	(0.083)	
Commuting time	-1.200***	(0.150)	0.526***	(0.118)	
<i>Normal distribution</i>					
Long-term career	1.960***	(0.173)	1.250***	(0.173)	5.8
Education	1.040***	(0.163)	0.807***	(0.183)	28.2
Contract	1.520***	(0.167)	1.300***	(0.170)	12.1
Mixed work environment	0.626***	(0.141)	0.578***	(0.182)	13.9
Horizontal work environment	0.711***	(0.136)	0.398	(0.271)	
Flexible schedule	0.725***	(0.126)	0.736***	(0.176)	16.2
Number of observations			1,317		
Number of estimated parameters			18		
Log-likelihood _{null}			-1,445.19		
Log-likelihood _{full}			-1,083.199		
AIC			2,202.398		
BIC			2,295.694		
McFadden's pseudo R ²			0.250		

Table AIII.
University of the Basque Country (UPV/EHU): RPL results (Spain – public university)

Notes: **,***Significant at 5 and 1 per cent levels, respectively

	Est. mean	SE	SD	SE	Negative preferences (%)
ASC2	0.239	(0.155)			
ASC3	0.138	(0.154)			
<i>Random parameters</i>					
Log-normal distribution					
Salary	1.100***	(0.156)	0.641***	(0.125)	
Commuting time	-1.770***	(0.363)	0.683***	(0.202)	
Normal distribution					
Long-term career	2.530***	(0.322)	1.370***	(0.231)	3.2
Education	1.180***	(0.250)	1.200***	(0.181)	16.3
Contract	0.807***	(0.224)	1.120***	(0.209)	23.6
Mixed work environment	0.736***	(0.163)	0.095	(0.135)	
Horizontal work environment	0.412**	(0.177)	0.352	(0.353)	
Flexible Schedule	0.340	(0.208)	0.845***	(0.304)	34.4
Number of observations		630			
Number of estimated parameters		18			
Log-likelihood _{null}		-691.053			
Log-likelihood _{full}		-516.619			
AIC		1,069.238			
BIC		1,149.261			
McFadden's pseudo R^2		0.252			

Table AIV.
University of Oviedo:
RPL results (Spain –
public university)

Notes: **,***Significant at 5 and 1 per cent levels, respectively

	Est. mean	SE	SD	SE	Negative preferences (%)
ASC2	0.321	(0.294)			
ASC3	-0.512**	(0.216)			
<i>Random parameters</i>					
Log-normal distribution					
Salary	1.140***	(0.342)	0.554**	(0.271)	
Commuting time	-1.410***	(0.539)	0.689**	(0.335)	
Normal distribution					
Long-term career	2.860***	(0.618)	1.600***	(0.603)	3.7
Education	1.550***	(0.495)	1.060**	(0.537)	7.2
Contract	0.604**	(0.301)	0.928*	(0.533)	25.8
Mixed work environment	1.070***	(0.307)	0.213	(0.248)	
Horizontal work environment	0.890***	(0.337)	0.074	(0.064)	
Flexible schedule	-0.006	(0.400)	0.669**	(0.264)	50.4
Number of observations		180			
Number of estimated parameters		18			
Log-likelihood _{null}		-195.171			
Log-likelihood _{full}		-136.210			
AIC		308.42			
BIC		365.893			
McFadden's pseudo R^2		0.302			

Table AV.
Deusto Business
School: RPL
results (Spain –
private university)

Notes: *, **,***Significant at 10, 5 and 1 per cent levels, respectively

	Est. mean	SE	SD	SE	Negative preferences (%)	Job preferences
ASC2	0.049	(0.105)				
ASC3	-0.097	(0.116)				
<i>Random parameters</i>						
Log-normal distribution						
Salary	-1.360***	(0.121)	0.540***	(0.094)		
Commuting time	-1.170***	(0.189)	0.689***	(0.156)		
Normal distribution						
Long-term career	2.530***	(0.256)	1.170***	(0.172)	1.5	
Education	1.160***	(0.213)	1.290***	(0.217)	18.4	
Contract	0.158	(0.164)	1.160***	(0.205)	44.6	
Mixed work environment	0.879***	(0.163)	0.283	(0.353)		
Horizontal work environment	0.849***	(0.181)	0.754***	(0.255)	13.0	
Flexible schedule	0.679***	(0.164)	0.837***	(0.225)	20.9	
Number of observations		948				
Number of estimated parameters		18				
Log-likelihood _{null}		-1,035.610				
Log-likelihood _{full}		-770.879				
AIC		1,577.758				
BIC		1,665.136				
McFadden's pseudo R^2		0.256				

Note: ***Significant at 1 per cent level, respectively

Table AVI.
University of
Economics, Prague:
RPL results
(The Czech Republic –
public university)

	Est. mean	SE	SD	SE	Negative preferences (%)	
ASC2	0.526***	(0.163)				
ASC3	0.259*	(0.141)				
<i>Random parameters</i>						
Log-normal distribution						
Salary	-1.650***	(0.227)	0.527***	(0.169)		
Commuting time	-2.590***	(0.653)	1.320***	(0.340)		
Normal distribution						
Long-term career	1.370***	(0.243)	0.985***	(0.262)	8.2	
Education	0.858***	(0.191)	0.727***	(0.208)	11.9	
Contract	0.342**	(0.146)	0.527***	(0.189)	25.8	
Mixed work environment	1.020***	(0.200)	0.221	(0.341)		
Horizontal work environment	0.897***	(0.196)	0.070	(0.095)		
Flexible schedule	0.612***	(0.178)	0.752***	(0.255)	20.8	
Number of observations		495				
Number of estimated parameters		18				
Log-likelihood _{null}		-543.098				
Log-likelihood _{full}		-460.542				
AIC		957.084				
BIC		1,032.802				
McFadden's pseudo R^2		0.152				

Notes: *, **, ***Significant at 10, 5 and 1 per cent levels, respectively

Table AVII.
International School of
Management: RPL
results (Germany –
private university)

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