

THE IDEAL CANDIDATES FOR THE HOTEL INDUSTRY VACANCIES: A CONJOINT ANALYSIS OF MANAGERS' PREFERENCES

Massimo Aria, Simona Balbi[†]

*Department of Economics and Statistics, University of Naples "Federico II",
Naples, Italy, massimo.aria@unina.it; simona.balbi@unina.it;*

Simona Balzano

*Department of Economics and Law, University of Cassino and Southern Lazio,
Italy, s.balzano@unicas.it*

Alfonso Piscitelli*

*Department of Agricultural Sciences, University of Naples "Federico II", Naples,
Italy, alfonso.piscitelli@unina.it;*

Abstract. *Which characteristics do the hotel managers value the most when they recruit a graduate for a job in their hotel facilities? This paper is consistent with the targets of determining hotel managers' preferences when they recruit. Hotel managers' preferences were determined in relation with the hypothetical profiles of candidates for five job positions in the administration, commercial, front office, human resources and marketing areas of hotels. For this purpose, we carried out a survey on 87 hotels operating in the metropolitan area of Naples, in Campania region, Italy. Data have been collected using a conjoint experiment, aimed to obtain the characteristics of the graduates who could employ each one of the five job positions. For each position, the interviewees were asked to choose among four randomly selected profiles of possible candidates characterised by six attributes. Findings highlight which characteristics are given positive (or negative) value by managers in choosing candidate profiles.*

Keywords: *Graduates' competencies; Tourism sector; Survey; Conjoint experiment.*

1. INTRODUCTION

In 2015, for the fifth consecutive year, the growth rate of the world tourism sector has been higher than the global economy (2.8% vs. 2.3%). Today, tourism covers the 9.8% of world GDP and employs 284 million workers (Turner and Freiermuth,

[†] Deceased 7 February 2018

* Corresponding author: alfonso.piscitelli@unina.it

2016). According to the World Tourism Organization in 2015 among the world's most popular tourism destinations, Italy ranked 5th in arrivals and 7th in revenue (UNWTO, 2016).

In the tourism sector, the business is characterised by a global competition, fast changes and technological innovations that follow an incessant pace. The service demand should be able to reply instantly to new trends. It is crucial for tourism actors to know how to adjust and respond swiftly to changes (Della Corte and Aria, 2014; 2016).

The tourism industry is a labour-intensive service industry, where surviving (and at best, a competitive advantage) depends on the availability of good quality personnel to deliver, operate, and manage the tourist product. The interaction between the tourist and the tourism industry personnel is an integral part of the total tourist experience (Amoah and Baum, 1997). Personnel is clearly a central resource to the industry's effective operation (Baum, 1995).

Several studies have revealed that the main concern of people looking for a job was the poor image of the tourism industry. Other areas for concern were the quality and availability of seasonality skilled staff, rewards and benefits, labour turnover, working hours and conditions, barriers to employment in tourism. Many of these problems are directly linked to, and may be rectified through education provision and, where possible, accurate careers information and guidance (Powell and Wood, 1999; Hinkin and Tracey, 2000).

The paper aims at identifying the skills required to a graduate candidate in order to hold one of five key roles typical of the hotel industry.

For this purpose, as part of the project ELECTUS, we carried out a survey on 3, 4, and 5-star hotels operating in the metropolitan area of Naples, Italy. The survey has been conducted using both CAPI (Computer Assisted Personal Interviewing) and CAWI (Computer Assisted Web-based Interviewing) data collection systems. The data were analysed through a conjoint analysis that highlighted the characteristics of the ideal graduates according to hotel managers' preferences.

The paper is organised as follows: in Section 2 we describe the ELECTUS survey; in Section 3 we explain our survey; in Section 4 we introduce the statistical method used in our analysis; Section 5 shows the results of the conjoint study and illustrates the ideal candidate for different jobs in hotel facilities. The paper ends with summing up the results and describing possible future developments.

2. THE ELECTUS SURVEY

Here we present a research named ELECTUS, an acronym for **E**ducation-for-**L**abour **E**licited from **C**ompanies' attitudes **T**owards **U**niversity **S**tudies, aimed at a set of parallel surveys that a group of Italian universities coordinated by the University of Padua have started with a common purpose of identifying the attitudes of employers when they recruit graduates to fill the vacancies in their companies. The advanced knowledge of the attitudes sought by employers may help matching graduates' competencies with job market's needs.

The research develops through a survey on entrepreneurs who are asked to choose the most preferred profile for a specific job position among four randomly defined hypothetical profiles of graduates. The job positions are five, each one in one of the following areas: administrative, commercial, front office, human resources and marketing.

In order to measure entrepreneurs' preferences, for each vacant job position, a conjoint experiment was conducted in these terms (Fabbris *et al.*, 2015):

1. Choice-based preferences

A vignette describing in random order the four profiles of candidates for a job position. Each respondent was asked to select the most preferred one as the closest candidate for the given job position. The question was *'Imagine that you are interested in recruiting a person for the position of (...). Which one out the four profiles on the screen would you invite for a job interview, it being the closest to your ideal candidate?'*

The choice is related to the moment of pre-selection of candidates (of course before the job interview) and it is based on CV.

An example of vignette is given in Table

2. No-choice option ("None")

A no-choice option was introduced as a bonus choice. The question was, *'If you really had to insert a person in the position (...) for your firm, would you insert the chosen profile or would you insert no profile at all?'*

This option allows to estimate, in addition to part-worth utilities, a threshold for the general minimum level of competencies of a graduate, an employer could consider for recruitment.

3. Description of the choice

After selecting their preferred profile, respondents were asked *i)* to rate the importance of each attribute, as well as each submitted profile, on a scale from

1 to 10, and *ii*) to indicate the monthly payment for the candidate considered the best for the job position, allowing for measuring the so-called ‘willingness to pay’ for that candidate to that vacancy (Breidert *et al.*, 2006).

Tab. 1: An example of a vignette describing four random profiles of candidates for a job position

Attribute	Profile 1	Profile 2	Profile 3	Profile 4
Field of the study	<i>Tourism</i>	<i>Statistics</i>	<i>Psychology</i>	<i>Math/Computer Science/Engineering</i>
Degree mark	<i>95-104</i>	<i>>104</i>	<i>>104</i>	<i><95</i>
Education level	<i>Ph.D.</i>	<i>Ph.D.</i>	<i>Bachelor degree</i>	<i>Master degree</i>
English knowledge	<i>No, not at all</i>	<i>Yes, but not fluently</i>	<i>Yes, fluently</i>	<i>Yes, but not fluently</i>
Work experience	<i>No previous experience</i>	<i>Previous traineeship not in tourism</i>	<i>Previous traineeship in tourism</i>	<i>Previous work experience of at least 1 year</i>
Willingness to travel on business	<i>Unwilling to travel</i>	<i>Willing to travel even for long periods</i>	<i>Willing to travel only for short periods</i>	<i>Willing to travel even for long periods</i>

The attributes used to generate the list of possible candidate profiles are defined following two sequential steps. First, a large set of attributes was selected after a literature review. Then, the final selection was obtained by experts’ opinions expressed in a focus group.

The levels of attributes have been chosen considering local university offer and the specific characteristics of hotel industry.

The attributes selected are as follow: field of the study, education level, degree mark, English knowledge, work experience, and willingness to travel on business. The complete list of the levels for each of the six attributes is reported in Table 2.

The full factorial design of the whole set of attributes and levels defines 2916 profiles.

According to Yorke and Harvey (2005), employers have always wanted a raft of personal skills. Adaptability, flexibility, and willingness to learn and continue learning are the overt tip of a much bigger iceberg of expectation. Our research focuses on characteristics of graduates related to the educational background and work experience.

The evaluation of employers and their interpretation of information related to the educational background during the selection process define the opportunities of youth to find a job (Di Stasio and van de Werfhorst, 2016). The preliminary analysis of the CVs, aiming at verifying if applicant characteristics comply the vacancy, is then crucial.

Tab 2: Characteristics of the candidate’s profile

Attribute	Levels
Field of the study	<i>Tourism</i>
	<i>Statistics</i>
	<i>Psychology</i>
	<i>Math/Computer science/Engineering</i>
	<i>Communication</i>
	<i>Law / Political sciences</i>
	<i>Economics</i>
	<i>Foreign languages</i>
	<i>Philosophy</i>
Education level	<i>Bachelor degree</i>
	<i>Master degree</i>
	<i>Ph.D.</i>
Degree mark	<i><95</i>
	<i>95-104</i>
	<i>>104</i>
English knowledge	<i>No, not at all</i>
	<i>Yes, but not fluently</i>
	<i>Yes, fluently</i>
Work experience	<i>No previous experience</i>
	<i>Previous traineeship in tourism</i>
	<i>Previous traineeship not in tourism</i>
	<i>Previous work experience of at least 1 year</i>
Willingness to travel on business	<i>Unwilling to travel</i>
	<i>Willing to travel only for short periods</i>
	<i>Willing to travel even for long periods</i>

3. DATA COLLECTION

Our survey focuses on hotel industry operating in the metropolitan area of Naples. We selected this area for different reasons. First, it is a well-developed tourist area, with a relevant set of attractive factors, characterised by precise geographic boundaries (Della Corte and Aria, 2014). Therefore, it is endowed with strategic resources. Naples is an art-city, located in the middle of the Gulf of Naples. Its main attractions are: cultural resources (Della Corte *et al.*, 2017; Aria *et al.*, 2017), landscape, enogastronomy and folklore, to cite the main ones (Della Corte and Aria, 2016).

The population frame consisted of 717 firms out of which the large majority was 3-star and 4-star hotels and less than 5% 5-star hotels (Table 3) (Camera di Commercio di Napoli, 2013).

We randomly selected a list of 324 firms and 87 hotel managers out of the 324 contacted, have completed the questionnaire.

Tab. 3: Hotel population by rating

Hotel rating	<i>Frequency</i>	<i>Percentage</i>
3-stars	411	57.3
4-stars	275	38.4
5-stars	31	4.3

A questionnaire was generated for each of the 87 respondents, randomly selecting 4 scenarios out of the 2916, holding the following conditions:

- Each attribute level should have appeared as few times as possible in a single questionnaire (*minimum overlap criterion*);
- Each attribute level should have appeared approximately an equal number of times both within a single questionnaire and in the whole sample (*level balance criterion*);
- Attribute levels should have been defined independently of other attribute levels, so that the effect of each attribute level could be measured independently of the others (*orthogonality criterion*).

As consequence, we obtained a resolution III fractional factorial design (Addelman, 1962; Montgomery, 2001; Furlan and Corradetti, 2005) for the Full Profile model that allows to assume that all interaction effects are not meaningful.

The orthogonal fractional design was realised through IBM SPSS v. 22 software. Data have been collected during the period June-December 2016, using computer assisted interviewing system implemented using the open-source platform Limesurvey (<https://www.limesurvey.org/>) and some php routines written ad-hoc to ensure the random selection of conjoint profiles. In a first time, hotel managers have been contacted by email asking them to answer the questionnaire through a CAWI system. Next, only for managers who did not reply in the first phase, the questionnaire has been administered, face to face, by an experienced interviewer using a CAPI system working on a tablet.

Tab. 4 shows the main characteristics of the interviewees. They were mainly area managers (49.5%) or general managers (37.9%) of the hotels. A small percentage of them was represented by owners (12.6%). From now on, we will refer to respondents as “managers” or “hotel managers”. The 77.0% was male. Most of the interviewees (79.3%) were less than 50 years old (<40 years old 48.3; from 40

to 49 years old 31.0%). Furthermore, hotel managers showed high educational levels, being 57.5% graduated.

Table 5 shows the main characteristics of the hotels. The 58.6% have a 3-star rating, 36.8% have a 4-star rating and only 4.6% of hotels have a 5-star rating. The majority of the firms is small size (< 19 employees, 57.5%).

In the last three years, the 69% of firms have recruited graduate personnel in front office area. Recruitment activity has been less frequent in the other business areas (Table 6). Almost half of the managers state that the hotel would recruit new graduate personnel during the year following the interview. The three main recruitment options were: “curriculum from the applicants” (90.4%); “previous traineeship at the company” (56.6%); and “search on university database” (16.9%) (more than one answer was admitted).

Choices expressed by respondents have been analysed through a choice-based conjoint technique suited to indirectly eliciting preferences (Louviere *et al.*, 2000; Raghavarao *et al.*, 2010). We assumed that preference elicitation through indirect instead of direct questions would produce more genuine responses and anticipate the likely behaviour of interviewees by binding their responses to a given scenario (Ryan and Farrar, 2000).

Tab. 4: Main characteristics of the interviewees

Variable	Attribute	Percentage
Gender	Male	77.0
	Female	23.0
Age	< 30	9.2
	30 – 39	39.1
	40 – 49	31.0
	50 – 64	17.2
	> 64	3.4
Education	High school diploma	42.5
	Bachelor/Master degree	54.0
	Postgraduate diploma	3.5
Business role	Owner	12.6
	General manager	37.9
	Area manager	49.5

Tab. 5: Main characteristics of the hotels

Variable	Attribute	Percentage
Employees	≤9	18.4
	10 – 19	39.1
	20 – 49	36.8
	50 – 249	5.7
Main incoming customers	Domestic	55.2
	Foreign	44.8
Hotel category	3-stars	58.6
	4-stars	36.8
	5-stars	4.6

Tab. 6: Recruitment activities of hotels

Variable	Attribute	Percentage
Recruitment undertaken in the last three years by area (more than one response admitted)	Administrative	17.2
	Commercial	21.8
	Front office	69.0
	Human resources	17.1
	Marketing	13.8
Recruitment in the year following the interview	Yes	41.4
	No	58.6
Recruitment criteria for graduates (more than one response admitted)	CV evaluation	90.4
	Previous traineeship at the company	56.6
	Search on university database	16.9
	Unspecialised Employment agencies	9.6
	Social networks	4,8
	Ads in newspapers	1.2
	Specialized Employment agencies	0.0

4. CONJOINT ANALYSIS

Conjoint analysis (CA) is a broad term that includes a class of methods for estimating the importance of profile characteristics in determining the preference structure of potential consumers. In the general settings, conjoint analysis is based on an additive model stating that individual preference is equal to the sum of the contributions (or part-worth utilities) of the levels of a set of attributes that describe a set of profiles (Green and Srinivasan, 1978).

CA conceptualises a product (in this case, an applicant) as a set of multi-level attributes. Input data for conjoint analysis are the preference judgements expressed

by a set of judges on a set of profiles: in fact, it is referred to as a *decompositional* method, as it decomposes the score assigned to a profile into a set of coefficients measuring the importance of each level in determining that score.

CA includes a class of measurement technique originated in the field of mathematical psychology and psychometrics (Green and Srinivasan, 1978; Borsboom and Scholten, 2008; Gustafsson *et al.*, 2013) and propagated in marketing research (Green and Srinivasan, 1990; Carrol and Green, 1995; Hauser *et al.*, 2006; Netzer *et al.*, 2008; Lohrke *et al.*, 2010). Recently, conjoint analysis has been fruitfully applied in several frameworks such as economics (Hanley *et al.*, 2001; Poortinga *et al.*, 2003; de Bekker-Grob *et al.*, 2012), health (Bridges *et al.*, 2008; Ryan and Gerard, 2003), sensometrics (Moskowitz and Silcher, 2006), and management (Priem, 1992; Hicks, 2002; Schillebeeckx *et al.*, 2016).

A widely used approach to conjoint analysis is the discrete choice experiment (DCE) (Ewing and Sarigöllü, 2000; Louviere *et al.*, 2000; Ryan *et al.*, 2007; Albaladejo-Pina and Díaz-Delfa, 2009). Choice-based CA respondents make choices among applicants compared of experimentally varied combinations of the study's attribute levels (Louviere *et al.*, 2000; Natter and Feurstein, 2002). The method allows investigators to investigate the relative influence of variations in the levels of each attribute on entrepreneur choices, estimate the utility of each attribute level, compute willingness to recruit the applicants, identify segments with different preferences, and simulate the response of different segments to hypothetical applicants' profiles (Halme and Kallio, 2014).

Conditional logit is the most used methodology for modelling discrete choice data (McFadden, 1980; Soofi, 1992). McFadden and Train (2000) demonstrated that this model is consistent with economic theory and allows to relate choices to the characteristics of the alternatives available to decision makers.

Following random utility theory, the utility associated with an alternative or profile is assumed to be a function of observed characteristics (attribute levels) and unobserved characteristics of the alternative. This theoretic framework also assumes that each individual maximizes his utility. The utility function is specified as an indirect utility function defined by the attribute levels in alternative i plus a random error term:

$$U_i = V(\beta, X_i) + \epsilon_i,$$

where V is a function linking the attribute levels of the alternative i to its utility, and ϵ_i is a random term following an i.i.d. type 1 extreme-value distribution (McFadden and Train, 2000).

The probability of choosing the alternative i is:

$$P(\text{choice} = i) = \frac{e^{V(\beta, x_i)}}{\sum_{j=1}^J e^{V(\beta, x_j)}}$$

where $V(\beta, x_i)$ is the utility function, or so-called *part-worth utility*, for alternative i . In other words, the probability of choosing an alternative i depends both attribute levels of the profile i and attribute levels of all other profiles.

The vector of unknown utility parameters β is estimated through the maximum likelihood of regularised weights. The solution is typically found using some non-linear, iterative maximisation algorithm. The attribute levels are constrained, imposing that their sum equals zero. The resulting set of estimated parameters is unique, and the model is robust to violation of the assumption that the error terms follow an extreme value distribution and are independent across alternatives (Louviere *et al.*, 2000).

The goodness of fit of conditional logit models is evaluated through both the log likelihood ratio test and McFadden's pseudo R-squared. The log likelihood ratio chi-square test determines whether including attribute-level variables significantly improves the model fit compared with a trivial model without any attribute-level variable. In this way, it indicates whether one or more of the preference weights are expected to be different from 0.

Test statistic D , log likelihood ratio, is calculated as:

$$D = 2 \log \left(\frac{L(M_{fit})}{L(M_0)} \right) = -2 \left(LL(M_0) - LL(M_{fit}) \right)$$

where $L(M_0)$, $L(M_{fit})$, $LL(M_0)$ and $LL(M_{fit})$ are the likelihood and the log likelihood values of the trivial and the fitted model, respectively. The log likelihood ratio follows a chi-square distribution with degrees of freedom equal to the number of parameters to be estimated.

McFadden's pseudo R-squared is calculated as:

$$McFadden's \text{ pseudo } R^2 = 1 - \frac{LL(M_{fit})}{LL(M_0)}$$

The relative importance of an attribute (RIA) can be calculated as the relative range, in percentage, of estimated utility parameters of the levels of an attribute (difference between parameters of the most preferred level of an attribute and the least preferred level of the same attribute):

$$RIA_j = \frac{\{\max(\beta_j) - \min(\beta_j)\}}{\sum_{k=1}^K \{\max(\beta_k) - \min(\beta_k)\}}$$

where j indicates an attribute and K the total number of attributes used in the profile

definition. RIA measure is often directly influenced by number of levels composing an attribute (Orme, 2010).

5. RESULTS

Conjoint analysis has been performed using “mlogit” R package (Croissant, 2012). The results are shown in Tables 7 and 8.

Table 7 shows the conditional logit models estimates of partial utility coefficients, standard deviations (in parentheses), RIA for the five job positions and goodness of fit measures of the estimated models.

We obtained large values of R^2 (>0.5) that, according to Louriere, Hensher and Swait (2000), means an extremely good fit in all models.

A level with a positive utility coefficient has high importance on the choice; a level with negative utility coefficient has low importance on the choice; the not significant attribute levels do not play any role into the choosing process. RIA values add up to 100 by column, that is they can be interpreted as percentage of importance given to each attribute conditional to the job position.

For all the five job positions, field of study results the most important attribute (RIA from 25.3 % to 41.6 %). This could also depend on the number of attribute levels (Orme, 2010).

The hotel manager values the academic study programme when examining a job candidate profile. Looking at single coefficients, all the nine considered fields are relevant for at least one job position in hotels. Some of them are preferred for some job vacancy with respect to the others. A degree in economics or tourism is preferred for clerk and revenue manager positions. Applicants must possess skills, capabilities and competencies related to multiple fields. In particular, these attitudes have to be related with the accounting and economic abilities in the field of tourism. Instead, for a front office receptionist, recruiters prefer a degree in foreign languages or tourism because they look for an applicant with ability in effective written and verbal communication in foreign languages and in guest service. Finally, it is interesting to note that for HR executive and Web specialist roles different skills are required and not necessarily close to a degree in tourism. In fact, recruiters require a psychologist to work in the human resources office and a graduate in quantitative sciences (math/computer science/engineering) for a job as web specialist.

Also, the other two attributes related to academic careers assume substantial levels of RIA: degree level ranges from 12.4 % to 21.9 % and degree final mark ranges from 8.7 % to 19.2 %, respectively.

In order to get a measure of the importance of the academic skills in

Tab. 7: Partial utility coefficients and RIA estimates (standard deviations in parentheses) and goodness of fit measures of estimated models

Attributes and levels	Administration – Clerk	Commercial – Revenue manager	Front Office – Receptionist	Human Resources – HR executive	Marketing – Web specialist
Field of the study	38.5 %	41.6 %	41.4 %	26.9 %	25.3 %
Tourism	1.177 (0.418)**	2.203 (0.386)***	2.812 (0.445)***	-2.521 (0.653)***	-1.178 (0.565)*
Statistics	-0.661 (0.524)	0.079 (0.545)	-1.814 (0.665)**	-0.824 (0.584)	1.037 (0.504)**
Psychology	-0.126 (0.458)	-1.021 (0.540)	-0.721 (0.534)	1.645 (0.430)***	-1.669 (0.577)**
Math/CS/Engineering	-1.266 (0.530)*	-0.774 (0.477)	-0.810 (0.558)	-1.040 (0.566)	1.475 (0.370)***
Communication	-1.819 (0.720)*	-1.016 (0.542)	0.488 (0.413)	-0.934 (0.577)	1.121 (0.422)**
Law / Political sciences	-0.062 (0.439)	-0.374 (0.535)	-1.153 (0.545)*	1.759 (0.566)**	-0.445 (0.471)
Economics	3.693 (0.556)***	3.227 (0.471)***	-1.361 (0.507)**	1.359 (0.482)**	0.072 (0.536)
Foreign Languages	-0.665 (0.662)	-1.272 (0.561)*	2.935 (0.529)***	-0.719 (0.522)	-0.031 (0.423)
Philosophy	-0.270 (0.145)*	-1.052 (0.242)***	-0.376 (0.138)**	1.275 (0.739)	-0.382 (0.135)**
Degree level	22.0 %	13.2 %	12.4 %	14.0 %	16.9 %
Bachelor	1.649 (0.276)***	0.078 (0.263)	1.137 (0.277)***	-0.753 (0.290)**	0.911 (0.242)***
Master	-0.153 (0.256)	0.674 (0.235)**	0.808 (0.274)**	1.475 (0.283)***	0.284 (0.233)
Ph.D.	-1.496 (0.278)***	-0.752 (0.238)**	-1.945 (0.276)***	-0.722 (0.276)**	-1.195 (0.240)***
Degree final mark	8.7 %	19.2 %	18.1 %	9.1 %	13.8 %
Low	-0.800 (0.287)**	-1.005 (0.280)***	-1.025 (0.297)***	-0.446 (0.288)	-0.984 (0.260)***
Medium	0.356 (0.251)	-0.068 (0.250)	0.288 (0.267)	-0.496 (0.293)	0.734 (0.242)**
High	0.444 (0.324)	1.073 (0.278)***	0.737 (0.311)**	0.942 (0.291)***	0.250 (0.333)
English knowledge	2.7 %	1.2 %	18.6 %	8.2 %	14.8 %
No, not at all	-0.186 (0.264)	0.053 (0.241)	-0.885 (0.302)**	-0.509 (0.287)	-0.736 (0.272)**
Yes, but not fluently	-0.015 (0.279)	0.026 (0.269)	-0.364 (0.262)	0.797 (0.268)**	1.101 (0.250)***
Yes, fluently	0.201 (0.265)	-0.079 (0.250)	1.249 (0.289)***	-0.288 (0.240)	-0.365 (0.215)
Relevant work experience	15.8 %	17.6 %	9.1 %	25.6 %	12.8 %
No previous experience	-1.100 (0.299)***	-0.852 (0.278)**	-1.028 (0.281)***	-0.565 (0.283)*	-0.868 (0.279)**
Traineeship in tourism	-0.257 (0.305)	1.053 (0.297)***	0.765 (0.285)**	-1.300 (0.402)**	0.720 (0.266)**
Traineeship not in tourism	0.190 (0.307)	-0.412 (0.312)	-0.008 (0.267)	-0.908 (0.377)*	-0.407 (0.332)
Work experience of at least 1 year during studies	1.167 (0.299)***	0.211 (0.251)	0.271 (0.270)	2.773 (0.363)***	0.555 (0.340)
Willingness to travel on business	12.3 %	7.2 %	0.3 %	16.1 %	16.4 %
Unwilling to travel	1.052 (0.248)***	0.179 (0.231)	0.009 (0.247)	-1.024 (0.288)***	1.247 (0.230)***
Only for short periods	-0.648 (0.236)**	-0.479 (0.234)*	0.015 (0.218)	1.541 (0.281)***	-0.784 (0.244)**
Even for long periods	-0.404 (0.270)	0.300 (0.236)	-0.024 (0.228)	-0.517 (0.268)*	-0.463 (0.210)**
None	2.498 (0.219)***	3.642 (0.231)***	2.993 (0.208)***	4.918 (0.299)***	2.610 (0.231)***
D	255.650***	251.560***	269.168***	218.043***	274.483***
McFadden's pseudo R²	0.618	0.600	0.637	0.510	0.630

recruitment evaluation, we summed up the RIAs of the attributes related these three attributes plus English knowledge to measure their importance. The resulting aggregated measures show that the lowest aggregate RIA for academic skills is 58.2 % for a career in human resource area where, in terms of importance, previous work experience (25.6 %) is comparable to the academic study programme (26.9%). On the other hand, the highest aggregate RIAs for academic skills are for revenue manager (75.2%) and receptionist positions (90.6 %).

Previous work experience is generally required for all positions, mainly if based on a traineeship in tourism or on a generic working activity of at least one-year, whereas traineeships in different sectors have not importance for recruiters.

The other attributes are not relevant in general but for specific roles. English knowledge is important in recruiting receptionists and web specialists (18.6 and 14.7, respectively) while willingness to travel on business, in particular only for short periods, is relevant for candidates yearning a career in human resources.

The following profiles can be defined based on the part-worth utilities in Table 7:

- The ideal profile for an **administrative clerk** is a candidate with a bachelor degree in economics or, as second best, in tourism, with at least 1-year of previous working experience and unwilling to travel both for short and long period. The utility score of the ideal profile is 7.6 while the score of the second best is 5.0. The “none” threshold is 2.5;
- To be considered for a **revenue manager** position, a candidate must have a master degree in economics or as second best, in tourism, with excellent grades and an internship in the tourism sector. The utility score of the ideal profile is 6.0 while the score of the second best is 5.0. The “none” threshold is 3.6;
- An ideal **front office receptionist** possesses a bachelor or master degree in foreign languages or as second best, in tourism, with excellent grades, fluent English, and a previous internship. The utility score of the ideal profile is 6.8 while the score of the second best is 6.4. The “none” threshold is 3.0;
- For a career in **human resources** as executive, the ideal candidate is graduate with master degree in Law/ Political Sciences, or as second best, in Psychology, cum laude, not necessarily fluent in English, with at least 1-year of previous work experience and willing to travel for short periods. The utility score of the ideal profile is 9.3 while the score of the second best is 8.9. The “none” threshold is 4.9;
- Finally, an ideal **web marketing specialist** is a graduate in a scientific study programme or, as second best, in communication, with at least 1-year of previous work experience or internship in tourism. Fluency in English and willingness to travel are not strictly required. The utility score of the ideal profile is 6.2 while the score of the second best is 5.8. The “none” threshold is 2.6.

The utility score of the ideal profile as well as the “none” threshold of human resource position are very high. Maybe this is due to the high profile of the role to cover, an executive with many responsibilities. Moreover, the highest utility score (2.8) is estimated for the previous experience while, for all other positions, the highest score is related to the university study programme.

For the five profiles, Table 8 shows only the six levels with the highest part-utility coefficient, together with the associated total utility score and the corresponding None score.

Tab. 8: The ideal profiles

	Administration – Clerk	Commercial – Revenue manager	Front Office - Receptionist	Human Resources –	Marketing – Web specialist
Field of study	Economics	Economics	Foreign languages	Foreign languages	Mathematics
Degree level	Bachelor	Master	Bachelor	Master	Bachelor
Degree mark	High	High	High	High	Medium
English knowledge	Fluent	Not necessary	Fluent	Basic	Basic
Work experience	At least 1-year experience	Traineeship in tourism	Traineeship in tourism	At least 1-year experience	Traineeship in tourism
Willing to travel	Not necessary	Not necessary	Only for short periods	Only for short periods	Not necessary
Score	8.21	6.26	6.84	9.17	6.19
None	2.50	3.64	2.99	4.92	2.61

6. CONCLUSIONS

In this paper, we present a research aiming to identify ideal candidate profiles for key job roles in hotel industry. The innovative contribution of this work is the use of conjoint analysis in this kind of studies. The definition, the organisation and the data collection of a conjoint experiment require higher resources, in terms of time and staff, than classical surveys but it ensures richer data and informative findings.

The estimation of utility scores and relative importance of the attributes allowed us to understand which elements of a candidate profile desired, which ones are interchangeable, which are, on the contrary, undesired. At the same time, we identified the most important attributes and the propensity of the hotel managers to choose graduates with different academic careers for their vacancies.

Findings highlight how managers generally focus their attention on few study programme (economics and tourism) and avoid Ph.D. candidates. Maybe,

they consider these candidates overeducated or they do not recognise the value of Ph.D. programmes in the job market. A master degree is required just in few cases while in most situations a bachelor degree seems to be adequate.

A further methodological gain of this conjoint experiment is the relevance of the “none” choice. The use of this option allowed us to measure a threshold of the level of selectivity of the manager with respect to the different job position considered. In role well-thought-out more specific, they showed a high threshold not being willing to evaluate candidates with general skills.

The results of this work may help the academia to improve their policies about study programme organisation and job placement signing more agreements with job market drivers to ensure targeted traineeships to their students (Ring et al., 2009).

The main limitations of this research are the logit model assumptions and the sample size. Logit model is based on a strong assumption, namely the independence of the irrelevant alternatives (IIA) property (Zhang and Hofmann, 1993). The IIA property means that the relative probability of choosing any two alternatives is independent of all other alternatives in the choice set. When some alternatives are close substitutes for one other, the IIA property could be invalid then the logit parameter estimates will be inappropriate. In our study, in the definition of a set of not-substitute alternatives, we made the assumed the validity of IIA property. This could be a limitation of this research.

Moreover, in order to consider a major variety of study programmes and many attributes characterising a candidate profile, a future research should necessarily collect a larger sample.

ACKNOWLEDGEMENT

We wish to thank Luigi Fabbri for helpful suggestions and comments. The usual disclaimers apply.

REFERENCES

- Addelman, S. (1962). Symmetrical and asymmetrical fractional factorial plans. *Technometrics*, 4(1): 47-58.
- Albaladejo-Pina, I.P. and Díaz-Delfa, M.T. (2009). Tourist preferences for rural house stays: Evidence from discrete choice modelling in Spain. *Tourism Management*, 30(6): 805-811.
- Amoah, V. A., and Baum, T. (1997). Tourism education: policy versus practice. *International Journal of Contemporary Hospitality Management*, 9(1): 5-12.

- Aria M., Della Corte V. and Piscitelli A. (2017) Business orientation and governance choices in cultural firms: A survey research in area of Naples, *Statistica Applicata - Italian Journal of Applied Statistics*, 28(2): 61-94.
- Baum, T. (1995). *Managing Human Resources in the European Tourism and Hospitality Industry: A Strategic Approach*. Chapman and Hall Ltd, London.
- Borsboom, D. and Scholten, A.Z. (2008). The Rasch model and conjoint measurement theory from the perspective of psychometrics. *Theory & Psychology*, 18(1): 111-117.
- Breidert, C., Hahsler, M. and Reutterer, T. (2006). A review of methods for measuring willingness-to-pay. *Innovative Marketing*, 2(4): 8-32.
- Bridges, J.F., Kinter, E.T., Kidane, L., Heinzen, R.R. and McCormick, C. (2008). Things are looking up since we started listening to patients. *The Patient: Patient-Centered Outcomes Research*, 1(4): 273-282.
- Camera di Commercio di Napoli (2013), *L'economia napoletana in cifre*. Bollettino di Statistica della Camera di Commercio di Napoli, Naples.
- Carroll, J.D. and Green, P.E. (1995). Guest editorial: Psychometric methods in marketing research: Part I, conjoint analysis. *Journal of Marketing Research*, 32(4): 385-391.
- Croissant, Y. (2012). *Estimation of multinomial logit models in R: The mlogit Packages*. R package Version 0.2-2. R Cran
- de Bekker-Grob, E.W., Ryan, M. and Gerard, K. (2012). Discrete choice experiments in health economics: a review of the literature. *Health Economics*, 21(2): 145-172.
- Della Corte, V. and Aria, M. (2014). Why strategic networks often fail: Some empirical evidence from the area of Naples. *Tourism Management*, 45: 3-15.
- Della Corte, V. and Aria, M., (2016) Competition and sustainable competitive advantage. The case of tourist destinations. *Tourism Management*, 54: 524-540.
- Della Corte, V., Aria, M. and Del Gaudio, G. (2017). Smart, open, user innovation and competitive advantage: a model for museums and heritage sites. *Museum Management and Curatorship*, 32(1): 50-79.
- Di Stasio, V. and van de Werfhorst, H.G. (2016). Why does education matter to employers in different institutional contexts? A vignette study in England and the Netherlands. *Social Forces*, 95(1): 77-106.
- Ewing, G. and Sarigöllü, E. (2000). Assessing consumer preferences for clean-fuel vehicles: A discrete choice experiment. *Journal of Public Policy and Marketing*, 19(1): 106-118.
- Fabbris, L., Scioni, M. and Vaglini, B. (2015). The ideal candidate to a job through a conjoint study. In: UIIN University-Industry Innovation Network, editors, *Academic Proceedings 2015 University-Industry Interaction Conference: Challenges and Solutions for Fostering Entrepreneurial Universities and Collaborative Innovation (UIIN06/2015/, Berlin, Germany)*, Science Marketing: 117-133.
- Furlan, R. and Corradetti, R. (2005). An empirical comparison of conjoint analysis models on a same sample. *Statistica Applicata - Italian Journal of Applied Statistics*, 17(2): 141-158.
- Green, P.E. and Srinivasan, V. (1978). Conjoint analysis in consumer research: Issues and outlook. *Journal of Consumer Research*, 5(2): 103-123.
- Green, P.E. and Srinivasan, V. (1990). Conjoint analysis in marketing: new developments with implications for research and practice. *The Journal of Marketing*, 54(4): 3-19.
- Gustafsson, A., Herrmann, A. and Huber, F. (Eds.). (2013). *Conjoint Measurement: Methods and Applications*. Springer Science & Business Media, Heidelberg.

- Halme, M., and Kallio, M. (2014). Likelihood estimation of consumer preferences in choice-based conjoint analysis, *European Journal of Operational Research*, 239(2): 556-564
- Hanley, N., Mourato, S. and Wright, R.E. (2001). Choice modelling approaches: A superior alternative for environmental valuation?, *Journal of Economic Surveys*, 15(3): 435-462.
- Hauser, J., Tellis, G.J. and Griffin, A. (2006). Research on innovation: A review and agenda for marketing science. *Marketing Science*, 25(6): 687-717.
- Hicks, R.L. (2002). A Comparison of Stated and Revealed Preference Methods for Fisheries Management. Paper presented at the Annual meeting of American Agricultural Economics Association (New Name 2008: Agricultural and Applied Economics Association), July 28-31, Long Beach, CA: 1-33.
- Hinkin, T.R. and Tracey, J.B. (2000). The cost of turnover: Putting a price on the learning curve. *The Cornell Hotel and Restaurant Administration Quarterly*, 41(3): 14-21.
- Lohrke, F.T., Holloway, B.B. and Woolley, T.W. (2010). Conjoint analysis in entrepreneurship research: A review and research agenda. *Organizational Research Methods*, 13(1): 16-30.
- Louviere, J.J., Hensher, D.A. and Swait, J.D. (2000). *Stated Choice Methods: Analysis and Applications*. Cambridge University Press, Cambridge.
- McFadden, D. (1980). Econometric models for probabilistic choice among products. *Journal of Business*, 53(3): 13-29.
- McFadden, D. and Train, K. (2000). Mixed MNL models for discrete response. *Journal of Applied Econometrics*, 15(5): 447-470.
- Montgomery D.C. (2001). *Design and Analysis of Experiments*. John Wiley & Sons, New York.
- Moskowitz, H.R. and Silcher, M. (2006). The applications of conjoint analysis and their possible uses in sensometrics. *Food Quality and Preference*, 17(3): 145-165.
- Natter, M. and Feurstein, M. (2002). Real world performance of choice-based conjoint models. *European Journal of Operational Research*, 137(2): 448-458.
- Netzer, O., Toubia, O., Bradlow, E.T., Dahan, E., Evgeniou, T., Feinberg, F.M., Feit, E.M., Hui, S.K., Johnson, J., Liechty, J.C., Orlin, J.B. and Rao, V.R. (2008). Beyond conjoint analysis: Advances in preference measurement. *Marketing Letters*, 19(3-4): 337-354.
- Orme, B.K. (2010). Interpreting the results of conjoint analysis. In B.K. Orme, *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research* (2nd ed.). Research Publishers, Madison, WI: 77-88.
- Poortinga, W., Steg, L., Vlek, C. and Wiersma, G. (2003). Household preferences for energy-saving measures: A conjoint analysis. *Journal of Economic Psychology*, 24(1): 49-64.
- Powell, S. and Wood, D. (1999). Is recruitment the millennium time bomb for the industry worldwide?. *International Journal of Contemporary Hospitality Management*, 11(4): 138-141.
- Priem, R.L. (1992). An application of metric conjoint analysis for the evaluation of top managers' individual strategic decision-making processes. *Strategic Management Journal*, Summer Special Issue 13: 143-151.
- Raghavarao, D., Wiley, J.B. and Chitturi, P. (2010). *Choice-based conjoint analysis: models and designs*. Chapman and Hall/CRC, New York.
- Ring, A., Dickinger, A. and Wöber, K. (2009). Designing the ideal undergraduate program in tourism: Expectations from industry and educators. *Journal of Travel Research*, 48(1): 106-121.
- Ryan, M. and Farrar, S. (2000). Using conjoint analysis to elicit preferences for health care. *BMJ*, 320(7248): 1530-1533.

- Ryan, M. and Gerard, K. (2003). Using discrete choice experiments to value health care programmes: Current practice and future research reflections. *Applied Health Economics and Health Policy*, 2(1): 55-64.
- Ryan, M., Gerard, K. and Amaya-Amaya, M. (Editors), (2007). *Using Discrete Choice Experiments to Value Health and Health Care* (Vol. 11). Springer Science and Business Media, Dordrecht.
- Schillebeeckx, S.J., Chaturvedi, S., George, G. and King, Z. (2016). What do I want? The effects of individual aspiration and relational capability on collaboration preferences. *Strategic Management Journal*, 37(7): 1493-1506.
- Soofi, E.S. (1992). A generalizable formulation of conditional logit with diagnostics. *Journal of the American Statistical Association*, 87(419): 812-816.
- Turner, R. and Freiermuth, E. (2016). *Travel and Tourism. Economic Impact 2016 World*. World Travel and Tourism Council. Available at <http://www.wtc.org/-/media/files/reports/economic-impact-research/regions-2016/world2016.pdf> (last access: Sept. 19, 2016).
- UNWTO, (2016). Inbound tourism: short-term trends 2016. *UNWTO World Tourism Barometer*, 14(4): 1-48.
- Yorke, M. and Harvey, L. (2005). Graduate attributes and their development. *New Directions for Institutional Research*, 2005(128): 41-58.
- Zhang, J. and Hoffman, S.D. (1993). Discrete-choice logit models: Testing the IIA property. *Sociological Methods & Research*, 22(2): 193-213.