

The evaluations of the requirements: insights from the professional figure of cook in Italy

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Statistics and the Assessment, Control and Scenarios of Risks

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- 2 **Methodology:** The use of Choice Based Conjoint Analysis in combination with a re-evaluation monetary index
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The recruitment process

The recruitment process consists of the following steps:

- highlighting the role covered by a new recruit
- recruiting a shortlist of candidates using job advertisements and then analysing CVs
- evaluating/assessing competencies, attributes and attitudes of the candidates through psychological tests
- selecting the best profile after some job interviews

The aim of this work is to measure the monetary evaluation of the skills useful to get the job offer using an a-posteriori analysis on the hired candidates.

Requirements for the job market

The requested requirements by companies during the recruitment process could be divided into 3 categories:

- **Knowledges** as set of structured principles and theories useful for the correct implementation of the profession
- **Abilities** as procedures and processes defining the capabilities to accomplish the professional tasks
- **Attitudes** as cognitive features affecting the professional development and the execution of job activities

Conjoint Analysis

- Conjoint Analysis is a technique widely used to investigate consumer choice behaviour
- In this study Conjoint Analysis refers to the stated preference model used to obtain part-worth utilities
- The utility function U_j for the characteristics describing several profiles is defined as follow:

$$U_j = \sum_{l=1}^L \sum_{k=1}^K u_{jkl} * x_{jkl} + e_j \quad (1)$$

- u_{jkl} is the partial change in U_k for the presence of the attribute level k , holding all other variable constants, x_{jkl} is the dummy variable that refers to the specific attribute level and e_j is a random error.

The economic re-valuation index

Part-worth utilities of levels obtained from CA represents the starting point to re-evaluate the proposed Gross Annual Salary of the job vacancies. Economic re-evaluation is carried out through relative importance of attributes in non-standard CA using Mariani-Mussini coefficient of economic valuation MI_{ik} . The general formulation of MI_{ik} is:

$$MI_{ik} = \frac{U_i - U_b}{U_b} * I_k \quad (2)$$

where U_i is the total utility associated with the profile i , U_b the total utility associated with a baseline profile and I_k is the relative importance for the attribute k . Given the Gross Annual Salary (GAS) associated, the coefficient can be expressed, in monetary terms, as:

$$V_{ik} = MI_{ik} * GAS \quad (3)$$

The AdeccoGroup database (1)

- Dataset used in this work refers to the 2017 AdeccoGroup database. In particular, the statistical unit is represented by candidates awarding the job offers and the explanatory variables are the mandatory requirements to pass the recruitment process.
- Job positions are comparable using the ESCO international classification. Informations about job offers generates knowledge about criteria used for the choice of the best candidate.
- In 2017 the job positions are more than 120.000 divided into 9 industries: IT & Digital, Engineering, Medical, Finance, Tourism, HR, Commercial, Food Services and Production.

The AdeccoGroup database (2)

A not-random selection of the job offers has been carried out to build a national reference. This selection has been realized in order to balance the representation of all the industries.

Industry	Job offers	Analysed job offers
Digital IT	696	85,3 %
Engineering	1.779	79,3 %
Medical and Pharmaceutic	2.340	48,0 %
Legal and Finance	3.581	48,7 %
Tourism	6.778	22,5 %
Human Resource	6.886	33,6 %
Commercial and Marketing	17.840	13,2 %
Food services and hospitality	29.408	7,1 %
Production and Logistic	51.863	24,9 %
<i>Total</i>	121.171	21,5 %

Source: elaboration on AdeccoGroup data

Requested Requirements

The analysed requirements have been chosen among 26 skills included in the AdeccoGroup competence dictionary and join with the experience and two knowledge indicators.

Requirements	Frequency
Previous experience	56,6%
English Knowledge	43,2%
Education level	41,7%
Quality orientation	41,0%
Team working	36,0%
Participation and responsibility	33,8%
Problem Solving and analysis	32,1%
Communication	21,3%
Self-control	18,9%
Customer orientation	15,2%

Source: elaboration on AdeccoGroup data

Industry and ΔGAS

The 9 industries presented different compositional aspects compared to the total of job offers and candidates. A ΔGAS has been introduced as the difference between the average salary (JobPricing) and the minimum CCNL salary.

Industry	Job offers	Candidates	ΔGAS
Commercial and Marketing	14,7	12,0	€ 11.000,00
Human Resource	5,7	0,7	€ 11.000,00
Engineering	1,5	2,3	€ 9.000,00
Digital IT	0,6	1,0	€ 10.000,00
Legal and Finance	3,0	4,4	€ 11.000,00
Medical and Pharmaceutic	1,9	1,9	€ 17.000,00
Production and Logistic	42,8	63,4	€ 13.000,00
Food service and Hospitality	24,3	10,7	€ 6.000,00
Tourism	5,6	3,6	€ 10.000,00
Total	100,0	100,0	€ 10.000,00

Source: elaboration on AdeccoGroup data

Focusing the attention on Food service and Hospitality

Job profiles considered for the Food service and Hospitality industry are:

- Receptionist
- Bartenders
- Waiters
- **Cooks**

Requirements	Industry	Rec	Bar	Wai	Cooks
Previous experience	10	10	10	9	-
English Knowledge	7	4	4	2	9
Education level	4	9	9	7	6
Quality orientation	6	6	6	10	5
Team working	9	1	3	4	8
Participation and responsibility	2	8	2	8	3
Problem Solving and analysis	1	2	1	1	1
Communication	3	3	5	3	4
Self-control	8	7	7	5	7
Customer orientation	5	5	8	6	2

Source: elaboration on AdeccoGroup data

Monetary re-valuation for Food service and Hospitality

- $N = 2.096$
- Problem solving and analysis and Participation and responsibility are the most important requirements
- Total amount of estimated ΔGAS is very close to the real ΔGAS

Job Offers	29.408
Individuals	4.522
Observations	2.096
Average GAS	€ 27.000,00
Minimum GAS (CCNL)	€ 21.000,00
ΔGAS	€ 6.000,00
Requirements	Estimated ΔGAS
Problem Solving and analysis	€ 3.688,96
Participation and responsibility	€ 1.429,68
Communication	€ 652,46
Education level	€ 542,16
Customer orientation	€ 399,43
Quality orientation	€ 308,67
English Knowledge	€ 293,34
Self-control	€ 223,90
Team working	€ 90,86
Previous experience	€ 33,95
Total	€ 7.663,41

Source: elaboration on AdeccoGroup data

Focusing the attention on Cooks

- $N = 575$
- Problem solving and analysis and Customer orientation are the most important requirements
- Confirmation of the similarity between estimated ΔGAS and real ΔGAS

Job Offers	10.705
Individuals	1.688
Observations	575
Average GAS	€ 28.000,00
Minimum GAS (CCNL)	€ 21.000,00
ΔGAS	€ 7.000,00
Requirements	Estimated ΔGAS
Problem Solving and analysis	€ 2.319,19
Customer orientation	€ 1.729,44
Participation and responsibility	€ 1.122,17
Communication	€ 1.122,17
Quality orientation	€ 545,73
Education level	€ 357,28
Self-control	€ 248,85
Team working	€ 142,25
English Knowledge	€ 98,73
Total	€ 7.685,81

Source: elaboration on AdeccoGroup data

Conclusions

- An a-posteriori analysis has been carried out on the Adecco Group Database considering job offers in Italy in 2017
- Use of a Choice Based Conjoint Analysis has been used in combination with an economic Index of Re-valuation applied on Gross Annual Salary (GAS)
- In Food services and Hospitality industry the attitude to solve problems has been detected as the skills with the highest values of re-valuation
- Good results has been obtained comparing the estimated ΔGAS with the difference between the average GAS and the minimum provided by CCNL