

Self-Assessment and Career Choices: A Multivariate Analysis for the University of Salerno

Auto-valutazione e Interessi Professionali: Un'Analisi Multivariata dei dati dell'Università di Salerno

Alessandra Amendola, Maria Prosperina Vitale

Dipartimento di Scienze Economiche e Statistiche, Università di Salerno,
Via Ponte Don Melillo, 84084 Fisciano (SA)
alamendola@unisa.it, mvitale@unisa.it

Riassunto: In questo lavoro viene presentata un'analisi dei dati raccolti attraverso la somministrazione del Test di Autovalutazione dell'Università di Salerno, da noi realizzato in collaborazione con un team di docenti e di esperti dell'Ateneo. Il test rappresenta uno strumento di orientamento *on-line* per fornire ai potenziali studenti universitari indicazioni sul percorso di studi da intraprendere. In una prima fase è stata effettuata un'analisi esplorativa volta a validare lo strumento proposto e, successivamente, gli spunti emersi dalla stessa hanno condotto ad una riflessione sulle relazioni esistenti tra le diverse variabili di interesse.

Keywords: Self-Assessment, Career Choices, Ordinal Data, MCA, CA.

1. Introduction

The Italian university system is currently undergoing an extensive institutional renewal process. A growing interest is being paid to the analysis of the decision process through which potential undergraduate students choose a specific course. Counselling and psychological services are proposed by the universities for helping students to resolve personal difficulties and to develop skills, attitudes and interests. In this framework, an online resource, the Self-Assessment and Career Choices scale, has been established by the University of Salerno. The aim of this tool is twofold. First of all, the intend is to single out the personal traits and learning style of subjects. The second aim is to give the students useful suggestions in order to help them to choose the degree program which is most closely related with their career choices.

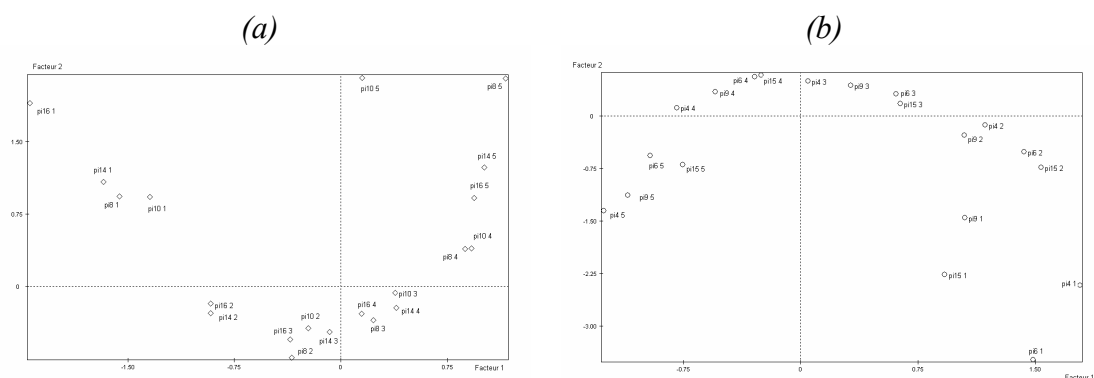
The Self-Assessment scale is made up of 67 items divided in five subscales that assess *problem solving* (PS), *method of study* (Met), *academic motivation* (Mot), *personal traits* (PI) and *abilities* (A). Additional 40 items belong to the Career Choices scale related to *occupational interests* (IP). The item's score ranges from 1 to 5 for each Likert scale format, with higher scores indicating stronger degree of agreement. The students have to complete also a form in which they give some information on their socio-demographic background, academic performances and on their choice to enrol in an undergraduate program.

The paper presents the results of the analysis on the data collected in the period October-December 2003 for a total of 744 contacts, in order to evaluate the performance of the two scales proposed. In particular, an exploratory data analysis has been

2. A Multivariate Exploratory Analysis for the Self-Assessment Data

Within the exploratory data analysis, a Multiple Correspondence Analysis – MCA – has been performed. In the first principal axis, the “Guttman effect” is clearly visible for each latent construct (Figure 1). In fact, a horseshoe pattern orders *problem solving*, *method of study*, *academic motivation* and *personal traits* in a parabolic-shaped curve with replicated points.

Figure 1: Factorial plane showing Guttman effect of personal traits subscale: (a) Emotional balance, (b) Self-Esteem



Furthermore, a MCA was conducted in order to analyse the influence of socio-demographic characteristics on the various phenomena under study, where the self-assessment data are considered as supplementary variables. A graphical representation of the active and supplementary variables on the first factorial plane is given in Figure 3. The first axis is characterised by secondary school programs, the intention of take an

undergraduate program and parents' educational status. The second axis is characterised by the subjects' age.

Figure 2: 2-dimensional correspondence analysis of doubled method data

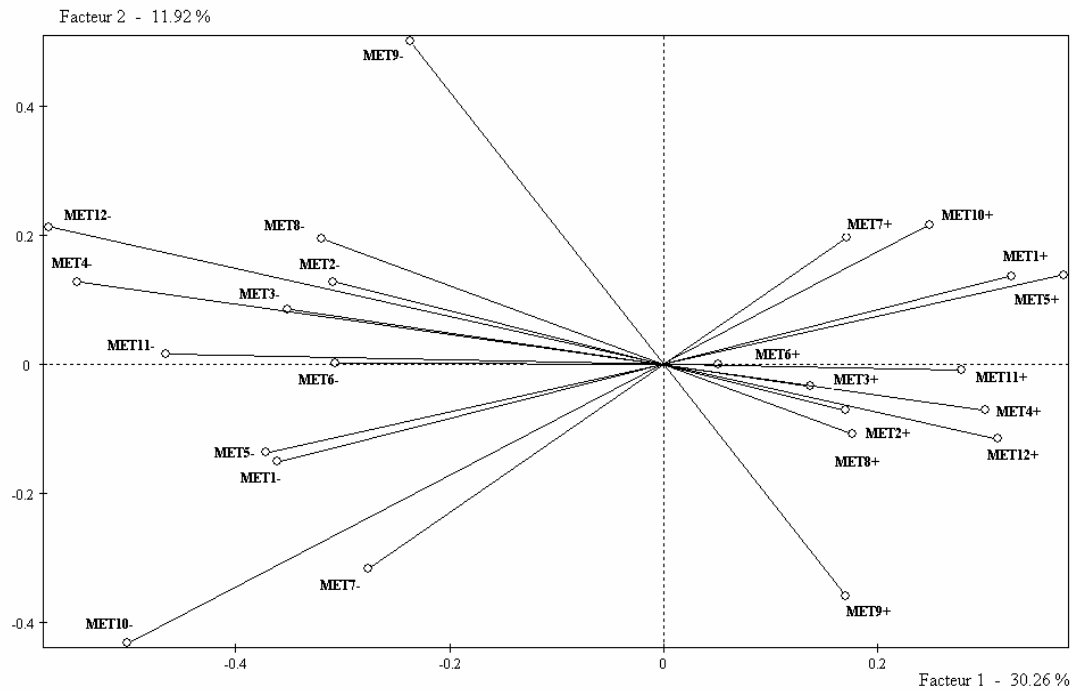
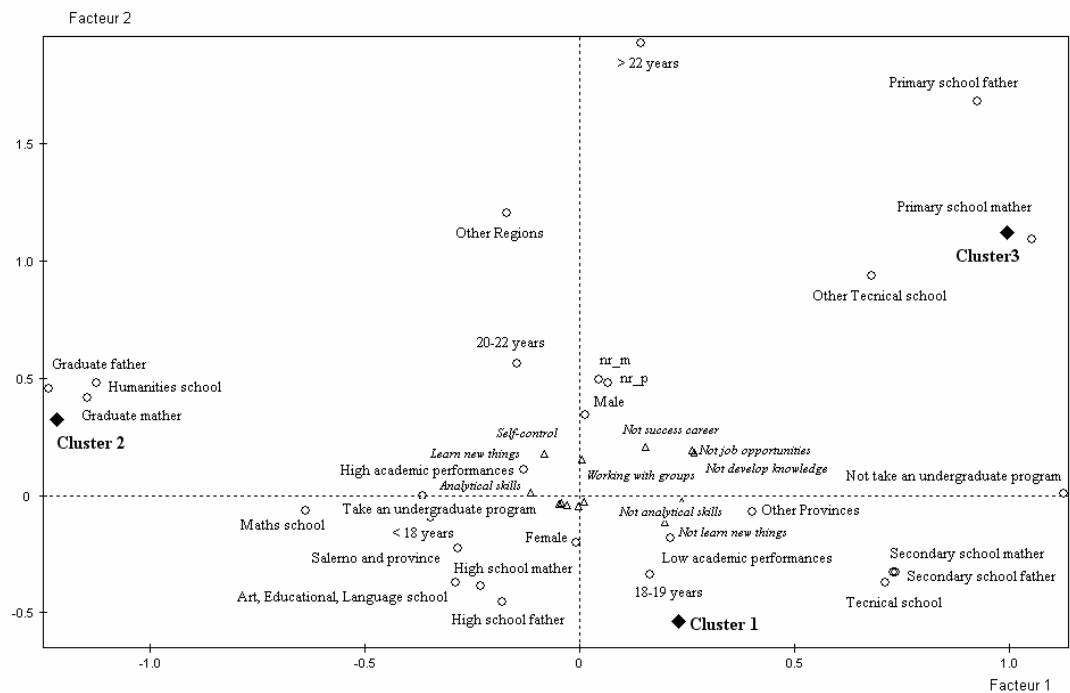


Figure 3: Representation of active variables (○), some supplementary variables (△) and clusters (◇) on the first factorial plane



By looking at the factorial plane, individuals on the right-hand side of the map have not decided if, after leaving school, they're going to take an undergraduate program or to enter the job market: they come from technical and engineering secondary schools and their parents have a low educational status. On the left-hand side of the map, there are the younger people (<18 years) that want to continue studying: they take on humanities or maths programs and their parents have a high school diploma or bachelors' degree. The former, therefore, have a poor academic and social motivation, while the latter have high personal involvement in the study. Findings from this analysis are confirmed by the results of a cluster analysis in which are identified three groups of students. The representation of the different clusters is also given in Figure 3.

3. Empirical evidence on the Career Decision Making

The 40 items of the Career Choices scale are related to various typologies of undergraduate courses: Economics, Law, Pharmacy and Medicine, Sciences and Mathematics, Engineering and Humanities Studies. A cluster analysis is performed to understand if the proposed items are able to identify the different courses. The first seven groups partition is reduced in six groups in order to aggregate the subjects that are unable to make a decision about the vocation one wishes to pursue. The final six groups are: *Economics and Law Studies*; *Sciences, Mathematics and Engineering Studies*; *Economics and Technological Studies*; *Pharmacy and Medicine Studies*; *Humanities Studies* and *Career Indecision*. Based on the final results, a categorical variable has been defined to identify the specific program chosen by potential students. The relationship between the above described categorical variable, on one side, and the other self-assessment variables and socio-demographic characteristics, on the other, is investigated. This analysis shows that the Economics, Law, Mathematics and Engineering degree programs are preferred by the male students that come from technical and engineering or maths secondary schools with high personal involvement in the study and good capacity to problem solving. The Humanities Studies are preferred by the female students with high academic motivation but low self-esteem, while the Pharmacy and Medicine Studies are selected by the students that take a maths course in the secondary school with high analytical capacity and good learning style. The results of the present study provide good support for understanding the phenomena under analysis and have a relevant practical implication in order to improve the structure of the Self-Assessment and Career Choices scale established.

References

- Greenacre M. J. (1984) *Theory and Application of Correspondence Analysis*, Academic Press, London.
- Lebart L., Morineau A., Piron M. (1995) *Statistique Exploratoire Multidimensionnelle*, Dunod, Paris.
- Van Der Eijk C. (2001) Measuring Agreement in Ordered Rating Scales, *Quality & Quantity*, 35, 325-341.
- Wentzel K. R., Wigfield A. (1998) Academic and Social Motivational Influences on Students' Academic Performance, *Educational Psychology Review*, 2, 1998.