



Statistics in Education

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To cite this article: Massimo Attanasio & Vincenza Capursi (2016) Statistics in Education, Journal of Applied Statistics, 43:1, 1-2, DOI: [10.1080/02664763.2015.1104890](https://doi.org/10.1080/02664763.2015.1104890)

To link to this article: <https://doi.org/10.1080/02664763.2015.1104890>



Published online: 24 Dec 2015.



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EDITORIAL

Statistics in Education

During the last few decades, educational systems have attracted a great deal of interest because they are closely related to economic and social systems. For example, ‘higher education has been affected by a number of changes, including higher rates of participation, internationalization, the growing importance of knowledge-led economies and increased global completion’ (Bologna Process, 1999). There is a worldwide need to include in the educational language new words and concepts such as *assessment, evaluation, accountability, student performance, mobility, competitiveness* as part of a new governance system. It seems that a new discipline is growing slowly, with the aim of covering the management and the organization of educational systems. In this context, statistical methods must play a central role. A few existing statistical methods can be used without change, but most have to be refined in order to better fit with educational issues, and others have to be created specifically for this new application [6].

Hence, both educational system evaluation and statistical methods for evaluation of educational systems deserve attention through parallel development. This Special Issue of *Journal of Applied Statistics* contains papers on various statistical aspects of the educational system with special attention to tertiary education. Before describing the content of this issue, it is important to say that the majority of the work in this collection of papers is the result of two research projects, funded by the Italian Ministero dell’Università e della Ricerca Scientifica, *Indicators Construction for Public Decision-Making Processes between Measurement Issues and Opportunities Knowledge* (MIUR Grant # 2005139210) and *Measures, Statistical Models and Indicators for the Assessment of the University System* (MIUR Grant # 2008BWXSLH), which ended in 2012. Several workshops were held in Italy and several papers and books were published. In June 2013, after having published two books [2,3] and several papers [1,4,5,7,8], whose contributions were mostly centered on our Italian research group, a workshop was held in Palermo, Italy. Most of the speakers addressed statistical issues related to higher education while other presentations dealt with topics related to other aspects of education. The main objective of the workshop was to produce a collection of papers on this important application of statistics but that the collection should not be restricted to the speakers present in Palermo, but also to include ‘external’ contributions coming from outside Italy. The latter aim was fulfilled, in fact this Special Issue contains 10 external papers and among them 4 are outside Europe. These numbers are a mark of the growing worldwide interest in this topic.

This special issue comprises 18 papers written by experts in the field from several countries around the world. Each contribution contains various statistical methodological and application

issues. However, the papers can be grouped into four parts devoted to the following general themes:

- Student Career Performance. This is the most numerous group with seven papers. Most of them (Boscaino and Adelfio; Crippa *et al.*; Enea and Attanasio; Raponi *et al.*) concern various aspects related to the analysis and monitoring of career performance in order to identify weaknesses and eventually to create interventions to reduce disparities and irregularities in the Italian context. The other contributions also consider student performance but in an international context (Dehbi *et al.*; Maia *et al.*; Sitanggang). A noticeable feature of these papers is the variety of statistical models and techniques used to understand and analyze student performance.
- Education, Welfare, and Social Status. These three key phrases summarize the contents of the four papers included in this part, although they cover different issues. The first two contributions deal with student performance in the Italian context but from two different perspectives. The first concerns the differences between immigrant and native students (Contini and Azzolini) and the second looks at the effects of social influences on performance (Vitale *et al.*). The other two papers concern educational factors related to social conditions and the welfare system in South Africa (Nyamugure) and in Europe (Castellano and Punzo).
- Employability and Job Satisfaction. There are two papers dealing with very different topics regarding issues after graduation (Capecchi and Piccolo; Fasola *et al.*).
- Miscellaneous papers. This section covers a wide range of interesting arguments related to the University and educational world. They go from very popular topics, such as student evaluation of teaching (Fouskakis *et al.*) and university ranking methods (Telcs and Kosztyán) to psychological and attitudinal topics in education (Groß *et al.*; Adegboye and Jawid). The last one investigates networking in university research (De Stefano and Zaccarin).

Finally, the Guest Editors thank Robert Aykroyd and Adriana Brianezi Aykroyd for their support of this Special Issue, and also all the authors and reviewers for their contribution.

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