

Jobs and Competences of Graduates in Statistics

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Summary. The aim of this paper is to analyse the competences used at work and the professional profiles for people who graduated in Statistics at the University of Padua. Our study, accomplished by means of correspondence analysis and cluster analysis, highlights a general consistency between the formative profiles modelled at the Statistics Faculty and the tasks performed by graduates. Moreover, our analysis points out that several graduates are working in clerical jobs that do not allow them to use the competences they achieved during their university studies.

Keywords: Jobs; Competences; Educational profiles; Graduates in Statistics; University of Padua; Correspondence analysis; Cluster analysis.

1. Why an analysis of competences?

In Italy, tertiary education in statistics is traditional at any programme level, bachelor, master and PhD. The placement of graduate statisticians on the job market has always been easy, at least in comparison with other non-technical types of study programmes (Fabbri *et al.*, 2002).

Statistics is not a regulated profession in Italy². Nevertheless, statistical skills are strongly required by the market and statisticians are required for a variety of jobs. Statisticians work in agencies of services supply, craft and

¹ This note has been edited by L. Fabbri for Section 1 and by M.C. Martini for the other sections.

² In fact, that of actuarial statistician is a regulated profession in Italy, but the Paduan Faculty of Statistics does not supply the specific degree required for the admission to this position. A graduate in Statistics can take an exam to qualify in Statistics for the public administration, but this qualification is not really valued.

industrial companies of any size and activity, agencies for public opinion surveys, central and local public administrations, professional offices, and cooperative societies of services.

The knowledge and skills in demand concern marketing research, information systems management, industrial production and provision of quality control, demographic, social and economic forecasts, different types of counseling, technical support to activities of certification, goods and services quality control, technical offices, research and experimentation for goods and processes development.

However, statisticians are at a disadvantage because the poor knowledge of their professional potential: entrepreneurs and managers perceive the importance of statistics, but are not fully aware of the work duties a statistician can realize. Moreover, the extent of statistical activities rarely requires a “whole” statistician. This means that, in general, the statistical tasks are associated with other tasks and graduates in Statistics are often employed as computer scientists, business economists, and other capacities.

The variety of roles and contexts where the statisticians operate makes it more difficult to identify the professional profile of graduates in Statistics. The functions that a statistician exerts, in fact, are common to almost all the companies and institutions and, with few exceptions, to the functional areas where statisticians are engaged.

The condition of statisticians is common to most qualified workers. In small and medium companies, and in particular in professional offices, graduates are hired to carry out a multiplicity of functions, one of which – hopefully but not necessarily the main – referring to his or her educational subject.

The key to define the work activities carried out by statisticians, and to shape their professional profiles, are the competences they use. Competences are cross-occupation and job-specific kinds of knowledge and skills, and attitudinal features useful to work in a complex working environment, such as the capability to work in team, to feel him/herself part of a whole, to detect and concretely solve company's problems.

Technical competences can be taught at school. Attitudes are believed to be a sort of personal heritage. Nevertheless, with suitable educational methods, it is possible to develop even professional attitudes. For example, working in team is an attitude that can be instilled by studying in a team, so that students understand the value of a so-called “professional democracy”, the necessity of reaching a shared solution while being able to argue in favour of their own ideas. Analogously, problem-solving abilities can be developed by focusing on problems instead of methods at some points during their university studies.

Competences represent the parameters of a professional profile, its suitability for working purposes. Knowledge, skills and attitudes, whose achievement starts at school, can be used to satisfy work needs. Hence, competences are the elementary units for comparing professional profiles and work needs and, too, for describing the contents of formative curricula and jobs.