

METHODOLOGICAL NOTES

Universities surveyed

The following table gives details of the number of graduates interviewed, the universities surveyed, and the graduation sessions considered by both the *Graduate Profile* (Chapter 1) and the *Employment Survey* (Chapter 2).

Table 1 – Universities surveyed by the *Graduate Profile* and the *Employment Survey*

	Graduate Profile	Employment Survey	
		one year after graduation	two years after graduation
number of graduates interviewed	39,618	5,928	4,898
of whom <i>Erasmus</i> graduates	2,844	372	247
Universities surveyed	Bologna, Catania, Chieti, Ferrara, Florence, Messina, Modena and Reggio Emilia, Molise, Parma, Eastern Piedmont, Rome – Lumsa, Siena, Turin Polytechnic, Turin University, Trento, Trieste, Udine, Venice Architecture (IUAV).	Bologna, Catania, Chieti, Ferrara, Florence, Messina, Modena and Reggio Emilia, Molise, Parma, Trento, Trieste, Udine, Venice Architecture (IUAV).	Bologna, Catania, Ferrara, Florence, Messina, Modena e Reggio Emilia, Parma, Trieste, Udine.
degree sessions considered	1999 calendar year	May – August 1998	May – August 1997
survey year	1999	1999	1999

Sources

1. Graduate Profile

University archives were used to compile the following variables: *University, faculty, group of degree courses,⁽¹⁾ gender, age on graduation, residence, examination score, final degree grade, number of 'off-course' (fuori corso) years upon graduation, upper-secondary diploma, grade of upper-secondary diploma* (in the case of residence, administrative data were replaced by information contained in the survey questionnaire, and also in that of the grade awarded on graduation from high school).

The ALMALAUREA questionnaires were used to compile information the following: *study abroad, parent's educational qualifications, father's last occupation, social class, regularity of lecture attendance, use of laboratories, internships or work placements, time taken to prepare thesis, assessment of university experience and university facilities, possible re-enrolment at university, knowledge of languages and*

⁽¹⁾ Both the *Graduate Profile* and the *Employment Survey* adopted the same degree courses as utilized by ISTAT (2000), which were then aggregated into 14 groups of courses.

computer skills, work while at university, intended continuation of studies, branch and sector of preferred employment, degree of interest in corporate areas, importance of job characteristics, willingness to work in a particular geographical area and to accept work transfers.

2. Graduate Employment Survey

The variables examined in Chapter 2 derive from the survey on graduate employment (one or two years after graduation) carried out in 1999 in collaboration with the universities covered by the survey (see Table 1). Among the variables considered were the following: *postgraduate study and training, occupational status, work experience since graduating, occupational status on graduating and continuation activity prior to graduation, time between graduation and job search and time between job search and finding employment, methods and channels used to find work, type of contract, position in profession, sector and branch of economic activity, company size, place of work, use of skills, relevance of degree to work, external usefulness of degree, job satisfaction, reason for quitting previous job, type of job sought, job-search methods, last job-search action, importance of aspects of job, willingness to work in a particular geographical area, reason for non job-search.*

Specific classification methods

1. Graduate Profile

As regards success in university studies (examination score, final degree grade, number of years 'off course' on graduation), although all graduates for which information was available are considered, it would be more correct to restrict analysis to *stable* graduates alone, i.e. those who graduated from their own *universities* on passing all the examinations stipulated by their degree course programmes. The presence of graduates who received their degrees from universities other than those at which they matriculated, or who had changed faculty or degree course, may have given rise to distortions, especially as regards the number of 'off-course' years on graduation and the duration of studies. However, since the documentation required to distinguish between stable and non-stable graduates is not yet fully available for all the universities surveyed, the analysis of academic success for that moment concerns all graduates. As soon as the questionnaire return rate and the administrative data make it possible, analysis will be restricted to stable graduates alone.

- For the *examination score*, both a score of 30 and 30 *cum laude* for individual examinations correspond to 30.

- The *final degree grade* is expressed in 110ths also for the Faculty of Engineering of the University of Bologna; in order to calculate the average value, a degree *cum laude* was assigned three extra points (110 *cum laude* = 113).

- A graduate's *duration of studies* is the interval of time (measured in years and given as a decimal) between the conventional date of 5 November of the year of matriculation and the date of graduation.

- A graduate's *index of study duration* is equal to 1 + the delay before graduating. More specifically, an index value of 1.00 was assigned to students fulfilling their statutory examination requirements on or before the 'extraordinary' examination session (April). The amount of time taken to graduate in excess of, or less than, this benchmark was related to the legal duration of the course. Overall, the median value of the index was 1.50 for all the graduates from the eighteen universities covered by the survey.

- To determine *parents' educational qualifications*, consideration was made of the parent with the higher educational qualification. If no information was available about one of the parents, the only known qualification was used. A distinction was drawn between situations in which both parents were graduates and those in which only one possessed a degree.

- As regards the *social class* of graduates, the scheme proposed by Cobalti and Schizzerotto (1994) was used. Social class was defined on the basis of comparison between the socio-economic positions of the graduate's father and mother, choosing the higher of the two ('dominance' position). Socio-occupational positions can be grouped into the categories *bourgeoisie*, *white-collar middle class*, *petty bourgeoisie* and *working class*. The bourgeoisie 'dominates' the other three categories. The working class ranks lowest while the white-collar middle class and the petty bourgeoisie are substantially equivalent (neither of them 'dominates' the other; both 'dominate' the working class and they are both 'dominated' by the bourgeoisie). The social class of graduates with one parent classified as belonging to the petty bourgeoisie and the other to the white-collar middle class corresponds to the socio-economic position of the father (in this case it is not possible to choose between the white-collar middle class and the petty bourgeoisie using the dominance principle).

The *socio-economic position* of each parent is a function of the last occupation and of educational qualifications:

- entrepreneurs, free professionals and senior managers belong to the *bourgeoisie*;

- clerical or intermediate office staff with educational qualifications higher than a middle-school certificate constitute the *white-collar middle class*;
- self-employed workers, cooperative partners and helpers in family businesses belong to the *petty bourgeoisie*;
- clerical workers with no more than a middle-school certificate, factory workers and domestic workers are in the *working class*.

The social class of graduates whose mothers are housewives corresponds to the father's socio-economic ranking.

- Graduates with an 'at least good' knowledge of foreign languages are those who assessed themselves as mother-tongue speakers or with a score not less than 4 out of 5. Those with 'at least' good computer skills were those who indicated a score of not less than 4 out of 5.

2. Employment Survey

- The variable *occupational status* was defined according to the classification used by ISTAT for its survey of work entry by Italian graduates (cf. ISTAT, 2000). Thus graduates are distinguished according to whether they are in work, out of work and not seeking employment, and in work but seeking employment. As in the ISTAT survey, moreover, considered as being employed are all interviewees engaged in some sort of paid work (also irregularly) other than vocational training, even if paid (including internships, pupillages, doctoral programmes, postgraduate schools of specialization, master courses).

- *Labour-market entry times* were calculated using the Kaplan-Meier procedure. This is a method for the estimation of survival functions which yields an individual's probability of remaining in the original condition (here the condition of 'non-employment') after t units of time from the beginning of the 'risk period') (Blossfeld, Hamerle, Mayer, 1989). It is a non-parametric estimation method in the sense that no hypotheses need be formulated concerning the distribution being studied. However, the hypotheses which must be assumed in order to apply the Kaplan-Meier model are the following:

- the probabilities relative to the event in question must depend solely on the time subsequent to the initial event; that is, these probabilities are presumed to be stable in relation to absolute time. This means that cases added to the study at different times must produce similar results;
- there must be no systematic differences between cases in which the event occurs and those in which it does not;
- the time intervals must be constructed so that, within them, the probability of survival is constant.

Persistence in 'non-employment' was calculated for all interviewees not working at the moment of graduation, and it was expressed in months. For graduates who had had experienced at least one work episode since graduating, the interval t was defined as the number of months that had elapsed between graduation and obtaining the first job (not necessarily the same as that held at the time of the interview). For those who instead stated that they had never worked since graduating, the interval was defined as the number of months elapsing between graduation and the interview (which was fixed for all of them as the month of October, given that the time reference of the interview was 1 October 1999). Cases of this kind are called 'right-censored' (the observation period concluded before the event in question occurred).⁽²⁾

This aspect also influences definition of the survival curve, which at the time when observation concludes T is set equal to zero if a non-censored event is recorded (i.e. at the end of the period at least one individual experiences the event).

The survival function $S(t)$ measures the likelihood that a graduate will still not be in employment when t months have elapsed from graduation. If p_1 denotes the probability of not being in employment one month from graduating, p_2 denotes the conditioned probability of not being employed two months after leaving university, having failed to find a job in the first month, and p_k denotes in general the conditioned probability of not being in employment after k months, having failed to find a job in the first $k-1$ months, then one may define:

$$S(t) = p_1 \times p_2 \times \dots \times p_k \times \dots \times p_t.$$

The differences between the groups can also be determined by analysing the average survival times in the initial condition (in this case 'non-employment'). This average time μ corresponds to the area lying below the survival curve $S(t)$:

$$\mu = \int_0^{\infty} S(t) dt.$$

- Job search methods were grouped into five main *channels*:
 - direct contacts*: these include approaches made to potential employers on personal initiative, direct hiring by a company, and continuation of a job placement or of work-experience activity while preparing a university thesis;
 - informal indirect contacts*: all contacts with potential employers on the suggestion of relatives, acquaintances, previous employers or university

⁽²⁾ Two interviewees, one who had experienced the event and the other who had not (the *right-censored* case), may exhibit the same number of months t ; in this case, the former is considered to have experienced the event slightly before the latter.

lecturers, requests that relatives or acquaintances propose the job-seeker to potential employers, and continued employment in an already-existing family business;

–*formal indirect contacts*: enrolment at official job placement offices or specialized employment agencies, participation in public competitive examinations, applications to schools or education authorities, replying to job vacancies advertised in newspapers/notice boards/internet or advertising availability, attending job interviews;

–*self-employment*;

–*other type of contact*.

• In some cases the work contracts of employed graduates were aggregated: graduates employed on open-ended contracts or in effective self-employment were regarded as being in *steady employment*, while those hired on the following types of contract were regarded as being in *atypical employment*:

- contracts for socially useful work (LSU) or of public utility (LPU);
- contracts for temporary agency work;
- contracts forming part of work entry programmes (PIP);
- contracts for consultancy and freelance work coordinated by the employer, or for occasional freelance work.

• The classification of graduates according to the *external usefulness of their degree* associated the extent to which university-acquired skills were utilized and the relevance of the degree as follows:

–*very useful degree*: graduates employed in jobs for which a degree was required by law and who utilized skills acquired at university to a large extent;

–*useful degree*: graduates employed in jobs for which a degree was not legally required but was necessary or useful and who utilized skills acquired at university to a large extent;

–*quite useful degree*: graduates employed in jobs for which a degree was not legally required but was necessary, and who utilized skills acquired at university to a limited extent;

–*degree of little use*: graduates employed in jobs for which a degree was neither legally required nor necessary, but was useful, and who utilized skills acquired at university to a limited extent or not at all;

–*useless degree*: graduates employed in jobs for which a degree was neither legally required nor necessary nor useful, and who utilized skills acquired at university to a limited extent or not at all.