

Mobility and Progression in science careers
The Faculty of Science, University of Lisbon
Academic Scientific Careers in Italy

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Abstract

The present paper offers an overview of the higher education system and the academic career trajectory in Italy. The first part of the paper outlines how the system works. It starts with an introduction to the university system; it then discusses issues such as university entry requirements and fees, career progression in academia, and the contracts and pay of researchers and professors. The second part of the paper identifies some of the inaccuracies and dysfunctions of the Italian academic system.

Part 1 The Italian academic system

1. Introduction

Higher (university) education in Italy is provided by a number of bodies, such as State Universities, private Universities (*università libere*) as well as Politecnics (Politecnici), Academies (Accademie) and Conservatories (Consevatori) (UNESCO, 1999)

Academic institutions in Italy are densely present across the whole national territory. There are 77 universities (*athenaeums*) and more than 1500 degree courses offering extremely diverse training opportunities². In response to such a growing offer, training demand has grown consequently. Most of the universities are State institutions with a normal range of teaching and research, but there are a few private universities (*università libere*) recognized by the State³. In addition, there are higher institutes governed by special regulations (*istituti superiori con ordinamento speciale*), such as the Istituto Universitario Orientale and the Istituto Universitario Navale, both in Naples; the Scuola Normale Superiore and the Scuola Superiore di Studi Universitari e di Perfezionamento, both in Pisa, and the Scuola Internazionale di Studi Superiori Avanzati in Trieste. There are three polytechnics (*politecnico*), teaching exclusively engineering and architecture; they are in Bari, Milan and Turin. A professional and more focused training in art, music and drama is offered by specialist academies (*Accademia*) and conservatories (*Conservatorio*). In Italy there is no equivalent of the British “The Open University”, but some institutions do offer degrees by distance teaching (*Universita’ Nettuno*)⁴. Recently, a new law has introduced the possibility of public and private universities to offer degrees by distance learning.⁵

At the end of World War II a few thousand privileged students had access to university, since then the undergraduate population in Italy has increased from 217,000 students enrolled in the academic year 1960-61 to roughly 500,000 in 1966, 981,000 in 1976, and 1.7 million of students in 2000-2001⁶. It is thus evident that a transition from an *élite* educational system to a mass university occurred in the sixties-seventies, mainly due to the economic boom in the Country. The concept of

² Linee Guida per la Politica Scientifica e Tecnologica del Governo, 19/04/2002, p 23 MIUR website <http://www.miur.it>

³ The British Council International Guide to Qualifications in Education, (1996), IVth Ed, NARIC, pp. 437-441.

⁴ For more information about Nettuno University, see <http://www.uninettuno.it>

⁵ (2003) *Ecco come ottenere la laurea con internet dal ministero le regole per studiare a distanza*, 3 luglio 2003, La Stampa, Varie - Redazione.

⁶ See footnote 1

limited access to university, *numero chiuso*, is politically unacceptable, in Italy with very few exceptions (e.g. dentistry). Therefore, all students holding a *Diploma di Maturità*⁷ are entitled to enter any degree. However, in recent years, there has been a growing tendency to introduce "entrance tests" and other devices to reduce the number of entrants to a more manageable figure⁸.

One of the effects of massification is overcrowding, for which Italian universities are well-known. It is not unusual, for instance, to attend most of the first year lectures standing, given that classrooms are not designed to accommodate such a high number of students. However, such a phenomenon only occurs in the first year. In most of the degrees, except perhaps those, which are fashionable, students' attendance is lower in later years, due to drop out and failure. In the year 2000, a higher education reform, the so-called "Zecchino" Reform⁹ seems having reduced students' attendance, certainly for the introduction of new modules and curricula and the increment of novel degrees. In fact, the university training system has been revised and changes have been introduced in terms of autonomy of the management and didactic organisation. Although, it is too early to be able to evaluate the new system, industries have welcomed the reform. Their main interest is to have young graduates with no specialised training, at least at their first employment experience. To the contrary, most academics generally disagree with the higher education reform. They think the system is producing low quality graduates and the Italian tradition to produce top quality people, who are typically competitive at high levels abroad, is becoming only a memory of the past.¹⁰

Two elements led to the "Zecchino" Reform: the dropout rate and the excessive length of university studies.

Whilst the enrolment rate of students is in line with other OECD countries, there is a significant dropout from university studies. In 1999, the number of people having a first degree and/or a PhD were less than 9% of the population between 25 and 64 years old, against 35% of the USA, 25% of the United Kingdom, 23% of Germany, and 21% of France¹¹

In 1996, for example, more than 60% of the students enrolled later withdrew; in other countries the numbers for the same year were different: 45% in France, 37% in USA, 28% in Germany and 19% in the United Kingdom. Correlated to the dropout rate is the delay in achieving a degree. Again in 1996 only 9% of the graduates obtained their qualifications within the normal length of studies (before the reform all degrees

⁷ There are several A levels (*diploma di maturità*) in Italy ranging from Classical, Scientific and Artistic Lyceum to other technical and professional schools. Best performances of students from Lyceum (55% get a degree) and then Teaching Institutes (37%). Data ISTAT, see web-site Italian National Statistic Institute <http://www.istat.it>

⁸ From 1993/94 there has been a drastic drop of enrolment for the introduction of the entrance test in medicine: Data ISTAT see footnote no. 6

⁹ See Law DM 4 August 2000 published in the Official Journal (G.U. no.245, 19th October 2000)

¹⁰ There is concern about this issue. It has been suggested that it would be desirable to have two different possible routes: the first should provide a five-year top level education, for those students (at least 20%) who want to be employed in academic or industrial research sectors or have a top managerial position. The second should give the opportunity to the remaining students who want a degree, to have a quick access to the labour market and/or the possibility to get a master afterwards. From an interview with one of the Mobex Key informants, Padua, 15/11/2002 11,30 – 13,00

¹¹ See footnote no 1.

were of 4-5 years and medicine was 6) and more than 60% of the students took a degree with a delay of 3 years or more.

Academic career progression onto higher levels is designed to be meritocratic, relatively transparent through the practice of public competition i.e. *concorsi*. In the real world is but a “*smoke screen*” hiding a brutal reality of nepotism and corruption. Italy has never implemented a system, at national level and for all disciplines, for the objective ‘measurement’ of output and rewarding of excellence (such as the UK Research Assessment Exercise). In 2002, the Ministry of Health has implemented, exclusively for the disciplines of medicine and medical studies, a system of assessment of scientific outcomes, based on the impact factor of all publications in the previous three years. This system has been designed to attract funding from the Government.¹²

Italy is not very open to international recruitment, being access and career progression based on a complex and cumbersome system. The relative ‘closure’ of Italian science labour markets discourages young graduates in science and is one of the causes of the brain drain phenomenon. The corollary of this, however, is the lack of funding and investment in research and a unsupportive attitude of the Government towards science.

2. Post-Compulsory Education (14+)

Education is compulsory until the age of 14 years. At the end of compulsory education young people take the Diploma of Lower Secondary School, *Licenza Media* (equivalent to GCSE), conditional upon passing exams that cover a broad range of subjects. Students holding this diploma can have access to any of the Upper Secondary Schools, *Scuole Superiori*, which give Advanced level qualifications (equivalent to A levels). Any of the *Diploma di maturita’* (A levels) taken after 5 years study, give access to university. However, there are several types of *diploma di maturita’* ranging from Classical, Scientific, Linguistics and Artistic Lyceum to other technical and professional schools, schools for primary school teachers, music and sport. The traditional route that would lead into university is any Lyceum. Technical schools give diplomas, which are more vocational, but are also good to gain entrance to university. On the contrary, professional schools are more vocational and therefore individuals attending those schools generally tend to look for a job after the diploma. However, access to university is not in any way denied to them.

All potential undergraduates apply to one university of their choice directly to the institution. There is no entry score and only few courses have *numero chiuso* i.e. limited access with entrance tests. University fees are not very high and there are discounts for merits and/or income. Good grades in the *diploma di maturita’* give students the advantage of not paying the first year fees. Also a very good average in all exams taken at the end of the courses give fees exemption. Moreover, there are specific discounts or exemption for low-income families.¹³

For entrants who do not hold a *diploma di maturita’*, including applicants from abroad, the Fondazione Rui and Cimea have established agreed equivalences between

¹² Ministero della Salute, 30 maggio 2002, Prot. RS.3-ICS/RC-120, pp. 1-8.

¹³ See Opera universitaria web site <http://www.operauni.tn.it>

different types of qualifications¹⁴. The normal minimum age for an undergraduate to start a course is 18 years or 19 years old and the average age for getting a first degree is 26,5 years old.¹⁵

Gender and post-compulsory education

For the purpose of this paper, issues related to education are divided into two categories: *access* to education and *impact* of education on women's working life.

On the one hand, at present, *access* to education does not appear to be (any longer) a "woman problem". The number of women in education has in fact steadily increased over the past ten years (see Table 1). Accordingly, also the percentage of women with a qualification above the *Licenza media* (i.e. equivalent to 8 years' education or above) has also increased; at the moment is estimated around 80%, 3% more than men¹⁶. For women to hold a qualification appears to be a determinant factor to enter the employment market: amongst women with no qualification in 2002 only 3.9% was employed. Yet, the same consideration does not apply to men. For example, amongst men and women with a degree of *licenza media* (8 years' education), there is a 40% occupational gap¹⁷

Table 1: Ratio between age and school qualifications

Qualification	women		men		men and women	
	age 25-34	age 55-64	age 25-34	age 55-64	age 25-34	age 55-64
Tot. university degrees	10.8	3.8	9.1	6.9	10.0	5.3
First degree, Ph.D	9.2	3.4	8.2	6.6	8.7	4.9
Diploma Universitario	1.6	0.4	0.9	0.4	1.2	0.4
Tot. higher education (A-level)	45.9	12.3	43.0	16.8	44.5	14.5
Diploma di Maturità (A level)	37.2	9.6	35.7	13.8	36.4	11.7
Qualifica professionale (vocational training, eq. To A-level)	8.8	2.7	7.4	3.0	8.1	2.8
Licenza media (8 years' education)	37.3	19.0	42.5	24.7	39.6	21.8
Licenza elementare (5 years' education), no qualifications	6.0	64.9	5.4	51.5	5.7	58.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: ISTAT, *Donne all'Università, 1999*

3. The Italian Higher Education System

Undergraduate Study

Prior to the "Zecchino" Reform, universities conferred the following qualifications for undergraduate studies: the *Diploma Universitario* (DU), the *Diploma di Laurea*

¹⁴ See Fondazione Rui web site <http://www.fondazionerui.it> ; Cimea web site <http://www.cimea.it>

¹⁵ See web site MIUR <http://www.miur.it>

¹⁶ Battistoni, *I Numeri delle Donne*, p. 16 ss.

¹⁷ Battistoni, *Op.cit.* p. 19

(DL); for post-graduate studies: the *Corso di Perfezionamento* (CP), the *Diploma di Specializzazione* (DS) and the *Dottorato di Ricerca* (PhD).

The DU was introduced in 1990 in an attempt to reduce congestion in several degree courses, to provide a more vocationally-oriented type of education, and to have something corresponding to other EU short-cycle higher education courses¹⁸. The first degree holders emerged in 1994, but the "market value" of the qualification with potential employers has not yet been established. The length of a DU course was two or three years, depending on the subject.

Within the old university system, the DL (degree) was the second degree. The official duration of university courses varied according to the subjects, being 4 academic years for some disciplines (mathematics, physics, law, literature), 5 for others (chemistry, engineering), and 6 years for medicine. The effective duration of university education was, on average, two years longer than the "official length", due to the possibility of delaying the exams until after the end of the course. After the successful completion of all exams, students were required to submit an original thesis in order to qualify for the final degree (*laurea*) and to obtain the appellation "*dottore*" (Dott.)¹⁹. In scientific disciplines, such as biology for instance, the first degree thesis needs to be submitted after a period of training in a lab. This training lasts at least one year.

In 2000, the Minister for Research, Antonio Ruberti, introduced university diplomas (DU) with a three-year length, which were running in parallel with the degree courses, giving students the possibility of moving from a diploma to a degree. In the academic year 2002-2003, the Zecchino Reform, the so-called "3+2-reform"²⁰ entered into force. Once again the university system has been reformed and the credit system to measure the amount of work required of the students introduced.

The new structure includes two main cycles for undergraduate: the *laurea* and the *laurea specialistica*.

Laurea. (first degree). This is a three-year degree leading to the acquisition of a more general qualification suitable for the labour market. Students need 180 credits to get a degree and it is compulsory to study at least one European foreign language. In the following disciplines the degree is still according to the old system (*laurea a ciclo unico*): Pharmacy, Dentistry, Veterinary Science and Medicine.

Laurea specialistica ciclo unico (Overall Specialised degree. This exists only for Pharmacy, Dentistry, Veterinary Science (five years) and Medicine (six years). No

¹⁸ The DUs, since their inception, have restricted student numbers, usually to 100 per course. For further details see footnote no. 14.

¹⁹ There are still a number of issues to be resolved as a consequence of the university reform, such as for example the title of "dottore" awarded with the previous scheme and the one obtained now. As one of MOBEX key informants suggested, the "dottore" qualification should now be reserved to those who obtain a Ph.D. However, "for a family having a son or daughter, getting a degree without the doctor qualification is still a big shock. Therefore this issue is still under consideration and meanwhile the new 3-year graduates get the same qualification than those who graduated before the reform. The proclamation formula during the degree ceremony should be different and should not include the title "doctor". It should be conferred to students the degree (*laurea*) in... or the specialist degree (*laurea specialistica*) in..." (Interview with one of the MOBEX key informants, Padua, 15/11/2002 11,30 – 13,00).

²⁰ See footnote no. 8

qualification is obtained after the first three years, but only after completing all the courses. To obtain the specialised degree the student has to defend a thesis elaborated in an original fashion under the supervision of a tutor.

Gender and undergraduate studies

The percentage of women in higher (university) education has rose. Immediately after the Second World War for a woman to be enrolled at University it was exceptional. In 1950/51 only 2.1% of women studied for a university degree. This number steadily rose in the following years (29% in 1960, 38% in 1979, 45% in 1981, and 50% in 1990) and today 34.3 women on 100 decide to study at university (see Table 1).

Furthermore, a study recently conducted by ISTAT²¹ shows that fewer women than in the past are opting for traditional “women subjects” and prefer science and medicine (Engineering 20%, Medicine 40%).

Data elaborated by the Ministry of Education suggests that there is an increment in the number of women studying science in Italy. The percentage of women enrolled to the first year in chemistry is 63% and in medicine is more than 65%. However, the number of women enrolling for a degree in engineering and physics is still low. In the year 2001, less than 25% commenced their studies in mathematics and physics and a bit more than 15% chose engineering.

Table 2 Students, Year 2001-2002
Three-year degrees, specialist degrees and degrees according to the old system

Groups of Studies	Students Enrolled							
	Normal Length		After Normal Length Re-sited students Students under Conditions (*)		TOTAL Students Enrolled		Enrolled to the First year	
	Total	Women	Total	Women	Total	Women	Total	Women
Agriculture	26227	11682	14769	6631	40996	18313	7035	2701
Architecture	42310	20883	33318	15820	75628	36703	12976	6126
Chemistry-Pharmaceutical studies	38303	24684	17655	10928	55958	35612	9796	6122
Defence and Security	407	56	0	0	407	56	383	56
Economics-Statistics	139549	65350	92483	44160	232032	109510	45665	21001
Physical Education	14787	6021	989	458	15776	6479	4511	1660
Earth Sciences-Biology	46084	28076	23640	14338	69724	42414	16097	9559
Law	122702	70076	133628	79625	256330	149701	38105	20888
Engineering	129920	23073	81293	12538	211213	35611	37178	6043
Education	56541	51118	27970	25536	84511	76654	15970	14141
Humanities	92296	62442	72572	52746	164868	115188	29105	19070
Languages	56040	46724	35339	31073	91379	77797	18882	15474
Medicine	81802	52273	28657	16474	110459	68747	21696	14549
Political-Social Sciences	126337	76904	54239	31821	180576	108725	46731	28662
Psychology	48186	39278	13479	10863	61665	50141	14547	11486
Mathematics and Physics	31829	8756	18678	6468	50507	15224	12611	3161
Total number of students	1053320	587396	648709	359479	1702029	946875	331288	180699

Source: Re-elaboration of data produced by MIUR, Statistical Division

²¹ ISTAT, *Donne all'Università*, Bologna, Il Mulino, 2001. See also Pancheri, “Le Donne nella Scienza”, 2001 in <http://www.lnf.infn.it/theory/pancheri/Welcome.html>

There are currently more graduate female than male (55%)²². Women graduates in health and social services (66,3), humanities and arts (57,9%), and agriculture and veterinary (56,0) are more than men. Also in mathematics, physics and computing women are doing very well (47,7%) It also appears that overall, women achieve better grade than men²³.

Despite the fact that women have caught up with and even outdone men in some scientific disciplines, the percentage of women graduated in engineering, manufacturing & construction is still low (34,4%).²⁴

Taught Masters Degrees

There is not a strong tradition of Masters level courses in Italy. In the past, before the Zecchino reform, the word “Masters” was not even used for post-graduate studies in Italy. There were Masters offered by private institutions, particularly for those willing to get a specialisation in Finance or Business, such as MBAs. Most of the Masters degrees as such, were not legally recognised. This was no reflection on their quality; it merely means that no law was passed regulating their contents. Universities were offering postgraduate courses which were legally recognised by the State.

Graduates could apply for entering in a *Corso di perfezionamento* (CP), *Diploma di Specializzazione* (DS), or *Dottorato di Ricerca* (PhD)²⁵.

The CP (similar to Masters) lasted for one year and implied either a deeper study of certain disciplines or professional re-qualification.

The DS varied in length from a minimum of two to a maximum of five years, depending on the subject. Admission to it was limited to a small number of students by the means of a *concorso* and the courses were run by schools of excellence (*scuole di specializzazione*) in a limited number of subjects. Its purpose was to acquire a deeper knowledge in a professional field and included taught courses with research components (including an original thesis). After the reform the old structure of such diplomas has been replaced by Masters courses, except for medicine, which has still maintained such specialty diplomas. The Decree 475/2001 has also instituted the *scuola di specializzazione* in forensic professions (lawyer, public notary and judge). This two year course contemplates at end, a work placement at a legal firm. There are about 38 schools in Italy offering specialty diplomas in forensic professions.²⁶ However, they are not comparable to the new Masters degrees, differing for length and programmes.

Now Masters are awarded after the successful completion of a taught course with research components (and a dissertation). The duration of a taught Masters degree is one year full-time and students have to accumulate 60 credits to get the degree.

²² Micali, A (2000) Gli studi universitari e l’inserimento professionale delle laureate, in Palomba, R. ed. Figlie di Minerva, Franco Angeli, Milano p. 17.

²³ Palomba, R. (1997) Women in science ad their careers. The Italian Case, *Women and the net Workshop and Study* STOA, PE 166.786/Final, p. 38). See also Misiti, Ragazze Vincenti, *La Repubblica* (supplemento) 3/12/1998

²⁴ EC, Directorate-General for Research (2003) *She figures, Women and science statistics and indicators*, p. 42

²⁵ EC, Directorate-General XII, (1998) *Strategies and Policies on Research Training in Europe* p. 52-55.

²⁶ For more detail see <http://virgilio.it>; Scuola di specializzazione Universita’ Bocconi <http://www.lawschool.it>

There are two types of Masters: 1st Level Masters after the first degree which generally lasts 3 years now, or 2nd Level Masters after 5 years (*laurea specialistica*):

- *1st-level Masters* degree can be accessed after the *laurea* (first degree). It is equivalent to a taught standard UK Masters.
- *Laurea specialistica*. (Specialised degree) It lasts two years. It is accessible after the *laurea* (first degree). There are several options to gain a more practical preparation for specialist professions. Students need 300 credits to get this degree of which 180 credits have been already obtained with their first degree.
- *2nd - level Masters*. This is accessible after the *laurea specialistica* to deepen students' preparation and/or to acquire further competences useful for the labour market. These Masters schemes are a one-year postgraduate course and are worth 60 credits.
- *Diploma di specializzazione*. (Specialty diploma) a feature of the old university system, now only in some areas and fields such as for instance medicine.

Financing Undergraduate and Masters Study in Italy

Tuition Fees

In the last few years, university fees have increased in all faculties and *atheneums*. The reasons for that have been both the introduction of legislation giving autonomy to universities in determining the amount of the fees and the excessive proliferation of laws on the subject.²⁷ Criteria have been set to redistribute the increase of contribution among the diverse social classes of the students population. Payment methods and deadlines are fixed by single *atheneums* together with the amount of the taxes.

For students who have been awarded a regional grant there is an exemption of the fees and this applies also for students who actually don't get any grant but are suitable candidates, *idonei*. Fees are fixed according to progressive criteria and students have to declare their parents income, to avoid paying the highest amount.²⁸ Generally the fees are paid in two instalments: the first one at enrolment and the second in spring time and they include enrolment fee (around 165 Euro) and student fees (which vary according to universities and courses of study) There are often discounts and financial help for students who have high marks (for merit) and the criteria depend on the *atheneum*.

An example of highest fees required to go to the University of Pisa for the academic year 2003/04 is 1125 Euros plus 98 Euros (for a regional tax) per annum. There are some exemptions for students who get regional grants, have a loan given from the Region, foreign students who have a scholarship from the Italian Government, disable students who have a disability. Special discounts apply to students who are 50 years old (100 Euros); who are employees of the University (258 Euros) students coming from low-income families (867 Euros) who have high marks on the exams (258

²⁷ See Decree 509/9 entitled "Regolamento recante norme concernenti l'autonomia didattica degli atenei", published in the Italian Official Journal (G.U. no. 2, 4th January 2000). See also Law 4/1999 entitled "Disposizioni riguardanti il settore universitario e della ricerca scientifica".

²⁸ In accordance to the DR n. 01/915 of 18th July 2003

Euros) who are prisoners according to the Act CdA n.285 of 20/11/01 (150 Euros) and soldiers of the Naval Academy of Livorno (500 Euros).

Student Maintenance

In Italy, there is not a big culture of loans and only recently with the introduction of the Law 390/91 on the right of education, Regions can grant incentives to students. However, only 500 students (MIUR data) in five years have obtained these incentives. Three reasons have been claimed for low take-up: lack of awareness about them, inapplicability of the law for not having adopted implementing acts and lack of available banks.²⁹ The peculiarity of such loans is that they are based on the promise students will pay for them once they will find a job. Although the Law 390/91 requests the Regions to introduce such a system of loans, only five Italian Regions have implemented it. Sometimes the Region in conjunction with local banks advances some money and sustains interest costs and insolvency risk. Other times it directly manages the loan, requiring a guarantee from the students' parents, such as in the case of the Calabria Region. The amounts granted range from a minimum of 1.549 Euros to a maximum of 3.100 Euros. Most of the times the guarantee is borne by the entity and the debt returned after 37 months maximum.

There are also some private initiatives promoted by some banks such as for example the "Creso" account of the European Regional Bank; the «Prestito laurea» of the Popular Bank of Bergamo; loans up to 50,000 Euros with no specific guarantees and variable interest rate promoted by Sella Bank; "mini loans" to postpone the payment of university fees granted by Venezia Ca' Foscari.

Also students enrol in the *laurea specialistica* can have access to some of these loans.

Moreover, there are some benefits available to good-standard students in need. They have access to virtually free accommodations for the length of their studies (Law 390/1991) where only a minimal contribution towards the cost of the rent is due. Another facility available to students is the university canteen which is generally good and very cheap.

In conclusion, the nature of provisions about the fees, maintenance and loans all vary a lot regionally. There is a patchwork of different rules and policies and the system is not centralised, as for instance in the UK. There is also a direct link between excellence and money. Good students get fee relief and this does not happen in other countries, for instance in the UK.

Post Graduate Study/Research

The Importance of Institutional Selection

As outlined before, students go to the university of their choice, and only a few of them have to compete to secure a place; this mainly happen for the entrance into private universities or courses with *numero chiuso*. For financial considerations, most students study at an institution near their home. They simply go to 'local' institution.

In Italy a ranking system of institutions equivalent to the English RAE does not exist.

²⁹ Micardi F. (2003) *Prestiti d'onore all'anno zero. Tra i motivi del fallito decollo l'assenza delle norme attuative e la mancata conoscenza dello strumento*, Il Sole 24 ore, 28th July 2003, pag.27.

There are criteria decided by the MIUR (Ministry of Education and Research) to rank universities. However, these parameters are quantitative, statistical data and not qualitative information based on teaching and not research. An example of such criteria is the number of professors per students and the dropout number of students. According to these criteria, a university is good if the number of students who dropout is low; students complete their degree in time; there are few students per professors. However, these criteria are not well advertised. The National Observatory on the Universities prepares a list of universities according to the above-mentioned criteria, which are often published in national newspapers such as *la Repubblica*. There are no criteria to rank research. The CRUI (Conference of Rectors) is introducing new factors such as the impact factor and the section index, but there is no such a system yet. Recently the MIUR (Ministry) has introduced a committee of national and international referees to evaluate the applications for research grants. However there is no post-evaluation of the projects' outcome.³⁰

In Italy people's perception of good universities is not on the basis of the list or the criteria set by the Ministry, but on their reputation spread by the word of mouth among parents and students. The good and more prestigious universities are those where either famous professors teach and do research or fewer students pass exams. The last factor is particularly true for some well-known universities for being easygoing with students. The percentage of students passing is higher there than elsewhere. Thus, public have inverse view, low pass rates indicates competition and excellence. If you have a degree from one of the few private institutions such as for example Scuola Normale of Pisa and Scuola di Studi avanzati of Trieste for physics and chemistry, you are more likely to find good employment. This factor shapes progression right through the career trajectory across all disciplines.

A very low proportion of Italian graduates progress into doctoral studies in Italy. In fact, the number of people having a first degree and/or a PhD were less than 9% of the population between 25 and 64 years old in 1999, against 35% of the USA, 25% of the United Kingdom, 23% of Germany, and 21% of France³¹ This is mainly due to the scarcity of funding allocated in general to scientific research but also to some anomalies of the system³². Now, with the new reform, university Masters have been introduced and the length of studies is shorter. Therefore it is expected that more students will take postgraduate qualifications.

The Italian Doctorate

The Italian PhD equates to the British PhD, German PhD and French Doctorate was established by the 1980 university reform law, but the first enrolments came only in 1984. With the new reform a graduate can have access to a PhD after the specialist degree, which lasts 5 years, whilst the PhD generally lasts 3 years. The admission is restricted and is by means of a competitive state regulated examination, the *concorso*. There is a sort of 'waiting list' for graduates. Graduates aiming at an academic career have to be patient and wait for opportunity to arise. They might start their career as *cultori della materia*. Graduates in such position are not always paid but have the opportunity to be members of examination commissions of selected disciplines, often with more administrative than teaching duties. Usually this stage (that could be

³⁰ Taken from an interview with an Italian key informant, Padua, 15/11/2002 11,30 – 13,00

³¹ See footnote no. 1

³² See part 2 of this paper.

skipped) is followed by the *dottorato di ricerca*. However, a graduate student could remain in such a position for several years, with little possibility to register for any doctorate. The average length of studies is 3-4 years with prevalence in the disciplines of physics, mathematics, natural sciences, medicine and engineering.³³

The Ministry of Education and Research annually distributes the available resources among the *athenaeums*: scholarships and grants for doctorate students and post-docs. The actual number of doctoral positions available with a grant is fixed. In addition students can start their PhDs with external or personal funding; the latter possibility is not the rule and it has been introduced only few years ago. The extension of the number of doctoral students is at the discretion of the department. Before the laws no. 210/1998 and the D.M. 224/99³⁴ there was a centralised system and all PhDs were funded by the Ministry of Education. Successful graduates had a grant which covered tuition fees and maintenance. However, only a limited number of positions were available and there was no possibility of getting a PhD in the country without passing a *concorso*. Now doctorates are offered both by single and consortia of universities and research institutes able to coordinate higher research. These bodies have the option to decide on the number of PhD students and the programme to be undertaken. They offer a fixed number of grants for PhDs that can be accessed only through a public competition. In addition, a number of students equivalent to up to twice the number of grants offered can now sponsor their own PhD. Students can now be awarded external funding or can support themselves, if they are considered suitable (*idonei*) but not selected, after the *concorso*. Also industries have started funding some doctoral studies, obviously on more applied subjects. The Public Research Institutions can sponsor PhDs, but the course should be undertaken at a university department. However, the total number of PhD students is lower than in other countries. Since its inception the total number of research doctorates awarded in all disciplines has been 62,000 (1983-2001). In 2001 the actual number of doctorate students, registered in that year, was 15,000, with and 4,000 without a grant.³⁵

Interestingly, whilst at undergraduate level there is a decentralised system for fees, maintenance and curricula, at postgraduate level the system is still heavily regulated and more centralised. Recently with the reform, the role of each university is to fix the amount of the scholarship, the length of the study, the objectives and relative programme of study.

The new reform has not changed PhD training. This varies according to disciplines and universities. In some universities, mainly scientific departments, PhD students have to attend courses and seminars, take exams and give monthly presentations about their progress to a supervision panel³⁶. In other universities a doctorate is considered no less than a “parking area” for good students who want an academic career and are waiting for better university employment opportunities. The Italian

³³ Avveduto, S. & Brandi, C. (2000) *Risorse Umane: quale futuro nella scienza? Formazione e occupazione*, Franco Angeli, p. 41

³⁴ Regulation on the PhD Programme published in the Italian Official Journal (G.U. no. 162, 13th July 1999).

³⁵ ADI - Statistical data - (1998), *La condizione dei dottorandi di Ricerca in Italia*, in www.dottorato.it/docs; Germano, G. (9/11/2001), *Italy does not value its PhDs*, in <http://nextwave.sciencemag.org/cgi/content/full/2001/11/06/2>

³⁶ Dosi G. and Gambardella A. (2002), *Docenti universitari vecchi? Cambiamo i corsi di dottorato*, 22 agosto 2002, Corriere della Sera, p. 5.

PhD is granted by MIUR, not by the university, and the students have to defend a thesis in front of an academic panel.

The doctorate are in principle open to foreign students, but the entrance examination, often only in Italian, is a great barrier to their participation. During the PhD, students can spend a period of time abroad (they are encouraged to spend up to a year) and the amount of the fellowship grant is increased as 50%, but there are negligible opportunities to do an industry-based PhD.

The aim of PhD training is to produce good researchers for universities and for the national research institutions, and in limited cases for the private research sector. The following table is incomplete and does not offer a complete overview of all subjects. However, the highest number of PhD positions available from 1983 to 2003 has been in science (physics, maths and medicine).

Table 3 Doctoral positions from 1983 to 2003

Disciplines	Number of PhD positions	%
Agriculture	1618	4.1
Architecture	1518	3.8
Economics	2591	6.5
Pharmaceutical sciences	983	2.5
Law	2869	7.2
Engineering	6361	16.0
Literature and philosophy	6416	16.1
Medicine	7271	18.3
Veterinary	810	2.0
Mathematics and physics	7769	19.5
Political sciences	1179	3.0
Statistics and Demography	382	1.0
Total	39767	100

Source: ADI

The Contractual Status of Doctoral Students

In terms of formal status, full-time doctoral students in Italy are not considered employees. As such they do not contribute towards pensions schemes and other forms of contributory benefit and benefit from certain tax exemptions.

Doctoral students do not have a salary. They are awarded grants or “*borse di studio*”. The amount of the grant might differ from one university to another. For example, at the University of Milan, doctoral students are paid about 10,000 Euros per year³⁷. After their second year, PhD students are allowed a limited number of paid teaching hours. However, this might vary according to the Universities.³⁸

The ADI (Italian Association of Doctors and Doctoral students) together with CGIL-Nidil, (branch of the trade union dealing with any form of atypical work) are promoting, at national level, a legal framework to guarantee fundamental rights for all

³⁷ There is also an accident insurance that covers accidents out of university premises for authorised study visit or academic work also abroad. For more detail see http://unimi.it/divstipendi/guide/vadem_dott.htm

³⁸ See an example of PhD in mathematics, University of Trento web site <http://www-math.science.unitn.it/dottorato/Regolamentodottorato.html>

doctoral students studying in Italian universities.³⁹ They are also engaged in a campaign to protect post-docs, *assegnisti di ricerca*. Among others, issues such as illness absences, maternity leave, child benefit, PhD students' representation to faculty and university meetings, students allowances, right to use university canteens, public student accommodations are considered. Many funded or not-funded postgraduate students 'top-up' their incomes with paid work either in the university sector or outside. Rules vary for funded and non-funded PhD students in terms of number of working hours allowed.

These issues are now regulated by university regulations and can differ from one *athenaeum* to another. A pregnant PhD student can suspend her PhD for a number of months and postpone the handling of her thesis. However, no grant will be given to her during her maternity leave. Some university regulations might identify the maximum length of maternity and sickness leave. It is on discretion of the teaching panel to decide whether the doctoral student should be upgraded to the following year or should be given more time to finish his/her studies.

Doctoral Examination Procedures in Italy

In Italy admission onto a doctorate programme is only permitted once a student passes a public examination, the *concorso*. Students can apply to enter the exam if they have a specialised degree (*Laurea specialistica*), overall specialised degree (*Laurea specialistica ciclo unico*) or a degree (*laurea*) of the old system. Equivalent degrees from other countries are considered. Students can 'shop around' institutions and apply to more than one at once, but then they have to sit the *concorso*. Exams are set by internal commissions, which also assess the candidates. Again, the selection might be not entirely transparent with mainly internal candidates passing the exam⁴⁰.

At the end of every year the research activity of the doctoral student is monitored and again the up-grade procedure is regulated by each university. The award of PhD in Italy is normally dependant upon the student submitting and defending a thesis (oral examination) in front of an academic panel. The panel is appointed by the rector (vice-chancellor) of each university and is formed by three academics of the university and two external examiners, academics of any Italian or foreign university. In case of failure, the candidate can now re-sit the exam only once⁴¹. In the past the administrative court, *Consiglio di Stato* had excluded such a possibility.⁴²

The number of PhD candidates sitting the exam varies each year and a very high proportion of them pass the exam. A survey on a sample of 120 1st year PhD students conducted by the ADI - branch of Bologna⁴³ - has revealed that the entrance age is of 28 years old. The completion age of their undergraduate studies was 24-26, very low in comparison with the normal average of graduates. This shows that those who undertake doctoral studies complete their undergraduate studies faster than the average.

³⁹ ADI, La condizione del dottorato di ricerca a Bologna nel 2000, in <http://www.dottorato.it/docs>

⁴⁰ See Ferrucci, M. Dottorati come funzionano in Italia in <http://www.studenti.it/postlaurea/Italia/dottorati.php>

⁴¹ This is now allowed by the Decreto Ministeriale 224/1999 see footnote no. 20

⁴² See Consiglio di stato, 1173/91, 29th January 1992.

⁴³ See ADI website footnote no. 28.

Undergraduate and postgraduate mobility

Italians are very mobile. They start moving during their undergraduate studies under the auspices of the ERASMUS and SOCRATES Programmes. In 1986, the launching year of the ERASMUS programme in Europe, about 180 Italian students temporarily moved abroad. In the year 2002-2003, the number has increased enormously, registering about 15.000 Italians out of one million Europeans, who joined the programme and moved abroad. The favourite location of Italian Erasmus students is Spain, followed by France. The disciplines in which higher mobility of Italian students is registered are reported in the following table:

Table 4 Number of students per discipline

Disciplines	Students on the move
Foreign Languages	2.749
Social Sciences	1.862
Economics and Management	1.468
Engineering and Technology	1.328
Law	1.235

Source: Agenzia Nazionale Socrates (Italia 2002-2003)

In Europe, the favorite location is the UK (20.770 students i.e. 24%) followed by France (15.197 students i.e. 18%), Spain (11.392 students i.e. 13%) and Germany (10.969 students, i.e.13%). Notwithstanding its vast population, Italy has host fewer students (5.667 students i.e. 7%) than Spain and slightly more than the Netherlands. (4.922 students, i.e. 6%).

A study carried out by the Evaluation Committee of the university system concludes that among the ERASMUS students, women are more mobile than men of the same age. Moreover whilst the North Eastern Italian universities send more students, Southern universities are the 'taillight'. There are also data available per single athenaeum⁴⁴.

Mobility is also promoted at postgraduate level. The ERASMUS programme is also open to postgraduate students. There are also grants offered by the Ministry of Foreign Affairs, available for graduate students (age limit 35 years old) of any disciplines to go abroad to a number of selected countries.⁴⁵ The CNR also offers grants for graduates to go abroad.⁴⁶

Moreover, PhD students can spend up to half of the length of the doctorate abroad during their studies.⁴⁷ Their grant is increased accordingly. There are also special agreements between Italian and foreign universities to get a 'European or International doctorate'. This label means that there are two supervisors, one from Italy and the other one from the partner country. PhD qualification is awarded on the condition of submission and defence a thesis in both languages⁴⁸.

⁴⁴ For further detail see the Sole 24 Ore web site <http://europanotizie.ilsole24ore.com/EuropaNotizie/Finanziamenti/20031117/LU20031117019AAA.js>

⁴⁵ See Ministry of Foreign Affairs web site <http://www.ministeroaffariesteri.it>

⁴⁶ See National Research Council (CNR) web site <http://www.cnr.it>

⁴⁷ See University of Calabria www.amministrazione.unical.it/RegoDottric1.htm

⁴⁸ For further detail see www.uniroma1.it/senatoaccademico/regolamenti/dottarato.htm

4. The Academic Career Trajectory

In Italy, graduates apply for a PhD mainly if they intend to have an academic career. The relevance of doctorate studies for a job outside academia is still debated⁴⁹.

The procedure to get a permanent contract at universities and public research bodies, designed to be fair and impersonal (through the system of *concorsi*), is in practice complex and cumbersome. The new reform has introduced university autonomy in selecting academics in Italy⁵⁰, which means that now single *athenaeums* are responsible for the selection of academics. A new proposal has been put forward on the selection of professors through a national procedure to avoid corruption and nepotism dominant at local level.⁵¹

This is an example of the academic career trajectory in Italy:

Culture della materia (after the laurea): it can be skipped!
Doctoral student
Post-doctoral research position *Assegni di ricerca* (1 or 2 post-docs lasting about 3-5 years on average)
Researcher (first permanent position) and/or Graduate Technicians *Tecnici laureati* (now fewer and fewer)
Associate Professor
Full Professor

Post-Doctoral Positions (Assegni di ricerca)

Following a PhD, post-doctoral fellowships (*assegni di ricerca*) can be taken. The *assegni di ricerca* were introduced in 1997 and are accessible by researchers holding a PhD or graduates who have had at least a three-year research experience. These are temporary research contracts lasting 3 or 5 years and are co-funded by the MIUR and the university.

The 1998 Financial law introduced research contracts for 4 years, renewable for other 4 years. However, recently fewer resources have been devoted to research and this has caused difficulties in renewing contracts for other 4 years.⁵²

At the expiry of the contract a fellow can either carry on research, hoping to achieve an eventual permanent position, or is forced to look for jobs outside academia.

Whilst post-doc positions constitute an important opportunity (to the extent that they enable a scientists to focus 100% on research and publication without the ‘distractions’ of teaching and administration) there are some clear weaknesses to the current system. Often research assistants or research fellows (*ricercatori a contratto*) are not eligible to apply for grants to develop research projects. It is also unlikely they can supervise PhD students.

⁴⁹ Passerini, W. (2000) *In Italia per noi non c’è spazio*, CorrierEconomia.

⁵⁰ See Law (Decreto) 509/99 entitled “Regolamento recante norme concernenti l’autonomia didattica degli atenei”, published in the Italian Official Journal (G.U. no. 2, 4th January 2000).

⁵¹ See conclusion of this paper.

⁵² MOBISC Interview No 430F, 02/09/2003, Turin

There are some personal fellowships (such as those funded by the Research Councils and by the European Commission, the Marie Curie scheme), which provide independent funding and allow the researcher to undertake research of their own choice at the researcher's choice institution abroad. The short term mobility scheme funds CNR researchers (temporary and permanent), researchers from other research institutions and foreign researchers.⁵³ Since the funding is external and secured by the researcher, such fellowships entail an element of prestige and are indicative of an independent ability to obtain research funding, and of the quality of research.

The Autonomy of Post-docs in Italy

Often a post-doc does not have a lot of autonomy. The researcher is mainly a “data-gatherer” without having the opportunity to shape projects and develop his/her own work. Empirical research conducted by Brandi and Avvenuto with 864 post-docs at the National Research Council, seems to confirm such practice. However, although the hiring of researchers mainly occurs on a temporary, as Brandi (2000) suggests there is no real difference between their work and the work done by full-time permanent researchers.⁵⁴ However, in her empirical research she found out that 54,3% took part in one or more international projects and 47,4% in one or more national projects. This does not give us any indication of their role in these projects; they might have been involved as research assistants or merely with an executive role. Yet respondents affirm they have been excluded from the national or international panels of those scientific projects, unique platforms where the decision-making policy take place. Moreover 235 out of 864 researchers have never applied for funding as principal investigator, and therefore never obtain a scientific visibility on their own. Their justifications have been mainly either because they did not yet feel able to do it or they were discouraged even if implicitly to apply. There is no legal reference in their contracts that exclude such a possibility and therefore such a scientific dependency is part of a non-written code.

Pay and Contractual Status of Post-docs in Italy

In Italy, post docs are not considered employees but grants holders, *assegnisti di ricerca*. Consequently they do not have the same guarantees as employees and their treatment differ depending on the institutions and geographical location in Italy. Trade Unions have launched national campaigns to change the status of *assegnisti di ricerca* to employees and to ensure an equal treatment in the whole national territory.

However, there are still some legal problems to solve which need the intervention of the Parliament. The existent legislation, particularly in relation to social security and fiscal issues, needs to be modified to include such a category. Their salary is very low. It is around 1000 Euros per month⁵⁵, similar then to PhD. Post docs do not have to pay taxes. They pay national insurance only and sometimes get some allowances, such as lunch vouchers or nursery scheme, available to employees. Their treatments vary in relation to place and geographical location.

Permanent Researcher (Ricercatore)

⁵³ For more detail see CNR web site at footnote no. 45

⁵⁴ Brandi M.C. (2000) Op. Cit., p. 142.

⁵⁵ See footnote no. 51.

Permanent research positions are scarce and the admission to them is by another *concorso*, which includes two written examinations and an oral one. The exam papers can cover any areas of a subject, for instance the whole of Physics or of Chemistry etc. If the candidate is for example a theoretical physicist, he/she could nonetheless be asked questions on applied physics. Some distorted mechanisms of the system are considered in the following sections.

Having negotiated this intricate process, the selected young scientist becomes a researcher: the first step on the academic ladder and the principle route into job security and progression in the Italian academic system. Researchers are generally offered a permanent contract beginning with a period of probation, called “*conferma*” which lasts 3 years.

The *ricercatore* should mainly have research duties. Some years ago, those who had some teaching responsibility were among the luckiest, because this element could determine their career progression. In some disciplines, such as biology and chemistry for example, researchers can also supervise a PhD student or a graduate student who has to write his/her final thesis. However, after the reform the situation has drastically changed. The 3+2 system has increased by 20% the number of courses. Whilst for associate or full professors the situation has not changed, researchers have to fill the gap. Legally they are not obliged to teach, but if they decide not to do it they are marginalized by faculty colleagues⁵⁶. They are faced with competing commitments (particularly in the early years), which restrict the amount of time they can commit to research. This is one factor contributing to the culture of long working hours. Thus, whilst some teaching in the past helped them to progress, they are now overwhelmed with teaching to detriment of research. The amount of teaching expected of researchers varies between disciplines and institutions, however.

It is not very clear what constitutes the key to progression. Recently, newspaper articles and associations have called for the development of a system that is as transparent and objective as possible as the basis for encouraging and rewarding excellence. Some universities have implemented procedures to measure and value research output (both qualitatively and quantitatively). This is a sporadic and isolated initiative of single universities. For example the university of Padua has introduced the impact factor, the section index and an ex-post evaluation of projects to allow only successful research teams and groups to have access to funding.⁵⁷ Although formally some excellence mechanisms might have been implemented, in practice to progress researchers have to work hard and sustain their protector, *barone*, who is a very powerful professor.⁵⁸

⁵⁶ Salvia, L. (2003) Ventimila ricercatori in crisi. Stipendi bassi, si alza l'età media Corriere della Sera, http://www.corriere.it/Primo_Piano/Cronache/2003/11_Novembre/09/ricercatori.shtml (10 November)

⁵⁷ Interview with one of the MOBEX project Key informants, 15/11/2002 11,30 – 13,00, University of Padua.

⁵⁸ This is confirmed by one of the MOBEX key informants, London 15/11/2002 “*I have been member of several promotion committees and I had the impression I could decide exactly what I wanted. Unless I had made a mistake in the writing up of a minute or something similar that could be contested before the Court, I could have exercised choices being completely free by liability. Academic choices need to be determined on the basis of merit only. Universities have to compete for excellence and if they do not produce the required standard they should close down. In Italy such a system has been debated and it seems not consensually accepted. Competition can be violent in some cases but it is the price to pay if we want to achieve excellence*”.

There is another professional category of researchers, the so-called *tecnici laureati* who are graduates employed by the university mainly in an administrative role, but having in addition some research duties. These researchers have been hired around the seventies and eighties to provide for the lack of staff due to the temporary suspension of *concorsi* for teaching and research positions. These young researchers have been excluded from the traditional academic route. However, in 1999, they have been reinstated in their research role after a restricted *concorso*.

Promotion to Associate Professor

All researchers will eventually progress through the salary scales (via salary increments), based on seniority in the post. The promotion criteria come into play where an individual wishes to apply for associate professor. This is the next academic position in the university career ladder. Here they officially need to satisfy various quality indicators in teaching, administration and research. An academic panel is made by academic advisors who can be internal or external to the faculty.

A researcher needs to have a good publication record to get this position. An academic panel, after having evaluated the candidate's scientific publications, his/her teaching experience and university administrative duties, ask him/her to give a lecture. At the end of all candidates' lectures a selection of the "winning" researcher is made. This is what formally happens but again the system works very differently in practice.

The problem is that there are specific rules on how to recruit associate and full professors. The new legislation about the university budget autonomy has contributed to these anomalies. The rules are the following: in every *concorso*, two suitable candidates should be selected. Therefore it is more economically advantageous for a faculty to progress internal candidates, both for full-professorships or associate ones. The cost for a new full-professor or a new associate professor is therefore inferior, if the job is given to an internal candidate, being only due the increment between the previous-level salary and the future one.

Jappelli⁵⁹ in his article on the academic recruitment system, reported that according to the National Evaluation Committee of the University System in 90% of all public competition, the outcome is known in advance. This does not mean that the selected academics do not deserve to be promoted, but it sheds some lights on the fact that national commissions are a 'smoke screen' to hide an internal decision made by a single faculty. The problem is that members of the selection panels have to be paid and they spend days and days evaluating publications, attending meetings and other administrative duties. In the same article Jappelli commented that the cost of the selection process is of about 100,000 Euros per year. 72 millions of euros are spent each year for chairs appointments equal to the annual salary of 720 full-professors. There are other expenses to be added such as the overheads (the actual cost of an office dealing with recruitment procedures) plus the panel's member expenses equal to 2,000 Euros for a total amount of 25 millions of euros. In 2001 the Ministry for Education and Scientific Research has allocated 125 millions of euros for public

⁵⁹ Jappelli, T. (10/09/2002) L'immobilità dei docenti universitari, in <http://www.lavoce.it>

competitions. Considering the high costs involved in such procedures, the Government has blocked the academic *concorsi* for the years 2003 and 2004.

Professorial Appointments

A full-professor, called 'chair', is an individual awarded a personal chair. A full-professor holds a strategic position in determining the policy of the department. Professors are very powerful and can be classified as "deal-making academics". Whilst all three dimensions (teaching, research and administration) are echoed again in this job description, in practice the balance can shift either in the direction of prioritising research outputs (publications and income generation) or in the policy making one. Professors generally have lighter teaching loads than more junior members of staff but considerably more in the way of management in relation to research projects and recruitment, examination commissions.

Academic Pay Levels

Pay within the Italian higher education sector is relatively low compared to pay in other professions. This is particularly true for researchers who are actually considered economy class teachers. Many professors once they have achieved the title "professor" acquire prestige and notoriety. Some of them tend to have another job in the private sector and use their university appointment for prestige only. These professors may work on a part-time basis and are paid pro-rata. Interestingly enough is the fact that most of them are men and not women, as one would expect.

The following table show some figures relative to academic salaries:

Researcher (*ricercatore*)

Temporary contract

11,500 – 20,000 Euro

Permanent contract

10,500 Euro on probation (non confermato)

15,500 – 36,000 Euro after probation (confermato)

Professorial Minimum

Temporary contract

20,500 Euro Full Professor (Extra-ordinary) Level 1

22,000 – 44,000 Euro Full Professor (Ordinary) Level 1

14,500 Euro Full Professor (Extra-ordinary) Level 2

16,000 – 30,000 Euro Full Professor (Ordinary) Level 2

Permanent contract

28,000 Euro Full Professor (Extra-ordinary) Level 1

31,000 – 75,500 Euro Full Professor (Ordinary) Level 1

20,000 Euro Full Professor(Extra-ordinary) Level 2 on probation

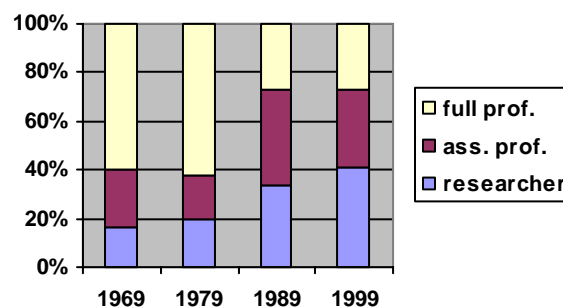
22,000 – 54,000 Euro Full Professor (Ordinary) Level 2

5. Women in academia

The *impact* of education on women's working life has not seemed to develop in tandem with *access* to education. Overall women, even if more and better qualified do not perform as well as their male counterpart⁶⁰. However if for women to have some sort of qualification (especially a university degree) is a *conditio sine qua non* to enter the employment market, it guarantees neither to be employed at the same level of a man equally qualified nor to be able to re-enter the employment market, should she choose to leave it for sometime (often in order to raise a young family). In other words, education can only partially lower the level of job segregation but it is not as an effective tool as it should be to fight the gender gap. Statistics reveals a worrying picture: 50 % of women with an university degree works as a clerk as opposed to 26.2 % of men with the same or lower qualification. Furthermore amongst women with university degree, only 16% is in professional jobs as opposed to 35.1% of men⁶¹.

Academia is often not the best workplace for women. Again despite in the last 10 years women working in academia has increased of 20.6% compared to 9.2% of men there is, still a clear unbalance between the two sexes: women are in fact persistently less than men⁶². In almost all disciplines the feminisation rate is below 50% (*i.e.* the parity level). Whilst the proportion of women researchers in natural sciences (31,0), medical sciences (22,9) and humanities (41,5) has increased, they are poorly represented in engineering and technology (13,4)⁶³. Furthermore, the presence of women decreases passing from a lower to higher hierarchical level. The feminisation rate is low, in all disciplines, among professors: natural sciences (15,0), engineering and technology (5,2) medical sciences (9,5), agricultural sciences (10,2), social sciences (16,8) and humanities (22,9)⁶⁴.

Table5: University staff



Source: Istat, *Donne all'Università*, 2001

⁶⁰ Palomba, R. (1997) Women in science and their careers. The Italian Case, *Women and the net Workshop and Study STOA*, PE 166.786/Final, p. 38

⁶¹ Battistoni, *I Numeri delle Donne*, p.19

⁶² Facchini (1997) Essere Docenti Universitarie 1 *Agenda* 8, p.9

⁶³ EC, Directorate-General for Research (2003) *She figures, Women and science statistics and indicators*, p. 46.

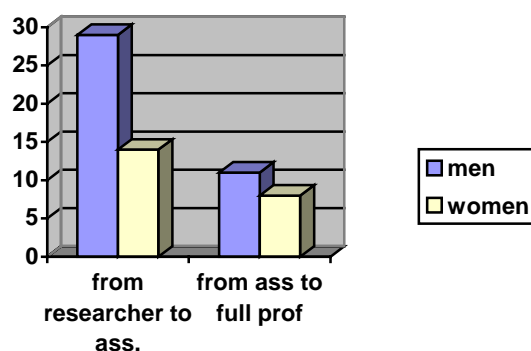
⁶⁴ *Ibidim*.p. 64.

When looking at the youngest cohorts where the higher education should have produced increasing equality, it clearly appears that the situation remains strongly unbalanced between sexes with considerably less women than men. This situation produces a very strong occupational segregation. Occupational segregation can be vertical or horizontal. Whilst, vertical occupational segregation limits career development horizontal segregation crowds women into (less prestigious and less paid) certain areas. For example, the majority of women in science are often in the bottom levels (vertical segregation) and amongst the administrative or technical staff (horizontal segregation).

One possible reason could be the complicate structure of academia. In the last 10 years University has expanded of 15.3% and over the last 40 years it has duplicated. The structure of the jobs has also changed and progression is very difficult. There are national provisions regulating promotions thus the movement from one stage to the other (Act n° 210/98 and DPR n° 117/00). These are based on the evaluation of the scientific (including originality of the work, individual contribution in case of co-authored work, continuity of research output and its relevance) as well as the didactic activity. Yet in practice, possibly because of the scarcity of positions available, the number of people concurring for them, and other vicious mechanisms, progression is a very slow and complicate process.

In this already difficult scenario, women appear to be further penalised. Despite the apparent neutrality of the promotion criteria there is evidence that it is more difficult for women to pass from the lower to the upper stages⁶⁵. In 1997 women were the 38,6% of the researchers, the 23,4% of the associate professors and the 9% of the full professors⁶⁶

Table6 : Chances of moving from the lower to the upper stage, 1998



Source: ISTAT, *Donne all'Università*, 2001

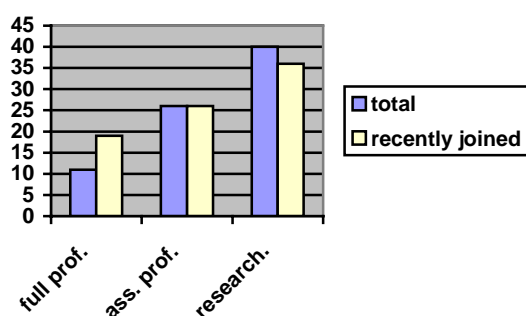
Whilst women are the majority of the administrative staff and among the researchers women are almost half of the total, among professors (both full and associate) women represent a minority. In other words, although the position of women has increased in recent years, their presence decreases as we go from bottom to top positions. A reasons

⁶⁵ ISTAT, *Donne all'Università*, Bologna, Il Mulino, 2001

⁶⁶ Facchini, (1997) Op. cit. p. 9

commonly advanced is the fact that women are the family and childcare commitments. However, researcher has shown that women do not work significantly less than their male colleagues. The difference therefore must be looked in the “quality” of the work performed.⁶⁷ Women are more likely to be involved in so called “side activities” such as teaching and pastoral care, whilst their male counterparts are more involved in research, external (and paid as extra) consultancies and institutional and decisional activities. As only a minority of women is involved in the institutional and decisional activities it follows that they do not have a say in the organisation and management of the University.

Table 7: Number of women on 100 men



Source: Istat, Donne all'Università, 2001

6. Career path in research institutions and women representation

The biggest public research entity is the National Research Council (CNR), mainly funded by the Government. It is divided into several institutes and centres located on the whole national territory. It supports research in fields ranging from psychology to chemical engineering. The institutes have a political and strategic autonomy, but they were not given the potential to interact with industries and universities, and to be more productive in financial terms. Smaller research agencies are the National Institute for Nuclear Physics (INFN), the Italian Space Agency (ASI), the Higher Institute of Health (ISS) and the Italian National Agency for New Technologies, Energy and the Environment (ENEA).

Career in scientific research institutions in Italy is organised in three levels which have different salary and prestige but not different competencies: *dirigenti di ricerca*, *primo ricercatore* and *ricercatore*. Furthermore, there are technicians who are also divided into three categories. The main difference between a researcher and a technician lies in the fact that the former focus more on the research result and the latter with the process leading to the research which is equally important but bears less *status*. The Director of each institute is generally a full professor.

⁶⁷ See ISTAT, “Donne all'Università”, 2001 the table on the time management of University staff 1997.

There are also fellowships or a research contracts lasting from 1 to 5 years.⁶⁸ The National Research Council recruitment system is based on national competitions or *chiamata diretta*, i.e by means of an evaluation based exclusively on the candidate's curriculum⁶⁹. It is really difficult to obtain a permanent position as a researcher and often it is achieved after several years.

Until a few years ago it was difficult to analyse data on women in scientific research, as the majority of them where not geared to address gender issues⁷⁰. Again data show that the presence of women at lower level is satisfactory whilst is very low at a higher level. There are also difficulties for women to progress in their career from level III to level I.

Data are gloomy in relation to the Italian main scientific bodies. Although there are women in all these organisations, there is a clear majority of women in the administrative sectors (54% in the ISS and 84% in INFN, data available in the relevant web pages), few women in the bottom and intermediate levels, only a minority of women is in managerial/leading positions.

Table 8: Number of women in the different levels of research, 1999

	III	II	I
Cnr	61.8	35.8	13.7
Enea	32.7	14.7	8.8
Istat	119.4	67.5	33.3
Iss	130.4	127.6	82.5

Source: Palomba, R. in Palomba 2000, 36

The feminisation rate at the National Research Council (CNR) follows the same pattenr:

Table 9: Feminisation rate CNR 1997

Qualification	Directors	Senior staff	Researchers	Total
Technology	14.9	19.8	29.1	24.6
Chemistry, physics	5.4	17.8	33.3	24.9
Biology	21.9	52.3	45.4	43.5
Mathematics	27.3	65.0	46.7	44.3
Social sciences	45.5	43.3	33.3	53.0
Humanities	41.7	56.3	71.8	53.6
Total	13.2	26.1	35.6	30.1

Source elaboration data IRP National Research Council

Although an increasing number of women is now attending scientific studies at University and women have the same intellectual abilities, disposition to study,

⁶⁸ See Dpr no. 171, 1991 and Law no. 70, 1995.

⁶⁹ Brandi M.C. (2000) *Il ricercatore a contratto a termine: costo sociale e costi privati*, in Risorse Umane: quale futuro nella scienza? Formazione e occupazione, Avveduto, S. and Brandi M.C (Ed), Franco Angeli, p. 128-129.

⁷⁰ Palomba, R (2000) *Figlie di un Dio Minore* in Palomba (ed.), *Figlie di Minerva* Milano, Franco Angeli, p. 32

capacity for hard work and intuition, there is a scarce number of women in science. The causes partially should be found in the need of ‘stability’, as Panchieri⁷¹ has argued. ‘Stability’ means in the sense of fundamentally stable emotional ties, constitutes an often necessary condition for the scientist who wishes to concentrate his/her intellectual resources on internal creativity. As marriage is one of the elements which may ensure emotional stability, women, and in particular women active in science, are at a disadvantage, as various studies have shown that women scientists or engineers have a lower probability of being married than their men colleagues. In addition, if married, women scientists have a higher probability than men of being married to a colleague, thus entering the so called “dual career” problem, where these couples need to find positions in the same field in nearby institutions. Finally, women who wish to follow the natural pattern of having both a family and a scientific career, encounter a set of typical drawbacks, like

- in daily life women are hardly able to dedicate all their time to research, since they are not able to ignore the emotional needs of children, elderly parents and family in general;
- the “crystal ceiling”. This expression indicates the body of “invisible rules” which have the effect of preventing women to take part in managerial positions (a good example is the time investment);
- in particular because of childbearing during the years of career building; women do not have the geographical and professional mobility of their male colleagues.

Apart from these obstacles, which are already very difficult to overcome, women in science face a further one. In many other fields, art and literature in particular, women have been able to “cut” their own spaces in their environment. But in the sciences this is hardly possible. Science, especially modern science, requires laboratory and other scientists. Pancheri suggests adopting the ‘life starts at forty’ approach. A woman who has completed the necessary training in science would find herself in the position of being able to start working and having children at the same time. Therefore, if a woman accept a period of “latency”, between 25 and 40 years of age, during which the requirements of family life may slow down professional endeavours. Pancheri acknowledges that this may be difficult to accept without emotional stress, but it can become bearable if a woman can foresee that at the end of this period it will be possible to re-enter the professional and scientific life. Still, she also acknowledges the difficulties inherent in this approach, especially in the extremely competitive world of research. Firstly, in order to come back into research, it is crucial never to have completely abandoned it. Secondly, a period of “latency” implies a drop in both salary and career advancement. Finally, most programs for the training and hiring of young scientists have an age limit which makes it very difficult if not impossible to obtain scientific posts after 35 or 40 years of age.

Good practice example: *In December 1999, the INFN established the Equ Opportunity Committee (Comitatato Pari Opportunità). This body is responsible for ensuring adequate representation of women within INFN and that a system of equ opportunity is carried out in any INFN activities.*

(<http://www.lnf.infn.it/cpo/paz.html> and <http://www.lnf.infn.it/cpo/poster.pdf>)

Similar bodies have been established also in the other research institutions.

⁷¹ See the INFN link www.lnf.infn.it/theory/pancheri/Welcome.html

Unfortunately these bodies are concerned only with internal issues and therefore are not competent to deal with issues such as task organisation and career structure

7. Mobility in science

A study into the participation of women researchers in the TMR Marie Curie Fellowships found that there is an expectation of mobility in science careers noting “*For those working in science or research careers, the relationship between employment trajectories, progression and mobility have been very much bound together for some time*”⁷².

Interestingly, it has shown that Italians constitute the largest single nationality group applying for and awarded scholarships for scientific mobility (at postgraduate level) within the Training and Mobility of Researchers scheme (TMR) in Europe. The UK and France are the key destinations, with the UK accounting for 35% of applications, where 28% of doctoral applicants were Italian⁷³. These findings raise the question about the extent to which a period of work in another country is necessary for the career progression of a scientist in Italy. The importance of mobility for career progression appears to be a common component but its extent was country specific and dependent on such factors as discipline, perceived quality and size of the science labour market, measures to promote mobility and wider cultural factors.

The problem is that Italians showed relatively little interest in the TMR return scheme. Once they have migrated, they tend not to go back home. Data show that there is an imbalance between the number of Italian graduates moving out and the number of European graduates in Italy. This imbalance, unique feature of Italy in the EU context⁷⁴, is a possible signal revealing a brain drain problem⁷⁵.

A recently completed research (MOBEX Project) has tried to identify the causes of Italian brain drain to two large rationales⁷⁶. The first is related to the attitude Italian politicians have towards scientific research; under a mainly humanistic education, the average politician believes that science cannot have an immediate, useful effect on society, and that, consequently, most of the scientific research does not deserve to be funded by the Government. The second concerns the academic system and the

⁷² Ackers, L. (2001) *The participation of women researchers in the TMR Marie Curie Fellowships*, European Commission Publication, pp 61

⁷³ Evaluation of all seven rounds of the TMR fellowship programme. Document from Commission Services, TMR 18/5.1.

⁷⁴ On the contrary, other large economies in the European Union experience a *brain exchange*.

⁷⁵ Munich S. O., Ichino A. & Peri G. (2002) *How Large is the “Brain Drain from Italy”*, published on the following web-site: <http://www.lavoce.info>, page 1 ff; Perasso, G. (2003) *Alcune provocatorie considerazioni sulla fuga di cervelli*, 4 febbraio 2003; Peri, G. (2003) *Risposte a Giancarlo Perasso*, 4 febbraio 2003 in <http://www.lavoce.info>

⁷⁶ See Sonia Morano Foadi (2004) *Understanding the impact of Scientific Migration on Sending Countries - A case study of Italy*, Innovation: The European Journal of Social Science Research, Special Issue Scientific Mobility in the European Research Area: Promoting Balanced Growth (forthcoming). The paper is based on the findings of a research project on “Mobility and excellence in the European Research Area” (herein called MOBEX project) financed by the ESRC under the Science and Society Programme.

academic community, seen as a place where nepotism, bureaucracy and corruption hold sway.

The following quotes are some examples of how Italian scientific mobility has been perceived by the MOBEX respondents:

[...] the problem is when you are forced to do it or when you are forced to stay abroad, that's different. It's different from moving to learn and then going home. [M]

I really do hope Italy will change the way it is allowing research at present, otherwise the mobility started at the beginning of the last century will be a never ending story. Mobility would have to be intended as temporary and just to improve personal skills when back to Italy and not as it is at present, i.e., a forced choice in order to be allowed to do research. [F]

...Italy is losing many researchers since not many are going back due to lack of opportunities and job conditions. It is not a balanced exchange. [F]

As it is now, the Italian system makes it very difficult for experienced researchers, who have been working abroad, to bring their valuable experience back to Italy, in particular if they have not maintained good links with the right persons at the institution of origin. Unlike any other country I am aware of, in Italy a researcher is most often penalised if he/she has been working abroad for a few years. [F]

Another study has revealed the presence of about 2.600 researchers and Italian professors working abroad, focusing only on some universities and public research bodies⁷⁷. Out of this sample, 737 researchers have been interviewed. The study has traced a map of the main research attraction poles: first the United States attracting 34,3% of Italian researchers; among those, the majority are engaged in doing research in physics (23,8%) and medicine (18,9%). The UK comes second with 26,0% of Italians researchers especially in the medical sector (20,6%) and in particular in neuroscience. France is the third recipient country with 11,4% of researchers mainly engaged in research in the medical field.

Regarding the gender dimension of mobility, the TMR study has showed that although young single women were found to be more mobile than their male counterparts, they were less likely to remain mobile than men, with women allotting a period to mobility defined by 'life-course events'⁷⁸. This conclusion is also common for Italian women who actually move more than their male counterparts during their studies and are less likely to remain mobile later on. Partnering and parenting seemed to have a greater impact on women than men in this migration context, with the study finding that male Marie Curie fellows were more likely to have children than their female counterparts.

⁷⁷ Censis & Fondazione Cassa di Risparmio di Venezia (2002) *Un Capitale intellettuale da valorizzare: indagine conoscitiva sul fenomeno della fuga di cervelli all'estero*, p. 79.

⁷⁸ Ackers, L. (2001) Op. Cit. pp. 84

Part 2 Some inaccuracies and dysfunctions of the Italian academic system

8. *The Italian concorso: an optimal tool for the proliferation of corrupted practices?*

In general, the Italian labour market is rigid and protects those who already have a job. These features are present also for the highly skilled segment of the labour market and affect mostly young graduates who are searching for their first job. It is difficult for a graduate to find a job after his/her university degree and this can vary according to disciplines. Consequently, more students are forced to get a specialised post-graduate degree. Often this trend creates a non-desirable effect of de-skilling: highly-specialised human resources accept less qualified jobs, sometimes part-time or temporary. They follow a pattern of getting unskilled jobs in order to keep going and build up their *curriculum*.

The situation is even more dramatic for those who get a doctorate qualification and cannot find an academic position. Avveduto & Egle Cipollone argue that “*research doctors have been considered as a small group...of an èlite of graduates...[and it is necessary that they] acquire general competences and flexibility to adapt to different types of work*”⁷⁹. In Italy, graduates decide to take a PhD mainly if they intend to have an academic career. The relevance of doctorate studies for a job outside academia is still debated⁸⁰. That is why Sacca’ argues, “*many of these researchers escape abroad for the lack of adequate career opportunities [...]*”⁸¹.

The procedure to get a permanent contract at universities and public research bodies, designed to be fair and impersonal (through the system of *concorsi*), is in practice complex and cumbersome. The *concorso* is the sole possible route towards a stable career in science which represents the final gratification for a young researcher after years of dependence from an elder academic. For years this “subordinate” young researcher has to help a professor (*barone*) in his/her academic or administrative duties often without any salary. This unpaid apprenticeship can last for years. If the research student is not from a wealthy family, he/she has to live with his/her parents while waiting for a temporary contract and eventually for a *concorso*. Those who get temporary research contracts are the luckiest among the young scientists. As already mentioned, it is not so easy to pass a *concorso* for the complexity and unpredictability of the written examinations. Moreover, the system is biased and there is no guarantee that the best candidate gets the job. It is often the *barone* who allows his/her disciple to sit the *concorso*, officially open to everybody. The *barone*, or somebody who is politically-academically connected with him/her sits in the appointment commission.

In 1998 the Government tried to reform the *concorsi* procedure. The national *concorsi* were replaced in the universities with a system that allows individual universities to make their own appointments. However, nepotism is still dominant in

⁷⁹ Avveduto, S. & Egle Cipollone, P. (2000) *Tendenze dell'occupazione scientifica*, in Avveduto, S. and Brandi M.C.(ed.) Op. Cit., p. 95.

⁸⁰ Passerini, W. (2000) *In Italia per noi non c'è spazio*, CorrierEconomia.

⁸¹ Sacca', F. (2001) *Il Presente – dalla Formazione alla Ricerca in Italia*, in ADI (Ed.) *Cervelli in Fuga*, Avverbi Edizioni, p. 131.

academic choices and the *baroni* control allocation of positions⁸². As Paul Bompard writes,

*“Until 1999, national commissions made up of senior academics from different universities filled vacancies in each field countrywide. Posts were often assigned to disciples of those sitting on the commission, or trade-offs for previous favours. After 1999, each university was given responsibility for filling posts, on the assumption that it would lead to the appointment of the best-qualified candidate. But it usually results in the local candidate, with roots in that university, getting the post. The others who take part hope to be rated “suitable but not chosen”. They can then be called to a post at another university without a “concorso”. The suitable candidate is called to a university where he or she has acquired patronage”*⁸³.

Dario Braga, a chemist at the University of Bologna who pleads reforms for more than a decade, says that the advantage of the new system is speed only. *“The old concorsi procedures used to take ages to draw conclusions, and the value of speed in Italy should not be underestimated”*⁸⁴. But he is disappointed that deal-making is still a large part of the process. Appointments at each university are now made by five-member committees, four of whom are elected at the national level by the relevant academic community. These elections are frequently rife with deal-making, the goal being the selection of committee members who will favour the 'right' candidate who are often internal candidates. A new proposal to go back to national appointments for professors is under consideration.⁸⁵

9. Nepotism and corruption in the academic career path

Once passed through this intricate process, the selected young scientist becomes a researcher, the first step on the academic ladder. To be able to progress in his/her career, he/she has to work hard and sustain his/her protector, *barone*.

This is confirmed by one of the key informants, *“I have been member of several promotion committees and I had the impression I could decide exactly what I wanted. Unless I had made a mistake in the writing up of a minute or something similar that could be contested before the Court, I could have exercised choices being completely free by liability. Academic choices need to be determined on the basis of merit only. Universities have to compete for excellence and if they do not produce the required standard they should close down. In Italy such a system has been debated and it seems not consensually accepted. Competition can be violent in some cases but it is the price to pay if we want to achieve excellence”*.⁸⁶

If the *barone* is not very powerful, or leaves his/her protégés behind, or even if he dies, the young researcher, brilliant as he could be, will not be promoted⁸⁷. Also the

⁸² De Bac, M. (2003), *I nuovi baroni bloccano la ricerca negli atenei*, 4 gennaio 2003, Corriere della Sera, p.17.

⁸³ Bompard, P. (2002), *Italian police probe exam “fix”*, 27th September 2002, The Times Higher, p. 15.

⁸⁴ Abbott, A. (2001), *Forza Scienza*, 19 July 2001, Nature vol. 412, at p. 265.

⁸⁵ See new legislative initiative of 16/1/2004 entitled “Disegno di Legge: Delega al Governo per il riordino dello stato giuridico dei professori universitari web site <http://www.miur.it>

⁸⁶ Interview Mobex key informants, London 15/11/2002.

⁸⁷ Alberoni, F. (20/01/03) *Pochi ricercatori in Italia perche' l'Univerita' li mortifica*, Corriere della sera.

barone needs to be supported, because in the Italian universities, the one who gets more votes is in command. The leaders of such a corrupted system have more a political than a scientific mentality. There are some exceptions, but professors who are in such a group are often isolated and do not have “friends”.

In 1961, William Consolazio, an American biologist wrote an article published by *Science*, about the university customs in Europe. He reported in his paper the result of a year’s stay in Europe. He described this corrupted system in the following terms, “*Junior faculty members seeking permanent university appointments tend to cultivate the good will of the institute director and of members of the academic senate rather than to concentrate on scholarly accomplishments. It is the tragedy of many European [he mainly refers to Italian and Southern European] universities that their young people must cater to the powers that be if they are to receive rewards*”⁸⁸. After forty years nothing seems to be changed, on the contrary as Di Giorgio affirms in her book “*academic nepotism is further worsened, as often is the case when a non-treated plague gangrenes*”⁸⁹.

One of the key informants interviewed in the Mobex project, confirms such a view about the system, “*Academic appointments are not fostered at a purely qualitative level. For example, I cannot stand my colleagues who pride themselves with having placed their protégés in key positions. I argue with them saying: if you have sponsored an incompetent you should be ashamed of yourself; on the contrary, if that person is clever and efficient it is not thanks to you that he/she got that position*”⁹⁰.

To make things worse, often young academics are exploited by mediocre elder scholars. Creative scientists are independent individuals who resist any form of pressure and welcome flexibility and freedom. It is unlikely that a brilliant young scientist, subordinate to an older mediocre supervisor, can bear this situation for a long time. As Consolazio reflects, if “*the elder scholar happens to be a brilliant individual, the young man may suffer but society and science nevertheless gain. If, on the other hand, the same youth is exploited by mediocrity, everyone loses.*” He then concludes, “*Unfortunately, in any society, mediocrity is more apt to be prevalent than genius*”.

The system has been challenged several times but with no tangible results. During the mid-1990s, state prosecutor Adelchi D'Ippolito brought 50 cases alleging corrupt practices during *concorsi* — although none has yet led to a conviction⁹¹.

10. Temporary contracts the new route for an academic career

Such a complex and unfair recruitment system, generally criticised and defined as anachronistic, is being slowly replaced by the introduction of temporary contracts, as an alternative route to the *concorsi*. Moreover, in recent years, a blockage of all *concorsi* has followed. Italian science policy has welcomed these contracts as a mean to improve productivity and competitiveness in the scientific sector, although

⁸⁸ Consolazio, W. V. (1961) *Dilemma of Academic Biology in Europe*, *Science*, Vol 133, p.1893.

⁸⁹ Di Giorgio, C. (2003) *Cervelli Export. Perché l'Italia regala al mondo i suoi talenti scientifici*, Adnkronoslibri, at p. 72.

⁹⁰ Interview with one of the Mobex key informants, London 15/11/2002.

⁹¹ Abbott, A. (2001), *Op.cit.*, p. 264 – 265.

research has not yet shown this to be the case⁹². Whilst this trend is common to other European countries such as the UK, their available science resources are several times superior to the Italian ones. However, even in the UK, such a trend is not necessarily positive.

As several studies have shown, the financial instability of those researchers having temporary contracts generally jeopardise the quality of research outcomes⁹³. A study of temporary research staff employed in the National Research Council has proved how these employees suffer rivalry and competitiveness by other colleagues in the same position and their productivity decreases towards the end of their contracts⁹⁴. Most of them, although complaining about their low salary, have not changed job, and this confirms the fact that these temporary contracts are now replacing the old recruitment form based on permanent contracts. In addition, these are persons who are particularly motivated and have decided to work in the research sector as a specific choice of life. Most of them argue that their precarious conditions exacerbate their personal choices, for example maternity or paternity⁹⁵. For those who actually have been forced to abandon the public research market it has been difficult or impossible to find another job in the private sector. In Italy a research market outside the public research sector does not exist.

The Government has tried to promote industrial research and, introducing the higher education reform, to create a young class of graduates attractive to industries. The new scientific policy closely follows the liberal orientation of the present Government which is above-all protecting the interests of the entrepreneurial class. The 2002 National Research Plan is focused on creating networks between research councils, industries and universities to boost economy, leaving some limited space to “free” research interests⁹⁶ ..

In addition to what has been said before, the Government in 2003 and 2004 has blocked all the *concorsi* in the universities and research institutes. As a consequence of that, in December 2002, all rectors in Italy presented en-block dismissals and for about a month Italian universities had no leadership⁹⁷. In the current year, if universities are not allowed to hire new academic staff, frightening consequences will arise. The average age of academic staff in Italy is fairly high, and such a measure have a clear worsening effect on this phenomenon. According to Sveva Avveduto, who researches science and education policy at CNR, the population of active scientists is now quite old, with about 30% expected to retire by 2005. To keep numbers steady, universities should be producing 12,000 new researchers every year

⁹² Brandi, M.C. Grifoni, P. Poti, B. (1999) *Human resources for Science and Technology: the conditions of work and effects of fixed term contracts for scientific researchers*, First International Critical Management Studies Conference, Manchester, 14-16 July 1999.

⁹³ Bryson C. (1998) *More is less: Contract research in UK higher education institutions*, cit. in Brandi, C. (2000) *Il ricercatore a contratto a termine: costo sociale e costi privati* in *Op. Cit.* Supra footnote 38, at p. 127.

⁹⁴ Brandi, C. (2000) *Il ricercatore a contratto a termine: costo sociale e costi privati* in *Op. Cit.* Supra footnote 38, at p. 128 ff.

⁹⁵ *Ibidem*.

⁹⁶ Linee Guida per la Politica Scientifica e Tecnologica del Governo, Supra footnote no. 1.

⁹⁷ Bompard, P. (2002) *Rectors threaten walk-out*, 11th October 2002, in *Times Higher – News: international*, p. 14; Tripodi, A. (2003) *Rientrano le dimissioni dei rettori*, 9 gennaio 2003, *Il Sole 24ore*, Università’.

instead of the current 4,000. On top of this, several hundred scientists leave the country each year, and the chances that they will return are slim⁹⁸. Academics are characterised by an international mobility, which is higher than any other professionals. Therefore such a blockage even if temporary, is expected to produce permanent boomerang effect on the already unhealthy Italian universities.

11. Concluding remarks

The present paper has highlighted how academic career progression onto higher levels, designed to be meritocratic, through the practice of public competition i.e. *concorsi* is in reality not transparent. In the real world the *concorsi* are “*smoke screens*” hiding a brute reality of nepotism and corruption.

The Italian university system could be described as a feudal-like system, where a *barone* professor sets up his/her research group in a highly structured way, where only seniority and nepotism matter, while researchers’ merits are left behind. The *baronato* system is at the core of the career progression and therefore disadvantages mainly women who are generally outside the logic of networking.

Most of the Italian professors, mainly men, are also engaged in externally funded activities, which are generally the right environment to develop contacts. They might also be successful in other professions and the notoriety acquired through academic appointments help them in their work. In other words, they tend to be successful both in the university career and outside academia. The secret is to get useful connection ‘outside’ academia to become more powerful ‘inside’ the academic environment. In addition, people perception of these professors is very high and they tend to refer to them if they need technical advice. For instance, a professor who is also an engineer, an architect or a practising lawyer is more successful than one who is not involved in any external activity. These are what have been defined as “extraordinary or part-time” professors. If one manages to get involved in panels and commissions and benefits from externally funded projects his/her career progression tend to be smooth and with no obstacles.

This difficult situation is exacerbated by the lack of proper funding devoted to research. Public money is insufficient and a private research sector is at an embryonic stage. There is also a general lack of trust in the power science has to affect people lives, at least in the immediate future. The ruling class in Italy has always had an ambiguous attitude towards scientific research. Most of the politicians think that public spending needs to be kept to a minimum when it comes to scientific research funding. They are convinced that it is more useful to invest money in ready products that can be bought from private companies or foreign countries. This approach has been influenced by the higher position in Italian culture of humanities as compared to sciences, a classification of knowledge which dated back to the beginning of the 20th century.⁹⁹

Temporary contracts and grants, which used to be the first step followed by better career opportunities in academia, are now the main route to get access to academia.

⁹⁸ See Hellemans, A. (2001) *Beating the European brain drain*, 22nd November 2001, Nature, p.1-2; Dosi, G. & Gambardella, A. (2002) *Op. cit.* Supra footnote no. 29, p. 5.

⁹⁹ For further detail on this point see Morano-Foadi, S (2004) footnote no. 75.

However, they do not secure a permanent position, being competition very high and overall the networking system essential.

The issues analysed in this paper can be also considered as the main causes for the increasing flow of academics moving from Italy to other European and American countries. However, recently a new reform, regulating access to academic career, has been introduced. It includes the following provisions: introduction of national recruitments commissions for academic selection; renewable temporary contracts with the possibility to transform them after an evaluation of the candidate, into permanent contracts; renewable research contracts for five years and the abolition of researchers holding permanent positions. Protests have been raised by rectors and academics in all universities for such a proposal, which arguably will paralyse recruitment. Also the Conference of Rectors showed surprise for not being involved in the first stage of the decision making process¹⁰⁰. Only the future will tell us whether this reform will be implemented!

¹⁰⁰ See CRUI http://www.cru.it//data/allegati/links/1234/parere_cru_i_stato_giuridico.pdf; Declaration of Piero Tosi on the new proposed reform (16/01/2004) in <http://www.cru.it//link/?ID=1219>

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Relevant internet resources

- Consiglio Nazionale delle Ricerche (<http://www.cnr.it>)
- Istituto Nazionale di Statistica: (<http://www.istat.it>)
- Istituto Superiore di Sanità: (<http://www.iss.it>)
- Istituto Nazionale di Fisica Nucleare (<http://www.infn.it>)
- Comitato per le Pari Opportunità dell'Istituto di Fisica Nucleare. Piano triennale 2002-2004 di azioni positive (<http://www.lnf.infn.it/cpo/paz.html>)
- ENEA (<http://enea.it/>)
- Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione (<http://inn.ingrm.it>)
- Ministero del Lavoro e delle Politiche Sociali (<http://www.welfare.gov.it/default.htm>)
- Ministero Pari Opportunità (<http://www.palazzochigi.it/pariopportunita>)
- Commissione Pari Opportunità (<http://www.palazzochigi.it/cmparita>)
- Rights for working parents (<http://www.welfare.gov.it/aree+di+interesse/sociali/famiglia/congedi+parentali/default.htm>)
- Ministero dell'Istruzione, dell'Università e della Ricerca (<http://www.mur.it/>)
- Gruppo di Lavoro Ministeriale: Culture delle Differenze e Studi delle Donne nell'Istituzione Universitaria (www.mur.it/gruppi/cultdif/presenta.htm)
- European Industrial Relations Observatory On-Line (<http://www.eiro.eurofound.ie/annualreports.html>)
- European Technology Assessment Network on Women and Science, ETAN Report (www.europa.eu.int/comm/research)
- http://www.frdb.org/~pietrogaribaldi/rubriche/occup_femm_2lug01.pdf (quale Mercato per le Donne Europee?)