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Evidence from Italy, 1995-2007**

by

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**Studying after the degree: new pathways shaped by old inequalities.
Evidence from Italy, 1995-2007**

by

Gianluca Argentin*

Abstract

In recent years in Italy, there has been a fast increase in the number of young people graduating with a tertiary degree and a sharp change in the composition of this population by gender, social origins and the field of study. Since the middle of the 90s, we have also detected a growth in the enrolment in post-tertiary education, but this is not the result of the compositional change which has occurred among graduates across cohorts. Instead, it seems mainly due to the increased offer of training and academic opportunities to the graduates: a new educational level emerged while the graduates' rate was increasing. Until now, this new form of educational stratification has not been considered by sociological research, even if it could lead to new forms of inequality. In our paper, we primarily test the credentialist hypothesis, looking at the strength of the association between social origins and post-tertiary education among recent graduates' cohorts. Following the credentialist theory, graduates coming from higher-educated families would be more involved in the new educational level, to maintain their advantage in the labour market, where they can take advantage of their higher credentials. Then we look at gender: we investigate whether this second ascriptive dimension plays a role in shaping enrolment at post-tertiary level. Our analyses, based on the best data available in Italy on this topic, support the credentialist hypothesis: higher social origins are associated with a greater propensity to enrol at post-tertiary education and training. Moreover, graduates coming from more educated families participated more frequently in the more institutionalized forms of post-tertiary education, the ones leading to a professional qualification. Contrary to this, gender seems not to play an influential role: the female advantage is weak and limited to the less institutionalized forms of post-tertiary education/training; moreover it almost disappears considering academic performance and horizontal stratification of upper school and university.

1. The aim of the paper

The focus of this paper is on the enrolment to post-tertiary education in Italy in the last two decades, when there has been a strong increase in the enrolment rate to tertiary education and the so-called “Bologna process” introduced relevant innovation to the Italian University system. More precisely, we

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are interested in assessing whether two ascriptive dimensions, social origins and gender, have been shaping the probability of enrolling in education/training after the tertiary degree.

The theme is relevant for two main reasons: firstly, because in Italy there has been an increase in the number of tertiary graduates (from 88.000 units in 1992 up to 167.886 in 2004¹) and in the composition of this population. This is probably due to the many important changes which have occurred in the Italian university system in the last decades (Argentin e Triventi 2010): the increase in the amount of faculties and institutions, located also in the small peripheral cities; the introduction of short-term technical courses more oriented to the labour market ("*Diploma universitario*"); the introduction of a three-level structure for tertiary education, constituted by a first-level degree (*Laurea triennale*, three years), a second-level degree (*Laurea magistrale*, two years), followed by doctoral studies (*Dottorato di ricerca*, three years), following the "Bologna process"; finally, an increase in the of post tertiary education/training supply (Ballarino & Regini 2005; Rostan 2008). Looking at the composition of the graduates population, we detect a strong expansion of the female rate (from 50% in 1992 up to 60% in 2004), the rate of subjects with lower social origins (children of blue collars rose from 15% up to 24%) or with upper-secondary educated parents (from 31% up to 40%); at the same time, we observe an increase in the rate of graduates obtaining their degree in the Humanities (Arts and Social Sciences, from 26% up to 36%) and a decrease in Science (from 13% down to 10%) and Medicine (from 10% down to 5%). To sum up, we are looking at the educational choices of a growing and changing population in a period of relevant institutional reforms.

The second reason the topic of this paper is relevant is that it has not been investigated by previous research on educational inequalities and their reproduction over time in the Italian context (Cobalti & Schizzerotto 1994; Pisati 2002; Ballarino & Schadee 2006; Barone *et al* 2010). This is probably due to the fact that the data analyzed by previous authors was not detailed enough on the topic, because the larger part of post-tertiary education was not institutionalized until the middle of the 90s and also because the rate of tertiarygraduates was not as high before the recent expansion.

Hence, we are interested in assessing whether the changes described above have stimulated an increase in post-tertiary enrolment rates, especially among graduates with higher social background, as predicted by the credentialist theories. In addition, we are interested in testing whether also gender plays a role in this educational expansion process, shaping the probability of enrolling in post-tertiary education/training.

2. Literature review and hypotheses

Following the credentialist theory (Collins 1979), the growth of the rate of people obtaining a degree at a certain educational level should produce an expansion in the educational system and the emergence of a following level. This increase should be guided by a competition mechanism: the children coming from higher social origins should be interested in preserving their credential advantage in the labour market, gaining higher titles in the educational system. As shown by previous authors (Cobalti & Schizzerotto 1994; Pisati 2002; Ballarino & Schadee 2006; Barone *et al* 2010), in the last century the expansion of a further level in the school system, once the previous was widespread, occurred in Italy for upper-secondary and for tertiary education. In the case of this paper, we deal with a period in which an increase in the amount of young people obtaining a tertiary degree occurred. As said previously, simultaneously to this expansion, we also detect a process of differentiation and stratification of the

¹ We do not consider the new bachelor graduates in 2004. The increase in the rate of young people obtaining an upper-secondary diploma should be also taken into account.

University, which has led to an increase in the offer of post-graduate courses and training (Ballarino & Bratti 2009; Rostan 2008). Therefore, our first hypothesis derived from the credentialist theory is the following:

H1: we expect to find an increase in the enrolment to post-tertiary education/training and this growth should not merely be the consequence of change in the graduates' population across cohorts.

The credentialist approach allows us to develop further considerations: as said above, this theory suggests that, when a new level of education starts to grow, the first to benefit from it are the more advantaged (Collins 1979); moreover, previous research in Italy showed strong and persistent social class inequalities in the educational stratification (Cobalti & Schizzerotto 1994; Pisati 2002). More recent analyses partially corrected those findings, showing that a small reduction in inequality took place, but this happened very slowly and only for some social classes (Ballarino & Schadee 2006; Barone *et al* 2010). These results suggest that also for the post-tertiary level children from higher social origins could benefit in the enrolment.

It is also important to underline that looking at post-tertiary supply we could find both education and training courses; usually only the firsts lead to the gaining of a credential with recognition at national level. Adopting the credentialist view of the connection between the educational system and the labour market, the higher credential plays a crucial role, being the mechanism that guarantees an advantage in the labour market. Therefore the investment of higher social classes should be larger if we look only at post-tertiary educational courses leading to more institutionalized and prestigious professional qualifications., the

Moving from these considerations, we formulate the following hypothesis:

H2a: we expect to find a persistent (or even increasing) advantage in the enrolment in post-tertiary education/training for graduates coming from higher social origins;

H2b: this advantage should be greater for the institutionalized forms of post-tertiary education, leading to a professional qualification.

Also adopting a more explicitly rational choice approach we could come to formulate the same predictions: “maximally maintained inequality” (Lucas 2001) improves the claim suggesting that children from higher social origins, when an educational level increase, should be enrolled more frequently in the following level. This approach reminds us that the educational system is stratified along many dimensions (i.e. tracking, quality, etc.), not only the vertical one (level): therefore, also when an educational level is near to being universal, the higher social origins take advantage of the different strata of that educational level. Applying this framework to post-tertiary enrolment, we would find an advantage for students coming from higher social origins not only because they enroll more frequently in a further course after the degree, but also because they can choose the higher strata of the post-tertiary level, namely the more institutionalized ones leading to a professional qualification.

Regarding post-tertiary enrolment and gender, the picture is less clear and many different elements should be considered. It is a fact that, in the last years, females have quickly overtaken males in educational performance in Italy (Sartori 2009). Adopting a general vision of persistent inequalities in the educational field, one could argue from this evidence that males would maintain their previous (and disappeared) advantage, enrolling more frequently at post-tertiary level. On the other side, one could argue an opposite conclusion: the better female performances during all previous school and academic studies would lead them to a higher probability of continuing their educational career after the degree. Hence, the expectation would be to find an increasing advantage (or at least a decreasing disadvantage) for females looking at post-tertiary enrolment. At the same time, it is well known that female graduates

more frequently choose Humanities (Pisati 2002; Ballarino 2006; Ballarino & Bratti 2009; Triventi 2010; Barone 2011), where there could be a higher need of post-tertiary training to be competitive in the labour market. Also this element would suggest a more frequent post-tertiary enrolment for females.

All these mechanisms are plausible and a clear prediction and hypothesis is difficult to formulate on this topic. Therefore, we prefer to present the data with a question instead of a hypothesis: *does gender shape the probability to enrol at post-tertiary educational level in the same direction and with the same strength across cohorts?*

3. Data, variables and methods

Data

We analyze the data of a survey conducted every three years by the Italian National Statistical Institute (ISTAT), the “Survey on university graduates' transition to work” (University Graduates Survey, UGS, hereafter). This survey collects information on college and employment of university graduates, who are interviewed three years after their graduation. The data here used is the best available on post-tertiary enrolment in Italy in the last decades.

We use five cross-sectional waves of the UGS: 1995, 1998, 2001, 2004 and 2007 providing information on university graduates who obtained their degrees in 1992, 1995, 1998, 2001, and 2004 respectively. The minimum sample size of a wave is more than 13,000 cases for the first wave and a maximum of almost 27,000 cases for the last. A detailed description of the sampling procedure can be found in the ISTAT manuals². Table 1 summarizes survey years, corresponding years of graduation and total sample sizes. Each wave is weighted with the sample weight provided by ISTAT; we deleted the records of individuals who were interviewed about their second tertiary degree.

Table 1 – Survey wave characteristics: interview year, graduation year and total sample sizes

Survey year	Graduation year	UGS sample size
1995	1992	13.511
1998	1995	17.326
2001	1998	20.844
2004	2001	26.006
2007	2004	26.570 ^a
Total – pooled sample		104.257

^a New bachelor graduates are excluded.

To reduce the uncertainty of the estimates we pooled the cohorts' samples and we weighted each cohort's sample proportionally to the number of graduates in that year.

Variables

Dependent variables

The dependent variable of our analyses is the post-tertiary enrolment. We use two definitions of this variable, to investigate also the stratification existing among different post-tertiary education/training pathways. In the first case (“broad definition”), we consider ‘enrolled respondents’ as those who attended at least one of the following education/training activities in the three years after graduation:

² A detailed description of the UGS data can be found in Bratti and Ballarino (2009) or in the surveys' manuals (see ISTAT in the references).

doctoral studies, university master or “specialisation”, university/work scholarship, other university courses, ‘stage’ or apprenticeship and training courses³. Hence we are considering here all the possible forms of post-tertiary education/training considered in the surveys’ questionnaires.

The second definition (“narrow definition”), we consider only graduates who attended doctoral studies, university master or or ”specialisation” as being ‘enrolled’. In this way, the “narrow definition” is focussed exclusively on the more institutionalized, more prestigious post-tertiary educational pathways, leading to a professional qualification; consequently, in this definition we ignore all the post-tertiary forms of training that are mainly aimed at promoting on the job skills development and that, at the same time, do not lead to a post-tertiary certificate. This means that the narrow definition identifies the post-tertiary opportunities which are more linked to the credentialist approach. Therefore, we are more interested to this second definition, considering that it matches the theory we adopted to formulate our hypothesis.

Independent and control variables

In the first part of our analysis we are interested in looking at the trends of the dependent variables among the graduation cohorts; there, our independent variable is the year of graduation: there are five categories, one for each cohort (1992, 1995, 1998, 2001 and 2004). In this first section of our analyses, we want to reject the hypothesis that the increase in post-tertiary enrolment is a pure reflection of graduates’ population composition among cohorts. Therefore, in this model we use all the control variables available in our data for the five cohorts that we are investigating, to reduce as much as possible the risk of confusing the post-tertiary enrolment trend with a compositional effect.

The variables considered in the models are the following:

- a. gender; we should remember here the sharp increase in the female rate among cohorts;
- b. parental social class (four categories, based on the highest social class between father and mother: service class, white collars, petit bourgeoisie, blue collars) and parental education (four categories, based on the highest educational level between father and mother: primary, lower secondary, upper secondary, tertiary); as we said, among cohorts we detected an increase in the rate of graduates coming from working class and upper secondary educated parents;
- c. geographical area of graduation (four categories: North West, North East, Centre, South and Islands); this is a relevant factor in the Italian case and it strongly affects the youth entrance in the labour market (Reyneri 2002) and could therefore affect the propensity to enrol in further education after the degree;
- d. work activity during university (three categories: continuous, occasional, none), a good predictor of the following quick labour market entrance (Argentin 2010);
- e. field of study attended during university (eight categories: scientific, medicine, engineering, social sciences, law, economics, arts); as we said, during the period considered we detected a decrease in the Scientific/Medicine fields of studies and an increase in the Humanities: these changes could be connected to post tertiary enrolment, which differs among fields of study, more or less connected to specific training opportunities after the degree;
- f. graduates’ upper-secondary school track (five categories: vocational, technical, scientific lyceum, classic lyceum, other types of lyceum), a variable strongly associated to students social

³ To classify also the subjects enrolled at more than one post-tertiary opportunity, we used a hierarchical approach, considering the highest post-tertiary enrolment. The hierarchy follows the order of the list. We also signal that the comparison among cohorts raised some doubts due to minor changes in the questionnaires; especially for the last subgroup (training courses) as there were definitions differing in the minimum amount of hours/days spent in the courses. Hence there is higher uncertainty on this subgroup, due to the imperfect comparability of the definition across cohorts.

origins and school performance in the Italian educational system (Gasperoni 1996; Pisati 2002) that partially capture here the ability of students obtaining a graduation among cohorts;

- g. graduation delay (number of years) and graduation final mark, to further check (as much as possible) the ability of graduates among cohorts.

In the second and third part of our paper we look at the strength of the association among the ascriptive characteristics and the post-tertiary enrolment across the cohorts.

The ascriptive dimensions we consider are social origins (in the second part of the analyses) and gender (in the third part). To reduce the uncertainty of the estimates we define two variables that represent the interaction of graduation cohort and social origins, in the first case, and graduation cohort and gender, in the second case.

More precisely, to measure the associations of social origins across cohorts, we used parental education⁴ combined with cohort (we are indirectly estimating an interaction effect). We defined parental education identifying the highest educational level between father and mother and splitting the distribution in four groups (primary, lower secondary, upper secondary and tertiary); then we combined them with the five cohorts. Hence we obtained a unique variable with twenty subgroups; we choose as reference category the graduates coming from tertiary educated families in 2004, one of the larger subgroups available.

We repeated the same process for gender, obtaining ten subgroups and choosing females graduated in 2004 as the reference category (the largest subgroup).

Methods

Our analysis is developed through three steps. We start by describing the trends of post-tertiary enrolments over time and identifying the two different types of education/training (the “broad” and the “narrow” definitions, see above). We show the trend of the dependent variables across the five cohorts and we test the hypothesis that post-tertiary enrolment growth is not due to the composition of graduates population across cohorts (H1).

In the second part of the paper, we estimate the associations of the different social origins and post-tertiary enrolment across cohorts. We use nested binomial logistic regressions to estimate these associations and to test the hypothesis that there is a persistent advantage in enrolment to post-tertiary education/training for graduates coming from higher social origins; moreover, this advantage should be greater for the institutionalized forms of post-tertiary education, leading to a certificate (H2).

We should consider that we are using a selected sample (only tertiary graduates) and we are comparing the strength of some associations among cohorts. Our estimates could be biased by the different selection process of the subjects in the condition of being graduates (Cameron & Heckman 1998); moreover the selection could be different across cohorts and the composition of each group of the independent variable could differ over time (in example by ability). We try to solve this problem conditioning our estimates step by step to all the covariates available in the data. Then, in the first model we start looking at the gross association between parental education and post-tertiary enrolment (m0). In the following model (m1), we also consider the covariates that do not mediate the association between parental education and post-tertiary enrolment, but which could produce a compositional effect among cohorts. In the next model (m2) we take account of the different population composition

⁴ We did not consider the family social class because it is almost irrelevant in predicting enrolment in post-tertiary education/training once we control for the parental education (Argentin and Triventi 2011); moreover, here we were interested in reducing the uncertainty of estimates as much as possible and therefore we prefer to use less categories and consider only parental education.

among cohorts, looking at their school and university tracking (type of upper secondary school and academic fields of study); in this way, we are controlling for differences among each cohort sample due to the population evolution over time, but we are also partially considering the graduates ability, moving from total associations to what in the educational inequality literature is called “secondary effect” (Boudon 1974). A further step in this direction is done in the last model (m3), where we also consider graduation delay and final mark, two (rough but not improvable with the available data) measures of the graduates ability.

Summarising, our modelling strategy is the following:

m0: combination of cohort and parental education;

m1: combination of cohort and parental education + covariates (gender, geographical area, parental social class);

m2: combination of cohort and parental education + covariates + university/school tracking;

m3: combination of cohort and parental education + covariates + university/school tracking + academic performance.

It is quite evident that, in our modeling strategy, there is a trade off between the estimation of the total association of parental education with post-tertiary enrolment and the need to control for the graduates’ selection and the consequent composition of subgroups among cohorts. In the following paragraph, we will comment on the results of the models taking account of this trade off; more precisely, we will try to use the models 2 to investigate the role played by school tracking and academic fields of studies, assessing to what extent this dimension of the educational system accounts for the inequalities in the enrolment due to social origins.

The same step by step modelling strategy will be developed looking at gender, in the third part of our analyses, where we try to see what happened with the association between gender and post-tertiary enrolment across cohorts.

To compare the strength of the associations among the cohorts, we use the Average Partial Effects approach (Barthus 2008); through Average Partial Effects, we avoid the well-known problems in doing such a comparison (Allison 1999; Mood 2009). Average Partial Effects have also the advantage of being easily interpreted: they can be read as average differences in the probability of interest between categories, quantified in percentage points. Here we present in the figures only the Average Partial Effects of our interest and their confidence intervals; the tables of models are available on request from the author.

4. Research results

The expansion of post-tertiary education

We begin our analyses looking at the evolution of post-tertiary enrolment across cohorts. The following table reports the percentage of graduates enrolled in different post-tertiary education/training by cohort and shows also the broad and strict definition used in the following analyses.

We can see that an increase in post-tertiary enrolment across cohorts took place, but the shape and strength of this growth changes when comparing the narrow and broad definition. In the first case, we observe a huge increase between graduates in 1992 and graduates in 1995 and, after that, a slower growth that became a decline for the last cohort. The largest part of the increase among cohorts (and decrease for the last one) is here led by the so called “Master” and ”specialisation”: those forms of post-tertiary education which appeared in the University system at the beginning of the 90s and grew consistently until the start of the new century, but have declined recently, probably as a consequence of the new supply of “*Laurea specialistica*” courses.

Table 2 - Graduates enrolled at different post-tertiary pathways by cohorts (column %)

	1992	1995	1998	2001	2004
Phd	4.1	4.4	4.9	5.5	6.1
“Master”/”specialisation”	0.0	16.6	22.6	32.4	23.1
<i>subtotal - narrow def.</i>	<i>4.1</i>	<i>21.0</i>	<i>27.5</i>	<i>37.9</i>	<i>29.2</i>
University/work scholarship	8.7	4.5	3.9	3.8	3.7
Another tertiary course	13.9	2.7	1.4	2.1	8.5
Apprenticeship/”Stage”	23.7	23.9	16.7	24.1	24.8
Other training course	10.1	7.6	13.5	11.2	8.9
<i>subtotal - broad def.</i>	<i>60.5</i>	<i>59.7</i>	<i>62.9</i>	<i>79.1</i>	<i>75.1</i>
None	39.5	40.4	37.1	20.9	24.9
Total	100.0	100.0	100.0	100.0	100.0
N	13,238	17,106	20,539	21,927	26,160

If we look at the trend of the broad definition, there has been only one relevant increase at the start of the new century, but there is not a clear driver of this trend among the different types of post tertiary enrolment. All those not included in the narrow definition do not show a clear trend across cohorts. This could be due to the fact that some types of post-tertiary pathways do not have clear and strict boundaries (i.e. ‘stages’) and to the uncertainty in the comparison of some categories across cohorts (i.e. the training course, see the variable definition section, footnote 3); beyond these methodological reasons, probably the single trends are not linear also because of specific changes which occurred in the post-tertiary training supply in the period considered here. More precisely, we identify three elements that could help in the interpretation of the trends: a. the Bologna process and the consequential vertical stratification of the tertiary degree could be the reason behind the increase of tertiary re-enrolment in the last cohorts (graduates with a pre-reform degree attending a master “laurea specialistica”) and behind the recent decrease of the so called “Master”; b. the labour market reform, which mainly occurred in Italy in 1997 (the so called “pacchetto Treu”), which could explain the sharp decrease of the ‘stage’ and apprenticeship in 1998, when new forms of flexible temporary contracts became available; c. across the centuries, there has been an increase in the supply of training courses due to EU funds and this could contribute in explaining the growth of this kind of post-tertiary course for the graduates in 1998 and 2001, even though we should keep in mind once again that the comparability across cohorts is not perfect for this subgroup (see footnote 3).

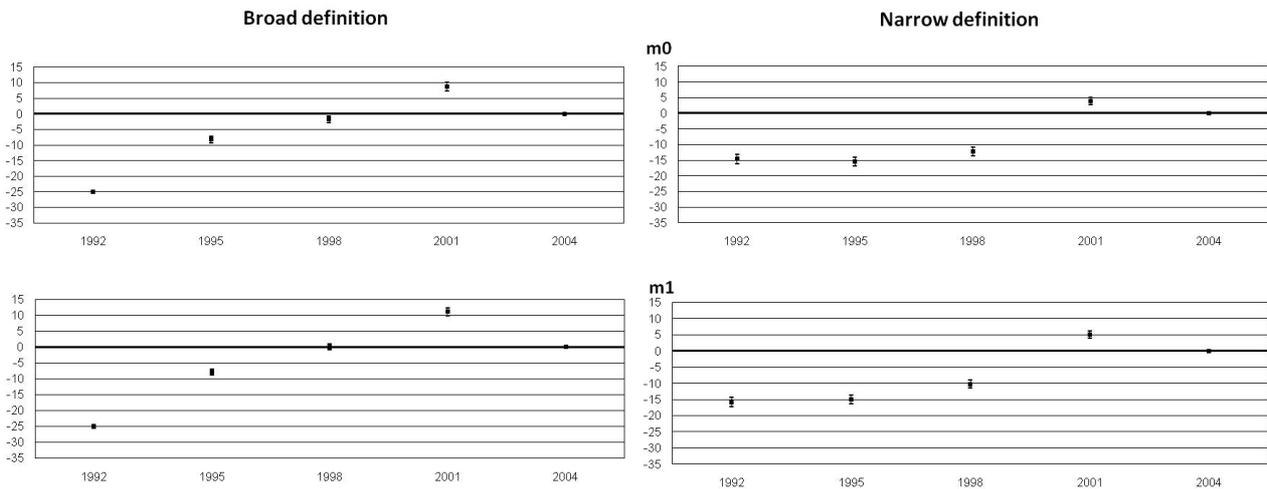
What is more important here is that the increase in post-tertiary enrolment is huge using both variable definitions. One could argue that its growth could be not entirely due to the supply side, but also to a compositional effect; namely, graduates in the last cohorts could present different characteristics that led them more frequently to enrol in post-tertiary education/training. Our hypothesis is instead that those compositional effects do not matter and that the supply side is the real explanation of the observed trend (H1).

The following figure supports our hypothesis: here we present the difference in the probability of enrolling in post-tertiary education/training (broad and narrow definition) comparing graduates from each cohort with the last one (2004)⁵. The first model considers only the cohort of graduation as independent variable (m0), the following model instead controls the cohorts’ associations by all the variables listed above (m1). We could observe that there aren’t all compositional effects mediating the

⁵ We choose this reference category to reduce the estimates’ uncertainty, taking into account the growing sample size across cohorts.

trends for both the post-tertiary enrolment definitions. Therefore, the detected trend is due to the supply of post-tertiary education and training in the Italian context.

Fig. 1 – Associations between cohort and post-tertiary enrolment
(% average partial effects - ref.: 2004 cohort)



It is particularly interesting to observe that the increase was mainly concentrated at the start of the century, when the Universities strongly promoted post-graduation courses (the so called “Master”). Therefore, as suggested by Ballarino and Regini (2005), the mechanism underlying the expansion of the process is probably⁶ the increase in the offer of post-tertiary education/training provided by the Italian University. As we argued before, this increase and the consequent institutionalization of a new level in the Italian educational system was not deeply investigated in sociological literature about the reproduction of inequalities. We try now to contribute to this field, developing further analyses on post-tertiary enrolment.

The relevance of social origins over time

Now that we know the trends of the phenomena we aimed to investigate their shape across cohorts, we could look at the relations among post-tertiary enrolment and the graduates’ ascriptive characteristics. More precisely, we are now going to test our second hypothesis (H2): following the credentialist approach, we argued that the expansion of a new educational level should be mainly concentrated on the graduates with higher social origins; these subjects should be interested in maintaining their advantage in the labour market through a higher and less widespread credential, especially because the tertiary degree was becoming more common among young people competing for a job in the labour market. More precisely, our expectation is that the advantage of children coming from families with higher social resources should be stronger looking at the narrow definition of post-tertiary enrolment,

⁶ Obviously we rely on the assumption that there aren’t other relevant variables that could produce a compositional effect across cohorts.

because that is the part of post-tertiary education that really showed the appearance of new institutionalized educational professional qualifications (the so called “Master” and “specialisation”). As we said before, we use an analytical strategy based on nested binomial logistic regression models. We look at the association of a variable that combines graduation cohort and parental education and we compare each category to the graduates in 2004 coming from a tertiary educated family⁷. In the first model (m0) we look at the total association; then we test whether the observed associations originated from compositional effects, trying to avoid the risk that our estimates would be biased by the selection of different subjects into the graduates population across cohorts. Once again we summarize the steps of the modelling strategy:

m0: combination of cohort and parental education

m1: combination of cohort and parental education + covariates

m2: combination of cohort and parental education + covariates + university/school tracking

m3: combination of cohort and parental education + covariates + university/school tracking + academic performance

We also remind the reader that there is a trade off between the estimation of the total association between parental education and post tertiary enrolment, on one side, and the need to control for the graduates selection and composition among cohorts, on the other side. The second and especially the third model could partially capture differences in the ability across graduates’ cohorts, but also lead us from the analyses of the overall association to the analyses of the “secondary effects” (Boudon 1974), namely the association between social origins and post-tertiary education that is not due to the graduates’ school and academic performance.

The following figure reports the association between the parental education and the probability of post-tertiary enrolment by cohort, using the different models described above; on the left side there are the results of the four models where we used as dependent variable the broad definition of post-tertiary education/training, on the right side instead we present the results of the four models obtained using the narrow definition and concentrating on the more institutionalized and prestigious post-tertiary professional qualifications.

We can look at this figure in many different ways, obtaining different information from the graphs and especially from the comparison among them.

The comparison of each cohort/parental education subgroup with the graduates in 2004 coming from higher-educated families implies that the horizontal axis corresponds to the value of this group (0 value on the vertical axis identifies the reference category). Therefore, it is possible to see the increase in post-tertiary enrolment across cohorts until 2001 in a different way; we can also observe that all the 2004 graduates’ subgroups are below their correspondent subgroups in 2001, signalling once again the reduction in post-tertiary enrolment for the last cohort of our sample.

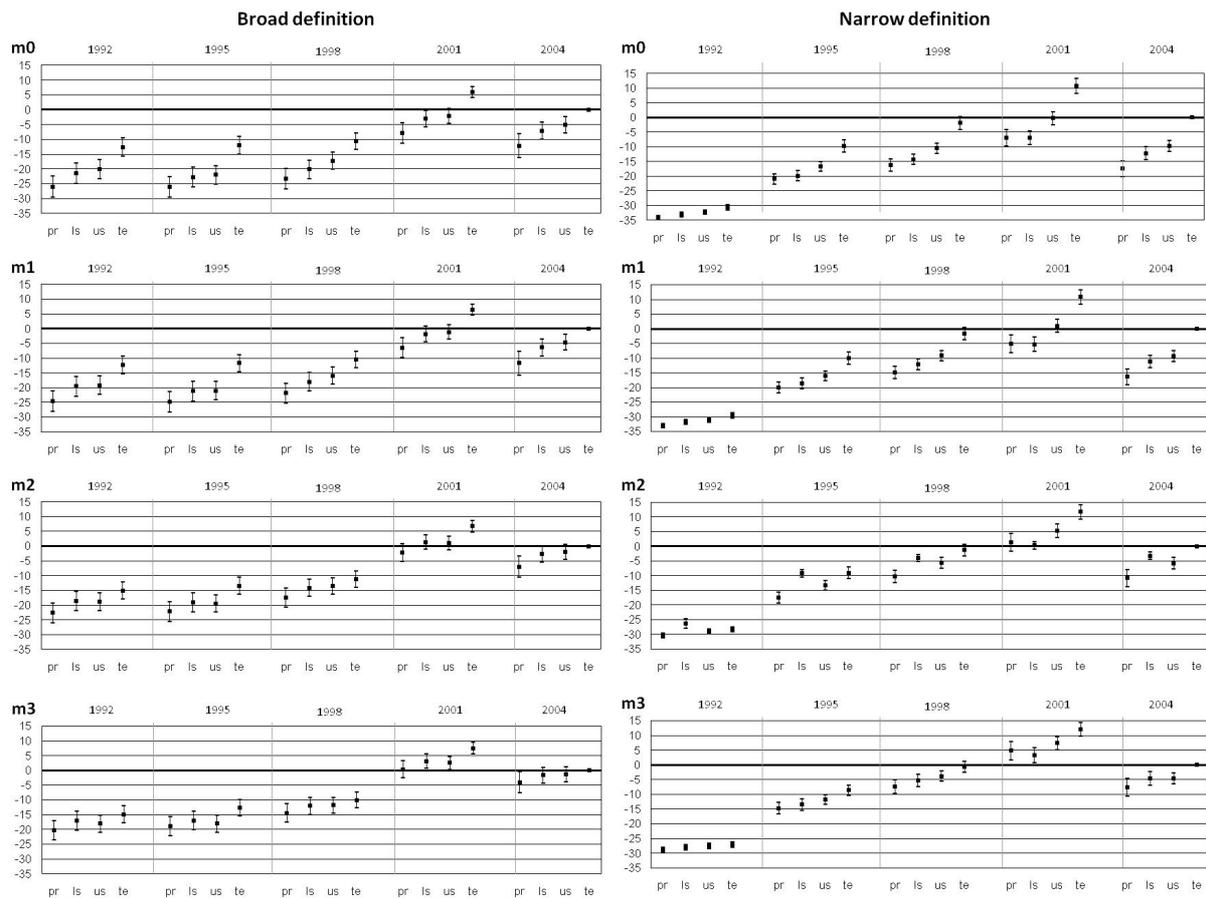
Considering the hypothesis we are testing, it is more relevant to develop another comparison, looking at the differences existing among graduates coming from different social origins, within each cohort and within each post-tertiary definition.

Looking at the broad definition, we observe that there is a weak advantage associated to the family educational background in the probability to be enrolled in post-tertiary education/training. If we directly compare graduates coming from tertiary educated families with the ones coming from primary educated parents, the difference is about 10 percentage points and it is almost constant across cohorts. These differences become weaker and tend to disappear when we consider the school/academic

⁷ One of the larger subgroups in the entire pooled sample, therefore a good reference category to reduce the estimates’ uncertainty.

tracking and our (rough) measures of ability (models 2 and 3). Therefore, the picture we take looking at the entire post-tertiary education-training (broad definition) is that the advantage for graduates coming from tertiary educated families is weak, constant among cohorts and mainly due to the school and academic tracking and performance; in other words, is that there is hardly any secondary effect.

Fig. 2 – Associations between post-tertiary enrolment and parental education by cohort (% average partial effects - ref.: graduated in 2004 from tertiary educated families)



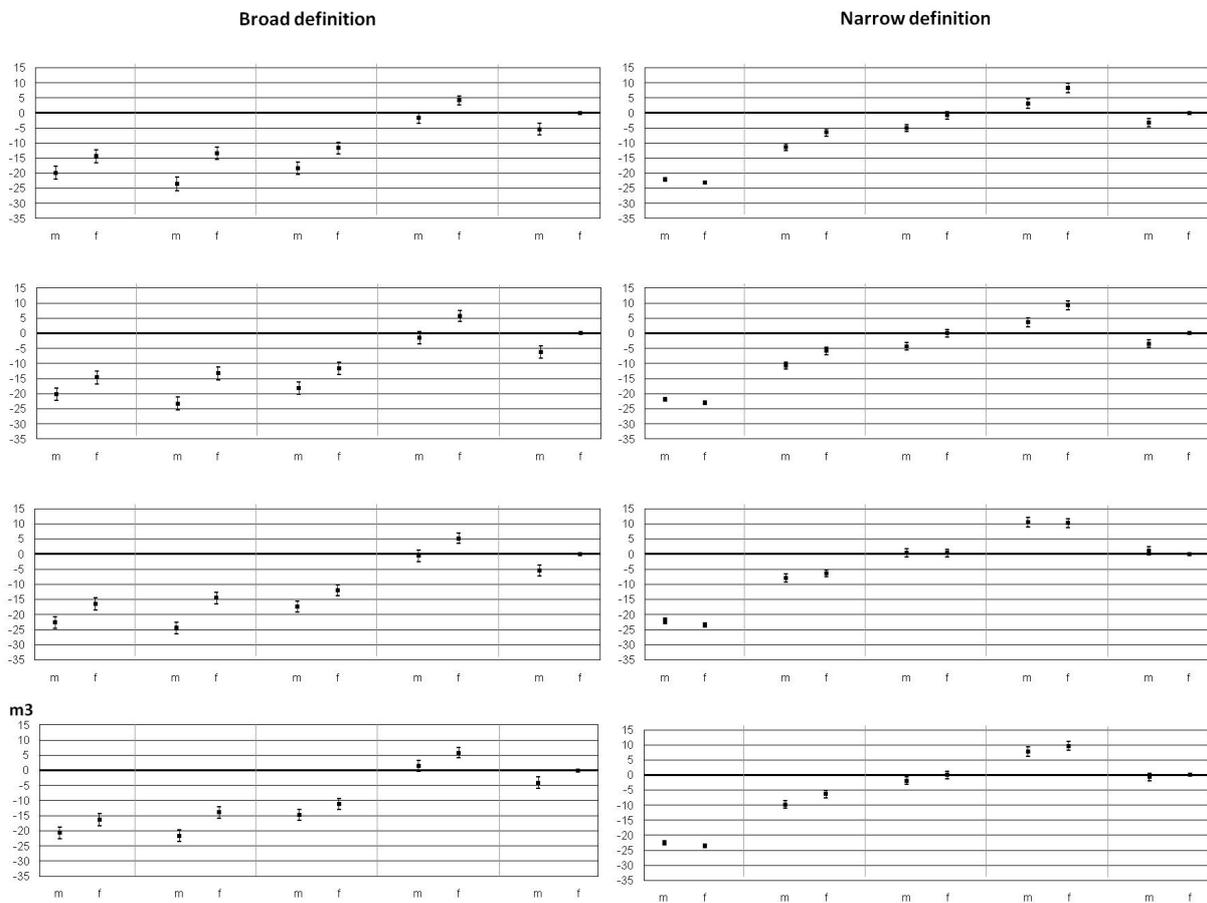
Looking at the narrow definition, the picture presents one relevant change: the distance between the tertiary educated parents and the primary educated increases across cohorts, along with the growth of post-tertiary enrolment. For the first cohort, looking at the model 1, the distance between primary-educated families and tertiary-educated families is about 3 percentage points in 1992, 10 in 1995, 13 in 1998, 16 in 2001 and 2004. This means that the graduates coming from higher-educated families was the one attending the narrow post-tertiary education more frequently. Finally, we observe that also here moving to the models 2 and 3, we detect a reduction in the distance between graduates from lower and higher-educated families, but the advantage of the higher social origins remains significant in all the cohorts. We can therefore conclude that a large part of the advantage is due to the school and academic track and performance, but that, looking at the more prestigious and institutionalized post-tertiary credentials, a secondary effect exists.

The relevance of gender over time

We investigate now the relevance of the second ascriptive characteristic considered in this paper, gender. The analytical approach is the same as before and also here we estimate our associations running four models on two definitions of the dependent variable; in this case the reference categories are the women graduated in 2004. Here we do not have a hypothesis, but a question: does gender shape the probability to enrol at post-tertiary educational level in the same direction and with the same strength across cohorts?

Similarly to figure 2, figure 3 reports the results obtained with the four models specified before and applied to the broad and narrow definition of post-tertiary enrolment.

Fig. 3 – Associations between post-tertiary enrolment and gender by cohort
(% average partial effects - ref.: females graduated in 2004)



Looking at the broad definition we detect a higher probability for females to be enrolled in post-tertiary education/courses. This difference is quite small (about 5 percentage points), with the exception of the 95 cohort, when it is almost the double; we also observe that the difference does not disappear also in model 3, namely taking into account the graduates academic performance. Therefore, the general picture shows females more frequently involved in post-tertiary training/education in the past but also for the more recent cohorts.

This picture changes if we look at the narrow definition of post-tertiary education, namely when we look at the institutionalized part of this supply, leading to the more prestigious credentials. Here the advantage of female graduates is weaker in the first two models and it disappears entirely once the school/academic tracking and performance are taken into account (models 2 and 3).

Summarising, it is interesting to detect that there is a female advantage but it is limited only to the forms of post-tertiary education/training which are less institutionalized and not leading to a professional qualification. We will come back to this result in the concluding paragraph of the paper.

5. Discussion and conclusions

We investigated post-tertiary enrolment focusing on the graduate population and considering a short but changing period for Italy, when there was an increase in the enrolment in tertiary education and an expansion and differentiation of the academic system.

We observed an increase in post-tertiary enrolment, except for the last cohort; the trend is not a consequence of the changes occurring in the composition of the graduate population across cohorts, but it seems instead due to the increase in the supply of post-tertiary education. This process seems particularly appropriate in describing the appearance and growth of the so called “Master”; this type of education is the major engine behind the expansion of the more institutionalized forms of post-tertiary education (our “narrow” definition of post-tertiary enrolment). It seems that the so-called “Master” and Phd courses constituted a new educational level, emerging simultaneously to the increase in the graduation rate among the young people. This result is consistent with the credentialist theory (Collins 1979), but we also found another relevant result supporting this approach: in fact graduates coming from higher-educated families are the ones that were more frequently enrolled in post-tertiary education/training, especially the more institutionalized forms leading to a credential. Therefore, also at the post-tertiary level, the long term investment in education is persistently more frequent for children coming from more educated families. This process is similar to the ones occurring in the past in Italy for the upper-secondary and tertiary education expansion (Ballarino & Schadee 2006; Barone *et al* 2010).

Considering the institutionalized forms of post-tertiary enrolment, we also observe that the advantage for graduates coming from higher-educated families is not fully explained by the previous horizontal stratification during school (upper-secondary tracking) and university (fields of studies) or by the previous academic performance; hence we detect a secondary effect for graduates coming from higher social origins called to invest in further education after the degree.

Looking at gender, we detect only a higher probability of attending post-tertiary education/training among females, but this difference is weak controlling for previous school tracking and academic choices (fields of studies attended); moreover the advantage disappears looking at the institutionalized forms of education. This evidence raises the doubt that the higher propensity to attend post-tertiary training among women could be not an advantage but the consequence of their labour market weakness, mainly due to their substantially permanent segregation within some occupationally less valuable fields of study (Pisati 2002; Ballarino 2006; Ballarino & Bratti 2009; Triventi 2010; Barone 2011).

In conclusion, a new post-tertiary educational level seems to be emerging in the Italian context, when the previous one was becoming more frequent among young people; moreover, social origins have been shaping the transition processes to educational credentials, showing a strong and persistent (or even growing) advantage for children coming from higher-educated families. Therefore the predictions of credentialist theories seem broadly supported by our analysis.

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