

Regional Universities and wage outcomes in Italy*

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Abstract

In this paper we use a representative sample drawn from the ‘Indagine Statistica sull’ Inserimento Professionale dei Laureati’ by the Italian National Statistical Institute and data by the Italian Ministry of Education to look at the impact of regional universities on wages of graduates three years after the completion of their studies. Our preliminary results show that after controlling for individual and college characteristics including indicators of individuals’ unobserved ability and college quality, a wage premium is associated to graduating in a regional university. This finding may be interpreted as regional universities enhancing the local human capital stock or creating specific skills needed by the local economic environment.

1 Introduction

In the last 30 years, the tendency to decentralise undergraduate education by creating or granting financial autonomy to universities has been increasingly common in many European countries. Generally, universities located in peripheral areas respond to precise policies such as enhancing the overall human capital stock, create specific skills needed by the local economic environment, improving knowledge and innovation and R&D activities through strong relationships with local firms. The literature that analyses the relation between undergraduate education and transition in

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the labour market in Italy (Brunello and Cappellari [5], Bagues and Sylos-Labini [3], Bratti et al. [4] is still very recent and assesses the impact on labour market outcomes of different dimensions of college quality (e.g. being a ‘private’ or a ‘new’ university).

Up to our knowledge, this literature does not analyze the impact of regional universities on employment outcomes. The aim of this paper is to look at the impact of university decentralisation on wages of graduates three years after the completion of their studies. We use the 2004 wave of survey on the transition from college to work (Indagine Statistica sull’Inserimento Professionale dei Laureati) carried by the Italian National Statistical Institute (ISTAT) to investigate the effect of graduating in a regional university i.e. a university which is not located in metropolitan area as defined by the Italian law (compare 142/90 and D. lgs 267/2000) on individual (log)wages.

Our preliminary results confirm that, after accounting for individuals’ and colleges’ observed and unobserved characteristics, a degree in a regional university is associated to higher average wages; such a wage premium is evenly distributed across faculties while being relatively stronger for the humanistic fields of study. Our results also show that no systematic wage gap is associated to newly established regional colleges relative to old ones; however asymmetries exist within the group of new universities - in terms of for example internal organization or local reputation - that interact with the local network of education to constitute an autonomous dimension of college quality.

The paper is organized as follows: in the next section we review the existing literature on education and employment outcomes; in section 3 we introduce our data and present some descriptive statistics; in section 4 we present our empirical analysis; section 5 concludes.

2 Existing Literature

An extensive literature analyses the relation between undergraduate education and transition in the labour market. Brunello and Cappellari [5] use a representative sample from ISTAT Microdata to check whether university education matters for earnings and employment three years after graduation. They find that the attended college matters and that substantial college related differences exist between regions. They also show that going to a private university matters since increases returns (in terms of earnings and employment probability) during the first part of the career. While part of this "private university premium" may be due to lower student-teacher ratios than

public institutions the authors do not exclude other interpretations such as network or reputation effects. Bagues and Sylos-Labini [3] assess the impact of electronic labour markets (Alma Laurea) on university to work transition in Italy. By using a difference-in-difference estimator on a repeated cross-section, they find that Alma Laurea reduces the individual unemployment probability and improves matching quality.

Up to our knowledge, the literature that deals with the effects of recent reforms of the education systems on university-to-work transition, economic performance and employment outcomes in European Countries is still very recent. Anderson, Quigley, and Wilhelmsson [2] and Persson and Regnér [11] analyse the economic effects of the spatial decentralisation of post-secondary education on productivity and output in Sweden. Persson and Regnér [11] use four different outcome measures for economic performance (survival rate of firms, employment growth at the establishment level, employment growth of high tech industries, growth of the share of highly educated) but do not find any significant effect of new colleges/universities on economic performance. The analysis of Anderson, Quigley and Wilhelmsson [2] differs from the one from Persson and Regnér [11] in that they identify a 10 years lag (1977-1987) for the education reform to be effectively implemented. They estimate separate models for the impact of students and researchers in new vs. old universities on regional productivity using different specifications with and without time, county, and community fixed effects and find significant effects of education reforms on regional economic performance.

Bratti et al. [4] study the effect of the expansion of higher education supply on the equality of tertiary education opportunities in Italy during the nineties. They do not find significant positive effects on equality in access to higher education. This is mainly due to the fact that increased availability of courses has a positive effect on university enrolment but not on the probability of getting a degree. Theodora [13], finally, carries a descriptive analysis on the effects of decentralisation on economic performance in Greece and concludes that the gradual reform of the education system started in the late 60's did not contribute significantly to regional development in Greece.

3 Empirical Analysis

3.1 Data and descriptive statistics

We use a representative sample drawn from the survey on the transition from college to work (Indagine Statistica sull’Inserimento Professionale dei Laureati) carried by the Italian National Statistical Institute (ISTAT). We use the last wave of the survey which includes people who graduated in 2001 and were interviewed in 2004. We also use data on students and teachers by college and faculty drawn by the Italian ministry of Education, University and Research (MIUR).

We use as a dependent variable the log monthly wages (topcoded at 3000 euros). Our main regressor is a dummy (*REGIONO*) which takes value one if the individual is graduated in one of the 34 colleges located in an area classified as a non-metropolitan one. We add as separate regressors dummies for colleges founded after the 1969 reform of the university system and, more recently the law no. 662/96 (*NEW*; see Bratti et al. [4]) and its interaction with *REGIONO*. These dummies are meant to capture any organizational, reputational or other difference which may arise in the returns from education in new (regional) colleges relative to pre-existing ones. To improve comparability along the different dimensions of our analysis, we exclude from our sample both private universities and students in the faculty of Medicine (accordingly colleges specialized in Medicine).

Table 1 reports the ensuing classification of the Italian colleges in our final sample. We have a first group of 20 colleges (old metro) founded at latest during the 1950s¹ and located into one of the 14 metropolitan areas identified by the Italian law.² In the second group, we find universities (new metro) which were established during the 1980s or 1990s with the objective of relieving the education burden of central universities in metropolitan areas. In the third group, we find old colleges situated in non metropolitan areas (old regio) while in the last group we find colleges established during the 1980s or 1990s to increase access to higher education in relatively peripheral areas in Italian regions (new regio).

¹the vast majority of these universities were actually founded in the 19th century and before. The youngest college in this group is the Istituto Universitario di Scienze Motorie in Roma which was founded in 1958 as ‘Istituto Superiore di Educazione Fisica’.

²these are Torino, Genova, Milano, Venezia, Bologna, Firenze, Roma, Bari, Napoli, Trieste, Cagliari, Catania, Messina and Palermo (Law no. 142/90 and D. lgs 267/2000)

We also have information on individual characteristics (age, gender), education, (type of high school, high school grade and their interactions, faculty, university graduating marks, dummies for graduation after legal duration of studies), work characteristics (part-time job, type of contract, occupation, sector, region of work) and parental background (siblings, interacted parental education and occupation). Table 2 summarizes the distribution of individual characteristics by college type. At a first sight, universities located in metropolitan cities seem to attract better students i.e. a higher share of students with a ‘liceo’ diploma, a high final grade at the secondary school, a good parental background. The outcome is that in metropolitan universities a higher share of students gets a high grade at the end of their university studies. The period of establishment of the college seems to matter, particularly for the regional universities. In fact new regional universities attract a significantly lower share of ‘good’ students relative to old regional ones.

From the extensive information about number of students and teachers at the college-by-faculty level we reconstruct some indicators of college quality such as college size, the faculty level log students-teachers ratio, share of external teachers over the total, share of students with a foreign diploma, share of female students, share of students with a diploma mark higher than 90/100. Table 3 reports averages and standard deviations of these indicators by college type. In several quality dimensions, regional universities appear as good as (in some cases even better than) metropolitan ones: they present shares of students with a foreign diploma, with a high diploma mark and females broadly similar to metropolitan ones. This suggest the absence of ‘bad reputation effects’ for regional colleges (particularly for old ones). Regional colleges also present lower students-to-teachers ratios and a higher share of external teachers. The former observation may suggest that these may better tailor the supply of tertiary education to students while the latter may signal relatively less skilled teachers or lack of organizational skills. Finally, the interpretation of the higher graduated-to-enrolled ratio of regional universities is a priori ambiguous. On the one hand this could signal a ‘higher productivity’ in terms of number of graduated. On the other hand the higher ratio may also hide a quality-quantity trade off of graduated or simply falling enrollements rates in the face of a stable number of graduated.

3.2 Empirical Strategy

We use the two-stages estimation procedure adopted by Brunello and Cappellari [5]. In the first stage we express (log) wages of individual i as a function of the attended college-faculty cluster (q^{cf}) and of a vector of observable attributes (\mathbf{X}_i) i.e.:

$$\ln wage_i = \sum_c \sum_f q_i^{cf} \alpha^{cf} + \mathbf{X}_i' \beta + \epsilon_{it} \quad (1)$$

\mathbf{X}_i includes, age, gender, type of high school, high school grade and their interactions, faculty, university graduating marks, dummies for graduation after legal duration of studies, work characteristics such as having a part-time job, type of contract, occupation, sector, region of work and parental background indicators such as siblings, interacted parental education and occupation. Parental background and school performance before college capture unmeasured individual ability and self-selection effects. We also allow some of the regressors related to personal attributes to enter the model non-linearly by including on both the interactions between parental education and occupations, and marks and school types.³ We also include 19 regional dummies to capture local labor and product market effects.⁴

Regression (1) is the first step in our procedure and allows us to predict logmonthly earnings by college/faculty clusters. In the second step we analyze the determinants of college by faculty wage i.e. we aggregate the data at the college by faculty level and exploit the ensuing variation to estimate the wage impact of our dimension of interest of college quality (Card and Krueger [7]). As noticed by Brunello and Cappellari [5] the main advantage from this approach is that, due to the rich set of controls included in the first step regression, aggregated measures of economic outcomes will not reflect individual level heterogeneity i.e. average out individual-level unobserved heterogeneity within clusters.

let $\hat{\alpha}_{cf}$ be the estimate of $\ln wage_i$ within each college by faculty cluster. In the second step of our procedure, we express the average wage in each college-faculty cluster as a function of

³As Brunello and Cappellari [5] notice, allowing for non linear combination of personal attributes attenuates the risks of misspecifying the functional form.

⁴Identification is ensured by individuals who have gone to college in a region and are employed in another region. By using regional dummies we implicitly assume that local labor market conditions do not vary significantly within each region (say at the provincial level. See Brunello and Cappellari [5]).

attendance to a regional universities (*REGIO*), a set of faculty dummies (\mathbf{F}_i), and a vector of college characteristics (\mathbf{Z}_i):

$$\hat{\alpha}_{cf} = \theta REGIO_{cf} + \mathbf{F}_i' \gamma + \mathbf{Z}_i' \delta + \epsilon_{cf} \quad (2)$$

\mathbf{Z}_i include variables meant to capture unobserved college quality. These are three dummies for the college size, a dummy for polytechnic institutes and other indicators capturing the quality of the supply of tertiary education and of college attractiveness such as the log students-teachers ratio, the share of external teachers, the graduated-enrolled student ratio, the share of students with a foreign secondary school diploma, the share of students with the highest score diploma and the share of female students. We also control for regional network effects of education by adding 13 dummies for university location.⁵ We finally include either a dummy for the new colleges created after the reform of tertiary education and its interaction with *REGIO* or 17 dummies for each new colleges; these alternative specifications flexibly capture non-linearities in returns from education in new colleges which may be due to different organizational skills or reputation effects.

Under the assumption that \mathbf{Z}_i effectively captures unobserved college-by-faculty characteristics, *REGIO* is uncorrelated with the error term and the OLS estimates of θ capture the true effect of regional colleges on wages due to enhanced human capital stock and the creation of local skills. Finally, to meet the objection that the returns from the creation of local skills may differ by field of study, we investigate for the existence of faculty specific wage premia of regional universities i.e.:

$$\hat{\alpha}_{cf} = \sum_j \theta_j REGIO_{cf} * f_{cf}^j + \sum_h \sum_j \zeta_{h,j} \mathbf{d}_{cf}^h f_{cf}^j + \mathbf{Z}_i' \eta + v_{cf} \quad (3)$$

The main difference with equation (2) before is that in equation (3) we allow for faculty specific wage effect of *REGIO* and $\mathbf{d}_{cf} = NEW, NEWREGIO$.

⁵We have 13 regional dummies as we create four macro-regions composed by, respectively, Umbria and Marche, Abruzzo and Molise, Puglia and Basilicata and Liguria and Lombardia. In this way we avoid the regional network effects being associated to the presence of a single college in Umbria, Molise, Basilicata and Liguria and assume that due to regional proximity, education network effects do not significantly vary within each macro-region.

3.3 Results

Table 4 for each group of universities compares the effective average log wages to the average coefficients of the college by faculty clusters in the first stage regression i.e. the estimated log monthly average wages which are only motivated by college and faculty characteristics. Looking at the effective average wages, metropolitan colleges pay higher wages than regional ones while the converse is true when we look at the estimated $\hat{\alpha}_{ef}$ (these differences are significant at the 1% in the case of new universities). While being purely descriptive, these estimates suggest that, once we control for selection of ‘bad students’ regional universities pay higher average wages than metropolitan ones.

Table 5 presents the 2nd stage estimates for equation (2). In column [1] we include only the dummy *REGIO* together with *NEW* and the interaction term. In column [2] we add the faculty dummies; in column [3] we add dummies for college size and for the polytechnics; in column [4] we add controls for the quality of the (college by faculty) supply of education and attractiveness; finally in column [5] we add the dummies for the regional education systems. The coefficient of *REGIO* always takes a positive sign and its size and significance increases as we add indicators for college quality. After we account for the full set of indicators, our estimates show that graduating in a regional college entails a 4% wage premium which is significant at the 5% level (column [5]). The coefficient of *NEWREGIO* is never significant suggesting that new regional colleges do not present any relevant quality gap relative to old ones due to lack of internal organization or reputation. All our indicators for college quality take the expected sign and are significant at the 1%-5%: a bigger college size, a high share of students with a foreign diploma or a high final grade at the secondary school signal high quality of education and are associated to higher average wages. Conversely, a higher log students-to-teachers ratio, graduates-to-enrolled ratio and a higher share of female capture poor unobserved quality of education and are associated to lower average wages.

In Table 6 we present the results once we substitute to the dummies for *NEW* and *NEWREGIO* colleges the 17 college dummies. Results are broadly consistent with the previous ones; graduating into a regional college produces a 4% increase in wages. However considering simultaneously the new college dummies and the 13 dummies for college location (column [5]) greatly reduces the significance of the college quality indicators. This observation signals that the combination of

these two sets of dummies probably better captures asymmetries between new colleges in terms of quality due to organization and reputation differences across colleges within the regional network of education.

In Table 7 finally, we present the coefficients for the faculty specific wage premia of regional universities. The coefficients are all positive showing that some wage premia of regional education emerge in all the fields of study. While the local significance suggests that the main effects are concentrated on humanistic disciplines such as law, psychology, political sciences and physical education, the t-test rejects the null hypothesis that all the coefficients are equal to 0 thus confirming that regional education has a positive global effect on average wages.

4 Concluding Remarks

In the last 30 years, the tendency to decentralise undergraduate education by creating or granting financial autonomy to universities has been increasingly common in many European countries. Generally, universities located in peripheral areas respond to precise policies such as enhancing the overall human capital stock, create specific skills needed by the local economic environment, improving knowledge and innovation and R&D activities through strong relationships with local firms. The present paper looks at the impact of regional universities i.e. universitie which are not located in metropolitan area (compare 142/90 and D. lgs 267/2000) on wages of graduates three years after the completion of their studies.

Our preliminary results confirm that, after accounting for individuals' and colleges' observed and unobserved characteristics, a degree in a regional university is associated to higher average wages; such a wage premium is evenly distributed across faculties while being relatively stronger for the humanistic fields of study. Our results also show that no systematic wage gap is associated to newly established regional colleges relative to old ones; however asymmetries exist within the group of new universities - in terms of for example internal organization or local reputation - that interact with the local network of education to constitute an autonomous dimension of college quality.

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Table 1: Classification of the Italian colleges according to their location and time of establishment

old metro	new metro	old regio	new regio
Torino, Uds	Milano Bicocca, Uds	Bergamo, Uds	Vercelli, UPO
Torino, Politecnico	Roma, UTV	Pavia, Uds	Varese, Insubria
Genova, Uds	Roma, III Uds	Sassari, Uds	Brescia, Uds
Milano, Uds	Napoli, II Uds	Padova, Uds	Verona, Uds
Milano, Politecnico	Bari, Politecnico	Parma, Uds	Udine, Uds
Venezia, Uds		Modena, Uds	Viterbo, Tuscia
Venezia, IU Architettura		Ferrara, Uds	Cassino, Uds
Trieste, Uds		Urbino, Uds	Benevento, Sannio
Bologna, Uds		Ancona, Uds	Teramo, Uds
Firenze, Uds		Macerata, Uds	Campobasso, Uds
Roma la Sapienza		Camerino, Uds	Foggia, Uds
Roma, IU Sc. Motorie		Pisa, Uds	Potenza, Uds
Napoli, Uds		Siena, Uds	Catanzaro, Uds
Napoli, Parthenope		Perugia, Uds	Trento, Uds
Napoli, Orientale		Salerno, Uds	
Bari, Uds		L'Aquila, Uds	
Palermo, Uds		Chieti, Univ.	
Messina, Uds		Lecce, Uds	
Catania, Uds		Cosenza, Uds	
Cagliari, Uds		Reggio C., Uds	
Obs.: 5,597	Obs.: 734	Obs.: 4,056	Obs: 1,161

Table 2: Students' characteristics by type of college

Variable	Mean	Std. Dev.	Mean	Std. Dev.
	New Metro		New Regio	
liceo	0.68	0.08	0.49	0.06
grade uni>105/110	0.51	0.10	0.35	0.11
grade hs> 56/60	0.33	0.10	0.21	0.06
good fath. backgr. (degree, w.c. auton.)	0.62	0.07	0.46	0.06
one grad. parent	0.33	0.06	0.19	0.05
N	734		1161	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
	Old Metro		Old Regio	
liceo	0.65	0.07	0.59	0.07
grade uni>105/110	0.47	0.11	0.41	0.10
grade hs> 56/60	0.25	0.05	0.24	0.06
good fath. backgr. (degree, w.c. auton.)	0.54	0.04	0.50	0.05
one grad. parent	0.27	0.06	0.25	0.04
N	5597		4056	

Table 3: indicators of college quality by type of college

Variable	Mean	Std. Dev.	Mean	Std. Dev.
	New Metro		New Regio	
students/teachers	33.01	23.04	29.94	25.15
graduated/enrolled	0.36	0.18	0.63	0.37
sh_foreign	0.01	0.01	0.02	0.03
highest diploma score (% 1st year enr.)	0.26	0.10	0.23	0.08
fixed contract teachers (% total)	0.30	0.21	0.27	0.15
female students (% total enr.)	0.52	0.20	0.55	0.20
N	32		64	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
	Old Metro		Old Regio	
students/teachers	34.31	27.43	30.65	22.96
graduated/enrolled	0.73	0.36	0.78	0.34
foreign diploma (% 1st year enr.)	0.02	0.02	0.02	0.04
highest diploma score (% 1st year enr.)	0.26	0.08	0.26	0.10
fixed contract teachers (% total)	0.20	0.15	0.28	0.18
female students (% total enr.)	0.57	0.19	0.57	0.19
N	159		147	

Table 4: average wages by college type- 1st vs. 2nd step wages

Variable	lnwage	$\hat{\alpha}_{cf}$
Old Metro	7.011	7.546
New Metro	7.078	7.534
Old Regio	7.002	7.561
New Regio	6.976	7.577
Obs.	11548	389

Table 5: The impact of regional colleges on average wages - OLS estimates with dummies for NEW, NEW REGIO

	[1]	[2]	[3]	[4]	[5]
REGIO	0.01 (0.02)	0.02 (0.02)	0.03* (0.02)	0.05** (0.02)	0.04** (0.02)
NEW (metro)	-0.01 (0.03)	0.00 (0.03)	0.01 (0.03)	-0.01 (0.03)	-0.02 (0.04)
NEW REGIO	0.03 (0.06)	0.01 (0.05)	0.04 (0.05)	0.03 (0.04)	0.01 (0.04)
HUGE			0.13*** (0.04)	0.13*** (0.04)	0.15*** (0.04)
LARGE			0.12*** (0.04)	0.13*** (0.04)	0.12*** (0.03)
MEDIUM			0.13*** (0.05)	0.12*** (0.03)	0.10*** (0.03)
POLI			0.06 (0.04)	0.09* (0.05)	0.04 (0.05)
log(students/teachers)				-0.05** (0.02)	-0.03** (0.02)
graduated/enrolled				-0.09*** (0.02)	-0.09*** (0.02)
foreign diploma (% 1st year enr.)				0.51** (0.22)	0.35* (0.19)
highest diploma score (% 1st year enr.)				0.06 (0.11)	0.24** (0.11)
fixed contract teachers (% total)				-0.10 (0.07)	-0.08 (0.06)
female students (% total enr.)				-0.37*** (0.13)	-0.41*** (0.12)
constant	7.55*** (0.01)	7.53*** (0.03)	7.42*** (0.06)	7.69*** (0.09)	7.67*** (0.08)
14 faculty dummies	no	yes	yes	yes	yes
13 university location dummies	no	no	no	no	yes
R sq.	0.01	0.24	0.31	0.45	0.57
N	402	402	402	363	363

Robust standard errors: : * : 10% ** : 5% *** : 1%

Table 6: The impact of regional colleges on average wages - OLS estimates with fixed effects for new colleges

	[1]	[2]	[3]	[4]	[5]
REGIO	0.01 (0.02)	0.02 (0.02)	0.04* (0.02)	0.06*** (0.02)	0.04* (0.02)
HUGE			0.15*** (0.05)	0.22*** (0.06)	0.23*** (0.06)
LARGE			0.15*** (0.05)	0.22*** (0.05)	0.19*** (0.06)
MEDIUM			0.13** (0.05)	0.20*** (0.05)	0.18*** (0.06)
POLI			-0.01 (0.03)	-0.01 (0.03)	-0.02 (0.04)
log(students/teachers)				-0.04** (0.02)	-0.03* (0.02)
graduated/enrolled				-0.09*** (0.02)	-0.10*** (0.02)
foreign diploma (% 1st year enr.)				0.64*** (0.22)	0.34 (0.23)
highest diploma score (% 1st year enr.)				0.02 (0.11)	0.14 (0.12)
fixed contract teachers (% total)				-0.10 (0.07)	-0.11 (0.07)
female students (% total enr.)				-0.32** (0.14)	-0.36*** (0.13)
constant	7.55*** (0.01)	7.55*** (0.03)	7.40*** (0.05)	7.59*** (0.11)	7.61*** (0.11)
17 (NEW,NEWREGIO) Uni. dummies	yes	yes	yes	yes	yes
14 faculty dummies	no	yes	yes	yes	yes
13 university location dummies	no	no	no	no	yes
R sq.	0.23	0.41	0.44	0.53	0.60
N	402	402	402	363	363
Robust standard errors: : * : 10% ** : 5% *** : 1%					

Table 7: The impact of regional colleges on average wages by field of study- OLS estimates with dummies for NEW, NEW REGIO

REGIO*faculty:	[1]	[2]	[3]	[4]
scientific	-0.06 (0.05)	-0.04 (0.05)	0.04 (0.05)	0.04 (0.04)
chemistry	0.00 (0.04)	0.01 (0.04)	0.03 (0.04)	0.02 (0.04)
geo-biological	0.01 (0.04)	0.02 (0.03)	0.05 (0.06)	0.04 (0.05)
architecture	-0.04 (0.06)	0.03 (0.06)	0.02 (0.06)	0.00 (0.07)
engeneering	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.03)
agricultural studies	0.11 (0.12)	0.15 (0.10)	0.15* (0.08)	0.11 (0.07)
eco-stat	-0.02 (0.03)	-0.01 (0.03)	0.00 (0.04)	-0.00 (0.04)
law	0.06** (0.03)	0.08** (0.04)	0.06* (0.03)	0.08** (0.04)
political science	0.08* (0.04)	0.11** (0.05)	0.08 (0.05)	0.08* (0.05)
humanities	0.06 (0.07)	0.07 (0.07)	0.08 (0.07)	0.05 (0.06)
psychology	0.01 (0.05)	0.01 (0.05)	0.12** (0.05)	0.15*** (0.05)
foreign languages	-0.01 (0.06)	-0.00 (0.06)	0.01 (0.06)	0.01 (0.05)
teachers college	-0.06** (0.02)	-0.06** (0.03)	-0.03 (0.03)	0.02 (0.04)
physical education	0.14* (0.07)	0.15** (0.07)	0.07** (0.04)	0.11** (0.05)
constants(by faculty)	yes	yes	yes	yes
(NEW, NEWREGIO)*faculty	yes	yes	yes	yes
size (huge, large, med.), poli	no	yes	yes	yes
uni. quality indexes	no	no	yes	yes
13 uni. location dummies	no	no	no	yes
N	402	402	363	363

Robust standard errors: : * : 10% ** : 5% *** : 1%