International migration of italian graduates

Naples, 27th april 2016

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1. HUMAN CAPITAL AND GRADUATES WORKING ABROAD

Literature suggestions

Human Capital

Human Capital (HC) University of Chicago (Schultz, 1961; Becker, 1962, 1964; Mincer, 1958, 1974):
"rational choice" similar to that pertaining to investment in physical capital, the difference being **the effect of education embodied in characteristics of each individual**

Retrospective: cost of "producing" a human being
(Engel,1883; Kendrick, 1976; Eisner, 1985)
Prospective: value of an individual's expected income
(Petty, 1690; Farr, 1853; Jorgenson and Fraumeni (1989, 1992)
Educational attainment: years and quality of education
(World Bank, 1995; United Nations, 2002; Wößmann, 2003)
OECD definition: taking into account both investment in education and returns not only in terms of income but also by satisfaction and acquired skills (OECD 1998; Dagum and Slottje 2000)

Connected to HC:

The University-to-job market Transition

University attendance, increases the individual "quantity" of HC, allowing graduates to raise their individual productive potential and to increase their wages during their working life and particularly in the first years after the degree

(Kane and Rouse, 1995; Katz and Murphy, 1992; Murphy and Welch, 1992; Juhn et al.,1993; Lovaglio and Mezzanzanica, 2011)

HC: graduates who work in Italy and abroad

Italian graduates in the first five years after the degree
who work in Italy and work abroad
in order to compare the evaluation of HC in Italy and abroad

Hypothesis: Do it Pay to Work Abroad?

Estimation methods:
Prospective (without actuarial values because of the considered years are immediately after the degree)
with **OECD suggestion** respect to non-monetary returns


Manager all'estero, l'altra fuga di cervelli

NELL'INDAGINE DI ASTRARICERCHE PER KILPATRICK MANAGER ITALIA E KILPATRICK LE RAGIONI CHE SPINGONO A LASCIARE IL PAESE SONO SOPRATTUTTO ECONOMICHE MA C'È UN RIMPIANTO

Carla Barone

«Mi dispiace ma son contenta»... E un'esperienza dal sapore agrodolce quella che i manager espatriativi trovano ogni giorno sulla loro pelle: amano l'Italia, tra non possono tornare e, in fondo, stanno bene dove sono.

I dirigenti all'estero si raccontano così, nell'indagine di Astrariceche per Manager Italia e Kilpatrick. la nostra Paese è tutto "un altro lavorare". I manager se ne vanno volentieri (lo dice il 93%) e sono soddisfatti (87%). Perché? Si sentono molto più apprezzati nel paese in cui operano.


Mezzogiorno terra di emigranti un laureato su tre va all'estero

Ci sono anche quelli che decidono di tornare e ecostituiscono una grande risorsa»

Fuga dal Sud per i giovani laureati che vanno a lavorare fuori

2. DATA SET

AlmaLaurea ad hoc survey

Survey characteristics: ad hoc research

Graduates of the cohort 2008 interviewed
at 5 years after graduation, employed abroad

Second-level graduates

Italian citizen only

Data collection method: CAWI
(Computer-Assisted Web Interview)

Response rate of 51% (777 interviewed)

Data representative: rescaling with gender,
disciplinary area and geographical area of the university

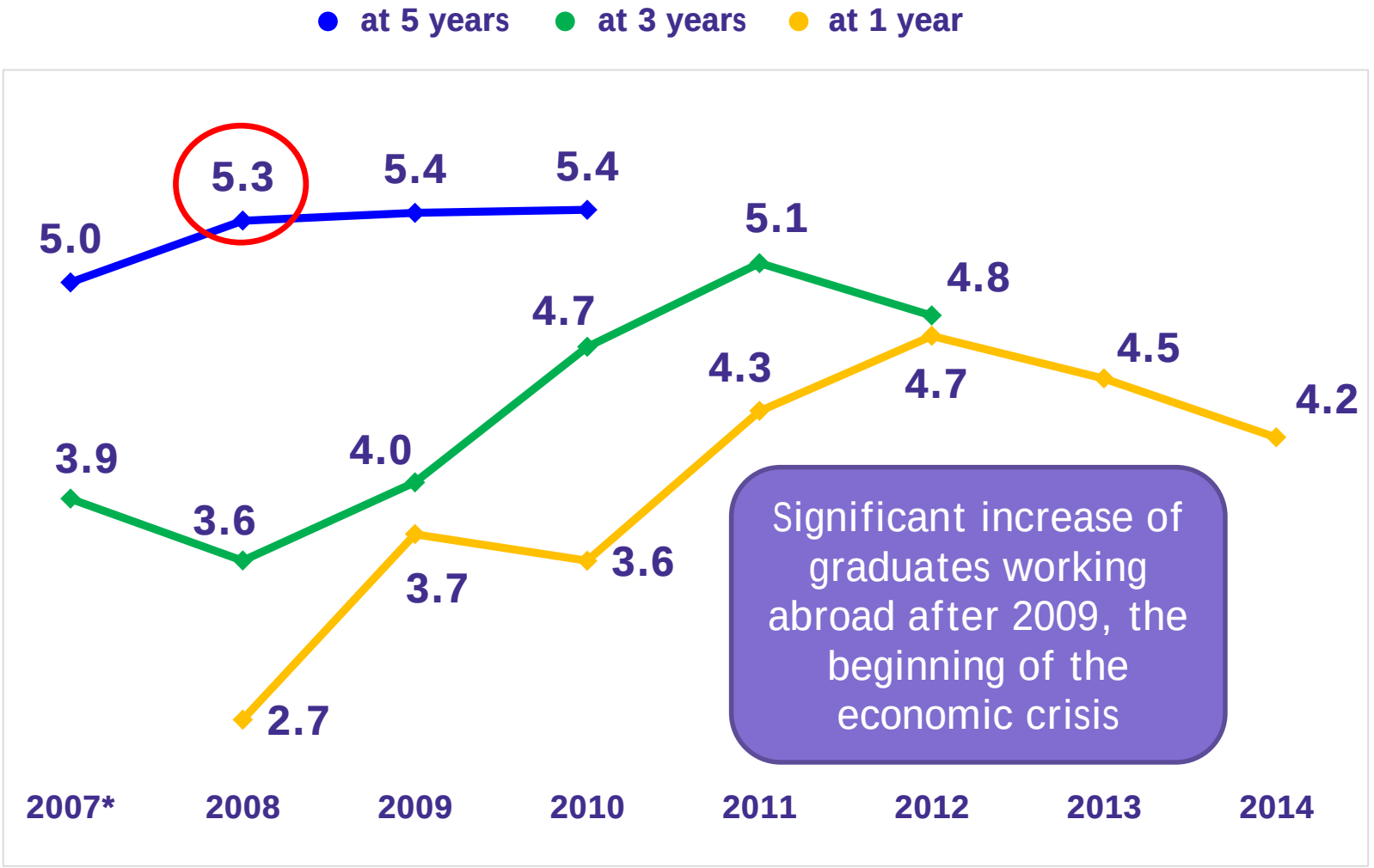
Italian graduates employed abroad by year of graduation

SECOND LEVEL

Italian citizen only

*1 year data not available

percentage value



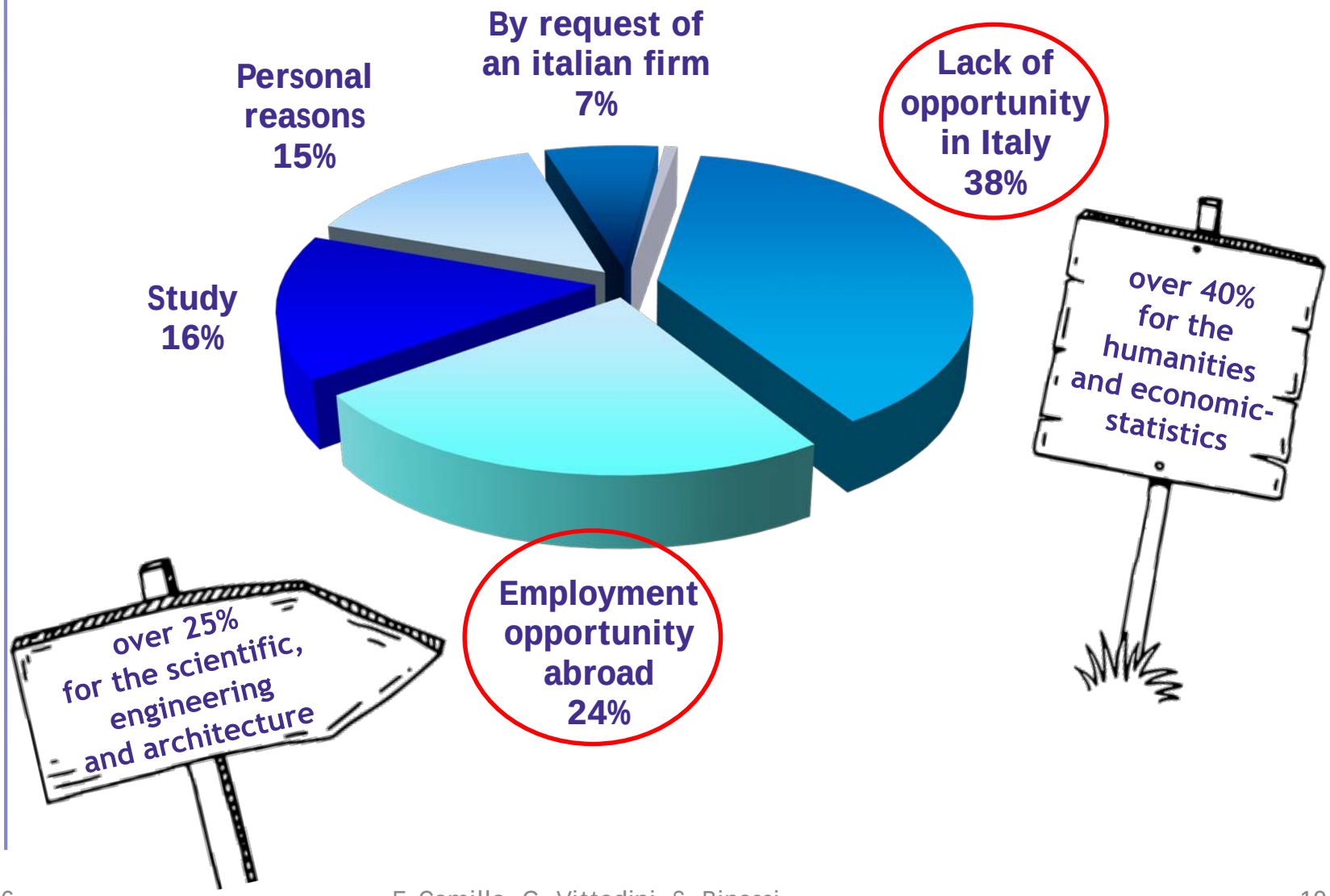
3. DESCRIPTIVE STATISTICS

Key drivers for transfer abroad at 5 years on from graduation

SECOND LEVEL 2008

No answer not reported

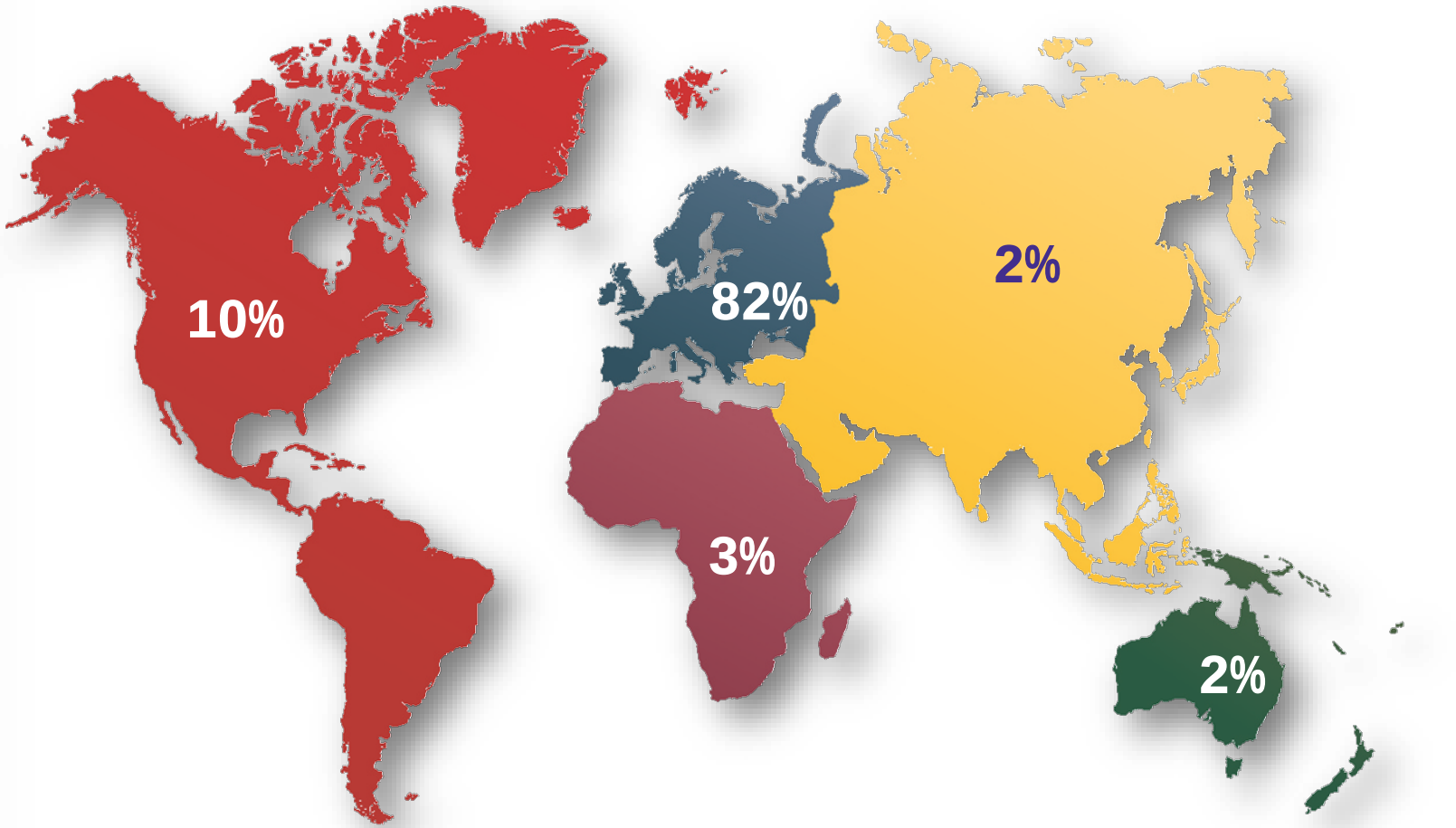
Italian citizen only



Foreign country of destination of italian graduates at 5 years on from graduation

SECOND LEVEL 2008

Italian citizen only



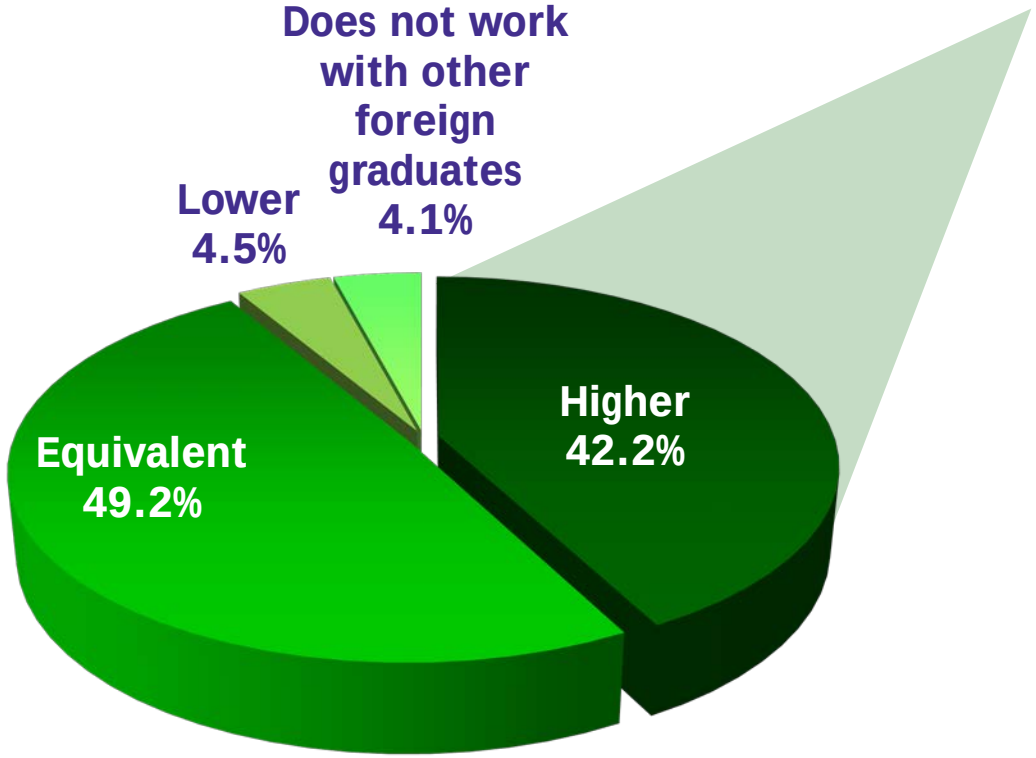
The EU: the most significant area of relocation (82%, mainly the UK, France and Germany), 10% transfering to America

Education qualification compared with foreigners at 5 years on from graduation

SECOND LEVEL 2008

Italian citizen only

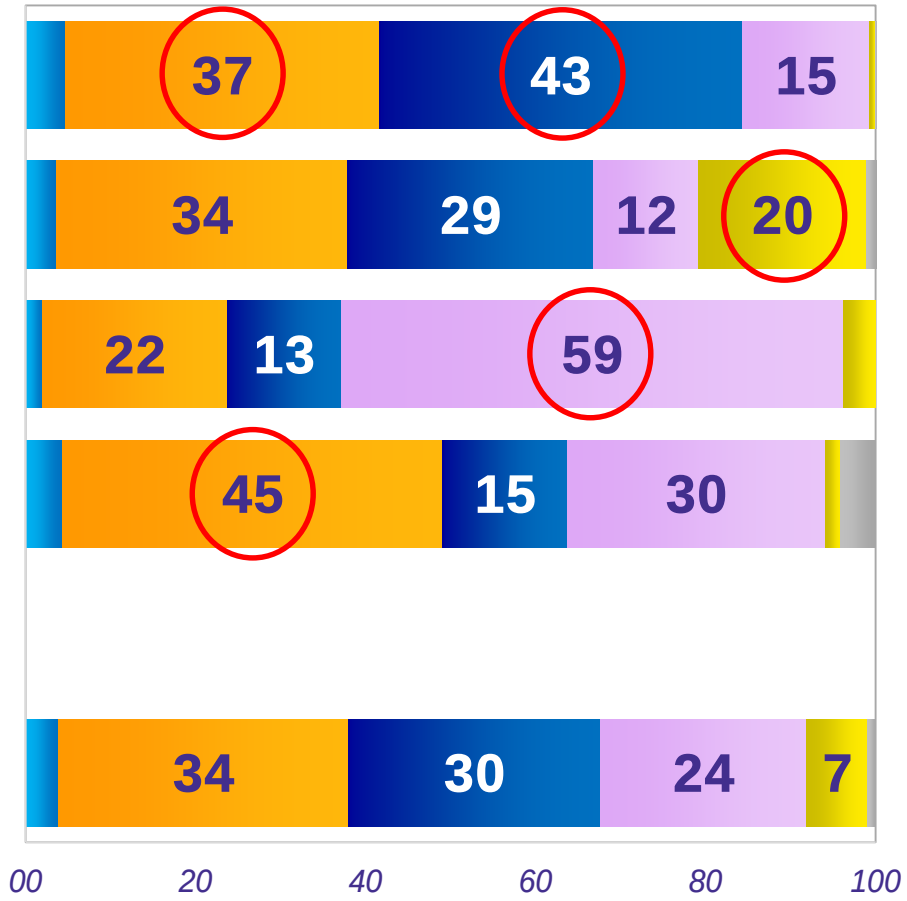
Has taken part to at least one post-graduated training activity 74%



Type of company at 5 years on from graduation by degree subject grouping

SECOND LEVEL 2008

Italian citizen only



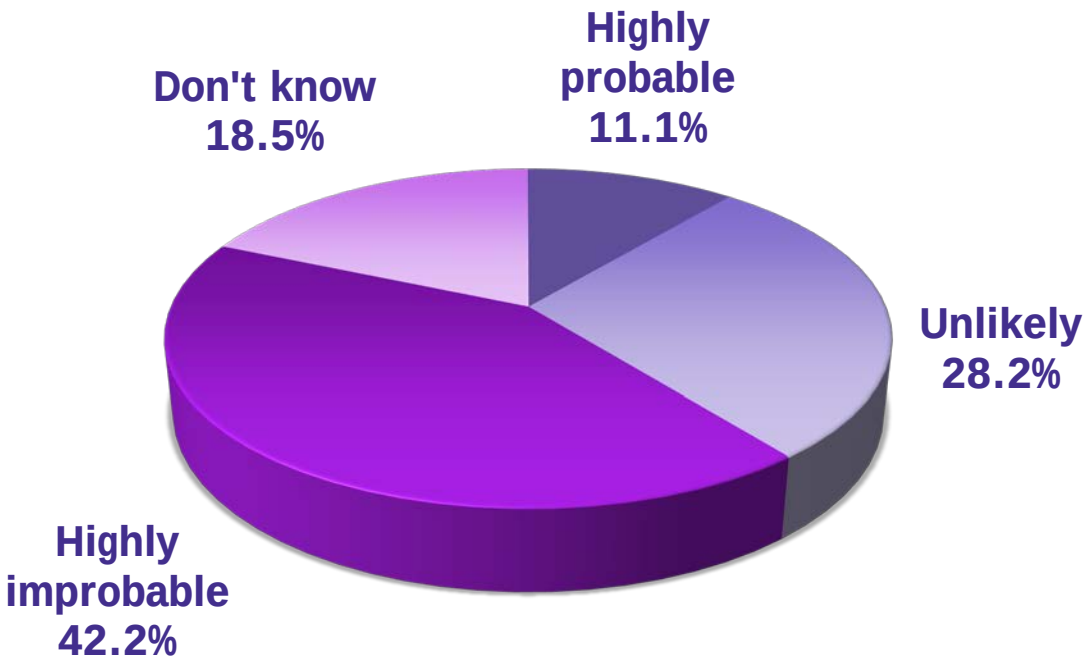
percentage values

Futur plans to return in Italy at 5 years on from graduation

SECOND LEVEL 2008

Italian citizen only

Do you plan to return and seek employment in Italy in the next 5 years?



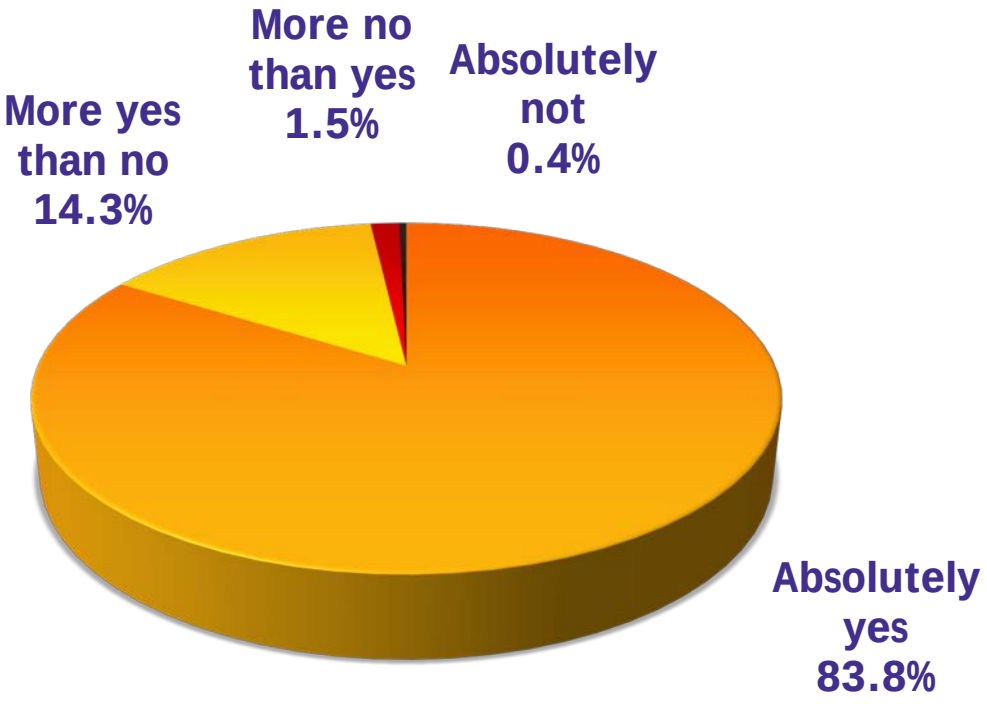
! More than 70% of respondents are unlikely to return in Italy

On the choice to transfer abroad at 5 years on from graduation

SECOND LEVEL 2008

Italian citizen only

In retrospect, would you repeat the choice of transfering abroad?



! Less than 2% regret their decision and over 80% declare being very satisfied

Descriptive statistics suggestion

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Italian graduates working abroad:

No significant knowledge gaps or related difficulties

Employed in foreign companies, universities and research centers

Emigration to the developed countries of the EU or in America

Very motivated and preparated to work abroad

Suggestion:

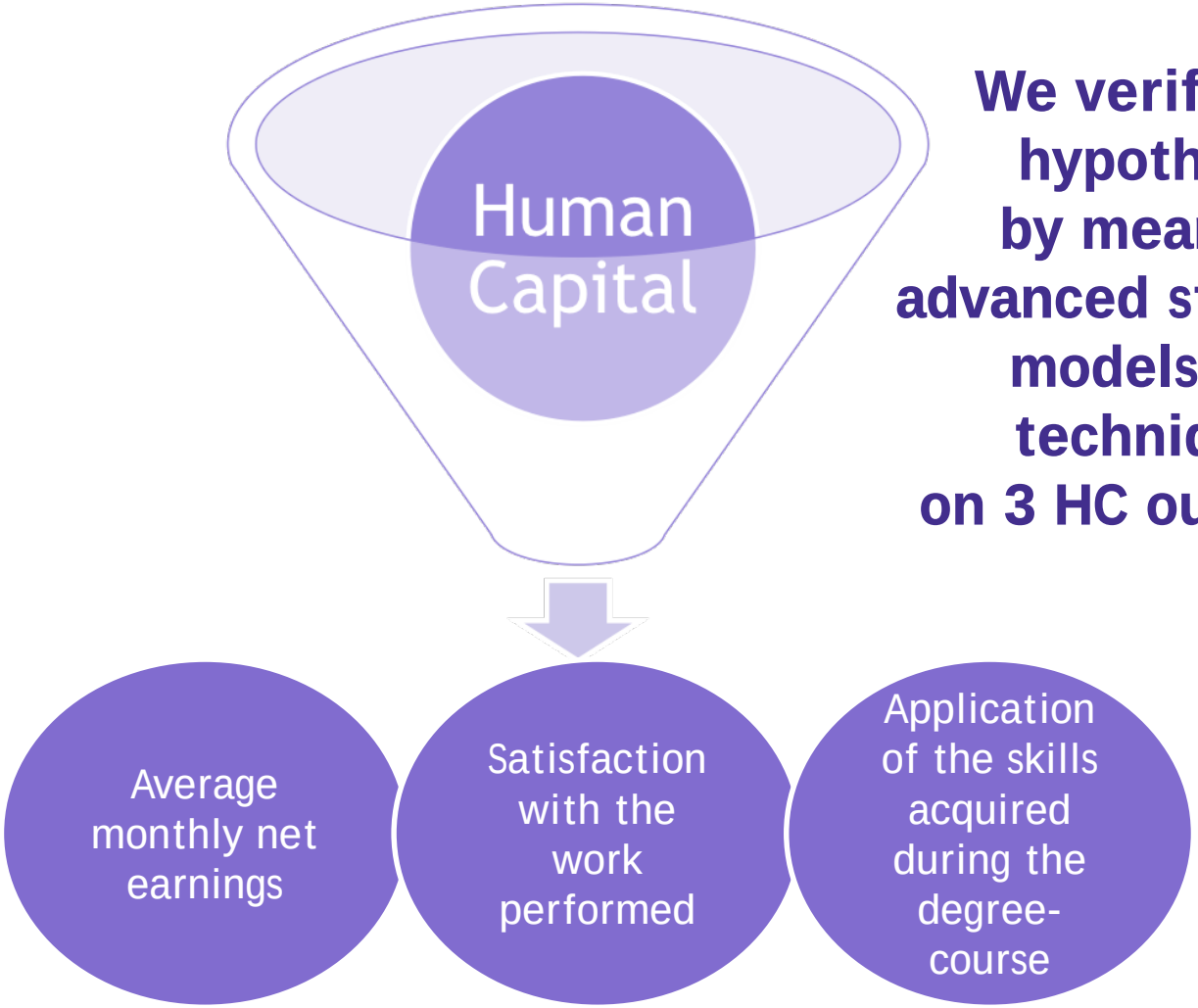
HC background provided by Italian universities is not inferior to that of foreign universities

Hypothesis:

Is the Italian labor market unable to recognize and valorize the value of Human Capital generated by Italian universities?

4. STATISTICAL MODELING

Human capital and the outcome variables



We verify this hypothesis by means of advanced statistical models and techniques on 3 HC outcomes

measured utilizying the Prospective and the OECD definitions

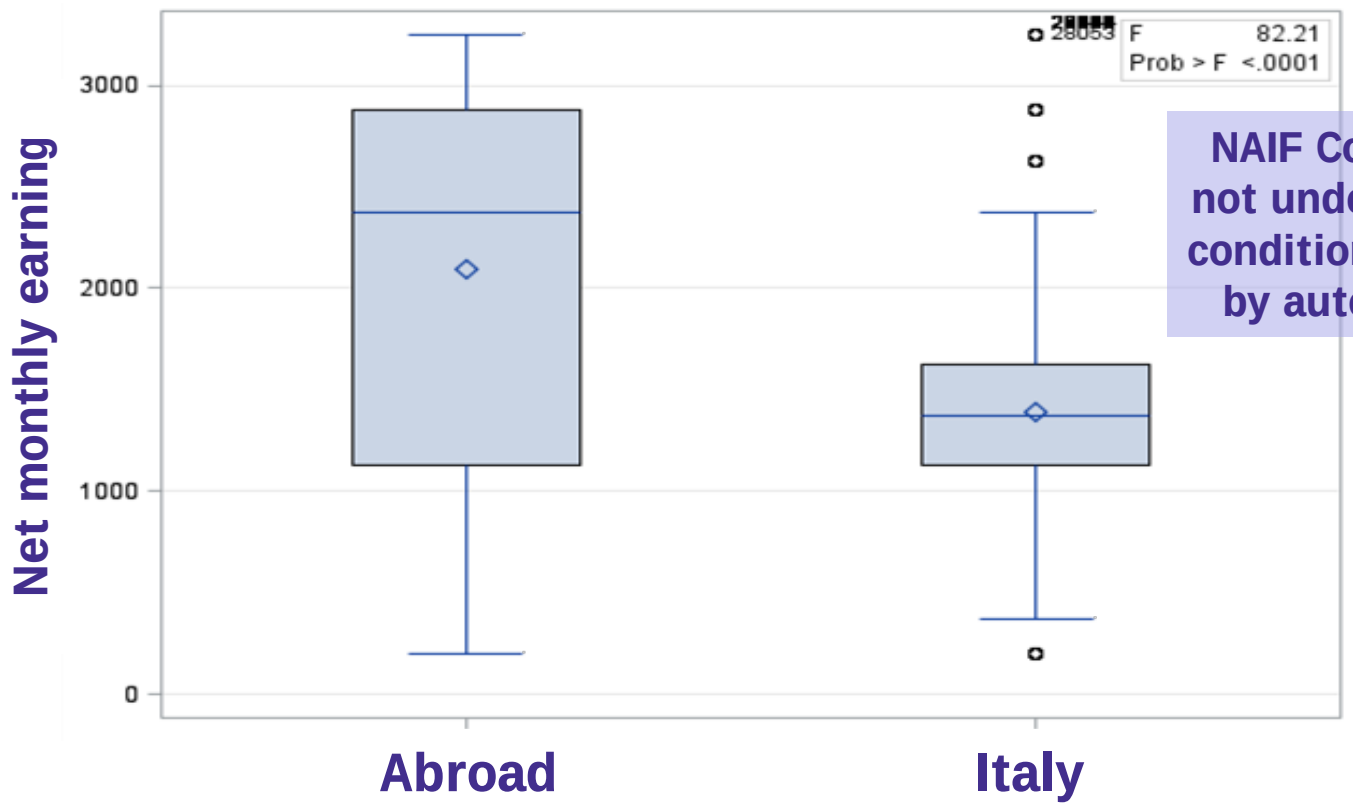
Net monthly earnings of graduates in Italy and abroad

SECOND LEVEL 2008

Box plot on net monthly earnings

Italian citizen only

DF	Anova SS	Mean Square	F Value	Pr > F
1	32448289.65	32448289.65	82.21	<.0001



NAIF Comparison: not under the same conditions, affected by autoselection

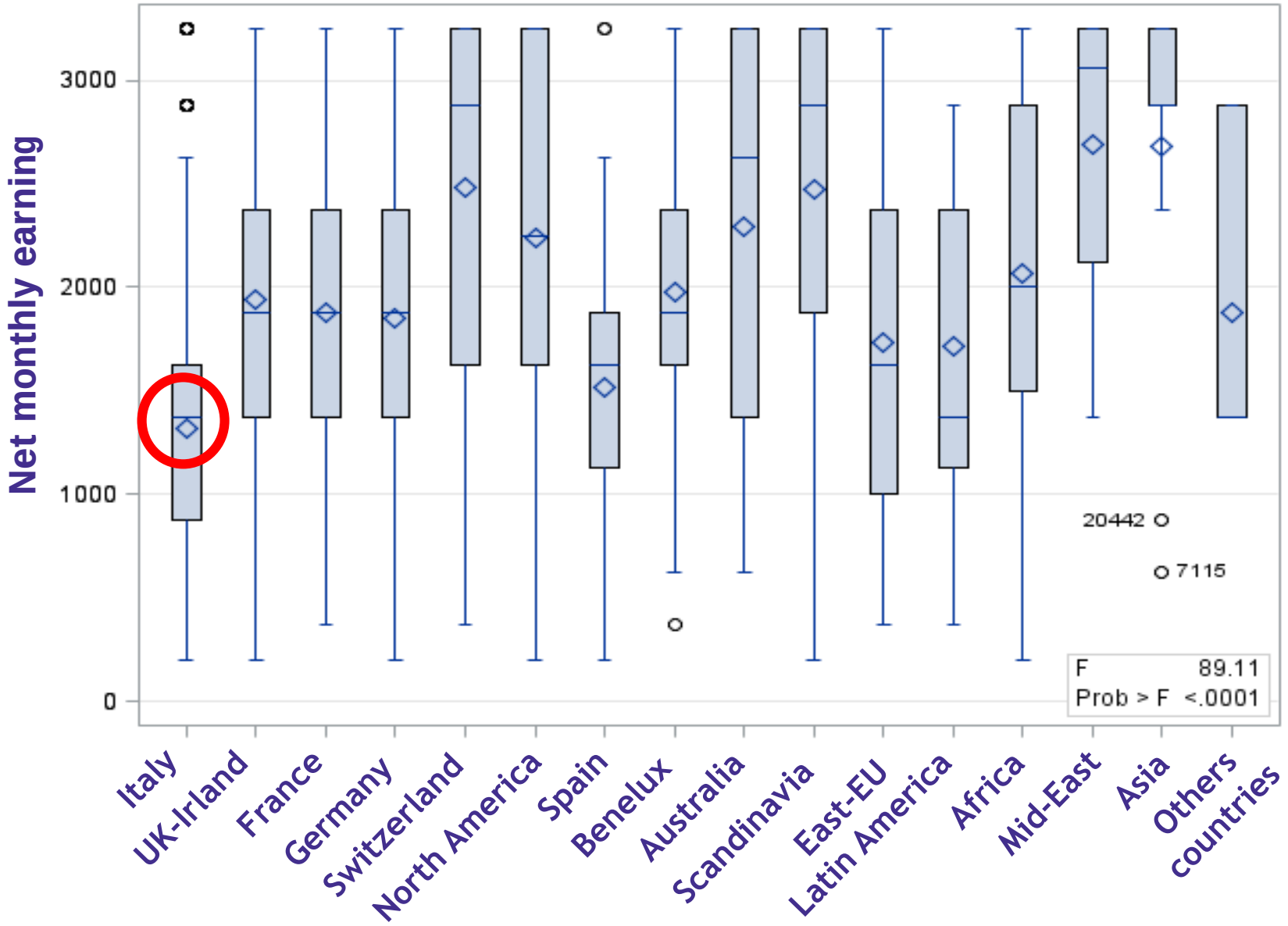
Abroad: the average value and the standard deviation is much larger (859.8 against 536.2 euro). The Italian labor market tends to flatten the graduates' salary not valorizing their HC.

Net monthly earnings in nominal terms of graduates in Italy and abroad

SECOND LEVEL 2008

Box plot on net monthly earnings

Italian citizen only



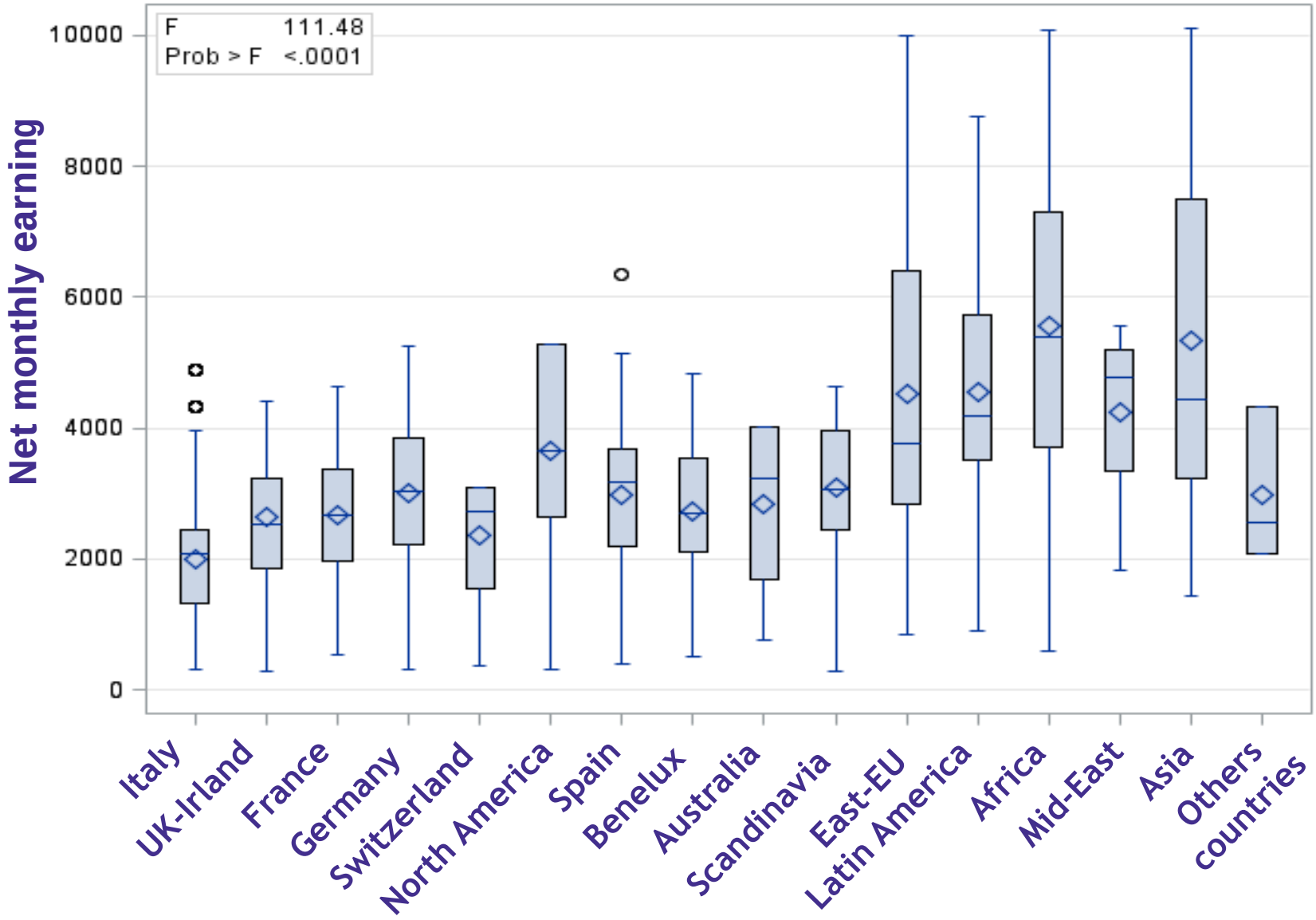
Net monthly earnings in real terms* of graduates in Italy and abroad

SECOND LEVEL 2008

Box plot on net monthly earnings in real terms

*Numbeo cost of living indices (OECD data), declared earnings of respondents were evaluated in REAL terms, with 100=New York

Italian citizen only



Net monthly earnings in real terms* of graduates in Italy and abroad

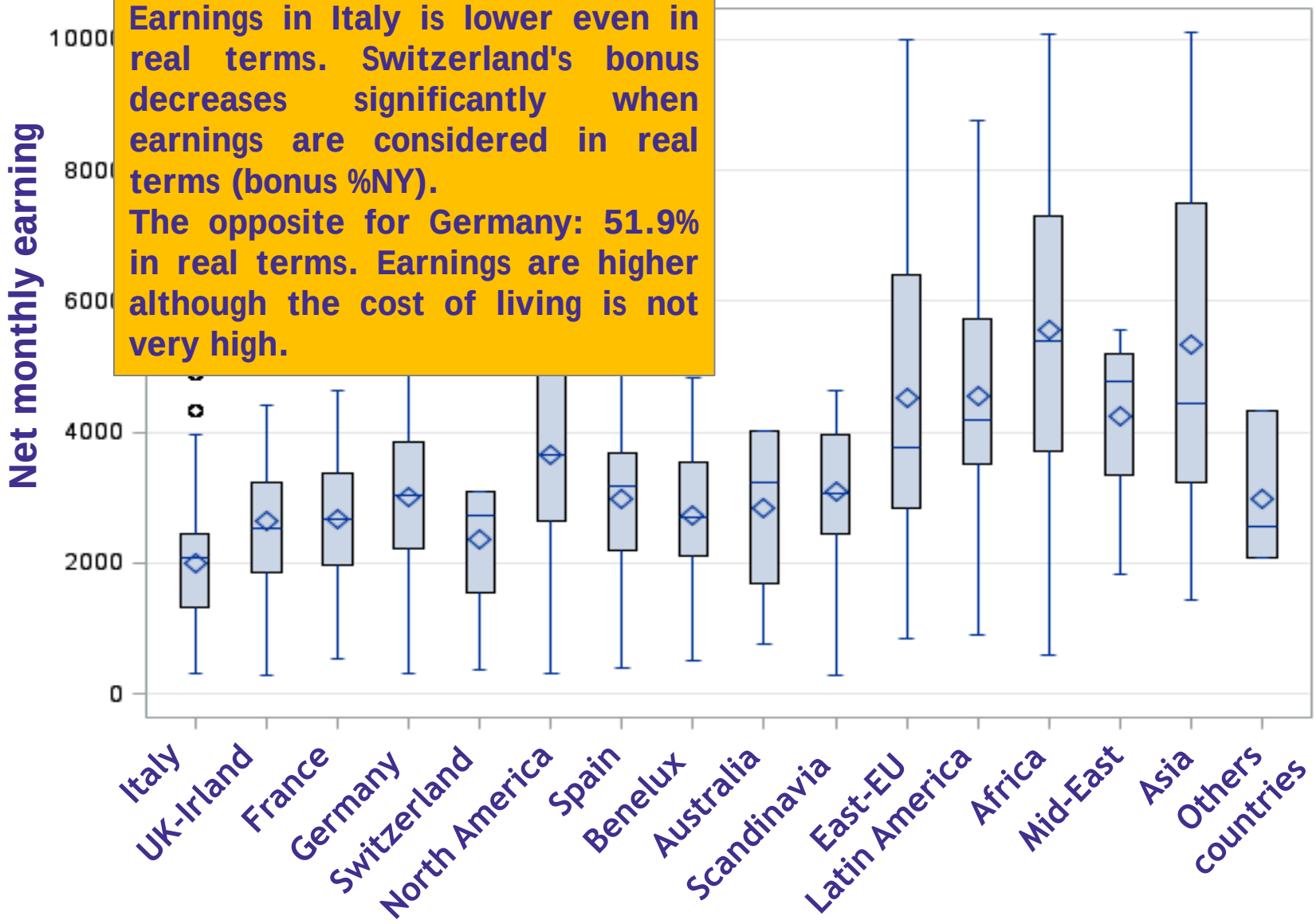
SECOND LEVEL 2008

Box plot on net monthly earnings in real terms

*Numbeo cost of living indices (OECD data), declared earnings of respondents were evaluated in REAL terms, with 100=New York

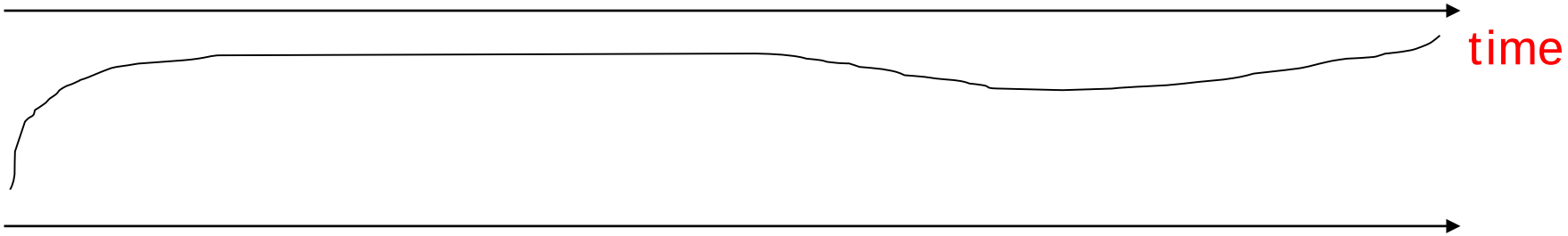
Italian citizen only

Earnings in Italy is lower even in real terms. Switzerland's bonus decreases significantly when earnings are considered in real terms (bonus %NY).
The opposite for Germany: 51.9% in real terms. Earnings are higher although the cost of living is not very high.



5. Analytics

Socio-demographic information | **Study path** | **University experience, performance** | **Life-job experience** | **Italy or Abroad: the treatment**



Post-treatment experience | **Job (actual) experience** | **AlmaLaurea Survey**

Net monthly earnings – Selection bias cleaning

SECOND LEVEL 2008

Global balancing test based on multiple correspondence analysis on 91 categorical variables, hierarchical clustering and GI testing

Italian citizen only

Equivalent	N_treated	N_untreated	interval for lb (alpha=0.01)	lb	balanced
Group 1	379	4836	(0;0.11)	0.9000	y
Group 2	235	6944	(0;0.36)	0.2200	y
Group 3	112	984	(0;0.03)	0.0010	y
Group 4	6	413	(0;0.17)	0.1900	n
Group 5	29	2052	(0;0.08)	0.0030	y
Group 6	68	2499	(0;0.10)	0.0800	y
Group 7	19	784	(0;0.11)	0.1000	y
Group 8	90	3426	(0;0.13)	0.6000	y
Group 9	238	1131	(0;0.06)	0.0700	n/y
Group 10	298	1679	(0;0.07)	0.0900	n/y
Group 11	67	2409	(0;0.008)	0.0000	y

Treatment: working abroad

Groups are equivalent: the differences between treated and not treated in groups are «only» due to treatment

Net monthly earnings – Equivalent groups

equivalent groups	delta_income	adj_tValue	p-value		N_treated	Mean_treated	N_untreated	Mean_untreated	delta%
group1	768.7	19.34	0.000000		379	2154.8	4836	1386.1	55.5
group2	[illegible]	11.82	0.000000		235	1974.2	6944	1333.8	48.0
group3	938.0	4.26	0.001325		112	2292.1	984	1354.1	69.3
group4	502.8	2.02	0.097828		6	1708.8	413	1206.0	41.7
group5	614.6	3.39	0.002094		29	1728.9	2052	1114.3	55.2
group6	746.2	6.85	0.000000		68	1958.1	2499	1211.9	61.6
group7	[illegible]	3.45	0.002774		19	1836.0	784	1196.5	53.4
group8	584.5	6.66	0.000000		90	1759.9	3426	1175.4	49.7
group9	[illegible]	13.88	0.000000		238	2186.1	1131	1389.9	57.3
group10	715.8	14.37	0.000000		298	2069.2	1679	1353.4	52.9
group11	705.5	6.44	0.000000		67	2096.7	2409	1391.1	50.7
ATE	721.4				1541			ATE in %	54.8
average treatement effect									

Group 3 with the highest effect: 938 euro a month

Group 8 with the lowest effect: 584.5 euro a month

Only group 4 non significant t-test: only 6 not balanced treated

Net monthly earnings in real terms – Comparison with monetary values by equivalent groups

SECOND LEVEL 2008

Italian citizen only

equivalent groups	delta_income	delta%	delta_income (real)	delta% (real)
group1	768.7	55.5	1106.1	52.9
group2	640.4	48.0	974.3	48.5
group3	938.0	69.3	1501.6	73.6
group4	502.8	41.7	1457.7	80.2
group5	614.6	55.2	794.6	47.3
group6	746.2	61.6	988.7	54.1
group7	639.5	53.4	985.3	54.6
group8	584.5	49.7	854.9	48.3
group9	796.2	57.3	1243.4	59.4
group10	715.8	52.9	1098.7	53.9
group11	705.5	50.7	1143.3	54.5
ATE	**721.4**	**54.8**	**1083.5**	**58.6**

In real terms, **ATE**% (average bonus) is therefore 58.6%, with all clusters registering as positive. **Conclusion: earnings abroad are higher than earnings in Italy**

Net monthly earnings in real terms – Modelling within heterogeneity by equivalent groups

SECOND LEVEL 2008

Regression linear model on each balanced cluster

group 4 not reported

Italian citizen only

● significant p-value ● not significant p-value

Variability source label	P-value_1	P-value_2	P-value_3	P-value_5	P-value_6	P-value_7	P-value_8	P-value_9	P-value_10	P-value_11
Emigration (dummy)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Degree efficacy in the work	0.2758	0.0000	0.0826	0.0814	0.0028	0.0065	0.1905	0.0000	0.0000	0.0000
Gender	0.0000	0.0000	0.0004	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000
Degree subject grouping	0.0000	0.0000	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Geographic area of univ.	0.9208	0.1197	0.0358	0.0068	0.4556	0.8869	0.0729	0.4391	0.0007	0.0296
Regularity index in studies	0.2268	0.3233	0.9049	0.6760	0.0032	0.0866	0.4127	0.2131	0.2069	0.0066
Final grade to high school	0.0939	0.7138	0.3349	0.9799	0.1853	0.2645	0.0734	0.0540	0.1086	0.0144
Final grade to university	0.0614	0.5745	0.2030	0.2877	0.5248	0.1614	0.0532	0.4843	0.0004	0.0000
Geographic residence	0.2014	0.4270	0.0506	0.1601	0.5488	0.1938	0.3117	0.3925	0.1114	0.0001
Latest work of the mother	0.4523	0.0186	0.0076	0.4970	0.7507	0.4140	0.3910	0.0556	0.3225	0.2835
Latest work of the father	0.5473	0.0000	0.9022	0.8900	0.0017	0.3025	0.1008	0.2582	0.7785	0.2121
Mother study degree	0.8406	0.9002	0.6228	0.2783	0.5862	0.2098	0.3304	0.1135	0.1606	0.3959
Father study degree	0.2916	0.2184	0.2402	0.0570	0.0081	0.4031	0.0038	0.2201	0.1885	0.6949
R-square	0.320	0.350	0.310	0.340	0.290	0.300	0.350	0.310	0.340	0.330
Anova F-test p-value	For all groups, p-value < 0.00									

Net monthly earnings in real terms – Modelling within heterogeneity by equivalent groups

SECOND LEVEL 2008

Regression linear model on each balanced cluster

group 4 not reported

Italian citizen only

● positive impact value ● negative impact value

		Test-value Group 9	Test-value Group 8	Test-value Group 7	Test-value Group 6	Test-value Group 3	Test-value Group 1	Test-value Group 5	Test-value Group 10	Test-value Group 2	Test-value Group 11
Migration	Emigrant	17.13	5.25	5.95	11.57	5.21	6.99	5.67	20.28	16.58	10.37
	No emigrant	-17.13	-5.25	-5.95	-11.57	-5.21	-6.99	-5.67	-20.28	-16.58	-10.37
Gender	Male	5.94	4.61	3.59	9.64	3.53	5.09	6.73	6.25	11.30	12.94
	Female	-5.94	-4.61	-3.59	-9.64	-3.53	-5.09	-6.73	-6.25	-11.30	-12.94
Degree subject grouping	Agricolture, veterinary	-0.74	-0.24	-0.86	-1.41	-0.79	-0.79	-1.75	-1.95	1.35	-1.15
	Architecture	-5.52	-2.47	-0.31	-6.36	-1.02	-0.99	-0.51	-2.43	-3.99	-4.16
	Chemistry-pharmacy	0.61	1.47	2.19	3.12	1.60	0.34	3.85	3.32	2.42	-0.15
	Economic-statistic	6.53	3.89	2.26	1.84	1.86	2.54	-0.05	5.82	9.28	10.44
	Geo-Biology	0.09	-0.59	-1.11	-0.98	-0.09	0.78	-1.37	-0.51	-2.05	-2.14
	Law	2.83	1.06	-2.03	-3.54	0.12	-1.01	-0.24	-0.22	-6.26	-5.28
	Engineering	8.24	7.49	4.41	9.06	0.07	3.53	3.72	11.50	13.83	3.69
	Education	-0.93	-1.27	0.56	0.10	-1.03	-0.93	1.28	-0.90	-3.50	-0.78
	Humanities	-5.36	-7.06	-1.92	-2.92	-0.50	-4.10	-2.20	-5.94	-8.68	-2.19
	Foreign languages	-3.24	-0.84	-2.52	-0.74	-0.70	-1.09	-1.52	-3.29	-2.80	-2.82
	Medicine	3.30	1.43	2.95	9.40	3.26	2.94	5.60	4.47	10.17	10.45
	Politic and social sciences	0.06	0.37	1.14	-0.54	0.96	-0.86	-1.29	-1.01	1.15	3.38
	Psicology	-1.41	-7.39		-6.89	0.16	-1.59	-4.44	-5.20	-8.30	-3.10
	Scientific	-0.48	1.52	-0.26	1.16	-1.04	-0.28	1.00	0.57	0.82	1.83

Net monthly earnings in real terms – Modelling within heterogeneity by equivalent groups

SECOND LEVEL 2008

Regression linear model on each balanced cluster

group 4 not reported

Italian citizen only

● positive impact value ● negative impact value

		Test-value Group 9	Test-value Group 8	Test-value Group 7	Test-value Group 6	Test-value Group 3	Test-value Group 1	Test-value Group 5	Test-value Group 10	Test-value Group 2	Test-value Group 11
Migration	Emigrant	17.13	5.25	5.95	11.57	5.21	6.99	5.67	20.28	16.58	10.37
	No emigrant	-17.13	-5.25	-5.95	-11.57	-5.21	-6.99	-5.67	-20.28	-16.58	-10.37
Gender	Male	5.94	4.61	3.59	9.64	3.53	5.09	6.73	6.25	11.30	12.94
	Female	-5.94	-4.61	-3.59	-9.64	-3.53	-5.09	-6.73	-6.25	-11.30	-12.94
ect grouping	Agricolture, veterinary	-0.74	-0.24	-0.86	-1.41	-0.79	-0.79	-1.75	-1.95	1.35	-1.15
	Architecture	-5.52	-2.47	-0.31	-6.36	-1.02	-0.99	-0.51	-2.43	-3.99	-4.16
	Chemistry-pharmacy	0.61	1.47	2.19	3.12	1.60	0.34	3.85	3.32	2.42	-0.15
	Economic-statistic	6.53	3.89	2.26	1.84	1.86	2.54	-0.05	5.82	9.28	10.44
	Geo-Biology	0.09	-0.59	-1.11	-0.98	-0.09	0.78	-1.37	-0.51	-2.05	-2.14
	Law	2.83	1.06	-2.03	-3.54	0.12	-1.01	-0.24	-0.22	-6.26	-5.28
	Engineering	8.24	7.49	4.41	9.06	0.07	3.53	3.72	11.50	13.83	3.69

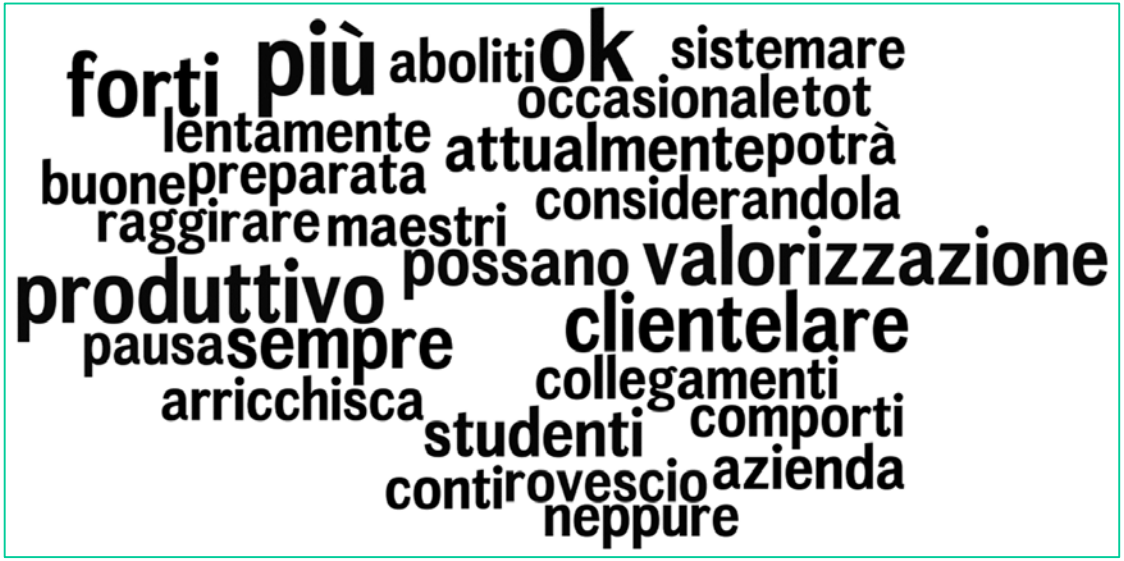
Female gender is **penalized** in any balanced cluster; on the other side there seems to be a **prize** for economic-statistics, engineering and medicine degrees.

There is no single model, but the stories of the people can constitute paths and different motives on the impact on net monthly earnings.

Textual opinions: to do for Italy (in word clouds)

Group 3: social class not very high, ch. teacher, maximum prize

Group 5: expectations professional growth, South Ita, social class in the middle, not very high study performance



6. CONCLUSION

Conclusion

- In the last years the % of Italian graduates working abroad increased
  No brain drain: in the first 5 years after graduation, they are better paid than in Italy - monetary HC theory in the prospective version

- The graduate income vary among different countries but everywhere is greater than in Italy, both in monetary and either in real-value

- The variance of income is greater abroad affected by education and socio-economic status of parents, kind of university, individual characteristics as in the HC theory

- Different clusters. Several, also non-monetary reasons (satisfaction, consistency and stability of work, cultural) for working abroad. They do not escape from Italy. HC theory with non-monetary returns

- Policy implications: stimulate Italian companies to better pay Italian graduates; improve foreigner graduates to come to Italy