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Mobility grants and the quality of skills matching in the labour market. *The case of Master and Back Programme*

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Stylised Facts

- Significant investments by the EU in order to reinforce the quantity and quality of human capital in Europe;
- A large body of literature has highlighted the need to increase the emphasis on human capital in the EU lagging regions;
- However **over-education, skills mismatch and ‘brain drain’** are significant challenges to all development strategies focused on HC in lagging regions;
- Mobility (or the lack thereof) is a fundamental aspect of the H.C. problem in lagging regions;

Stylised Facts (2)

- *“Fostering growth in the European economy calls for **better matching** between the skills demanded in growth sectors and regions and those available in the workforce. A fundamental aim of the European Union is indeed to create the opportunities which allow the individuals to take free and responsible decisions for their own life, including to move in another Member State. **This may contribute to reducing sectorial and geographical imbalances and hence creates the conditions for a better use of the resources available**” ([European Commission, 2002](#)).*

Stylised Facts (3)

- Following this line of reasoning **learning mobility** seemed an ideal policy target by combining:
 - education (increase in HC) and
 - mobility (extension of the job search radius → higher probability of skills matching)
- The Erasmus Programme is a typical example here;
- Many other schemes ... some of them specifically targeted to lagging regions.

This paper

- **The paper aims to assess the impact of the geographical mobility of graduate students on their skill matching in the labour market**
- Focus on the impact of a mobility grant scheme funded by the European Social Fund in Sardinia (ex-Objective 1 region in the Italian Mezzogiorno).
- The Master & Back scheme aims to foster regional human capital and increase the employability of local graduates by covering the cost of post-graduate studies in other regions or countries.

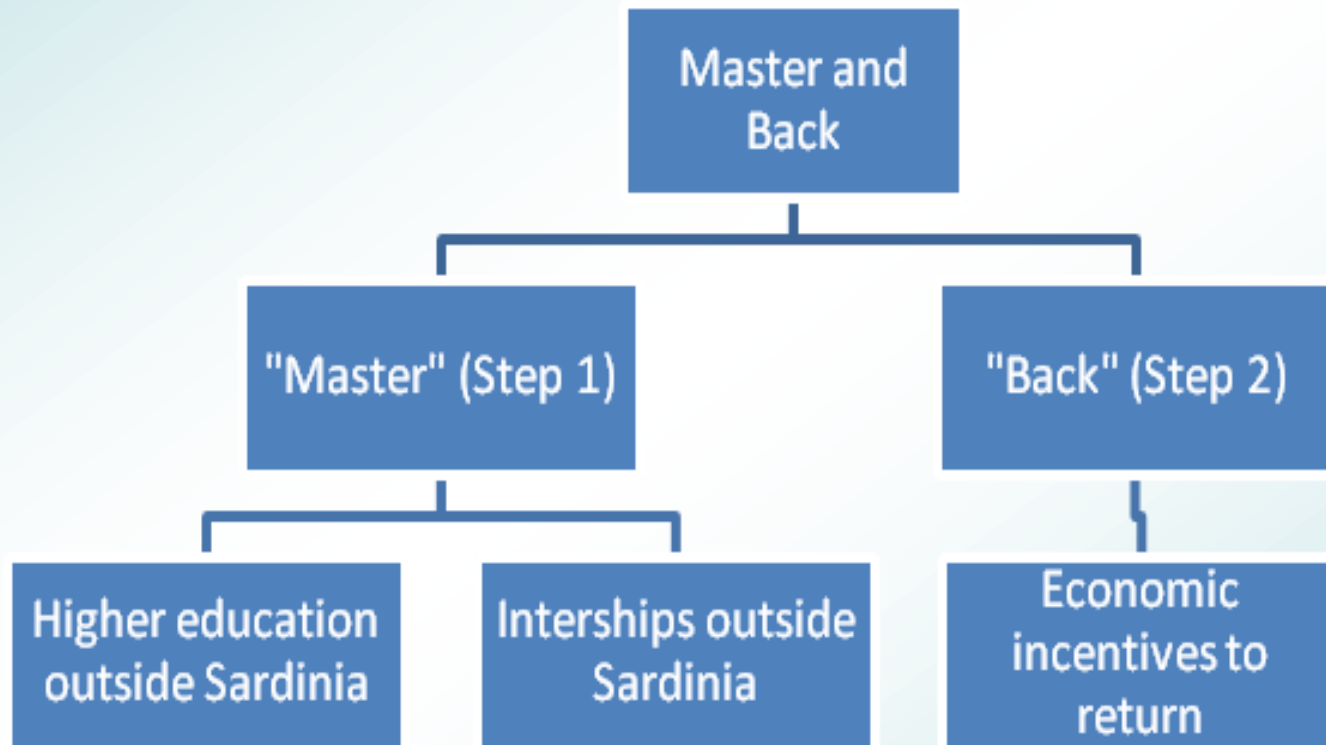
OUTLINE

- **The programme**
- **Data**
- **Methods**
- **Preliminary Results**
- **Conclusions**

The programme

- Master and Back (M&B) launched by the Sardinian regional government in 2005;
- More than 200 million Euros have been spent by the regional government on the scheme and every year new calls have been released;
- The paper looks at the 2006 to 2009 calls (other calls are too recent to be assessed);
- The scheme has two sections: the "Master" and the "Back". The "**Master**" section allows beneficiaries to enrol into Master Programmes or PhD in the best universities in Italy and abroad (**Higher Education** part of the programme).
- Eligibility based on undergraduate final grade and residency in Sardinia

The programme (2)



Dataset

The paper is based on the combination of two unique datasets collected by Enrico Orru:

1. The first dataset, provided by the "Agenzia Regionale per il lavoro", contains information on all M&B applicants: personal information, previous education, university, cost of the scholarship allocated, phone number, email, work experience, etc [around 2,500 individuals]
2. The second dataset, provided by the University of Cagliari, covers all the graduates of this university over the period 2000-2010. [43,913 records]

The individuals in both databanks have been targeted by a dedicated web-survey to collect additional individual information. [Response rate 44.18% for M&B beneficiaries]

Methodology (1)

- The identification of the **effect of the program on the level of job matching is based on a treatment and control group research design.**
- The sample is necessarily restricted only to individuals currently in employment.
- **Treatment group:** all beneficiaries of the 'Master and Back' programme
- **Control group:**
 - all graduates at the University of Cagliari potentially eligible for the programme:
 - a large share of actual beneficiaries graduated in Cagliari;
 - the control group is restricted to people graduating in the same time window as the actual beneficiaries.
- Treatment and control groups are comparable in terms of pre-treatment characteristics as confirmed by descriptive statistics

Methodology (2)

- The **dependent variable** in our regressions is the quality of job matching in the period following the completion of the program.
- The analysis looks at **vertical matching** and **horizontal** matching.
 - **Vertical matching:** dummy variable that takes value 1 when the formal level of education required in the job description/specifications corresponds to the actual formal qualification of the worker;
 - **Horizontal** matching is based on individual job satisfaction with respect to the matching between actual skills and those practically required by current job tasks. This horizontal matching variable has been re-coded as a dummy variable that takes value one if the individual is 'satisfied' by the matching irrespective from the overall level of job satisfaction.

Methodology (3)

- The model is estimated by adopting a linear probability model (LPM) and controlling for the endogeneity of the regressor of interest through an Instrumental Variable approach.
- The estimation equation of the probability of job matching takes the following form:

$$\text{Job matching}_{it} = \beta_0 + \beta_1 \text{Treatment}_{i,t-1} + \beta X_{it} + \varepsilon_{it}$$

- Where y is a dummy variable taking value one for positive matching for individual i at time t , Treatment is a dummy taking value 1 if the individual received the treatment at time $t-1$, X is a vector for post treatment controls

IV

A suitable instrument should:

- a) be correlated with the treatment status and uncorrelated with the error term;
- b) control for the selection bias associated to the treatment status: i.e. correlated with the unobserved personal and contextual characteristics potentially driving the sorting mechanism into the program but not correlated with additional omitted variables in the regression.

Impossible to use the category of “eligible not treated”

- The paper relies on the literature on the return of education using ‘mother education’ (measured by the level of qualification of the mother of each individual) as a proxy for unobservable individual and contextual characteristics (Ashenfelter and Krueger, 1994, Card, 1995, Butcher and Case, 1994, Card, 1999, Currie and Moretti, 2003).
- Parental education is likely to be a good proxy for unobserved abilities as well as differences in those contextual conditions that are likely to affect the decision to invest in higher education and to move to exploit the opportunities of better educational achievements.

Results: Vertical Job Matching

Table 2: Treatment Status and Vertical Job Matching

Dep.Var:	(1)	(2)	(3)	(4)	(5)	(6)
Vertical matching	OLS	OLS	OLS	OLS	OLS	2SLS
Treatment status	0.0752** (0.0307)	0.113*** (0.0314)	0.123*** (0.0316)	0.124*** (0.0319)	0.0907** (0.0370)	-0.190 (0.408)
Female	-0.0294 (0.0265)	-0.0274 (0.0261)	0.00948 (0.0265)	-0.0049 (0.0267)	-0.0037 (0.0266)	-0.0004 (0.0279)
Married	0.0220 (0.0316)	0.0190 (0.0315)	0.0127 (0.0311)	0.0001 (0.0307)	0.00250 (0.0308)	-0.0140 (0.0400)
Age	-0.0086** (0.0042)	-0.0099** (0.0042)	-0.0093** (0.0041)	-0.0103** (0.0041)	-0.0095** (0.0041)	-0.0104** (0.0043)
Master (first level)		0.0490 (0.0705)	0.0801 (0.0712)	0.0366 (0.0717)	0.0321 (0.0720)	-0.0212 (0.106)
Master (second level)		0.106*** (0.0312)	0.118*** (0.0310)	0.0856*** (0.0314)	0.0862*** (0.0313)	0.0532 (0.0589)
Phd		0.212*** (0.0316)	0.169*** (0.0321)	0.153*** (0.0329)	0.152*** (0.0330)	0.111 (0.0697)
Economics and Statistics			-0.135*** (0.0411)	-0.0958** (0.0431)	-0.0970** (0.0427)	-0.0835* (0.0475)
Other social sciences			-0.148*** (0.0392)	-0.127*** (0.0397)	-0.126*** (0.0396)	-0.0806 (0.0739)
Humanities			-0.155*** (0.0329)	-0.176*** (0.0321)	-0.176*** (0.0320)	-0.181*** (0.0344)
Public Sector				0.162*** (0.0325)	0.167*** (0.0327)	0.168*** (0.0334)
Manufacturing				0.314** (0.144)	0.293** (0.143)	0.305** (0.145)
Services				0.188 (0.142)	0.183 (0.141)	0.205 (0.145)
Sardinia					-0.0635* (0.0349)	-0.174 (0.163)
Constant	1.077*** (0.140)	1.060*** (0.139)	1.109*** (0.138)	0.880*** (0.195)	0.910*** (0.195)	1.061*** (0.295)
Observations	960	960	960	960	960	960
R-squared	0.012	0.041	0.069	0.102	0.106	0.057

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

First Stage

Table 3: First Stage Regression

Dep Var:	(1)
Treatment status	OLS
Female	0.0170 (0.0241)
Married	-0.0571** (0.0220)
Age	-0.0012 (0.0034)
Master (first level)	-0.1949*** (0.0422)
Master (second level)	-0.1258*** (0.0230)
Phd	-0.1539*** (0.0334)
Economics and Statistics	0.0494 (0.0374)
Other social sciences	0.1645*** (0.0355)
Humanities	-0.0137 (0.0271)
Public Sector	0.0076 (0.0254)
Manufacturing	0.0562 (0.0653)
Services	0.0880 (0.0555)
Sardinia	-0.3892*** 0.0317
Mother Education	0.0326*** (0.0114)
Constant	0.3740*** (0.1370)
Observations	960
R-squared	0.329

Robust standard errors in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Results: Horizontal Job Matching

Table 4: Treatment Status and Horizontal Job Matching

Dep Var:	(1)	(2)	(3)	(4)	(5)	(6)
Horizontal matching	OLS	OLS	OLS	OLS	OLS	2SLS
Treatment status	0.0904** (0.0372)	0.111*** (0.0381)	0.117*** (0.0393)	0.124*** (0.0394)	0.0851* (0.0442)	0.232 (0.470)
Female	-0.0767** (0.0305)	-0.0744** (0.0304)	-0.0565* (0.0317)	-0.0704** (0.0322)	-0.0690** (0.0321)	-0.0707** (0.0324)
Married	0.0684* (0.0350)	0.0654* (0.0351)	0.0625* (0.0352)	0.0580 (0.0353)	0.0608* (0.0353)	0.0695 (0.0446)
Age	-0.0148*** (0.00480)	-0.0152*** (0.00484)	-0.0150*** (0.00490)	-0.0160*** (0.00492)	-0.0151*** (0.00493)	-0.0147*** (0.00514)
Master (first level)		0.0652 (0.0782)	0.0787 (0.0778)	0.0482 (0.0784)	0.0431 (0.0787)	0.0710 (0.118)
Master (second level)		0.0440 (0.0362)	0.0506 (0.0364)	0.0288 (0.0372)	0.0295 (0.0371)	0.0468 (0.0665)
Phd		0.124*** (0.0473)	0.103** (0.0483)	0.0912* (0.0489)	0.0897* (0.0488)	0.111 (0.0831)
Economics and Statistics			-0.0584 (0.0471)	-0.0348 (0.0486)	-0.0361 (0.0483)	-0.0432 (0.0533)
Other social sciences			-0.0810* (0.0460)	-0.0742 (0.0466)	-0.0735 (0.0467)	-0.0972 (0.0878)
Humanities			-0.0753* (0.0392)	-0.0949** (0.0395)	-0.0938** (0.0394)	-0.0912** (0.0402)
Public Sector				0.105*** (0.0364)	0.111*** (0.0365)	0.110*** (0.0364)
Manufacturing				0.00999 (0.133)	-0.0144 (0.132)	-0.0208 (0.134)
Services				-0.00624 (0.128)	-0.0125 (0.127)	-0.0242 (0.133)
Sardinia					-0.0732* (0.0387)	-0.0152 (0.190)
Constant	1.178*** (0.164)	1.159*** (0.165)	1.185*** (0.167)	1.187*** (0.203)	1.222*** (0.203)	1.143*** (0.322)
Observations	960	960	960	960	960	960
R-squared	0.024	0.031	0.036	0.045	0.049	0.039

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Conclusions

- Some positive effect of M&B mobility grants on both vertical and horizontal skills matching

HOWEVER

- After controlling for the selection into the programme by means of IV strategy
- Effect not significant;
- Strong influence of selection mechanisms on ‘value added’ from the programme.
- Wider participation and ‘open’ selection key to success.

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