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The Effect of a University Degree in English on International Labour Mobility

Samuel Nocito
Department of Economics and Finance, LUISS "G. Carli"
ESOMAS Department, University of Turin

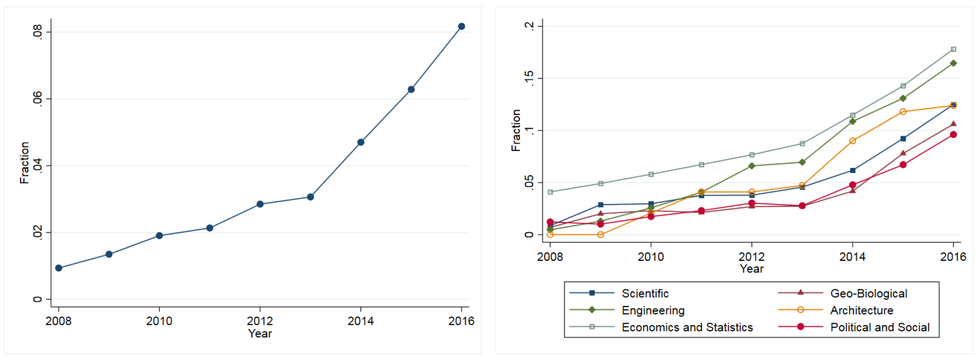
Introduction

- The link between studying abroad and international labour mobility is well recognized (Osterbeek and Webbink, 2011; Gonzales et al., 2011; Parey and Waldinger, 2011), the link between studying in English in a non-English speaking country and graduates' migration decisions is still unexplored.
- EU 2020 priorities include initiative to foster labour mobility in order to stimulate youth employment at home and abroad.
- Understanding labour market outcomes of graduates in English is of key importance to verify if this programs contribute to the EU labour mobility goal.

Institutional Background

- **Italian university scenario** suits properly as a case of analysis: it experienced a **sharp increase** in the availability **of Master of Arts in English** since 2008.
- Italian academic system is divided in two main degree cycles: Bachelor of Arts (BA) with length of 3 years and Master of Arts (MA) of 2 years.

Figure: Fraction of Active MA in English (2008-2016)



Note: The curves report the fraction of MA in English over the total MA supply. Left graph considers all universities and fields, right graph shows ratios by fields of study. Data are provided by the Italian Ministry of Education (MIUR).

Data

- **AlmaLaurea**: interview at graduation (background and demographic info) and follow-up interviews at 1, 3 and 5 years from graduation (employment status).
  ⇒ **Remarkably high response rates**: 82-90 percent at 1 year, almost 80 percent at 3 years, and 72 percent at 5 years.
  ⇒ I consider **cohorts of MA graduates from 2010 to 2015**: **Labour outcomes** are observed homogeneously among cohorts **only at 1 year from graduation**.
- **MIUR**: list of MA in English activated since 2008 to identify graduates in English.

Identification Strategy

I exploit the introduction ($Intro$) of a Master of Arts (MA) in English during the period of the Bachelor (BA) degree as an **instrument** for studying in English.

$$Intro_i = \begin{cases} 1 & \text{if MA in English introduced in 4 years from enrollment to BA;} \\ 0 & \text{otherwise.} \end{cases}$$

Students randomly face the introduction of the MA in English at a particular point in time that is unlikely to be predictable (Card, 2001).

IV Model

$$WorkAbroad_i = \gamma_0 + \gamma_1 \widehat{MAinEnglish}_i + \gamma_2 X_i + \gamma_3 UBA_i + \gamma_4 UMA_i + \\ + \gamma_5 DBA_i + \gamma_6 DMA_i + \gamma_7 Cohort_i + \psi_i$$

- $WorkAbroad$ and $MAinEnglish$: dummies for working abroad and studying in English. $\widehat{MAinEnglish}$ is the estimate of the first stage using the instrument.
- **Vector X of controls** includes: gender, age, parents' educational level, parents' work status, $SameRegion$ dummy, born region, residence region, BA and high school final grades, logs. of unemployment rate and GDP.
- Set of control dummies for graduates' university (UMA and UBA) and disciplinary area (DMA and DBA) at the MA and BA levels, and for cohort of graduation.

Assumptions

1. The instrument is unrelated to changes in students' expected ability in the major-university group and discipline.
2. Students exposed to the introduction do not exert extra efforts during BA in order to apply for a MA in English.
3. Weak monotonicity: instrument equal to 0 also for those students who enrolled in their BA with MA in English already in place (Manski and Pepper, 2009).

Descriptive Statistics

- MA graduates from 2010 to 2015: **sample of 242070 observations**.
- The **instrument covers the 14.5 percent of the sample**. The **2.3 percent** has a **MA in English**. Approximately, the **3 percent works abroad**. Roughly 50 percent of graduates is employed at 1 year (students in remunerative education are not considered as employed). Individual characteristics are highly balanced.
- **Balance test** ☑ Randomization test ☑

Results on Work Abroad

- **First Stage**: probability of studying in English increases by 2.8 percentage points.
- **IV**: probability of **working abroad increases by 11.2 percentage points**.
  ⇒ the probability increases almost five-fold with respect to the sample average (i.e., 2.9 percent).
- **Results** are not circumscribed to particular time periods, fields of study or regions, and **are highly robust for all the sensitivity analyses**.

Table: Work Abroad

Dependent Variable:	Work Abroad	Work Abroad	MA in English	Work Abroad
Estimation:	(1) **OLS**	(2) **Reduced Form**	(3) **First Stage**	(4) **IV**
Introduction of MA in English		0.003**	0.028***	
		(0.001)	(0.007)	
MA in English	0.083***			0.112**
	(0.010)			(0.045)
Observations	242070	242070	242070	242070
F-stat	>1000	>1000	266.14	>1000
F-stat of Excluded Instrument	-	-	14.90	14.90

Note: Standard errors are reported in parenthesis and are clustered at MA disciplinary area and university level (540 clusters). *, **, *** indicate statistical significance at 10%, 5% and 1% level, respectively.

Robustness Checks on IV:

- Strong Monotonicity ☑
- Cohorts of Graduates ☑
- Fields of Study ☑
- Regions of Study ☑

Results on Wage

- I adopt the same identification strategy also for the analysis on wage.
- The sample is conditioned on working graduates.
- **IV**: **Graduates in English** benefit almost a **60 percent increase in wage** compared to graduates in national language (Left table, column 4).
- Sharp **difference between OLS** (8.6 percent increase) **and IV**.
- **Explanation**: the first year of employment is characterized by a large heterogeneity in terms of types of contract, types of employment (e.g., full-time vs part-time), and sectors of activity.
- **Empirical evidence**: saturation model includes all these channels (as bad controls) to test the parameter sensitiveness (Right table). ⇒ the parameter sharply **deflates**.
- **Interpretation**: graduates in English self-select into more remunerative labour channels. Activity sectors and full-time jobs have the highest impact on wages.
  ⇒ difficult to link the migration choice to wage differential between countries.

Table: Wage in Logarithms

Dependent Variable:	Wage (in logs)	Wage (in logs)	MA in English	Wage (in logs)
Estimation:	(1) **OLS**	(2) **Reduced Form**	(3) **First Stage**	(4) **IV**
Introduction of MA in English		0.021**	0.036***	
		(0.010)	(0.006)	
MA in English	0.086***			0.598*
	(0.023)			(0.310)
Female	-0.163***	-0.164***	-0.005***	-0.161***
	(0.006)	(0.006)	(0.002)	(0.007)
Unemployment Rate in logs.	-0.025*	-0.026*	-0.001	-0.025*
	(0.013)	(0.013)	(0.003)	(0.014)
Observations	104082	104082	104082	104082
F-stat	>1000	657.42	407.16	>1000
F-stat of Excluded Instrument	-	-	40.19	40.19

Table: log(Wage): IV Saturation Model

Dep. Variable: log(Wage) **Estimation Method:** IV	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MA in English	0.598*	0.562*	0.511*	0.302	0.265	0.110	0.085
	(0.310)	(0.311)	(0.285)	(0.256)	(0.213)	(0.191)	(0.182)
Female	-0.161***	-0.154***	-0.158***	-0.132***	-0.098***	-0.091***	-0.088***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)
Unemployment Rate in logs.	-0.025*	-0.024*	-0.021*	-0.025**	-0.016	-0.016	-0.014
	(0.014)	(0.013)	(0.012)	(0.012)	(0.010)	(0.010)	(0.009)
Work Abroad		0.423***					0.270***
		(0.014)					(0.011)
Permanent Contract			0.473***				0.337***
			(0.016)				(0.012)
Fixed-term Contract			0.405***				0.297***
			(0.016)				(0.013)
Full-time Job					0.804***	0.742***	0.681***
					(0.010)	(0.008)	(0.008)
Control Dummies:							
Job Activity Sector				✓		✓	✓
R^2	0.256	0.272	0.339	0.327	0.456	0.479	0.528
Observations	104082	104082	104082	104082	104082	104082	104082
F-stat	>1000	>1000	>1000	>1000	>1000	>1000	>1000
F-stat of Excluded Instrument	40.19	40.05	40.21	41.27	40.05	40.32	41.00

Conclusion

- **Institutional perspective**: supporting the supply of MA in English is a good policy instrument to foster graduate mobility.
- **Open field for future research**: findings spark debate on return to investment in human capital since data don not allow to compute the analysis in the long-run to investigate brain drain effects.

Selected References

[1] Adsera A. and Pytlikova M., (2015). *The role of language in shaping international migration*, The Economic Journal, 125(586). [2] Angrist J.D., Imbens G. W., and Rubin D.B., (1996). *Identification of causal effects using instrumental variables*, Journal of the American Statistical Association, 91(434), 444-455. [3] Aparicio Fenoll A. and Khuen Z., (2016). *Does foreign language proficiency foster migration of young individuals within the European Union?*, The Economics of Language Policy, p. 331. [4] Card D., (2001). *Estimating the return to schooling: Progress on some persistent econometric problems*, Econometrica, 69(5): 1127-1160. [5] Chiswick B. R. and Miller P., (2010). *Occupational language requirements and the value of English in the US labor market*, Journal of Population Economics, 23(1):353-372. [6] Dustman C. and Fabbri F., (2003). *Language proficiency and labour market performance of immigrants in the UK*, The Economic Journal, 113(489), 695-717. [7] European Commission, (2011). *Youth on the move: analytical report. Survey conducted by The Gallup Organization, Hungary upon the request of Directorate-General Education and Culture*, Technical Report. [8] European Parliament, (2015). *Internationalisation of Higher Education*, Technical Report. [9] Gonzàlez C. R., Mesanza R. B., and Mariel P., (2011).*The determinants of international student mobility flows: An empirical study on the Erasmus programme*, Higher Education, 62(4), 413-430. [10] Groen J. A., (2004).*The effect of college location on migration of college-educated labor*, Journal of Econometrics, 121(1), 125-142. [11] Imbens G. W. and Angrist J. D., (1994).*Identification and Estimation of Local Average Treatment Effects*, Econometrica, 62(2), 467-475. [12] Manski C. F., (1997). *Monotone treatment response*, Econometrica: Journal of the Econometric Society, pp. 1311-1334. [13] Manski C. F. and Pepper J. V., (2009). *More on monotone instrumental variables*, The Econometrics Journal, 12(s1). [14] Oosterbeek H. and Webbink D., (2011). *Does studying abroad induce a brain drain?*, Economica, 78(310), 347-366. [15] Parey M. and Waldinger F., (2011), *Studying abroad and the effect on international labour market mobility: Evidence from the introduction of ERASMUS*, The Economic Journal, 121(551), 194-222. [16] Stöhr T., (2015), *The returns to occupational foreign language use: Evidence from Germany*, Labour Economics, 32, 86-98.