Studying Abroad and the Effect on International Labour Market Mobility

Matthias Parey (Essex)
Fabian Waldinger (Warwick)

International Labour Market Mobility

- International labour market mobility has risen dramatically in the recent past, especially among university graduates.

- Because of the importance of highly skilled individuals to foster innovation a number of countries have introduced policies to attract highly skilled workers.

- Understanding the determinants of migration is key to formulating such policies.

- Economic analysis has traditionally looked at wage differentials (Hicks 1932).

- Other factors causing international migration are potentially also important. Here we analyse student mobility during tertiary education.

# Estimating the Effect of Studying Abroad on Labour Market Mobility

- Establishing a causal link between studying abroad and later labour market mobility is challenging because students who study abroad are potentially very different to students who complete all of their higher education in their home country.

- OLS estimates of the effect of studying abroad are therefore likely to be biased

- In this paper we propose the introduction and expansion of the ERASMUS programme to estimate the causal effect of studying abroad for German university students.

Main Findings

- ERASMUS scholarship availability is an important determinant of the decision to study abroad.

- Studying abroad increases probability of working abroad later in life by about 15 percentage points.

- Location choices seem `sticky'. Individuals who have studied abroad often choose the same country to work abroad.

The ERASMUS Programme

- The ERASMUS programme was introduced in 1987 to foster international student mobility in Europe. In total over 1.4 million students have participated in ERASMUS which greatly expanded from year to year.

ERASMUS Students from German Universities

Source: DAAD
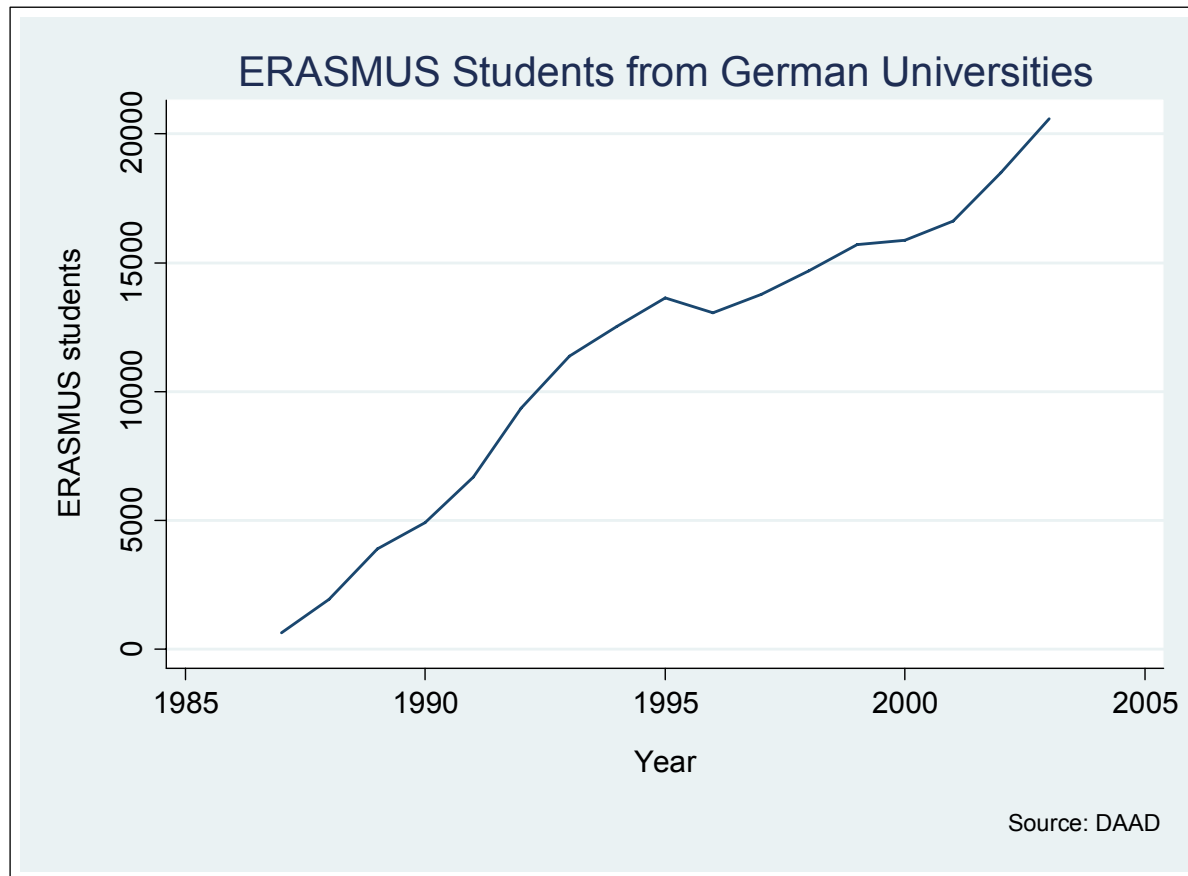
The ERASMUS Programme

- The ERASMUS programme supports stays at a foreign university typically in the middle of a student's degree.

University

| | 1 | | 2 | | 3 | | 4 | | 5 | |
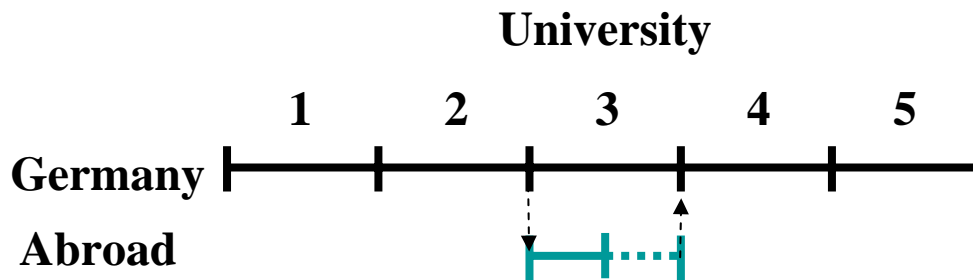
Germany

Abroad

- ERASMUS gives a mobility grant (146 Euro in 2001/2002) to German students who go abroad.

- ERASMUS students face no tuition fees and receive help in the organisation of their stay abroad.

- ERASMUS therefore significantly lowers the costs of studying abroad.

- We use department level variation in the introduction of ERASMUS to identify the causal effect of studying abroad.

Data on German University Graduates

- Representative sample of German university graduates carried out by HIS (Hochschul-Informations-System).

- 5 Waves: 1989, 1993, 1997, 2001, and 2005.

- Students surveyed 1 year and approx. 5 years after graduation.

Graduate Cohort	Year																		
	89	90	91	92	93	94	95	96	97	98	99	01	02	03	04	05	06	07
1989	Graduation	Initial Survey			Follow-Up Survey													
1993					Graduation	Initial Survey			Follow-Up Survey									
1997									Graduation	Initial Survey		Follow-Up Survey						
2001												Graduation	Initial Survey			Follow-Up Survey		
2005																Graduation	Initial Survey	

Trends in International Mobility among German University Graduates
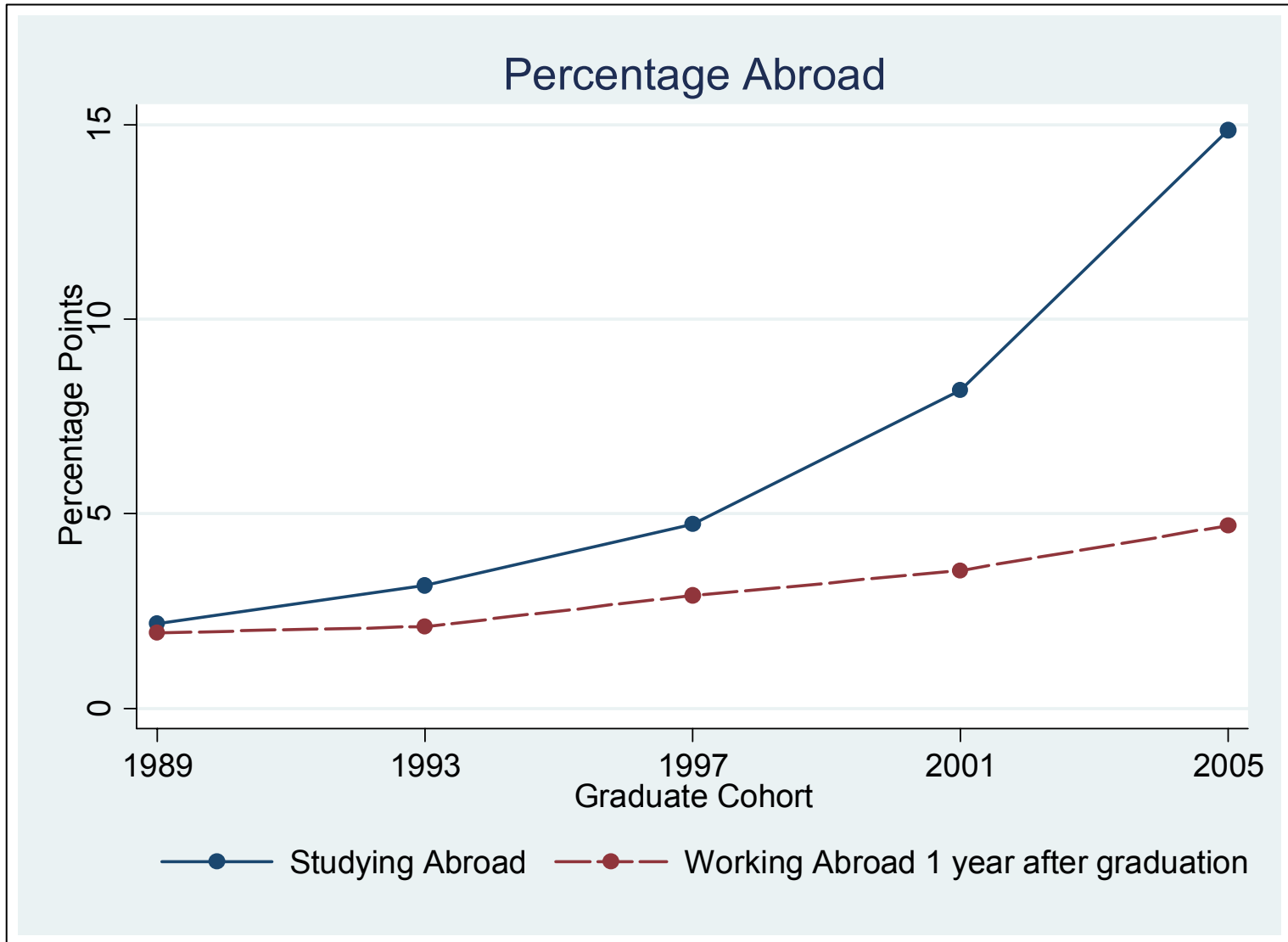
Data on the ERASMUS Programme

- We combine the graduate level dataset with a unique dataset on the yearly number of ERASMUS places in each German department.

- The data on ERASMUS places come from DAAD. (before 1993 we had to manually reconstruct the number of places in each department).

Estimating the Effect of Studying Abroad

- We want to analyze the causal effect of studying abroad on international labour market mobility later in life.

$$Work\ Abroad = \beta_1 + \beta_2\ Study\ Abroad$$
$$+ \beta_3 X + \beta_4 Uni(FE) + \beta_5 Subject(FE) + \beta_6 Cohort(FE) + u$$

- Problem: Endogeneity of the decision to study abroad

- Approach: Use introduction and expansion of the ERASMUS student exchange programme as an IV. The first stage regression is:

$$Study\ Abroad = \gamma_1 + \gamma_2\ ERASMUS$$
$$+ \gamma_4 X + \gamma_5 Uni(FE) + \gamma_6 Subject(FE) + \gamma_7 Survey(FE) + \varepsilon$$

Measuring Exposure to ERASMUS

- We measure exposure to ERASMUS in a number of different ways.

  1) ERASMUS Indicator

  0 if no ERASMUS places in the department. 1 after the department starts offering ERASMUS places.

  2) ERASMUS Ratio

  Number of ERASMUS places in department normalized by student numbers in the department.

- ERASMUS Indicator is less prone to concerns that student demand from a very motivated cohort may be driving the number of ERASMUS places (because setting up the ERASMUS programme takes time, at least one to two years).

- ERASMUS ratio measures exposure to ERASMUS more precisely.

- Reassuringly, the results are very similar.

Challenges for Identification Strategy

- University Quality:

Better departments may offer more ERASMUS scholarships and produce higher skilled graduates.

→ University FEs address some of this concern. Results are also robust to including faculty level (e.g. sciences) FEs.

- Other Policies:

The university and/or department may not only introduce ERASMUS but also other policies that have a positive impact on graduates.

→ ERASMUS has a very precise effect only affecting studying abroad in Europe but not in other countries.

- Active Professors:

who generate more ERASMUS scholarships and help students to get a job abroad.

→ obtaining job through the intermediation of a professor and availability of ERASMUS are unrelated.

- Motivated students choose universities with many ERASMUS places:

Most students started studying before the wide availability of internet information. Reassuringly controlling for distance to high school location leaves results unchanged.

Challenges for Identification Strategy II

- Nonetheless one may still worry about the potential endogeneity of ERASMUS.

- We therefore construct two more measures of ERASMUS exposure which do exploit the specific choice of university that students made:

3) ERASMUS Subject Ratio

Ratio of the number of ERASMUS places in student's subject across all universities relative to cohort size in that subject (again across all universities).
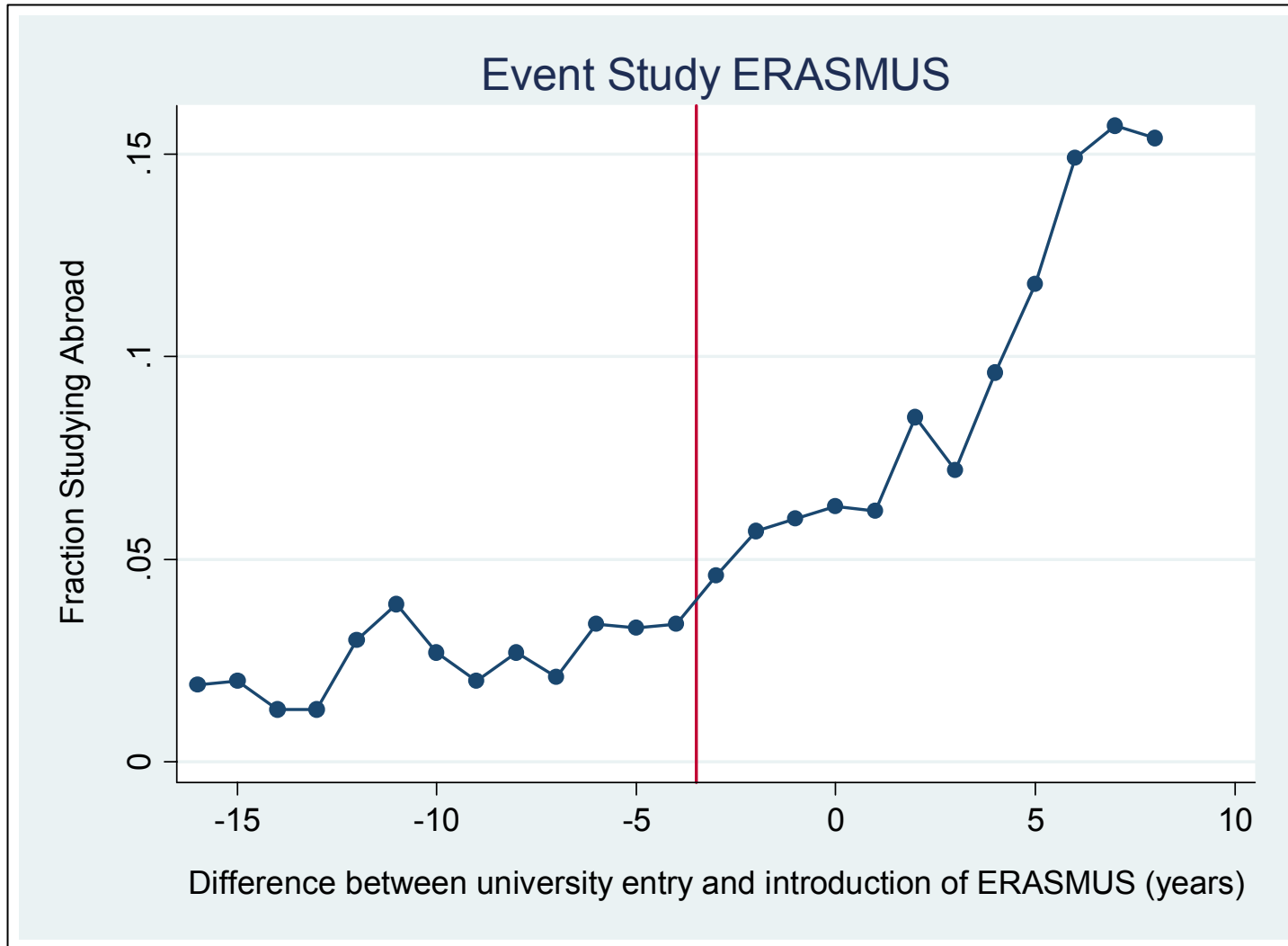
4) ERASMUS Subject Ratio, excluding own department

Same as above but we do not consider ERASMUS places in student's own department.

- Reassuringly, the results are very similar if we use these two alternative measures.

Event Study: Introduction of ERASMUS

- Probability of studying abroad flat before the introduction of ERASMUS and then increases.

Event Study ERASMUS

First Stages: The Effect of ERASMUS on Studying Abroad

Instrument	(1) Dummy	(2) Ratio	(3) Subject Ratio (SR)	(4) SR excl. own dep.
ERASMUS	0.0247	0.4490	0.9121	0.8382
	(0.0039)**	(0.0639)**	(0.1296)**	(0.1445)**
Female	-0.0022	-0.0026	-0.0029	-0.0029
	(0.0034)	(0.0033)	(0.0039)	(0.0040)
Apprenticeship	-0.0013	-0.0012	-0.0012	-0.0012
	(0.0037)	(0.0037)	(0.0032)	(0.0032)
Age (when starting Studies)	-0.0096	-0.0103	-0.0101	-0.0101
	(0.0027)**	(0.0027)**	(0.0034)**	(0.0034)**
Age Squared	0.0001	0.0001	0.0001	0.0001
	(0.0000)*	(0.0000)**	(0.0001)*	(0.0001)*
Experience	0.0001	0.0000	0.0003	0.0001
	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Bachelor	0.0119	0.0123	0.0127	0.0130
	(0.0328)	(0.0318)	(0.0435)	(0.0438)
Follow-up Survey (Dummy)	✓	✓	✓	✓
Graduate Cohort FE	✓	✓	✓	✓
Subject FE	✓	✓	✓	✓
University FE	✓	✓	✓	✓
N	54079	54079	54079	54079
R-squared	0.087	0.092	0.090	0.090
F-stat of Instrument	40.536	49.394	49.494	33.649

**significant at the 1% level   *significant at the 5% level

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The Effect of Studying Abroad on Working Abroad

	(1)	(2)	(3)	(4)	(5)
Estimation Method	OLS	IV	IV	IV	IV
ERASMUS		Dummy	Ratio	Subject Ratio	SR excl. own dep.
Study Abroad	0.0646	0.2439	0.1224	0.1488	0.1346
	(0.0066)**	(0.1078)*	(0.0450)**	(0.0561)**	(0.0640)*
Female	-0.0002	0.0002	-0.0001	-0.0000	-0.0000
	(0.0020)	(0.0021)	(0.0020)	(0.0027)	(0.0027)
Apprenticeship	-0.0051	-0.0049	-0.0050	-0.0050	-0.0050
	(0.0023)*	(0.0024)*	(0.0023)*	(0.0022)*	(0.0022)*
Age	-0.0052	-0.0035	-0.0046	-0.0044	-0.0045
	(0.0018)**	(0.0022)	(0.0018)*	(0.0019)*	(0.0019)*
Age Squared	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0000)*	(0.0000)	(0.0000)*	(0.0000)*	(0.0000)*
Experience	0.0067	0.0067	0.0067	0.0067	0.0067
	(0.0012)**	(0.0012)**	(0.0012)**	(0.0011)**	(0.0011)**
Bachelor	-0.0013	-0.0033	-0.0020	-0.0023	-0.0021
	(0.0097)	(0.0096)	(0.0092)	(0.0101)	(0.0100)
Follow Up Sur. Dummy	✓	✓	✓	✓	✓
Graduate Cohort FE	✓	✓	✓	✓	✓
Subject FE	✓	✓	✓	✓	✓
University FE	✓	✓	✓	✓	✓
N	54079	54079	54079	54079	54079
R-squared	0.034				
F-stat First Stage		40.537	49.394	49.494	33.649

**significant at the 1% level   *significant at the 5% level

The Effect of Studying Abroad on Working Abroad

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Age	-0.0052	-0.0035	-0.0046	-0.0044	-0.0045
	(0.0018)**	(0.0022)	(0.0018)*	(0.0019)*	(0.0019)*
Age Squared	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0000)*	(0.0000)	(0.0000)*	(0.0000)*	(0.0000)*
Experience	0.0067	0.0067	0.0067	0.0067	0.0067
	(0.0012)**	(0.0012)**	(0.0012)**	(0.0011)**	(0.0011)**
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Follow Up Sur. Dummy	✓	✓	✓	✓	✓
Graduate Cohort FE	✓	✓	✓	✓	✓
Subject FE	✓	✓	✓	✓	✓
University FE	✓	✓	✓	✓	✓
N	54079	54079	54079	54079	54079
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How Does Studying Abroad Affect International Labour Market Mobility?

	Work Abroad Location												
	GB Ireland	France	Spain	Bene-lux	Scandina-via	Austria Switz.	East. Euro.	Other Euro.	USA	Other Amer.	Asia	Australia NZ	Other
Not Study Abroad	15	4	5	8	5	41	4	2	7	2	2	3	2
Study Abroad in:													
GB/Ireland	46	0	0	15	0	31	0	0	8	0	0	0	0
France	3	50	0	12	0	29	3	0	0	3	0	0	0
Spain	5	0	48	5	10	29	0	0	0	0	0	0	5
Benelux	20	0	20	60	0	0	0	0	0	0	0	0	0
Scandinavia	9	4	0	9	52	17	0	0	9	0	0	0	0
Austr./Switz.	0	0	0	9	0	82	0	0	9	0	0	0	0
Eastern Euro.	0	0	25	25	0	0	50	0	0	0	0	0	0
Other Euro.	0	11	11	11	0	33	0	33	0	0	0	0	0
USA	10	5	0	5	5	38	0	0	24	5	10	0	0
Other Amer.	0	0	0	20	20	20	0	0	0	40	0	0	0
Asia	14	0	0	0	0	29	0	0	0	0	57	0	0
Aust./ NZ	14	0	0	0	0	43	14	0	0	14	0	14	0
Other	0	0	0	0	0	0	0	0	0	0	0	100	0

- Former students who have studied abroad return to the same location to work there.

Reasons for Working Abroad

	All	Study Abroad = 0	Study Abroad = 1	Difference in means (p-value)
Interest in Foreign Cultures	52.95	50.93	67.21	0.000
	(1.59)	(1.71)	(4.27)	
Received Interesting Offer	35.85	35.35	39.34	0.389
	(1.53)	(1.63)	(4.44)	
At Employer's Instance	33.40	34.07	28.69	0.239
	(1.51)	(1.62)	(4.11)	
Better Career Prospects in Germany after Return	25.36	25.81	22.13	0.382
	(1.39)	(1.49)	(3.77)	
Obtain Qualifications Abroad	16.80	16.86	16.39	0.897
	(1.19)	(1.28)	(3.37)	
International Research Project	14.77	14.65	15.57	0.788
	(1.13)	(1.21)	(3.30)	
Partner	10.90	9.77	18.85	0.003
	(0.99)	(1.01)	(3.56)	
Employment Outlook Abroad	8.66	8.02	13.11	0.061
	(0.90)	(0.93)	(3.07)	
Career Prospects Abroad	6.52	5.70	12.30	0.006
	(0.79)	(0.79)	(2.99)	
Number of Observations	982	860	122	

Conclusion

- The ERASMUS programme has a strong effect on the probability of studying abroad.

- Using the exogenous variation of ERASMUS we find that studying abroad increases the probability of working abroad by about 15 percentage points.

- This suggests that educational mobility programmes have a large role in affecting the international labour market mobility.

- Because location choices are sticky educational mobility programmes may be a very good way to attract highly skilled individuals.