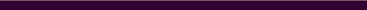




Hither or thither?

Migration patterns among UK graduates
and the implications for regional
economic disparities

Maria Abreu, Michael Kitson, Phil Wales



Background

- Since the mid-1980s we have observed substantial differences in productivity levels between London / South East and the rest of the UK.
- This gap has widened over the past 20 years.
- The highest rates of employment growth have been in the South East, East of England, South West and Northern Ireland.
- Other areas have not fully recovered from job declines in the early 1980s (North East, North West, Midlands).

Background

- Successful regions attract skilled labour and knowledge capital which further raises their productivity.
- The aim of this study is to analyse graduate migration flows in the UK, to help understand productivity disparities across regions.
- To what extent do personal characteristics affect the decision to migrate?
- Do neighbourhood and cohort effects play a role?

Previous findings

- Universities can act as a conduit to attract human capital into a region (Faggian and McCann, 2006).
- UK female graduates are less likely than male graduates to migrate in the first place, but more likely to migrate repeatedly (Faggian et al., 2007).
- Non-white migrants less likely to migrate to region different from their domicile region to attend university (Faggian et al., 2006).
- Older students less likely to migrate.

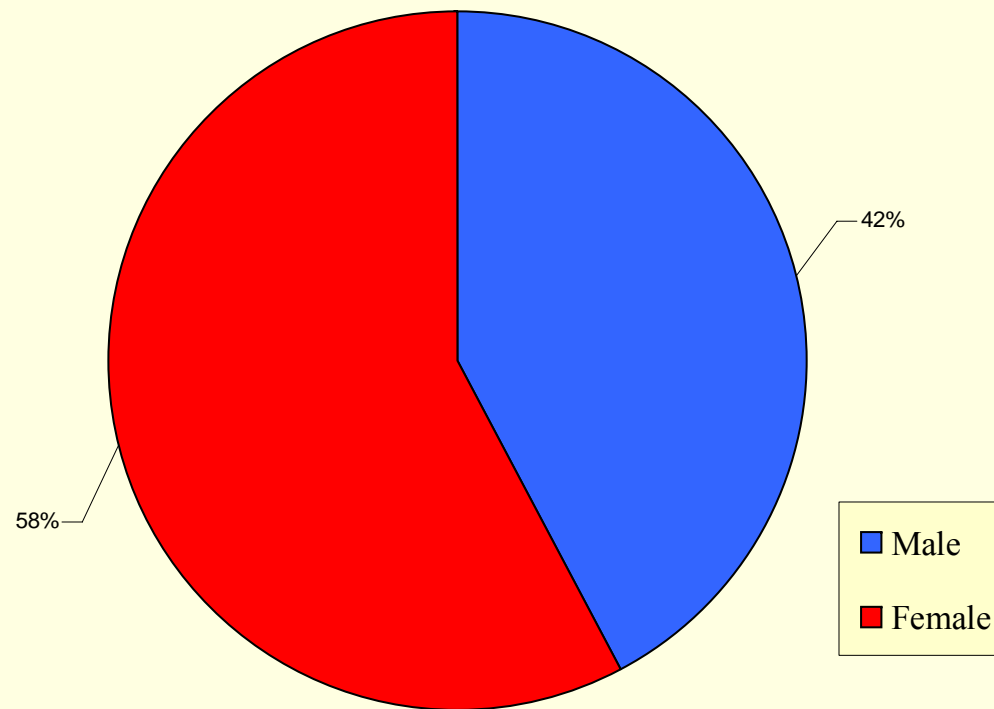
Data sources

- Higher Education Statistics Agency (HESA) data on the origin and destination of students leaving higher education in the UK.
- Data on subject, degree class, type of qualification and personal characteristics (age, gender, ethnicity).
- Students contacted 9-12 months after leaving university.
- Record of location, industry, employment information.
- Postcode information allows us to track students geographically as they go to and leave university.

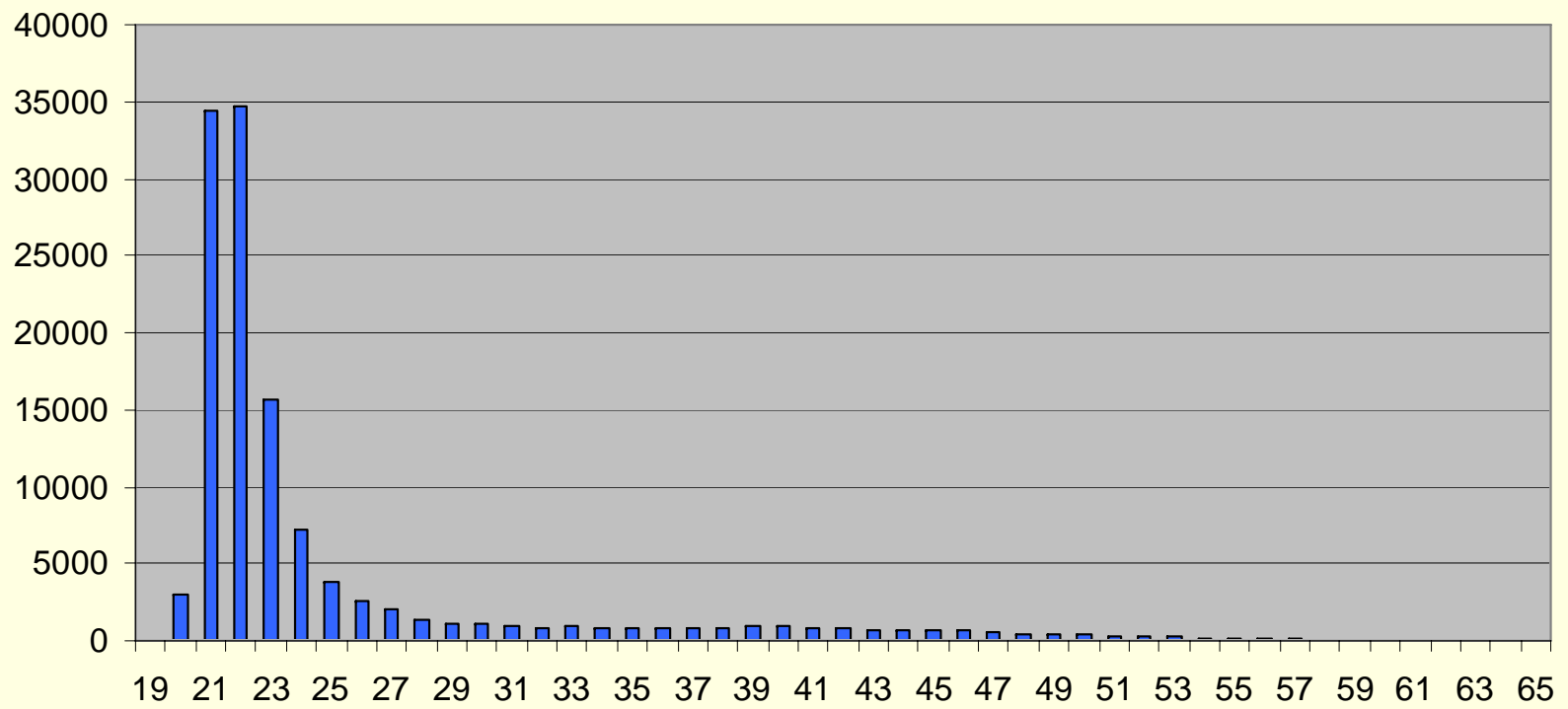
Data sources

- The data contains information on 202,803 students who graduated in 2005/06.
- Of those, 123,031 completed their first degree; this is our target population.
- Additional data on regional characteristics taken from the Office for National Statistics (ONS), Land Registry (for England and Wales), Scottish Government and Northern Ireland Statistics and Research Agency.
- Spatial data constructed using a first order contiguity weights matrix at the NUTS 3 level.

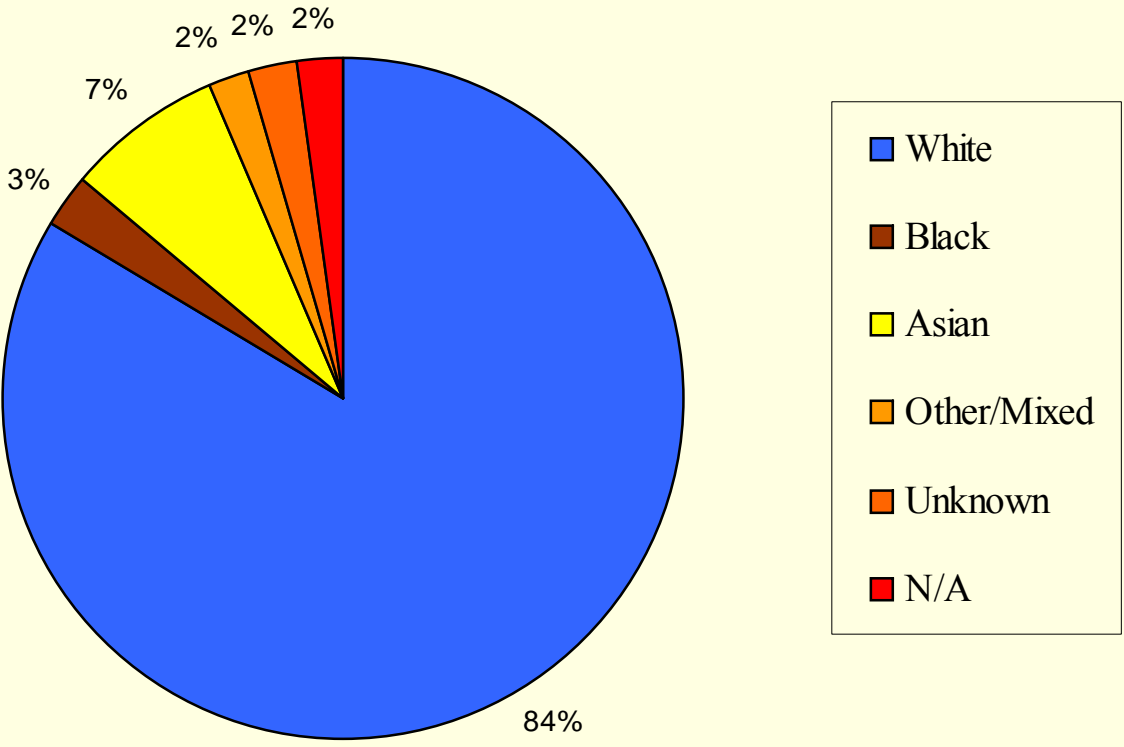
Gender



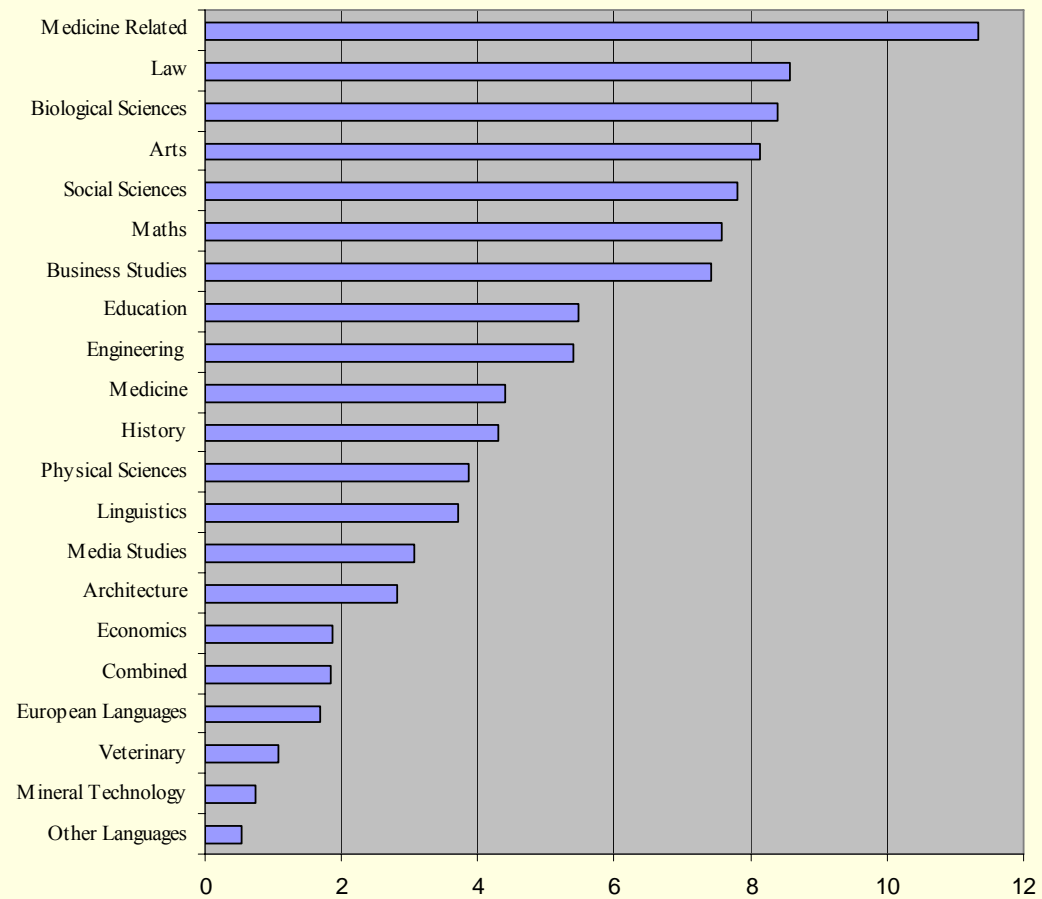
Age



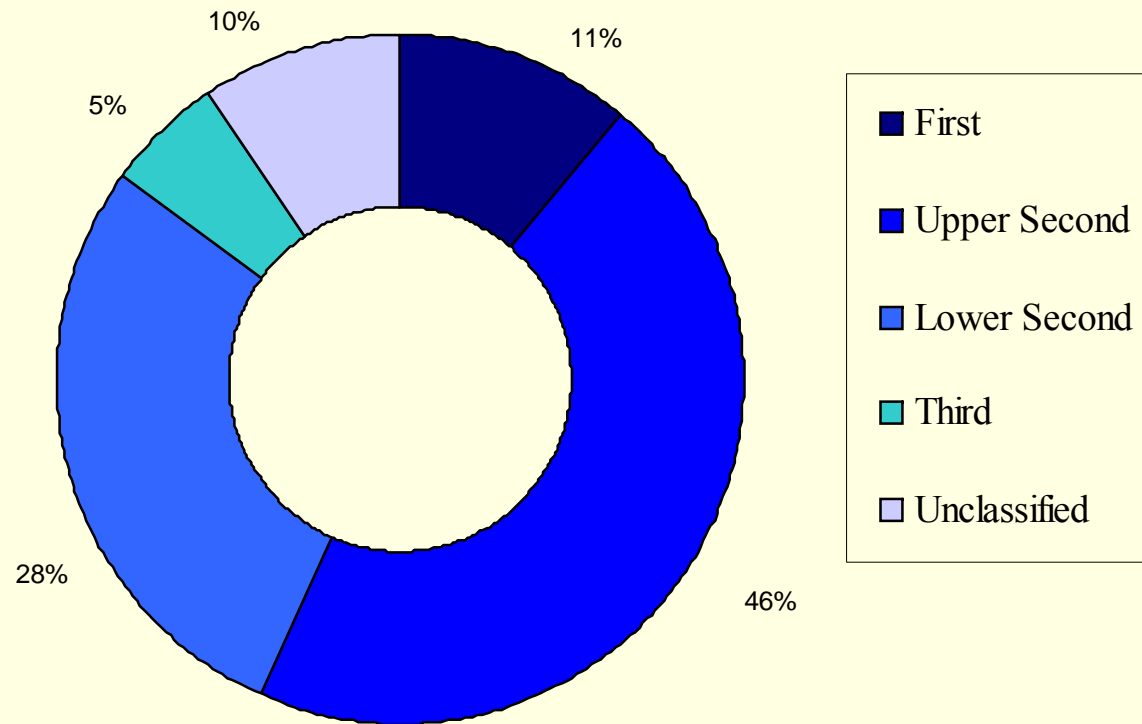
Ethnicity



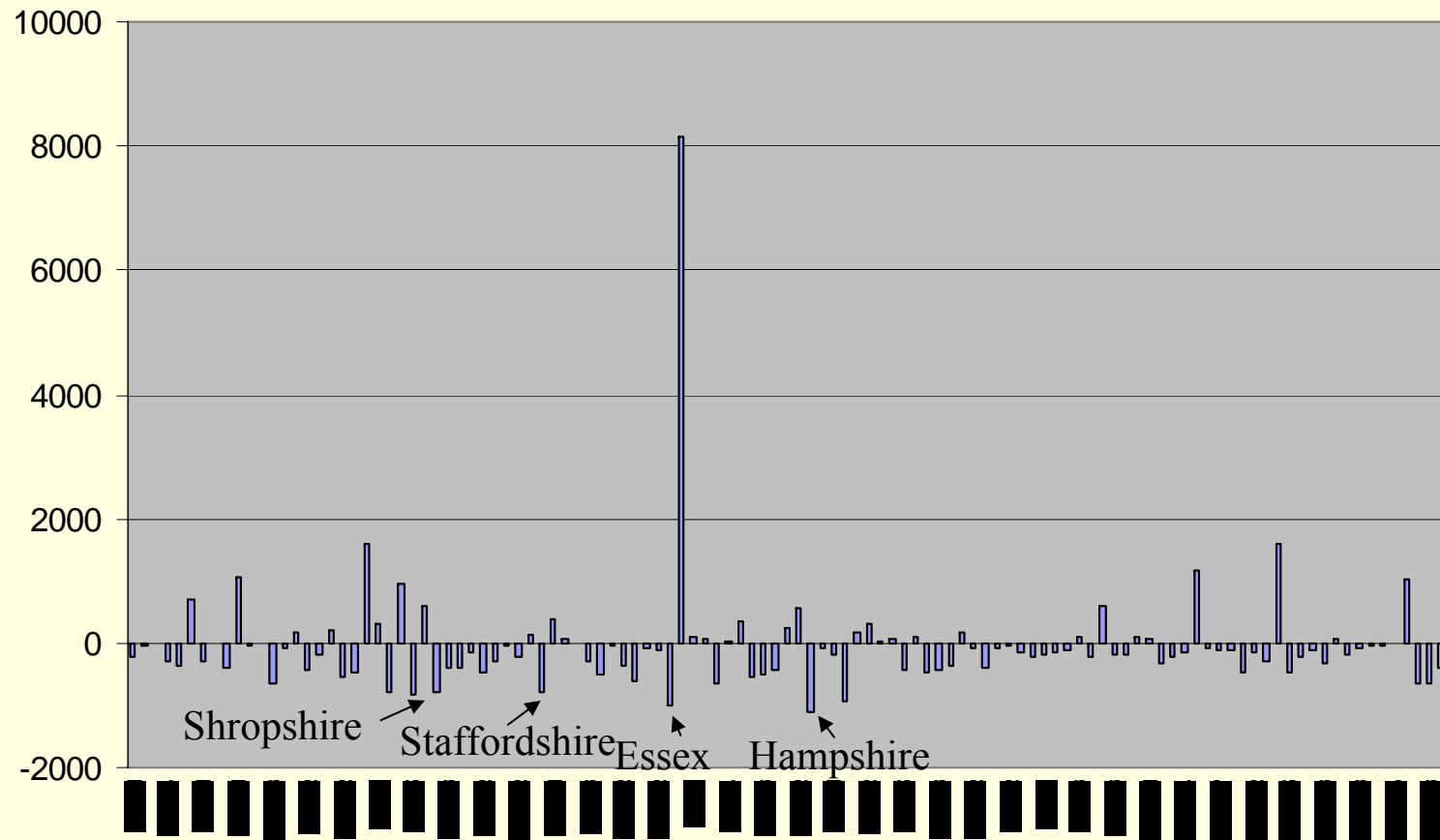
Subject studied



Class achieved

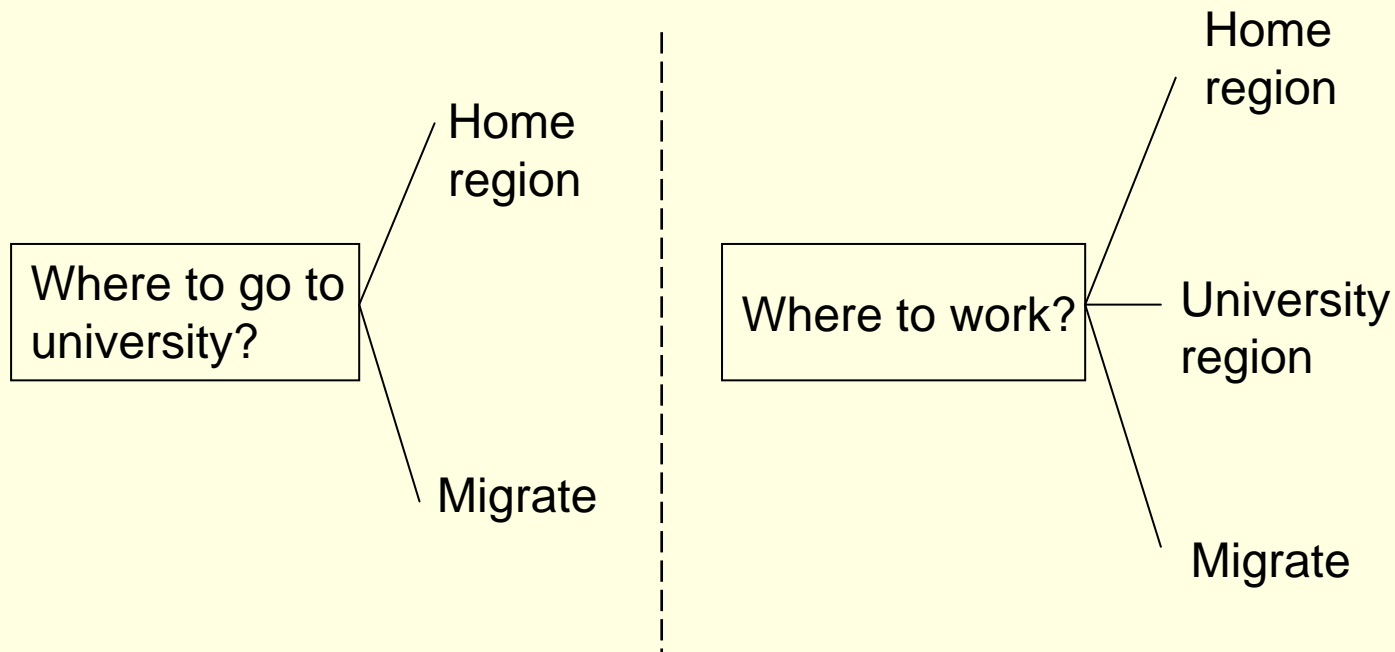


Migration behaviour



Empirical model

- Decision to migrate composed of:



Empirical model

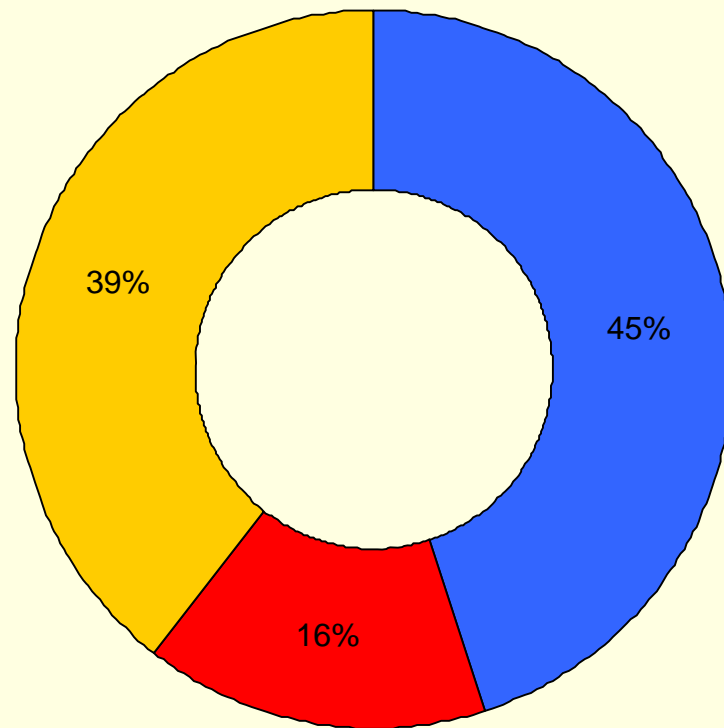
- Our focus is on factors that attract talent into a region.
- We therefore consider three categories:

Y=1	Employed in region of domicile
Y=2	Employed in region of university (different from domicile)
Y=3	Employed in third region (different from university and domicile)

Empirical model

- Our categories relate to those in Faggian et al. (2006, 2007) as follows:
 - Y=1 includes both “non-migrants” and “return migrants”
 - Y=2 is equivalent to “university stayers”
 - Y=3 includes “late migrants” and “repeat migrants”

Proportion of graduates by type



- Y=1: Employed in region of domicile
- Y=2: Employed in region of university
- Y=3: Employed in third region

Empirical model

- Multinomial logit model with spatially lagged explanatory variables.
- Choice is between three alternatives $j=1,2,3$.
- Assume utility of each alternative is a linear function of observed characteristics plus an error term:

$$P\{y_i = j\} = \frac{e^{\beta'_j x_i}}{1 + \sum_{k=1}^M e^{\beta'_k x_i}} \quad \text{for } j = 1, 2, \dots, M, \quad \beta_1 = 0$$

Empirical model

- Model consists of three types of explanatory variable:
 - Personal characteristics
 - Regional characteristics
 - Spatial lags of regional characteristics
- Spatial lags constructed using contiguity matrix at the NUTS 3 level.

Results – I

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
Male	1.075	0.130	1.164	0.000
Black	0.688	0.062	1.089	0.636
Asian	0.632	0.000	0.833	0.044
Other	0.620	0.008	0.689	0.015
Unknown	1.127	0.418	0.987	0.912
Age	0.949	0.000	0.990	0.005

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Results – II

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
Medicine	9.669	0.000	6.017	0.000
Medicine Related	0.949	0.595	1.386	0.000
Veterinary	1.274	0.259	2.913	0.000
Physics	0.972	0.827	1.500	0.000
Mathematics	1.105	0.353	1.629	0.000
Engineering	1.308	0.026	1.987	0.000

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Results – III

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
Mineral Technology	1.576	0.075	1.706	0.007
Archaeology	1.102	0.518	2.121	0.000
Social Sciences	1.033	0.758	1.052	0.548
Economics	0.913	0.646	1.151	0.393
Law	0.675	0.000	1.093	0.283
Business	0.817	0.065	1.166	0.080
Media Studies	0.742	0.039	1.118	0.337

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Results – IV

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
Linguistics	0.821	0.139	0.892	0.299
European Languages	1.200	0.356	1.384	0.035
Other Languages	0.851	0.630	0.950	0.852
History	1.197	0.145	1.125	0.242
Arts	1.035	0.738	1.322	0.001
Education	0.500	0.000	0.904	0.286
Combined	1.771	0.013	1.234	0.170

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Results – V

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
Parental Home	0.495	0.000	0.987	0.861
Own Home	1.548	0.526	0.977	0.803
Other	1.652	0.009	0.747	0.002
First Class	1.104	0.194	1.350	0.000
Upper Second	1.063	0.237	1.159	0.000
Third	1.088	0.390	0.934	0.404
Unclassified	0.922	0.494	1.259	0.010

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Results – VI

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
Population density	1.000	0.000	1.000	0.000
Young people	3.190	0.000	5.260	0.000
Pensioners	0.585	0.000	0.690	0.000
Economic activity rate	102.239	0.000	57.510	0.000
Level of education	24.382	0.000	25.379	0.000
Rental cost	1.348	0.000	1.325	0.000
Ln GVA per capita	2.118	0.000	2.072	0.000

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Results - VII

Variable	Y=2 (employed in region of university)		Y=3 (employed in third region)	
	Odds Ratio	P-value for Wald test	Odds Ratio	P-value for Wald test
W*Density	1.690	0.000	1.287	0.020
W*Pensioners	44.614	0.000	6.466	0.000
W*Economic activity	1.642	0.000	1.455	0.000
W*Ln GVA pc	0.003	0.000	0.024	0.000

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Conclusions

- Personal characteristics, such as gender and ethnic group, affect the odds of migration.
- The subject studied is an important determinant of migration patterns (e.g., medicine, education, arts).
- Mature students are less likely to migrate.
- Migration is predominantly towards richer, more highly skilled, denser and younger areas.
- Graduates are attracted to areas surrounded by poorer regions with older populations.

Next steps

- Nested logit model to deal with two-step decision process:
 - decision to attend university and decision to migrate after university are not independent
- Further explore neighbourhood effects:
 - include spatially lagged explanatory variables for the origin and destination
- Social cohort effect: the proportion of the same university/subject group with the same destination choice.
- Analyse the characteristics of universities who are good at retaining students in their regions.