



ATTRACTING AND RETAINING 'FRESH TALENT' IN PERIPHERAL REGIONS: SOME LESSONS FOR SCOTLAND FROM AN ITALIAN MEZZOGIORNO REGION^o

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- ° This paper draws on “Human Capital Accumulation and Migration in a Peripheral EU Region: the Case of Basilicata”, (co-authored with F. Prota). NHH Discussion. Paper. N. Readers interested in more details on the methodological part of the analysis might find this study in www.nhh.no/sam/res-publ/2003/dp.html. The authors want to thank Julia Darby for helpful comments and suggestions. The usual disclaimer applies.

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Abstract

The ability of a regional system to generate human capital is crucial, but it is not a sufficient condition for economic success. Equally important are the abilities to retain the human capital generated and to attract highly talented individuals. Several studies point out that these might prove particularly challenging for peripheral regions. Recently the Scottish Executive has expressed a firm commitment in pursuing policy action aimed at making Scotland a more attractive place for young and talented individuals and encouraging students to stay in Scotland after graduation. Knowledge of the factors influencing highly skilled individuals' location decisions are fundamental to national and local policymakers who wish to capitalise on this important source of economic development. The aim of this paper is to contribute to the evidence base that can be used to inform policy makers in their pursuit of these objectives. We employ a unique data set to focus on the location decisions of a sample of highly educated and skilled individuals, who have benefited from a locally funded human capital investment policy.

1 Introduction

The importance of human capital as a key source of value added, innovation and economic growth is widely acknowledged by both economists and policymakers. The relevance of human capital in modern economies, and the divergence between its private and social return, justifies policy interventions aimed at subsidising human capital accumulation.¹ However, as Justman and Thisse (1997) have pointed out, the public benefits of human capital investment “do not always accrue where it is funded”. The scope for policy might vanish if locally formed human capital is lost through migration, as emphasised in the brain drain literature.

More educated and skilled individuals are relatively more mobile compared to the rest of the population. This can result in migration widening the regional wage and income gap and lowering the standard of living in the peripheral location, as the new economic geography literature emphasises (Krugman, 1991; Coniglio, 2003). Integration of regional labour markets may increase workers' incentive to relocate, particularly from peripheral to central regions. Human capital migrates from where it is scarce to where it is abundant, rather than vice versa (Lucas, 1988). For peripheral regions experiencing long-term population decline and ageing, the prospect of future growth is linked to the ability of the local economy to compete at the national and international level in attracting young and talented individuals.

The Scottish Executive has developed a new policy, the “Fresh Talent Initiative”, aimed at encouraging fresh talent from abroad to come to live and work in Scotland. Migration in-flows, in particular of young skilled and talented individuals are seen as a key factor in creating and maintaining a competitive economy. In his speech on economic and population growth early in 2004, the Scottish First Minister, Jack McConnell set out three main areas where action will be taken:

- Improved promotion of Scotland abroad as a place to live and work;
- Working with the UK government to promote Scotland as a destination for people applying for UK working permits;

- Encouraging students, both native and overseas, to remain in Scotland after graduation.

The ability of a regional economy to create human capital is a necessary but not sufficient condition for economic growth. It is crucial to attract highly skilled and talented individuals to the region and to retain them within the region. The First Minister noted that Scotland has a considerable advantage in having internationally renowned Higher Education institutions which attract many talented students from all over the world. Perhaps the focus of policy should now turn to the issue of retaining these individuals in Scotland. In this context, understanding the factors that influence the location decisions of skilled individuals is fundamental to developing an appropriate policy response to attracting and retaining talented workers.

This paper contributes to the evidence base relevant to skilled workers' location decisions by reporting the outcomes of a human capital investment policy initiative that has been in operation since the early 1990s in a small peripheral Italian region, Basilicata.² The regional policymakers, in recognition of the importance of human capital as a key ingredient for regional growth, have given generous subsidies to young graduates who want to attend a post-graduate course either inside or outside the region. The sample of individuals under analysis is far from being representative of the regional population, but the biased nature of the sample (highly skilled and educated individuals) makes the analysis a natural experiment for assessing the ability of the regional system in a peripheral region not only to generate human capital but also to retain it.

The focus of the research is on the individual migration decision. In particular, it sheds light on the following questions:

1. Who are the migrants? We investigate whether migrants' personal characteristics differ significantly from those of non-migrants.
2. Where do migrants go? Is human capital attracted towards core regions?
3. What are the characteristics that make a region attractive for highly educated and talented individuals?

The data set used in this analysis has been generated through a postal survey designed and conducted by the authors. The high quality of the data and the extremely high rate of response (around 70%) make the data set at our disposal a unique tool for studying the individual-level migration decision of highly skilled individuals in a peripheral region.

Our analysis explores the factors affecting the location decision of highly educated individuals in an economy presenting all the features of a core-periphery structure.³ Our results have strong policy implications for the local economy under analysis; they may also have a more general validity for peripheral regions in similar economic circumstances, such as Scotland.

The structure of the paper is as follows. In section 2, we describe in more detail the policy implemented, the conduct of the survey and the sample under analysis. In section 3, we investigate what personal characteristics influence the migration decision. In section 4 we describe the characteristics that make a region attractive for highly educated and talented individuals. Section 5 contains concluding remarks and draws out some implications for Scotland.

2 Human capital policy in Regione Basilicata

The emergence of endogenous growth theory at the end of the 1980s gave further strength to the idea that the accumulation of human capital has a beneficial effect on economic growth and development (Romer, 1990; Lucas, 1988). Recent empirical evidence is supportive of this idea (Rauch, 1993; Glaeser and Marè, 2001; Ciccone and Peri, 2002). In addition, many case studies investigating the sources of success in some booming regional economies emphasise the key role of an educated and highly skilled workforce (Bresnahan et al., 2001).

The policymakers of Regione Basilicata endorsed this view and actively pursued a policy aimed at fostering human capital accumulation in the region. A component of the policy measures employed, starting from the beginning of the 1990s, were generous subsidies to young graduates who wanted to further invest in specialised training and educational activities by attending post-

graduate courses both inside and outside the region. More than a thousand individuals have already benefited from this policy and the target is to support an additional two thousand individuals by 2006. The regional authority imposes no requirements on the subject and location of the course financed. The selection criteria concern educational attainment of the candidate and the “quality” and reputation of the educational institution which offers the courses.⁴ The policy is very selective: it is aimed at high quality candidates. It is funded within the regional development plan (Piano Operativo Regionale Basilicata 2000-2006) and draws resources both from the regional budget (approx. 30%) and from the European Social Fund (70%).⁵ Basilicata benefits from EU Structural Fund and under the framework has the status of an Objective 1 region. Although no part of Scotland receives Objective 1 support, it is still eligible for European Social Fund support.

The data used for the empirical analysis are derived from a postal survey of individuals who received financial support from Regione Basilicata for attending a post-graduate course in a Higher Education Institution.⁶ The survey was designed and conducted by the author with the collaboration of Regione Basilicata. The survey questionnaire asked individuals about their decision whether or not to move and the main factors influencing that decision.⁷ For each individual, we have collected data on: personal characteristics; experience; education; opinion on the quality of the course attended; job-search strategy after the course; and career details. The survey was conducted during May-July 2002. The questionnaire was sent to all the individuals who benefited from the local policy measure between 1991 (the first year in which this measure was implemented) and 2001, which amounts to slightly more than one thousand individuals.⁸ A total of 740 individuals returned the questionnaire, approximately 70% of the total. After deleting observations relating to incomplete questionnaires, the final sample contained 700 observations.

The individuals in our sample have a first degree and were resident in Basilicata at the time when they applied for funding.⁹ The number of individuals who migrated was 411 (58% of the total). It is worth noting that Basilicata, like the rest of the Italian Mezzogiorno, has been a traditional source of migrants for both other Italian regions and foreign destinations. The propensity to out-migrate toward other Italian regions as measured

by the ratio between the (gross) number of people changing their registered place of residence and the total regional population (multiplied by 1,000), is considerably higher than the Italian average. In 1997, this index of migration was 8.4 for the overall Basilicata population against 5.3 for the Italian regional average and 7.2 for the Italian Mezzogiorno (ISTAT, Italy's National Institute of Statistics).

We would expect that young individuals from Basilicata have a higher propensity to migrate. The recipients of funding in our survey had an average age of 27.5 with a standard deviation of around 2.5 years. ISTAT's data reveal that in 1997, of the cohort of 5,137 individuals aged 25-29, 990 changed residence to other Italian regions. For this cohort the migration index, as defined above, was 22.6 for males and 18.7 for females (the Italian average was 11.1 for males and 9.9 for females).

Having briefly described the nature of the data, we now turn to the questions addressed in the introduction. We report our main findings and refer readers interested in more detail to our companion paper (Coniglio and Prota 2003).

3 Who migrates?

The migration literature suggests that our survey group is highly mobile, but to our knowledge no in-depth studies have focused on their micro-level migration decision. Why is it important to understand the factors affecting the chances that this important stratum of the population will migrate? Because modern economies need to capitalise on this key factor of production, and therefore need to understand its pattern of mobility, so that this knowledge can be used to inform talent attraction and retention policy. This makes our research particularly relevant to the Scottish context.

From the individual point of view, the location decision might be seen as a utility-maximising process. An individual will migrate only if the utility she might enjoy in a potential destination is large enough to compensate for the utility enjoyed at home plus the costs associated with relocation to that particular destination (including non-monetary psychological costs of moving). The net utilities deriving from the location decision are not directly measurable. What the researcher can do is to

observe the final decision whether to remain in the region of origin or move away.

The essence of our approach is to determine the characteristics that differentiate the two groups of individuals and evaluate the impact of some individual characteristics on the propensity to migrate. We therefore model the probability that an individual resides in Basilicata at the time of receiving the questionnaire.

The variables we use to explain this decision include¹⁰:

- individual characteristics such as age, sex, city of origin and employment status;
- detailed information on educational background, including: marks obtained, subject of study, location of university, subject studied at postgraduate level, eventual internship period;
- information on geographical preferences in the job-market search after completion of the postgraduate course.

Our results, which are set out in full in Table 2, show which personal characteristics influence the migration decision. In summary:

- People born in urban areas are 7% less likely to migrate. This outcome can probably be explained by the fact that larger cities are characterised by a critical mass of amenities, therefore, the push factors are smaller as compared to towns.¹¹ In addition, densely populated areas can offer more job opportunities. Individuals from small centres are more likely to accept that they may have to move for job reasons.
- Even among a group of highly educated individuals, the probability of moving to a new region is higher among the most talented.
- Individuals with different subject specialisms have a different likelihood of migration. The pull factors for individuals with a degree in engineering and business are higher than average. This might reflect the likelihood of finding employment in activities like R&D and banking, etc, which are typically under-represented in

peripheral as opposed to core regions. Individuals with a first degree in business studies and engineering are 12.4% and 18.4% less likely respectively to stay at home than other graduates. This outcome has strong policy implications: if policymakers give priority to supporting subjects that are more closely linked to the demands of the regional economy this should increase the probability of retention.

- Perhaps surprisingly we do not find any evidence of differences in the migration behaviour between males and females. The standard finding in the migration literature that females are less mobile than males, apparently does not hold for these young and highly talented individuals.
- In our analysis, the most important factors are those related to the location in which people attended university, studied for their postgraduate qualification and eventually obtained an internship. Our hypothesis is that individuals who study outside their area of origin are more likely to migrate. During their studies, such individuals may acquire extensive information on the local labour market at relatively low cost. Information from friends, potential employers, local media etc. may assist this process. Also, the psychological costs of moving will be lowered by familiarity with the migration process itself and with the local environment. Our findings suggest that undertaking a postgraduate course outside the region reduces the probability of remaining in the home region by 19.4%.
- Undertaking a job placement increases the probabilities that an individual will remain in the location. Improving connections with local economic agents by integrating higher education courses with placements in local enterprises and institutions would improve significantly the ability to retain human capital. In fact, a placement in the home location increases the probability of staying by 8.3%.
- We find that the effect of unemployment on the propensity to migrate is negative: unemployed individuals are mainly located in the home region. This outcome is in line with the "contracted" migration view, which predicts that individuals migrate with a "job in their hands".

4 Where do migrants go?

In section 3 we examined individual migration decisions. This allowed us to investigate the underlying differences between individuals who decide to move or to stay. In this section we provide a more in-depth investigation of how regional characteristics affect the individuals' choice of destination. This requires analysis of the regional characteristics that make a particular location attractive to this sample of highly educated and skilled individuals.

We exclude individuals who have yet to find employment and those who have migrated to a foreign destination. We then consider each individual's choice among the 20 Italian regions (including the home location).¹²

We investigate the individual migration decision at the moment of the first employment following the completion of the postgraduate course financed by the regional authority.¹³ This enables us to analyse, across individuals, a relatively homogeneous episode of personal decision-making. Further relocations after the first employment can be influenced by a wide array of different reasons that

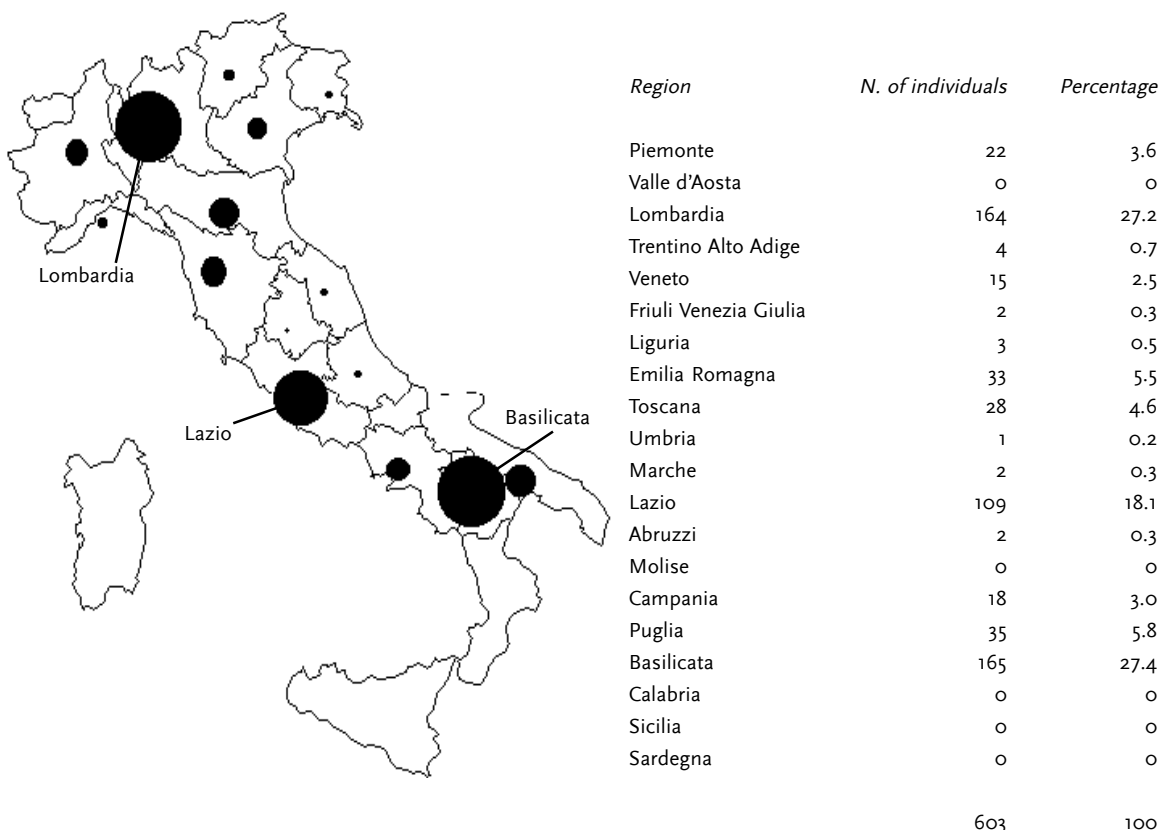
are difficult to control for in the modelling. However, this is of secondary importance since our evidence shows that the first move dominates the final spatial distribution of the sample.

Figure 1 illustrates the regional distribution of the human capital "generated" by the local policy measure. Only 27.4% of these individuals are employed in Basilicata after the postgraduate course. A considerable share of individuals in the sample choose to work in Lombardia (mainly in the area of Milano) and Lazio.

We next model the probability that a given region is chosen. The explanatory variables we used are reported in Table 3 and include variables reflecting economic conditions and quality of life along with some measures of individual migration costs associated with the potential destinations (based on the availability of information and the non-monetary psychological costs of moving).

Of particular interest are those variables reflecting relative quality of life in potential destinations. Florida (2002) argues that place-based characteristics such as lifestyle

Figure 1 The geography of the human capital generated: first employment



options, amenities and quality of life in general have an important function as catalyst for attracting and retaining talented individuals in U.S. cities. In recent research, Glaeser et al. (2000) conclude: "if cities are to remain strong, they must attract workers on the basis of quality of life as well as on the basis of higher wages". In our analysis, we measure the impact of a set of quality of life variables on the probability that a certain region is selected by the individuals of our sample. The results of this model are set out in Table 4. All explanatory variables have been normalised (with the exception of distance variables) relative to the national average, so the magnitude of the coefficient corresponds to their relative importance. Coefficients on non-dummy variables can be interpreted as elasticities. All variables are significant and have the expected influence on how attractive the region is to migrants. The key variables are summarised below:

Quality of Life

Individuals are attracted towards locations with higher cultural amenities and deterred from locations with diffused micro-criminality. Our results confirm that quality of life is of considerable importance. The weight attached to available amenities is considerable, while crime is a strong push factor. This is particularly true for highly educated individuals who are generally more footloose and therefore able to relocate in safer and more culturally active areas. Diffused criminality discourages potential location decision by talented individuals and investors. Both crime and amenities should be taken into account by regional policymakers who aim at making their locations attractive to talented individuals.

Distance

Physical distance weakly approximates the costs of migration. Psychological costs of moving are also likely to be linked to distance to some degree. We found that the migration probability to a given region declines with the distance (in kilometres) between Basilicata and the potential destination, although it is notable that there is strong evidence that this effect is non-linear: the marginal impact on the probability of migration toward a potential destination is decreasing in distance. Perhaps migration has fixed and variable cost elements.

Information on job opportunities

Migration is an important and complex decision for individuals requiring substantial information to make an informed decision. A potential migrant will form his/her subjective predictions on future income (or more generally, utility) streams in a given destination. Even within a rather homogeneous group of individuals, as in this study, the available information and personal connections will differ greatly. The probability that an individual will select a given location will increase the larger is the amount of information available on job opportunities in the location. Previous literature suggests that the quantity and quality of information are negatively affected by distance. Knowledge about the destination region depends upon personal contact and upon sources of information that are more costly to access the greater is the distance.

We have argued that individuals with previous migration experience of a particular destination have the opportunity to acquire information on the local labour market at low cost. It is also likely that non-monetary psychological costs of migration will be reduced as a result of increased familiarity with the local environment. It is to be expected that these individuals will have a higher probability of selecting a location outside Basilicata. Our model uses information on individuals' past migration experience during undergraduate and postgraduate study and during any period spent on placement. The importance of this prior migration experience is captured in three separate dummy variables, the significance of which underlines the relevance of prior information on potential destinations for the individual's migration decision. A lack of information, or poor quality information on local economic opportunities, represents a market failure that may be corrected through the use of simple policy measures.

We are also able to show that the existing stock of highly educated migrants from the region of origin plays an important role in explaining which location is selected among alternatives. This variable should capture a lower cost of migration towards the potential destination through ease of access to information and direct and indirect support; but it may also capture the quality and quantity of economic opportunities in the destination region, since the stock of past migrants is generally proportional to the size of the population in alternative locations. In migration studies it is common for the size

of the regional population or the level of GDP to be used as control variables capturing the quantity of opportunities. In our study these control variables were not statistically significant. Perhaps this result reflects the fact that the Italian Mezzogiorno is composed of some densely populated regions (such as Sicilia) for which it is hard to believe that population is a good proxy of economic opportunities available to the potential migrants.

Economic opportunities in the potential destination

We confirm that economic opportunities in the potential destination are important for individuals considering migration. A one-percent increase in income per unit of labour relative to the national mean has the strongest effect on migration probability (raising the probability by almost 6 %).¹⁴ In addition, regions with higher unemployment rates deter migration. This result is in line with previous migration studies that have used micro-data.¹⁵ Finally, we show that faster-growing areas experience an above average in-migration of highly skilled individuals as indicated by the positive and significant coefficient on regional GDP growth.

5 Concluding remarks and policy implications for Scotland

The existing migration literature stresses that the highly skilled and well educated are more likely to be mobile than the rest of the population. However few studies have explored the factors underlying individual migration decisions for this group. If policy makers are to capitalise on highly skilled and educated individuals, regarded as one of the most important resources in modern economies, a first step has to be to understand why they migrate. This knowledge can then be used in a strategic way to inform talent attraction and retention policies.

In this paper we have used a unique dataset to follow individuals residing in a small peripheral region of Italy (Basilicata) who benefited from a locally funded human capital investment policy that provided support for students undertaking post-graduate courses.

By focusing our attention on the micro-level location decisions of these highly skilled and educated individuals, we have been able to show that even within a quite

homogeneous group of individuals, there are key differences that affect the chances of migration.

Given Scotland's peripherality in a UK context, perhaps there are some lessons from Basilicata that will have resonances in the Scottish case:

- In order to make Scotland attractive to talented individuals, strong economic performance and information on the availability of job opportunities are important prerequisites, although they do not necessarily guarantee success.
- Among the factors explaining individuals' location decisions, quality of life is very important. For this reason, policy interventions aimed at improving the quality of citizens' lives should be regarded as key strategic objectives. Diffused criminality significantly discourages the potential location decision of talented individuals and investors. Improving quality of life can lead to a substantial pay-off in terms of future growth and prosperity of peripheral regions.
- The probability that an individual will select a given location increases the better the information available on job opportunities in that location. A lack of information, or indeed poor quality information on local economic opportunities represents a market failure that can be at least partly corrected by policy measures. Actions aimed at this objective might therefore usefully be considered to be strategic in trying to retain and attract human capital.
- One area in which Scotland is already highly successful is in attracting students into its Higher Education institutions. Every year a considerable number of talented individuals from all over the world choose Scotland as their destination. Public policy can play an important role in maintaining this high reputation and in boosting areas of expertise within the Scottish education system. This will contribute to attracting even more talented individuals, particularly if the policy is accompanied by increasing the provision of scholarships to outstanding students. Once in Scotland to study, there is a role for policy to encourage students to stay after graduation. There may also be a strategic role for policy to focus on education in areas that are seen as key to the economic development of the region. Our evidence suggests that once students have experienced life in a new

region this greatly enhances the probability of their staying.

- A key aspect of this may be to encourage more Scottish businesses to consider placements from among the many overseas postgraduate students that visit Scotland each year. This may involve changes within higher education to integrate such placements within course structures.
- A fundamental role for policy makers is to connect human capital formation experience with the current and future needs of the Scottish labour market. Accurate "soft policies" aimed at reducing the cost of acquiring detailed information on the Scottish labour market might considerably increase the chance of retaining a larger share of the human capital generated. This might, for example, involve support for firms using the internet to advertise jobs based in Scotland.
- Finally, the conclusions drawn here have been informed by an empirical study of a small Italian region. This study illustrates the scope to track and model location decisions. There is clearly a need for similar research on the mobility of highly skilled individuals in Scotland focusing on the location decisions of graduates from Scottish higher education institutions. This could usefully inform the design of effective policy action aimed at competing for talent, and the pay-off to such a study may be considerable.

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Endnotes

1. Educational expenditure is considered a key component of national investment with a substantial pay-off in terms of output growth. The current state of thinking about this issue is well summarized by Temple (2001), who, after surveying the relevant micro- and macroeconomic evidence, concludes that “the weight of the evidence points to significant productivity effects of educational investment”.
2. For more details see Coniglio and Prota (2003)
3. Of course, as with all case studies, it is necessary to exercise caution when generalising the findings to other situations. Nevertheless, it is reasonable to argue that the behaviour of the highly educated and skilled individuals in our sample is not substantively different from that of similar individuals in peripheral regions of many developed countries.
4. These regulations are aimed at avoiding courses of questionable quality. An applicant with a successful educational record willing to embark upon further investment in their education will very likely obtain regional support. The rejection rate is very small and is based mainly on considerations that pertain to qualitative aspects of course choice.
5. The fund repartition between Local/EU resources has not been constant over time. In 2003, 4.6 millions Euros were allocated to the policy measure.
6. In what follows we use interchangeably the words course and master for identifying the human capital investment experience financed by the regional authority.
7. The survey questionnaire is available upon request.
8. In order to increase participation, individuals received a follow-up request letter and subsequently were contacted by phone.
9. There is a small group of people (35 individuals) who get a high school diploma.
10. See Table 1 for a full list of variables
11. For instance in terms of selection of restaurants, cinemas and in general to a wide set of consumption possibilities.
12. We have decided to keep out of the sample individuals who have yet to find employment since they are mainly located in the home region. We leave out individuals who have selected a foreign destination due to practical difficulties in finding comparable destination specific data for empirical modelling.
13. The results discussed in section 3 looked at current employment (that is, employment at the time when the survey was conducted).
14. For a hypothetical region with average characteristics in year 2000, this means that an increase in income per unit of labour of Euros 280 (national average was Euros 28.050, in current prices) will lead, *ceteris paribus*, to a 5.76% increase in the probability of attracting highly educated individuals.
15. Frequently migration studies based on aggregate data show mixed results on the sign and significance of the unemployment rate variable.

Table 1 Modelling the probability of staying in the home region: a description of the explanatory variables used in the logit model

<i>Variable</i>	<i>Description</i>	<i>Expected sign of effect</i>	<i>Mean</i>	<i>Std. dev.</i>
MALE	1 = male 0 = female	+ / -	0.44	0.49
CITY	1 = born in city 0 = born in a small town	+	0.57	0.49
AGE	Age at the time of attending Master studies	-	10.47	2.75
AGE SQUARED	Age, as defined above, squared	+ / -	117.28	63.83
MARK	Final mark of the first degree (between 66 and 110)	-	102.7	8.17
UNI_ECON	1 = degree in business studies 0 = other	+ / -	0.36	0.48
UNI_ENG	1 = degree in engineering or architecture 0 = other	+ / -	0.09	.028
UNI_LAW	1 = degree in law 0 = other	+ / -	0.31	0.46
UNI_NORTH	1 = University attended in North regions 0 = other	-	0.22	0.41
UNI_CENTER	1 = University attended in Central regions 0 = other	-	0.18	0.38
MASTER_AWAY	1 = Master course attended outside the home region 0 = other	-	0.75	0.43
INTERNSHIP	1 = individual did an internship 0 = other	-	0.79	0.41
INTERNSHIP_HOME	1 = internship at "home" (in Basilicata or in the provinces of Bari and Salerno) 0 = other	+	0.15	0.36
NO_PREF_HOME	1 = Basilicata is not the preferred location 0 = other	-	0.64	0.48
UNEMPLOYED	1 = unemployed 0 = other	+ / -	0.15	0.36
HIGHMOB	1 = individual changed its jobs more than 3 times between the first and the current employment position 0 = other	-	0.11	0.31
MASTERYEAR	The year when master course has been attended	+ / -	7.53	2.21

Table 2 Modelling the probability of staying in the home region: logit regression results

<i>Dependent variable: HOME</i>	<i>Coeff.</i>	<i>Marginal effect</i>
MALE [°]	0.329 (1.55)	0.052 (1.57)
CITY [°]	0.366* (1.76)	0.070* (1.71)
MARK	-0.014 (1.13)	-0.003 (1.11)
AGE	0.428* (2.45)	0.075** (2.36)
AGE SQUARED	-0.017* (2.27)	-0.003** (2.21)
UNI_ECON [°]	-0.612* (2.21)	-0.124** (2.08)
UNI_ENG [°]	-0.870* (2.07)	-0.184* (1.87)
UNI_LAW [°]	-0.060 (0.22)	-0.011 (0.22)
UNI_NORTH [°]	-0.098 (0.39)	-0.018 (0.38)
UNI_CENTER [°]	-0.242 (0.86)	-0.045 (0.80)
MASTER_AWAY [°]	-0.910** (3.20)	-0.194** (3.37)
INTERNSHIP [°]	-0.585** (2.35)	-0.117** (2.20)
INTERNSHIP_HOME [°]	1.015** (3.13)	0.130** (2.62)
NO_PREF_HOME [°]	-0.989** (4.86)	-0.213** (4.36)
HIGHMOB [°]	-0.523 (1.58)	-0.104 (1.41)
UNEMPLOYED [°]	3.520** (7.87)	0.216** (3.41)
MASTERYEAR	-0.210** (4.32)	-0.035** (3.14)
Constant	1.45 (0.92)	
N. Observations	700	
LL	-324.89	
Pseudo R2	0.315	

Absolute value of z statistics in parentheses

* significant at 10%; ** significant at 5%

[°] dy/dx is for discrete change of dummy variable

Table 3 Modelling the location choice: descriptions of the explanatory variables

<i>VARIABLE</i>	<i>Description</i>	<i>Expected sign</i>	<i>Source</i>
INCOME PER UNIT OF LABOUR	Income per unit of labour (employee) (current Euro)	+	Istat
UNEMPLOYMENT RATE	Regional unemployment rate (%)	-	Istat
REGIONAL GROWTH	Growth rate of the regional Gross Domestic Product (3 years)	+	Our calculations on ISTAT data
PREF_BASILICATA	Region specific dummy variable; equals 1 for Basilicata in the choice set if the individual have expressed a preference for the home region in her job-market search activity after completion of the master course	+	Questionnaire
DISTANCE	Distance from the province of origin (Potenza or Matera) to each Italian regional capital, Distance is expressed in 100 KM by car	-	Our calculations
DISTANCE SQUARED	Distance (as calculated before) squared	+	Our calculations
PAST MIGRANTS	Sum of migration outflows of individuals with high school or university degree from Basilicata to each Italian region, The variable is calculated summing flows for the last 5 years preceding the year of completion of the master course,	+	Our calculations on ISTAT data
CULTURE	Expenditure per capita at a regional level for theatrical and musical performances (thousand of lire - constant price 1999 - values have been deflated using the consumer price index)	+	Istat calculations on SIAE data
CRIME1	Percentage of micro-crime offences out of the total number of declared offences	-	Istat
CRIME2	Number of violent episodes of crime per 10000 inhabitants	-	Istat
POPULATION DENSITY	Index of population concentration; resident population in the provincial capital / (total resident population in the province) - (resident population in the provincial capital)*100 (data 1999)	+/-	Istat
UNDERGRADUATE STUDIES LOCATION	Dummy variable; equals 1 for the region where the individual attended university and 0 otherwise (note: University of Salerno and Bari are considered in this study "home" (Basilicata) locations due to geographical and cultural proximity)	+	Questionnaire
POSTGRADUATE STUDIES LOCATION	Dummy variable; equals 1 for the region where the individual attended master studies and 0 otherwise (note: Salerno and Bari are considered in this study home (Basilicata) locations)	+	Questionnaire
INTERNSHIP LOCATION	Dummy variable; equals 1 for the region where the individual did the internship and 0 otherwise	+	Questionnaire

Table 4 Modelling the location choice: Conditional Logit Estimates

<i>Dependent variable: CHOICE</i>	<i>Model estimates</i>
INCOME PER UNIT OF LABOUR	6.060** (3.48)
UNEMPLOYMENT RATE	-0.752* (1.68)
REGIONAL GROWTH	0.368** (3.21)
PREF_BASILICATA	1.661** (5.38)
DISTANCE	-0.909** (4.69)
DISTANCE SQUARED	0.071** (4.43)
PAST MIGRANTS STOCK	1.567** (15.12)
CULTURE	1.436** (3.46)
CRIME1	-5.078** (5.58)
CRIME2	-0.800** (2.21)
POPULATION DENSITY	0.292 (1.63)
INTERNSHIP LOCATION	2.316** (16.03)
UNDERGRADUATE STUDIES LOCATION	0.966** (6.66)
POSTGRADUATE STUDIES LOCATION	0.9795** (7.15)
LL	-652.99
McFadden's R2	0.639
BIC	-2464.74

What is **scotecon.net**?

scotecon is the Scottish Economic Policy Network. It is a network of economists based in Scotland's universities which aims to stimulate academic research on the Scottish economy, particularly in those areas of interest and concern to the Scottish Parliament.

The network concentrates on increasing the quality and quantity of evidence-based research to inform policy and debate in areas such as education, enterprise, the environment, exclusion, health, rural affairs, training and transport.

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The Scottish Higher Education Funding Council (SHEFC) funds the network under its Research Development Grant Scheme.

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