The Determinants of Actual Migration and the Role of Wages and Unemployment in Albania: an Empirical Analysis

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Abstract

This paper explores the determinants of internal migration in Albania, applying a neoclassical migration theory. A gross migration function and a propensity to migrate function are estimated using aggregate wage and unemployment differentials.

The data source for the empirical investigation is the "Living Standard Measurement Survey for Albania" (2002).

Controlling for personal characteristics and district-level effects, unemployment and wage rates for each of the 36 districts in Albania were computed: the relevant differentials were used to test the neoclassical migration function.

The results confirm the existence of a relationship between migration and wages at origins and destinations, while an effect of unemployment differentials on migration was not found.

Moreover, the estimated coefficients of the individual variables in the earning function give support to the human capital prediction that migration is undertaken to maximize the personal earning potential.

I. Introduction

Albania is one of the economically least developed countries in Europe: after the collapse of the communist regime a substantial growth was achieved but the poverty at the household level is still very high. According to a study conducted to measure and monitor poverty in Albania by the World Bank (De Soto; Gordon; Gedeshi and Sinoimeri, 2002), 29.6% of Albanians are poor, half of whom belong to the category of extreme poverty. The assessment reveals that 46.6% of Albanians live below the poverty line of 2$ per capita a day, while 17.4 % survive with only 1$ per capita a day.

A strong link exists between poverty and unemployment: more than half of families with an unemployed household head are poor and the situation is particularly difficult in the rural districts. The registered unemployment rate is 14.5 percent for the 2001, which rises to 15.3 percent, extending the standard definition of unemployed to seasonal workers and discouraged workers.

The high rates of unemployment and the severe poverty experienced by the household may have induced strong pressure toward migration.

Albanians, among other transitional countries populations, are the most inclined to leave their country. According to a study conducted by the International Organization for Migration (see Stacher and Dobernig, 1997), in 1993 over half of Albanians were willing to move and more striking, a fifth of them permanently.

Statistics are poor, partly due to the irregular nature of much of migration, but most rough estimates of migration suggest that at least 15% of the population lives abroad and 40 percent of the people have some relatives settled outside the border of the country (UN, 2002).

External migration is not the only pattern in Albania, as there is a high rate of internal migration as well.

The most common form of internal migration is urbanization: the urban population has risen from 31.8% in 1970 to 42.0% in 2000 (UN, 2002); however, migration occurs also from the internal areas toward the coastal regions and from the north to the south, because economic conditions are less severe in the southern than in northern areas.

The first attempt to analyse the determinants of migration can be tracked back to Smith (1776) and Ravenstein (1889)[1], who first modelled migration as a result of an individual utility maximization subject to a budget constraint.

[1] Cited in Greenwood, 1997

Individuals seek to maximize their incomes moving to places where the wages are higher: therefore, the main engines of the decision are wages differentials, which result from geographical differences in demand and supply in regional labour markets.

Within this theory, which has been labelled as the *neoclassical approach*, an important extension was presented by Todaro (1969) and Harris-Todaro (1970), who relaxed the assumption of full employment in the labor market and introduced in the utility function the probability of employment in the destination region: migration was expressed as a function of expected rather than actual earnings differentials.

Following the main assumptions of the neoclassical model, Sjaastad (1962) introduced a distinctive approach in studying migration. The key issue is considering migration as an investment decision, or "as an investment increasing the productivity of human resources" which gives returns but bears also costs. In this framework, which is known as the *human capital theory*, an individual computes a cost-benefit calculation in order to evaluate the migration decision.

The distinctive feature of the approach is related to the personal evaluation of the future earnings and costs obtained by moving to another place.

"Depending on the skill levels, agents are calculating the present discounted value of expected returns in every region, including the home location" (Bauer and Zimmermann, 1999). The money returns to migration are expressed in terms of positive increment of the individuals' earnings stream: variables like occupation, age, sex, education, experience and training affect earnings and indeed give the estimates of the returns to migration.

The main contribution is the importance the heterogeneity of individuals assumes in a migration decision: individuals, given the same average wages differentials, can display different propensity to migrate, because of the different remuneration the human capital characteristics have at destination and origin. Indeed, a person might move from location *j* to location *i*, even though the average income in location *i* is lower than in location *j*, because his personal skills provide a lifetime income increase.

The lack of relevant household data has constrained any attempt to analyse the process governing migration behaviour in Albania, its determinants and any potential relationship with the poverty faced by the households.

This research aims to fill the current gap in knowledge, providing a detailed analysis of wage and unemployment equations at individual micro level as well as examining the internal migration pattern.

The innovative feature of this work come from the fact the no structured household surveys were available prior the LSMS 2002, which is the data source for this research: this limitation prevented any worthwhile analysis on the Albanian experience.
Furthermore, this is the first time the data set is used to study migration in Albania.

The ultimate objective is to study internal migration at aggregate district level, applying a neoclassical model: an internal migration function is estimated using aggregate wage and unemployment rate differentials. In order to take account of the heterogeneity of the population, the wages and unemployment variables have been endogenously calculated. Individual-level wage and unemployment equations are estimated, emphasizing the difference between migrants and non-migrants. Further insights are provided by these equations, interpreting the coefficients of the migrants and non-migrants variables and assessing the existence of economic gains from migration.
The remainder of the paper is organized as follows. Section II presents the empirical studies. Section III details the data set used and provides a preliminary description of the differences between migrants and non-migrants. Section IV outlines the methodology adopted. Section V presents the econometric analysis and documents the empirical support on the neoclassical migration theory. Chapter VI provides some conclusions and the limitation of the study.

II. Empirical Studies

Empirically, many macro-studies exist, estimating the relationship between the proportion of people migrating and average wages and unemployment rates in different locations.
However employing aggregate data, the contribution of the human capital theory is missed.
On the other hand, few attempt to provide estimates of micro-functions appeared, because of the difficulty of dealing with unobserved variables.
The constraint faced in examining micro migration is that information on both the destination and the origin is needed; however, for those who move, the prior economic variables at origin are not available and for the non-movers the wages they would gain and the unemployment probability they would face in the destination are not provided.
Only if the population is homogeneous, the average income and unemployment rates in different destinations can be extended to all individuals, but as far as personal human capital characteristics impact on these indicators, this aggregate information is not sufficiently reliable to study individual migration.

To overcome this problem, wage and unemployment equations can be estimated to predict potential economic information in alternative locations, applying individual personal characteristics.
Nakosteen and Zimmer (1980), Robinson and Tomes (1982) and Lucas (1985), applied this framework, estimating two income equations (one for migrants and one for non-migrants) as well as an equation describing a dichotomous migration decision[2]. Obtaining consistent estimates of the earning equations, the fitted values are used to draw a migration function.

III. Description of the Data

The data employed for this study are extracted from the Living Standard Measurement Survey (LSMS) conducted in Albania between April and September 2002. The survey was undertaken by the national Institute of Statistics and the World Bank jointly. Details of how they conducted the survey are reported below.
The country was broken up into four regions (Coastal Area, Central Area, and Mountain Area and Tirana) while the cities and the villages were divided into Enumeration Areas (EAs). 125 EAs were selected respectively in the Coastal, Central and Mountain Area, while 75 EAs in the Tirana area, for a total of 450 Primary Sampling Units.
Finally 8 Households for each unit, for a total of 3600 households, were extracted.
The LSMS questionnaire contains general information on the households and migration details of the members, which comprise their origin and destination municipality, the reasons for moving, the date of moving, and any failed attempt to migration. Moreover, education qualifications and labour details, which include the employment status of the individuals, are specified.

For the purpose of the analysis, only persons aged between 15 and 64 were considered. Because of missing information about the employment status of some individuals and about the working details of other individuals, two different samples were constructed.
The first sample (A) comprises 2117 people and it gives information on individual characteristics, on occupation, industry and experience, plus information on regional characteristics.
The second sample (B) merges 5960 people and it gives details on the employment status of the individuals –whether they are employed or unemployed- plus personal demographic information and geographical residence. More over both samples contain the migration status of the individuals,

[2] Robinson and Tomes conducted the analysis with Canadian data, while Lucas conducted the study in the context of Botswana.

dividing those who are still living in the municipality of born, from those who moved out and lived in a different area in the previous 10 years.

Preliminary Analysis of the Data

Table AI presents a comparison of migrants versus non-migrants: columns two and three provide the proportion of people belonging to the different categories in the two sub-groups (p_M and p_{NM}), while an analysis of the statistical difference of the two is provided in the last column. The individual details are taken from sample B (which is more complete as it embodies the other one), while the occupational details are extracted from sample A.

The purpose of the analysis is to draw out any distinction between migrants and non-migrants and to put emphasis on the characteristics the two groups are endowed with. It is common to believe that the migrant population is not randomly selected from the sample, which means that there are idyosincratic elements that are marking the group (Greenwood, 1997).

Non-parametric t-tests confirm this hypothesis since, among the personal details grouping, most of the categories show a distinct pattern between migrants and non-migrants.

The most interesting results are that migrants are younger than non-migrants: 35% of the movers compared to only 24% of non-movers are concentrated in the 26-36 age group. On the contrary, 56% of local natives are older than 37 years old, while the proportion among migrants reaches 46%. According to the human capital theory, migration occurs to maximize the expected earnings of individuals: indeed, "given a longer life horizon, the present value of any given stream of income differences is greater for the young, offering an enticement to move which diminishes with age" (Lucas, 1997). Lucas reports also that, as long as young people have a higher discount rate than older people, an opposite result may be induced. However, this second assertion is contradicted by the main empirical results, obtained applying data from U.S., Britain, Germany, Botswana (see Bauer and Zimmermann, 1999).

There are other reasons affecting this common pattern: job security and family ties, to the extent that represent elements that are more important for older persons than for young, may discourage older person from migrating (Greenwood, 1975).

The educational attainments put another wedge between the two groups; the summary statistics show that migrants are more educated than non-migrants: nearly 20% of movers are graduates or above, while among non-movers only 9% obtained these qualifications. In both sub-samples, the

majority of people went to primary school, but there is 10 percentage point difference between the two groups.

Polacheck (1977) conducting a similar analysis among the U.S. population points that while male movers have more education than male non-movers, the reverse is true for females. However, the Albanian sample does not agree with a similar conclusion, as female migrants are highly educated compared to female non-migrants[3].

Education is supposed to increase employment information and job opportunities and therefore it reduces the risk and uncertainty of migration.

Moreover, education decreases the deterring effects of distance, which is another important element hindering migration (Greenwood, 1975).

Regarding the occupation characteristics of the two groups, it is not surprising that migrants are a less experienced category than non-migrants: 48% of movers compared to 29% of non-movers have less than 2 years experience. On the contrary, 33% of non-migrants compared to 11% of migrants have more than 10 years experience. According to Mincer (1981), "the initially steep and later decelerating declines of labour mobility with working age are in large part due to the similar but more steeply declining relation between mobility and length of job tenure". The theoretical justification for this behaviour is linked to the increasing firm-specific skills an individual gains, working for long time in a firm: as far as these components of human capital are not easily transferable, they create a sort of attachment to the firm, reducing the incentive for migrating.

IV. Methodology

This paper provides a test of the neoclassical theory at aggregate district level, estimating two migration equations: a first function, where the dependent variable is the rate of migration from region *i* to region *j* and a second function, capturing a dichotomous outcome, which is the existence of a migration flow from region *i* to region *j* or in other words it captured the propensity to migrate[4].

To simplify the analysis, 5 districts were selected as destination regions and the choice was made looking at the absolute number of migrants settled in the specific cities, in order to draw a precise pattern of migration flow.

Tirana, Durres, Vlore, Fier and Lushnje resulted to be the cities where the migration flow was mainly directed. The origin areas on the contrary are extended to all districts in Albania.

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[3] See Cattaneo 2003

[4] The migration flow analysed covers 10 years.

Further simplifications are conducted in the first model: first, this is a model of gross-migration; the migration flow was defined looking at one direction only, and what is captured is the rate of out-migration from region *i* to region *j*.
At this point, a second simplification was adopted: in order to obtain a rate of migration, the absolute number of migrants born in region *i* and migrated in the last 10 years to the destination *j* was weighted by the cumulative population settled in the origin regions in the last 10 years, assuming zero population growth[5].

$M_{ij} = f(w_j - w_i; u_j - u_i)$ *j*= Tirana, Durres, Vlore, Fier, Lushnje; *i*=1…..36

The district level wages and unemployment, included in the migration equation, are determined from background individual characteristics. Two functions are estimated at micro level.
The first regression adopts a Mincerian wage equation, augmented with individual characteristics and 36 district dummies (X), where the latter capture the areas where the sample respondents lived at the time of the survey.

$lmW_i = f(X_i, D_{ij})$ *i*=1….n *j*=1….36

Without imposing a common intercept effect among the observations, each district dummy is free to impact differently on the dependent variable and some unobservable district fixed effects are controlled for; indeed the estimated coefficients of the district dummies represent the ceteris paribus wage rates for each region.

The second regression is an unemployment probit function, where the probability of being unemployed is a function of personal characteristics and district dummy variables.

$u_i = f(X_i, D_{ij})$ *i*=1….n *j*=1….36

The estimated coefficients of the district variables are interpreted as effect on the standardized probit index for each district. The area of the cumulative density function up to the index value represents the ceteris paribus district unemployment rate $[\Phi(\gamma_i)]$, where γ_i is the estimated

coefficient of the *ith* district dummy variable and Φ is the Cumulative Density Function of a Standard Normal Distribution.

V. Empirical Work

The Wage Determination Process

The wage function is specified to include personal characteristics such as gender, age, education, experience (embodied in the tenure variables), marital status, and other relevant information such as occupation and industries variables.

According to Mincer (1978), the inclusion of age, age squared, education and experience in the earnings equation is assumed to capture the human capital measures: the human capital theory suggests that demand for education reflects the decision to undertake an investment in order to maximize the lifetime earnings.

Moreover, the equation is augmented using a gender dummy to control for unequal treatment across gender groups, industry dummies to control for compensating differentials, monopolistic market power or different input intensity across industries, occupation variables for skill level effects and marital status variables to proxy for family background considerations.

Finally, controls are also included for private enterprises, urban residence and the number of hours worked per month.

In agreement with the literature developed by Mincer (1974), the standard semi-log function is used and the dependent variable is expressed as monthly log wages.

Results : Final Specification[6]

In the final specification (see Table A3), the level of earnings is explained by a set of personal characteristics, by a dummy variable for migrants[7], which allows a distinct intercept effect between migrants and non-migrants and captures a location specific human capital and interactions between the migrate dummy and the age, age squared, education, tenure, and occupations. A testing down procedure was applied: starting from a general over-parameterized regression, the least statistically significant interactions were removed.

The description of the variables is presented in Table A2.

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[5] For further details about the methodology, see Cattaneo 2003

[6] For information regarding how the final specification is obtained, see Cattaneo 2003

The error term is assumed to have all the conventional characteristics required in a linear regression model.
The model suffers from heteroscedasticity, the standard errors are adjusted using the robust variance-covariance matrix attributable to White (1980).

Table I presents the rate of returns to the exogenous variables on log monthly wages: interaction terms represent differences in potential earnings between movers and non-movers.
Males enjoy higher wages than females: in fact a man, regardless of being migrant or a non-migrant, earns 19% more than a woman per month, on average and ceteris paribus, perhaps confirming the existence of some form of labor market discrimination.
Overall the marital status variables don't reveal a different impact on wages: from this analysis it appears that married people earn 0.3% more than single persons, while the divorced earn 0.6% less than singles. However, as reported in Table A3, marital status coefficients are highly insignificant. The signs of the coefficients confirm the results in the literature (Chiswick 1978, Chiswick 1983, Grant and Vanderkamp 1980).
The variables which demonstrate the most different effect on earnings are the education dummies and they all agree in showing higher returns to education for migrants than non-migrants.
Those who completed secondary school, on average and ceteris paribus, earn slightly less than 6% more than those who have only primary education or no education. On the contrary, the rate of return to secondary education for non-migrants is 1.
The vocational I return for migrants is very high: apparently 2 years of vocational education ensures 33% higher earnings than primary education. However the sample from which the result is drawn shows that only 7 people belong to this category[8], and the limited size may have affected the average estimate. The same issue occurs in the postgraduate category for migrants, as the estimation is based on only 6 persons.
Excluding Vocational I, for migrants the rates of return to education are increasing with increased education achieved, while for non-migrants the pattern has its peak with university and it declines with post-graduate level.
Moreover, the migrants' rates of return in each category are much higher than the non-migrants' rates of return: for example a university postgraduate earns 10% more than a person with no education or primary education if he/she is a migrant and only 3% more if he/ she is a non-migrant.

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[7] The migrant status defines all individuals who moved from the place of born after 1992
[8] The proportion of migrants belonging to the 2 years vocational category is 0.022: given the total number of migrants, it comes out to be 7 persons in this group (319*0.002).

The size of the estimated returns to a university qualification for migrants is quite in line with the results obtained for other transitional economies (see for example Newell and Reilly, 1999). However it seems that non-migrants'returns to university qualification is quite low, placing Albania among those countries that have the lowest rewards.

The limit of the human capital theory, however, is that, embodied in the standard education and experience variables, there can be other elements, such as ability, motivation and the so-called D-factor (drive, dynamism, doggedness and determination) that postively affect earnings, but that cannot be observed and measured. In addition there may be differences that arise from the socio-economic background that cannot be captured. If the direction of the correlation between the unobserved variables and earnings is postive, the coefficients of the human capital variables are biased upward.

Economic theory suggests that there are important differences between migrants and non-migrants due to a self-selection mechanism: "if greater labor market ability and motivation raise earnings relatively more than they raise the cost of migration, the rate of return from migration is greater for the more able and motivated, and they will have a higher propensity to migrate" (Chiswick ,1978). Indeed, migration turns to be more profitable for the more able and the more highly motivated.

The self-selection mechanism acts to increase the rate of return of migrants as long as they possess more innate ability and motivation, given the same level of schooling, age, and other demographic characteristics; these results may support this hypothesis.

TableI
Rate of Returns for the OLS Wage Equation: Migrants, Non-migrants (%)

Variable	*Marginal return Migrants*	*Marginal Return Non-Migrants*
Male[9]	19.06	19.06
Marital status		
Married	0.29	0.29
Divorced	-0.62	-0.62
Schooling[10]		
Secondary	5.81	0.947
Vocational I	32.82	5.68
Vocational II	5.98	2.51
University	6.78	3.37

[9] The returns to dummy variables are computed applying the following formula:
Rate of return= (Exp(β) –1))*100, where the β coefficients are those reported in Table A3.
[10] The rates of returns to the educational category are computed assuming that: secondary school requires 5 years to be completed, vocational I needs 2 years, vocational II 5 years, university 4 years, postgraduate 3 years.

Variable	*Marginal return Migrants*	*Marginal Return Non-Migrants*
Postgraduate	10.46	3.07
Urban	11.71	11.71
Work experience		
Tenure1	32.07	-5.17
Tenure2	21.58	4.23
Occupation		
Professionals	-24.22	-9.46
Technicians	-31.54	-26.06
Clerks	-63.7127	-34.9112
Service workers	-48.0653	-38.2385
Skilled agricultural	-65.07	-53.57
Trades workers	-46.08	-35.31
Plant and machine operators	-42.57	-24.26
Elementary occupations	-49.30	-44.91
Industry		
Transport and communication	24.16	24.16
Public administration	32.09	32.09
Electricity. gas and water	24.71	24.71
Wholesale trade	11.42	11.42
Health	-1.12	-1.12
Hotels and restaurant	-3.57	-3.57
Mining	50.14	50.14
Financial Intermediation	124.86	124.86
Real estate	11.7	11.7
Agriculture	40.00	40.00
Education	0.5	0.5
Social and community services	22.32	22.32
Private	39.83	39.83

Source: Author's tabulation from Table A3

Living in an urban area has a strong impact on earnings: on average and ceteris paribus those who live in cities earn 12% more than people resident in the rural area. One possible explanation is the

existence of compensating differentials for lower living costs and more pleasant environment enjoyed in the rural area.

Tenure has a more visible impact on wages for migrants than non-migrants and shows contrasting patterns on earnings between movers and local natives.

A migrant with less than 2 years experience enjoys 32% higher earning than a migrant with more than 10 years experience. On the contrary in the non-migrant category, less experienced persons earn less than those who have more than 10 years experience, even though the group more favoured within non-migrants is the intermediate category. However, the coefficients of the tenure dummies are not statistically significant.

As Mincer (1974) noticed, the impact of experience on earnings is positive and initially strong but the effect of additional years declines with the passage of time. The explanation for this U-shaped pattern is that "increased earnings are a reward for worker's investment in implicit and explicit contracts" (Ehrenberg, Smith 1991) but in the long run "physical deterioration" or the so called "*vintage effect*" can prevail on the former.

The fact that migrants show an opposite tenure-wage pattern is not striking: as long as migration is captured within the last 10 years, migrants do not have long attachments to their current job and didn't develop strong firm specific experience. On the contrary non-migrants are a population less homogeneus and within the group both high and low experience individuals are found.

Migrants show higher returns to every tenure classes than non-migrants: a possible explanation for these results can be due to the specific kind of training developed by movers; in fact they may have favoured a wide variety of jobs to a more firm specific attachment and according to Mincer (1974) "experience-earning profiles are steeper the smaller the proportion that is firm specific".

Within non-migrants, the pattern of returns of different occupations are quite in line with what it would be expected: managers are those who earn the most, while the less favoured group is the skilled agricultural, who earn 54% less than the former category.

For migrants the estimates would suggest a different story, with clerks the lowest-payed group together with skilled agricultural. However, this result may be the consequence of small-cell bias, given the limited number of people belonging to the clerk category.

The classification of the occupation category, however, is quite poor, as it hardly captures the skill differentials embodied in the available occupations.

The industry dummies were introduced to capture some wage variations which cannot be explained by standard competitive theory. The literature has found results showing the existence of industry wage differentials and strong regularities in the pattern of industrial premium (Krueger and Summers 1988) were highlighted.

The estimated results confirm the hypothesis, as the coefficients are highly significant in many cases; the most advantaged category is the financial intermediation, as one would expect; compared to the base manufacturing group only health and hotels cataegory show lower returns. It is surprising that the agricultural sector provides higher returns than the manufacturing one: an average employee in the agricultural sector earns wages that are 40 per cent higher than employees in the manufacturing industry. An explanation for the poor manufacturing performance may be linked to the liberalization of the economy, which negatively affected those sectors that lack competitiveness.

Studying the industry wage differentials in U.S., Krueger and Summers (1988) report that the industry spreads ranged from a high of 37 per cent above the mean to a low 37 per cent below the mean. Even though the results of the U.S. study and those from Albania are not directly comparable, since in the former they normalize the estimated differentials as deviation from the weighted mean differential, a rough evaluation suggests that in Albania the spread is higher: the differentials vary from a 124 per cent above the base category to a 4 per cent below the base category. However, the spread might be overestimated, since it does not control for the weight each industry has on the total distribution. Moreover, because of the central planning legacy, it is quite surpricing to discover a wider spread in Albania than in U.S.

Working as a private enterprise provides wages that are 40 per cent higher than working for a public owned institution, on average and ceteris paribus. The coefficient appears to be quite high for a transitional economy, event though the existence of a large and positive private premium was detected by the literature (for example, Reilly (2003) analysing the Serbian private sector, discovered an average wage premium of about 31% in 2000).

The age effect can be calculated from Table A3: the estimated age coefficient for migrants is 0.054, while the estimated age-squared coefficient is –0.00069. For non-migrants the coefficients are respectively 0.02 and –0.0002.

The signs of these estimates prove that wages increase with age, but at a decreasing rate, implying an inverted U-shape dynamic: this result is consistent with the human capital theory.

The effect peaks after 39 years for migrants and after 45 years for non-migrants[11], on average and ceteris paribus.

The marginal effects of age, computed at average values, are 0.0026 for migrants and 0.0024 for non-migrants; the formula applied is:

[11] The value is derived taking the partial derivatives of log wage with respect to age. For migrants the maximum occurs at 39.13= 0.054/(2*0.00069), and for non-migrants at 45.04= 0.021/(2*0.00023).

$$\frac{\partial lmwage}{\partial Age} = (\beta_a + 2*\beta_{a\_sq} * \overline{Age})$$ [12]

An additional year raises wages by 0.26 per cent for migrants and 0.24 per cent for non-migrants on average and ceteris paribus. The equality of the effects cannot be rejected by the data only marginally[13].

The results slightly confirm the findings of some studies on this literature: as Borjas (1987) wrote "the age-earnings profile of immigrants is steeper than the age-earnings profile of the native population with the same measured skills".

Finally, the district wage rates were obtained introducing district dummy variables in the regression. Before calculating the values of the wage rate for each district, a Wald test was conducted in order to infer whether the data support district level effects on earnings.

The statistic of the test is 1.576, which highly rejects the restrictions on one unique intercept among the 36 districts.

Summarizing, two conclusions can be highlighted: the positive effect of internal migration on income, detected using the Albanian sample, gives support to the human capital theory; this theory in fact predicts that migration is an investment decision, or "an investment increasing the productivity of human resources" (Sjaasstad, 1962); the money returns to migration are expressed in terms of positive increment of the individuals' earnings stream.

Some unobserved characteristics can induce higher returns for migrants compared to non-migrants: there might be a self-selection mechanism which results in migrants to be more able and more highly motivated; moreover "migrants can have stronger investment incentives than native workers and hence immigrant earnings grow at a faster rate than native earnings" (Borjas 1987).

The second conclusion is that migrants may have lower location specific skills compared to non-migrant, which is suggested by the negative sign of the intercept dummy variable (see Table A3). This may be due to initially low knowledge of the local market and its opportunities, and/or lack of family networks and contacts which would help to find the best jobs available in the locality.

[12] The average age for migrants is 37, while for non-migrants is 40.

[13] The test statistic is 1.925 and the two-tail critical value at 5% significance level is 1.960.

The Unemployment Model

The second step of the work requires the estimation of ceteris paribus district unemployment levels.

A probit model is used to analyse the impact of personal characterisics on the probability of being unemployed. The adoption of this methodology was exstesively used in the literature (see Nickell, 1979, 1980; Pissarides and Wadsworth, 1989, 1990; Brown and Session, 1996).

As in the wage equation, particular emphasis is given to the migrant variable: the key issue is whether being migrant has a distinctive effect on the probability of being unemployed and whether other variables are also responsible for different patterns.

A first glance at the sample statistic would suggest that the influence of the migrant attribute is quite weak: in fact within the non-migrant population the proportion of unemployed is 12%, while limiting the analysis to the migrants, the proportion rises to 14%, but the difference is not statistically different at conventional level[14].

A second insight comes from a Log-likelihood ratio test[15], where the division of the population into two sub-samples is not rejected by the data, but the value of the statistic lies marginally close to the rejection area. However, there might be some variables which express an independent impact on the probability of being unemployed, requiring some interactive dummies.

A brief comment is required: the problem of hidden employment is quite marked in transitional economies, which may suggest that the official estimates of the unemployment rate are mis-representing the real situation. In particular, among non-movers, the true unemployment rate may be lower than the one reported, which means that the data available are not able to capture potential differences in the unemployment likelihood between non-movers and movers.

Results: final specification

In the final specification (see Table A4), estimated by maximum likelihood technique, the independent variables are a set of personal charactesitics, a dummy variable for migrants and interactions between the migrate dummy and gender, age, married and divorced. A testing down procedure is again applied to remove the least statistically significant interactions[16].

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[14] See Table A1

[15] The test produces a X^2 (with 9 degrees of freedom) of 17.9 and he critical value is 16.92.

[16] In the final specification, with 4 interactions, the Log-likelihood ratio test produces a X^2 of 14.66.

The dependent variable takes the value of one if a person resulted unemployed at the time of the survey and 0 otherwise.

The definition of unemployment adopted follows the International Labour Organization (ILO) classification: unemployed are those who have no job but are actively looking for one. The employed group combines employees and the self-employed.

Table II presents the estimated marginal and impact effects of the independent variables.

TableII
Marginal Effects for the Probit Unemployment Function: Migrants, Non-migrants

Variable	*Marginal effect Migrants*	*Marginal effect Non-Migrants*
Male	-0.038	0.006
Age	-0.006	-0.003
Marital status		
Married	0.032	-0.034
Divorced	0.094	-0.031
Urban	0.202	0.202
Schooling		
Secondary	-0.023	-0.023
Vocational I	0.004	0.004
Vocational II	-0.014	-0.014
University and Postgraduate	-0.130	-0.130
Migrate	0.056	-

Notes: Partial derivatives of E[y] = F[*] with respect to the vector of characteristics computed from Table A4.

A *ceteris paribus* analysis shows that a non-migrant male with average characteristics is 0.6 percentage points more likely to be unemployed than a female, while within migrants, a male is 3.8 percentage points less likely to be unemployed than a female; however the coefficient of the male dummy is highly insignificant, while the coefficient of the interaction male dummy is slightly not significant at the 5% level (t-test = 1.943). This result suggests that at least among non-movers there is not a marked gender division in the unemployment effect. This result confirms the findings in the general literature that gender differences in unemployment rates in most countries are small (Layard, Nickell and Jackman, 1991).

The age coefficient shows that within both groups, young people are more likely to be unemployed, and the effect is more pronounced for migrants than non-migrants. In fact, in the first group an additional year decreases the probability of being unemployed by 0.6 percentage points, while for

the second group the effect decreases to 0.3 percentage points. The theoretical explanations of this common age-unemployment pattern are many: first "young workers are less able to acquire significant stocks of firm specific human capital by the time of downturn in demand" (Brown and Sessions, 1996); second they lack seniority and hence they are more vulnerable to job- dismissals and third, as the search theory would explain, they are more inclined to wait till they find the most suitable job, as they face lower forgone wages and long potential income streams to successful matches.

Some authors (Brown and Sessions, 1996; Hughes and Hutchinson, 1988) were predicting a U-shape pattern between age and unemployment: the probability of being unemployed decreases until a certain age and it increases afterwards; since productivity is supposed to decline with age, older workers are more subjected to lay off. However, the sample data rejected this hypothesis, as an age-squared effect was poorly determined[17].

It is worth noting that the family background variables show an opposite impact on unemployment between migrants and non-migrants; within migrants, single people are the category less affected by unemplyment, on average and ceteris paribus: being married increases the probability by 3.2 percentage points and being divorced increases the probability by 9.4 percentage points .On the contrary, for non-migrants being married or divorced reduces the chance to be without a job. However only married people have a statistically different effect on unemployment compared to single persons.

The theory is more in agreement with the non-movers' results, predicting married individuals to be associated with the lowest risk of unemployment (Layard, Nickell and Jackman, 1991).

The urban variable presents a strong and well defined impact on the dependent variable; the effect is analogous for both groups: those living in the urban area compared to those resident in the rural area are 20 percentage points more likely to be unemployed. This result proves that in Albania unemployment is more an urban than a rural phenomenon.

The education estimates need a little discussion: it is surpricing that an inverse relationship between educational attainment and unemplyment is not well defined. Compared to people with primary education or no education, those with vocational 2 years education are more inclined to be unemployed; moreover it seems that professional schooling is not rewarded as much as secondary general schooling: in fact secondary education compared to primary education reduces the probability of unemployment by 2.3 percentage points, while 4 years of vocational education

[17] Introducing the age-squared variable, both the age and the age-squared variables resulted in a non-significant effect (t-ratio age =0.025; t-ratio age squared= -1.338). On the contrary, without the age-squared variable, the age coefficient is highly statistically significant (t-ratio=-6.720).

decreases the probabilty by only 1.4 percentage points. Both vocational coefficients are not statistically significant at a 5% critical level.

University and postgraduate education exert a significant and strong impact on unemployment: a university degree or postgraduate studies ensure a 13 percentage points reduction in the probability of being unemployed.

Nickell (1979) found a trade-off between the level of education and the probability of unemployment, confirming the assumption that education leads to the accumulation of human capital: indeed, the higher is the stock of human capital owned by a worker, the less firms are induced to lay him off.

A little dissimilar are the findings of Brown and Sessions (1996): they discovered an inverse relationship between education and unemployment, but also some diminishing returns to education "with the largest reduction in risk occurring as we move from those responents with non qualifications to those with minimal qualifications". They also argue that in their study what probably matters is the achievement of a certain qualification threshold rather than a specific level of education.

It is worth calculating the *ceteris paribus* effect of being migrant, computed at average age[18]: a migrant at 35 years old is 5.6 percentage points less likely to be unemployed than a non-migrant.

Finally, district dummy variables were included in the analysis: without imposing a common intercept effect, specific district elements can exert their effect on unemplyment separately.

A log-likelihood test was computed to test whether the data support a fixed district effect on unemployment and it resulted the support toward the unrestricted model[19].

The estimated coefficients of the district variables are used to compute the district level rates relevant to study the migration function.

Concluding, the data reveal that migrants cannot be considered a distinct or less favoured category from non-movers: the coefficient of the migrant dummy is positive but not statistically significant; four variables required interaction dummies, but a clear and easily interpretable justification for this pattern is not evident; the time spent in the host region resulted in a non

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[18] The effect is calculated using the following formula:

$$z = \beta_1 M + \beta_2 M * \overline{Age}$$

$$\frac{\partial z}{\partial M} = \beta_1 + \beta_2 \overline{Age}$$

where the Greek letters represents the marginal effect estimates.

[19] Log-Likelihood ratio test= 318.31

significant effect on the probability of unemployment, suggesting that a longer time in the destination district does not provide any positive impact on the unemployment likelihood.
In conclusion it emerges that the distinction between migrants and non-migrants is quite frail, which confirms the findings of the descriptive data analysis (Table A1).
However it is worth noting that the function adopted to model the likelihood of unemployment is quite austere: more expanatory variables would be necessary to give a more precise specification, but the limited availability of detailed personal and other information restricts the analysis.

The Migration Function

In the following section, the neoclassical migration approach is tested: this theory treats economic opportunity differentials, such as earnings, as the primary driving forces of reallocation.
Empirically, alternative functional forms have been adopted and different hypotheses tested.
The typical function was expressed in double logarithmic form, because of the good fits that this form provides and because of the direct elasticity interpretation of the coefficients, but lately logistic models were used to capture information on the frequency of migration at individual level.
The economic variables are assumed to impact on the migration decision either symmetrically, which means that "origin and destination conditions are thought to exert equal but opposite effects" (Schultz, 1982), or differently. In the first case, the differentials of the origin and destination variables are included in the equation, while in the second case the origin and destination conditions are included independently.
Moreover, the urban income variable has sometimes been replaced by expected wages, implying equal elasticity of migration with respect to wage and unemployment. According to Harris-Todaro (1970), migrants respond not simply to wage gaps, but to urban wages multiplied by the probability of employment.
Finally, alternative measures for migration can be used: gross migration captures a single flow, which is the sum of unidirectional flows from origin *i* to destination *j*.
On the contrary, the flow can be expressed as net-migration, defined as the absolute difference between emigration and immigration in a region, or in other words, the difference between two gross flows.

Results

The previous analysis led to the definition of 36 wage levels and unemployment rates, one for each Albanian district, computed controlling for personal and demographic factors.
An OLS regression with the gross rate of migration as a dependent variable is estimated. Table III presents the results of the equation:

$$m_{ij} = \beta_1 + \beta_2(u_j - u_i) + \beta_3(w_j - w_i) + \varepsilon$$

where, m_{ij} denotes the rate of migration from region *i* to region *j*, u denotes the district rate of unemployment, w the district wage rate, while the subscript *i* refers to the origin region and the subscript *j* to the destination region.
The second specification is a Probit function, estimated by maximum-likelihood technique, where the dependent variable is a binary choice proxying for the propensity to migrate. It is worth emphasizing that in the literature the probit function was typically adopted to capture the individual probability of migrating, rather than a district level propensity to migrate as in this case.
The specifications adopted assume that the origin and destination variables exert a symmetric but opposite effect on migration.
Table IV presents the results of the equation:

$$Prob(y = 1) = \Phi\{\beta_1 + \beta_2(u_j - u_i) + \beta_3(w_j - w_i)\}$$

where $y = 1$ if there was a migration flow at any time after 1992 from district *i* to district *j*, and 0 otherwise.
The number of observation is 175.

Table III
Gross Migration Rates Estimates using OLS

Variable	*Ols Coefficient*
Constant	0.004**
	(0,001)
Unemployment Differential	0.007
	(0,005)
Wage Differential	0.008
	(0,007)
Adjusted R-squared	0.02

Notes: The standard errors, corrected for heteroscedasticity, are given in parentheses. Dependent variable= rate of migration. ** denotes statistical significance at 1% level. *denotes statistical significance at 5% level using two tailed tests

The regression shows very poor estimates: neither independent variables have statistically significant coefficients. However, a strong limitation comes from the way the migration rate was computed. It is a quite crude measure, obtained under the restrictive assumption of zero population growth in the districts.

Table IV
Propensity to Migrate Estimates: Probit Regression

Variable	*Probit Coefficient*	*Marginal effect*
Constant	-0.414** (0.112)	
Unemployment Differential	-0.797 (0.798)	-0.306
Wage Differential	1.579** (0.516)	0.606
Log-likelihood	-112.502	
McFadden R-squared	0.041	

Notes: The standard errors are given in parentheses. Dependent variable= binary choice, taking the value of 1 if a migration flow is observed, 0 otherwise .** denotes statistical significance at 1% level, *denotes statistical significance at 5% level using two tailed tests.

The McFadden R^2 shows that the model, with the full set of exogenous variables, explains 4% of the variation in the dependent variable. The log-likelihood ratio test is 9.71, which compared to a X^2 (2) indicates that the overall relation is significant at the 5% level.

The probit model appears to fit the data on internal migration better: although the unemployment spread variable is not able to explain the flow of migration, the coefficient of the wage differential variable is well determined.

The neoclassical theory of migration predicts that "the probability that an individual will migrate from a given location to a given destination increases as the present value of earnings differential increases, as the observed unemployment differential decreases and as the distance decreases" (Schwartz 1973).

The wage coefficient of the model is in line with the theory: on average and ceteris paribus, a 10% increase in the wage differentials between destination and origin raises the probability of observing a migration flow by 6 percentage points.

The unemployment coefficient suggests that a 10% increase in the unemployment gap, reduces the probability of migration by 3 percentage points, which is the opposite of what it would be expected (given the negative sign of the variable); however the coefficient is not statistically significant at conventional levels (the t-ratio is –0.99).

The results broadly support Hicks' belief (1932) that "differences in net economic advantages, chiefly differences in wages, are the main causes of migration".

In the literature, many examples supporting these results can be presented: Falaris, (1979) using simultaneous equation for migration in Peru, unemployment and wage, concludes that "wages at destination have positive and significant coefficients" but he also found that employment-rate coefficients at origin and destination were not significant.
Nakosteen and Zimmer (1980) argue that "the most significant factor determining migrant status is the migrant earnings differential…the effect of expected monetary gains is to significantly increase the probability of migrating".
Schultz (1982), conducting separate regressions for different educational attainments with data from Venezuela, obtains elasticity of migration rate with respect to destination wages ranging from 1.4 to 2.9. He writes that origin wages rates are a weaker factor explaining migration; moreover, "only for men with secondary or higher education the elasticity of migration with respect to employment is greater than that with respect to wages".
Greenwood (1985) reports that local unemployment rates often show no role in affecting migration, or opposite impact on it.
Herzog , Schlottmann and Boehm (1993), presenting a survey of the empirical literature based on U.S. data, report that four out of eight studies find the unemployment rate to be an insignificant determinant of out-migration.
Pissarides and Wadsworth (1989) fail to find that regional unemployment differentials in United Kingdom, have an influence on migration, but in contrast they find that regional differentials in wages have a strong effect on it.

It is worth noting that there are some justifications for the weak role of unemployment: first the result may depend on the level of aggregation of the population, which is pooled in one group regardless the motives which induce migration: "since higher unemployment rates are likely to be of most concern to the unemployed and perhaps of little or no concern to those who have a job when they move, the effect of higher unemployment rate may not be apparent in studies which use aggregate data" (Greenwood, 1997).
Moreover, unemployed are more likely to move than employed, but they represent a small fraction of the labour force and indeed unemployment does not exert an independent influence on migration.
DaVanzo (1978), taking into account the limits of the previous studies, investigates the role of unemployed on migration: she discovered that "families whose heads are unemployed (…) are indeed more likely to migrate than those whose heads are not searching for different jobs". Furthermore, she finds that "local economic conditions do affect out migration, but only within the subset of people most seriously affected by them".

VI. Conclusions and limitations

The primary purpose of this research was to study the determinants of internal migration in Albania, applying a neoclassical theory.
The analysis has been conducted at an aggregate level, explaining the gross migration flow and the propensity to migrate using inter-district differentials for selected economic variables.
Controlling for personal characteristics and district-level effects, unemployment and wage rates for each of the 36 districts in Albania were computed: the relevant differentials were used to study the migration pattern and test the validity of the theory for Albania.
In the wage and unemployment functions, the distinction between migrants and non-migrants was emphasized in order to detect any significant positive effect of migration on earnings and the likelihood of unemployment.

The estimated coefficients of the human capital variables in the earning function confirmed the existence of dissimilarities between the two groups: the most interesting results are the higher returns to education and experience of migrants compared to non-migrants.
The positive effect of migration on wages revealed by the data, gives support to the human capital theory, which predicts that individuals invest in migration to enjoy greater economic opportunities. Movers choose destinations where the returns to their personal characteristics are maximized.
Moreover a lower location specific skills of migrants compared to non-migrant was detected.
These results however must be treated with caution: the existence of unobservable characteristics which differenciate migrants and non-migrants and the existence of a self-selection mechanism, which drives the migration decision, can give rise to a potential bias in the coefficients.
The existence of a selectivity mechanism has been detected in many studies that focused on migration (Nakosteen and Zimmer 1980, Robinson and Tomes 1982, Islam and Choudhury 1990): if this mechanism works in the migration process and it is not taken into account, the estimated coefficients of the equations may be biased. This represents a typical problem of truncated model, where the sample observed may not be random, but the result of a selection process.
However a limit of the Albanian analysis is that adequate variables to compute a two-stage procedure (Heckman 1976) and correct the earnings and unemployment equations for the selectivity bias were not available.
The migration flow covers ten years, but time dimension information is not available in the survey, constraining the accessibility of historical information of the household at the time the migration

occurred. The profile of the household, his structure, the assets owned or the dependency ratio in the year of moving might have been different from how they were at the time the survey was conducted. Therefore, this limitation restricts the possibility to apply suitable instrumental variables. The problem of self-selection bias can affect also the unemployment function and the same restrictions faced in the wage equation can be extended to the unemployment analysis.
The effect of this strong omission can be that the tests on the theory are invalidated: in fact, the returns to human capital variables may not represent a true picture of reality and the positive effect of migration detected on earnings may not actually exist. Moreover, the wage and unemployment rates used to study the migration function may be incorrect.

The interpretation of the results in the unemployment function is more ambiguous and direct support for the human capital theory is not obtained.
The distinction between migrants and non-migrants is quite frail, but it may be attributable to a rather austere specification of the model adopted to the test the likelihood of unemployment. Furthermore the problem of self-slection bias may also have affected this function as well.

It is worth noting that aside from a migration analysis issue, the wage and unemployment functions provide interesting and well defined results. This first attempt to analyse a wage determination process and an unemployment function in Albania, offers encouarging outcomes: the estimated coefficients are well defined in most of the cases and they are in line with what the theory predicts.
However, there are some limitations in the study: first, the presence of inflationary effects was not taken into account in the wage and unemployment formulations. The LSMS was in the field between April and early July 2002 and the temporal gap occurring between the beginning and the end of the work may have created some inflationary discrepancy. As far as the interviews of migrants and non-migrants, as well as the interviews of the households in the 36 districts happen to be not random, but along a distinct time pattern, the inflationary bias may affect the results. Monthly dummy variables may solve the problem, even thought there is scope to believe that this problem was not affecting the results reported in this research.
Second, the occupation categories adopted in the earning equation are quite poor and they do not capture the true skill differentials among people. A better classification may reveal the proper impact of skill levels on earnings.

Employing aggregate data, the migration probit function confirmed the role for economic variables in the migration decision. The results reveal that wage differentials are an important explanation for the propensity to migrate: a 10% increase in the wage gap between destination and origin raises the probability of observing migration from the districts by 6 percentage points, on average and ceteris paribus.

On the contrary, the unemployment differentials effect was poorly determined: in the migration function, the unemployment rates at destination and origin exert a frail impact on the propensity to migrate.

The weak power of the unemployment variables however does not undermine the validity of the neoclassical assumption: in fact, there are plausible justifications for this result.

The analysis found evidence that wage rates at the origin and destination districts influence migration in the predicted direction: nevertheless, the result may be the artefact of a "transilient" migration. As far as a consistent flow of movement in Albania is directed toward foreign countries, and Italy is a one of the selected destination, many migrants may decide to move to Albanian cities, as a first step on their journey, because it provides easier access to external migration opportunities.

The five districts chosen as destinations of the internal migration may represent these transit cities, thus undermining support for the neoclassical theory. In fact, under this hypothesis, the migration decision is not related to regional earnings differentials.

Other limitations can be highlighted: first, the explored migration pattern did not capture each possible flow inside Albania, but only 5 districts out of 36 were chosen as destinations to simplify matters. The objective here was to focus on the migration flow toward the five major cities of Albania. A more detailed analysis would require the study of 630 flows, improving the quality and the reliability of the results, but adding much complexity to the research. Anyway, this is an interesting extension for a future research.

Secondly, the rate adopted in the linear migration function is quite crude, as it was constructed under the restrictive assumption of zero population growth in the districts. More precise measure of migration can improve the validity of a gross migration study.

Finally, the methodology adopted is based on a strong assumption: in this model, as far as the migration flow is drawn along a temporal dimension, which captures 10 years, the wage and unemployment differentials need to be assumed constant throughout the time.

The assumption is reasonably plausible because in the literature the question concerning how fast is the speed of adjustment of economic variables toward an equilibrium level reached alternative conclusions.

In fact, the process of convergence can be quite slow (see Greenwood, 1997 and Zimmermann, 1995) and it depends on the rigidity of the economic variables, due to social and institutional barriers.

Pehkonen and Tervo (1996) conducted an analysis on regional unemployment disparities in Finland, adopting an ARMA approach: they conclude that the differentials are rather persistent and that there might be considerable differences in the steady-state unemployment rates across the districts.

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Appendix

Table AI
Summary Statistics and Tests for Differences in Means
Sample B

Variable	*Migrants* p_M	*Non-Migrants* p_{NM}	*T-Test*
Male	0.529	0.568	-1.835*
Age group:			
< 25	0.184	0.201	-0.989
26-36	0.354	0.242	5.886***
37-50	0.350	0.396	-2.146**
>50	0.113	0.162	-3.077***
Education attainment:			
No schooling	0.009	0.010	-0.394
Primary 4 years	0.038	0.071	-3.009***
Primary 8 years	0.419	0.489	-3.194***
Secondary General	0.165	0.174	-0.579
Vocational 2 years	0.017	0.023	-0.904
Vocational 4 years	0.161	0.142	1.278
University	0.179	0.086	7.243***
Postgraduate	0.012	0.004	2.535**
Family status:			
Married	0.827	0.749	4.122***
Divorced	0.023	0.022	0.154
Single	0.151	0.229	-4.312***
Unemployed	0.144	0.123	1.468
Urban	0.667	0.425	11.135***
Sample A			
Tenure (years)			
1-2	0.476	0.286	6.757***
3-10	0.417	0.385	1.082
>10	0.107	0.329	-8.031***
Occupation			
Managers	0.047	0.030	1.575
Professionals	0.223	0.220	0.114
Technicians	0.091	0.117	-1.373
Clerks	0.013	0.035	-2.116**
Service workers	0.110	0.118	-0.420
Skilled agricultural	0.013	0.020	-0.905

Variable	*Migrants* p_M	*Non-Migrants* p_{NM}	*T-Test*
Trades workers	0.320	0.227	3.573***
Plant and machine operators	0.103	0.126	-1.118
Elementary occupations	0.082	0.107	-1.396
Industry:			
Manufacturing	0.119	0.107	0.622
Transport and communication	0.041	0.075	-2.187**
Public administration	0.129	0.121	0.366
Electricity. gas and water	0.016	0.062	-3.331***
Wholesale trade	0.097	0.082	0.879
Construction	0.288	0.122	7.746***
Health	0.069	0.088	-1.146
Hotels and restaurant	0.038	0.037	0.031
Mining	0.013	0.039	-2.365**
Financial Intermediation	0.006	0.009	-0.556
Real estate	0.006	0.025	-2.096**
Agriculture	0.019	0.026	-0.772
Education	0.119	0.152	-1.521
Social and community services	0.041	0.054	-0.979
Private	0.621	0.434	6.170***

*Notes:*** denotes statistical significance at 1% level. **denotes statistical significance at 5% level . * denotes statistical significance at 10% level using two tailed tests.
The non-parametric t-test is computed as:

$$\left[p_M - p_{NM}\right] / \left[\bar{p}(1-\bar{p})/n_M + \bar{p}(1-\bar{p})/n_{NM}\right]^{1/2}$$

where p_M and p_{NM} represents, respectively, the proportion of migrants and non-migrants in each category; $\bar{p}$ represents the fraction of individuals in each category: it is computed as the sum of the absolute number of migrants and the absolute number of non-migrants for each category divided by the total number of people in the sample.
n_M denotes the number of migrants while n_{NM} denotes the number of non-migrants, which is respectively 577 and 5383 in the sample B while 319 and 1798 in sample A.

Table AII
Variables Descripion

Variable	*Defintion*	*Form*
Ln w	Gross monthly wage in the main job[20]	Natural Logarithm
Male	Sex of individual	Binary variable: 1= male; 0= female
Age	Age of individual	Age in years (15-64)
Agesq	Age squared	(Age)^2
Married	Family background status	Dummy variable: 1=married; 0=otherwise
Divorced	Family background status	Dummy variable: 1=divorced; 0=otherwise
Secondary	Education attainment	Dummy variable: 1=if the highest educational qualification is secondary school; 0= otherwise
Vocational I	Education attainment	Dummy variable: 1=if the highest educational qualification is vocational-2 years; 0= otherwise
Vocational II	Education attainment	Dummy variable: 1=if the highest educational qualification is vocational-5 years; 0= otherwise
University	Education attainment	Dummy variable: 1=if the highest educational qualification is university; 0= otherwise
Postgraduate	Education attainment	Dummy variable: 1=if highest educational qualification is postgraduate level; 0= otherwise
Urban	Residential status	Binary variable: 1= resident in urban area; 0= otherwise
Timeres	Time spent by migrants in the destination area	Number of months (3-147)
Tenure1	Time performing job	Dummy variable: 1=if the number of years of working ranges from 0 to 2; 0= otherwise
Tenure2	Time performing job	Dummy variable: 1=if the number of years of working ranges from 3 to 5; 0= otherwise
Occupation	Type of occupation	Dummy variable: 1=if the individual woks in the *i* occupation; 0= otherwise
Industry	Type of industry	Dummy variable: 1=if the individual woks in the *i* industry; 0= otherwise
Private	Type of work ownership	Binary variable: 1= if job is performed in a organization owned by a household member ; 0= otherwise
LmHours	Usual hours spent in the main job	Natural Logarithm
Migrate	Migration status	Binary variable: 1= migrant; 0= otherwise

[20] The period of reference for the wage determination covers 4 months, ranging from April to July. Monthly dummy variables were not included to correct for a potential inflationary bias because there is no reason to believe that the interviews were taken in a non-random manner between migrants and non-migrants and between different districts.

Table A3
Monthly Wage Equation Estimates for Migrants and Non-migrants: interaction dummies

Variable	*Ols Coefficient*
Constant	7,87**
	(0,27)
Male	0,17**
	(0,02)
Age	0,02*
	(0,01)
Agesq	-0.0002*
	(0.0001)
Marital status	
Married	0.003
	(0.004)
Divorced	-0,01
	(0,08)
Schooling	
Secondary	0,05
	(0,03)
Vocational I	0,11*
	(0,05)
Vocational II	0,12**
	(0,03)
University	0,26**
	(0,04)
Postgraduate	0,31*
	(0,13)
Urban	0,11**
	(0,02)
Work experience	
Tenure1	-0,05
	(0,03)
Tenure2	0,04
	(0,03)
Occupation	
Professionals	-0,10
	(0,08)
Technicians	-0,30**
	(0,08)
Clerks	-0,43**
	(0,09)
Service workers	-0,48**
	(0,08)
Skilled agricultural	-0,77**
	(0,17)
Trades workers	-0,44**
	(0,08)
Plant and machine operators	-0,28**
	(0,08)
Elementary occupations	-0,60**
	(0,08)
Industry	
Transport and communication	0,22**
	(0,05)
Public administration	0,28**
	(0,06)

Variable	*Ols Coefficient*
Industry	-0,01
Health	(0,05)
Hotels and restaurant	-0,04
	(0,06)
Mining	0,41**
	(0,06)
Financial Intermediation	0,81**
	(0,13)
Real estate	0,11
	(0,07)
Agriculture	0,34**
	(0,12)
Education	0,005
	(0,05)
Social and community services	0,20**
	(0,06)
Private	0,34**
	(0,04)
Migrate	-0,65
	(0,39)
Interactions	
Migrate*Age	0.03
	(0.02)
Migrate*Age_sq	-0.0005*
	(0.0002)
Migrate*Secondary	0,21**
	(0,08)
Migrate*Vocational I	0,40
	(0,22)
Migrate*Vocational II	0,14
	(0,10)
Migrate*University	0,21
	(0,11)
Migrate*Postgraduate	0,50**
	(0,17)
Migrate*Tenure1	0,33**
	(0,09)
Migrate*Tenure2	0,15*
	(0,07)
Migrate* Professionals	-0,18
	(0,15)
Migrate* Technicians	-0,08
	(0,17)
Migrate* Clerks	-0,58**
	(0,16)
Migrate* Service workers	-0,17
	(0,16)
Migrate* Skilled agricultural	-0,28
	(0,22)

Variable	*Ols Coefficient*	*Variable*	*Ols Coefficient*
Electricity. gas and water	0,22** (0,06)	Migrate* Trades workers	-0,18 (0,15)
Wholesale trade	0,11* (0,05)	Migrate* Plant and machine operators	-0,28 (0,16)
Construction	0,30** (0,05)	Migrate* Elementary occupations	-0,08 (0,17)
Adjusted R-squared	0.36		

Notes: The standard errors, corrected for etheroscedasticity, are given in parentheses. Dependent variable=natural log of monthly earnings. The base dummies in the regressions are female, single, primary school education, rural, more than 10 years experience, managers, manufacturing. Breusch - Pagan chi-squared = 376.25, with 54 degrees of freedom. Parameters = 55 .** denotes statistical significance at 1% level, *denotes statistical significance at 5% level using two tailed tests. The number of observations, taken from sample A, is 2117.

Table A4
Probability of Unemployment: Binomial Probit Regression for Migrants and Non-migrants with interaction dummies

Variable	*Probit Coefficient*	*Variable*	*Probit Coefficient*
Constant	-0.997** (0.086)	Schooling University and Postgraduate	-0.904** (0.097)
Male	0.044 (0.052)	Migrate	0.393 (0.272)
Age	-0.021** (0.003)	Interactions Migrate*Male	-0.311 (0.160)
Marital status Married	-0.234** (0.076)	Migrate*Age	-0.022* (0.010)
Divorced	-0.216 (0.187)	Migrate*Married	0.458* (0.230)
Urban	1.407** (0.058)	Migrate*Divorced	0.870 (0.476)
Schooling Secondary	-0.157* (0.062)	Log-Likelihood	-1782.968
Vocational I	0.026 (0.141)	McFadden R-squared	0.205
Vocational II	-0.095 (0.070)		

Notes: The standard errors are given in parentheses. Dependent variable=binary choice, taking the value of 1 if the person is unempoyed and the value of 0 of the person is employed . The base dummies in the regressions are female, single, rural and primary school education. ** denotes statistical significance at 1% level, *denotes statistical significance at 5% level using two tailed tests. The number of observations, taken from sample B, is 5960.