How do internal migration by educational attainment react to regional unbalances? The case of Italy.[1]

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Abstract.
We conduct an empirical investigation of the determinants of migration flows across Italian regions taking explicitly into account the educational attainment of migrants. We follow the standard macroeconomic migration theory where net migration depends on regional per capita GDP and unemployment differentials. Empirical results are similar at lower and upper-secondary educational level, for which internal migration is explained quite well by our model. Migration rates for primary school and university level educational attainment seems to respond mainly to relative regional per capita GDP rather than unemployment differentials.

JEL Codes: C23, J31, R23.
Key words: Italy, labour migration, human capital, income differences, unemployment.

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[1] Paper draft submitted to the annual European Population Conference, Barcelona, Spain, 9-12 July, 2008. financial support from MURST (Italian ministry of university and scientific research, PRIN 2005) is gratefully acknowledged.

1. Introduction.

The literature on migration has shown a quite strong direct link between educational attainment and migration propensity. One reason of such a phenomenon is that, since returns to human capital are higher the higher the level of education, the opportunity cost of staying in a area (country or region inside a country) increases with the education attainment. Thus, individuals who have higher level of education, also have a higher propensity to move. As a matter of fact, a common finding (see Ghatak *et Al*. 1996 for a survey; Solimano, 2006 for a more general discussion) is that highly educated individuals have a higher predisposition to move than people with low educational levels. As regards internal migration across Italian regions such a pattern has been found by Sestito (1991) and, more recently, by Svimez (2005) and Piras (2006) and is highlighted by our result as well.

In recent years, the upsurge of international migration of skilled workers, motivated by the brain drain/brain gain debate, has attracted a very large number of papers (see Docquier and Sekkat, 2006 and references therein). One of the main problems in trying to assess the empirical evidence of these issues is the lack of reliable comparative data on international migration by educational attainment. However, very recently, thanks to a new harmonised and comprehensive data set provided by Docquier and Marfouk (2006), a wave of empirical papers have tackled these problems. The Docquier and Marfouk (2006) data set relies on three data sets provided by Barro and Lee (2000), Cohen and Soto (2001) and De La Fuente and Domenech (2002) and makes some ad hoc assumptions for some countries for which data is unavailable.

Notwithstanding the improved quality of the data set assembled by those authors, it is clear that comparability problems across countries still persist: it is difficult to conceive that almost 200 countries put together in an international data set share the same political and social institutions, economic policy and so on. By analysing internal migration at regional level within a country, we overcome many of the criticisms that often are made regarding large samples cross-sectional studies. In spite of the good job done by Docquier and Marfouk (2006), we can be sure that data comparability problems are absent or definitively less severe at sub national level than in a multi country setting. Indeed, it can be safely assumed that regions within a country share the same economic fundamentals, social and political institutions and hence, as economic growth theory claims, are approaching a common long-run equilibrium, whereas the same can not realistically be said for large samples of countries. In addition, social security and legal systems and, usually, language are the same within a national context.

In this respect, Italy has some peculiarities that makes it an interesting case study to be investigated. A well documented fact about Italian economy, is its dualism between the wealthy Central-northern regions and the less developed Southern ones (the *Mezzogiorno*). During the 1950s and the 1960s, millions of individuals moved from the backward Southern and, at that time, North-eastern regions towards the Central and North-western ones.[2] In spite of such a deep impact and though many works have disentangled this issue from a descriptive point of view, empirical analysis of the determinants of internal migration is still scanty.

To the best of our knowledge, Salvatore (1977) is the first to study internal migration across Italian regions. He shows that during the 1958-1974 time period, regions with relatively high unemployment rates, basically Southern ones, also have relatively high out-migration rates. Later on, Attanasio and Padoa-Schioppa (1991) study migration flows across six geographical areas for the period 1960-1986 and estimate an empirical model in which net migration is explained by local and national wages both in public and the private sector, by local and national male unemployment and by housing prices. Their results are mixed, suggesting the importance of "housing prices, public sector real wages and, to a lesser extent, private sector real wages and unemployment differentials" (pag. 286). Cannari *et Al.* (2000) look specifically at the role of housing market on geographic labour mobility from Southern to Central-northern regions. During the period from 1967 to 1992 they find that housing price differentials is a relevant explanatory factor, whereas the general index of house prices and the share of homeowners are not. Brunello *et Al*. (2001) estimate migration outflows from each of the eight Southern regions to the rest of the country from 1970 to 1993. Their reported evidence is "that the rapid increase both of relative wages and of social transfers per head during the 1970s and the 1980s has significantly reduced migration flows, more than compensating the opposite effect on migration of higher regional unemployment" (pag. 23). Overall, it emerges from these papers that during the 1960s and the 1970s, housing market conditions and real wages have played the main role in shaping migration across regions.

More recently, Furceri (2006) finds that during the period 1985-2001 interregional migration responds to GDP regional cyclical components. Finally, Basile and Causi

[2] Pugliese (2002, p. 39) reports that during the period from 1955 to 1975, 3.708.392 individuals moved from Southern to Central-northern regions with respect to 1.363.553 that moved in the opposite direction.

(2007) find that from 1991 to 1995, when migration flows were generally decreasing, the effect of economic variables (unemployment and per capita income) on inter-provincial migration flows were negligible or nil; on the contrary, during the 1996-2000 period characterised by an increase of internal mobility, migration flows have reacted more rapidly to unemployment and per capita income. Thus, these two paper suggest that in the recent years internal mobility has reacted quite promptly to economic push and pull factors.

Although important given their findings, none of these work has paid attention at the skill level of migrants and, in the light of what previously said, this is an important question to be investigated. In addition, the time span of many of these papers covers a quite distant historical period and given the renewed internal mobility that has recently been recorded (e.g. Svimez, 2005), it is interesting to conduct an empirical investigation of the determinants of migration flows across Italian regions taking explicitly into account the educational level of migrants. Finally, and maybe more important, as far as we know there is no other empirical investigation dealing with internal migration flows by educational achievement neither for developed, nor for developing countries. As such this paper aims also to stimulate similar studies for other countries and to make a comparative analysis of the results.

The paper is organised as follows. Next Section provides a review of the theoretical literature on migration. In Section 3 we sketch the model used in the empirical investigation of Section 5 that follows the illustration of the Italian schooling system done in Section 4. In Section 6 we use the parameters estimated in Section 5 in order to simulate what presumably would be the quantitative effect on interregional migration rate and on regional population classified by educational level, by a given variation in GDP and unemployment rate differentials. Finally, Section 7 concludes.

2. A short review of the theoretical literature on migration.

Many contributions to the recent macroeconomic literature on migration start from the Harris and Todaro (1970) model of intersectoral migration.[3] In this set up people migrate from the rural (agricultural) sector to the urban (manufacturing) sector taking into account expected income, which, in turns, is defined by the wage rate times the probability of finding a job. As pointed out by Pissarides and McMaster (1990) an

[3] Another fundamental contribution to the recent economic theory of migration is Sjastaad (1962) who models migration as an investment in human capital done by individuals who evaluate costs and benefits of migration. For a recent survey of the economic literature on migration see Drinkwater *et Al.* (2002).

implicit assumption of the Harris and Todaro approach is that individual are risk-neutral and that they are not quantity constrained. Since these conditions in practise are not satisfied, they claim that both relative wages and unemployment differentials should enter separately into the model specification and in empirical estimates on migration decisions. In the same vein, also Faini and Venturini (1996) argue that liquidity constrains do matter in the migration decisions. Pedersen *et Al.* (2004) present empirical evidence on international migration on the bases of a theoretical model proposed by Zavodny (1997) in which individuals choose their location maximising a utility function which depends on location-specific amenities, individual characteristics and previous location. Among the location-specific amenities, a key role is played by average earnings and unemployment rates.

A very general macroeconomic migration function can thus be written as $m_{ij} = F(Y_i, Y_j, U_i, U_j, \mathbf{Z}_i, \mathbf{Z}_j)$, where migration from country j to country i, m_{ij}, is "explained" by per capita incomes, Y_i and Y_j, and unemployment rates U_i and U_j, in both countries and by other push and pull factors $\mathbf{Z}_i$ and $\mathbf{Z}_j$. In general, other non-economic factors, such as for example distance and climate, do influence migration flows. For the short time span we are going to study, however, we would expect them to be reasonably stable. As to the choice of the migration variable, various definitions are available. In order to take into account the size effect - that is the fact that an increased population in a country leads *per se* to an increase in the level of migration - migration flows usually are specified as migration *rates*, namely as the ratio of migrants to resident population either in the sending or in the receiving country.

3. Model specification.

In recent studies, the empirical methodology on migration across countries (Brücker and Schröder, 2005; Alvarez-Plata *et Al.*, 2003; Alecke *et Al.*, 2001; Puhani, 2001; Hatton 1995) or regions (Coulombe, 2006; Andrienko and Guriev, 2004; Nahuis and Parikh, 2004; Alecke *et Al.*, 2001) applies a logarithmic or a semi-logarithmic equation approach such as:

(1) $$m_{ijt} = \alpha_0 + \alpha_1 \ln Y_{it} + \alpha_2 \ln Y_{jt} + \alpha_3 \ln U_{it} + \alpha_4 \ln U_{jt} + \gamma_1 \mathbf{Z}_{it} + \gamma_2 \mathbf{Z}_{jt} + \varepsilon_{ijt}$$

where i, j and t denote, respectively, the receiving region, the sending region and the time period; m_{ijt} is the migration rate which, depending on the specific context to be investigated, can be expressed in terms of net flows or gross flows, namely in-flows or out-flows (as a percentage of the sending or the receiving region's population) from region j to region i; Y_{it} is per capita income in the host region; Y_{jt} is per capita income in the sending region; U_{it} is the rate of unemployment in region i; U_{jt} is the rate of unemployment in region j. In order to capture push and pull factors of migration decision different from per capita income and unemployment, two vectors of variables for the receiving as well as the sending regions, namely $\mathbf{Z}_{it}$ and $\mathbf{Z}_{jt}$, are plugged into the regression equation. Finally, ε_{ijt} is an additive error term uncorrelated with the covariates. If one assumes that the push and pull factors captured by $\mathbf{Z}_{it}$ and $\mathbf{Z}_{jt}$ do not change significantly over a short period of time, then they can be modelled as constants specific to each region:

$$(2) \qquad m_{ijt} = \alpha_1 \ln Y_{it} + \alpha_2 \ln Y_{jt} + \alpha_3 \ln U_{it} + \alpha_4 \ln U_{jt} + \sum_{i=1}^{M} \lambda_i D_i + \sum_{j=1}^{N} \lambda_j D_j + \varepsilon_{ijt}$$

where D_i and D_j are regional effects that do not change over time. Frequently, an element taken explicitly into account in determining migration is the distance between the sending and the receiving region, because of the direct and indirect transportation costs of migration. We will see shortly that in our empirical approach, since we use as regressors the relative values of per capita income and unemployment rates of a region with respect to nationwide averages, this is precluded.[4] It is worth noticing that the semi-logarithm approach has the desirable characteristic of making the rising of net migration rate not linear with respect to the independent variables, thus implying that migration follows some form of saturation pattern (Hille and Straubhaar, 2001).

Equation (2) must be tailored to the case under investigation. In Italy the flow of migrants has almost always been unidirectional from the South to the Centre-North and, as argued by Bentolila and Dolado (1991), it does not make a difference whether net rather than gross migration rates are used. It is then convenient to assume that region's i net migration rate depends on relative per capita income and to relative unemployment rate, that is on the ratio of region's i relevant variables with respect to the national average. By using relative GDP and unemployment variables, we introduce a sort of source region all-other-destinations comparison into the analysis, overcoming the need to introduce a bilateral comparison of these variable from each couple of Italian regions and specifying a much more parsimonious econometric specification.

[4] For the same reason we cannot take into account the past periods stock of individuals who migrated as a proxy for network effects.

For this reason we study internal migration flows by educational attainment across the 20 Italian regions and estimate the following one-way model:[5]

$$(3) \qquad m_{iITAt}^{edu(h)} = \alpha_0 + \alpha_1 \ln\left(\frac{Y_{it}}{Y_{ITAt}}\right) + \alpha_2 \ln\left(\frac{U_{it}}{U_{ITAt}}\right) + \mu_i + \varepsilon_{it}$$

where $m_{iITAt}^{edu(h)}$ is the net migration rate of region's *i* population with educational level *h* with respect to all other regions, that is:

$$(4) \qquad m_{iITAt}^{edu(h)} = \frac{(\text{inflows} - \text{outflows})_{iITAt}^{edu(h)}}{\text{population}_{it}^{edu(h)}} \times 100$$

and *edu*(*h*) corresponds to educational level *h*, that is primary (*prim*), lower-secondary (*lower*), upper-secondary (*upper*) and university level (*univ*). In the empirical investigation, net migration rates by educational level are computed as percentage of migrants with respect to population with the same educational attainment. In addition, (Y_{it}/Y_{ITAt}) is region's *i* per capita income relative to national average, (U_{it}/U_{ITAt}) measures region's *i* unemployment rate relative to nationwide unemployment rate, α_0 is a constant, μ_i are regional effects and ε_{it} is an additive error term. Regional per capita income differential is a proxy for differing wages and, more generally, wealth expectations for region *i* vis-à-vis all other regions. As for the second independent variable, the economic theory hints that higher relative regional unemployment rates discourage people from moving in and spur residents to move out. Therefore, region's *i* net migration rate is expected to be positively linked with region's *i* relative per capita income and inversely correlated with region's *i* relative unemployment rate, namely we would expect $\alpha_1>0$ and $\alpha_2<0$. In order to avoid inconsistency problems, we decide not to introduce a lagged value for the migration rate as sometimes is done in empirical literature in order to capture a lagged response to migration to economic variables. Given the short time span, we also decided not to apply dynamic panel data estimators.

4. Italian schooling system.

In Italy the schooling system was articulated basically into four levels: primary school (it lasts 5 years), lower-secondary school (3 years), upper-secondary education (from 3 to 5 years, see below) and university degree (from 4 to 6 years according to the field of study). In recent years, various reforms have changed and are still changing the

[5] The two-ways model, both fixed and random, was rejected by conventional tests for all but university degree holders. Results are available form the author upon request.

Italian educational system, particularly the university one, that nowadays is divided into three years introductory courses, plus two years specialisation courses. These changes, however, have not affected our empirical analysis, since the first wave of new graduates according the new rules were licensed after 2002, i.e. our final year. Upper-secondary education, which is under reform as well, is differentiated into six categories: classical, scientific, artistic, primary teacher training, technical schools and vocational education. With the exception of vocational education that lasts up to three years and does not allow entering university, all the other categories do consent it. All categories, but primary teacher training that lasts 4 years, take 5 years to obtain a leaving certificate. However, a student with a primary teacher training certificate who wants to apply to a university course different from pedagogy, must attend one additional integrative year.

5. Empirical analysis.

5.1 Data.

Regional per capita GDP comes from the Crenos databank.[6] ISTAT provides the data on regional unemployment rates and on interregional migration flows by educational attainment.[7] These flows are classified into five groups: *laurea* (university degree), *diploma di scuola media superiore* (upper-secondary school), *licenza media inferiore* (lower-secondary school), *licenza elementare* (primary school) and *nessun titolo* (no schooling). It is worth noticing that in Italy changing residence is not compulsory and it could be the case that individuals move from one region to another without going to municipal register in order to record it; thus, recorded data under-report actual migration flows.

As previously said, net migration rates by educational level are computed as percentage of migrants with respect to population with the same educational attainment. In order to do that, we use resident population by educational level as classified by ISTAT according to a representative sampling. Unfortunately, starting from 1993 ISTAT brings together resident population with primary school and with no schooling and, as a consequence, we are forced to compute regional net migration rates pooling them into a single variable. For the sake of simplicity, however, in the rest of the paper we will refer only at primary school level net migration rate, but it should be clear that it has to be understood as net migration rate of people with no schooling or with primary school educational attainment.

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[6] Available on-line at http://www.crenos.it/.
[7] Available on-line at http://www.istat.it/.

As far as regional unemployment, ISTAT has recently updated its previous series by applying a new methodology that makes the two of them not homogeneous. The new series, disaggregated at regional level, spans from 1995 to 2006. However, given that the data on internal migration are available up to 2002, we have to use only the 1995-2002 time period. In the regression analysis, three different figures for unemployment have been used: unemployment rate, youth unemployment rate and the long-term unemployment rate.

Table 1. Summary statistics of the untransformed variables for the Italian regions (Average values 1995-2002).

	Mean	Std Dev.	Max	Min
Net migration rates:				
Total	0.027	0.217	0.382	-0.339
			Emilia R.	Calabria
Primary school	0.019	0.099	0.171	-0.154
			Emilia R.	Calabria
Lower-secondary	0.049	0.295	0.571	-0.461
			Emilia R.	Calabria
Upper-secondary	0.012	0.343	0.537	-0.570
			Emilia R.	Calabria
University	-0.018	0.354	0.581	-0.714
			Valle d'A.	Basilicata
Per capita GDP	16,797	4264	23,227	10,537
			Valle d'A.	Calabria
Unemployment	10.83	5.539	23.025	3.612
			Sicilia	Trentino AA
Youth unemployment.	27.81	13.039	50.625	10.725
			Sicilia	Trentino AA
Long-term unemployment	5.15	3.794	13.737	0.650
			Sicilia	Trentino AA

Note. Per capita GDP is given at constant 1995 price, all other variables are percentage.

Table 1 reports the basic summary statistics of the variables. A look at figures regarding GDP levels and unemployment rates displays the huge differences across Italian regions, particularly among Central-northern on the one hand, and Southern at the other:[8] the region with the highest value of per capita GDP, Valle d'Aosta, has a level more than double with respect to the one with the lowest, Calabria. The latter records also the worst performances as regards net migration rates, but for the university degree level, for which Basilicata has the record. On the contrary, Emilia Romagna has

[8] Southern regions are Abruzzo, Molise, Puglia, Campania, Basilicata, Calabria, Sicilia and Sardegna, while Central-northern ones are Piemonte, Valle D'Aosta, Lombardia, Liguria, Trentino Alto Adige, Friuli Venezia Giulia, Veneto, Emilia Romagna, Marche, Toscana, Umbria and Lazio.

the highest (positive) net migration rates for all educational attainment, with the exception of the university level for which Valle d'Aosta outstrips all other regions. The dualistic structure of Italian regions is also testified by the huge differences in the figures regarding unemployment. As one can see, unemployment, youth unemployment and long-term unemployment rates are very low in Trentino Alto Adige in the North, compared with Sicilia in the South.

Figure 1 shows that internal migration rates by educational attainment are very differentiated across regions. In addition, and more importantly given the focus of our paper, there is a lot of variation as regards the different educational levels. In general, the higher the school level of migrants, the higher is the net migration rate. Thus a positive relationship between educational attainment and migration propensity, as commonly found in the empirical literature on migration, is confirmed by our data as well. In addition, while it is true that, generally speaking, Southern regions have negative net migration rates while Northern ones usually record positive net migration, for some regions and/or some educational levels it also happens that the sign is reversed.

5.2 Baseline estimation.

We start the empirical investigation with the baseline regression results of equation (3) that has been estimated firstly by pooled OLS. Secondly, we have combined the cross-section variation of the data along with the time series dimension and applied standard panel data techniques, namely fixed and random effects. We have tested the various specification with the Breusch-Pagan Lagrange multiplier and the Hausman tests. The former provides a test of the random effects model against the pooled OLS model; the latter compares the more efficient random effect model against the less efficient but consistent fixed effect model. In all regressions the Breusch-Pagan test rejects the Pooled OLS model, moreover we find strong support of the random effect model in all regression but two regarding migrants with primary school level.

Table 2. Determinants of interregional migration in Italy: **primary school**.

a) Dependent variable: ***Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0413473	.0688793	.0216536
	[0.009]	[0.000]	[0.001]
DLGDPP	.3708451	.7375459	.1841129
	[0.000]	[0.002]	[0.000]
DLUR	.0381732	.1281373	-.0619102
	[0.157]	[0.023]	[0.001]
	R^2 within = 0.12	R^2 within = 0.12	Adj-R^2 = 0.51
	R^2 between = 0.56	R^2 between = 0.48	
	R^2 overall = 0.44	R^2 overall = 0.38	

Breusch-Pagan: χ^2 (1) = 96.30 (*p*-value = 0.00). Hausman: χ^2 (2) = 16.65 (*p*-value = 0.0002).

b) Dependent variable: ***Youth Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0384426	.0698715	.0212543
	[0.022]	[0.000]	[0.003]
DLGDPP	.3397121	.88771	.1970557
	[0.000]	[0.000]	[0.000]
DLYUR	.0208443	.0553102	-.0596445
	[0.466]	[0.203]	[0.001]
	R^2 within = 0.08	R^2 within = 0.08	Adj-R^2 = 0.50
	R^2 between = 0.59	R^2 between = 0.59	
	R^2 overall = 0.46	R^2 overall = 0.46	

Breusch-Pagan: χ^2 (1) = 102.92 (*p*-value = 0.00). Hausman: χ^2 (2) = 10.84 (*p*-value = 0.0044).

c) Dependent variable: ***Long-Term Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0597981	.0777784	.0444945
	[0.006]	[0.000]	[0.000]
DLGDPP	.4756471	.8020681	.365425
	[0.000]	[0.000]	[0.000]
DLLTUR	.0567946	.0628644	.0243678
	[0.011]	[0.023]	[0.101]
	R^2 within = 0.10	R^2 within = 0.10	Adj-R^2 =0.49
	R^2 between = 0.60	R^2 between = 0.62	
	R^2 overall = 0.48	R^2 overall = 0.49	

Breusch-Pagan: χ^2 (1) = 140.65 (*p*-value = 0.00). Hausman: χ^2 (2) = 2.88 (*p*-value = 0.2370).

Sample period 1995-2002. Total observations: 160. Heteroschedasticity robust *p*-values in brackets.

Table 2 reports regressions results for the primary school level and for the three unemployment measures that have been used: in panel (a) the unemployment rate, in panel (b) the youth unemployment rate and in panel (c) the long-term unemployment rate. In all regressions regional relative per capita GDP enters significantly and with the expected sign, although the point estimate is quite different across regressions. On the contrary, regional relative unemployment rates display a problematic interpretations. Indeed, in the pooled OLS regressions with the unemployment rate and the youth unemployment rate - panels (a) and (b) - we find the expected negative sign, in all other regressions either the coefficient is not statistically significant or it has the opposite (positive) and statistically significant sign. A possible tentative interpretation of such a result is that primary school level net migration rate is dominated by return migration from Central-northern to Southern regions by those workers who left their regions during the fifties and the sixties of last century, when they headed towards the main industrialised areas of the country, and after retirement decided to come back to their birth place. The educational level of these waves of migrants was very low, frequently they even had not a primary school level certificate.

At lower-secondary educational level, internal migration is explained quite well by our model. Per capita GDP is always strongly positively correlated with net migration rates in all regressions reported in Table 3. In the random effect model, which is to be preferred given the Hausman test, the point estimate of the relative per capita GDP parameter varies between 0.72 in panels (a) and (b) to 0.82 in panel (c). As for unemployment, both the unemployment rate and the youth unemployment rate have the expected negative sign and are significant, whereas the long-term unemployment rate, although it shows the expected negative sign, is not statistically different from zero. The responsiveness of internal migration to relative per capita GDP is higher than that of relative unemployment, in fact, in absolute value, the magnitude of the former is around five times the latter.

Table 4 shows the results of upper-secondary educational level regressions. Once again the random effect model performs better than the others. Relative per capita GDP is always highly significant and the point estimate varies from 0.75 in panel (a) to 0.80 in panel (b) up to 0.91 in panel (c). Relative unemployment variables enter significantly in panel (a) and (b) regressions whereas in panel (c), once again, the long-term relative unemployment rate loses its statistical significance. Moreover, relative per capita GDP is still stronger than relative unemployment in determining internal migration.

Table 3. Determinants of interregional migration in Italy: **lower-secondary school**.

a) Dependent variable: ***Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0685255	.0844891	.0675108
	[0.069]	[0.000]	[0.000]
DLGDPP	.7233466	1.109946	.6871018
	[0.000]	[0.014]	[0.000]
DLUR	-.1527393	-.1828371	-.1453073
	[0.003]	[0.002]	[0.002]
	R^2 within = 0.11	R^2 within = 0.11	Adj-R^2 = 0.72
	R^2 between = 0.76	R^2 between = 0.76	
	R^2 overall = 0.72	R^2 overall = 0.72	

Breusch-Pagan: χ^2 (1) = 366.83 (p-value = 0.00). Hausman: χ^2 (2) = 1.47 (p-value = 0.4799).

b) Dependent variable: ***Youth Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0650026	.073671	.0642989
	[0.071]	[0.000]	[0.000]
DLGDPP	.7223983	.9111949	.6998622
	[0.000]	[0.026]	[0.000]
DLYUR	-.1543951	-.1596687	-.1511373
	[0.000]	[0.000]	[0.001]
	R^2 within = 0.14	R^2 within = 0.14	Adj-R^2 = 0.72
	R^2 between = 0.75	R^2 between = 0.75	
	R^2 overall = 0.72	R^2 overall = 0.72	

Breusch-Pagan: χ^2 (1) = 374.45 (p-value = 0.00). Hausman: χ^2 (2) = 0.37 (p-value = 0.8304).

c) Dependent variable: ***Long-Term Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0759619	.0802524	.0859252
	[0.039]	[0.001]	[0.000]
DLGDPP	.8224636	.9611041	.8770181
	[0.000]	[0.028]	[0.000]
DLLTUR	-.0441933	-.0526252	-.0202838
	[0.168]	[0.106]	[0.528]
	R^2 within = 0.06	R^2 within = 0.06	Adj-R^2 = 0.70
	R^2 between = 0.74	R^2 between = 0.74	
	R^2 overall = 0.70	R^2 overall = 0.70	

Breusch-Pagan: χ^2 (1) = 371.14 (p-value = 0.00). Hausman: χ^2 (2) = 0.30 (p-value = 0.8622).

Sample period 1995-2002. Total observations: 160. Heteroschedasticity robust p-values in brackets.

Table 4. Determinants of interregional migration in Italy: **upper-secondary school**.

a) Dependent variable: ***Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0270426	.0251853	.0550709
	[0.522]	[0.282]	[0.001]
DLGDPP	.747026	.795533	1.002457
	[0.000]	[0.136]	[0.000]
DLUR	-.2119564	-.2526573	-.064633
	[0.000]	[0.000]	[0.186]
	R^2 within = 0.10	R^2 within = 0.10	Adj-R^2 = 0.73
	R^2 between = 0.75	R^2 between = 0.75	
	R^2 overall = 0.72	R^2 overall = 0.71	

Breusch-Pagan: χ^2 (1) = 347.33 (p-value = 0.00). Hausman: χ^2 (2) = 0.22 (p-value = 0.6374).

b) Dependent variable: ***Youth Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0297518	.01509	.0486753
	[0.471]	[0.513]	[0.006]
DLGDPP	.800357	.5128746	.969665
	[0.000]	[0.306]	[0.000]
DLYUR	-.1753738	-.1789555	-.0915677
	[0.000]	[0.000]	[0.059]
	R^2 within = 0.10	R^2 within = 0.10	Adj-R^2 = 0.74
	R^2 between = 0.77	R^2 between = 0.76	
	R^2 overall = 0.73	R^2 overall = 0.72	

Breusch-Pagan: χ^2 (1) = 350.22 (p-value = 0.00). Hausman: χ^2 (2) = 1.07 (p-value = 0.5866).

c) Dependent variable: ***Long-Term Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0408009	.0234938	.0797532
	[0.322]	[0.392]	[0.000]
DLGDPP	.9091773	.5619187	1.197345
	[0.000]	[0.293]	[0.000]
DLLTUR	-.0540145	-.0544803	.0272816
	[0.126]	[0.139]	[0.433]
	R^2 within = 0.02	R^2 within = 0.02	Adj-R^2 = 0.73
	R^2 between = 0.76	R^2 between = 0.75	
	R^2 overall = 0.72	R^2 overall = 0.72	

Breusch-Pagan: χ^2 (1) = 334.43 (p-value = 0.00). Hausman: χ^2 (2) = 1.75 (p-value = 0.4171).

Sample period 1995-2002. Total observations: 160. Heteroschedasticity robust p-values in brackets.

Table 5. Determinants of interregional migration in Italy: **university degree**.

a) Dependent variable: ***Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	-.0122394	-.127291	.0148159
	[0.838]	[0.157]	[0.677]
DLGDPP	.6412846	-1.230449	.9024437
	[0.082]	[0.509]	[0.000]
DLUR	-.2425531	-.4580467	-.1072457
	[0.078]	[0.046]	[0.228]
	R^2 within = 0.02	R^2 within = 0.04	Adj-R^2 = 0.45
	R^2 between = 0.67	R^2 between = 0.27	
	R^2 overall = 0.44	R^2 overall = 0.13	

Breusch-Pagan: χ^2 (1) = 37.80 (*p*-value = 0.00). Hausman: χ^2 (2) = 4.97 (*p*-value = 0.0832).

b) Dependent variable: ***Youth Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	-.0009789	-.1300665	.0134852
	[0.986]	[0.147]	[0.708]
DLGDPP	.7886485	-1.768507	.919915
	[0.012]	[0.341]	[0.000]
DLYUR	-.1697811	-.1910882	-.1064525
	[0.140]	[0.172]	[0.238]
	R^2 within = 0.00	R^2 within = 0.02	Adj-R^2 = 0.45
	R^2 between = 0.70	R^2 between = 0.68	
	R^2 overall = 0.45	R^2 overall = 0.42	

Breusch-Pagan: χ^2 (1) = 36.62 (*p*-value = 0.00). Hausman: χ^2 (2) = 3.84 (*p*-value = 0.1464).

c) Dependent variable: ***Long-Term Unemployment rate.***

	Random Effect	Fixed Effect	Pooled OLS
Constant	.0039196	-.1137098	.0220749
	[0.951]	[0.235]	[0.591]
DLGDPP	.8578356	-1.765679	1.00022
	[0.024]	[0.352]	[0.000]
DLLTUR	-.0654882	-.0258233	-.0289097
	[0.454]	[0.818]	[0.640]
	R^2 within = 0.00	R^2 within = 0.01	Adj-R^2 = 0.44
	R^2 between = 0.70	R^2 between = 0.70	
	R^2 overall = 0.44	R^2 overall = 0.44	

Breusch-Pagan: χ^2 (1) = 36.48 (*p*-value = 0.00). Hausman: χ^2 (2) = 3.78 (*p*-value = 0.1508).

Sample period 1995-2002. Total observations: 160. Heteroschedasticity robust *p*-values in brackets.

Finally, Table 5 reports university level regressions. The estimates show that the response of interregional migration of college graduates to income and unemployment differentials is smaller than for upper and lower secondary educational levels. In all random effect regressions the estimated coefficients have the expected sign. However, in panel (a) regional per capita GDP and unemployment rate display a *p*-value above the usual 5% significance level, although below the 10% level, while in panels (b) and (c) the youth unemployment rate as well as the long-term unemployment rate are not significant and only regional income differentials is important in explaining the phenomenon. Thus, it would seem that interregional college graduate level migration is better explained in terms of expected income gains rather than in terms of better employment opportunities.

5.3 Feasible GLS regressions.

The empirical results reported above reports heteroskedasticity robust *t*-values computed by using the White estimator that deals with general heteroskedasticity of the form $Var(\varepsilon_{it}) = \sigma_{it}^2$, $\forall$ i=1,…N e t=1,…T. This is, however, a strong assumption for panel data since Italian regions have different population and size and, realistically, may exhibit different patterns of variation and of error structure. Consequently, some more general arbitrary heteroskedasticity and intra-group correlation may be at work and for these reasons we have also estimated equation (3) by feasible generalized least squares procedures (FGLS) with heteroskedastic error structure with cross-sectional correlation. Moreover, these estimates, along with instrumental variable regressions that are presented in the next sub-section, can be taken as an additional robustness check of our baseline results.

As can be seen from Table 6, FGLS estimates improve the previous ones. As for primary school level, both the unemployment rate and the young unemployment rate have a highly significant and correctly-signed parameter estimates. The long-term unemployment rate, however, has still the wrong statistically significant positive sign. At lower-secondary educational level, the migration equation estimated with FGLS looks quite similar to what previously found in terms of both statistical significance magnitude of coefficients. As regards upper-secondary education, contrary to what found in the random effect regression, the FGLS estimates show that along with unemployment and youth unemployment also the long-term unemployment rate now gets close to the usual level of statistical significance (the *p*-value equals to 0.065).

Finally, internal migration of individuals with university level attainment is not affected by any of the unemployment rates taken into account and only relative per capita GDP differentials are positively correlated with it.

Table 6. Determinants of interregional migration in Italy. FGLS regressions.

a) Dependent variable: **Unemployment rate.**

School level	*Prim*	*Lower*	*Upper*	*Univ*
Constant	0.0229	0.0677	0.0554	0.0090
	[0.000]	[0.000]	[0.000]	[0.436]
DLGDPP	0.2020	0.6854	1.0131	0.9395
	[0.000]	[0.000]	[0.000]	[0.000]
DLUR	-0.0554	-0.1442	-0.0610	-0.0461
	[0.000]	[0.000]	[0.006]	[0.633]
Wald χ^2 (2)	354.85	1505.03	749.83	183.88
Log likelihood	2028.161	195.887	1876.339	1786.479

b) Dependent variable: ***Youth Unemployment rate.***

School level	*Prim*	*Lower*	*Upper*	*Univ*
Constant	0.0222	-0.1502	0.0477	0.0121
	[0.000]	[0.000]	[0.000]	[0.227]
DLGDPP	0.2124	0.6908	0.9608	0.9836
	[0.000]	[0.000]	[0.000]	[0.000]
DLYUR	-0.0502	-0.1502	-0.0958	-0.0608
	[0.000]	[0.000]	[0.000]	[0.309]
Wald χ^2 (2)	290.08	589.19	984.26	229.91
Log likelihood	2024.196	195.778	1884.027	27.9586

c) Dependent variable: ***Long-Term Unemployment rate.***

School level	*Prim*	*Lower*	*Upper*	*Univ*
Constant	0.0429	0.0820	0.0801	0.0191
	[0.000]	[0.000]	[0.000]	[0.186]
DLGDPP	0.3384	0.8283	1.2057	0.9848
	[0.000]	[0.000]	[0.000]	[0.000]
DLLTUR	0.0203	-0.0338	-0.0298	-0.0328
	[0.002]	[0.107]	[0.065]	[0.554]
Wald χ^2 (2)	145.37	421.98	960.39	214.15
Log likelihood	1570.4061	196.842	1879.146	26.9296

Sample period 1995-2002. Total observations: 160. *p*-values in brackets. Feasible GLS with heteroskedastic error structure with cross-sectional correlation.

5.4 Reverse causality and IV regressions.

We have seen so far that regional unemployment rates and, above all, per capita GDP differentials have a statistically significant effect on migration rates, particularly at lower and upper secondary school level. However, it can also be argued that migration rates affect regional per capita GDP by changing regional population, implying that there could be a reverse causality issue and that relative per capita GDP is actually endogenous. Furthermore, migration obviously influence the labour force and eventually employment, affecting, in turn, unemployment rates that are to be considered endogenous as well (Bentivogli and Pagano, 1999).

Table 7. Determinants of interregional migration in Italy. IV regressions.

a) Dependent variable: ***Unemployment rate.***

School level	*Prim*	*Lower*	*Upper*	*Univ*
Constant	.0278595	.0904008	.050377	-.010282
	[0.062]	[0.016]	[0.222]	[0.850]
DLGDPP	.229722	.9497827	1.020344	.8356747
	[0.005]	[0.000]	[0.000]	[0.007]
DLUR	-.0215511	-.0447818	-.0990842	-.1708653
	[0.556]	[0.051]	[0.194]	[0.231]
R^2 within	0.0102	0.0923	0.0662	0.0040
R^2 between	0.6076	0.7427	0.7777	0.7123
R^2 overall	0.4658	0.7113	0.7436	0.4810

b) Dependent variable: ***Youth Unemployment rate.***

School level	*Prim*	*Lower*	*Upper*	*Univ*
Constant	.027763	.0772393	.0449847	-.0175475
	[0.065]	[0.037]	[0.267]	[0.754]
DLGDPP	.2349578	.8648442	1.003243	.8284701
	[0.002]	[0.000]	[0.000]	[0.005]
DLYUR	-.0202816	-.1031819	-.1148893	-.1911726
	[0.557]	[0.053]	[0.067]	[0.187]
R^2 within	0.0183	0.1230	0.0673	0.0002
R^2 between	0.6016	0.7487	0.7800	0.7125
R^2 overall	0.4628	0.7187	0.7459	0.4769

c) Dependent variable: ***Long-Term Unemployment rate.***

School level	*Prim*	*Lower*	*Upper*	*Univ*
Constant	.0421377	.0886965	.0615348	.0341726
	[0.028]	[0.031]	[0.170]	[0.610]
DLGDPP	.33449585	.9596534	1.132691	1.213399
	[0.001]	[0.000]	[0.000]	[0.001]
DLLTUR	.0209983	-.0222762	-.0166456	.0216781
	[0.447]	[0.623]	[0.751]	[0.836]
R^2 within	0.0302	0.0700	0.0225	0.0052
R^2 between	0.5735	0.7321	0.7758	0.7230
R^2 overall	0.4440	0.7005	0.7397	0.4815

Sample period 1995-2002. Total observations: 140. *p*-values in brackets.

In order to cope with this problem, we have to apply an instrumental variable technique to equation (3) and to find valid instruments for the right-hand side variables. We use lagged values of relative per capita GDP and of unemployment rates as instruments and, in Table 7, we present the random effect[9] two-stage least square estimator.

Notice that regression results are coherent with those previously found with some minimal difference. Regional per capita GDP differential are always highly significant whereas the relative unemployment rate, though correctly signed, is not significant in the regression for primary school level. In addition, contrary to what found in Table 4 and 5, it loses its significance for upper and university educational attainment. The lower-secondary school migration rate is the only one to be significantly inversely correlated with this variable. The relative youth unemployment rate plays an important role in explaining migration rates at lower and upper-school educational level, as in Tables 3 and 4. Finally, the long-term unemployment rate, analogously to what previously found in Table 2-5, is never significant at any educational level.

6. Internal migration and regional population change.

At this point it is interesting to make an appraisal of how internal migration by educational attainment would react to a shock in unemployment or income differential. Preliminary to such an appraisal, however, it should be pointed out that the estimated coefficients of equation (3), α_1 and α_2, are semi-elasticities and this implies that a one per cent increase in region's *i* relative per capita GDP, would lead to a $\alpha_1 / \overline{m}_{iITA}^{edu(h)}$ per cent increase in the migration rate of region's *i* population with educational level *h*.[10] It follows that when the net migration rate is close to zero, the elasticity tends to be very high and becomes uninformative on how migration flows would react to a variation in unemployment and relative per capita GDP.[11] In order to grasp some useful application of these parameters one should consider that, ceteris paribus, a $\alpha_1 / \overline{m}_{iITA}^{edu(h)}$ per cent increase in the net migration rate of region's *i* population with educational level *h*,

[9] The fixed effect two-stage least square estimator is rejected by the Hausman test in all regression. Results are available on request.

[10] Where $\overline{m}_{iITA}^{edu(h)}$ is the average net migration rate of region *i* population with educational level *h* with respect to all other regions during the time period under investigation. A similar reasoning also applies to a one per cent increase in region's *i* relative unemployment rate.

[11] The estimated elasticities based on average regional net migration rate are reported in the Appendix.

would lead to an increase of $\frac{\alpha_1}{\overline{m}_{iITA}^{edu(h)}} \times \frac{\overline{m}_{iITA}^{edu(h)}}{100} = \frac{\alpha_1}{100}$ percentage points in its net regional migration rate and, as a consequence, to a migration-induced population change given by $\frac{\alpha_1}{100} \times \frac{\text{population}_i^{edu(h)}}{100}$.[12]

Table 8 reports the estimated variation of population due to a one per cent increase in relative per capita GDP and relative unemployment rate. We have taken into consideration the baseline estimates of Tables 3-5 for lower-secondary, upper-secondary and university level education and excluded primary school level since in the baseline regression of Table 2 the unemployment rate in not significant. According to our results, a one per cent increase in relative per capita GDP would induce a greater number of individuals with a lower-secondary school level to move with respect to those with an upper-secondary school attainment, almost in all regions. On the contrary, a one per cent increase in relative unemployment would lead to move more individuals with an upper-secondary school level rather than with a lower educational attainment. As far as university level migration is concerned, Table 8 shows that migration-induced population change is lower with respect to the other two educational groups. Anyhow, for all educational level, population changes numerically more as a consequence of a variation in relative per capita GDP rather than in response of regional unemployment differentials.

Obviously, the impact of a given variation in relative per capita GDP or in relative unemployment rates on regional population with educational level *h* depends both on the sensibility of the various migration rates by educational attainment to the independent variables, which is not very different in the baseline regressions we have used for the simulations, and on the number of individuals with that specific educational level resident in that region, which on the contrary differs across regions. In addition, regional population with lower and upper-secondary educational level do not differ dramatically for each region, whereas graduate level population is sensibly lower with respect to the these two classes. This explains why, across regions, the magnitude of regional population variation is roughly similar for lower-secondary and upper-secondary educational level but sensibly lower for university level education.

[12] To give an example, for the average Italian region the net migration rate for upper-secondary school level is 0.012 per cent (see Table 1). Given $\alpha_1 = 0.747026$ (see Table 4a), a one per cent increase in relative per capita GDP would lead to an increase of 0.00747 percentage points of its average net migration rate, that is 0.012 + 0.00747 = 0.01947.

This simulation exercise suggests that although interregional migration flows across Italian regions respond to regional unbalances as theoretically one would expect, the magnitude of such a reaction, however, is rather small. As a consequence it can also be claimed that there is little room for internal migration at various educational level to accommodate interregional unbalances. From the policy point of view, this is an important issue since, as always said, in recent years Southern Italian regions have experienced an upsurge of internal migration, particularly of individuals with upper-secondary school and university educational level (Svimez, 2005; Piras, 2006). In other words, the *Mezzogiorno* has experienced a brain drain of which Central and, above all, Northern regions have benefited, and if one agrees that this can be harmful for the future development, not only of the South but of the country as a whole, then the policymakers should identify effective policy instruments in order to cope with such a problem. Our results suggest that notwithstanding the main macroeconomics variable, first of all per capita GDP but also unemployment, works in the direction of accommodating regional differences, they are not able alone to drive the *Mezzogiorno* out of its historical backwardness.

Table 8. Variation of regional population due to a 1% increase in relative per capita GDP and relative unemployment.

Regions	1% increase in relative per capita GDP			1% increase in relative unemployment rate		
	Univ.	Upper	Lower	Univ.	Upper	Lower
Piemonte	15	76	94	-6	-22	-20
Val D'Aosta	0	2	3	0	-1	-1
Lombardia	37	174	193	-14	-49	-41
Trentino A. A.	3	19	20	-1	-5	-4
Veneto	15	81	93	-6	-23	-20
Friuli V. G.	4	23	26	-2	-7	-5
Liguria	7	31	35	-3	-9	-7
Emilia R.	17	75	74	-6	-21	-16
Toscana	13	62	70	-5	-18	-15
Umbria	3	17	16	-1	-5	-3
Marche	6	26	27	-2	-7	-6
Lazio	27	111	108	-10	-31	-23
Abruzzo	4	23	25	-2	-7	-5
Molise	1	6	6	0	-2	-1
Campania	19	93	127	-7	-27	-27
Puglia	12	60	88	-5	-17	-18
Basilicata	1	10	12	-1	-3	-3
Calabria	7	34	40	-3	-10	-8
Sicilia	17	74	110	-6	-21	-23
Sardegna	5	25	40	-2	-7	-8

7. Conclusions.

The recent upsurge of international migration across countries and internal migration across regions has recently attracted a huge number of theoretical and empirical studies. In this paper we have analysed interregional migration in Italy taking explicitly into account the educational level of migrants. During the 1950s and the 1960s Italy has been characterised by intense migration flows that moved from the Southern towards the Central and North-western regions. Later on, during the 1970s and the 1980s, internal migration decreased dramatically; however, starting from the middle of the 1990s, it has had a sensible increase.

We have followed the recent empirical literature on migration and estimated how internal migration rates by educational attainment reacts to relative per capita GDP and to relative unemployment. We have used three unemployment measures: unemployment rate, youth unemployment rate and long-term unemployment rate. Net regional migration rates by educational level have been computed as percentage of migrants with respect to regional population with the same educational level. We have applied panel data econometric techniques and have also conducted some robustness checks of the baseline results by applying feasible generalised least squares procedures, in order to take into account more general patterns of error structure, and instrumental variable regressions to cope with reverse causality problems.

At primary school level, in the baseline regressions, migration rates respond as theoretically expected to relative regional per capita GDP but reacts wrongly or does not react at all to regional unemployment differentials. When FGLS have been used instead, both the unemployment rate and the young unemployment rate have a highly significant and correctly-signed parameter estimates. At lower- and upper-secondary educational level empirical results are similar, for both variables internal migration is explained quite well by our model. In all the baseline regressions relative per capita GDP is always strongly positively correlated with net migration rates. As for unemployment, both the relative unemployment rate and the relative youth unemployment rate are significant and have the correct negative sign, on the contrary the long-term relative unemployment rate shows the expected negative sign, but is not statistically significant. Finally at university level the regressions have shown that relative per capita GDP differentials have a link with the migration rate, while the youth unemployment rate as well as the long-term unemployment rate are not significantly related with it.

As a final points we have simulated how internal migration and regional population would react to a shock in unemployment or income differential. Our results suggest that for all educational level, population changes more as a consequence of a variation in relative per capita GDP rather than in response of regional unemployment differentials. However, we have also argued that leaving to market forces the role of driving Southern regions towards the standard of living of Central-northern ones does not guarantee at all that the goal will be reached. Therefore, some active policy initiative should be pursued in order to deal with such an issue.

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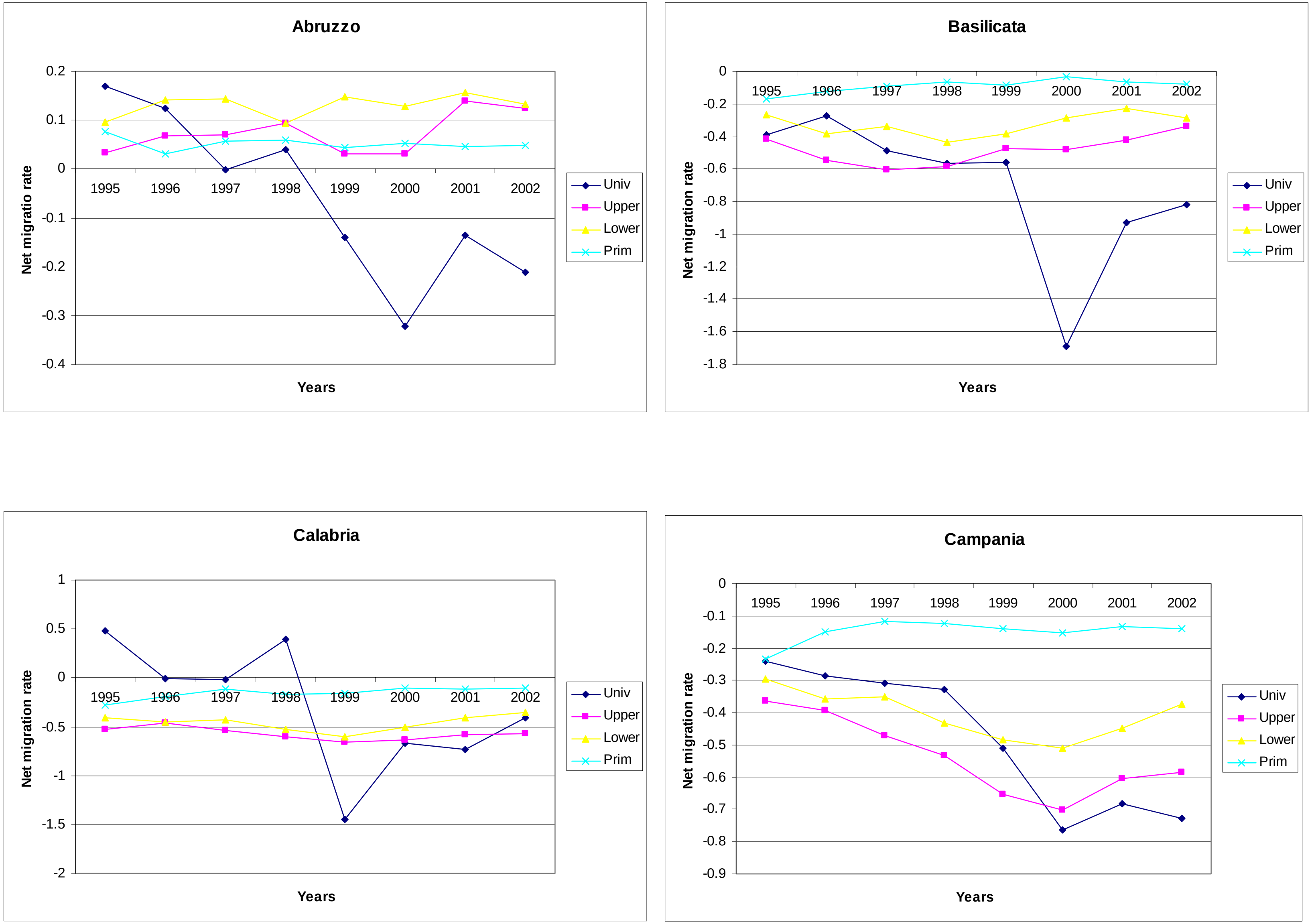
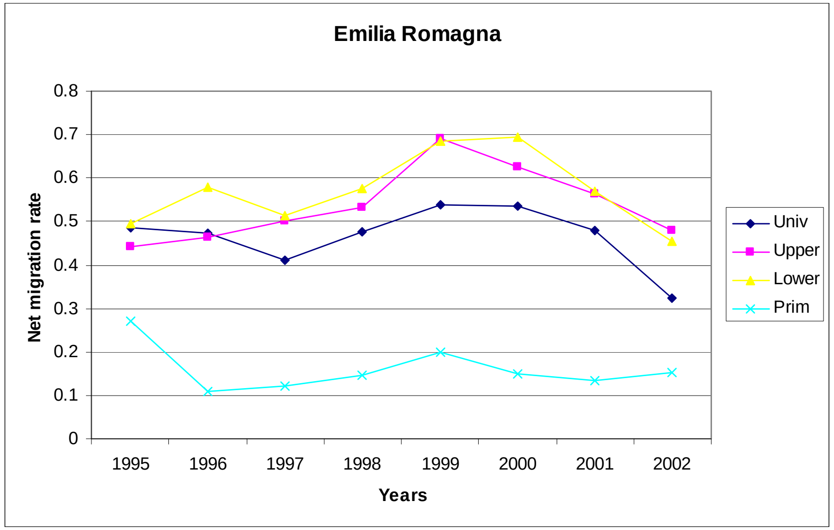
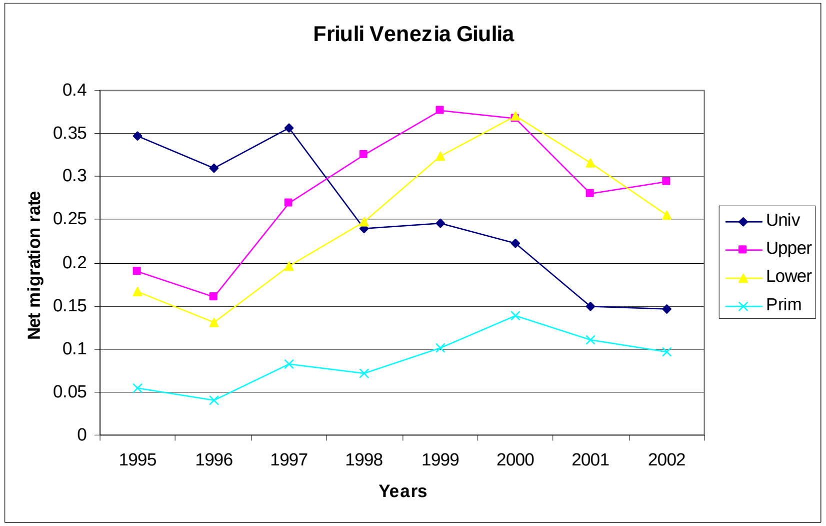
Table A1 - Elasticities of net regional migration rates to relative per capita GDP and relative unemployment.

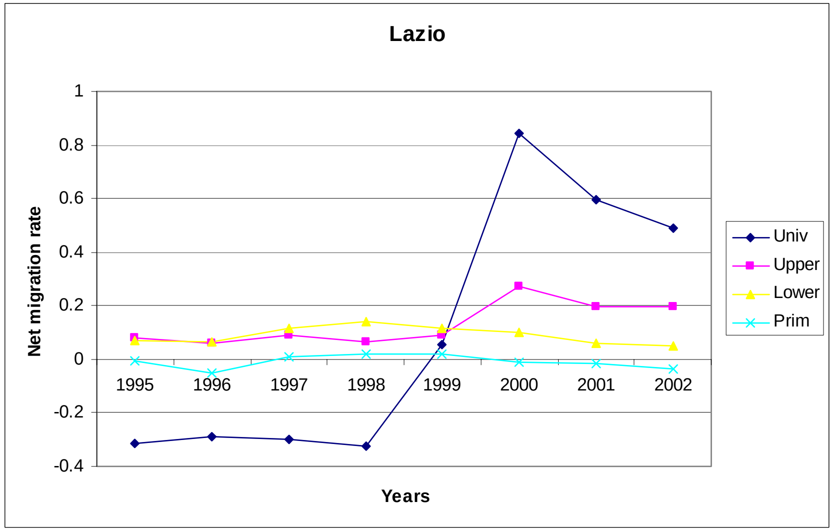
Regions	Elasticity of a 1% increase in relative per capita GDP			Elasticity of a 1% increase in relative unemployment rate		
	Univ.	Upper	Lower	Univ.	Upper	Lower
Piemonte	-3.4293	10.2332	8.2550	1.2971	-2.9035	-1.7431
Val D'Aosta	1.1042	1.4345	1.8249	-0.4177	-0.4070	-0.3853
Lombardia	2.4736	8.3467	8.1275	-0.9356	-2.3682	-1.7162
Trentino A. A.	2.1720	5.3359	4.1453	-0.8215	-1.5140	-0.8753
Veneto	9.1286	4.4599	4.2929	-3.4527	-1.2654	-0.9065
Friuli V. G.	2.5423	2.6408	2.8891	-0.9616	-0.7493	-0.6100
Liguria	-5.1048	-21.5748	10.5406	1.9308	6.1215	-2.2257
Emilia R.	1.3784	1.3908	1.2674	-0.5213	-0.3946	-0.2676
Toscana	1.7636	2.2749	2.7283	-0.6670	-0.6455	-0.5761
Umbria	2.2741	2.5916	2.3175	-0.8601	-0.7353	-0.4894
Marche	11.9866	2.5323	1.7536	-4.5337	-0.7185	-0.3703
Lazio	6.7504	5.7079	7.9598	-2.5532	-1.6195	-1.6808
Abruzzo	-10.7553	10.0949	5.5429	4.0680	-2.8643	-1.1704
Molise	-2.3773	-13.1345	-27.9554	0.8992	3.7267	5.9030
Campania	-1.3336	-1.3885	-1.7778	0.5044	0.3940	0.3754
Puglia	-1.0686	-1.4918	-2.4975	0.4042	0.4233	0.5274
Basilicata	-0.8978	-1.5442	-2.2155	0.3396	0.4382	0.4678
Calabria	-2.1394	-1.3106	-1.5678	0.8092	0.3719	0.3311
Sicilia	-2.4953	-2.2801	-2.2087	0.9438	0.6469	0.4664
Sardegna	-6.7682	-4.3910	-3.5393	2.5599	1.2459	0.7473

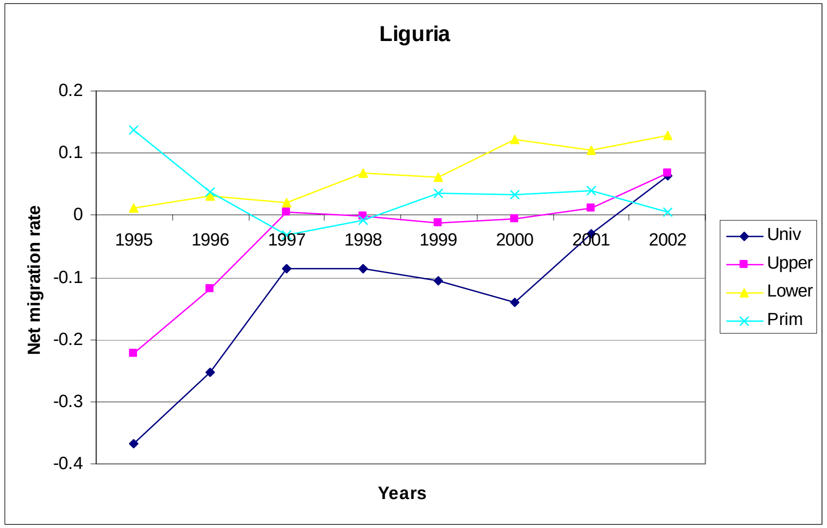
Figure 1. Net (inflows minus outflows) regional migration rates by educational attainment in the Italian regions.

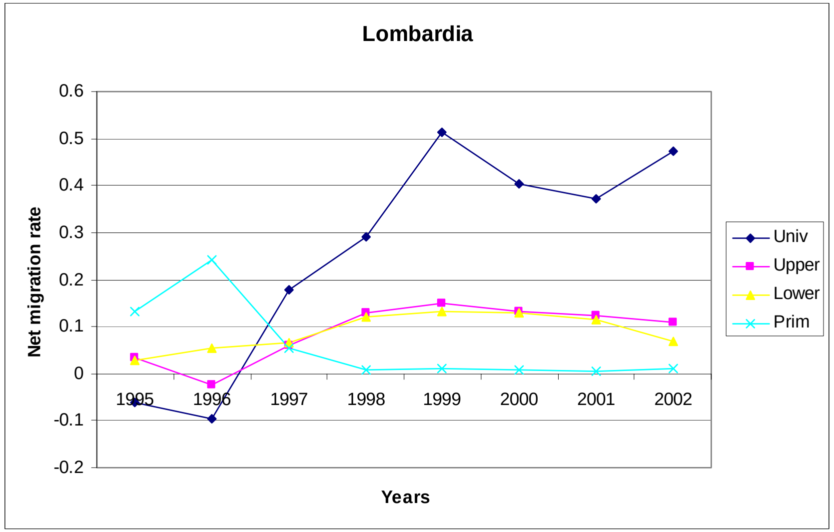


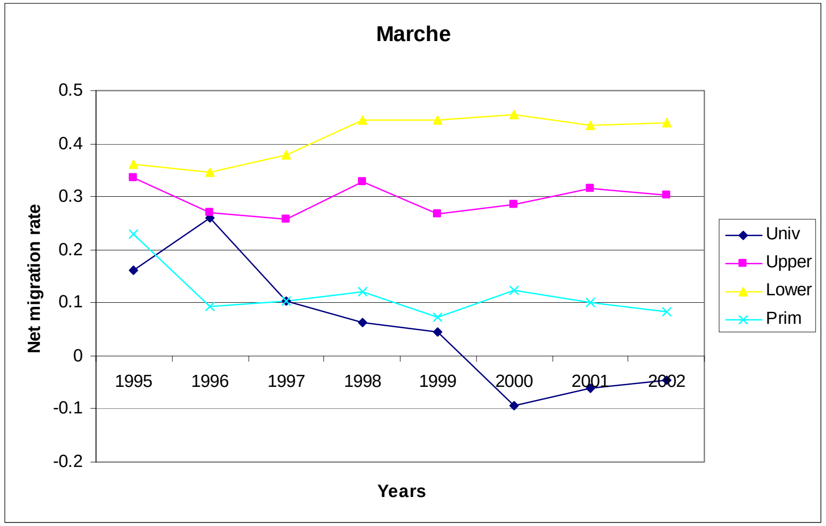

Emilia Romagna
Net migration rate
Years
Univ
Upper
Lower
Prim

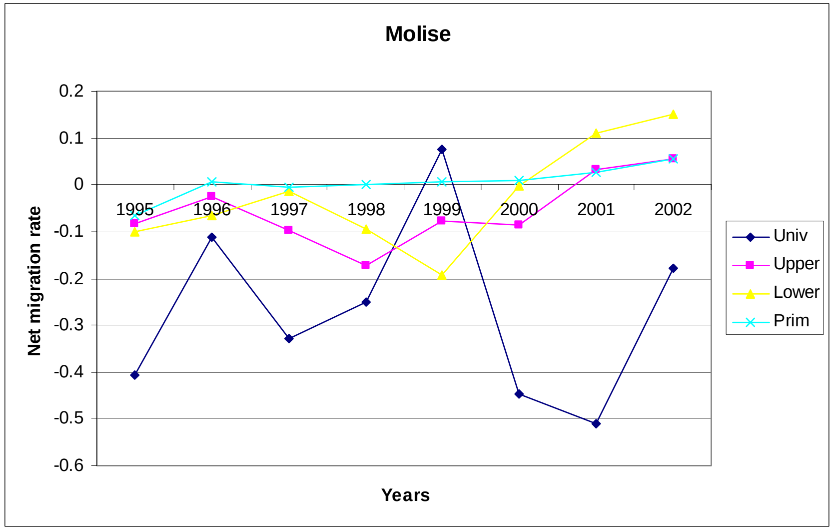

Friuli Venezia Giulia
Net migration rate
Years
Univ
Upper
Lower
Prim

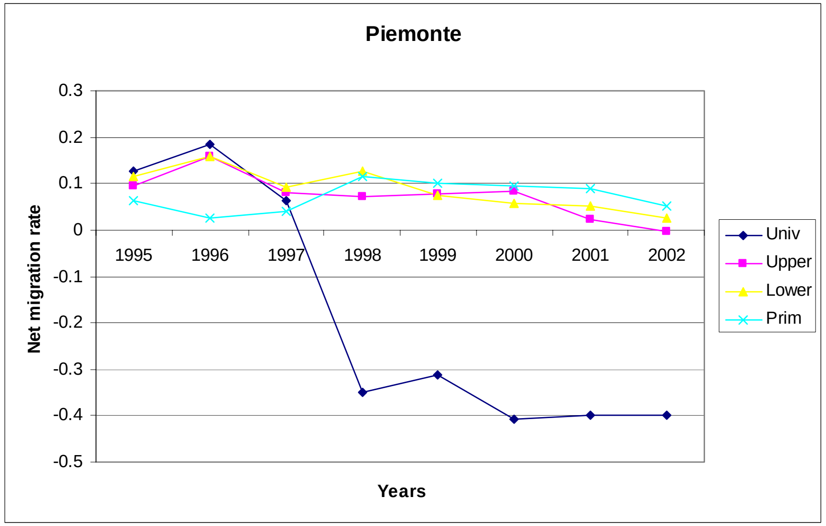

Lazio
Net migration rate
Years
Univ
Upper
Lower
Prim

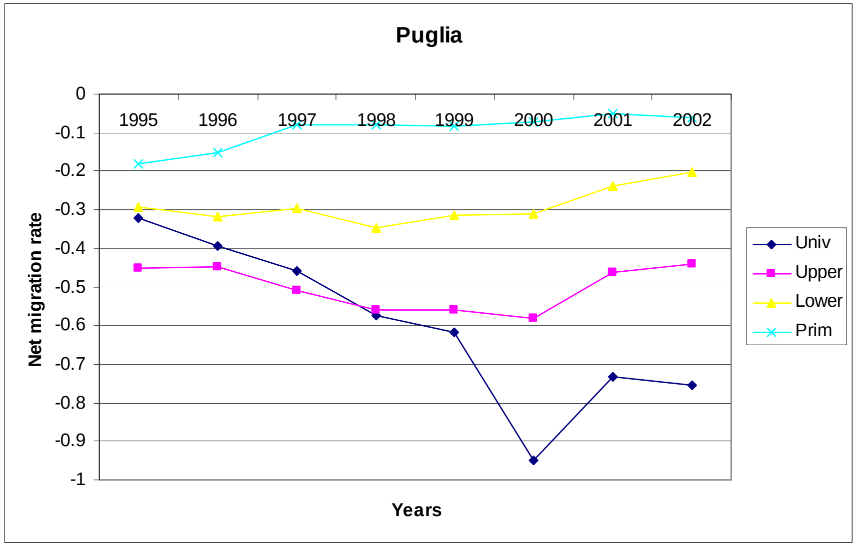

Liguria
Net migration rate
Years
Univ
Upper
Lower
Prim

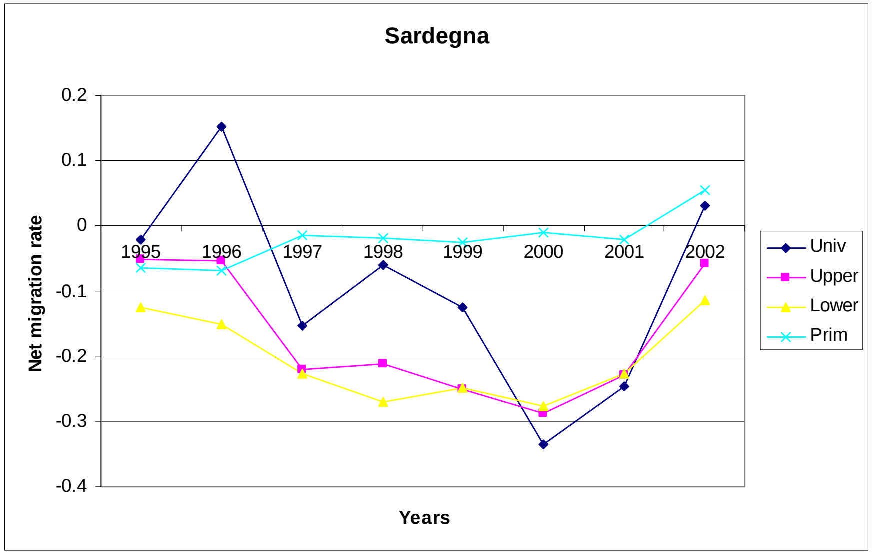

Lombardia
Net migration rate
Years
1995
1996
1997
1998
1999
2000
2001
2002
Univ
Upper
Lower
Prim

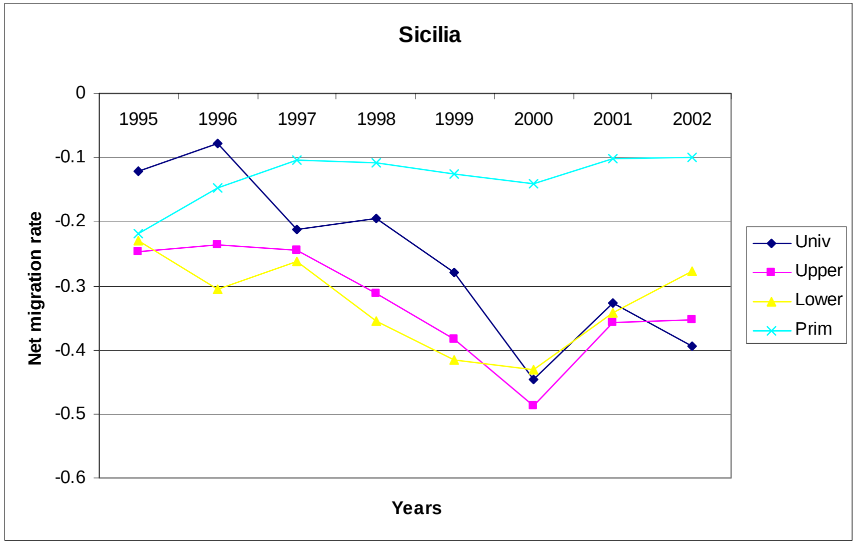

Marche
Net migration rate
Years
1995
1996
1997
1998
1999
2000
2001
2002
Univ
Upper
Lower
Prim

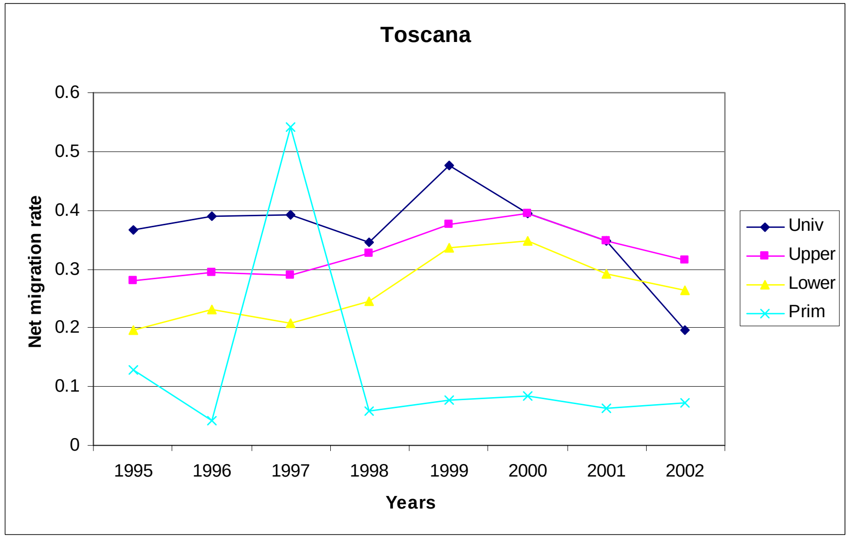

Molise
Net migration rate
Years
1995
1996
1997
1998
1999
2000
2001
2002
Univ
Upper
Lower
Prim

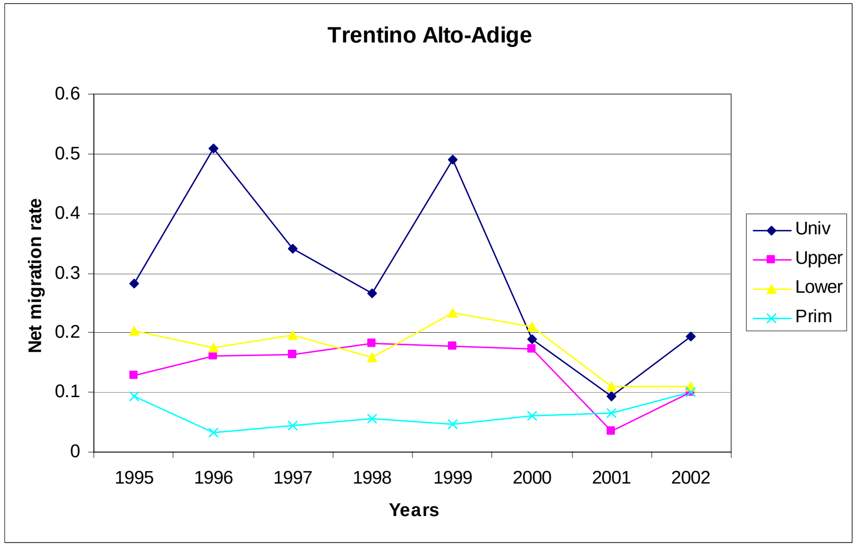

Piemonte
Net migration rate
Years
1995
1996
1997
1998
1999
2000
2001
2002
Univ
Upper
Lower
Prim

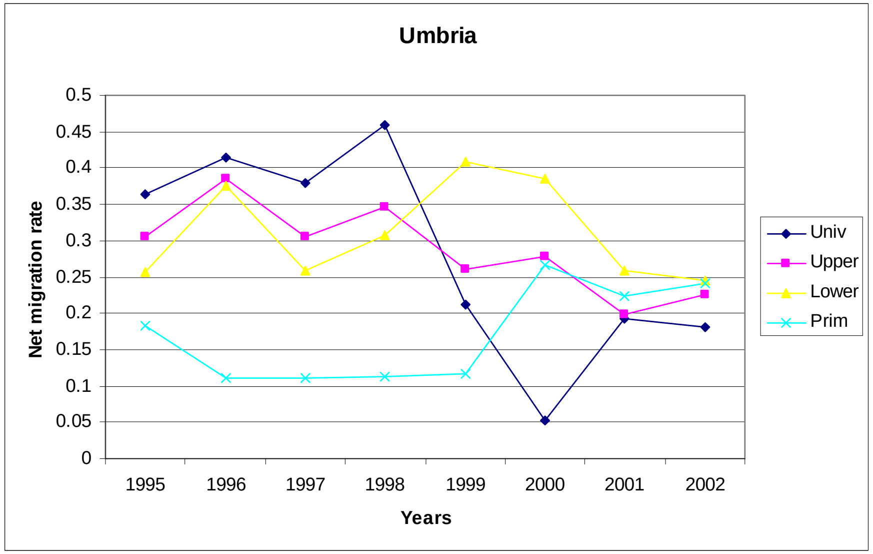

Puglia
Net migration rate
Years
Univ
Upper
Lower
Prim

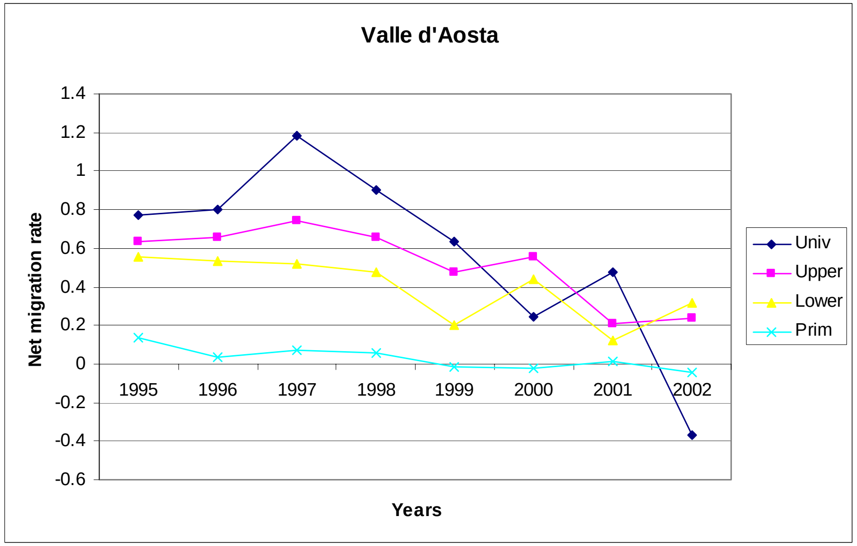

Sardegna
Net migration rate
Years
Univ
Upper
Lower
Prim

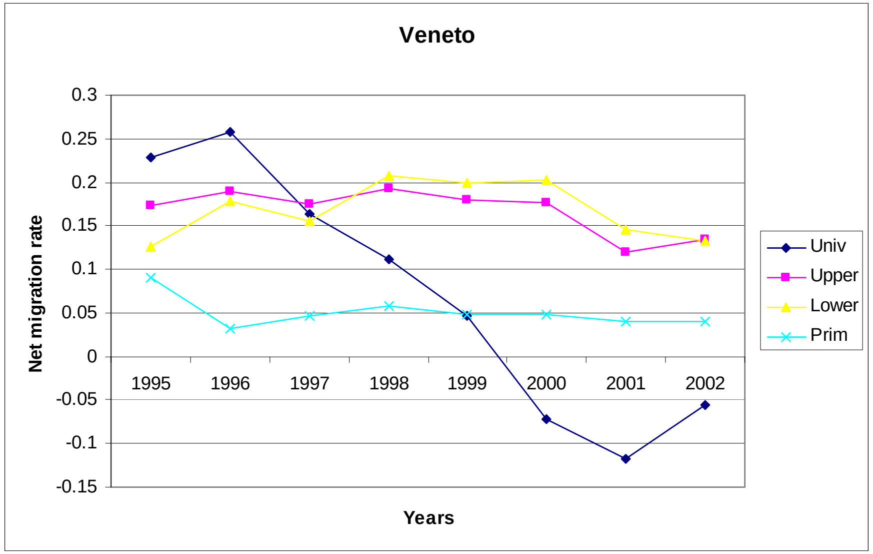

Sicilia
Net migration rate
Years
Univ
Upper
Lower
Prim


Toscana
Net migration rate
Years
Univ
Upper
Lower
Prim


Trentino Alto-Adige
Net migration rate
0.6
0.5
0.4
0.3
0.2
0.1
0
1995 1996 1997 1998 1999 2000 2001 2002
Years
Univ
Upper
Lower
Prim


Umbria
Net migration rate
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1995 1996 1997 1998 1999 2000 2001 2002
Years
Univ
Upper
Lower
Prim


Valle d'Aosta
Net migration rate
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
1995 1996 1997 1998 1999 2000 2001 2002
Years
Univ
Upper
Lower
Prim


Veneto
Net migration rate
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
1995 1996 1997 1998 1999 2000 2001 2002
Years
Univ
Upper
Lower
Prim