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Investigating Labour Market Determinants of Italian Internal Migration Flows 1997-2001.

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Abstract

Research issues to be addressed

In most developed countries the present and future regional demographic dynamics are increasingly determined by migration trends. Focusing on the demographic (gender and age) and geographic (origin-destination specific) articulation of the Italian internal migration system, the authors will provide deeper insights into the determining processes of the system at the turn from the 20th to the 21st century. The 1990s brought an upswing in the internal migration flows in Italy.

The main focus of this study is on the link between the labour market situation (in terms of economic growth and unemployment) and the internal migration flows of different age groups. In other words, how far does the regional economic situation 'explain' age group specific migration patterns?

Italian internal migration data

The primary source of Italian internal migration data is the system of decentralised population registers held by the municipalities. The National Institute of Statistics (Istat) provides yearly statistics on migration based on the declarations of change of residence (at destination) after an administrative procedure involving the municipalities of origin and destination. Data used in the present analysis refer to the years 1996 to 2001 for all 103 Italian provinces and are distinguished by gender, age group, and citizenship.

The strengths and weaknesses of population register data on migration are discussed after a detailed description of the statistical procedure to produce the yearly internal migration statistics. Italian internal migration data are influenced by several practices, which in many cases cause critical bias in the information on the actual place of residence of citizens, mainly due to the administrative

nature of data collected. In addition, because of the decentralised approach in maintaining the population registers, data quality can vary considerably from one municipality to another.

Estimates of the provincial population by gender and age group are also population register based and will be of use to estimate internal migration rates.

The socio-economic data necessary to characterise Italian provinces regarding economic growth and the labour market come from various sources, especially the economic census of 1996 and 2001.

Methodology to be used

Out-, in- and net-migration rates, as well as destination specific out-migration rates are calculated by age groups and the, quantitatively, most significant and interesting flows are analysed. To avoid unnecessary complexity, age groups with very similar geographic patterns will be aggregated.

The explanatory analysis of the origin-destination specific migration flows is based on regression analysis that takes into consideration the economic profile of the provinces of origin and destination, as well as the distance between them.

Results and indication of envisaged outcomes

The analysis of the Italian internal migration rates, will be divided in three parts:

1. A description of the age patterns of out- and in-migration and specific origin-destination flows. The distance between origin and destination is a decisive factor in distinguishing origin-destination flows, separating residential mobility in the areas of influence of the important Italian metropolitan provinces like Torino, Milano, Roma and Napoli from interregional migration flows, and more specifically, from the traditional South-North flows.

2. An analysis of the links between the age-group specific origin-destination flows and the economic characteristics of the Italian provinces. We will show to which degree origin-destination flows are linked to the dissimilarity of provinces of origin and provinces of destination regarding the employment and unemployment levels and trends. The regional patterns of the regression analysis results will be examined.

3. The inspection of residuals of the previous analysis will be used to formulate hypotheses regarding significant variations in the results for specific age groups and regarding specific geographic patterns.

To ‘simplify’ the presentation of our results we will concentrate our attention to the areas of origin of the migration flows towards the provinces of Central and North-eastern Italy, characterised by a flourishing labour market and showing considerable migration gains over the study period. These migration gains include important internal migration flows of foreign-born residents and are emphasised through international immigration flows.

Recent Italian internal migration patterns differ considerably from the patterns observed during the years of economic boom and the subsequent years of crises. The most dynamic migration flows shifted over the last decades to a certain extent from the industrial triangle of the Northwest to the areas of the "Third Italy" in northeastern and central Italy.

1. The increase of internal migration in Italy since the mi 1990s

The short-lived economic upturn in Italy in the second half of the 1990s was accompanied by a slight increase of internal mobility. Interregional migration increased from 279,000 in 1994, its lowest value for many years, to 359,000 moves in 2000. This increase of about 30 % over 6 years came to a halt in 2001 and 2002 with 320,000 and 336,000, respectively, interregional moves.

Italy is one of the countries with a relative low propensity towards interregional moves. The overall level of internal mobility in Italy is today very low in comparison to past experience and the situation in other countries, even if between 1994 and 2000 the internal migration rate increased from 4.9 to 6.2 interregional moves per 1,000 inhabitants. High homeownership rates, high indirect costs of moving and past emigration might be some of the factors contributing to relative low interregional mobility today.

The increasing role played by foreign citizens in the system of Italian internal migration should be noted. Between 1996 and 2002 the share of foreign citizens regarding Italian interregional moves increased from 4.5 % to 9.5 %.

Interregional migration flows continue to originate in the less developed areas of the *Mezzogiorno*, but the areas of destination changed considerably. The dominant destination areas are not any longer the industrialised metropolitan areas of north-western Italy (Milan, Turin, Genoa), as it was the case in the 1960s and 1970s, but the areas of the so-called Third Italy of north-eastern and central Italy, characterised by the model of the industrial district and a high level of economic as well as cultural and general socio-economic well-being.

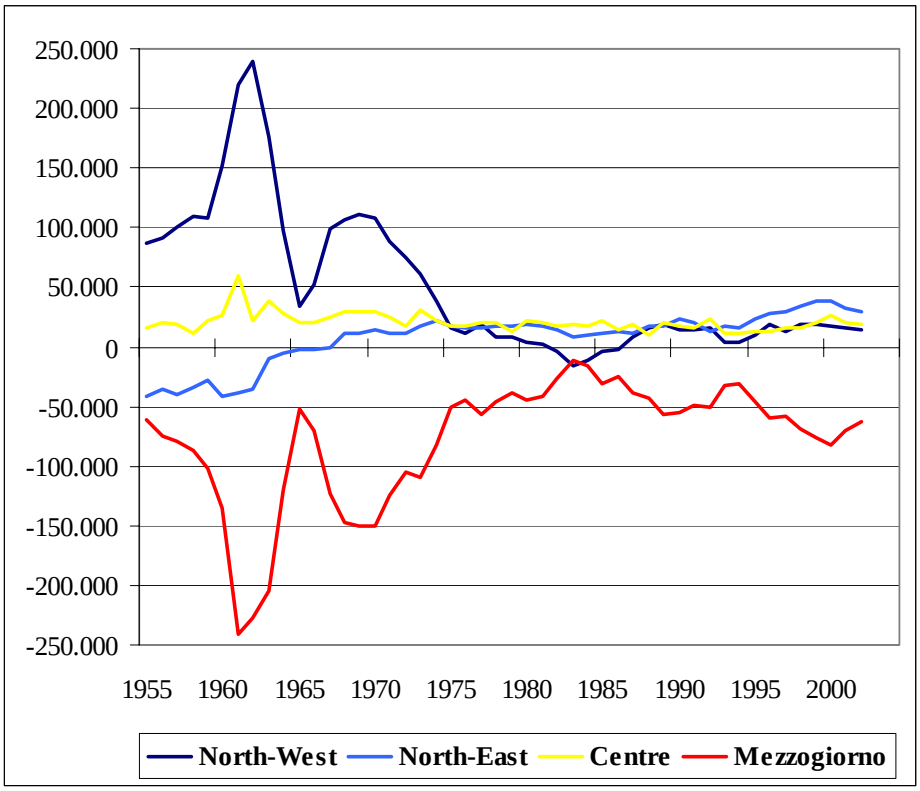
Table 1 – Net migration of the Italian major geographical divisions, 1997-2001

Geographic subdivision	Yearly net migration all ages		Yearly net migration 15-64 age group	
	abs.	per 1,000	abs.	per 1,000
North-West	17,600	1.2	15,000	1,5
North-East	33,800	3.2	27,700	3,9
Centre	18,900	1.7	14,700	2,0
Mezzogiorno	-70,400	-3.4	-57,300	-4.1

It seems that the 1990s brought back a mechanism caused by regional differentiated economic growth and re-establishing areas of attraction, in the past predominantly formed by the industrial triangle and today by the Third Italy, as well as areas of out-migration of the *Mezzogiorno*.

These South North differences in the socio-economic situation do persist for decades, even centuries. The Southern part of Italy is characterised by still relative high demographic growth rates, a low internal gross domestic product and high unemployment. However, the rates of growth of employment or jobs in industry, the service sector and public administration during the period 1996-2001 do not follow these same patterns of South North disparities. The dynamics in employment are geographically very varied and the *Mezzogiorno*, as the Centre-North, include areas of high job growth as well as areas of job losses. Even the areas in Southern Italy with a positive trend in employment continue to be characterised by continuous migration losses.

Figure 1 – Net migration of Italian major geographical divisions, 1955-2002



Hypothesis

The focus of the present study are the interregional migration patterns linked to the labour market, and accordingly the study concentrates on the age groups usually involved in economic activity. The study will consider gender and specific age groups to allow for the analysis of differences linked to the changing position in the labour market. Persons entering the labour market behave

usually differently from persons already settled in the labour market and from those leaving the labour market.

A further restriction was applied regarding the distance migrated in order to isolate the labour market determinants of internal mobility. Only long-distance moves, operationalised as interregional migrations with a minimum distance of 150 km and excluding accordingly residential mobility, are taken into account in the present study.

Interregional mobility depends on a multitude of factors and the change of residence, change of place of work, the change of the social and geographical reference points of daily life, is to be seen in the context of the life cycle. Many life cycle events trigger a change of residence. However, long-distance moves are often associated with entering or leaving the labour market. The phase of education plays in Italy a minor role for interregional migration patterns.

When studying the link between labour markets and internal migration the hypothesis is that internal migration is driven by labour market imbalances in the area of origin and destination. The importance of labour market imbalances in the areas of origin as a decisive factor for out-migration is in Italy mitigated by the formal and informal welfare provided in the areas of high unemployment could.

Among the pull factors the creation of new jobs is one of the most important factors in attracting migrants to an area. The creation of new employment depends on the economic situation of the area, and on the private and public investment in the area. However, before the creation of new employment can have an effect on interregional migration other pieces of the puzzle governing the regional labour markets have to fall into place:

- The demographic changes that occur and, more precisely, the degree new cohorts replace the persons leaving the age economic activity.
- The all over performance of the area – job losses or gains in a poor area have a different impact compared to job losses or gains in well-off areas. In general, the labour markets in well-off areas have less open and silent reserves of labour to be mobilised.
- The unemployment rate indicates the declared labour reserve and measures the quantitative miss-match of demand and offer of labour.

Since Ravenstein the distance between origin and destination of interregional migration flows is considered one important factor influencing the intensity of interregional migration flows. The intensity of exchanges between two areas diminishes with the distance between the areas. Existing studies hint at a relative low sensitiveness of migration flows to distance in Italy.

However, labour market dynamics are only one of a wide area of factors influencing the intensity and patterns of interregional migration. A general level of internal mobility does exist and, for example, return flows are a natural consequence of labour market oriented migration flows. The labour market determinants of interregional migration can only became apparent though focussing on specific migration flows.

The hypothesis is that the recent increase in interregional migration flows is not directed towards the provinces with the highest rate of growth in employment per se, but that migration flows are determined by a combination of the socio-economic situation of a province and the employment growth it is experiencing. Only the Italian provinces performing well economically and showing a consistent increase in employment should be able to attract new interregional migration flows.

2. Data and methods

Italian internal migration data

Data on Italian internal mobility are based on the population registers, or *anagrafe*, kept in each of the more than 8,000 municipalities. The rather complex procedure including a check between the municipality of origin and of destination of the internal move leads to very detailed information regarding the changes of residence occurring every year in Italy. Over the study period 1997-2001 a total of about 1,195,400 changes of residences between municipalities were observed per year, 1,223,600 in 2002. Of these 329,400 (336,500 in 2002) were interregional moves, meaning a change of residence between one of the 20 Italian regions. The geographical unit of observation of the present study are the 103 provinces, a subdivision of the Italy with important variations in size, but allowing a detailed analysis of the interregional migration patterns. Provinces are a good compromise regarding detailed information available and manageable number of territorial units for analysis. To assure that only long-distance migration flows are taken into consideration, a minimum inter-province distance criterion is set at 150 km[1]. This criterion reduces the number of changes of residence included in the study to 273,800 per year.

It is difficult to estimate the completeness of the registration of changes of residence. A recent study (Bubbico, 2005) indicates that the population registers reveal not all migration flows, especially if the migration project is seen as temporary. Probably the moment a move becomes permanent, the formal change of the place of residence will follow. On the other hand, some changes of residence, for example in the case of second homes or multiple residences, could be fictitious and serve primarily to lower the amount of taxes due.

[1] Referring to the population centre of each province.

Socio-demographic and economic data

The labour market is multi-facetted and a multitude of information regarding the labour markets is included in the analysis.

One fundamental aspect of the labour market is the generational change of the population in the age bracket 15 to 64. To measure the expected change over the 5-year period 1997-2001 the population 10-14 is associated to the population 60-64, taking into consideration the population of January 1st 1997. This demographic replacement ratio takes the value 1 in the case both age groups have the same size. Values above 1 indicate an expansion of the population in the age of economic activity, and values below 1 a contraction. In fact, in Italy the population leaving this age group is replaced during the study period only to a degree of about 90 %.

The overall economic performance of the provinces is measured by the estimate of the average value 1997-2001 of the gross domestic product per capita expressed in current prizes in €.

The most often used indicator of the quantitative performance of labour markets is the unemployment rate. In the 1990s improvements were made to the Italian labour force survey and Istat publishes yearly estimates of unemployment rates for various age groups at the provincial level. For the purposes of the present study the average unemployment rate of the population 15 to 64 for the years 1997 to 2001 is considered, after a detailed analysis showed no significant differences between the geographic patterns of unemployment in specific age groups and over the five-year period.

One of the focuses of the study is to isolate the effect of change of employment in the provinces on interregional migration patterns. Adjustments were made to correct the limited coverage of the 1996 intermediate census and to render the two censuses comparable. The trend in employment in the provinces 1996-2001 is measured as the employment 2001 related to employment in 1996. Trends in employment 1996-2001 at the provincial level are in some cases influenced by special events like structural crises in certain industries of central-northern Italy, or the growth of employment due to the creation of 8 new provinces in 1995, which brought an extension of employment in the public sector in the areas concerned.

The first three indices (see Table 2) follow to a large extend the evident traditional division of Italy between the economically well-off central-northern part and the *Mezzogiorno* with still high unemployment rates. Whereas most areas of central-northern Italy already experience the shrinking of the cohorts entering the labour market, the provinces of the *Mezzogiorno* are still characterised by high numbers entering the labour market.

Table 2 – Statistical information regarding the independent variables considered in the study

	Demographic replacement ratio 1.1.1997	Gross domestic product per capita (1997-2001)	Unemployment rate 15-64 (1997-2001)	Trend in employment 1996-2001
		in €	in %	
Italy	0.903	17,320	11.2	1.083
Minimum	0.465	9,302	2.2	0.947
(Name of province)	(Savona,N-W)	(Crotone, Mezz)	(Lecco, N-W)	(Belluno, N-E)
Maximum	1.671	26,960	30.2	1.187
(Name of province)	(Naples, Mezz)	(Milano, N-W)	(Enna, Mezz)	(Crotone, Mezz)
Mean (weighted)	0.939	17381	11.8	1.090
Standard deviation (weighted)	0.3342	4971.3	8.30	0.0363
Coefficient of variation in %	35.6	28.6	70.2	3.3

Note: To calculate the statistics the provincial population aged 15-64 was used as weights.

The matrix of the correlation coefficients (see Table 3) between the variables show a high correlation between the first 3 variables describing the socio-demographic, the economic and the socio-economic situation of the provinces. The indices measuring the change in the number of jobs seems to have no link or only weak links to these variables.

Table 3 – Correlation coefficients between the independent variables considered in the study

Independent variable	Demographic replacement ratio 1.1.1997	Gross domestic product per capita (1997-2001)	Unemployment rate 15-64 (in %) (1997-2001)	Trend in employment 1996-2001
Demographic replacement ratio 1.1.1997	1,000	-0,797**	0,843**	0,090
Gross domestic product per capita	-0,797**	1,000	-0,826**	-0,042
Unemployment rate 15-64 (in %)	0,843**	-0,826**	1,000	-0,069
Trend in employment 1996-2001	0,090	-0,042	-0,069	1,000

Note: To calculate the correlation coefficients the provincial population aged 15-64 was used as weights.

Methods

To group the provinces according to the 4 independent variables taken into consideration the Spss procedure cluster k-means was retained. Since the variables are measured on different scales, they are z-standardised (mean = 0, standard deviation = 1). The cluster k-means procedure identifies homogeneous groups of cases regarding the selected variables. The Euclidian distance is used.

Out-, in- and net-migration rates are calculated by age groups for the resulting clusters. The results are presented for 5-year age groups to retain the detailed information available, even if the geographic patterns do not differ significantly.

Origin-destination specific migration flow rates allow for an in detail explanatory analysis of the determinants long-distance migrations in Italy.

3. The clusters of Italian provinces according to their labour markets

The cluster analysis

Following the basic hypotheses of the study a solution of 5 clusters was chosen and the starting values of the clusters were set at the extremes and the centre of a plane (-1, 0 and 1) opened by the 4

independent variables, taking into consideration the high correlation of the 3 variables describing the demographic, economic and socio-economic aspects of the provincial labour markets. The final solution of the cluster analysis confirms the expected characteristics of the clusters. The naming of the 5 different clusters attempts to put a simple label on a relative complex situation and precedence was given to the economic aspect of the obtained results. Evidently, the ageing of the labour force is more important in the well-off areas of Italy.

Table 4 – Cluster centres

Variables	Mean values of variables for clusters (z-standardised)				
	1 Well-off provinces with employment growth	2 Well-off provinces with decline in employment	3 'Average' provinces	4 Poor provinces with employment growth	5 Poor provinces with decline in employment
Demographic replacement ratio 1.1.1997	-0.48	-0.82	0.12	1.08	1.47
Gross domestic product pro capita	0.61	0.77	-0.65	-1.17	-1.23
Unemployment rate 15-64	-0.70	-0.66	0.03	0.97	1.69
Trend in employment 1996-2001	0.80	-0.74	-0.31	0.99	-0.95

The majority of the Italian provinces (61) and their population (61.3%) fall into the category of well-off provinces (see Table 5). 25 provinces are well off and show a growth in employment. The provinces still experiencing a complete replacement of the cohorts leaving the age of economic activity, but with a low gross domestic product per capita and high unemployment are 28. They represent 31,9 % of the Italian population. Of these 29 relative poor provinces 9 even experienced a further loss of employment.

Table 5 – Size of the resulting clusters

Cluster	Provinces		Population weighted provinces	
	absolute	in %	absolute	in %
1 – Well-off provinces with employment growth	25	24,3	28,5	27,7
2 – Well-off provinces with decline in employment	36	35,0	34,6	33,6
3 – Average provinces	14	13,6	7,0	6,8
4 – Poor provinces with employment growth	19	18,4	18,0	17,5
5 – Poor provinces with decline in employment	9	8,7	14,8	14,4
Italy	103	100,0	103,0	100,0

Table 6 presents the average values of the independent variables for the clusters and 3 indices describing the situation of the clusters regarding interregional migration. Even if clusters are very distinct from each other, as shown in Figure 2, the minimum and maximum indicate a certain overlap between the clusters. The average of gross domestic product of both well-off clusters are €20,400 and €21,200, respectively, and €14,100 for the cluster of the 'average' provinces and only €11,300 and €11,500 for both poor clusters. Unemployment is varying accordingly with low levels of 6.0 and 6.3 % in the well-off clusters and values of 19.8 and 25.9 % in the poor clusters. Whereas

in the well-off clusters it could be expected that only 77.9 and 66.4 % of the cohorts leaving the 15-64 age group be replaced by youth, in the poor clusters the 15-64 age group is still expanding.

Table 6 – Basic statistics of the independent variables and interregional migration rates

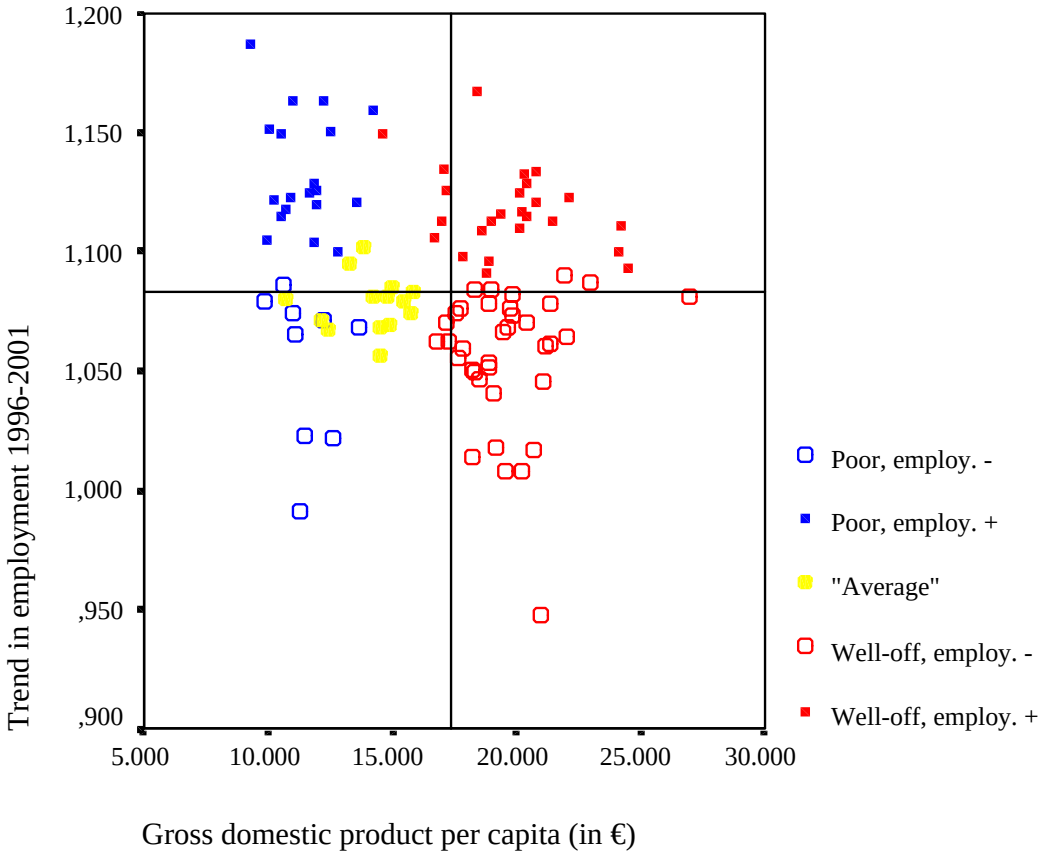
	Minimum	Maximum	Mean
1 Well-off provinces with employment growth			
Demographic replacement ratio 1.1.1997	0.493	1.158	0.779
Gross domestic product pro capita	14,602	24,479	20,419
Unemployment rate 15-64 (in %)	2.3	11.3	6.0
Trend in employment 1996-2001	1.091	1.167	1.120
In-migration rate 15-64 (in ‰)	6.9	26.2	13.9
Out-migration rate 15-64 (in ‰)	4.5	11.5	7.8
Net-migration rate 15-64 (in ‰)	-0.2	18.2	6.3
2 Well-off provinces with decline in employment			
Demographic replacement ratio 1.1.1997	0.465	0.916	0.664
Gross domestic product pro capita	16,812	26,960	21,194
Unemployment rate 15-64 (in %)	2.2	11.2	6.3
Trend in employment 1996-2001	0.947	1.090	1.063
In-migration rate 15-64 (in ‰)	5.3	20.4	11.8
Out-migration rate 15-64 (in ‰)	4.2	13.2	8.1
Net-migration rate 15-64 (in ‰)	-0.4	13.1	3.7
3 Average provinces			
Demographic replacement ratio 1.1.1997	0.582	1.176	0.978
Gross domestic product pro capita	10,701	15,875	14,138
Unemployment rate 15-64 (in %)	7.9	19.6	12.1
Trend in employment 1996-2001	1.056	1.102	1.079
In-migration rate 15-64 (in ‰)	4.0	16.6	8.2
Out-migration rate 15-64 (in ‰)	5.9	17.9	9.6
Net-migration rate 15-64 (in ‰)	-10.1	6.0	-1.4
4 Poor provinces with employment growth			
Demographic replacement ratio 1.1.1997	0.986	1.638	1.300
Gross domestic product pro capita	9,302	14,216	11,542
Unemployment rate 15-64 (in %)	13.2	30.2	19.8
Trend in employment 1996-2001	1.100	1.187	1.126
In-migration rate 15-64 (in ‰)	5.9	18.4	8.6
Out-migration rate 15-64 (in ‰)	10.7	39.0	16.8
Net-migration rate 15-64 (in ‰)	-20.4	-2.2	-8.1
5 Poor provinces with decline in employment			
Demographic replacement ratio 1.1.1997	1.092	1.671	1.428
Gross domestic product pro capita	9,806	13,657	11,279
Unemployment rate 15-64 (in %)	16.9	27.7	25.9
Trend in employment 1996-2001	0.991	1.087	1.056
In-migration rate 15-64 (in ‰)	5.7	14.4	7.4
Out-migration rate 15-64 (in ‰)	13.6	24.4	17.5
Net-migration rate 15-64 (in ‰)	-12.4	-5.2	-9.8
Italy			
Demographic replacement ratio 1.1.1997	0.465	1.671	0.939
Gross domestic product pro capita	9,302	26,960	17,381
Unemployment rate 15-64 (in %)	2.2	30.2	11.8
Trend in employment 1996-2001	0.947	1.187	1.090
In-migration rate 15-64 (in ‰)	4.0	26.2	10.9
Out-migration rate 15-64 (in ‰)	4.2	39.0	11.0
Net-migration rate 15-64 (in ‰)	-20.4	18.2	0.0

Note: To calculate the correlation coefficients the provincial population aged 15-64 was used as weights. The migration rates include interregional migration flows with a minimum distance of 150 km and refer to the average of the study period 1997-2001.

The migration rates of the 15 to 64 years old give a first indication of the differential mobility patterns of each cluster: Whereas the well-off clusters are characterised by high levels of interregional long-distance in-migration and low levels of out-migration, the poor clusters show an opposite situation. This leads to migration gains of 6.3 and 3.7 per 1,000 per year in the well-off clusters and migration losses of 8.1 and 9.8 per 1,000 per year in the poor clusters.

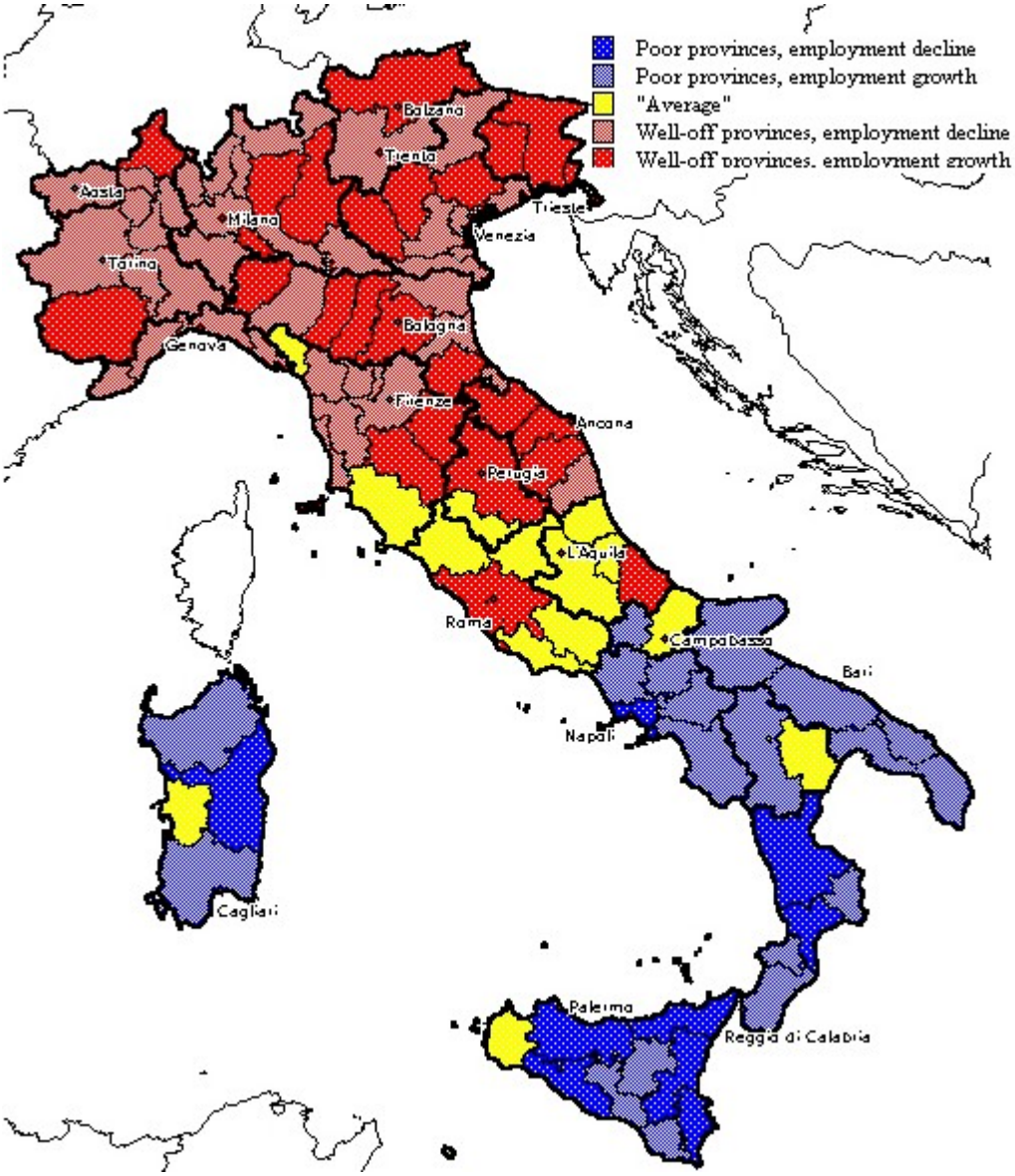
In figure 2 the position of the Italian provinces regarding gross domestic product, evidently representing also demographic replacement and unemployment rates, and employment growth.

Figure 2 – Provinces in the GDP – employment trend by cluster membership



As expected the well-off provinces dominate central and northern Italy (see Figure 3), whereas the poorer provinces are predominantly situated in Southern Italy. The geographic pattern of employment growth is more varied but somewhat concentrated in north-eastern and central Italy, and the southern regions Campania and Puglia. Employment decline is experienced in naples and several Sicilian provinces. The results are similar to an earlier analysis (Istat, 2004), but differ somewhat due to changes in the variables taken into consideration.

Figure 3 – Geographic distribution of cluster membership



4. Characteristics of migrations between the clusters

General characteristics of migrations between clusters

The analysis of migration patterns of the 5 resulting clusters confirms the chosen approach, since the migration between the clusters show significant characteristics. Information contained in table 7 gives an overview of migration flows in absolute terms and in form of rates. The migration flows between the clusters show a significant imbalance between the well off and the poor clusters. The yearly long-distance migration gains of the well-off clusters are 28,900 and 24,300 persons, corresponding to a migration loss of the poor clusters. The highest out-migration rates are observed in the poor clusters toward the well-off clusters. The net-migration rates underline the minor importance of exchanges between the two well-off and the two poor clusters. Migration losses and

gains travel between the poor and well-off clusters. Employment growth seems to have a positive effect on migration gains, when comparing cluster 1 and 2, and a mitigating effect on migration losses when comparing clusters 4 and 5.

Table 7 - Interregional migration flows between clusters, 15 to 64 years old

Origin clusters	Destinations clusters				
	1	2	3	4	5
	Migration flows				
1 – Well-off provinces with employment growth	10,282	12,387	2,808	9,563	6,542
2 – Well-off provinces with decline in employment	13,675	13,224	3,934	12,640	8,908
3 – "Average" provinces	4,850	5,058	365	1,515	861
4 – Poor provinces with employment growth	24,847	24,924	2,097	2,240	2,383
5 – Poor provinces with decline in employment	21,149	20,893	1,564	2,790	1,808
	Net migration				
1 – Well-off provinces with employment growth		1,288	2,042	15,284	14,607
2 – Well-off provinces with decline in employment	-1,288		1,124	12,285	11,985
3 – "Average" provinces	-2,042	-1,124		583	703
4 – Poor provinces with employment growth	-15,284	-12,285	-583		407
5 – Poor provinces with decline in employment	-14,607	-11,985	-703	-407	
	Origin specific out-migration rates (per ‰)				
1 – Well-off provinces with employment growth	0.96	1.16	0.26	0.89	0.61
2 – Well-off provinces with decline in employment	1.05	1.02	0.30	0.97	0.69
3 – "Average" provinces	1.84	1.92	0.14	0.58	0.33
4 – Poor provinces with employment growth	3.67	3.68	0.31	0.33	0.35
5 – Poor provinces with decline in employment	3.80	3.75	0.28	0.50	0.32
	Origin and destination specific net-migration rates (per ‰)				
1 – Well-off provinces with employment growth		0.12	0.19	1.43	1.36
2 – Well-off provinces with decline in employment	-0.10		0.09	0.95	0.92
3 – "Average" provinces	-0.78	-0.43		0.22	0.27
4 – Poor provinces with employment growth	-2.26	-1.81	-0.09		0.06
5 – Poor provinces with decline in employment	-2.62	-2.15	-0.13	-0.07	

The age profiles of migrations between clusters

The general characteristics of migration flows between clusters already indicate the profound disparities of their characteristics. Figure 4 and 5 present, respectively, the 5-year age group specific out- and in-migration rates of the clusters. In most cases no significant gender pattern was observed and results are presented for both sexes combined. Out-migration rates are low for the well-off provinces with and without employment growth. The 'average' cluster has a profile of migration rates close to the national average. The poorer provinces, both with and without employment growth, have significantly higher out-migration rates. In-migration rates differentiate more clearly according to the change of employment during the study period. Employment growth leads apparently to significantly higher long-distance in-migration in the 20-34 age group. Net-migration rates (see Figure 6) vary accordingly to the out- and in-migration rates.

Figure 4 – Interregional out-migration rates of clusters, average 1997-2001

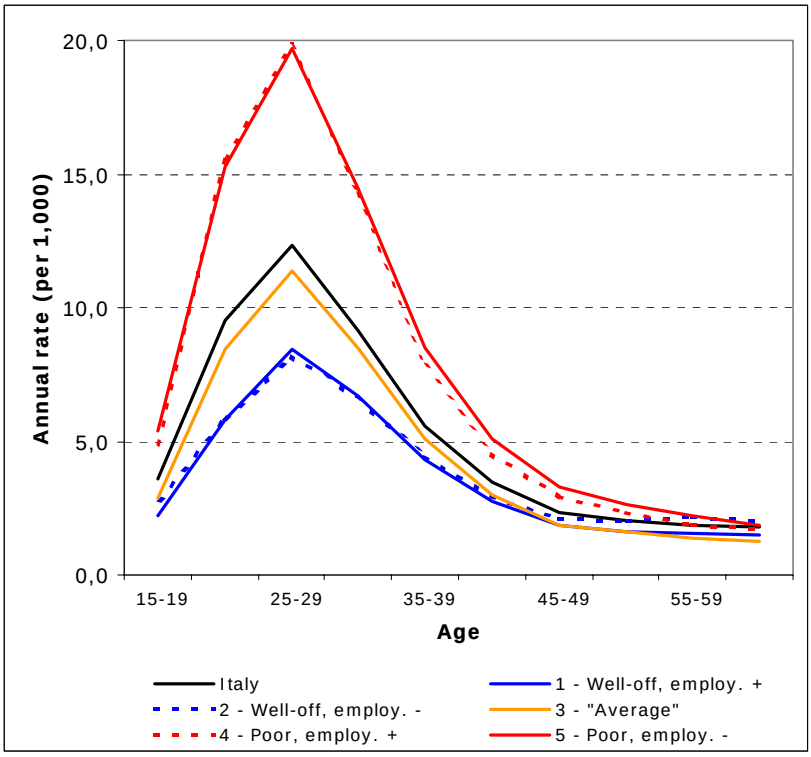


Figure 5 – Interregional in-migration rates of clusters, average 1997-2001

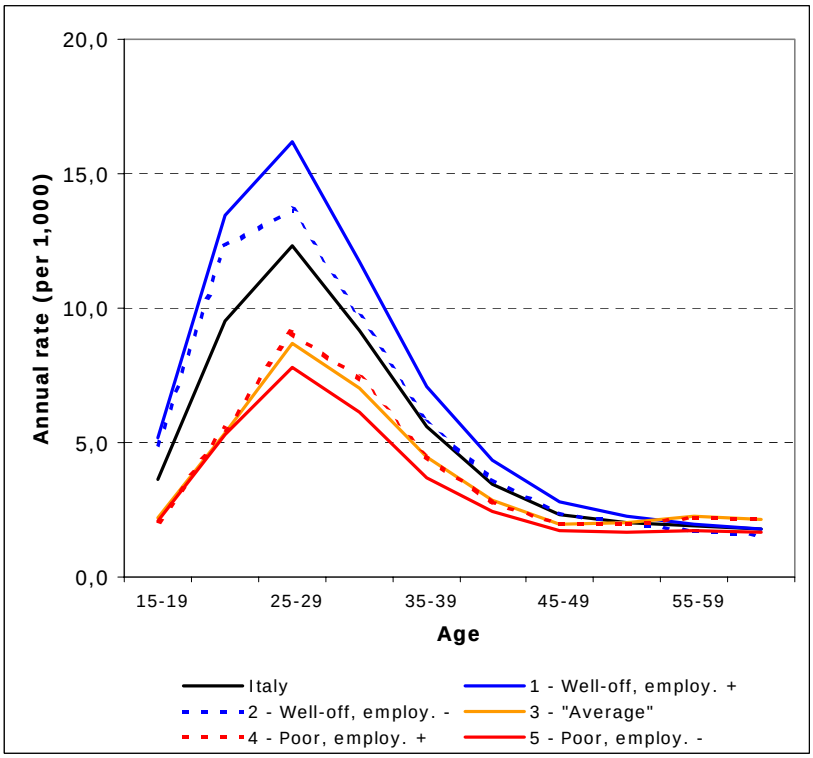


Figure 6 – Interregional net-migration rates of clusters, average 1997-2001

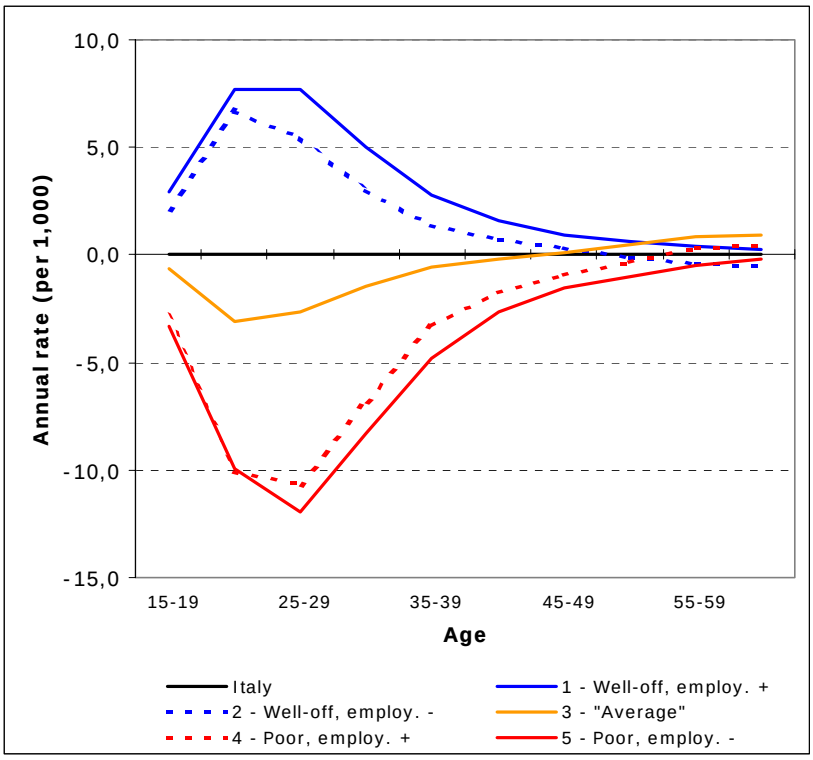


Figure 7 – Interregional net-migration rates of cluster 1 'Well-off provinces, employment+'

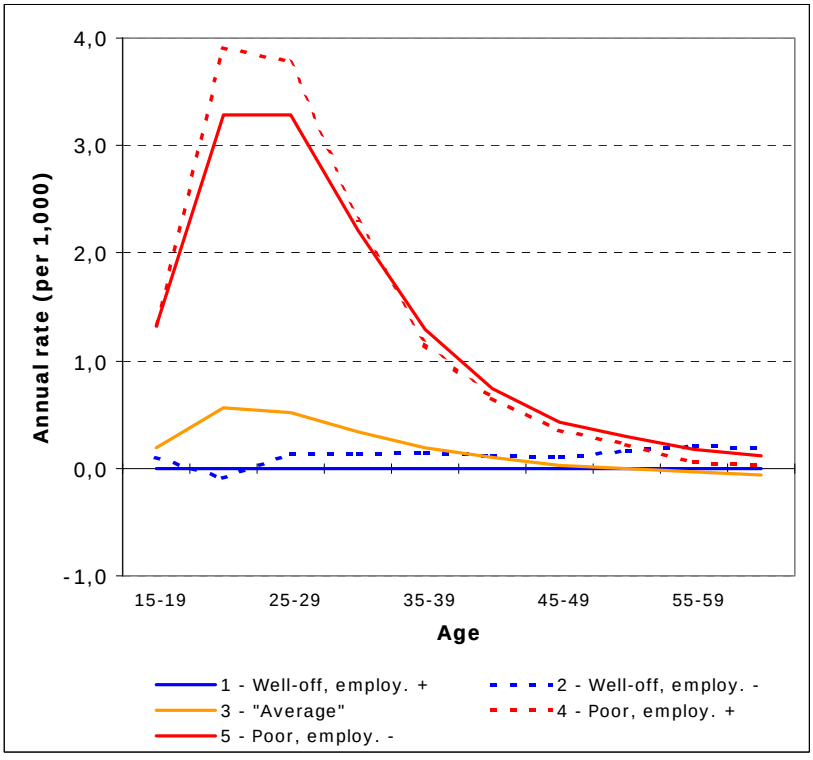
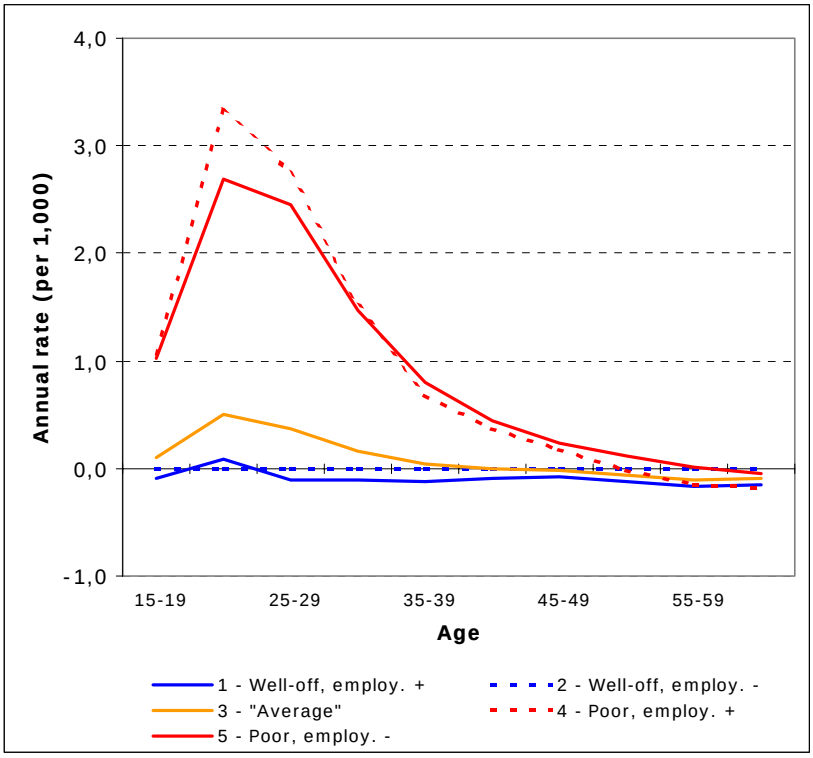


Figure 7 and 8 present the age-specific migration gains for the two well-off clusters: patterns are very similar between the two clusters, but the intensity differs slightly. Net-migration rates with both poorer clusters are higher for the first cluster with employment growth. It should be noted that

the rates referring to the poorer provinces with employment growth are higher, because they quantitatively more important.

Figure 8 – Interregional net-migration rates of cluster 2 'Well-off provinces, employment -'



The determinants of migration flows

The significance of the chosen labour market indices is tested with a simple correlation analysis at the level of provinces, retaining in-, out- and net-migration rates as dependent variable, and at the level of origin to destination migration flows, retaining migration flow rates as dependent variable.

Table 8 confirms the high correlation between the migration rates and the indices describing the labour market situation. The higher the correlation coefficients, the greater are the similarities between the geographic patterns of the variables. In all cases net-migration rates have the highest coefficients, compared to in- and out-migration rates.

Table 8 – Correlation coefficients between migration rates and the independent variables

Migration rates of the 15 to 64 years old		Correlation coefficients over 103 provinces			
		Demographic replacement ratio 1.1.1997	Gross domestic product per capita (1997-2001)	Unemployment rate 15-64 (in %) (1997-2001)	Trend in employment 1996-2001
In-migration rate 15-64	Men	-0,566**	0,569**	-0,490**	0,140
	Women	-0,596**	0,594**	-0,474**	0,128
Out-migration rate 15-64	Men	0,744**	-0,681**	0,875**	0,036
	Women	0,685**	-0,643**	0,816**	0,055
Net-migration rate 15-64	Men	-0,848**	0,805**	-0,900**	0,052
	Women	-0,847**	0,816**	-0,864**	0,040

Note: To calculate the correlation coefficients the provincial population aged 15-64 was used as weights.

Out-migration rates are higher in the case of crowding at entering the labour market, a low level of gross domestic product and high levels of unemployment. Relationships anticipated by the original hypothesis. As already mentioned, employment change by itself is not correlated with migration rates.

Table 9 and 10 analyse the same relationships at the level of origin destination specific migration flows. The labour market indices included in the analysis refer to the province of origin, the province of destination and the relation between the values of the indices at destination to the one at origin. Table 9 present the results of the correlation analysis for all flows, whereas in table 10 only the flows between the provinces of the two poorer clusters and the provinces of the two well-off clusters are included.

The correlation coefficients for the migration flow rates follow, as expected, the same logic as the analysis at the provincial level. As expected the sign of the coefficients change according to where the independent. The results indicate that the demographic replacement ratio and the unemployment rate can be considered as push factors, since the coefficients are higher when measured at the area of origin. In the case of the gross domestic product the relation between the value of the GDP at destination and at origin shows the highest values.

Table 9 – Correlation coefficients between migration rates and the independent variables, all flows

Flow migration rates of the 15 to 64 years old		Correlation coefficients			
		Demographic replacement ratio 1.1.1997	Gross domestic product per capita (1997-2001)	Unemployment rate 15-64 (in %) (1997-2001)	Trend in employment 1996-2001
Independent variables at origin					
Flow migration rates 15-64	Men	0,301**	-0,250**	0,353**	0,004
	Women	0,240**	-0,194**	0,286**	0,009
Independent variables at destination					
Flow migration rates 15-64	Men	-0,211**	0,237**	-0,190**	0,028
	Women	-0,216**	0,230**	-0,181**	0,006
Relation between independent variables at destination compared to origin					
Flow migration rates 15-64	Men	-0,239**	0,420**	-0,199**	0,021*
	Women	-0,220**	0,369**	-0,179**	0,001

Note: To calculate the correlation coefficients the provincial population aged 15-64 was used as weights.

In table 10 the analysis is limited to the flows between the poorer and the richer provinces. Having chosen the two extremes of the Italian socio-economic spectrum the correlation coefficients based on the relation of the labour market situation between destination and origin are somewhat stronger. The values for the demographic replacement ratio and the unemployment rate increased slightly. The trend of employment 1996-2001 shows finally some significant results.

The correlation coefficients between the migration flow rates and the distance between the two provinces indicate that long distance moves in Italy are not inversely related to the distance between

the provinces. To the contrary: the longer the distance the more intense are the long distance migrations.

Table 10 – Correlation coefficients between migration rates and the independent variables, only flows from clusters 4+5 to 1+2

Flow migration rates of the 15 to 64 years old		Correlation coefficients			
		Demographic replacement ratio 1.1.1997	Gross domestic product per capita (1997-2001)	Unemployment rate 15-64 (in %) (1997-2001)	Trend in employment 1996-2001
Independent variables at origin					
Flow migration rate 15-64	Men	0,272**	-0,291**	0,277**	-0,017
	Women	0,224**	-0,282**	0,239**	0,011
Independent variables at destination					
Flow migration rate 15-64	Men	-0,125**	0,233**	-0,150**	0,168**
	Women	-0,138**	0,217**	-0,093**	0,135**
Relation between independent variables at destination compared to origin					
Flow migration rate 15-64	Men	-0,267**	0,380**	-0,282**	0,134**
	Women	-0,248**	0,364**	-0,229**	0,090**

Note: To calculate the correlation coefficients the provincial population aged 15-64 was used as weights.

6. Conclusions

The hypothesis that the recent increase in interregional migration flows is not directed towards the provinces with the highest rate of growth in employment per se, but that migration flows are determined by a combination of the socio-economic situation of a province and the employment growth it is experiencing, could be confirmed. Italian provinces performing well economically, even if they are not showing a consistent increase in employment, are able to attract new interregional migration flows. Southern provinces with high employment growth are using their local labour reserves and are not magnets for interregional migrants.

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Map of Italy with geographic sub-divisions