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"Determinants and patterns of human mobility in Europe
in the world context"

Armando Montanari and Barbara Staniscia
with the collaboration of

Filippo Belloc for data collection, DB creation and statistical analysis

Luca Deravignone for GIS management and mapping

Alessandro Londei for DB management and data analysis with SOM (Self Organizing Maps)

Sapienza University of Rome



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EXECUTIVE SUMMARY

1. Important changes in human mobility at global level
2. Migratory flows between ESPON and the rest of the world: main trends
3. Key messages at national and regional scales

REPORT

FIRST PART: An overview of the major trends in migration in Europe in the last fifty years

1. Introduction
2. Human mobility. A theoretical approach
3. European migration trends in the last decades
4. Migration in Europe in the XXIst century
5. Conclusions

SECOND PART: A geographical analysis of the migratory and tourist flows in the ESPON space, in the world context, in the last ten years

1. Introduction
2. Methodology and data
3. Results
 - 3.1 Determinants of the migratory movements at world level
 - 3.2 Main trends in migratory flows in the ESPON and NAFTA spaces
 - 3.3 Main trends in migratory flows in the regions of the ESPON space
 - 3.4 Main trends in tourist flows in the ESPON and NAFTA spaces
4. Conclusions

REFERENCES

ANNEXES 1-2-3-4

Executive Summary

1. Important changes in human mobility at global level

Migration studies have been for long time highly influenced by the “push-pull” concept (Dorigo and Tobler, 1983; Claval, 2002). The analysis of migration in Europe is, essentially, a review of the “push” and “pull” factors that, at different times, have determined the mobility of people from/towards certain countries. This approach, even if very useful in understanding the past phenomena, is, alone, not able to capture the actual reality that is much more complex and diversified than in the past.

In order to expand the concept of migration, the concept of human mobility can be introduced. Mobility can be activated in various ways (Montanari, 2006a):

- i. For economic reasons: to find a job, but also to change jobs with the aim of social and professional advancement;
- ii. For social and demographic reasons: to form or modify the family structure; because of marriage or divorce; because of a reduction in size of the family nucleus due to the children coming of age; to have a more pleasant retirement, owing to the progressive ageing and improved health of the population;
- iii. For residential reasons: to have a home which is more comfortable and better linked to the workplace, where taxes are lower, or one which is less expensive with the same benefits;
- iv. For social reasons linked to quality of life: to live in areas that are more comfortable with respect to the location of the workplace, or better from the point of view of services and infrastructures; to seek out lower levels of air and noise pollution; to find an environment which is better suited to raising children;
- v. For educational reasons: for motives of study; to attend university courses or to embark on traineeships;
- vi. As a result of the consequences of natural events or disasters: the damage caused by long periods of drought; acute and persistent food shortages; the construction of extensive public works, such as dams and arterial roads, which change the layout of the territory;
- vii. For reasons linked to political, military and religious events and persecution;
- viii. For work demands: individuals who work in sectors which require frequent travel either because of the operational needs of multinationals or because they operate in various parts of the world;
- ix. For tourism, recreation and free-time: for activities in constant qualitative evolution which attract increasing numbers of people.

The changes brought about by human mobility can have various spatial implications (Montanari, 2005):

- i. Implications of an economic nature: changes in human mobility affect the redistribution of expenditure and the reorganisation of investment. This causes processes of urban and regional restructuring both in countries of immigration and emigration;
- ii. Implications of a social and demographic nature: the new flows of human mobility have an impact on the labour and property markets. They also contribute towards changing welfare policies for pensioners and the unemployed, in the same way as the ageing of the population contributes towards replacement migration;

- iii. Implications of a political nature: the new forms of mobility, considered unexpected and unpredictable, modify the parameters of partnership and governance. Indeed, the parameters of the receiving community change, because diverse components are added which in certain quantitative and qualitative conditions can result in manifestations of xenophobia. The political influence can also exist in the case of virtual mobility, used as
- iv. countries (such as number of newspapers sold every day, number of fixed lines and mobile phones subscribers, number of households with television, number of internet users, number of hospital beds), the degree of urbanization of countries (population in urban agglomerations > 1 million, urban population), the degree of “health” of population an element of real or imagined pressure, both for internal politics and as political instruments used in relations between the States;
- v. Implications of an environmental nature. As present-day mobility is not easily identifiable in statistical terms it does not allow an evaluation of its incidence because it is temporary, unregulated or casual and in any case concentrated in time and space. This places a burden on the quality of the water, air, landscape and waste management, and generally creates the conditions for rivalry between regular and casual residents in the use of resources.
- vi. Implications of a cultural nature: mobility brings about cultural change for both the receiving society and the immigrant society, which is not always welcomed and which always manifests an innovative cultural demand. Although integration policies are not always desirable, the meeting of communities of different cultures still contributes to changes in the cultural identity of all the communities which come together or clash.

Our analysis of the year 2000 data, has confirmed that, historically, migration have been affected by push and pull factors but that new explanatory elements cannot be neglected. It has shown, indeed, that immigration stocks at world level are positively affected by variables indicating the relative wealth of countries (such as GDP per capita, foreign direct investment, merchandise trade, paved roads, number of vehicles), the degree of development and of the quality of life in the (improved water source, life expectancy at birth) and, on the contrary, negatively affected by the degree of inequality in within the country (Gini index), the degree of rurality of a country (rural population). But our analysis has also shown that in-migration is negatively affected by variables indicating social development (for instance expenditure per student in tertiary education and female participation to the labour force) and that is not affected in a significant way by other variables measuring economic growth (such as tax revenue, total labour force participation rate, total unemployment).

Our main conclusion is that the push-pull theory, even confirmed and convincing as explanation for historical migration, has to be enriched by new explanations able to capture the nuances of the contemporary mobility.

2. Migration flows between ESPON and the rest of the world: main trends

In the second half of the 20th century European migration have been influenced by three main phenomena (Jennissen, van der Gaag and van Wissen, 2006): (i) a high demand for manual workers in the very industrialized Western and Northern countries; that demand could not be satisfied by the local supply; (ii) the end of European colonialism that in many countries left a difficult economic and social situation; (iii) the end of the Cold War and of the communist regimes. As a consequence, four waves of migration were registered in Europe (White, 1993; Jennissen, van der Gaag and Wissen, 2006): (i) labour migration, with the aim of satisfying

the excessive labour demand; (ii) family migration, with the scope of family reunification; (iii) post-modern mobility, including high-skilled workers, asylum seekers, clandestine migrants; (iv) post-colonial migration.

The main features that characterized Europe in the decades from Sixties to Nineties can be, thus, summarized as follows (ESPON, 2004):

- The movements from poor peripheral areas (Southern Europe, Ireland and Finland) towards rich continental and northern countries were very intense during the Sixties, but slowed down and then definitely ceased by the end of the Seventies;
- East-West migration, which had exploded at the beginning of the Nineties, slackened at the end of the decade;
- Rural areas that had experienced a big loss of population during the Sixties started recovering during the Seventies and experienced a certain revitalization;
- Old industrial areas became totally unattractive from the Seventies because of a high unemployment rate;
- The attractiveness of metropolitan areas declined and important processes of suburbanization took place;
- The importance of leisure areas (coastal and rural) appeared.

The most important phenomena characterizing Europe in the last ten years, i.e. from the year 2000, are the low growth rate - due to a low fertility rate - and the ageing of population. Since the Nineties the development of population in Europe strongly depends on the migratory flows (DEMIFER, 2009 and 2010). In the EU-27 territory the average migratory rate in the period 2000-2008 was equal to 0.32 per cent, while the average population growth rate was equal to 0.39 per cent.

It has been estimated that more than 50 per cent of the total international immigrants to the ESPON space originates in areas other than ESPON, while less than half of emigrants has a destination outside the ESPON area (DEMIFER, 2010).

When the out-migration flows are considered the ESPON space is clearly sub-divided into macro-areas. The Eastern European countries, formerly belonging to the Soviet bloc, the Scandinavian countries and Iceland, present migratory flows mainly oriented to other ESPON countries. Central Europe (Belgium, the Netherlands, Germany), alpine regions (Austria), some Mediterranean countries (Italy, Greece, Portugal), present flows equally distributed between ESPON countries and the rest of the world. UK, France and Spain, show migratory flows mainly oriented outside the ESPON space.

When the in-migration flows are considered different patterns are shown. The Mediterranean Europe, France, UK and Sweden have a dominance of non-ESPON in-migrants; some Eastern European countries (Hungary, Romania) and the Baltic regions show a balanced attractive capacity for both ESPON and non-ESPON in-migrants, whereas Central Europe (Germany, Poland, Czech Republic) is dominated by in-migratory flows from other ESPON countries.

When the position of the ESPON space in the world migratory flows developed in the history is analyzed, it results that it is the main destination for the former Yugoslavia, for North-African countries and for the Near-East; it is also found that, historically, the main flows from the ESPON countries have been directed to Latin America and to Canada, and to the Near-East.

The USA have been the main destination for migrants coming from their neighbour countries (Canada and Mexico), from Eastern Asia (Japan, Korea, Mongolia), from Latin America.

The weight of non-US citizens over the total population in the period 2007-2008, does not go beyond a maximum level of 13% and the maximum share of immigrants over the total population in the same period does not go beyond 1.3%. US citizens tend to stay in their own country, their mobility rate is rather low. If we look at the proportion between the internal

migration and the international migration, we find that the first one is much higher than the second one.

In the ESPON space the absolute weight of immigration is lower than in the USA: the highest rate of foreign presence does not reach 4% in the year 2008. The ESPON territory is rather heterogeneous, with the lowest rates recorded in some Eastern countries (Poland, Czech Republic, Hungary), in some Mediterranean countries (Italy, Portugal), in France; the highest rates are recorded in the economically booming countries (Spain, Ireland) and in the rich countries (Norway, Switzerland).

3. Key messages at national and regional scales

ESPON (2004) has identified typologies of European regions based on the consideration of three parameters: (i) the total population change, (ii) the net migration, (iii) the natural population change. Crossing data concerning those variables, six types of European regions have been identified. The first three groups include regions with a population growth due to: (i) positive natural and migratory balance, (ii) positive migratory and negative natural balance, (iii) positive natural balance but negative migratory balance. The second three groups include regions with a population decrease due to: (i) negative natural and migratory balance, (ii) positive migratory balance but negative natural balance, (iii) positive natural balance but negative migratory balance. Growing regions can be found in the “pentagon” while the peripheral regions are more and more declining (ESPON, 2004, p. 13).

ESPON (2004) and Vandermotten, Van Hamme and Medina Lockhart (2005) propose a typology of European territory based on a differentiation of migratory paths linked to the age of the individuals. For the period 1995-2000 six types of regions have been identified with reference to their attractiveness or lack of attractiveness for certain age groups: (i) metropolitan areas characterized by high mobility, attractive for young adults and unattractive for other age-groups; London, Brussels, Paris are in this group; (ii) other urban areas, densely populated, that are less attractive for young adults but also less repulsive for other age-groups; urban areas in Western Germany and Northern Italy belong to this class; (iii) regions characterized by emigration of young adults and immigration of all other age groups; in some cases those are semi-peripheral regions (South-East of Sweden, Ireland, Northern Scotland, Cornwall and Wales, South-East of Belgium, Southern and Western France), in some others, outskirts of metropolitan areas; (iv) regions attractive for all age groups and in particular for households with children; in general those are economically dynamic areas, not characterized by the presence of large metropolitan areas (South-East of Britain, Emilia Romagna in Italy, Algarve in Portugal); (v) regions stable in their population but very unattractive for young adults; those areas lack economic dynamism (Nord-Pas-de-Calais and Lorraine in France, Saxe-Anhalt in East Germany, Ile-de-France outside Paris) some others are still suffering of depopulation started during the Sixties (Southern Italy, Northern Scandinavian countries); (vi) very immobile regions for every age group, such as many regions in Central-Eastern Europe and Spain, Liege, West Flanders and Limburg in Belgium.

In the period 2000-2008 a population decrease was registered in: Bulgaria, Croatia, Estonia, Germany, Hungary, Latvia, Lithuania, Poland and Romania. Thus, the population decrease affected mostly the Eastern European countries. The Western European countries registered weak increases of population; a significant growth (above 1.5 per cent, per year) was registered only in Cyprus, Iceland, Ireland and Spain.

In the same period negative migratory rates were registered in Bulgaria, Latvia, Lithuania, Poland, Rumania and in the FYROM. Average migratory rates were particularly high (above 1.0 per cent, per year) in Cyprus, Ireland, Luxembourg and Spain.

In the period 2000-2006, 70 per cent of European regions registered a population growth. For 37 per cent of Nuts2 regions, that positive development was due to both positive natural and migratory balance, for 25 per cent of them to positive migratory balance, for 8 per cent of them to positive natural balance. In the same period, 30 per cent of European regions experienced a population decrease due to: both negative migratory and natural balance (16 per cent of cases), negative natural balance (10 per cent of cases), negative migratory balance (4 per cent of cases). Those figures prove that in the last decade the main component of population development has been migration (Sardon, 2006).

In the period 2000-2007 the ESPON space shows a relevant heterogeneity in the average migration rates. The Western Mediterranean regions (in Spain, France, Italy) show positive and very positive rates, as much as Ireland, Eastern England and the Southern regions of Scandinavia. Central European regions – especially the German ones – show weak positive migratory rates, while peripheral British areas show a perfect balance between in and out migrations. Old industrial areas in Europe, Southern Mediterranean regions (Italian *Mezzogiorno*), Eastern Europe and peripheral areas of Northern Europe show negative and very negative migratory rates.

If the migratory trends of the nuts3 territories are considered, eight clusters of regions can be identified, corresponding to eight regional types: type 1: territories characterized by migratory rates under the average of the period in the first half of the interval and by positive ones in the second half, showing a positive trend (several cases in Ireland, Spain, Belgium, Czech Republic); type 2: regions characterized by migratory rates under the average of the period in the first part of the period and by migratory rates higher than the average in the second part (many examples in Spain, Italy, Sweden); type 3: regions showing oscillating migratory rates during the interval with few, isolated cases, of migratory rates above the average of the period (several examples in Ireland and Norway); type 4: regions characterized by a declining trend of the migratory rates, except for the very beginning of the period (many examples in Switzerland); type 5: regions characterized by migratory rates under the average up to the year 2005, with a recovery at the end of the period (many examples in France); type 6: territories characterized by migratory rates above the average of the period in the first half of the interval with a negative trend in the second half (many examples in Germany and Portugal); type 7: regions characterized by migratory rates under the average at the beginning and at the end of the period and by rates above the average in the middle of the interval (several examples in UK); type 8: territories characterized by migratory rates above the average up to the year 2002 and by a very negative trend in the second half (several examples in the Netherlands).

Report

FIRST PART

An overview of the major trends in migration in Europe in the last fifty years

1. Introduction

Migration studies have been for long time highly influenced by the “push-pull” concept (Dorigo and Tobler, 1983; Claval, 2002). This was based on the experiences of migration in industrial society which included above all individuals who moved from areas which provided few job opportunities to areas offering greater work possibilities, in relation to geographical, economic and social advantages and prospects. The analysis of migration in Europe is, essentially, a review of the “push” and “pull” factors that, at different times, have determined the mobility of people from/towards certain countries. This approach, even if very useful in understanding the past phenomena, is, alone, not able to capture the actual reality that is much more complex and diversified than in the past.

That is why this first part of the report will include two aspects and will go along a twofold path: on the one hand (par. 2) the concept of human mobility will be introduced in order to overcome, from a theoretical point of view, the traditional approach to migrations. On the other hand (par. 3 and 4) the classical form of migration in Europe will be analysed using recent in-depth studies at the macro-scale.

2. Human mobility. A theoretical approach

In post-industrial society, work and recreational mobility tend to assume more subtle differences as occurs with places of work, free-time, recreation, training and education. The propensity to emigrate - which was considered to be based on decisions made by single individuals - is today considered to depend also on the characteristics and culture of the families and communities of origin. Furthermore, with the end of the Cold War, and with the efforts made to establish a “new world order”, the mobility of individuals in a communication and information society has taken on a new dimension, significance, and also a new role in global policy, beyond the limits of country grouping. It is therefore necessary to extend the focus on traditional population flows and to consider new forms of mobility relative to the migration of workers employed in new types of production, economic globalisation, recreation, tourism and the internationalization of consumption. In the case of tourism, the decline in mass phenomena also provides a clear indication of the trend towards post-Fordist consumption, that is to say, towards more differentiated and fragmented characteristics of mobility.

Mobility is the result of the behaviour of individuals who move across the territory in order to meet needs and desires connected to work and survival and, in modern society, also to those activities relating to free-time. In short, mobility phenomena differ according to space, time, economic motives and regulatory procedures. Distance can be characterised in various ways. If a border is crossed or not can be a discriminating element but it is advisable to consider the crossing of an regional, sub-regional and municipal border with just as much attention since

most of the migration are internal. Moves can be more regular or less so, but in the latter case it is necessary to know whether the length of stay is short-term, medium-term or permanent.

Mobility can be activated in various ways (Montanari, 2006a):

- (i) For economic reasons: to find a job, but also to change jobs with the aim of social and professional advancement;
- (ii) For social and demographic reasons: to form or modify the family structure; because of marriage or divorce; because of a reduction in size of the family nucleus due to the children coming of age; to have a more pleasant retirement, owing to the progressive ageing and improved health of the population;
- (iii) For residential reasons: to have a home which is more comfortable and better linked to the workplace, where taxes are lower, or one which is less expensive with the same benefits;
- (iv) For social reasons linked to quality of life: to live in areas that are more comfortable with respect to the location of the workplace, or better from the point of view of services and infrastructures; to seek out lower levels of air and noise pollution; to find an environment which is better suited to raising children;
- (v) For educational reasons: for motives of study; to attend university courses or to embark on traineeships;
- (vi) As a result of the consequences of natural events or disasters: the damage caused by long periods of drought; acute and persistent food shortages; the construction of extensive public works, such as dams and arterial roads, which change the layout of the territory;
- (vii) For reasons linked to political, military and religious events and persecution;
- (viii) For work demands: individuals who work in sectors which require frequent travel either because of the operational needs of multinationals or because they operate in various parts of the world;
- (ix) For tourism, recreation and free-time: for activities in constant qualitative evolution which attract increasing numbers of people.

Placing travellers who move because of strong economic, social, political and religious pressures, and who therefore live in a state of oppression, in the same category as those who move purely for pleasure can result in embarrassing misinterpretations. But it is true that the poor and the oppressed ones travel just as much as the rich and privileged ones, although the former obviously do not travel in business class nor do they stay in luxury hotels. However, they certainly do not travel more exclusively as emigrants, perceived from the country of departure, or as immigrants, seen from the country of arrival.

These days, the term immigrant implies individuals that are less and less willing to integrate economically, socially and culturally in the countries they go to in search of work and safety, as occurred until the Seventies. Today, because of the evolutionary complexity of the economic system, there is a continuous increase in the number of individuals who make the journey and their state of mind is frequently similar to that of the transhumant. This state was mentally true also for the traditional migratory flows but today it is made possible in practice by the technological advancements. These are men and women, therefore, who are set in their own ideas and attached to their own cultures, proud to be different amongst the different, who do not move towards a final point of arrival, but rather towards an intermediate stage which will be followed by another. They do not require integration in the receiving society but rather the acknowledgment of their rights, which must be valid and recognised at a global level, and of their own needs, in relation to the society which receives them.

Human mobility flows relate to two socio-economic procedures referring to the tourism-migration nexus – consumption and production processes – and to the way they overlap in time and space. In this context, there no longer exist definite places of departure and arrival, but a series of places which are simultaneously places of departure and arrival, with flows which concern both consumption and production activities. Therefore, studies are hindered by the difficulty in correctly detecting and studying the phenomenon at a general level. It is easier to analyse the phenomenon on a local scale. Each territory is capable of activating original mobility processes with characteristics and implications which do not occur in the same way elsewhere. If each place is a separate case then at an international level general qualitative conditions can be indicated, but certainly not a precise correspondence of quantitative definitions and characteristics. The local level and the territory become the favoured parameters for the observation of flows. Indeed, at this level it can be better assessed to what extent the economic development of a location determines the activation of population flows, whether temporary or definitive, and vice versa, that is, to what degree these flows contribute to development in its various stages.

The changes brought about by human mobility can have various spatial implications (Montanari, 2005):

- x. Implications of an economic nature: changes in human mobility affect the redistribution of expenditure and the reorganisation of investment. This causes processes of urban and regional restructuring both in countries of immigration and emigration;
- xi. Implications of a social and demographic nature: the new flows of human mobility have an impact on the labour and property markets. They also contribute towards changing welfare policies for pensioners and the unemployed, in the same way as the ageing of the population contributes towards replacement migration;
- xii. Implications of a political nature: the new forms of mobility, considered unexpected and unpredictable, modify the parameters of partnership and governance. Indeed, the parameters of the receiving community change, because diverse components are added which in certain quantitative and qualitative conditions can result in manifestations of xenophobia. The political influence can also exist in the case of virtual mobility, used as an element of real or imagined pressure, both for internal politics and as political instruments used in relations between the States;
- xiii. Implications of an environmental nature. As present-day mobility is not easily identifiable in statistical terms it does not allow an evaluation of its incidence because it is temporary, unregulated or casual and in any case concentrated in time and space. This places a burden on the quality of the water, air, landscape and waste management, and generally creates the conditions for rivalry between regular and casual residents in the use of resources.
- xiv. Implications of a cultural nature: mobility brings about cultural change for both the receiving society and the immigrant society, which is not always welcomed and which always manifests an innovative cultural demand. Although integration policies are not always desirable, the meeting of communities of different cultures still contributes to changes in the cultural identity of all the communities which come together or clash.

3. European migration trends in the last decades

The history of migratory movements in Europe in the last decades can be analysed highlighting the common spatial patterns and the differences. They should be analysed also in referring to the social and economic aspects of the European system.

In the second half of the 20th century European migrations have been influenced by three main phenomena (Jennissen, van der Gaag and van Wissen, 2006): (i) a high demand for manual workers in the very industrialized Western and Northern countries; that demand could not be satisfied by the local supply; (ii) the end of European colonialism that in many countries left a difficult economic and social situation; (iii) the end of the Cold War and of the communist regimes. As a consequence, four waves of migrations were registered in Europe (White, 1993; Jennissen, van der Gaag and Wissen, 2006): (i) labour migration, with the aim of satisfying the excessive labour demand; (ii) family migration, with the scope of family reunification; (iii) post-modern mobility, including high-skilled workers, asylum seekers, clandestine migrants; (iv) post-colonial migrations.

The Sixties were the years more strongly represented by the labour migrations. The sustained economic growth of the more industrialized countries induced an intense movement of people from Southern Europe to Western and Northern Europe (King, 1993). The same happened to the other peripheral countries - such as Ireland, Finland, Norway - that experienced phenomena of emigration (Jennissen, van der Gaag and van Wissen, 2006). Central and Eastern European countries were characterized by a very low international mobility due to the political restrictions (Vandermotten, Van Hamme, Medina Lockhart and Wayens, 2004). All those countries registered, anyway, a low emigration (Jennissen, van der Gaag and van Wissen, 2006). The EU as a whole registered during this decade a migratory balance close to zero. This was due to the fact that the movements of population mainly took place in within the European territory (Vandermotten, Van Hamme, Medina Lockhart and Wayens, 2004).

The Seventies continued to be characterized by immigration to the Western and Northern European countries; the new comers were mostly from the Maghreb area and from Turkey, while the movements from Southern countries decreased; there, the loss of population slowed down and return migrations made the migratory rate gradually positive. This new trend transformed the Southern ones from emigration to immigration countries (Montanari and Cortese, 1993; Montanari, 2006b). Return migrations in the mid-Seventies were favoured by the restrictions imposed by many countries to immigration flows. The world economic crisis and the increased domestic labour supply pushed many governments towards policies of control. While the push factors exerted by the labour markets became weak, migrations linked to family reunification increased. In the communist countries Seventies continued to be a decade of very low negative migration rates. The EU territory registered in this decade a positive migratory balance in spite of the economic crisis and the restriction policies (Vandermotten, Van Hamme, Medina Lockhart and Wayens, 2004).

The early Eighties were characterized by a very low mobility, both at national and international level. In this decade the intra-national and inter-national movements slowed down and the link between economic development and pulling capacity of territories became very weak (Vandermotten, Van Hamme and Medina Lockhart, 2005). At the end of the decade, indeed, a new movement started; it was linked to the new political situation in the Central and Eastern European countries. The first wave of post-industrial migrants – moving from the East to the West – began (Jennissen, van der Gaag and van Wissen, 2006). The tendency of Southern European countries to become attractive areas continued. The immigration from extra-European countries decreased in this decade and in certain years the migratory balance was negative for the EU territory (Vandermotten, Van Hamme, Medina Lockhart and Wayens, 2004).

The Nineties were characterized by a revival of the mobility. New movements of people took place and Europe as a whole registered the highest positive migratory rate that it ever had

(Vandermotten, Van Hamme and Medina Lockhart, 2005). All the Western and Mediterranean European countries (except for Portugal) registered positive migratory rates. This was due to the intensification of movements from the rest of the world towards Europe, especially from the less developed countries, pushing away population because of the difficult economic and political situations. Central and Eastern European countries experienced a massive loss of population at the beginning of the Nineties as a result of the dramatic political and economic condition. This trend slowed down during the decade and some countries (such as the Czech Republic, the Slovak Republic, Hungary, Lithuania) experienced a positive migratory rate at the end of the Nineties (Vandermotten, Van Hamme, Medina Lockhart and Wayens, 2004). Those countries benefited from their geographical position, being close to the EU borders. In within former Soviet Union there was a “reshuffle” of population since many citizens from other States migrated to Russia, Ukraine and Belarus as much as many left the country (Jennissen, van der Gaag and van Wissen, 2006). EU migratory balance was positive along the decade (Vandermotten, Van Hamme, Medina Lockhart and Wayens, 2004). The main features that characterized Europe in the decades from Sixties to Nineties can be, thus, summarized as follows (ESPON, 2004):

- The movements from poor peripheral areas (Southern Europe, Ireland and Finland) towards rich continental and northern countries were very intense during the Sixties, but slowed down and then definitely ceased by the end of the Seventies;
- East-West migration, which had exploded at the beginning of the Nineties, slackened at the end of the decade;
- Rural areas that had experienced a big loss of population during the Sixties started recovering during the Seventies and experienced a certain revitalization;
- Old industrial areas became totally unattractive from the Seventies because of a high unemployment rate;
- The attractiveness of core areas declined and important processes of sub-urbanization took place;
- The importance of leisure areas (coastal and rural) appeared.

We have so far, considered Europe as a whole, and differentiated it territorially in indicating the directions of the migratory flows. Various attempts have been done in trying to define typologies of European regions based on several criteria connected with the migratory movements.

Jennissen, van der Gaag and van Wissen (2006) have identified two main periods and several clusters among the European regions. Their analysis shows the existence of three groups of countries in the first period (1960-1989): (i) the labour importing countries (up to mid Seventies): Austria, Belgium, Denmark, France, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, the UK and West Germany; (ii) the labour exporting countries (up to mid Seventies): Finland, Greece, Ireland, Italy, Portugal, Spain and Yugoslavia; (iii) the communist countries: Bulgaria, Czechoslovakia, East Germany, Hungary, Poland and Romania. Thus, in the first period, the big divide was between communist and non communist countries (using the adjectives adopted by the authors) and between more developed and less developed countries. Their analysis shows, for the second period (1991-2002), the existence of five groups of countries and a situation that is not as simple as in the first period. In the groups 1, 2 and 3 all the western European countries, Russia and Belarus can be included. In the group 4 all the former communist countries plus France fit. In the group 5 the former Soviet republics Estonia, Latvia and Moldova are included. That analysis shows that in the second period, after the end of the Cold War, the more differentiated migratory patterns were those relative to the Eastern European countries.

ESPON (2004) has identified typologies of European regions based on the consideration of three parameters: (i) the total population change, (ii) the net migration, (iii) the natural

population change. Crossing data concerning those variables, six types of European regions have been identified. The first three groups include regions with a population growth due to: (i) positive natural and migratory balance, (ii) positive migratory and negative natural balance, (iii) positive natural balance but negative migratory balance. The second three groups include regions with a population decrease due to: (i) negative natural and migratory balance, (ii) positive migratory balance but negative natural balance, (iii) positive natural balance but negative migratory balance. Growing regions can be found in the “pentagon” while the peripheral regions are more and more declining (ESPON, 2004, p. 13). In the second half of the Nineties (1996-1999) 60 percent of the European regions experienced a population growth. That development was due to positive natural and migratory balance (28 percent of cases), to positive net-migration (20 percent), to positive natural balance (12 percent). The decrease of population in the other regions was due to negative natural and migratory balance (17 per cent of the cases), to negative natural balance (15 percent), to negative migratory balance (8 percent).

ESPON (2004) and Vandermotten, Van Hamme and Medina Lockhart (2005) propose a typology of European territory based on a differentiation of migratory paths linked to the age of the individuals. For the period 1995-2000 six types of regions have been identified with reference to their attractiveness or lack of attractiveness for certain age groups: (i) metropolitan areas characterized by high mobility, attractive for young adults and unattractive for other age-groups; London, Brussels, Paris are in this group; (ii) other urban areas, densely populated, that are less attractive for young adults but also less repulsive for other age-groups; urban areas in Western Germany and Northern Italy belong to this class; (iii) regions characterized by emigration of young adults and immigration of all other age groups; in some cases those are semi-peripheral regions (South-East of Sweden, Ireland, Northern Scotland, Cornwall and Wales, South-East of Belgium, Southern and Western France), in some others, outskirts of metropolitan areas; (iv) regions attractive for all age groups and in particular for households with children; in general those are economically dynamic areas, not characterized by the presence of large metropolitan areas (South-East of Britain, Emilia Romagna in Italy, Algarve in Portugal); (v) regions stable in their population but very unattractive for young adults; those areas lack economic dynamism (Nord-Pas-de-Calais and Lorraine in France, Saxe-Anhalt in East Germany, the Parisian basin outside Ile-de-France) some others are still suffering of depopulation started during the Sixties (Southern Italy, Northern Scandinavian countries); (vi) very immobile regions for every age group, such as many regions in Central-Eastern Europe and Spain, Liege, West Flanders and Limburg in Belgium.

Other scholars have proposed a different division of the European regions in a different time scale. A division of the continent in three main areas has been proposed by Okolski (2009) with the identification of: (i) the regions of Western and Northern Europe that came first in the process of the modern social change; (ii) the regions of Southern Mediterranean Europe that came second in the process; (iii) the regions of Central and Eastern Europe that were the last in entering this process of modernization. The author identifies five time periods defining as many migratory periods: (i) the post war adjustment migration in the period 1945-1947; (ii) the migration related to labour shortage and based on recruitment agreements in the period 1948-1973; (iii) the migration related to the beginning of the new globalization in the period 1974-1988; (iv) the post-communist migration related to the dissolution of the communist system in the period 1989-2004; (v) the post-enlargement migration related to the European integrated space that took place after 2004/2007. In his classification the author advances the hypothesis that there is a “cycle of migration” every country in Europe goes through. The difference among countries relies on the different stage of the cycle they are in at a given time, but at the end, in Europe, every non-immigration country has become (or will become) an immigration country (Fassmann and Reeger, 2009).

4. Migration in Europe in the XXIst century

The most important phenomena characterizing Europe in the last ten years, i.e. from the year 2000, are the low growth rate - due to a low fertility rate - and the ageing of population. Since the Nineties the development of population in Europe strongly depends on the migratory flows (DEMIFER, 2009 and 2010). In the EU-27 territory the average migratory rate in the period 2000-2008 was equal to 0.32 per cent, while the average population growth rate was equal to 0.39 per cent.

In the period 2000-2008 a population decrease was registered in: Bulgaria, Croatia, Estonia, Germany, Hungary, Latvia, Lithuania, Poland and Romania. Thus, the population decrease affected mostly the Eastern European countries. The Western European countries registered weak increases of population; a significant growth (above 1.5 per cent, per year) was registered only in Cyprus, Iceland, Ireland and Spain.

In the same period negative migratory rates were registered in Bulgaria, Latvia, Lithuania, Poland, Rumania and in the FYROM. Average migratory rates were particularly high (above 1.0 per cent, per year) in Cyprus, Ireland, Luxembourg and Spain.

In the period 2000-2006, 70 per cent of European regions registered a population growth. For 37 per cent of Nuts2 regions, that positive development was due to both positive natural and migratory balance, for 25 per cent of them to positive migratory balance, for 8 per cent of them to positive natural balance. In the same period, 30 per cent of European regions experienced a population decrease due to: both negative migratory and natural balance (16 per cent of cases), negative natural balance (10 per cent of cases), negative migratory balance (4 per cent of cases). Those figures prove that in the last decade the main component of population development has been migration (Sardon, 2006).

It has been estimated that more than 50 per cent of the total international immigrants to the ESPON space originates in areas other than ESPON, while less than half of emigrants has a destination outside the ESPON area (DEMIFER, 2010). In the period 2000-2007, 75 per cent of ESPON regions registered a positive migratory balance. In 40 per cent of them, both internal and international migratory balance were positive while in 30 per cent of them only the international component was positive, and in 5 per cent of them only the internal component was positive (DEMIFER, 2010). Regions characterized by negative net migration are located in Eastern Europe, in Southern Italy, in the North of UK, in the areas surrounding Paris.

The migratory movements in the ESPON space have been interpreted testing the push-pull theories. Those have been used in a twofold perspective: to test the movements of population and the flows of investments in regions characterized by relative high or low capital accumulation (ESPON 3.4.1, 2007). The analysis has shown that when considering the long distance movements (500-2000 km) "the three attractive poles of the great Triad are clearly visible (Japan, Europe and North America) as are their equivalents of the 'little Triad' in the southern hemisphere"(ESPON 3.4.1, 2007, p. 135). Analyzing the period 2000-2005 it has been demonstrated that the most attractive areas are USA, Southern, West-Central and Northern Europe. Japan, even if attractive, is less in comparison. This is due to the very strict migration laws (that are, by the way, slowly changing) and to the size of the territory very densely populated.

If we consider the Euro-Mediterranean area and shorter distance movements (250-1000 km) we can notice two main attractive poles in North Western Europe and the Persian Gulf. Southern Europe is becoming more and more attractive, while Southern Mediterranean countries as much as Eastern European ones are senders of migrants (ESPON 3.4.1., 2007). The main flows towards the EU space originate from the Maghreb countries and from the

Balkan countries plus Turkey. Spatial proximity still remains, thus, an important explanatory factor. Geopolitical changes during the Nineties contribute as well to explain those phenomena. Former colonial ties do explain many movements from South Asia to UK, from Southern America towards Spain and Portugal, from the Maghreb and Sub-Saharan Africa and from the former Indochina towards France (ESPON 3.4.1., 2007).

In the year 2004, foreign national population living in European countries was estimated around 25.5 million of people. Foreign citizens represented around 4.5 per cent of the European population (Salt, 2006). A comparison with former data shows that this number was growing, especially in Western Europe. In 2004 over 5.5 per cent of the total population was represented by foreigners. In Eastern Europe, on the contrary, in the year 2004 there were 1.35 million foreign residents, that is 0.6 per cent of the total population (Salt, 2006). The Western countries in which the foreign citizens are more concentrated are Germany (27.8 per cent of the total), France (13.5 per cent), the UK (11.8 per cent), Spain (11.5 per cent), Italy (9.9 per cent). In the year 2004, Germany recorded around 780,000 immigrants, UK over 500,000 and Spain around 685,000 (Sardon, 2006).

After the economic crisis, things are changing. In the period 2007-2008, Spain, Italy and Ireland registered a large decline (about 25 per cent) in the immigration flows, whereas country like Denmark and Portugal are showing very high increases (over 40 per cent) (OECD-SOPEMI, 2010). Those figures may have been, nonetheless, affected by changes occurred in the migration regulations in each country and also by the adjustments that followed the EU enlargement in 2007. Free movement migrations due to the enlargement accounts for 44 per cent of all migration in the European Economic Area (EEA). They exceed both the family migrations from outside the EEA as well as labour migrations from other countries (OECD-SOPEMI, 2010). Those movements seem to be the most sensitive to the economic crisis, since people involved in such type of movements tend to be more unskilled workers occupied in the building and hospitality sectors.

It is estimated that, if the current migratory flows will continue in the future, in the year 2050, 75 per cent of the ESPON regions will have a population larger than today (DEMIFER, 2010). In 25 per cent of those regions, population will be 30 per cent higher. In many Eastern European regions intra-European migrations will have a strong impact, while in Western European countries extra-European migrations will be more significant. Migrations will be important to counterbalance the ageing of population and the low fertility rates. Adult active population will increase and, possibly, it will affect economic dynamism. Regional disparities are expected to increase.

Four policy scenarios for the development of Europe have been recently proposed (DEMIFER, 2010): (i) the “Growing social Europe”, (ii) the “Expanding market Europe”, (iii) the “Limited social Europe”, (iv) the “Challenged market Europe”. In almost all the scenarios the internal migrations within the ESPON space are assumed to remain quite stable, while the inter-state migrations and the extra-European migrations are assumed to increase. In the first scenario migration levels will increase significantly, even if less than in the second scenario. In the third scenario a decline in migration level is expected, while a quite stable migration level is linked to the fourth scenario. In DEMIFER (2010) a specific migration linked to climate change has also been taken into account. It is assessed that those types of migration will be mostly regional rather than international.

Using 4 main variables (1. The share of young adults, 2. The share of the elder population, 3. The natural population balance, 4. The net migration rate) the ESPON space has been divided in six types of regions (DEMIFER, 2010): (i) the Euro Standard type, (ii) the Family potentials, (iii) the Challenge of labour force, (iv) the Challenge of decline, (v) the Challenge of ageing, (vi) the Young potentials. In the first two types, economic growth is positive, unemployment is below the average and the share of migrants is above the average; it is

particularly high in the first case. In the types three and four, the migratory balances are negative; those regions have to face an important population decline; regions in groups five and six have to challenge disparities and they experience positive migratory rates.

5. Conclusions

In this first part of the paper it has been shown which are the main characteristics of the migratory flows characterizing Europe in the last five decades. Specific attention has been paid to the last ten years and to future scenarios. It has been shown how migrations are strongly influencing the future of Europe and contributing to reshape spatial equilibriums.

On the other hand it has been highlighted that the simple study of migration is not able, alone, to explain the events characterizing the post-modern society. Thus the need for new researches about a wider phenomenon – human mobility, both production-led and consumption-led – has emerged. In this new context new forms of mobility are acquiring a growing importance. Two examples are provided by the mobility of researchers and students.

SECOND PART

A geographical analysis of the migratory and tourist flows in the ESPON space in the world context in the last ten years

1. Introduction

The aim of this second part of the report is to analyze the two different components of the human mobility (migration and tourism) in two specific macro-areas (ESPON and USA-NAFTA spaces), in the last decade, highlighting specific determinants and patterns.

The main themes addressed will be: (i) determinants of the migratory flows at world level, (ii) migratory flows at world level with the consideration of their origins and destinations, (iii) spatial patterns of migratory and tourist flows in the ESPON and USA-NAFTA spaces.

2. Methodology and data

A dataset has been created containing data about migration, tourism, demography, socio-economic systems at different spatial scales and times. The main elements composing the dataset can be summarized as follows: (i) migration data, with reference to both the ESPON space at different spatial scales (nuts0, nuts1, nuts2, nuts3) and the USA, for several years and different interval times, starting from the year 2000; (ii) tourism data, with reference to both the ESPON space (nuts0 level) and the USA, for several years, from the year 2000; (iii) socio-economic and demographic data for both the ESPON space and the USA referred to the year 2000. Some of the above described data are also available at worldwide level. A complete description of the content of the dataset is provided in Annex 1.

Methodologies used for different purposes have been: (i) regression analysis, in order to identify the main socio-economic variables affecting migration at world level; (ii) mapping-natural breaks, in order to identify the main trends in migratory and tourist flows in the ESPON and in the USA-NAFTA spaces; (iii) artificial neural networks (SOM – Self Organizing Maps) in order to identify clusters of countries and States (in the ESPON and USA-NAFTA spaces) and regions (only in the ESPON space) in the migratory and tourist flows.

3. Results

3.1 Determinants of the migratory movements at world level

In the first part of this report several hypotheses offered by the scholars about the causes and determinants of migration have been described. Taking into account those hypotheses we have tried to interpret and test them, at the macro-scale, using available data. The stock of immigrants as a percentage of the resident population (at country level) has been chosen as the dependent variable. The explanatory covariates are listed in Annex 2. Those variables, referred to the year 2000, offer some – even not sophisticated – measures of the national wealth, of the labour markets' characteristics, of the investments in social and cultural services, of the quality of life, of the demographic structure and spatial distribution of population. They have the advantage of being available for all the world countries and of being easily measurable. A regression analysis was performed. The sample included 226 countries. Covariates were included one by one in a series of regression models, where the estimator used was OLS. The detailed results are summarized in the table in Annex 3.

The regression performed confirmed that, historically, migration have been affected by push and pull factors but that new explanatory elements cannot be neglected. It has shown, indeed, that immigration stocks at world level are positively affected by variables indicating the relative wealth of countries (such as GDP per capita, foreign direct investment, merchandise trade, paved roads, number of vehicles), the degree of development and of the quality of life in the countries (such as number of newspapers sold every day, number of fixed lines and mobile phones subscribers, number of households with television, number of internet users, number of hospital beds), the degree of urbanization of countries (population in urban agglomerations > 1 million, urban population), the degree of “health” of population (improved water source, life expectancy at birth) and, on the contrary, negatively affected by the degree of inequality in within the country (Gini index), the degree of rurality of a country (rural population). But our analysis has also shown that in-migration is negatively affected by variables indicating social development (for instance expenditure per student in tertiary education and female participation to the labour force) and that is not affected in a significant way by other variables measuring economic growth (such as tax revenue, total labour force participation rate, total unemployment).

Our main conclusion is that the push-pull theory, even confirmed and convincing as explanation for historical migration, has to be enriched by new explanations able to capture the nuances of the contemporary mobility. Detailed results of the regression performed are described in Annex 4.

We have to bear also in mind that those results depict only phenomena at the macro-scale that occurred in the past. The dependent variable, indeed, is the stock of immigrants, that measures the number of persons who, in the years up to 2000, have moved to a different country. Considering the average life span, that stock includes many persons who have moved during the Sixties and the Seventies, when migratory flows were strongly affected by the push-pull factors we have described in the first part of the report. This result, thus, confirms what the literature suggests even if it does not show important characteristics of the new migration (for instance the link between tourism and migration, the importance of investments in education and culture, the importance of low inequalities rates in the national communities). We’ll have to wait for future data and more sophisticated measurements in order to show with quantitative analyses what qualitative analyses already suggest about the new trends of migration.

3.2 Main trends in migratory flows in the ESPON and NAFTA spaces

When the out-migration flows are considered the ESPON space is clearly sub-divided into macro-areas. The Eastern European countries, formerly belonging to the Soviet bloc, the Scandinavian countries and Iceland, present migratory flows mainly oriented to other ESPON countries. Central Europe (Belgium, the Netherland, Germany), alpine regions (Austria), some Mediterranean countries (Italy, Greece, Portugal), present flows equally distributed between ESPON countries and the rest of the world. UK, France and Spain, show migratory flows mainly oriented outside the ESPON space (Fig. 1 – Fig. 2).

When the in-migration flows are considered different patterns are shown. The Mediterranean Europe, France, UK and Sweden have a dominance of non-ESPON in-migrants; some Eastern European countries (Hungary, Romania) and the Baltic regions show a balanced attractive capacity for both ESPON and non-ESPON in-migrants, whereas Central Europe (Germany, Poland, Czech Republic) is dominated by in-migratory flows from other ESPON countries (Fig. 3 – Fig. 4).

When the position of the ESPON space in the world migratory flows developed in the history is analyzed, it results that it is the main destination for the former Yugoslavia, for North-African countries and for the Near-East; it is also found that, historically, the main flows from the ESPON countries have been directed to Latin America and to Canada, and to the Near-East (Fig. 5 - Fig. 6).

Let's move to the consideration of the USA in the world migratory flows. The USA have been the main destination for migrants coming from their neighbour countries (Canada and Mexico), from Eastern Asia (Japan, Korea, Mongolia), from Latin America (Fig. 7). If we consider the NAFTA space as a whole, we discover that it has been a main destination (over 40% of the total) for migrants originating from neighbour countries (Central and Latin America), from the Eastern Pacific, from Oceania (Fig. 8).

In the period 2007-2008, the percentage of non-US citizens over the total population reaches the maximum level of 13% (fig. 9); the maximum share of immigrants, in the same period, does not exceed 1.3% (fig. 10). The highest rates are registered in the West Coast and in the border regions.

The internal mobility (among the Federate States) is even lower: the highest percentage of US citizens that, in the period 2007-2008, moved from one State to another, is 12.5% (fig. 11).

US citizens tend to stay in their own country, their international mobility rate is rather low. Their favourite destinations have been: neighbour countries (Mexico, Canada), Latin America, Eastern Asia (China and Japan), other English-speaking countries (Australia and New Zealand) (fig. 12).

If we expand our analysis to the whole NAFTA space, the favoured destinations are Central and Latin America, Oceania, Northern Africa, China and Mongolia (fig. 13).

If we look at the proportion between the internal and the international migration, we find that the first one is much higher than the second one: in the period 2007-2008, the share of immigrants over the total in-migrants does not exceed 34.2% (fig. 14).

In the ESPON space the absolute weight of immigration is lower than in the USA: the highest rate of foreign presence does not reach 4% in the year 2008 (fig. 15). The ESPON territory is rather heterogeneous, with the lowest rates recorded in some Eastern countries (Poland, Czech Republic, Hungary), in some Mediterranean countries (Italy, Portugal), in France; the highest rates are recorded in the economically booming countries (Spain, Ireland) and in the rich countries (Norway, Switzerland).

Fig. 1

Out-migration flows towards non-ESPON space, 2006-2007

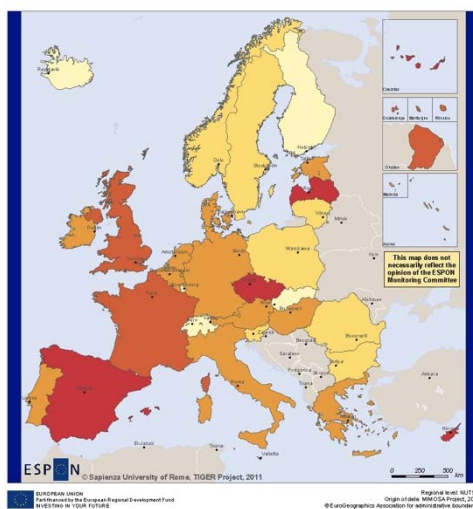


Fig. 2

In-migration flows coming from non-ESPON space, 2006-2007

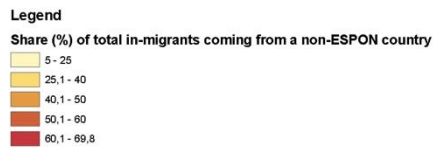
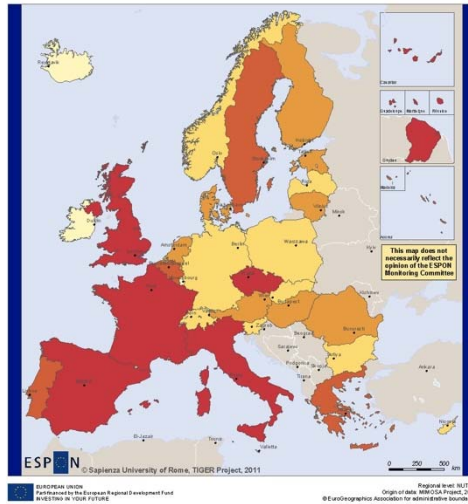


Fig. 3

Stock of out-migrants towards the ESPON space recorded in the year 2000

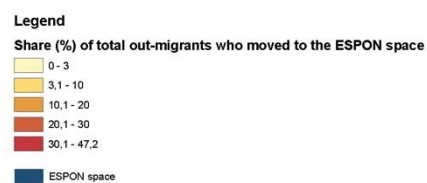
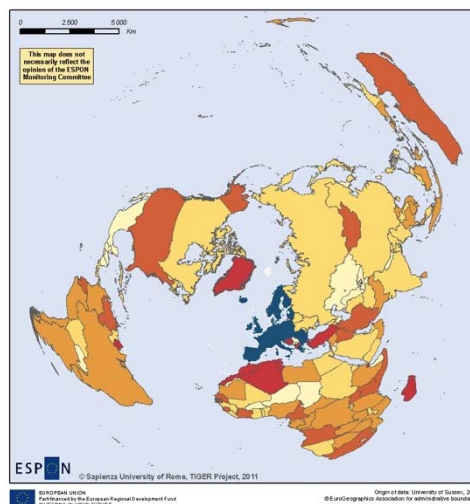


Fig. 4

Stock of in-migrants from the ESPON space recorded in the year 2000

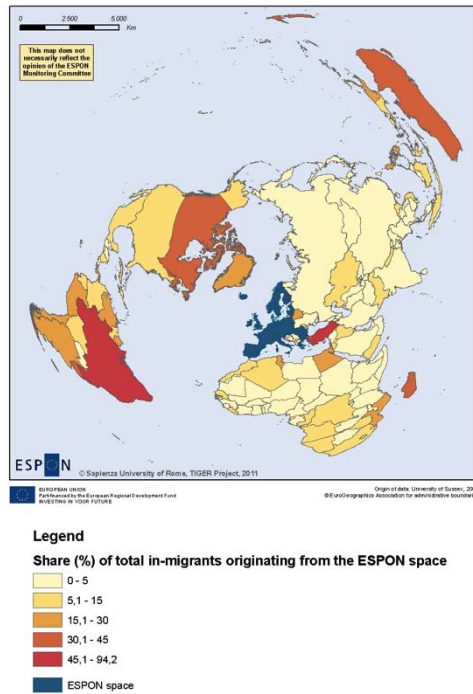


Fig. 5

Stock of out-migrants towards the USA recorded in the year 2000

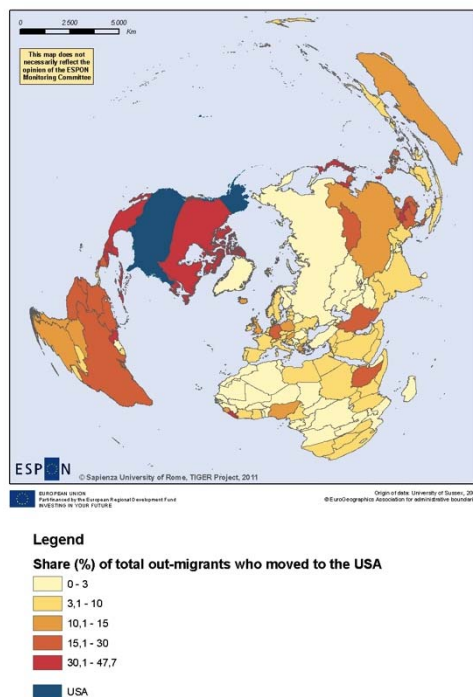


Fig. 6

Stock of out-migrants towards the NAFTA space recorded in the year 2000

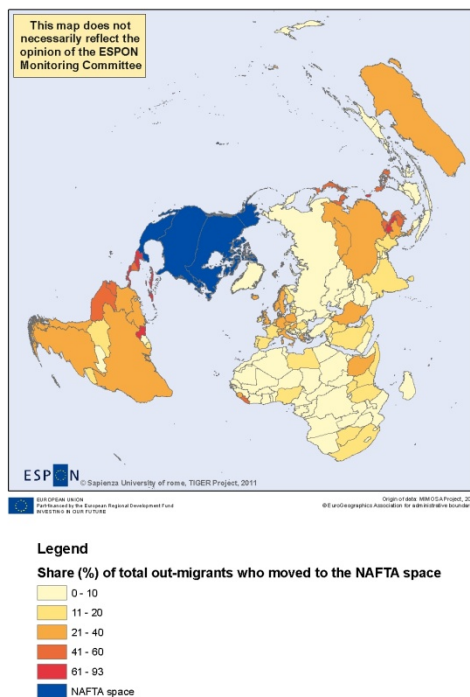


Fig. 7

Non-US citizens, 2007-2008

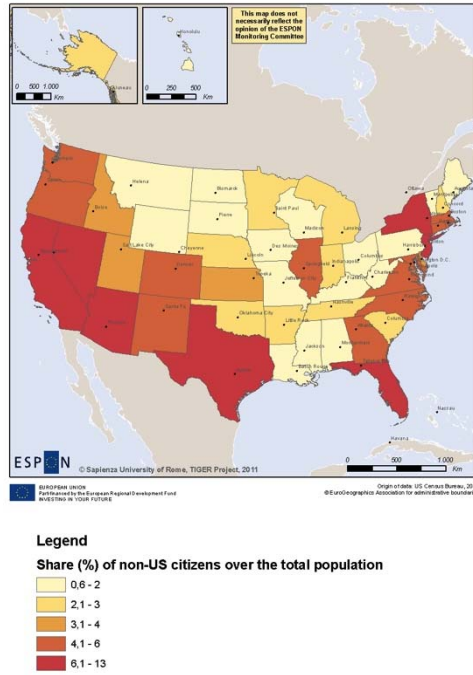


Fig. 8

Significance of immigration, 2007-2008

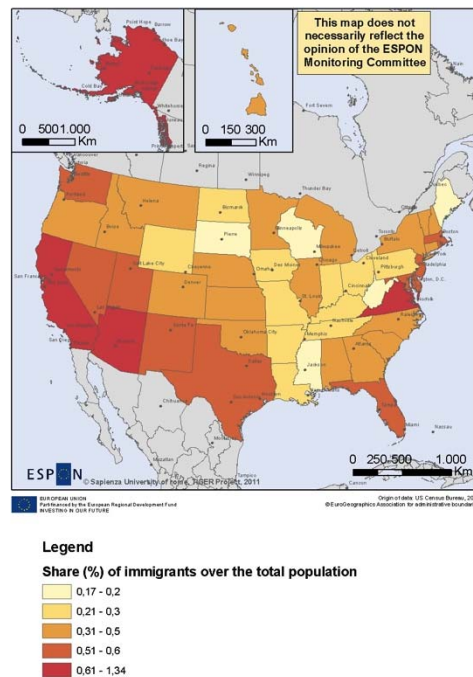


Fig. 9

Internal permanent mobility, 2007-2008

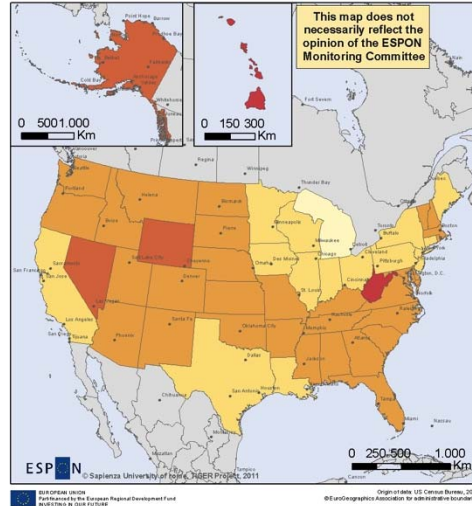


Fig. 10

Stock of in-migrants from the USA recorded in the year 2000

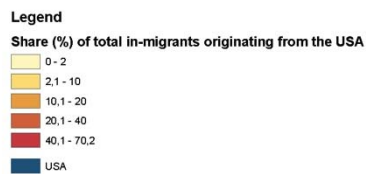
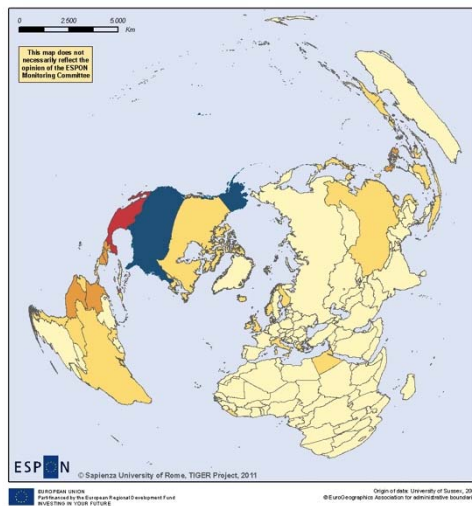


Fig. 11

Stock of in-migrants from the NAFTA space recorded in the year 2000

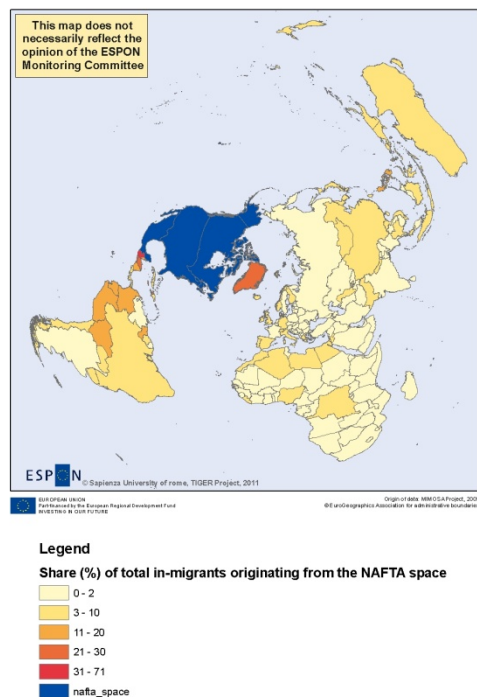


Fig. 12

Relative weight of immigration, 2007-2008

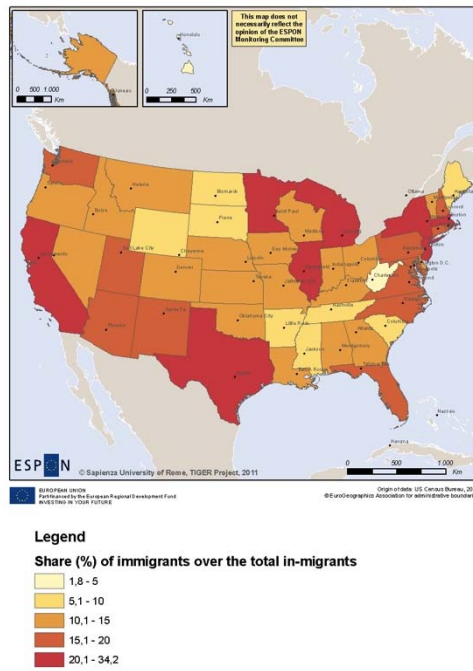
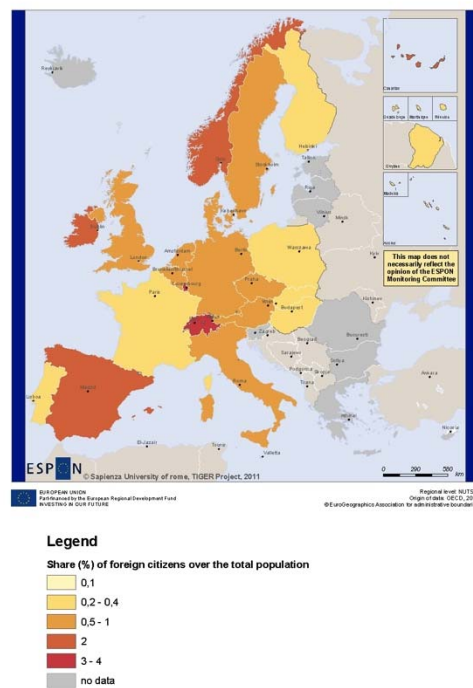


Fig. 13

Significance of immigration, 2008



The total number of immigrants, in the year 2000, resident in each country of the ESPON and the NAFTA spaces, by country of origin, and the total number of emigrants from each country of the ESPON and NAFTA spaces, residing in the year 2000 outside their country of origin, by country of destination, have been analyzed and clustered using artificial neural networks – SOM (Self Organizing Maps).

If we consider all the out-migrants from each country of the ESPON and NAFTA spaces up to the year 2000, we can find a very clear division: North America and Spain show the same preferences in the destination choice; another big group of countries with many similarities in the choice of destination is represented by several European countries and Mexico, with the exception of UK, Ireland and Portugal showing three unique patterns (Fig. 16).

If we consider all the in-migrants to each country of the ESPON and NAFTA spaces – including the movements in within and between the spaces – we can detect few very defined groups of countries: the World powers during the Cold War (USA and Russia), Latin America and Eastern Pacific, other countries of the NAFTA space (Canada and Mexico) and South Africa, Central Africa (Fig. 17).

Fig. 14

Comparison between ESPON and NAFTA spaces on the basis of out-migration stocks

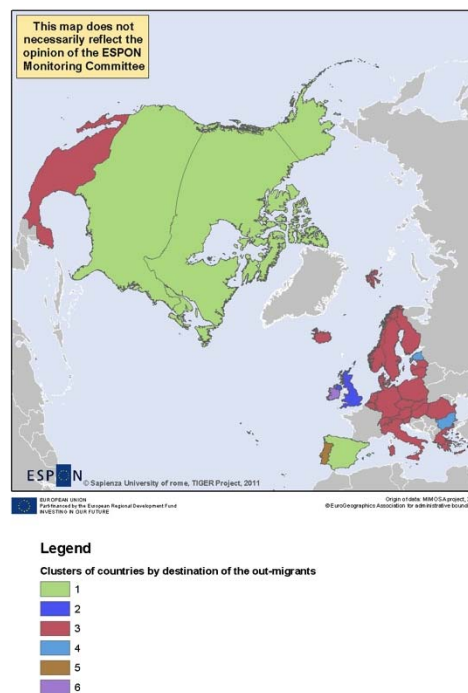
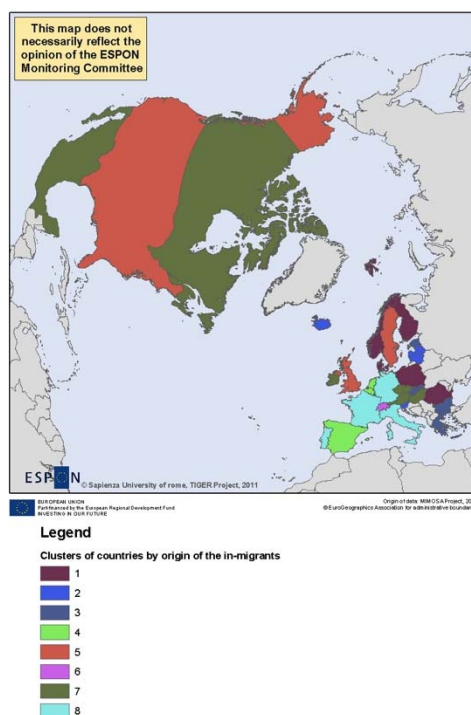


Fig. 15

Comparison between ESPON and NAFTA spaces on the basis of in-migration stocks



3.3 Main trends in migratory flows in the regions of the ESPON space

In order to perform an analysis of the migratory flows at a sub-national level for the ESPON space, the average net migration rate for the interval 2000–2007, at nuts3 level, has been taken into consideration. In addition a cluster analysis, carried out using the SOM (Self-Organizing Maps) method, has been implemented considering, for each nuts3 level, the trend of the migration rates during the period 2000–2007. Each single trend has been interpreted as a single record; the 8 clusters obtained describe the types of regions in the ESPON space considering the trends of the net migration rates, year by year, in the period 2000–2007. The yearly net migration rates, at nuts3 level, for each year of the interval 2000–2007, have been analyzed as well.

The SOM method belongs to the more general group of the Neural Networks. They allow a natural categorization of multi-dimensional data based on the similarity of the “horizontal” evolutions of data. Furthermore the neural network takes into account the spontaneous data agglomeration in the multi-dimensional space, allowing to obtain classes that are not arbitrarily defined beforehand by the researchers.

In the period 2000–2007 the ESPON space shows a relevant heterogeneity in the average migration rates. The Western Mediterranean regions (in Spain, France, Italy) show positive and very positive rates, as much as Ireland, Eastern England and the Southern regions of Scandinavia. Central European regions – especially the German ones – show weak positive migratory rates, while peripheral British areas show a perfect balance between in and out migrations. Old industrial areas in Europe, Southern Mediterranean regions (Italian

Mezzogiorno), Eastern Europe and peripheral areas of Northern Europe show negative and very negative migratory rates (Fig. 18).

If the migratory trends of the nuts3 territories are considered, eight clusters of regions can be identified, corresponding to eight regional types: type 1: territories characterized by migratory rates under the average of the period in the first half of the interval and by positive ones in the second half, showing a positive trend (several cases in Ireland, Spain, Belgium, Czech Republic); type 2: regions characterized by migratory rates under the average of the period in the first part of the period and by migratory rates higher than the average in the second part (many examples in Spain, Italy, Sweden); type 3: regions showing oscillating migratory rates during the interval with few, isolated cases, of migratory rates above the average of the period (several examples in Ireland and Norway); type 4: regions characterized by a declining trend of the migratory rates, except for the very beginning of the period (many examples in Switzerland); type 5: regions characterized by migratory rates under the average up to the year 2005, with a recovery at the end of the period (many examples in France); type 6: territories characterized by migratory rates above the average of the period in the first half of the interval with a negative trend in the second half (many examples in Germany and Portugal); type 7: regions characterized by migratory rates under the average at the beginning and at the end of the period and by rates above the average in the middle of the interval (several examples in UK); type 8: territories characterized by migratory rates above the average up to the year 2002 and by a very negative trend in the second half (several examples in the Netherlands) (Fig. 19).

Fig. 16

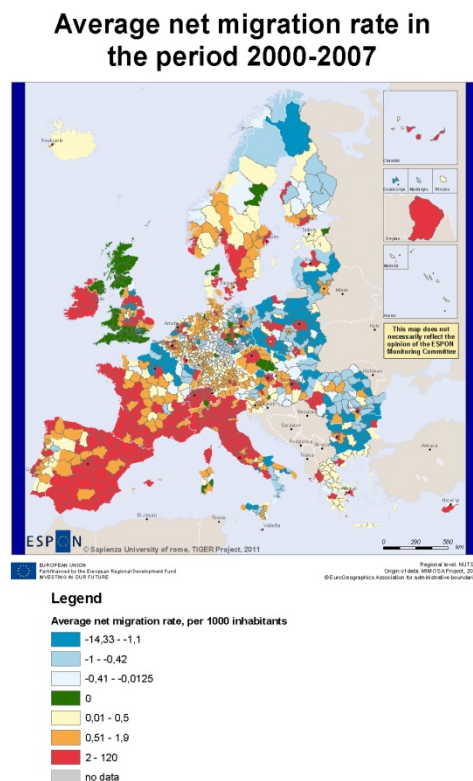
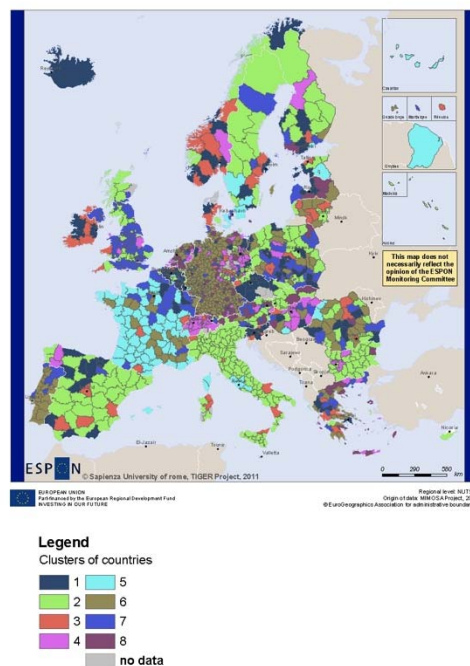


Fig. 17

Net migration rates in the period 2000-2007



In order to investigate more precise characteristics of the ESPON territories and migratory flows, data collected through the Labour Force Survey (LFS), at nuts2 level, related to the period 2007-2009 have been analyzed. Four different analysis have been implemented: (i) on the total sample, (ii) on the sample, taking the gender into account; (iii) on the sample, taking the educational level into consideration; (iv) on the sample, taking the age groups into account. For each analysis two were the main questions: a) which is the distribution of the interviewed persons by place of residence one year before? b) which is the distribution of the interviewed individuals by place of birth?

Traditional statistical methods can effectively measure well defined and univocal phenomena (migration, for instance). In order to measure more complex phenomena, such as mobility (permanent vs temporary, job or leisure related), more complex methodologies (such as SOM) should be used.

From the analysis of the residential mobility in the year before the survey, we have derived six types of regions in the ESPON space, identified by the same number of clusters. In each type of regions the number of persons who were resident in the same country one year before is always prevailing. In the ESPON space there is no case of regions in which persons who moved from one country to another is prevailing. Given this common feature, several

differences still exist. Type 4 (Eastern Europe, Southern Italy, Portugal, North-Western France, peripheral British regions, Finland) and type 3 (Central France, Central Spain, Northern Italy, Eastern Austria, Belgium, central Britain) regions: they are the most stable in terms of residential movements or, in other words, the less mobile, with an average population who have not changed residence in the last year equal, respectively to 97% and 91%; they represent the majority of the regions of the ESPON space; Type 5 regions (very few but very relevant examples in Balearic Island, London, Wien, Brussels regions): those are the regions presenting the highest mobility, with an average of 35% of the interviewed persons who have changed residence in the last year. Type 1, 2 and 6 regions are in between, with an average number of persons who have not changed residence, oscillating between 80% and 84%. Other differences can be remarked. In the regions belonging to the cluster 5, almost 25% of the individuals had a residence outside the EU27 space the year before; that percentage is considerable also in type 1 (Valencia region, Ile-de-France, Stockholm, Salzburg region) and type 6 (Southern France, Cataluña, Amsterdam, Baltic Republics) regions, around 12%. Regions belonging to the cluster 2 (mostly in Ireland) are, on the contrary, characterized by the highest percentage (14%) of individuals who have changed residence in the last year in within the EU27 space (Fig. 20).

From the analysis of the residential mobility from the birth, we have derived six clusters. In each type of regions the number of persons who were born in the same country is always prevailing. In the ESPON space there is no case of regions in which persons who are born in a different country is prevailing. Given this common feature, several differences still exist. Type 3 (Eastern Europe, Southern Italy, Western France, Portugal, Eastern England, Eastern Germany, Northern Sweden, Finland) and type 1 (Inner Greece, Central Italy, Central Spain, Central France, Northern Germany, Central England, Eastern Austria, Southern Sweden, Denmark) regions are the ones characterized by the highest presence of persons who were born in the same country, respectively 98% and 95%. Those represent the majority of ESPON countries; Type 5 regions (only Southern Ireland) are the ones characterized by the highest rate (28%) of persons born in a different country; Type 4 regions (Ile-de-France and Madrid region, Southern Spain, Baltic Republics, Southern Germany) are characterized by the highest rate (10%) of persons who were born in non-EU countries; type 6 regions (mainly in Belgium and Northern Ireland) are, excluding Southern Ireland, characterized by the highest rate of persons who were born in a different European country, while type 2 regions (in Northern Italy, Central Spain, Germany) are characterized by a significant rate (5%) of persons who were born in non-EU countries (Fig. 21).

If we introduce the gender issue in the analysis, interesting results can be achieved. We'll consider here the female mobility in the year before the survey. The regions in which the highest number of women having changed residence are recorded, are the capital regions: Wien, Brussels, Paris, Stockholm, London. This is particularly true for women who have changed residence coming from non-EU countries. If we consider, indeed, women who have moved in within the EU territory, also other regions emerge as being attractive: Hainaut in Belgium, Northern Ireland, Luxembourg (Fig. 22).

If we analyze the movements of women since the birth we can draw the following picture that partially confirms the former analysis. The most attractive regions are Brussels and Luxembourg, capital cities of EU offices. Madrid and the Mediterranean Spanish regions, Paris, London, the Baltic Republics, Hamburg and Darmstadt in Germany, are attractive as well, especially for women who moved from non-EU countries where they were born (Fig. 23).

Fig. 18

Regional attractiveness for recent mobility

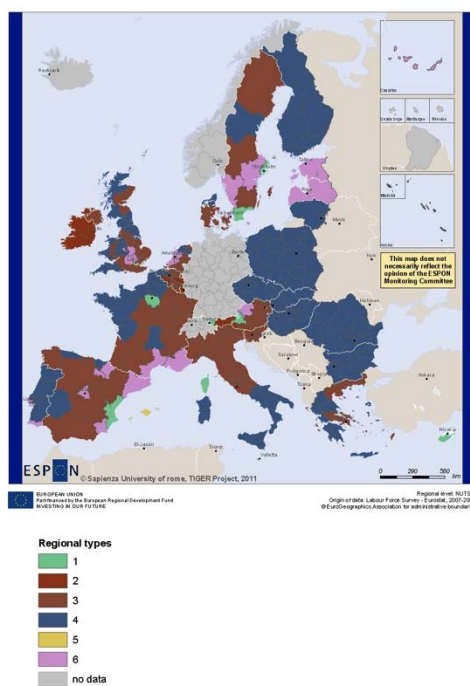


Fig. 19

Regional attractiveness for non-recent mobility

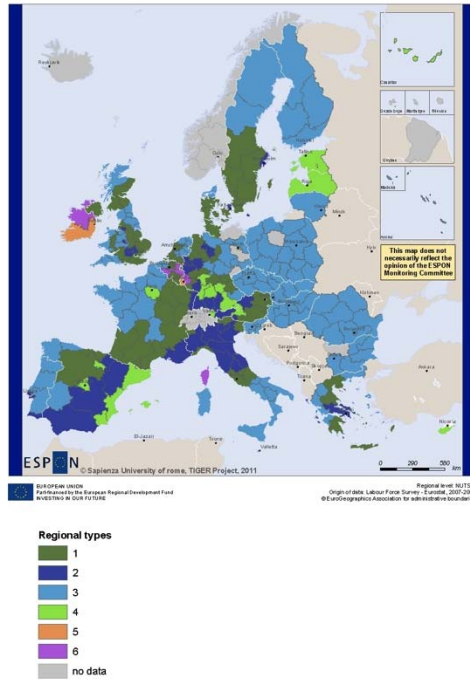


Fig. 20

Regional attractiveness for female recent mobility

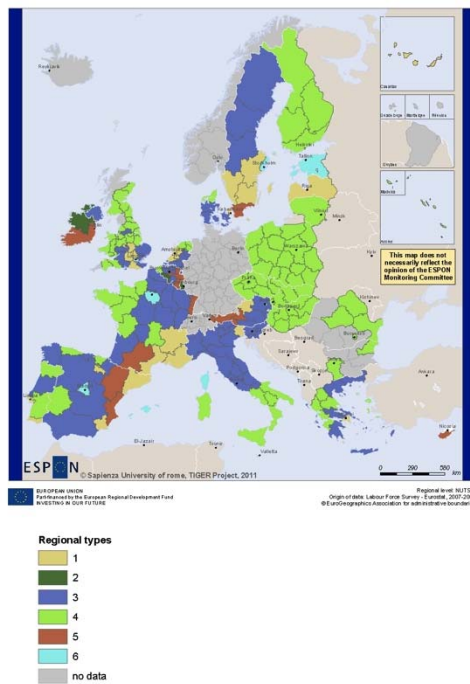
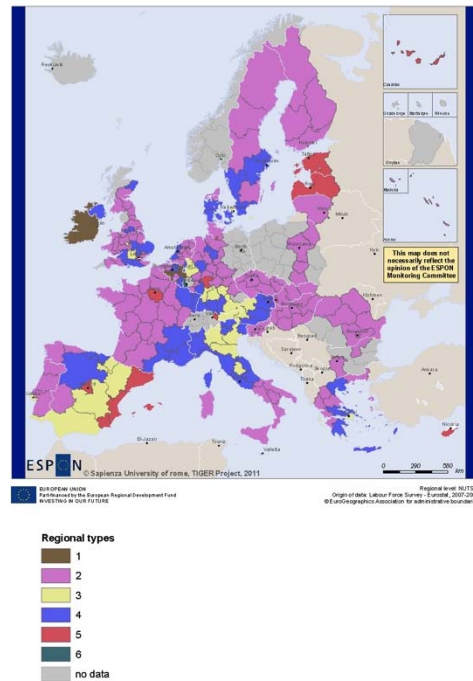


Fig. 21

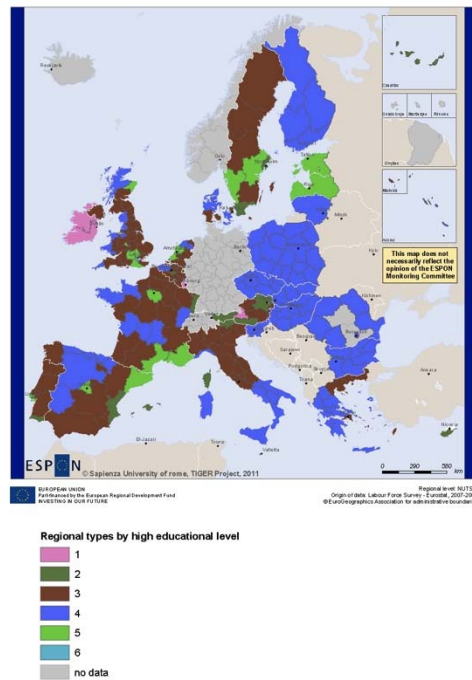
Regional attractiveness for female non-recent mobility



Among the regions that present the highest residential mobility of persons with high educational level we find the Inner and Outer London, with an average rate of 28% of persons who have moved to London in the last year, originating from non-EU countries. If we concentrate our attention on persons with a high educational level who have moved in within the EU territory (with an average of 21%), we find a high concentration in Ireland, in Luxembourg, in Wien and Salzburg regions, in Brussels region. Interesting high figures are also shown by other Austrian regions and by the region of Valencia. A high mobility of persons characterized by a low educational level can be found in the international capital cities (London and Paris), in Southern Netherlands, in Southern France (Provence-Alpes-Côte d'Azur) with a prevailing number of persons from non-EU countries (Fig. 24).

Fig. 22

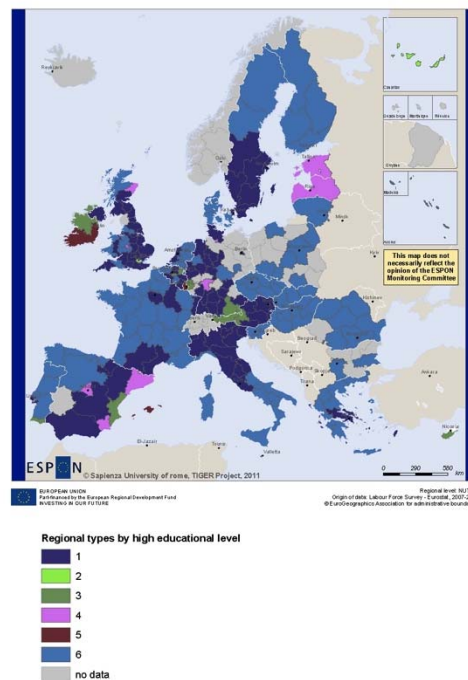
Regional attractiveness for recent mobility, by educational level



If we analyze the movements of persons by educational level, taking into account their place of birth, other interesting results can be achieved. The regions that, in relative terms, attract the most persons with a high educational level who have moved, since their birth, in within EU are: Southern Ireland, Balearic Islands, Luxembourg, Wien and Brussels. When persons who were born in non-EU countries and who own a high educational degree are considered, the emerging regions are: Madrid, Cataluña and Andalucía in Spain, Hamburg and Darmstadt in Germany, West Midlands and North Eastern Scotland (Fig. 25).

Fig. 23

Regional attractiveness for non-recent mobility, by educational level



Let's, now, finally move to the analysis of our sample by age groups. Seven age classes have been defined and analyzed (15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75 and more, years old). The main variable under observation is the relative weight, in each region, of the persons who have changed residence in the year before the survey. The most attractive regions for the youngest (high school and tertiary education students) are Madrid and the Mediterranean Spanish regions, Inner and Outer London, Luxembourg. The most attractive regions. Attractiveness is particularly high for those who moved from non-EU countries. The same regions are in the cluster of the most attractive for persons aged 25-34, in the initial phase of their career. For this second group other regions have to be added, like Wien, Brussels, Paris, Stockholm, several German regions, Southern Ireland. The same situation characterized the age group 35-44, persons in the growing phase of their career path. The situation changes when the age class 45-54, persons in the mature phase of their career, is considered. The most attractive regions, in this case, are Wien, Paris, Brussels, London, Luxembourg, Stockholm but also the Baltic Republics, Hamburg and Darmstadt, Provence Alps Cote d'Azur. A similar situation is valid for the age group 55-64, persons in the declining phase of their career. The province of Hainaut, several German regions, London, the Baltic regions, Provence Alps Cote d'Azur are the most attractive for the persons aged 65-74, in the final stage of their career or already retired. Finally, the most attractive regions for people aged 75 and more, retired from the job market, are the province of Liège in Belgium, Northern German regions, London. Some maps related to our analysis are provided in fig. 26a-b-c-d.

Fig. 24a

Regional attractiveness for recent mobility, by age group (15-24)

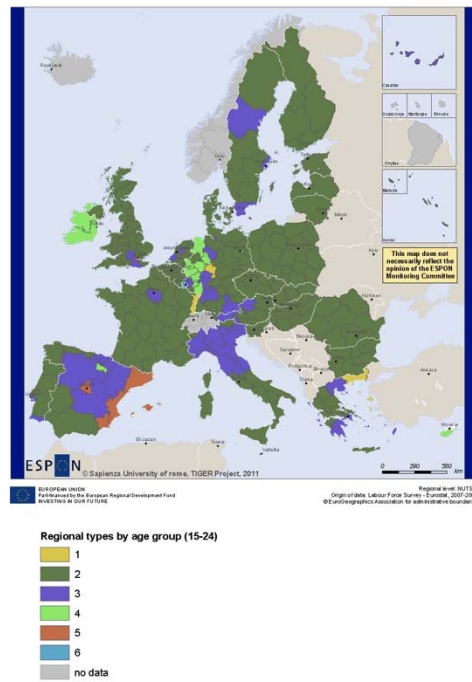


Fig. 24b

Regional attractiveness for recent mobility, by age group (35-44)

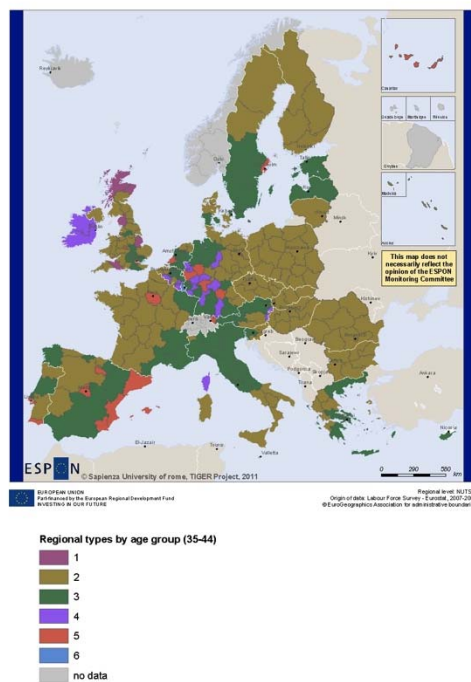


Fig. 24c

Regional attractiveness for recent mobility, by age group (55-64)

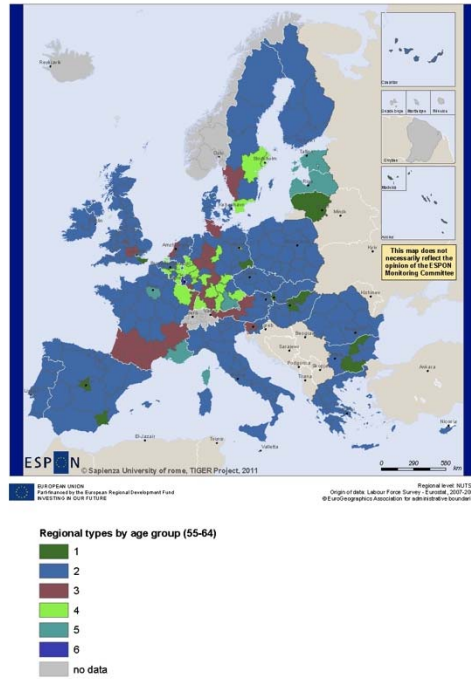


Fig. 24d

Regional attractiveness for recent mobility, by age group (65-74)

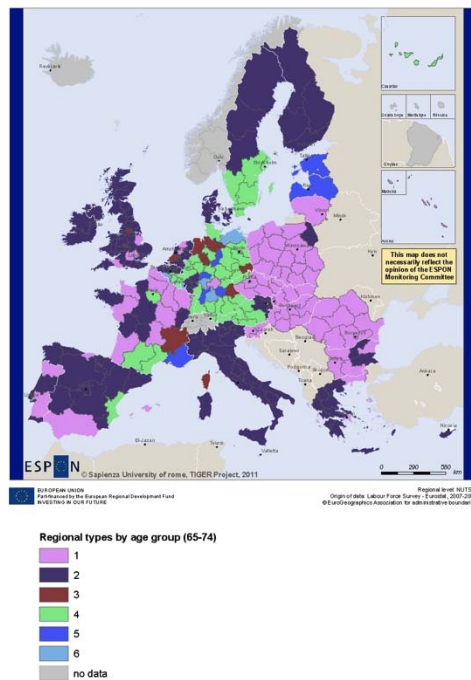
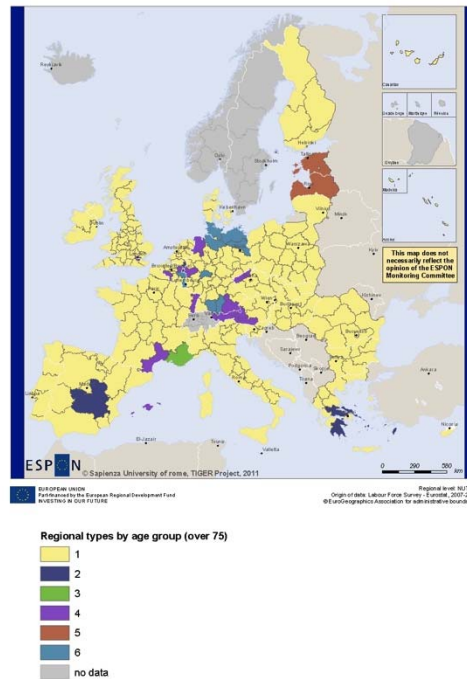


Fig. 24e

Regional attractiveness for recent mobility, by age group (over 75)



3.4 Main trends in tourist flows in the ESPON and in the NAFTA spaces

Let us now analyze the temporary component of the human mobility: the tourist flows. In the ESPON space, in spite of incomplete data, it's possible to observe a non negligible fluctuation in the impact of tourism along the last decade, in comparing the tourist arrivals over the total population in three different years (fig. 27-28-29).

In the USA, in the same decade, the available data, show a more coherent picture, with some States (California, Florida, New York) always very attractive (fig. 30-31-32). If we look at the origin of the tourists directed to the USA (fig. 33-34-35) we can detect a dominance of the neighbouring countries and the English-speaking countries.

Fig. 25

Impact of tourism, 2000

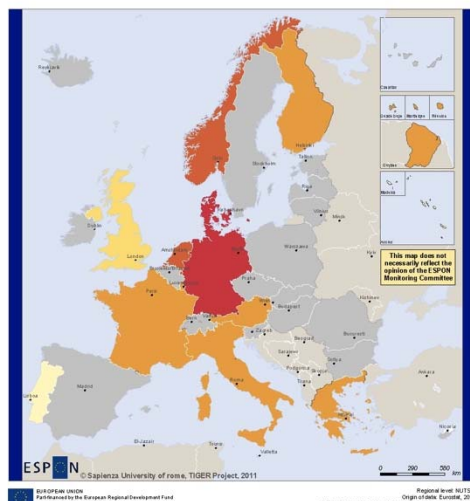


Fig. 26

Impact of tourism, 2007

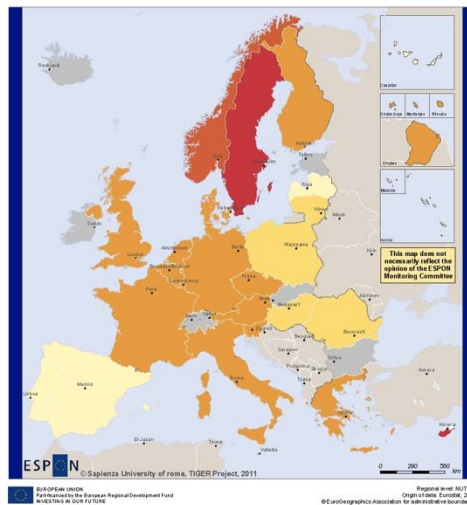


Fig. 27

Impact of tourism, 2009

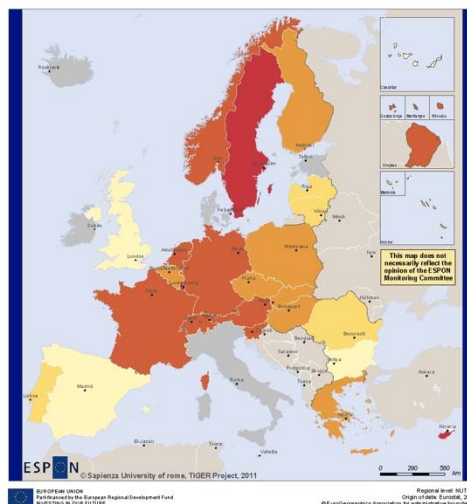


Fig. 28

Impact of tourism, 2000

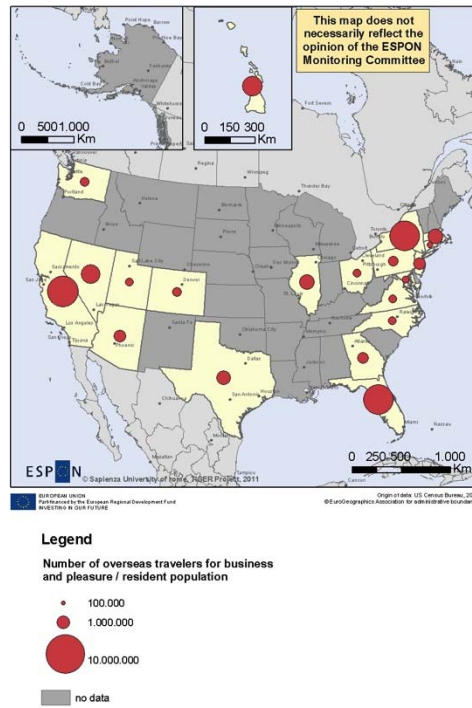


Fig. 29

Impact of tourism, 2007

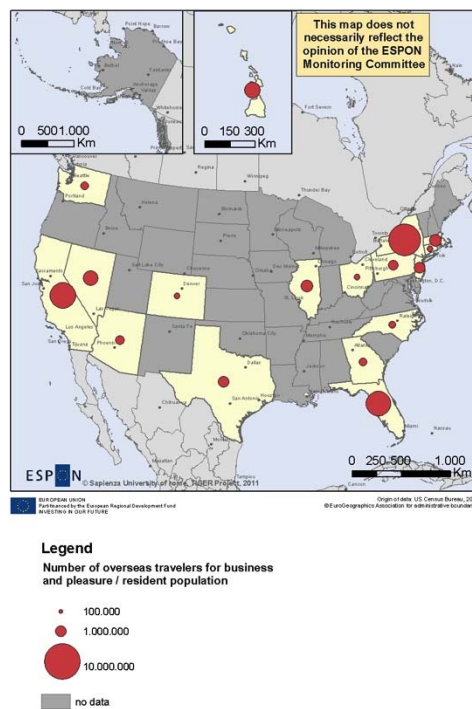


Fig. 30

Impact of tourism, 2009

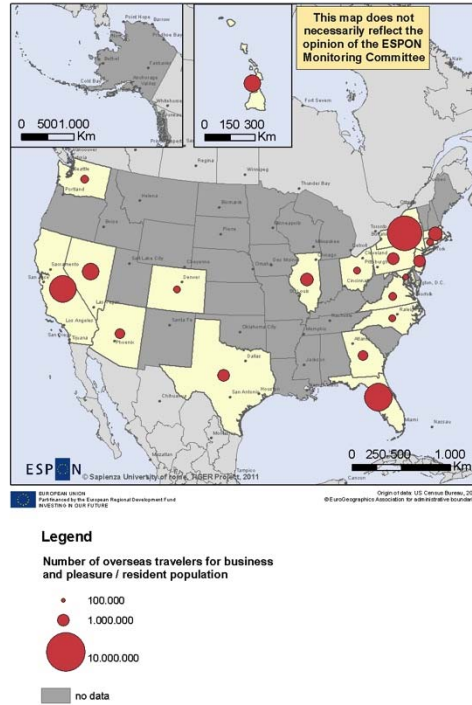


Fig. 31

Tourist flows towards the USA, 2001

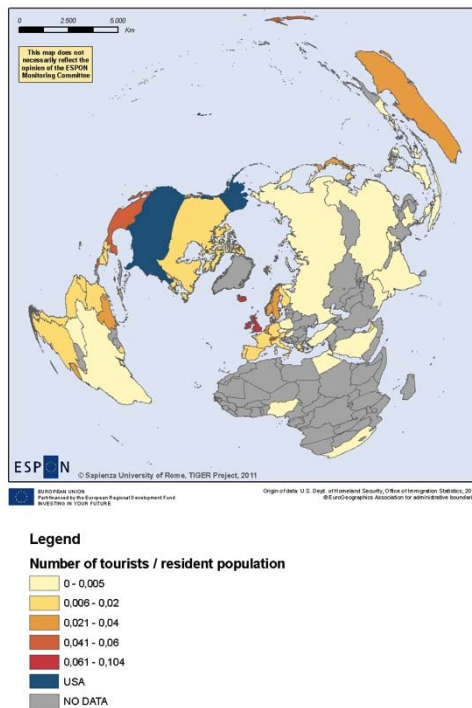


Fig. 32

Tourist flows towards the USA, 2005

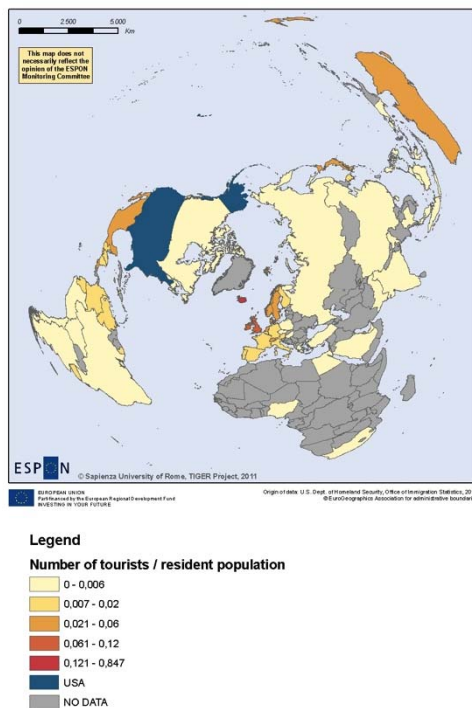
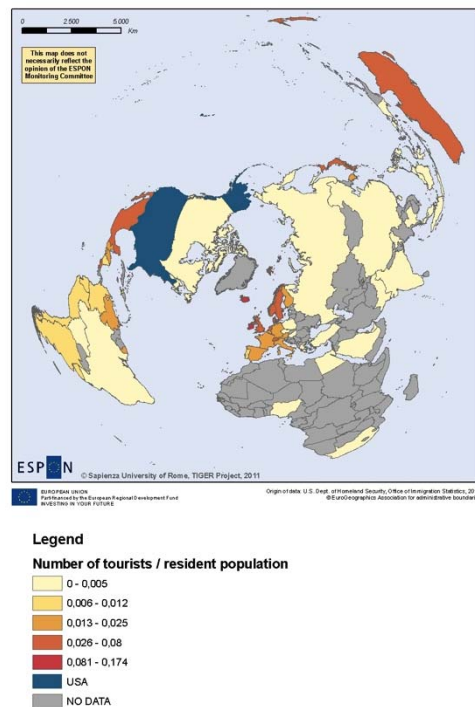


Fig. 33

Tourist flows towards the USA, 2008



In order to better understand the tourist phenomenon, the number of tourist arrivals recorded in official registered accommodation in each country of the ESPON and NAFTA spaces have been analyzed with the aim of defining the relative weight in the tourist industry of each country for the year 2000. A more detailed analysis, concerning the ESPON space, has been elaborated for the period 2000-2009, at nuts 2 level.

In the ESPON space, in the year 2000, the most relevant countries – from tourist arrivals point of view – are Italy, France and Spain, with more than 10% of the total arrivals of the ESPON space for each of them. The least important countries, from tourist point of view, in the ESPON space are the peripheral territories (Scandinavia, Baltic Republics, Eastern Europe) (Fig. 36).

The most important regions – in the ESPON tourist industries – in the last decade (2000-2009), are the Western Mediterranean regions, with tourism linked to the sea, the historic cities, the art cities (Andalucia, Catalunya, [Provence-Alpes-Côte d'Azur](#), Tuscany, Lazio), the regions hosting the capital cities (Madrid, Paris, Brussels, Amsterdam, Stockholm, Helsinki), the ski resorts, such as Tirol. Tourist arrivals are concentrated in the Western part of Europe and Eastern European regions confirm their marginality in this respect. Exceptions are represented by the Baltic countries and the regions hosting capital cities, like Budapest (Fig. 37).

If we analyze the trend of the tourist arrivals in each region in the period 2000-2009, we can define eight types of regions: type 1 (several regions in Sweden, Austria, Rumania) characterized by tourist arrivals increasing in the first part of the decade, reaching their maximum in mid-2000s, decreasing in the second part of the decade; type 2 (several regions in France and Hungary) characterized by tourist arrivals growing up to 2003 and then gradually decreasing; type 3 (several regions in France, Italy, Denmark) characterized by a negative trends with a decrease starting from 2001; type 4 (some regions in Spain, Germany, Finland, several in Greece) characterized by a negative trend up to the year 2004, an

increasing trend up to the year 2008 and, then, a new decrease; type 5 (several regions in UK, some in Poland, few in Italy) characterized by an oscillating trend bringing to a general decrease in the number of tourist arrivals; type 6 (several regions in UK, some in Germany, in Bulgaria) characterized by a drastic decline in the number of arrivals from the year 2000 to the year 2002, followed by a recovery up to the year 2007 and, then, by a new decrease; type 7 (few regions in Spain, Italy, several regions in Germany, Bulgaria) characterized by an important decrease between 2000 and 2002, a constant increase up to the year 2008, a stabilization after that date; type 8 (several regions in Spain, Italy, Germany, Poland, the Baltic countries, Finland) characterized by a constant increase in the number of tourists between 2000 and 2008 and a decline after that year. What all the regions have in common is a decrease in the number of tourist after 2008 certainly due to the global economic crisis (Fig. 38).

In the NAFTA space, in the year 2000, more than 50% of the tourist arrivals in the year 2000 had the USA as destination; Mexico and Canada were sharing the rest almost equally (Fig. 39).

Fig. 34

Tourist flows in the ESPON space, 2000



Fig. 35

Average regional importance in the tourist industry in the period 2000-2009

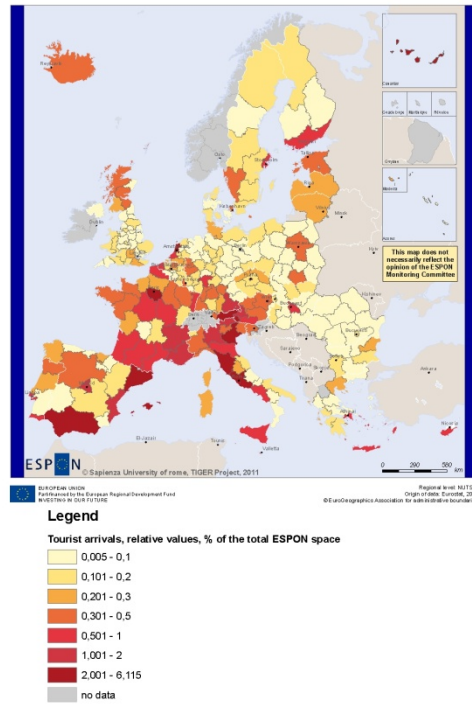


Fig. 36

Regional typologies in the tourist industry, 2000-2009

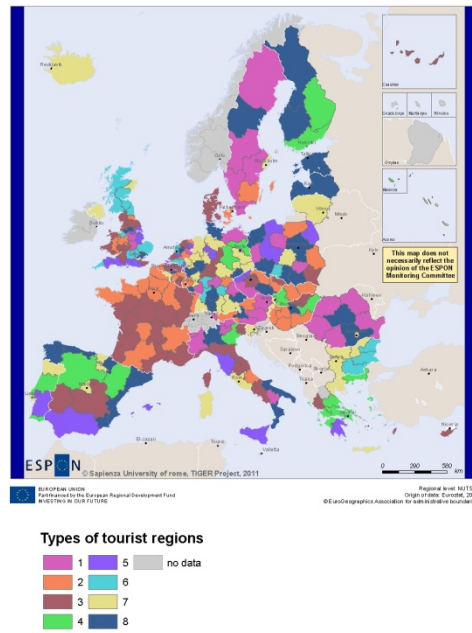


Fig. 37

Tourism in the NAFTA space, 2000



4. Conclusions

In the second part of this report we have analyzed the migratory and tourist flows in the ESPON and USA-NAFTA spaces in the last decade. Our analysis has confirmed some of the trends in act in the former decades, has strengthen some of the theoretical hypotheses and has shown some new patterns that need to be confirmed by future researches.

REFERENCES

- CLAVAL P. (2002), "Reflections on human mobility at the time of globalisation", in MONTANARI A. (ed.), *Human mobility in a borderless world?*, Rome, IGU-Home of Geography Publication Series Vol. I, 47-68.
- DEMIFER (2009), "Report on effects of demographic and migratory flows on European regions", *Demographic and migratory flows affecting European regions and cities*, www.espon.eu (last access on 30th July 2010).
- DEMIFER (2010), "Final report", *Demographic and migratory flows affecting European regions and cities*, www.espon.eu (last access on 30th July 2010).
- DORIGO G. and TOBLER W. (1983), "Push-pull migration laws", *Annals of the Association of American Geographers*, 73 (1), 1-18.
- ESPON 1.1.4. (2004), "Final report", *The spatial effects of demographic trends and migration*, www.espon.eu (last access on 30th July 2010).
- ESPON 3.4.1. (2007), "Final report. Vol. 1", *Europe in the World*, www.espon.eu (last access on 30th July 2010).
- FASSMANN H. and REEGER U. (2009), "'Old' immigration countries in Europe. Concept and empirical examples", in IDEA-FP6 Project, *Europe: the continent of immigrants. Trends, structures and policy implications*, IDEA working papers, www.idea6fp.uw.edu.pl (last access on 4th August 2010).
- JENNISSSEN R., VAN DER GAAG N. and VAN WISSEN L. (2006), "Searching for similar international migration trends across countries in Europe", *Genus*, 62 (2), 37-64.
- KING R. (1993), "European international migration 1945-90: A statistical and geographical overview", in KING R. (ed.), *Mass migration in Europe: the legacy and the future*, London, Belhaven, 19-39.
- MONTANARI A. (2005), "*Human mobility and economic development perspectives: reflections on the Cadres space*", in STRANIERO M. (ed.) *Spatial impact of immigration. Conference proceedings and materials*, Rome, Ministero delle Infrastrutture e dei Trasporti, 33-71.
- MONTANARI A. (2006a), "Geography of disequilibrium: Reflections on human mobility in Europe", in ESPON, *European Territorial Research in Progress. Conference Proceedings of the 1st ESPON scientific conference*, ESPON, Luxembourg.
- MONTANARI A. (2006b), "Le bassin Méditerranéen. La mobilité humaine pour la réalisation d'une macrorégion", in DECROLY J.M. and NICOLAI H. (eds.) *Mutations des territoires dans le Monde à l'aube du XXI^e siècle*, Paris, L'Harmattan, 79-105.
- MONTANARI A. and CORTESE A. (1993), "South to North migration in Mediterranean perspective", in KING R. (ed.), *Mass migration in Europe: the legacy and the future*, London, Belhaven, 212-233.
- MONTANARI A. and STANISCIA B. (2009), "Female migration in a changing world. Eastern Europeans in central Italy", *Espace Populations Sociétés*, 2, 227-241.
- OECD-SOPEMI (2010), *International migration outlook*, OECD, www.oecd.org (last access on 4th August 2010).
- OKOLSKI M. (2009), "Transition from emigration to immigration: is it a destiny of modern European countries?", in IDEA-FP6 Project, *Europe: the continent of immigrants. Trends, structures and policy implications*, IDEA working papers, www.idea6fp.uw.edu.pl (last access on 4th August 2010).
- SALT J. (2006), *Current trends in international migration in Europe. Report to the Council of Europe*, Strasbourg, Council of Europe.
- SARDON J. P. (2006), "Recent demographic trends in Europe and the other developed countries", *Population*, 61 (3), 197-266.

- VANDERMOTTEN C., VAN HAMME G., MEDINA LOCKHART P. and WAYENS, B. (2004), *Migrations in Europe. The four last decades*, Rome, IGU-Home of Geography publication series.
- VANDERMOTTEN C., VAN HAMME G. and MEDINA LOCKHART P. (2005), “The geography of migratory movements in Europe from the Sixties to the present day”, *Belgeo*, 1 (2), 19-34.
- WHITE P.E. (1993), “The social geography of immigrants in European cities: the geography of arrival”, in KING R. (ed.), *The new geography of European migrations*, London, Belhaven, 47-66.

Annex 1 – Description of data contained in the dataset

The dataset is presented in a excel file. The file consists of 26 sheets. The first 4 sheets contain general information about data and metadata and the other 22 sheets contain data. Data contained in the dataset are the following ones:

1. total international migration flows between nuts0 regions, that is total flow of persons between two ESPON countries on NUTS0 level, between 2006 and 2007, nuts0 level;
2. total internal migration flows, that is total flow of persons between two NUTS2 regions belonging to the same country between 2006 and 2007, nuts 2 level in the ESPON space;
3. total population (as January 1) in the year 2007, at nuts0, nuts1, nuts2 levels in the ESPON space;
4. change in net migration, that is annual average change per 1000 inhabitants in the periods 2000-2006, 2000-2007, 2001-2006, at nuts 2 level in the ESPON space;
5. change in net internal migration, that is annual average change per 1000 inhabitants, in the period 2000-2007, at nuts 2 level in the ESPON space;
6. change in net international migration, that is annual average change per 1000 inhabitants, in the period 2000-2007, at nuts 2 level in the ESPON space;
7.
 - a. emigration to ESPON countries, in the period 2006-2007, at nuts0 level;
 - b. immigration from ESPON countries, in the period 2006-2007, at nuts0 level;
 - c. emigration to non-ESPON countries, in the period 2006-2007, at nuts0 level;
 - d. immigration from non-ESPON countries, in the period 2006-2007, at nuts0 level;
 - e. total emigration in the period 2006-2007, at nuts0 level from the ESPON space;
 - f. total immigration in the period 2006-2007, at nuts0 level in the ESPON space;
 - g. total emigration as a percentage of population in the period 2006-2007 for the ESPON space at nuts0 level, in the period 2007-2008 for the US;
 - h. total immigration as a percentage of population in the period 2006-2007, at nuts0 level, for the ESPON space, in the period 2007-2008 for the US;
 - i. share of emigrants to ESPON countries in the period 2006-2007, at nuts0 level;
 - l. share of immigrants from ESPON countries in the period 2006-2007, at nuts0 level;
 - m. share of emigrants to non- ESPON countries in the period 2006-2007, at nuts0 level;
 - n. share of immigrants from non-ESPON countries in the period 2006-2007, at nuts0 level – total annual net migration, per 1000 inhabitants, for each year of the interval 2000-2007, at nuts0, nuts1, nuts2, nuts3 level in the ESPON space;
8. origin/destination matrix for the total number of immigrants, year 2000, with worldwide coverage;
- 9.

- a. percentage of non-US citizens over the total population, period 2007-2008;
 - b. percentage of US citizens over the total population, period 2007-2008
 - c. percentage of immigrants from US states over the total population, period 2007-2008;
 - d. percentage of immigrants from non-US states over the total population, period 2007-2008;
 - e. share of immigrants from US states over the total immigrants, period 2007-2008;
 - f. share of immigrants from non-US states over the total immigrants, period 2007-2008;
10. foreign citizens as a percentage of total population in the ESPON space, year 2008, nuts0 level;
11. a. number of international tourists (arrivals), in each year of the interval 1999-2009, at nuts0 level
- b. number of international overnight stays, in the years 2009-2010, at nuts0 level, in the ESPON space;
12. number of foreign tourists and business travelers admitted into USA for a temporary period of time from each of the listed countries (of citizenship), for each year of the interval 2001-2008;
13. number of overseas (i.e. excluding Canada and Mexico) travelers for business and pleasure to US, for several years;
14. socio-economic variables, year 2000, worldwide coverage:
- a. Unemployment, total (% of total labor force), -
 - b. Labor force participation rate, total (% of total population ages 15-64), -
 - c. GDP per capita, PPP (constant 2005 international \$), -
 - d. GDP, PPP (constant 2005 international \$), -
 - e. Expenditure per student, tertiary (% of GDP per capita), -
 - f. School enrollment, secondary (% gross), -
 - g. School enrollment, tertiary (% gross), -
 - h. GINI index -
 - i. Household final consumption expenditure, PPP (constant 2005 international \$)
 - l. Daily newspapers (per 1,000 people) -
 - m. Fixed line and mobile phone subscribers (per 100 people) -
 - n. Households with television (%)-
 - o. Internet users (per 100 people) -
 - p. Roads, paved (% of total roads) -
 - q. Tax revenue (% of GDP) -
 - r. Foreign direct investment, net inflows (% of GDP) -
 - s. International tourism, number of arrivals
 - t. International tourism, number of departures -
 - u. Merchandise trade (% of GDP) -
 - v. International Aids (% of GNI) -
 - z. Population in urban agglomerations > 1 million (% of total population) -
 - aa. Rural population (% of total population) -
 - ab. Urban population (% of total) -
 - ac. Vehicles (per 1,000 people) -
 - ad. Surface area (sq. km)
 - ae. Hospital beds (per 1,000 people) -
 - af. Improved water source (% of population with access) -
 - ag. Life expectancy at birth, total (years) -
 - ah. Population density (people per sq. km)
 - ai. Labor force participation rate, female (% of female population ages 15-64) -
 - al. Population, female (% of total)
 - am. Population growth (annual %) -

- an. Population, total
 - ao. Stock of total immigrants (number of persons);
15. Gross domestic product (GDP) at current market prices, for each year of the interval 1997-2008, for ESPON space, at nuts2 and nuts3 levels -
 16. Expenditure of selected health care functions by providers of health care, per inhabitant, for each year of the interval 2004-2008, at nuts0 level -
 17. Hospital beds by region - Number per 100,000 inhabitants, for each year of the interval 2000-2009, at nuts2 level -
 18. Arrivals in tourist accommodation establishments - regional - annual data, for each year of the interval 1999-2009, at nuts2 level -
 19. each year of the interval 1999-2009, nuts3 level:
 - a. Unemployment (persons from 15 to 24 years)
 - b. Unemployment (persons from 15 to 24 years), female
 - c. Unemployment (persons 25 years and over)
 - d. Unemployment (persons 25 years and over), female
 20. each year of the interval 2000-2009, nuts2 level:
 - a. Upper secondary education - level 3 (ISCED 1997)
 - b. Post-secondary non-tertiary education - level 4 (ISCED 1997)
 - c. Tertiary education - levels 5-6 (ISCED 1997)
 21. labour force survey, nuts2 level, period 2007-2009, information concerning:
 - a. place of residence
 - b. educational level
 - c. country at birth
 - d. age groups

Annex 2

Variables

GDP per capita, PPP (constant 2005 international \$)	ny_gdp_pca~d
Expenditure per student, tertiary (% of GDP per capita)	se_xpd_ter~s
GINI index	si_pov_gini
Daily newspapers (per 1,000 people)	it_prt_new~3
Fixed line and mobile phone subscribers (per 100 people)	it_tel_tot~2
Households with television (%)	it_tvs_hou~s
Internet users (per 100 people)	it_net_use~2
Roads, paved (% of total roads)	is_rod_pav~s
Foreign direct investment, net inflows (% of GDP)	bx_klt_din~s
Merchandise trade (% of GDP)	tg_val_tot~s
Population in urban agglomerations > 1 million (% of total population)	en_urb_mct~s
Rural population (% of total population)	sp_rur_tot~s
Urban population (% of total)	sp_urb_tot~s
Vehicles (per 1,000 people)	is_veh_nve~3
Hospital beds (per 1,000 people)	sh_med_bed~s
Improved water source (% of population with access)	sh_h2o_saf~s
Life expectancy at birth, total (years)	sp_dyn_le0~n
Labor force participation rate, female (% of female population ages 15-64)	sl_tlf_~e_zs
Population growth (annual %)	sp_pop_grow
Population density (people per sq. km)	en_pop_dnst
International tourism, number of departures	st_int_dprrt
International tourism, number of arrivals	st_int_arvl
Tax revenue (% of GDP)	gc_tax_tot~s
GDP, PPP (constant 2005 international \$)	ny_gdp_mkt~d
Labor force participation rate, total (% of total population ages 15-64)	sl_tlf_~i_zs
Unemployment, total (% of total labor force)	sl_uem_tot~s

Annex 3

Variable	R2	Coef.	Std. Err.	t	P > t 	95% Conf. Interval	
(Stat. Significant Vars.)							
ny_gdp_pca~d	0.25	0.000458	5.96E-05	7.68	0.000	0.00034	0.000575
se_xpd_ter~s	0.04	-0.01154	0.006668	-1.73	0.088	-0.02486	0.001769
si_pov_gini	0.18	-0.31268	0.095653	-3.27	0.002	-0.50511	-0.12025
it_prt_new~3		0.023158	0.006434	3.60	0.001	0.01033	0.035978
	0.14					9	
it_tel_tot~2	0.14	0.108388	0.019737	5.49	0.000	0.06945	0.147327
it_tvs_hou~s		0.121865	0.024933	4.89	0.000	0.07260	0.17112
	0.13					9	
it_net_use~2		0.317245	0.072368	4.38	0.000	0.17446	0.460028
	0.09					2	
is_rod_pav~s		0.114249	0.028016	4.08	0.000	0.05879	0.169704
	0.11					5	
bx_klt_din~s		0.189568	0.078809	2.41	0.017	0.03393	0.345199
	0.03					6	
tg_val_tot~s	0.06	0.06643	0.019409	3.42	0.001	0.02812	0.104739
en_urb_mct~s	0.21	0.282115	0.054153	5.21	0.000	0.17469	0.389539
sp_rur_tot~s	0.24	-0.24777	0.031584	-7.84	0.000	-0.31008	-0.18547
sp_urb_tot~s		0.247774	0.031584	7.84	0.000	0.18546	0.310081
	0.24					6	
is_veh_nve~3		0.019329	0.004836	4.00	0.000	0.00972	0.028935
	0.14					3	
sh_med_bed~s	0.04	0.620887	0.355294	1.75	0.086	-0.09006	1.331829
sh_h2o_saf~s		0.201677	0.041353	4.88	0.000	0.12002	0.283327
	0.12					8	
sp_dyn_le0~n		0.396047	0.076836	5.15	0.000	0.24446	0.547629
	0.12					6	
sl_tlf_~e_zs	0.04	-0.16816	0.057596	-2.92	0.004	-0.28183	-0.0545
(Stat. Non-Significant Vars.)							
sp_pop_grow		0.996094	0.661186	1.51	0.134	-0.3082	2.300392
en_pop_dnst		0.000861	0.000673	1.28	0.202	-0.00047	0.002188
st_int_dpvt		4.22E-08	7.51E-08	0.56	0.576	-1.07E-	1.91E-07
						07	
st_int_arvl		2.27E-08	9.88E-08	0.23	0.819	-1.72E-	2.18E-07
						07	
gc_tax_tot~s		0.064606	0.141921	0.46	0.650	-0.21783	0.347038
ny_gdp_mkt~d		1.20E-13	8.24E-13	0.15	0.884	-1.51E-	1.75E-12
						12	
sl_tlf_~i_zs		-0.13759	0.100991	-1.36	0.175	-0.33689	0.061714
sl_uem_tot~s		-0.28785	0.212663	-1.35	0.179	-0.71022	0.134518

Annex 4

(i) immigration stocks are positively affected in a statistically significant way by the following variables:

GDP per capita, PPP (constant 2005 international \$)
Daily newspapers (per 1,000 people)
Fixed line and mobile phone subscribers (per 100 people)
Households with television (%)
Internet users (per 100 people)
Roads, paved (% of total roads)
Foreign direct investment, net inflows (% of GDP)
Merchandise trade (% of GDP)
Population in urban agglomerations > 1 million (% of total population)
Urban population (% of total)
Vehicles (per 1,000 people)
Hospital beds (per 1,000 people)
Improved water source (% of population with access)
Life expectancy at birth, total (years)

(ii) immigration stocks are negatively affected in a statistically significant way by the following variables:

Expenditure per student, tertiary (% of GDP per capita)
GINI index
Rural population (% of total population)
Labour force participation rate, female (% of female population ages 15-64)

(iii) immigration stocks are not affected in a statistically significant way by the following variables:

Population growth (annual %)
Population density (people per sq. km)
International tourism, number of departures
International tourism, number of arrivals
Tax revenue (% of GDP)
GDP, PPP (constant 2005 international \$)
Labour force participation rate, total (% of total population ages 15-64)
Unemployment, total (% of total labour force)