



Università di Pisa
Dipartimento di Statistica e Matematica
Applicata all'Economia

Report n. 315

The dual profile of migration in Tuscany
Federico Benassi, Linda Porciani

Pisa, marzo 2009

- Stampato in Proprio -

The dual profile of migration in Tuscany

Federico Benassi*, Linda Porciani**

* PhD University of Pise and University of Bari

** Post PhD University of Pise

Paper presented at the International Conference "Demographic aspect of Migration"
Session "Socio-economic aspect of migration"
Chair: Prof. Barry Edmonston (University of Victoria - Canada)
9-10 October 2008, Nuremberg, Germany

Introduction

While the migration from less developed countries has been well studied and it is still now one of the more frequent research object of demography, the migration from developed countries seems to be almost ignored in field researches and as well in theoretical ones. Beginning from the analysis of the official data, and considering as foreigner a person who has not the Italian citizenship, we observe that Italy and in particular Tuscany region present a *dual profile* in terms of migration: there are migrants coming from less developed countries (LDCs) and migrants from more developed countries (MDCs). For the macro-aggregation in MDCs and LDCs, we have referred to the classification adopted by the Italian National Statistical Institute (ISTAT): LDCs are Central Eastern European Countries included the new European members - from 1° May 2004 -, Africa, Asia with the exception of Israel and Japan, and Central South America. By extension, stateless displaced people have been included in this component. All the rest of provenience are included in MDCs (Istat, 2007).

The last census conducted in 2001, whose data are published in 2004, was the statistical base for mapping the distribution of foreigners by nationality, structure-age and gender composition at municipality level. It is well known that since 2001, the migratory situation in Italy has changed, firstly for law no. 189/2002, which implied a huge legalization of migrants in the same year and secondly for the change of European borders in 2004 and in 2007. Nevertheless, census data present some advantages respect to the more updated data of the municipal register, *anagrafe*, and of the Interior Minister, permits of sojourn. The main reason for using census data is their details: by municipality by age and gender, and by provenience of non Italian citizens.

Our analysis starts from the reconstruction of the debate about international migration theories, underlying that movements from developed countries are almost absent. After that, the study shifts to the data analysis of the migrant presence in Tuscany: we used census data at municipality level to reveal the presence of a dual profile of migrants, in terms of provenience. After that, we built thematic map (through GIS system), showing the spatial distribution of the different groups of migrants. These maps reveal specific territorial patterns driving the distribution of migrants. Then, we compare the age and gender profile of Italian population and foreign population, and those of foreigners coming from LDCs and foreigners from MDCs.

Maps and data elaboration reveal a clear profile of migrants in Tuscany: this is, in our opinion, the starting point to model effects of a dual migration on the Tuscany population profile, and to understand political and economic implications of this new kind of migration.

1 - Theoretical framework: the lack of an integrated theory about migration flows

The aim of migration theories is to explain why people move across nations and borders, through a systemic theory. Approaches to international migration could be divided into three ideal-typical areas: macro, micro and meso approach. Macro approach is the most aggregated and structured level of analysis; micro approach focuses on individual decision making level; and finally the meso one is centered on the social intermediate ties.

The structural perspective, or macro-approach, sees people's decision determined by social, economic and political factors. Following this theory, unemployment, or the influence of international media or population pressure, for example, can be seen as push factors, pushing emigrants from their homes and pulling them to their destinations (E. G. Ravenstein 1889, M. P. Todaro 1969). Structural explanations come in many different forms. One of the most known is the theory of dual labour market (M. J. Piore 1979). This argues that capitalist development generates two distinct types of job: the first are the secure, permanent high-skilled and well paid jobs. The second are the temporary, hard, unpleasant jobs that no one wants to do, and which are also poorly paid. The latter are often called in English the 'three Ds' - dirty, dangerous and difficult. Unsurprisingly, most local workers avoid the 3D jobs and job market dynamics reserve them to foreigners. Another important macro-approach is theorized by Wallerstein through his World System Theory, which has been applied also to international migration and argues that migration is a natural outgrowth of world market dynamics (D. Massey et al. 1993: 444-448).

The macro approach has been considered the view that better fit with the huge migrations from old Europe to United States and to Australia in the first decade of the XX century. Large mass of people move their residence looking for better work and life conditions: the geographic differences in the supply of and demand for labor and the wage differential between nations could be the decisive reason to move for thousand of people. This approach is the criteria of migration policies focalized on the effort to reduce the difference in the labor market in order to reduce migration flows. It is doubtless that this theory, strictly linked to a macroeconomic *Weltanschauung*, pointed out migration flows to the world attention. Nevertheless, it was quite clear that it completely ignored individual motivations and intentions.

On the contrary, following an individual micro approach, a person has the choice to migrate or to stay. He/she has the freedom to decide. Each migrant is a rational human being who assesses the available destinations and chooses the optimum combination - of wage rates, job security, and cost of travel (G. Borjas 1990). An extension of the individual view is to consider migration as a group or family choice, as a mean of spreading risks. In this co-insurance system the head of the family will pay the emigrant's travel expenses and living costs while he or she looks for work. The migrant correspondingly promises to send money home, especially if the family suffers some difficulties. This household theory of migration is sometimes called the 'New Economics of Migration' (O. Stark/ E. Bloom 1985).

Both individual and structural perspectives are illuminating in certain cases, but they have to be combined in which it is called meso-approach. Individuals or families cannot make decisions independent of the structures in which they find themselves. Nor do structures exist independently of individuals - who themselves help create and reshape their political and economic environment. A clear example of a fusion between the two can be seen in migrant networks, through which pioneer migrants help those who follow them to settle and find work (D. Massey, 1990). The emergence of such networks suggests an even broader type of theory - a view that incorporates not just migrant networks and individual decision making but also includes other flows such as those of capital and goods and suggests how all these might combine with political and cultural influences. This in principle could help the understanding of the integrated and complex nature of migration, particularly at the regional level.

Even if all the illustrated approaches have different, and sometimes opposite, theoretical background and practical relapses, they have in common that they concern essentially the profile of labor migrant (who moves for looking for a better work) and the one-direction movements: from less developed countries to more developed countries. Migration from developed countries

is less studied, essentially because of two main reasons: it involves a less number of persons and it places apparently less problems for receiving countries.

A large part of this kind of migratory flows is composed by retirement people, "elderly who have the means, in terms of finance and personal skills, to choose to emigrate at some point after the end of their formal working careers" (R. King/G. Patterson 1998, M.A. Casado-Diaz/C. Kaiser/A.M Warnes 2004, A. Bonaguidi/V. Terra Abrami 1992). But the elderly migration is not exhaustive to describe flows from MDCs. A part of these flows has composed by persons who decide to change their lives, usually they come from big cities and decide to move towards a warmer, less industrialized and almost wild place. They would like to begin a new life, away from unsatisfactory work conditions and an unsatisfactory environment.

Summarizing, theoretical literature considers three kind of migrant.

a. Labor migrant

He/she come from less developed countries and his/her age structure is substantially younger than that of the destination country population. Almost all labor migrants are men in the productive age, except for female workers involved in specific jobs, such as care-givers and colf.

b. Retirement migrant

It is not quite according about the nature and profile of retirement migrants, because there are still few empirical researches about that and it is quite difficult report them to a theoretical framework. Moreover, the statistical data are not calibrated to reveal this kind of migrants, they aim to reveal features of migrants from non-UE countries and, in general, from less developed countries. Andrei Rogers pioneered the estimation of age-specific migration flows, with particular regard to the migration in old age (A. Rogers 1992). His well-known shape of the age-specific rates shows that in the age class 60-65 years there is the third peak of migration movements, which is essentially determined by retired persons looking for a warmer place where to spend the rest of their lives¹. Nevertheless, it is quite clear that there are different reasons leading elderly to move and not just the retirement period. The retirement migrants have in common high levels of education and cultural background, and a history of international mobility. Retirement is not only the time to rest, but often it is the time to invest in new business challenges, such as the rural tourism and agricultural activities (oil and wine cultivation). Retirement to Italy means a change in the direction rather than the end of the work life.

c. Die Aussteiger

A third kind of migrant results from three field research conducted in Tuscany in 2000 and 2001: *die Aussteiger*. This is the noun of the German verb *aussteigen*, that means go down and it is the name used by the German interviewed to define themselves. They are persons who decide to leave their previous life, where they usually belong to middle-upper class, lived in big cities and they are stressed by a certain lifestyle. It is a sort of psychological detachment from the environment, which may lead, standing the material conditions (such as economic and well-being health status), to a migratory choice.

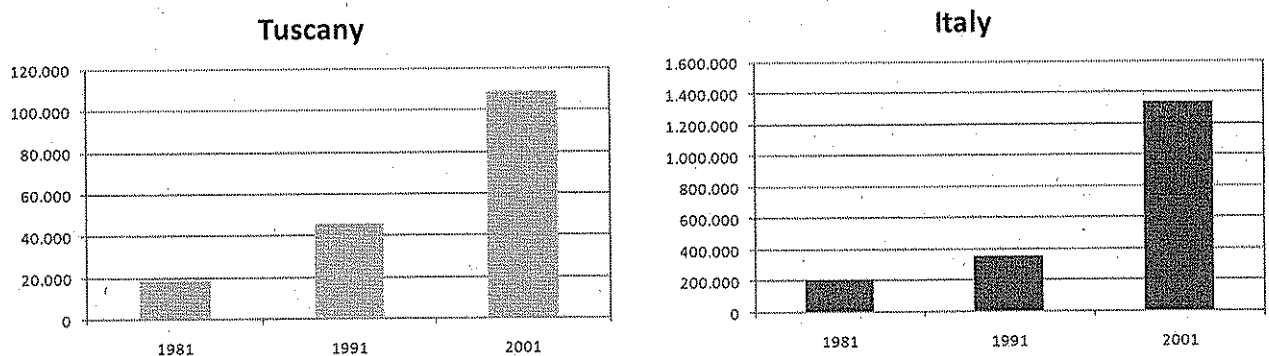
Ausststeiger and retirement migrants have in common a constructed image of the destination country; they see Italy and Tuscany as a desirable place, a rural idyll.

¹ The first peak is the effect of family migration (first age classes), and the second one is the effect of labour migration (age class 16-20 years).

2 – Foreign presence in Tuscany in the last years²

Since the 80s Tuscany, and Italy as well, has been a country of destination of migratory flows. This tendency has intensified during the last decades. In year 1981 the Italian census found 18.114 foreign citizens in Tuscany and about 210.000 in Italy. In the last census, year 2001, the foreign citizens in Tuscany were 108.702 and in Italy 1.334.889.

Figure 1 – Foreign presence in Italy and in Tuscany. Census 1981, 1991, 2001

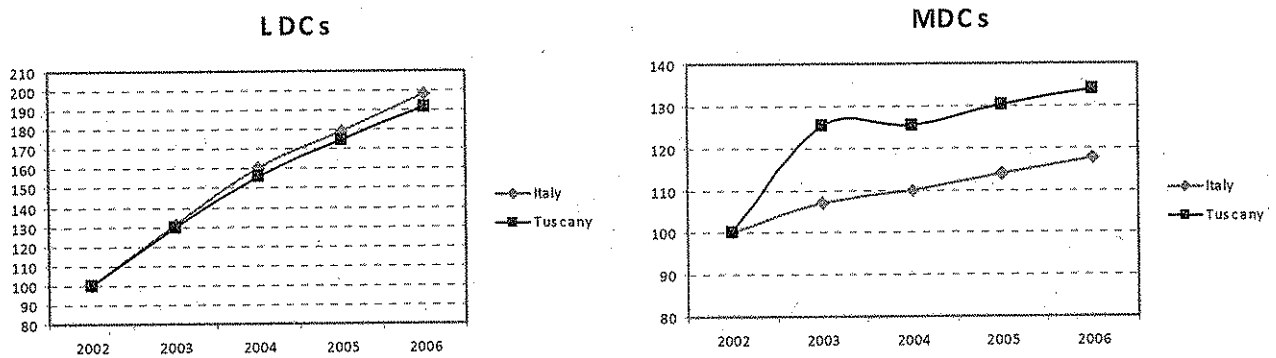


Source: our elaboration on census data, Istat (various years)

Tuscany represents an ideal area of destination also for migrants originated from More Developed Countries. If we observe Figure 2, we can note that the shape of the LDCs lines has the same tendency for Italy and Tuscany; in the case of MDCs migrants Tuscany shows a specific profile, it is more interested in migration from MDCs than Italy.

² In this paragraph, as in the following, we analyze the resident foreign population (s.c. stable component of migration).

Figure 2 – Trends of foreigners from LDCs and MDCs: Italy and Tuscany (index numbers with fixed base: 2002=100)



Source: our elaboration on municipal register (various years)

To the first January 2007 resident foreign population in Tuscany was 234.398, that is to say 8% of the total Italian foreign population. It is a higher incidence than the Italian one (6,2%). At regional level, only five regions have higher incidences of foreign population: Lombardia (24,8%), Veneto (11,9%), Lazio (11,2%), Emilia Romagna (10,8%) and Piemonte (8,6%). Nowadays, Tuscany represents one of the most attractive Italian regions in terms of migratory flows (M. Beudò/ F. Giovani/ T. Savino, 2008).

In Tuscany, as in Italy as well, the migration process became more and more a structural aspect of society. Three indicators can help to underline this fact: the amount of under-age foreign population (about 52thousands in 2007, that is to say 18,1% of foreign population in Tuscany; 15,1% in 2005); the high number of new born from foreign couples (it's about 4.500 that is to say 7,5% of the national total; this means that Tuscany it's the sixth region in terms of new born from foreign couples); the high incidence of female foreign population (50,2% in Tuscany; 49,8% in Italy) (Caritas, 2007).

In terms of areas of provenience, in the last years the majority of migrants resident in Tuscany originates from the s.c. CEEC's³. To the first of January 2007, they represent the 54% of the total resident foreign population of Tuscany (29% is the weight of the new European citizens). The Albanian is still the most numerous community (51thousands units, 22% of the total foreign residents), followed by the Rumanian (about 28thousands units, 12% of the total foreign residents). Others communities from the East are in rapid increase, such as the Polish and the Ukrainian one. The third community in terms of number of presences is the Chinese one with 25thousand residents, that is to say about 10% of the total resident foreign population of Tuscany. In general, East Asia, with more of 35thousands foreign residents - that is to say 15% of the total of foreign population - is the second macro-area of origin (after Central and Eastern Europe). The third area is North Africa (11,4% of the total of foreign resident population, especially with Moroccan that are the fourth community of Tuscany) and finally Central-South America (6,4% of the total, with Peruvian as the first community), South Asia (5,5%) and West Africa (3,9%, with

³ Central and Eastern European Countries: Albania, Byelorussia, Bosnia-Herzegovina, Bulgaria, Croatia, Serbia and Montenegro, Macedonia, Moldavia, Romania, Russian Federation, Turkey, Ukraine, Czech Republic, Slovakia, Estonia, Latvia, Lithuania, Slovenia, Hungary, Cyprus. (Istat, 2007).

Senegal as the first community) (M. Beudò/ Giovanni F./ Savino T. 2008). Among the first ten nationalities, we find German people with nearly 5.000 units, more than 2% of the total of foreign population of Tuscany.

The spatial distribution of resident foreign population reveals specific patterns. All the provinces of Tuscany receive foreign people but with different intensity: always in 2007 Florence's province is the one with the higher incidence of foreign population (32%), then follow Prato province (11%), Arezzo (10%) and Pisa (9%). The other provinces present the following distribution of foreign population: Siena (7,9%), Pistoia (7,5%), Lucca (7,2%), Livorno (6,0%), Grosseto (5,0%) and Massa-Carrara (3,4%) (M. Beudò/ Giovanni F./ Savino T. 2008)⁴. We can note that the first three communities of Tuscany (Albanian, Moroccan, Rumanian) have an homogenous distributions in the regional territory. On the contrary, the others communities show a specific spatial distribution. The Chinese one, for example, is very concentrated in Florence and Prato areas where the economic sector of fashion and manufacturing is very important. People from Senegal are concentrated in big cities and in the province of Pisa, due to commerce sector, and in the Valdarno area, where the sector of workmanship of leather is very dynamic⁵. On the other hand, German people are located in Florence area (23,6%), in Grosseto province (15,4%), especially in the rural areas, and in Livorno province (13,4%).

3 – Where are the migrants in Tuscany? The spatial distribution of foreign population

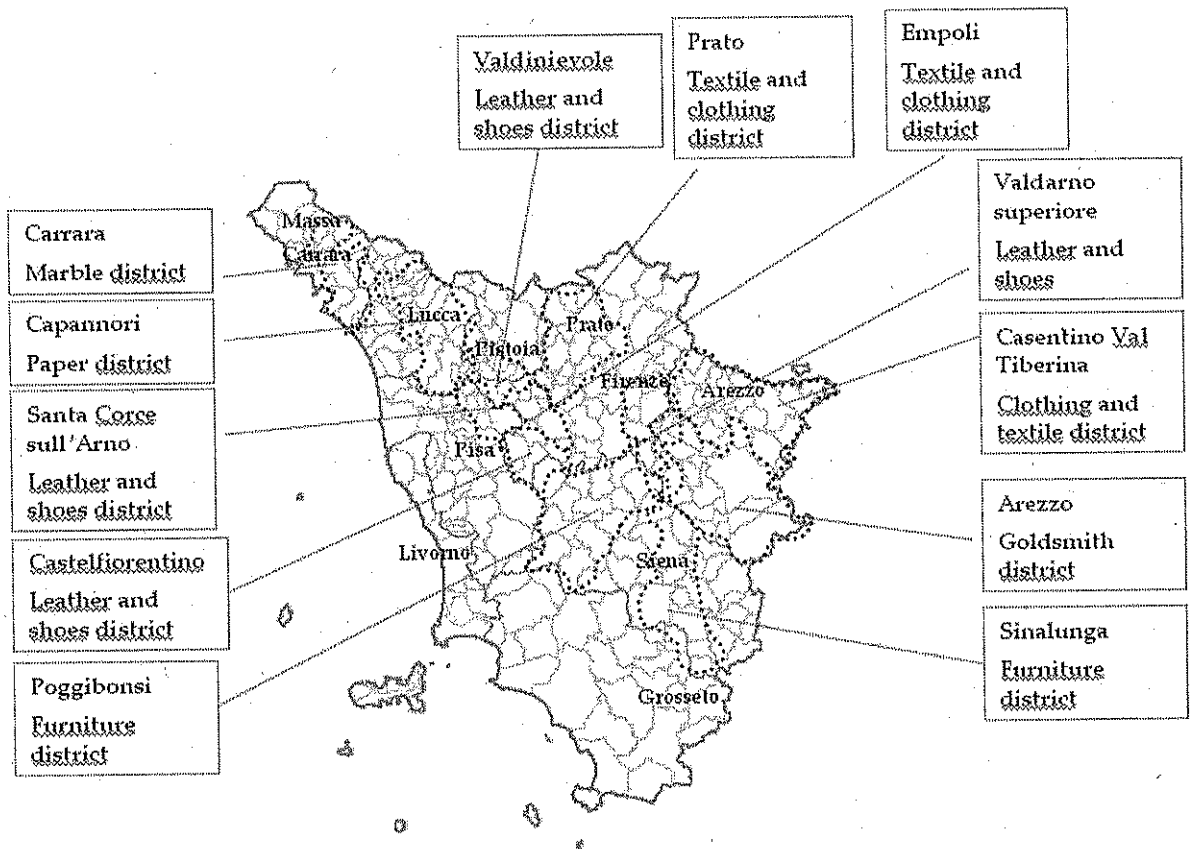
Before presenting the spatial distribution of migrants, we are going to illustrate the territorial features of Tuscany region. Tuscany is not an homogenous territory, and we can divide it in some areas.

Figure 3 shows the 12 industrial districts defined by a regional law in 2000. Each district is an homogenous area in terms of level of industrialization and they are characterized by an economic specialization: marble, paper, shoes and textile, leather goods, furniture and clothing goods.

⁴ Provinces are administrative sub-regional areas including several municipalities. In Tuscany there are ten provinces and 287 municipalities.

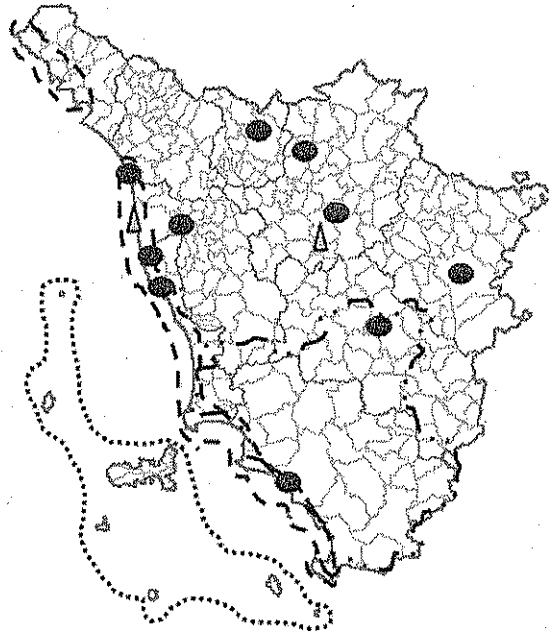
⁵ Valdarno Inferiore area is located along Florence and Pisa provinces. It is an homogenous area with a high degree of industrialization and urbanisation.

Figure 3 – Tuscany region. Industrial districts and Province



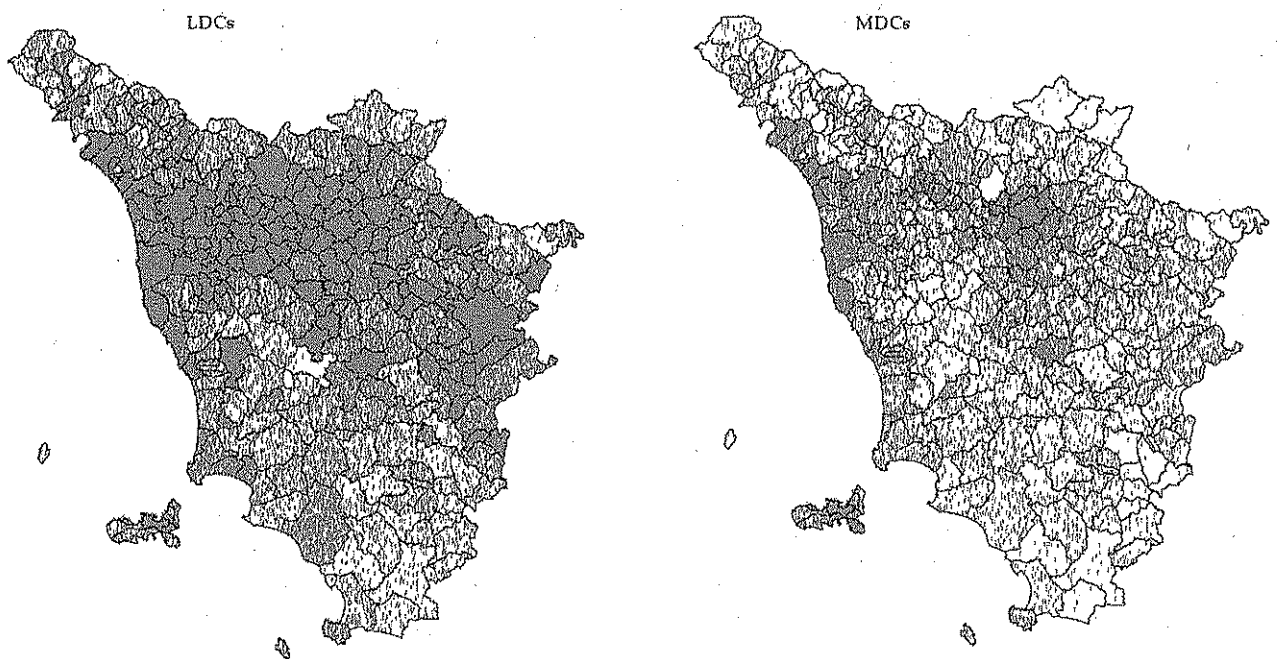
The rest of the regional territory can be divided following a more morphological criteria: coastal area (Versilia and Maremma), insular area (Archipelago), and a rural area called Chianti (a *green* area located between Siena and Grosseto province). Then we can also identify properly urban areas, which are the areas around municipalities with more than 50.000 inhabitants: 10 capital province (circle) and Scandicci (province of Florence) and Viareggio (province of Lucca) (represented by triangle) (Figure 4).

Figure 4 – Tuscany region. Coastal, archipelago, “green” and urban areas



Through GIS system (Geographic Information System) and census data we can represent the localization of migrants at municipality level. Figure 5 shows the distribution of total number of migrants coming from MDCs and migrants coming from LDCs.

Figure 5 – Spatial distribution of LDCs and MDCs migrants. Absolute value. 2001



Differences in spatial location are evident: migrants from LDCs are resident in a great number of municipalities and their location follows mainly three specific patterns:

1. industrial districts, where the presence of migrants is connected to labour demand
2. urban areas, such as Florence, Prato and the other capitals province. In these areas the demand of labour is addressed to care-givers, cleaning lady and in general a low tertiary sector
3. coastal and archipelago areas, where labour demand is essentially for seasonal job (waitress, chamber-maid)

Regarding to the spatial distribution of migrants from MDCs we can observe that they are concentrated in scenically and culturally attractive areas than they are in provinces of lesser historical and landscape value, such as Pistoia and Livorno Province.

Foreigners from MDCs are mainly resident in specific areas:

- Florence and its hinterland, such as Fiesole;
- Chianti areas, called in recent years "Chiantishire" due to high presence of British people;
- Coastal areas, such as Viareggio and Forte dei Marmi;
- Elba Isle;
- East-western and southern part of Siena province, but still avoiding the city;
- Northern part of the Lucca Province, such as Bagni di Lucca, and other rural municipalities in Garfagnana area;
- Southern Tuscany, especially the countryside between Arezzo and Grosseto.

Furthermore, we can find a large number of foreigners from developed countries in the three university cities: Pisa, Florence and Siena.

It is interesting observe a similar distribution in King's researchers regarding the British community in Tuscany (R. King 1998). It is quite possible that some communities tend to establish their residence along the years.

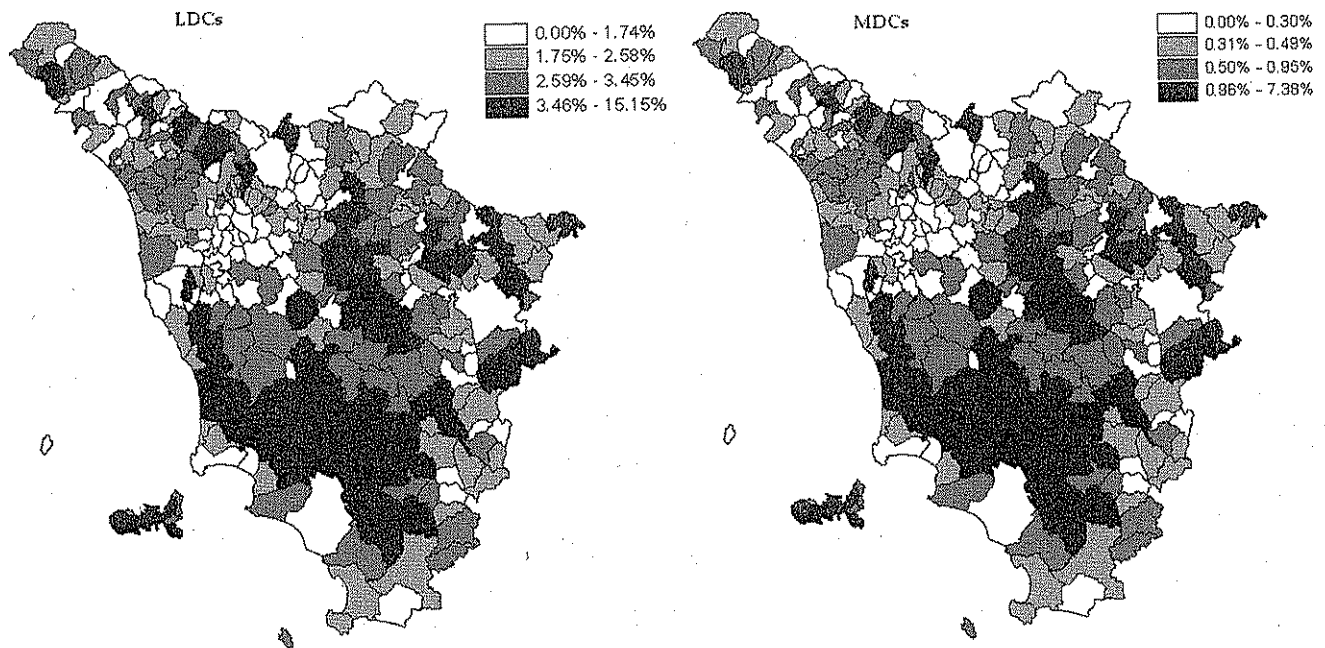
The residence of foreign population respond to the search for an escape from the urban environment, the attractions for Tuscany climate and landscape and the alienation from certain perceived aspects of the contemporary world. These motivation could be the same both for the *Aussteiger* and retired migrants.

Figure 6 shows the distribution of migrants in terms of incidence, that is the percentage of migrants on the total resident population (Italians plus foreign population). The incidence has been divided in class formed by the quartiles of distribution.

In year 2001, the foreign population resident in Tuscany has an incidence of 3,1%. This value has a high range of variability with a maximum value of 15,15% and a minimum of 0,06%. The two components of migration play a different role in the incidence: a large part is due to LDCs people (15,15% for a total of 95.066 persons) and a small part is due to MDCs people (7,38% for a total of 18.635 persons). Both LDCs and MDCs migrants present the highest incidence in the central part of southern Tuscany (> 10%), where the autochthon population are declining and the population density is low. In the recent past, these areas are interested by a de-population process as a consequence of rural-urban migration induced by urbanization process (D. Pumain, 2005). In a certain sense, migrant presence contributes to stop de-population of these areas. Moreover, when migrants arrived in Tuscany, they found a large availability of housing, because the inner migration of inhabitants moved to the industrial area of the region, especially towards Arno

Valley. So, foreigners had the chance to buy historical property for what seemed like ridiculously low prices. This process led the prices of housing to rise up, following the simple market law of "supply-demand".

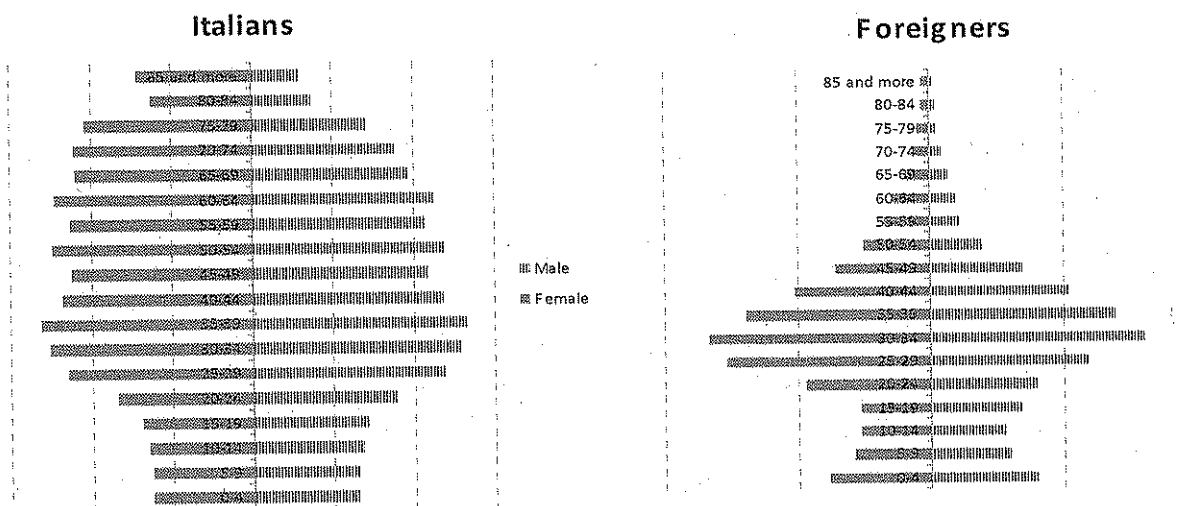
Figure 6 – Spatial distribution of LDCs and MDCs migrants. Incidence. 2001



4 - Demographic profile: age and gender composition of Italian and foreigners population (LDCs and MDCs)

Figure 7 shows important differences between the demographic profile of Italian and foreign population resident in Tuscany. The Italian one is an old population: the age pyramid has a large vertex which means a great numbers of old people (especially female). The most numerous age class is 35-39 and the mean age is about 45 years. The percentage of old people on total amount of population is 23% (Ageing Index = $P_{65 \text{ or more}} / \text{Tot. pop.} * 100$), and the proportion of old people with regard to young people is very high: 200,6% (Ageing Index (1) = $P_{65 \text{ or more}} / P_{0-14} * 100$). The sex ratio is 92,5% (Sex ratio = $M/F * 100$). On the contrary, foreign population is a younger population. The base of the pyramid is bigger than the vertex. The most numerous age class is 30-34 years both for men and women, respectively with 8.044 and 8.322 persons. The mean age of all foreign population is 31,6 years. The Ageing Index is about 4% and the Ageing Index (1) is about 22,2%. The sex ratio is 93,1% (Sex ratio = $M/F * 100$).

Figure 7 – Population by age and sex. Italians and foreigners. Tuscany



Source: our elaboration on census data, Istat 2001

If we consider separately the two components of foreign population, migrants from MDCs and LDCs, the differences in the demographic profile become deeper. Foreign population from MDCs presents an older age structure, with the base of pyramid very small, and a great number of female. It is interesting to underline that women are not concentrated in properly old age classes, indeed the most numerous age class is 35-39 with 1.862 units. In the same age class men are 714 units. In absolute values women from MDCs are 12.123 units against 6.512 male. The gender imbalance is difficult to explain beginning from the official data, but it is quite possible to advance some reasonable hypothesis about the prevalence of women. It is noted that “women live longer than men, and this factor assume enhanced importance in a subpopulation with many retirement-age people and where men have married women younger than them. Secondly, more women are attracted to Italy and Tuscany: an interest in Italian language, literature and art appears to be more frequent amongst females” (R. King et al. 1998: 164). Furthermore, data from the naturalization show that there is a greater likelihood of foreigners women to marry Italian men, and then staying on to live in Italy. When an Italian woman marry a foreigners man it is more probably that the couple locates the residence abroad, given the unequal gender relations in marriage.

Regarding the demographic profile of these populations, the mean age of foreign population from MDCs is about 44 years. The foreign population originated from LDCs shows a pyramid with a large base and a very thin vertex and with a more balance profile in terms of gender composition. The modal age class of women is 25-29 with 6.802 units. The modal age class of male is different, 30-34 years, with 7.426 units. Foreign population from LDCs presents more men than women: 45.911 versus 44.156. The mean age of this population is about 29 years.

The demographic indexes underline important aspects. Foreign population from MDCs presents a high number of old people and a small number of young people: the value of ageing index is 13% and the value of ageing index1 is 211%. The same indexes calculated for the foreign population

originated by LDCs are 2% and 10%. The sex ratio in the MDCs foreign population is about 53,4%. In the LDCs foreign population is about 103,4%.

Figure 8 – MDCs and LDCs foreign population by age group and sex. Tuscany



Source: our elaboration on census data, Istat 2001

In conclusion, we can say that resident foreign populations in Tuscany both from MDCs and LDCs present differential profile in terms of spatial distribution but also in terms of demographic profile. The degree of differentiation is so deep that we can talk about a dual profile. What are the reasons of this situation? And what does this situation imply for the age structure of total resident population (Italian and foreign population)?

5 – An “ethnic” dimension

It is interesting the analysis of the most numerous communities both amongst LDCs and MDCs migrants. This is a significant aspect because the provenience of migrants has a great importance in terms of social experience, cultural identity and demographic behaviours. An ethnic criteria to classify migrants is not so common in the European statistical survey, and in some cases it has been considered contrary to the principle of the equality of citizenship. In our case, we use the word “ethnic” only to identify the provenience of migrants. We focus our analysis on the first ten nationalities both for LDCs and for MDCs, in each case the first ten cover more than 70% of the respective total population⁶. The first three communities (Albania, Morocco, China) of LDCs migrants cover 2/3 of the total (42.659 units on 64.756 units) and the first three communities (Germany, France, Great Britain) cover more than 1/2 of the total (9.322 units on 16.192 units) (Table 1 and Figure 9). The population structure by sex reveals an opposite gender composition:

⁶ The total population from LDCs is 90.067 units; the total population of first ten nationalities is 64.756, that it is to say about 72%. The total population from MDCs is 18.635 units; the total population of first ten nationalities is 16.192 units, that it is to say about 87%.

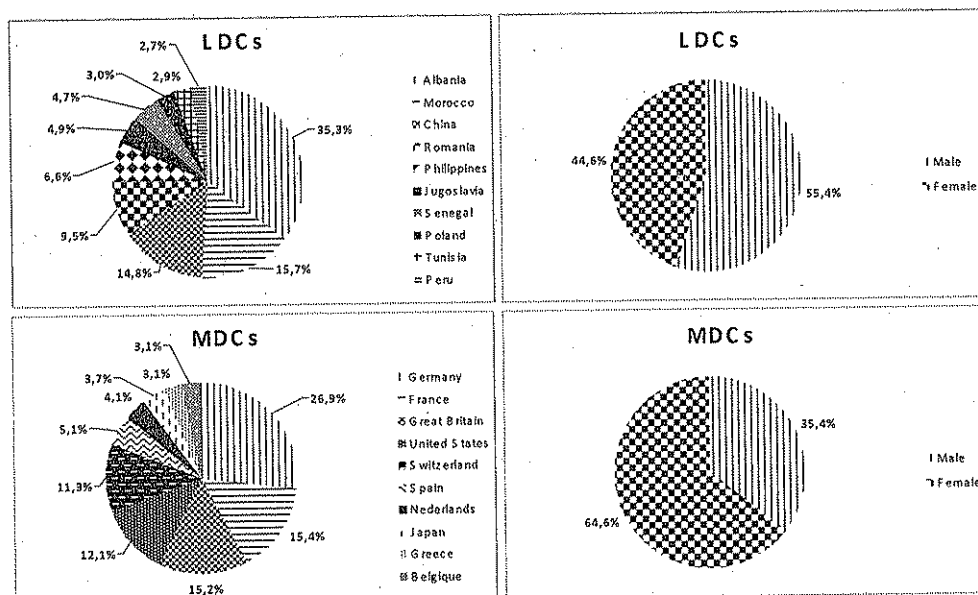
the number of females is higher than that of males in the MDCs component (10.455 females versus 5.737 males)⁷, while in the LDCs component, we find the opposite situation: 28.909 females and 35.847 males. The table 1 show the “feminilization” of specific ethnic group: Romanian, Polish and Philippines. This process is strictly connected to the migratory model, which corresponds to the labor dominant model of migration: the Italian labor market for migrants has a gender specialization. Men are mainly employed in construction and agricultural sector, and women are employed in the care-family services, addressed especially to old and so called oldest old people.

Table 1 – Migrants by nationality and by sex. First ten . LDCs and MDCs. Absolute values. Tuscany

LDCs	Male	Female	Total	MDCs	Male	Female	Total
Albania	13.217	9.658	22.875	Germany	1.575	2.788	4.363
Morocco	6.277	3.919	10.196	France	786	1.706	2.492
China	4.961	4.627	9.588	Great Britain	878	1.589	2.467
Romania	2.518	3.609	6.127	United States	761	1.199	1.960
Philippines	1.654	2.803	4.257	Switzerland	742	1.085	1.827
Jugoslavia	1.724	1.442	3.166	Spain	157	663	820
Senegal	2.712	310	3.022	Nederlands	246	420	666
Poland	446	1.475	1.921	Japan	158	447	605
Tunisia	1.191	678	1.869	Greece	253	245	498
Peru	1.147	588	1.735	Belgique	181	313	494
Total	35.847	28.909	64.756	Total	5.737	10.455	16.192

Source: our elaboration on census data, Istat 2001

Figure 9 – Distribution of first ten communities of LDCs and MDCs by nationality and by sex (%). Tuscany



Source: our elaboration on census data, Istat 2001

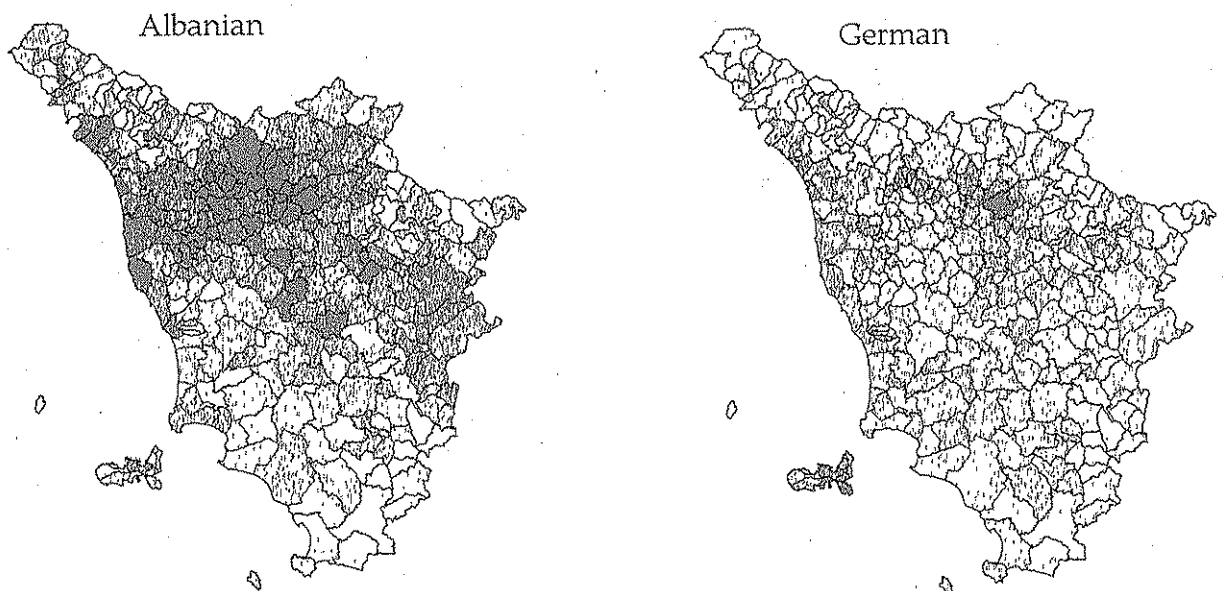
⁷ The three communities where the numbers of female is higher than that of males are the Romanian, Polish and Philippines. We can explain this fact with regard to work dimension of this migratory flows. It's well know that a large part of Polish, Romanian and Philippines work in the Italian family as Colf or as care-givers to old and “oldest old people”.

Comparing the age structure of the most important communities we find a dual demographic profile, in terms of mean age, 29 years in the first 10 LDCs groups and 44 years in the first 10 MDCs groups. It is relevant that in the first age class of LDCs, 0-4 years, there are more than 6.000 children, while in the same class of MDCs there are 588 children. In terms of ageing, the LDCs population is younger than MDCs population: we find respectively an aging index (people over 65/total amount of population) of 2% versus 13% and an ageing index calculated as the percentage of people over 65 on people 0-15 years of 10% versus 211%. As well the gender composition, measured by sex ratio, is quite different: 124% for the 10 LDCs versus a substantially gender balanced composition for the first 10 MDCs. Beyond this dual demographic profile we find different migratory project: a labour migration versus an undefined kind of migration, between retirement and *aussteiger*.

This is more and more evident if we consider the first two communities of our macro-aggregation: Albanian and German people. We have chosen this two communities mainly for three reasons: 1) in 2001 (census data) they are the most important ethnic group for MDCs and LDCs and they represent the same percentage of the total foreign population of the two groups (about 25%); 2) in 2007 (register of population), they are still the most important ethnic groups; 3) they can represent two explicative paradigm of different (or even dual) models of migration.

In terms of spatial distribution, Figure 10, Albanian and German present a very high degree of diversity. We can clearly see that the Albanians are more concentrated in the northern and in the north-eastern part of Tuscany, while German migrants are more present in coastal and islands areas and in the area of Florence as well.

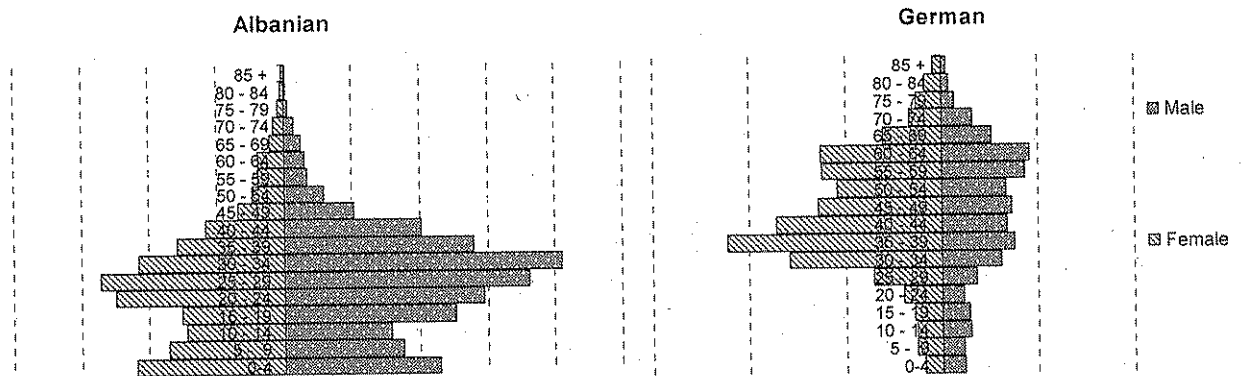
Figure 10 - Spatial distribution of Albanian and German communities. Absolute values. Tuscany



Source: our elaboration on census data, ISTAT 2001

We can also find important differences in the demographic profile of these two communities, as clearly shown in Figure 11. Albanian's age pyramid has a large base and very thin vertex, a classic profile of young population. Men are more than women and the central age classes are the most numerous. German's age pyramid shows a thin base and also a thin vertex. German, and especially female, are concentrated in the age 35-39 years, 40-44 years, 45-49 years.

Figure 11 – Albanian and German by age and sex. Tuscany. 2001



Source: our elaboration on census data, ISTAT 2001

The mean age of Albanian is about 26 years while for German is about 44 years. The Ageing Index is about 2,2% for the Albanian population and about 12% for the German one. If we compare old population (more than 65 years old) and young population (0-15 years), the value of the proportion is about 9,2% in the Albanian population and 175% in the German ones. It is quite evident that these two kind of foreign populations summarize the dual nature of the model of migration that is behind the choice to migrate. While the Albanians are representative of the (neo)classical labour dominant model of migration, we have few elements (both empirical data and theoretical background) to understand the German migration.

Indeed, it's well known that behind migratory flows there are migratory projects, which also mean different type of migrants in terms of demographic structure and spatial distribution. The features of migrants originated by LDCs remind on a labour dominant migration which can be explained and modelling through the classical migration theory: they are mainly men; they have a younger age structure than that of the autochthon population and they are located in the productive and labour intensive areas of the region.

Migration model referred to MDCs migrants is more difficult to identify. The high number of women, a similar age structure respect to the autochthon population (especially a few number of young people) would seem indicate a migration model different from the classical one. Some evidences appear when we analyze the distribution of migrants from MDCs in Tuscany by sex and civil status: women from MDCs are double than men, and furthermore the "alone" women (separated, divorced and widowed) are more than three times of alone men. These "alone migrations" could be the expression of the intention to start a new life, away from a painful past. These considerations find confirmation in three field researches focused on German community

in some sub-regional areas of Tuscany: Elba Isle, Val di Cornia area and Lucca area⁸. Results confirm an old age-structure of population and a high presence of women. The determinants of this kind of migratory flows seem to be linked to personal/relational life conditions of migrants: person who decide to move for breaking their previous life characterized by high level of stress caused by live in big cities or to be in a very high position in job hierarchy. They want to “go down by the train” to return to the roots of an old life: rural, easy, warmer and less stressing. This data confirm what King et al found in their study on British migrants in Tuscany at early of the 80's (R. King et al, 1998).

Basic Conclusions

We have seen that Tuscany present a dual demographic profile in terms of migration. Migrants from LDCs are characterized by a labour profile: they have a young structure age with few old people (65 and more), a great number of young people (0-14) and, more than all, a very high density of people in the first classes of active age. Except for some communities (Polish, Rumanian and Philippines) the gender structure reveals a male dominance. The model that explain this kind of migration is well known: people move from one country to another essentially for economic/labour reasons. On the other hand, people originated from MDCs present a very different demographic profile not only in comparison with migrants from LDCs but also with the classical profile of elderly migrants coming out from the literature. As we showed in the report, they have an older structure compare to the one of migrants from LDCs: the modal age class is 35-39 years. The proportion of old people is 13%, while in the autochthon population is 23%. Gender composition reveals a dominance of women that are basically concentrated in the second classes of active age: 35-39 and 40-45 years. We can reasonably suppose that this new migratory flow is in between the elderly movements, retired persons looking for a warmer place where to spend the rest of their lives, and the one of the *Aussteiger* movements, composed by people “going down by the train”, escape from the modernity and start a new life with better life conditions. Such dual demographic profile of migration means a dual demographic effect on autochthon population: LDCs migrants transfer new people with a younger age than the population of destination countries; transfer potential new births; transfer people with higher fertility attitude.

Beginning from the fact that (im)migration has become the driving force behind demographic change in many European countries, both directly and indirectly, it is crucial investigate the demographic effects of the different kind of migrants. For example, in Germany and Italy immigration prevents or moderate the decline of population, in other nations it has re-started considerable population growth, such as in Belgium, Netherlands, Norway and Sweden (D. Coleman, 2006: 405). As we have seen, the migrant population came from non European

⁸ Gemignani S. “Le immigrazioni dai Paesi nord-occidentale nella Provincia di Lucca. Un'indagine empirica”. Dissertation Thesis in Political Sciences. A.a. 2001/2002; Taddei G. “L'immigrazione straniera nell'isola d'Elba. Il caso tedesco”. Dissertation Thesis in Political Sciences. A.a. 2001/2002; Crescenzi S. “Gli immigrati in Italia dai paesi a sviluppo avanzato: una ricerca empirica nella Val di Cornia”. Dissertation Thesis in Political Sciences. A.a. 1999/2000.

countries for almost 2/3 of immigrants and the natural increase of non European population is often greater than the autochthon population, thanks to a more youthful age structure. From our data, migrants from developed countries could contribute to make older the autochthon population, growing the demand for social service, especially for care services. It could be interesting measure the degree of integration of this new migrants, in terms of language and social relationships to value the strength of their local network.

The dual profile of migration in Tuscany could be studied also in terms of spatial segregation. The differential spatial distribution of migrants has been observed in several European destination-countries, so much so some scholars defined a new kind of city: the ethni-cities (J. Malheiros, 2002). Even if in Tuscany, as well as in Italy, there are more than different 100 nationalities, data about spatial distribution of migrants show that both migrants from LDCs and migrants from MDCs localized their residence in some specific area of Tuscany, determining a sort of spatial segregation. "Most cities are characterised by a dual spatial distribution of the ethnic groups, which separates the areas where non-EU groups are over-represented from the areas where "whites" live, be they nationals or foreigners" (J. Malheiros, 2002: 119). Several factors could be listed to explain the differential residential patterns, among which the most relevant are:

- the price of the housing. LDCs migrants are penalized by a system, as the Italian one, prefers the "buy" to the "rent" of a house; while MDCs are attracted by the possibility to buy an old house, far from the city centre and at very low prices
- the existence of a migratory chain, which provides a support at the beginning of the life in the country of arrival
- the demographic dynamics of autochthon population, characterized by a de-population process, due to low fertility level, to inner migration and to the ageing process (which could be the reason to demand for care givers)

The introduction of ethnic dimension into the spatial organisation is not only changes the classical concept of the cities, but also lead to urban policy changes.

Our research - based on the official data - emphasises the need for primary data collection to improve the understanding of the phenomenon, in order to avoid the construction of stereotypical images of group of migrants.

Further research questions could be: what are the political implications of a dual profile of migration? How could we define and manage these "new" migration flows? Can we still considered them as international movements or are they interregional movements of people, especially if we refer our analysis to a common space called Ue?

References

- Beudò, M./ Giovani, F./ Savino, T. (2008): Dal lavoro alla cittadinanza: l'immigrazione in Toscana, Firenze: Irpet – Regione Toscana
- Bonaguidi, A./ Terra Abrami, V. (1992): The metropolitan aging transition and metropolitan redistribution of elderly in Italy. In: Rogers (1992): 143-162
- Borjas, G. (1990): Friends or strangers. The impact of immigrants on the U.S. economy. New York: Basic Books
- Boswell, C.: Theorizing Migration Policy: Is There a Third Way?. In: International Migration Review 41(1). 2007. 75-100
- Caritas (2007): Immigrazione. Dossier Statistico 2007. XVII Rapporto, Pomezia: Idos
- Carling, J.: Toward a Demography of Immigrant Communities and Their Transnational Potential. In: International Migration Review 42 (2). 2008. 449-475
- Casado-Diaz M.A./Kaiser C./Warnes A.M.: Northern European retired residents in nine southern European areas: characteristics, motivations and adjustment. In: Ageing and Society 24 (3). 2004. 353-381
- Caselli G./Vallin J./Wunsch G. (2005): Demography. Analysis and Synthesis. A treatise on population. USA: Academic Press
- Coleman, D.: Immigration and Ethnic Change in Low-Fertility Countries: A Third Demographic Transition. In: Population and Development Review 32 (3). 2006. 401-446
- Gemignani, S. (2002): Le immigrazioni dai paesi dell'Europa nord-occidentale nella provincia di Lucca. Un'indagine empirica. Dissertation Thesis in Political Sciences – University of Pisa
- Crescensi, S. (2000): Gli immigrati in Italia dai paesi a sviluppo avanzato: una ricerca empirica nella Val di Cornia. Dissertation Thesis in Political Sciences – University of Pisa
- Giovani, F./ Savino, T./ Valzania A. (2005): Immigrati in Toscana. Occupazione e sicurezza sul lavoro e nell'industria diffusa, Firenze: Irpet
- Istat (2007): La presenza straniera in Italia: caratteristiche socio-demografiche, Roma: ISTAT
- Malheiros, J.: Ethni-cities: Residential Patterns in the Northern European and Mediterranean Metropolises – Implications for Policy Design. In: International Journal of Population Geography 8. 2002. 107-134
- Massey, D. : The social and economic origin of immigration. In: Annals of the American Academy of Political and Social Sciences 510. 1990. 60-72
- Massey, D./ Arango, J./ Hugo, G./ Kouaouci, A./ Pellegrino, A./ Taylor, E. J.: Theories of International Migration: A Review and Appraisal. In: Population and Development Review 19(3). 1993. 431-466
- King, R./ Patterson, G.: Diverse Paths: the Elderly British in Tuscany. In: International Journal of Population Geography 4. 1998. 157-182

- King, R./ Warnes, A. M./ Williams, A. M.: International Retirement Migration in Europe. In: International Journal of Population Geography 4. 1998. 91-111
- Piore, M.J. (1979): Birds of passage: Migrants labour in industrial societies, Cambridge: Cambridge University Press
- Pumain, D. (2005): The urbanization process. In: Caselli et. al. (2005)
- Ravenstein, E. G.: The laws of Migration. In: Journal of Royal Statistical Society 52(2). 1889. 241-305
- Rodriguez, V./ Mayoralas, G. F./ Rojo, F.: European Retirees on the Costa del Sol: A Cross-National Comparison. In: International Journal of Population Geography 4. 1998. 183-200
- Rogers, A.: Age patterns of elderly migration: an international comparison. In: Demography 25(3). 1988. 355-370
- Rogers, A.: The elderly mobility transition: growth, concentration and tempo. In: Research on Aging 11(1). 1989. 3-32
- Rogers, A.: Return migration to region of birth among retirement –age persons in United States. In: Journal of Gerontology: Social Sciences 45(3). 1990. 128-134
- Rogers, A. (Ed.) (1992): Elderly migration and population redistribution. London: Belhaven Press
- Rogers, A./Castro L. J.: Age patterns of migration: cause-specific profiles. In: Advances in Multiregional Demography RR 81 (6). 1981. 125-159
- Stark O./ Bloom E.: The New Economics of Labor Migration. In: American Economic Review 75(2). 1985. 173-178
- Taddei, G. (2002): L'immigrazione straniera nell'Isola d'Elba. Il caso tedesco. Dissertation Thesis in Political Sciences – University of Pisa
- Todaro, M. P.: A model of labor migration and urban unemployment in less developed countries. In: American Economic Review 59(1). 1969. 138-48
- Toulemon, L.: La fécondité des immigrées: nouvelles données, nouvelle approche. In: Population et Sociétés 400. 2004

Elenco dei report pubblicati

Anno: 1987

- n. 1 Alberto Cambini - Laura Martein, Some Optimality Conditions in Vector Optimization
- n. 2 Alberto Cambini - Laura Martein - S.Schaibel, On Maximizing a Sum of Ratios
- n. 3 Giuliano Gasparotto, On the Charnes-Cooper Transformation in linear Fractional Programming.
- n. 4 Alberto Cambini, Non-linear separation Theorems, Duality and Optimality
- n. 5 Giovanni Boletto, Indicizzazione parziale: aspetti metodologici e riflessi economici
- n. 6 Alberto Cambini - Claudio Sodini, On Parametric Linear Fractional Programming
- n. 7 Alberto Bonaguidi, Alcuni aspetti meno noti delle migrazioni in Italia
- n. 8 Laura Martein - S. Schaible, On Solving a Linear Program with one Quadratic Constraint

Anno: 1988

- n. 9 Ester Lari, Alcune osservazioni sull'equazione funzionale $\varnothing(x,y,z)=\varnothing(\varnothing(x,y,t),t,z)$
- n. 10 F. Bartiaux, Une étude par ménage des migrations des personnes âgées: comparaison des résultats pour l'Italie et les Etats-Unis
- n. 11 Giovanni Boletto, Metodi di scomposizione del tasso di inflazione
- n. 12 Claudio Sodini, A New Algorithm for the Strictly Convex Quadratic Programming Problem
- n. 13 Laura Martein, On Generating the Set of all Efficient Points of a Bicriteria Fractional Problem
- n. 14 Laura Martein, Applicazioni della programmazione frazionaria nel campo economico-finanziario
- n. 15 Laura Martein, On the Bicriteria Maximization Problem
- n. 16 Paolo Manca, Un prototipo di sistema esperto per la consulenza finanziaria rivolta ai piccoli risparmiatori
- n. 17 Paolo Manca, Operazioni Finanziarie di Soper e Operazioni di puro Investimento secondo Teichroew-Robichek-Montalbano
- n. 18 Paolo Carraresi - Claudio Sodini, A k - Shortest Path Approach to the Minimum Cost Matching Problem.
- n. 19 Odo Barsotti - Marco Bottai, Sistemi gravitazionali e fasi di transazione della crescita Demografica
- n. 20 Giovanni Boletto, Metodi di scomposizione dell'inflazione aggregata : recenti sviluppi.
- n. 21 Marc Termote - Alberto Bonaguidi, Multiregional Stable Population as a Tool for Short-term Demographic Analysis
- n. 22 Marco Bottai, Storie familiari e storie migratorie: un'indagine in Italia
- n. 23 Maria Francesca Romano - Marco Marchi, Problemi connessi con la disomogeneità dei gruppi sottoposti a sorveglianza statistico-epidemiologica.
- n. 24 Franca Orsi, Un approccio logico ai problemi di scelta finanziaria.

Anno: 1989

- n. 25 Vincenzo Bruno, Attrazione ed entropia.
- n. 26 Giorgio Giorgi - S. Mittelu, Invexity in nonsmooth Programming.
- n. 28 Alberto Cambini - Laura Martein, Equivalence in linear fractional programming.

Anno: 1990

- n. 27 Vincenzo Bruno, Lineamenti econometrici dell'evoluzione del reddito nazionale in relazione ad altri fenomeni economici
- n. 29 Odo Barsotti - Marco Bottai - Marco Costa, Centralità e potenziale demografico per l'analisi dei comportamenti demografici: il caso della Toscana
- n. 30 Anna Marchi, A sequential method for a bicriteria problem arising in portfolio selection theory.
- n. 31 Marco Bottai, Mobilità locale e pianificazione territoriale.
- n. 32 Anna Marchi, Solving a quadratic fractional program by means of a complementarity approach
- n. 33 Anna Marchi, Sulla relazione tra un problema bicriteria e un problema frazionario.

Anno: 1991

- n. 34 Enrico Gori, Variabili latenti e "self-selection" nella valutazione dei processi formativi.
- n. 35 Piero Manfredi - E. Salinelli, About an interactive model for sexual Populations.
- n. 36 Giorgio Giorgi, Alcuni aspetti matematici del modello di sraffa a produzione semplice
- n. 37 Alberto Cambini - S.Schaibl - Claudio Sodini, Parametric linear fractional programming for an unbounded feasible Region.
- n. 38 I.Emke - Pouloupoulos - V.Gozàlves Pérez - Odo Barsotti - Laura Lecchini, International migration to northern Mediterranean countries the cases of Greece, Spain and Italy.
- n. 39 Giuliano Gasparotto, A LP code implementation
- n. 40 Riccardo Cambini, Un problema di programmazione quadratica nella costituzione di capitale.
- n. 41 Gilberto Ghilardi, Stime ed errori campionari nell'indagine ISTAT sulle forze di lavoro.
- n. 42 Vincenzo Bruno, Alcuni valori medi, variabilità paretiana ed entropia.
- n. 43 Giovanni Boletto, Gli effetti del trascinarsi dei prezzi sulle misure dell'inflazione: aspetti metodologici
- n. 44 P. Paolicchi, Gli abbandoni nell'università: modelli interpretativi.
- n. 45 Maria Francesca Romano, Da un archivio amministrativo a un archivio statistico: una proposta metodologica per i dati degli studenti universitari.
- n. 46 Maria Francesca Romano, Criteri di scelta delle variabili nei modelli MDS: un'applicazione sulla popolazione studentesca di Pisa.
- n. 47 Odo Barsotti - Laura Lecchini, Les parcours migratoires en fonction de la nationalité. Le cas de l'Italie.
- n. 48 Vincenzo Bruno, Indicatori statistici ed evoluzione demografica, economica e sociale delle province toscane.
- n. 49 Alberto Cambini - Laura Martein, Tangent cones in optimization.
- n. 50 Alberto Cambini - Laura Martein, Optimality conditions in vector and scalar optimization: a unified approach.

Anno: 1992

- n. 51 Gilberto Ghilardi, Elementi di uno schema di campionamento areale per alcune rilevazioni ufficiali in Italia.
- n. 52 Paolo Manca, Investimenti e finanziamenti generalizzati.
- n. 53 Laura Lecchini - Odo Barsotti, Le rôle des immigrés extra- communautaires dans le marché du travail

Elenco dei report pubblicati

- n. 54 Riccardo Cambini, Alcune condizioni di ottimalità relative ad un insieme stellato.
- n. 55 Gilberto Ghilardi, Uno schema di campionamento areale per le rilevazioni sulle famiglie in Italia.
- n. 56 Riccardo Cambini, Studio di una classe di problemi non lineari: un metodo sequenziale.
- n. 57 Riccardo Cambini, Una nota sulle possibili estensioni a funzioni vettoriali di significative classi di funzioni concavo-generalizzate.
- n. 58 Alberto Bonaguidi - Valerio Terra Abrami, Metropolitan aging transition and metropolitan redistribution of the elderly in Italy.
- n. 59 Odo Barsotti - Laura Lecchini, A comparison of male and female migration strategies: the cases of African and Filipino Migrants to Italy.
- n. 60 Gilberto Ghilardi, Un modello logit per lo studio del fenomeno delle nuove imprese.
- n. 61 S. Schaible, Generalized monotonicity.
- n. 62 Vincenzo Bruno, Dell'elasticità in economia e dell'incertezza statistica.
- n. 63 Laura Martein, Alcune classi di funzioni concave generalizzate nell'ottimizzazione vettoriale
- n. 64 Anna Marchi, On the relationships between bicriteria problems and non-linear programming problems.
- n. 65 Giovanni Boletto, Considerazioni metodologiche sul concetto di elasticità prefissata.
- n. 66 Laura Martein, Soluzione efficienti e condizioni di ottimalità nell'ottimizzazione vettoriale.

Anno: 1993

- n. 67 Maria Francesca Romano, Le rilevazioni ufficiali ISTAT della popolazione universitaria: problemi e definizioni alternative.
- n. 68 Marco Bottai - Odo Barsotti, La ricerca "Spazio Utilizzato" Obiettivi e primi risultati.
- n. 69 Marco Bottai - F. Bartiaux, Composizione familiare e mobilità delle persone anziane. Una analisi regionale.
- n. 70 Anna Marchi - Claudio Sodini, An algorithm for a non-differentiable non-linear fractional programming problem.
- n. 71 Claudio Sodini - S. Schaible, An finite algorithm for generalized linear multiplicative programming.
- n. 72 Alberto Cambini - Laura Martein, An approach to optimality conditions in vector and scalar optimization.
- n. 73 Alberto Cambini - Laura Martein, Generalized concavity and optimality conditions in vector and scalar optimization.
- n. 74 Riccardo Cambini, Alcune nuove classi di funzioni concavo-generalizzate.

Anno: 1994

- n. 75 Alberto Cambini - Anna Marchi - Laura Martein, On nonlinear scalarization in vector optimization.
- n. 76 Maria Francesca Romano - Giovanna Nencioni, Analisi delle carriere degli studenti immatricolati dal 1980 al 1982.
- n. 77 Gilberto Ghilardi, Indici statistici della congiuntura.
- n. 78 Riccardo Cambini, Condizioni di efficienza locale nella ottimizzazione vettoriale.
- n. 79 Odo Barsotti - Marco Bottai, Funzioni di utilizzazione dello spazio.
- n. 80 Vincenzo Bruno, Alcuni aspetti dinamici della popolazione dei comuni della Toscana, distinti per ampiezza demografica e per classi di urbanità e di ruralità.
- n. 81 Giovanni Boletto, I numeri indici del potere d'acquisto della moneta.
- n. 82 Alberto Cambini - Laura Martein - Riccardo Cambini, Some optimality conditions in multiobjective programming.
- n. 83 S. Schaible, Fractional programming with sum of ratios.
- n. 84 Stefan Tigan - I.M. Stancu-Minasian, The minimum-risk approach for continuous time linear-fractional programming.
- n. 85 Vasile Preda - I.M. Stancu-Minasian, On duality for multiobjective mathematical programming of n-set.
- n. 86 Vasile Preda - I.M. Stancu-Minasian - Anton Batatorescu, Optimality and duality in nonlinear programming involving semilocally preinvex and related functions.

Anno: 1995

- n. 87 Elena Melis, Una nota storica sulla programmazione lineare: un problema di Kantorovich rivisto alla luce del problema degli zeri.
- n. 88 Vincenzo Bruno, Mobilità territoriale dell'Italia e di tre Regioni tipiche: Lombardia, Toscana, Sicilia.
- n. 89 Antonio Cortese, Bibliografia sulla presenza straniera in Italia
- n. 90 Riccardo Cambini, Funzioni scalari affini generalizzate.
- n. 91 Piero Manfredi - Fabio Tarini, Modelli epidemiologici: teoria e simulazione. (I)
- n. 92 Marco Bottai - Maria Caputo - Laura Lecchini, The "OLIVAR" survey. Methodology and quality.
- n. 93 Laura Lecchini - Donatella Marsiglia - Marco Bottai, Old people and social network.
- n. 94 Gilberto Ghilardi, Uno studio empirico sul confronto tra alcuni indici statistici della congiuntura.
- n. 95 Vincenzo Bruno, Il traffico nei porti italiani negli anni recenti.
- n. 96 Alberto Cambini - Anna Marchi - Laura Martein - S. Schaible, An analysis of the falk-palocsay algorithm.
- n. 97 Alberto Cambini - Laura Carosi, Sulla esistenza di elementi massimali.

Anno: 1996

- n. 98 Riccardo Cambini - S. Komlòsi, Generalized concavity and generalized monotonicity concepts for vector valued.
- n. 99 Riccardo Cambini, Second order optimality conditions in the image space.
- n. 100 Vincenzo Bruno, La stagionalità delle correnti di navigazione marittima.
- n. 101 Eugene Maurice Cleur, A comparison of alternative discrete approximations of the Cox-Ingersoll-Ross model.
- n. 102 Gilberto Ghilardi, Sul calcolo del rapporto di concentrazione del Gini.
- n. 103 Alberto Cambini - Laura Martein - Riccardo Cambini, A new approach to second order optimality conditions in vector optimization.
- n. 104 Fausto Gozzi, Alcune osservazioni sull'immunizzazione semideterministica.
- n. 105 Emilio Barucci - Fausto Gozzi, Innovation and capital accumulation in a vintage capital model: an infinite dimensional control approach.
- n. 106 Alberto Cambini - Laura Martein - I.M. Stancu-Minasian, A survey of bicriteria fractional problems.
- n. 107 Luciano Fanti - Piero Manfredi, Viscosità dei salari, offerta di lavoro endogena e ciclo.
- n. 108 Piero Manfredi - Luciano Fanti, Ciclo di vita di nuovi prodotti: modellistica non lineare.
- n. 109 Piero Manfredi, Crescita con ciclo, gestazione dei piani di investimento ed effetti.
- n. 110 Luciano Fanti - Piero Manfredi, Un modello "classico" di ciclo con crescita ed offerta di lavoro endogena.
- n. 111 Anna Marchi, On the connectedness of the efficient frontier: sets without local maxima.

Elenco dei report pubblicati

- n. 112 Riccardo Cambini, Generalized concavity for bicriteria functions.
- n. 113 Vincenzo Bruno, Variazioni dinamiche (1971-1981-1991) dei fenomeni demografici dei comuni (urbani e rurali) della Lombardia, in relazione ad alcune caratteristiche di mobilità territoriale.

Anno: 1997

- n. 114 Piero Manfredi - Fabio Tarini - J.R. Williams - A. Carducci - B. Casini, Infectious diseases: epidemiology, mathematical models, and immunization policies.
- n. 115 Eugene Maurice Cleur - Piero Manfredi, One dimensional SDE models, low order numerical methods and simulation based estimation: a comparison of alternative estimators.
- n. 116 Luciano Fanti - Piero Manfredi, Point stability versus orbital stability (or instability): remarks on policy implications in classical growth cycle model.
- n. 117 Piero Manfredi - Francesco Billari, transition into adulthood, marriage, and timing of life in a stable population framework.
- n. 118 Laura Carosi, Una nota sul concetto di estremo superiore di insiemi ordinati da coni convessi.
- n. 119 Laura Lecchini - Donatella Marsiglia, Reti sociali degli anziani: selezione e qualità delle relazioni.
- n. 120 Piero Manfredi - Luciano Fanti, Gestation lags and efficiency wage mechanisms in a goodwin type growth model.
- n. 121 G. Rivellini, La metodologia statistica multilevel come possibile strumento per lo studio delle interazioni tra il comportamento procreativo individuale e il contesto
- n. 122 Laura Carosi, Una nota sugli insiemi C-limitati e L-limitati.
- n. 123 Laura Carosi, Sull'estremo superiore di una funzione lineare fratta ristretta ad un insieme chiuso e illimitato.
- n. 124 Piero Manfredi, A demographic framework for the evaluation of the impact of imported infectious diseases.
- n. 125 Alessandro Valentini, Calo della fecondità ed immigrazione: scenari e considerazioni sul caso italiano.
- n. 126 Alberto Cambini - Laura Martein, Second order optimality conditions.

Anno: 1998

- n. 127 Piero Manfredi and Alessandro Valentini, Populations with below replacement fertility: theoretical considerations and scenarios from the Italian laboratory.
- n. 128 Alberto Cambini - Laura Martein - E. Moretti, Programmazione frazionaria e problemi bicriteria.
- n. 129 Emilio Barucci - Fausto Gozzi - Andrej Swiech, Incentive compatibility constraints and dynamic programming in continuous time.

Anno: 1999

- n. 130 Alessandro Valentini, Impatto delle immigrazioni sulla popolazione italiana: confronto tra scenari alternativi.
- n. 131 K. Igllicka - Odo Barsotti - Laura Lecchini, Recent development of migrations from Poland to Europe with a special emphasis on Italy K. Igllicka - Le Migrazioni est-ovest: le unioni miste in Italia
- n. 132 Alessandro Valentini, Proiezioni demografiche multiregionali a due sessi, con immigrazioni internazionali e vincoli di consistenza.
- n. 133 Fabio Antonelli - Emilio Barucci - Maria Elvira Mancino, Backward-forward stochastic differential utility: existence, consumption and equilibrium analysis.
- n. 134 Emilio Barucci - Maria Elvira Mancino, Asset pricing with endogenous aspirations.
- n. 135 Eugene Maurice Cleur, Estimating a class of diffusion models: an evaluation of the effects of sampled discrete observations.
- n. 136 Luciano Fanti - Piero Manfredi, Labour supply, time delays, and demoeconomic oscillations in a solow-type growth model.
- n. 137 Emilio Barucci - Sergio Polidoro - Vincenzo Vespri, Some results on partial differential equations and Asian options.
- n. 138 Emilio Barucci - Maria Elvira Mancino, Hedging european contingent claims in a Markovian incomplete market.
- n. 139 Alessandro Valentini, L'applicazione del modello multiregionale-multistato alla popolazione in Italia mediante l'utilizzo del Lipro: procedura di adattamento dei dati e particolarità tecniche del programma.
- n. 140 I.M. Stancu-Minasian, optimality conditions and duality in fractional programming-involving semilocally preinvex and related functions.
- n. 141 Alessandro Valentini, Proiezioni demografiche con algoritmi di consistenza per la popolazione in Italia nel periodo 1997-2142: presentazione dei risultati e confronto con metodologie di stima alternative.
- n. 142 Laura Carosi, Competitive equilibria with money and restricted participation.
- n. 143 Laura Carosi, Monetary policy and Pareto improvable in a financial economy with restricted participation
- n. 144 Bruno Cheli, Misurare il benessere e lo sviluppo dai paradossi del Pil a misure di benessere economico sostenibile, con uno sguardo allo sviluppo umano
- n. 145 Bruno Cheli - Laura Lecchini - Lucio Masserini, The old people's perception of well-being: the role of material and non material resources
- n. 146 Eugene Maurice Cleur, Maximum likelihood estimation of one-dimensional stochastic differential equation models from discrete data: some computational results
- n. 147 Alessandro Valentini - Francesco Billari - Piero Manfredi, Utilizzi empirici di modelli multistato continui con durate multiple
- n. 148 Francesco Billari - Piero Manfredi - Alberto Bonaguidi - Alessandro Valentini, Transition into adulthood: its macro-demographic consequences in a multistate stable population framework
- n. 149 Francesco Billari - Piero Manfredi - Alessandro Valentini, Becoming Adult and its Macro-Demographic Impact: Multistate Stable Population Theory and an Application to Italy
- n. 150 Alessandro Valentini, Le previsioni demografiche in presenza di immigrazioni: confronto tra modelli alternativi e loro utilizzo empirico ai fini della valutazione dell'equilibrio nel sistema pensionistico
- n. 151 Emilio Barucci - Roberto Monte, Diffusion processes for asset prices under bounded rationality
- n. 152 Emilio Barucci - P. Cianchi - L. Landi - A. Lombardi, Reti neurali e analisi delle serie storiche: un modello per la previsione del BTP future
- n. 153 Alberto Cambini - Laura Carosi - Laura Martein, On the supremum in fractional programming
- n. 154 Riccardo Cambini - Laura Martein, First and second order characterizations of a class of pseudoconcave vector functions
- n. 155 Piero Manfredi and Luciano Fanti, Embedding population dynamics in macro-economic models. The case of the goodwin's growth cycle
- n. 156 Laura Lecchini e Odo Barsotti, Migrazioni dei preti dalla Polonia in Italia
- n. 157 Vincenzo Bruno, Analisi dei prezzi, in Italia dal 1975 in poi
- n. 158 Vincenzo Bruno, Analisi del commercio al minuto in Italia
- n. 159 Vincenzo Bruno, Aspetti ciclici della liquidità bancaria, dal 1971 in poi
- n. 160 Anna Marchi, A separation theorem in alternative theorems and vector optimization

Elenco dei report pubblicati

Anno: 2000

- n. 161 Piero Manfredi and Luciano Fanti, Labour supply, population dynamics and persistent oscillations in a Goodwin-type growth cycle model
- n. 162 Luciano Fanti and Piero Manfredi, Neo-classical labour market dynamics and chaos (and the Phillips curve revisited)
- n. 163 Piero Manfredi - and Luciano Fanti, Detection of Hopf bifurcations in continuous-time macro- economic models, with an application to reducible delay-systems.
- n. 164 Fabio Antonelli - Emilio Barucci, The Dynamics of pareto allocations with stochastic differential utility
- n. 165 Eugene M. Cleur, Computing maximum likelihood estimates of a class of One-Dimensional stochastic differential equation models from discrete Date*
- n. 166 Eugene M. Cleur, Estimating the drift parameter in diffusion processes more efficiently at discrete times: a role of indirect estimation
- n. 167 Emilio Barucci - Vincenzo Valori, Forecasting the forecasts of others e la Politica di Inflation targeting
- n. 168 A. Cambini - L. Martein, First and second order optimality conditions in vector optimization
- n. 169 A. Marchi, Theorems of the Alternative by way of Separation Theorems
- n. 170 Emilio Barucci - Maria Elvira Mancino, Asset Pricing and Diversification with Partially Exchangeable random Variables
- n. 171 Piero Manfredi - Luciano Fanti, Long Term Effects of the Efficiency Wage Hypothesis in Goodwin-Type Economies.
- n. 172 Piero Manfredi - Luciano Fanti, Long Term Effects of the Efficiency wage Hypothesis in Goodwin-type Economies: a reply.
- n. 173 Luciano Fanti, Innovazione Finanziaria e Domanda di Moneta in un Modello dinamico IS-LM con Accumulazione.
- n. 174 P. Manfredi, A. Bonaccorsi, A. Secchi, Social Heterogeneities in Classical New Product Diffusion Models. I: "External" and "Internal" Models.
- n. 175 Piero Manfredi - Ernesto Salinelli, Modelli per formazione di coppie e modelli di Dinamica familiare.
- n. 176 P. Manfredi, E. Salinelli, A. Melegaro, A. Secchi, Long term Interference Between Demography and Epidemiology: the case of tuberculosis
- n. 177 Piero Manfredi - Ernesto Salinelli, Toward the Development of an Age Structure Theory for Family Dynamics I: General Frame.
- n. 178 Piero Manfredi - Luciano Fanti, Population heterogeneities, nonlinear oscillations and chaos in some Goodwin-type demo-economic models
Paper to be presented at the: Second workshop on "nonlinear demography" Max Planck Institute for demographic Research Rostock, Germany, May 31-June 2, 2
- n. 179 E. Barucci - M.E. Mancini - Roberto Renò, Volatility Estimation via Fourier Analysis
- n. 180 Riccardo Cambini, Minimum Principle Type Optimality Conditions
- n. 181 E. Barucci, M. Giuli, R. Monte, Asset Prices under Bounded Rationality and Noise Trading
- n. 182 A. Cambini, D.T. Luc, L. Martein, Order Preserving Transformations and application.
- n. 183 Vincenzo Bruno, Variazioni dinamiche (1971-1981-1991) dei fenomeni demografici dei comuni urbani e rurali della Sicilia, in relazione ad alcune caratteristiche di mobilità territoriale.
- n. 184 F. Antonelli, E. Barucci, M.E. Mancino, Asset Pricing with a Backward-Forward Stochastic Differential Utility
- n. 185 Riccardo Cambini - Laura Carosi, Coercivity Concepts and Recession Functions in Constrained Problems
- n. 186 John R. Williams, Piero Manfredi, The pre-vaccination dynamics of measles in Italy: estimating levels of under-reporting of measles cases
- n. 187 Piero Manfredi, John R. Williams, To what extent can inter-regional migration perturb local endemic patterns? Estimating numbers of measles cases in the Italian regions
- n. 188 Laura Carosi, Johannes Jahn, Laura Martein, On The Connections between Semidefinite Optimization and Vector Optimization
- n. 189 Alberto Cambini, Jean-Pierre Crouzeix, Laura Martein, On the Pseudoconvexity of a Quadratic Fractional Function
- n. 190 Riccardo Cambini - Claudio Sodini, A finite Algorithm for a Particular d.c. Quadratic Programming Problem.
- n. 191 Riccardo Cambini - Laura Carosi, Pseudoconvexity of a class of Quadratic Fractional Functions.
- n. 192 Laura Carosi, A note on endogenous restricted participation on financial markets: an existence result.
- n. 193 Emilio Barucci - Roberto Monte - Roberto Renò, Asset Price Anomalies under Bounded Rationality.
- n. 194 Emilio Barucci - Roberto Renò, A Note on volatility estimate-forecast with GARCH models.
- n. 195 Bruno Cheli, Sulla misura del benessere economico: i paradossi del PIL e le possibili correzioni in chiave etica e sostenibile, con uno spunto per l'analisi della povertà
- n. 196 M. Bottai, M. Bottai, N. Salvati, M. Toigo, Le proiezioni demografiche con il programma Nostradamus. (Applicazione all'area pisana)
- n. 197 A. Lemmi - B. Cheli - B. Mazzoli, La misura della povertà multidimensionale: aspetti metodologici e analisi della realtà italiana alla metà degli anni '90
- n. 198 C.R. Bector - Riccardo Cambini, Generalized B-invex vector valued functions
- n. 199 Luciano Fanti - Piero Manfredi, The workers' resistance to wage cuts is not necessarily detrimental for the economy: the case of a Goodwin's growth model with endogenous population.
- n. 200 Emilio Barucci - Roberto Renò, On Measuring volatility of diffusion processes with high frequency data
- n. 201 Piero Manfredi - Luciano Fanti, Demographic transition and balanced growth

Anno: 2001

- n. 202 E. Barucci - M. E. Mancini - E. Vannucci, Asset Pricing, Diversification and Risk Ordering with Partially Exchangeable random Variables
- n. 203 E. Barucci - R. Renò - E. Vannucci, Executive Stock Options Evaluation.
- n. 204 Odo Barsoffi - Moreno Toigo, Dimensioni delle rimesse e variabili esplicative: un'indagine sulla collettività marocchina immigrata nella Toscana Occidentale
- n. 205 Vincenzo Bruno, I Consumi voluttuari, nell'ultimo trentennio, in Italia
- n. 206 Michele Longo, The monopolist choice of innovation adoption: A regular-singular stochastic control problem
- n. 207 Michele Longo, The competitive choice of innovation adoption: A finite-fuel singular stochastic control problem.
- n. 208 Riccardo Cambini - Laura Carosi, On the pseudoaffinity of a class of quadratic fractional functions
- n. 209 Riccardo Cambini - Claudio Sodini, A Finite Algorithm for a Class of Non Linear Multiplicative Programs.
- n. 210 Alberto Cambini - Dinh The Luc - Laura Martein, A method for calculating subdifferential Convex vector functions
- n. 211 Alberto Cambini - Laura Martein, Pseudolinearity in scalar and vector optimization.
- n. 212 Riccardo Cambini, Necessary Optimality Conditions in Vector Optimization.
- n. 213 Riccardo Cambini - Laura Carosi, On generalized convexity of quadratic fractional functions.
- n. 214 Riccardo Cambini - Claudio Sodini, A note on a particular quadratic programming problem.
- n. 215 Michele Longo - Vincenzo Valori, Existence and stability of equilibria in OLG models under adaptive expectations.

Elenco dei report pubblicati

- n. 216 Luciano Fanti - Piero Manfredi, Population, unemployment and economic growth cycles: a further explanatory perspective
- n. 217 J.R. Williams, P. Manfredi, S. Salmaso, M. Ciofi, Heterogeneity in regional notification patterns and its impact on aggregate national case notification data: the example of measles in Italy.
- n. 218 Anna Marchi, On the connectedness of the efficient frontier: sets without local efficient maxima
- n. 219 Laura Lecchini - Odo Barsotti, Les disparités territoriales au Maroc au travers d'une optique de genre.

Anno: 2002

- n. 220 Gilberto Ghilardi - Nicola Orsini, Sull'uso dei modelli statistici lineari nella valutazione dei sistemi formativi.
- n. 221 Andrea Mercatanti, Un'analisi descrittiva dei laureati dell'Università di Pisa
- n. 222 E. Barucci - C. Impenna - R. Renò, The Italian Overnight Market: microstructure effects, the martingale hypothesis and the payment system.
- n. 223 E. Barucci, P. Malliavin, M.E. Mancino, R. Renò, A. Thalmaier, The Price-volatility feedback rate: an implementable mathematical indicator of market stability.
- n. 224 Andrea Mercatanti, Missing at random in randomized experiments with imperfect compliance
- n. 225 Andrea Mercatanti, Effetto dell'uso di carte Bancomat e carte di Credito sulla liquidità familiare: una valutazione empirica
- n. 226 Piero Manfredi - John R. Williams, Population decline and population waves: their impact upon epidemic patterns and morbidity rates for childhood infectious diseases. Measles in Italy as an example.
- n. 227 Piero Manfredi - Marta Ciofi degli Atti, La geografia pre-vaccinale del morbillo in Italia. I. Comportamenti di contatto e sforzi necessari all'eliminazione: predizioni dal modello base delle malattie prevenibili da vaccino.
- n. 228 I.M. Stancu-Minasian, Optimality Conditions and Duality in Fractional Programming Involving Semilocally Preinvex and Related
- n. 229 Nicola Salvati, Un software applicativo per un'analisi di dati sui marchi genetici (Genetic Markers)
- n. 230 Piero Manfredi, J. R. Williams, E. M. Cleur, S. Salmaso, M. Ciofi, The pre-vaccination regional landscape of measles in Italy: contact patterns and related amount of needed eradication efforts (and the "EURO" conjecture)
- n. 231 Andrea Mercatanti, I tempi di laurea presso l'Università di Pisa: un'applicazione dei modelli di durata in tempo discreto
- n. 232 Andrea Mercatanti, The weak version of the exclusion restriction in causal effects estimation: a simulation study
- n. 233 Riccardo Cambini and Laura Carosi, Duality in multiobjective optimization problems with set constraints
- n. 234 Riccardo Cambini and Claudio Sodini, Decomposition methods for nonconvex quadratic programs
- n. 235 R. Cambini and L. Carosi and S. Schaible, Duality in fractional optimization problems with set constraints
- n. 236 Anna Marchi, On the mix-efficient points

Anno: 2003

- n. 237 Emanuele Vannucci, The valuation of unit linked policies with minimal return guarantees under symmetric and asymmetric information hypotheses
- n. 238 John R Williams - Piero Manfredi, Ageing populations and childhood infections: the potential impact on epidemic patterns and morbidity
- n. 239 Bruno Cheli, Errata Corrige del Manuale delle Impronte Ecologiche (2002) ed alcuni utili chiarimenti
- n. 240 Alessandra Petrucci-Nicola Salvati-Monica Pratesi, Stimatore Combinato r Correlazione Spaziale nella Stima per Piccole Aree
- n. 241 Riccardo Cambini - Laura Carosi, Mixed Type Duality for Multiobjective Optimization Problems with set constraints
- n. 242 O. Barsotti, L. Lecchini, F. Benassi, Foreigners from central and eastern European countries in Italy: current and future perspectives of eu enlargement
- n. 243 A. Cambini - L. Martein - S. Schaible, Pseudoconvexity under the Charnes-Cooper transformation
- n. 244 Eugene M. Cleur, Piero Manfredi, and John R. William, The pre-and post-Vaccination regional dynamics of measles in Italy: Insights from time series analysis

Anno: 2004

- n. 245 Emilio Barucci - Jury Falini, Determinants of Corporate Governance in Italy: Path dependence or convergence?
- n. 246 R. Cambini - A. Marchi, A note on the connectedness of the efficient frontier
- n. 247 Laura Carosi - Laura Martein, On the pseudoconvexity and pseudolinearity of some classes of fractional functions
- n. 248 E. Barucci - R. Monte - B. Trivellato, Bayesian nash equilibrium for insider trading in continuous time
- n. 249 Eugene M. Cleur, A Time Series Analysis of the Inter-Epidemic Period for Measles in Italy
- n. 250 Andrea Mercatanti, Causal inference methods without exclusion restrictions: an economic application.
- n. 251 Eugene M. Cleur, Non-Linearities in Monthly Measles data for Italy
- n. 252 Eugene M. Cleur, A Threshold Model for Pre vaccination Measles Data: Some Empirical Results for England and Italy
- n. 253 Andrea Mercatanti, La gestione dei dati mancanti nei modelli di inferenza causale: il caso degli esperimenti naturali.
- n. 254 Andrea Mercatanti, Rilevanza delle analisi di misture di distribuzioni nelle valutazioni di efficacia
- n. 255 Andrea Mercatanti, Local estimation of mixtures in instrumental variables models
- n. 256 Monica Pratesi - Nicola Salvati, Spatial EBLUP in agricultural surveys: an application based on Italian census data.
- n. 257 Emanuele Vannucci, A model analyzing the effects of information asymmetries of the traders
- n. 258 Monica Pratesi-Emilia Rocco, Two-Step centre sampling for estimating elusive population size
- n. 259 A. Lemmi, N. Pannuzi, P. Valentini, B. Cheli, G. Berti, Estimating Multidimensional Poverty: A Comparison of Three Diffused Methods°

Anno: 2005

- n. 260 Nicola Salvati, Small Area estimation: the EBLUP estimator using the CAR model
- n. 261 Monica Pratesi-Nicola Salvati, Small Area Estimation: the EBLUP estimator with autoregressive random area effects
- n. 262 Riccardo Cambini-Claudio Sodini, A solution algorithm for a class of box constrained quadratic programming problems
- n. 263 Andrea Mercatanti, A constrained likelihood maximization for relaxing the exclusion restriction in causal inference.
- n. 264 Marco Bottai - Annalisa Lazzini - Nicola Salvati, Le proiezioni demografiche. Pisa 2003/2032
- n. 265 Andrea Mercatanti, An exercise in estimating causal effects for non-compliers: the return to schooling in Germany and Austria
- n. 266 Nicola Salvati, M-quantile Geographically Weighted Regression for Nonparametric Small Area Estimation
- n. 267 Ester Rizzi, Alessandro Rosina, L'influsso della Luna sul comportamento sessuale
- n. 268 Silvia Venturi, Linda Porciani, Moreno Toigo, Federico Benassi, Il migrate nello spazio sociale transnazionale: tra integrazione nel Paese di

Elenco dei report pubblicati

destinazione e appartenenza al Paese di origine

- n. 269 James Raymer, Alberto Bonaguidi, Alessandro Valentini, Describing and Projecting the Age and Spatial Structures of Interregional Migration in Italy
- n. 270 Laura Carosi, Laura Martein, Some classes of pseudoconvex fractional functions via the Charnes-Cooper transformation
- n. 271 Laura Carosi, Antonio Villanacci, Relative wealth dependent restricted participation on financial markets
- n. 272 Riccardo Cambini, Claudio Sodini, A sequential method for a class of box constrained quadratic programming problems
- n. 273 Riccardo Cambini, Rossana Riccardi, An approach to discrete convexity and its use in an optimal fleet mix problem
- n. 274 Riccardo Cambini, Claudio Sodini, An unifying approach to solve a class of parametrically-convexifiable problems
- n. 275 Paolo Manca, Misure di Rischio Finanziario
- n. 276 Bruno Cheli e Gianna Righi, Rapporto sulle abitudini di consumo di acqua potabile nel Comune di Cecina
- n. 277 Anna Marchi - Laura Martein, Pseudomonotonicity of an affine map and the two dimensional case
- n. 278 Andrea Pallini, Bernstein-type approximation of smooth functions
- n. 279 Ray Chambers, Monica Pratesi, Nicola Salvati, Nikos Tzavidis, Spatial M-quantile Models for Small Area Estimation

Anno: 2006

- n. 280 Franco Fineschi and Riccardo Giannetti, ADJOINTS OF A MATRIX
- n. 281 Andrea Mercatanti, An ML procedure for partially identified Causal models
- n. 282 Marco Geraci, Nicola Salvati, The geographical distribution of the consumption expenditure in Ecuador. Estimation and mapping of the regression quantiles
- n. 283 Mauro Sodini, Labour supply in a polluted world
- n. 284 Mauro Sodini, The Fragility of Social Capital: An Analytical Approach
- n. 285 Mauro Sodini, An endogenous growth model with social capital
- n. 286 Mauro Sodini, A two sectors growth model with social capital
- n. 287 Monica Pratesi, M. Giovanna Ranalli, Nicola Salvati, Nonparametric M-quantile Regression using Penalized Splines
- n. 288 Riccardo Cambini e Claudio Sodini, A computational comparison of some branch and bound methods for indefinite quadratic programs
- n. 289 Riccardo Cambini, Multiobjective Problems with Set Constraints: from Necessary Optimality Conditions to Duality Results
- n. 290 Il ruolo della complementarità stretta in programmazione matematica, Giorgio Giorgi
- n. 291 Andrea Pallini, Bernstein-type approximation using the beta-binomial distribution
- n. 292 Andrea Mercatanti, Identifiability and two-steps estimation procedures in casual models with ignorable assignments and non-ignorable compliance

Anno: 2007

- n. 293 Nikos Tzavidis, Nicola Salvati, Monica Pratesi, Ray Chambers, M-quantile Models with Application to Small Area Estimation and Poverty Mapping
- n. 294 Andrea Pallini, Saturation and Superefficiency for some Approximation of the Bernstein Type
- n. 295 Giorgio Guzzetta, Piero Manfredi, Estimation of the forces of infection in a complex epidemiological model for meningitis using genetic algorithms
- n. 296 Emanuele Del Fava, Piero Manfredi, Strange phenomena in the most basic inferential procedure: interval estimation for a binomial proportion
- n. 297 Odo Barsotti, Federico Benassi, Moreno Toigo, Migrants, employ et développement économique dans les provinces italiennes.
- n. 298 Odo Barsotti, Federico Benassi, Linda Porciani, Moreno Toigo, Silvia Venturi, Trasmigrants, The Integration Process and Links with Country of Origin
- n. 299 Riccardo Cambini
Claudio Sodini, Global optimization of a generalized quadratic program
- n. 300 Riccardo Cambini end Rossana Riccardi, Theoretical and algorithmic results for a class of hierarchical fleet mix problems

Anno: 2008

- n. 301 Riccardo Cambini and Claudio Sodini, A branch and bound approach for a class of d.c. programs
- n. 302 I.M. Stancu - Mihasian and Andrea Madalina Stancu, SUFFICIENT OPTIMALITY CONDITIONS FOR NONLINEAR PROGRAMMING WITH MIXED CONSTRAINTS AND GENERALIZED p-LOCALLY ARCWISE
- n. 303 Ray Chambers, Hukum Chandra and Nicola Salvati, Estimation of Proportions for Small Areas Using Unit Level Models With Spatially Correlated population - An Application to Poverty Mapping.
- n. 304 Andrea Mercatanti, Assessing the effect of debit cards on households' spending under the uncounfoundedness assumption
- n. 305 Riccardo Cambini and Rossana Riccardi, On Discrete quasiconvexity concepts for single variable scalar functions
- n. 306 Sara Biagini, Marco Frittelli, Matheus Grasselli, Indifference price with general semimartingales
- n. 307 Sara Biagini, Paolo Guasoni, Relaxed Utility Maximization
- n. 308 Monica Pratesi, Nonparametric Small Area Estimation via M-quantile Regression using Penalized Splines
- n. 309 Angelo Antoci, Mauro Sodini, Indeterminacy, bifurcations and chaos in an overlapping generations model with negative environmental externalities
- n. 310 A. Cambini L. Martein, On the maximal domains of pseudoconvexity of some classes of generalized fractional functions.
- n. 311 A. Cambini L. Martein, On the generalized convexity of quadratic functions.
- n. 312 Riccardo Cambini, Claudio Sodini, Global optimization of a generalized linear program.
- n. 313 Cambini Alberto, Carosi Laura and Martein Laura, A new approach for regularity conditions in vector optimization
- n. 314 Porciani Linda, Martin Pilar, La mediazione familiare: strumento di risoluzione dei conflitti