

Demographic Projections: the impact of net international migration on population ageing in Italy

Previsioni Demografiche: L'impatto delle Migrazioni Internazionali in Italia sull'Invecchiamento della Popolazione

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Riassunto: Nel presente lavoro vengono effettuate alcune previsioni demografiche a livello nazionale. Le simulazioni mettono a fuoco, in particolare, l'impatto delle migrazioni internazionali sulla popolazione nel periodo 2006-2050. Dopo aver costruito singoli scenari evolutivi per fecondità e sopravvivenza, vengono esaminati tre diversi scenari per le migrazioni internazionali. Un quarto scenario con migrazioni nulle è inoltre preso in esame come metro di confronto.

I risultati mostrano che ipotesi plausibili in termini di flussi migratori non alterano in futuro gli effetti negativi dell'invecchiamento della popolazione.

Keywords: projections, international migration, assumptions.

1. Introduction

This study presents the results of some simulations carried out on Italy's resident population between 2006 and 2050. The analysis mainly aims at evaluating the impact that international migrations have on the ageing process.

The projections are divided into three different scenarios on international migrations, called Base, High and Low scenario. The Base scenario provides for a constant annual flow of 175 thousand entries, net of outgoings. The other two scenarios suggest the assumptions considered as plausible limits of future migration levels: the Low scenario counts 150 thousand net entries every year while the High scenario 200 thousand. Only one assumption was established for the natural trend components, that is, fertility and mortality. A fourth scenario, the Zero one, involves the absence of international migrations. Used as comparison meter with the other three scenarios, it helps evaluate the evolution of the population based only on mortality and fertility.

While the second paragraph illustrates Italy's current demographic context, the third paragraph describes the input data used for the projections, the model and the assumptions regarding the future of the demographic components. Main results of the projections are described in the fourth paragraph. Finally, the fifth and last paragraph concludes this study.

2. Demographic situation in Italy

The last estimates for Italy, relative to the year 2006, present a natural and migratory trend of the population in line with that of the past years. They, thus, reveal a tendency towards a progressive ageing due mainly to the continuous raising of the life expectancy. The propensity to have children is only slightly on the increase. The

migratory change remains positive, thereby confirming the attraction characteristics Italy exercises on citizens coming from the new Member States of the EU and from outside Europe.

On January 1, 2006, people aged 65 and over accounted for 20% of the population (such percentage was of 17% back in 1996), while minors accounted only for 17% (18% in 1996). Young people aged 14 and less equalled 14% (15% in 1996), and the working-age population aged 15 to 64 amounted to two third of the total (68% in 1996). While the mean age of the population rises almost to 43, two years more than in 1996, the ratio between the non-working age generation (minors under 14 years of age and older people aged 65 and over) and the working-age one (15-64 years of age) is on the increase, rising from 46% to 51%.

In 2006, the population registered further survival progresses. The life expectancy at birth exceeds 78 years for men (78.3 years) and 84.0 for women, with an increase of 0.5 and 0.6 years respectively, compared to 2005.

According to international comparisons, Italy is rather disadvantaged as regards the fertility levels. They are, indeed, under the average of EU member countries (1.52 children per woman in 2005) and, especially, much lower than those of important European countries, such as France (1.94) and United Kingdom (1.77), natural comparison partners. The fertility of Italian women, with 1.32 children per woman (2005 estimate), is in line with countries such as Spain and Germany (1.34 both). In 2006, it registered a slight but significant increase: 1.35 children per woman. Such level, the highest one in the past 16 years, results from the increasing trend started in 1995, year in which the Italian fertility reached its historical minimum at 1.19 children per woman.

The migratory trend results more solid than the natural trend. In 2006, it exceeded 230 thousand units, equal to 3.9 per thousand inhabitants.

3. Data, model and scenario hypothesis for 2050

3.1 Data used in the study

This study used Istat's last data on the population and demographic events (births, deaths and international migration flows). The analyses are distinguished per gender while the age classification is done for each year, from 0 to 100+. The fertility rates per age of the mother are included in the age interval 13-50; the historical series covers the period 1952-2004. As regards mortality, we used the life tables from 1974 to 2003. And for migrations, we used the survey data on the age structure of the changes of residence from and to foreign countries between 2000 and 2003.

3.2 The projection model

We applied a cohort-component type projection model. This model is based on a traditional equation of population, which registers demographic events over time and calculates the living population at the beginning of the following year, adding all the components. The model's basic formulas are as follows:

$$\begin{aligned} {}_{t+1}P_{x+1} &= {}_tP_x - {}_tD_x + {}_tM_x & x=0, 1, \dots, 99+ \\ {}_{t+1}P_0 &= {}_tB - {}_tD_b + {}_tM_b & x=b \end{aligned}$$

$${}_tD_x = {}_tP_x \cdot {}_tq_x$$

$${}_tB = 0,5 \cdot \sum_{x=13}^{50} ({}_tP_x^f + {}_{t+1}P_{x+1}^f) {}_tf_x$$

Where “t” indicates the year (2006-2050), “x” the age in completed years (b, 0, 1, ..., 100+), “P” the population, “D” the deaths, “M” the net migration, “B” the births, “q” the projection-probability of death, “f” the fertility rate to be applied on average year female population.

It also implies some illustrative hypotheses. For the fertility, we assumed that immigrant women had the same propensity towards maternity as resident women. As regards mortality, we also assumed that immigrants presented the same risk as the resident population, since they may use the host country’s care and assistance services. The death and migration events are considered, per definition, as independent events.

3.3 Fertility assumptions

The changes in the Italian society since mid-60s have led to reproductive models well below the replacement level of generation (Istat, 1997). Many different reasons have brought about such phenomenon: from the hypothesis that couples themselves decide the size of the family they want (Lesthaeghe, 1995), from the economic analysis of the opportunities of child rearing costs (De Santis & Maltagliati, 2001) to the strong individualisation processes and relativism that have become also part of Italy (Billari et al., 2001).

The problem of low fertility cannot be solved considering it only as a demographic and demographers problem; rather, it involves all spheres of Italy’s social, economic and cultural life. It has been shown, for example, that the policies taken to help women reconcile a work career with their family role have a considerable impact on the fertility levels (CNEL, 2003). Hence, child rearing is no longer a problem of costs but a form of self-gratification for parents. This process seems currently taking place in some areas of Italy, especially in the Centre north, and could extent to the rest of the country, though with some years of delay.

The phenomenon of immigration represents a driving force to the recovery of fertility thanks to the young age of immigrated couples and to their higher reproductive propensity, especially in the first years of settlement (Istat, 2006). To establish and regulate open welcome policies could help further increase the fertility level. Hence, integration policies should favour immigration models that not only help resolve the demographic changes of the labour market, due to the progressive ageing of the population, but also help immigrants rejoin with their families of origin.

Consequently, most probably, some actions will be taken on this matter, especially from the institutions, to remove all obstacles that prevent reaching a higher level of fertility today. Moreover, this “surplus” would represent an addition to what Italian couples are currently pursuing, due to the recovery of fertility following the decision to postpone having children at an ever-older age.

Hence, it seems rather correct to hypothesise a continuation of this trend. Because, in some cases, to postpone having children means to make some renunciations – when a couple decides to have them later on, it usually decides to have a number of children below what ideally it would have wanted – most certainly the fertility will not reach levels of replacement. Consequently, the assumption that provides for a process of convergence with the average European levels seems more credible. In particular, the projection period at a logistic trend sees the average number of children per women rise

from 1.35 to 1.57. At the same time, the reproductive calendar also grows older; while in 2006, the mean age at birth is 30.9, it will rise to 33 in 2050.

3.4 Mortality assumptions

The *ex-post* verifications of many demographic projections made in the past in developed countries show how the survival evolution was always lower than the one actually observed. Hence, projection-makers have now become more cautious in dealing with mortality, either maintaining it constant all through the projection years or setting it as limit beyond which it cannot go. The empiric evidence has regularly shown how these suppositions were incorrect and how they were not able to gather, or only partially, the entity of the mortality decline (Caselli et al., 2006).

Based on such experiences, it is now important to first identify the key factors to be considered when expressing future trends at best. These factors could include the ageing of the population and its economic burden; it indeed involves an increase in the care and assistance costs to the elderly as well as in the social security (EPC, 2001). This factor is very important and will probably dominate all discussions because a significant increase in the life expectancy inevitably entails an increase in chronic illnesses among the elderly too. A second key factor is the possible change in the epidemiological context (Huisman & Tabeau, 1999). Today, about 80-85 percent of deaths are due to chronic illnesses, cancers and cardio-circulatory diseases; the medical researches in these fields are evermore efficient. Nevertheless, what about tomorrow? With a discrete level of optimism, we could believe that the emergence of new lethal forms (such as new and sudden waves of infective diseases) could be stemmed thanks to a change in people's life styles, to the improvement of the institutional assets in the health field and to the new technologies in the genetic medicine field.

In addition to these factors, other elements could be used despite being rarely mentioned in the demographic studies. They do, however, represent a potential impact on the survival. One of these is the environment pollution factor, whose harmful effects on health are widely known (Samet and Katsouyanni, 2006). The current unfavourable circumstances, however, do not enable to avoid it because developed countries worldwide have not been able to reach an agreement on the critical matters, such as the exploitation of natural resources, the research for renewable energy sources, the control of harmful emissions in the atmosphere. Another element that is strongly linked with the previous one is the change of climate due to the overheating of the planet and the greenhouse effect (Martens, 1998).

Finally, one last important factor that somehow, encloses the previous ones is the avoidable mortality. According to a recent study carried out in Italy (ERA, 2007), with reference to the 2002 data, the complete elimination of some types of causes of an early death before 75 years of age (in particular, certain cancers, ischaemic heart diseases, cerebrovascular diseases, accidental causes – especially road accidents) would have led to about 110 thousand deaths less, equal to one fifth of the total. In terms of years of life lost, this means that, by adopting active policies to contrast mortality at an age in which a person should not die, men and women would have a life expectancy at birth higher than the current one, respectively, of 4.5 years and 2.5 years.

The avoidable mortality, thus, largely accounts for the gender differences. If it were not for the avoidable deaths, men would have lived on average about 5 years more. Hence, the gap between men and women could decrease even further, thus following the trend

of the past 30 years (from 6.9 years in 1979 to 5.7 in 2006). What level of survival could we reasonably reach for both men and women by 2050?

The results of an APC model by cause of death¹ applied to Italy to 2050, starting with the 1974-2003 series, seem more than encouraging, given the afore-mentioned considerations. Life expectancy at birth should increase, especially as regards men, though not at the same pace as the one registered in the past 30 years. In particular, in the simulation scenario proposed, life expectancy at birth for men will rise from 78.3 to 84.5 years (+6.2) and for women, from 84.0 to 89.5 (+5.5).

3.5 Net migration assumptions

In the past decades, deep changes have characterised the international mobility: Italy has, indeed, become a country of immigration (Bonifazi, 1994). The characteristics and reasons behind these movements have greatly evolved; the weight of foreign citizens has increased and the map of countries of origin and destination of the migratory flows has been renewed (Istat, 2007). Quantitatively, between 1993 and 2003, over 2 millions and 170 thousand persons have entered Italy and obtained residence (about 200 thousand every year), most of which are foreigners.

Moreover, this phenomenon has been regulated and partially conditioned by a normative system that has brought about both accelerations and slowing downs in the number of residents and in its emersion.² For future perspectives, such aspect is very important.

The high incidence of foreign citizens on the resident population and on the population that will be attracted to Italy makes it difficult to design migratory scenarios. The incoming flows to Italy could remain consistent, whatever the level of development the country of origin reaches. Among other causes, the persistent disparities in income and life conditions between Italy and most of the world countries could indeed still represent a significant impulse to migration (UN, 2001).

Other factors that might influence the direction and extent of the migratory flows regard the requests for asylum. Usually due to violent political-economic crises, wars, environmental catastrophes, they cannot be excluded from a scenario analysis even though it is difficult to project their impact in terms of width and trends.

Hence, as regards the countries of origin, poverty, low levels of per-capita income and unemployment could still represent the main factors of immigration. As to the countries of destination, including Italy, policies for the rationalisation of immigration, regulated and modulated on the labour market requests, such as for missing professional figures, will be the factors of attraction since they will most probably be stronger (Golini, 1996). Several migratory scenarios have been established because of the strong uncertainty of these factors.

The Base scenario hypothesises an improvement of the world's economic and social conditions (both in Europe and in the rest of the world), projecting a net annual flow of 175 thousand migrants to Italy. It considers the migration policies to be not too restrictive thanks to a stable context as far as regards economic growth and social acceptance of immigrants that encourages the integration process.

¹ As for the methodology used see Burgio and Frova, 1995.

² Such as the incoming flows for seasonal workers, established in fixed shares by the Ministry of Labour and Social Policies, and the three regularisation norms adopted between 1996 and 2002, the last one of which has regularised 700 thousand irregular immigrants (see also Istat, 2005).

In the Low scenario, the European and world economic process is stagnant, with an impact on Italy too. It hypothesises an annual net incoming number of 150 thousand immigrants, net of outgoings. Migration policies are seen as more restrictive and aim at contrasting the increased driving factors in the countries of origin, following the international crisis.

The High scenario provides for an internationally accelerated economic growth and social development, and sees 200 thousand new entries net annually. The liberal migration policies support the increased need of labour force. The improved world condition stimulates a higher mobility of persons all through the world.

Finally, the Zero scenario sees null migrations and a population that evolves and becomes older, a population that is subject only to the natural trend components at the previously described levels.

3.6 Adjustment at the jump off year

Even though the first projection year (from 1.1.06 to 1.1.07) is historically part of the past, it is still present statistically speaking when this study was being conducted. When it was started, the demographic movements surveyed by Istat during the first 7 months of 2006 were known, unlike the final data on the flows for the entire year and the stock of residents on 1.1.07. However, by using the information of the first period of the year, short-term projections (now cast) were produced to complete the missing data for the second period. This procedure, applied to all scenarios, has produced the following results: 557 thousand births, 552 thousand deaths and 230 thousand net migrants. The following table synthesises the overall framework of assumptions up to 2050:

Table 1: *Scenario assumptions 2006-2050*

Year	Average number of children per woman	Life expectancy at birth of men	Life expectancy at birth of women	Net migration in the Low scenario	Net migration in the Base scenario	Net migration in the High scenario
2006	1,35	78,3	84,0	230.000	230.000	230.000
2007	1,35	78,3	84,0	150.000	175.000	200.000
2008	1,37	78,4	84,0	150.000	175.000	200.000
2009	1,38	78,4	84,2	150.000	175.000	200.000
2010	1,39	78,5	84,4	150.000	175.000	200.000
2020	1,47	80,2	85,9	150.000	175.000	200.000
2030	1,52	81,9	87,3	150.000	175.000	200.000
2040	1,56	83,4	88,5	150.000	175.000	200.000
2050	1,57	84,5	89,5	150.000	175.000	200.000

4. Projections to 2050 according to various net migration assumptions

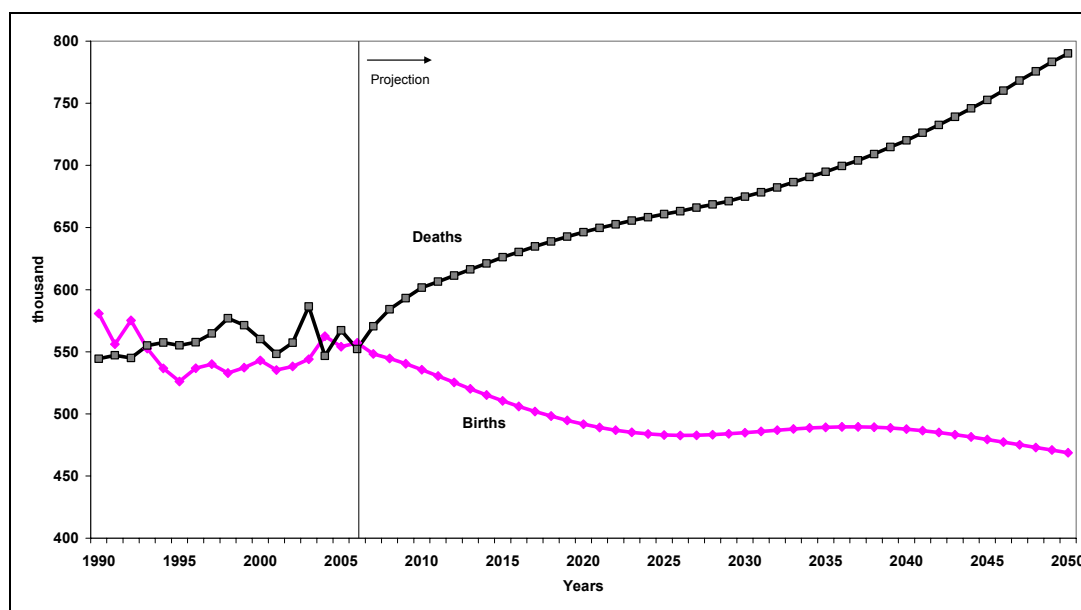
4.1 Base Scenario

In the first projection years, the resident population gradually increases from 58.7 millions in 2006 to 60.1 millions in 2025, registering an annual increase rate of 1.2 per thousand. After 2025, a slow and progressive decline will bring the population to reach 58.8 millions in 2050, at a rhythm of -0.9 per thousand every year.

The projection of the births and deaths (Figure 1) leaves no space to a hypothesis of population recovery owing to a natural trend. Despite the sustainable assumptions, that

is, return of fertility at European average levels and simultaneous improved survival conditions, it appears rather negative already as from 2007 (-22 thousand) and will even further considerably expand. In 2014, the natural change exceeds 100 thousand units less. In 2018, the number of births drops under the threshold of 500 thousand units, while the number of deaths is still on the increase, with almost 640 thousand. Notwithstanding its uneven trend, between 2021 and 2040, the number of births stabilises at 480-490 thousand units every year. The number of deaths rises from 650 thousand to more than 720 thousand. In 2040, the natural change exceeds the share of -230 thousand units, before registering -330 thousand in the last decade. Finally, in 2050, the scenario forecasts about 470 thousand births and over 790 thousand deaths. The structural “game” of the population, which appears compromised from the beginning as far as ageing is concerned, leads to a decrease in births despite a rise in the propensity to fertility. It also produces an increase in deaths due also to the future presence of growing shares of elderly, regardless of the more favourable survival conditions than the current ones.

Figure 1: *Births and deaths 1990-2050 – BASE SCENARIO*



Because of this natural change, the population will gradually age further (Table 2), in spite of the positive results from the migratory change, which will fill in the ever wider generational gap.

Within 2030, the proportion of young persons aged 14 and less will drop from 14.1% to 12.5% while, at the same time, the 65-and-over age class will greatly increase from 19.7% to 26.8%. What is more, within the latter age class, people aged 85 and over will go from 2.1% to 4.6%. In the long run, after a very long exposition to the projected demographic conditions, the population, in 2050, will be made up of 33.6% of people aged 65 and over, and only 12.6% of young ones aged 14 and less. The weight of the latter will become stable in the second phase thanks to a fertility that will progressively lead to 1.6 children per woman.

Ageing will also increase in comparison with the working-age population. The dependency ratio will gradually increase from 51% in the jump off year to 57% in 2020. It will increase at a stronger pace between 2020 and 2040, year in which it will even reach 80%. Only in the last decade will such increasing trend slow down, even though its indicator will still rise to 86% in 2050.

The elderly dependency ratio will follow a similar trend. In the first years, it will increase more slowly from 30% to 36% in 2020 and accelerate between 2020 and 2040, even reaching 57%. Finally, its pace will slow down in the last decade to 62% in 2050.

Table 2: *Age composition (%) of the population 2006-2050 – BASE SCENARIO*

Age class	2006	2010	2020	2030	2040	2050
0-14	14,1	13,9	13,4	12,5	12,5	12,6
15-39	32,8	30,6	26,4	25,8	25,1	24,5
40-64	33,3	35,1	37,2	34,9	30,5	29,3
65-84	17,6	17,7	19,2	22,2	26,1	25,8
85+	2,1	2,7	3,8	4,6	5,8	7,8
Total	100,0	100,0	100,0	100,0	100,0	100,0
Total (millions)	58,752	59,397	60,056	60,066	59,762	58,808

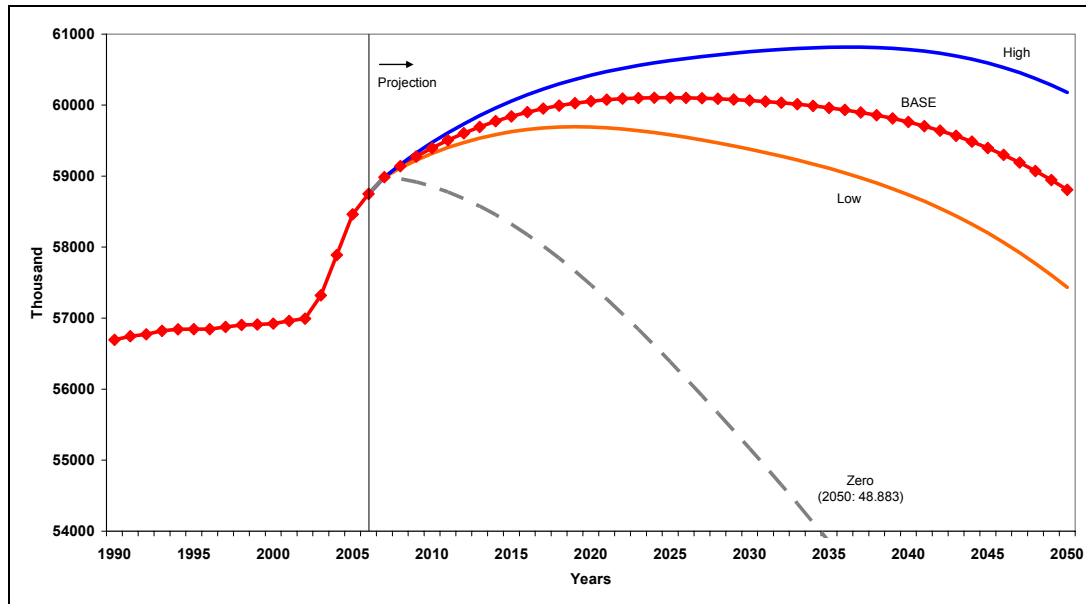
As regards the working-age population, the projected demographic factors involve a considerable reduction in its consistency. The 38.9 millions of persons in 2006, equal to 66.2% of the overall population, will drop to 38.2 millions in 2020, registering an average decreasing rhythm of -1.2 per thousand. A second decreasing phase will follow the first one and will continue so until 2050. It will register a more sustained average annual decreasing rate (-6.3 per thousand), leading to a loss of 6.5 millions of persons: 31.6 millions of persons aged between 15 and 64, equal to 53.8% of the total, which, economically speaking, will have to sustain 19.7 millions of persons aged 65 and over and 7.4 millions of teenagers aged 14 and less.

4.2 Alternative scenarios: Low, High and Zero

Based only on the different projections of the migratory flows, the projected total population already differs in the first simulation years of the alternative scenarios (Figure 2). After 10 projection years, the total population will indeed oscillate from a minimum of 59.7 millions in the Low scenario to a maximum of 60.1 in the High scenario. This difference is rather significant (490 thousand units) compared to what we could project using alternative assumptions also for fertility and mortality. Hence, it shows the impact international migration has already right after the jump off year. In the Zero scenario, the absence of migration flows entails a loss of about 580 thousand persons between 2006 and 2016, thereby confirming the importance of this component. In the mid and long term, the gap between the alternative assumptions increases even further. The difference in population between the High and Low scenarios exceeds one million of persons in 2025, two millions in 2040 and 2.7 millions in the last projection year. As the years go by, the Zero scenario seems ever less sustainable. Given the fertility and mortality assumed, the population drops to less than 58 millions in 2018, 57 millions in 2023, and 56 millions in 2027. At such pace, registering a loss of 1 million persons every 4 years until 2039 (52.7 millions) and 1 million every 3 years until 2048

(49.7 millions), in 2050, the population will amount to 48.9 millions, with a loss of 9.9 millions of persons compared to the jump off year.

Figure 2: *Total population at 1 January 1990-2050 – ALL SCENARIOS*



The year in which the population reaches a point of no return differs among the various assumptions. While the Zero scenario registers a constant loss of population, in the other ones, the population first increases before registering a subsequent decreasing period. Higher is the extent of international migration, longer will the first of these phases be and vice-versa. In the High scenario, the population increases until 2036, reaching 60.8 millions at an average annual increase rate of 1.2 per thousand. In the remaining period, between 2036 and 2050, it drops to 60.1 millions at an average decreasing rate of 0.8 per thousand. The Low scenario projects the point of no return in 2019, when the population drops to 59.7 millions, on the increase compared to the jump off year at a rate of 1.2 per thousand a year. The gain obtained during the first phase is completely annulled during the second one; the population trend concludes with a decreasing phase until finally reaching 57.4 millions, 1.3 millions less than the population at the jump off year.

Such articulated context, however, does not register real changes in the problem that most afflict Italy's demography, the ageing of its population. The incentive of the international migrations surely is efficient though it only contains the problem without really resolving it. Based on the conditions here hypothesised, the incidence of the elderly on the population appears still on the increase. The percentage of people aged 65 and over rises from 19.7% in 2006 to 33.1% in 2050 in the High scenario and to 34% in the Low scenario. The difference with the Zero scenario is rather significant as, in the latter, it rises to 37.8%. Considering the perspective that at least 1 person out of three will be aged 65 and over, minors under 14 years of age will not exceed 1 out of 8: from 14.1% in 2006 to 12.7%, to 12.5% and to 11.8% in 2050 according to the High, Low and Zero scenarios respectively.

Table 3: Age composition (%) of the population 2006-2050 – LOW SCENARIO

	2006	2010	2020	2030	2040	2050
0-14	14,1	13,9	13,3	12,4	12,4	12,5
15-39	32,8	30,5	26,3	25,6	24,9	24,3
40-64	33,3	35,1	37,3	34,9	30,4	29,1
65-84	17,6	17,7	19,3	22,4	26,4	26,1
85+	2,1	2,7	3,8	4,7	5,9	7,9
Total	100,0	100,0	100,0	100,0	100,0	100,0
Total (millions)	58,752	59,320	59,691	59,380	58,738	57,433

It is important to bear in mind that the introduction, in the population, of the number of immigrants necessary to somehow contrast the effects of ageing requires a very high contingent, well above any policy aimed at programming this phenomenon. For example, to maintain constant at 66.2% the percentage of the working-age population between 2006 and 2007 requires over 690 thousand net migratory flows with an age composition as observed on average between 2000 and 2003.

Table 4: Age composition (%) of the population 2006-2050 – HIGH SCENARIO

	2006	2010	2020	2030	2040	2050
0-14	14,1	13,9	13,4	12,6	12,6	12,7
15-39	32,8	30,6	26,6	25,9	25,3	24,7
40-64	33,3	35,0	37,1	34,9	30,6	29,5
65-84	17,6	17,7	19,1	22,0	25,8	25,5
85+	2,1	2,7	3,8	4,6	5,7	7,6
Total	100,0	100,0	100,0	100,0	100,0	100,0
Total (millions)	58,752	59,474	60,421	60,751	60,784	60,181

While the elderly population is increasing, with all its consequences, the working-age population is progressively decreasing: from 66.2% in the jump off year to 54.2% in 2050 in the High scenario, to 53.4% in the Low scenario and to 50.4% when no foreign movements are registered. The decrease in the working-age population in favour of the extreme age classes is also rather significant in the High scenario, which leads to a less problematic demographic configuration thanks to the higher weight of the population aged less than 14.

Table 5: Age composition (%) of the population 2006-2050 – ZERO SCENARIO

	2006	2010	2020	2030	2040	2050
0-14	14,1	13,9	13,1	11,8	11,7	11,8
15-39	32,8	30,2	25,2	24,4	23,6	22,5
40-64	33,3	35,2	37,8	34,9	29,3	27,8
65-84	17,6	17,9	19,9	23,8	28,8	28,6
85+	2,1	2,7	4,0	5,0	6,6	9,2
Total	100,0	100,0	100,0	100,0	100,0	100,0
Total (millions)	58,752	58,855	57,469	55,165	52,407	48,883

In absolute terms, the decrease in the working-age class population during the projection period involves a loss of 6.3 millions of persons in the most favourable

hypothesis, and 8.2 in the Low scenario. Thus, while the difference seems rather thin between the two scenarios in percentage terms (the elderly dependency ratio is of 61% and 64% respectively), it becomes much more relevant in absolute terms. In particular, the working-age class will mainly be asked to ensure the economic wealth of the country, guaranteeing their own income levels and those of the persons receiving some assistance (the young ones and the elderly).

5. Conclusions

Considering these results, the comparison of today's demographic indicators with those for the future shows how migrations could partially contain the ageing effect, though without resolving it. If we exclude the assumption of null migrations and reason based on the plausible hypotheses, the simulations highlight a weak sensitivity of migrations on the future composition of the population. Whatever the situation will be, the elderly segment of the population will increase while the working-age population will decrease. Such reflection must induce us to consider that an important net migratory flow (150-200 thousand per year) is certainly important for a country such as Italy but cannot be sufficient by itself. For example, we must sustain the hypothesis according which the fertility will rise compared to the current ratio, though this study has not directly dealt with such possibility.

The topic of population ageing is surely not new, not only to scholars but also to the public opinion. Its consequences have been object of study for years now, even in non-demographic sectors. Everywhere, it seemingly does not constitute a problem by itself but, if anything, a benefit as it allows an increasing number of persons to reach the older life phases. Nevertheless, the present context requires urgent measures to contrast these society changes. Among the various possibilities, the projections strongly highlight the necessity to take measures in the social welfare system, in the issuing of services to the people, and for the improvement of the functioning aspects of the society itself. For example, a country like Italy should make the utmost to provide more support to fertility, to increase the female participation on the labour market, and to effectively reconcile maternity needs with work. Last but not least, it is necessary to strengthen the integration policy of foreigners, considering the perspective of a stronger presence in Italy.

References

- Billari F.C., Philipov D., Baizán P. (2001) Leaving home in Europe: the experience of cohorts born around 1960, *Max Planck Institute for Demographic Research*, WP 14, May 2001.
- Bonifazi C. (1994) Size and characteristics of foreign immigration in Italy, *Labour*, Vol. 8, No. 1, Spring 1994, 173-90, Cambridge, Massachusetts/Oxford, England.
- Burgio A., Frova L. (1995) Projections de mortalité par cause de décès: extrapolation tendancielle ou modèle âge-période-cohorte, *Population*, 50(4/5), 1031-1052.
- Caselli G., Vallin J., Marsili M. (2006) How useful are the causes of death when extrapolating mortality trends. An update, in *Perspectives on mortality forecasting*, Bengtsson T. and Christensen K. (Eds), Social Insurance Studies, 4, Swedish Social Insurance Agency.

- Consiglio Nazionale dell'Economia e del Lavoro (2003) Maternità e partecipazione delle donne al mercato del lavoro tra vincoli e strategie di conciliazione, *Documenti*, 49, Roma, 2 dicembre.
- De Santis G., Maltagliati M. (2001) Child-cost estimates: the great leap forward, Workshop on *Low fertility in Italy: between economic constraints and value changes*, Firenze, Dept. of Statistics 8-9 November.
- Economic Policy Committee (2001) Budgetary challenges posed by ageing populations: the impact on public spending, health and long-term care for the elderly and possible indicators of the long-term sustainability of public finances, *Directorate General for Economic and Financial Affairs of the European Commission*, Brussels. (http://europa.eu.int/comm/economy_finance/epc_en.htm).
- ERA (2007) Mortalità evitabile per genere e Usl – Atlante 2007, *Gruppo di lavoro ERA Epidemiologia e Ricerca Applicata*, Roma, 15 maggio.
- Golini A. (1996) International population movements: imbalances and integration, in: *Resources and population: natural, institutional, and demographic dimensions of development*, Colombo B., Demeny P., Perutz M.F. (Eds), 286-302, Clarendon Press: Oxford, England.
- Huisman C. and Tabeau E. (1999) Harmonised projections of overall and cause-of-death specific mortality: A study of six European countries, *Joint ECE/Eurostat work session on demographic projections*, Perugia, Italy, May 3-7, 1999.
- Istat (1997) La fecondità nelle regioni italiane. Analisi per coorti. Anni 1952-1993, *Informazioni*, 35.
- Istat (2005) Gli stranieri in Italia: gli effetti dell'ultima regolarizzazione, *Statistiche in breve*, 15 dicembre 2005. (http://www.istat.it/salastampa/comunicati/non_calendario/20051215_00/).
- Istat (2006) Natalità e fecondità della popolazione residente: caratteristiche e tendenze recenti - Anno 2004, *Nota informativa*, 1 agosto 2006. (http://www.istat.it/salastampa/comunicati/non_calendario/20060801_00/).
- Istat (2007) La situazione del Paese nel 2006, *Rapporto Annuale*, Capitolo 6, Immigrati e nuovi cittadini, Roma, 23 maggio.
- Lesthaeghe R. (1995), The second demographic transition in western countries: an interpretation, in Mason K.O., Gensen A.M. (a cura di), *Gender and family changes in industrialized countries*, Oxford, Clarendon Press.
- Martens W. J. M. (1998) Climate change, thermal stress and mortality changes, *Social Science & Medicine*, Volume 46, Issue 3, February 1998, Pages 331-344
- Samet J. M. and Katsouyanni K. (2006) Air Pollution and Health: A Combined European and North American Approach (APHENA), *Epidemiology*, Volume 17, Number 6 Suppl, November 2006.
- United Nations (2001) Replacement Migration: Is It a Solution to Declining and Ageing Populations?, *Population Division Department of Economic and Social Affairs United Nations Secretariat*, ST/ESA/SER.A/206, United Nations Publication.