

DEMOGRAPHIC INDICATORS | YEAR 2021

Demographic development on the way to settle down

Population drop by 4.3 per thousand on annual basis: an improvement compared to the -6.8 per thousand achieved in 2020.

Birth rate at an all-time low, high mortality but falling on 2020: 7 newborns and 12 deaths per thousand inhabitants.

Migration flows with abroad are recovering: the net balance is +157 thousand, equal to 2.7 per thousand inhabitants, about doubled on 2020 and higher than in 2019.

Mean age of the population on the rise: 46.2 years as of January 1, 2022.

1.25

the total fertility rate

From 1.24 in 2020

82.4 years

the life expectancy at birth

A 3 months growth on 2020

+5.9%

the amount of changes of residence between Municipalities compared to 2020

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The pandemic loosens but does not remove the stranglehold on demography

The year 2021 returns an overall picture in which the pandemic continues to produce effects on demographic behavior, although not at the level of the previous year¹. On the most direct component, that of mortality, 709 thousand deaths were found in the year, 4.2% less than in 2020 for a rate of 12 per thousand. Of these deaths, approximately 59 thousand are due to mortality from and with Covid-19, as ascertained by the *Integrated National Surveillance System* coordinated by the ISS.

The gradual easing of measures regarding mobility, which in 2020 had effectively frozen the labor and housing market, has allowed for a substantial increase in migration both abroad and between municipalities. There were 286 thousand registrations from abroad, registering an increase of 15.7% on 2020. Cancellations for abroad, in total 129 thousand, on the other hand suffer a slowdown of 19% on the previous year. The resulting net migration is +157 thousand (2.7 per thousand inhabitants), similar to that recorded in 2019 when there was still no trace of the pandemic.

Among the positive elements, there is a substantial return to the desire to form a family through conjugal union. After the pandemic lock of 2020, 179 thousand weddings were celebrated in 2021, with a growth of 85% on the previous year.

What does not show any deviation from the current trends is the birth rate. The number of 399 thousand newborns in 2021 represents another negative historical milestone. Since the reproductive intentions of couples took place mainly in 2020, the effects of the lockdown were associated with the more than consolidated national issue of low fertility, generating even more uncertainty in family planning choices.

The pandemic factors combined with long-standing national demographic issues, including the persistent maintenance of fertility at minimum values, have thus determined also in 2021 a very negative natural balance. After the record figure of -335 thousand units in 2020, in 2021 it went to -309 thousand thus making a faint memory appear, it was 2006, the last time in which there was a substantial balance between births and deaths.

In this context, net migratory flows with foreign countries, although they returned to being largely positive in 2021, are far from being able to counterbalance the loss of population due to natural causes, as occurred in the first decade of the 2000s and in the first part of the second up to 2013.

On the sidelines of the national framework, but with substantial effects, the demographic behavior that emerged in 2021 also entails, under various profiles, a growth in territorial inequalities.

NATURAL BALANCE AND NET MIGRATION

Italy, Years 2004-2021, thousand

Years	Natural	Migration	Years	Natural	Migration	Years	Natural	Migration
2004	16	416	2010	-26	284	2016	-142	45
2005	-13	258	2011	-47	204	2017	-191	62
2006	2	220	2012	-79	251	2018	-193	72
2007	-7	498	2013	-86	155	2019	-214	153
2008	-8	427	2014	-96	45	2020	-335	88
2009	-23	293	2015	-162	30	2021	-309	157

Source: Istat, Ricostruzione della popolazione (2004-2018), Censimento della popolazione (2019-2020), Bilancio demografico annuale (2021, provisional).

More than 250,000 residents lost in one year

The resident population has been steadily decreasing since 2014 when it was 60.3 million. As of January 1, 2022, according to the provisional data, the population drops to 58 million 983 thousand units. Over 8 years the cumulative loss is equal to 1 million 363 thousand. Of this total amount, the demographic behaviors that emerged in 2021 are responsible for a decrease of 253 thousand units.

The resulting relative variation of the population is therefore equal to -4.3 per thousand, significantly improved compared to 2020 (-6.8 per thousand). Broken down into the individual components, the population variation is due to a net migratory balance with foreign countries equal to +2.7 per thousand, to a natural replacement balance equal to -5.2 per thousand and, finally, to the ordinary alignment operations and revision of the population registries responsible for a -1.7 per thousand.

In a trend framework where territorial inequalities are once again evident, the demographic crisis affects mostly the South (-6.5 per thousand) and, in particular, regions such as Molise (-12 per thousand), Basilicata (-9.5) and Calabria (-8.6), increasingly on the verge of being involved in a situation from which it seems difficult to get out.

There are 34 out of 38 provinces of the South having an annual population change worse than the national one (-4.3 per thousand). Only in this geographic area there are situations, as many as 9 provinces, where the relative reduction has a double figure. They range from -10.6 per thousand found in the Province of Oristano to -15.4 per thousand in that of Isernia, with important centers in between, such as Nuoro, Campobasso, Enna, Potenza, Benevento, Caltanissetta and Crotona.

Life expectancy in partial recovery but with wide inhomogeneity on the territory

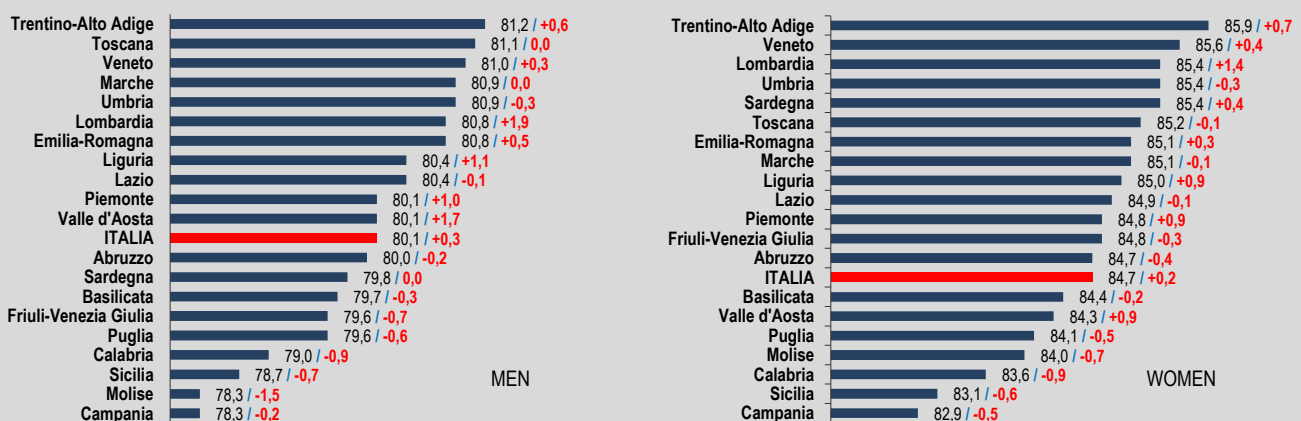
Life expectancy at birth in 2021 is estimated at 80.1 years for men and 84.7 years for women. Without gender distinction, however, it is equal to 82.4 years. The estimates, therefore, show a recovery compared to 2020, which can be quantified in 4 months of life more for men and in about 3 for women. With respect to the pre-pandemic period, however, the gap remains substantial. Compared to 2019, for example, men have an 11 months loss in terms of life expectancy at birth, women of 7.

In the North life expectancy at birth, without gender distinction, is equal to 82.9 years, thus recovering 11 months of survival over 2020. In order to absorb the gap with 2019 still 7 months remain to be recovered. Moreover, in some Northern regions, the recovery achieved in just one year is considerable, for example in Lombardy where, thanks to a total life expectancy at birth of 83.1 years, 20 of the 27 months lost in 2020 are recovered. On the other hand, Friuli-Venezia Giulia is an exception. Here life expectancy at birth falls by a further 6 months in addition to the 10 already lost in 2020.

No single region of the Center shows room for improvement in the course of 2021. On the contrary, with 82.8 years of total life expectancy at birth, this geographic area taken as a whole results in a loss of an additional month of life in addition to the 7 already lost in 2020.

FIGURE 1. LIFE EXPECTANCY AT BIRTH BY GENDER AND REGION

Year 2021 and difference with 2020 (red figures), in years and tenths of year, estimate.



Source: Istat, Tavole di mortalità della popolazione residente (2020), Sistema di nowcasting per indicatori demografici (2021).

The excess mortality moves to the South

In 2021 there is an increase in territorial heterogeneity, in the form of an increase in the survival distances between the North and the South. In this latter geographic area, in fact, the total life expectancy at birth drops to 81.3 years, highlighting a loss of 6 months which are added to the 7 months already lost in 2020.

A possible explanation behind the phenomenon concerns the propagation times of the pandemic. The first wave of 2020 saw mainly the North affected, while the South began to be more involved only starting from the second wave, that is, in the last part of the year. Then, it is likely that the most fragile people living in the North paid the price of life mainly in 2020, those of the South in 2021, with the third and fourth waves.

From this latter point of view, the case of many provinces in the North-west is exemplary, the most affected by the first pandemic wave, which in 2021 achieve extraordinary recovery of survival. The province of Bergamo, for example, recovers 43 out of 44 months of life expectancy lost in 2020. On the same model there are the cases of Cremona (37 out of 44), Piacenza (31 out of 39) and Lodi (31 out of 44).

On the contrary, many areas of the South that in 2020 were minimally or at all affected by the pandemic, in 2021 retreat by many positions. Enlightening is the case of the province of Agrigento, where in 2021 life expectancy at birth drops by 19 months after a gain of one month in 2020. In a similar way, the province of Caltanissetta shows a 14 months loss in 2021, after a gain of 2 more months in 2020. There are also areas showing a worsening of survival in 2021, after a critical condition already emerged in 2020. For example, the province of Campobasso, with 15 months lost in 2021 in addition to the 11 already lost the year before, and the province of Enna with 13 months of loss in addition to the 11 left in 2020.

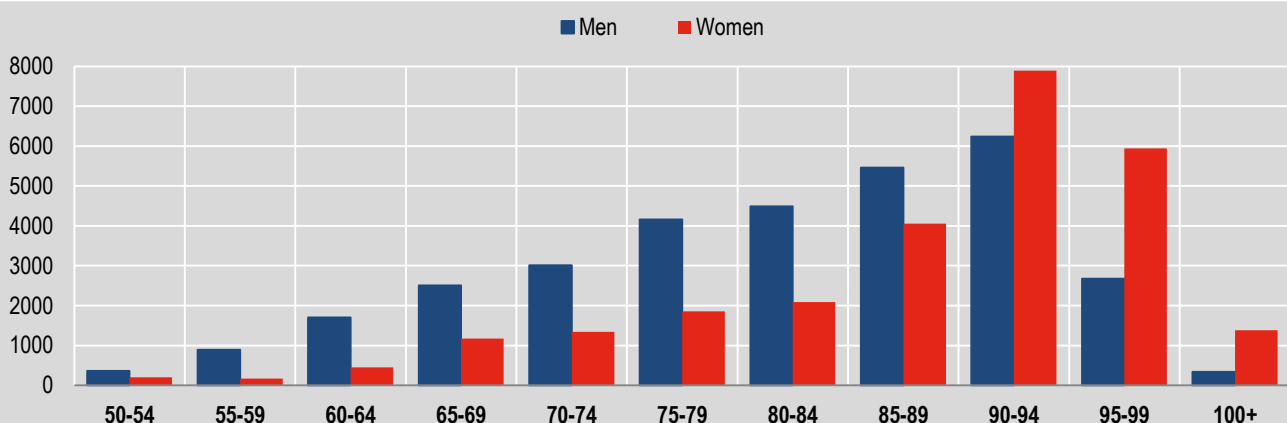
A further key to understanding these trends is that related to the vaccination rate. According to the data made available by the “extraordinary Commissioner for the Covid-19 emergency” on the delivery of vaccines, it appears that as of 31 December 2021 86.7% of the vaccinable population would have received at least one dose, 83.3% also one second and, finally, 36.2% also the additional booster dose².

The vaccination rate in the Country, however, is diversified, particularly with reference to second and third doses. In the North, the second dose vaccination rate is 84.2% against 81.6% in the South. For that referable to the booster dose, the South stops at 33% while the North stands at 37.9%.

On a regional basis, the latter indicator shows relatively lower values in Sicilia (25.9%) and Calabria (30%). Among the northern regions, the fact that life expectancy in Friuli-Venezia Giulia has further reduced during 2021 can be related to the fact that in this region there is a lower vaccination rate with reference to the third dose (33%).

FIGURE 2. EXCESS MORTALITY BY GENDER AND FIVE-YEAR CLASS OF AGE

Year 2021, absolute values, estimate.



Source: Istat, Sistema di nowcasting per indicatori demografici.

The excess of mortality has affecting more men and elderly

According to the *Integrated National Surveillance System of the ISS*, 58,705 deaths due to Covid-19 were recorded in 2021, down from 77,165 in 2020³. However, in 2020 a minimum additional amount of deaths (16 thousand) may be attributed to other concurrent pathologies or to a partial under-coverage of fatal Covid-19 cases. This count, which overall gives rise to a 93 thousand units excess of mortality in 2020, can be inferred by assuming constant death risks equal to those observed in 2019 (647 thousand deaths expected against 740 thousand recorded)⁴.

By applying the same calculation method to the 2021 data, a general picture of survival improvement clearly emerges, as already documented through the previous analysis on general total mortality and life expectancy. In fact, with death risks equal to those of 2019, in 2021 the deaths would have been 651 thousand. The ascertainable surplus, compared to the 709 thousand total deaths, is therefore equal to about 58 thousand cases, roughly the same amount of death events attributed to Covid-19, without further surplus as occurred in 2020.

Around 32 thousand out of 58 thousand units estimated as excess mortality are men while 26 thousand are women, confirming that the pandemic is fatally affecting the male gender above all. Broken down by age, excess human losses are all concentrated after the age of 50 and are greater with advancing age. There is an excess of mortality in the most fragile ages, which for men mainly affects the 80-94 age group (over 16 thousand more deaths), while for women the excess prevails in the 85-99 age group (around 18 thousand).

At the national level, the excess mortality represents 8% of the total mortality found in the year (it was 13% in 2020), but the situation is diversified on a territorial level. In the North it represents 7%, in the Center 8% and in the South 10% of the total. At a regional level, the values vary from 5% in Liguria to 17% in Molise, confirming a literally reversed image compared to 2020.

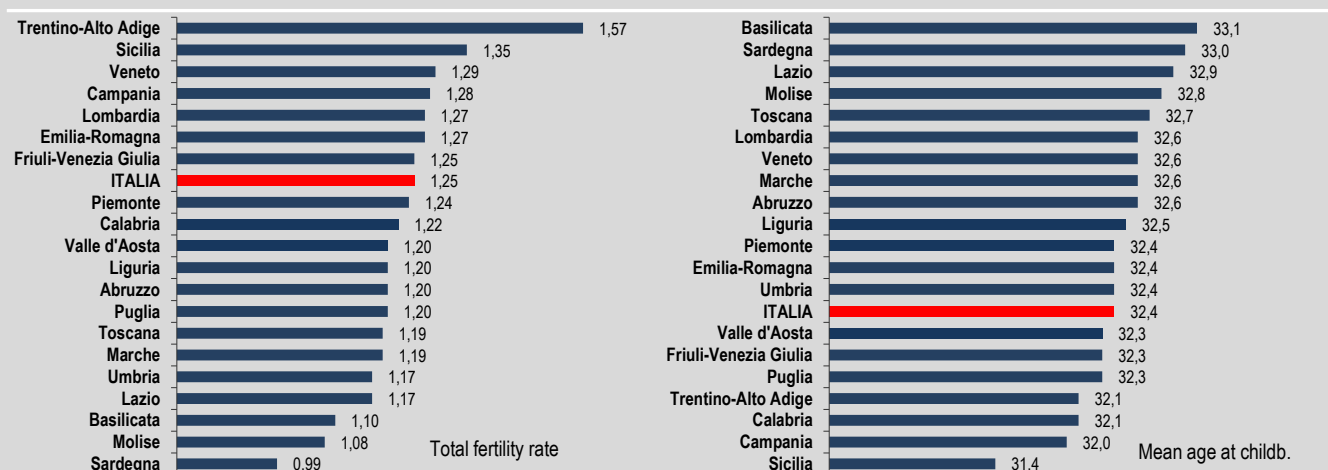
Psychological impact from Covid-19 and structural factors affect live births

Covid-19, together with the forced restrictions on residential mobility and the marital market, produced a specific psychological impact in 2020 (at least starting from March) which had consequent effects on the reproductive choices completed in 2021.

In addition to this factor, if women had procreated with the same intensity and with the same fertility calendar as in 2019, when 420 thousand live births were recorded, about 405 thousand would have been observed in 2021, instead of 399 thousand⁵. Therefore, the only structural effect linked to the aging process of the female population in childbearing age leads to a reduction, for the same reproductive calendar, of at least 15 thousand live births. The further decline of 6,000 live births on 2020 is instead the result of the real contraction of reproductive levels expressed, on which the pandemic effects have inevitably played a role.

FIGURE 3. MAIN FERTILITY INDICATORS BY REGION

Year 2021, estimate, total fertility rate and mean age at childbearing (in years and tenths of year).



Source: Istat, Sistema di nowcasting per indicatori demografici.

Signs of a recovery in the birth rate at the end of the year

Despite a further decline in live births the total fertility rate in 2021 stood at 1.25 children per woman, therefore registering a slight increase compared to 1.24 in 2020. This is due, as mentioned, to the dimensional and structural deficit of the female population of childbearing age, which decreases over time and has an increasing mean age.

Looking ahead, in order to counter the persistent low birth rate, the country would need not only to have many more children than it normally does, but also to increase the potential base of those who could have them. Also because having children is increasingly representing a postponed choice and, as such, reduced compared to the number of children ideally desired. The mean age at childbearing has reached 32.4 years (+0.2 on 2020), a parameter that has been regularly increasing for a long time (30.5 in 2002).

Even at the territorial level, the annual variations in fertility are modest, although it should be noted that in the North and Center the total fertility rate increases, respectively, from 1.27 to 1.28 and from 1.17 to 1.18. On the other hand, the South remained stable at 1.24 children per woman, as in 2020. Too early and too little to be able to assess, as for mortality, the evidence of an accentuation of territorial differences in fertility. However, the circumstances of many regions of the South (except Campania and Sicily) well below the fertility expressed at national level remain solid. In particular, Basilicata (1.10 children per woman), Molise (1.08) and Sardinia (0.99) remain firmly anchored on the replacement value of the mother alone (i.e. one child per woman) more than on the one that allows to match the pair of parents.

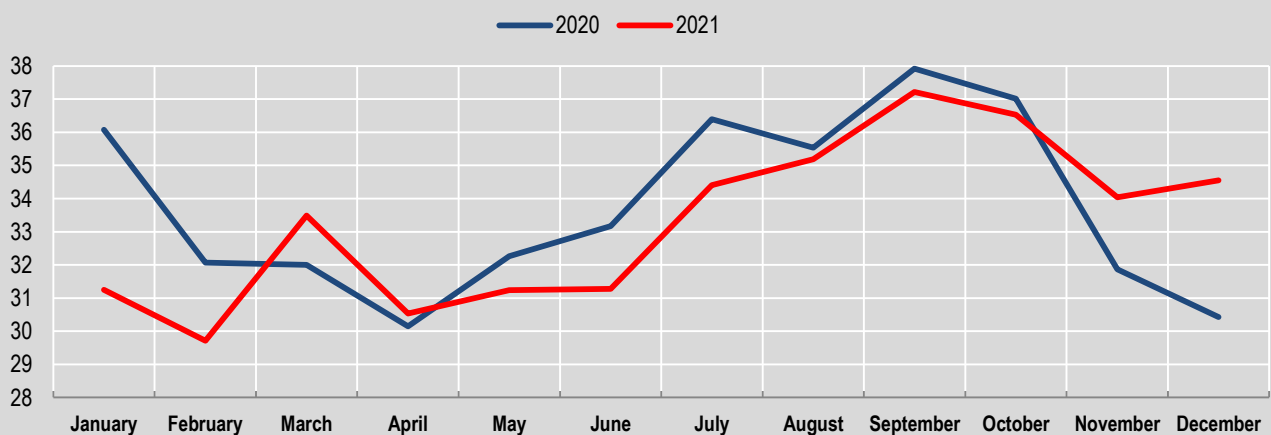
The choice to postpone the decision to have children forward is common to all regions. New mothers in the North and Center, with mean age at childbearing of 32.5 and 32.8 years respectively, continue to have an age profile older than the one observed in the South (32 years). Nonetheless, precisely in this latter geographic area most aged new mothers find place, namely Sardinian (33 years) and Lucanian (33.1).

Signs of recovery come from nuptiality. In 2021 a back to normality is observed, thanks to 179 thousand celebrations (3 per thousand inhabitants), that follow the almost forced lock of 2020 when there were just 97 thousand (1.6 per thousand). The last year observed amount of marriages is not precisely similar to that of 2019 (184 thousand) but certainly it is in line with the trend that emerged in the years preceding the pandemic, which in particular sees regular reductions (from 270 thousand in 2002) in the most important way in the country of starting a family.

Given the positive link between nuptiality and reproductive intentions, considering that at least two thirds of births in the country still originate within the marital nucleus, the resumption of nuptiality in 2021 could imply a partial recovery of births in the course of 2022. In reality, first signs, albeit timid, of recovery can already be seen in the last part of 2021. In November and December 2021 about 69 thousand live births were recorded, 10% more than in the same period of 2020.

FIGURE 4. LIVE BIRTHS BY MONTH

Years 2020-2021, thousand.



Source: Istat, Censimento della popolazione (2020), Bilancio demografico annuale (2021, provisional).

Migration is restarting

In 2021, both internal and international migrations are on the rise after in 2020, due to the pandemic, they were held back by the prescription of barriers to entry to national borders and by the limitations imposed on internal movement.

Immigration from abroad grew by 15.7% over 2020 (from 248 thousand to 286 thousand), but are 14% lower than in 2019 (333 thousand). Emigration for abroad, on the other hand, drop by 19% on 2020 (from 160 thousand to 129 thousand) and by 27.9% on 2019 (180 thousand).

Waiting for more in-depth analysis, there are for the moment three possible interpretations at the basis of the recent conjuncture of international migrations with Italy. The first, more obvious and also valid for the revival of internal migration, takes into consideration the economic recovery and the growth of employment. The second, the high level of welfare of the country compared to the framework of international uncertainty in the fight against the pandemic. Both elements that may have led people to consider Italy as a country of refuge, not to be abandoned for those who are already resident there or to be considered as a possible destination for a potential migrant.

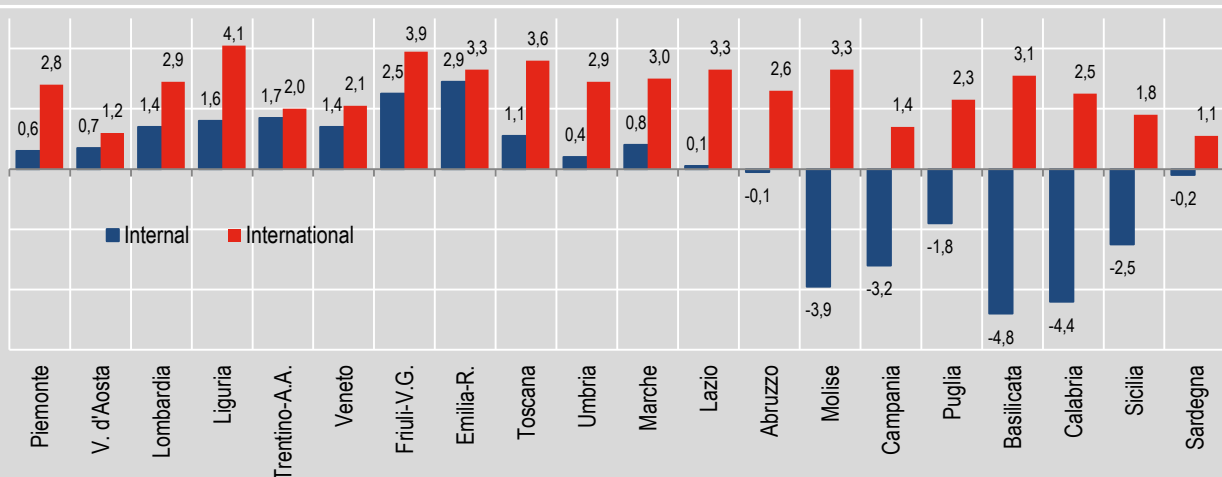
A third key to understanding concerns the issue of very restrictive policies by the British government in releasing of entry visas to the United Kingdom, at the conclusion of the transition process that led to Brexit. This element could, on the one hand, have slowed down emigration from Italy to that country (especially of Italian citizens), and on the other hand, have made Italy rise in the ranking of destinations favored by migrants.

The net migration with foreign countries rises to 2.7 per thousand inhabitants, from 1.5 per thousand in 2020, thus also being higher than that found in 2019 (2.6 per thousand). The increase in net migration flows over 2020 affects all areas of the country, both the North (1.7 to 2.9 per thousand) and the Center (from 2.3 to 3.3 per thousand) and the South (from 0.7 to 1.9 per thousand).

The regions with most lively dynamics for international migrations are Liguria (4.1 per thousand) and Friuli-Venezia Giulia (3.9 per thousand) but the one with the greatest increase in the net migration rate is Molise (from 0.7 to 2.6 per thousand).

Among the regions which, despite having a positive net migration in 2021, are still not able to fully reabsorb the difference compared to the pre-pandemic period, only the regions of the Center-North are included (Piemonte, Valle d'Aosta, Lombardia, Veneto, Liguria, Emilia-Romagna, Toscana, Umbria and Lazio). All the others, on the other hand, including Trentino-Alto Adige, Friuli-Venezia Giulia and Marche for the Center-North and all the regions of the South, have net migration levels even higher than those of 2019.

FIGURE 5. NET INTERNAL MIGRATION AND NET MIGRATION WITH FOREIGN COUNTRIES, BY REGION
Year 2021, per thousand inhabitants.



Source: Istat, Bilancio demografico annuale (provisional).

Stable migratory dynamics between North and South

One of the various signs of a return to normality is the resumption of residential mobility within the country. After the sharp retreat that emerged in 2020, when 1 million 334 thousand changes of residence were recorded between Municipalities, 10% less than in 2019, in 2021 the Country returns to well exceed 1 million 400 thousand, which is a level still not entirely in line with those pre-pandemics (with respect to which there is a difference of 4.9%) but not far from these.

In 2021 there are still internal migratory movements unfavorable to the South. In this context, 389 thousand individuals left a southern municipality during the year to move to another Italian municipality (possibly even in the same South), while 339 thousand people elected a municipality in the South as a place of habitual residence (possibly also coming from another municipality of the same South). This trend generated, for the geographic area as a whole, a negative balance of 49 thousand units (-2.5 per thousand inhabitants). Among the various regions of the South, the situation is more unfavorable in Basilicata (-4.8 per thousand) and Calabria (-4.4 per thousand), followed by Molise (-3.9 per thousand) and Campania (-3.2 per thousand).

The regions of the North, where overall there is a rate of +1.6 per thousand, remain those with greater attractiveness, compared to those of the Center, which overall registers a +0.5 per thousand. The most attractive regions are Emilia-Romagna (+2.9 per thousand) and Friuli-Venezia Giulia (+2.5 per thousand).

Making a comparison with the previous year, interregional migratory balances emerge as not too dissimilar, despite the growth in the overall volume of transfers. The North, for example, presented in 2020 a rate equal to that of 2021 (+1.6 per thousand), the South presented only a slightly better one (-2.4 per thousand) while only the Center shows a growth in net migration flows (from +0.3 to +0.5 per thousand).

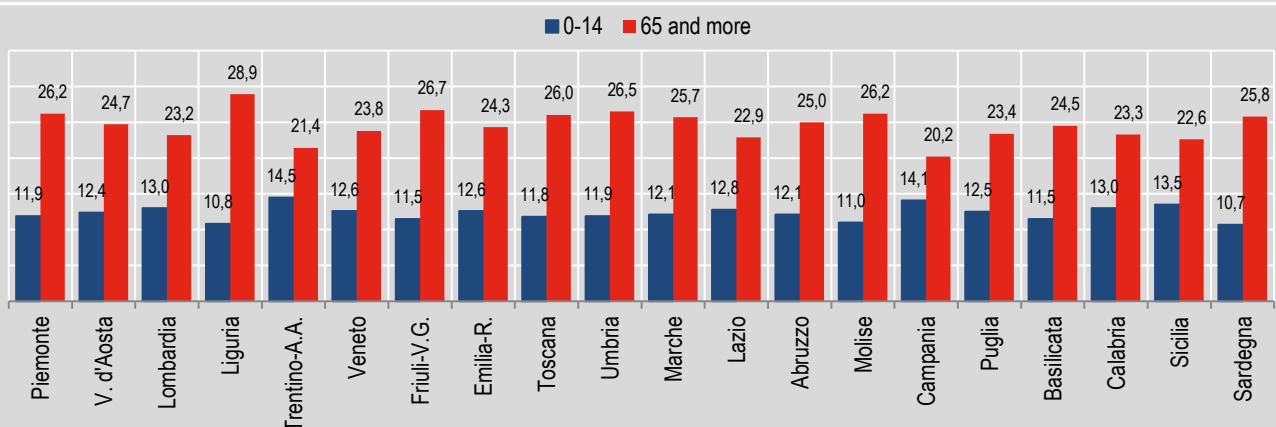
This could lead to suppose, waiting for the definitive data through which it will be possible to read the origin and destination trajectories, that the year was mainly characterized by a strong growth in medium-short-range residence transfers (i.e. intra-regional and intra-provincial).

Population does not stop aging despite the pandemic

The mean age of the population passes, between the beginning of 2021 and the beginning of 2022, from 45.9 to 46.2 years. Therefore, in relation to a permanent regime of low fertility, as well as to the fact that people are living longer, the structure of the population continues its progressive slide towards the senile age, even in a historical phase such as the current one, characterized by the presence of a pandemic with heavy lethal consequences for the survival of the elderly population.

FIGURE 6. RESIDENT POPULATION AGED 0-14 YEARS AND 65 YEARS AND MORE, BY REGION

January 1st 2022, estimate, percentage values.



Source: Istat, Sistema di nowcasting per indicatori demografici.

Over 20 thousand centenarians

The population aged 65 years and more, 14 million 46 thousand individuals at the beginning of 2022 according to estimates (+105 thousand), represents 23.8% of the total population against 23.5% in the previous year. Conversely, both individuals of active age and younger people are decreasing: 15-64 year olds (-198 thousand) drop from 63.6% to 63.5% while children up to 14 years old (-160 thousand) go from 12.9% to 12.7% of the total.

In no region, not even in those with the greatest pandemic impact, the super-mortality of 2021 determines a momentary reduction in the aging process. In the North and in the Center, populations over 65, which respectively grew from 24.1% to 24.3% and from 24.2% to 24.5%, recorded a more contained relative variation than that of the South, although the latter area of the country remains younger on average (from 22.3% to 22.7%).

The pandemic may, therefore, have at most slowed the aging of the population, without which today we would certainly be in the presence of an even older population than it actually is. In this regard, one of the most interesting aspects is the varied evolution of the elderly population, between the pre and post Covid-19 era, when it is analyzed by age groups.

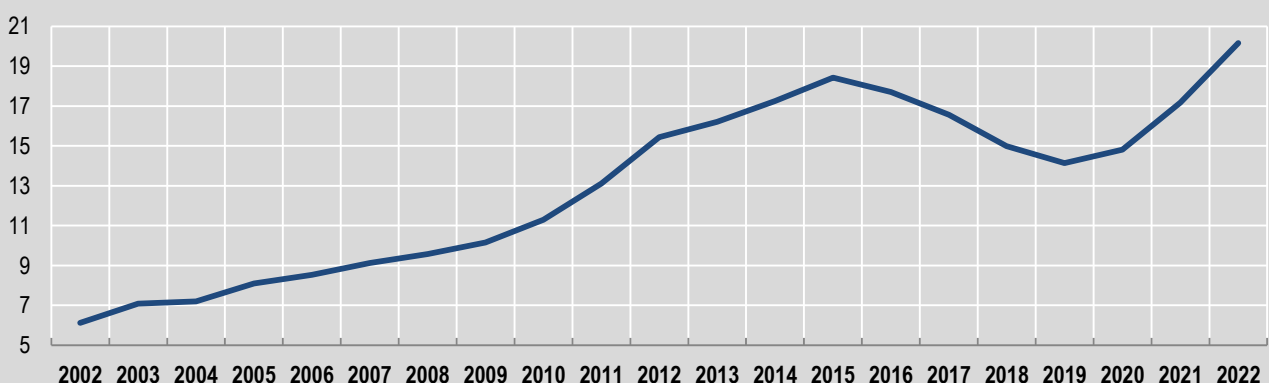
Contrary to what one might be led to believe on a logical level, the most important growth margins are found among the population aged 90 and over and 100 and over, as if these individuals, considered fragile subjects and therefore at great risk of complications after a contagion, possessed greater immunity to Covid-19. Or also, very importantly, the fact that these subjects were among the first to have been vaccinated may have represented a safe protective umbrella for them.

The fact is that the number of centenarians (100 years of age and over) reaches its highest level in 2022, exceeding the threshold of 20 thousand units. After the five-year period 2015-2019, where a temporary decline is due to the entry among the over 100-year-olds of the smallest cohorts born between the outbreak of the first war and the start of the Spanish flu pandemic, in the following years the growth in size it is facilitated by the entry of much more numerous cohorts.

Not only, therefore, the number of centenarians has quadrupled in just 20 years (they were just over 5 thousand in 2002) but, considering what happened only in the last 3 years, their growth is taking on the semblance of an exponential evolution (+ 43%). This specific component of the population is also recording increases not found among any other segment of the population. For example, between the 65-79 year olds the growth recorded between 2019 and 2022 is just +1.5%, while between the 80-89 year olds it reaches +4.3%. More significant is the increase found among 90-99 year olds, equal to +7.4%, which leads to believe it is probable that in the years to come the growth of the centenarians will continue to be strong.

FIGURE 7. CENTENARY RESIDENT POPULATION

Yers 2002-2002, January 1st, thousand



Source: Istat, Ricostruzione della popolazione (2002-2018), Censimento della popolazione (2019-2021), Sistema di nowcasting per indicatori demografici (2022, estimate).

Glossary

Average number of children per woman: the number of children a woman would have if she was subjected to the fertility calendar (in the form of age-specific fertility rates) of a given calendar year during her reproductive life span.

Balance for other reasons: difference between the number of enrolled people and the number of those deleted from the registry of residents due to other reasons. It is a balance between registrations and de-registrations which do not correspond to actual transfers between one municipality of residence and another, but rather to post-census correction operations. As regards the registrations, these are mainly subjects previously canceled due to unavailability and reappeared, or subjects not registered but actually resident. On the other hand, de-registrations for other reasons include subjects canceled as they are no longer resident following a registry check, or subjects who have registered themselves as residents in a municipality without possessing the requisites.

Birth (rate): ratio between the number of live births in the year and the average amount of the resident population, multiplied by 1,000.

Death: the cessation of any sign of life at any time after the vital birth.

Life expectancy at age "x": the average number of years that a person of completed age "x" can count to survive in the hypothesis that, in the course of his subsequent life, he was subjected to the risks of mortality by age (from age "x" up) of the year of observation.

Life expectancy at birth: the average number of years that a person can count to live from birth in the hypothesis that, in the course of his existence, he was subjected to mortality risks by age of the year of observation.

Live birth: the product of conception which, once expelled or completely extracted from the maternal body, regardless of the duration of gestation, breathes or manifests other signs of life.

Mean age: mean age of the population at a certain date expressed in years and tenths of a year.

Mean age at birth: the mean age at birth of mothers expressed in years and tenths of a year, calculated considering only live births.

Mortality (rate of): ratio between the number of deaths in the year and the average amount of the resident population, multiplied by 1,000.

Natural balance: difference between the number of registered live births and the number of those canceled by death from the registry of residents.

Net internal migration (rate): difference between the number of enrolled people due to change of residence from another municipality and the number of those canceled due to change of residence to another municipality (per thousand inhabitants).

Net migration with abroad (rate): the difference between the immigration rate from abroad and the emigration rate with abroad.

Population register (Anagrafe): the continuous system of registration of the resident population. It is continuously updated through registrations for births from parents resident in the Municipality, cancellations due to death of residents and registrations/cancellations for change of residence from/to another Municipality or from/to abroad.

Registration and de-registration for transfer of residence: registration concerns people who have moved to a Municipality from other Municipalities or from abroad; the de-registration concerns people who have moved to another municipality or abroad.

Resident population: constituted in each Municipality (and similarly for other territorial divisions) of people with habitual residence in the Municipality itself. Persons temporarily residing in another Municipality or abroad, for the exercise of seasonal occupations or for reasons of limited duration, do not cease to belong to the resident population.

Total growth (rate of): the sum of the total net migration rate and the natural growth rate.

Total migratory balance: the sum of the migration balance with abroad and the internal migration balance.

Methodological note

The estimates of the main demographic indicators provide, with provincial detail, an updated picture of the demographic situation of the country on: movement of the resident population (live birth, mortality and migration rates), main demographic trends (fertility, life expectancy) and population structure (sex, age, citizenship).

The estimates of the demographic indicators are updated once the final validation process of data takes place.

It should be remembered that the indicators published as estimates are of a provisional nature due to the error associated with them and that the margin of error is all the more significant the more the analysis is articulated on a territorial basis.

Finally, we remind you that the demographic indicators are available on the datawarehouse <http://dati.istat.it> as well as on the thematic site <http://demo.istat.it>.

Objectives and reference framework

The growing demand for statistical information and the need to reduce dissemination times led to the creation, in 2002, by the National Statistical Institute, of a territorial system of provisional estimates. This project, called "Nowcasting system for demographic indicators", has as its purpose the production of "quick" estimates of the main demographic behaviors and structural trends in progress of the Italian population.

The main feature of nowcasts, therefore, consists in the fact that the results are released in a short time compared to the date to which the events and related indicators refer. Therefore, they represent the first official source of the country's demographic trends awaiting their replacement with definitive data.

Contents

Demographic phenomena are characterized by a certain stability over time. They are transformed slowly and gradually and, compared to other social and economic phenomena, present fewer uncertainties. The "Nowcasting system for demographic indicators" project aims to define short-term forecasts, relating to some of the main demographic aggregates and indicators, based on the analysis of the historical series of data available at the time of the estimate.

The aim of the work is to obtain, in a short period of time, information on the latest developments in demographic dynamics through the statistical documentation of the most recent trends, with particular attention to the territorial articulation of the phenomena studied. The results produced concern on the one hand the estimates of the aggregates of the demographic balance components and on the other those relating to the main demographic indicators.

Process and methodologies

For the year 2021, the estimates are produced starting from the analysis of the provisional balance of the resident population (births, deaths, changes of residence) collected through traditional demographic surveys by Istat. Using a specific micro-simulation model with constrained totals, basically based on the general principle of the cohort-component-model, this set of aggregate information is further broken down into the variables of interest (sex, age, citizenship, territory, origin/destination) when not already recorded (as in the case of migratory movements for example, but not of deaths that are already partially known at a disaggregated level). This procedure is necessary in order to calculate the resident population at the end of the year. Once these results have been obtained, it is possible to calculate the various demographic indicators illustrated in the report.

Notes

1. The absolute data mentioned in the report are those already disclosed in the report “La dinamica demografica – Anno 2021”, Statistiche Report, www.istat.it, 14 march 2022, to which reference should be made for further information on a territorial basis. The demographic indicators presented here are partly built on the basis of this information set and partly are the result of estimates. The final data will be disclosed at the end of the year, following the dissemination from the latest permanent census of the population (ref. 31 December 2021).
2. Data on vaccine administrations extracted from <https://github.com/italia/covid19-opendata-vaccini>. The rates were built by comparing the administrations to the resident population aged 11 and over on 1st January 2021.
3. Seventh joint Istat / ISS report, “L’impatto dell’epidemia Covid-19 sulla mortalità totale della popolazione residente, Anni 2020-2021 e gennaio 2022”, Press Release, March 2, 2022.
4. The method is applied separately by gender, age and province of residence to subjects at risk of death. Those exposed to the risk of death in a given area for a specific calendar year are determined starting by considering the individuals resident alive on 1st January net of those who emigrate during the year. The former are exposed to the risk of death, specific by sex and age group, for the whole year. The latter are on average (conventionally) for half a year. To these two contingents must therefore be added the individuals who immigrate to the area, also evaluating for these an average (conventional) exposure to the risk of death of half a year.
5. The simulation is produced by applying, separately by province of residence, the specific fertility rates by age of the mother in 2019 to the average female population of childbearing age in 2021.

For technical and methodological information

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