Istat

ANNUAL REPORT2021

The state of the Nation

Summary

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Introduction

Mister President of the Chamber of Deputies and Authorities, good morning.

Again this year, the presentation of the twenty-ninth edition of the Report takes place in a controlled public setting, reflecting the caution that we all still have to maintain, but against the backdrop of a country that is beginning to return to an almost normal life.

The fresh memory of the emergency forces us to remain aware of the human tragedy we have experienced. However, the recovery of social life and the comforting signs on the economic trend should encourage us to map out the reconstruction and mobilise the human and material resources necessary to achieve it. In both cases, it is necessary to understand and gain a better understanding of the country's situation.

The health emergency and the resulting economic and social crisis have once again made it clear the vital role of statistical information in complex decision-making processes, as a prerequisite for informed and knowledge-based choices. Istat, like the majority of public administrations and most enterprises, faced very critical operational conditions, with most of its staff working remotely. Having started a large-scale project on smart working before the pandemic, however, the Institute was able to quickly recover operations, avoiding discontinuity and reduction in the quality of statistical production.

There have been some difficult moments, especially in responding to widespread requests for timely information on specific aspects of the developing situation, which could be overcome also thanks to cooperation with other administrations and producers of public statistics. The National Register of Resident Population finally worked at full capacity and, a few months after the start of the pandemic, we succeeded in providing timely and reliable information on mortality for all areas of the country, thanks also to the commitment of the Ministry of the Interior and the municipalities. In collaboration with the Ministry of Health, the Institute carried out a seroprevalence survey last summer, which provided information – precious for targeting measures to combat the epidemic – on the spread of asymptomatic people, and the risks associated with various factors such as gender, age, cohabitation, area of residence, coexistence of other diseases and lifestyle.

Thanks to the progress made over the last decade, and to all the staff involved, Istat has been able to face the new demand for information caused by the emergency. In particular, it developed an infrastructure based on the construction of statistical registers and, consequently, on the launch of permanent censuses; such an operation was made possible by the consensus of the Parliament, to which we owe our gratitude. As a result, Istat now has information of an administrative nature on both the population and productive activities. This is a virtuous example of reuse and integration of data from various sources, carried out while fully protecting the confidentiality of sensitive information which is, for us, an essential principle. This also enables the National statistical system to make a qualitative step forward, while at the same time reducing the cost of statistical production and the burden on respondents.

In this regard, the example of businesses may be cited. Using a wealth of pre-existing basic information on the entire population (derived from the integration of tax, social security and budget sources), Istat was able to provide the country with detailed knowledge on all the sectors affected by the restrictive measures during the first period of closure of economic activities. Moreover, starting from the rich information base on the behaviour and economic performance of the business system that resulted from the 2019 Census, in May and November 2020 the Institute was also able to carry out two surveys on a sample of units already used by the Census (just under 50 thousand respondents each), covering specific elements of behaviour during the emergency. This information, made available at an exceptionally fast pace, was subsequently reused to analyse the system's robustness and resilience, an issue that will require continued attention in the near future.

Two *ad hoc* surveys were also conducted on the behaviour of individuals and households, on the daily life and on people's activities during both periods of maximum diffusion of SARS-CoV-2 and of restrictions on mobility and social interaction. These surveys reported on the individual and collective behaviour of Italians, highlighting changes in life times and perceptions. In particular, they focussed on some critical issues, such as school closures and their consequences on family organisation and on students' learning and emotional development. In addition, in order to strengthen the explanatory capacity of the well-being indicators (Bes), new measures were introduced to represent the health crisis and the key lines of the Next Generation Eu programme on digital and green investments.

Population dynamics and health emergencies

The pandemic crisis has had a strong impact on Italy's demographic balance, both due to the direct effects of increased mortality and as a result of changes in reproductive behaviour and in the processes of new household formation.

The year 2020 saw the highest number of deaths since the Second World War: 746,146, *i.e.* over 100 thousand more than the average for the previous five years. The sharpest increase was observed among people over 80, with almost 77,000 more deaths than the 2015-2019 average.

The increase in mortality risk, which has been particularly intense in some areas and for some age groups, has reduced life expectancy at birth by 1.2 years, on a national basis, compared to 2019, thus marking a return to 2012 levels. Men were the worst affected: their life expectancy at birth fell by 1.4 years to below 80 years (79.7), while for women it fell by one year to below 85 years (84.4).

The analysis of the causes of death was deepened by a special procedure that, also thanks to special agreements with the National Health Institute, accelerated the data acquisition and processing phase. This made it possible to accurately assess all the deaths recorded in Italy between March and April 2020, based on the certificates filled in by doctors with details on the place of death and the diseases that caused it.

It was thus possible to ascertain that in the initial two months of the pandemic, of the 49,000 deaths exceeding the average calculated in the same period of the previous five years, the cases directly attributed to COVID-19 were 29,000. It was the leading cause of death among the over-80s and the second leading cause of death, after cancer, for men and women up to the age of 79. During the same period, all the other main causes showed a significant increase in the number of fatal cases: pneumonia and influenza, in particular, contributed over 5,000 more deaths, while another 14 percent was caused by dementia and Alzheimer's disease, hypertensive heart disease and diabetes.

This clearly documents that COVID-19 had an effect not only on directly caused mortality, but also on the remaining causes of death. The increase in deaths from respiratory diseases suggests a possible underestimation of mortality from COVID-19 in the early phase, when it was more difficult to diagnose a new disease; whereas for the other causes an indirect role can be assumed through, for example, the acceleration of existing disease processes.

During 2021, despite the persistent spread of infections during the initial months, the mortality rate gradually decreased: a comparison with the previous year shows a decrease by 23.5 percent in March and 14 percent in April. This average figure reflects different trends in different areas of the country. The North, which in the spring of 2020 experienced a dramatic and sudden rise in the curve of deaths, recorded a decrease by 40 percent in March and by almost 30 percent in April; the Centre and the South and Islands, which were hit above all by the second wave in the autumn of 2020, instead suffered an increase in mortality in April this year by 4.4 percent and 9.8 percent, respectively, compared with the corresponding month of 2020. In general, however, there is a widespread trend towards a return to pre-pandemic levels almost everywhere.

As for the collateral effects produced by the pandemic on citizens' state of health, the organisational shock on the healthcare system, following the unexpected spread of the virus and its aggressiveness, together with people's fear of contracting the infection, led to a significant drop in the use of medical-hospital services. However, it must be considered that this has mainly involved less urgent and serious healthcare services – rehabilitation therapies, examinations – and to a much lesser extent, urgent services for patients with serious diseases or for those requiring early and timely diagnosis. These latter were reduced by 7 percent in 2020 (nearly 2 million fewer services) at national level, compared with an overall decrease of 24 percent (over 6.8 million services).

Postponing medical examinations and therapies is undoubtedly strongly associated with an increase in risks, with consequences on the health of citizens that today are difficult to quantify, especially for preventable pathologies. It is, therefore, appropriate now to implement strong recovery actions, and through an adequate use of the most advanced technologies, reorganise the procedures for services and care provision, with a view to increasing the efficiency of territorial healthcare. These objectives are included in the National Programme for Recovery and Resilience (PNRR), which allocates resources and identifies projects for strengthening healthcare and the territorial healthcare network; it also sets specific quality, technological and organisational objectives to be achieved at a national level.

As regards the demographic trends, the evolution of the population in 2020 and in early 2021 shows how the crisis caused by the health emergency accentuated the trends and structural transformations of a country that has already been living without generational change for decades. Young people in our country are increasingly inclined to delay the transition to adulthood because of the growing difficulties in defining and implementing their life plans. The prospect of economic crisis and uncertainty induced by the pandemic have further prolonged young people's stay with their family of origin. This trend was already traditionally linked to longer education periods, difficulties in entering the labour market, job precariousness, and problems in accessing the housing market. The immediate effects of the fall in migration and the drop in the marriage rate further aggravated the situation.

The restrictions and bans imposed as of last spring have resulted in the number of marriages in 2020 almost halving over 2019, with a loss of over 87,000 marriages, proportionally larger for religious ceremonies and, from a geographical point of view, for those in the South and Islands.

On the birth rate front, the effects of COVID-19 have not affected the events of the first ten months of the year, being almost all the result of pregnancies initiated in the pre-pandemic period. However, it is also true that November-December already began to show signs of this, and the effect of the drop in conceptions during the first wave of the pandemic affected the first two months of 2021.

On the other hand, it should be noted that the birth rate in 2020 was already destined, with or without a pandemic, to fall further, surpassing the record low set in the previous year. The 404,104 births in 2020 marked a new drop of 3.8 percent, which was only partly accounted for by the decline recorded in November and December. This decline surged to almost 30 percent when compared with 2008, the year in which the fall in the birth rate began and has continued unabated until now. In comparison with the same month of the previous year, the first data for 2021 showed a sharp drop in January (-14.0

percent) and a smaller one (-4.7 percent) in February, adjusted for the 2020 leap year effect.

Such reductions could result from a temporary postponement of parenthood plans, even by only a few months due to the emergency. They could, however, also be the consequence of radical choices due to uncertainty, fear and difficulties of various kinds, which could make the delay persist, to the point of finally abandoning the reproductive choice. The slight increase in the number of births observed in March 2021, over the same month in 2020 (+3.7 percent), may be comforting and be interpreted as a recovery of conceptions postponed during the spring. It should be noted, however, that, viewed more closely, it is entirely explained by out-of-wedlock births and is prevalently attributable to mothers with a university degree.

Significant differences in the birth rate are also observed between Italian and non-nationals, confirming the role played by the different degree of income uncertainty and family conditions: in November and December 2020, children born to non-Italian parents decreased slightly more than those born to Italian parents (11.4 percent against 8.8 percent), but the gap then widened to 12.4 percentage points in February. Even the slight recovery in March 2021 compared with March 2020 only concerned Italian births (+5.9 percent), while foreign births continued to fall (-8.3 percent).

The widespread postponement of marriage induced by the emergency is likely to have a dampening effect on conceptions – even if at the moment this is to be understood more as a forecast than as an acquired fact. Since in our country the majority of births take place, even today, within marriage (two thirds in 2019), it is estimated that, failing changes in behaviour, the collapse of marriages observed in 2020 could lead to an estimated reduction of 40 thousand births by 2023. Such a loss can only be avoided by encouraging a readjustment of the marriage and fertility calendar of young couples.

Restrictions on people's mobility, as a necessary response to curb the spread of contagion, reduced population movements within the territory and minimised residential movements abroad. In 2020, compared to the 2015-2019 average, internal residential mobility decreased by 2.8 percent, immigration by 30.6 percent and emigration by 10.8 percent.

The outward migration of young university graduates is, thus, also reduced, with a 5.6 percent drop in 2020 compared to the 2015-2019 average. This is a somewhat alarming trend, although it is difficult to interpret it as a new behavioural pattern. Many of these flows are, in fact, accounted for by movements in the field of postgraduate academic training, which in the pandemic year was mostly based on distance learning. Moreover, many occupations, typically in advanced service professions, were also carried out remotely. Over the last twelve years, the migration of qualified young people grew sharply, and when this choice becomes permanent and there is no equivalent inflow of high-skilled foreigners, the effect on the country's growth potential is negative. During this period, 355,000 young people aged 25-34 officially left Italy, 5.9 percent of the average resident population of this age group, with a higher incidence of university graduates. At the same time, about 96,000 people in the same age group returned home, with a slightly higher propensity for graduates. The corresponding net balance was negative for about 260,000 young people, of whom 76,000 were graduates. In the final analysis, it seems reasonable to assume that, in the context of a structural phenomenon, the trend reversal of the last year is occasional and temporary.

Overall, the persistent and trending decline in births, the extraordinary excess mortality and the reversal of net migration accelerated that trend of population decline that had already been underway since 2014. But if in six years there was a drop of 705,000 residents, as many as 384,000 were lost in 2020 alone, and another 90,000 or so in the first quarter of 2021.

The data on population change and its components are part of a socio-demographic scenario that is still characterised by deep and sometimes even more accentuated forms of inequality. The mortality differentials by level of education are emblematic in this sense. On the whole, the risk of death among the least educated (with at most lower secondary school education, or primary school education among the elderly) compared with the most educated (with a university degree, or upper secondary school diploma among the elderly) is on average 1.3 for men and 1.2 for women. On a national basis, this figure appears to be unchanged compared to the values of the pre-pandemic period, but in the areas with the greatest increase in mortality, it has proved to be very sensitive to differentials by level of education. For example, in the North-west, at the first pandemic peak, this ratio rose to 1.5 for men and 1.4 for women.

Human capital formation and employment

The health emergency crisis has widened many of the structural gaps already existing in Italy, such as those in education. In particular, there are large differences in the human capital endowment between the Centre-north and the South and Islands, especially in terms of quality (skills acquired), in a context in which the whole of Italy, despite the progress made, lags behind the rest of the EU27. Such differences have traditionally been amplified in the labour market by the drain of highly skilled resources towards the more developed areas of the country.

The progress made is clear from upper secondary school qualifications, for which we are now in line with the European average, although in terms of skills and knowledge Italy ranks, albeit not far, below the average of advanced countries. The most recent PISA-OECD survey on the skills of 15-year-olds in reading, mathematics and science, which dates back to 2018, shows that students with insufficient skills were 23.3 percent in text comprehension (against an average of 22.6 in the OECD Countries) and 24.1 percent in mathematics (against 23.8), while a greater gap was observed in scientific skills (25.9 against 22 percent).

As regards university education, Italy still ranks second to last among Eu countries. The share of university graduates among 30-34 year-olds is much lower than the Eu27 average (around 28 percent compared to 40 percent). The gap is similar for women (34 against 46 percent), who nonetheless are more likely to obtain a university degree than men.

In spite of this gap, over the last decade young people have made rapid progress towards completing university education, compared with the average for European countries. This is especially true if we consider that short-cycle vocational courses are less widespread in Italy, although they significantly increase the probability of obtaining a tertiary degree, as experience in other countries has shown. In Italy, this type of training is offered by the *Istituti tecnici superiori* (Higher technical institutes); launched in recent years and distributed heterogeneously throughout the country, in 2021 they had only just over 18,000 students. This is despite the fact that available indicators confirm their excellent performance in preparing young people for the labour market, with 82.6 percent of young people who graduated in 2018 being employed 12 months after graduating.

The delays in tertiary education can be explained by both a low entry rate into university and a higher probability of failure, with students dropping out before they graduate. In the 2018/2019 academic year, the latest for which data are available, only half of upper secondary school graduates (around 56 percent for women) enrolled in university in the same year, showing little progress compared to five years earlier. Considering all course years and the different types of university, four out of ten young people aged 19-25 were enrolled at university in the 2018-2019 cycle, with higher incidence among women (46.8 percent compared to 34.2 percent) and in the Central regions of the Country.

One of the indicators of the contribution of the university system to the development and growth of the Country through innovation is the incidence of graduates in scientific-technological disciplines (STEM - Science, Technology, Engineering and Mathematics) compared to all other disciplines. Italy, with 15.5 per thousand of STEM graduates among students aged 20-29 in 2018, is 4.1 points below the European average, with shares unchanged compared to 2014. The gap between Italy and France, the United Kingdom and Spain is particularly wide and is mainly attributable to declining preference among men (-7.2 points per thousand compared to Eu27), although it also true among women.

The pandemic has made it necessary to interrupt face-to-face lessons for long periods of time and led to a massive recourse to online distance learning, initially in a homogeneous way throughout the country, then with regional differences and for longer periods in secondary schools. The impact of these necessary innovations on the quality of students' education, however, risks becoming negative both in the short and medium-long term, in the absence of policies aimed at making up for the learning loss. It cannot be ruled out that they may also have similar effects on the emotional and behavioural development of young children in particular.

In order to monitor the modalities and effects of the transition to online distance learning, Istat carried out a survey in all state and non-state schools of all levels between April and June 2020. This was followed by the second survey on the Italians' Diary at the time of COVID-19, with questions on the difficulties encountered by children and cohabitants in the first phase and at the beginning of the 2020-2021 school year. Both surveys showed that full continuity in education was guaranteed only for a minority of students. They also highlighted special criticalities for the most vulnerable children and/or those with fewer resources available, with the risk of significant and uneven effects on school outcomes. Families claimed that the interruption of classroom teaching as early as the first year reduced the performance of one student out of four, while irritability or nervousness were found in almost one child out of three, and cases of eating disorders, sleep disorders and fear of infection in one out of ten.

It is also worth pointing out that between April and June 2020, 8 percent of students enrolled in primary and secondary schools – about 600,000 – did not participate in video lessons – the closest form of teaching to face-to-face lessons – with the highest number of non-participants in the South and Islands (9 percent). This area also stood out for the highest non-participation rate among students with disabilities (29 percent against an average of 23.3 percent).

The discontinuity of face-to-face teaching reduced the duration of lessons during the week and weakened relationships with at least some teachers: data provided by the second survey on the Italians' Diary estimated that, between March and June 2020, only 52 percent of children up to 14 years of age (2,630 million) had lessons every day with at least the majority of teachers. The rest had occasional lessons, with only some of the teachers and were not always assigned homework; 6 percent never had homework or followed online lessons.

However, during the 2020-2021 school year, about 68 percent of the students under the age of 14 were able to attend fully face-to-face lessons, 17.5 percent mixed lessons in and 13.9 percent distance-only lessons.

Education is an issue that deserves the utmost attention as it has an immediate impact on the potential growth capacity. It is, moreover, a decisive factor in reducing inequalities and aligning individual employment and income prospects along the three axes identified as priorities by the National RRP – gender, age and territory. On the other hand, there is ample evidence that higher educational qualifications increase participation and employment probability, particularly among women and in the South and Islands.

Education remained protective in 2020, when the employment rate of university graduates aged 25-64 fell by only 0.6 points compared to 2019, while it declined by 1 point for upper secondary school graduates and by 1.1 points for people with lower secondary education.

The pandemic shock has further tightened the interaction between education level and the family role of working-age women, in a country where the lack of services negatively affects female labour participation. In 2020, only 26.4 percent of women with at most a lower secondary school diploma and mothers with children under 6 were in employment, as compared to 76 percent of mothers with a university degree. The disparity was even greater in the South and Islands, where the same rates were 13.9 percent and 66.7 percent, respectively.

In the South and Islands, too, the possibility of pursuing further education plays a decisive role in terms of labour market outcomes: the gap in employment rates between university graduates and upper secondary school graduates aged 25-64 was wide and growing compared to 2008, rising from 4.6 to 8.9 percentage points in 2019 for men, and from 19.6 to 23.7 points for women.

In this respect, the situation of early school leavers, with at most a lower secondary school leaving certificate, was particularly critical. Down by 7 percentage points, they now accounted for 13.1 percent of the 18-24 year-olds in Italy against 10.1 percent in the Eu27 countries as a whole. The crisis lowered their employment rate by over two percentage points (to 33.2 percent in 2020 and even 23.3 percent in the South) and discouraged many of them from seeking new jobs.

Young people aged 15-29 were more likely to be NEET (neither in employment nor in education or training) depending on their educational attainment, which in turn depended on their socio-economic, family and cultural background.

They are 2.1 million individuals, 23.3 percent of all young people aged 15-29 at the national level, but up to 32.6 percent of young residents in the South and Islands. The transition from employment or student status to NEET status (which affects 11 percent of the initially employed or first-time students) and the persistence of NEET status are more common in the presence of structural fragility factors, such as low human capital, residence in southern Italy, non-Italian nationality and female gender.

The benefits of human capital accumulation are particularly evident for younger people. In terms of employment, the return on a university degree compared to an upper secondary school diploma in our country is lower than the European average. The difference in the employment rates of the 30-34 age group as a whole exceeds 8 percentage points but, broken down by gender, it shows an important advantage especially for women (around 4 points higher in the employment rate for men and over 20 points higher for women). In the South and Islands, 59.4 percent of 30-34 year-old female university graduates are employed, almost 24 percentage points more than female upper secondary school graduates, but a much lower value compared to female university graduates living in the North and Centre (-23.5 and -17.5 percentage points, respectively), confirming the existence of confirming the existence of a vast potential of untapped resources.

Still on the subject of training and work, the integration of statistical and administrative sources made it possible to follow the school-to-work transition path of the cohort of young people born in 1992. In 2019, at the age of 27, 61.4 percent of them were employed, 7.1 percent were studying and working and 6.9

percent were continuing their education without working. Of the 24.5 percent who were neither studying nor working (NEET), almost all (91 percent) had had at least one work experience between 2012 and 2018. This clearly shows the influence of education on employment: less than 40 percent of young people with second university-level degree were employed in intellectual, scientific and highly specialised occupations (around 9 percent of the total), while technical occupations (around 15 percent of the total) were the largest source of employment (close to 40 percent) for those with first university-level degrees.

Finally, data confirm that higher educational qualifications are on average also associated with significant pay advantages. An analysis of hourly wage differentials by educational qualification of employees aged 25-34 in the non-agricultural private sector showed that in 2018 young people with a vocational qualification earned a median hourly wage 3.7 percent higher than those with only a lower secondary school diploma. Upper secondary school leavers who achieved a first university-level degree could see their median hourly earnings increase by 5.9 percent; those who achieved a second university-level degree experienced a further 14.5 percent increase in earnings (18.6 for men and 11.2 for women).

Economic trends and the system of enterprises

In mid-2021, the country's economic picture was characterised by the combination of the negative repercussions of the health emergency crisis and the prospect of significant economic expansion.

Italy seemed to have caught up with the international recovery thanks, in particular, to the positive boosts coming from the European area. Here, the overcoming of the restrictions due to the pandemic was associated with a climate of favourable expectations, fuelled by the launch of the Next Generation Europe plan.

The crisis-induced global recession was violent, but short-lived; various support programmes, along with new measures to contain contagion adopted as from the autumn, led to an immediate rebound. In the first quarter of this year, GDP growth strengthened in the Usa, while recovery stalled in the Emu, mainly due to a new contraction of the German economy and negative results in France and Spain.

In recent months, the containment of the epidemic gave way to strong signs of recovery in the international economy, driven by the industrial sector whose production has returned to pre-crisis levels in many countries. The rise in inflation, driven by the recovery in oil and commodity prices, is causing some concern at the macroeconomic level, with a marked increase in the United States and a more modest one in the Emu. Temporary tensions prevail, but the risks on the international scene are by no means insignificant.

The impact of the health crisis on the Italian economy was particularly severe, causing a fall in GDP of 8.9 percent in 2020, an unprecedented fall since the Second World War; the very low growth of the last twenty years contributed to bring it back to its 1998 level. The contraction was the result of a vertical fall in domestic demand and, in particular, in private consumption, which fell by 10.7 percent in volume; within investment, which also fell sharply (-9.1 percent), the components of machinery and equipment and, even more so, means of transport experienced a real collapse.

In the first quarter of 2021, despite the prolonged emergency, economic activity stabilised (GDP increased by 0.1 percent), with significant progress in manufacturing, construction and some service sectors. On the demand side, the fall in consumption slowed down and investments continued to rise. On the other hand, personal services continued to contract, penalised by the persistence of specific emergency measures.

The crisis affected the various labour market segments in different ways: the decline in employment initially mainly affected fixed-term employees and the self-employed, but then spread to permanent workers, as a result of the lack of turnover. The lowest level of employment was reached in January 2021 when, compared to before the emergency, a loss of 915,000 was recorded; in the following months a moderate recovery led to an increase of 180,000 people employed in May, compared to the beginning of the year. The health crisis particularly penalised the female-dominated service sectors, with a marked drop in the number of women employed in 2020. Later on, this component managed to recover, albeit partially, while men were more affected by the negative trend.

The decline in the number of employed persons was accompanied by a fall in unemployment and an increase in inactivity, but the transitions between these conditions were then gradually reversed. In particular, with the moderate recovery of employment in the first months of this year, job-seekers began to increase again.

In 2020, prices were squeezed by the collapse in commodity demand and prices, with inflation averaging almost zero throughout the year. In the first months of 2021, the rise in the prices of imported goods, especially energy products, as well as the general recovery in activity, started to fuel inflationary pressures. Such pressures were significant at the output stage, with prices of goods excluding energy rising by more than 4percent in May. In contrast, they remained moderate at the final stage, with the consumer inflation rate at 1.3 percent in May and June, -0.6 percentage points compared to the EMU average.

2020 was also an exceptional year for public finance: the constraints imposed by the Stability and Growth Pact were suspended, the measures to combat the crisis were impressive and public deficits widened, rising to quite unusual levels. In Italy, the deficit reached 9.5 percent of GDP, contributing to a significant increase in the debt ratio (to 155.8 percent), which was also crucially affected by the contraction of nominal GDP. Although these parameters should now be read in the light of the very particular conditions of the crisis, the risks involved must also be fully taken into account.

The prospects for economic recovery have progressively strengthened: in particular, business confidence indices, which were already on the rise, showed a very rapid improvement in May – and even more so in June – reaching particularly high levels, also boosted by the industry and construction sector. Istat forecasts estimate a robust recovery in activity in 2021, sustained by the demand for consumption and investment, also driven by the launch of the National Recovery Programme (NRP): GDP is expected to grow by 4.7 percent and then continue at a slightly slower pace in the following year. Current evidences, also at a European level, suggest that the risks of error in the forecast for 2021 are rather upward; but the risk of a worsening of the health emergency remains in the opposite direction.

In 2020, public transfers to households limited the effects of the deep contraction in economic activity on disposable income, which fell by only 2.8 percent. On the other hand, crisis-related measures and changes in behaviour caused a much larger fall in consumption than in income, and an exceptional increase in the propensity to save (almost doubled with respect to 2019), both in Italy and in other major European countries. This increase continued in the first quarter of this year and, although contingent and temporary, will condition the timing of domestic demand recovery.

Expenditure fell particularly for households with a higher standard of living, who would usually devote a larger share of their consumption to items that were particularly affected by the health emergency (especially travel and holidays). Low-income households, whose expenditure was much more concentrated on essential items such as housing and food, recorded a moderate fall of 2.7 percent.

As consumption fell, the incidence of absolute poverty (*i.e.* people whose expenditure falls below a specific threshold) rose sharply to 9.4 percent. Nonetheless, the intensity of absolute poverty, *i.e.* the distance between the average monthly expenditure of the households included in this segment and the poverty line from which they fall, has decreased: many of the households that slipped into poverty maintained their expenditure close to the poverty line, and those already in poverty moved closer to it, thanks also to public support measures that were still not sufficient to avoid poverty. Overall, the recent increase in absolute poverty presented different characteristics from those of previous crises, in particular that of 2012, which was mainly the result of a sharp fall in income that was not compensated by specific measures.

The Italian production system was unexpectedly affected by the crisis, and suffered more or less severe and prolonged effects depending on the specific sectors and their degree of exposure to health measures and changes in social behaviour. While most sectors have shown increasing signs of recovery in recent times, there are still segments of the business system that have been affected by the shock and whose resilience is still an open question, largely to be deciphered and assessed. In addition, changes in the behaviour of households, businesses and institutions could lead to important repercussions, the extent and intensity of which can only be fully understood in the near future.

The crisis squeezed the activity and turnover of industrial and service enterprises during 2020, with important differences between an initial phase of generalised fall and a second phase of uneven recovery, which gradually strengthened in the early months of 2021. In the first quarter of this year, the level of industrial turnover exceeded that of the pre-crisis phase (Q4 2019) by about 1 percent; the increase in domestic sales was more pronounced, indicating a general recovery of domestic demand for industrial products, as well. On the other hand, turnover in the tertiary sector showed a still incomplete and heterogeneous recovery, with a fall of over 7 percent from the level recorded at the end of 2019.

The need to track such a serious and rapidly evolving process required an additional measurement effort. The aforementioned *ad hoc* survey initiatives launched in May and November 2020 provided information that allowed in-depth understanding of the crisis impact on business performance and strategic choices. The survey results, integrated with statistical and administrative sources, provided the first important elements for evaluating the structural solidity of the production system, its resilience and ability to recover.

Businesses' ability to recover was analysed using a structural soundness indicator, which allowed a micro-level assessment of their resilience on the basis of a series of behavioural and performance factors. The analyses highlighted the role played by the size of production units, with a marked penalising effect on smaller firms, and the positive role played by the investment strategies implemented before the crisis, particularly in the development of human capital and digitalisation.

Only 11 percent of Italian firms with at least three employees appeared to be solid (in the sense defined in the analysis), which, however, accounted for 46.3 percent of total employment and 68.8 percent of total value added

The crisis has mostly affected smaller enterprises: among micro enterprises (3-9 employees), about half appeared to be at structural risk and around a quarter fragile; among small enterprises (10-49 employees) both shares were around a quarter. At the sectoral level, around 60 percent of personal services businesses and almost half of those in market services were at structural risk, compared with no more than a third of those in manufacturing and construction. More than 40 percent of industrial enterprises showed resilience or robustness, compared with 22-28 percent in other sectors. In terms of employment, the most robust occupational groups were in industry (59.3 percent) and market services (44.3 percent), while in construction and personal services more than half the workforce was employed in enterprises defined as fragile or at structural risk.

An encouraging element for the prospects of the system's resilience is that, in all sectors, solid companies are also those with a higher degree of systemic relevance, *i.e.* with a more significant impact on the production fabric and, as such, better able to give an impulse for recovery to the rest of the system.

Moreover, positive strategies implemented in the pre-crisis period enhanced the ability to endure the consequences of the pandemic. For the industrial sectors, the estimates highlight the importance of making innovative investments (in R&D and digitalisation), of achieving above-average productivity levels and of pursuing, more than others, the qualitative improvement of human capital. These factors increase the chances of being robust by 10, 6.9 and 9.2 percentage points, respectively. The improvement of human capital also contributes to preventing structural risk in the services sector.

Overall, investments in research, digitalisation and staff training significantly increased the possibility of reducing the negative effects of the crisis. In addition, digitally advanced enterprises were more resilient: only 4.1 percent of them downsized, compared to more than double the proportion of enterprises that invested less in digital transformation before the pandemic.

The crisis' economic impact was necessarily heterogeneous among the different areas of the country, due both to the regionally different health emergency measures and to the typical different business sizes and specialisation of some regions. In particular, areas with a greater vocation for tourism were penalised, without major differences between the North and the South of the country.

The possibility that businesses of great local importance could be at high operational risk was a cause for concern. On the basis of their pre-crisis characteristics, these were specifically identified in two types, *i.e. Potentially resilient* enterprises (with high investment intensity and strong business connections with other enterprises) and Proactive enterprises (with the same characteristics, but with higher productivity and turnover).

The former are typically larger than average, employing 17 percent of the workforce in 2018 and the latter around 30 percent. Should these businesses turn out to be at high operational risk, a possible corporate crisis could cause a serious weakening of the local production network in the areas where they operate.

Enterprises in the high- and medium-high risk groups were spread throughout the country. The former had a greater weight (above the median) in Piemonte, Lombardia and the autonomous province of Bolzano, Toscana, Umbria, Lazio and in Abruzzo, Molise, Basilicata and Sardegna. The weight of the proactive at-risk businesses was, on the other hand, higher in the South and Islands – with higher quotas in Basilicata, Calabria and Sardegna – and in Friuli-Venezia Giulia.

The main priorities of the Recovery and Resilience Plan (RRP)

Compared to other episodes in the recent past, the pandemic crisis was characterised, on the economic side, by the extent of the fall in activity – real GDP had never fallen so sharply since the Second World War – but also by its brevity, considering that most of the contraction took place over a quarter, and by the specific nature of the sectors involved. The size of the countermeasures introduced is another element that differentiates this episode from its historical predecessors. Thanks to these measures, the vertical drop in activity had a very partial impact on households' disposable income.

Similarly, enterprises could rely on a safety network which, up to now, has allowed many of them to survive.

However, there two further notable differences from the past. Unlike previous crises, which missed opportunities for change, the current one immediately triggered profound changes in the collective behaviour: at work, at school, in everyday activities. The rapid spread of remote working, even if partially reversed, brought Italy into the digital present, in conditions that had already begun to be the norm in other countries. The familiarity with digital tools rapidly acquired by children and adults partially filled structural gaps, just as consolidated management practices had to change, even in small realities. Part of this legacy is likely to be persistent, and hopefully to act as a basis for further transformation.

On a more concrete level, the other important news is that the NRP, co-financed by the European Union, planned to spend over 235 billion euros between 2021 and 2026. Most of this money will be in the form of investments, aimed at modernising our country and influencing its development trajectory, while also thoroughly reforming the Public Administration. Never in any of the recent crises has this happened. Likewise, it had never happened that the European Union allocated such a large amount of funds to a development programme as the Next Generation Eu. The Italian NRP, and those of the other member countries, subscribed to this programme by raising debts to finance it: more than 800 billion euros in loans and grants, with the aim of leading Europe towards environmentally sustainable development.

The NRP makes it possible to intervene in a number of critical areas in the country, particularly the delay in digitalisation of the economy, the state of the environment and the pressures on it – both in relation to climate-changing emissions and to major urban centres – and the low overall level of investment. The latter is evident in the very modest productivity and growth dynamics in Italy over the past decade and in the limited development of infrastructure in the public sector. Reducing regional disparities is also a strategic objective of the Programme, covering all areas of intervention. More specifically, over a quarter of the total 235 billion euros allocated by the Italian NRP between 2021 and 2026 is earmarked for digitisation projects. The Ministry for Sustainable Infrastructures and Mobility will receive 62 billion euros for projects mainly aimed at upgrading the railway network and with priority given to the South and Islands. In the European context, the environment in general is to receive a third of the total of around 2,000 billion euros made available for the Next Generation-EU and the seven-year budget 2021-2027.

In the Report, these aspects are dealt with in the third and fourth chapters, with the fifth focussing on the NRP. The main elements emerging from the analysis are summarised here.

The irruption of the digital has already been mentioned. In concrete terms, there was strong increase in the use of the Internet among children (by more than 20 percentage points for those aged between 6 and 10, up to 73 percent): although this was due to a negative contingency – the impossibility of pursuing studies face-to-face, which penalised the less fortunate in particular – it should be considered that these same children are the adults of the future, and that many of them became familiar for the first time with the use of digital tools for activities not related to leisure. Similarly, there was a major increase in the e-commerce, which looks set to continue in 2021. This resulted in probably long-lasting disadvantages for traditional activities, but also in many small businesses adapting their sales channels and, more generally, focussing on this component of competitiveness. Remote working rose from 4 percent of the workforce in 2019 to 14 percent in 2020, and up to almost 20 percent in the second quarter of the year. Again, there were great differences between professions and, in general, this was an unintended change, but one that allowed many businesses and administrations to concretely assess the possible benefits in terms of reducing fixed costs and organisation. It should be noted that Italy is lagging behind overall in terms of digitisation. Among the many indicators available, it is useful to mention the share of people employed in ICT professions, which in 2020 made a substantial contribution to the functioning of the economy in the emergency phase: in Italy, this share reached 3.6 percent of the employed, while in the Eu27 as a whole it exceeded 4.3 percent. However, enterprises had already made a remarkable progress in the 2018-2019 period in some areas, such as *cloud computing*, also thanks to previous incentives (in particular, the measures of the Industry 4.0 plan); the emergency gave a great boost to the use of internal communication tools and led to a major increase in the current and prospective spread of digital investments.

In a rather bleak macroeconomic scenario, productivity in Italy has stagnated over the last decade. The real level of GDP in 2019, before the crisis, was still 4 percentage points below its 2007 peak, while in Spain it had increased by 10.3 percent, in France by 12.6 percent and in Germany by 15.5 percent. Similarly, value added per hour worked in the economy was barely above its 2010 level, while in the other three countries it had risen by 7-8 percent.

Weak productivity dynamics in Italy, as shown in the Report, was partly linked to recomposition of employment towards less productive sectors, although it was also observed in most activities. This weakness was due to businesses' and public administrations' low level of capital accumulation: in 2019 the ratio of investment to GDP was 18 percent, four points lower than the euro area average, and just over 16 percent in the South and Islands, where it dropped sharply. The reduction in General Government investment – mostly in public works – contributed to widen this gap, leading to a contraction in the public sector's net capital.

These are vulnerabilities that the NRP aims to overcome. A simulation of the impact of the investments included in the Programme, with reference to specific items, shows that the GDP is expected to increase by 2.3-2.8 percentage points in 2026, in line with the growth of intangible expenditure (*i.e.* R&D, software and other intellectual property products).

Italian businesses' expenditure on research and development – a strategic element of intangible investment – over the last decade has kept pace with the other major European economies, growing in value by 4.6 percent per year. The development rates were higher for small- and medium-sized enterprises despite the more difficult macroeconomic context in which they had to operate. This was also made possible by Government incentives which, it is worth remembering, could effectively contribute to the competitiveness of some sectors of the Country System.

Government spending on research, on the other hand, continues to be a weak point, which the NRP and targeted policies will hopefully boost. The analysis carried out by Istat, which is one of the country's largest public research bodies, clearly shows that public research in Italy is decidedly underfunded: excluding the share of universities, total expenditure amounts to less than 0.2 percent of gross domestic product, compared with almost 0.3 percent in France and over 0.4 percent in Germany

The PNRR plans to invest heavily in infrastructure – in particular, 31,5 billion euros have been earmarked for sustainable mobility alone, giving priority in this sector to the railways and, from a regional point of view, to the South and Islands. The Report also analyses the state of infrastructure at the regional level, proving the appropriateness of this choice; it reveals, in fact, that most of the Centre and South of Italy is poorly endowed with infrastructure, especially rail links, with the sole exception of the major cities. Regarding telecommunications, the NRP has the ambitious goal of providing broadband coverage of at least 1 Gigabit per second to the entire population by 2025: the Report shows how Italy – while meeting minimum requirements – is currently lagging far behind in the availability of ultra-broadband connections, compared with other Eu countries.

With regard to the environment, finally, it should be highlighted that, favoured by its geographical location, Italy always showed relatively low emission intensity. Moreover, between 2008 and 2019, the greenhouse gas emissions of the Italian economy – including households – were reduced by more than a quarter (25.5 percent), compared with less than a fifth (17.5 percent) for the Eu27. In addition, the crisis of 2020 brought about an estimated 10 percent reduction over the previous year. On the other hand, there are also many grey areas. On the household side, it should be highlighted that emissions from heating/cooling were significantly higher than the European average (in 2018, almost 56 tonnes of CO_2 equivalent per Terajoule of energy, compared to 42).

On the production side, it is relevant that a proportionally large share of Italy's progress derived from shifting specialisation towards services. By contrast, the use of less polluting and energy-consuming technologies in Italy contributed 18 percentage points, compared to 24 for the Eu as a whole. The analyses carried out showed that, turning from the production perspective to that of final consumption – also considering flows connected with foreign trade and therefore, in particular, goods and services produced abroad but used in Italy – Italy's environmental impact in terms of emissions between 2015 and 2018 remained substantially unchanged.

The Report also reveals the strengths and weaknesses in the management of critical environmental issues on the territory, and identifies the most urgent areas of intervention for the NRP. Urban waste recycling, for instance, has progressed a great deal, yet more than twice the ten percent of the total defined by Community objectives is still landfilled, particularly in large cities. Significant progress has also been made in air pollution, but the situation remains critical with regard to health-related emissions, especially in largest cities: all 14 metropolitan capitals exceed the WHO safe levels of particulate emissions ($PM_{2.5}$), 10 out of 14 exceed those of nitrogen dioxide, and 12 the long-term objective for ground-level ozone.

Strengthening local public transport services is an important lever for reducing these values. To understand the margins for improvement, we can focus on two key pieces of information. The first is that in 2019, seven cities in Italy had a metro system – up by 9.4 percent on 2014 – covering a total length of 191 km, less than that of the Paris metropolitan area alone. The second, complementing the first, is that over 95 percent of local public transport supply is based on buses, and yet over a third of the bus fleet circulating in our cities is made up of vehicles in the Euro 4 class or lower.

On the positive side, mention should be made of the growth in the supply of cycleways, although still concentrated in northern cities alone, as well as of the extension of urban green areas. In capital cities, these latter now total almost 34 sq.m. per inhabitant, of which 22.5 sq.m. for use by citizens; in metropolitan capital cities as a whole, they drop to less than 16 sq.m. per inhabitant. These are all intervention areas envisaged in the NRP's Mission 2, which will hopefully help accelerate the above-mentioned positive trends.

Conclusions

This year's Report had to cope with the arduous task of drawing a picture of a Country shaken by an unpredictable emergency. This emergency has affected lives, social relations and the economy in the context of a global crisis, but it has also made it possible to grasp the recent and robust signs of economic recovery and the many changes underway in collective behaviour and choices.

The analyses presented went deep into issues that are crucial for turning the crisis into an opportunity for recovery and reconstruction. Today, a unique case in recent history, possible interventions are commensurate with the extent of the resources that the NRP has mobilised for the modernisation and development of the country as part of the Next Generation EU plan.

Special attention has been paid here to the human capital factor, – crucial for knowledge-based development and for overcoming the gender inequalities persisting in the labour market – and also to the many difficulties young people encounter in their lives.

An analysis was also made of the initial effects of the pandemic on the demographic dynamics of an increasingly elderly and vulnerable population, along with the greater inequalities produced by the crisis.

Up-to-date information tables on the digitalisation of the business system, intangible investments, infrastructure resources at a regional level, and human impact on the environment have been compiled on the basis of the main guidelines of the Investment programme, which is about to take off. Climate change has made environmental sustainability an overriding theme affecting all choices and actions. The analyses produced here highlight the progress made and, at the same time, the delays and criticalities that have weighed heavily on recent Italian history.

At this stage, it is worth pointing out that the great availability of financial resources will be an opportunity for development only if timely and efficient decision-making and implementation processes are carried out, overcoming certain well-known administrative inefficiencies. This must not, however, blur the focus on the urgent need to bring the debt/GDP ratio back on a downward trend, an essential condition for ensuring favourable prospects for future generations. They will already have the onerous task of coping with the effects, perhaps no less disruptive than the pandemic ones, of underestimating environmental damage for too long.

The prospect before us is demanding and challenging. In the digital age there is – if possible – an overabundance of data. Official and public statistics, however, is vital to transform them into intelligible and correct information, respectful of individual privacy, accessible and able to guide decisions and measure their effects. The large-scale investment plan that is being drawn up can directly benefit from new statistics; aimed at monitoring the variables involved, these are more and more granular and, as far as possible, increasingly timely. A decisive role will be played in this scenario by the Permanent census programme, for which Italy is at the forefront in Europe.

Official statistics, which is fully integrated into the European system, is aware of the need to further develop some specific aspects. These include the state of the environment, energy transition phenomena and circular economy development, on which information is still insufficient and the timing inadequate. It is precisely on these issues that an action plan involving the European statistical institutes is being launched, in which Italy is actively participating, and which calls for more resources and investment right away.

Other elements of the information demand are of a national character, but no less urgent. In order to monitor and measure the country’s infrastructures, both tangible and intangible, it is necessary to strengthen the capacity to share information and the cooperation of the administrations involved. Given the alarming fall in the birth rate, it also appears necessary to set up systems for evaluating support policies – both financial subsidies and parenting services – in order to identify the extent to which these interventions can influence households’ choices and, – if the public decision-maker deems it necessary –

improve them during their implementation. Moreover, the increase in inequalities makes it necessary to build new measurement systems that take into account the peculiarities of different social actors and the new forms of hardship.

In these fields, the National Institute of Statistics is able to play the role of catalyst, providing knowledge and high professionalism to develop information systems and analyses for the whole country.

It will continue to do so with the usual competence, but above all with the same commitment and spirit of service that has constantly animated our Institute during this difficult year that is being left behind.