

Human Capital: From Emergency to Priority for the Country's Future

by *Andrea Sironi**

As demonstrated by numerous empirical studies, human capital represents the key factor for the competitiveness and economic and social development of a country. The main factors that determine the quality and quantity of human capital are represented by the demographic curve, the educational system, spending on research and the system of scientific research in general, and the ability of a country to attract quality immigration from the rest of the world.

This article will first examine the factors cited above, referring to the Italian situation and highlighting the problems from which human capital suffers in our country, to then briefly focus on some proposals aimed at overcoming these problems.¹

THE QUALITY OF HUMAN CAPITAL

There is ample academic literature demonstrating that in an economic system increasingly based on knowledge, the presence of educated and qualified youth has a decisive effect on the capacity to generate innovation and development, to maintain balance in the tax and pension systems, and also to favor social stability. But what makes up the human capital of a country, and what factors determine its development and growth? In general, human capital is represented by the labor force, and thus all of those who are employed or seeking employment. Yet it is evident that the quality and potential of human capital are significantly affected by both the degree of education, skills,



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and ability of the work force, and by its average age. This last factor is naturally important: think of the extreme of a country in which the average age of the work force were 60 years old; even assuming that people were qualified and competent, the prospects for the future would be dramatic.

The factors that influence a country's human capital are mainly represented by the demographic curve, the quality of an educational system, at all levels, scientific research activities, which have an evident impact on the capacity for innovation, and migration flows. With reference to this last element, history demonstrates that the ability of a country to attract educated and qualified youth from the rest of the world represents a key factor for competitiveness and economic development. Quality immigration has favored the competitiveness of entire national economic systems, such as the United States after World War II, and of single metropolises, such as London in the 1980s and 90s. Going further back in time, we can cite the role that Venice had in the 1400s, Antwerp and Genoa in the 1500s, Amsterdam in the 1600s and the first half of the 1700s, and London again in the second half of the 1700s and in the 1800s. It is no coincidence that some developed countries such as Canada, Australia, and some Northern European states have introduced policies – based on permits, tax facilitations, and in some cases also funding of youth entrepreneurs – aimed at favoring quality immigration represented by educated and qualified youth.

THE DEMOGRAPHIC CURVE

Our country's first problem is low fertility and the consequences this has produced in the past and will produce in the future on the demographic curve. The fertility rate in our country is equal to 1.27 children per woman, lower than the European average (1.55) and much lower than the substitution rate (2.1), the level that would allow for maintaining a stable population. In 2020, there were 404,000 births, almost half the number of deaths, and the overall population fell below 60 million. To have an idea of the collapse of births in our country, consider that in the year I was born, 1964, the height of the baby boom, births were slightly above one million.

The consequences of this lower fertility are felt in the age distribution of the population. In Italy, the share of people over 65 is equal to 23 percent of the population, three points higher than the European average and much higher than the percentage of the population below 14 (13 percent). The average age is above 45. In a country similar to ours in terms of dimensions and stage of economic development such as France, the demographic curve sees a peak in the youngest age

group, up to 24, while in Italy the highest frequency is found in the baby boomer age, between 45 and 60. France thus has a much higher share of youth and a more uniform distribution of older age segments.

The forecast for our country in 2050 indicates a strong drop of overall population, around 17 percent, and a growth of the elderly: more than one in three Italians will be in retirement age. It is evident that this situation represents an initial important problem as concerns the country's human capital.

THE EDUCATIONAL SYSTEM: SCHOOL

On this front as well, our country finds itself at a disadvantage with respect to other European countries. We provide some data here. We are at the bottom of the rankings in terms of youth who reach at least a high school diploma: 76 percent among 25-34 year-olds, versus an average of 85 percent for the European Union. In terms of the quality of preparation of high school graduates, the periodic PISA surveys (Programme for International Students Assessment) managed by the OECD provide a picture which is not positive. In 2018, the last year for which data is available relating to high school, Italy obtained a below-average score in the OECD in reading and science, and in line with the OECD average in mathematics. Compared with other European countries, we rank 16th in reading, 17th in math, and 21st in science.²

However, Italy's positioning in these rankings conceals significant geographic differences, with some regions in the Center North that are at the top of the rankings, while the country's South is systematically at the bottom. To this we must add that our country suffers from particularly high levels of school abandonment, characterized here as well by important geographic differences (19 percent in the South vs. 11 percent in the Center North). It is likely that these differences have been accentuated by the pandemic crisis still underway.

As observed also by the Colao Report, one of the problems of Italian schools is linked to the deep quality differences between levels of education, training courses, and different geographic areas.³ At the age of 15, our students already show levels of learning that are systematically lower than the average of OECD countries. The PISA 2018 investigation shows that the gaps between students in traditional high schools and those in vocational schools are not only extremely wide, but have expanded even further in the past three years. These differences create problems of equity and make measures of a general nature inefficient.

Apart from their position in Europe on single subject areas, it is widely thought that Italian schools, while teaching is focused on theory and methodology,

suffer from important deficiencies regarding practical knowledge useful to face the world of work: programming (information technology), digital skills, basic economic/financial and legal skills, and the ability to communicate and work effectively in groups.

Finally, there is the evident problem of knowledge of foreign languages. Our country is in fact last in Europe in terms of the number of adults fluent in a foreign language: less than 11 percent (25-64 years of age), against a European average of 25 percent. The country is also in last place for the knowledge of English.

THE EDUCATIONAL SYSTEM: UNIVERSITIES

Higher education in Italy, i.e. the university system, also does not compare positively with that of other European countries. The problem regards both the numbers and the nature of studies. The share of graduates among youth aged between 25 and 34 is equal to 28 percent in Italy, compared to a European average of over 44 percent. In Northern Europe almost one out of two youth have degrees (over 49 percent in The Netherlands and Denmark). The rate of abandonment of university in our country is also among the highest in Europe.

In terms of subjects, recent OECD estimates indicate that there is a significant lack of graduates in technical and scientific disciplines. The acceleration of the spread of digital generated by the pandemic crisis will further accelerate this imbalance between supply and demand, in particular in areas such as IT, data management, artificial intelligence, and digital skills in general. Even in a region rich with excellent technological universities such as Lombardy, the data indicate a skills mismatch in the STEM area (Science, Technology, Engineering and Mathematics). This means that companies have a hard time finding graduates in engineering, science, and information technology, in a situation in which our country has the highest level of youth who do not work or study (known as NEET) among EU countries: 27.8 percent compared to the EU average of 16.4 percent.

To summarize, we need to strengthen incentives to ensure that youth undertake university education, especially as concerns technical and scientific disciplines.

SCIENTIFIC RESEARCH

The question of the university system is linked to that of scientific research. On this front as well, our country suffers from a chronic gap with respect to other European countries. As is known, in Italy overall spending in research and development, equal to 1.4 percent of GDP, is decidedly lower than the European average, equal to 2 percent. In our country public spending in scientific research is 150 euros for each

citizen, compared to 250 euros and 400 euros respectively for France and Germany. This is also reflected in the number of public researchers: 75,000 in Italy versus 110,000 and 160,000 in France and Germany.

Lower investments in research not only have an impact on innovation and potential productivity growth, which has stagnated in Italy for years now, but also penalize human capital. Our country is in fact characterized by a lower number of youth engaged in scientific research, despite the very high quality of Italian researchers.

The Italian scientific community, despite the uncertainty that characterizes the careers of researchers and the relatively low salaries compared with other countries in Europe, is in fact particularly productive. It produces 5 percent of global papers with a number of citations equal to 1.4 percent globally, a figure comparable to that of France, which has a decidedly higher number of researchers. Similarly, in 2020 Italian researchers were first in the classification of the prestigious Consolidator Grants of the European Research Council (ERC). With 47 winning projects, Italian researchers beat out their German (45), French (27), and English (24) colleagues, demonstrating the quality of the Italian scientific community. However, in the ranking of the countries that host the projects, Italy is only in eighth place. This means that a high number of Italian researchers who win ERC grants perform their activities outside of Italy.

With reference to the salaries of those who conduct research in our country, it is possible to refer to the almost 6,000 researchers who work at research hospitals ("IRCCS"). These are doctors, physicists, biologists, chemists, biotechnologists, engineers, and statisticians, all highly qualified figures who perform precious activ-



ities whose importance has become quite clear during the pandemic. Despite the scientific productivity cited above, almost half these researchers are in unstable working conditions, often for many years, with take-home salaries of between 1,200 and 1,600 euros per month, decidedly less than what the same researchers get if they work in other European countries, with the inevitable consequence mentioned above.

MIGRATION FLOWS

Migration flows represent another factor with an evident impact on human capital. A country able to attract educated and qualified youth undoubtedly has an advantage in terms of the quantity and quality of human capital. Our country has never shone on this front, but in recent years the situation has become significantly worse, with an important increase of emigration in the past decade. ISTAT data shows that it is principally youth (below 45), with medium-high education levels (75 percent have high school and college diplomas), that emigrate to other countries in Western Europe: Great Britain, Germany, France, and Switzerland are the main destinations.

In the past ten years, the number of college graduates who emigrate every year has tripled. Unlike what we might expect, these youth come above all from the Northern regions of the country, and mostly have degrees in economic, technical, and scientific disciplines. This is qualified emigration that represents a significant loss for our country, due to the considerable resources invested in their education, the loss of tax revenues related to this human capital, and the loss suffered by the social fabric due to having educated youth leave the country. The problem is not so much linked to the emigration of young Italians to an increasingly integrated Europe, but rather the lack of corresponding inflows. The net balance for our country is in fact negative, amounting to approximately 70,000 people a year.

PUBLIC POLICIES AND INTERVENTIONS FOR IMPROVEMENT

To summarize what we have illustrated to this point, our country is characterized by a population that is contracting, with fewer youth and a growing share of elderly and pensioners. Compared to other European countries we suffer from a low level of high school and college graduates, the presence of few researchers and a high number of youth who emigrate to other European countries seeking better opportunities. These phenomena depict an emergency for human capital in Italy, and more in general, for the future development of the country. It is necessary to transform this emergency into a priority for the country.

What measures and policies should be adopted? As often happens, examining the policies adopted by other countries with better data than ours offers important indications and suggestions. As regards births and aid to families, France is certainly a virtuous example. The Family Act recently approved by the Italian government represents an important step in the right direction. In general, upgrading aid instruments (pre-schools, parental leave, etc.) and tax breaks for young couples who wish to have children, represent the main path.

In terms of secondary education, as proposed by the National Recovery and Resilience Plan (PNRR) presented by the Italian government, it is important to upgrade and promote schools that offer professional training courses, known as higher technical institutes (ITS) – that are very limited in Italy today – able to reduce that phenomenon of school abandonment and at the same time provide secondary training that is close to the needs of the world of work. At the same time, within traditional high schools and secondary institutions in general, it is necessary to enhance the skills necessary to face the new challenges of society and work: digital, language, IT, and economic skills.

As regards university education, it is necessary to strengthen the tools that are very widespread in other European countries, such as study grants, preferential loans guaranteed by the state, and also university residences at subsidized rates, thus favoring the mobility of students towards the universities of the highest quality, exposed to the international market, and able to guarantee high rates of employment, such as the Polytechnic institutes and more in general the colleges best positioned in international rankings. These forms of incentives should be expanded especially for those who intend to undertake a course of study in technical and scientific fields, in order to favor the development of a skills offering that in the future can meet the demand on the labor market that today is not met due to the phenomenon of “skill mismatch.”

With reference to scientific research, important mechanisms have already been introduced in Italy to establish tax incentives that in the recent past, have favored the return of researchers from abroad and more in general the arrival of scientists from other countries in the world. We need to continue along this path, expanding these mechanisms, favoring the certainty of career paths, ensuring that in universities and research centers and public entities everything is guided by purely meritocratic criteria. At the same time, public investment should be increased in research and development, and tax incentives are needed for private investment, thus aligning the country with the European goal of 3 percent of GDP, and increasing the sal-

aries of those who conduct scientific research, making sure that such a choice is not seen as a mission and a sacrifice, thus reducing incentives to emigrate to other European countries.

Finally, with reference to the problem of migration flows, it would be important to follow the example of certain Northern European countries, that have introduced systems of rewards and incentives aimed at attracting youth from abroad with a high level of education. In countries such as The Netherlands and Denmark, the share of foreign students in universities exceeds 12 percent (less than 6 percent in Italy). Since these are higher education systems funded by the state, with no or low fees, it could be thought that the taxpayers of those countries fund the training of youth from other countries, including many Italians. In reality, there is full awareness of the advantages that derive from foreign-



ers who complete their university studies and work in the country, linked to future tax, pension and social contributions.

In conclusion, our country is facing an emergency of human capital, that threatens the future of the labor market, the sustainability of the tax and pension system, the competitiveness of companies and in general the stability of the economic and social system. It is an emergency that has historically been underestimated by politics: the policies necessary to address it do not produce short-term benefits, nor do they pay off in electoral terms. Thinking of the new generations or competitiveness of the country is politically more difficult than distributing funds to families and businesses. With the opportunity offered by Next Generation EU, the government must be able to take the long view and transform the emergency into a priority.

¹ This article draws on the author's contribution to the report "A long vision: beyond the time of the Recovery Plan," published by the Fondazione Res Publica.

² "PISA 2018 results", OECD, 2018.

³ «Iniziativa per il rilancio "Italia 2020-2022"», Report for the Prime Minister, June 2020.

SYNOPSIS

- Human capital represents a key factor for the competitiveness and economic and social development of a country. The main factors that determine the quality and quantity of human capital are represented by the demographic curve, the educational system, research spending and the system of scientific research in general, and the ability of a country to attract quality immigration from the rest of the world.
- Compared to other European countries, Italy is facing an emergency, one of human capital, that threatens the future of the labor market, the sustainability of the tax and pension system, the competitiveness of business, and more in general the stability of the economic and social system.
- To deal with that emergency, it is necessary to expand the instruments for assistance and tax facilitations for young couples; reduce the phenomenon of school abandonment, and bring secondary education closer to the world of work; increase mobility for university students towards higher-quality universities, and introduce incentives to attract researchers from other countries in the world, while at the same time increasing salaries for Italian researchers.