

Mario Draghi: Education and economic growth

Lectio Magistralis by Mr Mario Draghi, Governor of the Bank of Italy, at the inauguration of the 100th academic year, University of Rome "La Sapienza", Economic Faculty, Rome, 9 November 2006.

* * *

1. Education and development

Italy set out on a path of rapid development after the Second World War and kept on it for more than a quarter-century. A substantial part of the country's disadvantage with respect to those with higher levels of economic welfare was made good. Although it was marked by sometimes acute social tensions and distributive conflicts, growth benefited from several domestic and external factors that made for extremely large productivity gains. Increasing resources, which had been largely underutilized in the agricultural sector, were employed in the sectors with higher output per worker, completing the transition to an industrial economy. This unprecedented rapid and sustained growth was accompanied by a progressive rise in the educational level of the population that fitted nicely with the state of technological knowledge.

Since the 1990s the inrush of the emerging economies on the international markets and the advent of the new information and communications technologies, biotechnologies and thin material technologies have radically altered the characteristics of global economic development. They have created new hierarchies, revolutionized production processes and, especially in the advanced countries, thoroughly modified the characteristics of the labour input demanded by firms. The ample strand of economic literature that investigates the connection between education and development has gained new vigour.

Broadly speaking, the level of education carries decisive weight in explaining processes of economic growth from two fundamental angles.

One concerns the improvement of knowledge applied to production: human capital formation fuels efficiency in production and drives up the remuneration of labour and the other factors of production. This engine of growth becomes still more important in phases characterized by rapid technical progress. In the 1960s Edmund Phelps observed that the acquisition of advanced knowledge was an essential condition for innovation and for adapting to new technologies. The endowment of human capital assumes a crucial value that transcends those who benefit from it in the first instance: it promotes the generation and diffusion of new ideas that impart impetus to technical progress; it improves earnings prospects and, closing the virtuous circle, increases the incentive for further investment in human capital.

As a primary source of accumulation of this type of capital, the educational system produces major externalities that help raise the growth prospects of the entire economy. This is one of the most interesting insights of the "new" theories of endogenous growth. According to some estimates, the social returns to education are higher than the private returns; that is, they exceed the extra benefits enjoyed by the individual who has more and better education.

But the externalities - and we come here to the second angle - are not limited to the sphere of production in the narrow sense; they also affect the social context and contribute to economic growth in this way as well. This aspect has been analyzed mainly in connection with the developing countries, but of course it applies to the advanced societies too. For some time economic thought - and not it alone - has underscored that the properties of efficiency of the markets in an economy cannot be considered ignoring "social capital", defined as the body of institutions, social norms and trust and reciprocity in formal and informal networks of relations that foster collective action and are a resource for creating welfare. At aggregate level social capital, as distinct from human capital, with which it is nevertheless connected, is a factor of human, social and economic development. It is a system of shared values that guarantees the sense of responsibility for the commitments entered into by the parties in concluding a contract. These values constitute a trait of the national identity that is set in the long run through custom and principles handed down from generation to generation. The educational system can enrich this inheritance, enhancing opportunities and attenuating negative aspects.

Social capital is an especially important factor for the development of the financial markets: the relationship of reciprocal trust between borrowers and creditors underpins the stability and correctness of business activity. The lack of it is, among other things, a barrier to the market entry of newly created

firms. A high degree of schooling facilitates critical access to useful information for evaluating the advisability and risk of a financial contract; this results in lower costs for learning about and managing an investment and a greater incentive to participate in the financial markets.

Education helps to relax the economic and cultural constraints that bind individuals to their environment of origin. It increases the probability that the most capable and deserving will rise to functions of command in the organization of productive factors. In this way too it exerts a positive influence on economic growth: good education boosts the efficiency of firms, creates the conditions for the competitive selection of the most innovative entrepreneurs - those most apt to drive economic growth - to unfold without being fettered by rights of caste and positions of rent.

The thrust of these remarks on the link between education and development can also extend to demographic aspects. All else being equal, the diffusion of high levels of education is associated with better conditions of health and an increase in life expectancy, since it can lead to less risky behaviour and a greater ability to assimilate and act on information serving to prevent illness and gain access to available therapies.

2. Education and the Italian economy's potential for growth

Since the mid-1990s, the annual increase in labour productivity in Italy has been one percentage point less than the average for the OECD countries. This is the underlying cause of the present crisis affecting the country's growth and competitiveness.

The rapid rise in employment fostered in recent years by wage moderation, the regularization of many immigrant workers and labour market reforms has produced a natural, and expected, slowdown in the rate of productivity growth. On top of this, however, the overall efficiency of the economy has deteriorated, as evidenced by the recent decline in total factor productivity, the only instance in the industrialized world. The situation is rendered even more worrying by the demographic scenario for the next decades. According to current projections, and despite taking account of large migratory flows, the working-age population is set to decrease dramatically, and this will act as a further brake on the potential growth of the Italian economy. Only a substantial increase in labour market participation and a return to productivity growth can reverse these trends. Raising the population's average level of education and improving its quality are prerequisites for the achievement of both objectives.

Although significant progress has been made in the past decade, the labour market participation rate in Italy is still well below the European average, particularly among women, young people and the older age groups. A higher level of education tends to narrow these gaps. In the OECD countries, the average rate of employment for university-educated men aged 25 to 64 is 15 percentage points higher than that of their peers with only a lower-secondary-school qualification; for women, the difference is 30 points. The fact that people with higher levels of education are more likely to be in work reflects their increased propensity to participate in the labour market and, in the case of adults, the smaller risk of unemployment. The Bank of Italy's Economic Research Department estimates that, all other things being equal, in Italy the probability of participating in the labour market increases by 2.4 percentage points with every year of school attendance. In the South, the figure rises to 3.2 points, reflecting a greater relative scarcity of skilled workers. All this highlights the important contribution towards overcoming the country's geographical dualism that could be made by policies to raise educational levels in the South.

A high level of education is also the best way to minimize the risks of fragmented career paths and of job loss, which have become more pressing than in the past with the spread of fixed-term employment contracts. The higher the professional qualification, the greater the incentive for firms to invest in stable and lasting employment and the greater the likelihood of workers finding another job quickly if the present one is unsatisfactory or threatened by adverse events.

Higher levels of education bring gains in productivity. The relationship can be gauged roughly from the link between educational qualification and earnings, that is from the personal return on education. In the majority of OECD countries, people with a qualification equivalent to our specialist university degree earn at least 50 per cent more than workers with a secondary school diploma. The wage differentials between workers with a diploma and workers with only a lower secondary school certificate range from 15 to 30 per cent. In Italy individuals' return on education is lower than the OECD average; nonetheless, the return on a given investment in education, even taking the associated costs fully into account, is much higher than for alternative investments.

A poor level of education can affect the evolution of productivity through the inability to exploit the opportunities offered by rapid technical progress. It is only recently, and later in Italy than elsewhere, that the organization of production has begun to benefit from extensive use of information technology, for which better training is essential. Among the highly developed countries, Italy stands out for its anomalous and static model of specialization, in which the predominant industries are marked by a medium to low level of human-capital. It is a model that is consistent with a relatively small endowment of highly skilled manpower. In the new technological and competitive environment it drags our economy down, preventing it from penetrating today's more dynamic innovative branches and exposing it to the fiercer competition from emerging countries.

Another crucial condition for overcoming this static model is the presence of managerial skills capable of reshaping production processes, exploiting technologies, and reallocating resources. The widespread availability of these skills can be achieved through higher levels of education; inevitably this will be accompanied by greater contestability of firms' ownership.

3. What kind of education?

In the course of the twentieth century Italy's schools and universities sustained the nation's economic growth and civil progress. They became less elite and progressively opened themselves to the society at large. Giving an education to millions of previously excluded citizens reduced inequalities but at the same time made it more difficult to attain high standards of achievement. Over the decades, national school and university reform measures responded only partially to the emerging need to bring a growing student population up to higher levels of education, all the more essential today given the transformation of the labour market in the advanced countries.

The education deficit remains worrisome, because of Italy's lateness in commencing mass education and its more unfavourable demographic dynamics. Notwithstanding significant gains in young people's level of educational attainment, in 2005 only 37.5 per cent of Italians aged 25 to 64 had upper secondary diplomas, nearly 8 percentage points below the OECD average. And the gap in the share of university graduates was wider still: scarcely 12 per cent in Italy, half the OECD average. Because of the faster aging of the Italian population, the share of young people is one of the lowest anywhere in the world. The consequence is that the gains made by the younger generations have only limited impact on the average level of educational attainment.

Too many adolescents still abandon their studies, and those who stay in school have a harder time learning than their peers in the rest of Europe. In 2004 only 76 out of every 100 young people of graduation age got their upper secondary diplomas, one of the lowest percentages among the advanced countries. The OECD's periodic surveys have found that at the end of compulsory schooling Italian youngsters rank near the bottom in mathematical achievement, having fallen about a year behind students elsewhere. Perhaps this should come as no surprise, considering the decline in the number of mathematics and physics students in universities. Nor do the results in other disciplines provide much consolation. The share of Italian students whose reading comprehension is inadequate is significantly higher than the European average.

These unsatisfactory average results are compounded by significant regional disparities, to the disadvantage of students in the South of Italy, and by great variability from school to school. The dispersion of the achievement test results for 15-year-olds is among the highest in the OECD countries.

Even in the context of an overwhelmingly public school system, the level of education and income of the student's family remain decisive. If the quality of schools is differentiated and informational transparency is lacking, only "educated" parents will be able to guide their children to the best classes and the most capable teachers.

Our problems do not stem from a shortage of public resources allocated to the school system. Indeed, Italy's spending on primary and secondary education is higher per student than the OECD average, not because of higher teacher salaries but due to higher teacher/student ratios. Italy has 9.4 teachers for every 100 students in secondary schools and 9.2 in elementary schools, against OECD averages of 7.4 and 6.1 and European averages of 8.5 and 6.8. The higher ratio in Italy depends in part on social policy choices, such as the widespread use of tutors for special students and the local provision of educational services in small and geographically scattered communities. Even taking these factors into account, however, the disparity with the other countries remains substantial, reflecting among

other things the fragmentation of the subjects studied, and the difference does not translate into better academic results. Organizational shortcomings and poor motivation of staff are significant factors.

The magnitude of the effect that is produced on economic growth by an increase in the average educational level varies with the type of instruction that is promoted. The most effective are those that enhance the occupational mobility of workers and, above all, the spread of new ideas.

In the United States the broader diffusion of basic knowledge has fit well with the acceleration in technical progress, helping to increase America's lead in growth over the countries of continental Europe.

Technical and vocational schools with highly specialized courses have long-established roots, notably in Germany, where they have sustained economic and social development since the turn of the twentieth century. They arose in an age in which the definition of skills was much more narrowly circumscribed and more stable than it is now, based as it was on relatively fixed working procedures and standards of knowledge. Today there is a widely perceived need for an extensive revision of the mission of these schools, because there is a greater need for knowledge that can adapt to technological contexts whose boundaries are a good deal less well defined and constantly shifting. Without denying the important role that technical and vocational schools still play in our economic system, schooling could be oriented more to the learning of general skills and aptitudes, which also encourage students to proceed to higher levels of education.

This leads us to a brief discussion of universities. In Italy the proportion of people aged between 25 and 34 who have a university degree is still below the average for the main industrial countries, despite the significant increase in recent years following the university reform of 2002. The university drop-out rate is 60 per cent, nearly twice the average for the leading countries. The proportion of graduates who go on to earn a postgraduate qualification is very small, so that Italy is fourth from the bottom in the ranking of OECD countries. The bulk of the recent increase in the number of graduates has consisted of students doing a shorter course. In the last two years matriculants have converged above all on law and the political and social sciences.

More generally, by international standards the study courses of Italian university students appear biased towards the humanities and social sciences and away from technical and scientific subjects. Part of the difference is due to the fact that, in contrast with Italy, shorter-course university degrees in other countries are mainly in technical subjects. But another part of the explanation is to be found in the high rents enjoyed by some professions, which distort families' choices, and in firms' insufficient demand for high technical and scientific qualifications.

Fewer public resources are allocated to higher education in Italy than in many other advanced countries. This is the flip side of the larger volume of resources allocated to primary and secondary education. The basic political choice was to privilege early education to the detriment of investment in advanced knowledge. This is not a far-sighted choice in a world in which innovation is the key to growth.

The public resources allocated to higher education in Italy appear even smaller when compared with those made available to Anglo-Saxon university systems, despite their having a great many private institutions. The manner of intervening is different, however: in the United States, for example, it is mainly in the form of direct financing of deserving students and their families through scholarships and personal loans; in Italy, as in the rest of continental Europe, the bulk of funds serve to finance the universities.

4. Looking ahead

By now nobody in Italy should have any doubts about the urgent need to revive economic growth. The present lively cyclical upturn is certainly not sufficient to trigger a rapid solution to the structural defects of Italy's productive system.

For the reasons that I have tried to set out here, education is one of the most important aspects of a reform strategy aimed at altering the context in which that system operates.

In a modern economy the public sector organizes and regulates the market, produces public goods and corrects externalities. In the case of education, these principles need to be applied taking account of the sector's specific features and complexity.

An effective education policy must reconcile excellence with a fair distribution of the opportunities to go on learning up to the desired level. These two objectives are not in conflict, provided the public sphere seeks to create equal opportunities and chooses operational options that allow the market to play a part in selecting excellence.

Scholastic success depends significantly on the conditions of pupils' families. From this point of view Italy appears to be socially almost immobile. The probability of earning a degree depends on the quality of the preceding education, but if this is sometimes inadequate, as in Italy today, the family's socio-economic background plays a major role. Too little has changed in this respect since Don Milani raised the same question forty years ago, albeit in another context, in the light of his experience with the children of the school at Barbiana.

Giving all young people the same opportunity to succeed in learning, provided they apply themselves, is the key to increasing efficiency and fairness in the field of education. Both these objectives can be pursued in a variety of complementary ways.

In primary and secondary education it may be worth increasing the competition between schools, both public and private, through methods of financing that both reward the best schools and transfer resources directly to families in order to give them more choice.

The information that guides families in their choice of schools appears insufficient. In addition to the prospect of obtaining a diploma that has the same value for everybody, they should be offered uniform assessment criteria that permit informed choices. It is necessary to eliminate the perverse incentive for families and schools to collude in lowering teaching standards, especially if financing continues to depend exclusively on the number of students enrolled. The first steps towards developing a comprehensive assessment system that have already been incorporated in Italian legislation deserve to be followed by others, not least so as to permit better informed guidance of public action to govern and reform the school system.

Somewhat similar considerations apply to universities, essential institutions for an economy that wishes to retain its place among the advanced countries. In recent years important changes have been made to the Italian university system. For the first time an assessment has been made of the quality of research. Notwithstanding all the measurement problems involved, this could shortly be used to guide the public financing of individual universities. It is important that the work done should not turn into a missed opportunity.

Transparency and public access to the assessment process help to improve the comparison between universities and permit better informed choices by students, especially those with less access to the channels providing a greater wealth of information. It is to be hoped that this will be the first of a series of measures to stimulate competition among universities, by increasing the incentives to raise standards in research and instruction and in the selection of university teachers.

In schools and in higher education, more explicit recognition of merit avoids the mortification of the most talented, provided it is accompanied by measures to support deserving poor students.

The recognition of merit is not a guarantee of equity but its absence undoubtedly means society is less fair because it accentuates the discrimination caused by differences in starting conditions; at the same time society is poorer because it wastes its resources.

I am convinced we will succeed in renewing the unity of intent that alone can bring an advance in Italian education, the unity that has provided the foundation for the development of the educational system since the Second World War.