Italy's parabolas of GDP and subjective well-being: the role of education

Pugno, Maurizio

University of Cassino and Southern Lazio

30 May 2021

20 May 2021

Italy's parabolas of GDP and subjective well-being: the role of education

*Maurizio Pugno**

Abstract

The rise and decline of the Italian economy over the past 60 years form a surprisingly regular parabola, if the main European partner economies are taken as benchmark, so that its vertex equal to 1 means that Italy completely caught-up Europe around the 1990s. This implies that, in order to repeat that experience of catching-up, Italy needs to grow at extraordinary rates, which are not on the horizon. The paper shows that the Italians' morale is even in worse conditions and explores why. The analysis firstly focuses on subjective well-being (and other subjective indices), thus finding another parabola and with more worrying features than the economic parabola. Then it explores the role of education in shaping the long-run dynamics of both the economy and subjective well-being. As a first result, the paradox of the excess supply of educated workers in Italy becomes clearer. The second result shows how poor education weakened Italians' ability to fully enjoy their income, in particular after the shocks of the 1990s. An education policy thus becomes urgent to provide both specialized skills for production and general skills for people's lives, thus definitively reinforcing the recent weak rebound in educational levels. *(<200 words)*

Key words: economic decline, subjective well-being, education, Italy

J.E.L. classifications: I25, I31, J24, O15, O52

Acknowledgements: I wish to thank Francesco Sarracino, Francesco Farina and Francesco Ferrante for their comments and suggestions on the previous versions of this paper. All remaining errors obviously remain mine.

* Department of Economics and Law
University of Cassino and Southern Lazio
Campus Folcara
03043 Cassino - Italy
m.pugno@unicas.it
phone: +39 0776 2994702; fax: +39 0776 2994834
website: http://mauriziopugno.com/en/

1. Introduction

The dramatic experience of the Covid-19 pandemic has posed the problem of precautionary lockdowns not only for shops and firms, but also for schools and universities. Education has thus become central to public debate. The Governor of the Bank of Italy already noted in his book, written in the midst of the 2008-2009 economic recession, that:

> it is simplistic to think that investment in knowledge is only important for its effects on the growth rate of the economy. It can deeply contribute [...to] social cohesion and well-being of citizens (Visco, 2014, p. 8, translated by the author).

Yet the wide-ranging debate on the rise and decline of Italy in the post-World War II period has focused attention almost exclusively on GDP and productivity, and when education has attracted attention, it has been considered only for its role as human capital useful for production (e.g., Bugamelli et al., 2018; Capussela, 2018; Giordano at al. 2017; Bertola and Sestito, 2013).[1] This is understandable because the parabola that the Italian economy has depicted over more than 60 years is surprisingly very worrying. It is surprising because at the peak of economic development Italy joined the most advanced European countries even if starting from very backward conditions. It is now worrying because a robust recovery is not coming. Nevertheless, as recognised several times, the progress of a country should be viewed from a perspective that goes beyond GDP, because other dimensions should be considered as well (e.g., Stiglitz et al., 2009).

This paper takes a step forward in filling this gap by extending the focus on Italians' perceived well-being, on its relationship with GDP, and on the role of education in promoting both well-being and GDP. In so doing, we distinguish a period of growth and one of decline in Italy according to economic and extra-economic dimensions, so that surprising elements of continuity and change will emerge between the two periods. Indeed, one might expect that perceived well-being closely follows GDP over time, or, on the contrary, that education in Italy has improved so much over the decades that it helped people organise their lives and alleviate the erosion of their well-being when the economy declined. Instead, we will see that both expectations are wrong. Various evidence will show that education in Italy was more lagging behind and with a poorer promoting role than previously thought. Devoting far more resources to education is therefore the immediate policy implication for strengthening both the economy and people's well-being in a more effective way than experienced in the past.

Unfortunately, historical and consistent data extending before 2000, especially in the extra-economic domain, are scarce. This prevents the possibility of conducting a satisfactory causal analysis of the links between education, economic growth and well-being. Moreover, the analysis is complicated by the fact that everything tends to become endogenous in the long run. We will therefore adopt a twofold research strategy to alleviate these problems. We will systematically compare Italy with the core countries that drove the formation of the European Union, thus removing the factors common to countries from the links between the variables. Such tight

[1] There are too many books and articles on this subject, especially in Italian, to be cited all. However, an article that points in a different direction is Felice and Vasta (2014), which provides detailed data on the Human Development Index for Italy.

international comparison is justified by the fact that Italy shared with the original core of the European Union the increased openness to trade, many cultural traits, the development of several institutions, and even the experience of shocks, such as the surge of the markets globalization and the new information technologies. Secondly, we will look for similar patterns in the relative levels and dynamics of the variables over the decades by drawing from a number of different international and national statistical sources, however fragmentary.

The organisation of the paper is as follows. Section 2 shows that the Italian economy depicts a very worrying parabola during the last six decades, if observed from a European perspective. Section 3 discovers a parabola also for Italians' subjective well-being from the same perspective. Section 4 makes evident a similar dynamics of education but only if the same perspective is taken. Section 5 and 6 relate education to the rise and decline of Italy's economy and, respectively, of Italians' subjective well-being. The paper concludes with a summary of the results and with some comments.

2. The economic rise and decline of Italy with respect to European countries

The disappointing performance of the Italian economy in the recent decades has been widely discussed in the literature, so it is now commonplace to talk about Italian economic 'decline'. The disappointment comes mainly because the Italian performance was very different in the past. After WWII, in fact, Italy experienced a 'miraculous' growth, such that it was able to achieve in the 1990s the income standard of the most advanced European countries. Becoming an increasingly open economy has certainly contributed to this catching-up (e.g., Federici and Marconi, 2002),[2] together with the sectoral restructuring of production from agriculture to manufacture. Integration with other economies was especially tight in the case of European countries with which Italy shared a common culture. This fact suggests observing the performance of the Italian economy compared to the European countries with which it has had the closest relations since its extraordinary initial growth. The rise and decline of Italy will thus emerge with greater evidence.

The study of how Italy rises and declines when the other countries change is a complex matter. A straightforward simplification is to select the relevant European countries, and to take the weighted average for each of the relevant variables of these countries as benchmark. How far Italy is from Europe over time can thus be easily evaluated and directly compared for the different variables, often characterized by different units of measurement. The set of the European countries taken as benchmark includes Germany (or the former Federal Republic of Germany), France, the UK, Netherlands, Belgium, Denmark, Ireland and Luxembourg. The availability of historical data conditions the selection of these countries, but we are comforted by the fact that more than 40% of Italian exports still goes to these eight countries in 2000. To appreciate the homogeneity of the set, we calculate the weighted standard deviation of the relevant variables. Our benchmark for Italy will thus be EU8=1.

Our first two variables are real GDP per capita (called 'GDP' henceforth) and hourly labour productivity. Data are mainly drawn from the Maddison Project Database and Penn World Table 10.0 for the period 1960-2019. The indices labelled as

[2] The share of exports on GDP (at current prices) in Italy was around 9% in the interwar period, it rose to 13% in 1960 and to 22% in 1979. In 2019, it is 30% (Baffigi, 2015).

$GDP_{I/EU}$ and $LP_{I/EU}$ are obtained by dividing GDP and, respectively, labour productivity for Italy by the weighted average of GDP and labour productivity for EU8. The weights are countries' populations in 1990. To facilitate the reading of the diagrams, the indices are purged from cyclical changes by using the Hodrick-Prescott filter. The two indices thus appear as in the Figure 1, panels (a-b). The dotted lines represent the dispersion around unity, being calculated by subtracting half of the standard deviation of the variable for EU8 from 1.[3]

< Figure 1 here >

Figure 1 clearly shows that $GDP_{I/EU}$ depicts a parabola with great variation and symmetrical arms, thus providing a synthesis of the dramatic story of the Italian economic development of the last 60 years. In fact, it began with a gap with Europe of 20%, it peaked 30 years later slightly overcoming the partners, and then it declined, up to restoring the same gap after further 30 years. Since the gap was and becomes again larger than the range between the dotted line and unity, Italy appears as an outlier with respect to our set of European countries.

The parabola of $LP_{I/EU}$ is similar, although the initial gap was larger, mainly due to low unemployment in the boom of the early 1960s, and the final gap is smaller, due to high unemployment in the recent decades. The recent rebound of $LP_{I/EU}$ turns again to decline if we consider other indices of competitiveness, like Total Factor Productivity ($TFP_{I/EU}$) and the share of the Italian real exports over EU8 exports (see Figure 2).[4]

< Figure 2 here >

All these parabolas well-represent both the first period, when the Italian economy caught up the affluence of the European partners, thus extending the reconstruction phase following WWII, and the second period of economic decline, which now appears as very severe. The decade of the 1990s emerges as the watershed for $GDP_{I/EU}$, which postponed the peak with respect to productivity, thanks to the increase of the employment rate in the 1980s.

Therefore, as the Italian economy experienced exceptional growth over 30 years, it then experienced an exceptional decline of symmetrical magnitude. The comparison with the European partner countries tells us that to reach them again, it would be necessary to renew the 'miraculous' growth, without the possibility, however, of benefiting from a sectoral restructuring similar to that of the time.

3. The relative rise and decline of subjective well-being in Italy

Italy exhibits a peculiar dynamics not only in the economy, but also in the subjective well-being of its population. Another parabola in fact emerges, and even more worrying.

[3] In the case of productivity, Luxembourg is dropped for lack of data, so that EU7=1 in this case, but this would not sensibly change the figures.

[4] For ease of reading, the export share is made equal to 1 in the beginning year, though it was 16.3%.

Data on life satisfaction, as the most used version of subjective well-being, are drawn from the Eurobarometer Survey. This provides the share of people 'very' and 'fairly' satisfied with life for the period 1973-2019 for nationally representative samples. We then calculate the index labelled $SWB_{I/EU}$ as our previous indices like $GDP_{I/EU}$, and reproduced in Figure 3 (solid line).

< Figure 3 here >

Figure 3 shows that the parabola of $SWB_{I/EU}$ is pronounced like that of $GDP_{I/EU}$, but it differs because it never approaches unity. Moreover, the dotted line tells us that Italy always remained an outlier, while our European countries tended to converge one toward the other.

The decline of life satisfaction of Italy in both absolute terms and relatively to Europe has attracted little attention with respect to the decline of the economy. Even the studies in happiness economics often take Italy as a successful example for the rise of life satisfaction in absolute terms for the overall period, although less updated (Stevenson and Wolfers, 2008; Clark et al., 2008). Such neglect might be due to the suspicion that the changes in this type of data are not very reliable, or to the expectation that life satisfaction closely follows GDP, thus remaining redundant. A supplement of investigation is thus needed to check these presumptions.

A large national dataset provides information that confirms the decline of Italians' subjective well-being. In fact, the Italian National Institute of Statistics collects data on satisfaction for six life domains since 2001 using a sample of about 25,000 people (ISTAT 2021), which is more than ten times the usual samples of the Eurobarometer Survey. The life domains regard the individuals' economic conditions, job, family relationships, friends, leisure and health. Having calculated the share of people who are 'very' or 'rather' satisfied, these shares for all six types of satisfaction exhibit the tendency to decline in the 2001-2007 or 2001-2013 periods, i.e. when also life satisfaction drawn from Eurobarometer dataset tends to decline (see the third column of Table 1). Satisfaction with the job and with the economic conditions also follows life satisfaction in the recent rebound, i.e. in the entire 2001-2019 period, thus exhibiting a significant correlation (at 1%) of 0.84 and 0.79 with life satisfaction, respectively. The index of life satisfaction lies, on average, between the indices of satisfaction with the family, friends, health and with the job, which are greater, and the indices of satisfaction with the economic conditions and with leisure, which are lower (see the fourth column of Table 1).

< Table 1 here >

The recent trend of subjective well-being in Italy compared with our set of European countries is confirmed by another index, called 'Cantril ladder', according to which respondents to the survey question value their lives today on a 0 to 10 scale, in comparison with the worst possible life as a 0 and the best possible life as a 10. This index shows that subjective well-being declined in Italy by 0.61 points from 2005-2008 to 2016-2018, but increased in EU7 by 0.10 points (Helliwell et al., 2019).

But what does subjective well-being tell us beyond what we already know about the trends of GDP? Figure 4 reproduces the dynamics of $SWB_{I/EU}$ and $GDP_{I/EU}$, and it makes evident that the two parabolas differ in some respects. First, the parabola

of $SWB_{I/EU}$ lies very below that of $GDP_{I/EU}$ parabola, and in particular, $SWB_{I/EU}$ starts with hesitation to rise when $GDP_{I/EU}$ was much greater; it ceased rising although the Italy-EU8 gap was still significantly open; and it remained there, fluctuating within the range 0.90-0.96 in the period around 1990-2003. Then it dropped until the minimum in 2013 with an Italy-EU8 gap by 35%, far below $GDP_{I/EU}$. This pattern suggests that the income earned by the Italians was never been completely satisfactory, as if something prevented Italians from enjoying their success in catching up the wealth of the other Europeans.

< Figure 4 here >

The second main difference between the two parabolas concerns the steepness of the rise with respect to the steepness of the decline. More precisely, calculation on the raw data shows that $SWB_{I/EU}$ increases by 1.1 point for one point of rise of $GDP_{I/EU}$ from 1976 to 1989, whereas $SWB_{I/EU}$ decreases by 2.0 point for one point of decline of $GDP_{I/EU}$ from 2002 to 2013. This fact suggests that the rise of income yields less satisfaction compared with dissatisfaction of an equal decline of income, thus immediately recalling the psychological phenomenon that Kahneman and Tversky (1979) named 'loss aversion.'[5] However, in our case, $SWB_{I/EU}$ tended to fall for 13 years, and in 2019 it is still lower of almost 0.2 with respect to the peak. In other words, our case is a long-run phenomenon requiring specific investigation.

Let us begin to recognise that a particularly heavy fiscal restriction hit Italians in the 1990s. Figure 5 gives a measure of this shock by comparing Italy with the three largest European countries: before 1992, Italy had the biggest deficit in the primary balance, and after 1992 Italy had the biggest surplus.

< Figure 5 here >

More taxation and fewer public services put families in great economic strain, so that the need to earn more income became more pressing, and the second wage earner in the family became a necessity. Here, however, families encountered another shock: the flexibilisation of the labour market, which made jobs more uncertain and contributed to increase economic inequality. Around the 1990s, in fact, Italy reduced the protection of employment more than our set of European countries, as Figure 6 well-represents.[6] Specifically, Germany had a similar reduction, but starting from a lower level of protection; France maintained it at a high level; and the UK always had a low level of protection.

< Figure 6 here >

Therefore, the world around the families had changed, so that they too had to change. Many studies on the reasons underlying the economic decline of Italy point to the failure of the firms system to restructure its production process in the face of the

[5] 'Loss aversion' occurs when "the aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with gaining the same amount" (Kahneman and Tversky, 1979, p. 279).

[6] Data on Luxembourg is missing in this case.

'revolutions' of ICT and of globalization (Bugamelli et al., 2018). Similarly, underlying the decline of Italians' well-being could be their failure to restructure their way of life.

But why such failures?

4. The relative rise and decline of education in Italy

School and university education is usually considered as most important for economic growth, thus being often called 'human capital'. But it also displays individual non-pecuniary returns, in terms of more health, better social relationships, greater foresight, and, eventually, higher subjective well-being (Oreopoulos and Salvanes, 2011). Over the long run, education tends to be transmitted through the parent-child relationship (Dickson et al., 2015), it appears to contribute positively to democracy (Milligan et al., 2004; Hoskins, 2008), and to building a more trusting society (Huang et al., 2009). Therefore, considering the changes in education over a 60-year period, we can take it as an important component of the social background that conditions politics and institutions.

The increase in education is a worldwide phenomenon, which affected Italy not only in the period of catching-up with the European countries, but also in its economic decline. In fact, the average total years of education in Italian adult population was 4.6 in 1960, 7.3 in 1990, and 10.2 in 2019. Nevertheless, the comparison with our European group of countries shows a different pattern[7].

If we compute the index $Ed_{I/EU}$ by following our usual procedure, a surprising yet familiar parabola with a recent rebound emerges, as Figure 7 shows. The surprise comes from the declining part, and from the very low peak, which lies 14% below the European benchmark. The Italian position is thus very far from the European group, which rapidly becomes more homogenous instead. A contribution to the decline of education in Italy comes from heavy cuts in government expenditure in education. The dashed line in Figure 7, computed as usual, clearly shows how steep was the relative decline in such expenditure. The greater levels of this index testify its inefficiency.[8]

< Figure 7 here >

The particularly low levels of $Ed_{I/EU}$ are mainly due to the component of people with tertiary education. By computing this component with our usual procedure, it fluctuates in the period 1960- early 2000s between 0.42 and 0.47 with a peak in the early 1980s. Fortunately, in the last two decades it grows up, but achieving only 0.50.[9] Another weak component of the Italian education system concerns childcare services for 0-2 years old. Comparing Italy with the restricted set of our European countries (Germany, the UK, and France), children enrolled in childcare services are 16% lower in 2005, 39% lower in 2010, and 32% in 2017, in proportion of all children (OECD 2020).

[7] Data are drawn from Our World Data, Global Education, which is based on Lee and Lee (2016), Barro and Lee (2018), and UNDP (2018).

[8] For the inefficiency of the Italian education system see Rossi (1997), and, in an international comparison, Giambona et al. (2011).

[9] The original data are drawn from Barro and Lee (2013).

The lagging condition of education in Italy is well-known (Bertola and Sestito, 2013), especially since comparable international data on the competences of students are available (OECD, 2016), i.e. since about 15 years ago. But even in the early phase, when conditions in Italy were rather backward, the rise of education to catch up Europe was not satisfactory. In fact, two countries that started in *worse* conditions, i.e. South Korea and Finland, were able to fare much better: the ratio of average education in the population between Italy and South Korea went from 1.48 in 1960, through 0.99 in 1970 to 0.87 in 1980; the ratio with respect to Finland was 1.14, 0.96, and 0.84 in the three years respectively (Lee and Lee, 2016). Moreover, recent international data on the quality of education, measured by students' competence in science, reading and mathematics, show that Italy is far behind our EU8, while South Korea and Finland are among the top performers in the world (OECD, 2016).

The reason for this disappointing result is often sought in the organization of the educational system, but the subjective perspective of the students is also illuminating. For example, the share of 11-, 13- and 15-year-olds who report liking school in 2005/2006 is less than half in Italy compared to our EU7 (OECD, 2009). The share of 15-year-old students who say "I feel like I belong at school" dropped in Italy by 18% between 2003 and 2015, while it decreased in the EU7 by 10% (OECD, 2017).

The relative level of Italian education has recovered only recently, especially thanks to the reform of the university system, which introduced the so-called 3+2 track. But the gap is still very high, and the recovery is rather slow. In order to achieve the past peak at the growth rate of 2006-2017, $Ed_{I/EU}$ would take 21 years, and to achieve EU8, $Ed_{I/EU}$ would take 63 years.

5. Relating education to economic growth in Italy

By comparing $Ed_{I/EU}$ with $GDP_{I/EU}$ and $LP_{I/EU}$, as in Figure 8, a peculiarity of Italian economic development becomes evident: Italy was able to catch up the European economies without the need to be properly equipped with human capital, being education an approximate measure of human capital available for the economy's production. Indeed, both $GDP_{I/EU}$ and $LP_{I/EU}$ were rising fast in the 1960s, while $Ed_{I/EU}$ stagnated. A moderate rise of $Ed_{I/EU}$ followed for 15 years. In the mid-1980s, $Ed_{I/EU}$ ceased to rise when $LP_{I/EU}$ and then $GDP_{I/EU}$ achieved the highest levels, without any clear link between one peak and the other. Economic growth thus appears only loosely linked with human capital when this is rising. However, our three variables become synchronous when they decline.

< Figure 8 here >

Therefore, this evidence is able to reflect the well-known fact that Italy firstly successfully specialised in the production that requires low-skilled labour, but then it maintained such specialisation also when times changed, thus exhibiting an economic decline. Our evidence further suggests that the failure in restructuring the economy in order to overcome the challenges of globalization and technological innovations dates back to well before the decade in which failure became evident, i.e. the 1990s. In fact, in the first 30 years considered in Figure 8 the rise of education was moderate, and it ceased to grow early. Nevertheless, the available evidence shows that workers with secondary education in Italy suffered from *higher* unemployment than workers with

less education, at least in 1963-1970 period (Valli, 1973),[10] and that this was a unique phenomenon in Western Europe, where the reverse was true, at least in the 1977-1992 period (Manacorda and Petrongolo, 1999).

While the period of rapid economic growth was characterised by many unemployed with intermediate education, the period of decline is characterised by many unemployed with advanced education, relatively to the European counterparts. Figure 9 clearly shows the reversed order, with respect to theoretical expectation, of the three groups of unemployment distinguished for educational level in the years 1998-2019. Unemployed with tertiary education reach almost the double in Italy relatively to EU8 in the most recent years.

< Figure 9 here >

This evidence reveals an excess supply of educated workers *despite the low levels of* $Ed_{I/EU}$*, and despite its decline for 15 years*. A confirmation that this is an excess of supply comes from the low and declining returns to education in Italy with respect to the European countries found by Montenegro and Patrinos (2014). On the basis of their data, the computation of return to a year of education for Italy relatively to Germany, the UK, and France gives an index of 0.72 in 2005, which further declines to 0.56 in 2012.[11] This can help understand the 'Visco paradox', as put forward by the Governor of the Bank of Italy, according to which Italy is an international outlier for the low return to advanced education despite the scarcity of human capital (Visco, 2014).

In the long run, low returns to advanced education may discourage families to invest in the education of their offspring, thus feeding a vicious circle. But the evidence above suggests that the trigger of the vicious circle comes from the demand side of the labour market rather than from the supply side. This is confirmed by the net 'brain drain' from Italy, which was already heavy in the 1990s, and it has become much heavier in the following decades (Becker et al., 2004; Anelli and Peri, 2017).[12] Therefore, such vicious circle, together with low levels of expenditure on education, may explain the prolonged low levels of $Ed_{I/EU}$.

But why did international competition not induce Italian firms to restructure their production, thus increasing their demand for educated workers to introduce the necessary innovations? Pellegrino and Zingales (2017) provide an answer by showing that Italian entrepreneurs are not selected for their skills, which enabled them to appreciate the advantage of hiring educated workers. In other words, entrepreneurs themselves are not highly educated. According to ISTAT (2018), the average years of education of entrepreneurs of the Italian small firms in 2015 are 11.4, which is 0.6 more than their employees. This fact is consistent with our evidence showing that scarcity of education in the population is an endemic Italian feature.

[10] Unemployment of workers with tertiary education was, instead, very low (Valli, 1973).

[11] Other sources and types of estimations provide similar figures. For example, by computing the same index from OECD (2014), the figure for the relative returns to tertiary education in 2010 is 0.64. Further evidence in support of the hypothesis of excess supply of educated workers regards over-education, which is 24% higher in Italy with respect to EU3 (Germany, France, and the UK) in 2003, by taking the basic figures from Ghignoni and Verashchagina (2014).

[12] Anelli and Peri (2017) further argue with simulations that subsidising education would increase migration of educated workers to other European countries.

6. Relating education to subjective well-being in Italy

Recent international research on education and subjective well-being finds that the relationship between them is positive if observed over time (FitzRoy and Nolan, 2020), or if properly mediated by the specific life domains in which education clearly enables individuals with greater material, social and psychological resources (Powdthavee et al., 2015; Ferrante, 2017). Consistent evidence emerges in our case of Italy over the past 45 years.

We already observed in Figure 4 that the parabola of $SWB_{I/EU}$ lies below with respect to $GDP_{I/EU}$, and, by comparing with Figure 7, we can observe that $SWB_{I/EU}$ lies above and postponed with respect to $Ed_{I/EU}$. A suggestive twofold hypothesis thus emerges: in general, Italians were not able to fully enjoy their income, in comparison with the European counterparts, because they were poorly educated; in particular, Italians experienced such a drop in life satisfaction when their income declined because poor education made them especially unprepared to receive the shocks of the 1990s. Poor educated entrepreneurs, workers, heads of households find it more difficult to adjust to external changes.

Table 2 offers a nice description of this hypothesis. It reports the results of regressing $SWB_{I/EU}$ on only $GDP_{I/EU}$, then also on $Ed_{I/EU}$, properly lagged, and by finally adding a dummy on the slope of $Ed_{I/EU}$ taking the value of 0 until the year of maximum structural break onwards, i.e. 1999, and then taking the value of 1.[13] A further check appears in the last column, where the dummy on the intercept is also considered. Data used are not purged from cycle. The table shows that the dynamics of $SWB_{I/EU}$ can be more closely tracked if, besides $GDP_{I/EU}$, the dynamics of $Ed_{I/EU}$ is taken into account. The table also shows that $SWB_{I/EU}$ is tracked even more closely by singling out the most recent period, being the coefficient of $Ed_{I/EU}$ significantly higher. In words, the decline of education and its recent rebound seem to play a greater role in the dynamics of $SWB_{I/EU}$ than before.

< Tab. 2 here >

The turning point of individuals' well-being as driven by the turning point of both income and education is a hypothesis that needs further empirical evidence. Unfortunately, the scarcity of historical data prevents a satisfactory test, but some useful information can be drawn from World Values Survey/European Values Studies (WVS/EVS). This is the integration of internationally comparable surveys collecting information on many aspects of people's lives. Each survey uses nationally representative samples of the population, and it has been administered in years 1981, 1990, 1999, 2008/2009 and 2017 for our set of European countries.[14] Specifically, the survey provides information for two subjective aspects that are closely correlated to both life satisfaction and education. These aspects are 'trust in others' and 'feeling of control and decision over one's life events', also called 'internal locus of control' in psychology. We build our indices of $Trust_{I/EU}$ and $Loc_{I/EU}$ by considering the share of

[13] The Wald test statistic is 38.92 with p-value=0.0000.

[14] Lack of data in WVS/EVS for Belgium, Ireland and Luxembourg forces us to exclude them from our EU8. Nevertheless, these countries weigh only 6% on the population of EU8.

respondents who say that most people can be trusted, and, respectively, who indicate 9 or 10 on a 10-step scale in answering the question "how much freedom of choice and control you feel you have over the way your life turns out." The WVS/EVS enables us to build also a third index that captures individuals' objective cooperative behaviour, because it provides the interviewer's rating of whether the respondents were 'very interested' (on a 3-step scale) during the interview. This is a cooperative behaviour because the interview is a time-consuming activity without any tangible reward. Unfortunately, the available information is different in this case, because it includes the four main countries only, i.e. Germany, the UK, France and Italy, for the years 1990, 1999, 2005/2006, 2008/2009, and 2017. Nevertheless, we consider $\text{Cooperation}_{\text{I/EU}}$ as our third variable.

Trust in others, the internal locus of control, and cooperation generally have two interesting properties: they can be predicted by income and education, and they can predict life satisfaction. This is evident from a variety of studies (Alesina and La Ferrara, 2002; Albanese and de Blasio, 2014; Huang et al., 2009; Bartolini et al., 2013; Verme, 2009; Helliwell et al. 2020; Schurer, 2017; Buddelmeyer and Powdthavee, 2016). We can find specific confirmation by using the WVS/EVS for our set of European countries inclusive of Italy, and for the set of the available years. Table 3 in the Appendix reports such comforting result firstly from regressing on individual basis Trust, Loc, and Cooperation against income, education and socio-economic controls, and then from regressing Life Satisfaction against Trust, Loc, and Cooperation and socio-economic controls.[15]

Unfortunately, the number of the individual observations substantially diminishes when considering single years and countries. Therefore, our analysis proceeds by taking the average of Trust, Loc and Cooperation for each of our countries and years, and then by interpolating these averages for the intermediate years, and finally by computing the series as usual, having distinguished Italy from the other European countries. Figure 10 shows the results: $\text{Trust}_{\text{I/EU}}$ (solid line) and $\text{Loc}_{\text{I/EU}}$ (dashed line) exhibit two parabolas with the peak in the 1990s; $\text{Cooperation}_{\text{I/EU}}$ exhibits a decline when the other two indices decline; all indices vary a lot; $\text{Loc}_{\text{I/EU}}$ and $\text{Cooperation}_{\text{I/EU}}$ end with a rebound.[16]

< Figure 10 here >

The similar temporal pattern of $\text{Ed}_{\text{I/EU}}$, $\text{GDP}_{\text{I/EU}}$, $\text{Trust}_{\text{I/EU}}$, $\text{Loc}_{\text{I/EU}}$ and $\text{SWB}_{\text{I/EU}}$ over the period 1981-2017 suggests that the turning point of education and income in

[15] OLS regressions are always used for easy of reading and comparability of the results, although the variables are categorical. Estimates control for respondent's age, age squared, gender, working conditions (full-time, part-time, self-employed, retired, housewife, student, unemployment, other), marital status (married, living together as married, divorced, separated, widowed, single), country and year. Education is measured by distinguishing primary, secondary, and tertiary education or higher. Estimates use the 'robust' option.

[16] Another source provides consistent results with ours. According to Helliwell et al. (2020), respondents to the survey question in 2019 "Are you satisfied or dissatisfied with your freedom to choose what you do with your life?" report a score for Italy of 0.78 relatively to the score for EU7; respondents to the question "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?" report a relative score of 0.97; respondents to the question "Is corruption widespread throughout the government (within businesses) or not?" report a relative score of 0.55.

the 1990s may have affected the turning point of subjective well-being by also involving the personal characteristics of trust in others, and the feeling of being in control of their life. The concomitant decline of $Cooperation_{I/EU}$ until the early 2000s strengthens this presumption. The fact that these three individual characteristics change so much in the long-run, while exhibiting similarities with the dynamics of education, suggests calling them as 'skills', rather than preferences, or, better, 'non-cognitive skills', as Heckman et al. (2006) and Heckman and Corbin (2016) would call them.

Therefore, the rise and decline of Italy with respect to the international context is an unfortunate dynamics that not only refers to the economy, but also to people's cognitive and non-cognitive skills, and thus to both the possibility and ability to enjoy life. Education plays an extended role, because it not only increases human capital useful for production, but also skills useful for people's lives. Indeed, the 1990s mark a more serious turning point than is normally discussed in the history of Italy's economic development.

7. Conclusions

The focus of the paper is on the role of education in Italy's development from a rather long-run perspective and in a comparative way to the set of 8 European countries (or, sometimes, a subset that includes Germany, France, and the UK). The measures used to observe development are not limited to GDP and productivity growth, but extended to the changing trends of subjective well-being. Therefore, education has been considered not only as human capital useful for production, which is usual, but also as skills useful for life, which is often evoked but rarely investigated. One of the reasons for this is the scarcity of historical series on Italians' subjective aspects, so that data are to be sought from a number of statistical sources, possibly international and non-fragmentary.

The extended focus of the paper makes the case of Italy interesting also for more general analysis, such as evaluating the importance of education in countries' development among policy priorities. Nevertheless, the five main results obtained make evident the peculiar pattern of the Italian development: that of a parabola opening downwards.

The preliminary result concerns the severity of the Italian economic decline. While Total Factor Productivity of Italy, which is often considered in evaluating the economic performance, appears almost constant since about three decades, the comparison with Europe shows an even worse picture. In fact, the Italian economy has declined so much in the last 30 years that it has restored the same gap as 60 years ago. This provides a measure of what economic growth is necessary to catch up again Europe.

The second result makes evident that also subjective well-being in Italy, relatively to Europe, rises in a first period and then declines in a symmetric way. But subjective well-being does not strictly follow the parabola of the economy for two reasons: because the gaps with Europe are greater, so that the catch-up never took place even at the peak of the 1990s, and because the relative decline of subjective well-being is steeper than the economic decline. This suggests that Italians are less able to derive life satisfaction from their income with respect to the European counterparts, and that this difficulty worsens along the economic decline. Such drop of satisfaction

seems to regard not only life but also other important domains, like work, finance, family and friends.

The third result reveals that the monotonic improvement in the levels of education among Italians, over the entire period considered, becomes again a slow rise and a slow decline, with some recent rebound, if put against the education of Europeans. Moreover, the gap with Europe always remains very large, because the rising phase was clearly insufficient, and the recent rebound very modest. The lagging condition of education in Italy is well-known, but it now takes a very worrying gap, since the gap of 2019 is similar to that of the mid-1970s.

The fourth result helps to understand the 'Visco paradox', according to which Italy is an international outlier because of the low return to advanced education despite the scarcity of human capital (Visco, 2014). While confirmation emerges for the low average levels of education in Italy with respect to those of Europe, it should be observed that the levels of GDP are relatively higher, and even increasing in some few years when education already diminished. At the same time, evidence on unemployment shows that educated workers in Italy have *more* difficulty finding a job than less educated workers, if compared with Europe. Therefore, returns to education may be lower because educated workers are in excess supply, despite their scarcity according to international standards.

The fifth result concerns the relationship between people's education and subjective well-being in Italy. International studies on the issue warn us that economic, social, and psychological mediators complicate the relationship, and that this is difficult to observe over time, so that our fifth result is rather provisional. In general terms, our evidence shows that poor education may have weakened Italians' ability to fully enjoy their income, in comparison with the Europeans. In particular, it seems that insufficient education in the period of economic growth made Italians unprepared to receive the economic shocks of the 1990s, so that they experienced a severe drop in life satisfaction when their income declined. Those shocks were undoubtedly heavy even for the international standards, but people's reaction was especially negative and prolonged. This is also evidenced by the concomitant deterioration of some 'non-cognitive skills' of people, which are proved to be closely linked to both education and subjective well-being, i.e. trust in others, the feeling of control and decision over one's life events, and the attitude to cooperate.

The deterioration of these skills is remarkable, because they are usually regarded as stable. Together with the poor performance of education, therefore, such deterioration could capture the long-run worsening of the social context in which policies and institutions operated in the recent Italian history.[17] Therefore, a more complete picture of the explanations for why policies and institutions failed to bring economic growth and well-being to Italians emerges.

The policy implication of giving priority to education appears obvious, but the results seen above suggest some qualifications. Education should not only mean specialising an adequate workforce for production, but it should also mean investing in children, in the continuous training of persons of all ages, in cultural policy, as well as in the quality of teachers in order to both form competitive skills at an international level, and effectively raise the average education level of the population.

[17] International studies show that trust is strongly related to economic growth (Algan and Cahuc, 2014), and the internal locus of control to entrepreneurial performance (Kerr et al., 2017).

References

Albanese, G., de Blasio, G. (2014). Who trust others more? A cross-European study. *Empirica*, 41, 803-20.

Alesina, A., La Ferrara, E. (2002). Who trusts others? *Journal of Public Economics,* 85(2), 207-234.

Algan, Y., Cahuc, P. (2014). Trust, growth, and well-being. In Aghion, P., Durlauf, S. (eds) *Handbook of Economic Growth,* Elsevier, pp. 49-120.

Anelli, M., Peri, G. (2017). Does emigration delay political change? Evidence from Italy during the Great Recession. *Economic Policy*, 32(91), 551–596.

Bartolini, S., Bilancini, E., Pugno, M. (2013). Did the decline in social connections depress Americans' happiness. *Social Indicators Research,* 110(3), 1033-59.

Becker, S.O., Ichino, A., Peri, G. (2004). How large is the "Brain Drain" from Italy? *Giornale degli Economisti e Annali di Economia*, 63(1), 1–32.

Bertola, G., Sestito, P. (2013). Human Capital. In Toniolo, G. (ed) *Italy and the World Economy since Unification*, Oxford, pp.343-74.

Buddelmeyer, H., Powdthavee, N. (2016). Can having internal locus of control insure against negative shocks? Psychological evidence from panel data. *Journal of Economic Behavior & Organization*, 122: 88–109.

Bugamelli, M., Lotti, F. (2018). (eds) Productivity growth in Italy: a tale of slow-motion change. *Questioni di Economia e Finanza*, n.422.

Capussela, A. (2018). *The Political Economy of Italy's Decline*, Oxford University Press.

Clark, A.E., Frijters, P., Shields, M. (2008). Relative income, happiness and utility. *Journal of Economic Literature*, 46(1), 95-144.

Dickson, M., Gregg, P., Robinson, H. (2016), Early, late or never? When does parental education impact child outcomes?, 126(596), F184-F231.

Federici, D, Marconi, D. (2002). On exports and economic growth: the case of Italy, *The Journal of International Trade & Economic Development*, 11(3), 323-340.

Felice, M., Vasta, M. (2014). Passive modernization? The new human development index and its components in Italy's regions (1871–2007). *European Review of Economic History*, 19, 44–66.

Ferrante, F. (2017). Great expectation. The unintended consequences of educational choices. *Social Indicators Research*, 131(2), 745-767.

FitzRoy F.R., Nolan, M.A. (2020). Education, income and happiness: panel evidence for the UK, *Empirical Economics*, 58(2), 2573–2592

Ghignoni, E. Verashchagina, A. (2014). Educational qualifications mismatch in Europe. Is it demand or supply driven? *Journal of Comparative Economics*, 42(3), 670-692.

Giambona, F., Vassallo, E., Vassiliadis, E. (2011). Educational systems efficiency in European Union countries. *Studies in Educational Evaluation,* 37, 108–122.

Giordano C., Toniolo, G., Zollino, F. (2017). Long-run trends in Italian productivity, *Questioni di Economia e Finanza*, No. 406.

Heckman, J.J., Corbin, C.O. (2016). Capabilities and skills. *Journal of Human Development and Capabilities* 17, 342-59.

Heckman, J.J., Stixrud J., Urzua, S. (2006). The effects of cognitive and noncognitive abilities on labour market outcomes and social behaviour. *Journal of Labour Economics* 24(3), 411–82.

Helliwell, J.F., Huang, H., Wang, S., Norton (2020). Social environments for world happiness. In Helliwell, J.F., Layard, R., Sachs, J.D., De Neve J.E. (eds) *World Happiness Report 2020*, pp.13-46.

Hoskins, B., d'Hombres, B., Campbell, J-A. (2008). Does formal education have an impact on active citizenship behaviour?, *JRC Scientific and Technical Reports*, Luxembourg: Office for Official Publications of the European Communities.

Huang, J., Maassen van den Brink, H., Groot, W. (2009). A meta-analysis of the effect of education on social capital, *Economics of Education Review*, 28(4), 454-464.

Kahneman, D., Tversky, A. (1979). Prospect theory. *Econometrica*, (47), 263–291.

Kerr, S.P., Kerr, W.R., Xu, T. (2017). Personality traits of entrepreneurs: a review of recent literature, *NBER Working Paper* 24097.

Manacorda, M., Petrongolo, B. (1999). Skill mismatch and unemployment in OECD countries, *Economica*, 66(262), 181-207.

Milligan, K., Moretti, E., Oreopoulos, P. (2004). Does education improve citizenship? Evidence from the U.S. and the U.K., *Journal of Public Economics*, 88(9–10), 1667-1695.

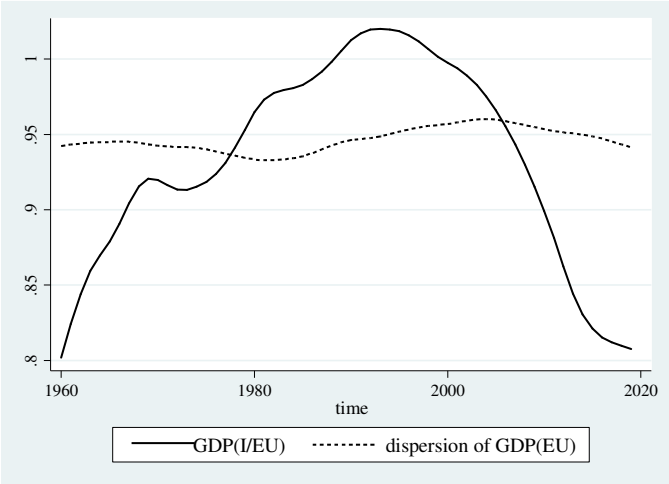
Montenegro, C.E., Patrinos, H.A. (2014). Comparable estimates of returns to schooling around the world, *World Bank Policy Research Working Paper* 7020
Oreopoulos P, Salvanes KG (2011) Priceless: non pecuniary benefits of schooling. *Journal of Economic Perspectives* 25, 159-84.
Pellegrino, B., Zingales, L. (2017). Diagnosing the Italian disease. *NBER working paper* 23964.
Powdthavee, N., Lekfuangfu, W.N., Wooden, M. (2015). What's the good of education on our overall quality of life? A simultaneous equation model of education and life satisfaction for Australia. *Journal of Behavioral and Experimental Economics*, 54, 10–21.
Rossi, N. (1997). (ed.) *L'Istruzione in Italia: solo un pezzo di carta?,* Il Mulino: Bologna.
Schurer, S. (2017). Does education strengthen the life skills of adolescents?, *IZA World of Labor, Institute of Labor Economics (IZA)*, 1-11.
Stevenson B, Wolfers J (2008) Economic growth and happiness. *Brookings Papers on Economic Activity,* May, 1-87.
Stiglitz, J.E., Sen, A.K., Fitoussi, J-P. (2009). (eds) *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Paris: Commission on the Measurement of Economic Performance and Social Progress.
Valli, V. (1973). Problemi dell'istruzione e dell'occupazione nell'esperienza italiana, *Rivista Internazionale di Scienze Sociali*, 44(6), 567-594.
Verme, P. (2009). Happiness, freedom and control. *Journal of Economic Behavior & Organization* 71(2), 146-161.
Visco, I. (2014). *Investire in Conoscenza*. Il Mulino: Bologna.

Statistical sources

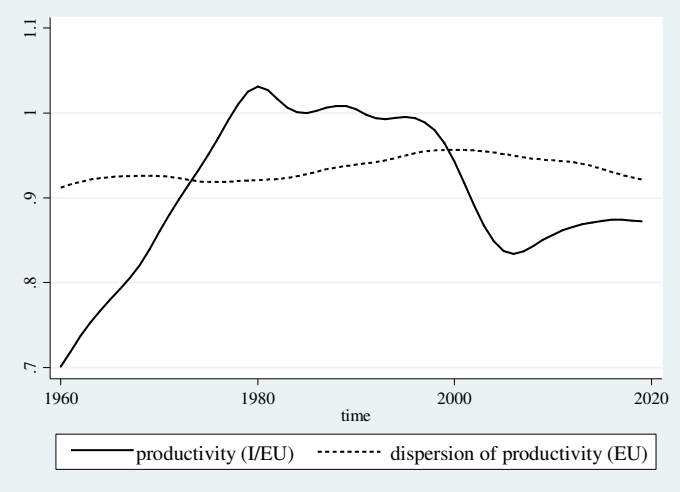
Baffigi, A. (2015). *Il PIL per la Storia d'Italia, Serie Statistiche*, Vol. V, Marsilio, Venezia.
Barro, R., Lee, J-W. (2013). A new data set of educational attainment in the world, 1950-2010. *Journal of Development Economics*, 104, 184-198.
Crafts, N., Magnani, M. (2013). The golden age and the second globalization. In Toniolo G. (ed.) *Italy and the World Economy since Unification*, Oxford, pp.97-145.
Eurobarometer Survey: http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/Archive/index
European Commission (2004). *General Government Data*. Spring.
Eurostat (2021). Government deficit/surplus, debt and associated data [gov_10dd_edpt1]. https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do
Eurostat online database: https://ec.europa.eu/eurostat/web/products-datasets/-/sdg_08_10
Eurostat, Government Finance Statistics (GFS 2017), Expenditure by Function of Government (COFOG)
Helliwell, J.F., Huang, H., Wang, (2019). Changing world happiness. In Helliwell, J.F., Layard, R., Sachs, J. (eds) *World Happiness Report* 2019, pp.11-46.
ISTAT (2018) *Rapporto sulla conoscenza*. Roma.
ISTAT (2021), *Aspetti della vita quotidiana*, various years.
Lee, J-W., Lee, H. (2016). Human capital in the long run, *Journal of Development Economics*, 122, 147-169.
Maddison Project Database, version 2018: https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020?lang=en
OECD (2009). *Doing Better for Children*, OECD Publishing, Paris.
OECD (2014). Indicator A7: What are the incentives to invest in education? In *Education at a Glance 2014: OECD Indicators*, OECD Publishing.
OECD (2016). *PISA 2015 Results (Volume I): Excellence and Equity in Education*, OECD Publishing.
OECD (2017). *PISA 2015 Results (Volume III): Students' Well-Being*, OECD Publishing, Paris.
OECD (2020) *Family database*, https://www.oecd.org/els/family/database.htm
OECD online database: https://data.oecd.org/lprdty/gdp-per-hour-worked.htm
Our World Data – Global Education: https://ourworldindata.org/global-education
Penn World Tables 10.0: https://www.rug.nl/ggdc/productivity/pwt/?lang=en
United Nations Development Programme, Human Development Report (2018 Statistical Update).
World Bank (2021). *World Bank Indicators*. https://databank.worldbank.org/source/world-development-indicators
World Values Survey/European Values Studies: https://www.worldvaluessurvey.org/wvs.jsp

Figures

Fig. 1: GDP per capita (panel a) and labour productivity (panel b) of Italy by taking EU8 as benchmark (=1), and dispersion of the two variables in EU8 in the period 1960-2019



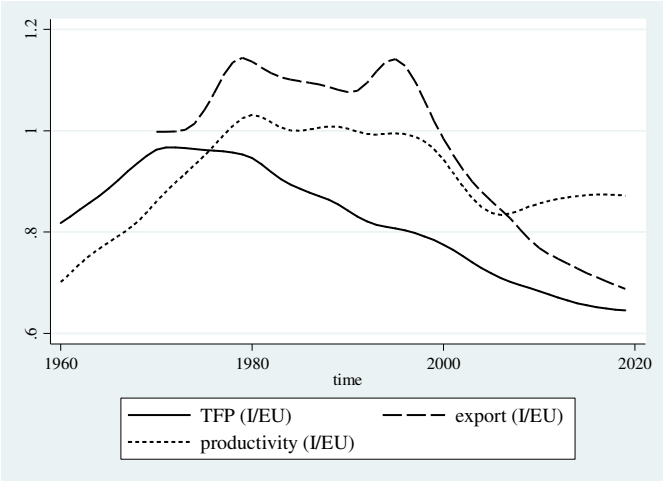
Panel (a)



Panel (b)

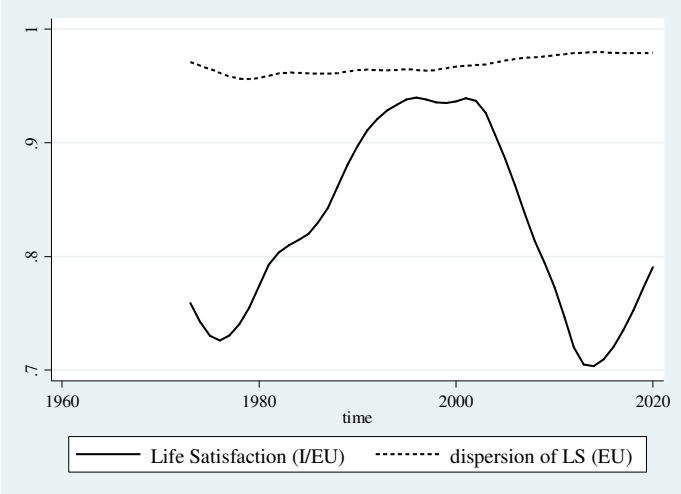
Notes: GDP(I/EU) = GDP of Italy / GDP of EU8; dispersion of GDP(EU) = (1 – weighted standard deviation of GDP of EU8)/2; productivity (I/EU) = labour productivity of Italy / labour productivity of EU8; dispersion of productivity (EU) = (1 – weighted standard deviation of labour productivity of EU8)/2; GDP = real GDP per capita in 2011 US$; EU8 = Germany, France, the UK, Netherlands, Belgium, Denmark, Ireland and Luxembourg. Data are de-cycled with the Hodrick-Prescott filter (with lambda=6.25).
Sources: for GDP: Maddison Project Database, version 2018 and Eurostat online database; for productivity: Penn World Tables 10.0 and OECD online database.

Fig. 2: Total Factor Productivity and labour productivity of Italy by taking EU8 as benchmark (=1); export share of Italy in EU8 exports



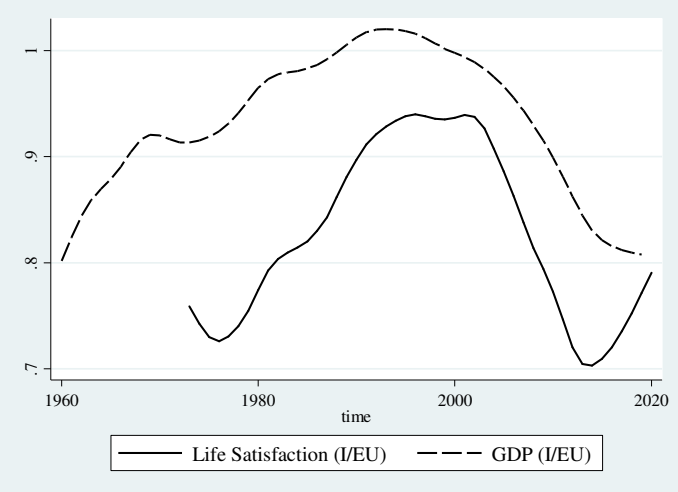
Notes: TFP (I/EU) = Total Factor Productivity of Italy / Total Factor Productivity of EU8; export (I/EU) = exports of Italy / exports of EU8 with 1970 = 1; productivity (I/EU) = labour productivity of Italy / labour productivity of EU8; export = exports of goods and services in 2010 US$; EU8 = Germany, France, the UK, Netherlands, Belgium, Denmark, Ireland and Luxembourg. Data are de-cycled with the Hodrick-Prescott filter.
Sources: for TFP: Penn World Tables 10.0 and OECD online database; for exports: World Bank (2021); for productivity: Penn World Tables 10.0 and OECD online database.

Fig. 3: People's life satisfaction in Italy by taking EU8 as benchmark (=1); and dispersion of life satisfaction in EU8 in the period 1973-2019



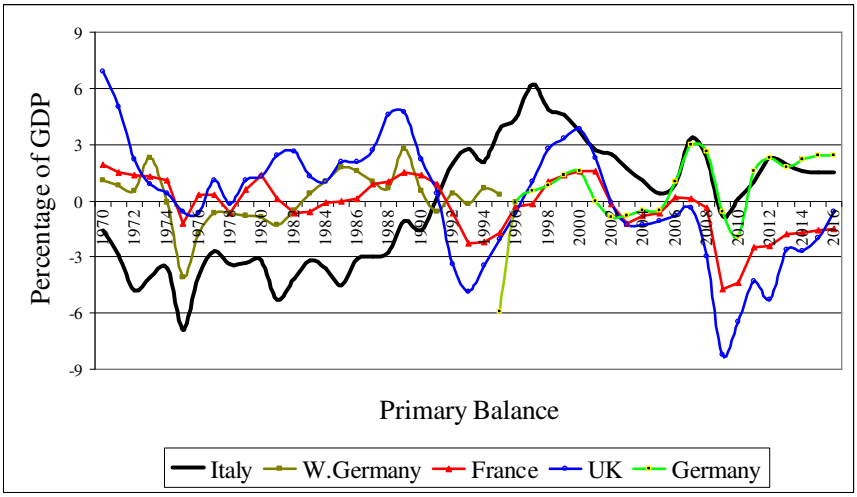
Notes: Life Satisfaction (I/EU) = Life Satisfaction in Italy / Life Satisfaction in EU8; dispersion of LS (EU) = (1 – weighted standard deviation of Life Satisfaction in EU8)/2; Life Satisfaction = share of people 'very' and 'fairly' satisfied with life; EU8 = Germany, France, the UK, Netherlands, Belgium, Denmark, Ireland and Luxembourg. Data are de-cycled with the Hodrick-Prescott filter.
Sources: Eurobarometer Survey.

Fig. 4: People's life satisfaction and GDP in Italy by taking EU8 as benchmark (=1)



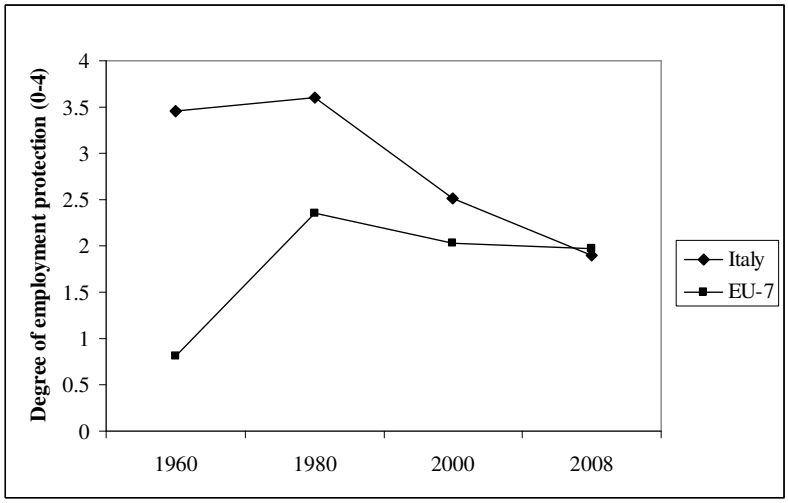
Notes and *Sources*: see Figg. 1 and 3.

Fig. 5: Government deficit or surplus net of interest payments as percentage of nominal GDP in Italy, Germany, the UK, and France in 1970-2016



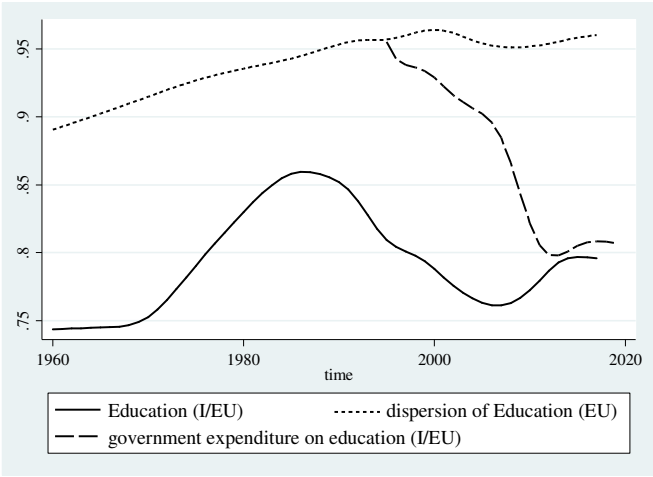
Sources: European Commission (2004) and Eurostat (2021).

Fig. 6: Employment protection legislation in Italy and in EU7 in 1960, 1980, 2000, and 2008



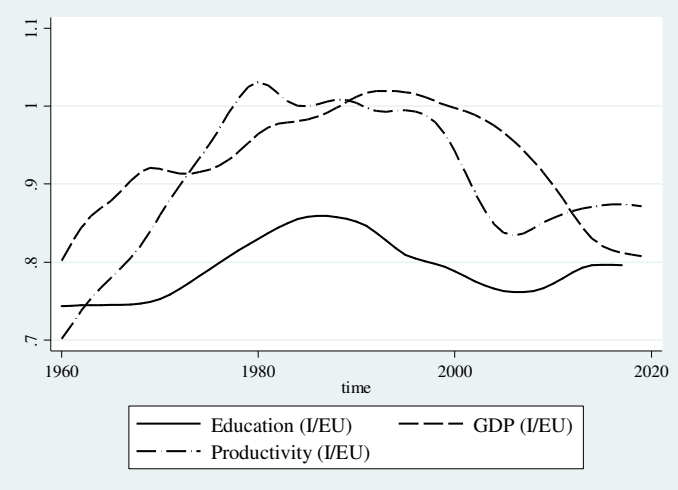
Notes: EU7 = Germany, France, the UK, Netherlands, Belgium, Denmark, and Ireland.
Sources: elaborations from Crafts and Magnani (2013: Tab.3.8).

Fig. 7: Average education in adult population in 1960-2017, and government expenditure on education in Italy in 1995-2019 by taking EU8 as benchmark (=1); dispersion of education in EU8



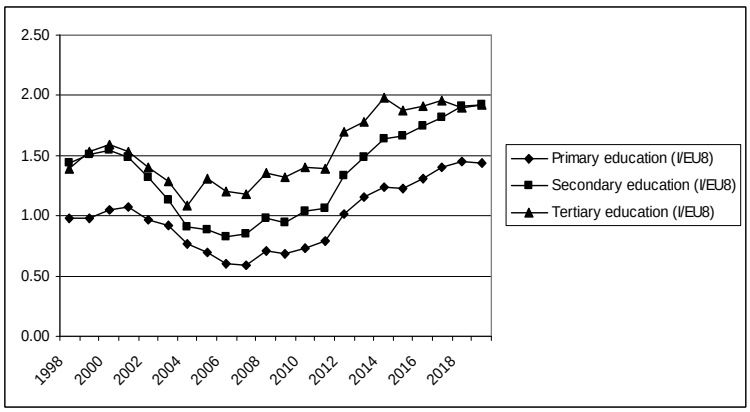
Notes: Education (I/EU) = Education in Italy / Education in EU8; dispersion of Education (EU) = (1 – weighted standard deviation of Education in EU8)/2; Education = average total years of schooling for adult population; government expenditure on education = government expenditure on education in Italy / government expenditure on education in EU8; EU8 = Germany, France, the UK, Netherlands, Belgium, Denmark, Ireland and Luxembourg; data are de-cycled with the Hodrick-Prescott filter. Data on education are originally provided every 5 years until 1990, so that interpolation estimates missing data.
Sources: for Education: Our World Data, Global Education, which is based on Lee and Lee (2016), Barro and Lee (2018), and UNDP (2018); for government expenditure on education: Eurostat, Government Finance Statistics.

Fig. 8: Average education in adult population, GDP, and labour productivity by taking EU8 as benchmark (=1)



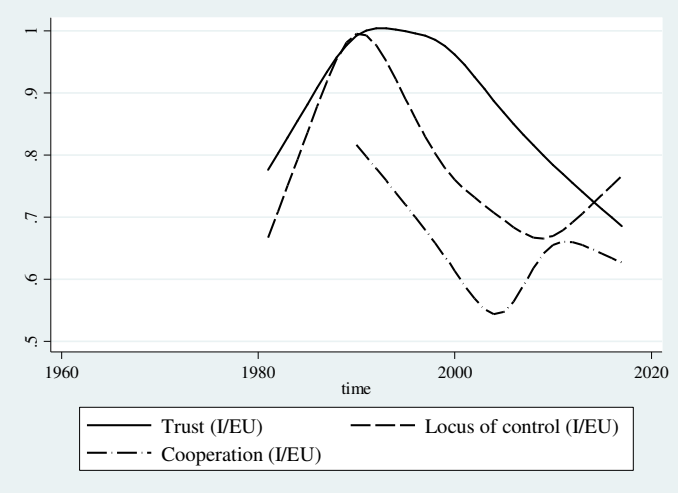
Notes and *Sources*: see Figg. 1 and 7.

Fig. 9: Unemployment distinguished for educational level in the period 1998-2019 in Italy by taking EU8 as benchmark (=1)



Sources: elaborations from World Bank (2021).

Fig. 10: Trust in others, locus of control, and cooperation in Italy by taking European countries as benchmark (=1)



Notes: Trust (I/EU) = Trust in Italy / Trust in EU5; Locus of control (I/EU) = Locus of control in Italy / Locus of control in EU5; Cooperation (I/EU) = Cooperation in Italy / Cooperation in EU3; Trust = share of respondents who say that most people can be trusted; Locus of control = people who indicate 9 or 10 on a 10-step scale in answering the question "how much freedom of choice and control you feel you have over the way your life turns out;" Cooperation = interviewer's rating of whether the respondent was 'very interested' (on a 3-step scale) during the interview; EU5 = Germany, France, the UK, Netherlands, and Denmark; EU3 = Germany, France, and the UK. Data are de-cycled with the Hodrick-Prescott filter.
Sources: World Values Survey/European Values Studies.

Tables

Tab. 1: Satisfaction with life and with other life domains. Rates of change, and overall averages

Satisfaction:	Annual rate of change		Average over 2001-2019
with life (Eurobarometer)	2001-2013	-1.67***	70.0%
with the job		-0.37***	76.3%
with the economic conditions		-1.42***	50.0%
with the family	2001-2007	-0.24**	90.4%
with friends		-0.34*	82.7%
with leisure		-0.48**	64.4%
with health		-0.25**	80.3%

Notes: Annual rate of change = coefficient of regressing the variable against time, with *** for p<0.001, ** for p<0.05, * for p<0.1.
Sources: for life satisfaction: Eurobarometer Survey; for satisfaction with the other domains: ISTAT (2021).

Tab. 2: Tracking Life satisfaction in Italy with respect to EU8 over time (1974-2019) by means of GDP and Education

	Life Satisfaction (I/EU) 1974-2019			
GDP (I/EU)	1.04*** (0.89)	0.61*** (3.88)	0.94*** (7.06)	0.85*** (6.05)
Education (I/EU)	---	1.07*** (3.77)	1.09*** (5.02)	1.06*** (5.01)
Education (I/EU)∗ $D_{2000\text{-}2019}$	---	---	0.10*** (5.71)	1.03* (1.95)
$D_{2000\text{-}2019}$	---	---	---	-0.74* (1.77)
Constant	-0.16 (1.31)	-0.61*** (3.83)	-0.97*** (7.08)	-0.86*** (5.80)
No. of observations	47	47	47	47
Adj. R2	0.596	0.688	0.818	0.827
Durbin-Watson	(2,47)=0.61	(3,47)=0.77	(4,47)=1.48	(5,47)=1.68

Notes: OLS regressions of Life Satisfaction (I/EU) against GDP (I/EU), Education (I/EU), Education (I/EU) multiplied by a dummy (D) taking 0 in 1974-1999 and 1 in 2000-2019, and the same dummy. Education (I/EU) is lagged of 6 years.
*** for p<0.001, ** for p<0.05, * for p<0.1
Sources: see Figures 1, 3, and 7.

Appendix

Tab. 3: Estimations of Trust, Loc, Cooperation, and Life Satisfaction by using the individuals' observations of the European sample (EU8+Italy)

	Trust	Loc	Cooperation	Life Satisfaction		
Income	0.018*** (11.74)	0.78*** (11.26)	0.010*** (4.77)	0.090*** (11.85)	---	0.057*** (7.98)
Education	0.039*** (22.98)	0.49*** (6.59)	0.037*** (17.22)	0.053*** (6.73)	---	0.014* (1.88)
Trust	---	---	---	---	0.423*** (14.46)	0.386*** (13.12)
Loc	---	---	---	---	0.309*** (36.22)	0.304*** (35.54)
Cooperation	---	---	---	---	0.226*** (8.09)	0.206*** (7.29)
Controls	yes	yes	yes	yes	yes	yes
No. Obs.	19,721	19,402	15,382	14,644	14,644	14,644
R2	0.135	0.049	0.136	0.112	0.229	0.233

Notes: Robust OLS regressions with the sample of the available countries within the set of EU8+Italy, over the available waves. Controls include respondent's age, age squared, gender, working conditions (full-time, part-time, self-employed, retired, housewife, student, unemployment, other), marital status (married, living together as married, divorced, separated, widowed, single), country and year. Education is measured by distinguishing primary, secondary, and tertiary education or higher.

*** for p<0.001, *** for p<0.05, * for p<0.1

Sources: World Values Survey/European Values Studies.