

# Italian Industry and Productivity. Going Beyond the Mainstream View

**Livio Romano, Fabrizio Traù\***

- ◆ *Italian manufacturing still ranks seventh in the world for value added, fourth for production diversification and second for export competitiveness, and also has a higher investment rate than its main European competitors, including Germany.*
- ◆ *Yet it is widely believed, not only in Italy, that the country has long been affected by a serious lack of competitiveness, which over the years has distanced it from the growth trajectories achieved by its major Western partners. This "declinist" view is based on a partial analysis of growth statistics, limited to estimates of value added in terms of volume (i.e. at constant prices).*
- ◆ *However, the use of constant price estimates to make international comparisons requires caution, first and foremost because the methods for making them vary between different countries – even within the boundaries of the European Union. In particular, the choice of which (and how many) methods to use to take account of the qualitative improvement of manufactured goods, and the price increases that usually follow, is still left to the discretion of the various national statistical institutes. Such increases, however, do not reflect inflation, but are rather the outcome of an active repositioning strategy targeting high-end market segments. To measure qualitative improvements in output, only one methodology is used in Italy, two in France and Spain, three in the United Kingdom, five in Germany and six in the Netherlands.*
- ◆ *On these assumptions it is almost impossible to establish whether and to what extent the growth gap at constant prices of Italian manufacturing – which has based its strategy for responding to the price competition of emerging economies on qualitative upgrading – is attributable to a statistical rather than an economic reality. In fact, when growth is measured in terms of value (at current prices), rather than in terms of volume, the performance of Italian industry appears to be anything but anomalous in international comparison. Until the outbreak of the sovereign debt crisis, its value added grew in line with that of the euro area and Germany. Moreover, even during the long years of the crisis, its labour productivity has maintained a growth profile similar to that of France.*

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\* Comments are welcome and should be addressed to: [l.romano@confindustria.it](mailto:l.romano@confindustria.it), [f.trau@confindustria.it](mailto:f.trau@confindustria.it) (Centro Studi Confindustria).

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- ◆ *Constant price growth estimates pose not only a methodological problem, but also an interpretative one: their economic significance is not as unambiguous as it might seem. This is because double deflation methodology, which underlies the construction of series of value added at constant prices, implies that an increase in the impact of intermediate costs on the value of production is reflected in higher growth. Therefore, a positive trend in value added at constant prices may - as in the case of France - hide a sharp contraction in resources available for investment and for rewarding the factors of production. On the other hand, a flat line for value added at constant prices can imply - as in the case of Italy - strong growth of such resources.*
- ◆ *In order to understand what the problems of the Italian production system are, an interpretation that is consistent with all the available information is required. It is also urgent that the EU should finally decide to standardise the methodologies for calculating value added growth statistics. The correct comparison of GDP trends among European countries crucially depends on this.*

***The lost prudence*** “The popular success achieved by growth statistics [at constant prices] is ... contaminated by the fact that in many cases people who use them attribute a meaning and validity to such data which are different from those they actually possess.[ ... ] We should seriously reconsider what types of economic questions the growth estimates at constant prices can answer in a credible way”<sup>1</sup>. Twenty-five years after these words were written by Giorgio Fuà, one of the leading economists in postwar Italy, the problem has only got worse.

On the one hand, technological innovation and the shift of consumer preferences towards services have significantly augmented the intangible value of products, blurring the line between goods and services and making more and more difficult to isolate the quantitative component of growth. On the other hand, use of this type of measurement for "narrating" economic events has become indiscriminate, both in academia and in the policy debate. To the extent that, unlike in the past, the new European regulations for controlling public finances introduced by the Fiscal Compact in 2013 also use growth at constant prices of (potential) GDP as a fundamental criterion for determining the sustainability or otherwise of the budgetary policies adopted by the Member States.

The pitfalls of real growth statistics which break down into at least three levels of analysis. The first is the economic meaning of measurements of output at current and constant prices; the second regards the calculation methods; and the third relates to the interpretative logic on which assessment of the phenomenon is based.

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<sup>1</sup> Cfr. G. Fuà, *Crescita economica. Le insidie delle cifre*, Bologna, Il Mulino 1993 (pp. 7-9). Real growth, growth at constant prices and growth in volumes/quantity are synonymous in the economic jargon. The same is true for nominal growth, growth at current prices and growth in value. As the names suggest, the difference between the two measures of growth is the statistical treatment of price changes over time.

In the pages that follow we will discuss these three issues in detail, comparing the growth performance of Italy to that of its main European neighbours, and focusing the analysis on the growth of the manufacturing sector.

The reason for studying the Italian case is that no other advanced economy in the world has experienced a real economic growth in the last two decades as weak as that of Italy, despite all the different political receipts tried by the different Governments in place. To the point that Italy's performance has been even defined a "conundrum"<sup>2</sup>.

The reasons for focusing on manufacturing are manifold. The quality and coverage of the official statistics for this industry is superior to that of any other in the economy, thus allowing better cross-country comparability. Moreover, manufacturing is the main (direct and indirect) source of innovation efforts in any advanced production system, implying what happens in this industry have strong implications for the rest of the economy. Finally, manufacturing is highly exposed to international competition, so that its growth dynamics are first and foremost driven by market forces, differently from many regulated services where both domestic and foreign competition is weak or even inexistent.

***Constant prices vs. current prices: two very different narratives of Italian events*** In general, the topic under discussion appears to be most complex at the level of the economy as a whole - where the reference output variable is GDP - given that it is extremely difficult to measure the value added of services, a significant part of which is reconstructed from the distribution of income (salaries) rather than from the production side. This means that, at this level, measurement of current values is already intrinsically problematic, and no less of feat for constant ones. But it is also significantly the case when looking at manufacturing, on which these pages are focused. As long as it is only necessary to know how much the production of relatively homogeneous goods such as steel and cotton has increased, as was the case in the 19th century, measurements of growth at constant prices provide a good approximation of reality. However, when it is necessary to know how much the production of highly differentiated goods has increased (i.e. heterogeneous ones), such as drugs or dedicated capital goods, constant prices do not even come close to describing reality.

The question has taken on a special overtone in the case of Italy with regard to its productivity performance, which in the meantime has become an ultimate yardstick in any assessment of the country's ability to compete. The argument is that, in any international comparison, medium-term productivity performance at constant prices (whether partial or total) shows a deterioration in Italy's position. This is assumed to mean, quite simply, that the national production system has for some time been accumulating a marked "competitive lag" compared with the rest of the world.

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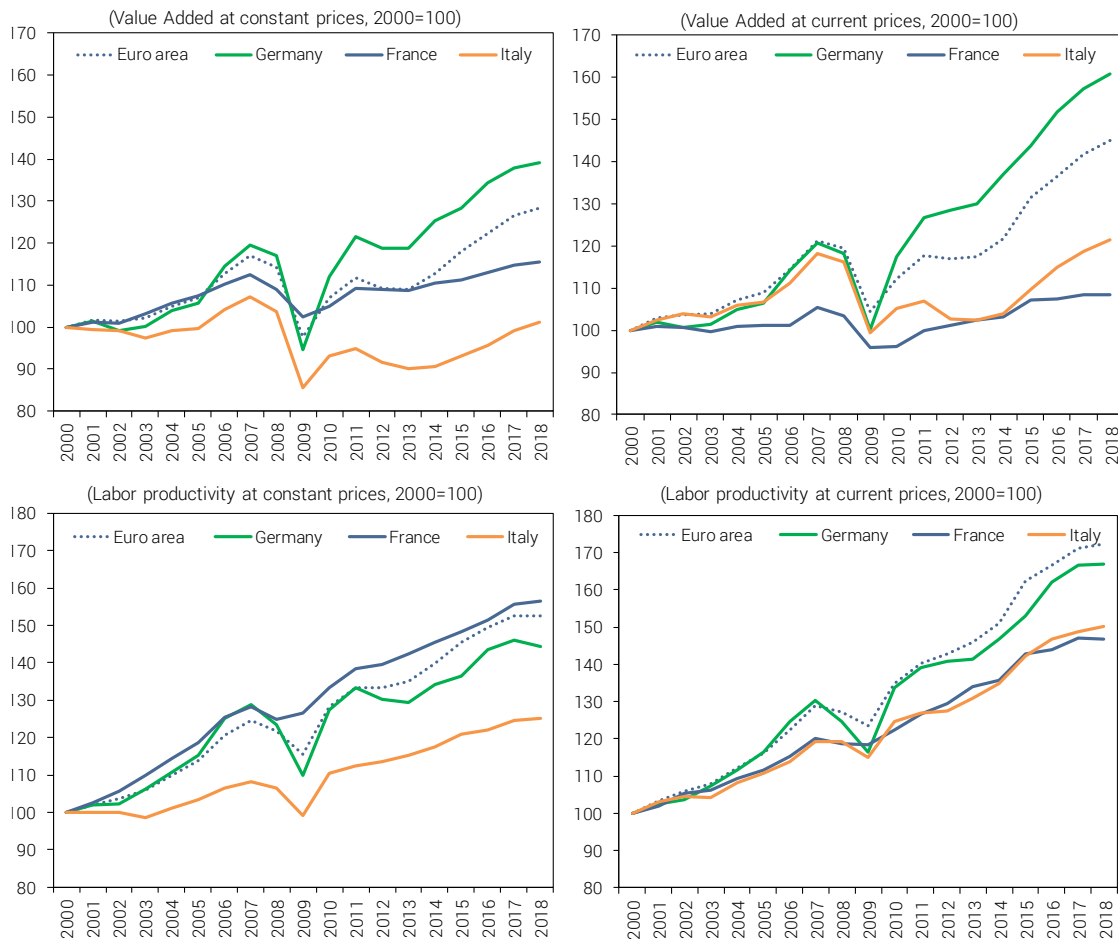
<sup>2</sup> Calligaris S., Del Gatto M., Hassan F., Ottaviano G.I.P., Schivardi F. (2016), Italy's Productivity Conundrum. A Study on Resource Misallocation in Italy, *European Commission Discussion Paper*n. 30.

What the official statistics regarding "real" growth show is that since 2000 the Italian manufacturing system has continually lost ground to Europe (even before the onset of the crisis), lagging further and further behind in terms of both value added and labour productivity (in both cases, 27 percentage points less than the Eurozone average between 2000 and 2018).

Yet, this is the same industrial system that still ranks seventh in the world (second in Europe) for value added in absolute terms, fourth (behind China, the United States and Japan) for the extent of production diversification, second place behind Germany for export competitiveness (Trade Performance Index calculated by UNCTAD and the WTO), and with an investment rate in relation to value added that is systematically higher than that of almost all other manufacturing nations, including Germany<sup>3</sup>. Moreover, the Italian industrial system is also one of the best performers at European level in terms of compliance with environmental standards. How can these facts be reconciled?

Figure A

The two faces of Italian industry



Source: CSC calculations on Eurostat data.

<sup>3</sup> Cf. Confindustria (2018), *Il ruolo dell'industria italiana nell'economia circolare*, Rome.

In an attempt to answer a question that - rather bizarrely - is never asked, one may begin by observing that when long-term growth is measured in terms of value (i.e. at current prices) rather than in terms of volume (at constant prices), Italy's relative performance in an international comparison appears to be anything but anomalous (Figure A).

Two examples say it all. On the basis of constant price statistics, between 2000 and 2018 Italian manufacturing would have fallen 31 points behind French manufacturing in terms of labour productivity. Measurements in terms of value show a *positive* differential in favour of Italy of more than 3 percentage points, and an almost identical trend in the two countries throughout the period under consideration. Moreover, according to constant price statistics, the large divergence in the growth of manufacturing value added between Italy and Germany would have started as early as 2001. However, at current prices it is almost entirely concentrated in the period 2010-2014, which coincides with the manifestation of the asymmetric effects of the European sovereign debt crisis that have strongly penalized Italian domestic demand but not German demand. This means that until a problem of *relative* compression of domestic demand exploded, growth of Italian output in terms of value was clearly aligned with German output and with the euro area average (and well above French output)

The explanation, in this context, lies in the information content of the time series in terms of value compared with those at constant prices. As a well-established literature has already illustrated<sup>4</sup>, the way Italian manufacturing has pursued a strategic repositioning in its areas of specialisation has been constant qualitative upgrading of its offering, with the aim of avoiding deadly price competition from emerging economies. This process has entailed a constant recomposition (and diversification) of the supply which has implied – given the total value of output and other things being equal – a downsizing in strictly quantitative terms (because as quality increases markets shrink). The success of this strategy is directly measured by Italian producers' ability to increase the average unit values of their exports over time to a greater extent than their competitors, without being forced to sacrifice the overall value of exports<sup>5</sup>.

If the price component is (wholly or partly) excluded from the output measurement, this *change* - on which the improvement of enterprises' ability to compete is based - is ignored (or underestimated), thereby giving a completely distorted picture of the "degree of competitiveness" of manufacturing. In other words, the information content of data at current prices, for the purpose of assessing the competitiveness of a manufacturing system, may be *greater* than the information content of data at constant prices.

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<sup>4</sup> Cf. Among others, De Nardis S. and Traù F., *Il modello che non c'era. L'Italia e la divisione internazionale del lavoro industriale*, Soveria Mannelli, Rubbettino 2005; Lanza A. and Quintieri B. (eds.), *Eppur si muove. Come cambia l'export italiano*, Soveria Mannelli, Rubbettino 2007; De Nardis S. (ed.), *Imprese italiane nella competizione internazionale*, Milan, F. Angeli 2010; Cipolletta I. and De Nardis S. (2012), L'Italia negli anni Duemila: poca crescita, molta ristrutturazione, *Economia Italiana* 34 (1), pp.63-98; Arrighetti A. and Traù F., *Nuove strategie delle imprese italiane. Competenze, differenziazione, crescita*, Rome, Donzelli, 2013; Arrighetti A. and Ninni A. (eds.), 2014, La trasformazione silenziosa. Cambiamento strutturale e strategie di impresa nell'industria italiana, Economics Department of the University of Parma, *Industrial and applied economics collection*, Parma.

<sup>5</sup> As a recent analysis carried out by the Confindustria Research Department shows in this regard (CSC, *Dove va l'industria italiana*. Rapporto 2019, chap. 2, Roma), in the period 2002-2017 the pricing power of Italian producers increased with respect to that of their French, British, Spanish and even German competitors.

**An ongoing methodological problem** In order to fully assess the performance of Italian industry compared with its international competitors, first of all it is necessary to have measures at constant prices that take into account changes in the quality of the offering. This in order to avoid that increases in average prices associated with repositioning strategies aimed at the high end are exchanged for inflation. But that is not enough. The methodologies adopted for all the various economic systems should also *actually* be the same, so that international comparison is not distorted. And this is where problems arise, as precisely regarding this point it is perfectly clear that - in practice - international statistics are *not* harmonised.

The easiest way to illustrate the nature of the problem is to directly compare the various methods of estimating the effects of quality on the trend of industrial goods prices over time (Table A).

The evidence is immediately clear. Some countries do not use any of the assessment criteria proposed by OCSE (and *permitted* for EU countries by Eurostat<sup>6</sup>), while some (including Italy) use only one, and others use two (France, Spain, the United States), three (United Kingdom), four (Japan), five (including Germany) and six (the Netherlands). So the methodologies used to measure changes in quality (and therefore prices) *are not the same* from one country to another. Whatever the preferred criteria are - although it would not be unreasonable to think that using *more* estimation methods provides more accurate estimates of the phenomenon - the constant price statistics derived from them are simply *not comparable with each other*.

**Table A**

**Countries in random order for quality adjustment methods, also within the EU**

Paese:	Methods for estimating the effects of quality on producer price trends						
	First choice:				Second choice:		Third choice:
	<i>Hedonic prices</i>	<i>Option costs</i>	<i>Overlapping prices</i>	<i>Resampling method</i>	<i>Production costs</i>	<i>Expert judgment</i>	<i>Linked to show no change</i>
Austria				X		X	
Czech republic		X	X	X		X	X
Finland	X						
France	X		X				
Germany	X	X	X	X			X
Hungary			X				
<b>Italy</b>			X				
Netherlands	X	X	X	X		X	X
Poland							
Portugal							
Spain			X	X			
Sweden			X		X	X	
United Kingdom	X	X				X	
Japan	X		X	X	X		
South Korea	X				X		
USA	X				X		

Source: CSC processing of OCSE (2011) and Eurostat (2017) information.

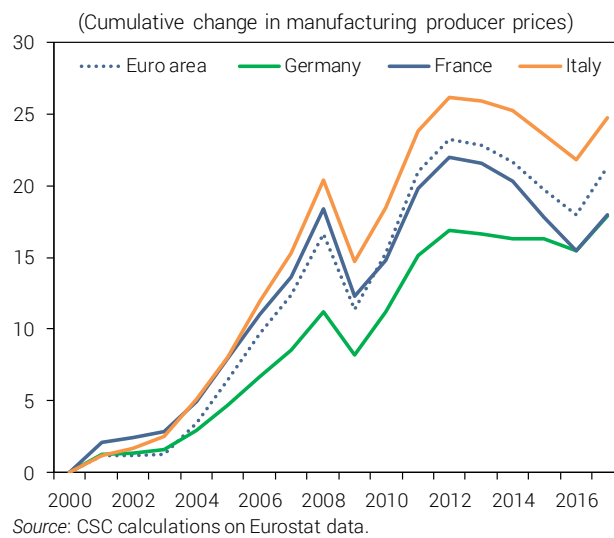
<sup>6</sup> Cf. OCSE (2011), *Producer Price Indices. Comparative Methodological Analysis*, Paris; Eurostat (2016), *Handbook on prices and volume measures in national accounts, Eurostat Manuals and Guidelines*, Luxembourg.

The question is highlighted also by the French statistics institute in a Report entitled "Why has Italian growth been decoupled from French growth since 2000?" (INSEE 2017): "The methods for estimating the effects of quality clearly differ for some consumption items" (p. 46); and "the different treatment of the quality effects also affects the measurement of investment" (p. 48); so "overall, the methodological differences identified regarding the measurements of economic activities help to explain the gap in economic growth between Italy and France" (p. 50)<sup>7</sup>.

The extent of the problem can be immediately grasped by observing the trend of industrial production prices in Italy, which, on the basis of available statistics, is systematically more sustained than the Eurozone average, and especially compared with Germany (Figure B). To date, we are not in a position to say whether and to what extent these differences are the outcome of different methodological choices made by national statistical institutes.

Now, as all the statements regarding Italy's "competitiveness lag" are precisely based on the mere comparison of growth estimates at constant prices thus made, it follows that the entire key to understanding offered for years by the vast majority of observers (but fortunately not by all) needs to be reconsidered.

**Figure B**  
**The anomalous trend of producer prices in Italy based on current estimates**



**Is the interpretation of these data so obvious?** In addition to the methodological problem regarding differing measurement of output trends at constant prices, there is also an interpretative issue deriving from the mechanism of double deflation, which is currently used in the estimation of value added at constant prices. The method is conceptually simple: the level of value added at constant prices is determined by deflating gross output (production, turnover) and acquired inputs (intermediate consumption) separately, and by calculating the difference between the two series. This means that when the prices of gross output and inputs increase (or decrease) at the same rate, the value added deflator is zero. When, on the other hand, gross output price trends are lower/higher than input prices, the value added deflator is negative/positive, implying that growth trends at constant prices are higher/lower than those at current prices.

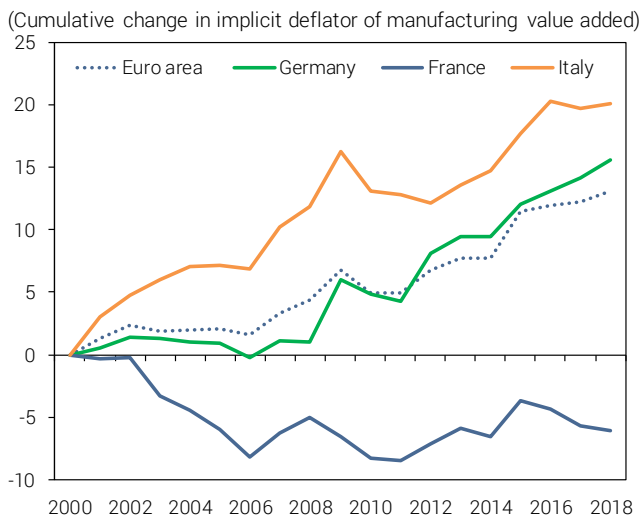
<sup>7</sup> Cf. INSEE (June 2017), *Note de conjuncture*, Paris, pp. 37-52.



This also means that the economic interpretation of the *result* of double deflation is by no means unambiguous, as a specific positive growth trend of value added at constant prices may depend on highly divergent deflator trends. An increase accompanied by a positive deflator indicates that the production system is able to obtain price increases in its gross output which are greater than those of the inputs, revealing an evident "ability to compete". On the other hand, an increase accompanied by a negative deflator (an increase in gross output prices *lower* than that of input prices) implies a reduction in the resources to be allocated to investment and the reward of production factors, and therefore a deterioration in competitiveness.

A comparison between the deflators of manufacturing value added in Italy and in the main Eurozone economies shows that interpretation is not a marginal issue (Figure C). The almost zero real growth (+1,1 per cent) of Italian manufacturing value added between 2000 and 2018 is explained by a deflator trend (+20.1 per cent) that *offsets* the positive trend of nominal value added (+21.3 per cent). In other words, in a period of strong international competition, the price trends of gross manufacturing output have been higher, in the period average,

**Figure C**  
**Italian and French margins move in opposite directions**



than the prices of raw materials, intermediate goods and services acquired from third parties. French real growth, on the other hand, was much more sustained (15.3 per cent over the same period) but coincided with a negative deflator (-6.1 per cent), *which compensated a growth in value that was one third of that registered in Italy* (+8.4 per cent). France is not an isolated case, albeit perhaps the most striking given its economic and industrial weight; systematically negative deflators have also been recorded in Belgium and Finland.

In this context, why should a simplistic interpretation which assumes that Italian value added is reduced because manufacturing is "too inflationary" and therefore inefficient (in terms of price competitiveness) be more convincing than an interpretation that sees value added trends as the outcome of a strategy of increasing unit values (which entails positioning in market segments that are less substantial in terms of quantity), in a perspective in which the primary determining factor of competitiveness is not prices but the *upgrading* of production?

For any business person, what counts in evaluating the performance of a company, and therefore in making strategic planning, is the *value* of its output rather than a mere quantitative measurement of it.

In confirmation of this, it can be noticed that, at least when focusing on manufacturing,



changes in value added at current prices are usually a better predictor of changes in employment than changes in value added at constant prices. Italy and France make no exception to this general trend observed in Europe. Actually, French figures represent the extreme case where industrial output growth in volumes has indeed almost no explanatory power on the evolution of employment, differently from output growth in value (Table B).

Table B

### Output value explains the evolution of employment better than output quantity

(Fraction of variability in manufacturing employment growth explained by value added growth\*)

	Explanatory power using:		Difference in explanatory power
	Nominal value added	Real value added	
France	0.29	0.04	0.25
Italy	0.32	0.18	0.13
Slovenia	0.70	0.57	0.13
Spain	0.16	0.08	0.09
Slovakia	0.15	0.06	0.08
Germany	0.18	0.11	0.07
Netherlands	0.15	0.11	0.05
Portugal	0.14	0.10	0.04
Greece	0.10	0.07	0.04
Finland	0.18	0.15	0.03
Belgium	0.30	0.28	0.02
Austria	0.03	0.02	0.01

Within-R2 values derived from the following fixed effects regression model:  $\Delta \log t Y_i = a + b \Delta \log t X_i + c \Delta \log t^{-1} X_i + \text{Industry FE}_i + \varepsilon_{it}$ , where Industry FE are NACE three-digit numerical code fixed effects for manufacturing sub-industries, Y stands for employment, X for value added. Yearly changes between 2000 and 2016 have been used for each country. *Source*: CSC calculations on Eurostat data.

**Summary** The implications of what has been discussed are the following: i) inherently elusive measures such as net output at constant prices demand to be handled with absolute caution and circumspection, and not as if they were a cudgel; (ii) the series in current values incorporate important information regarding a manufacturing country's "ability to compete"; (iii) the problem of international harmonisation of statistical series (which is at the root of Eurostat's very existence as a *common* entity) is still clearly apparent (and not only with regard to deflators), and calls for urgent action to be taken, because the measures under discussion have an influence on the definition of European policies; (iv) on these grounds, it is unthinkable to expect to evaluate a production system's *degree of competitiveness* merely on the basis of a single indicator (productivity) expressed at constant prices. The value trends and, more generally, a *variety* of indicators must also be taken into account, the most significant of which are not always the most "popular".

These considerations in no way mean that Italian industry has no growth problems (it has many), or that its economic results should be considered the best possible (least of all, during the years of the crisis). The simple point is that, in order to grasp the *real* extent of the problems – which is what is required to establish growth policies based on facts – the most extreme reductionism is of little use. A consistent interpretative tool should be sought among *all* the information that is available to us.