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The labor productivity slowdown of the Italian economy

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INTRODUCTION

In this paper we wish to explain to what is due the slowdown in GDP per capita growth that took place in Italy during the 90s. In the first chapter, we will show that behind such GDP per capita slowdown there is a slowdown of the labor productivity in the manufacturing, service, and agriculture industries. In the third chapter, we individuate the cause of such slowdown in a transformation that involved the world economy towards the end of the 20th century. Market integration, globalization, and technology improvements, put the Italian economy in an awkward situation, in which the traditional sectors of the economy needed to re-invent their core-competence by the means of product differentiation. Firms that could not succeed in this, had to face the fierce competition from low-wage countries; of course, firms that choose this path (i.e.: competing directly with emerging countries) have seen their profit margin reduced, and lower profit margins put serious threats to the survival of the firms.

In the last chapter, we will explain the main obstacles that prevented the Italian economy from successfully adapt to the new economic landscape, and other eventual issues that hampered the growth process.

CHAPTER 1 : sources of growth

PARAGRAPH 1.1: factor accumulation vs productivity

Economic growth stems either from factors' accumulation, or from productivity increases. With factors' accumulation it is meant that process by which (over time) the total of inputs available for production increases. In this paper, we consider a Cobb-Douglas aggregate production function where the only inputs are L and K. Hence factors' accumulation only concerns capital and labor in our analysis. Here we describe more in detail, how factors' accumulation generates economic growth.

In the case of capital, via the process of saving the capital stock increases and (ceteris paribus) capital per worker increases, so workers become more productive and GDP grows. In the case of labor, it contributes to growth either when the hours per worker increase or either when the number of people working in the economy increases.

Instead with productivity, it is meant the efficiency by which inputs of production are converted in

output, hence total factor productivity is the measure of how effectively capital and labor are converted into output. Unfortunately, we can't be more specific than that in defining TFP because it is given by several unknown factors. TFP may depend upon the presence of externalities (e.g.: firms clustered in a production center), on the level of technology, on the production processes, and upon other factors given by circumstance.

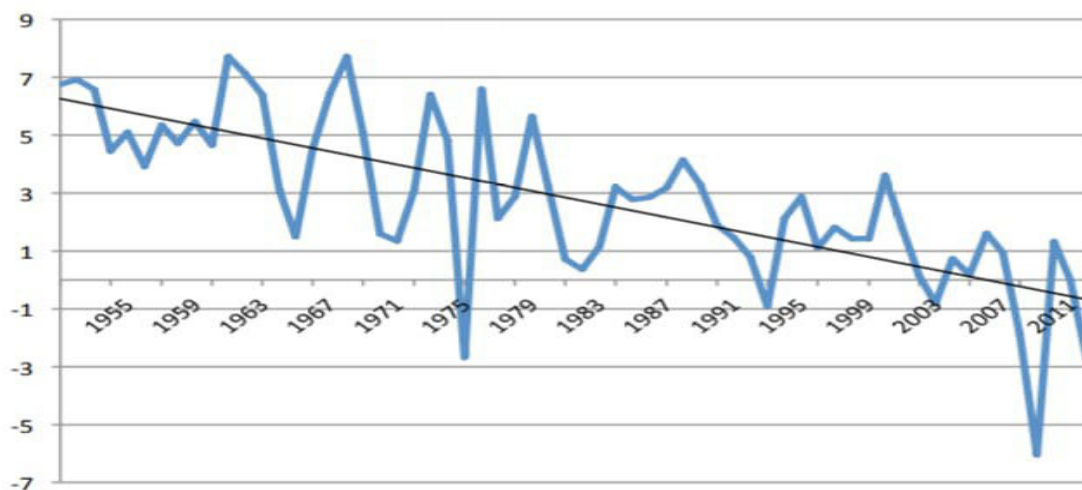
It is important to notice however, that although there is a causal relationship between factors' accumulation and economic growth, the latter cannot be explained solely by the former. TFP has a major role in accounting for growth, it explains most of differences in growth rates and levels of GDP per capita across-countries.

In the next chapters we are going to decompose economic growth in factors' accumulation and TFP growth, so to observe whence growth came and why it slowed for the Italian economy.

PARAGRAPH 1.2: the general picture

sub-paragraph 1.2.1: slowdown of the GDP per capita growth rate

Starting from the 1955 towards the 2011, in Italy it is observable a decrease in the growth rates of GDP per capita: we can roughly say that they decreased (on average) of a 1% every ten years. Hence 5.5% of average growth during the 50s, 4.5% during the 60s... until we arrive around the year 2000, when GDP per capita growth rate zeroes; then GDP per capita picks down in 2008.

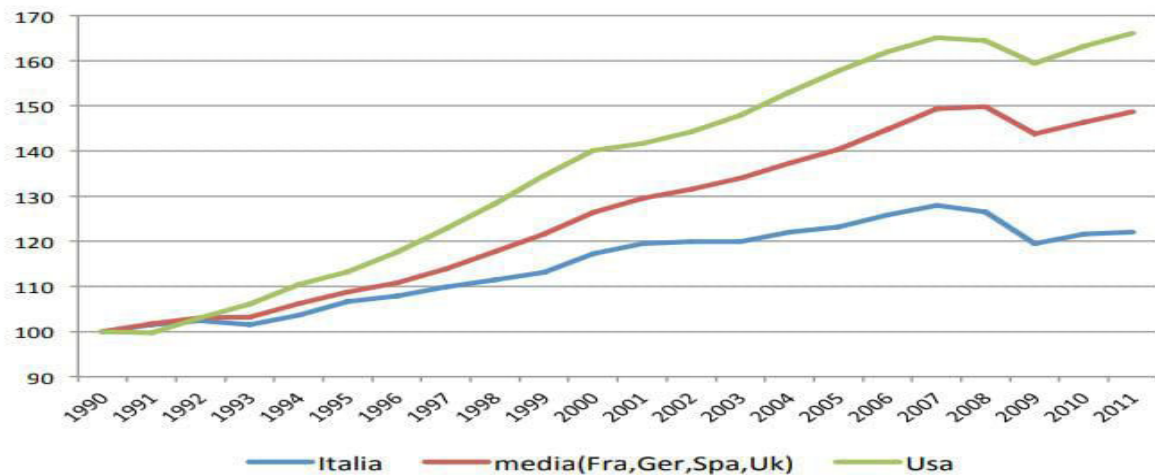


Fonte: Ocse, National Accounts

Italy, GDP per capita growth rates over time

But in this paper we will focus on what happened in the 90s that caused such GDP per capita slowdown, so we will not deal with the crisis of 2008. Therefore, our question is, why the Italian GDP per capita growth rate halted after the 90s? First of all, we need to understand if this slowdown was a trend that involved all Europe or if it just concerns Italy.

Unfortunately, it seems that this slowdown has been harsher in Italy respect to the rest of Europe.

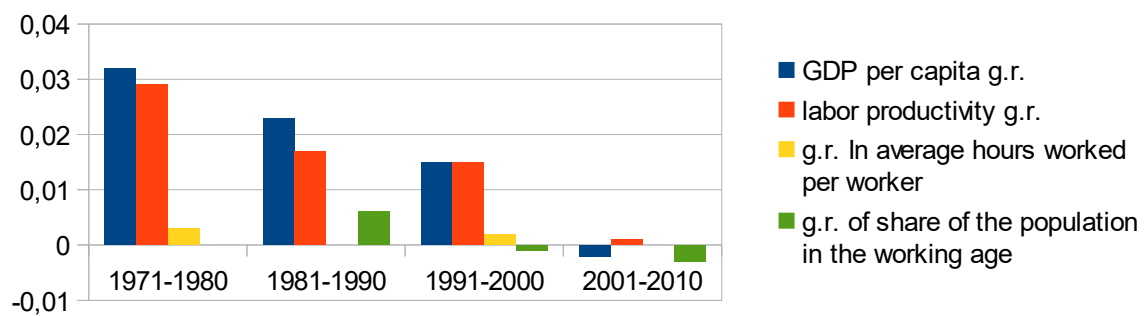


Fonte: Ocse

cumulative GDP per capita growth

By looking at the graph (1990 is the base year) we can clearly see that the European Union and the US has grown way faster than Italy: from the 1990 to the 2004, in terms of cumulative growth there is a difference of (approximately) 30 percentage points with the US and roughly 15 percentage points with the European average. Furthermore we see this gap, both respect to US and Europe, growing larger over time. Hence, we have to conclude that this slowdown does not concerns all Europe, or developed countries more in general, bust just Italy.

In order to understand why the GDP per capita growth slowed down, we have to decompose in its components. We can define the GDP per capita growth rate as the sum of three components: the



source: Ocse National Accounts

growth of the value added per hour worked (i.e.: labor productivity), plus, the growth of the

average number of hours worked per worker, plus, the growth of population in the working age respect to total population. The Italian slowdown finds its origin mainly in a sharp decrease in Labor productivity, and partly in a decrease of the population in the working age, and the contribute of labor input accumulation (i.e.: hours worked per worker) even if positive has been trifling. We can clearly see it by looking at the panel: the 3.2% average growth rate in GDP per capita during 1971-1980 was sustained by a labor productivity growth of 2.9%; during the period 1981-1990 the labor productivity contributes for 1.7 % (respect to 2.3% of average GDP per cap. growth) while the baby boomers' entrance in the labor market contributes for the 0.6%; in the following decade, GDP per capita is entirely sustained by labor productivity with 1.5% of average growth rate for both of them; in the last decade 2000-2010 labor productivity growth zeroes, and GDP per capita turns negative (-0.2%). Hence we have to conclude that this slowdown in GDP per capita is specific to the Italian economy and that is due to a slowdown in labor productivity.

Therefore in the next chapter we will explain which industries in particular, sustained the growth of labor productivity.

Sub-paragraph 1.2.2: labor productivity

Labor productivity measures how much output is produced in an hour of work. Labor productivity per worker is directly determined by the physical capital per worker, by the level of technology, and by the human capital per worker. It is self-evident, that improvements in labor productivity bring improvements in living-standards, because with the same hours of work it is possible to produce more output. Of course, increases in labor productivity have a positive impact on total factor productivity.

CHAPTER 2: labor productivity slowdown by sector

In this chapter we describe the industries that have sustained the labor productivity growth until the 90s. These industries are manufacturing, agriculture, and services. The picture that comes out, is the one of an economy that halted for all of these three industries. Manufacturing halted both in the sectors of durable and non-durable goods. Service industry stopped growing because of a slowdown in the non-ICT sector, and an accelerating growth in the ICT sector that has not been grabbed by the Italian service industry. Agriculture, has a collapse in 2000-2003, and it loses weight in the economy for reduced shares in FTE employment. The only sector that was performing fine after 2000 is utilities, that we will discuss better in chapter 4 because its statistics may be misleading. But in general, what emerges is that the most thriving industries of the economy stopped growing without being replaced by other industries.

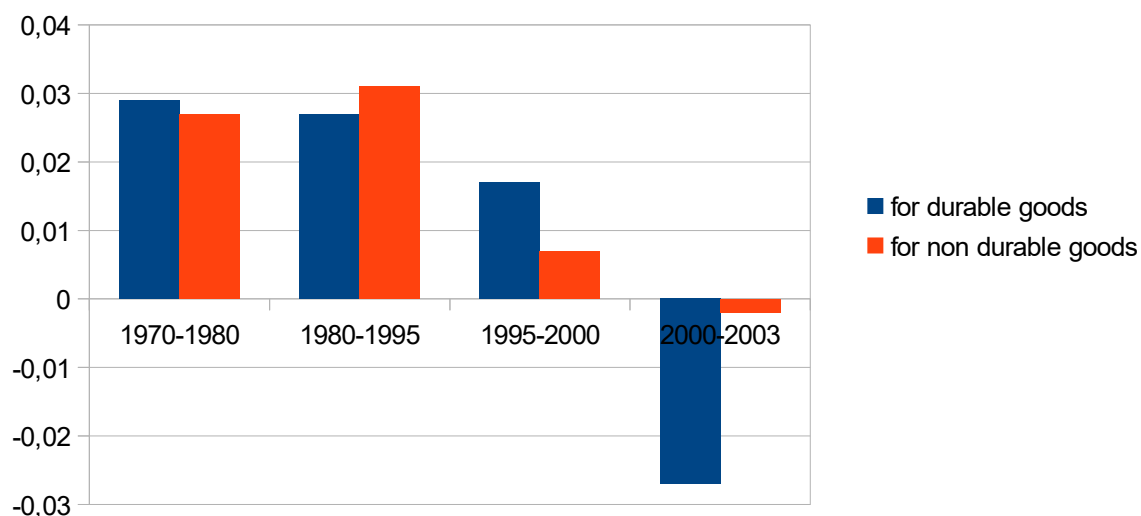
PARAGRAPH 2.1: labor productivity slowdown in manufacturing

sub-paragraph 2.1.1: statistics about performances

The manufacturing sector was already sluggish in Italy during the 70s', but nonetheless, it was the most significant contributor to labor productivity growth. During the 70s' the manufacturing sector amounted to the 27% of the full time equivalent employment, and in that decade its yearly average labor productivity growth rate was 2.8%, that is 0.4% higher than the average of the Italian economy. Alas, during the period 1980-2003 manufacturing ceased to be the main driver of growth for two reasons. First: there was a decrease in the FTE share of the manufacturing sector, that went from the 28% at the beginning of the 80s' to the 22% in the year 1995. Second: in the period 1995-2000 the labor productivity growth in manufacturing went close to zero (0.2%) , and it became negative in the period 2000-2003 (-1%). Being that this industry was employing roughly more than one fifth of the total working population and it suddenly stopped growing, without a proper reallocation of resources a slowdown of the general economy was unavoidable. However, reduction of the FTE share of manufacturing has been a general trend in developed countries and especially in Europe: for example in the UK, the work force employed in manufacturing went from the 25.1% to the 13.2% during the period 1980-2002, and countries in the Euro zone were featured by similar figures. There are two main causes for this phenomenon: the innovative nature of the manufacturing sector, in which it is usual for production processes to become gradually more efficient, so that part of the work force is freed from the sector; the other cause is in the abatement of transportation costs, that allowed the offshoring of labor intensive production processes in countries where the cost of labor is lower.

This for the general picture in the manufacturing industry, but for a deeper analysis there is an other relevant distinction to be made: the manufacturing industry can be divided in non-durable and durable goods. There are some performance differences between these two sub-groups . For the time periods 1970-1980, 1980-1995, 1995-2000, 2000-2003, the yearly average labor productivity growth rates have been respectively 2.7%, 3.1%, 0.7%, -0.2% for non-durable goods, while for durable goods growth rates were 2.9%, 2.7%, 1.7%, -2.7% .

yearly average labour productivity growth rates



source: Daveri's computation from OECD STAN data

The non-durable sector of the manufacturing industry consists in wearing, textiles, leather, that are most commonly referred to as the "made in Italy". As we were mentioning before, this sector is put under strong competitive pressure by low-wage countries, hence to remain competitive on the market (in terms of profit margin) productivity improvements are necessary, and such slowdown in the labor productivity growth rates of the non-durable sector poses a credible threat to the sustainability of the competitive advantage of the Italian firms.

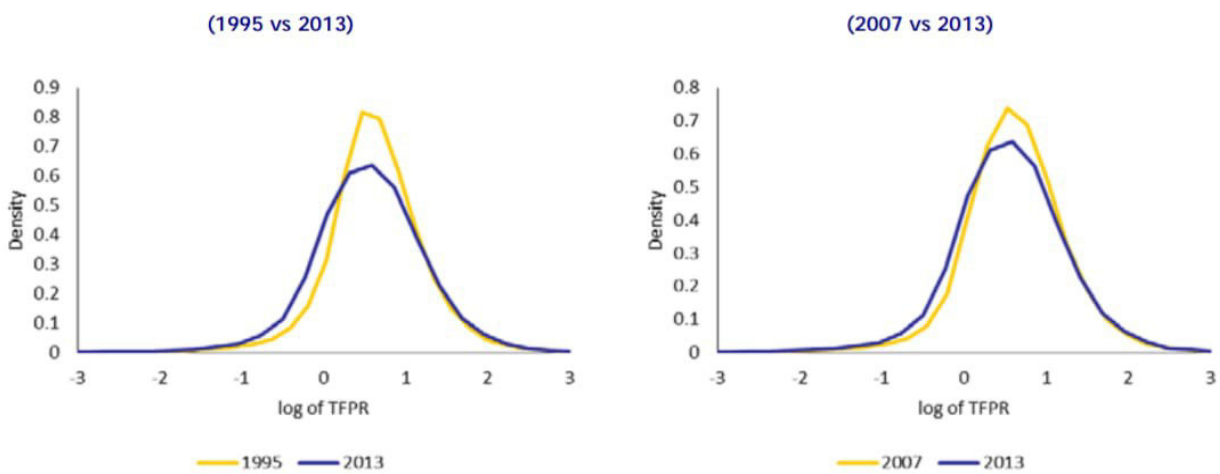
Instead the durable goods sector is mainly concerned with the production of hard factory goods (furnitures, tools, electronics, etc...) that are usually employed in other production processes, and hence, depending on the intangible resources that the economy can draw upon (e.g.: human capital), it will (or at least it supposed to be) be vehicle of innovation. So being that such sector is innovative by definition, its growth rates are expected to be higher independently from R&D expenses, human capital, and the like. Unfortunately, this did not happen in Italy, and for the period 2000-2003 a negative growth rate of -2.7% in the durable sector is just dismal.

Furthermore, in the global economic scenario things gradually changed for firms operating in the manufacturing industry, and here we are going to explain how.

Sub-paragraph 2.1.2: misallocation in the manufacturing sector

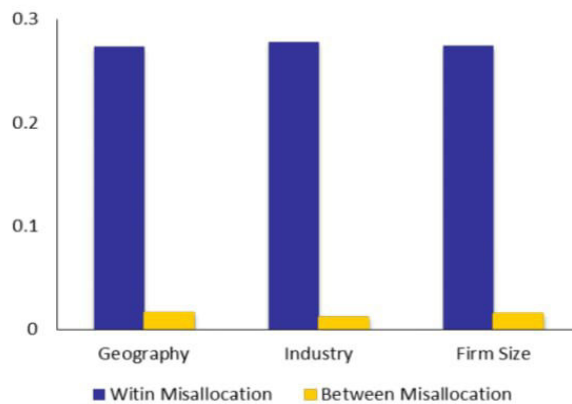
Del Gatto and alia in their paper studied misallocation in the italian manufacturing sector. In order to do that, they computed total factor productivity revenue (i.e.: total factor productivity with

revenue as a proxy for output) and from that they computed TFPR variance, where TFPR variance is the sum of two components: "within group" misallocation and "between group" misallocation.(1) For the purpose of better understanding the misallocation pattern over time, they took from the total time-span (1995-2013) a shorter segment (2007-2013). In this way, it is possible to compare the density of firms with a certain TFPR across the two time periods, in order to see if the more relevant changes took place during the period 1995-2007 or during the period 2007-2013. What emerges from the study, is that there has been a 69% increase in aggregate misallocation, and such increase took place mainly during the period 1995-2005: the increase in low productivity firms that took place between 1995 and 2013 is of way bigger magnitude respect to the one that took place between 2007 and 2013.



source: LSE Enterprise
distribution of total factor productivity revenue in manufacturing

The bulk of such misallocation came out to be of the within type, independently from the

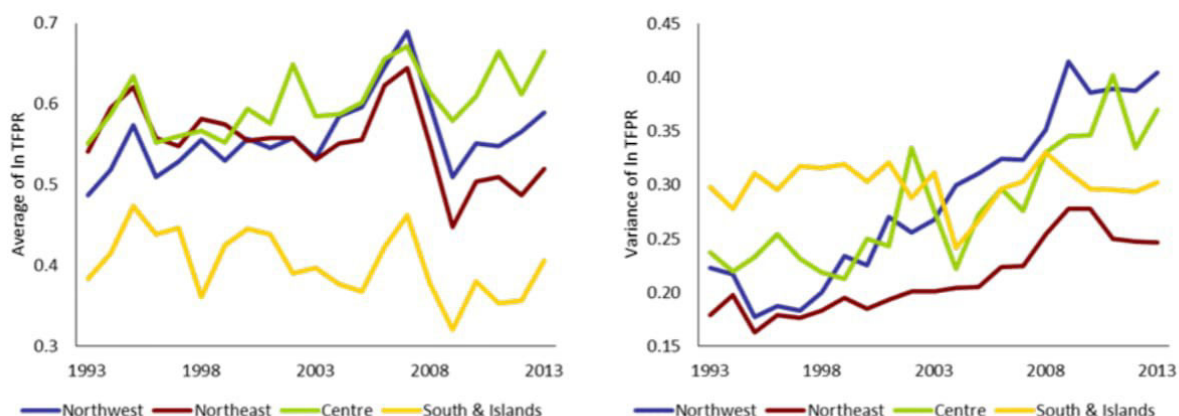


source: LSE Enterprise
within vs between misallocation

considered dimension.(2)

It also appears that in terms of geography the growth of misallocation has not been homogeneous:

on average, TFPR levels are lower in the south, but while misallocation was higher in the south at the beginning of the period, at the end of it misallocation is higher in the north; moreover, misallocation grew in a more pronounced way in the northeast and centre areas. (3)

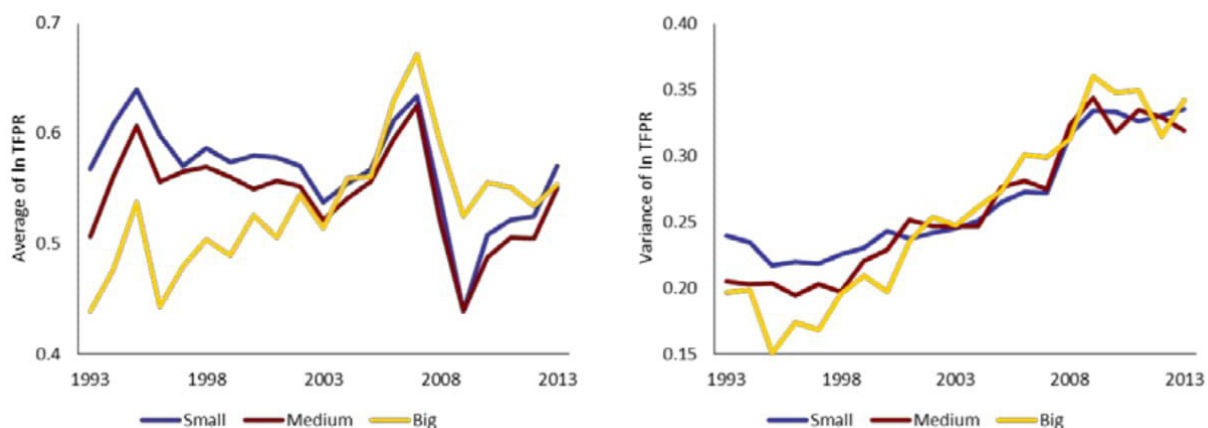


source: LSE Enterprise

On the left: evolution of TFPR according to geographic area. On the right: evolution of misallocation by geographic area

Misallocation and TFPR grew at a different pace also accordingly to firms' size: although at the beginning of the period large firms were less productive in terms of TFPR respect to medium (and small) firms, while the latter saw their average TFPR reduced, for the formers it happened the opposite. Hence around the mid-2000s average TFPR of large firms became bigger than the one of medium (and small) firms.

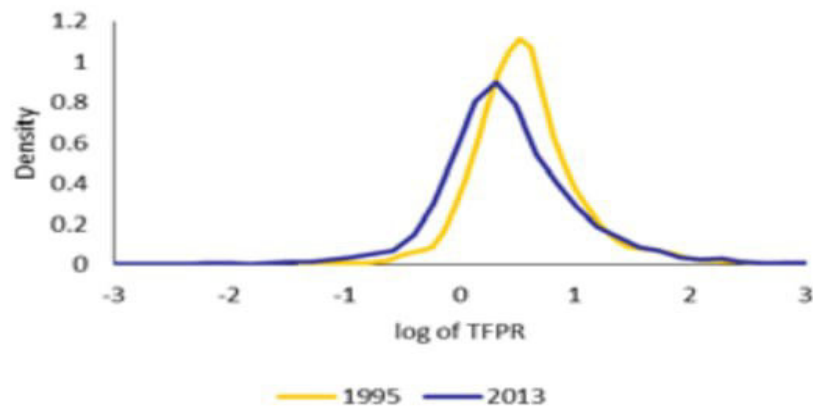
Nonetheless, misallocation grew in all groups but more prominently in the group of large firms. (4).



source: LSE enterprise

On the left: evolution of TFPR by firm size. On the right: evolution of misallocation by firm size

Being that for large firms both misallocation and average TFPR grew, there is reason to think that some firms in that group had remarkable raises in productivity while some didn't.



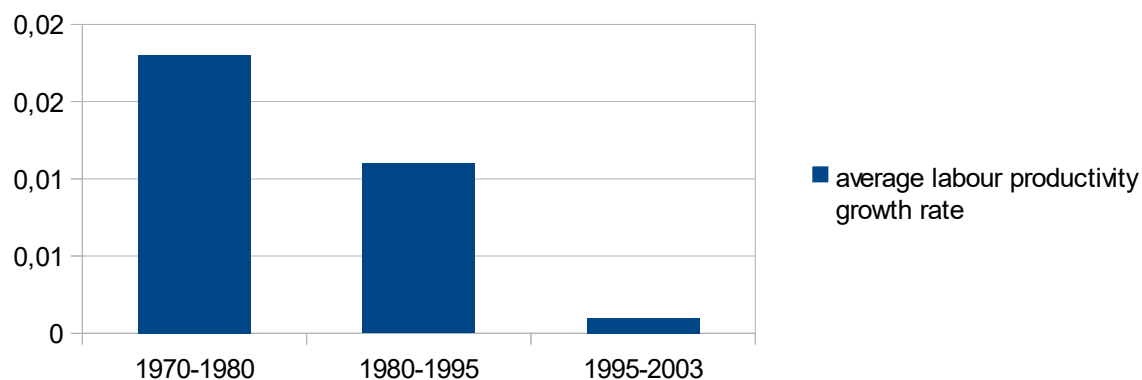
*source: LSE Enterprise
Distribution of TFPR for big firms*

This said, misallocation grew in a very heterogenic manner across the industry. For the "paper", "vehicles", "chemicals", and "machinery" sectors, misallocation grew in concomitance with average TFPR. This makes us presume that only a few firms became more productive. Lastly, the trend of declining TFPR has been partially offset by the "paper", "vehicles", and "minerals" sectors, that became more gradually more relevant for the economy.

- (1) Del Gatto and alia used the CERVED database in their computation, and manufacturing firms have been classified according to the ATECO 2002 classification
- (2) misallocation can be measured according to geography, industry, and size of the firm
- (3) geographical areas in the paper are: northwest, northeast, centre, south & island
- (4) in the paper, a firm's size is classified according to the following for categories (micro, small, medium, big)

PARAGRAPH 2.2: services

An other industry that is poorly performing is the business sector service industry, whose labor productivity used to grow at yearly average of 1.8% a year during the period 1970-1980. Successively, its yearly average labor productivity growth rate continued to decrease: it became 1.1% in the period 1980-1995, and it decreased furtherly in the period 1995-2003 reaching the value of 0.1% . Hence, we can see that productivity in the business sector services decreased relentlessly during the period 1970-2003, indicating a clearly declining trend.

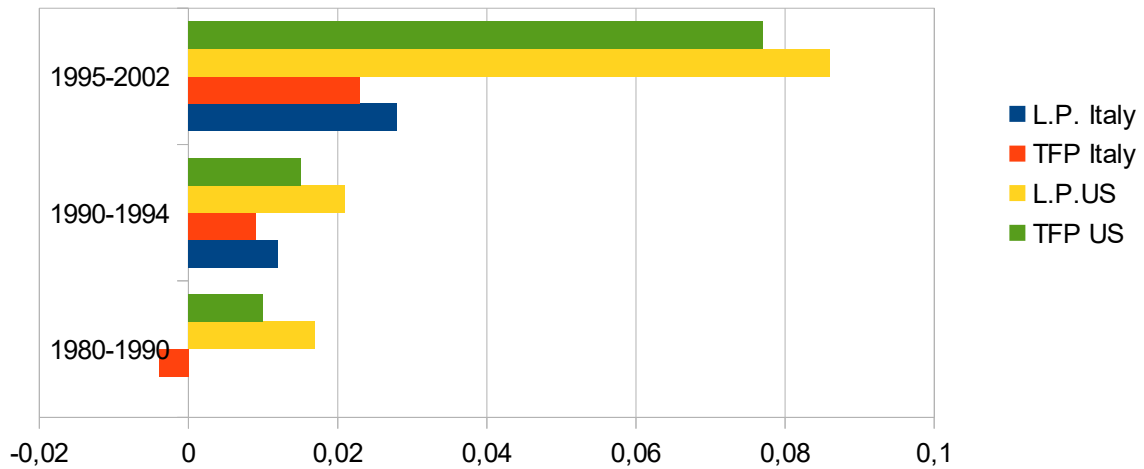


source: Daveri's computation on OECD STAN data

Beside the actual loss in the contribution to total labor productivity growth, such decline in productivity is startling also for an other reason. In the US, rather than a decrease there have been an increase of the average yearly labor productivity growth rates in the business sector services industry (5) during the second half of the 90s'. Growth rates amounted approximately to the 3% or 4% . The probable cause for such difference in performances between Italy and US, is that there was a new technology whose adoption had yet not taken place in the Italian economy. Observing the statistics for the ICT sector and the non-ICT sector, this last claim appears particularly clear. During the period 1980-1990 the labor productivity growth rate of the ICT sector amounted to the 0.0% in Italy, while in the US it amounted to 1.7% ; in the period 1990-1994 it amounts to 1.2% for Italy, and it amounts to the 2.1 % for the US; but the most remarkable data comes from the period 1995-2002, where the yearly average labor productivity growth rate amounts to the 8.6% for US and only the 2.8% for Italy. In parallel, we can see the TFP to follow a pattern coherent to the labor productivity of the two countries. Always considering only the ICT sector, we have for the three periods (1980-1990 ; 1990-1994 ; 1995-2002) a TFP growth respectively amounting to -0.4% , 0.9% , 2.3% for Italy and 1% , 1.5% , 7.7% for the US. Furthermore, from the period 1990-1994 to the period 1995-2002, value added share of the ICT sector respect to the GDP went from the 34% to the 44% in the US, while for Italy it remained roughly constant.

ICT sector: Italy vs US

TFP growth and yearly average labour productivity growth rate



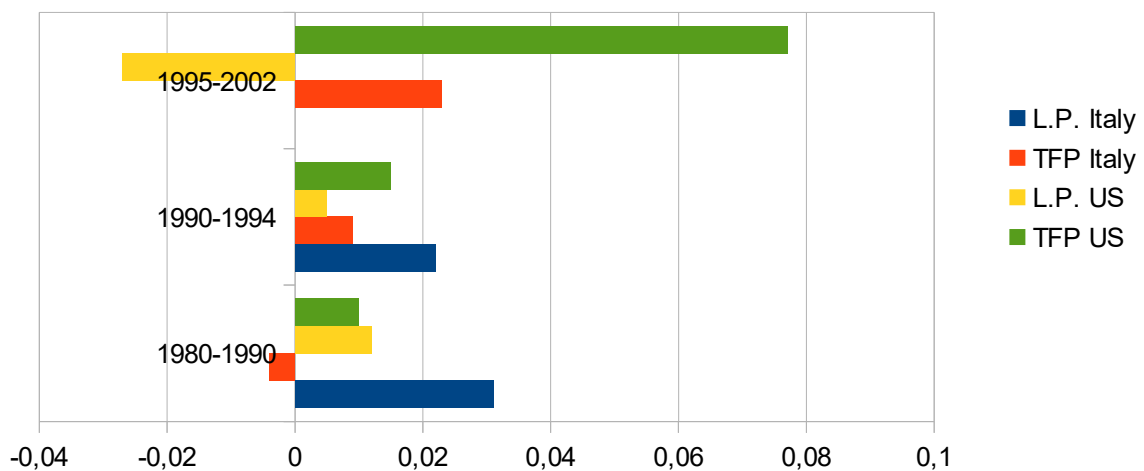
source: GGDC

Just by looking at the graph, we see that there might be some correspondence between the growth of labor productivity in the ICT sector and the growth of TFP.

The story is different instead, when we look at the non ICT sector. During the selected time periods (8) labor productivity exhibited a declining trend for both countries: growth rates for the US were respectively 1.2% , 0.5% , -2.7% , while for Italy they were 3.1% , 2.2% , 0.0% .

non-ICT sector: Italy vs US

TFP growth and yearly average labour productivity growth rate

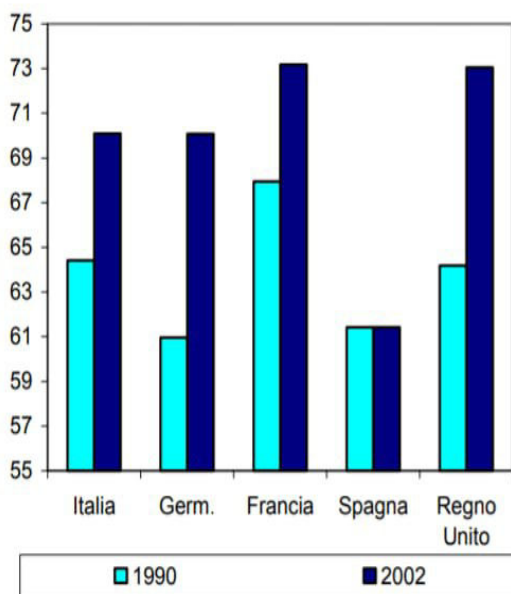


source: GGDC

What we see in the upper graph (especially for US), is that TFP continues to grow even if the labor

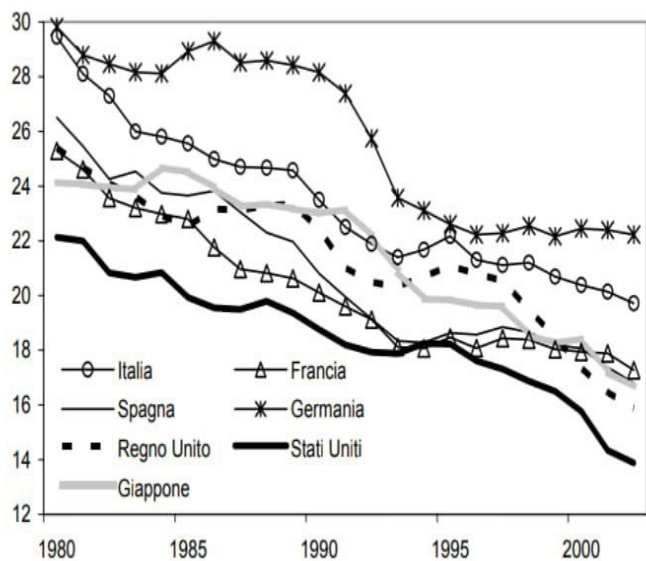
productivity of the non-ICT sector does not.

So what happened, is that the slowdown of labor productivity in the US in the non ICT sector has been outbalanced by the growth in the ICT sector. Unfortunately, this did not happen in Italy. The probable cause, may lie in some crucial features of the Italian firms that hampered the adaptation process: the family structure, the small dimension of the firms, their lack of adequate capital resources, and the bias to invest in labor intensive industries. These factors might have made the Italian economy unprepared for the new-coming challenges of the digital economy, being that investing in the ICT sector entails prohibitive fix costs, so requiring a large amount of capital. Hence this dismal performance in the business sector service industry is due to the lost opportunity in the ICT sector. An other reason for concern lies in the fact that part of the service industry provides services that are complementary or directly connected to the manufacturing sector. As we were mentioning before, sectors like the ICT, R&D, transportation, accountancy, consultancy services, all these sectors are acquiring a prominent role for the manufacturing industry in developed economies as it is increasingly relying on these services. Even in the manufacturing industry itself, marketing (hence distribution) and design are becoming more important than the production process it-self, that is often outsourced and decentralized . So there is a change in the resources allocation of firms: the bulk of the budget is devoted to those intangible activities (as the aforementioned) that are more effective in generating profit . We can also see this trend in Europe: with the exception of Italy and Spain, all the other countries had a relevant increase in their value added share of services respect to GDP over the time period 1990-2002, while the trend has been the opposite in the manufacturing industry (i.e.: decreasing value added share of the manufacturing industry respect to GDP).



source: Banca Intesa computation on GGDC data

% value added share of services respect to GDP, current prices



source: Banca Intesa computation on GGDC data

% value added share of the manufacturing industry respect to GDP, current prices

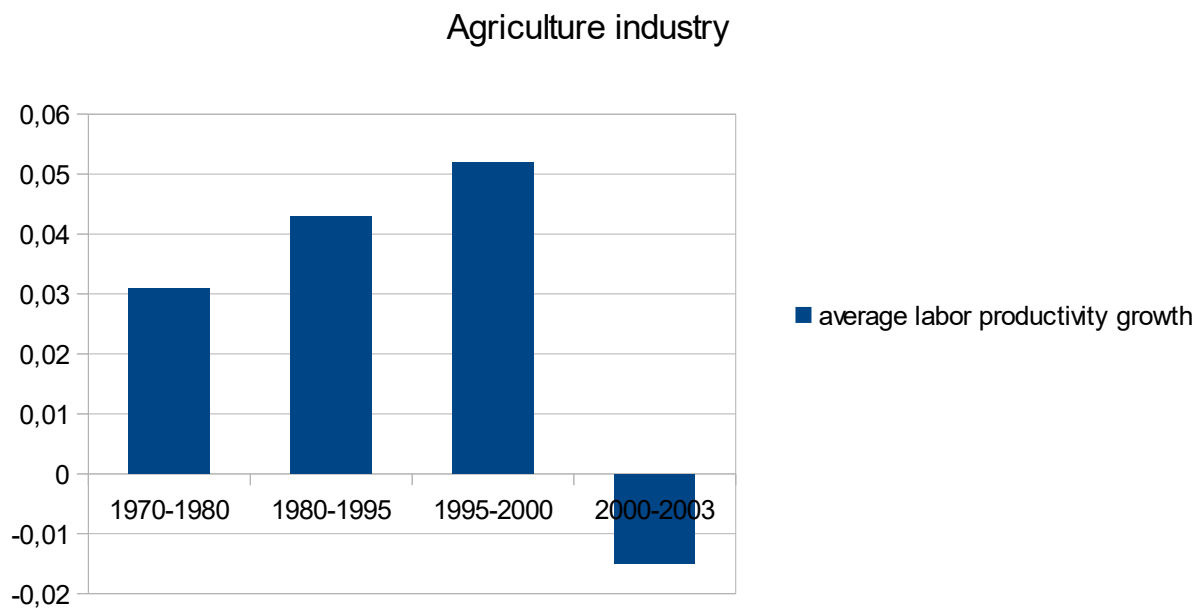
In conclusion, during the 90s' manufacturing went losing importance while services (mainly ICT based) became increasingly more important, also in competition to the manufacturing activity. Hence the Italian service industry, had not been to successfully grasp and implement the new technology (ICT) and so it could not compensate the slowdown in the service industry. Being that the service industry is complementary to manufacturing, a weak service industry resulted in a loss of competitiveness for the manufacturing industry.

(5) Daveri in his paper with the expression "business sector services" meant sectors such as finance, TLC services, wholesale and retail trade.

(8) time periods are 1980-1990, 1990-1994, 1995-2002

PARAGRAPH 2.3: agriculture

The other worth-notice labor productivity slowdown that took place in Italy during the 90s' concerns the agriculture industry.



source: Daveri's computation on OECD STAN data

Although it continued to grow at an increasingly faster pace during the period 1970-2000, it collapses at the beginning of the millennium. In the period 1970-1980, a yearly average labor productivity growth of 3.1% is observed, and in the following period (1980-1995) it rises to 4.3%. In the period 1995-2000 average labor productivity continues to grow at a faster pace (5.2%), but

it abruptly collapses in the years 2000-2003 with an average annual growth of -1.5%. However, it is important to point out that being that a relatively small share of the working population was employed in agriculture, its effect on the aggregate labor productivity growth rates (and hence on economic growth) were of minor entity if compared with the ones of manufacturing and services (i.e.: slowdown in manufacturing and services more significantly hampered growth).

Moreover, it has to be said that such decrease of labor productivity growth in the agriculture industry may not be specific to the Italian economy, it may be a global phenomenon. There seems to be a slowdown in agriculture's labor productivity taking place independently from the income per capita of a country or its geographical location. If we exclude China, it is correct to say that globally, labor productivity growth rates went slowing down after the 90s'. (9) It is also true that globally, the agriculture industry grew slower respect to other sectors and hence, its contribution to the global real GDP went from a 5% to a 3.9% .(10) This because of other economic activities (e.g.: business sector services) that went growing faster than agriculture. Hence, we mentioned the slowdown in the agriculture industry because agriculture, together with manufacturing and services, has been one of the key engine of the Italian growth from the 70s to the 90s. Nonetheless this slowdown is not particularly worrisome, because it might be systemic, and because there are sectors with higher unexploited potential.

(9)Alaston and alia worn that this data might not be reliable for issues in output measurement (i.e.: comparing crops of different plants)

(10)This data has been observed during the time-span 1970-2017, the source is the "United Nations Statistics Division and Food and Agriculture Organization"

CHAPTER 3: a new economic landscape

In this chapter we want to describe the structural changes that radically transformed the manufacturing industry towards the end of the 20th century. Several structural changes in the manufacturing industry (and more generally, in the global economy) created market conditions that imposed new challenges for firms. First we will describe the new market environment in which the firms found them-selves to operate. This new environment is way more unstable than the former one, and product diversification fragmented the market in many niches. Such fragmentation changed the profitability of different business activities (i.e.: the Smiling Curve) and firms had to re-adapt their strategy accordingly. We will also discuss the WCM, a managerial set of practices that are objectively replicable, and that proved them-selves to be particularly suited for the new market environment.

PARAGRAPH 3.1: how the manufacturing industry has changed

In order to assess why the Italian manufacturing industry performed so badly, it would be also useful to explain how the global market evolved. During the 90s', it is reasonable to say that in the developed countries (11) high technology manufacturing and high-medium technology manufacturing increased their value added shares respect to the low-technology manufacturing. Nonetheless, the Italian economy went in the opposite direction, with growing shares of value added for the low-technology manufacturing sector. Hence the Italian economy furtherly specialized in the low technology production (e.g.: apparel, textiles, and the like) while it did not make any relevant progresses (in terms of growing shares of value added) in the high-technology production (e.g.: pharmaceuticals, electronics, aerospace). The same can be said for the high-medium technological sector with the only exception of instrumental mechanics, in which the Italian economy is actually specialized. This increased value added share for the high-medium/high technology manufacturing of developed countries is the result of a transformation in the mainstream business practices.

During the 20th century, the production of goods was standardized and economies of scale were a staple in the manufacturing industry. Economies of scale bring with them-selves two advantages: they increase efficiency, either by increasing marginal productivity of production factors, or by decreasing marginal costs (or both things simultaneously); the second advantage stands in the creation of consumer demand taking place thanks to the decrease in prices. This production system generated goods that were similar to each others (i.e.: perceived as substitutes) and firms, in order to gain and sustain their competitive advantage, had to invest a large capital in order to achieve economies of scale and successively, they had to invest in R&D to lock their competitive advantage. In such a paradigm, key elements for success were the maximum possible level of automatization achievable during production, the division of labor (hence specialization), a rigid vertical structure for internal organization (12). In this setting, production was entirely decided ex-ante by technicians. R&D in a functional area was then in harmony with the internal organization of a firm, and it was mainly aimed at creating entry barriers. This efficiency in production, came at the price of homogeneity, that is to say that consumers were assumed to have the same taste, and the customization of the product was unfeasible. In this industrial setting, countries with a certain amount of GDP per capita, a reliable macroeconomic policy, and a forward looking political system, those countries were the most likely to give birth to successful firms. Hence firms found themselves operating in a seemingly oligopolistic context (13) and consumer's demand was foreseeable (up to a certain extent). Such status quo gradually changed because of globalization (transportation cost abatement, markets integration, abatement of trade barriers) and in the setting of a global economy, product differentiation became a vital element to achieve competitive advantage. More

emphasis was put on the consumers' love for variety and on the heterogeneity of their individual preferences. Firms perceived the offer of a variety of goods as something that per se generated value. But the more firms adopted this strategy, the less was the benefit from it. A large number of firms, all selling different products, caused the market to get fragmented in many niches, where firms in order to protect their market share and to stay competitive needed to constantly innovate. Hence the source of competitive advantage was not anymore the innovation by itself, but rather the capacity of the firm to innovate addressing consumers' needs. The fact that most of the firms were pursuing strategies of product differentiation, led to an increase in the complexity of the market environment, which now was more uncertain, and subject to fiercer competition. New macroeconomic policies (14) also contributed to generate further instability in the micro-economic environment. Hence uncertainty became a fact that the firms had to adapt to, and in order to do that, firms needed to massively invest in intangible assets (hence in human capital), so investing in their capacity to innovate. Hence, a rigid vertical structure was not anymore an efficient organization for a firm. Flexibility to unstable market conditions became a necessary requirement and to achieve competitiveness, decentralization of responsibilities, information, and the development of human capital, were the most suitable means. Unfortunately, very few Italian firms had the characteristics to succeed in this new setting, and in the fourth chapter we will explain why.

(11)with the expression developed countries we make reference to the US, Italy, Germany, Spain, UK, and France, that are the countries included in the study group by Foresti and alia in their paper.

(12)With the expression vertical structure we meant the following. Responsibilities are neatly defined and information flows according to hierarchy (subordinates report to their superior), hence decision making is centralized and firm's operation are planned ex-ante by the management

(13)market participants were a few firms that ripped significant economies of scale

(14)we mean that set of regulations that augmented the free market and free capital flow worldwide, we don't delve in detail because it would require its own dissertation

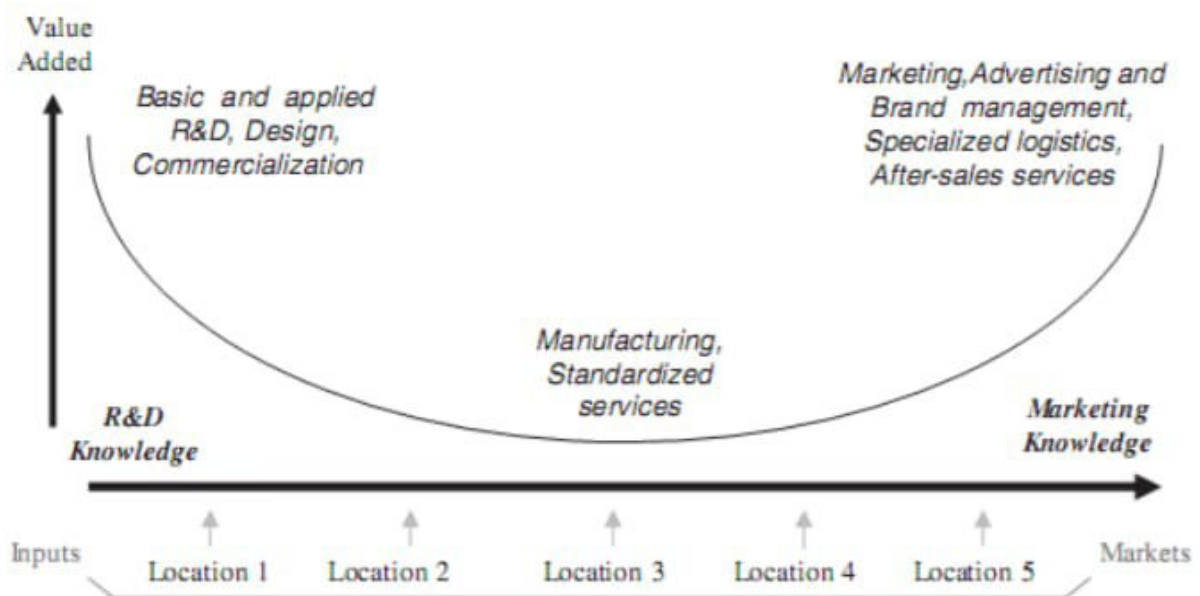
PARAGRAPH 3.2: the smiling curve

How we were mentioning in this chapter, in the last years pre-production and post-production activities are deemed to retain an higher potential for profit respect to the production process it-self. In order to explain this, we have to define the concepts of value creation and value chain. According to Stabell & Fjeldstad (1998) there are three possible modalities for value creation.

1. The value chain: the conversion of inputs of production into outputs by the means of a long-linked technology; i.e.: the full range of activities the firm does, from product's ideation to distribution to end-customer.

2. The value shop: a place that solve a particular customer's issue by the means of intensive technology.
3. The value network: a structure facilitating (or allowing) the connection between two or more customers.

For example in the case of the ICT industry, we can say that the conception of a product starts from R&D and design, the product is then assembled according to the specifics, and then is marketed and distributed to consumers. It is quite reasonable to think that to these stages in the production process correspond different value added. A graphical representation of this concept gives us the "Smiling Curve" and the first individual theorizing it was Stan Shih (founder of Acer). He argued that most of the value added lied in the activities of R&D and design, this because such accumulation of competences created entry barriers and hence, market power. In this paper we will present the "smiling curve" version of Mudambi (2008), here follows a graphical representation of the curve.



How we can see, the activities capturing most of the value added are the ones at the beginning and at the end of the value chain. In the pre-production phase, stages capturing an high share of value added are R&D (basic and applied), design and commercialization. In the post-production phase, stages capturing an high share of value added are marketing, branding, logistic and after-sale support. The production phase (the manufacturing process or the provision of a standardized service), is instead the one featured by the lowest value added share(15).

Some explanations are needed. We present three theories that together are apt to explain the dynamics that shaped the value added curve in such a way(16): the global value chain upgrading theory, the industrial organization theory, the resource based theory.

Global value chain upgrading theory: competition in the manufacturing industry became fiercer because of many producers from low-wage countries entering the market in order to leverage such

competitive advantage. Incumbent firms in order to stay competitive need to constantly upgrade, and there are three types of upgradings: process upgrading, that consist in an improvement (both technological or organizational) leading to increased efficiency in the production process; product upgrading, that consist in upgrades apt to increase the product's perceived value (perceived from the customer); functional upgrading, that consist in the acquisition of new functions in the firm or in the abandon of some old functions (i.e.: an upward/downward expansion/reduction of the firm's participation in the value chain). This last kind of upgrading needs to be highlighted, because its practical implications is that firms, in response to the raise in competitiveness, may choose to move upward or downward (in the value chain) according to profitability.

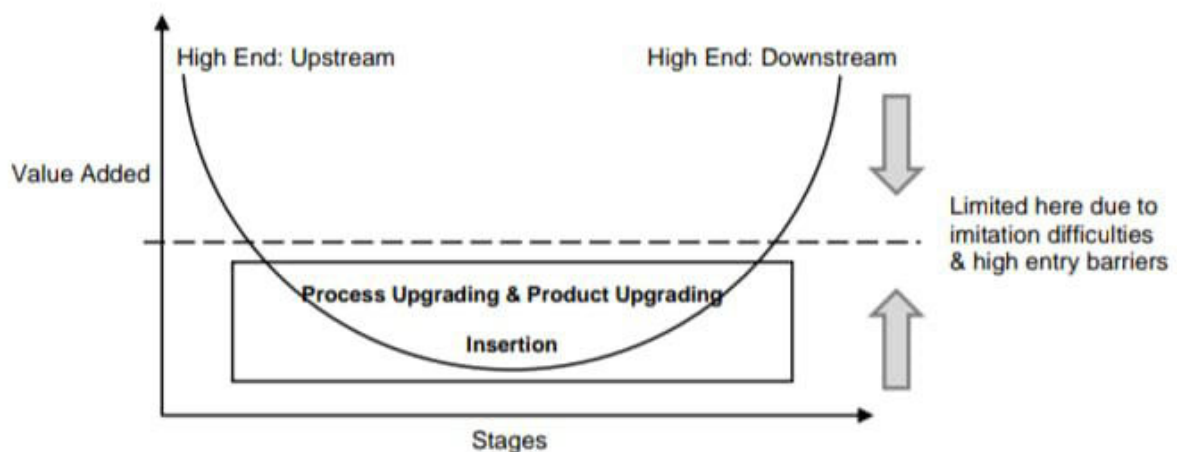
That is to say, a firm may choose to just engage in pre-production activities even if its prior focus was on manufacturing.

Industrial organization theory: this theory is concerned with the structure of the market and of the industry in which the firm operates. There is a special attention for the way in which the firms' strategies structure the market (hence the industry) and its dynamics. The reference framework for this theory is the Structure-Conduct-Performance framework. The structure corresponds to the market environment in which the firm operates (e.g.: perfectly competitive market, oligopoly, etc...), hence the market environment is determined by the number of firms in the market, and by the Conduct of those firms. Conduct consists in the strategy a firm decides to pursue, and such strategy is determined by the market environment It is worth notice that there is an interplay between Conduct and Structure. Lastly, Performance is concerned whether or not the firm has been successful in generating total surplus. Therefore IO theory predicts different firms' behaviors according to the different plausible scenarios. For example, this theory predicts that in a situation of perfect competition firms will fiercely compete with each others, and because of their feeble market power all firms will be able to gain only a narrow profit margin (17) while struggling to maintain their competitive advantage. In such a setting, firms' profit margin is too low to allow profit retention and consequent investments. At best such firms have incentives to increase efficiency by the means of process upgradings, or to make some product upgradings with the purpose of better meeting the requirements of their customer's, but entry barriers will prevent such firms from functional upgradings.

Resource-Based theory: such theory conceptualizes the firm as a bundle of resources and capabilities, where capabilities are needed to organize resources effectively in order to gain and sustain the competitive advantage. With the word resources is intended every asset, both tangible or intangible, that the firm can draw upon when formulating a business strategy. With the word capabilities is meant the (deeply embedded and non transferable) ability of the firm to organize its resources to effectively formulate a business strategy. By combining the resource-based theory with

the IO theory, the VRIO framework comes out. The VRIO framework is a framework useful to identify a firm's competitive advantage (and eventual sustainability) from its resources. If the resources of the firms are valuable (i.e.: they generate value), rare (i.e.: obtainable with difficulties), inimitable (i.e.: impossible to imitate for competitors), and organized (i.e.: organized in a structure effective for capturing the generated value), then there is a sustainable competitive advantage in the firm.

With the combination of these three theories we can formulate a model that explains the shape of the "Smiling Curve".



This picture is a graphical representation of such model. With the word "Insertion" it is meant the presence of the firm in a stage of the value chain. The dynamics are the following. Incumbent firms in manufacturing see competitors from low-wage (emerging) countries entering the market. As the number of firms in the industry increases, the manufacturing industry (especially the one of ICT products) become increasingly similar to the perfect competition framework(18). Incumbents in order to safeguard against competitors, have to upgrade. Because the standardized nature of the manufacturing industry, cost-leadership strategies are the ones more likely to lead to success in such a context, and firms in developed economies cannot imitate the competitive advantage of low-wages. Insertions, are both a threat and an opportunity for incumbent firms: on one hand, if incumbents remain in manufacturing an increased number of competitors will drive prices down so eroding their profit margin; on the other hand, being that new competitors will drive down prices in manufacturing, incumbents may be tempted to rearrange their resources in order to make a functional upgrading (i.e.: outsource manufacturing) moving towards the high end of the value added curve so re-shaping their core competences. Hence incumbents have really strong incentive for functional upgrading. Instead those firms from developing economies face a very different situation. All those firms have competitive parity(19), and they usually do not have the necessary resources (nor capabilities) to move towards the high ends of the value chain. Because of the fierce

competition their profit margins are extremely low, so firms can just cover their costs and accumulating enough capital to overcome the entry barriers is almost impossible (i.e.: entry barriers such R&D and the like are extremely expensive to overcome). At best, such firms may do some process upgrading or product upgrading, incentivized by potential efficiency gains(20).

Furthermore, even if those firms owned the same resources as the incumbents, it is not to take for granted that they would have the capabilities to actually imitate the competitive advantage of the incumbents.

In a nutshell: the manufacturing industry becomes similar to a perfectly competitive market, this radically decreases the profitability of manufacturing activities, so incumbents in a search for market power move to the higher ends of the value added curve (functional upgradings), while firms from emerging countries cannot do that either for a lack of resources or capabilities. This dynamics confer to the "smiling curve" its shape.

(15) with the expression high/low value added share, it is meant the value added share respect to the whole value added created during the production process.

(16) a caveat: in reality, the "Smiling curve" mainly pertains to the computer industry, while value added curves are different according to their industry. Nonetheless, it is reasonable to say that the value added curve of the manufacturing sector in other industries is "smiling", but one should be careful to not overgeneralize

(17) in the theoretic framework, all firms offer their good/service at a price equal to their marginal cost, so all firms earn zero profits

(18) Perfect competition is a theoretical market structure featured by the following conditions: firms sell products that are perceived as identical by customers; all firms have no market power (i.e.: they act as price takers) independently from their market share; all buyers have complete information; there are no entry nor exit barriers; factors of production can move without restrictions

(19)if every firm in the industry is paying low wages, they are not a source of competitive advantage anymore. At best, they are a source of competitive parity.

(20)Product upgradings are mainly driven by the desire of the firms to meet the requirements of their sophisticated customer's rather than by efficiency gains

PARAGRAPH 3.3 World-Class-manufacturing

In the precedent paragraph, we spoke about the transformation the manufacturing industry has undergone. We broadly indicated the horizontal structure as more suited than the vertical structure

in this economic context.

To be more specific, the new paradigm that is becoming dominant in manufacturing is the WCM. The WCM has its core foundation in the "lean production" and in the concept of dynamic organization (i.e.: an organization that can swiftly rearrange its resources).

Here, we will discuss only the organizational implications (21). "Lean production" aims at creating a production process without discontinuities where everything superfluous is eliminated. More precisely, this elimination of the superfluous happens via the enactment of several concepts: the kanban(22), poka-yoke (23), kaizen(24), zero-defects(25), and the five S(26).

There are three tenets in the WCM practice: the reversal of the organizational design, the team-work, the development of skills that have a broad utility inside the firm.

With reversal organizational design, it is meant the passage from a vertical structure to a structure in which rather than functional areas, there are functional units (i.e.: single activities) that are directed by a process-owner (that of course is also responsible for the execution of the task). Such process-owner tries to understand the needs of the client, and he behaves him-self like a client respect to his internal suppliers. In this way, the production process is built upon consumers' needs. With what we broadly defined as "team-work", it is meant the following: to dispose in the most efficient possible way the production islands; in a production island there is a group of workers, workers have a position (in the island) assigned to them, each of these workers have a certain autonomy and responsibility, and such workers are led by their team leader.

The third aspect concerns the workers' skills adaptability (i.e.: versatility of the worker)(66). Such adaptability has to be nurtured with the design of the production island. Every position in the production island has to be designed in a way that allows the worker to perform his tasks, to resolve issues of discontinuities (and sometimes, other eventual issues) and anomalies. In this framework the more professional workers are more often employed to solve for issues of discontinuities and anomalies rather than just performing tasks. But every worker has the chance to exercise his problem-solving skills on an habitual basis. To enhance this skill acquisition process, workers switch positions and sometimes islands. Switches go from top to bottom and they control for potential errors occurring in the production process. This learning process is furtherly incentivated contractually, with raises in salaries that are bounded to improvements in the production method. Suggestions from lower level employees are greatly encouraged, and there is a special emphasis on cognitive, relational (i.e.: interpersonal), and managerial skills.

It appears clear, how in order to achieve this organizational structure, the suppression of some hierarchies is necessary. Flexibility of the working hours is an other key requirement in this framework. Lastly, also trade unions play a very important role. Trade unions should be involved in negotiation of the salaries, in planning activities, and when measuring the results of the business

operations. The objective is to create the perception (from the worker), that he is being treated fairly and that he is remunerated according to his actual contribution. Hence syndicalists, should pursue the well-fare of the worker by the means of pursuing the well-fare of the firm, so they should have a focus on medium-long term objectives.

Such organizational structure grants consistent abatement of the production costs, because in the traditional organizational structure variable costs (i.e.: the cost of labor in this case) cannot be absorbed in case surplus. To this organizational structure is associated also an increased engagement from the worker that now can express his/her individuality in his activities (up to a certain extent we would say).

However, why did we talk about the WCM? We did for two reasons. First: world class manufacturing is a set of managerial concepts that are shared by the most successful firms on the planet, so one ought better learn a lesson from it. Second: although FIAT was in a terrible situation in 2004, the adoption of these WCM practices turned a firm that was loosing 5 millions Euro per day into a thriving firm. And FIAT, analogously to the other firms in the Italian economy, suffered all the systemic issues we discussed (and we will discuss) in this paper.

In closure, we would like to share a thought. Ben Goertzel argues that in a near future, corporations may prevent technology from reaching the singularity point (28).

What is really interesting in this line of reasoning, is the dimension of corporation as "collective intelligence". According to Goertzel, a corporation can be defined as an organic entity with its own purpose (maximize shareholders' value) and cognitive structure. Corporations have indeed computational and intellectual capabilities that go far beyond the ones of any living human being. It is logical to think that to such augmented form of intelligence corresponds a more efficient organizational form. So It is normal for humans, who always prospered living in societies, to evolve adopting more efficient forms of organization. World class manufacturing is a splendid example of it.

(21)some managerial practices are affected too (e.g.: adoption of the ABC instead of the CS) but we do not discuss those because it would be beyond the scope of our analysis. N.B.: ABC stands for "activity-based costing" and CS stands for "cost standards"

(22)kanban means to produce on demand, that is, producing goods only when required by consumers or when one expects to sell those in a really short time (i.e.: just-in-time manufacturing)

(23)devices aimed at preventing the errors that occur for distraction

(24)the attitude of constantly seeking improvements in the job-practices

(25)elimination of every imperfection or flaw

(26)Seiri (sort and separate): that is to identify what generates value (i.e.: it's useful) and what does not, and to eliminate the latter. Seiton (to set in order): that is to assign a specific location/placement to the remained elements (the ones generating value); of course, the element must be disposed in the most possible efficient way (i.e.: to avoid any time consumption when grabbing them). Seiso (shine): to keep always the job environment as clean as possible so to ensure purpose-driven work. Seiketsu (standardize): to create a set of standards for production the personnel has to follow, and that leads to the desired results. Shitsuke (sustain): endurance in the application of the other four S by the means of self-discipline.

(27)how we previously explained, the new market environment is subject to uncertainty, so this is a key feature

(28)the point in which human intelligence is surpassed by machineries' intelligence. We do not delve in detail because it would add no value to our analysis

CHAPTER 4: frictions with the new environment and other issues

In this chapter we discuss the many issues that affected the Italian economy during the 90s. These issues prevented the Italian economy from well-fitting the new economic environment. Some of these provided a plausible explanation for the surge in misallocation we observed in manufacturing. The size of the Italian firms, the rigidity of the labor market, the privatization process, all these have been makers of misallocation. We also deal about other sensible issues that in different ways, hampered economic growth: "Familism", a cultural condition that crucially affects business decisions carried out by the individuals; the entrance in the Euro, that definitely impaired the competitive mechanism in the Italian manufacturing industry; demography, that created issues that slowed furtherly the growth process by putting further weight on the well-fare system; human capital, whose scarcity negatively affected the possibility of the Italian firms to restructure their activities.

PARAGRAPH 4.1 makers of misallocation

sub-paragraph 4.1.1 small firm problem

Until the beginning of the 90s' the Italian productive system was quite fit for the environment: there were small and medium size firms which produced standardized products, and although these many firms did enjoy little economies of scale by them-selves, there were strong positive externalities between firms leading to competitiveness. Hence such firms, had their competitive advantage in flexibility and productive efficiency.

Nowadays the situation is quite different. It could be argued that the small size of the Italian firms

may be hampering growth. Indeed the small size of a firm, might entail several issues in some circumstances.

Small firms may encounter problems when scaling their operation because they are often managed on a personal basis. As long as the firm doesn't expand its operation, managing it in such a way can be efficient, but when it does, decisional processes and codified managerial practices are necessary. Hence, reallocation of labor inputs across firms in the same industry (from low to high productivity growth firms) may have been hampered because of such issue. This is a possible explanation for the decrease in average TFPR (and correspondent increase in within misallocation) observed for small and medium firms after the 1995. There are considerable issues also for the reallocation of capital.

As we were also mentioning before in the paper in regard to how the manufacturing industry has changed, firms need to invest in large amounts of intangible assets in order to grant them-selves the potential to innovate. Alas innovation, entails a considerable amount of risk by its nature, and high risk entails high returns. In the Anglo-Saxon countries, business angels or other financial institutions usually provide for such risk capital. In Italy it is quite different. The main source of financing for Italian firms is bank credit, and banks are generally not willing to provide risk capital. But such risk capital is a necessary production factor to achieve competitive advantage (or at least competitive parity).

Also the familiar nature of the Italian firms could be making the aforementioned issues (unprobability of intangible investments and questionable managerial practices) even more severe. In Italy, according to the study of Bugamelli, Cannari Lotti and Magri, the 85.6% of the firms are characterized by family ownership. Between such firms, the 83.9% has a CEO who is a family member. (29)

It has been observed that when the CEO of a firm belongs to the owner family, managerial practices usually result to be worst. Moreover, when the wealth of the family depends upon the one of the firm, the management is generally reluctant to invest in risky activities, even if there are high returns associated to them.

Besides this, some Italian firms have been able to keep growing successfully re-adapting themselves to the new market conditions. The firms that succeed in doing so, share one feature: they have been able to gain some market power by differentiating their product, avoiding strategy of cost-leadership.(30) Differentiation happened either by the means of innovation, or by the means of marketing in the most traditional sectors of the economy. This change of paradigm in manufacturing is called "terziarization"(31), and it is the only means by which firms in developed countries can compete with the low wages of emerging economies. So it is not surprising that big firms, which usually have deeper pockets to invest in pre-production or post-production activities, gradually

overcame the TFPR of medium and small firms after the 1995. That said, it is still not clear why big firms (especially in the north-west) suffered the largest increase in misallocation. The reason for this, possibly lies in the rigidity of the Italian labor market

- (29)when the family owns the business, its ability to effectively diversify is greatly reduced
- (30)a cost-leadership strategy is a strategy in which the competitive advantage is gained by having the lower cost in the industry. So the firm will be able to sell at a price lower than the competition, so cutting of competitors
- (31)we talk about terzianization when the attention shift away from the production process, and increasing attention is devoted to pre-production (e.g.: design) and post-production activities (e.g.: marketing)

sub-paragraph 4.1.2 rigidity of the labor market

How we said precedently, it has been observed a considerable degree of misallocation for big firms. Being that misallocation has grown in tandem with average TFPR, we can conclude that there have been no reallocation of production factors towards the most productive firms.

This issue is probably due to the actual rigidity of the labor market.

Mobility in the labor market is defined by contracts, and by the welfare system.

Contractual agreements in Italy were quite stiff before the 95, it was standard procedure to hire workers with open-ended contracts. Open-ended contracts may present some advantages, but flexibility is not one of them.

The Treu reform of the 1997 was an attempt to make the labor market more flexible, so this reform introduced new forms of contracts allowing temporary employment.

Along-side typical open-ended contracts, other types of contracts with features making them quite a novelty have been introduced. These contracts are: fixed-term contracts, apprenticeships, collaborators (and the like).

Fixed-term contracts are a form of contract that has a predefined duration, so the contract is terminated when its duration ends. With such contracts the firm can hire someone at a relatively low cost: if the employee is worth his salary, the firm can renew his contract; albeit the contract can be renewed (by the same firm) only a limited amount of time for the same employee.

Apprenticeships are a form of contract in which the lower salary, is compensated by the acquisition of human capital from the worker. The firm is also paying less in terms of social security contribution, and as for fixed-term contracts, these contracts have a fixed duration. The firm is supposed to compensate for this reduction in hiring cost with on-the-job training. This type of contracts present a dual advantage for the firm: the first advantage consists in the fact that the firm

can effectuate a screening activity on the apprentices and this, is very important in a country with an high EPL (32) for permanent workers, such Italy; the second advantage consists in the fact that apprentices are cheap labor force.

There are also other types of contracts (collaborators and the like), in which the firm pay an independent contractor, or even workers supplied by temporary staffing firms. The main advantage of such arrangements is the flexibility that comes with them. The drawback is that usually, costs are higher respect to the one of an employee.

Unfortunately, the Treu reform has not been able to remedy to the rigidity of the Italian labor market.

In the paper of Bison and alia, the effects of the Treu reforms came out to be the following: it made more likely to find a temporary employment, and not significantly more difficult to find a stable occupation; it also made less likely for people to become unemployed (or leaving the labor force) or to work in the dark economy (33)

It could be argued that the reform brought a small improvement. The reform made more likely for people to be legally hired for a temporary job: this is an improvement for unemployed individuals or for people working in the shadow economy.

For what concerns the possibility to find a stable employment, Bison and alia carrying out their research found no significant evidence of a decrease in its probability.(34)

It appears clear, that the effects of the Treu reform did not make the market flexible enough to avoid the surge in within misallocation that took place, especially for big firms in the north-west, after the 1995.

On the contrary, it may be viewed as the starting point of the creation of that "dual labor market"(35) that caused dissociation of wages from labor productivity and hence, a raise in misallocation.

Besides contracts' discipline and their effect on the economy, also the welfare system has to be mentioned.

It is often said, that the Italian welfare system is aimed at protecting the employment rather than the worker. The main form of social assistance in Italy is the "Cassa Integrazione Guadagni", that is a form of benefit the worker enjoys while the working activity is temporary suspended or reduced.

Hence the benefit is fastened to the work place. Such a disposition, has the effect of fixing the worker to his workplace, rather than helping him in the transition from one job to an other.

Instruments that could be more useful than the CIG for this purpose, are unemployment benefits and adult-learning policies. An other measure that could be useful is the drafting of permanent contracts that make hiring and firing procedures more flexible. The fact that there were none of these measures incentivating labour mobility and the main unemployment scheme was the CIG, furtherly

contributed to the raise in misallocation.

In conclusion, during the 90s an inefficient labor market allowed the surge of misallocation, the government's aids (mainly CIG) were furtherly contributing to such raise in misallocation; dulcis in fundo the Treu reform, instead of augmenting labor mobility, it has allegedly contributed to create that dual labor market that might have furtherly increased misallocation.

(32)with EPL is it meant employment practices legislation

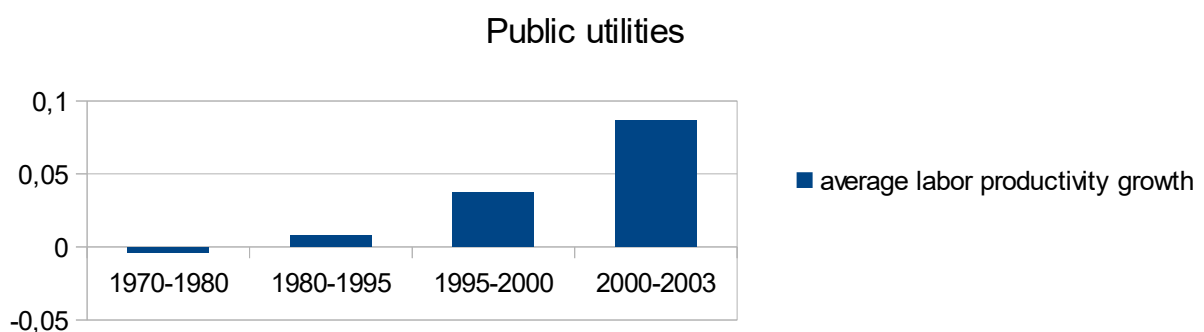
(33)being that the study considers a three years period, findings are to be considered valid in the medium-short term.

(34)probability to find a stable employment three years after the reform were lower, but in a trifling manner

(35)with "dual labor market" is intended that situation in the economy, where some workers are highly protected, while others are not

sub-paragraph 4.1.3 the privatization process

One other cause of misallocation(36) we suggest, is the large privatization process that started in the 1992. This process had quite mix effects on the economy. Allegedly, the privatization should have brought an increase in the labor productivity of public utilities. Indeed public utilities is the only industry exhibiting an accelerating trend along all the selected time-span(37): while in the period 1970-1980 its average labor productivity growth was negative, in the following period (1980-1995) it amounts to a positive 0,8% , and it furtherly surges in the last two periods. 3,7% during the period 1995-2000 , and 8,7% during the 2000-2003 period. Also TFP followed a similar pattern: during the period 1980-1995 TFP growth is equal to -0.6% ; then it surges in parallel with labor productivity with an average TFP growth rate of 1.6% during the period 1995-2000, and of 5.6% for the period 2000-2003.



source: Daveri's computation on OECD STAN data

Alas, although such performance seems remarkable, this industry couldn't sustain the growth process by it-self because of the scarce participation of the labor force in it. Furthermore, it is quite debatable if this increase in labor productivity and TFP, was actually due to a raise in efficiency, or if it was due to something else.

The privatization process in Italy has not been managed properly. What happened is that many monopolies (e.g.: highways, energy, television) became private enterprises, but often the competitive process could not take place. Many of such enterprises continued to enjoy protectionist measures that prevented the competitive mechanism to effectively operate. Hence, while the economic environment was becoming increasingly competitive in Europe because of markets integration and globalization, these privatizations episodes were seen as opportunities to rip easy profits. The result is that factors of production have been divested from some sectors of the economy in order to be reallocated in public utilities. Of course, this privatization of state's monopolies often corresponded to raises in prices. Such raises most of the times were not justifiable, and they were even more ambiguous when the state partook in the ownership of the privatized company. Being that the state perceived part of the profits in such arrangements (i.e.: as a shareholder), it had little incentive to impose a decrease in price(38). Moreover such privatizations often generated huge debts that were unloaded on the acquired company (e.g.: the case of Telecom) and such debts have been later hampering the growth of those same companies. Plus, being that until 2008 interest rates were very low, such acquisitions based on debt have been very profitable for the investors.

That said, we can't say for sure that we observed an actual increase in labor productivity. The extra-profits derived from the raises in prices, and the gains captured thanks to the low interest rates, may have inflated the statistics about labor productivity.

(36)in particular, between misallocation

(37)here we are making reference to the paper of Daveri, hence the relevant time-span is 1970-2003, and he calculated his findings using the OECD STAN data

(38)from the state's point of view, it would be the same thing as a tax cut

sub-paragraph 4.2.1 demography

Demography can negatively affect a country in many ways, and Italy's population is aging very fast. Let's consider the following ratio: the number people over 65 years divided by the number people under 15 years. At the beginning of the 1991 the value of this ratio was 92,5(39) , which means that there were more children/teenager than elderlies. Instead in 2001, the elderlies outnumbered the

children/teenagers: the value of the ratio was 127,1. This trend continued furtherly. In 2011 the ratio amounted to 144,5 , and if the trend continues in 2030 the ratio will be equal to 2. (40) So from the beginning of the 90s population never stopped aging in Italy.

Besides a lack of innovation, an old population brings many issues with it-self. Let's suppose population is aging, so some individuals exit the work-force without being replaced by others. Then in order to maintain the GDP per capita growth rate constant, it is necessary for the new entries in the labor market to find labors that are more productive than the ones of those who just exited. The slowdown in labor productivity made this more unlikely. Moreover, if the elderlies worked and payed enough taxes, they have right to some form of income provided by the state, which is troublesome to provide as the working population shrinks. Elderlies also affect the savings rate of the economy: they usually have a smaller income (41) and a short time horizon for saving. Lastly, elderlies need to be supported with medical expenses, this leads to bigger public expenditure in health care.

It is also very likely, that Italy's demography is contributing to misallocation.

The demography of Italy, generates a system that is far from meritocratic. What is observed, as well in the private and (more relevantly) in the public sphere, is that raises in salary are not related to performances, but rather they are related to elderliness. The compensation is determined accordingly to the "seniority" of the worker (i.e.: time spent in that same firm). It is worth noticing, that such compensation system also seems to deincevize labor mobility. This compensation system is also likely to create a gap between marginal productivity of labor and salary. Let's take the high-tech sector to make an example: in such sector new technologies are often implemented in the work place, then the worker has to learn how to use the new technology. If he does, its labor productivity raises; but if the worker does not learn how to use the new technology and his productivity decreases, he is totally unaffected in terms of salary. Of course, elderlies are likely to have permanent contracts, hence the firms can't just fire them in order to hire a younger and more productive individual.

In conclusion, the high share of elderlies in the Italian population is hampering economic growth, by putting further pressure on public finances and by increasing misallocation.

(39)we multiplied the value of the ratio by 100, and we did the same with the following ratios

(40)this according to the forecasts made by Istat in 2012

(41)income and marginal propensity to save are positively correlated

sub-paragraph 4.2.2 human capital

In our dissertation, we can't leave human capital unnoticed. We already saw the importance that are acquiring activities in the upper tales of the value chain. Well, those activities (e.g.: R&D, marketing, etc...) heavily rely on human capital. Human capital as a driver of economic growth, is a well-known fact. This is broadly documented in the literature. Human capital increases worker's productivity: an educated worker is facilitated in acquiring new competences, and he is generally more efficient when performing tasks. Human capital also generates positive externalities (in the society) that transcend the immediate raises in productivity. When innovations are adopted in a firm, to an higher level of human capital corresponds a greater positive impact in terms of productivity. That is to say that more educated people are, the more they will be productive with the new technology. Human capital spurs innovation non-based on R&D activities and it also makes knowledge spillovers more likely to happen. According to Brandolini and Cipollone (2001) to human capital is due part of the productivity growth recorded during the 80s and part of the productivity slowdown of the 90s. (42)

So a good supply of human capital seems to be a necessary elements for firms to thrive, and Italy's supply of human capital was relatively scarce respect to the rest of Europe. According to the European Labor Force Survey, in 2007 the average percentage of workers with a degree in the European labor force was the 24%. In Italy in the 1997, this percentage was equal to the 11% . Mainly thanks to an augmented participation of women in tertiary education, the percentage went from the 11% to the 13%, but alas, Italy remained still far behind. This low supply of human capital finds its explanation in a vicious circle that arises from supply and demand conditions. On the demand side, it is true that in the traditional sectors of the Italian economy (labor-intensive sectors) the human capital gives no significant contribution to aggregate productivity. There was a relatively (respect to the other European countries) severe skills mismatch issue in the Italian labor market. Sometimes the inadequacy of formal qualification to express the actual level of competences resulted in over-skilled workers for low-skill jobs. Also, being that the returns on investments in human capital are lower in Italy respect to other developed countries(43), firms are generally less willing to invest in vocational training. Low quality vocational training for manual job is likely to create problems of under-skilling. These seem to be particularly sensible issue if we consider that the traditional sectors of the Italian economy are labor-intensive.

On the supply side (i.e.: the one of the students), the lack of funding for universities restricts the production of human capital. Schivardi and Torrini (2011) have proven that an exogenous increase in the supply of educated workers would lead firms to restructuring on the local level.

So the vicious circle, arises because firms do not want to invest in knowledge-intensive intensive activities because of the scarce supply of human capital; such depression of the demand for human

capital decreases the returns on education, and this decreases the supply of human capital.

Considering the speed at which innovations follow each other nowadays, the capacity of adapting to innovation, that can be granted only by the accumulation of human capital, will be even more important in the future.

Hence the education system was a concern that needed to be addressed, and a proper supply of workers was a necessary element that lacked in the Italian economy.

(42) here we need to be more specific: in the 80s, that part of productivity increase was due to the increase in average years of schooling per worker; instead that part of productivity slowdown attributed to human capital in the 90s, was mainly driven by issues in the tertiary education system

(43) *ceteris paribus*, if there are two countries in which the first has a more educated population (i.e.: higher human capital level), than vocational training will be more effective in that first country. People learn faster when they are educated.

Sub-paragraph 4.2.3 the entrance in the Euro(44)

When Italy had the Lira as legal tender, the inflation mechanism was frequently used to regain competitiveness on the market. When production costs rose too much, money could be printed to push up the exchange rate (Lira/foreign currency) so decreasing production costs (i.e.: depreciating the domestic currency). By the means of this mechanism an equilibrium would be reached where the exchange rate adjusts such that production costs are equal in both countries. Hence inflation became a regular (and expected) event, and from the 1970 to the 1998 the exchange rate (Lira/German franc) went from 172 to 987.(45) With the adoption of the Euro we lost the possibility to use this regulatory mechanism. Because of this, the marginal cost of labor started to rise at a steady pace: from the 2000 to the 2007, it grew about the 20%-25% .

This happened because salaries kept rising despite the sluggish labor productivity growth, and salaries kept rising for three reasons.

The first reason is that they kept rising because inflation is featured by a certain inertia. Years of high inflation crafted expectations of future high inflation. So wages in the economy kept rising as if there was high inflation, while in reality it was very low after the entrance in Europe.

The second reason is that the entrance in the monetary union, caused the convergence of the interest rates of the countries in the Euro area. Such convergence pushed down Italian interest rates, so expenses from the general public increased. When this increase in expenses is not due to an increase in real income, but just to an increase in nominal income (46), the price-level (and hence labor

costs) will rise.

The third reason concerns government expenditure. During the 90s decreasing interest rates gave the unreasonably optimistic impression that the public debt was not to be considered as a problem anymore. So after the entrance in the Euro (under the second mandate of Berlusconi) increases in government expenditure(47) and tax cuts increased the public debt. This expansionary fiscal policies posed further pressure on salaries.

This raises in the cost of labor negatively impacted the competitiveness of the Italian firms. The profit margins of Italian firms operating in the export market narrowed(48), in consequence the Italian investments in the Euro area decreased too.

Of course labor productivity has been affected by all this, a comparison may be quite exemplar: differently from Italy, at the time of the entrance in the European Union Germany's trade unions had an agreement that anchored the raises in salaries to raises in labor productivity; this resulted in a cumulative labor productivity growth for the Italian economy of 3.5% and a cumulative labor productivity growth of 47% for the German economy, during the time-span 1998-2016. Of course, we are not so pretentious to claim that such difference in productivities between the 2 country is solely due to these inflationary dynamics. There was a long array of issues in the Italian economy and we already mentioned many. Nonetheless, this lack of diligence in monetary and fiscal policy, has left the economy alone in a moment of hardship.

(44)the information contained in the following paragraph came from Cottarelli's "I sette peccati capitali dell'economia italiana".

(45)this example has been made in order to give the idea of the magnitude of the inflationary phenomena over time.

(46) as it has been the case in Italy between 2000 and 2007

(47)also salaries for employees in the public sector rose

(48)it is important to point out that a firm with a profit margin lower than its competitors, is doomed. Competitors will have more money to invest so becoming always more productive, while for the low-profit-margin firm it is true the opposite. Hence economies of scale will run its course.

Sub-paragraph 4.2.4 Familism

In Italy family is an important social structure that greatly affects people lives and behaviors. We can say upfront that a non-negligible (and yet non considered in the official statistics) portion of real GDP is produced domestically. We mean activities like assistance for the elderlies, childcare,

(and the like), that abroad are performed by the market. If this chores were to be included in the GDP, the difference in GDP per capita with the US would half (49).

This is the only positive aspect, for the rest, this emphasis posed on family has many downsides that outbalance the gains.

It may be argued that such reliance on family generates distrust respect to strangers, and for this Italian people would forgo profitable investments opportunities. It is indeed true. It is particularly clear when looking at the investment habits of the Italian people: the 44% of individuals invest according to "informal advice", that is to say an advice from a family member (or friend as well). (50)

This family attitude also twists the conception about public goods: Italian people are more prone to invest in public goods that can benefit them or their family member, and such mentality also fosters a lack/abundance of positive/negative externalities (e.g.: littering is a quite wide-spread practice in Italy). Moreover, most of the chores (i.e.: the creation of real GDP taking place in the houses) are usually performed by women. It has been calculated (51) that the average work time inside/outside the house walls was respectively 4,8 and 3 hours for men (i.e.: 4,8 hours on the job and three hours of chores) while for women it was 2,4 and 6,7. Although such allocation of time is due to cultural reasons (so one may advocate for consumer's preferences), in reality it is a really inefficient allocation of resources. This issue of "familism" affects resource allocation in other ways too.

Labor mobility is conditioned by the family structure: workers want to find an employment near to their family, for to that, they are willing to accept working conditions (e.g.: salary) that are not convenient, hence the bargaining power of employers is exacerbated. Also permanent contracts, that are a key element for the sustenance of that "well-fare state" that the family structure represent, come with a decrease in salary between the 5% and the 11% (52). But the more concerning form in which the family structure affects the economy, is the job search mechanism. It is often the case that a family member is helped by his/her relatives to find a job; when this happens there is usually generation of information asymmetry, because the description of the employee given to the employer is not often truthful. Also the transmission of the job from father to son is harmful for the economy, and we already spoke about how a familiar management is detrimental to firm's growth (small firm problem). "Familism" also affects the formation of human capital: students do not generally move from their city when going to the university, hence universities can rely on a roughly fix stream of students and so they are de incentivized to improve their service.

However, we also have to report in an optimistic vein, that the passage from a patriarchal family(53) (i.e.: an extended family) to a nuclear family (i.e.: family with just parents and children) is a social transformation that interested most of the developed countries. In Italy this transformation has been slower, probably because of the Catholic background, but yet there is

evidence that this is happening. There are indicators (decrease in marriage rate and birth rate, increase in divorce rate) that strongly suggest that Italy's family structure will become nuclear in the near future. (54)

Lastly, as Karl Marx used to say, it is the economic structure that determines the social structure (55) while the social structure conditions, but does not determine in the proper sense of the term the former. (56)

Hence, in an optimistic vein, we affirm that "familism" will soon be just a relish of the past.

(49)This is a finding of Alesina and Ichino (2009)

(50)Nadia Linciano (2016), Consob, "Domande di consulenza, conoscenze finanziarie e overconfidence. Il caso italiano".

(51)we report this data from "Idee per la crescita. Le opzioni e le proposte per tornare a crescere"

(52)Cipollone and Guelfi (2006)

(53)the traditional Italian family structure can be subsumed under the concept of "patriarchal family"

(54)we just referred to an article of Maria Luciano and alia, The family in Italy: Cultural changes and implications for treatment.

(55)with social structure we meant " value and norms shared by society "

(56)In the past the "extended" or "patriarchal" family structure was necessary to ensure survival.

Being that there was no such concept as the well-fare state, individuals needed to rely on someone else in case of misfortunes. A family was the best way to ensure to one-self people to rely upon in such cases. Now that the government is effectively providing for what family did once, such structure has lost its practical utility. Hence, what we want to say, is that society is gradually shifting to an ideology of nuclear family, because it better serves efficiency's purposes.

CONCLUSION

What emerges from our analysis, is that the geopolitical phenomena that took place in the last century changed the world in a way that could not be foreseen by firms. Italian firms have been caught unprepared by the competition from emerging countries. While some have been able to address the competitive challenge, so renewing their core competence to climb up the smiling curve, most of the firms could not. Such failure is due to several factors: it is partly due to the lack of a proper supply of human capital, partly to the low-quality and the risk-aversion of the Italian managerial elite, and partly to the failures from entrepreneurs to identify the potential gains of the ICT. Moreover, with the entrance in the Euro, the inflationary mechanism that was so necessary to

decrease production costs couldn't be used anymore; hence the Italian firms that remained in the low part of the smiling curve, found them-selves in an even more difficult position.

Also the size of the firms has been a problem, because small firms usually do not have the means to make front to the investments in intangibles needed in the new competitive context. This problem related to size has been made more severe by the impossibility to re-allocate promptly production factors.

Even firms that were successful and featured by remarkable growth rates, have not been able to grow further because of the lack of resource allocation. Such lack of resource allocation, is due to the rigidity of the Italian labor market (we mean also well-fare system), to the inadequacy of the insolvency procedures, to the privatization episodes that took place during the 90s, and to the several other things we mentioned. The fact that big firms have not been able to grow beyond their size for structural problems is particularly severe because large firms with empirically-sound managerial methods (WCM) can reach an efficiency level that is hardly attainable by small firms. Moreover, big firms can usually afford those great investments in R&D that are needed to restructure the core competence, and they also generally have a more skilled labor force (so they also create demand for it). There were also other issues (such as Familism and the demography composition of the country) that contributed, in a direct or indirect manner, to increase both misallocation and to hamper productivity growth.

So in the 90s, many Italian small firms watched the tide raise: a few of them could rise above the water, but other struggled in a pursuit for self-preservation.

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