# Spain and Italy: Catching up and falling behind. Two different tales of productivity slowdown

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# Spain and Italy: Catching up and falling behind. Two different tales of productivity slowdown[1]

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## Abstract

The paper presents a first set of results for Spain and Italy using the EUKLEMS database. It emphasizes the different paths followed by the two countries over the last thirty five years, even though they still have many features in common. The motivation behind this paper is the poor productivity performance that the two countries have shown recently. The general overview details the factors underlying the process of per capita income convergence. Productivity performance is highlighted as the driving factor of convergence, deserving the greatest attention from different perspectives: the contributions of the different sources of productivity growth, which make use of the *growth accounting* framework; the impact of the structural change undergone by the two countries while moving from economies with still important shares of the agricultural sector to a more modern one; or the responsibility of poor productivity improvements in given industries. The changing composition of labour also deserves a detailed analysis because of its importance in productivity over the period analyzed.

**PRELIMINARY DRAFT**

## 1. INTRODUCTION

Spain and Italy are two Southern European countries that have a great deal in common, even though their points of departure were very different. Italy's entrance into modernity can be traced back to the end of World War II, while in Spain the 1936-1939 Civil War – and the dark years that followed it- delayed its moving forward until the 1960s. This chapter is devoted to analyzing the path followed by these two countries in the long run, allowing the convergence process that has taken place between the two countries over the last years to be put into perspective.

Spain was, in 1970, an isolated country in the international scene, with a dictator in power. On the contrary, Italy was one of the founding countries of the present European Union (EU), being a democracy since the end of WWII. However, they had many points in common: their agricultural sector had a high weight in the aggregate; they had similar industrial specialization, with an important presence of traditional sectors such as textiles, footwear and furniture; both countries had a source of wealth in the tourist sector; in addition, they also shared low activity rates, especially women's, and low schooling levels, etc. At that time, Spanish economists had Italy as the example to follow. Thirty years later, things have changed dramatically, with Spain almost catching up Italian per capita income.

Italy was the first of the Southern European countries to be integrated into an institutional system of international free trade. Its economy was a moving force with its very strong level of integration both with Continental Europe and with international trade (Guerrieri and Milana, 1993). The increase in the latter was one of the main causes of its economic development in the second post-war period. The opening up to the international markets of an economy already based on a solid structure of capital goods, and of a consistent system of small and medium sized firms laid the foundation for rapid industrial growth. The timing of the opening up of the economy to foreign market was decisive in the process of industrialization (Himler and Milana, 1984, 1988). A relatively rapid economic growth in the early post-war period and a consolidation of the industrialization process during the seventies and the eighties have positioned Italy among the G8 group and has gained it world top brands in a number of sectors including fashion, apparel, clothing, and footwear as well as high-tech sports cars. Notwithstanding these achievements, Italy has not fully succeeded in getting rid of profound structural weaknesses.

On the contrary, Spain was an isolated country that only started opening up its economy in 1959, after the approval of the *Stabilization Plan* that year. However, it had to face the full force of competition in the middle of the international crisis caused by the oil price wars in the seventies. This fact forced the country into a difficult situation of intensive capitalistic growth based on labour-saving technologies, and on the shrinking of the industrial base. The consequences on employment were very heavy, reaching extremely high unemployment rates, especially among women and the youth.

Spain became a democracy after Franco's death in 1975, approving its Democratic Constitution in 1978. If these two dates can be considered very relevant, at least as important in the shaping of what Spain is nowadays was its entrance in the European Union in 1986. The consequences on the Spanish economy of joining the EU cannot be underestimated. Its influence spread throughout all aspects of the economy and social relations, contributing definitively to its modernization. Capital accumulation benefited strongly by being a backward country eligible, therefore, for the *Structural Funds* and *Cohesion Fund* of the EU. Infrastructures´ endowments –linked to a great extent to EU grants- experienced a strong upturn, growing at a faster rate than other forms of capital. While in 1986 infrastructures represented 18.1% of the total non residential net capital stock, in 2005 its share was more than two percentage points higher (20.4) (Mas, Pérez and Uriel, 2007). This inflow of funds had at least two consequences: it definitively contributed to Spanish economic growth; and perhaps more importantly, it contributed positively to regional convergence.

The regional dimension of Spanish economic growth became an outstanding issue with the creation of the so called *Estado de las Autonomías*[3] by the 1978 Constitution. As in the case of Italy, Spain also had a north/south problem which its integration to the EU – with its strong regional cohesion policy- helped to alleviate. In the fifties and sixties of the past century, both countries experienced strong migration flows either to other European countries, or more developed regions within the country. In the case of Spain, the result was the depopulation of the center –with the big exception of Madrid and its area of influence- and the mountain areas, and the parallel movement of the activity to the coast, especially the Mediterranean coast. As for Italy, the movement was from the impoverished south to the much more dynamic north. The North-South economic gap has not been substantially reduced over the last decades, except in a couple of regions near Central Italy. This has left the country with social problems and world-wide known organized crime networks that have tarnished its global image. Thus, for both countries national growth is not the only target. At least as important is its share among the regions, and more specifically their *convergence* in terms of per capita income and productivity[4].

Among the main changes that have occurred in Italy during the last two decades, two epocal facts are usually pointed out: one is the deindustrialization of the economy with an increase in the proportion of jobs in service industries and the other is the world-wide ICT revolution that has affected many sectors, although at a lesser extent with respect to other major European countries (Ginsborg, 2006). In the manufacturing industry, the fordist model is definitely replaced by "lighter" ways of production, based on the massive introduction of robotics in the production processes. Important restructuring activities have been undertaken during the eighties and early nineties bringing about gains in productivity comparable with those of other industrialized economies. The country's

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[3] *Comunidades Autónomas* (*Autonomías* for short) is the name given in Spain to the European NUTS II regions

[4] Regional convergence –and the role played by different forms of capital, especially infrastructures- has received a lot of attention, at least since Aschauer´s (1989) seminal work (for the Spanish case see Mas, Maudos, Pérez, Uriel (1996, 1998); and Tortosa, Pérez, Mas and Goerlich (2005) and the works there cited).

specialization in traditional products have led to a flourishing of small and medium sized firms that have widespread outside the traditional *triangolo industriale* centered in Lombardy, Piedmont, and Liguria, and moved towards the North-East regions and the so-called "industrial districts". But institutional settings and fiscal regimes, which have always been relatively unfriendly with fast growing firms, have prevented, with very few exceptions, the small- and medium-sized enterprises to grow into large-sized firms and operate competitively in international markets.

With these references in mind, the chapter is organized as follows. Section 2 provides an overview of the performance of the two economies from a long term perspective. A more detailed analysis from the industries perspective is offered in sections 3 and 4. Section 5 concentrates on the changing composition of labour in the two countries, while section 6 presents the main conclusions and policy recommendations.

## 2. OVERVIEW

Even though Italy and Spain share many things in common, the former has traditionally enjoyed one of the highest per capita incomes within the group of the most industrialized countries of the world. On the contrary, Spain started the 70s in a rather backward position, with a per capita income markedly lower than the European Union (EU) average. In this section we revise the behaviour followed by the two countries in the last thirty years from an aggregate perspective.

Per capita income is the variable that deserves the most prominent attention in the evaluation of the performance of the economies, and it is usually considered as a reasonably good approximation of economic welfare as well. For these reasons, before going into a more detailed analysis of productivity -to which the EU KLEMS project is devoted - we will look briefly at per capita income levels and time profiles in both countries. Before doing so it is convenient to take as reference a rather useful decomposition of per capita income. This decomposition is provided by expression 2.1, which is in fact an identity:
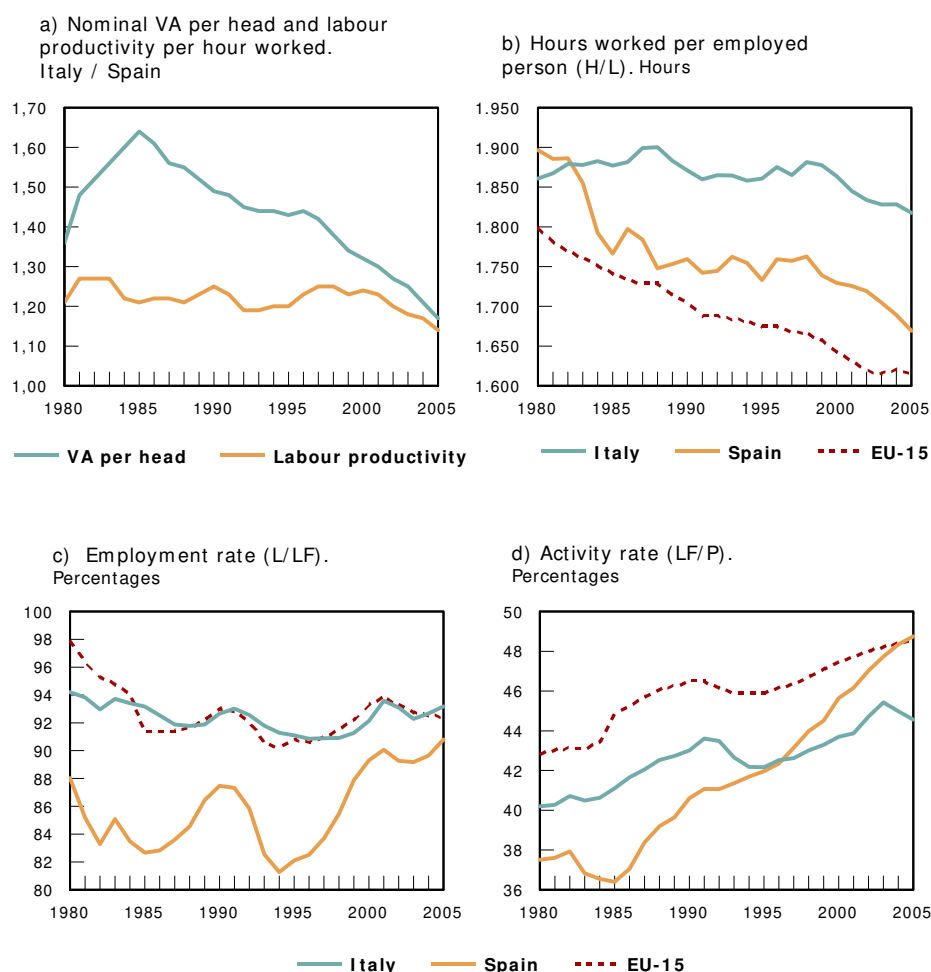
$$\frac{GVA}{P} \equiv \frac{GVA}{H} \frac{H}{L} \frac{L}{LF} \frac{LF}{P}$$
[2.1]

where *GVA* stands for Gross Value Added; *P* for total population; *H* are total hours worked; *L* is total employment (in persons); and *LF* represents the labour force. Therefore, the first term in expression 2.1 (*GVA/H*) measures labour productivity in terms of hours worked; the second (*H/L*), the number of hours worked per employed person; the third (*L/LF*) the employment rate; and the last component (*LF/P*) the activity rate defined with respect to total population. Figure 2.1 plots the five variables for the period 1980-2005.

Panel a) shows the ratio between Italy and Spain for the first two variables in expression 2.1, per capita income and labour productivity (hours worked) in nominal terms[5]. The main messages of this panel are the following. In the first place, it confirms that both variables have been traditionally higher in Italy than in Spain, the discrepancy amounting to almost 50% in per capita income and 30% in labour productivity in 1980. In the second place, it shows the widening of the gap in the first half of the 80s, after the second oil shock with very adverse effects on the Spanish economy. Finally, and most importantly, it clearly illustrates the reduction of the differences, much more intense in terms of per capita income than labour productivity. In fact, in 2005 both variables were about 16% higher in Italy than in Spain. Therefore, a process of convergence between the two countries –not yet fulfilled- has taken place over the period[6].

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[5] We use GVA in nominal terms because we are interested in the relative position of the two countries in a *given moment of time*.

[6] According to a EUROSTAT recent release, in 2006 Spanish per capita income was slightly higher than Italy. This result is obtained if instead of using Gross Value Added in current basic prices, as in figure 2.1, Gross

**FIGURE 2.1: Convergence in VA per head and its components**

a) Nominal VA per head and labour productivity per hour worked. Italy / Spain

b) Hours worked per employed person (H/L). Hours

c) Employment rate (L/LF). Percentages

d) Activity rate (LF/P). Percentages

Source: AMECO, EU KLEMS Database, November 2007, http://www.euklems.net and own calculations

Panel b) shows the second component of per capita income. Here the messages are also clear. Firstly, the number of hours worked by Italian workers have been almost always (the only slight exceptions are the first two years of the 80s) higher than in Spain, and also higher than in the EU-15 average[7]. Secondly, while in Spain this variable experienced a marked reduction –in line with the profile shown by the EU-15- in Italy the reduction has been much less intense.

Panel c) illustrates the well known extremely high rates of unemployment suffered by the Spanish economy until very recently. At some point in time, around the mid-90s, it

Domestic Product expressed in terms of PPS is used. In figure 2.1 we use the EUKLEMS GVA information, without correcting for PPS. In section 4.3 (table 4.2) we offer similar information using EUKLEMS PPS data. In this case the productivity differential between the two countries was 10% in 2005. Thus, according to these information, Spain has not overtaken Italy yet.

[7] Panel a) did not include the information for EU-15 since the information of Value Added for this aggregate in the EUKLEMS database is not comparable with the one for the individual countries (for EU-15 it is expressed in PPS while for Spain and Italy it is expressed either in nominal terms or in 1995 euros).

reached a 20% unemployment rate. Since then it has shown an astonishing capacity of employment creation, allowing to almost close the gap with both Italy and the EU-15.

Finally, panel d) shows one of the historical problems of both Italian and Spanish economies: their relatively low levels of activity rates. For Spain the situation was especially adverse at the beginning of the 80s, mainly as a consequence of the low female participation rate, as will be analyzed in detail in section 5. However, its recovery has also been very important. Since the mid-90s, it has overtaken the Italian rate not only because of the increase in women's involvement in the labour market, but also because of the wave of immigration that Spain has been experiencing since then.

Revising the components of per capita income behaviour, expression 1 allows us to quantify the relative importance of each one of them. Taking logs we can obtain both the time evolution of each variable, as well as its contribution to per capita income in each point of time. Furthermore, if we deduct the Spanish figures from the Italian ones, the relative importance of each component in per capita income differences can be tracked. Table 2.1 shows the percentage contribution of each component.

**TABLE 2.1: Nominal GVA per capita decomposition. Italy minus Spain**
(GVA per capita differences = 100)

|                               | 1980   | 1995   | 2000   | 2005   |
|-------------------------------|--------|--------|--------|--------|
| Labour productivity           | 61,91  | 50,01  | 77,36  | 86,35  |
| Hours worked by employed person | -6,16 | 19,74  | 27,02  | 55,16  |
| Employment rate               | 21,89  | 28,85  | 11,33  | 16,71  |
| Activity rate                 | 22,35  | 1,40   | -15,71 | -58,22 |
| GVA per capita                | 100,00 | 100,00 | 100,00 | 100,00 |

*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

As expected, labour productivity has been the main determinant of per capita income differences between the two countries. However, its importance has not been constant over the period analyzed. Additionally, the role played by the other three variables is also shown. The higher number of hours worked in Italy acts in favour of its relatively higher per capita income, while its lower activity rate exerts the opposite force. The very high Spanish unemployment rate pushed down its relatively lower per capita income until the beginning of the new century.

## LABOUR PRODUCTIVITY

Labour productivity is the main factor conditioning per capita income growth. For that reason, in the next section we will concentrate on presenting its main features over the period, while later sections will provide further details. Table 2.2 presents the rate of growth of Gross Value Added (GVA), employment (in hours worked), and labour productivity expressed in real terms and in hours worked. The table distinguishes between the whole period 1970-2005, and different relevant sub periods. The main messages are the following:

**TABLE 2.2: Real gross value added (GVA), employment (hours worked) and labour productivity. Total economy**

(Annual rates of growth in %)

| | 1970-2005 | | 1970-1995 | | 1995-2005 | | 1995-2000 | | 2000-2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Italy | Spain | Italy | Spain | Italy | Spain | Italy | Spain | Italy | Spain |
| Real GVA | 2,27 | 3,05 | 2,70 | 2,89 | 1,19 | 3,45 | 1,77 | 3,88 | 0,61 | 3,02 |
| Employment (hours worked) | 0,54 | 0,89 | 0,41 | 0,00 | 0,85 | 3,10 | 1,00 | 3,76 | 0,69 | 2,44 |
| Labour productivity | 1,73 | 2,16 | 2,29 | 2,89 | 0,34 | 0,35 | 0,77 | 0,11 | -0,08 | 0,58 |

*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

In the first place it shows that over the whole period Spain has shown a more dynamic behaviour than Italy in the three variables. In the second, it shows the difficulties faced by the two countries, especially for Spain, in creating jobs during the first twenty five year period, between 1970 and 1995. Things changed drastically in the following ten years. In the period 1995-2005, both countries experienced a productivity slowdown, but while in Spain both GVA and employment grew at a very fast rate, in Italy both variables showed a sluggish pace. In the third place, when dividing the last decade into two different periods, a different behaviour pattern between the two countries can also be observed. Spanish productivity deceleration over 1995-2000 partly recovered in the following sub period, while Italy fell a bit more, even showing a negative sign in the last five years considered.

Taking all this into account, what table 2.2 shows is that both countries enjoyed their highest rate of labour productivity growth in 1970-1995, precisely the years when they faced the strongest difficulties creating employment. In the most recent years both countries have shown a weak productivity performance, but while in Spain GVA and employment grew at a fast pace, Italy's performance has been less dynamic.

Table 2.3 offers a wider perspective in the most recent period, putting both countries in the context of the four different countries´ aggregates provided by the EU KLEMS database. As can be seen, Spain and Italy have shown the lowest productivity growth, but while Spain presented the highest rate of GVA and employment growth, Italy's GVA growth rate was the lowest.

**TABLE 2.3: Real gross value added (GVA), employment (hours worked) and labour productivity. Total economy**

(Annual rates of growth in %)

| | 1995-2005 | | | 1995-2000 | | | 2000-2005 | | |
|---|---|---|---|---|---|---|---|---|---|
| | GVA | Employ-ment | Labour produc-tivity | GVA | Employ-ment | Labour produc-tivity | GVA | Employ-ment | Labour produc-tivity |
| Italy | 1,19 | 0,85 | 0,34 | 1,77 | 1,00 | 0,77 | 0,61 | 0,69 | -0,08 |
| Spain | 3,45 | 3,10 | 0,35 | 3,88 | 3,76 | 0,11 | 3,02 | 2,44 | 0,58 |
| EU-10 (New Member States) | 3,14 | -0,35 | 3,48 | 3,28 | 0,19 | 3,09 | 3,00 | -0,88 | 3,88 |
| EU-15ex[1] | 2,03 | 0,76 | 1,27 | 2,58 | 1,10 | 1,48 | 1,48 | 0,42 | 1,07 |
| EU-15 (Old Member States) | 2,15 | 0,78 | 1,37 | 2,69 | 1,11 | 1,58 | 1,60 | 0,44 | 1,17 |
| EU-25 | 2,24 | 0,59 | 1,65 | 2,74 | 0,96 | 1,78 | 1,74 | 0,22 | 1,51 |

[1] The EU-15ex consists of Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Spain and the United Kingdom

*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

## FACTORS OF PRODUCTION

Output growth –and also productivity growth- requires the increased use of factors of production, as well as technological improvements. From the aggregate perspective, it also needs to specialize in industries with high value added, and which are able to compete in the international markets. In this section we provide a brief overlook of the behaviour followed by the factors of production.

The difficulties faced by both countries in encouraging productivity growth are partly balanced by their ability to create new jobs. Table 2.4 shows the weight of the two countries on total EU employment creation. In the most recent period, 1995-2005, Spain contributed with 30.3% and Italy with 13.4%, of the total net employment increase in the UE-25. Between 2000 and 2005 net employment creation in the two countries represented 64.6% of all net employment creation in EU-25 and 60.8% in EU-15 (old member states). Therefore, while both countries have been a burden to EU productivity growth, they have also been the drivers of labour growth, especially Spain.

**TABLE 2.4: Net employment creation**
(Thousands of persons)

|  | 1970-1995 | 1995-2005 | 1995-2000 | 2000-2005 |
|---|---|---|---|---|
| **Italy** | 1.910 | 2.492 | 1.089 | 1.403 |
| As % of: | | | | |
| EU-15ex[1] | 15,8 | 14,4 | 10,0 | 22,1 |
| EU-15 (Old Member States) | 14,3 | 13,1 | 9,0 | 20,3 |
| EU-25 | - | 13,4 | 9,0 | 21,6 |
| **Spain** | 1.120 | 5.643 | 2.842 | 2.800 |
| As % of: | | | | |
| EU-15ex[1] | 9,2 | 32,7 | 26,0 | 44,2 |
| EU-15 (Old Member States) | 8,4 | 29,7 | 23,5 | 40,5 |
| EU-25 | - | 30,3 | 23,5 | 43,1 |

[1] The EU-15ex consists of Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Spain and the United Kingdom

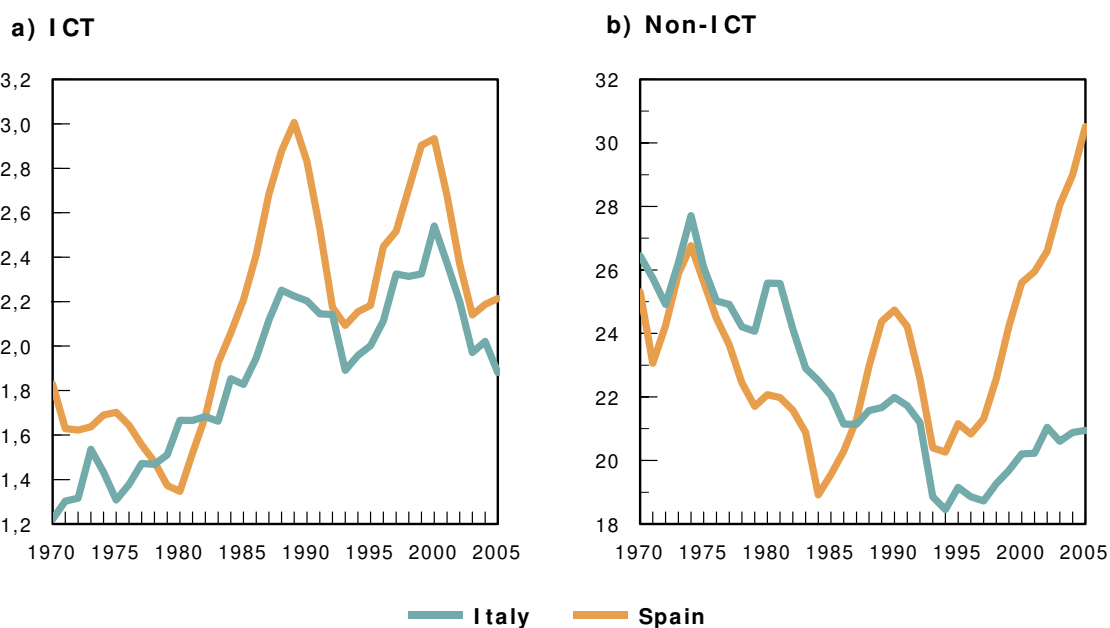*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

It was generally accepted, at least until Solow's (1957) residual showed up, that capital accumulation, resulting from frugality and consumption postponement was the main engine of economic growth. Figure 2.2 plots the investment effort realized by Spain and Italy since 1970, as measured by the ratio between Gross Fixed Capital Formation (GFCF) and GVA. Until the mid-80s, both countries followed a similar path, but with Italy a step somewhat ahead of Spain. However, since the middle of the nineties Spain has clearly taken off, reaching a peak of 32% of GVA in 2005. The origin of this divergent behaviour can be found in the Non-ICT component of investment. While ICT investment –as percentage of GVA- followed a similar path in the two countries, Non-ICT experienced a strong take off, only weakly followed by Italy (Figure 2.3).

**FIGURE 2.2: Investment effort. Gross Fixed Capital Formation as % of GVA. 1970-2005**
(Percentages)
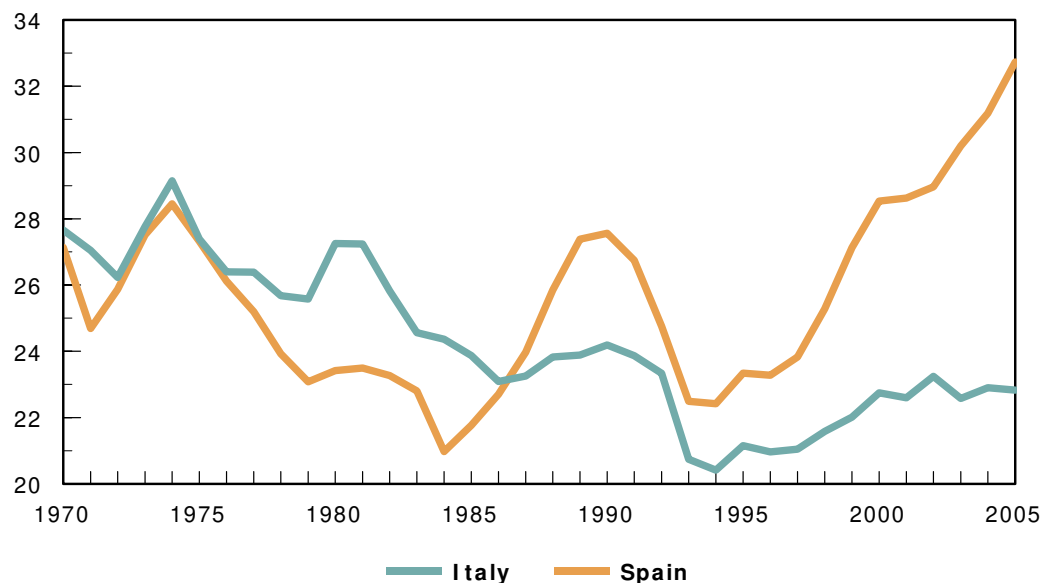


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

**FIGURE 2.3: Investment effort. ICT and Non-ICT. Gross Fixed Capital Formation as % of GVA. 1970-2005**
(Percentages)

**a) ICT**

**b) Non-ICT**



*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

Table 2.5 summarizes capital services growth. Once again, we can observe the important differences existing between Italy and Spain. Capital accumulation in Spain was very strong, almost doubling Italy's rate of growth in the most recent period 1995-2005. This result is the consequence of the fast speed of growth of the Non-ICT component, around 4% per year in the period 1995-2005 and each of its two sub periods, twice the Italian

rate of growth. In terms of ICT capital accumulation, the behaviour of Spain has not been so remarkable, especially when compared with the EU-15ex or the USA. However, in the last sub period, 2000-2005, the rate of growth of ICT capital was 2.5 percentage points higher in Spain than in Italy.

**TABLE 2.5: Capital services. Total economy**
(Annual rates of growth in %)

|  | 1995-2005 | | | 1995-2000 | | | 2000-2005 | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | ICT | Non-ICT | Total | ICT | Non-ICT | Total | ICT | Non-ICT |
| Italy | 2,62 | 9,58 | 2,05 | 2,88 | 14,37 | 1,96 | 2,35 | 4,79 | 2,14 |
| Spain | 4,96 | 10,77 | 4,27 | 5,22 | 14,26 | 4,15 | 4,70 | 7,27 | 4,40 |
| United States-SIC based | 3,57 | 13,57 | 2,15 | 4,66 | 17,87 | 2,87 | 2,48 | 9,27 | 1,43 |
| EU-15ex[1] | 3,36 | 12,28 | 2,27 | 3,99 | 16,34 | 2,53 | 2,74 | 8,23 | 2,02 |

[1] The EU-15ex consists of Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Spain and the United Kingdom

*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

The above information allows us to carry out a more detailed analysis of both countries, to which the following sections are devoted.

## 3. TWO CONTRASTING GROWTH EXPERIENCES

Figure 3.1 offers an overview of the two countries' growth experiences in the 35 years covered by the EU KLEMS database. The data shown add to the standard classification separated information for *Agriculture* and Construction, two relevant industries for both countries already included in *OtherG.* Panel a) provides the information for Value Added (VA); panel b) for hours worked; and panel c) for labour productivity growth. The three panels distinguish between the first part of the period, from 1970 to 1995, and the most recent one, 1995-2005.

Starting with panel a), the figure shows two facts. First, that during the 1970-1995 period VA growth rates of both countries where rather similar, and second, it also shows that things changed drastically in the following years. While Spain experienced acceleration, in Italy the growth rate of VA halved with respect to the previous period. The general picture that emerges from panel a) is that: 1. In the most recent period Spain has outperformed Italy in terms of VA growth not only at the aggregate level but also in most of the seven sectoral aggregations considered; and 2. Whereas Spanish VA growth rates accelerated in the second sub period, 1995-2005, compared to the previous one, in Italy the opposite was true, with the construction industry being the only clear exception .

A somewhat similar conclusion can be obtained in terms of hours worked. As panel b) indicates, the ability of the Spanish economy to create new jobs has been astonishing after 25 years of almost nil labour creation. Italy has also been able to increase its level of employment, but less intensively. However, while in Spain the acceleration of this variable spread over all sectoral aggregations, Italy experienced deceleration, with *Construction* being the only exception again. It is interesting to notice the opposite behaviour shown by the two countries in relation with *Manufacturing* employment. Italy experienced a negative growth rate both in *Elecom* and also in *MaxElec*[8]. On the contrary, Spanish manufacturing employment recovered after the negative behaviour of the previous 1970-1995 period.

In spite of the different paces followed by the two countries in terms of VA and employment, the labour productivity behaviour -shown by panel c) - looks very similar. In both countries the deceleration of labour productivity was very intense and it spread through almost all sectors of the economy. The only exceptions were *Finbu* and *Nonmar*, while in *Agriculture* the deceleration was more than noticeable. It is also interesting to observe the sharp drop in the *MaxElec* aggregation, which includes the traditional manufacturing sectors in which both countries used to be specialized.

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[8] See in table 3.1 a detailed description of each aggregation acronym.

**FIGURE 3.1: Value added, hours worked and labour productivity growth. 1970-1995 and 1995-2005**
(Percentages)

**a) Value added**



**b) Hours worked**
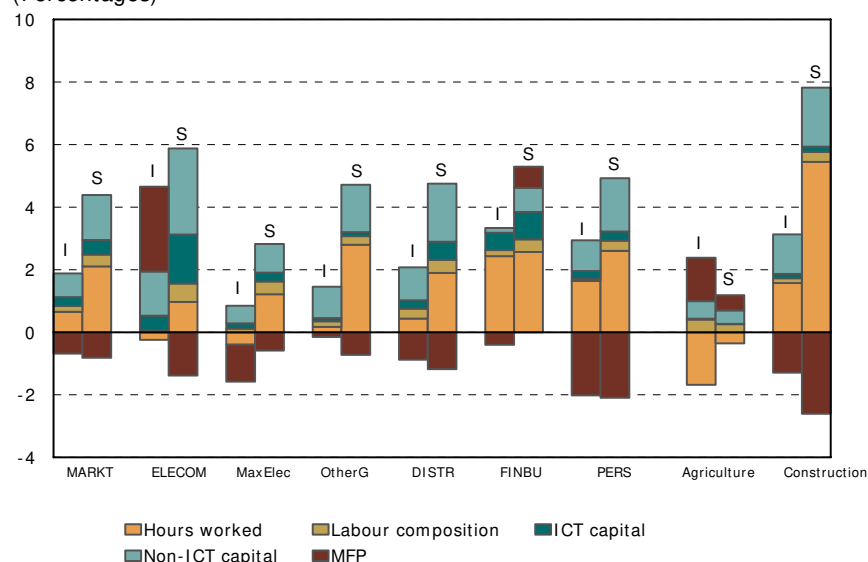


**c) Labour productivity**
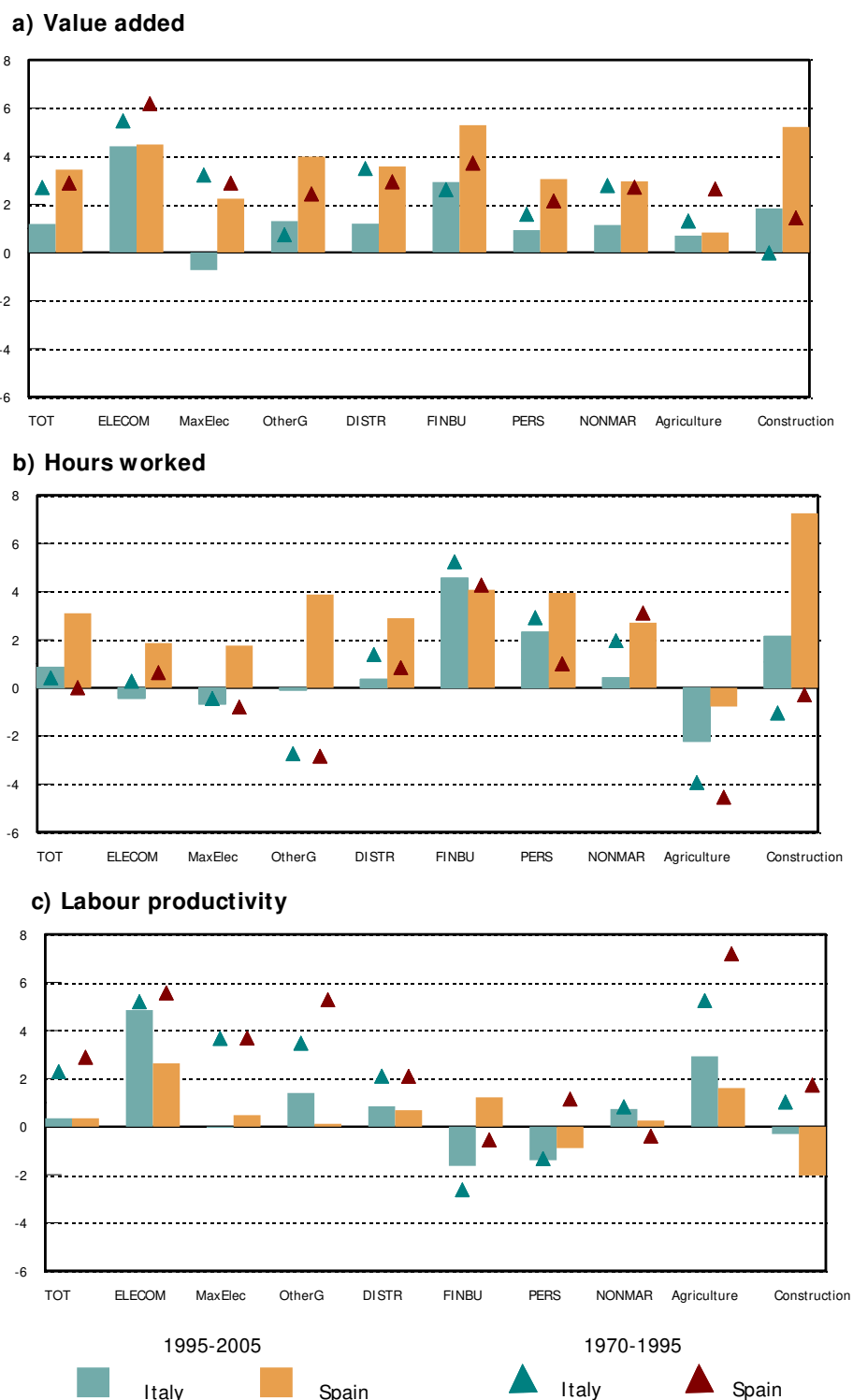


*Note:* TOT= Total industries; ELECOM= Electrical machinery, post and communication services; MaxElec= Total manufacturing, excluding electrical; OtherG= Other production; DIST= Distribution; FINBU= Finance and business, except real estate; PERS= Personal services; and NONMAR= Non-market services.

*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

Figure 3.2 provides further insights into the two countries, contrasting Value Added behaviour. First, in the most recent period, 1995-2005, Spanish VA growth was dominated by strong labour creation, particularly in *Construction* and the three service sectoral aggregations, *Distri*, *Finbu*, and *Pers*. However, *Agriculture* experienced job destruction in both countries.  Second, *MaxElec* presented one of the lowest growth rate of output in both countries, especially in Italy, where labour creation in this sector was even negative. Third, the ICT producing sector *Elecom* showed a very strong increase in both countries, but with very different drivers. In Spain, its main driver was ICT capital accumulation, whereas Italy was more in line with other EU countries, having MFP as its main source of growth. Another important difference is that while in Spain this sector showed net employment creation, in Italy the opposite was true. Fourth, the ICT capital contribution to GDP growth has been higher in Spain than in Italy. This result has its origin almost exclusively in the *Elecom* sector. And finally, both countries share an almost general MFP negative contribution, particularly severe in the *Pers* and *Construction* industries. The only two exceptions were *Agriculture* in both countries and the *Elecom* industry in Italy, and the *Finbu* in Spain.

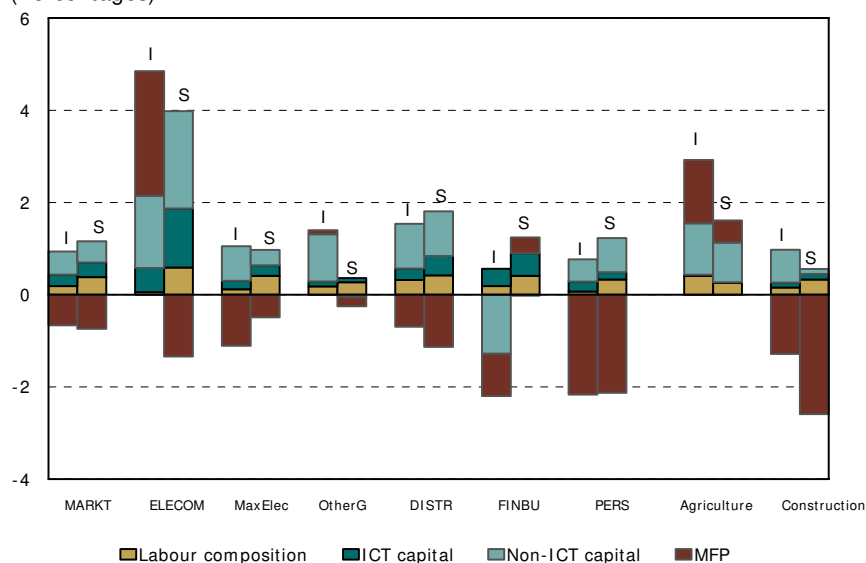**FIGURE 3.2: Contributions to value added growth. 1995-2005**
(Percentages)



Note: MARKT= Market economy; ELECOM= Electrical machinery, post and communication services; MaxElec= Total manufacturing, excluding electrical; OtherG= Other production; DIST= Distribution; FINBU= Finance and business, except real estate; and PERS= Personal services

*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

Figure 3.3 provides further information from the labour productivity perspective. In the 1995-2005 period labour productivity growth was very low in both countries, awarding them the last positions in the ranking of the EU KLEMS sample of countries. By far, the most dynamic behaviour was presented by the *Elecom* aggregation. In Italy labour productivity growth in this sector approached 5% and in Spain 4%. Compared to these figures, the rest of the sectoral aggregations did not even reach half these rates, the only exception being the Italian *Agriculture* industry.

**FIGURE 3.3: Contributions to labour productivity growth. 1995-2005**
(Percentages)



Note: MARKT= Market economy; ELECOM= Electrical machinery, post and communication services; MaxElec= Total manufacturing, excluding electrical; OtherG= Other production; DIST= Distribution; FINBU= Finance and business, except real estate; and PERS= Personal services

*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations

As already mentioned, MFP contributed negatively to productivity growth. In fact, the main force driving the very modest labour productivity growth in both countries was Non-ICT capital deepening. The only exception was *Finbu*, where in Italy its contribution was negative, and in Spain almost nil. ICT capital deepening was the second force, followed closely by the contribution of labour composition changes, especially in the Spanish case. As expected, ICT capital accumulation was very strong in the *Elecom* sector and also in two aggregations of sectors, characterized by using ICT intensively, *Finbu* and *Distribution*.

So far we have highlighted the role played by the different sectors in the two countries´ productivity slowdown. However, the level of aggregation in the information provided in figures 3.1 to 3.3 is probably still too high. For that reason, table 3.1 takes into consideration the highest level of sectoral disaggregation in the EUKLEMS database. The main conclusions we can draw from the observation of these data are the following. In the first place, during the 1970-1995 period productivity growth in both countries was driven by the *Agriculture* industry. This industry was responsible for more than half labour productivity growth in Italy, and almost 70% (67.5%) in Spain. If this sector was to be excluded, the productivity deceleration would have been 1.0 pp lower in the case of Italy and 1.8 pp in Spain

Other sectors which have played an important role in the productivity slowdown have been *Textiles, textile products, leather and footwear; Electrical and optical equipment; Chemicals and Chemical products;* and *Basic metals and fabricated metal products.* Notice that all of them belong to *Manufacturing* (*MaxElec*). The contribution of these sectors was especially negative in the case of Italy. In fact, the contribution of *Manufactures* to productivity deceleration in Italy has been of the same size as that of

**TABLE 3.1: Contribution to labour productivity growth**
(Percentages)

| | | 1970-1995 | | 1995-2005 | | Accelleration/ Deceleration 1995-2005/ 1970-1995 | |
|---|---|---|---|---|---|---|---|
| | | Italy | Spain | Italy | Spain | Italy | Spain |
| **TOTAL INDUSTRIES** | **TOT** | **2,29** | **2,89** | **0,34** | **0,35** | **-1,95** | **-2,54** |
| *MARKET ECONOMY* | *MARKT* | *2,62* | *3,54* | *0,25* | *0,25* | *-2,37* | *-3,29* |
| *ELECTRICAL MACHINERY, POST AND COMMUNICATION SERVICES* | *ELECOM* | *0,19* | *0,12* | *0,13* | *0,05* | *-0,06* | *-0,07* |
| Electrical and optical equipment | 30t33 | 0,16 | 0,06 | 0,01 | 0,01 | -0,16 | -0,05 |
| Post and telecommunications | 64 | 0,02 | 0,06 | 0,12 | 0,04 | 0,10 | -0,02 |
| *TOTAL MANUFACTURING, EXCLUDING ELECTRICAL* | *MexElec* | *0,91* | *0,75* | *0,02* | *0,06* | *-0,90* | *-0,69* |
| Food products, beverages and tobacco | 15t16 | 0,06 | 0,12 | -0,01 | -0,01 | -0,07 | -0,13 |
| Textiles, textile products, leather and footwear | 17t19 | 0,28 | 0,14 | -0,03 | -0,01 | -0,30 | -0,15 |
| Wood and products of wood and cork | 20 | 0,06 | 0,02 | 0,02 | 0,00 | -0,04 | -0,02 |
| Pulp, paper, paper products, printing and publishing | 21t22 | 0,05 | 0,05 | 0,01 | 0,02 | -0,05 | -0,03 |
| Coke, refined petroleum products and nuclear fuel | 23 | 0,00 | 0,00 | -0,02 | 0,00 | -0,03 | 0,00 |
| Chemicals and chemical products | 24 | 0,13 | 0,07 | 0,01 | 0,00 | -0,12 | -0,07 |
| Rubber and plastics products | 25 | 0,02 | 0,02 | 0,01 | 0,01 | -0,01 | -0,01 |
| Other non-metallic mineral products | 26 | 0,07 | 0,10 | 0,02 | 0,02 | -0,04 | -0,09 |
| Basic metals and fabricated metal products | 27t28 | 0,15 | 0,09 | 0,01 | -0,02 | -0,13 | -0,10 |
| Machinery, nec | 29 | 0,04 | 0,05 | -0,02 | 0,00 | -0,05 | -0,05 |
| Transport equipment | 34t35 | 0,03 | 0,07 | 0,00 | 0,03 | -0,04 | -0,04 |
| Manufacturing nec; recycling | 36t37 | 0,03 | 0,03 | 0,01 | 0,02 | -0,01 | -0,01 |
| *OTHER PRODUCTION* | *OtherG* | *1,30* | *2,19* | *0,23* | *0,00* | *-1,07* | *-2,19* |
| Mining and quarrying | C | 0,01 | 0,04 | 0,00 | 0,01 | -0,01 | -0,03 |
| Electricity, gas and water supply | E | 0,01 | 0,03 | 0,02 | 0,03 | 0,02 | 0,00 |
| Construction | F | 0,10 | 0,17 | -0,02 | -0,18 | -0,12 | -0,35 |
| Agriculture, hunting, forestry and fishing | AtB | 1,19 | 1,95 | 0,22 | 0,14 | -0,96 | -1,81 |
| *DISTRIBUTION* | *DISTR* | *0,36* | *0,36* | *0,14* | *0,14* | *-0,21* | *-0,22* |
| Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of fuel | 50 | 0,05 | 0,00 | 0,01 | 0,00 | -0,04 | 0,01 |
| Wholesale trade and commission trade, except of motor vehicles and motorcycles | 51 | 0,06 | 0,02 | 0,01 | 0,00 | -0,05 | -0,02 |
| Retail trade, except of motor vehicles and motorcycles; repair of household goods | 52 | 0,16 | 0,15 | 0,13 | 0,11 | -0,03 | -0,03 |
| Transport and storage | 60t63 | 0,09 | 0,20 | 0,00 | 0,02 | -0,10 | -0,18 |
| *FINANCE AND BUSINESS, EXCEPT REAL ESTATE* | *FINBU* | *-0,06* | *-0,01* | *-0,11* | *0,14* | *-0,05* | *0,14* |
| Financial intermediation | J | -0,02 | 0,01 | 0,03 | 0,11 | 0,05 | 0,10 |
| Renting of m&eq and other business activities | 71t74 | -0,04 | -0,02 | -0,14 | 0,02 | -0,10 | 0,04 |
| *PERSONAL SERVICES* | *PERS* | *-0,07* | *0,12* | *-0,16* | *-0,12* | *-0,09* | *-0,24* |
| Hotels and restaurants | H | -0,04 | 0,02 | -0,06 | -0,09 | -0,02 | -0,11 |
| Other community, social and personal services | O | 0,01 | -0,01 | -0,04 | 0,00 | -0,06 | 0,01 |
| Private households with employed persons | P | -0,05 | 0,11 | -0,05 | -0,03 | -0,01 | -0,14 |
| *NON-MARKET SERVICES* | *NONMAR* | *0,04* | *-0,05* | *0,19* | *0,10* | *0,14* | *0,15* |
| Public admin and defence; compulsory social security | L | 0,01 | -0,04 | 0,13 | 0,11 | 0,12 | 0,15 |
| Education | M | 0,01 | 0,01 | 0,00 | 0,04 | -0,01 | 0,04 |
| Health and social work | N | 0,02 | -0,02 | 0,05 | -0,02 | 0,02 | 0,00 |
| Real estate activities | 70 | 0,00 | 0,00 | 0,00 | -0,04 | 0,01 | -0,05 |
| *Reallocation* | | *-0,38* | *-0,60* | *-0,10* | *-0,01* | *0,28* | *0,60* |

*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

*Agriculture*, while in Spain it was much lower: -1.8 pp for *Agriculture* versus -0.7 pp for *Manufacturing.*

Finally, the market services sectors have played a mixed role. *Distribution* contributed noticeably to productivity deceleration, especially *Transport and Storage*, as well as a very important sector for both countries, *Hotels and Restaurants*, with a somewhat higher impact in Spanish productivity deceleration. On the contrary, the *Finance and Business* sector contributed positively in the Spanish case but not so in Italy.

The last issue that we would like to address in this section relates to the similitudes/differences of the two countries' growth experiences in the most recent period. A way to look at them is proposed in figure 3.4, where the relationship between the two countries is depicted in terms of labour productivity and its sources of growth from the highest level of sectoral disaggregation considered in table 3.1[9]. As can be seen, the relationships are not very closed, especially for the contributions of labour composition and total capital contribution. However, it is remarkable to observe the existing differences between the two forms of capital, with a rather close relationship between the two countries in terms of ICT capital contribution, whereas for Non-ICT the relation is none existent. Finally, it is also interesting to notice the negative and significant correlation between MFP contributions in the two countries, but with a negative sign.
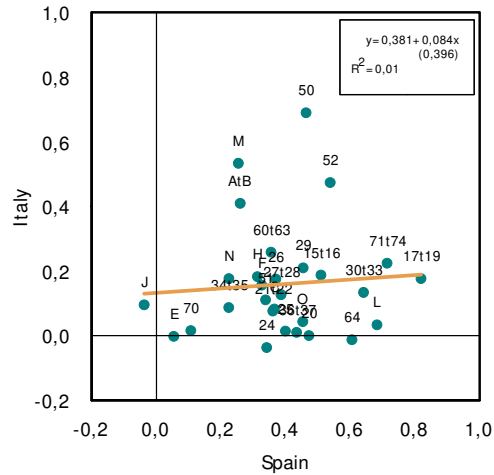
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[9] With the exception of sector 23, *Coke, refined petroleum products and nuclear fuel* which has been excluded due to its somewhat erratic behaviour.

**FIGURE 3.4: Labour productivity and contributions to labour productivity. Rates of growth. Italy vs. Spain**
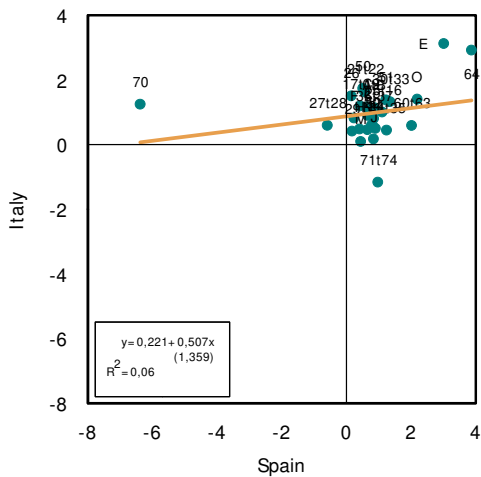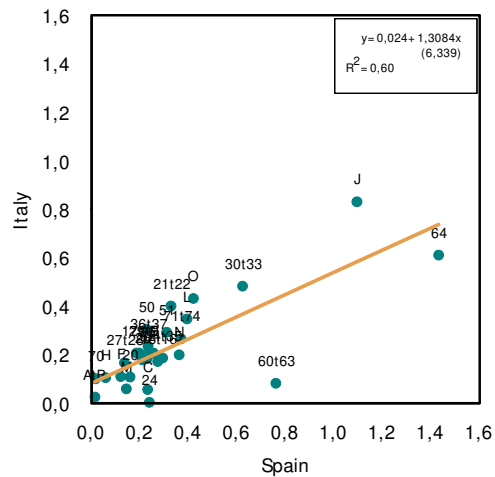(Percentages)

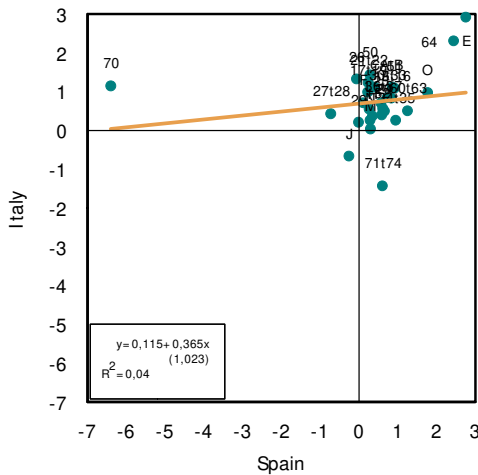**a) Labour productivity**
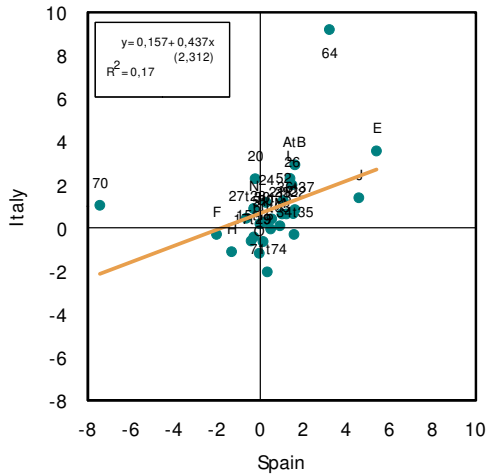


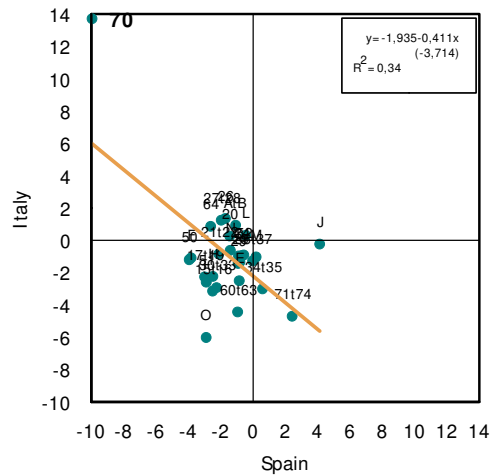**b) Labour composition contribution**



**c) Total capital contribution**



**d) ICT capital contribution**



**e) Non-ICT capital contribution**



**f) MFP contribution**



*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

## 4. INDUSTRY SPECIALIZATION

Section 3 has already provided an overview of Italy and Spain's industry specialization. In this section we propose an alternative approach, focusing on some given industries especially relevant to the economies of the two countries. Section 4.1 provides the level and time profile of two productive structure indicators, and sections 4.2 and 4.3 offer the results of two shift-share analysis to labour productivity growth for both countries.

### 4.1. THE CHANGING COMPOSITION OF PRODUCTION

In this section we address two related topics: *i*) the dispersion/concentration of production in a number of industries *inside each country*; and *ii*) the differences in the industries composition of output *between pairs of countries/areas*.

We start by addressing the homogeneity of the productive structure within one country. The question is: in which country is the production more diversified among different sectors/activities? In answering this question, we make use of one of the most popular index of dispersion, the coefficient of variation. We apply this index to the share of each industry GVA in total Value Added[10]. Figure 4.1 provides this information. It is clearly noticeable that the dispersion of output among the different industries is less pronounced in Spain and Italy than in the EU-15 aggregate. It can also be observed that, at the beginning of the period, the Spanish economy showed a higher dispersion mainly -as we will soon see- as a consequence of the very high weight of just one sector, agriculture. Its progressive reduction contributed to reduce the concentration, approaching Spanish dispersion among sectors to the one existing in Italy. Both countries reached a minimum by the mid-80s. Since then, we can observe a continuous increase of the coefficient of variation -or industry composition divergence- not only in Spain and Italy but also in the EU-15 aggregate.

A complementary perspective is provided by an *index of differences in industries' composition* computed according to [4.1].:

$$L_{AB} = \frac{1}{2} \sum_{j=1}^{N} \left| X_{jA} - X_{jB} \right| * 100 \qquad\qquad [4.1]$$

In 4.1, $X_{jA}$ is the weight of sector $j$ in total economy $A$ in a given moment of time, and $X_{jB}$ the corresponding value for country $B$. The index $L_{AB}$ -bounded also between 0 and 100- measures the magnitude of the differences in an industry's specialization between pairs of economies, showing higher values when the differences are greater. The results of this computation appear in figure 4.2.
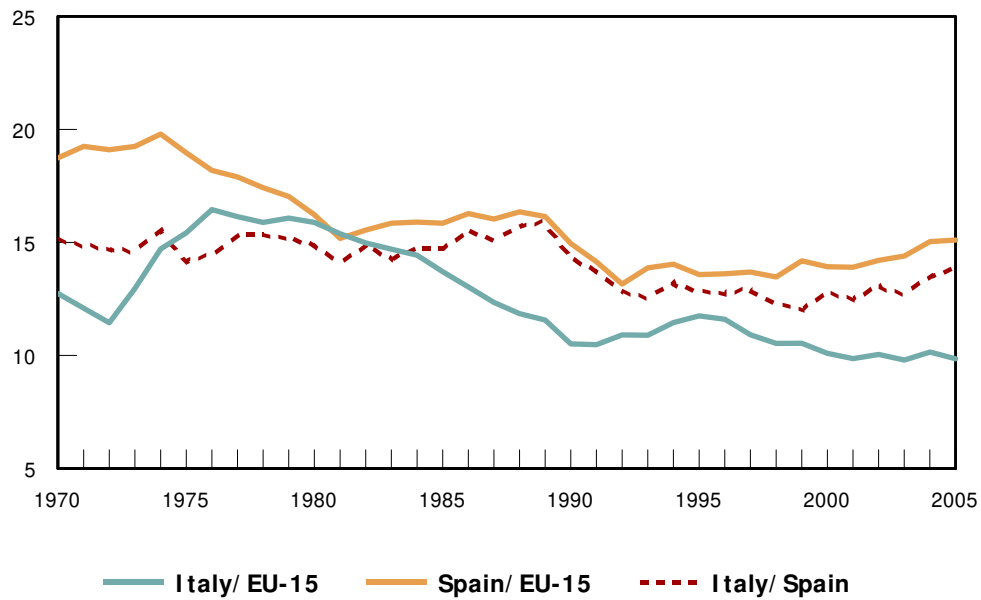
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[10] The same exercise has been replicate using sectoral labour's share with similar qualitative results.

**FIGURE 4.1: GVA sectoral dispersion**

(Coefficient of variation of GVA sectoral share in total)
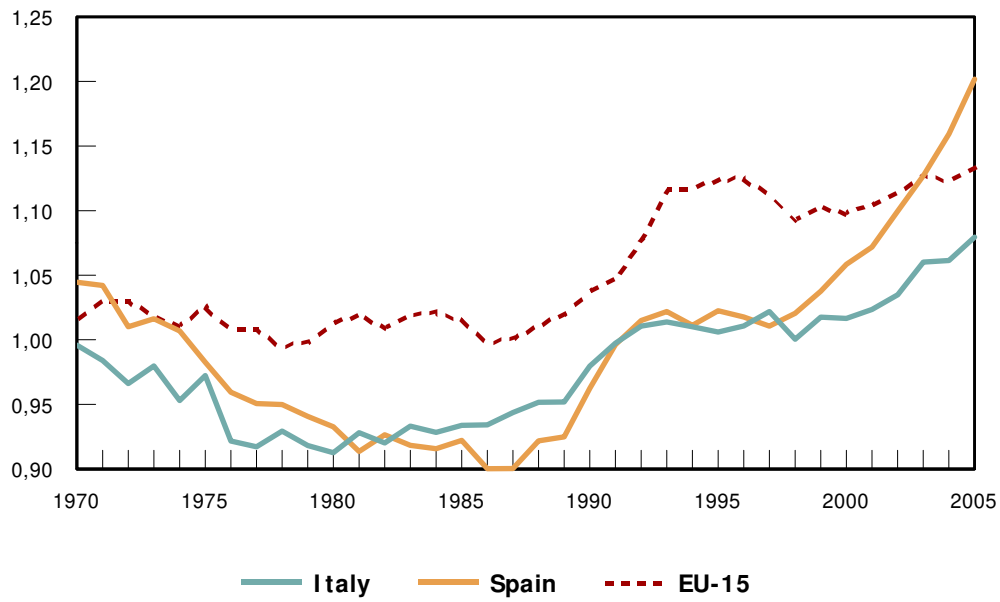


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

**FIGURE 4.2: Index of differences in sectoral composition**

(GVA percentages)



*Source* : EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

From figure 4.2 we can conclude the following results. First, the differences between Spain and the EU-15 are much more marked than between Italy and the EU-15. Thus, the Spanish productive structure is more divergent from the EU-15 average than the Italian one. Second, the Italian composition of GVA has been almost continuously approaching the EU´s average, with the only exception being in the first oil crisis at the beginning of the 70s. Third, Spain followed a similar profile to Italy with respect to the EU-15 but with two specificities: *i*) its intensity has been lower; and *ii)* the process of convergence experienced a reversion since the mid-90s, instead of continuing the reduction of the differences as Italy did.

Finally, when comparing Italy and Spain the most notable fact is the practical constancy of the differences in the industries composition of the two countries. Thus, these two countries have shown neither convergence nor divergence in their productive structure. The only facts worth mentioning are *i*) the slight increase of the differences around the second half of the 80s, after the Spanish entrance into the EU; *ii*) its subsequent reduction in the following years; and *iii*)  its later rebound in the first few years of the new century. Thus, the last five years under analysis, 2000-2005, are marked by a divergent composition of Spanish output in relation to both Italy and the EU-15's average.

Figures 4.1 and 4.2 have been constructed taking into account the 47 individual industries considered by the EU KLEMS database. However, it is not hard to identify two specific sectors as, at least partly, responsible for the results just shown. Those sectors are the agricultural and the construction sectors. Figure 4.3 shows the share of employment (hours worked) in total employment in the agricultural sector (panel a) and the construction sector (panel b). As before, similar qualitative results can be obtained using GVA instead of employment figures.

As can be seen in panel a) the agricultural sector experienced a marked loss in the 35 years analyzed. In 1970 it represented almost 30% of the Spanish employment (11.4% in terms of GVA), while in 2005 it dropped to a low 5.9% (3.3% in terms of GVA). A similar, but less marked path was followed by Italy. In 1970 agricultural employment represented 22.6% of total employment (8.7% in terms of GVA). At the end of the period, in 2005, its share was only slightly lower than the Spanish one, 5.6% (2.2% in terms of GVA).

The most relevant fact is, however, the convergence process followed by both countries over the period. By the end of it, in 2005, the share of the agricultural employment (hours worked) in total employment was similar not only between both countries but it also converged to the EU-15 share. In terms of GVA the convergence process has not been so intense, its share being slightly higher in Spain (3.3%) than in Italy (2.2%) or the EU-15 (1.3%). This behaviour has clearly acted in favour of the convergence between the two countries and the EU-15.

**FIGURE 4.3: Share of sector's employment in total employment (hours worked). Agriculture and construction. 1970-2005**
(Percentages)

**a) Agriculture**

**b) Construction**
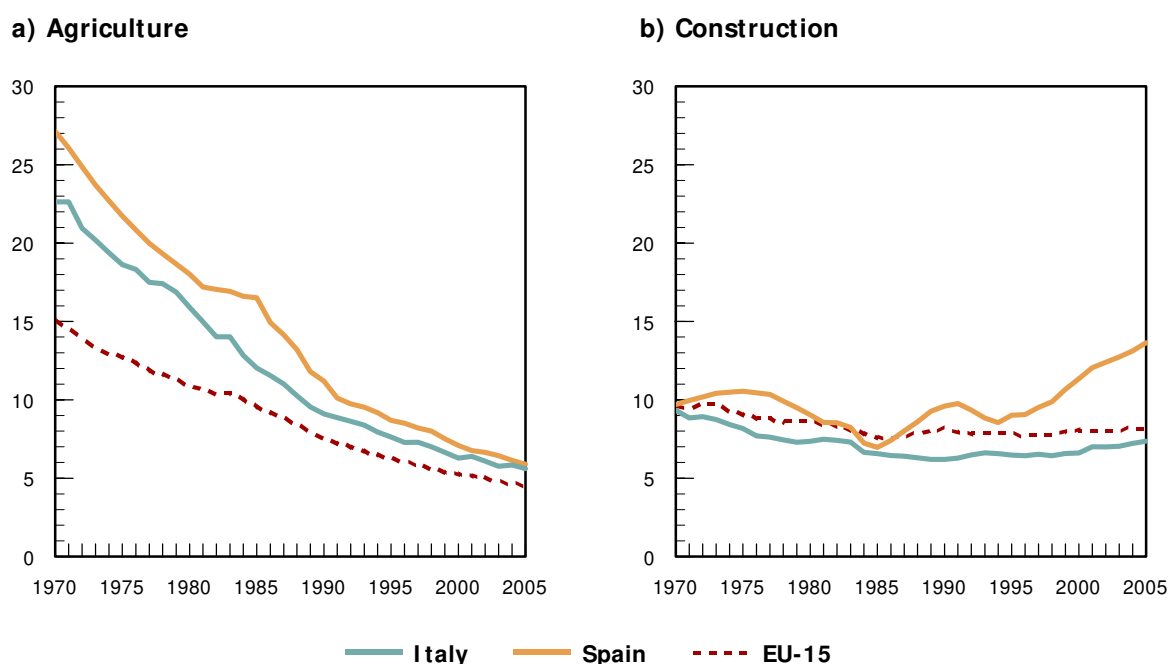


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

The construction sector has shown a different profile. At the beginning of the period, in 1970, the share in total employment (hours worked) of the construction industry was similar in Spain (9.7%), Italy (9.3%) and EU-15 (9.5%). In terms of GVA the shares were also similar, around 9%. However, in 2005 things had changed dramatically. While in Spain the share of employment had reached almost 14% (13.7%), in Italy it had dropped to almost half this figure (7.4%), and in the EU-15 to 8.2%. Thus, the behaviour followed by the construction industry in Spain has definitively acted against the process of convergence of this country towards both the Italian and the EU-15 productive structure.

## 4.2 LABOUR PRODUCTIVITY GROWTH AND SPECIALIZATION

As seen above, data show a deterioration of labour productivity both in Spain and Italy in recent years, compared to the EU-15 performance. As we have also seen from different perspectives, the industrial dimension seems to play an important role in this evolution for both countries. In this section we try to analyze whether the slower productivity growth is due to a lesser redistribution of factors towards industries with higher productivity levels or/and higher productivity growth (structural change effect), or if it is a consequence of an overall slower growth of productivity at industrial level (within-industry effect). In order to do that we will apply a shift-share analysis to labour productivity growth:

$$\frac{Y_T}{L_T} - \frac{Y_0}{L_0} = \underbrace{\sum_{j=1}^{J} \theta_{j0} \left( \frac{Y_{jT}}{L_{jT}} - \frac{Y_{j0}}{L_{j0}} \right)}_{\text{Within-industry effect}} + \underbrace{\underbrace{\sum_{j=1}^{J} \left( \theta_{jT} - \theta_{j0} \right) \frac{Y_{j0}}{L_{j0}}}_{\text{Static effect}} + \underbrace{\sum_{j=1}^{J} \left( \theta_{jT} - \theta_{j0} \right) \left( \frac{Y_{jT}}{L_{jT}} - \frac{Y_{j0}}{L_{j0}} \right)}_{\text{Dynamic effect}}}_{\text{Structural change effect}} \qquad [4.2]$$

where $Y_T/L_T - Y_0/L_0$ is the labour productivity growth between years 0 and $T$, $j$ is the industry, and $\theta_{jT}$ is the share of hours worked in industry $j$ in year $T$.

The *within-industry effect* shows the growth of labour productivity that would have occurred even without any structural change. That is, it is due to the aggregate productivity gains obtained because of the internal improvements of productivity in each industry. The *structural change effect* captures the effect of the re-allocation of factors between sectors towards industries with a higher initial level of labour productivity (*static effect*), or a higher rate of labour productivity growth (*dynamic effect*). As we can see, the *static effect* is the sum of changes in input shares, weighted by the initial productivity levels. It measures the growth of labour productivity due exclusively to the change in sector composition, and which would have occurred even without any change in the productivity of any sector during the period analysed. The *dynamic effect* depends on the factors of production having been re-allocated to the sectors with higher relative growth in labour productivity (in which case the effect is positive) or, on the contrary, to the sectors with lower productivity growth (negative effect). Table 4.1 shows the results of that shift-share decomposition for two periods: 1970-1995 and 1995-2005.

**TABLE 4.1: Decomposition of productivity growth. Shift-share analysis**
(annual average growth rates, in %)

**a) Italy**

|  | 1970-1995 | 1995-2005 |
|---|---|---|
| **Total effect** | **2,29** | **0,34** |
| Within-industry effect | 1,53 | 0,61 |
| Structural change effect | 0,76 | -0,27 |

**b) Spain**

|  | 1970-1995 | 1995-2005 |
|---|---|---|
| **Total effect** | **2,89** | **0,35** |
| Within-industry effect | 2,35 | 0,33 |
| Structural change effect | 0,54 | 0,01 |

**c) EU-15**

|  | 1970-1995 | 1995-2005 |
|---|---|---|
| **Total effect** | **2,63** | **1,37** |
| Within-industry effect | 2,24 | 1,46 |
| Structural change effect | 0,39 | -0,09 |

*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

Taking the EU-15 as a whole the results show that the within-effect is always more important than structural change between sectors. This is very evident for the period 1970-1995 (2.24% to be compared to 0.39%), but also for the period 1995-2005 (1.46% and -0.09% respectively). Europe increased and continues increasing its labour productivity, mainly through improvements that are internal to the sectors. Structural change used to have a smaller positive effect, but nowadays its contribution is almost negligible and slightly negative. The slowdown in labour productive is noteworthy, from an average growth of 2.63% until the mid-90s to roughly a half of it (1.37%) for the period 1995-2005. This decrease of 1.26% is the consequence of simultaneous drops in the within-effect (-0.78%), and the structural change effect (-0.48%).

We will now turn to the results for Spain and Italy in order to see if they follow the same pattern, or if we can distinguish any particular characteristic which affects their performance in terms of labour productivity.

The main part of the labour productivity growth in Italy is the within-effect in both periods. The internal improvements account for an annual growth rate of 1.53% from 1970 to 1995 and 0.61% for the last period. On the other hand, structural change accounts only for 0.76% and -0.27% respectively. Structural change has therefore played only a minor role in the Italian performance. In fact, its contribution was slightly negative during the most recent period. Looking at the slowdown of productivity in Italy during the last few years (-1.95% due to a decrease from 2.29% to 0.34%) data show that an overall decrease of -0.92% comes from a slowdown within each industry (within effect from 1.53% to 0.61%) and an additional -1.03% is due to the structural change (or, in fact, due to a lack of it).

In the case of Spain the pattern is also of decreasing labour productivity growth The reduction is even more noticeable than in Italy. The rate drops from an annual growth of 2.89% over the period 1970-1995 to just 0.35% for the period 1995-2005, a decrease of 2.54% over time. Again the main of source of growth is always the internal improvement within each sector. The within effect is 2.35% in the first period and 0.33% in the last one. The re-allocation of inputs between sectors always seems to be less important (structural change effects 0.54% and 0.01% respectively). Similarly to Italy, both effects are relevant to explain the slowdown of productivity in Spain, although in this case structural change has a less negative contribution than in Italy. The very significant drop of the within-industry effect (-2.02%) accounts for as much as 80% of the total slowdown of productivity, whereas a worse structural change effect (-0.53%) represents the other 20%.

Focusing on the last period 1995-2005, our results indicate a common poor performance by both Italy and Spain when compared to the EU-15 (approximately -1% of growth per year). This contrasts with the previous experience, especially for Spain given that it grew faster than the EU-15 over the period 1970-1995. In all cases the main source of labour productivity growth is related to the within-effect which is lower in Italy (0.61%), and particularly Spain (0.33%), than in the EU-15 (1.46%). Structural change contributes in negative way in Italy (-0.27%), the EU-15 (-0.09%) and is positive but very small in

Spain (0.01%). In all cases it seems that a more determined effort is necessary to move towards "better" industries. During the last few years structural change seems to be either too slow (Spain), or even to go in the wrong direction (Italy). Furthermore, a general internal slowdown within each industry is also detected in all cases. However, this is more significant in Spain where the performance of each industry has been worse than in Italy and the EU-15, particularly when compared with the previous trend. For the period 1970-1995 Spain showed the highest within-effect, whereas nowadays it shows the lowest.

## 4.3 LABOUR PRODUCTIVITY LEVELS AND SPECIALIZATION

Industries can vary extremely in terms of labour productivity due to differences in technology, capital deepening, rates of technical change, the use of human capital and so on. This being so, the particular sort of industrial specialization of each economy can produce important differences in the level of labour productivity between countries. On the other hand, a country might simply be best doing the same, and therefore achieve more productivity by having a higher level of productivity across industries. Of course a country can exploit either one or another or both channels in order to be more productive. We can use a shift-share analysis in order to decompose the difference in the level of average labour productivity between any two economies A and B:

$$\frac{Y_A}{L_A} - \frac{Y_B}{L_B} = \underbrace{\sum_{j=1}^{J} \theta_{jB}\left(\frac{Y_{jA}}{L_{jA}} - \frac{Y_{jB}}{L_{jB}}\right)}_{\text{Country effect}} + \underbrace{\underbrace{\sum_{j=1}^{J}\left(\theta_{jA} - \theta_{jB}\right)\frac{Y_{jB}}{L_{jB}}}_{\text{Specialization effect}} + \underbrace{\sum_{j=1}^{J}\left(\theta_{jA} - \theta_{jB}\right)\left(\frac{Y_{jA}}{L_{jA}} - \frac{Y_{jB}}{L_{jB}}\right)}_{\text{Allocation effect}}}_{\text{Total Specialization effect}} \qquad [4.3]$$

where $Y_A/L_A - Y_B/L_B$ is the difference in labour productivity between economies A and B, $j$ is the industry, and $\theta_{jC}$ is the share of hours worked in industry $j$ in country C. We use labour productivity in terms of GVA per hour worked in PPS at 1995 prices in order to make appropiate comparisons.

The *country effect* shows the differences in labour productivity that would have occurred even without any difference in the industrial specialization. Therefore it is due only to the aggregate effect of the internal differences of productivity in each industry. The other effects add to the *Total specialization effect* which captures the impact of the different specialization towards high-productivity or low-productivity industries. It captures differences which would exist even if each industry had the same productivity in both countries.

Table 4.2 shows the results for a few key years over time as a percentage of the labour productivity in the economy of reference in the comparison (EU-15 in sections a and b, Italy in section c).

**TABLE 4.2: Decomposition of productivity growth. Shift-share analysis**
(annual average growth rates, in %)

**a) Italy vs. EU-15**

|  | 1970 | 1995 | 2005 |
|---|---|---|---|
| **Total effect** | **15,71** | **6,25** | **-4,38** |
| Country effect | 84,78 | 33,58 | 26,64 |
| Total specialization effect | -69,07 | -27,34 | -31,02 |

**b) Spain vs. EU-15**

|  | 1970 | 1995 | 2005 |
|---|---|---|---|
| **Total effect** | **-10,42** | **-4,49** | **-14,63** |
| Country effect | 17,14 | 5,96 | -9,69 |
| Total specialization effect | -27,56 | -10,46 | -4,94 |

**c) Spain vs. Italy**

|  | 1970 | 1995 | 2005 |
|---|---|---|---|
| **Total effect** | **-22,58** | **-10,11** | **-10,05** |
| Country effect | -20,29 | -12,28 | -14,30 |
| Total specialization effect | -2,29 | 2,17 | 4,26 |

*Source:* EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

We begin by looking at the differences of Italy and Spain compared with the EU-15. Despite the fact that Spain showed a certain ability to converge to the EU-15 over the period 1970-1995, during the last ten years all those relative gains vanished. As we can see Spain is always below the EU-15, although the difference has shown significant changes over time: -10.42% in 1970, -4.49% in 1995 and -14.63% in 2005. The Italian experience is quite different because it started above the EU-15 (+15.71% in 1970). However, its position worsened continuously over time: in 1995 the positive differential was only of 6.25% and the decline went on. In 2005 Italy is already below the EU-15 with a negative differential of -4.38%. Coming from very different situations, both countries have worsened their relative position in a similar proportion, losing some 10.5% in relative terms with respect to the EU-15 between 1995 and 2005.

We can also make direct comparisons between Spain and Italy and for this we have considered Italy as the benchmark. Spain always has a lower level of productivity, but the initial gap (-22.58% in 1970) was already considerably reduced by 1995 (-10.11%). Between 1995 and 2005 the gap has remained roughly constant. The initial gap was mainly due to Spanish industries being much less productive (country effect of -20.29%). The effect of the relative specialization was also negative but smaller (-2.29%). Over time Spain has overtaken Italy in terms of specialization (-2.29% in 1970, +2.17% in 1995 and +4.26% in 2005), which helped to reduce the productivity gap. However, the initial within industry convergence in terms of productivity (country

effect moving from -20.29% in 1970 to -12.28% in 1995) was followed by a period of slow divergence (country effect moving from -12.28% in 1995 to -14.30% in 2005).

The overall image was of both countries lagging behind the EU-15 with a gap that increased between 1995 and 2005. The main problem in the Spanish case is related to the relatively poor performance within each industry whereas in Italy the main problem seems to be related to its apparent inability to change its industrial structure towards more productive sectors.

## 5. THE CHANGING COMPOSITION OF LABOUR

Over the last few decades, Italy and Spain have experienced significant social changes, with the broadening access to higher levels of education for their new generations, the growing participation of women in the labour market, and the recent, intense wave of immigration from abroad, looking for a job and a better life. All these changes have had important effects on the labour market in both countries, and in their overall performance in terms of economic growth and labour productivity gains. Additionally, as we will see, there are also noticeable differences between both countries in the magnitude of these transformations during the last few decades. A specific feature to consider is that, in the case of Spain, coming late to most of these changes, everything has happened and is still happening much more quickly over a relatively shorter period of time. Furthermore, another peculiarity of the Spanish case is related to the labour market reforms in Spain from mid-80s onward. These reforms, which create new temporary contracts to foster employment, have had far-reaching differential effects.

### GENDER COMPOSITION

The new role of women in Spain over the last few decades is, without doubt, one of the most momentous changes for its society. Following the road transited earlier by other developed countries, women began to show an increasing willingness to have a job and a full professional career, apart from only managing their homes and devoting their time to rearing their children. As late as 1980 the female participation rate[11] was only 28.3% in Spain and 32% in Italy. Those levels were clearly much lower than the ones corresponding to males in both countries (76.6% and 69.9% respectively). As figure 5.1 shows, both countries have increased their female participation rates over the period 1980-2005, just as the activity rates of men were experiencing the opposite trend. Nowadays the gender difference is still wide but less than it was a couple of decades ago. However, this qualitatively similar evolution has had a very different intensity in Spain and Italy, being stronger in Spain and coming very close to a 45% participation rate at the end of the period (an increase of some 17 points). The Italian experience is more moderate (with a female activity rate of 37% in recent years after an increase of only 5 points), and the result is the inversion of the relative positions. Nowadays female activity rates are higher in Spain than in Italy.  One of the consequences of all this is the divergent evolution of the overall participation rate in each country. In Spain activity rates grow over the period, in spite of the decrease of participation among men, beginning at 50% levels and finishing at 56%. In Italy activity rates fall from 50% to 48%. Therefore, an increasing amount of labour has been made available for firms in net terms in Spain due to the change in female behaviour, but less so in Italy.
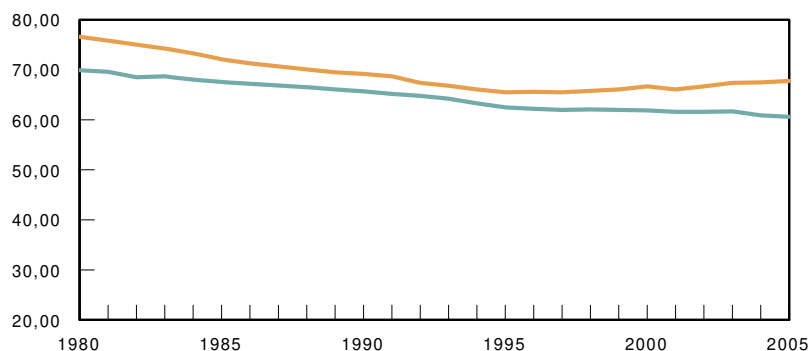
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[11] Unlike the previous section, all participation rates are now defined as shares over the population aged 15 or more.

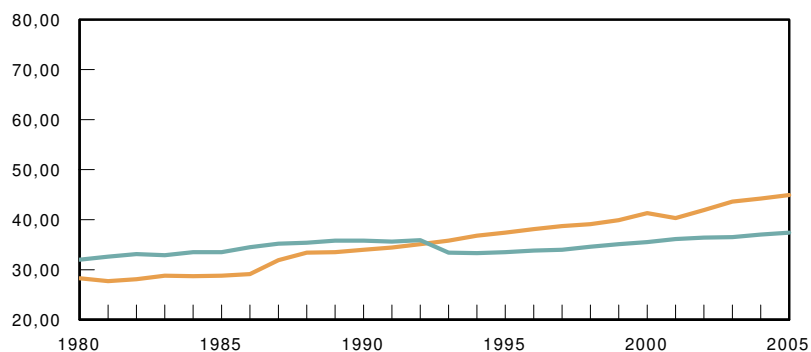**FIGURE 5.1: Activity rates. 1980-2005**
(Percentages)

**a) Total**
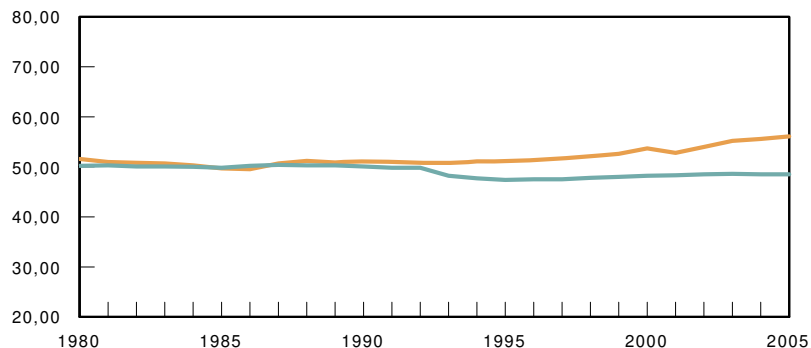


**b) Men**



**c) Females**
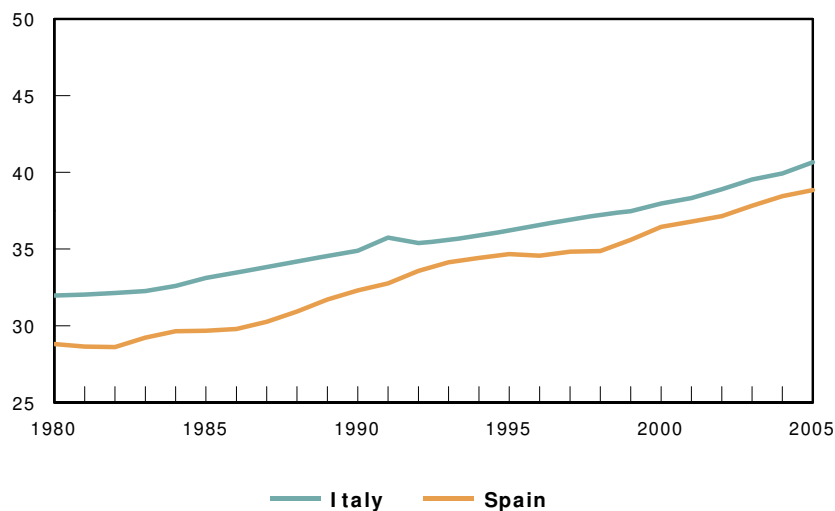


*Source*: ILO.

The gender mix of employment is actually quite different from the 1980 situation. Figure 5.2 shows how the female share in total hours worked has risen between 1980 and 2005 from 32% to 40.6% in Italy and from 28.8% to 38.8% in Spain. A change as important as this may have had significant effects on the labour supply and the economic performance of both countries.

**FIGURE 5.2: Female share in total hours worked**
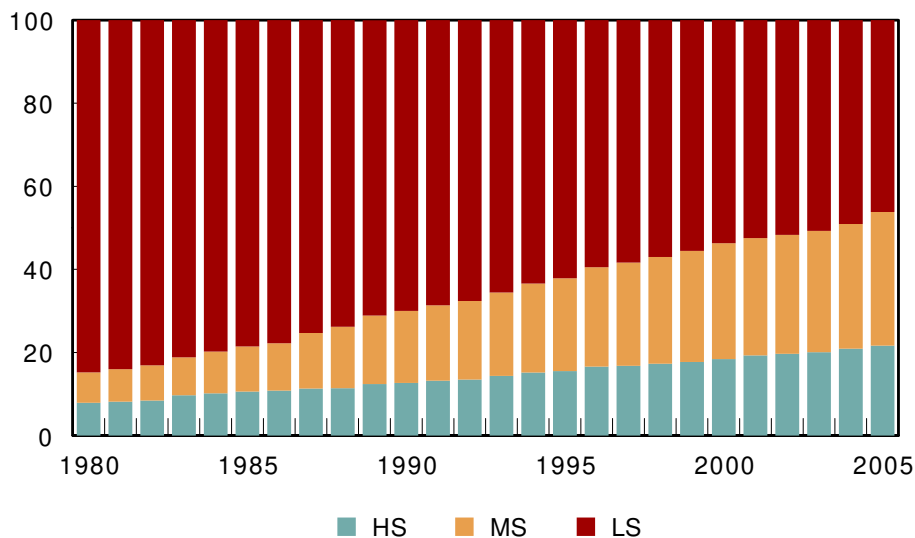(Percentages)

## SKILL COMPOSITION

Human Capital is a field where we find even more significant differences over time between Italy and Spain. These can be important in understanding the relative economic performance of both countries too. Undoubtedly human capital is always a somewhat tricky question due to the complex and quite intangible nature of this factor. Therefore, some problems of comparability and measurement are always warranted, and unavoidable to a certain extent.

Figure 5.3 shows the educational attainment of workers in Spain. We can see a huge change in Spain from 1980 to 2005. High skilled workers are 7.9% of hours worked in 1980 and 21.6% in 2005. Medium skilled workers are 7.3% in 1980 and 32.2% in 2005. Low skilled workers decrease from 84.8% to 46.1%. (We should also add that the skill mix of this last group is also much better in 2005 compared to 1980, as we will see below)

The Italian experience is completely different (figure 5.4). Looking once again at the skills of workers, we can see a more static picture. High skilled workers are 4.7% of total hours worked in 1980 and 12.8% in 2005. Almost every worker is a medium skilled one (87.3% in 1980 and 86.1% in 2005). Low skilled workers are a small and decreasing minority over all the period (7.9% in 1980 and 1.2% in 2005).

However, there are some apparent problems of comparability related to the labour composition data in Italy and Spain due to the use of aggregates which are too big. We will focus on the completed schooling composition of labour and, therefore, we will be able to make accurate comparisons, while leaving aside other sources of human capital different from formal education. Nevertheless, this schooling dimension is the one showing the biggest transformation during the last few decades.

**FIGURE 5.3: Skill composition hours worked. Spain. 1980-2005**
(Percentages)



*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

**FIGURE 5.4: Skill composition hours worked. Italy. 1980-2005**
(Percentages)
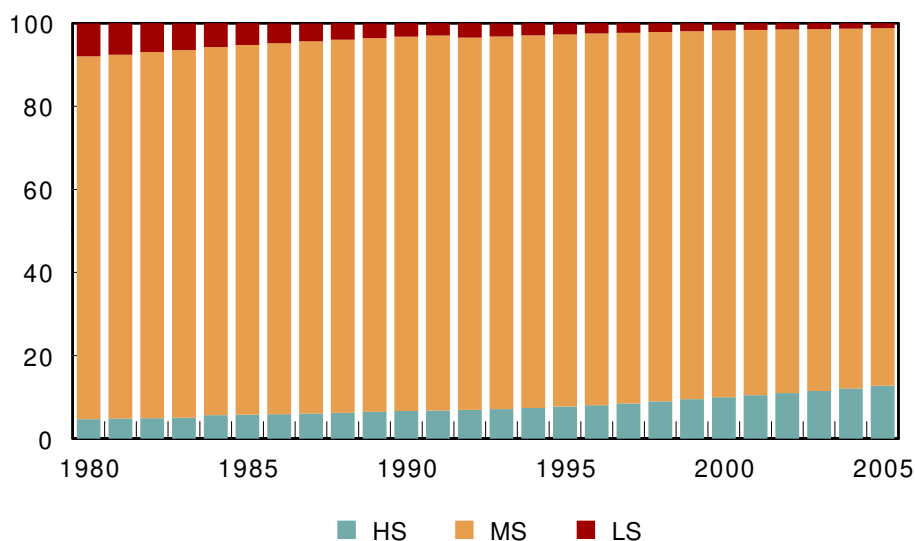


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

Figure 5.5 shows the educational attainment composition of labour in Spain. We can distinguish the share of total hours worked corresponding to workers with no formal qualifications; with only compulsory schooling (low intermediate); post-compulsory non-university education; and university education. The improvement is huge indeed. University graduates grow from 7.9% in 1980 to 21.6% in 2005. Post-compulsory education grows from 7.3% to 32.2%. Compulsory education also rises from 10.3% to 28.7%. All schooling levels above the lowest one improve their shares over the period in

a sustained way. Meanwhile, workers with no qualifications move from being 74.5% to only 17.4%. It is quite clear that the Spanish labour force has changed from being characterized by an almost complete lack of formal education to a very different and much more favourable position.

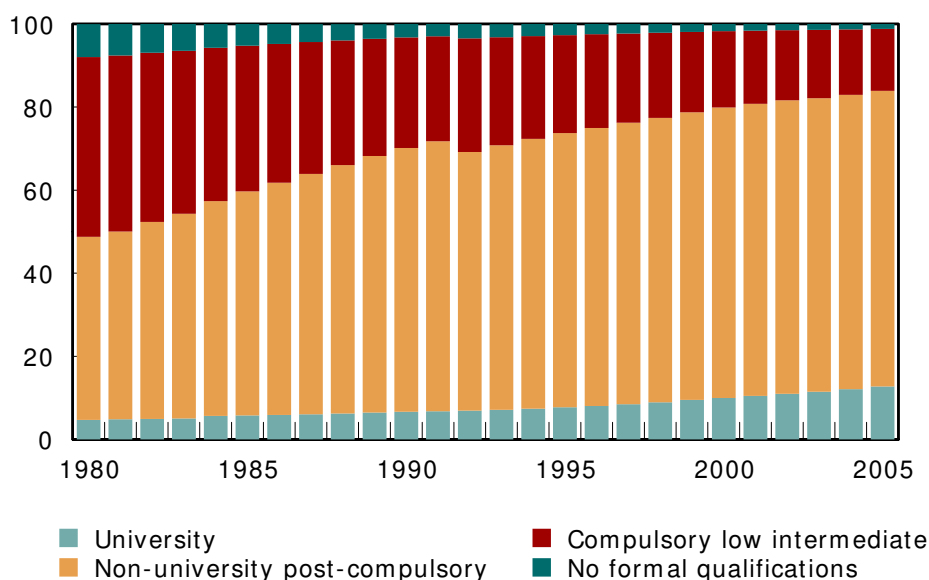**FIGURE 5.5: Labour composition. Spain. 1980-2005**
(Percentages)
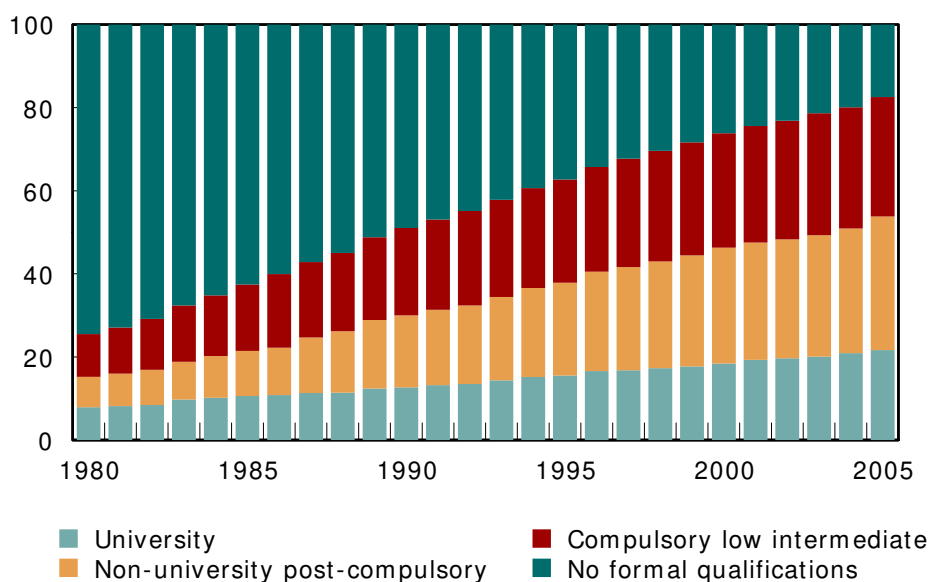


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net, INE and own calculations.

Italy represents a different case. It has also experienced some significant improvements in the educational attainment of its workers, but the process is slower and begins in 1980 from an already much better point of departure. Figure 5.6 shows the Italian performance over the same period 1980-2005. University graduates increase their share from 4.7% to 12.8%. Post-compulsory education grows strongly from 44% to 71.1%. On the other hand, compulsory education falls from 43.3% to 14.9%, and workers with no qualifications move from being a small 7.9% to a negligible 1.2% in 2005.

Therefore, what we can observe is the differential situation of Spain coming a few decades late to a more universal provision of education, a situation achieved some time ago by other more developed countries. Italy is to a certain extent one of those countries. In 1980 Spain had already enforced compulsory education until 14 years of age (this compulsory level was then increased to 16 years by law in 1986) for the new cohorts of age since 1970. However, there are no education miracles and time is necessary for these new age cohorts to substitute the older ones in the labour force. It is a slow and gradual process, although in Spain this has been and still is under way at a very good speed. The result is a more dramatic improvement of the skill mix of labour in Spain than in Italy during the period.

**FIGURE 5.6: Labour composition. Italy. 1980-2005**
(Percentages)



Legend:
- University
- Non-university post-compulsory
- Compulsory low intermediate
- No formal qualifications

*Source*: EU KLEMS Database, March 2008, http://www.euklems.net, Istat and own calculations.

In order to get a more synthetic image we may use an indicator such as the average years of schooling in Spain and Italy (figure 5.7). It summarizes all these educational transformations mentioned above. In Spain this indicator rises from 7 years in 1980 to 11.4 years in 2005, while in Italy it moves from 11.2 years to 12.8 years. Thus, Spain is always below Italy in the average schooling of its workers. In fact, Spain recently achieved the Italian 1980 overall levels in 2005. On the other hand, the catching up is undeniable: Spanish accumulated growth is 63% over the period, compared to a mere 15% in Italy; and the 1980 gap (Spanish average years being only 62% of Italian levels) is closing steadily (89% of Italian levels in 2005).

We find more significant differences between Spain and Italy when we look at the industry level. First of all, there is a lot of heterogeneity in terms of labour composition in both countries. Figure 5.8 shows the industrial coefficient of variation of the share of workers with high skills. We get high values indicating those important differences, which in 1980 are even slightly bigger in Spain than in Italy. However, during the period 1980-2005, we can see a process of increasing homogeneity in Spain. The Spanish coefficient of variation in 2005 is half the one in 1980. However, in Italy the level of heterogeneity, after a brief decrease until the early 90s, remains in 2005 at a level very similar to the one in 1980. Therefore, we have a kind of universal improvement in labour composition affecting the whole Spanish economy. On the other hand, high skilled workers remain much more concentrated in some industries in Italy.

**FIGURE 5.7: Average years of schooling by hour worked**
1980-2005
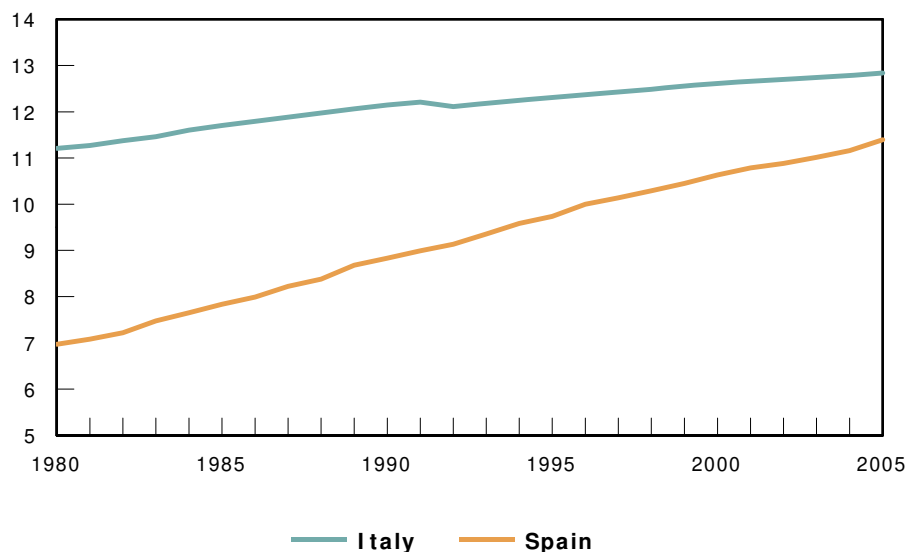


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net, INE, Istat and own calculations.

**FIGURE 5.8: Industrial coefficient of variation (share high skills)**
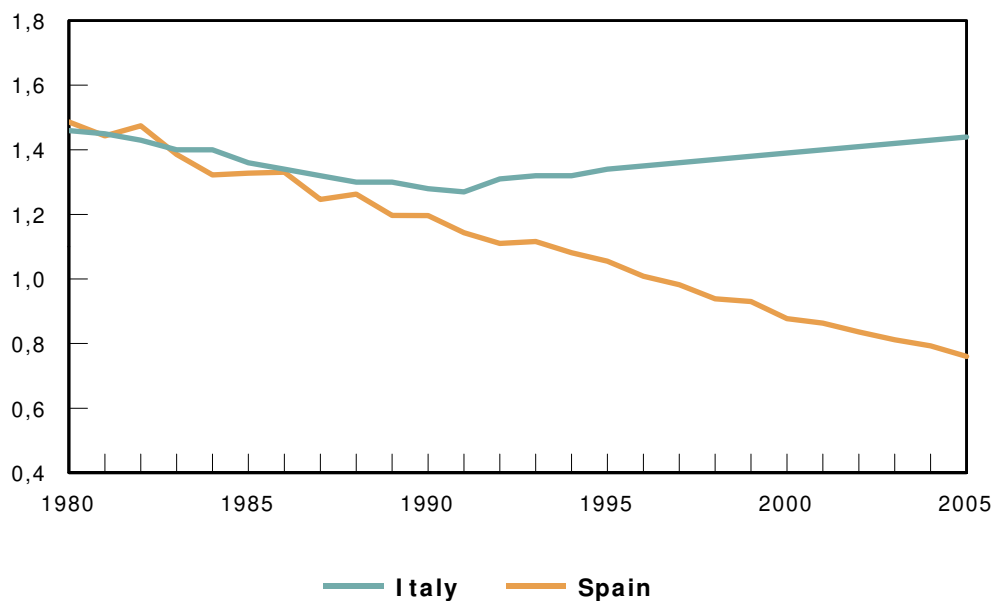


*Source*: EU KLEMS Database, March 2008, http://www.euklems.net and own calculations.

The effect of all these different time patterns in both countries should show in their relative performance in terms of labour productivity and economic growth. With its labour force still more qualified, Italy has a source to obtain a higher level of labour productivity than Spain. On the other hand, Spain should have benefited from a faster improving quality of labour which should have made feasible the achievement of higher

levels of both labour productivity (catching up with Italy), and economic growth. However, there is the risk that these educational improvements might not transform into more productivity, at least in the short run. Those young workers with more schooling enter the labour market lacking experience initially. The full benefits of more schooling on productivity may come only after some time when they are combined with a reasonable amount of all those components of human capital different from formal education.

A simultaneous look at both hours worked and labour compensation by skills can be very informative. Table 5.1 shows a general trend of improving skills in all developed areas, with the share of university graduates (high skill workers) in the total hours worked increasing steadily over the last decades. Italy and Spain, as is the overall case for the EU-15, show the strongest growth in relative terms, well above those of Japan and the U.S. The Spanish case is striking because it has a very good situation when considering university graduates, although we have seen that Spain still lacks intermediate education. In fact it is above the European average in this field.

**TABLE 5.1: Share of high skill workers in total**

| | Hours worked | | | Labour compensation | | | Labour compensation share/ hours share | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1980 | 1995 | 2005 | 1980 | 1995 | 2005 | 1980 | 1995 | 2005 |
| Italy | 4,7 | 7,8 | 12,8 | 6,1 | 9,5 | 17,9 | 1,29 | 1,23 | 1,41 |
| Spain | 7,9 | 15,5 | 21,6 | 16,3 | 26,6 | 35,3 | 2,07 | 1,71 | 1,63 |
| Japan | 12,9 | 19,1 | 26,3 | 20,4 | 29,2 | 37,2 | 1,58 | 1,53 | 1,41 |
| USA | 20,2 | 27,3 | 31,7 | 27,8 | 41,1 | 48,1 | 1,38 | 1,50 | 1,52 |
| EU-15 ex | 5,8 | 10,7 | 15,1 | 11,5 | 18,4 | 24,1 | 1,96 | 1,72 | 1,60 |

*Source:* EU KLEMS Database, Marzo 2008, http://www.euklems.net and own calculations.

We also find a general trend in increasing shares of labour compensation going to university graduates, which was only to be expected. Again, Italy, Spain and the European countries in general present more intense increases in relative terms than Japan or the US. In 2005 Spain shows a very high share (35.3%) comparable to Japan and only below the US (48.1%). Italy is well below (17.9% in 2005), although it shows a high relative growth in the last decade (its share being only 9.5% in 1995). In all cases, the shares in labour compensation are higher than in hours worked. This reflects the better quality of this type of labour and its higher wages. By looking at the ratio of both shares we may obtain some useful insights into the evolution of the returns to labour quality and, therefore, its impact on labour productivity.

Notice that Italy always shows the smallest ratio, this fact indicating a somewhat weak return to schooling. We should also expect a weak effect on productivity coming from the increase in the share of university graduates in the Italian labour force, which might be one of the reasons for the low Italian propensity to graduate at university.  On the other hand, the ratio even increases slightly from 1980 to 2005, which is different from the general trend in other countries.

In Spain the ratio is the highest, showing strong returns to schooling. We should also expect a strong effect on productivity coming from the increasing share of university

graduates. This may be one of the reasons for the high Spanish propensity to enter university after completing intermediate schooling. On the other hand, the ratio decreases a lot between 1980 (2.07) and 2005 (1.63). As a result, nowadays it is close to the other countries. We could think that the great increase in the supply of high skill workers in Spain has significantly reduced its apparent relative productivity, possibly because they are employed inefficiently (i.e. in industries or jobs that do not require those qualifications, generating over-education), or because they still lack the labour experience needed to exploit the potential benefits of their schooling. In that case, perhaps we should not expect such considerable improvements in productivity in Spain as a result of the increase in schooling.

It is interesting to note that all these results contrast with the US, which improve its ratio significantly over the period.

## MIGRANTS AND LABOUR COMPOSITION

Immigration is the biggest labour market shock experienced in Spain during the last decade. This issue is relevant because empirical results show that migrant's insertion into the labour market has distinctive features with effects on the overall economic performance. Migrants concentrate in a few industries (such as construction, agriculture, hotels and restaurants, or domestic services) and in jobs that do no require qualifications. In addition to suffering more from over education problems, migrants have more difficulties in finding a job, though only in the short run, and finally, temporary contracts are also more prevalent for this collective in the medium run.

Figure 5.9 shows the share of immigrants in total employment over the period 1987-2007. In 1987 migrant workers were negligible in Spain. In fact, as late as 2000 they only represented a mere 2.9% of total employment. However, we can see a huge increase during the last few years, and nowadays their share is 13.5%. From 2000 to 2007, some 2.2 million immigrant workers arrived. An increase of that size in the labour supply has had very significant effects on the Spanish economy. On the one hand, it has made feasible the huge increase of employment in Spain during the last few years and also the high rate of GPD growth, both well above the other European countries. On the other hand, it contributes to explaining the disappointing behaviour of labour productivity during the last and lengthy period of fast economic growth in Spain. Migrants are workers who need more extended periods of adjustment, with specific difficulties to apply their labour quality in a new and foreign labour market. Immigration has fostered the creation of new jobs in activities and occupations of low productivity and low wages.

Italy has also experienced an influx of migrants from abroad recently. Although it has been greater than in the whole of the European Union, foreigners still represent only 6% of total employment in 2006, a figure very similar to the EU15 average and far below Spain. The effects should be therefore less intense than in Spain both in terms of employment creation and labour productivity growth.

**FIGURE 5.9: Share of migrants in total employment**
(Percentages)
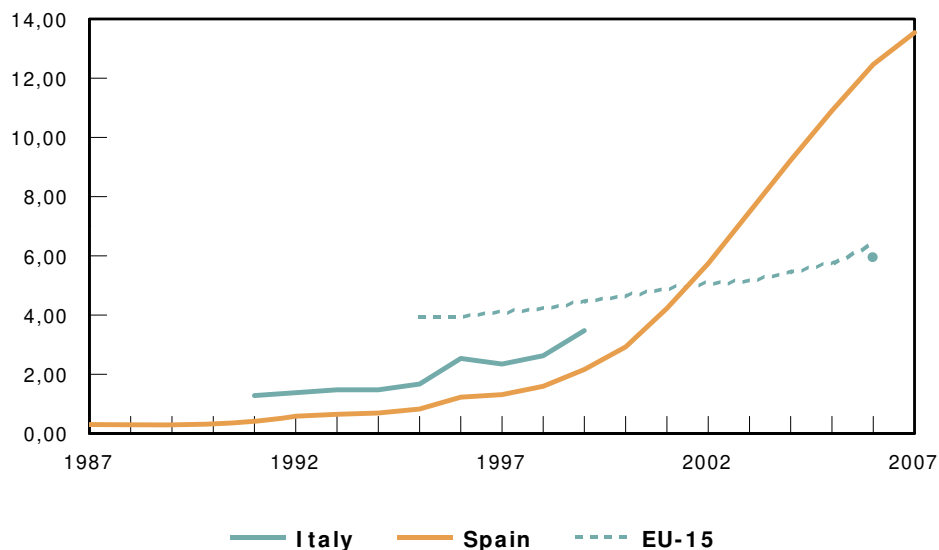


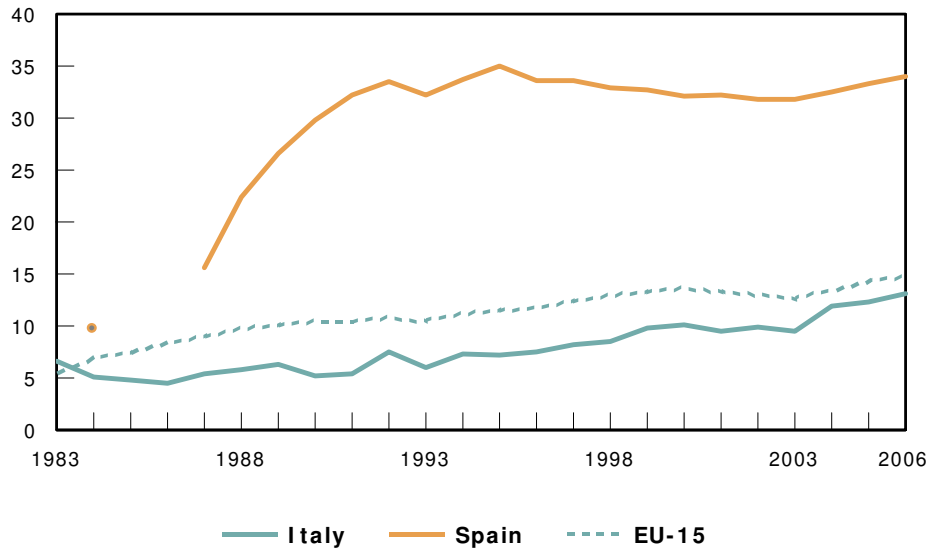Source: ILO, Eurostat and INE

TEMPORARY CONTRACTS

A final and very specific feature of labour composition change in Spain during the period is due to the policy adopted from mid-80s onward in order to curb unemployment. With unemployment rates well over 20%, the need of reducing some of the rigidities affecting an overprotective labour market was recognized. However, it was decided to restrict the flexibilization only to the new employment, without changing the conditions of the already existing contracts. Spanish firms have been able to hire new employees and dismiss them without costs at the expiration date of the contract. This possibility was avidly used by Spanish firms as figure 5.10 shows.

The share of temporary employment rose very quickly in Spain from being close to 10% in the mid-80s to 30%-35% in the 90s and continues at those levels nowadays. This contrasts sharply with other European countries, and in particular with Italy where the share has also risen, being 13.1% in 2006. Nevertheless, this type of employment only represented some 5% of employees during the 80s, growing to 10% in 2000, always 20-25% below the Spanish contemporary levels. In fact, Italy has maintained its share of temporary employment below even the EU15 average, while Spain is the foremost example of temporary contracts.

Indeed, all this stimulated the creation of new jobs in Spain, and is one of the reasons for its great increase of employment. On the other hand, this also provoked a marked increase of workers and jobs' turnover. With new workers firms keep the option of eliminating jobs without costs if they should decide to do so in the future. Transforming the contract into a standard fixed contract implied losing that possibility and risking

future high firing costs. This is one of the reasons for the poor performance of Spain in terms of labour productivity growth: people keep moving from one employment to another without being able to capitalize fully on the previous on-the-job experience. Jobs are therefore continually being occupied by people still lacking the specific skills to do them.

**FIGURE 5.10: Share of temporary employees**
(Percentages)



*Source*: OECD, Eurostat and INE

## 6. CONCLUSIONS

This chapter attempts to provide an overview of Spanish and Italian growth performance. It starts decomposing per capita income growth in four determinants, concluding that labour productivity is its main determinant. The higher number of hours worked in Italy has acted in favour of its relatively higher per capita income, while its lower activity rate has exerted the opposite force. On the other hand, the very high Spanish unemployment rate pushed down its relatively lower per capita income until the beginning of the new century.

In the last fifteeen years the two countries have shown a very different profile in almost all variables, but productivity. In Spain, the low productivity growth observed during the past two decades is related to a sustained increase in real GDP characterized by an even more massive increase in employment and, in some industries, by an intensive capital accumulation. By contrast, Italy has experienced a poor performance in productivity growth due to stagnation in demand and losses of competitiveness, which have dwarfed the possibility of increasing the output level in many industries.

From the Value Added perspective, Spain has shown a much more dynamic behaviour than Italy in almost all sectors and sources of growth. This is particularly true in terms of labour creation, where the increase in Spain's employment has been very intense. The *Construction* industry is in part responsible for this strong upsurge. However, the three service sectors aggregations that we are considering have also shown  a big push in Spain, not shared by Italy in the case of *Distribution.* On the other hand, the growth rate of Value Added in the *Manufacturing* (*MaxElec*) sector was the lowest one in the two countries. But, while employment increased in Spain, it experienced a slight reduction in Italy. Finally, together with the sluggish pace of growth in manufacturing, a second feature shared by the two countries is the almost general negative contribution of MFP to GDP growth, of which only the *Elecom* industry in Italy and *Finbu* in Spain escape

If a diagnosis had to be made about the productivity deceleration in both countries, the *Agriculture* sector must be put at the forefront. However, its negative contribution should be judged as the standard outcome of the transition from a backward rural economy to a modern one dominated by the service sectors. In Spain, the construction industry has to bear the highest responsibility for the productivity slowdown, whereas Italy has suffered a very negative behaviour in manufacturing. The impact of the services sectors has been mixed in both countries. While the four sectors included in the *Non-Market services* aggregation almost contributed positively in both countries, the opposite happened with the *Distribution* aggregation, especially for *Transport and Storage.* Finally, in the case of Spain, *Hotels and Restaurants* and *Private households with employed persons* played a very negative role, whereas a high responsibility of the productivity slowdown in Italy should also be blamed on the *Renting of machinery and equipment, and other business activities.*

The two *shift-share* exercises presented in section 4 have provided additional insights. Focusing on the last period 1995-2005, the results indicate a common poor performance by both Italy and Spain when compared to the EU-15. This contrasts with the previous experience, especially for Spain because it grew faster that the EU-15 over the period 1970-1995. It seems that a more determined effort is necessary to move towards "better" industries. During the last few years, structural change seems to be either too slow (Spain), or even to go in the wrong direction (Italy). In addition, a general internal slowdown within each industry can also be detected in both cases. However, this is more significant in Spain where the performance of each industry has been worse than in Italy and the EU-15, particularly when compared with the previous trend.

A common reason for the lower relative productivity in both countries is their specialization in less productive industries. Furthermore, Spain has additional problems because overall it is less productive in each industry compared to the EU-15, whereas in Italy we find the opposite. Italy has a clear problem of an inadequate industrial specialization, although it has a good performance industry to industry. Spain still has a specialization problem - although it is smaller, - and moreover, its industry to industry performance is worse.

Looking at the evolution of the data over time we can appreciate a consistent shift of Spain towards a better specialization. At the same time the position of each industry in terms of productivity has generally worsened when compared with the EU-15. For Italy the consistent process is one of progressive loss of its initial within industry advantage compared to the EU-15, whereas the shift towards better sectors (which happened between 1970 and 1995) stopped afterwards. As we have seen, the specialization shift seems to be in the wrong direction from 1995 onwards.

After having reviewed in section 5 some of the main distinguishing changes in the labour composition in Spain and Italy, we can attempt to state a few conclusions. We can look at the Spanish experience as an example of a "quantity" type of growth. After a period of serious unemployment problems, it finally became very successful in creating employment and using more labour. Those workers came from the increasing female participation rates and from immigration from abroad, and very often joined the labour market through a series of temporary contracts in quick succession. There is also a big improvement in terms of the number of workers with more schooling. On the other hand, we notice serious and persistent problems as far as improving labour productivity is concerned. Some of them are also related to the changing composition of labour mentioned, others to the growing inability to use the increasing quality of labour efficiently (at least in the short run or at least to a sufficient degree).

Compared to the Spanish turmoil during the last few decades, the Italian case is quieter and more gradual. In 1980 Italy had already digested part of those changes mentioned for Spain (women and labour market, schooling improvements and so on). During the period those trends took place but at a more relaxed pace, possibly too relaxed. Therefore, returns to quality have been maintained over the period. On the other hand, the rhythm of improvement in labour quality, and the ability to create employment do

not compare well with Spain. And despite there being no turmoil in Italy, there is the potential risk of relative stagnation.

The Spain-Italy comparison has revealed different stories of economic growth, notwithstanding the apparent similarities with productivity performance.   The two countries need to be reformed in their approach to regulation policies and their protectionist attitude with respect to national incumbents. The service sectors have to be made more efficient especially because of their pervasiveness in all the industries of the economy. Italy's position seems to be more worrisome, given the fact that negative productivity performance is not related to a process of a high growth in output. Spain is a more dynamic economy and could rely on a higher capital accumulation to trigger increases in MFP in the near future.   This comparison could be repeated in a multilateral context, where the results obtained can be linked to those of third-party countries in a more general perspective.

## REFERENCES

Aschauer, David. A. (1989): "Is public expenditure productive?", *Journal of Monetary Economics* 23, mars, pp. 177-200.

Costello, Donna M. (1993): "A Cross-County, Cross-Industry Comparison of Productivity Growth", *Journal of Political Economy*, Vol. 101, No. 2, April, 207-222.

Di Matteo, Massimo and Piacentini, Paolo (2003), *The Italian Economy at the Dawn of the 21st Century*, Burlington, VT and Aldershot, England, Ashgate Publishing

Ginsborg, Paul (2006), *Italy and Its Discontents: Family, Civil Society, State*, New York and Houndmills, Basingstoke, Hampshire, England, Palgrave Macmillan.

Guerrieri, Paolo and Milana, Carlo (1993), *L'Italia e il commercio mondiale*, Bologna, Il Mulino.

Heimler, Alberto and Milana, Carlo (1984), *Prezzi relativi, ristrutturazione e produttività*, Bologna, Il Mulino.

Heimler, Alberto and Milana, Carlo (1988), *Ristrutturazione e produttività nei paesi industrializzati*, Bologna, Il Mulino.

Mas, Matilde, Pérez, Francisco and Uriel, Ezequiel (2007): *El stock y los Servicios del Capital en España y su Distribución Territorial (1964-2005),* Fundación BBVA, Bilbao.

Mas, Matilde, Quesada, Javier and Robledo, Juan Carlos (2007): chapters 3 and 5 in Reig, E. *Competitividad, Crecimiento y Capitalización de las Regiones Españolas*, Fundación BBVA, Bilbao, forthcoming.

Mas, Matilde, Maudos, Joaquín, Pérez Francisco and Uriel, Ezequiel (1998): "Public Capital, Productive Efficiency and Convergence in the Spanish Regions (1964-93)", *The Review of Income and Wealth*, series 44, nº 3, 383-396.

Mas, Matilde, Maudos, Joaquín, Pérez Francisco and Uriel, Ezequiel (1996): "Infrastructures and Productivity in the Spanish Regions", *Regional Studies*, Vol. 30, nº. 7, 641-649.

Tortosa, Emili, Pérez, Francisco, Mas, Matilde and Goerlich, Francisco J. (2005): "Growth and Convergence Profiles in the Spanish Regions (1965-1997), *Journal of Regional Sciences*, Vol. 45, nº 1, 147-182.

Sapelli, Giulio (2008), *Storia economica dell'Italia contemporanea*, 2nd ed., Milano, Bruno Mondadori.