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Working Papers in Economic History

October 2010

WP 10-09

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Álvaro Santos Pereira and Pedro Lains

Abstract

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Keywords: Economic policies; Economic growth; Human Capital; Portugal

JEL Classification: N14, O43, O52

Álvaro Santos Pereira: Simon Fraser University, Vancouver, Canada

apereira@sfu.ca

<http://www.sfu.ca/internationalstudies/pereira.html>

Pedro Lains: Instituto de Ciências Sociais, Universidade de Lisboa, Portugal

pedro.lains@ics.ul.pt

<http://www.ics.ul.pt/instituto/?ln=e&pid=93&mm=2&ctmid=4&mnid=1&doc=31816889833>

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Álvaro Santos Pereira
Simon Fraser University
Vancouver
Canada
apereira@sfu.ca

Pedro Lains
Instituto de Ciências Sociais
Universidade de Lisboa
Portugal
pedro.lains@ics.ul.pt

Abstract

This paper surveys the main features of Portuguese economic growth in the last half century, with a particular emphasis on the period after the return to democracy in 1974. It shows that significant structural change and capital deepening were the chief sources of growth in the Portuguese economy until the mid 1970s. From then onwards, human capital accumulation and productivity growth were the main reasons behind Portugal's economic fortunes. Growth declined between these two phases, as in the rest of Europe. In Portugal, it slowed further after 1990. After surveying the main causes of the slowdown of the Portuguese economy in the last decade, Portugal's main human capital indicators are compared to other European and OECD economies. While Portugal has made a remarkable transition from an agrarian society to an industry- and service-based economy, the country still has not been able to successfully move on to a knowledge-based economy. Such a transition, however, is instrumental to spur economic growth on and to improve productivity.

From Growth to Stagnation

In the 20th century, the poorer economies on the European periphery experienced rapid economic growth and fast convergence of per capita income levels vis-à-vis the most advanced economies in the world. In Europe, and for the first time since the onset of industrialization, the gaps between average country incomes as well as a subsequent decline in cross-country income inequalities were considerably reduced. (Bourguignon and Morrison, 2002). The Portuguese economy was one of the great success stories in the process of economic convergence. Since the Fifties, it had made a remarkable transformation. In a relatively short period, Portugal moved from a low-growth, low-openness and an agrarian-based economy to a largely high-growth, high openness and industrial economy. From the late Fifties until the mid Seventies, the country not only industrialized and achieved some of the highest rates of economic growth in Western Europe. (Crafts and Toniolo, 1998) It also, and perhaps not coincidentally, managed to open itself to the rest of Europe, by entering the European Free Trade Area (EFTA) in 1960 and by substantially expanding its export base. After 1973, the rate of economic growth fell. Still, the Portuguese economy was able to absorb relatively well a sharp shift in economic and fiscal policy after the implementation of democracy in 1974, the loss of colonial markets that gave rise to a sudden diversion of trade, the nationalization of major companies during the revolutionary period of 1974 and 1975, as well as two significant financial crises in the late Seventies and early Eighties.

Economic growth picked up after macroeconomic stabilization was achieved in the mid Eighties and following the country's joining the European Economic Community in 1986, which further increased the country's openness. Economic liberalization and a privatization program also contributed to rapid growth. By the early Nineties, Portugal was being solicited for its economic success (European Commission 1992), for its economic miracle (Mateus, 1998; Neves 1994), and for its speed of convergence. (Barros and Garoupa, 1995). Since the late Nineties, however, the Portuguese economy began to display several structural problems, especially with regards to productivity, as well as substantial fiscal and external imbalances. In the decade following, and even though Portugal joined the European monetary union, the Portuguese economy stagnated. Unemployment rose to historical levels. There was a significant resumption of emigration. (Pereira, 2010a; 2010b)

Given its trajectory within Europe, Portugal provides an interesting example of how countries on the European periphery adapted to broader changes in the European economy, and how poorer countries sought to close the structural gaps in human and physical capital with the most advanced economies. The recent Portuguese experience also provides valuable lessons on how countries adapted to the Euro since the late Nineties.

Accordingly, this Chapter sets out the main features of the Portuguese economy since 1950. It tries to understand the reasons behind the extraordinary turn events took over the past few decades. This it does by surveying the main causes behind the recent stagnation in the economy. One of the main reasons behind the second slowdown in the Portuguese economy was the steady but inexorable decline in the

trend in productivity growth since at least the end of the Nineties. Based on an historical account for the sources of economic growth, human capital, arguably will also have an instrumental role in the resumption of productivity, and consequently, of economic growth in Portugal.

The chapter proceeds as follows. The next section discusses the main trends in the Portuguese economy since 1950, focusing particularly on the period after the fall of the Dictatorship. Section Three examines the main factors behind Portugal's disappointing economic performance since the late Nineties, whilst section Four analyzes the contribution of human capital to economic growth and assesses Portugal's transition from an agrarian society to, possibly, a knowledge-based economy. The conclusion is set out in section Five.

The Portuguese Economy since 1950

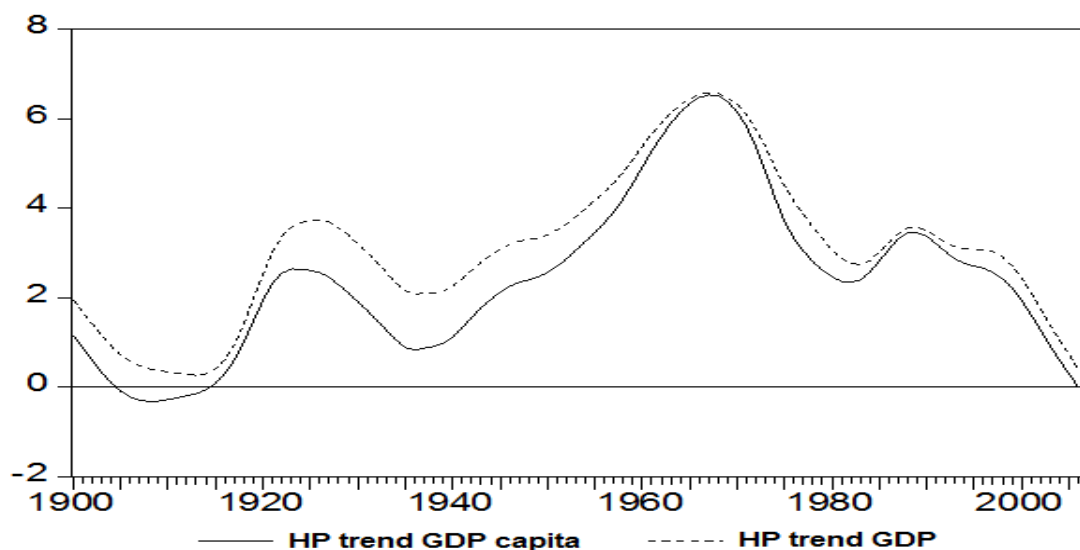
Portugal entered the 20th century as one of the poorest countries in the Western world and with one of the highest emigration rates. (Lains 2003a; Baganha, 1994) In contrast to other Western European countries, Portugal then was predominantly an agrarian society, with most of the population still living in rural areas. Portugal also displayed one of the lowest levels of human capital in the West, both in terms of literacy and enrolment rates, and thus a marked educational gap vis-à-vis other European countries. (Amaral, 2002; Reis, 2004) Over the decades that followed, the country's economic backwardness persisted and the living standards of the average Portuguese remained low. During the first part of the 20th century, the structure of the Portuguese economy changed little. By 1950, more than half those employed still worked in the agricultural sector. The big breakthrough for the Portuguese economy occurred when industrialization gathered speed, when hundreds of thousands of people left their occupations in the countryside and flocked to the cities in search of urban and industrial jobs, or emigrated.¹

In order grasp the development Portugal's economy over the long term, Figure 1 shows the evolution of Portuguese GDP and GDP per capita since 1900.² Portugal's GDP increased throughout most of the 20th century, accelerated significantly in the postwar period, especially after the mid Fifties, at which point and at long last the country finally began to industrialize. From 1960 until 1973, the Portuguese economy reached some of the highest rates of growth in the world, and, as will be shown, set it on a path of rapid convergence of Portugal's level of income per capita in relation to that of the wealthiest European countries. (Maddison, 2003)

¹ The Sixties were also a period of high emigration. (Baganha, 1994).

² Economic growth is smoothed by the Hodrick-Prescott (HP) filter, which removes short-run fluctuations and extracts the long-term trend in growth.

Fig. 1.
Trend growth in GDP and GDP capita, 1900-2008.



Source: Calculated from Maddison (2003), *Total Economy Database*, Conference board

The trend in economic growth peaked in the early Seventies, declining subsequently in the decades following. Economic growth slowed down after 1974, due in part to lower foreign demand caused by the first ‘oil shock’ and subsequent recession, but also to the political and economic instability that followed the return to democracy in 1974. In spite of this down-turn, the trend in economic growth remained by historical standards, high.

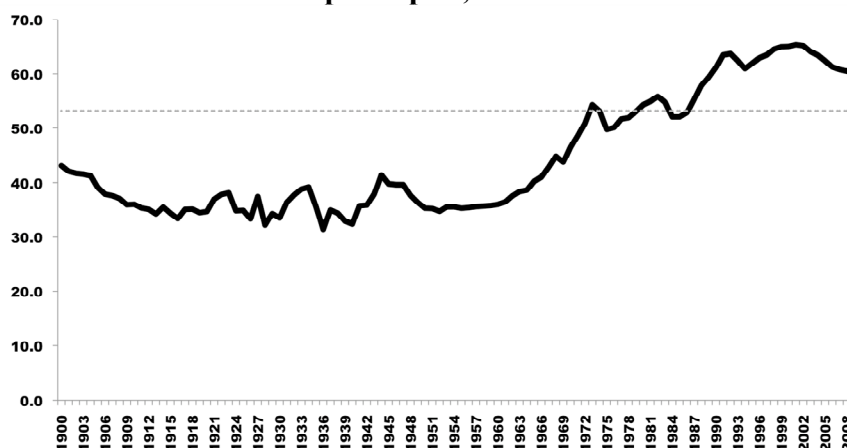
In 1986, the economic growth trend accelerated after Portugal’s accession to the European Economic Community which saw a wave of institutional reform, an ambitious agenda of economic liberalization and the privatization of several of Portugal’s major companies. However, acceleration in economic growth was short-lived. By the end of the Nineties, the trend started to fall off - gradually but inexorably. Economic stagnation ensued.³

Effective convergence with the European core countries followed a similar path to that of economic growth. This is set out in Figure 2, which represents the distance between the Portuguese economy and the European core from 1900 until 2009. The dotted line shows the level of Portuguese GDP per capita in 1974, when democracy was restored. Table 1 compares the growth of real income per capita in Portugal and other countries in the European periphery with the European core from 1913. During the first half of the 20th century, Portugal’s real income per capita relative to that in the European core remained to all intents and purposes constant. In other words, the Portuguese economy converged towards Europe’s most advanced countries only slightly.

³ These broad tendencies of Portuguese economy are also corroborated by a recent study (Jalles and Pereira 2010), which the trend in the growth of the Portuguese economy was estimated by using a Basic Structural model and a corresponding Kalman filter.

During the interwar years, income per capita in Portugal and in the European core grew at similar rates, with the relative gap between them remaining fairly stable. Despite substantial political instability and macroeconomic volatility in the years after World War I, the Portuguese economy still expanded at a rate higher than the early years of the 20th century. (Lains 2007, Neves 1994) Expansion occurred in the teeth of problems associated with the country's balance of payments, brought about by a substantial fall in the money sent back from Brazil by emigrants, as well as by a sharp fall in revenue from colonial re-exports. Thus, at the onset of the Great Depression, the Portuguese economy managed to grow while most of the other national economies did not, which gave rise to a short period of convergence with the European core. However, shortly after, under Salazar's stabilization plan of the Thirties the economy stagnated and, with the winds of recession blowing from Europe, convergence regressed.

Figure 2.
Portugal's convergence to the European Core (= 100),
GDP per capita, 1900-2009



Source: Calculated from Maddison (2003), Total Economy Database, Conference board

During the Second World War, the Portuguese economy picked up once again, growing faster than the European core. Neutrality not only allowed Portugal to avoid the destruction of human and physical capital. It also saw a substantial increase in exports of wolfram, - a key strategic material - textiles and wine to the belligerents. (Mateus, 1998) Exports surged with the increase in foreign demand, and an improvement in Portugal's terms of trade. During the war years, the economy converged rapidly towards the European core, not least because the latter were badly affected by the war itself. However, once again, convergence was brief. The escudo rose in value and the terms of trade, less favourable, caused a sharp fall in both exports and economic growth at the end of the Forties. Happily, from the decade following, convergence with the European core resumed and did so strongly. During what some now see as a 'European Golden Age', that lasted from 1950 to 1973, Western Europe's most advanced countries grew at historically high rates, driven on by rapid growth in productivity, capital accumulation and technological progress. (Crafts and van Ark, 1997; Maddison, 2003)

Table 1
Growth of Real Income per capita on the European Periphery.
1913-2009

	Portugal	Spain	Greece	Ireland	European core
1913-1929	1.35	1.65	2.45	0.33	1.39
1929-1938	1.28	-3.53	1.50	0.87	1.16
1938-1950	1.56	1.48	-2.72	0.94	1.00
1950-1973	5.47	5.63	5.99	2.98	3.55
1973-1986	1.52	1.31	1.75	2.47	2.01
1986-1998	3.45	2.65	1.39	5.42	1.88
1998-2009	1.00	2.8	3.3	3.5	1.31
1913-1998	2.79	2.20	2.29	2.19	2.06

Source: Lains (2003), The Conference Board database

During these years, despite rapid growth at the European core, the Portuguese economy showed unprecedented rates of convergence in income per capita, closing the gap vis-à-vis European core countries at an average of 1.85 percent per annum (Table 2). On the European periphery, Portugal grew at a rate similar to, albeit slightly lower than, Greece and Spain.

In the aftermath of the 1974 Revolution, Portugal's relative performance was not so impressive. With the nationalization of major industries during the revolutionary period, with the financial and political instability that ensued, economic growth fell in the latter half of the Seventies. As a result, between 1973 and 1986, real convergence regressed. Portuguese real income per capita moved apart from the European core at a rate that oscillated around 0.5% per annum. Convergence returned with the mid Eighties. The country joined the European Economic Community and a sweeping program of economic liberalization was injected. Between 1986 and 1998, Portugal's economy moved towards the European core by some 3.45 per cent per year, markedly higher than the rate of convergence of Spain - average rate 0.76 percent per annum, though less than the sparkling performance of the Irish economy, which clipped along a spanking annual rate of 3.48 percent.

Table 2.
Convergence of real incomes per capita in the European periphery.
1913-1998.

	Portugal	Spain	Greece	Ireland
1913-1929	-0.04	0.26	1.04	-1.04
1929-1938	0.12	-4.64	0.33	-0.29
1938-1950	0.55	0.47	-3.69	-0.06
1950-1973	1.85	2.01	2.36	-0.55
1973-1986	-0.49	-0.69	-0.26	0.45
1986-1998	1.54	0.76	-0.48	3.48
1913-1998	0.72	0.14	0.23	0.13

Notes: Convergence is defined according to:

$$\phi = [y_i/y_9]_{(t+1)}/[y_i/y_9]_{(t)}^{1/(t+1-t)}$$

Where y_i denotes income per capita for country i , and y_9 is an income index for the nine European core countries

Source: 1913-1990: Lains (2007), 1998-2009: calculated from Conference Board dataset.

If the whole period from 1913 to 1998 is taken into account, the Portuguese economy grew faster than its European counterparts, including the other economies on the European periphery, which brought about a swift convergence in both incomes and living standards. More specifically, and as Table 3 shows, between 1913 and 1998, the rate of convergence of the Portuguese economy with the European core – 0.72 percent per year – was significantly higher than Spain at 0.14%, Greece at 0.23%, and Ireland with 0.13%. Even so, since the late Nineties, the tide of convergence is again on the ebb. Not only that, but the ebbing away of convergence with the core economies has been the longest and most sustained since the end of the Second World War. From the last decade of the 20th century, the Portuguese economy, when compared to other economies in Europe and other countries on the periphery – Ireland and Spain, for example - has clearly been underperforming.

Nevertheless, in the course of the last century, Portugal mutated from being an agrarian economy to become a middle-income, industrialized country. The country became an exporter of traditional products, such as textiles, shoes and clothing, as well as certain intermediate products, namely electronic components and industrial molds. Although the drivers of industrialization may be traced back to the late Fifties, economic convergence with the European core and relatively fast economic growth carried on during the first decades of a democratic Portugal – a trend especially noticeable between 1986 and 1998, the years of European integration and the introduction of liberalization, economic and institutional. Yet, the past decade has seen the economy stagnate and unemployment soar. The factors that lay beneath the recently under-performing Portuguese economy are now analyzed.

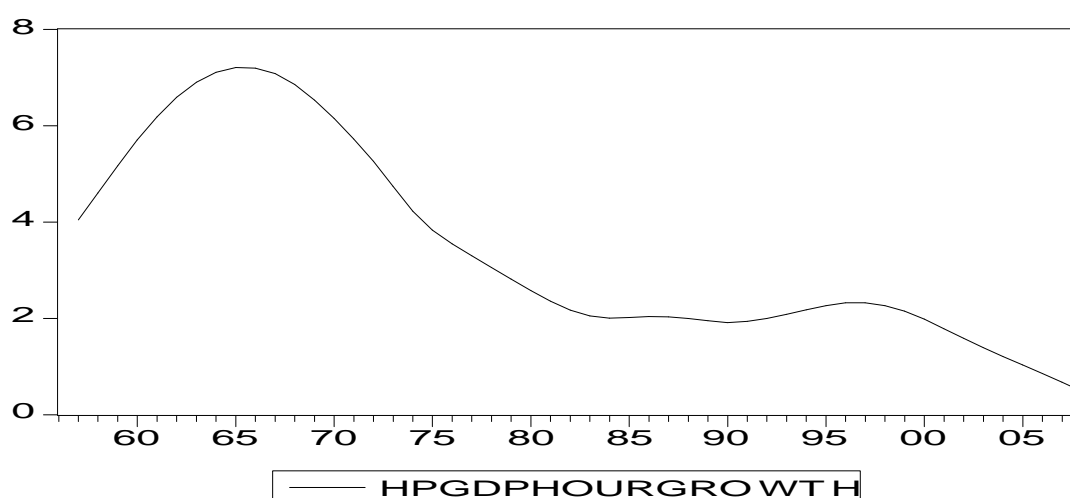
Explaining the decline in economic growth: the Nineties and their Aftermath.

Several possible explanations are to hand to account for the literal reversal of Portugal's fortunes. First and probably foremost, the past decade saw a substantial slowdown in productivity, which contributed to the fall in economic growth. Although the drop in the growth rate of productivity has not yet been fully analyzed at an empirical level, the most likely villains include structural change (Lains 2008), relatively low rates of accumulating human capital, (Pina and St. Aubyn 2005), plus an increase in unemployment. (Jalles and Pereira 2010) Second, economic growth was also hindered by a difficult adjustment to the euro, which slowed down job creation and lowered export competitiveness. (Blanchard 2006, Eichengreen 2007). Third, although the rapid and unprecedented rise in investment rates over the last few decades has contributed to rapid economic growth, increasing evidence suggests that capital accumulation may have reached a threshold of diminishing returns. Fourth, economic policy aggravated the situation by exacerbating the internal imbalances and the structural weaknesses of the Portuguese economy, namely in the realm of public finances, as well as the fact that the economy is still too dependent on low skilled labour force. These explanations will now be pursued in greater detail.

The drop in productivity

One of the most striking developments in the Portuguese economy has been a significant decline in productivity. This has worsened over the last few years. This trend stands out in Figure 3, which plots growth in labour productivity, measured as total output per hour, between 1957 and 2009.⁴ As expected, growth in labour productivity followed a path similar to economic growth, increasing during the early industrialization phase, falling in the Seventies and early Eighties. However, contrary to growth of GDP per capita, trend in the growth of labour productivity did not rise in the late Eighties.

Figure 3.
Productivity GDP per hour growth,
1957-2009 (HP filter)



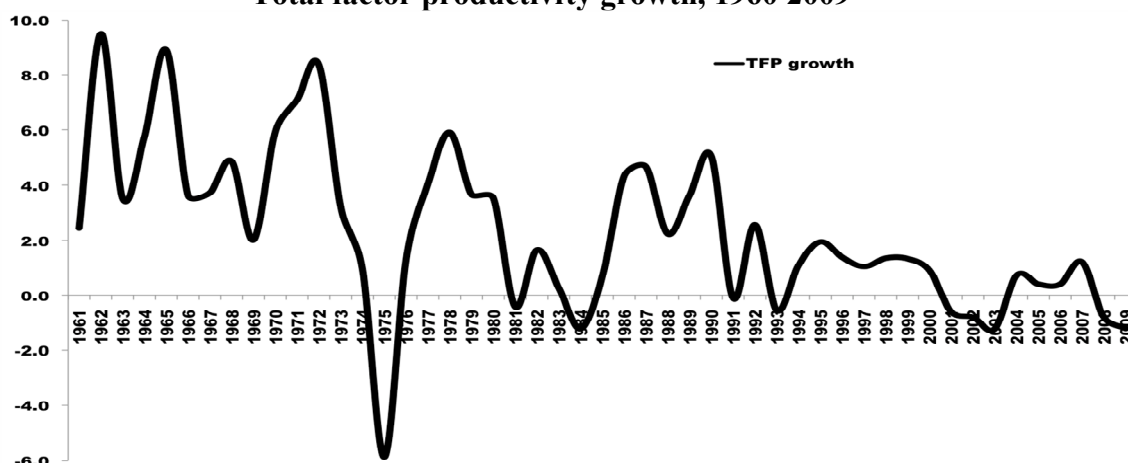
Calculated from Maddison (2003), Conference Board (2009)

Still, it is worth noting, during this period, that the drop in the trend of productivity growth, which had taken place since the 1970s, was halted temporarily. In fact, the mid Nineties saw a small rise in the trend of labour productivity although, soon after – in 1998 - it resumed its downward course. By 2005, the trend in GDP per hour grew at a rate close to zero percent per annum, a performance that did not alter in the years following.

This steady decline in productivity is also clearly visible when Total Factor Productivity (TFP) growth, which measures changes in the productivity of both labour and capital, is examined. Figure 4, shows TFP growth was relatively high during the period of industrialization in the Sixties, dropped during the period of political upheaval that followed the 1974 revolution, but picked up again – though briefly - later in the same decade.

⁴ As before, the data are smoothed by the Hodrick- Prescott filter

Figure 4.
Total factor productivity growth, 1960-2009



Source: Lains (2003) and AMECO

In the Eighties, TFP growth fell during the years of financial uncertainty and the subsequent austerity measures that followed, but rose again with the country's adhesion to the EEC and with the move towards policies of privatization and economic liberalization that marked the end of the decade. However, once again, the gains were ephemeral, and the Nineties unfolded against the backdrop of a steady decline in growth of TFP, which fell even further during the first years of the new millennium to become negative with the recessions at its outset and in 2008-2009.

The importance of TFP growth for the performance of the Portuguese economy since 1973 is underlined further by Table 3. It sets out the sources of Portuguese economic growth over the hundred years from 1910 to 2009.⁵ Thus, in the interwar years, capital accumulation accounted for almost two-thirds of the economic growth, while human capital and labour made more modest contributions - around 20%. TFP was, for all intents and purposes residual, with an average growth of -0.2% per annum.

⁵ Data on labour were obtained from National Institute of Statistics labour force statistics, data on capital accumulation from Lains (2003a) and Freitas (2005), whilst human capital growth is measured as the average years of schooling of the active population.

Table 3.
Sources of Portuguese economic growth, 1910-2009.

	<i>Annual growth rates</i>					<i>As percent of output growth</i>			
	<i>Labour</i>	<i>Human capital</i>	<i>Capital</i>	<i>TFP</i>	<i>GDP</i>	<i>Labour</i>	<i>Human capital</i>	<i>Capital</i>	<i>TFP</i>
1910-1934	0.33	0.70	0.42	0.72	2.17	15.4	32.1	19.2	33.3
1934-1947	0.44	0.38	1.30	-0.02	2.09	20.8	18.2	62.0	-0.10
1947-1973	0.23	0.82	2.58	1.53	5.17	4.5	15.9	49.9	29.7
1973-1990	0.02	1.61	1.74	0.56	3.93	0.5	41.0	44.3	14.2
1990-2000	0.73	1.27	0.8	1.5	3.17	20.9	36.3	42.8	
2000-2009	-0.03	0.80	-2.46	-0.1	0.89				
1990-2009	0.38	1.09	1.41	0.7	2.14				

Source: Lains (2003), Barro and Lee (2010), AMECO, Freitas (2005)

In the after war years and on until 1973, capital accumulation continued to be the most important source of growth for the Portuguese economy, causing it to expand at an average rate of 2.58 percent per year, sufficient to account for almost half of all growth. Human capital also expanded more rapidly after 1947, to the tune of 0.82 percent per annum, whereas labour, undermined by high emigration rates, rose by only 0.23 percent per year. In turn, and as Figure 4 already made clear, TFP accelerated substantially, as did its contribution to economic growth which accounted for around one third of total growth. After 1973, growth decreased. It became less capital intensive. By contrast, urged on by the unprecedented investment in education undertaken by democratic governments, the contribution of human capital as a proportion of total economic growth reached around 41%.

All in all, the main source Portuguese economic growth in the 20th century was capital accumulation. The contribution of labour to economic growth over those years, was small – not greatly surprising given the high emigration rates that persisted across the century. Yet, human capital was a crucial source of growth during these ten decades. Though this will be developed in greater detail later, despite the fact that indicators of Portugal's educational dynamic showed it to be weak by European standards, nevertheless they rose significantly throughout the century, with a positive impact on economic growth. With a certain similarity to the development processes of the Asian Tigers – South Korea, Taiwan, Singapur and Japan. (Young, 1991), the growth in TFP was less substantial in Portugal than it was in other Western economies. Nevertheless, as the Table above shows, the decrease in economic growth since 1973 can be attributed in greater part to the fall in TFP growth. In other words, the Portuguese economy was employing more people and using more capital but using them in a less efficient way, in contrast to what happened before 1973.

Other studies bear these findings out. Afonso (1999), for example, provides additional evidence of the contribution total factor productivity makes to Portugal's economic performance. He pointed out the rapid rise in economic growth in the years 1960-73 can be attributed to total factor productivity and the growth in capital stock,

which account to 93.4 percent of growth in GDP. Lains (2003a) used the variables on Levine and Renelt (1992), and showed that whilst their model replicates Portuguese growth performance from 1910 until 1973 relatively well, it does not account for the post-1973 growth slowdown. After all, Portugal's investment and school enrolment ratios remained high over the ensuing period. Lains claimed that the decline in TFP growth is crucial in any explanation for the drop in growth after 1973. Mateus (2005) reached similar conclusions about the main sources of Portuguese economic growth. He estimated that capital accumulation contributed between 31% and 46% to economic growth the 90 years from 1910-2000, but was particularly significant during the years of the Golden Age from 1950-73. Mateus's findings also confirmed the increasing importance of human capital as a driver of growth, accounting for 31% of total growth over the two and a half decades from 1975-2000. According to these figures, investment in education was of paramount relevance for the growth of the Portuguese economy in that period.

What explains the decline of TFP growth in the 1990s and in the following decade? One possible explanation for the disappointing level of productivity may lie the substantial structural change that took place over the past few decades (Table 4). Rapid industrialization after the 1960s, triggered off an unprecedented increase in industrial employment. The services sector grew as well. The transfer of labour and other resources from a low-productivity sector such as agriculture over to a high-productivity industrial sector was an important generator of productivity and economic growth in the Sixties and early Seventies. (Lains, 2003a) Precisely the reverse mechanism has operated in recent decades. As the agricultural labour force declined, labour productivity increased from 3.5 percent per year from 1950 to 1973 to 4 percent from 1973 to 1990. In parallel, industrial labour productivity fell from 5.8 percent between 1950 and 1973 to only 0.7 percent between 1973 and 1990. Labour productivity fell dramatically in the services sector, from 4 percent a year between 1950 and 1973 to -0.1 percent over the period 1973-90. During the decades that followed, the services sector continued to attract an increasingly large share of total employment, though productivity growth remained low. In effect, the transition of the Portuguese economy from an industrial to a more service-based economy brought about both a lower rate of productivity growth, and a drop in economic growth.

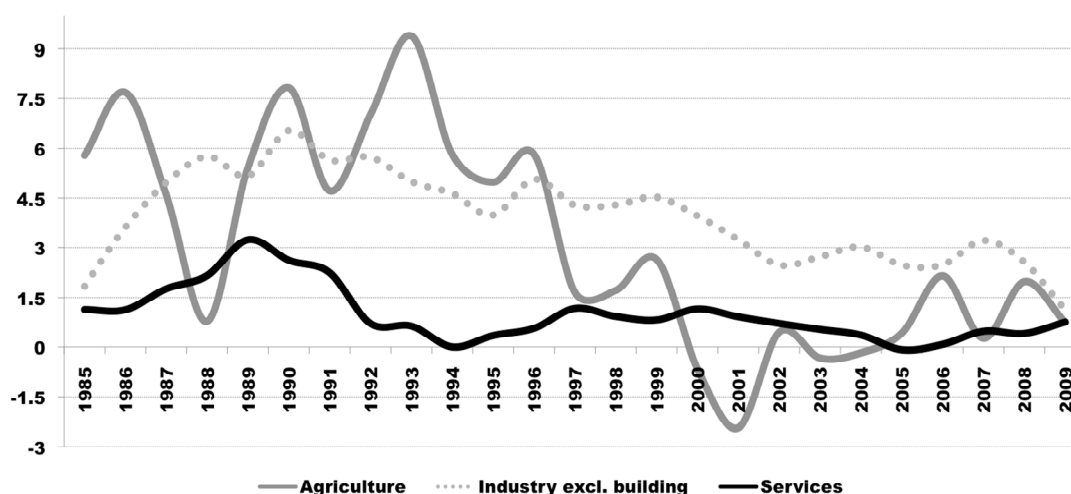
Table 4.
Output and Productivity Growth by Economic Sector, 1950-1990.

	1950-1973	1973-1990	1990-1999	2000-2009
AGRICULTURE				
Output	1.3	1.2	1.5	-0.4
Employment	-2.2	-2.8	-3.7	-0.6
Productivity	3.5	4.0	5.2	0.2
INDUSTRY				
Output	7.6	2.5	-3.3	-0.2
Employment	1.8	1.8	-8.0	-2.0
Productivity	5.8	0.7	4.7	2.2
SERVICES				
Output	6.0	3.7	3.9	1.8
Employment	1.6	3.8	2.9	1.3
Productivity	4.4	-0.1	1.0	0.5
TOTAL GDP				
Output	5.7	2.9	3.4	0.9
Employment	0.2	1.7	0.8	0.2
Productivity	5.5	1.2	2.6	0.7

Source: Lains (2003a), AMECO

These trends stand forth in Figure 5. It shows the growth of value added since 1985 by sector. Over the past quarter century, of all sectors the agricultural sector underwent the greatest volatility in terms of growth in value added, which grew rapidly in the years following the country's entry to the EEC. Thereafter, it fell drastically, even showing rates of negative growth early in the new millennium. Value added in agriculture recovered in some measure after 2005, but its average rate hovers around 1% per year. Another sector with a disappointing performance in terms of value added is construction and building, with negative growth rates since the early Nineties. Its level of value added fell significantly over the past twenty years.

Figure 5.
Growth in value added by sector (5-year averages), 1985-2009.

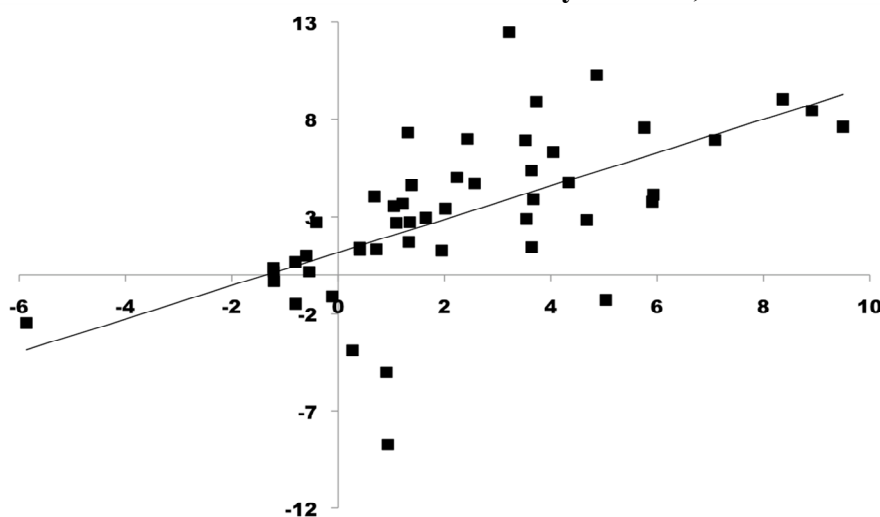


Source: Calculated from AMECO

Growth in the value added by industry also declined since 1990, though at a rate somewhat slower than in other sectors. Thus, from 1990 until 2000, industrial value added grew at a healthy average of 4.9% per annum, and fell back to an average of 2,6% between 2000 and 2009. If growth in value added of the services sector was steadier, it was also much smaller. From the early Nineties, value added by services never grew faster than an average of 1% per year, dropping back to 0,5% between 2001 and 2009.

Structural change apart, what other factors explain the decrease in TFP growth? Several studies have shown that TFP growth is also strongly correlated labour productivity. Thus, its drop is likely to be related with a decline in labour efficiency. This is, indeed, so as Figure 6 illustrates. It shows strong correlation between TFP growth (on the horizontal axis) and labour productivity (on the vertical axis) over the years 1960 and 2009.

Figure 6.
TFP Growth and Labour Productivity Growth, 1960-2009



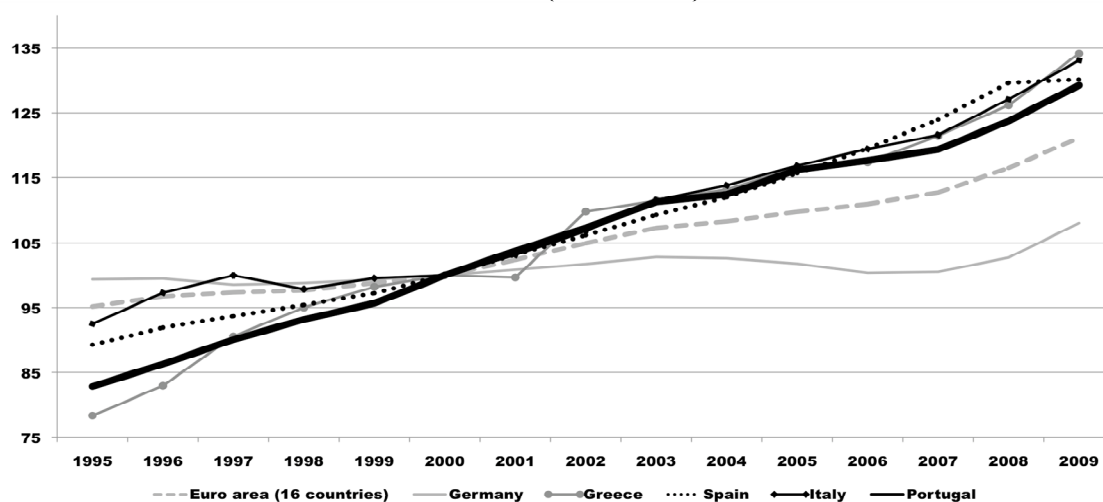
Mateus (2005) argued that the behavior of TFP growth in Portugal is probably related to the degree of openness of the economy, to macroeconomic stability, as well as to institutional factors. Jalles and Pereira (2010) found that it had been influenced by unemployment rates and by the level of human capital. More empirical research is certainly needed, and we are certain that the decline in productivity will be actively researched in the near future.

Adjusting with difficulty to the Euro.

Several scholars (Blanchard, 2006; Eichengreen, 2007; Johnson, 2010) pointed out that a difficult adjustment to the euro was one of the main reasons behind Portugal's profile of low-growth and high-unemployment over the past decade. They claimed that wages and unit labour costs increased faster in Portugal than they did for traditional competitors of Portuguese exports in international markets. Thus, the Portuguese economy lost competitiveness and stagnated. Bento (2009) argued that

unit labour costs rose more in Portugal than in Germany, due to low wage restraint, and a rapid rise in wages in the non-tradable sector, such as the construction and the electric power industries. Rising unit labour costs are clear in Figure 7, which shows the evolution of nominal unit labour costs in selected European economies, in Germany and in the Euro Zone.

Figure 7.
Nominal unit labour costs in selected European countries,
1995-2009 (2000 =100)

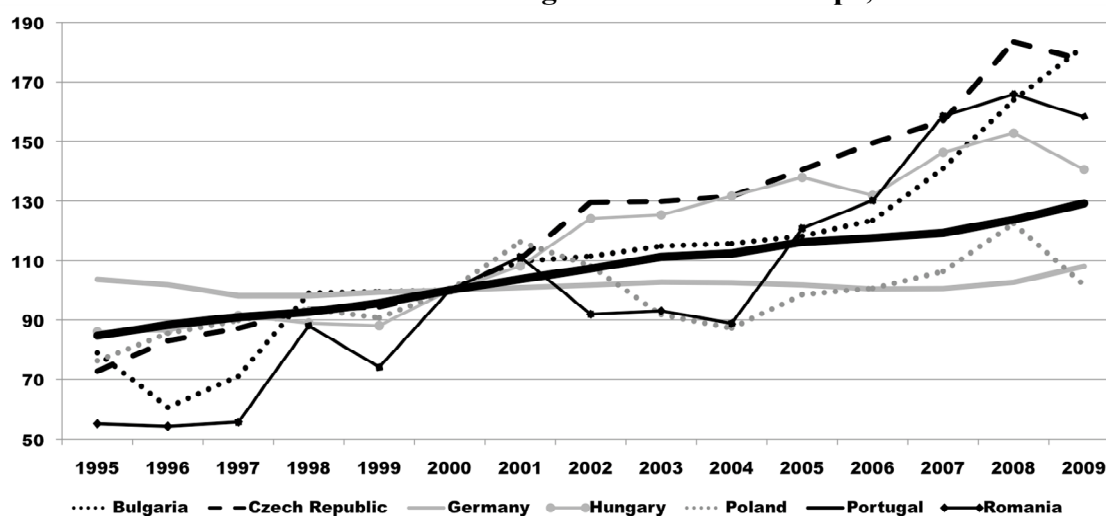


Source: AMECO

Portuguese unit labour costs rose faster than the Euro zone, in countries such as Germany, which in the decade past stood by a policy of wage restraint. Rises in unit labour costs similar to those of Portugal were seen in other Southern European countries, which had the effect of cutting back their competitiveness and accumulated considerable deficits in their current account. Thus, it is tempting to conclude that loss of competitiveness and low economic growth were, in large part, caused by rises in unit labour costs. However, once the evolution of nominal unit labour costs in Portugal and some Eastern European countries, traditionally regarded as competitors of Portuguese exports is examined Portugal's loss of competitiveness is less clear. Figure 8, which plots unit labour costs for Portugal and several Eastern European countries, shows that practically all large Eastern European countries saw unit labour costs rise and far more than Portugal. Poland is the exception in managing to place a fairly effective control over the growth in unit labour costs during the past decade.

Figure 8.

Nominal unit labour costs in Portugal and Eastern Europe, 1995-2009.



Source: AMECO

Indeed, evolution in *real* unit labour costs was even more modest.⁶ (see table A1 in the Appendix). Between 2000 and 2009, *real* unit labour costs in Portugal increased by a mere 1,3 percentage points, nothing that would undermine export competitiveness, much less explain the extent of the recent economic slowdown. More revealing still, the main increase in real unit labour costs took place between 2008 and 2009, rising by 3,2 percentage points, and not from the start of the decade, when the Portuguese economy felt the onset of slow growth and low job creation. Though a relative loss of competitiveness certainly seems to have occurred, in all likelihood it was not sufficiently marked to account fully for the depth in the slowdown over the past ten years.

Yet, other studies highlighted the loss of competitiveness. Alexandre et al. (2009) showed that the Portuguese exchange rate in the Nineties and the first decade of the millennium appreciated in real terms by some 7%, which brought about a drop in the competitiveness of some of the country's main exports. Such a loss of competitiveness occurred mainly in export sectors with lower value added and productivity growth. Cabral (2004) and Amador and Cabral (2008) confirmed that Portuguese exports suffered significant losses in the international market between 1997 and 2006. More specifically, the main losses in market share hit some of Portugal's traditional exports - textiles, clothing and footwear. Between 2002 and 2006, loss of market share extended to the export of motor vehicles, wood and paper. This loss of market shares, the writers argued, can be explained in part by the rising costs of Portuguese exports, and also by the appearance on the main international markets of new competitors - China and Eastern Europe - as contenders with Portugal's traditional exports.

⁶ Nominal cost includes inflation. Real costs do not include inflation, they are in short deflated.

In a nutshell, difficulty in adjusting to the single European currency was in part to blame for Portugal's economic woes, not only an appreciating real exchange rate, but also loss of competitiveness brought on by a rise in unit labour costs at a rate faster than many countries in the Euro area. Yet, evidence of the importance of unit labour costs remains, in our view, inconclusive. Part of the recent loss of international market share may well be attributed to the arrival of important competitors on the long-established markets for Portuguese exports. To our best belief, no study on the loss of competitiveness has yet been able to distinguish between these two factors. Nor does the loss in competitiveness on its own seem able to account for the marked slowdown of the last decade.

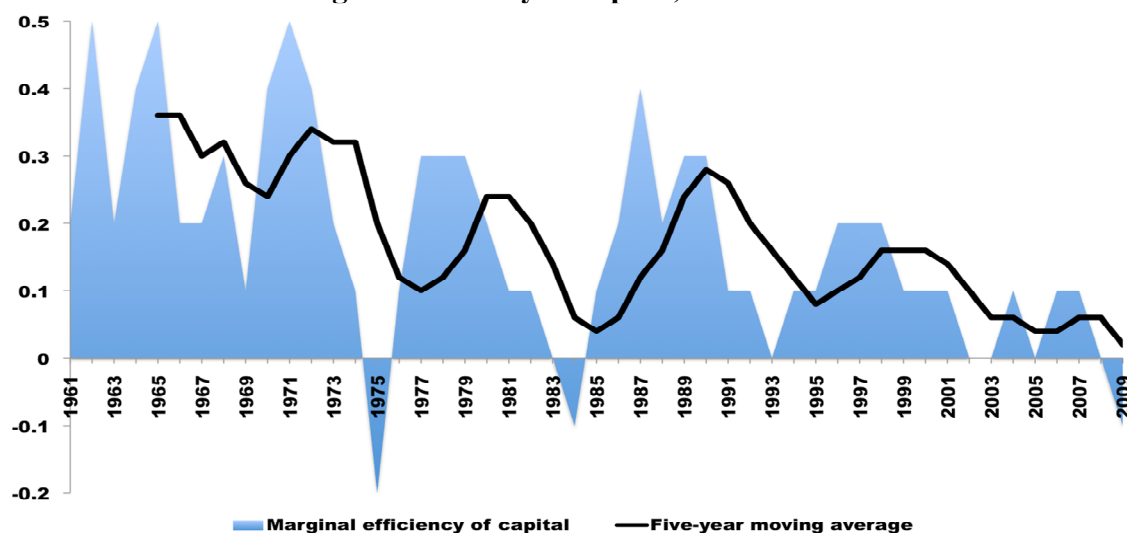
Decreasing Returns to the Accumulation of Capital?

Since capital deepening, or the increase in the amount of capital available per worker, has been an essential explanatory variable in the performance of the Portuguese economy over the past half century - more important than for most OECD economies - growth in, and the effectiveness of, capital accumulation might explain the recent slow down in growth. Several studies have stressed its importance to the growth of the Portuguese economy. Pereira and Andraz (2002, 2004) suggested that, from the 1960s onwards, public works and public infrastructures had a positive impact in the economy not only because of their positive rates of return, but also because they had a positive effect on private investment (the so-called "crowding in" effect). Moreover, it provided positive externalities on private investment. They also found that capital accumulation in infrastructures had significant dynamic effects on the economy. Pina and St. Aubyn (2005) noted that between 1960 and 2005, public investment yielded greater profitability in terms of economic growth than either private or human capital investment. Afonso and St. Aubyn (2009) reached similar conclusions, while Freitas (2005) confirmed that capital accumulation was crucial to Portugal's economic growth.

Nevertheless, researchers are not at one in praising the importance of public investment for the performance of the Portuguese economy. Afonso and Sousa (2009) using quarterly data from 1977 until 2008, found contradictory evidence about the role of public investment and public expenditure. They showed it had a negative impact on private investment and consumption. Afonso (2005) came to a similar conclusion.

Evidence on the role of capital accumulation, is not, a first sight, clear cut. It may hold true only for the recent past, but not for earlier decades. Data on the marginal efficiency of capital seem to support the notion that the law of diminishing returns in some form, applies to the accumulation of capital and might operate in Portugal. As Figure 9 reveals, the marginal efficiency of capital has been steadily declining over the years and, in the last decade or so, has been very near to zero.

Figure 9.
Marginal efficiency of capital, 1960-2009.



Source: AMECO and authors' calculations

That returns on the accumulation of capital may have fallen in recent decades has been suggested in other studies. Freitas (2005) presented new time series data on the evolution in capital stock. They showed that the average productivity of capital decreased substantially since the Sixties. Furthermore, Jalles and Pereira (2010) reported that while the marginal efficiency of capital certainly contributed to economic growth since the Sixties, there was evident a-plenty to support the hypothesis of decreasing returns to capital accumulation in more recent times.

Still, this interpretation does not command consensus. Pereira and Andraz (2004) took the view that substantial dynamic and long-run effects on investment, especially of the public variety, were still present. Despite evidence that purports to support the thesis of declining returns to capital accumulation, Freitas (2005) argued that capital accumulation in Portugal had not been “excessive”, since, by the year 2000, the economy still showed a capital:labour ratio that was only 0,64 of its American version, and as such far less than the difference seen in other European economies – for instance, Ireland at 0.94, Spain at 0.91 and even Greece with 1.2.

All in all, while research literature seems to support the view that since the 1950s, capital accumulation had an important role in economic growth for Portugal, whether capital accumulation has reached the point of diminishing returns – or not – remains unresolved. Studies showed that diminishing returns to capital accumulation might have had some effect on the slowdown of the past decade, but the data are not wholly conclusive. Further clarification will need more empirical evidence.

Turning to the question of human capital, research demonstrated that it became increasingly important as a source of economic growth in Portugal. As far as we are aware, no study has yet suggested that decreasing returns to the accumulation of human capital in Portugal might be significant. In fact, as Section Four will show, Portugal, compared to other OECD countries, still lags considerably on most indicators relating to human capital. Yet, as Table 3

indicated, human capital seems to be replacing physical capital as the principal source of growth in the economy.

From an Agrarian Society to a Knowledge Economy?

Several factors lie behind the pronounced slowdown in the Portuguese economy since 1974, and apply, more specifically, to the economic stagnation of the past decade. Sagging productivity, a difficult adjustment to the euro, lower returns to the accumulation of capital, all seem to have had their part in the stagnation that has set in since 2000. Over the past few years, economic policy may well have exacerbated the structural problems in the Portuguese economy by being overly procyclical (Afonso, 2008), too expansionary, (Lopes 2005, 2009), and by being unable to tackle the main brakes on the economic slowdown. (Pereira, 2009; 2010b) In truth, economic policy has been singularly ineffective in combating the fall in productivity, for, as we have seen, the latter seems to have been the major factor in the steady fall-off in economic growth since the mid 1990s at the very latest.

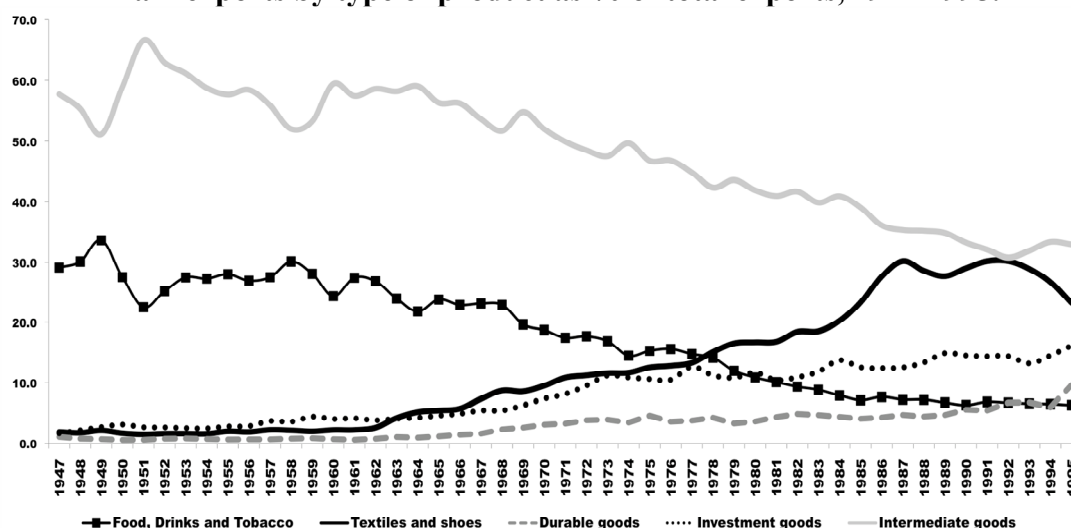
Human capital has gradually increased its importance for output growth in Portugal. Capital deepening and total factor productivity were crucial during the phase of industrialization. Since 1974, however, human capital has become an important source of growth. There still remains a substantial gap between Portugal and most of its European partners in terms of the quality and quantity of human capital. The option for Portugal to invest more in the knowledge-based and knowledge-intensive sector as a means of boosting its productivity is well worth pursuing further. This issue will be examined in following Section.

The disappointing performance of Portugal's economy over the past decade suggests that a return to productivity growth is a necessary prior condition for achieving higher rates of economic growth and thus, a rise in the standards of living. Since a strong link exists between productivity and both quality and quantity of human capital, investing in a knowledge-based economy might be an appropriate strategy to bring Portugal's stagnation to an end and improve the country's rate of economic growth. Here, attention focuses on the question whether the Nation's economy is moving from a post-agrarian society onward and toward a knowledge economy. This is a crucial matter. Potentially, important productivity gains are to be had to be from a knowledge-based economy, as other economies in OECD countries seem to show. As was argued earlier, between the 1950s and the end of the 20th century, Portugal evolved successfully from an agrarian economy to an economy dominated by the industrial and the services sector, a transition that was one of the principal reasons for rapid productivity growth during the period. Can Portugal replicate this experience in its drive towards a knowledge economy? Can a knowledge economy help raise the country's export competitiveness? These questions are addressed in this section by looking at the technological content of Portuguese exports and by analyzing the main human capital indicators in a cross-country perspective.

The Technological Content of Exports

In the 20th century, the make up and content of Portuguese exports changed considerably, as structural changes in the economy moved ahead. Early in the 20th century, Portuguese exports were chiefly primary products and re-exports of colonial products. Changing from an agrarian society to an industrial and service-based economy involved significant change in the composition of exports. As Figure 10 shows, industrialization and the opening up of the economy following Portugal's entry to EFTA spurred on an extraordinary rise in the exports of textiles, clothing and shoes, as well as investment goods, such as machines. The specialization of exports progressed even further in the years immediately before and following Portugal's joining the European Economic Community, at the same time the relative importance of goods with lower technological content, as well as primary products in total exports fell.

Figure 10.
Main exports by type of product as % of total exports, 1947-1995.



Source: Bank of Portugal

Increased specialization was stimulated further by a significant rise in the market share these products won on international markets. Amador and Cabral (2008) estimated that between 1977 and 1986, the market share of Portuguese exports increased by 5.6 percent, by a further 3.8 percent between 1987 and 1991, with an additional 2.5 percent for the years 1992-95. From the mid Nineties onward, textiles, clothing and shoes saw their relative importance in the country's total exports, fall. In part, this roll back stemmed from the loss in market share of Portuguese exports, reckoned between 1997 and 2006 to be about 2.4%. (Amador and Cabral, 2008)

If the composition of Portuguese exports is examined over the past two decades, some interesting changes occurred in their technological content. From the mid Nineties, they became less "traditional". They were no longer goods with low value added, that drew on the intense use of unskilled labour. Rather, they began

incorporating more medium and medium-high technologies (such as rubber and plastic products, machinery and electrical equipment, motor vehicles, and chemical products) particularly in the case of industrial exports, as can be seen in Table 5, which sets out the sector's share of all industrial exports. The technological element in exports rose. Exports based on high- and medium-high technology currently account for about 40% of all manufactured products. (Cabral, 2008). Conversely over the same period, the share of exports with low technology input fell. Even so, this positive development does not necessarily imply that Portugal's cross over to a knowledge economy has taken place or that it is successful. Two considerations impell caution. First, statistics about the technological content in exports cover manufactured products only. They omit such important exports as services. Whilst the service sector includes companies commanding a high degree of entrepreneurship and innovation, especially in Information and Communication Technologies, the part of this sector in the economy has not, over the past decade, grown markedly. The share of Information and Communications Technologies in gross fixed capital formation remained fairly constant over the last 15 years. (Pereira 2010b) Second, Table 5 shows that the technological content of Portuguese exports appears to have moved from low-tech to medium-tech products, but not necessarily on to high-tech goods. Between 2001 and 2008, the share of medium- and medium-low technology in total exports rose from 13,5% to 23,7% of all manufactured exports. On the same base, the share of low-tech exports declined from 45% to 34% of all manufactured exports. (Pereira, 2009). Though the level of technological input apparently increased since the 1990s, Portugal does not seem, as yet to have crossed over to a high-productivity, high-value added knowledge economy.

Though the pointers towards the improving technological content of Portuguese exports are encouraging, data also show that the step up the quality ladder has been rather towards medium and medium-low technologies, and not the high-tech sectors, usually associated with a knowledge economy.

Table 5.
Sector share in total industrial exports.

	1990	2000	2006
HIGH TECH	5.56	9.19	14.6
Pharmaceutical products	0.63	1.15	2.28
Clerical equipment and computers	0.64	0.36	3.76
Radio, TV and communications equipment	3.68	6.77	7.87
Medical, optical and precision instruments	0.61	0.81	0.7
MEDIUM-HIGH TECH	21.5	32.12	30.73
Machinery and electrical equipment	4.07	7.17	3.47
Motor vehicles, tows and semi-trailers	7.44	14.43	15.05
Chemical products, except pharmaceuticals	5.61	4.58	6.29
Railroad equipment and transport equip.	0.20	0.38	0.52
Machinery and equipment (non electrical)	4.18	5.56	5.4
MEDIUM-LOW TECH	10.1	12.84	20.41
Construction and naval repair	0.55	0.26	0.24
Rubber and plastic products	1.39	2.79	4.23
Oil refining, petrochemical and nuclear fuels	0.08	0.8	2.58
Non metallic mineral products	4.48	3.66	5.11
Metallurgy	1.26	2.53	4.42
Production of metallic products (machinery and equipment)	2.35	2.8	3.83
LOW TECH	62.44	44.82	34.26
Other manufactures and recycling	2.16	2.15	2.97
Paper pulp, paper, paperboard and printing industry	6.4	5.6	2.51
Foodstuffs, beverages and tobacco	6.61	6.23	8.21
Textiles, apparel, leather and footwear	40.61	25.94	16.37
Wood and cork and wood products	6.67	4.91	4.2

Cabral (2008)

That said, successful technological adoption goes hand in hand with improvements in human capital. (Easterlin, 1996; Lipsey, Carlaw and Bekar, 2005; Stoneman, 1994) Both export competitiveness and the technological content of its exports could both be improved if Portugal is able to improve considerably its human capital. Key to this the evolution over recent decades in certain indicators of human capital. This, and the role of human capital in constructing a knowledge economy in Portugal, is pursued below.

The Role of Education for a Knowledge Society

Despite considerable investment in both the quantity and quality dimensions of human capital that democratic governments have made since 1974, Portugal is still subject to significant shortcomings in its education when set against other OECD countries. In part, the persistence of low levels of educational provision in Portugal can be seen in the legacy of the past. Portugal has lagged on most education indicators, literacy and enrolment rates, since the 19th century at least. In 1870, for instance, primary school enrolments in Portugal were around 13,4 percent of the relevant age cohort, lower by far than the average for other Southern European

countries (30.4%), below Eastern Europe (16,9%), and considerably behind the European core (61,8%) (Benavot and Riddle, 1988). Portugal continued to trail behind other European countries. By 1940, the Nation's primary school enrolment had risen to 28.6 percent, still substantially below the European core - 73%, Eastern Europe - 50.9% -, and even Southern Europe with 54%. (Benavot and Riddle, 1988) Literacy rates were much lower in Portugal than most other European countries. (Reis, 2004)

Though indicators of the state of Portuguese education improved, particularly enrolment and literacy rates, the gap between Portugal and the other Western European countries moved apart during most of the period from 1926 until 1974, when Portugal was under the grip of Dictatorship. The regime did not attribute much value to education as an important source of growth (Amaral 2005). In 1950, around 46% of the Portuguese population aged 15 years and over were unschooled. Only 20% completed primary education. See Table 6 . Some progress was made. By the late Sixties, universal primary schooling was finally attained (Amaral, 2005), some decades after the European core. Even so, by the end of the *Estado Novo*, one third of all Portuguese were illiterate, one third of those aged 15 or older had full primary education, 3% had completed secondary education and a residual 0,6% had undergone university education. (see Amaral 2005)

In sharp and deliberate contrast, democratic governments devoted substantial public resources, both in absolute terms and in percentage of GDP, to education in an attempt to catch up with Europe. Between 1974 and 2000, public expenditure on education rose from 1,8% of GDP, to about 3,7% in 1980, and to 6,9% GDP in 1999. (Lopes, 2005). This unprecedented effort to improve the country's human capital was reflected both in literacy rates and in the average years of schooling. In Table 6, illiteracy rates – that is, the percentage of population with no schooling - fell from around 30 percent of the population in 1975 to 8 percent in 2010.

Table 6.
Average years of schooling in Portugal, 1950-2010.

Year	No Schooling	Highest level attained						Average years of schooling	Population (1000s)
		Primary		Secondary		Tertiary			
		total	completed	Total	completed	total	completed		
(% of population aged 15 and over)									
1950	46.1	49.5	20.3	3.4	1.9	0.9	0.4	2.656	5927
1955	42.3	52.5	22.6	4.2	2.2	1	0.5	2.911	6142
1960	38.1	55.9	25.5	4.9	2.4	1.1	0.5	3.207	6276
1965	39	53.3	30.4	6.3	2.9	1.4	0.6	3.471	6387
1970	37.8	53.3	35.7	7.4	3.2	1.4	0.6	3.778	6184
1975	29.7	55.7	40.1	11.9	4.9	2.7	1	4.709	6554
1980	21.9	58.7	44.8	15.9	6.3	3.5	1.3	5.53	7231
1985	16.9	58.8	46.3	18.4	7.4	6	2.2	6.212	7657
1990	13	57.7	47	21.3	8.5	7.9	2.9	6.784	7948
1995	11.8	54.2	45.6	25.5	10.4	8.4	2.9	7.16	8253
2000	10.4	49.7	43	29.8	12.5	10.1	3.4	7.647	8567
2005	12.8	46.2	41	31	13.4	10.1	3.3	7.583	8826
2010	8	43.9	39.9	37.3	16.7	10.8	3.3	8.26	9043

Source: Barro and Lee (2010)

The average years spent in school steadily rose, almost doubling from 4.7 in 1974 to 8.26 years in 2010. The numbers of those reaching upper secondary and tertiary education grew substantially since the return of democracy and since 1975, tripled.

Such an improvement in human capital was an important factor in explaining Portugal's growth performance from the mid Seventies onwards. However, substantial evidence suggests that improvement in the absolute levels of education did not necessarily translate into a marked closing of the educational gap with other European and OECD countries. (Banco de Portugal, 2009). First, as the OECD's PISA inquiries show, the quality of Portuguese education was low (OECD 2010). Portuguese students had amongst the lowest PISA scores of all countries in math, science and reading. (OECD, 2010; 2006; 2003). Second, Portuguese education is not overly efficient. As a percentage of its GDP, the country spends more than the OECD average, and gets a lower return from it. (OECD, 2006; Pereira, 2009). Third, the school dropout rate remains very high, greater than other OECD countries, with the exception of Mexico and Turkey.

The latest figures from the Barro-Lee international dataset on average years of schooling bear out the presence of several shortcomings in the formation of human capital in Portugal. Table 7 shows that on average Portugal has the lowest number years spent in school at all levels and in the whole of the European Union. Similarly, Portugal figures has one of the lowest rates in the average years spent in secondary schooling - better than only Bulgaria, Poland, and Slovenia - and the lowest average of years spent in university education in the whole European Union.

Table 7.
Average Years of Schooling, all levels, 2010.

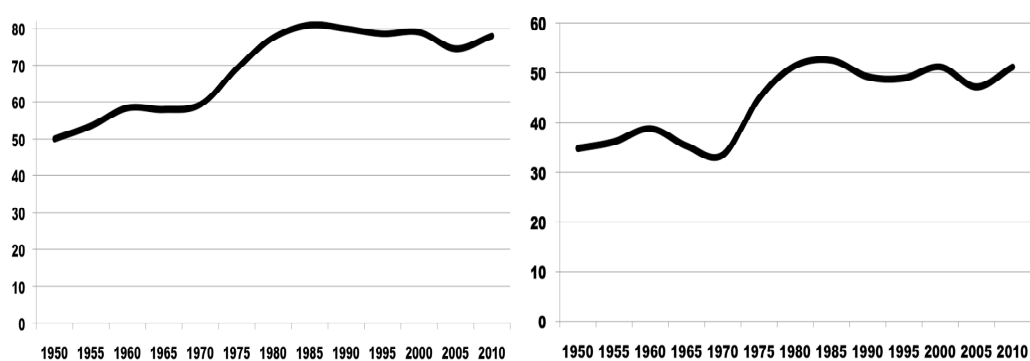
	All levels	Secondary	Tertiary
Bulgaria	9.838	2.132	0.528
Czech Rep.	12.137	3.377	0.318
Estonia	11.805	4.982	0.850
Finland	9.987	3.513	0.700
France	10.533	5.234	0.593
Germany	11.825	7.439	0.573
Greece	10.677	3.903	0.924
Holland	11.023	4.512	0.738
Hungary	11.651	3.424	0.578
Ireland	11.646	3.757	0.984
Italy	9.875	4.839	0.336
Poland	9.872	2.084	0.488
Portugal	8.259	2.578	0.282
Romania	10.527	3.426	0.388
Slovakia	11.161	3.028	0.373
Slovenia	8.912	2.452	0.476
Spain	10.382	4.293	0.778
Sweden	11.571	4.959	0.756
United Kingdom	9.752	3.183	0.766

Source: Barro and Lee (2010)

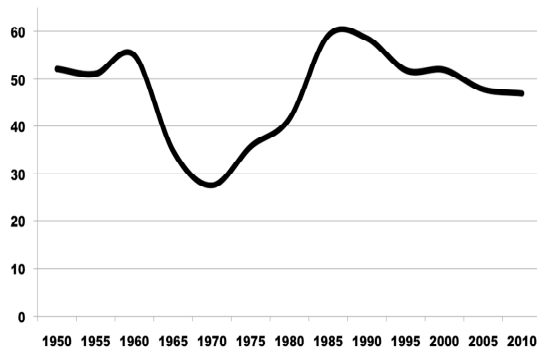
In effect, the relative gap between Portugal and the most advanced countries in Europe stayed at the same level over recent decades. In assessing the gap in average schooling, Figure 11 compares Portugal with five advanced economies of France, Germany, Italy, the Netherlands and the UK), which constitute the European core. It plots the relative distance between the average years spent in schooling for the European core countries with its counterpart in Portugal for all levels of education, for secondary and tertiary. Since the return of democracy, the differences in average years of school narrowed significantly. However, despite unprecedented resources invested in the education sector, the relative gap between Portugal and the European core over the last two to three decades remained virtually constant.

Thus, considerable expansion and major investment in education were not enough to *reduce* the relative gap between Portugal and the European core, at least to average of years schooling spent in school.

Fig. 11.
Average schooling years in Portugal relative to European core
(European core =100).
a. All levels of education *b. Secondary education*



c. University education



Source: Calculated from Barro and Lee (2010)

In face of improvement in the absolute levels of education, Portugal still lags a considerable education lag vis-à-vis most OECD economies. For these reasons, and given the technological content of Portuguese exports, we take the view that at this stage, given the evidence on which we have relied, Portugal has not made the shift over to a knowledge economy – yet.

Conclusion

Successful though the Portuguese economy has been in moving on from an agrarian society to an industrial-based economy, it has been less successful in changing over to a knowledge-based economy. Despite substantial improvement since the return to democracy, improvements that showed up in several educational indicators, the relative gap in educational progress between Portugal and the European core countries is large and over the last few years has remained somewhat unchanged.

This is somewhat disconcerting and has several implications for policy. First, since human capital has been the most important source of growth in the Portuguese economy after 1974, that Portugal has not been able to close the human capital gap vis-à-vis the European countries we used here as a benchmark could hold future growth back. Second, Portugal needs to improve the effectiveness of its education provision, the quality of education, and to explore more assiduously the markets for education (Amaral, Rosa and Teixeira 2004). Third, improvement to its human capital and a faster transition to the knowledge economy may turn out to be important factors for recovering growth in productivity, and, following this, for economic growth to begin again. Not only do Portuguese data show a strong correlation between growth in labour productivity and total factor productivity. The slowing down in growth seems to be strongly associated with a drop in the latter component. Since there are significant interactions between human capital and gains in productivity, a more rapid thrust towards the knowledge economy will, in all likelihood, be instrumental for improving the performance of Portugal's economy in the near future.

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