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Contribuciones

- *Econometría espacial: más luces que sombras*
  J. Paelinck, J. Mur y J. Trívez 383

Monográfico
ECONOMÍA ESPACIAL

Francisco Javier Trívez (Coordinador), Universidad de Zaragoza

- *Economía espacial: Una disciplina en auge*
  F.J. Trívez 409
- *Alternative Approaches to Regional Convergence Exploiting both Spatial and Temporal Information*
  G. Arbia 431
- *The Bumpy Road of Convergence: the Catching up Experience in Portugal, Spain and Greece*
  K. Aiginger 451
- *A Wald Test for Spatial Nonstationarity*
  J. Lauridsen y R. Kosfeld 475
- *Desagregación espacial para pequeñas áreas. Un modelo bayesiano normal-gamma*
  J.L. Rojo y J.A. Sanz 487
- *Espacio y comercio interregional en España*
  J.M. Pavía y B. Cabrer 517
- *The Interregional Trade in the Context of a Multirregional Input-Output Model for Spain*
  C. Llano 539
- *Modelos SAM lineales y distribución de renta: una aplicación para la economía extremeña*
  F.J. de Miguel y A. Manresa 577
- *Modelos de regresión espacio temporales en la estimación de la renta municipal: El caso de la Región de Murcia*
  C. Chasco y F. López 605
- *Valoración de la actividad económica regional de España a través de indicadores sintéticos*
  A. López y R. B. Castro 631
- *Desbordamiento espacial de la productividad de las infraestructuras: una aplicación con fronteras estocásticas*
  J. Rodríguez-Vález y C. Arias 657
- *El precio medio del metro cuadrado de la vivienda libre: Una aproximación metodológica desde la perspectiva de la Geoestadística*
  J.M. Montero 675
- *Análisis territorial de la accesibilidad a la vivienda en España*
  M. Sala 695

Selección de reseñas de Tesis Doctorales 719

Sección Abierta (en contraportada)

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The bumpy road of convergence: the catching up experience in Portugal, Spain and Greece

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ABSTRACT

This paper investigates how Portugal, Greece and Spain have experienced the process of catching-up over the last forty years. The primarily descriptive analysis shows how slow and bumpy convergence to the European level of income has been for these three southern peripheral European countries (SPEC). Performance is analysed against the background of expectations for a rather smooth and continuous convergence process, as expressed by many models of economic growth, implying that countries with lower income levels will grow faster than high income countries. The experience of peripheral countries is important for predicting the expected speed of convergence for the new member countries which joined the EU in 2004, since they now have a gap in GDP per capita which is similar to the one the peripheral countries had in 1960. By 2004, all three countries had halved the gap relative to 1960, with Spain coming closest to the EU average.

Keywords: convergence, catching up, periphery, performance, economic growth, regional economics.

Convergencia lenta y desigual; la experiencia de catching-up de Portugal, España y Grecia

RESUMEN

Este artículo estudia como Portugal, Grecia y España han experimentado el proceso de convergencia en los últimos 40 años. El análisis descriptivo primario muestra una convergencia lenta y desigual al nivel de renta europeo por parte de estos tres países de área periférico sur. Su evolución es analizada mediante el conocimiento y expectativas de los modelos económicos de crecimiento que implican mayores ritmos de crecimiento en los países con menos nivel de ingreso que aquellos de renta más alta. La experiencia de los países periféricos es importante para predecir la velocidad esperada de convergencia en el caso de los nuevos miembros que se adhieren en 2004, además cuando ellos tienen un diferencial de PIB per cápita similar al de los tres países en estudio referido al año 1960. Para 2004, los tres países han reducido a la mitad la brecha de 1960 y España se ha aproximado claramente al promedio de la UE.

Palabras clave: Convergencia, catching-up, periferia, dinámica, crecimiento económico, Economía espacial.
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1. INTRODUCTION AND PLAN OF THE PAPER

The objective of this article is to provide a summary of the catching up experiences of the three Southern Peripheral European Countries, namely Spain, Portugal and Greece. Although it is mainly a descriptive analysis, performance is analysed against the background of the prediction made by many growth models that countries with low income levels would grow faster, converging to their individual steady state income or to the common steady state of a group of countries with similar preferences and a common technology. Furthermore, the speed of convergence in the nineties is related to the economic determinants proposed in growth theory, such as physical investment, human capital, research and the diffusion of new technologies. The status of the catching up experience over nearly half a century is important per se, but is specifically interesting as some of the new members of the European Union (after its enlargement in 2004) exhibit income gaps very similar to those the Southern European countries had in the sixties.

The paper is structured as follows: in Section 2 we briefly summarise the predictions of growth theory, specifically for convergence, as well as for other determinants of growth. Section 3 reports the actual experiences of the southern countries and Ireland since 1960 and reveals how fast and how different – across countries and over decades – the convergence process has been. Section 4 analyses how growth was splitted into productivity and employment growth. Section 5 investigates growth performance and competitiveness in the nineties. We show how unit labour costs and taxes contributed to price competitiveness. Secondly, we report on the degree of regulation, as well as on regulatory change in product and labour markets. Thirdly, we analyse investment of the countries into variables which the theoretical and empirical literature finds as the determinants for growth and catching up (growth drivers). The analysis does not intend to explain growth since no formal equations are estimated and causality may run in both directions. Cross country growth regressions and a detailed explanation of the growth path in the different countries are beyond the scope of this paper. Section 6 summarises the results and potential conclusions relevant to economic policy.

2. ECONOMIC GROWTH AND CONVERGENCE IN THEORY

Growth determinants and convergence

Economics has an extensive history of explaining long term differences in economic growth. Highly stylised theoretical models delineated equilibrium or "steady state" growth on the one hand, while on the other hand a growing amount of empirical literature investigated the impact of a large number of "growth determinants". For surveys see Aghion, Howitt (1998), Barro, Sala-i-Martin (2004), Ahn, Hemmings (2000),

Levine, Renelt (1993), Bosworth, Collins (2003), Temple (1999), Rogers (2003), OECD (2001, 2003).

Classical economists have emphasised not only the importance of increasing the division of labour, but also the roles of population growth and natural resources. Combining growth theory with Keynesian analysis, economists in the 1930s and 1940s singled out investment[1] as the crucial determinant of growth. These models (sometimes summarised as the Harrod-Domar model) had the technical drawback of the so called knife edge problem: limited substitution between factor inputs leads to an instable growth path; if investment were either too high or too low, the economy would deviate from the growth path accordingly. An economic disadvantage of this class of models was that the constant capital output ratio theoretically allowed the growth rate to balloon when investment shares were increased. The experiences of socialist countries which boosted investment without providing a mechanism for controlling the efficiency of investment falsified this prediction.

The answer to these problems was to allow the substitution between labour and capital input and to model decreasing returns to capital. This approach led to the well known results of the neo-classical models (most prominently the Solow-Swan model), namely that the steady state growth rate was independent of the investment ratio. However, growth in the transitory phase from one equilibrium to the other still depends on the capital input, which is used with decreasing marginal productivity. The shortcoming of this class of models is that in the steady state, technological progress is the only driver of per capita growth and this all important source of growth is exogenous to the model. The neo-classical model sets the stage for the following investigation of "intensive" growth (i.e. per capita growth or productivity growth) and is the starting point for the empirical method of growth accounting.

Using an exogenous factor to explain growth dynamics is not satisfactory. The answer to this shortcoming is the "New Growth Theory", which first extended the notion of capital to include physical as well as human capital. Human capital produces external benefits to the non investor (knowledge spillovers), thus overcoming the problem of decreasing returns to capital. Later versions of the New Growth Theory emphasise the importance of innovation and model the process of generation and diffusion of technologies in imperfect markets with at least temporary innovation rents. Technological progress results from purposeful R&D activity. Since distortions in the process of creating new goods, in the method of production and in imperfect markets are abundant, the role of such government actions as taxation, infrastructure, property rights and trade rules has great potential for influencing the long-term growth rate. This is relevant not only to the discovery process, but also to the process of diffusing leading edge technology to catching-up countries (Barro, Sala-i-Martin, 2004, p. 20).

[1] More exactly the share of physical investment in GDP.

The importance of innovation, organisation, entrepreneurship and capabilities is stressed in an increasing number of theoretical models[2].

An oversimplified summary of old and new growth theory might therefore be that growth in industrialised economies depends on physical investment, human capital and innovation. However, many economists consider these determinants to be "approximate" sources of growth. Digging deeper into the ultimate sources of growth, institutions and incentives become important (OECD, 2003, Bassanini et al., 2001). The financial system, the regulation of product and labour markets, the openness of an economy, the intensity of competition, rule of law, corporate governance, and entrepreneurship are considered to be important determinants of investment, innovation and the quality of human capital; therefore they also indirectly influence long run growth. The list of institutions is open for additions; democracy, religion, freedom and ethnical homogeneity have recently been proposed.

For a study of peripheral countries with lagging per capita incomes, the hypothesis of converging per capita incomes is of particular importance. A well known feature of the neo-classical model is the prediction of convergence in the sense that countries with lower income per capita grow faster. Per capita growth is higher, the greater the distance between actual income and the steady state of a specific economy. If countries have the same preferences and make use of the same technology, they should ultimately converge to the same absolute income (absolute convergence). The consequence of this is that in a cross country comparison, the rate of growth of an individual country depends (positively) on the income gap relative to a benchmark (which is supposed to be close to the common steady state). If countries differ in preferences or technology, each country converges to its own steady state (conditional convergence). It is this second type of convergence which has more support in empirical studies, leading to the notion of convergence clubs, whereby richer countries converge to a higher steady state level than poorer countries.

Few empirical studies support absolute convergence, most empirical studies support conditional convergence. Convergence exists within the group of industrialised countries and in regions with similar endowments, but differences between rich and poor countries are persistent and peripheral regions do not always catch up[3]. Additionally, empirical studies reveal that the rate of convergence is (i) rather slow but (ii) also surprisingly similar in studies done for different time periods, different levels of aggregation and different economic areas. A stylised 2% rule has emerged,[4] which refers to the empirical regularity that poorer countries/regions tend to close 2 % of the income gap per year.

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[2] For an overview of innovation in the New Growth Theory see Hollenstein, Hutschenreiter (2001).

[3] Peripheral regions in poor countries do not catch up relative to the central regions in these countries (De la Fuente, 1996, European Commission, 2001).

[4] Barro (1991), Mankiw et al. (1992), Barro, Sala-i-Martin (2004).

A rate of 2 % implies closing half of the gap in 35 years. As if this disappointing speed of convergence were not slow enough, it may even delineate convergence to a steady state which is lower for poorer countries.

Beta- and sigma-tests have been used for the empirical testing of convergence. The catching up of low income countries is calculated by regressing the growth of countries on their starting income: a negative coefficient of the lagged income term reveals "beta convergence". Looking at the variance of per capita incomes over time reveals sigma converge, if the standard deviation of this variable is decreasing over time. Convergence in the sense of catching up – beta convergence - tends to create sigma convergence, but reduced dispersion of per capita income can be offset by new disturbances.

The results of the empirical studies are summarised in several excellent articles. We think that a fair summary could be that physical investment, as well as human capital and the creation and diffusion of innovation are the standard economic determinants of growth. Besides these determinants, there is a vast array of institutional variables (from government shares and regulation to policy variables) which are investigated and found to be important in many studies. Aiginger (2004B) argues that while resources and population growth might be the most important growth determinants for developing countries, physical capital might be specifically important for an intermediate stage of development and for catching-up economies; ultimately, research and development and the diffusion of new technologies determine the growth rate in high income countries.[5]

3. THE CATCHING UP OF PERIPHERAL COUNTRIES SINCE THE SIXTIES

The three southern peripheral European countries (SPEC), as well as Ireland, were all low income countries in 1960. GDP per capita (adjusted for price differences) was lowest in Portugal, amounting to only 42 % of the EU average. Portugal was narrowly surpassed by Greece at 51 %, while Spain achieved 61 % (Table 1 and Figure 1). The average for the SPECs was approximately half of the EU level (51 %).

[5] This is part of the research on why, after decades of catching up, European countries have stopped growing faster than the US. The US has been increasing its lead in per capita income and productivity since the nineties. Gordon (2002), Aiginger, Landesmann (2002) argue that certain features of the European innovation system might be better suited for incremental technical progress, while the US system might be better for the radical innovation which takes place during phases of sudden implementation of new technologies. Acemoglu et al. (2002) argues that the human capital generated by secondary education is more important to catching up, while the human capital generated at universities and research labs is more important to the growth of a country at the technology front.

GDP per capita in Ireland amounted to 67 % of the EU average, which was not considerable more than that of the best southern country.

Following the convergence hypothesis, growth in the SPEC countries should be and was higher than in richer economies. Figure 2 compares real growth since 1960 with the level of per capita income in 1960 and strongly supports the convergence hypothesis. The regression coefficient is significant and negative. The regression is driven by a cluster of high growth/low income countries on the one hand and a cluster of countries with high income and low growth. The difference between the groups is large, but low within the groups.

Table 1: The catching up of peripheral countries

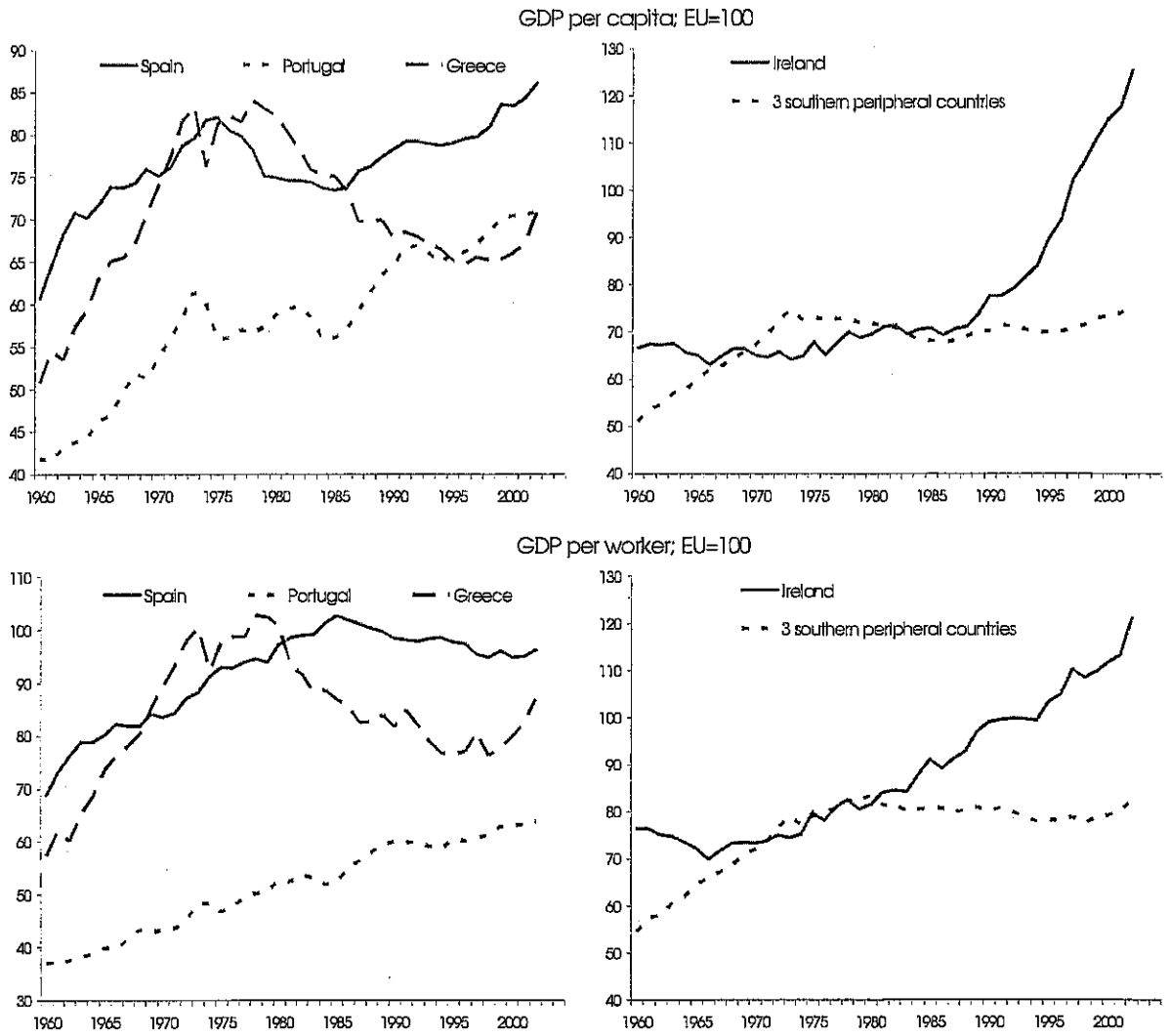
	GDP per capita at PPP EU = 100						Growth of real GDP					
	Spain	Portugal	Greece	Ireland	3 southern peripheral countries		Spain	Portugal	Greece	Ireland	3 southern peripheral countries	EU
1960	60.76	41.84	50.80	66.74	51.14	1961-1970	7.35	6.45	8.51	4.14	7.44	4.80
1970	75.18	53.51	73.86	65.01	67.52	1971-1980	3.53	4.72	4.59	4.72	4.28	2.97
1980	74.91	58.75	82.08	69.57	71.92	1981-1990	2.94	3.26	0.68	3.57	2.29	2.41
1990	78.29	64.71	67.82	77.61	70.27	1991-2000	2.67	2.77	2.35	7.22	2.59	2.10
2000	83.41	70.39	65.98	115.09	73.26	2001-2004	2.52	0.41	4.00	4.48	2.31	1.38
2004	87.97	67.85	75.02	119.83	76.95	1961-2004	3.96	3.93	3.99	4.86	3.96	2.91

Source: WIFO calculations using AMECO.

The consequence of the growth differential is that by 2004, the three countries had reduced their gaps to the EU level of income on average from 49 % to 23 %. Greece closed almost exactly one half its gap (from 49 % to 25 %), Portugal somewhat less (from 58 % to 32 %), while Spain was more successful (from 39 % to 12 %). Thus, although all lagging economies succeeded in catching up, the economy with the largest gap (Portugal) bridged a relatively smaller part of the difference and the country with the smallest gap closed the largest share.[6]

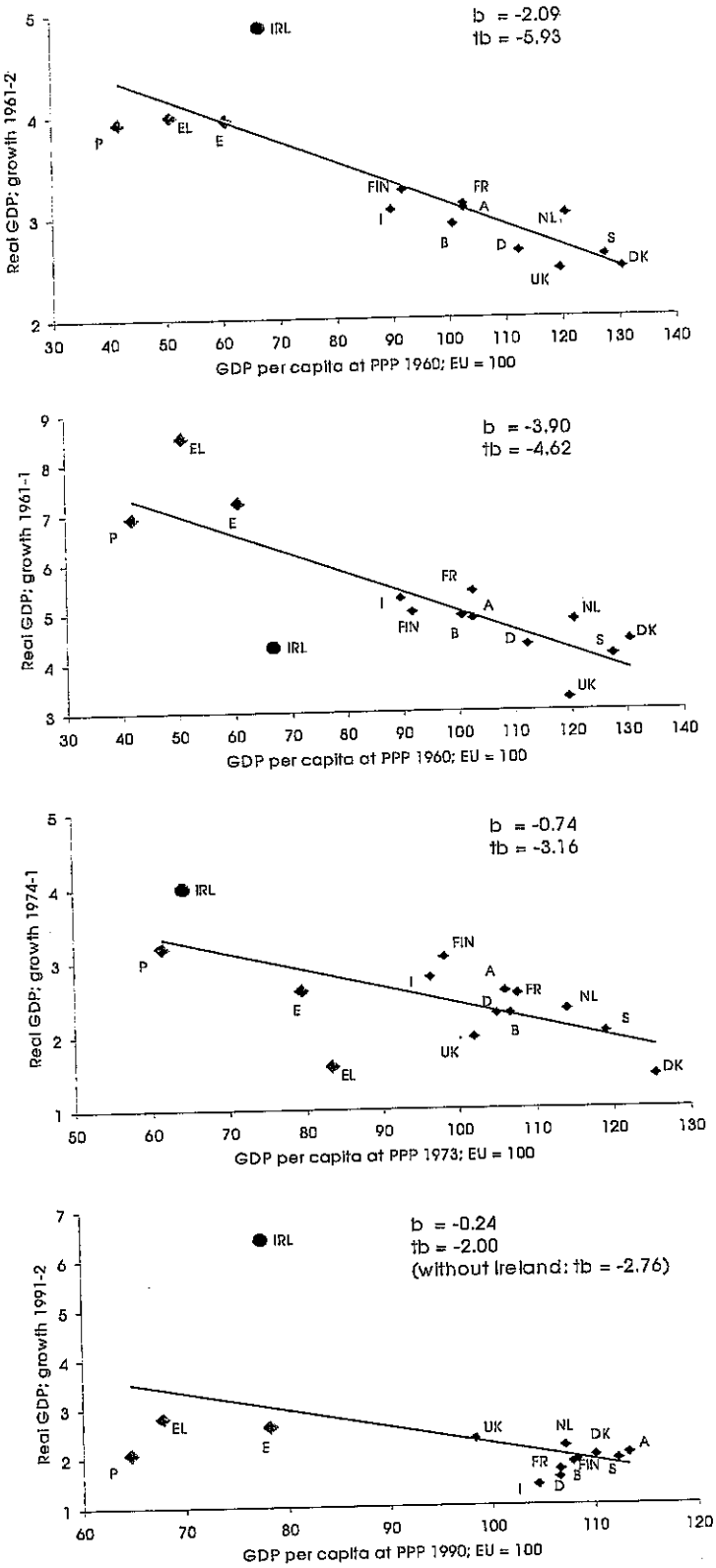
[6] This partial ranking is not in line with the convergence prediction. Ireland even managed to surpass EU per capita GDP by 20 %, which is a tremendous success even in light of the fact that income per capita (as measured by the Net National Product per capita) is still below the EU average. Transfer prices and the profits of multinational firms account for the difference between productivity and income in Ireland.

Figure 1: Growth of per capita and per worker GDP at PPP in peripheral countries



Source: WIFO calculations using AMECO

Figure 2: GDP per capita and growth of real GDP



Source: WIFO calculations using AMECO.

The convincing picture of not only considerable but also smooth convergence collapses once we look into the individual time periods. Greece managed to close the gap by an astonishing 23 percentage points in the sixties and 8 points in the eighties. After this, Greece experienced two decades of increasing distance to the European level of income (1974 and 1994), from which it only recovered in the most recent years. In 2004, income per capita was still 25 % lower in Greece as compared to EU-15, which is ten percentage points more than it was at the closest point in the seventies. Spain made a significant leap forward in the sixties, peaking at 82 % of the EU average in 1975. Then income decreased relative to the European average. Catching up resumed in 1985, and has accelerated during the last several years, so that the remaining gap of 12 % is the closest Spain has ever come to the average European level of income. Portugal experienced dramatic growth between 1960 and 1973, closing one third of the gap, but then settled at a plateau between 1973 and 1985, with gains slightly higher than losses. Catching up was resumed between 1985 and 1997, with small backlashes during the very last years. A trend common to the three southern peripheral countries is therefore the considerable progress made between 1960 and 1973, the difficult period up to 1985 and the resumption of the catching up process since the mid or late eighties. Since the nineties, growth has remained at about 2.5 %. Viewed from an historical perspective, this is not high, but it is higher than the European average.

In contrast, Ireland was late getting started, making no significant progress between 1960 and 1985. Catching up started towards the end of the eighties, and the EU average was surpassed in 1997. Between 1990 and 2000, Ireland transformed a gap of 23 % into a lead of 15 %. During the present period of low growth throughout Europe, Ireland has continued to grow faster than the average.[7]

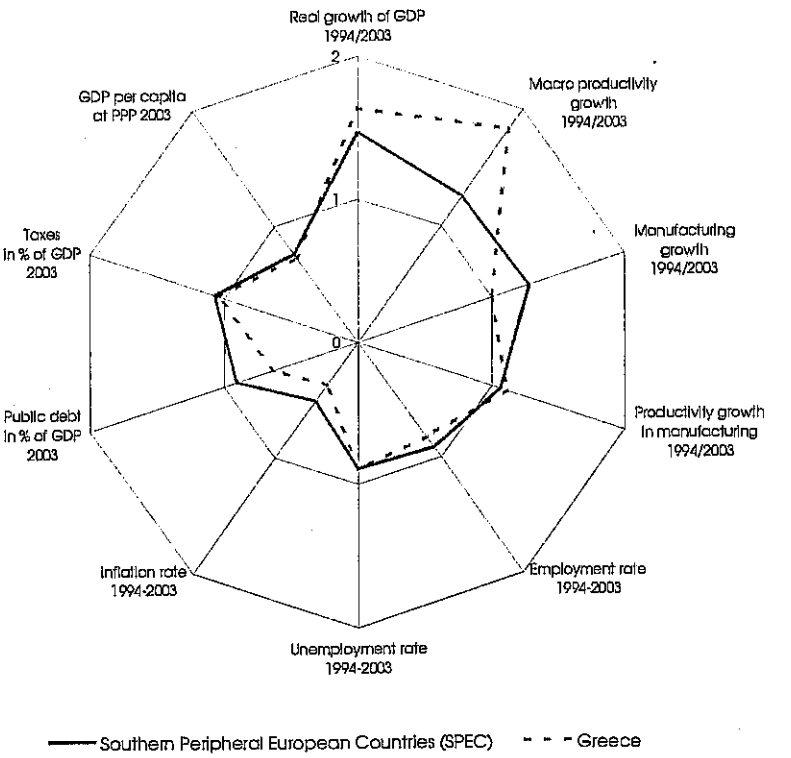
[7] The growth differentials reported refer to GDP per capita. If we calculate them per worker, today's gap is much smaller for Spain and Greece, since these countries have lower employment rates (approximately 62 % relative to 67 % in the EU). In Spain, productivity per worker in 2002 would only be 4 percentage points lower than in the EU, with a corresponding figure of 13 % for Greece. However, the gap was even smaller in 1980. For a few years in the eighties, Spain reached the European average in GDP per worker, although it was not able to maintain this level. The reasons for the increasing difference in GDP per worker is the abundance of cheap labour, and last but not least, policies which distribute existing jobs among as many employees as possible. In Portugal, the employment rate is 3 points higher than the EU average, thus the difference in productivity per worker is larger than the gap in GDP per capita. The gap decreased from 47 % in 1980 to 36 % in 2002. Catching up in productivity has been strongest and smoothest over time in Portugal (with the exception of the most recent years); in Greece and Spain GDP per worker has not increased faster than the EU average since 1985.

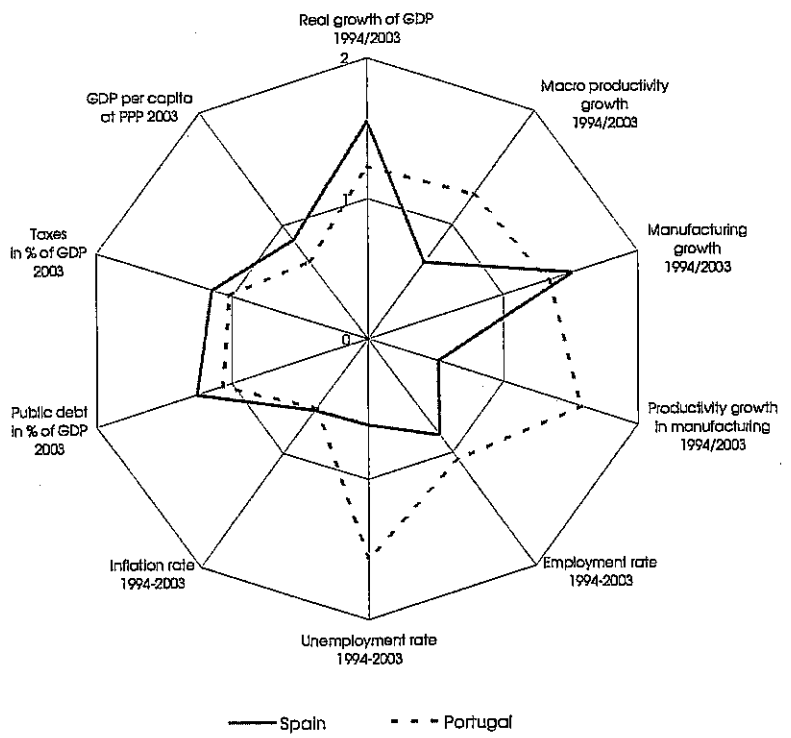
4. PRODUCTIVITY, EMPLOYMENT, STRUCTURE AND POLICY

The long term growth rate of 4 % for each of the three southern peripheral countries has been achieved with different structures and policy priorities.

Spain split its 4 % growth rate into a productivity gain of 3.3 % and an increase in employment of 0.7 %. This was the lowest relative gain in productivity and the highest in employment; furthermore the employment intensity of growth was accentuated over time. Productivity growth decreased from decade to decade, while employment gains increased. This switch was supported by economic policy, since unemployment was high and employment rates low even compared to other peripheral economies. The mirror image of this situation is that productivity per worker has decreased relative to the EU benchmark. The investment ratio is only one percentage point higher than the EU average, the lowest value of all peripheral countries. Following Spain's accession to the EU in 1986, investment in automotive industries, as well as in chemicals and pharmaceuticals weakened the dominance of labour intensive sectors and the food industry within the manufacturing sector. Spain managed to fulfil the criteria for the Monetary Union and achieved rapid integration with other members of the EU-15. A strong tourism sector and globalising firms in the financial sector (which enjoy a strong position in South America) balance the deficit in manufacturing exports. Spain encouraged employment creation by enforcing fixed term labour contracts (as opposed to traditional, indefinite contracts with an implicit life-long character). While Spain reduced severance payments for traditional contracts, temporary contracts were made more attractive through higher severance payments and pension entitlements. Together, these measures make labour somewhat more flexible for firms and temporary contracts more acceptable for employees (partly compensating for the benefits of life-long contracts).

Figure 3: Performance of peripheral countries versus the EU





Source: WIFO calculations using AMECO.

Portugal used the lion's share of output growth to increase productivity, and only 0.3 % for employment. This reflects the higher productivity gap in the beginning, as well as the historically high employment rate and low unemployment. Investment was slightly below the EU average in the sixties, increasing to 25 % in the nineties and most recently remaining at this level. This trend towards higher capital intensity was supported by the investments of multinational firms (e.g. in the car industry), as well as by investment into infrastructure (partly financed by structural and regional funds) and by single public events (the World Fair, exhibitions, etc.). The deceleration of the catching-up process was never as strong as in Greece and in Spain, since the effects of the oil shocks were weaker. Nevertheless, convergence did not accelerate after Portugal joined the EU in 1986, perhaps due to the greater distance to the core countries of the EU-15 or because of the increasing competition of Ireland. Portugal is still specialised in many labour intensive industries, which are under pressure from new competitors in Eastern Europe. Portugal did manage to fulfil the Maastricht criteria, but growth has declined and the budget deficit has surged during the last several years.

Table 2: Growth in output, productivity and employment

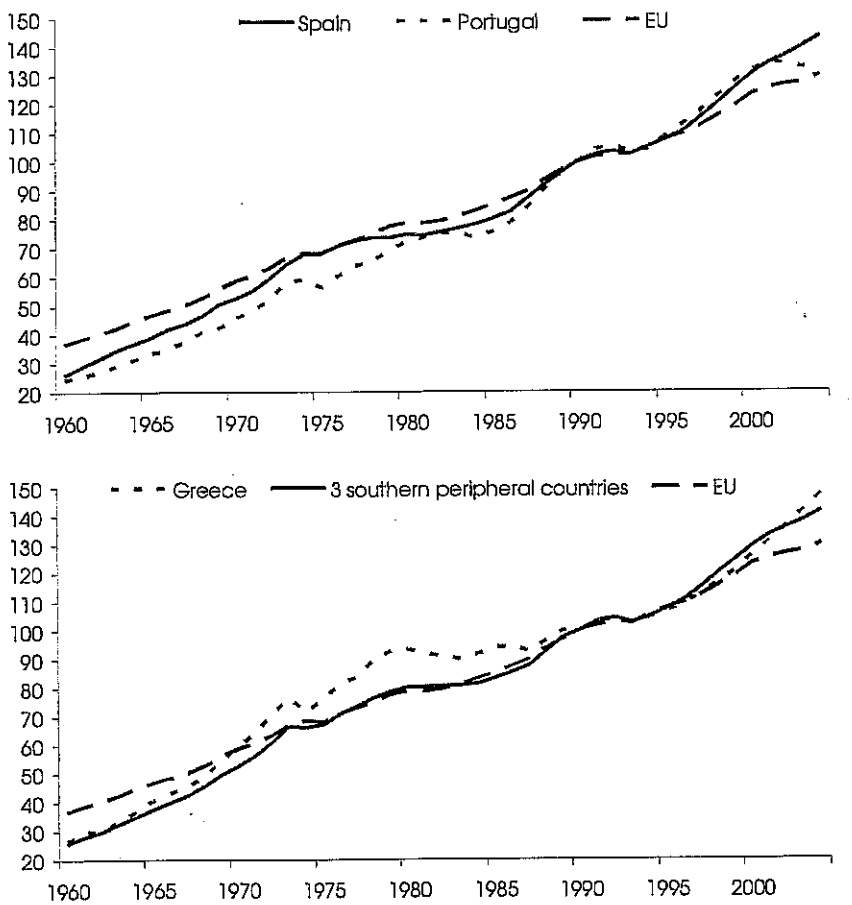
	Growth of real GDP					Productivity growth per worker					Employment growth				
Growth p.a.	Spain	Portugal	Greece	3 southern peripheral countries	EU	Spain	Portugal	Greece	3 southern peripheral countries	EU	Spain	Portugal	Greece	3 southern peripheral countries	EU
1961-1970	7.3	6.4	8.5	7.4	4.8	6.7	6.2	9.3	7.4	4.5	0.6	0.2	-0.8	0.0	0.3
1971-1980	3.5	4.7	4.6	4.3	3.0	4.2	4.7	3.9	4.3	2.6	-0.6	0.1	0.7	0.0	0.4
1981-1990	2.9	3.3	0.7	2.3	2.4	1.9	3.1	-0.3	1.5	1.7	1.1	0.2	1.0	0.8	0.7
1991-2000	2.7	2.8	2.3	2.6	2.1	1.3	2.1	1.6	1.6	1.7	1.3	0.7	0.8	0.9	0.5
2001-2004	2.5	0.4	4.0	2.3	1.4	0.5	0.2	3.1	1.3	0.9	2.0	0.2	0.9	1.0	0.6
1961-2004	4.0	3.9	4.0	4.0	2.9	3.2	3.6	3.5	3.5	2.5	0.7	0.3	0.5	0.5	0.5
1971-2004	3.0	3.2	2.7	3.0	2.4	2.2	2.9	1.8	2.3	1.9	0.8	0.3	0.8	0.6	0.5
1981-2004	2.8	2.6	1.9	2.4	2.1	1.4	2.2	1.0	1.5	1.6	1.3	0.4	0.9	0.9	0.6

Source: WIFO calculations using AMECO.

In Greece, the distribution of growth was similar to that in Portugal, although employment decreased in the sixties (despite very high growth rates of GDP) and recovered in the nineties. Greece has by far the highest investment ratio - approximately 30 % in the sixties and seventies and 25 % since then. Catching up was strong until the mid seventies, when the economy, which was highly intensive in capital and resources, suffered under the impact of the oil price shocks. Investment into the capital and resource intensive industries was not extremely successful, since the transport route towards Europe proved difficult and the situation was aggravated by the political problems in the Balkans. Relations with countries in the region were strained, since integration into Europe was less intensive than that of other EU members and foreign

foreign investment did not increase after admission to the EU in 1981. The nineties were more successful: infrastructure investment increased not only through the use of European funds, but also as a result of preparations for the Olympic Games. Economic relations with neighbouring countries (Turkey, Bulgaria, Romania, and successors of the Soviet Republic) improved. The determinedness not to stay out of the European Monetary Union helped to stabilise wages and budgets. Long-run catching up (specifically as compared to the position achieved in the seventies) has been very slow and the high investment rate will be difficult to sustain (particularly since public debt exceeds GDP and budget deficit increased sharply in 2004).[8]

Figure 4: Growth of real GDP (1990=100)



Source: WIFO calculations using AMECO.

[8] For in depth analysis of the development in the individual countries see Baer, Leite (2003), Gottheil (2003), Neal (2003), Oltheten et al. (2003).

In addition to income convergence, these trends indicate convergence in productivity and in employment rates (as well as in unemployment). They also underline the importance of policy choices (towards higher employment intensity in Spain, investment into infrastructure in Greece), the influence of economic and political shocks, of specialisation, of geographic location, and specific events.

Table 3: Economic growth in the nineties in three performance groups

	1991/2000	1991/2004	1994/2004	2001/2004
Spain	2.7	2.6	3.1	2.5
Portugal	2.8	2.1	2.4	0.4
Greece	2.3	2.8	3.4	4.0
Southern peripheral countries (SPEC)	2.6	2.5	3.0	2.3
Ireland	7.2	6.4	7.5	4.5
Denmark	2.3	2.0	2.4	1.2
Finland	1.9	1.9	3.5	1.9
Sweden	2.0	1.9	2.9	1.7
Top 3 countries	2.1	1.9	2.9	1.6
Germany	1.9	1.5	1.4	0.6
France	1.9	1.7	2.0	1.3
Italy	1.6	1.4	1.7	0.9
Large 3 countries	1.8	1.5	1.7	0.9
EU	2.1	1.9	2.2	1.4
US	3.3	3.1	3.4	2.5

Source: WIFO calculations using AMECO.

5. GROWTH DIFFERENCES IN THE NINETIES

In this section we analyse economic policy during the nineties. We look at the efforts of the countries to regain price competitiveness and fiscal stability, as well as to become members of the European Monetary Union. We present indicators of product and labour market regulation and of whether the countries became more similar to other European countries. We also investigate physical investment, the relation between construction and machinery, and the role of foreign direct investment. Finally, in the hope of learning more about the future speed of catching up, we look at whether the deficits in intangible investment between these countries and the EU have become larger or smaller.

Differences in cost reduction strategies

Wages, as well as unit labour costs, are increasing faster in peripheral countries (see Table 4). Wage dynamics have always posed a problem for price stability in these countries. This partly mirrors the catching up of wages, although in comparison to productivity, wage dynamics is relatively high. Both wages and unit labour costs have been increasing strongly in the Iberian countries, less in Greece. All three currencies were devaluated: in Greece by 40 %, in Portugal by 10 %, and in Spain by 22 %. The differences between wages and productivity became smaller in the nineties, probably due to the realisation that currency devaluations would no longer be possible if the countries were serious about joining the European Monetary Union.

Taxes relative to GDP are stable in Spain, but increased by 10 percentage points in Portugal and Greece, approaching the EU average in 2003 (see Table 4). Spain is clearly an outsider, maintaining a constant tax rate and raising this cost advantage versus the EU with five percentage points. The corporate tax rate decreased parallel to that of the EU; with the exception of Portugal, it is still above the EU average. Public expenditures are decreasing and are below the EU average in Spain, while they are increasing and approaching the high EU rate in Portugal and Greece. Public debt is still higher than GDP in Greece, lower than the EU average in Portugal, and lowest in Spain, at 48 % of GDP. Social expenditures are 4 % lower than the EU average (23 % vs. 27 %), increasing in Portugal and Greece more strongly than in the EU, while in Spain they are remaining nearly constant, at seven percentage points below the EU average. Spain has a nearly balanced budget, while Portugal is fighting with the maximum deficit allowed by the Stability and Growth Pact; Greece has established a relatively sound current fiscal position, but incurred high costs for the Olympic Games in 2004 (and started with a debt larger than GDP). In summary, relative to the other countries, Spain has achieved the best cost position, with nearly constant unit labour costs, the lowest overall tax rate (with the partial exception of corporate taxes, which are lower in Portugal), the lowest amount of debt and the best budget balance. To a certain extent, this position is "achieved" at the cost of less coverage for social risks.

Table 4: Indicators of cost dynamics and fiscal policy

	Spain	Portugal	Greece	3 peripheral countries	EU
Wages					
Growth 1984/1993	9,0	9,7	4,3	7,7	6,1
Growth 1994/2004	5,3	6,3	7,6	6,4	4,0
Unit labour costs					
Growth 1984/1993	5,4	6,2	2,0	4,6	3,4
Growth 1994/2004	1,0	3,7	3,9	2,9	1,6
Currency					
1990	100,0	100,0	100,0	100,0	.
2002	77,9	90,5	59,1	75,8	.
Taxes in % of GDP					
1990	38,8	35,4	34,5	36,2	43,4
1995	38,4	39,6	40,9	39,6	46,1
2004	40,0	43,5	44,0	42,5	45,3
Corporate tax in % of GDP					
1990	35,0	40,2	46,0	40,4	37,7
2002	35,0	30,0	37,5	34,2	30,6
Government expenditures in % of GDP					
1990	45,5	42,0	50,2	45,9	48,9
1995	45,0	45,1	51,0	47,0	51,3
2004	39,5	47,1	47,2	44,6	47,9
Public debt in % of GDP					
1990	43,1	57,7	74,8	58,5	52,8
1995	65,2	64,2	105,7	78,4	70,6
2004	48,0	61,2	102,8	70,7	64,3
Social costs in % of GDP					
1990	19,9	15,2	22,9	19,3	25,5
2000	20,1	22,7	26,4	23,1	27,3
Budget deficit in % of GDP					
1990	-6,7	-6,6	-15,7	-9,7	-3,6
1995	-6,6	-5,5	-10,2	-7,4	-5,1
2004	0,4	-3,5	-3,2	-2,1	-2,6

Source: WIFO calculations using AMECO.

Differences in regulation and liberalisation

The three peripheral countries have slightly tighter product market regulation as compared to the EU average and considerably stronger labour market regulation. Changes in regulation were below the EU average in all three peripheral countries, so that the differences in the regulatory schemes between the southern peripheral countries and the EU have increased.[9]

[9] For more information on the OECD Regulatory Database see Nicoletti, Scarpetta (2002) and Nicoletti et al. (2001).

Table 5: Regulation in product and labour markets

	PMRSTAT	PMRDyn			EPL total			EPL Regular contracts			EPL Temporary contracts		
	1998	1990	1998	1998-1990	1990	1998	1998-1990	1990	1998	1998-1990	1990	1998	1998-1990
Greece	2.2	5.67	5.08	-0.59	3.6	3.5	-2.8	2.8	2.6	-7.1	4.5	4.5	0.0
Spain	1.6	4.32	3.24	-1.08	3.7	3.2	-13.5	3.8	2.8	-26.3	3.5	3.7	5.7
Portugal	1.7	5.29	4.13	-1.16	4.2	3.7	-11.9	5.0	4.3	-14.0	3.5	3.2	-8.6
3 peripherd countries	1.8	5.09	4.15	-0.94	3.8	3.5	-9.4	3.9	3.2	-15.8	3.8	3.8	-1.0
Top 3	1.5	4.45	2.58	-1.87	2.7	2.0	-25.0	2.5	2.3	-5.4	2.9	1.6	-44.3
Large 3	1.9	4.97	3.61	-1.36	3.5	3.1	-12.4	2.8	2.8	2.4	4.2	3.3	-21.6
EU	1.6	4.73	3.26	-1.46	2.9	2.4	-15.0	2.7	2.5	-5.4	3.1	2.3	-23.4

PMR = Product market regulation; STAT = Static indicator (1998 only); DYN = Dynamic indicator for network industries; EPL = Employment regulation; Top 3 countries : Denmark, Finland, Sweden; Large 3 continental countries: Germany, France, Italy.

Source: WIFO calculations using OECD Regulatory Indicators.

For product market regulation, the difference is not large as far as openness and state ownership are concerned (see the static indicator of product market regulation in Table 5). The difference is larger for the liberalisation of network industries. In this respect, Greece is the laggard as far as level and change are concerned; Spain has traditionally liberalised network industries, and liberalisation is presently in line with the EU average. Portugal has also liberalised, but not to the extent of other European countries.

Portugal and Greece have the most tightly regulated labour markets of all EU members and did not deregulate strongly in the nineties. Greece today has the tightest regulation of temporary contracts. Spain drastically changed the rules for regular contracts and is approaching the EU average, although temporary contracts are strictly regulated (and regulation has been increased). Today, most new employees are only hired under temporary contracts. The strategy seems to be making labour more flexible for firms, while giving some security to employees, who are now accustomed to only being offered contracts with time limits. To a certain extent, regulatory rules are substituting financial payments (low social security expenditures as mentioned above).

Differences in physical investment

For medium-income countries, the most important growth drivers are physical investment in general and specifically the ability to attract foreign capital. Secondary education is important for the skills needed at this stage of development, for upgrading existing structures (shifts from agriculture to manufacturing etc.) and for implementing new technologies. Tertiary education, research development and investment into ICT are growth drivers, which are becoming more important to leading countries, and which may indicate the future speed of convergence (Aiginger, 2004A).

Table 6: Investment into the future growth

	Spain		Portugal		Greece		3 peripheral countries		EU		3 peripheral vs. EU	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
Total investment in % of GDP	22.2	21.2	23.3	24.3	22.1	21.3	22.5	22.3	19.7	18.1	1.144	1.227
Investment in equipment in % of GDP	8.1	7.5	10.4	10.2	6.6	8.3	8.4	8.7	8.3	7.8	1.012	1.115
Investment in construction in % of GDP	14.1	13.8	12.8	14.0	15.5	13.0	14.1	13.6	11.4	10.4	1.239	1.310
Direct investment (stocks) in % of GDP		25.8		26.4		11.0		21.1	1.6	6.9		3.034
Secondary education (share of employment)	23.0	53.0	14.0	29.0	36.0	66.0	24.8	49.3	52.5	70.2	0.453	0.703
Tertiary education (share of employment)	14.0	32.0	8.0	11.0	13.0	22.0	11.7	21.7	18.8	25.0	0.621	0.867
R&D in % of GDP	0.4	0.9	0.3	0.8	0.2	0.7	0.3	0.8	1.3	1.9	0.226	0.422
Business expenditure in % of GDP	0.5	0.5	0.1	0.1	0.1	0.1	0.2	0.2	1.0	1.1	0.245	0.215
Publications per 10000 residents	3.2	5.3	1.1	2.8	2.5	4.1	2.3	4.1	6.6	9.0	0.349	0.457
Patents per 10000 residents	0.6	0.6	0.1	0.1	0.4	0.4	0.4	0.3	2.2	2.3	0.161	0.149
ICT expenditure in % of GDP	2.4	6.8	3.2	7.0	2.8	6.1	2.8	6.6	3.7	6.4	0.753	1.037
IT expenditure in % of GDP	1.0	2.0	1.0	1.7	0.6	1.1	0.9	1.6	1.7	2.7	0.515	0.581
TLC expenditure in % of GDP	1.4	4.8	2.2	5.3	2.1	5.0	1.9	5.1	2.0	3.7	0.950	1.373
PCs per 100 residents	3.8	11.9	3.5	9.3	2.2	6.0	3.2	9.1	9.8	27.5	0.329	0.331
Internet users per 100 residents	0.1	11.6	0.3	7.0	0.0	7.1	0.1	8.5	0.5	19.3	0.257	0.443
Cellular mobile subscribers per 100 residents	0.5	37.4	0.4	47.7	0.0	37.7	0.3	40.9	2.2	44.4	0.128	0.923
Share of technology driven industries/value added	15.4	15.5	9.6	10.5	7.8	6.7	10.9	10.9	17.2	19.6	0.634	0.559
Share of skill intensive industries/value added	9.8	10.7	6.9	7.4	7.2	4.8	8.0	7.6	14.2	14.5	0.561	0.525
Share of ICT industries/value added	5.6	3.5	3.7	4.0	2.3	2.2	3.9	3.2	6.6	7.3	0.584	0.447

All three peripheral countries have higher investment shares than the EU, and all seem to be increasing their efforts to support investment (Table 6). The gap to the average EU investment ratio widened to more than four percentage points[10].The difference is larger for construction than for machinery. Foreign Direct Investment is high and increasing in Spain and Portugal, albeit lower than in Ireland and is not well connected to endogenous firms[11] . Inward investment flows are disappointing in Greece and lower in 2001 (1.4 % of GDP) than in 1990. In all three countries, the investment stocks of foreign firms are higher relative to GDP (weighted EU average), with high shares in Spain and Portugal (26 %), while Greece is again lagging at only 11 %. The relative size of inward stocks has doubled in Spain over the past ten years, and has also increased in Portugal (where data are available only from 1995 on)[12].

[10] This was already the case up to 2000, but the situation was accentuated in the years after 2000. For the difficult years of 2001/2004 the investment share in GDP was 25.7 % for the SPECs and 20.5 % for the EU (Table 7).

[11] For differences between Ireland and Portugal see Tavares (2002).

[12] In contrast, inward investment flows in Ireland were between 15 % and 28 % during the last four years. They were below 1 % of GDP in the early nineties.

Table 7: Growth of investment and investment rate

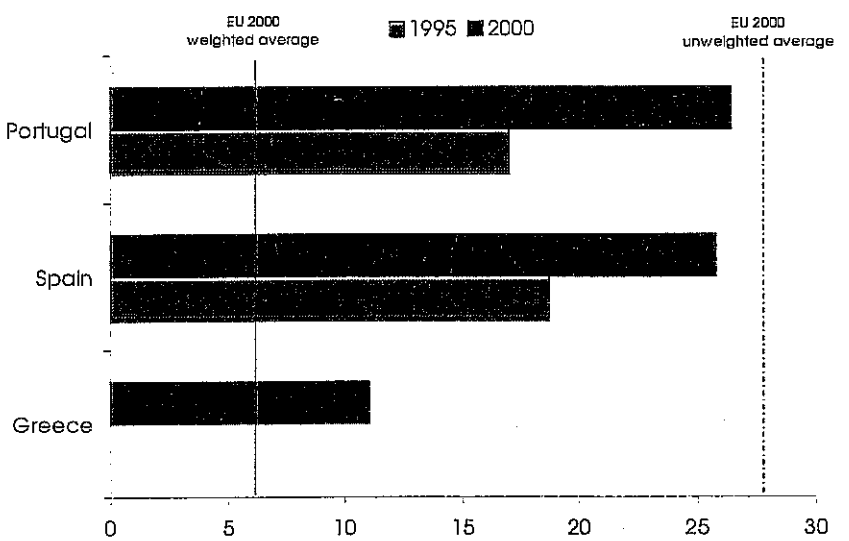
	Growth of real investment							Investment as a percentage of GDP					
Growth p.a.	Spain	Portugal	Greece	3 southern peripheral countries	Ireland	EU	Average	Spain	Portugal	Greece	3 southern peripheral countries	Ireland	EU
1961-1970	11.8	10.5	14.4	12.2	9.4	5.7	1961-1970	23.1	19.2	29.6	24.0	20.4	24.4
1971-1980	1.8	4.9	1.1	2.6	4.8	1.3	1971-1980	23.2	21.7	30.7	25.2	25.0	23.2
1981-1990	4.9	3.3	-1.2	2.3	2.3	2.4	1981-1990	20.5	20.4	20.2	20.4	20.8	20.1
1991-2000	2.7	4.8	4.5	4.0	7.7	2.0	1991-2000	23.1	25.1	20.7	23.0	19.5	20.6
2001-2004	2.8	-4.0	7.4	2.0	-0.9	-0.1	2001-2004	25.1	25.7	26.4	25.7	19.0	20.5
1961-2004	5.0	4.9	4.8	4.9	5.4	2.6	1961-2004	22.7	22.0	25.4	23.4	21.2	21.9

Source: WIFO calculations using AMECO.

The peripheral countries are lagging in education, but are catching up quickly. The share of workers with secondary educations more than doubled between 1990 and 2000 (from 24 % to 49 %), while the share of those with tertiary educations grew from 11 % to 22 %. The difference to the EU average decreased for both at a surprising speed. Greece is very close to the European average in both categories; Spain has a higher share than the EU average in tertiary education, but only 53 % for secondary educations, as compared to 70 % in the EU. Portugal faces a dramatic deficit in both categories, with the absolute difference to the EU average increasing.

ICT expenditures in all three peripheral countries are near or slightly higher than the EU average, mainly since investment into infrastructure is high in all three economies; investment into software is definitely lower; together, these factors result in a moderately or slightly better position for total ICT expenditures. The use of PCs and the Internet is disappointingly low, with the least difference between Spain and the EU. Up to 2000, catching up was very slow for these two indicators.

Figure 5: Direct investment as a percentage of GDP



Source: OECD.

In all three countries, research expenditures more then doubled relative to GDP, reaching 0.8 % in 2000, as compared to 0.3 % in 1990. The highest rate is presently in Spain (0.9 %), while Portugal invests 0.75 % and Greece takes last place (0.67 %). In the EU, R&D expenditures amount to 2 % of GDP. Skill intensive industries enjoy a relatively large share in Spain, partly reflecting the investments of multinational firms. In general, the share of skill, technology and ICT driven industries is not increasing, but rather loosing ground slightly in the three peripheral countries, indicating increasing specialisation between core and peripheral countries.

6. CONCLUSIONS

(1) The majority of economic models explaining economic growth predict that countries with lower incomes will grow faster (income convergence). Between 1960 and 2004, the three southern peripheral European economies managed to bridge about half the difference between their income levels and the average EU-15 income level. Spain is now at 88 %, Portugal 68 % and Greece 75 % of European per capita income (starting from 61 %, 42 %, 51 % in 1960). Ireland, where in 1960 per capita income was only slightly higher than in Spain, has overtaken the EU average in GDP (although not in national income per capita or per capita wage).

(2) The convergence process was anything but smooth. Convergence was fast between 1960 and 1973. This process was interrupted for more than a decade with Spain and Greece increasing the income difference, and Portugal converging very slowly. In Portugal and Spain, convergence resumed in the mid eighties (at approximately the same time as they joined the EU), while Greece did not return to the convergence path until the mid nineties. Its position today is only one percentage point closer to the EU average than it was in 1970 and the per-capita-income gap is larger than at the start of EU membership in 1981. The good news is that all three peripheral countries did grow faster than the EU in the nineties, and Greece and Spain continued to grow faster in the years 2000/2004.

(3) Aside from economic determinants, convergence seems to be determined by economic shocks (oil crisis), political developments (foreign relations, influence of trading partners), and economic policy (e.g. how determined a country is to become a member of the European Monetary Union). The overall growth rate proved to be 4 % per annum (1961-2004) for all three countries, one percentage point higher than the EU average. It was used to a greater extent to boost productivity in Portugal, and to a higher degree to increase employment in Spain, mirroring the historically high employment (and low unemployment ratio) in Portugal against the high unemployment/ low employment history of Spain.

(4) Of the economic determinants, catching up was made possible by investment ratios far above those of other European countries. Investment in relation to GDP is higher in all three countries and is today higher than at the beginning of the nineties. The largest difference is evident in construction investment, which is boosted by internal demand, European programs and specific events (world fairs, exhibitions, Olympic Games). Investment in manufacturing is supported by the direct investment of foreign firms, which is high in Spain and Portugal, but disappointing in Greece. In all three southern economies, direct investment is lower than in Ireland.

(5) All countries managed to jump forward in secondary education, doubling the share of the workforce with secondary educations. Greece is very close to the European average in secondary and tertiary educations; Spain has a higher share than the EU average in tertiary education, but is below the EU average in secondary education (53 % vs. 70 %). Portugal faces a dramatic deficit in both categories, with the absolute difference to the EU average increasing. All countries have low rates of research expenditures, even if they doubled their efforts, specifically those financed by the public sector. Investment into telecom hardware is near the European average or higher, due to investment into infrastructure (inter alia for cellular phones). Internet and PC use is disappointingly low. The share of sophisticated industries is low and less dynamic than on average in Europe, indicating a slight polarisation in industry structure. Since the three countries joined the European Monetary Union, wages (which used to rise faster than productivity) have been more in line with productivity, anticipating that devaluation was not longer feasible. Budget deficits were curtailed successfully, but are re-emerging in Portugal, and in Greece (in the wake of the Olympic Games; on top of a debt which is higher than GDP). Taxes were raised to balance the budgets, to increase investment and social expenditures.

(6) The experiences of the three southern peripheral European countries demonstrate that convergence is working in the long run in an integrating economic area. However, it is taking place at a slow speed, and income convergence is stronger than productivity convergence. Policy seems to be more important than simple growth models indicate, and convergence may be interrupted for more than a decade by external or internal shocks. On the other hand, the countries demonstrate the policy strategies promoting foreign direct investment, infrastructure, and education can support growth and convergence. The attempts to reform institutions and to regain fiscal stability did not prevent, and maybe even reinforced the convergence process in the nineties. This is good news for the countries joining the European Union in 2004. The long-run experience of these countries however also indicates that convergence is not a law, but rather a bumpy process in need of prudent pro active policy.

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