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June 16, 1999

To: Members of the Executive Board

From: The Secretary

Subject: **Spain—Selected Issues and Statistical Appendix**

This paper provides background information to the staff report on the 1999 Article IV consultation discussions with Spain, which was circulated as SM/99/131 on June 7, 1999.

Mr. Gerson (ext. 37729) or Mr. Mauro (ext. 37712) is available to answer technical or factual questions relating to this paper prior to the Board discussion.

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SPAIN

Selected Issues and Statistical Appendix

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Approved by European I Department

June 15, 1999

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Basic Data

Area	504,800 square kilometers
Population 1998	39.4 million
Labor force 1998	16.3 million
GDP per capita (in thousands of pesetas) 1996	Ptas 1,873 (US$12,537)

Use and supply of resources (1998)	In billions of pesetas	In percent
Private consumption	51,115.6	61.8
Public consumption	13,029.0	15.8
Fixed investment	17,627.4	21.3
Stockbuilding	218.7	0.3
Gross domestic expenditure	81,990.7	99.2
Exports of goods and services	23,936.5	29.0
Imports of goods and services	23,276.9	28.2
Gross domestic product	82,650.3	100.0

Selected economic indicators (annual percentage change)	1996	1997	1998
Real domestic demand	1.6	2.9	4.9
Real GDP at market prices	2.4	3.5	3.8
Unit labor costs in manufacturing	4.9	1.3	1.6
Consumer prices (period average)	3.6	2.0	1.8
Consumer prices (end-of-period)	3.2	2.0	1.4
Unemployment rate (period average)	22.2	20.8	18.8
Public sector accounts (in percent of GDP)			
General government			
Current revenue	39.1	39.6	40.0
Current expenditure	39.9	38.7	37.8
Capital expenditure (net)	3.7	3.6	3.9
Overall balance (Maastricht definition)	-4.5	-2.6	-1.8
Balance of payments (in billions of pesetas)			
Trade balance	-2,029	-1,928	-2,775
Net invisibles	2,060	2,269	2,564
Current account balance	31	341	-211
(in percent of GDP)	0.0	0.4	-0.3

Exchange rate per U.S. dollar 142.61 on December 31, 1998

Sources: Data provided by the Spanish authorities; and Fund staff estimates.

I. THE ROLE OF HUMAN CAPITAL IN ECONOMIC GROWTH: THE CASE OF SPAIN[1]

A. Introduction

1. Human capital accumulation is one of the key determinants of economic growth, for both developing and advanced countries. This is evident in the case of Spain, where it may be argued that convergence in schooling attainment toward the European Union (EU) average has been an important factor underlying convergence of per capita incomes over the past decades. In spite of past improvements, however, the average educational attainment of the Spanish labor force is still below the European Union. Therefore the scope exists for further educational catch-up and indeed this process has accelerated in recent years, following changes in the Spanish educational system that included increases in compulsory schooling age. These changes have already had a significant impact and will continue to do so in the next decades, with highly educated youth entering the labor force and older, less educated workers retiring.

2. This chapter constructs an index of human capital for the Spanish labor force over 1977–97 and projects it over the next decade on the basis of likely demographic developments. The methodology by which the index is constructed considers both educational attainment resulting from formal schooling and improvements in workers' productivity resulting from experience, or "learning by doing." Furthermore, it allows for the fact that people with higher education accumulate human capital through learning by doing at a faster pace than less educated workers or, in other words, that the full returns to formal schooling are realized with a lag of many years. Using this index, a growth accounting exercise is conducted to estimate the impact of human capital accumulation on economic growth over 1978-97. Finally, potential output growth is projected for 1998–2003, taking into account the impact of human capital accumulation.

3. The **main result** is that the index of human capital has risen considerably, and at an increasingly rapid rate over the past two decades. The key factor underlying that increase in the growth rate of human capital is that the baby boom generation went through secondary schooling, and was therefore able to accumulate human capital through "learning by doing" at a comparatively rapid pace. As a result of institutional changes, demographic developments, and their interaction, over the next decade human capital is projected to grow at a slightly higher rate than that experienced in the last decade. Consistent with that result:

- in the growth accounting exercise, it is found that the contribution of human capital accumulation to economic growth has been considerable over the past two decades, and has risen within that period; and

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[1]Prepared by Enric Fernandez and Paolo Mauro.

- looking ahead, the contribution of human capital accumulation to economic growth in the next decade is estimated to remain very important, and slightly larger than that observed over the last decade.

4. More generally, the estimation of potential output and output gaps using a more refined technique that takes into account the role of human capital permits a more accurate assessment of the potential for noninflationary output growth, as well as of the stance of policies, and of fiscal policy in particular. The latter objective has become even more important in light of Spain's commitments entailed by the Stability and Growth Pact under European Monetary Union. As always in the case of potential output growth projections, a number of caveats are in order, and this is even more so in the case of Spain, given the large uncertainty over developments in its nonaccelerating-inflation rate of unemployment. Under a set of assumptions that are described below, potential output growth over the next few years is projected at about 3.6 percent, slightly above that obtained by using standard methodologies.

5. The chapter is organized as follows. Section B reports international comparisons of educational attainment. Sections C–F describe the methodology used to construct the index of human capital and to project it into the future. Section G conducts a growth accounting exercise and presents a scenario for potential output growth in 1998–2003 that takes into account the role of human capital. Section H concludes.

B. International Comparisons of Educational Attainment

6. Average educational attainment for the working age population (aged 25–59) in Spain is still one of the lowest in the EU, and substantially below the EU average: in 1995, the proportion of people who had completed at most lower secondary education (as defined by Eurostat) was 69 percent, compared with an average of 41 percent in the EU as a whole (Table 1, top panel). One of the factors underlying this result is simply that schooling was compulsory in Spain only up to 14 years of age until 1990, whereas at that time the compulsory schooling age had already been 16 for a long time in Denmark, Finland, France, Germany, the Netherlands, Sweden, and the United Kingdom.[2] At the same time, Spain fares much less unfavorably at the top end of the educational ladder: in 1995, the proportion of people who had completed college or advanced vocational degrees in Spain was almost the same as in the case of the EU average.

7. However, educational attainment for the population aged 25–29 in Spain is closer to the EU average than that for the whole working age population: in 1995, the proportion of

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[2] OECD (1996) and Eurostat (1996) provide detailed international comparisons of educational systems and a broad range of statistical indicators on educational attainment.

Table 1. Spain: Educational Attainment in the European Union, 1995

(In percent)

Panel 1: population aged 25-59

	EUR15	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Low	41	29	43	19	30	38	17	54	51	62	55	20	76	69	24	47
Medium	40	62	33	53	48	43	60	31	29	30	28	58	12	14	47	31
High	19	8	25	28	22	19	23	16	21	8	16	22	12	17	29	22

Panel 2: population aged 25-29

	EUR15	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	UK
Low	31	20	27	10	15	24	13	32	33	49	53	14	63	48	10	43
Medium	49	72	41	65	65	49	70	46	38	44	33	64	24	23	63	34
High	20	8	32	24	21	27	17	21	30	7	15	22	14	29	27	23

Source: Eurostat (1996).

Notes: Low includes primary and lower secondary education; medium includes upper secondary education; and high includes college degrees and equivalent.

Spanish youth who had completed at most lower secondary education was 48 percent, compared with an EU average of 31 percent (Table 1, bottom panel). In addition, the proportion of youth who had earned college or advanced vocational degrees was 29 percent, compared with 20 percent in the EU as a whole.[3] Given that a comparison of educational attainment between Spain and the rest of the EU yields much more favorable results for the young than for the entire working age population, future demographic developments should result in much greater educational gains in Spain than in the rest of the EU.

C. Human Capital in Spain

Improvement in educational attainment

8. The improvement in average educational attainment over the past three decades has been impressive. The proportion of the population older than 16 years that had completed, at most, primary studies, declined from 93 percent in 1964 to 47 percent in 1998, and the proportion who completed college rose from 2½ percent to 11 percent over the same period (Table 2). (All data used in this chapter and the exact definitions of educational categories are described in detail in Appendix I.) The improvement is even more marked when only labor force participants are considered, since those who have already retired have, on average, lower levels of education than the younger generations and, in general, participation rates are lower for the less educated.

9. Such improvement results mainly from a continued increase of enrollment rates in post-compulsory education, but also from increases in the compulsory schooling age. In 1970, education became compulsory up to the age of 14. In 1990, compulsory education was extended up to 16 years of age. In 1998, the effects of the reform of 1990 became complete: pupils that had enrolled in school at age 6 in 1990 reached age 14, and began the two years of school that the reform had made compulsory.

10. Improved educational attainment is a key factor underlying the evolution of human capital, but other factors such as "learning by doing" also play an important role; these are taken into consideration in constructing an index of human capital in the next section.

The index of human capital

11. This section describes the procedure used in this chapter to construct an index of human capital that takes into account not only formal schooling, but also other crucial

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[3] On a more negative note, the comparatively high proportion of people aged 25–29 that have completed college or advanced vocational degrees might be partly related to massively higher youth unemployment in Spain than in other countries.

Table 2: Educational Attainment in Spain, 1964 and 1998

(In percent)

	Primary		Secondary		College	
	1964	1998	1964	1998	1964	1998
Population >16	92.9	47.4	4.6	41.9	2.5	10.7
Labor force	92.6	31.3	4.0	52.1	3.4	16.6
Employed	92.6	31.6	4.0	50.9	3.4	17.5

Sources: Mas et al. (1995) and 2nd quarter EPA, *INE* (1998).

Note: See Appendix I for a definition of the educational categories.

determinants of workers' productivity, such as learning by doing and its interactions with formal educational attainment. The methodology is in the spirit of that applied to the United States by Jorgenson and others (1987): labor services are classified in different categories and weighted according to their average wage rate, the usual proxy for the marginal product of labor.

Methodology

12. The economy is assumed to be characterized by a constant returns to scale production function F:

$$Y = A * F[K, L]$$

where Y is output, A is a parameter representing the level of technology or "total factor productivity" (TFP), K is the stock of physical capital, and L is labor input adjusted for quality (human capital). Specifically, L is defined as the weighted sum of the work hours provided by different types of workers, that is:

$$L = \sum_s w_s N_s$$

where w_s is the weight of workers of type s and N_s is the number of work hours provided by group s.

For simplicity of exposition, L can be rewritten as

$$L = N * h$$

where N is the total number of hours worked in the economy, and h is defined as average human capital

$$h = \sum_s w_s n_s$$

where n_s is the proportion of work hours provided by workers of type s (i.e., N_s/N). Under these assumptions, the marginal product of work hours by workers of type s is:

$$MP_s = A F_L w_s$$

where F_L indicates the derivative of the function F with respect to L. If factor markets are competitive, then MP_s will also equal the hourly wage for workers of type s. The ratio of the marginal products of workers of different types will thus equal the ratio of their respective wages. Therefore, the above assumptions imply that work hours undertaken by different groups of workers will be weighted according to their respective wages.

Empirical implementation: relative wages by educational attainment, age, and gender

13. Turning to the empirical implementation of the above methodology, the index of human capital will be useful to the extent that workers are grouped according to characteristics that account for significant differences in wages. The characteristics considered in this chapter are educational attainment, age, and gender, three variables that previous studies have found to be among the key determinants of wages in a variety of countries (see, for example, Willis, 1986).

14. Not surprisingly, earnings depend on educational attainment, age, and gender to a major extent also in the case of Spain.[4] For example, among females aged 16–24, college educated workers earn 1.58 times what their primary-school educated counterparts do; among primary school educated females, those aged 55–64 earn 1.82 times as much as those aged 16–24; and among primary school educated workers aged 16–24, males earn 1.22 times as much as females. The differences become most pronounced when comparing college educated males aged 55–64 to females aged 16–24 with no more than primary education: in that case, the ratio of average earnings amounts to 8.36 (Table 3). (All earnings data refer to 1995.)

15. In determining wages, educational attainment, age, and gender also interact in interesting ways. For example, age-earnings profiles are steeper for males than for females.[5] Also, returns to secondary education appear to be much higher for women than for men: considering an average for workers of all ages, secondary education yields 43 percent higher earnings than primary education for women, compared with a differential of only 23 percent for men.[6] For the purposes of this chapter, the most interesting interaction is that between educational attainment and learning by doing: while male college graduates earn 85 percent more than their counterparts with primary studies when they are at age 25–34, they earn 175 percent more when they reach age 55–64. This fact also reveals that the full returns to formal schooling come with a lag of many years.

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[4] Data on hourly wages are not available at the required level of disaggregation (educational attainment, age, and gender). Earnings are therefore used as a proxy, assuming that average hours worked per worker are the same for all groups. Although there may be differences among the various groups in this respect, most of the differences in earnings are likely to reflect differences in hourly wages rather than in hours.

[5] This might be partly due to the fact that women interrupt their careers more frequently than men do, for example for child rearing, and to the fact that they hold relatively more part-time jobs than men do.

[6] This might explain why current enrollment rates in higher levels of education are higher for women.

Table 3. Spain: Earnings Ratios by Schooling, Experience, and Gender
(Female, up to primary education, age 16-24, normalized to 1)

Age group	16-24	25-34	35-44	45-54	55-64
Females					
Primary	1.00	1.49	1.95	1.98	1.82
Secondary	1.06	2.13	3.03	3.50	3.75
College	1.58	3.16	4.65	5.76	4.93
Males					
Primary	1.22	2.20	2.85	3.29	3.04
Secondary	1.29	2.71	3.94	4.82	4.94
College	1.90	4.08	6.72	8.23	8.36

Source: Own estimates based on Survey of Wage Structure, *INE* (1995).

16. Although the use of relative wages to proxy for relative productivity is standard, the results need to be treated with caution for a number of reasons. First, market distortions such as those that have bedeviled the Spanish labor market might imply that the assumption that labor inputs are paid their marginal product is not warranted. Second, education might simply act as a screening device, rather than contributing to workers' productivity. Education serves merely as a signaling device to allow high quality workers to identify themselves to potential employers. In that extreme scenario, although individuals could obtain higher wages by improving their education, increases in average educational attainment would have no impact on productivity. Third, education might simply be a "normal" consumption good. In that case, the correlation between high wages and formal schooling would result from the following mechanism: children of families with high incomes are more likely both to go through higher education and to have high wages (controlling for educational attainment) themselves.

D. Measures of Average Human Capital of the Labor Force

17. Average human capital at time t, h(t), is computed as

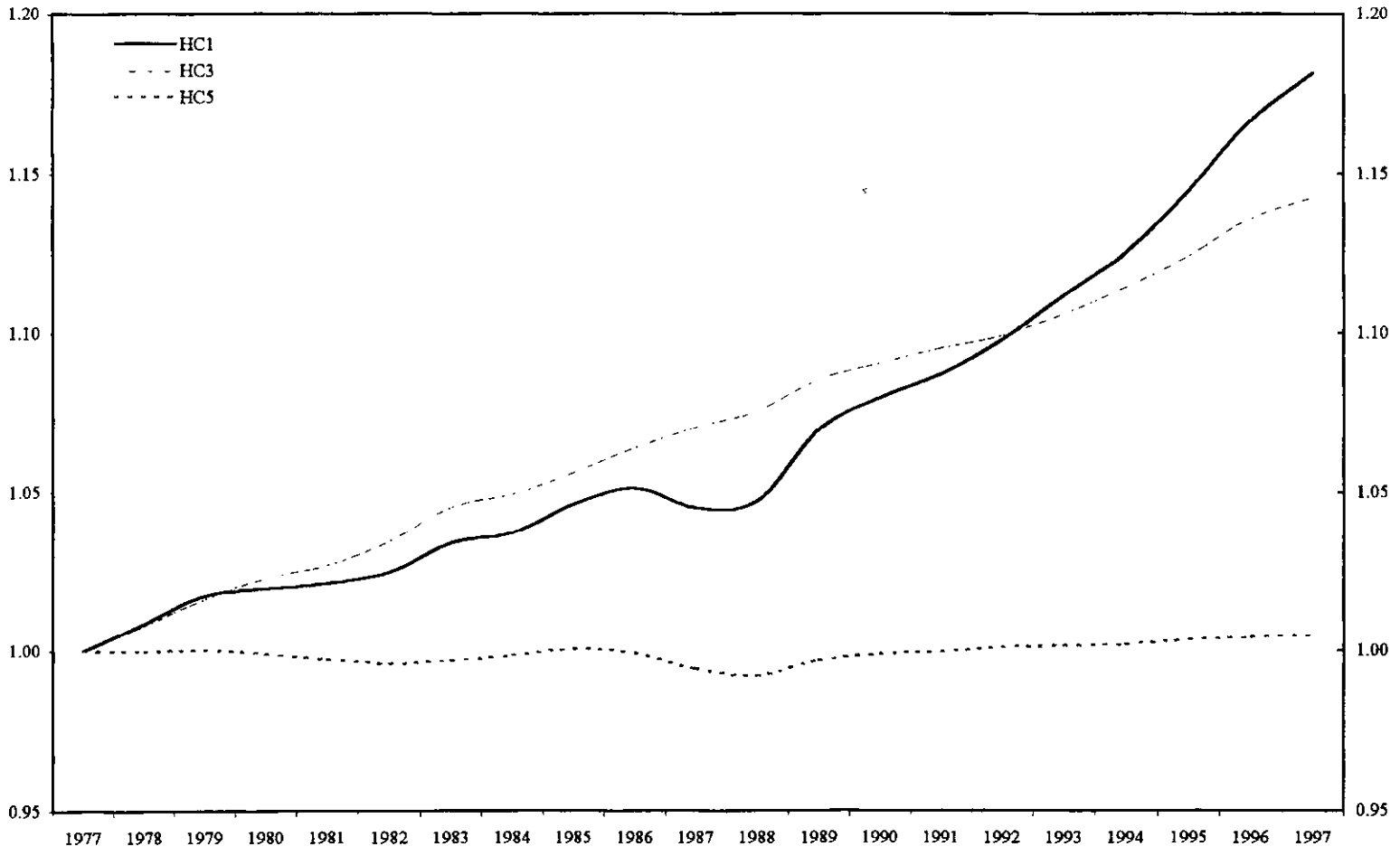
$$h(t) = \sum_{g,i,j} w_{g,i,j}\, n_{g,i,j}(t)$$

where $n_{g,i,j}(t)$ is the proportion of individuals of gender g, with schooling i, and in age group j, at time t, and $w_{g,i,j}$ is the corresponding weight given by the 1995 earnings ratios in Table 3, using the proportions of the labor force represented by the 30 groups (five age bands, three educational attainment categories, and two genders) listed in Table 3, for the years 1977–97.

18. The composition of the labor force changed considerably during that period (Appendix II). In 1977 (and still in 1987), the representative member of the labor force was a fifty year old male with primary education. In 1997, the representative member was a thirty year old male with secondary education. Women increased their presence in the labor force from a proportion of 29 percent in 1977 to 39 percent in 1997. Also, while in 1977 and 1987 the proportion of the labor force younger than 25 was close to 23 percent, in 1997 that proportion had fallen to 16 percent, as people increasingly enrolled in higher level education, thereby postponing their entry into the labor market. Among labor force participants aged 25–34, the proportion with secondary education became higher than that of those with primary education only in 1987. Among those aged 35–44, the same happened as recently as 1995.

19. Not only did the human capital index (computed using the above procedure, solid line in Figure 1) grow considerably between 1977 and 1997, but it also did so at an increasingly rapid rate. The average annual growth rates were 0.90 percent in 1978–97, 0.45 percent in

Figure 1. Spain: Different Indices of Average Human Capital (in logs), 1977-97



Source: National Statistical Institute; Fund staff estimates.

1978–87, and 1.36 percent in 1988–97.[7] This acceleration was not simply due to changes in educational attainment, or demographic factors, but rather to their interaction. This can be seen by considering two alternative indices of human capital constructed using the same methodology but taking into account only a subset of the factors listed above: one alternative index (dashed line in Figure 1) considers only educational attainment; another (dotted line in Figure 1) considers only age and gender. Neither alternative index displays the acceleration that characterizes the main index used in this chapter. An important factor underlying that acceleration is the fact that the baby boom generation went through secondary schooling, so that its subsequent human capital gains from learning by doing have been comparatively large.

20. A wide range of simpler indices that have been used in other studies (often owing to the limited availability of data) was also constructed, to show the differences between their behavior and that of the main index used in this chapter, which is based upon more solid theoretical foundations. (The growth rates for all indices and their cross-correlations are reported for 1977–97 in Appendix II.) These include, as mentioned above, (i) a measure based only on educational attainment (Barro and Lee, 1993), and (ii) a measure that weighs the labor force only according to age and gender (Hansen, 1985). Moreover, they include (iii) a measure based on educational attainment and gender only, (iv) the average number of years of schooling (Barro and Lee, 1993), and (v) the proportion of workers with secondary education (Serrano, 1997).

21. None of the alternative measures captures satisfactorily the behavior of the main index of human capital. The growth rate of the measures based on educational attainment only, educational attainment and gender only, and age and gender only are highly correlated with that of the main index of human capital. However, they do not capture its gradual acceleration during the period considered. The correlation coefficients between the growth rates of the indices based upon the average number of years of schooling or the percentage of the population with secondary education and that of the main index of human capital are even negative, suggesting that these alternative measures fail to capture crucial aspects of the process of human capital accumulation.

E. Projections of the Human Capital Index, 1998–2007

22. The human capital index is projected over 1998-2007 using the following procedure. The starting point is the population proportions for 54 groups sorted by age (nine 5-year

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[7] The same measure computed separately by gender shows that women's average human capital grew faster than mens' (1.66 percent versus 0.87 percent over the whole period, though both show similar increases in the growth rate). This counteracted the downward pressure on growth rates induced by faster increases in female participation rates than in male participation rates.

bands beginning at age 20), gender (two), and educational attainment (three levels as in Table 3) in 1997. Each of these groups will be five years older in 2002 and 10 years older in 2007—death rates (estimated by the National Statistical Institute for each age/gender group) are assumed to be independent of educational attainment. For groups aged 25 or older in 1997, transition rates from an education level to a superior one for each age/gender group are assumed to be the same as those observed over a typical five-year period in recent years. For groups aged 20–24 in 1997, enrollment rates are used. The projections are then compressed into 10-year age bands, and 1997 labor force participation rates for each age/gender/education group are applied to obtain the labor force structure in 2002 and 2007.[8] Finally, average human capital is computed for 2002 and 2007.

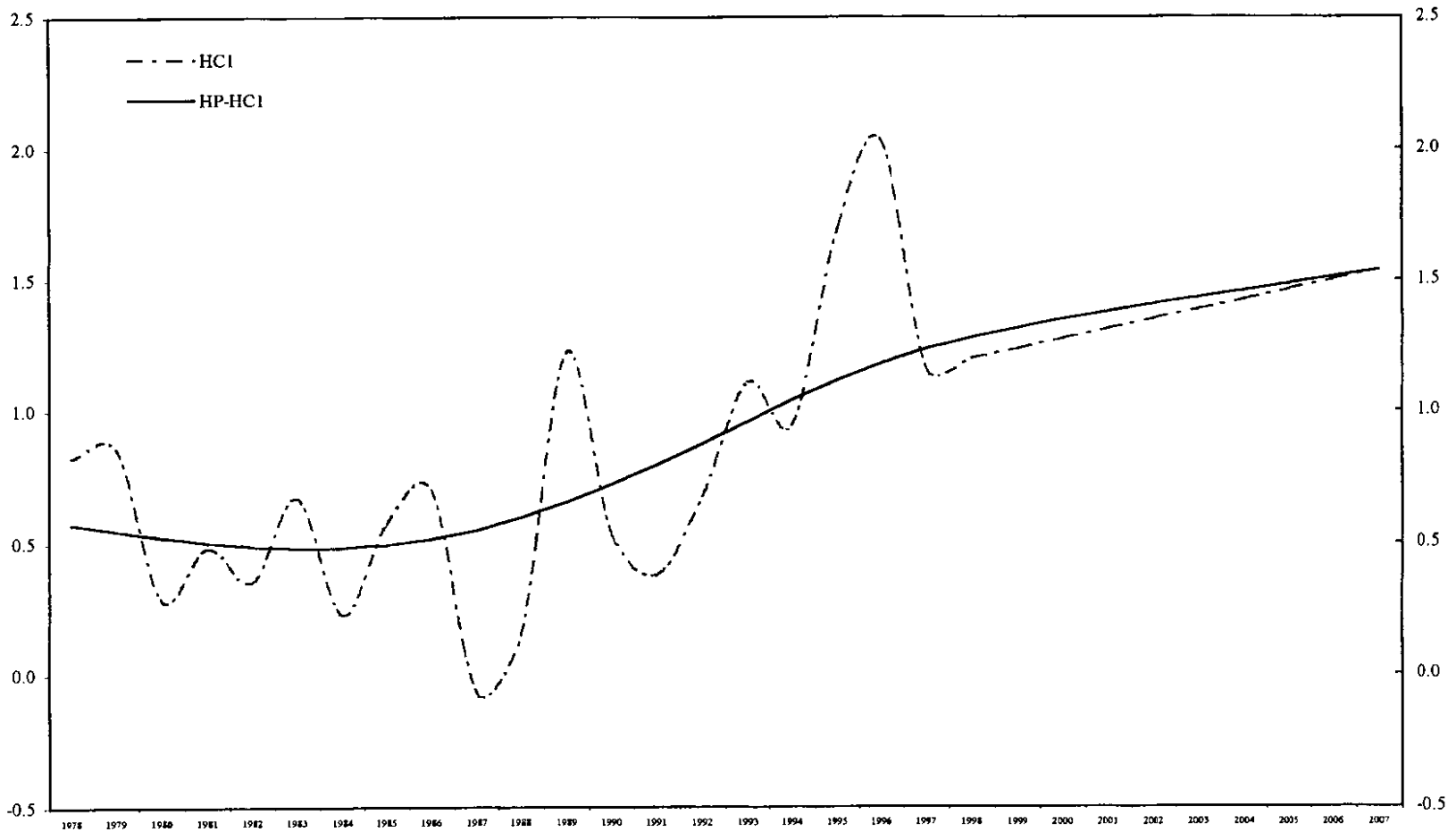
23. The growth rate of human capital over the next decade is projected to be slightly higher than in recent years. Specifically, average annual growth rates are 1.26 percent between 1997 and 2002, 1.25 percent between 1996 and 2002, and 1.36 percent between 1995 and 2002. (The results are reported for several base years as a sensitivity exercise). Projected average annual growth rates between 2002 and 2007 are 1.40 percent. By comparison, the average annual growth rate of the human capital index for the same portion of the labor force was 0.99 percent between 1987 and 1997. The fact that human capital is projected to rise faster than in recent years is also shown graphically, abstracting from cyclical developments, by applying the Hodrick-Prescott filter to the human capital index over 1977–2007 (Figure 2). The effects of the economic cycle on average human capital are explored in the next section.

F. The Effects of the Economic Cycle on Average Human Capital

24. Although this chapter focuses on medium-term developments in human capital and output, there are also interesting effects of the economic cycle on measures of average human capital. Concerning the average human capital of the labor force, it is well known that the most procyclical component of the labor force are the low skilled, who are the most likely to become "discouraged workers" in a downturn and to re-enter the labor force in a recovery. Therefore, one would expect the average human capital of the labor force to be countercyclical. Concerning the average human capital of the employed, it is also well known that the low skilled are the first workers to be dismissed in a downturn (the "cleansing effect" of recessions) and hired again in a recovery. Therefore, again one would expect the average human capital of the employed to be countercyclical. In addition, since the effects of the economic cycle are stronger on employment than on the labor force, one would expect the human capital of the employed to be even more countercyclical than that of the labor force.

[8] As a result, the overall labor force participation rate is projected to rise, as expected.

Figure 2. Spain: Average Human Capital for the Labor Force aged 25-64,
Past and Projections (growth rates in percent), 1978-2007



Source: National Statistical Institute; Fund staff estimates.

25. All of the predictions above are borne out by the data: years of negative employment growth and sharply increasing unemployment rates (such as the early 1980s) coincide with cyclical increases in the human capital index, whether measured on the basis of the labor force or employment (Figure 3). (A measure of average human capital for the whole population aged 16 to 64 is also reported to provide an idea of how human capital would evolve in the absence of cyclical developments.) Moreover, such increases are more pronounced for the average human capital index based upon the employed than for that based on the labor force as a whole. Conversely, years characterized by rapid employment creation and sharply declining unemployment (such as 1987) coincide with cyclical declines in the human capital index, which are more pronounced for the employment-based index than the labor-force-based index.[9]

G. Growth Accounting, 1978–97

26. Having constructed the index of human capital, it is now possible to estimate the contribution to economic growth resulting from human capital accumulation, in the context of a growth accounting exercise for Spain over 1978-97. The production function is assumed to be of the standard Solow form, $Y = A K^{1-\alpha} L^{\alpha}$, where Y is gross domestic product, K is physical capital, and L is labor, and the parameter α is, as usual, labor's share in national income (approximately 0.7 in Spain). However, labor is adjusted for quality by weighing workers of different educational groups, age, and gender according to their relative wages, as explained in Section C. In other words, the human capital index is entered as a multiplicative factor directly in front of the total number of people employed, N:[10]

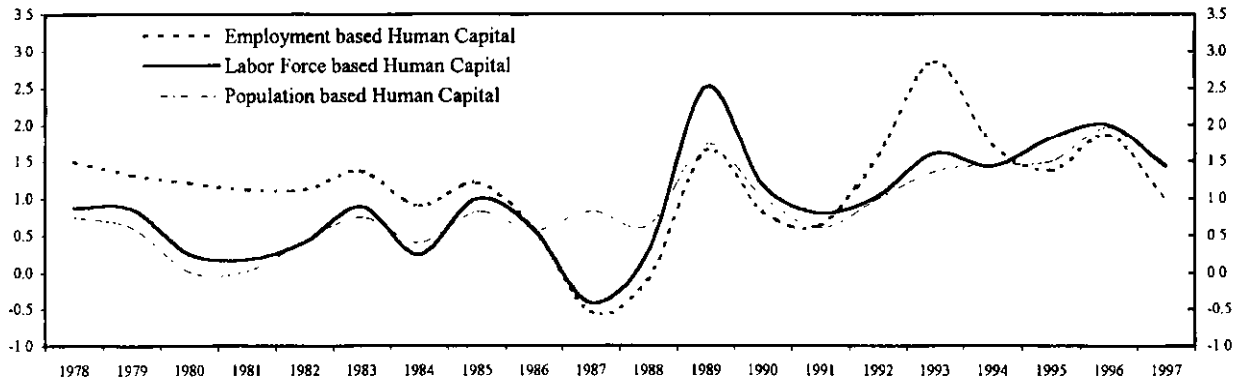
$$Y = A K^{1-\alpha} (hN)^{\alpha}$$

[9] At the same time, these effects have apparently not operated in the last two years, when rapid employment growth has been accompanied by relatively high growth in the human capital index, suggesting that perhaps the jobs created over the past two years were of higher quality than those created in previous upturns.

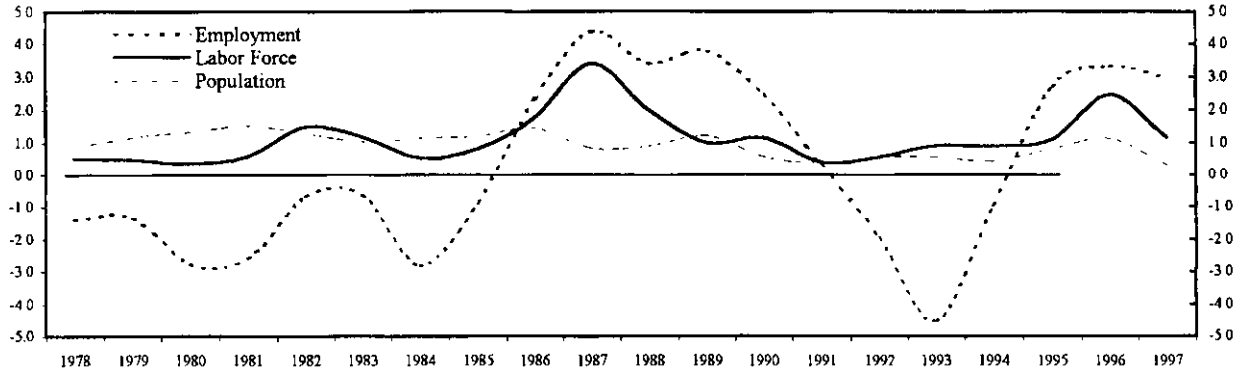
[10] This functional form is standard. Nevertheless, it is important to note that the choice of functional form can have important implications for the absolute size of the human capital contribution to economic growth. In fact, for example, the alternative functional form suggested by Mankiw, Romer, and Weil (1992), $Y = A K^{1-\alpha} h^{\beta} L^{1-\alpha-\beta}$, with β being typically assumed to equal 0.3, would result in a much lower contribution, because the growth rate of human capital would be multiplied by 0.3 instead of 0.7 as is the case with the form used in this chapter. At the same time, changes over time in the contribution of human capital accumulation would follow the same patterns using either methodology.

Figure 3. Spain: Cyclical Effects and Human Capital, 1977-97

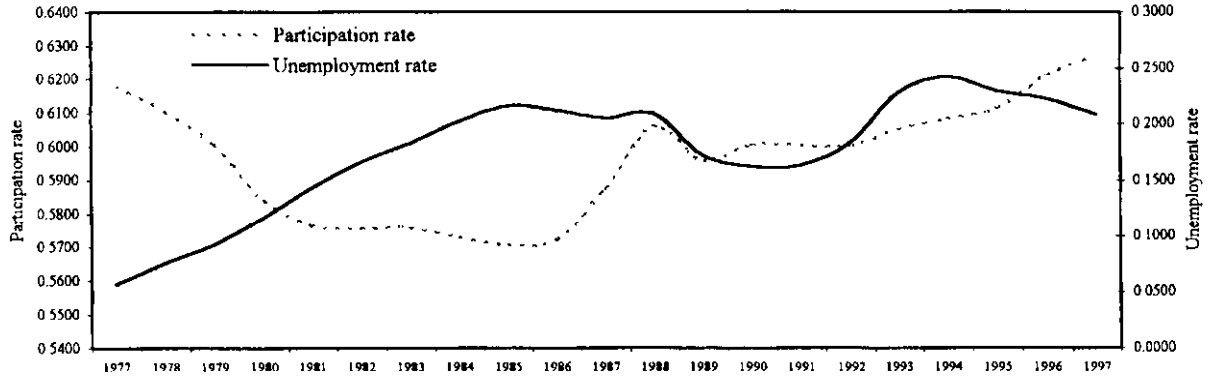
GROWTH RATE OF AVERAGE HUMAN CAPITAL



GROWTH RATES OF EMPLOYMENT, LABOR FORCE, AND POPULATION 16-64



PARTICIPATION AND UNEMPLOYMENT RATES



Source: National Statistical Institute; Fund staff estimates.

Output growth can therefore be accounted for in the usual manner, the only difference being that the contribution of labor can now be subdivided into the contribution of the total number of hours worked and that of average human capital:

$$\frac{\dot{Y}}{Y}=\frac{\dot{A}}{A}+(1-\alpha)\frac{\dot{K}}{K}+\alpha\frac{\dot{N}}{N}+\alpha\frac{\dot{h}}{h}$$

where dots indicate derivatives with respect to time.

27. In the estimation, the contribution of growth in the labor input is actually subdivided into that of three components: human capital, the number of hours worked per worker,[11] and the total number of people employed. The contribution of the growth of the number of people employed is further split into that of working age population growth, changes in the labor force participation, and changes in the employment rate (one minus the unemployment rate).

28. Considering the period 1978–97, about a third of overall GDP growth can be attributed to human capital accumulation, with another third accounted for by physical capital accumulation (Table 4). Indeed, had it not been for human capital accumulation, the contribution of growth in the input of labor would have been negative, given the decline in average hours worked per worker (resulting from both statutory reductions in weekly working hours and an increase in the share of part-time employment)[12] and zero growth in the number of people employed (as massive increases in the unemployment rate offset the growth of working age population). For easy comparison with the projection period, Table 4 reports the contribution of human capital accumulation using the labor-force-based index.[13]

29. Within the period 1978–97, abstracting from cyclical developments, there are interesting trends. Consistent with the increases in the growth rate of human capital shown in Section D, the contribution of human capital accumulation increased over time. By contrast,

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[11] Data limitations imply that the number of hours worked per worker needs to be assumed to be the same for all groups of workers.

[12] In 1980, the *Estatuto de los Trabajadores* reduced the work week from 48 hours to 40 hours. The share of part-time salaried employment increased from 5 percent in 1987 (the first year for which data are available) to 8 percent in 1997.

[13] The contribution of human capital accumulation in 1978–1997 is somewhat higher (0.81 percentage point per year, on average) if the employment-based human capital index is used, because of the impact of massive job-shedding especially in the early 1980s, as noted in Section F.

Table 4. Spain Growth Accounting 1978-97 and Potential Output Growth 1998-2003
(In percent)

	1978-97	1998-03	Assumptions for potential growth
GDP growth	**2.23**	**3.60**	
Accounted for by:			
Physical capital	**0.93**	**1.36**	The investment/GDP ratio is assumed to rise gradually from 21.3 percent in 1998 to 23.0 percent in 2003
Labor input	**0.43**	**2.24**	
Human capital 1/	0.63	1.16	Average human capital is projected to grow at an average annual growth rate of 1.66 percent
Employment	0.06	1.32	
Working Age Population	0.62	0.02	Working age population is assumed to grow at an average annual growth rate of 0.03 percent
Participation Rate	0.05	0.41	The participation rate is assumed to increase from 62.7 percent in 1997 to 64.9 percent in 2003
Employment Rate	-0.61	0.89	Trend unemployment rate is assumed to decrease from 20.3 percent in 1997 to 14 percent in 2003
Hours	-0.44	-0.24	Average number of hours worked is assumed to decrease 0.34 percent annually
Total factor productivity	**0.87**	**0.00**	

Sources: Instituto Nacional de Estadistica; Instituto Valenciano de Investigaciones Economicas; World Economic Outlook database; and Fund staff estimates.

1/ Average human capital of the labor force as computed in the text.

the contribution from working age population growth declined somewhat. Finally, the growth of total factor productivity (or the Solow residual—the unexplained factor in economic growth) decreased considerably (in line with the findings of other studies on Spain—see, for example, Nicolini and Zilibotti, 1996—and other countries—see, for example, Englander and Mittelstadt, 1988), even turning negative in a few of the most recent years.

H. Potential Output Growth, 1998–2003

30. Having estimated the contribution of various production inputs on economic growth over the past decades, it is possible to project future developments in these inputs and the resulting potential output growth over the next few years.[14] This section presents projections of potential economic growth in Spain during 1998–003. These must be treated with caution, since the margin of error is clearly very large. The approach taken here is to make explicit assumptions about the future growth rate of the various production inputs, and to highlight which of the assumptions are viewed as being based upon more solid foundations than others. The key assumptions are as follows.

- **The investment/GDP ratio** is assumed to rise gradually from 21.3 percent in 1998 to 23 percent in 2003. Such a rise is consistent with the rapid economic growth observed in recent years together with an "accelerator" view of investment, and possible increases in foreign direct investment into Spain as a result of European Monetary Union.

- **The human capital index** is assumed to rise at an average rate of 1.66 percent, using the projections presented in Section E. This is the main contribution of this chapter and the margin of error in this assumption can be viewed as being lower than for most of the other assumptions.

- **Working age population** is assumed to remain broadly stable over the next few years, in line with projections by Spain's National Statistical Institute, which are very accurate over such a short time frame.

- **The labor force participation rate** is assumed to rise gradually from 62½ percent in 1997 to 65 percent in 2003. Such an increase is consistent with a trend observed over

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[14] An additional exercise is to distinguish between past changes in output due to trend and cyclical developments, and use the results to assess inflationary pressures. The latter exercise is conducted through not only a production function approach that takes into account the role of human capital, but also, for purposes of comparison, alternative methodologies including the Hodrick-Prescott approach and a production function approach that considers a smaller number of inputs. Since the results of that exercise are not very sensitive to the introduction of human capital, they are reported in Appendix III.

the past decades and would bring Spain's participation rate only slightly below the EU average, which amounted to 68 percent in 1997.

- **The unemployment rate** is assumed to fall to 14 percent in 2003 (from 18½ percent in the second quarter of 1998), consistent with an assumed average employment growth of 2 percent a year over the period. These projections are subject to a large margin of uncertainty, but seem reasonable in light of developments in the labor market over the past few years.

- **The average number of hours** worked per worker is assumed to decline by 0.34 percent a year, roughly in line with past experience. Such a decline appears likely in light not only of the possibility of reductions in the work week, but also of the continued trend toward a higher share of part-time employment.

- **Total factor productivity** is assumed at zero. This is well below the average of the past two decades, but is consistent with a sharp downward trend observed not only in Spain (where total factor productivity growth was many negative in the most recent years), but also in other developed economies. Since total factor productivity is the unexplained portion of economic growth, by definition this is the assumption for which the least justification can be provided.

31. This set of assumptions implies an average growth rate of 3.6 percent for 1998–2003 (Table 4). There is a large margin of error in this figure and this should be taken as an illustrative scenario.

I. Concluding Remarks

32. This chapter constructs an index of human capital since 1977 and projects it over the next decade. It finds that the human capital contribution to economic growth has been large and has gradually increased over the last two decades; over the next decade it is likely to be slightly higher than that experienced over the past decade. For a given set of assumptions about other determinants of economic growth, this leads to higher projections of economic growth in the next few years. This consideration should be taken into account in assessing the current stance of macroeconomic policies and in setting medium-term economic objectives.

33. More broadly, the results of this chapter suggest that the gains from increases in formal schooling can be large, although they are translated into higher economic growth only gradually. Finally, the results suggest that the costs of youth unemployment in terms of foregone output are large, particularly for the better educated youth, because possible gains from learning by doing will be left unrealized. These costs might be overlooked because they will be felt more strongly only several years from now. These considerations provide an additional reason to pursue policies to solve that problem.

DATA DESCRIPTION

Educational categories:

The International Standard Classification of Education (ISCED) considers seven different categories. ISCED 0 is pre-primary education, ISCED 1 is primary education (usually lasting five years), ISCED 2 is lower secondary education (usually lasting three years), ISCED 3 is upper secondary education (four years), and ISCED 5,6, and 7 are higher education.

In the text, the distinction is between primary, secondary, and college education. The equivalences are as follows:

Primary: Includes the illiterate, those without any formal education, and those with up to primary education (ISCED 1).
Secondary: Includes those with up to ISCED 2 or ISCED 3 (EGB, BUP, FP and COU in Spain).
College: Includes ISCED 5,6,7.

International organizations (including the OECD and Eurostat) group the educational levels differently. In the lower education level they include ISCED 2, which is lower secondary; in the middle group, they include ISCED 3; and in the higher education group they include ISCED >3. The INE's Tempus Database follows a different classification: "estudios medios" includes lower and some upper secondary education groups (including vocational education).

Data for growth accounting:

Capital Stock: nonresidential private capital stock in billions of 1986 pesetas. For the years 1977 to 1992 data are from Table III.3.I in Vol.III of BBV (1996) and the deflators from Table 10 in Vol. I of BBV (1996) are used to convert the data into 1986 pesetas; for the years 1993 to 2003 data are own estimates. (Private) gross formation of fixed capital is drawn from the WEO data bank and the law of motion $K(t)=(1-\delta)K(t-1)+I(t-1)$ is applied. A value for δ is estimated to be 8 percent using the investment and capital stock data for past years.

Employment: Data are from the EPA survey conducted by INE.

Output: GDP at market prices in billions of 1986 pesetas, from INE.

Working age population: population aged 15 to 64 from the OECD Analytical Database. From 1997 to 2003 the growth rates are drawn from INE's population statistics.

Labor Force: Data are from the EPA survey conducted by INE.

Unemployment Rate: implied by the labor force and employment series from above.

Hours Worked: Data from 1970 to 1988 are from Carbajo and Garcia-Perea (1987). For the period 1989 to 1997 they are drawn from INE. In both cases the data are quarterly averages.

The table on earnings is constructed based on the Survey of Wage Structure (*Encuesta de Estructura de Salarios*) conducted by INE in 1995 to compute the earning ratios for the different groups. Wage rates instead of earnings might be preferable, but data availability dictates the choice. Average earnings for different education, age and gender groups (normalizing to 1 the average for females aged 16 to 24 with at most primary education) are presented in Table 3. Although INE considers eight education levels and ten age groups (by gender) the dimensions of the table are simplified by considering three levels of schooling and five age groups (simple averages among the original data are used to obtain this simplified table).

Data from the Survey of the Labor Force (*Encuesta de Poblacion Activa*) are used to compute the proportions of the labor force represented by each of the subgroups considered for the years for which data are available; that is, from 1977 to 1997. The data are averages of quarterly data for each year.

LABOR FORCE STRUCTURE, HUMAN CAPITAL INDICES, AND PROJECTIONS OF THE LABOR FORCE

This appendix reports the labor force structure by age, gender, and educational attainment in Spain in 1977, 1987, and 1997 (Table AII-1); a comparison of the annual growth rates of average human capital in 1977–97, using a variety of indices (Table AII-2); and labor force projections by age, gender, and educational attainment, in 2002 and 2007 (Table AII-3).

Table AII-1. Labor Force Structure in Spain 1977, 1987, and 1997

Age group	16-24		25-34		35-44		45-54		55-64		All		
	F	M	F	M	F	M	F	M	F	M	F	M	All
1977	6.2	9.1	3.5	11.4	4.1	13	4.7	15	3.3	9.2	21.8	57.7	79.5
Primary	3.3	3.4	1.1	2.9	0.4	1.6	0.3	1.2	0.2	0.8	5.3	9.9	15.2
Secondary	0.3	0.2	0.7	1.3	0.3	1	0.2	0.8	0.2	0.5	1.7	3.8	5.5
College	9.8	12.7	5.3	15.6	4.8	15.6	5.2	17	3.7	10.5	29	71	100.2
All	22.5		20.9		20.4		22.2		14.2		100		
1987	2.2	3.8	3.1	7.1	3.6	10.3	3.7	10.9	2.7	8.2	15.3	40.3	55.6
Primary	7.4	8.6	4	6.9	1.3	3.2	0.4	1.7	0.2	0.9	13.3	21.3	34.6
Secondary	0.7	0.3	2.2	2.2	0.9	1.6	0.4	0.9	0.2	0.7	4.4	5.7	10.1
College	10.3	12.7	9.3	16.2	5.8	15.1	4.5	13.5	3.1	9.8	33	67	100.3
All	23		25.5		20.9		18		12.9		100		
1997	0.7	1.4	1.3	2.6	3	5.4	3.6	7.6	2.1	5.1	10.7	22.1	32.8
Primary	5.9	7.3	7.3	11	4.6	7.6	1.9	3.9	0.5	1.3	20.2	31.1	51.3
Secondary	0.8	0.3	3.4	2.5	2.3	2.4	1.1	1.9	0.3	0.8	7.9	7.9	15.8
College	7.4	9	12	16.1	9.9	15.4	6.6	13.4	2.9	7.2	39	61	100
All	16.4		28.1		25.3		20		10.1		100		

Source: *INE*'s Tempus Database.

Table AII-2. Annual Growth Rates of Average Human Capital, Spain 1977-97

	HC1	HC2	HC3	HC4	HC5	HC6
1978	0.87	2.58	0.81	0.78	-0.01	6.92
1979	0.85	2.60	0.83	0.74	0.04	6.84
1980	0.23	2.66	0.64	0.64	-0.12	9.38
1981	0.17	2.32	0.41	0.53	-0.17	9.39
1982	0.33	3.28	0.75	0.64	-0.13	10.76
1983	0.92	3.73	1.08	0.94	0.09	9.51
1984	0.32	2.30	0.42	0.46	0.16	7.86
1985	0.91	2.99	0.68	0.74	0.21	8.64
1986	0.52	2.67	0.79	0.56	-0.14	6.06
1987	-0.62	2.52	0.65	-0.08	-0.48	6.30
1988	0.22	2.30	0.52	0.12	-0.22	6.14
1989	2.25	2.77	1.00	0.91	0.46	4.81
1990	1.01	1.80	0.50	0.31	0.20	4.08
1991	0.75	1.50	0.48	0.32	0.08	3.00
1992	1.06	1.76	0.39	0.19	0.15	4.44
1993	1.42	2.50	0.70	0.57	0.03	5.43
1994	1.29	2.33	0.81	0.50	0.07	4.10
1995	1.98	2.11	0.98	0.70	0.14	2.46
1996	2.20	2.59	1.17	1.10	0.08	3.23
1997	1.47	1.62	0.65	0.54	0.07	2.44
Av. 78-97	0.91	2.45	0.71	0.56	0.02	6.09
Av. 78-87	0.45	2.76	0.71	0.59	-0.06	8.17
Av. 88-97	1.36	2.13	0.72	0.53	0.11	4.01

	HC1	HC2	HC3	HC4	HC5	HC6
HC1	1.00	-0.10	0.59	0.63	0.77	-0.60
HC2		1.00	0.56	0.53	-0.09	0.72
HC3			1.00	0.76	0.24	-0.11
HC4				1.00	0.51	0.13
HC5					1.00	-0.33
HC6						1.00

Source: Fund staff estimates as described in the text.

HC1 is based on educational attainment, gender and age.
HC2 is based on average years of schooling.
HC3 is based on educational attainment
HC4 is based on educational attainment and gender
HC5 is based on age and gender.
HC6 is based on the proportion with secondary education.

Table AII-3. Labor Force Projections, Ages 25-64, by Levels of Education and Age
2002 and 2007

(In percent)

	2002					2007			
Age group	25-34	35-44	45-54	55-64	Age group	25-34	35-44	45-54	55-64
Females					Females				
Primary	0.82	1.94	2.79	1.77	Primary	0.51	0.96	1.87	1.51
Secondary	8.22	7.18	3.00	0.75	Secondary	6.58	7.63	4.10	1.14
College	6.08	3.68	1.92	0.54	College	6.64	4.57	3.01	0.89
All	15.12	12.80	7.70	3.06	All	13.72	13.16	8.97	3.55
Males					Males				
Primary	1.89	4.03	6.12	4.28	Primary	1.10	2.46	4.23	3.60
Secondary	14.21	12.16	5.75	1.91	Secondary	12.86	13.23	7.74	2.56
College	3.72	3.38	2.71	1.15	College	3.67	3.87	3.56	1.72
All	19.83	19.57	14.58	7.34	All	17.63	19.56	15.52	7.89

Source: Own estimates as described in the text.

OUTPUT GAPS ACCORDING TO THREE DIFFERENT PROCEDURES

Figure AIII-1 shows the output gap for the years 1977 to 1997 computed according to three different procedures: the Hodrick-Prescott filter, a simple production function approach and a more complete production function approach.

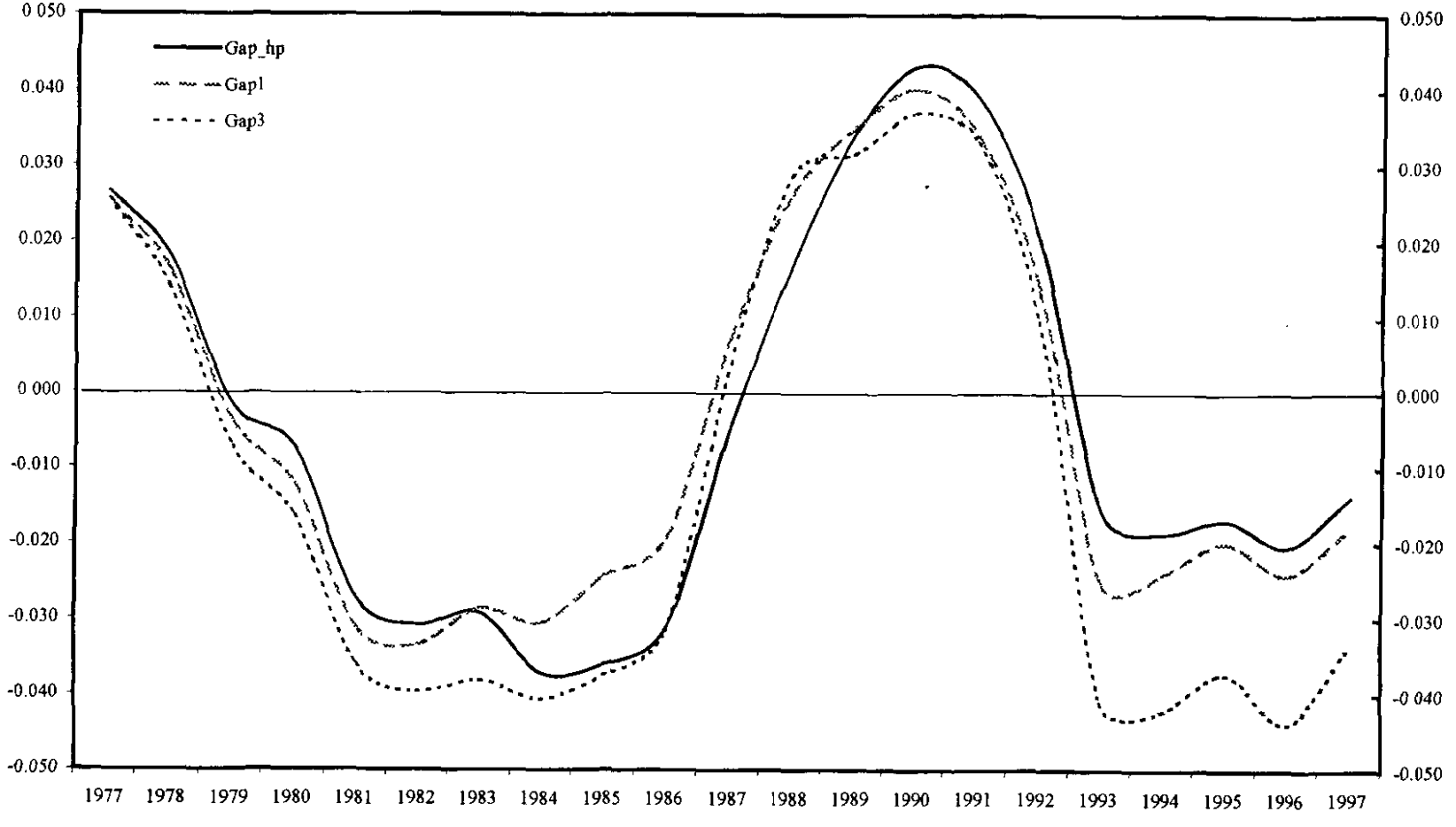
The solid line (gap_hp) is the gap computed with a Hodrick-Prescott filter (with detrending parameter of 100). Data on GDP has been supplemented with staff projections for the next five years in order to reduce end-point biases for the recent years.

The dashed line (gap1) corresponds to the gap computed following the production function approach. The production function approach relies on using Hodrick-Prescott filtered values for a number of inputs to construct potential output. In this simpler case, these include the participation rate and the employment rate, as well as total factor productivity. One point that is necessarily controversial in the case of Spain is of course the estimation of the nonaccelerating inflation rate of unemployment (NAIRU), which has clearly changed dramatically as a result of the massive increases in female labor force participation and the major structural changes associated with the decline of agricultural employment over the past two decades. As an estimate of the NAIRU, this chapter simply uses a smoothed series of the actual unemployment rate. While that procedure is by no means fully satisfactory, it has the advantage of permitting changes in the natural rate.

The dotted line (gap3) adds to the previous procedure three extra variables: average number of hours worked, a measure of capacity utilization, and a measure of average human capital. It corresponds to the production function used in the growth accounting exercise presented in this chapter, adding capacity utilization as a coefficient in front of the capital stock (as h is in front of the employment measure). The smoothed values for the participation rate, the employment rate, and hours are used. Capacity utilization is set at 0.8, its average value for the period.

The results are very similar for the first and second procedures. They differ in a more important way in the third, more complete, procedure—especially, for the recent years. The estimated output gap for 1997 is 1½ percentage point of GDP using the Hodrick-Prescott filter or the simpler production function approach, whereas it is estimated to be larger when the more complicated production function approach is adopted. The reason is that during these years two of the variables considered to compute gap3 have been well below their normal utilization levels: capacity utilization and hours. Also TFP turns out to be significantly below its trend when this procedure is used. In any case, the results reproduce well-known features of the economic cycle over the past decades, including the recessions of the early 1980s and 1992–93 and the boom of 1987–88.

Figure AIII-1. Spain: Output Gaps According to Three Different Procedures, 1977-97



Source: National Statistical Institute; Fund staff estimates.

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II. THE ROLE OF POLICY FACTORS IN JOB CREATION IN SPAIN AND OTHER COUNTRIES[15]

A. Introduction

1. Creating more jobs remains the key policy challenge for many European countries, and especially for Spain, where the unemployment rate currently stands at 17 percent. In the context of the current cyclical upswing, Spain's employment growth has averaged an impressive 3 percent per annum since 1995. However, it is too early to tell the extent to which this performance reflects cyclical developments or structural change, and it will be important to ensure that the employment growth is sustained through the next cyclical downturn. In an effort to gain insight regarding the policies that might foster sustained employment growth, this chapter provides an analysis of job creation over the past two decades (to abstract from cyclical developments) across the OECD countries, with particular emphasis on the differences within Europe. While many studies have attempted to explain why some countries have had higher unemployment rates than others,[16] less attention has been devoted to countries' relative performance in terms of net employment growth.

2. Shifting the focus to job creation has four advantages. First, employment is easier to measure than unemployment, because it does not depend on subtle distinctions between individuals who are in the labor force and those who are not.[17] In the specific case of Spain, there is also a debate whether the unemployment statistics are reliable.[18] Second, employment, rather than unemployment, is the key variable determining output and financial pressures on the pensions system. Third, the empirical regularities that have been uncovered by previous studies on aggregate unemployment are not necessarily confirmed in the case of job creation. For example, one of the main findings of this chapter is that while employment protection legislation seems to be unrelated to unemployment, it is significantly associated with low job creation. Fourth, a much richer analysis can be conducted by using employment rather than unemployment as the main variable of interest. In particular, data on

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[15] Prepared by Pietro Garibaldi and Paolo Mauro.

[16] Recent cross-country studies on the sources of unemployment include Nickell (1997), Scarpetta (1996), and Nickell and Layard (1998) on the empirical side; and Bertola (1998) and Mortensen and Pissarides (1998a,b) on the theoretical side.

[17] As is well known, individuals who are not working are recorded as part of the labor force (and therefore as unemployed) only if they are actively looking for a job. However, especially in high unemployment countries such as those of Continental Europe, the low likelihood of finding a job may imply that many people will have stopped actively searching for one (the "discouraged worker" phenomenon); conversely, many people may declare that they are actively searching for a job when in fact their search effort is minimal.

[18] See SM/97/76.

unemployment do not ascribe workers to a particular sector or type of contract, whereas the composition of employment by sector and by type of contract is available. This information makes it possible to assess the extent to which, for example, relatively low employment growth in Southern European countries such as Spain resulted from a high initial share of agricultural employment; and to address relevant policy questions such as whether the creation of part-time contracts results in higher overall job creation or merely substitutes for full-time contracts. This last issue is of particular relevance in Spain, in light of recent reform efforts in early 1999, aimed at facilitating the creation of part-time jobs.

3. Net job creation has varied considerably among the OECD countries over the past two decades. In particular, some non-European countries, including the United States, Canada, Australia, and New Zealand, have created far more jobs than a majority of the European countries, notably France, Italy, and some of the Nordic countries. Within Europe, the Netherlands and Ireland clearly outperformed other European countries, and were among the fastest job creators in the OECD especially during the 1990s. Spain's employment growth has been about average within Europe over the past two decades, but a rapid increase in the participation rate has been mirrored in the sharpest increase in the unemployment rate.

4. Drawing on a variety of data sources this chapter considers, for each country, the sectors, age groups, gender, and type of contracts (part-time versus full-time, and temporary versus permanent) that account for employment growth, and analyzes interactions among these dimensions. Using straightforward shift-share analysis, the chapter finds that the fact that certain countries did especially well in a limited number of sectors (for example, the United States in retail trade) or that they had a favorable initial sectoral composition of employment can only account for a small portion of their better employment performance. By contrast, using regression analysis on aggregate employment data, the chapter shows that a policy package consisting of low dismissal costs and low taxation is significantly associated with more rapid job creation. This accounts almost fully for the different performance of the high-performing non-European countries compared with the European countries. However, with this approach it is somewhat more difficult to account for the different performance of countries within Europe. Regarding that issue, the success of the Netherlands is largely accounted for by the remarkable growth of part-time employment in that country. At the same time, more systematic analysis in a panel of European countries reveals that the substitution of part-time for full-time jobs seems to have been considerable.

5. The chapter is structured as follows. Section B ranks the performance of the various OECD countries in terms of aggregate job creation over the past two decades, taking into account their growth of output, capital, and working age population. Section C studies job creation at the sectoral level, using an international data set with information on employment in agriculture, four industrial sectors, and six service sectors. Section D uses regression analysis to examine the relationship between aggregate job creation and institutional variables including taxation, union density, employment protection legislation, and unemployment benefits. Section E considers job creation within Europe, with a view to understanding the role played by part-time (versus full-time) and temporary (versus permanent) contracts, and their interactions with age and gender characteristics as well as

economic sectors. It uses panel regressions to estimate the extent to which part-time jobs have crowded out full-time jobs. Section F discusses the policy implications and concludes.

B. Slow and Fast Job Creators

6. The differences among OECD countries in terms of average job creation over the past two decades are remarkable. Table 1 reports average job creation between 1980 and 1997 for 21 OECD economies.[19] It shows that some non-European countries, including Australia, the United States, Canada, and New Zealand, clearly outperformed most Continental European countries, with the exception only of the Netherlands. These non-European countries sustained an average job creation of 1½ percent a year in 1980–97, compared with less than ½ percent a year in Continental Europe. In absolute terms, these differences are very large: for a country the size of Spain, for instance, a 1 percentage point difference in employment growth implies a difference of some 130,000 jobs per year, or more than 2½ million jobs over the past two decades.

7. In order to obtain clues as to whether a given country's higher employment growth reflects a better functioning labor market or other factors, it is useful to take into consideration the growth in other variables, including working-age population, output, and the capital stock. To that end, Table 1 also presents the cumulative change (in percentage points) in the employment to working-age population ratio between 1980–82 and 1995–97, the average difference between employment growth and output growth over 1980–97, and the average difference between employment growth and the growth rate of the capital stock over 1980–97. The ranking of most countries remains broadly unchanged when using these alternative indicators. Nevertheless, useful information can be gained by focusing on those countries whose ranking changes considerably.

8. A country's job creation performance will usually be viewed as positive to the extent that it keeps pace with its working-age population growth, and indeed countries with more rapid working-age population typically end up creating more jobs. From that standpoint, the United States' experience is confirmed as an "employment miracle," in that many more jobs were created than would have been required to keep pace with the growth of the working-age population. Over the last 20 years, the United States' employment to working-age population ratio increased by more than 7 percentage points. The performance of Australia, Canada, Ireland, and New Zealand seems less striking when considering the change in the employment to working-age population ratio rather than the employment growth rate. Undoubtedly, this is partly due to the fact that these countries were able to attract sizable immigration. Nevertheless, the United States' labor market clearly outranks these other countries in its ability not only to attract immigrants but also to create more jobs than needed for them. At the same time, the job creation record of countries such as the United Kingdom

[19] A sample period spanning almost two decades ensures that cyclical effects will not distort cross-country comparisons.

Table 1. Slow and Fast Job Creators in the OECD, 1980–97

Country	Job Creation 1/		Δ(L/P) 2/		Δ(L/Y) 3/		Δ(L/K) 4/	
		Rank		Rank		Rank		Rank
Australia	1.72	1	2.63	5	-1.40	7	-1.10	4
United States	1.58	2	7.61	1	-0.97	3	-0.68	2
Canada	1.37	3	1.68	7	-1.16	6	-4.25	20
Netherlands	1.26	4	4.73	3	-1.00	4	-1.25	5
Switzerland	1.09	5	5.14	2	-0.20	1	-2.38	9
New Zealand	1.09	6	-1.46	13	-1.06	5	-0.43	1
Japan	1.00	7	4.05	4	-2.13	16	-4.25	19
Ireland	0.95	8	-1.71	14	-4.01	21	-1.87	8
Norway	0.83	9	1.33	8	-2.20	19	-1.76	7
Greece	0.83	10	-0.85	12	-0.39	2	-2.38	10
Portugal	0.59	11	0.11	9	-1.94	13	-4.54	21
West Germany	0.47	12	...	...	-2.18	18	-1.05	3
United Kingdom	0.42	13	2.13	6	-1.88	11	-1.27	6
Denmark	0.39	14	-0.33	11	-1.83	10	-2.73	13
Spain	0.35	15	-3.53	15	-2.17	17	-4.08	17
Austria	0.27	16	-3.61	16	-1.90	12	-4.23	18
France	0.14	17	-4.24	17	-1.80	9	-2.63	12
Belgium	0.05	18	-0.80	11	-1.69	8	-2.91	13
Italy	-0.18	19	-5.47	18	-1.96	15	-2.62	11
Finland	-0.37	20	-9.81	20	-2.64	20	-3.09	16
Sweden	-0.43	21	-9.23	19	-1.94	14	-3.00	15

Sources: OECD; and Fund staff calculations.

1/ Average employment growth (in percent).

2/ Change in employment-working age population ratio (in percentage points). Average 1995–97 minus average 1980–82.

3/ Average growth of employment to output ratio (in percent).

4/ Average growth of employment to capital ratio (in percent); business sector.

and Belgium seems more positive when taking into account the fact that their working-age population did not grow very rapidly over the period considered.

9. Job creation is intrinsically linked to output growth. In the limit, if the production function was characterized by a technology with fixed coefficients in labor and capital, output growth and job creation would be the mirror image of each other. Although the difference between employment growth and output growth is nothing other than the inverse of productivity growth, it may still provide clues as to the sources of countries' employment growth. For example, if a given country were to develop a new product or to become more internationally competitive (including for reasons unrelated to its labor market), the demand for its output would increase substantially, and employment would rise in turn to meet that additional demand. In some sense, this may have been the experience of Ireland, which displayed extremely rapid output growth and could perhaps be characterized not as an employment miracle, but rather as an output growth miracle. At the opposite extreme, in countries such as Greece and Sweden slow employment growth may have reflected low output demand, rather than inefficient labor markets.

10. Finally, over periods of several years, countries with favorable labor market institutions and conditions are more likely to meet the demand for additional output by increasing their labor input rather than their capital stock. Considering the difference between the growth of labor and the growth of the capital stock, it seems that a majority of the continental European economies substituted capital for labor to a greater extent than the high-performing non-European economies. Spain displayed one of the largest increases in the capital/labor ratio (by a cumulative 4 percentage points) in 1980–97. Among the non-European economies,[20] Canada also increased its capital stock far more rapidly than the number of its employed workers, which suggests that some potential to create jobs was left unexploited.

11. Focusing only on the 1990s, the performance of some European countries becomes even more impressive, particularly that of Ireland, which displayed the highest average rate of job creation (almost 3 percent in 1990–97) among OECD countries, and of the Netherlands (Table 2). For most other countries, however, the ranking based on 1990–97 is similar to that related to 1980–97. Considering an even shorter sample period, some countries' job creation performance seems to have changed considerably in recent years. In this regard, Spain is particularly striking, having displayed average employment growth of about 3 percent since 1995. However, as noted, it is still early to tell to what extent this merely reflects cyclical factors.

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[20] Blanchard (1997) and Caballero and Hammour (1998) have recently argued that heightened demands by the trade unions beginning in the late 1970s led to considerable substitution of capital for labor in Europe.

Table 2. Slow and Fast Job Creators in the OECD, 1990–97

Country	Job Creation 1/	Rank	Δ(L/P) 2/	Rank	Δ(L/Y) 3/	Rank	Δ(L/K) 4/	Rank
Ireland	2.53	1	3.31	3	-3.89	20	-0.32	3
New Zealand	2.31	2	4.96	1	-0.53	3	1.39	1
Netherlands	1.82	3	4.05	2	-0.51	2	-1.33	6
United States	1.25	4	1.70	5	-1.21	7	-0.54	4
Norway	1.12	5	3.05	4	-2.79	18	-0.23	2
Australia	0.99	6	0.45	8	-2.06	14	-1.17	5
Canada	0.83	7	-1.64	12	-1.12	6	-3.99	17
Japan	0.69	8	1.65	6	-1.03	5	-3.77	16
Greece	0.52	9	0.67	7	-0.59	4	-2.05	8
Austria	0.34	10	-1.86	14	-1.64	9	-4.36	18
Denmark	0.23	11	-1.04	10	-2.32	15	-2.68	9
Switzerland	-0.06	12	-3.87	17	-0.26	1	-3.33	14
France	-0.07	13	-1.66	13	-1.41	8	-2.74	10
United Kingdom	-0.08	14	-1.11	11	-1.82	12	-1.52	7
Spain	-0.11	15	-2.92	15	-1.92	13	-4.84	19
Belgium	-0.14	16	-1.04	10	-1.92	13	-2.96	11
Portugal	-0.53	17	-6.74	18	-2.69	17	-6.57	20
Italy	-0.64	18	-3.02	16	-1.76	11	-3.27	13
Sweden	-1.87	19	-11.10	20	-2.58	16	-3.65	15
Finland	-1.96	20	-9.68	19	-3.02	19	-3.02	12

Sources: OECD; and Fund staff calculations.

1/ Average employment growth (in percent).

2/ Change in employment-working age population ratio (in percentage points). Average 1995–97 minus average 1990–92.

3/ Average growth of employment to output ratio (in percent).

4/ Average growth of employment to capital ratio (in percent); business sector.

12. All in all, these considerations tend to confirm that the United States has displayed an employment miracle, and that a majority of European countries have performed rather poorly in terms of job creation. At the same time, there has been a wide range of experiences within Europe. In particular, Ireland and the Netherlands have been very successful in creating jobs. While Ireland's success seems to be less closely related to its labor market, the case of the Netherlands seems to have greater potential for policy lessons that might be followed by other countries.

C. Do Sectors Matter?

13. Recent studies have suggested that sectoral effects play a large role in explaining cross-country differences in employment growth. Marimon and Zilibotti (1998) have suggested that the initial sectoral composition of employment is an important determinant of overall job creation. This possibility is supported by Table 3, which shows that, in 1982, several slow job creators (including France and Italy, as well as other Southern European economies not included in the OECD ISDB data set, such as Greece, Portugal, and Spain) had a relatively large share of employment in agriculture and industry, that is, sectors that lost ground in most advanced economies (Table 4).[21]

14. Using a sample of OECD countries, this chapter finds that although sectoral factors are significant, for most countries they explain only a small portion of aggregate job creation and in any case they do not reverse the various countries' rankings based upon aggregate employment growth. Straightforward shift-share analysis makes it possible to address Marimon and Zilibotti's (1998) hypothesis and to quantify the effects of the initial sectoral composition of employment on overall job creation. Specifically, this exercise estimates what each country's overall job creation would have been if its sectoral composition of employment in 1982 had been the same as the average for the countries in the sample. In other words, each country's employment growth rate in a given sector is weighted by the average employment share of that sector in the whole sample.[22]

15. The results show that all slow (fast) job creators suffered (benefited) from adverse (positive) initial conditions (Figure 1), but the countries' ranking remain broadly unchanged (Table 5) and the cross-country variance of job creation under this exercise is only about a

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[21] This section analyzes the OECD ISDB data set, which consists of employment data for 11 economic sectors in 11 countries between 1982 and 1994. Although the country coverage is more limited than in Section B, the sample includes rapid job creators both among the high-performing non-European countries (Australia, Canada, and the United States) and in Continental Europe (the Netherlands), as well as the slowest job creators in Europe (such as Italy, France, and Sweden).

[22] Appendix I reports the simple formulas used for the accounting exercises carried out in this section.

Table 3. Distribution of Employment Across Sectors, 1982

	Australia	Belgium	Canada	Denmark	France	Italy	Japan	Netherlands	Sweden	United States	West Germany 1/
Agriculture	6.6	3.0	5.2	7.6	7.8	12.1	12.1	5.6	5.1	3.4	5.0
Industry	28.9	30.8	26.5	26.5	33.3	34.2	34.2	29.4	30.6	26.7	42.0
Construction	7.1	6.9	5.6	6.4	8.4	8.1	9.7	8.0	6.8	5.1	7.5
Electricity	2.2	1.6	1.1	0.6	0.7	0.9	0.6	1.0	0.8	0.9	1.0
Manufacturing	18.2	22.2	18.2	19.4	23.5	25.3	23.7	20.2	22.7	19.5	32.6
Mining	1.5	...	1.6	0.1	0.7	...	0.2	0.2	0.3	1.2	0.9
Services	64.5	66.2	68.3	65.9	58.8	53.7	53.7	65.0	64.3	69.9	53.1
Transport	7.9	7.1	7.2	7.1	5.6	5.9	5.6	6.6	6.7	4.5	5.7
Retail Trade	23.3	19.2	22.8	13.3	17.0	20.0	21.0	18.9	13.5	21.9	15.9
Finance	9.9	8.1	9.9	8.1	8.1	6.3	4.3	8.9	5.8	11.9	7.6
Comm. Ser.	18.8	9.1	7.7	5.4	5.3	4.3	14.1	14.7	5.8	14.5	5.2
Government	4.7	19.9	20.1	30.8	20.8	14.9	6.7	14.8	31.3	17.1	15.1
Other	...	2.8	...	1.1	2.0	2.3	2.1	1.1	1.0	...	3.7
Total	100	100	100	100	100	100	100	100	100	100	100

Sources: OECD; ISDB dataset; and Fund staff calculations.

1/ Data refer to 1982–90.

Table 4. Sectoral Contribution to Average Job Creation, 1982–94

	Australia	Belgium	Canada	Denmark	France	Italy	Japan	Netherlands	Sweden	United States	West Germany 1/
Agriculture	-0.02	-0.05	-0.02	-0.22	-0.25	-0.30	-0.32	-0.02	-0.12	0.01	-0.15
Industry	0.06	-0.28	0.05	0.05	-0.59	-0.46	0.35	-0.10	-0.62	0.08	0.11
Construction	0.18	0.04	0.09	0.03	-0.14	-0.07	0.15	0.02	-0.15	0.14	-0.03
Electricity	-0.07	-0.06	-0.06	0.00	0.00	0.00	0.01	-0.01	-0.01	0.01	0.01
Manufacturing	-0.05	-0.25	-0.04	0.02	-0.43	-0.38	0.18	-0.12	-0.43	-0.02	0.16
Mining	-0.01	...	-0.01	0.00	-0.03	...	-0.01	0.00	-0.01	-0.05	-0.03
Services	2.22	0.57	1.67	0.34	0.90	0.78	0.95	1.19	0.09	2.01	1.10
Transport	0.04	-0.04	0.03	0.01	0.02	0.04	0.04	0.08	-0.04	0.08	0.06
Retail Trade	0.77	0.04	0.48	0.02	0.05	0.16	0.13	0.40	-0.03	0.51	0.26
Finance	0.58	0.25	0.39	0.19	0.25	0.23	0.08	0.47	0.19	0.60	0.38
Comm. Ser.	0.75	0.38	0.33	0.05	0.15	0.18	0.62	0.26	0.06	0.63	0.15
Government	0.08	-0.02	0.44	0.10	0.41	0.11	0.00	-0.05	-0.11	0.18	0.12
Other	...	-0.04	...	0.00	0.03	0.07	0.06	0.02	0.00	...	0.14
Total	2.26	0.24	1.70	0.21	0.06	0.03	0.98	1.07	-0.64	2.10	1.07

Sources: OECD; ISDB data set; and Fund staff calculations.

1/ Data refer to 1982–90.

Figure 1: Job Creation and Sectoral Differences: 1982-94

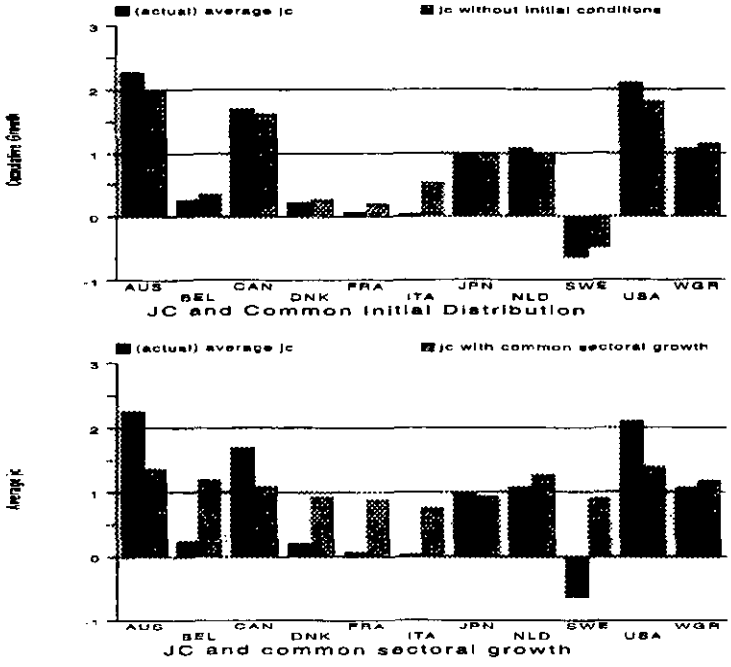

Table 5. Job Creation and Sectoral Characteristics-Shift-Share Analysis

Country	Job Creation 1/	Rank	No Retail Trade	Rank	Common Initial Distribution 2/	Rank	Common Sectoral Growth 3/	Rank
Australia	2.26	1	1.59	1	1.98	1	1.37	2
United States	2.10	2	1.49	2	1.82	2	1.41	1
Canada	1.70	3	1.22	3	1.62	3	1.09	6
Netherlands	1.07	4	0.85	4	0.99	5	1.29	3
West Germany 4/	1.07	5	0.81	5	1.16	4	1.18	5
Japan	0.98	6	0.67	6	0.99	6	0.93	8
Belgium	0.24	7	0.20	7	0.34	9	1.19	4
Denmark	0.21	8	0.19	8	0.26	8	0.94	7
France	0.06	9	0.01	9	0.20	10	0.90	10
Italy	0.03	10	-0.13	10	0.53	7	0.76	11
Sweden	-0.42	11	-0.45	11	-0.49	11	0.91	9
Average	0.82		0.57		0.85		1.08	
Standard dev.	0.93		0.70		0.77		0.76	

Sources: OECD; ISDB dataset; and Fund staff calculations.

1/ Average change in employment between 1982 and 1994.
2/ Average job creation based on a common initial distribution.
3/ Average job creation based on a common sectoral growth.
4/ Data refer to 1982--90.

fifth smaller than considering actual employment growth. At the same time, initial conditions appear to have played a significant role in some countries (and the Southern European countries in particular, given their large share in agriculture at the beginning of the sample period). For example, taking this exercise at face value, if Italy's sectoral distribution of employment had been the same as the sample average in 1982, it would have had at least 1,200,000 more jobs in 1998 and its ranking relative to other countries would have been noticeably better (Table 5).[23] Using an expanded data set and a slightly different methodology, Marimon and Zilibotti (1994) find a similar result for Spain as well. The extent to which initial conditions represented an advantage or a disadvantage can be assessed through a similar accounting exercise, which estimates what overall job creation would have been in each country if each of its sectors had grown at the same rate as the average for all the countries in the sample (Table 5).

16. A related issue focuses on the role of the retail trade sector. Piketty (1998) has argued that higher job creation in the United States than France can largely be attributed to differences between the two countries in employment growth in the retail trade sector. A considerable part of employment growth in some of the fast job creators has indeed taken place in the retail sector, whose average annual contribution to employment growth amounted to one-half of a percentage point over 1983–94 not only in the United States, but also in Australia and Canada (Table 4). A simple way of testing Piketty's (1998) hypothesis is to compute countries' average job creation under the extreme assumption that no jobs were created in the retail trade sector. Even under that assumption, the high-performing non-European countries remain the most rapid job creators, and the overall ranking is unchanged (Table 5).

D. The Role of Labor Market Policies and Institutions

17. A more promising avenue for explaining cross-country differences in job creation is to analyze the relationship between overall employment growth and labor market policies and institutions. Obvious candidates include the level of taxation, union coverage and coordination, unemployment benefits, and employment protection legislation.

18. There are good reasons to expect that these policies and institutions will have an impact on employment growth. Taxation has been shown, both theoretically and empirically, to be linked with unemployment (Daveri and Tabellini, 1997). Policy makers often accept this principle as well. For example, one of the objectives of the 1998 reform of personal income taxes in Spain was to promote job creation by lowering the tax burden. Union participation (and the ensuing heightened wage pressure) and unemployment benefits have been shown to affect equilibrium unemployment (Nickell and Layard, 1998). Empirically,

[23] As usual, shift-share analysis needs to be interpreted with caution. In particular, it is not clear which sectors would have been the most successful if their initial geographical distribution had been different.

union density appears to increase unemployment, though this effect seems to be mitigated when unions and firms coordinate their bargaining activity. Replacement rates and duration of benefits have also been found to be positively correlated with unemployment.

19. It also seems reasonable to analyze the role of employment protection legislation, although the a-priori case on the effects of this variable is less clear-cut. This variable is particularly relevant in the case of Spain, which (together with Italy) has the highest dismissal costs in the OECD.[24] Most theoretical studies predict that dismissal costs should not affect unemployment: since employment protection legislation increases the cost of labor adjustment, the argument goes, both job creation and destruction will be lower, but the effect on average employment will be ambiguous (Bentolila and Bertola, 1990). Consistent with that view, employment protection legislation does not appear to be significant in cross-country regressions that analyze the determinants of unemployment rates. However, Caballero and Hammour (1998) have recently argued that increases in dismissal costs lead entrepreneurs to substitute capital for labor in the medium run. In addition, empirical studies that exploit the time-series information in the data have found a positive relationship between dismissal costs and unemployment (Scarpetta, 1996 and Lazear, 1990).

20. Several empirical relationships identified by existing studies on unemployment are confirmed by the matrix of bivariate correlations between average job creation in 1980–97 and a number of indicators of labor market policies for a sample of 21 OECD countries (Table 6).[25] As expected, job creation is negatively correlated with total taxation and union density, and the close link between working-age population growth and job creation is also strongly confirmed. By contrast, the relationship between unemployment benefits and job creation is not statistically significant. More interesting, a negative and significant correlation is found between job creation and a measure of employment protection legislation.[26] Figure 2 shows that these bivariate relationships are not driven by any obvious outliers.

21. The robustness of these cross-sectional relationships is confirmed by running a battery of cross-sectional regressions, in the spirit of the extreme bound analysis previously used in cross-country regressions on the determinants of output growth (Levine and Renelt, 1992). First, job creation is regressed against the growth in the working age population, a constant, the variable of interest, and each of the other explanatory variables in turn. Second,

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[24] The reform of May 1997 introduced a new type of permanent contract (accessible only to certain groups of workers) with lower dismissal costs, but still above the already high EU average. However, since dismissal costs for existing contracts were not changed, it will take a number of years for average dismissal costs to fall significantly. See SM/98/61.

[25] See Appendix II for data sources and variable definitions.

[26] Spain is considered to have the second strictest employment protection legislation, following Italy.

Table 6. Job Creation and Policy Variables: Correlation Matrix

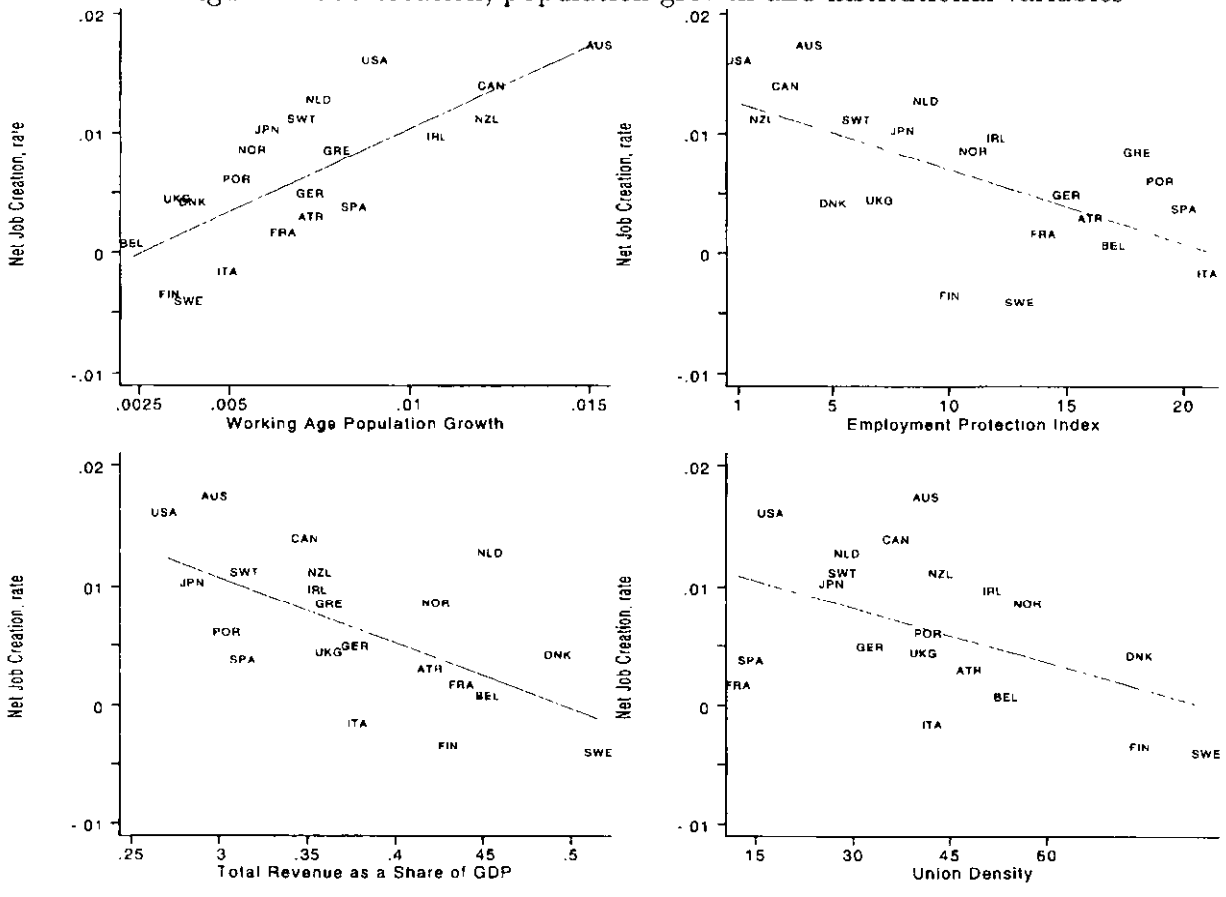
Country	JC 1/	ΔΠ	EPL	Taxes	Payroll	Union	Benefit	Coord
ΔΠ	0.03							
	0.89							
EPL	-0.62	-0.26						
	0.00	**0.26**						
Taxes	-0.61	0.36	0.19					
	0.00	**0.11**	**0.42**					
Payroll	-0.34	0.32	0.53	0.22				
	0.14	**-0.16**	**0.02**	**0.35**				
Union	-0.47	0.07	-0.01	0.61	-0.32			
	0.03	**0.76**	**0.95**	**0.00**	**0.15**			
Benefit	-0.06	0.18	-0.12	0.50	0.01	0.19		
	0.79	**0.43**	**0.58**	**0.02**	**0.93**	**0.41**		
Coord	-0.53	0.44	0.29	0.66	0.30	0.53	0.13	
	0.02	**0.05**	**0.21**	**0.00**	**0.19**	**0.01**	**0.56**	
Wkage	0.76	-0.17	-0.42	0.52	-0.34	-0.34	-0.15	-0.52
	0.00	**0.45**	**0.06**	**0.01**	**0.14**	**0.12**	**0.49**	**0.01**

Sources: OECD; and Fund staff calculations.

Note: p-values in bold.

1/ JC is average job creation; ΔΠ is average change in inflation; EPL is the index of employment protection legislation; taxes is total taxation as a share of GDP; payroll is payroll taxes as a share of GDP; benefit is unemployment benefits; coord is the index of employer-employee coordination; and wkage is the growth of working age population.

Figure 2: Job creation, population growth and institutional variables



the same procedure is repeated using each possible pair of the other explanatory variables. The most robust relationship is found to be that between employment protection legislation (EPL) and job creation: the coefficient on EPL is statistically significant in 24 out of 27 regressions, and it always has a negative sign (Table 7). The estimated value of the coefficient is also very stable. The relationship between job creation and total taxation is also fairly robust, with the coefficient significant in 13 out of 27 regressions. The other relationships are not robust to the inclusion of additional regressors.

22. Small panel regressions are then run relating average job creation to the various institutional measures as well as working-age population growth.[27] The average change in inflation is included as an additional explanatory variable, to proxy for business cycle and macroeconomic policy stance effects. Six year (1980–85, 1986–91 and 1992–97) averages are used as the basic data points to smooth out business cycle and other temporary effects. Unfortunately, some of the independent variables, and the measure of EPL in particular, are time invariant owing to data limitations.[28] With 21 countries, the total number of observations is 63. The estimation is based on the random effects generalized least square procedure, which is essentially ordinary least squares corrected for the fact that three successive observations for each country cannot be treated as independent random draws.

23. The coefficients on EPL and taxation are significant (Table 8), in both an economic and a statistical sense, and are quantitatively similar to those obtained in the cross-sectional regressions; they are also fairly stable across different panel specifications.[29] The coefficient on EPL, however, is marginally less significant in the panel regressions than in the cross sectional regressions, owing in part to the fact that the EPL variable is time invariant. The results suggest that an improvement in the EPL ranking by five positions is associated with an increase in average job creation by 0.1–0.2 percentage point. (Average annual employment growth amounts to 0.6 percent in the sample.) For a country like Spain, this would imply some 15,000–30,000 new jobs per year, or some 300,000–600,000 jobs over 20

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[27] The methodology is similar to that recently applied by Nickell (1998) and Layard and Nickell (1998) in their studies on unemployment differences across countries. Scarpetta (1996) runs similar regressions on small panel data sets, but adopts a more structural approach.

[28] The OECD is currently in the process of updating the EPL ranking used in the present chapter. The new measures, which are not officially available yet, display some variation over time, reflecting reform efforts in some countries, including Spain. Preliminary regressions with the new measure show that the results are very similar to those reported in this section.

[29] The only exception is specification 5 in Table 8, which includes payroll taxes instead of total taxes.

Table 7. Job Creation and Policy Variables: Robustness Checks

	Min 1/	Max 1/	P < 0.1 2/	Regr. 3/
EPL 4/	-0.0004	-0.0003	7 out of 7	4
EPL	-0.0004	-0.0003	17 out of 20	5
Tot Tax	-0.0391	-0.0160	3 out of 7	4
Tot Tax	-0.0483	-0.0149	10 out of 20	5
Payroll	-0.0376	-0.0186	1 out of 7	4
Payroll	-0.0483	-0.0149	2 out of 20	5
Coord	-0.0002	-0.0001	5 out of 7	4
Coord	-0.0002	-0.0001	7 out of 20	5
Union	-0.0001	-0.0001	2 out of 7	4
Union	-0.0000	-0.0002	6 out of 20	5
Benefit	-0.0001	-0.0001	0 out of 7	4
Benefit	-0.0000	-0.0002	1 out of 20	5

Source: OECD; and Fund staff calculations.

Note: The left-hand side variable is average job creation for 1980–97. All regressions include a constant and the growth of working age population.

1/ Min (max) is the minimum (maximum) value of the coefficients in the regression.
2/ Number of regressions whose coefficient has a p-value less than 10 percent.
3/ Total number of regressors in each regression.
4/ EPL is the index of employment protection legislation; tot tax is total taxation as a share of GDP; payroll is payroll taxes as a share of GDP; coord is the index of employer-employee coordination; union is the proportion of workers that belong to a trade union; and benefit is unemployment benefits

Table 8. Panel Regressions: Institutions and Job Creation

Dependent Variable: Average Job Creation
Random Effects GLS regressions 1/
Six year averages: 1980–85; 1986–91; 1992–97

	Spec. 1	Spec. 2	Spec. 3	Spec. 4	Spec. 5
Working age population growth	...	0.6826	0.7076	0.6763	0.682
		1.960	2.128	2.318	1.995
EPL	-0.0004	-0.0002	-0.0003	-0.0002	-0.00002
	-2.074	-1.413	-1.527	-1.449	-0.114
ΔΠ	0.0077	0.0076	0.0102	0.103	0.0120
	3.556	3.656	4.692	4.682	4.891
Total taxes/GDP	-0.06120	-0.04624	-0.0456	-0.0559	...
	-3.645	-2.560	-2.199	-2.042	
1986–91 2/	-0.00427	-0.0063	-0.0054	-0.0054	-0.0048
	-1.500	-2.128	-1.850	-1.847	-1.449
1992–97 2/	0.0029	0.0030	0.0040	0.0040	0.0034
	1.028	1.063	1.524	1.520	1.204
Constant	-0.0004	0.026405	0.0274	0.0291	0.0227
	5.37	2.958	3.236	3.232	3.225
Union density	...	...	-0.00002	-0.00001	-0.001
				-0.176	-2.474
Unem. benefits	...	...	...	0.00005	-0.00007
				0.581	-0.908
Payroll taxes/GDP	...	...	...	...	-0.0582
					-1.967
N. observations	62	62	59	59	53
N. countries	21	21	21	20	20
R^2 within	0.356	0.356	0.497	0.496	0.569
R^2 between	0.635	0.754	0.762	0.773	0.568
R^2 overall	0.428	0.465	0.560	0.563	0.568
$\chi 2$	41.92	47.88	65.00	64.49	57.99
Hausman test 3/	1.31	1.24	5.56	5.72	18.48
p-value	0.859	0.940	0.474	0.572	0.010

Sources: OECD data; and Fund staff calculations.

1/ z statistics reported below coefficients.
2/ Time dummy for 1986–91 and 1992–97.
3/ Hausman specification test for random effects models. EPL is the index of employment protection legislation; ΔΠ is average change in inflation;

years. A reduction in total taxation by 1 percentage point of GDP increases average job creation by some 0.05 percentage point.

24. This chapter's result that EPL is negatively associated with job creation seems to be consistent with the hypothesis proposed by Caballero and Hammour (1998). In principle, the result could also be consistent with the traditional view if the 1980–97 period could be seen as a cyclical upswing. In fact, under the traditional view, high job security provisions dampen the fluctuations of employment around its long run average level, and in an upswing the employment increase would tend to be higher in countries with high dismissal costs (e.g., those in continental Europe) than in those with low dismissal costs (e.g., the United States). However, 18 years seem to represent an excessively long horizon to be qualified as a cyclical development.

25. Overall, these small panel regressions fit the data relatively well: the estimated and the actual value of average job creation in the sample of 21 countries, as well as their actual and fitted ranking are fairly similar (Figure 3).[30] In particular, the estimated equations account very well for the job creation of the fastest creators, including Australia, Canada, and the United States. However, the fit is somewhat less satisfactory in the case of the European countries. This suggests that further exploration is needed to explain the heterogeneous job creation performance within Europe.

E. Inside Europe

26. Section D has shown that differences in tax pressure and firing costs may provide a partial explanation for the differences in job creation performance across the OECD countries, most notably between the high-performing non-European countries and the countries of Continental Europe. However, a considerable part of the wide variation in performance among the Continental European countries remains unexplained. This section accounts for differences among the Continental European countries with respect to the composition of job creation by type of contract (part-time or full-time, and temporary or permanent), the broad economic sector in which jobs are created, as well as the age and gender characteristics of the people who fill the new positions. The key finding is that the best European performer, the Netherlands, stands out in that about half of its job creation can be accounted for by part-time jobs taken up by females aged 25–49, typically in the service sector (Figures 4 and 5).

27. The composition of job creation seems largely to reflect developments in technology or labor supply. In virtually all European Union countries, employment growth was much faster for females than males, mirroring higher growth in labor force participation among women. Developments in youth employment seem to have been determined mostly by

[30] The fitted values in Figure 3 are based upon the specification in the second column of Table 8.

Figure 3: Actual and Estimated Job Creation: 1980-97

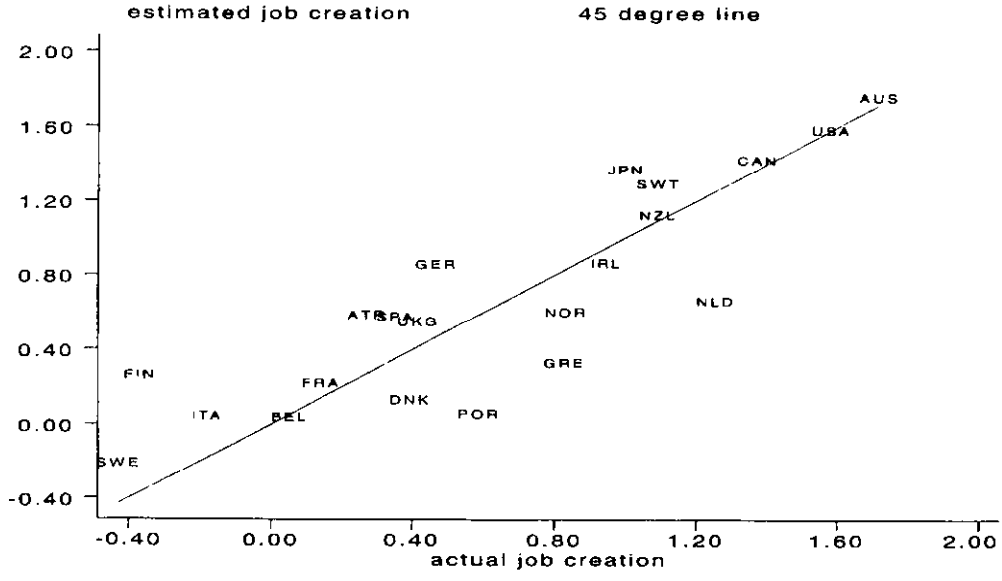


Figure 4: Part-Time/Full-Time, Gender and Age: 1982-94

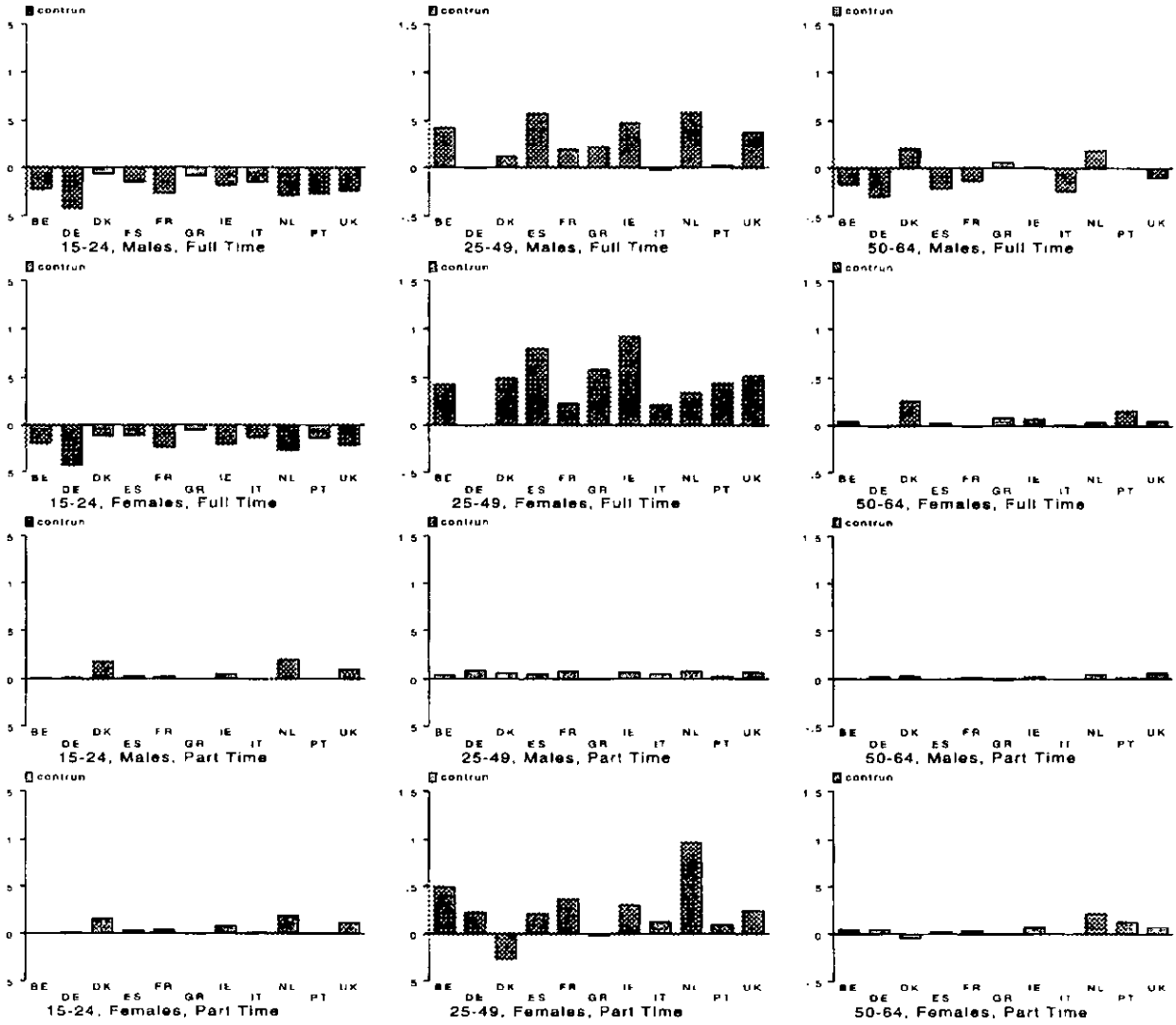
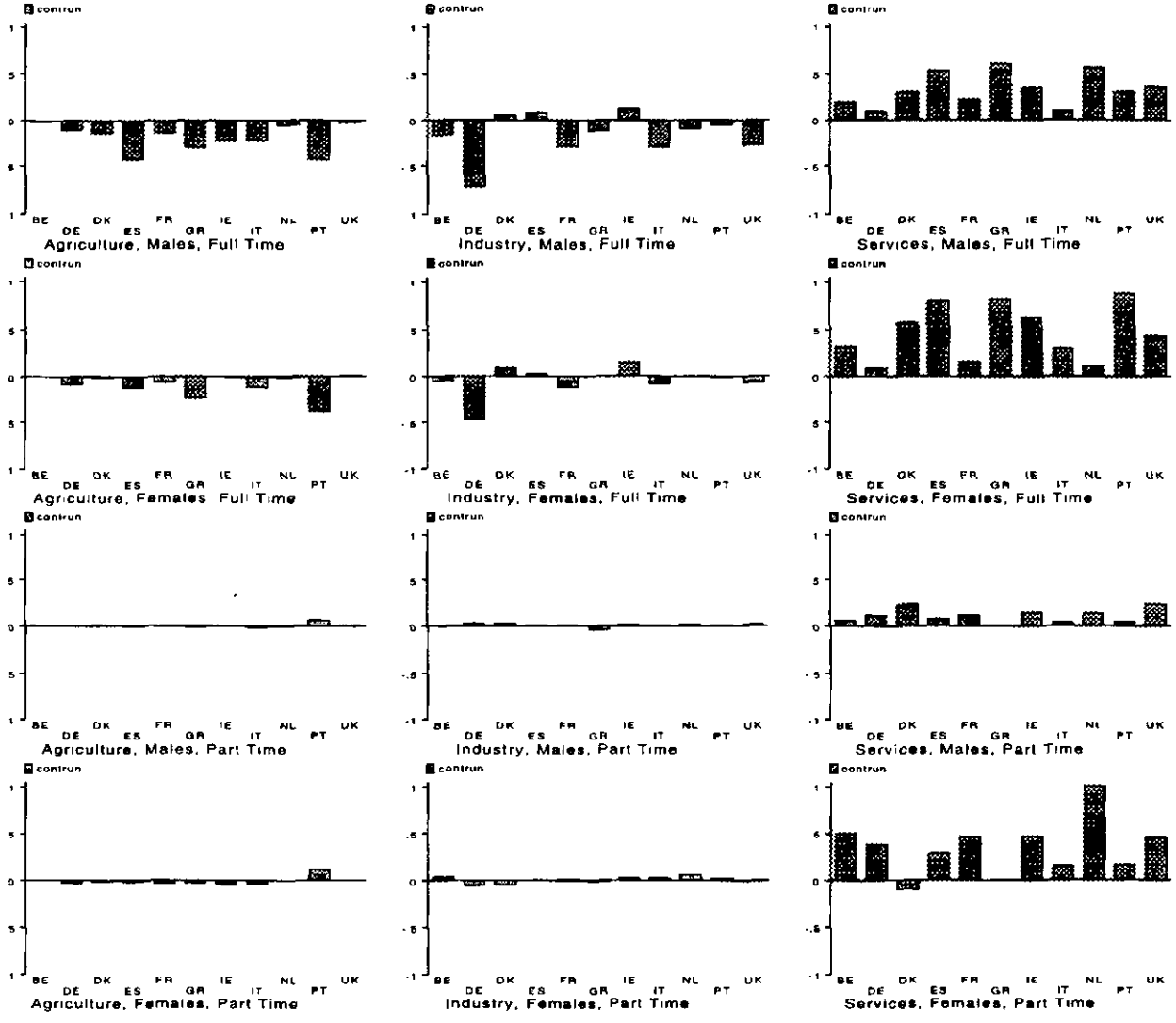


Figure 5: Part-Time/Full-Time, Gender and Sector: 1982-94

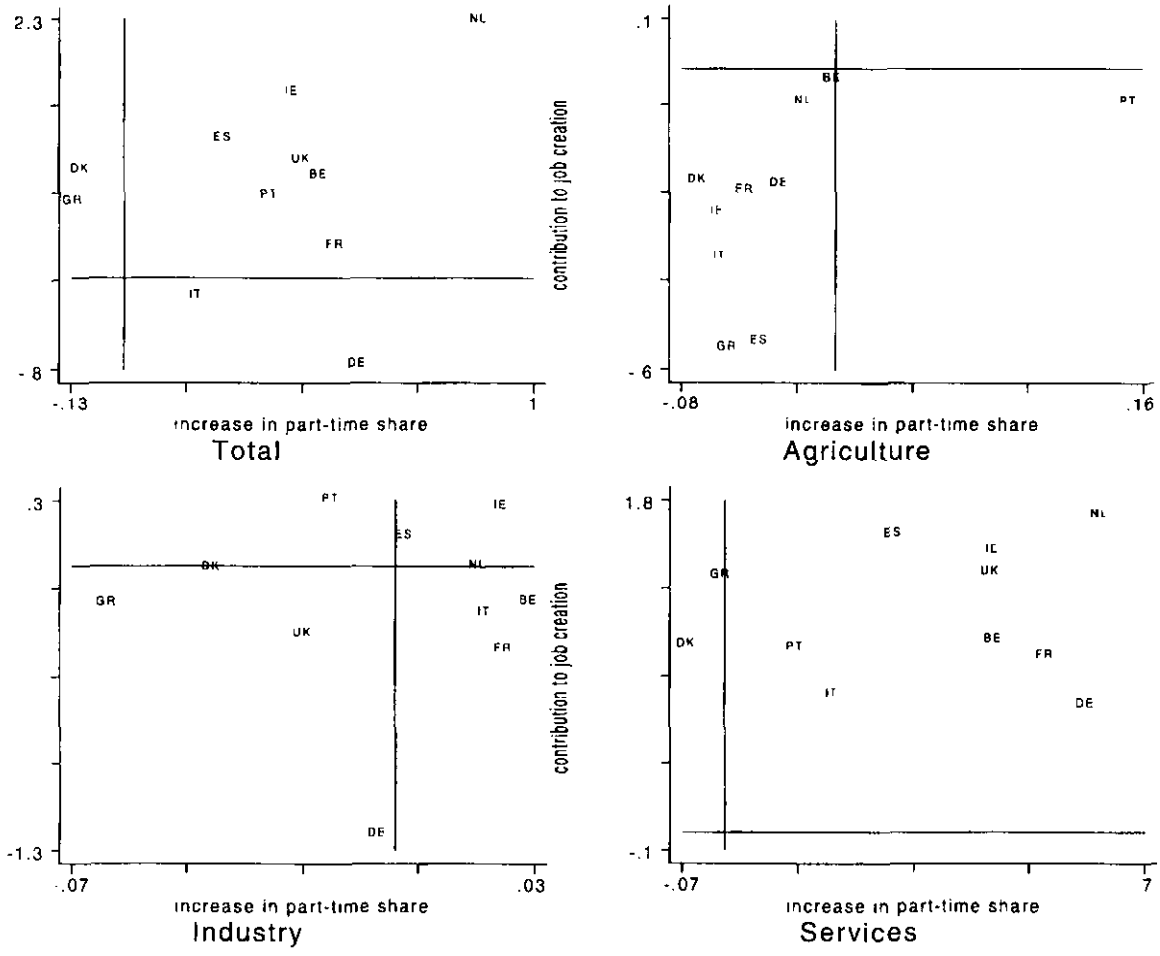


changes in schooling age, with declines in youth employment in most countries, but especially in those where the average schooling age rose rapidly, most notably in Portugal. Of course, labor market institutions have also played a role: for example, high firing costs may have made it especially difficult for the young to find employment, as reflected in the large increase in youth unemployment in continental Europe. While job creation among those aged 25–49 was positive in all countries in the sample, job creation performance among those aged 50–64 was more mixed, reflecting in part the tendency toward early retirement in a number of countries. By broad economic sector (also documented in Section C), most countries have experienced net job creation in services and net job destruction in agriculture. The agricultural sector's negative contribution to overall employment growth has been largest in Italy, Portugal, and Spain, the countries that started off with the highest shares of employment in agriculture sectors at the beginning of the sample. At the same time, Figure 5 confirms that this factor accounts only for a small portion of cross-country differences in overall job creation. These sectoral developments have interacted in an interesting manner with age and gender, notably in the case of rapid employment growth among females aged 25–49 in the service sector.

28. There were also substantial differences among the various European countries with respect to the type of contracts that accounted for job creation. Regarding part-time contracts, the Netherlands clearly stands out, in that half of overall employment creation over the past two decades was accounted for by part-time contracts. The reforms undertaken by the Netherlands in the early 1980s (which, interestingly, were not specifically aimed at promoting part-time contracts) seem to have succeeded in raising overall employment through a sharp increase in part-time employment. In the remaining ten countries for which data are available, the share of part-time jobs increased much more slowly than in the Netherlands, and overall employment growth was also lower (Figure 6).

29. The extent to which increases in part-time jobs have been associated with reductions in full-time jobs can be estimated more precisely through panel regressions, which focus on the time-series information in the data. A simple approach is to use part-time and total employment in a particular country in a given year as the basic observations. With 11 countries and the sample period 1984–97, there are 124 observations (allowing for missing values). Overall employment growth is regressed on the increase in the share of part-time jobs in total employment, as well as 10 country dummies and 13 year dummies. The question being addressed is the following: over the sample considered, when 100 part-time jobs were created, what was the total employment creation associated with that increase? Three possible benchmarks seem particularly interesting. First, overall employment also rose by 100 jobs, i.e., there was no crowding out at all of full-time jobs. In that case, the coefficient on the increase in the share of part-time jobs would be 1. Second, there was no net gain or loss of hours worked, that is—given that the average weekly hours of part-time jobs are about half of those of full-time jobs—overall employment rose by 50 jobs. (If two part-time workers could indeed substitute for one full-time worker with no net change in total hours, there would seem to be no fixed costs associated with individual workers.) In that case, the coefficient on the increase in the share of part-time jobs would be 0.5. Third, there was

Figure 6: Change in Part-Time Shares and Job Creation: 1985-97



complete crowding out of full-time jobs, i.e., overall employment remained unchanged. In that case, the coefficient on the increase in the share of part-time jobs would be 0.

30. Estimation of the regression described above yields a point estimate of about 0.3, but with a rather high standard error—also 0.3 (Table 9). Nevertheless, it is possible to reject the null of no crowding out (i.e., that the slope equals 1). Therefore, this approach suggests that increases in part-time employment have typically been associated with some crowding out of full-time jobs, although the exact extent of that crowding out is not estimated very precisely. Robustness tests also suggest that the coefficient is somewhat sensitive to excluding individual years or countries, or to changes in specification of the regression.

31. A more detailed approach is to use data on country/sectors (e.g., industry in Spain) as the basic units of analysis. This provides a richer data set, with 3 broad economic sectors for each of the 11 countries, over 1984–97, yielding almost 400 observations. In that case, it is possible to estimate the relationship between increases in the ratio of part-time jobs in a given sector to total employment in the country and the contribution of that sector to overall job creation in the country. In estimating the relationship, both a priori reasons and inspection of the data suggest that it is important to permit the slope coefficient to vary among the three sectors. In fact, the extent to which part-time jobs may substitute for full-time jobs may depend on technological considerations: for example, firm-specific knowledge might be more important in some sectors than others. Moreover, the estimated slope coefficients vary considerably among the three sectors, though formal testing rejects the null hypothesis of slope homogeneity only at the 15 percent level. In agriculture, by far the smallest sector, the point estimate of the slope coefficient amounts to 1, and is significantly different from zero, though not significantly from 0.5. In industry, the point estimate equals 0.4, but is not estimated very precisely. In services, the largest sector, the point estimate is 0.4 and is estimated more precisely, so that it turns out to be significantly different from both 0 and 1. These results suggest that in the services sector increases in part-time employment have been associated with increases in the overall number of jobs but also with partial crowding out of full-time jobs. At the same time, it is not possible to reject formally the null hypothesis that there has been no net change in the number of hours. Again, robustness tests suggest that the coefficient estimates are somewhat sensitive to specification changes and the removal of individual countries or individual years. Overall, it seems clear that $\beta=1$ can be rejected, and that β is most likely around 0.5. This suggests that the substitution of part-time jobs for full-time jobs has been only partial, although considerable.

32. Turning to the case of temporary contracts, Spain is the country that stands out over the past two decades, in that its net job creation was entirely accounted for by temporary

Table 9. Part-time and Aggregate Job Creation, 1984–97

Fixed effects regression including 10 country dummies and 13-year dummies; 124 observations.
left-hand side variable is average job creation in $country_i$;
right-hand side variable is change in part-time share in $country_i$.

	Slope $\hat{\beta}$	$\sigma(\hat{\beta})$	$H_0 : \beta = 1$	$H_0 : \beta = 0.5$	$H_0 : \beta = 0.0$
Employment β	0.30	0.30	*0.02*	*0.49*	*0.31*

Fixed effects regressions including 32 country/sector dummies and 13 year dummies; 378 observations;
left-hand side variable is average job creation in $country/sector_i$;
right-hand side variable is change in part-time share in $country/sector_i$

	Slope $\hat{\beta}$	$\sigma(\hat{\beta})$	$H_0 : \beta = 1$	$H_0 : \beta = 0.5$	$H_0 : \beta = 0.0$
Agriculture β	1.03	0.37	*0.93*	*0.15*	*0.01*
Industry β	0.43	0.51	*0.26*	*0.88*	*0.40*
Services β	0.46	0.20	*0.01*	*0.85*	*0.02*

Sources: Eurostat data; and Fund staff calculations.

Note: Numbers in italics are p-values of the corresponding null hypothesis.

contracts (Figure 7).[31] The reforms of the early 1980s in Spain, which introduced temporary contracts against the background of extremely high dismissal costs, appear to have merely raised the share of temporary employment without affecting overall employment.[32] As a result, Spain's share of temporary employment currently stands at one third, by far the highest in the OECD. Spain has also had (together with Italy) the highest dismissal costs in the OECD. The empirical relationship between high dismissal costs and a higher share of temporary employment or a greater increase in the share of temporary employment is not robust when Spain is excluded from the sample.

33. All in all, although the systematic cross-country evidence is somewhat mixed, the success of the Netherlands with part-time contracts and the complete substitution of temporary contracts for permanent contracts observed in Spain suggest that part-time contracts may be a more promising avenue of job creation than temporary contracts.

34. There is also considerable evidence that workers tend to be happier with part time contracts than with temporary contracts. About 58 percent of the workers under part time contracts in the European Union in 1997 declared that they did not want a full time job instead, and only 20 percent stated that they would have preferred a full time job if they had been able to find it.[33] In the Netherlands, 72 percent of workers under part-time contracts in 1997 declared that they did not want a full time job instead, and only 6 percent stated that they would have preferred a full time job if they had been able to find it.[34] By contrast, 7 percent of workers with temporary contracts in the European Union in 1997 declared that they did not want a permanent job instead, and 40 percent stated that they would have preferred a permanent contract if they had been able to find one.[35] The proportion of workers with temporary contracts because they could not find permanent jobs amounted to 87 percent

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[31] Owing to data limitations, Figure 7 relates to the number of employees, rather than total employment (i.e., it excludes the self-employed). The contribution to employment growth of the self-employed was very low in countries such as Spain and high in countries such as the Netherlands. This may reflect higher social security contributions in Spain than in the Netherlands.

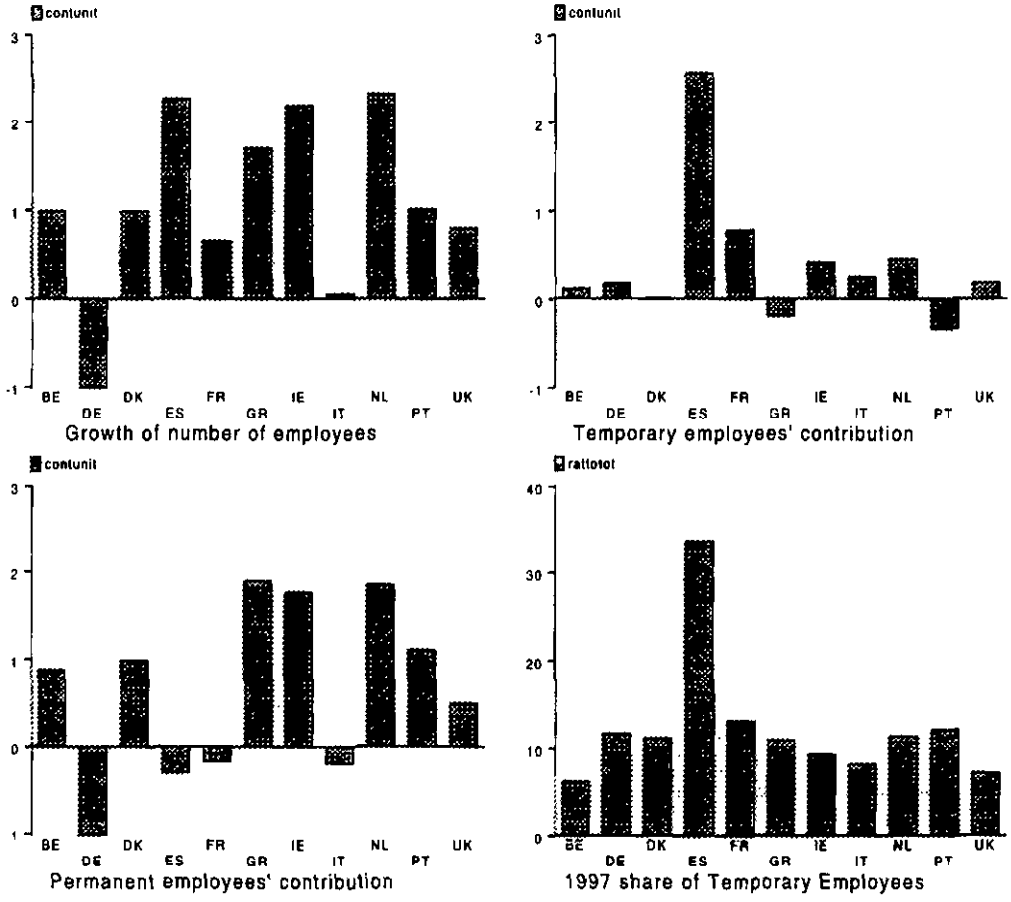
[32] Bentolila and Dolado (1994) provide further detail on the impact of the reforms of the early 1980s in Spain.

[33] Another 12 percent were in school or suffered from illness, and the remaining 10 percent did not give a reason for having a part-time job.

[34] The remaining 21 percent were in school or suffered from illness.

[35] Another 29 percent did not give a reason for having a temporary job; and 24 percent were under training contracts or in a probationary period.

Figure 7: Temporary/Permanent Employees.



in the case of Spain, where the share who did not want permanent jobs was negligible. Unfortunately, a corresponding survey of entrepreneurs is not available, and it seems likely that entrepreneurs would give a more positive view of temporary contracts, although entrepreneurs (notably, in Spain) often state that they also appreciate job stability, because it facilitates the acquisition of firm-specific skills by workers.

F. Concluding Remarks

35. Drawing on a variety of data sources, this chapter has analyzed in a systematic way the job creation performance of 21 OECD economies between 1980 and 1997, focusing on the role of age and gender characteristics, economic sectors, institutions, and types of contract, in the job generation process. There are four main findings. First, the experience of the United States is confirmed as an "employment miracle," taking into account the growth rate of population, output, and capital. At the same time, although most continental European countries created far fewer jobs than the United States, the case of the Netherlands demonstrates that good job creation performance is possible also in Europe. Second, the fact that certain countries did especially well in a limited number of sectors or that they had a favorable initial sectoral composition of employment can only account for a small portion of the cross-country differences in job creation. In particular, relatively slow employment growth in Southern European countries including Spain over the past two decades can only partially be attributed to their large initial share in agriculture. Third, certain labor market policies and institutions (in particular, a flexible employment protection legislation and a low tax burden) are significantly associated with rapid employment growth, and account for most of the cross-country differences, notably between the high-performing non-European countries and Continental Europe. Fourth, within Europe, the success of the Netherlands is largely accounted for by the creation of part-time jobs for women aged 25–49 in the service sector, which followed the reforms of the early 1980s in that country. Considering also the other European countries in which part-time employment did not rise as rapidly, systematic analysis suggests that substitution of part-time jobs for full-time jobs, while considerable, is only partial. Turning to temporary contracts, the experience of Spain beginning in the mid-1980s suggests that temporary jobs seem to have merely substituted for permanent jobs, a process that may have been exacerbated by Spain's high dismissal costs.

36. The set of empirical regularities outlined above suggests a number of policy considerations. Although the direction of causality between institutions and labor market outcomes remains to be analyzed, the results are consistent with the view that a policy package including low dismissal costs and a moderate tax burden might foster higher employment growth. Spain's efforts to reduce the tax burden and dismissal costs go in that direction, though more forceful steps would be desirable.

37. With respect to the role of contracts, Spain's efforts toward the elimination of remaining obstacles to the use of part-time contracts are also welcome. These contracts have proved to be a popular vehicle to increase female labor force participation (which is still relatively low in Spain) and may help raise overall employment as well.

SHIFT-SHARE ANALYSIS

In what follows, countries are indicated with i=1.....I, sectors with j=1.....K, and years with t = 0.....T. In this section, I=11, K=11 and t = 0 refers to 1982. Average job creation in country i, g_{it} can then be written as

$$g_{it} = \frac{\sum_{j=1}^{K}\left(N_{ijt} - N_{ij0}\right)}{(T-1)\sum_{j=1}^{k} N_{ij0}}$$

where N_{ijt} is employment in sector j, country i and time t. The contribution to average growth of sector j in country i will be

$$g_{ijt}^{c} = \frac{\left(N_{ijt} - N_{ij0}\right)}{(T-1)\sum_{j=1}^{k} N_{ij0}}$$

It follows that the g_{ijt}^{c} can be expressed as the product of the growth rate of sector i weighted by its weight in the initial distribution of employment:

$$g_{ijt}^{c} = g_{ijt} w_{i0}$$

where g_{ijt} is average job creation in sector i and $w_{ij0} = \frac{N_{ij0}}{\sum_{j=1}^{K} N_{ij0}}$ is the share of sector j in total employment.

The first quantitative exercise carried out in Section C measures average job creation by weighing g_{ijt} by the average employment share across countries. More specifically, we indicate with $\tilde{g}_{it}$ how a country would have grown if its initial employment share had been the same as the average in the sample:

$$\tilde{g}_{it} = \sum_{j=1}^{k} g_{ij} \overline{w}_{j0}$$

where $\overline{w}_{j0}$ is the share of sector j in the average country in the sample, and its expression reads

$$\overline{w}_{j0} = \frac{\sum_{i=1}^{I} N_{ij0}}{\sum_{i=1}^{I}\sum_{j=1}^{K} N_{ij0}}$$

The second accounting exercise carried out in Table 5 measures job creation in each country under the assumption that each sectors had grown uniformly across countries. Defining with prime $\tilde{g}_{it}$ ' this new measure, its expression reads

$$\tilde{g}_{it} = \sum_{j=1}^{k} \overline{g}_{ij} w_{j0}$$

where

$$\overline{g}_{ij} = \frac{\sum_{i=1}^{I} N_{jit} - \sum_{i=1}^{I} N_{ij0}}{\sum_{i=1}^{I} N_{ij0}}$$

is average job creation in sector j.

DATA SOURCES AND DEFINITION OF THE VARIABLES

Section B uses data from the OECD analytical database and the Business Sector Database.

Job creation is simply measured as the average growth in total civilian employment.

Working age population is the number of people between the age of 15 and 64.

Change in the Labor-Capital Ratio is measured from the business sector data set.

Section C uses the ISDB 97, International Sectoral Data Base 97. The ISDB combines a range of data series related primarily to industrial output and primary factor inputs used in 15 OECD member countries. For limited data coverage Finland, Germany (including East Germany), Korea and the United Kingdom are excluded from the sample. The variable used in this chapter is total employment.

The sectoral classification of different countries is not identical. In particular, the International Standard Industrial Classification (ISIC) differs from the General Industrial Classification of all Economic Activities in the European Communities (NACE), which in turn differs from the baseline (ISDB) classification. In order to obtain the cross-country/cross-sector distribution proposed in Section C, the following adjustments were made:

In countries that follow the NACE classification (West Germany, Belgium, and Italy), the subsector Real Estate and Business Sector (RES) which belongs to the sector Financial, Insurance and Real Estate Business (FNI) was included in the sector Other Producer (OPR). Thus, in order to estimate employment in subsector RES for the missing countries, the average proportion of RES within FNI in the other countries is used, and is subtracted from OPR.

Further adjustments had to be made to address country-specific data limitations. In the case of Japan, the subsector HOT (Hotels and Restaurants) was included in the sector SOC (Community Social and Personal Services). In the case of France, PGS (Producer of Government Service) was included in OPR. In both cases, the share was computed as the average in the sample.

Section D uses aggregate data from the following sources:

Average change in inflation is the average change in consumer price inflation (in percentage points) between 1980 and 1997. Data are drawn from the International Financial Statistics of the IMF.

Employment Protection Legislation represents a country's ranking of overall strictness of protection against dismissals. It is an average ranking of four different subindices related to period 1985–93: Maximum Pay and Notice Period, Strictness of Protection Against Regular and Fixed-Term Contracts, Index of Obstacles to dismissals and the Ranking proposed by

Bertola (1990). The index appeared in the OECD Jobs Study (1994) and was compiled by Grubb and Wells (1993).

Overall taxes and payroll taxes are measured as average total taxation and average payroll taxes, respectively, as a share of GDP. The data are drawn from the OECD Revenue Statistics.

Union density measures the proportion of workers that belong to a trade union. Data refer to 1980, 1990 and 1994 and were compiled by the OECD (1997).

Union coordination is an index that measures the extent to which both employers and employees across the economy coordinate in the bargaining process. The index takes values between 1 and 3 and is available for 1980, 1990 and 1994. In was compiled by OECD (1997).

Unemployment benefits measures the average net replacement ratio for an unemployed worker. Information refers to 1981 and 1991 and the data are drawn from the OECD Jobs Study.

Section E uses data from Eurostat's Labour Force Survey.

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III. HEALTH CARE ISSUES IN SPAIN[36]

A. Introduction and Summary

1. This paper looks at the health care system in Spain and the evolution of health care expenditure in recent years. While health care expenditure represents a lower percentage of GDP in Spain than in most other EU countries, this largely reflects Spain's lower per capita GDP. Controlling for income, health care spending in Spain is somewhat above average for an OECD country. In addition, the structure of health care spending in Spain is unusual in that pharmaceutical expenditures represent a significantly larger share of total health care costs than in other countries.

2. Health status indicators in Spain are at a very high level, and coverage of the system is virtually universal. Thus, the challenge for the future is less to improve the quality of health care than to limit the growth of its cost. As in other countries, pressures on health care costs are likely to arise from a number of factors, including technological change, income growth, and population aging. Simulations conducted in the paper suggest that the impact of population aging is likely to be managable, but that increases in real income will likely have a large impact on health care spending. In tandem, population aging and income growth could lead to a real increase in health care expenditure of more than 3 percent of GDP by the middle of the next century. Cost control is thus likely to remain a major issue in the future.

3. Many of the measures being introduced in other European countries to control health care costs have also been implemented in Spain. Future reforms should concentrate on creating internal markets for health care to encourage greater efficiency; on expanding the currently limited reliance on user fees, for example by introducing them on speciality care and pharmaceutical purchases by the elderly (perhaps subject to means testing), to reduce demand for non-essential health care services; and on devolving responsibility for health care financing to regional governments to match the devolution of responsibility for health care delivery that has already occured.

B. The Health Care System in Spain

4. Health care in Spain is provided by a mixed public-private system. Overall, the public sector accounted for 78 percent of health care spending in Spain in 1997, which is about average for a European country. Coverage of the public system is virtually universal (more than 99½ percent of the population). Services at hospitals, doctors' offices and clinics are provided free. Nevertheless, the private system continues to exist because it offers amenities not available at public hospitals (for example, private rooms), because some services are not available under the public system, and because of waiting lists for some nonemergency

[36] Prepared by Philip Gerson.

procedures at public hospitals.[37] In addition, a portion of private health expenditure represents copayments on pharmaceuticals, which are set (at the primary care level) at 40 percent (retirees have no copayment and the chronically ill have a copayment of only 10 percent). About 15 percent of the population has insurance to cover private health expenditure, a substantially lower share than in most other European countries.[38] Nevertheless, out-of-pocket spending on health care accounts for a relatively small portion of family expenditure: according to the *Encuesta Continua de Presupuestos Familiares*, in 1996 spending on medical care represented 2.9 percent of total household expenditure (2.6 percent in 1992).

5. Up until 1989, the national health system was financed primarily by social security contributions from workers and employers (the so-called "Bismarck Model"). Since then the share of social security contributions in the financing of health care has gradually been decreased, and with effect from 1999 the health system has been financed entirely from general tax revenues (the "Beveridge Model").[39] These changes were motivated in part by a desire to ensure the financial sustainability of the pension system. They also reflect a philosophy that benefits available to the entire population—such as health care—are more appropriately financed from broadly-based sources like general tax revenues than from social contributions that fall on a more narrow segment of the population.

6. Spain is currently in the process of decentralizing the responsibility for health care and other categories of expenditure to regional governments. Public health responsibilities and services have thus far been devolved to seven autonomous communities,[40] which account for more than 60 percent of the population. Health care for the balance of the population is provided by the central government through the National Health Institute, INSALUD. Health

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[37] In June 1996 the average waiting time for nonemergency surgery was 210 days, but by end-1997 this had been cut to 98 days, in part through greater use of outpatient procedures and through contracting out services to private hospitals. INSALUD (1999). One of the authorities' goals for 1998 was to ensure that no individual remained on the waiting list for an elective procedure for more than six months. This goal was not fully achieved: at end-year some 500 individuals had been awaiting services for more six months.

[38] In the early 1990s, about 75 percent of the population of France, 70 percent of the population of the Netherlands, 40 percent of the population of Austria, and 30 percent of the populations of Belgium, Germany, Ireland, and Denmark had private health insurance. WHO (1997). Note, however, that many countries have mandatory private health insurance, provided by nonprofit insurers.

[39] A very small portion of revenues (about 1½ percent of the total) are generated from the health system's own resources.

[40] Catalonia, Andalucia, the Basque Country, Valencia, Galicia, Navarra, and the Canary Islands.

expenditures in regions where responsibilities have been devolved are financed via block transfers from INSALUD according to a formula that reflects regional population and other factors influencing expenditure (see Section E for a discussion of the formula used to calculate transfers)

7. Most of the population is now covered by primary care centers staffed by full-time physicians that provide integrated care. Physicians are compensated on a mixed salary and capitation basis.[41] Hospitals are typically financed through global budgets distributed by INSALUD or one of the seven regional authorities to whom responsibility for health care delivery has been devolved, and all staff are normally salaried. The distribution of pharmaceuticals is highly regulated. Despite the fact that the government negotiates wholesale prices directly with manufacturers at levels that are about 20 percent lower than the average European wholesale price, consumer prices are substantially higher because of the large margin that the government allows pharmacies. Pharmacies are also given exclusive rights to sell a number of over-the-counter medications and nonmedical products such as baby formula, further increasing consumer prices. In 1993, retail margins accounted for 29 percent of final prices for retail pharmaceuticals in Spain, compared to 28 percent in France, 23 percent in Germany, 22 percent in Italy and 5 percent in the United Kingdom. Among all these countries, only in German did ex-factory prices represent a smaller share of final retail cost than in Spain.[42] These large margins have led Spain to have one of the largest numbers of pharmacies per capita in the OECD.[43] Restrictions also exist that limit the ownership of pharmacies to pharmacists, prevent individuals from owning more than one pharmacy, and restrict the geographical proximity of pharmacies. These regulations prohibit the entry of chain stores into the market, restraining competition.

8. Reflecting these facts, the structure of health care expenditure in Spain differs in some important respects from that prevailing in the average OECD or European country (see Table 1, below). Relative to GDP, Spain spends substantially less on ambulatory care than does the typical OECD or European country. It also spends slightly less on hospital care and slightly more on pharmaceuticals than average. Looking at spending on these different categories as percentages of total expenditure, the differences with other European countries are more pronounced: while hospitals account for about the same share of total health expenditure in Spain as in the average European country, spending on ambulatory care accounts for a significantly smaller share and spending on pharmaceuticals a significantly larger share than is the average in Europe. On the other hand, spending on pharmaceuticals in US dollar terms (PPP) is lower in Spain than in the average European country: in 1996, per capita expenditure on pharmaceuticals in Spain equaled $223, compared to an average in Europe of $237. Pensioners account for about 60 percent of prescriptions and 70 percent of

[41] OECD (1996).

[42] The low share of ex-factory prices in Germany reflects in part the fact that taxes on drug sales are higher in Germany than elsewhere. WHO(1997).

[43] OECD (1996).

public expenditure on pharmaceuticals in Spain. The low proportion of spending on ambulatory care in Spain may reflect the large share of wages and salaries in total costs for this type of care and the fact that physician salaries are lower in Spain than in other countries.

Table 1. Spain: Structure of Health Care Expenditure

	1980	1985	1990	1995
	(As percent of GDP)			
Hospitals	**3.0**	**3.1**	**3.0**	**3.3**
Public	2.5	2.6	2.9	3.0
Private	0.5	0.5	0.1	0.3
OECD average	3.3	3.4	3.4	3.3
European average	3.2	3.3	3.3	3.5
Ambulatory care 1/	**0.9**	**0.9**	**1.0**	**1.0**
OECD average 1/	1.1	1.3	1.3	1.5
European average 1/	1.2	1.3	1.4	1.6
Pharmaceuticals	**1.2**	**1.1**	**1.2**	**1.4**
Public	0.8	0.7	0.9	1.1
Private	0.4	0.4	0.3	0.3
OECD average	0.9	0.9	1.0	1.2
European average	0.9	1.0	1.0	1.2
	(As percentage of total)			
Hospitals	**58.8**	**60.8**	**57.7**	**57.9**
Public	49.0	51.0	55.8	52.6
Private	9.8	9.8	1.9	5.3
OECD average	61.9	61.1	59.2	54.5
European average	60.0	59.0	57.6	56.1
Ambulatory care 1/	**17.6**	**17.6**	**19.2**	**17.5**
OECD average 1/	21.2	22.5	23.5	25.2
European average 1/	22.7	23.8	24.4	25.0
Pharmaceuticals	**23.5**	**21.6**	**23.1**	**24.6**
Public	15.7	13.7	17.3	19.3
Private	7.8	7.8	5.8	5.3
OECD average	16.9	16.4	17.4	20.3
European average	17.3	17.2	17.9	18.8

Source: OECD Health Data 1998; and Fund staff calculations.

9. Over time, expenditure on pharmaceuticals has grown relatively faster than has spending on other categories, rising from 1.2 percent of GDP in 1980 to 1.4 percent of GDP in 1995. All of the increase in spending on drugs has come at the public sector level, as private expenditure on pharmaceuticals has declined slightly as a share of GDP since 1980. To a large extent, the patterns of expenditure over time reflect developments in other European countries as well. The most important difference is that while spending on ambulatory care has increased in other European countries over the last 15 years, in Spain it has remained about constant relative to GDP. Rates of increase of other categories of expenditure relative to GDP have not differed markedly in Spain compared to other European countries.

C. Health Spending and Outcomes: International Comparisons

10. Total health care expenditure (public and private) in Spain in 1997 was equivalent to 7.4 percent of GDP, about half a point below the simple averages both for the OECD and the EU.[44] To a large extent, this reflects Spain's lower-than-average per capita income: regressing health care spending as a percentage of GDP on per capita income for the OECD countries (Figure 1) suggests that the level of expenditure on health care in Spain is somewhat higher than average after controlling for per capita income.[45] In absolute terms, per capita spending on health care in Spain is about one-third lower than the EU average (Table 2).

11. Spending on health care as a percentage of GDP in Spain has grown dramatically in recent decades, starting from a level of about 1.5 percent of GDP in 1960 (Figure 2) to 7.4 percent at present. Since EU accession, expenditure as a percentage of GDP has grown by about one-third, from 5.6 percent of GDP in 1986 to 7.5 percent of GDP in 1993, at which level it has since more or less stabilized. Over the same period, average health care expenditure in the EU increased by about 0.9 percent of GDP, or about half the absolute increase experienced in Spain. Although some of the increase in expenditure as a share of

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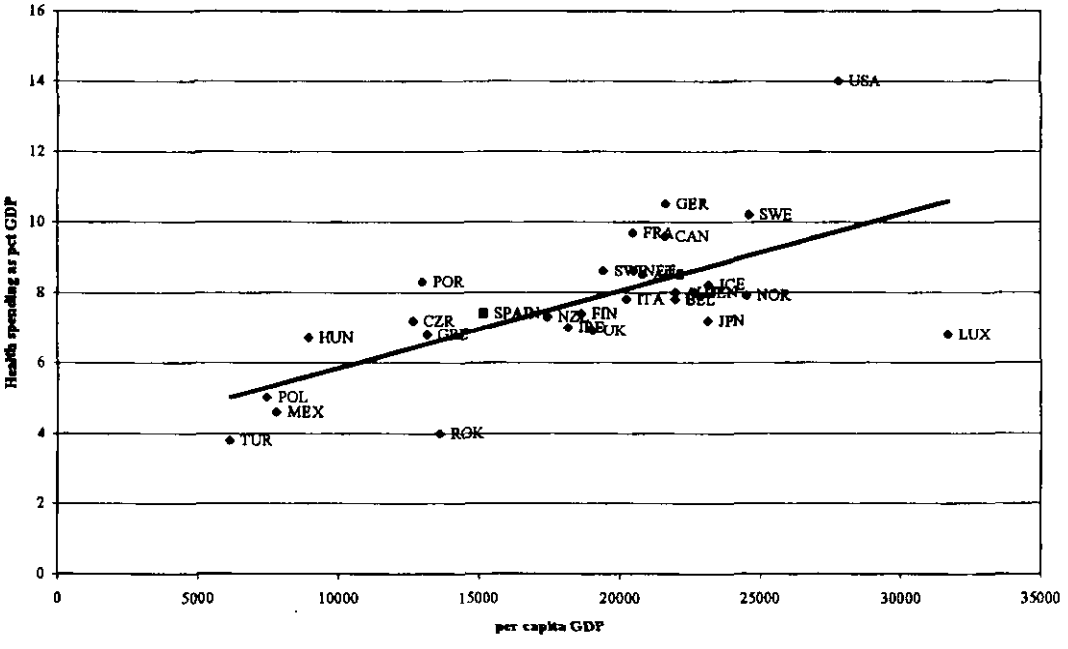
[44] In population-weighted terms, health care spending in Spain is about 1 percentage point below the European average and about 1¾ percentage points below the OECD average (Table 2).

[45] The estimation was performed using Ordinary Least Squares on a dataset containing information on health care expenditure as a percentage of GDP and PPP-adjusted per capita GDP in U.S. dollars for 29 OECD countries from 1996 (from the OECD Health Data 1998 database). The estimated equation is EXP= 3.66 + .000219*PCGDP, where EXP is expenditure on health care as a percentage of GDP and PCGDP is per capita GDP in US dollars. The predicted value for Spain is 7.0 percent of GDP in 1996, slightly below the observed value of 7.4 percent. The coefficient of determination (r-squared) was 0.45. T-statistics (calculated using heteroskedasticity-consistent standard errors) were 3.09 for the constant term and 3.04 for the income variable.

GDP in Spain reflects income growth, it is clear that health expenditure in Spain has converged toward EU levels much more rapidly than has income: from 1986 to 1997 health expenditure in Spain rose from 78 percent of the simple EU average to 93 percent, while per capita GDP rose from 70 percent of the EU average to just 78 percent. Although the experience of Spain in stabilizing health care expenditure relative to GDP since 1993 is laudable, it does not differ from that of other EU countries: while health care expenditure rose by about three-quarters of a percent of GDP in the EU between 1986 and 1992, since then it has remained virtually constant at 8.0 percent of GDP.

Figure 1. Health expenditure as percent GDP and per capita GDP



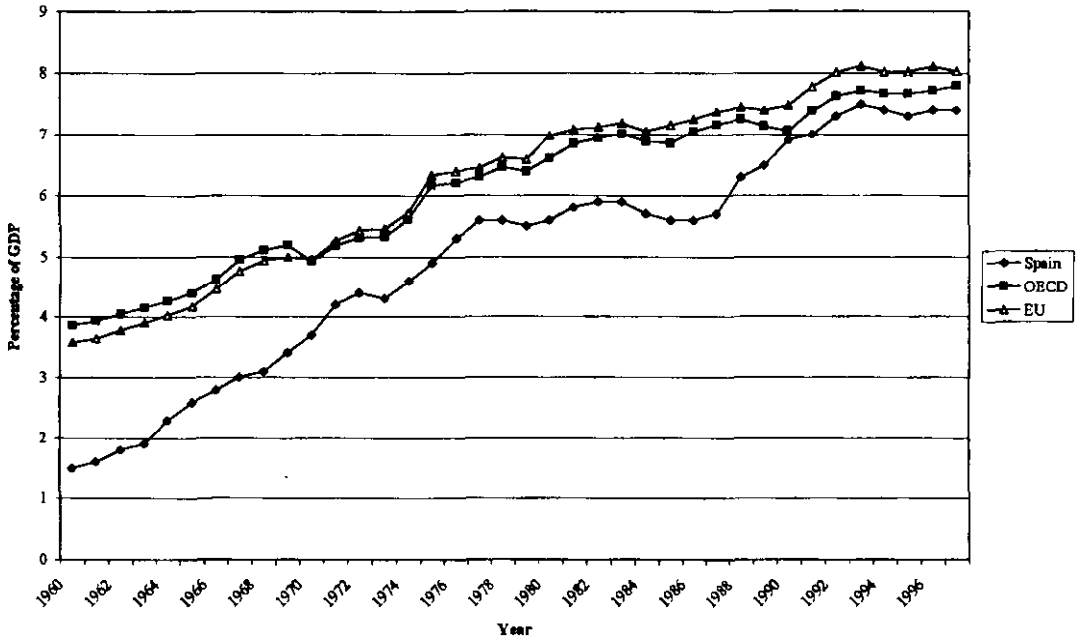
Source: OECD Health Data 1998.

Table 2. Selected Countries: Health Expenditure, 1997

	Per capita in PPP-U.S. Dollars	In percent Of GDP
Austria	1,793	7.9
Belgium	1,747	7.6
Denmark	1,848	7.7
Finland	1,447	7.3
France	2,103	9.9
Germany	2,339	10.4
Greece	974	7.1
Iceland	2,005	8.0
Ireland	1,324	7.0
Italy	1,589	7.6
Luxembourg	2,340	7.1
Netherlands	1,825	8.5
Norway	1,814	7.4
Portugal	1,125	8.2
Spain	1,168	7.4
Sweden	1,728	8.6
United Kingdom	2,547	6.7
United States	4,090	14.0
Population-weighted OECD Average	**2,228**	**9.1**
Population-weighted European Average	**1,732**	**8.3**

Source: OECD Health Data 1998.

Figure 2. Spain, OECD and EU: Health Care Expenditure as Percent of GDP



Source: OECD Health Data 1998.

12. Health care outcomes in Spain have improved dramatically over the last 35 years. The infant mortality rate, which in 1960s was substantially higher than the average for the EU countries, declined rapidly through the 1960 and 1970s, and for the last decade has been about equal to the EU average (Figure 3). Male life expectancy at both age 40 and age 65 in Spain is higher than the average for the EU or the OECD (Table 3). However, potential life years lost (excluding suicides and road accidents)—which for the 1970s and most of the 1980s were lower in Spain than in the rest of the EU—have since 1986 actually exceeded the levels prevailing in the EU (Figure 4), with the figure for Spain in 1994 exceeding the EU average by about one standard deviation.[46] Moreover, while potential life years lost have declined steadily in Europe since the mid-1980s, the improvement in this indicator in Spain has been quite limited over the last decade. Thus, while somewhat coarse indicators such as life expectancy and infant mortality rates suggest that the health status of the Spanish population is at least equal to the European norm, a somewhat finer indicator suggests that some room for improvement may exist.

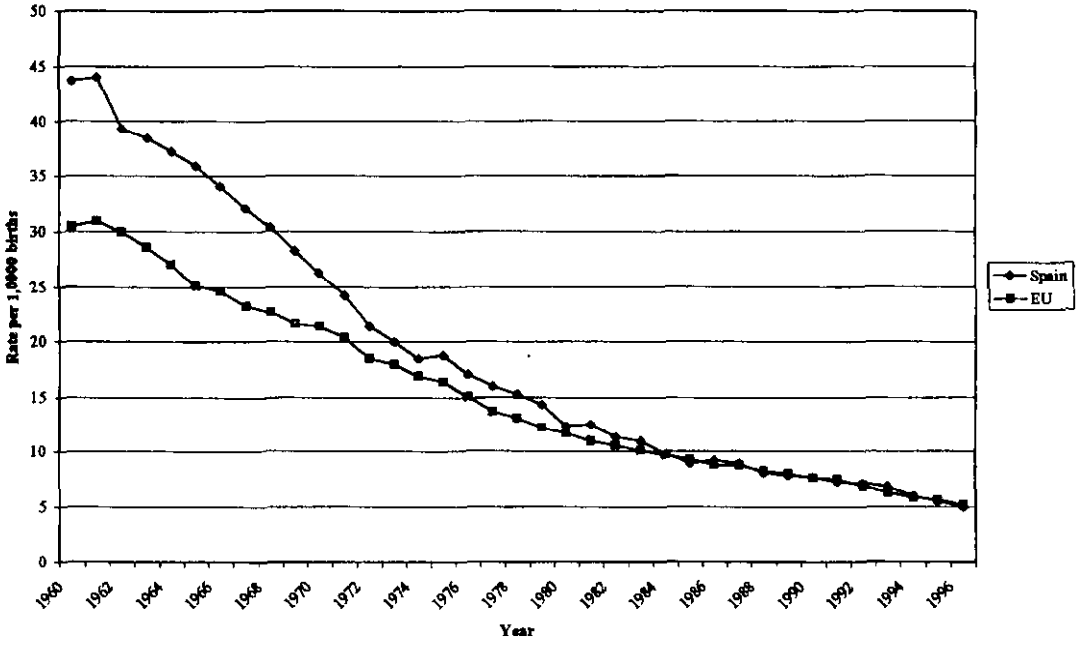
[46] Potential Life Years Lost is a broad measure of mortality that calculates—based on standardized population structures—the total number of years lost to early death (defined relative to some fixed standard, say 70 years of age) from a specified set of diseases.

Table 3. Spain and Other Countries: Male Life Expectancy
at Ages 40 and 65, 1996
(In average additional years of life)

	At age 40	At age 65
Austria	35.9	15.3
Belgium	36.4	15.3
Denmark	...	14.2
Finland	35.1	14.6
France	36.4	16.1
Germany	35.5	14.9
Greece	37.4	16.1
Iceland	38	16.2
Italy	...	15.7
Netherlands	35.8	14.4
Norway	37.1	15.5
Portugal	34.6	14.3
Spain	36.7	15.8
Sweden	37.9	16.1
Switzerland	37.8	16.3
United Kingdom	...	14.7
United States	35.9	15.7
Population-weighted OECD Average	36.3	14.8
Population-weighted European Average	36.2	15.3

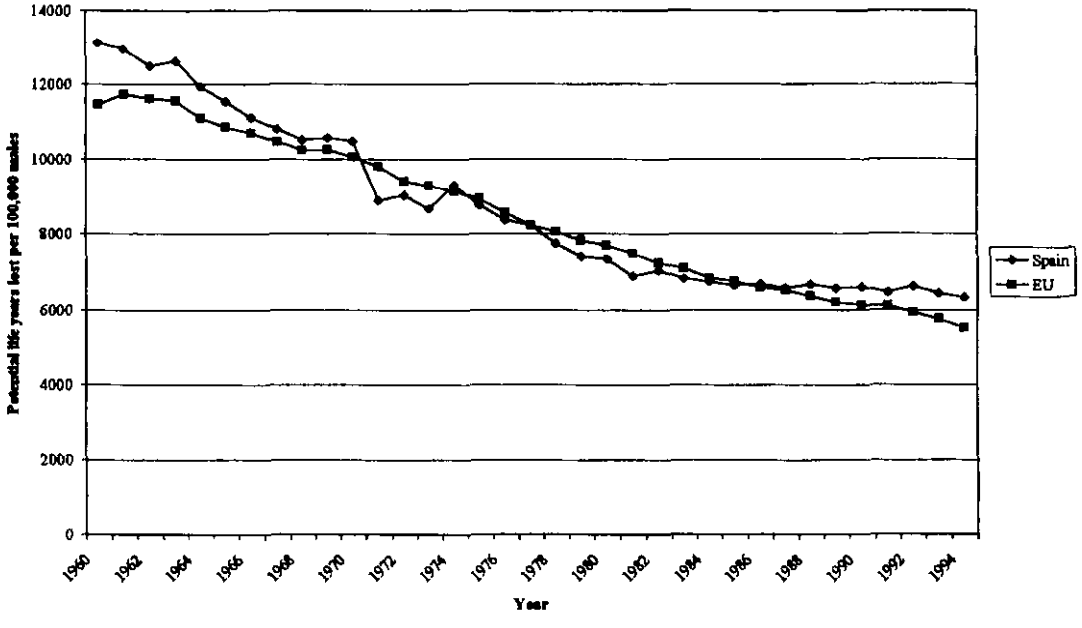
Source: OECD Health Data 1998.

Figure 3. Infant Mortality Rates, 1960-96



Source: OECD Health Data, 1998.

Figure 4. Potential Life Years Lost, 1960-94
(per 100,000 males, excluding suicides and road accidents)



Source: OECD Health Data, 1998.

D. Challenges to the Health Care System

13. The challenge facing the health care system is less to improve the health status of the general population—although such improvements would obviously be welcome—or to extend the coverage of the system, but rather to ensure that costs remain under control in the face of pressures arising from changes in relative prices, technological change, population aging, and rising real incomes.

14. As in other countries, relative prices for health care have risen in Spain. Between 1988 and 1997 consumer prices for health services and products rose by a cumulative 66 percent, compared to an increase of 55 percent in the general price index. After increasing by as much as 10 percent annually in the early 1990s, the growth of medical prices has slowed significantly in recent years. Nevertheless, it remains one of the fastest growing elements of the CPI.[47] Figure 5 shows inflation in overall consumer prices and in the health care component of the CPI, as well as for the pharmaceutical and nonpharmaceutical elements of health prices. It indicates that the increase in health care prices primarily reflects the very rapid growth in prices of nonpharmaceutical inputs, while prices of pharmaceuticals have increased only moderately over the last decade. This reflects in part successful efforts by the government to reduce regulated wholesale margins on drugs. (Of course, pharmaceuticals included in the consumer price basket represent only a portion of all drugs consumed). López and Casado (1998) estimate that of the 13 percent annual increase in nominal health care expenditure in Spain between 1980 and 1995, more than half arose from increases in health care prices, rather than from increased coverage of the system, demographic factors, or greater real provision of services to the population.

15. Technological change will likely continue to put pressure on medical costs in the years to come. For reasons of safety, efficiency, quality of care and professional prestige, as well as patient satisfaction, health care providers are often under pressure to adopt the most up-to-date techniques. While in most other markets new technologies are subject to household or firm-level budget constraints, the existence of third-party payers such as private or national health insurance programs creates well-known disincentives to ensure that all new technologies are cost effective. More generally, the existence of third-party payers creates "moral hazard" that can lead to excess demand for or supply of health care services. This increases the importance of the regulatory role of government, to ensure that new technologies that are adopted are cost-effective.[48]

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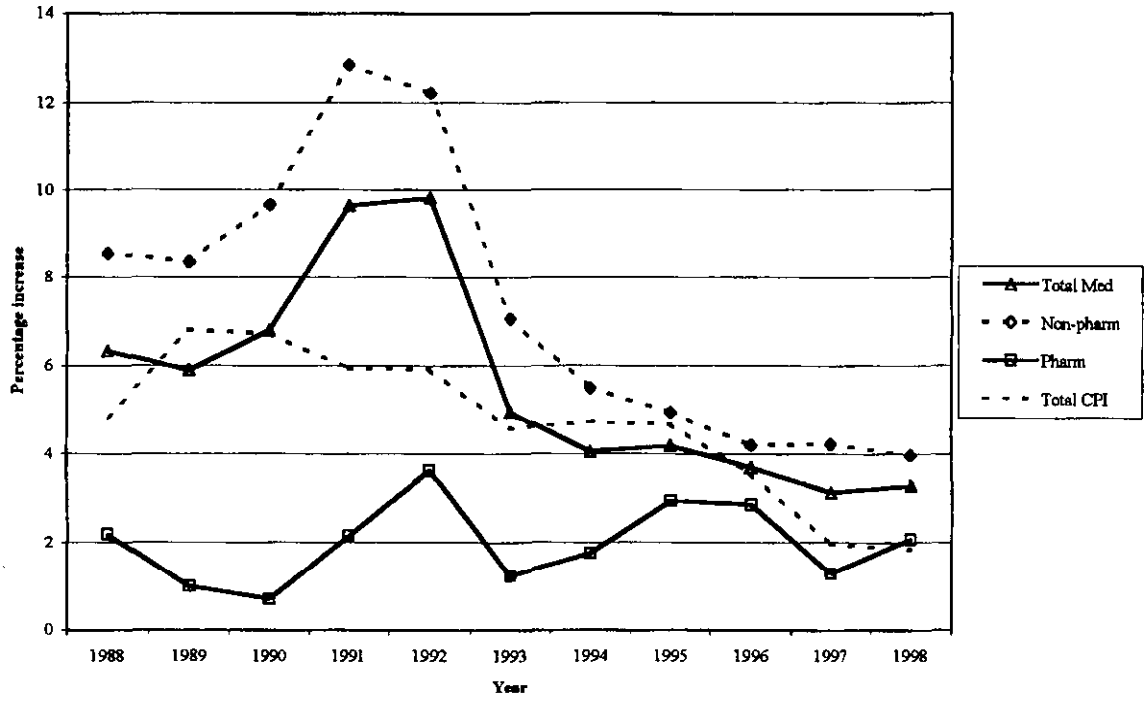
[47] Instituto Nacional de Estadística.

[48] Even when new procedures are less expensive than existing ones, they may entail substantial start-up costs for new capital equipment and renovated facilities, and may also require more highly trained and expensive personnel. Part of the regulatory role may therefore involve financial or other inducements to ensure that appropriate technologies with high initial fixed costs but low marginal costs are adopted.

Figure 5. Health Services Price Inflation and Consumer Price Inflation 1988-1998



Source: Bank of Spain.

16. In contrast to relative prices and technological change, the impact of rising incomes and of population aging on the cost of health care services is less amenable to government control. Numerous studies have examined the impact of income growth on health care spending, and most find elasticities of expenditure significantly greater than 1.[49] Gerdtham *et al.* (1994) find that among OECD countries, GDP per capita is the single most important factor explaining differences in health care expenditure across countries. Although income elasticities of demand for health care must inevitably decline in the future, one implication is that as Spain's per capita GDP converges with the European Union average, its expenditure on health care will increase. The results of the regression of health care expenditure as a percentage of GDP on per capita income reported in Section C suggest that simply closing the gap between per capita GDP in Spain and the *current* EU average will generate an increase in health care expenditure of about 1 percent of GDP.

17. Population aging will also have a impact on health care expenditures in the future, simply because per capita health expenditure increases dramatically with age. Data on health care expenditure by age group are not available for Spain, but data for all OECD countries with available figures from the 1990s are presented in Table 4, below. Although there is some variation across countries, the data reveal that on average, per capita spending on

[49] See, for example, McGuire *et al.* (1993) and Rowlatt and Lloyd (1994).

individuals aged 75 or more is about four times that on individuals aged 0–64, while per capita spending on individuals aged 65–74 is about 2½ times that on individuals aged 0–64. The much greater cost of providing health care to the elderly is important, because over the next century the population pyramid of Spain is expected to shift as the baby boom generation of the 1960s and 1970s ages.

Table 4. Spending on Health Care by Age, Selected OECD Countries
(Spending on Age 0-64 = 1)

	Year	65-75	75+
Czech Republic	1996	2.4	2.4
Finland	1990	2.8	5.5
France	1991	2.2	3.7
Germany	1994	2.3	3.2
Japan	1995	3.2	5.7
Korea	1994	2.5	2.1
New Zealand	1994	2.3	6.2
Portugal	1991	1.4	2.1
Sweden	1990	2.3	3.4
Switzerland	1991	2.6	5.7
United Kingdom	1993	2.5	5.6
Average EU	...	**2.3**	**3.9**
Average	...	**2.4**	**4.1**

Source: OECD Health Data 1998

18. Table 5, below, provides an illustration of the impact population aging could have on health care expenditure in Spain. Assuming that the ratio of per capita expenditure on health care by age in Spain is identical to the average presented in Table 4, it is possible to calculate that per capita expenditure on health care in Spain in 1997 equaled $920 for individuals aged up to 65; $2,115 for individuals aged 65–74; and $3,586 for individuals aged 75 and older. Holding these per capita expenditure levels constant while adjusting for demographic shifts based on population projections by the World Bank suggests that between 1997 and 2050 per capita expenditure on health care in 1997 U.S. dollars could increase by one-third, from

$1,168 in 1997 to $1,560 in 2050, as the percentage of the population over the age of 65 more than doubles.[50]

19. The implied annual increase of about 0.6 percent in real spending on health care over the period 1997–2050 is well below the likely rate of real GDP growth in Spain. Thus, the impact on health care expenditure of population aging should be manageable.[51] However, it is worth reemphasizing that demographic shifts are only one factor influencing health care costs. The calculations abstract from the impact of income growth, technological innovation, and changes in relative prices and disease patterns.

Table 5. Spain: Population Strucuture and Projected Per Capita Health Spending, 1997-2075
(In percent and 1997 US$)

	Population by Age			Spending Per Capita			
Year	0-64	65-74	75+	Total	0-64	65-74	75+
1997	86.2	8.2	5.7	1,168	920	2,115	3,586
2010	82.4	9.0	8.6	1,257	920	2,115	3,586
2020	79.9	10.7	9.4	1,298	920	2,115	3,586
2030	75.7	13.1	11.2	1,375	920	2,115	3,586
2050	68.3	13.9	17.8	1,560	920	2,115	3,586
2075	74.3	10.4	15.3	1,451	920	2,115	3,586

Sources: INE, World Bank, OECD Health Data, 1998; and Fund staff calculations.

20. To obtain a more accurate picture of the pressures that will arise on health care costs in the long run, it may be useful to combine the impact of rising incomes and population aging. A regression of per capita health care expenditure on per capita GDP (both in PPP-adjusted U.S. dollars) using 1996 data for European countries estimates that the income elasticity of health care expenditure is 1.11.[52] Assuming that per capita GDP in Spain grows

[50] Alonso and Herce (1998) also attempt to project the impact of population aging on health care costs. They construct an index of per capita expenditure by age using data on treatment costs for various pathologies and on hospital admissions disaggregated by pathology and patient age. They estimate that per capital health care expenditures will increase by 38 percent in constant peseta terms between 1996 and 2051, virtually identical to the estimate obtained here.

[51] Even this estimated modest impact of population aging may be overstated. Anecdotal evidence suggests that a substantial portion of lifetime health expenditure may take place in the last few months of an individual's life. If this is the case, population aging might have very little impact on per capita health care costs, because it will obviously not affect the number of times that each individual dies.

at an average of 2.0 percent annually between 1997 and 2050, that the estimated elasticity of 1.11 applies over the entire period, and that population aging leads to an annual increase in health care expenditures of 0.6 percent over the period, total health care expenditure could increase by about one-half as a percentage of GDP, or from a current 7.4 percent of GDP to about 11 percent of GDP in 2050. If the public sector were to continue to account for about 78 percent of total health care expenditure, cuts of about 3 percent of GDP would be required elsewhere in the budget to hold primary expenditure constant. If such cuts were made, the share of health care in total general government primary expenditure would rise from about 15 percent in 1997 to about 22 percent in 2050.

E. Recent Reforms in Spain and Elsewhere

21. Over the last several years, many countries have introduced reforms aimed at controlling costs and improving the overall quality of public health care. In Spain, reforms have been concentrated in three areas: modifying the system by which resources are transferred to regional governments; increasing the accountability of hospitals and health centers and introducing to them a measure of self-governance; and limiting spending on pharmaceuticals. Some reforms have been introduced first at a regional level and have since spread to a national basis. Others began with INSALUD, or remain regional.

Regional funding

22. Among western European countries, Finland has perhaps gone furthest in devolving revenue and expenditure responsibilities to local governments. Municipalities have since 1972 been in charge of health care delivery, and have responsibility for raising taxes to pay for it. Denmark and Sweden have also achieved a significant degree of decentralization.[53]

23. Prior to 1994, transfers to Spanish regions that had assumed control of their own health spending were determined by annual bilateral negotiations between each region and the national government. This arrangement did not provide a stable basis for regional health authorities to project the resources that would be available to them and resulted in regional disparities in funding levels, with some regions receiving more than others on a per capita

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[52] The equation was estimated using OLS on a dataset covering 17 European countries (from the OECD Health Data 1998 database). The estimated relationship is ln(EXP) = -3.70 + 1.11 ln(PCGDP), where EXP is per capita health care expenditure in 1996 in PPP-adjusted US dollars, PCGDP is per capita GDP in 1996 (also in PPP-adjusted U.S. dollars), and ln(x) is the natural log of x. The coefficient of determination (r-squared) was 0.78. The t-statistic on the coefficient of the log of per capita GDP was 5.60, while that on the constant term was –1.89. Both t-statistics were calculated using heteroskedasticity-consistent standard errors. The estimate of the elasticity is consistent with those obtained in other studies, which typically find elasticities in the range of 1.1–1.3 (see, for example, Gerdtham *et al.* (1994)).

[53] By contrast, health expenditure has become increasingly centralized in Iceland in recent years.

basis. In addition, the transferred amounts were generally insufficient to cover regional expenditures, which led to the accumulation of debts.

24. In 1994 a new system was introduced which increased the volume of transfers to a level consistent with actual (accrued) regional expenditures, and established that transfers to each region would be based on population. The new system also called for a stabilization of public health care spending as a percentage of GDP over the period 1994–97. In 1998 additional revisions were adopted that (i) increased the total volume of resources available to the health system (both to INSALUD and to regional governments where expenditure has been devolved), (ii) provided that any savings generated by the health care system through improved cost control would remain within the system rather than be returned to the national budget, and (iii) again called for a stabilization of public health care spending relative to GDP (although an additional increase of Ptas 25 billion—some 0.03 percent of GDP—was contemplated for 2000, subject to the health system meeting certain targets related to the quality of care).

25. Although these reforms have begun to address regional imbalances in funding by making per capita equity an explicit objective and have introduced incentives for regional governments and INSALUD to improve their efficiency—since they will retain any savings they generate—it remains the case that the basic responsibility for raising revenues for health care is divorced from the responsibility for spending these revenues. Such a system is inefficient in that regions are not free to vary the level of health care services they choose to provide, and do not bear the political costs of raising taxes (or, of not cutting them) to finance health care spending. Devolving to local governments a tax base adequate to finance their current health care spending, in concert with hard budget constraints, equalization mechanisms for poorer regions, and sufficient oversight facilities to ensure that minimum national standards were being observed, would help redress this inefficiency.

Financing of hospitals

26. Some European countries have made use of contracting between different elements of the public health care system in an effort to introduce greater competition and cost efficiency. For example, in Sweden and the United Kingdom some primary health care providers receive public funds that they use to purchase specialty and other types of care for their patients from other public health care providers.

27. In Spain, in an effort to improve the performance of hospitals, INSALUD in 1995 began negotiating service contracts *(Contratos Programas)* with each hospital specifying the level of hospital activity expected in the coming year and—based on theoretical prices—the budget allocation. The goal of the program is to link hospital resources to productivity, and to provide incentives for hospitals to improve their efficiency. Hospitals that contract to provide more services receive more funding, and those that do so most efficiently retain more of these funds. However, the impact of this measure is limited by the fact that there are at present no sanctions for failure to meet the specified activity goals.

28. Hospital funding in Spain is "prospective," in the sense that payments are provided based on the services that a hospital is expected to provide in the future, rather than as reimbursement for services already rendered. Although this form of funding is relatively common in Europe, details differ by country. In Denmark, for example, prospective budgets for hospitals are determined on an historical basis, with adjustments for salary and price increases, service quality and planned efficiency improvements. While the Danish system has been effective in containing costs, it has not generated adequate incentives for improving efficiency or the quality of care. In response, some flexibility (as well as greater internal competition) has recently been introduced into the system by allowing patients free choice among hospitals for elective surgical procedures. When patients are treated outside their counties of residence, compensation is negotiated between county councils. Ireland, Italy and Norway also calculate hospital budgets prospectively, under a system more similar to Spain's, with payments to individual hospitals reflecting the historical costs of the various types of services (categorized by diagnosis-related groups) the hospital is expected to provide. Such a system provides greater incentives for efficiency improvements, both because reductions in costs can result in surpluses for hospitals and because to the extent that payments are based on system-wide average costs, and to the extent that hospitals face hard budget constraints, less efficient hospitals will run deficits that will need to be financed by cutting spending in other areas.

29. Providing greater autonomy to hospitals is also expected to result in greater efficiency. This type of reform has been pushed furthest in the United Kingdom, where all National Health Service hospitals have been converted into independent trusts, selling their services to local health authorities. Hospital trusts in the United Kingdom have a statutory duty to operate within the income they obtain from contracts, to set contractual prices for their services that reflect average costs, and to ensure that there is no cross-subsidization across services. Trusts compete with other providers for contracts, across health authority borders. This reform introduces an important element of competition into a public health system.

30. In Spain, parliament approved a law in 1998 allowing public hospitals to be converted into "public health foundations," which will enjoy considerably greater autonomy than regular public hospitals. In particular, foundations will be allowed to hire their own personnel and to set their own management objectives. In addition, they will be allowed to retain any operating surpluses they generate. Similar reforms have been introduced in a number of regions (particularly in Catalonia) in both hospitals and health centers. A more extreme reform of this type is now being developed in the region of Valencia, where public funds have been provided to build a hospital that will be managed by a private consortium. Depending on how efficiently the hospital is run, the management company will earn a profit.

Pharmaceutical cost control

31. Controlling pharmaceutical expenditure is a priority in all countries, and is complicated by the fact that demand for medications is typically determined not by the

consumer but by his physician, while the costs are borne largely or entirely by a third party, the insurance or national health system.

32. The Spanish government has introduced a number of reforms in an attempt to reduce public expenditure on pharmaceuticals. The number of drugs eligible for reimbursement by the SNS was cut in half, to 1650, in 1993–1994. In 1998 it was cut in half again, denying public funding for an additional 834 drugs. Belgium, Denmark, France, Greece, Italy, the Netherlands, and Portugal also have "positive lists," specifying the drugs whose consumption will be financed by the public system. "Negative lists," indicating drugs whose purchase will not be financed, are used in Germany, Ireland, Luxembourg and the United Kingdom. The Spanish authorities have also announced an intention to increase the use of generic medications from the present level of about 1 percent of public sector prescriptions to some 10 percent, compared to 15 percent in the United Kingdom, 17 percent in Germany, and 50 percent in the United States. As of April 1999 some 248 generic drugs have been authorized for use compared to just 47 one year earlier. However, the use of generics is still constrained by floors that have been established on their prices and by approval periods of up to three years.

33. Most western European countries—except for Denmark, the Netherlands and Luxembourg—control either prices or profits of drug companies. In Belgium and France, officially-fixed prices for new pharmaceutical products are based in part on an assessment of the extent to which they constitute an improvement over existing medications. Other countries (for example, Greece, Ireland, and Portugal) base domestic prices on the average price prevailing in other European countries. Germany, Greece, Italy, and the United Kingdom have imposed unilateral price cuts or freezes on drug companies, and France has prevailed on drug companies to provide rebates for pharmaceutical expenditure. In Spain, on several occasions the authorities have reduced fixed retail and wholesale margins on drugs, and a number of agreements have been negotiated with drug companies to provide rebates to INSALUD for drug purchases. However, pharmacy margins remain significantly above the level prevailing in the United Kingdom, for example.

34. A number of countries (Denmark, Germany, the Netherlands, Norway and Sweden) have introduced reference pricing for some pharmaceuticals, and the Basque region in Spain has followed suit. Under such a system, the authorities establish the maximum reimbursement level for each drug (the reference price), with consumers liable for the difference between the reference and list prices. Typically, reference prices are equalized for similar types of drugs (for example, those with similar active ingedients). Consumers remain free to choose among products on the market, but they, rather than the health care system, are forced to bear the expense for consumption of relatively more expensive versions of nearly identical drugs. A draft law has been prepared in Spain to extend reference pricing to the regions whose health care is administered by INSALUD, which will go into effect in September. However, the reference system will apply to less than 10 percent of the market,

compared to 90 percent in the Netherlands, 60 percent in Germany, and 30 percent in Denmark.[54]

35. As can be seen from the above, many of the reforms that have been applied in other European countries to try to control health care costs are also being introduced in Spain. Like many countries, Spain has attempted to link hospital budgets to the mix of services provided; to introduce incentives for greater cost efficiency within hospitals; to reduce the number of drugs that the health care system will provide reimbursement for (via positive lists); and to limit pharmaceutical expenditure via direct negotiations with drug companies. Future reforms could introduce greater internal competition among health care providers along the lines of recent measures adopted in Denmark and the United Kingdom, for example; could extend reference pricing to a broader range of pharmaceuticals, and could calculate these prices based on the lowest-cost item in each reference group; could continue to reduce margins for pharmacies and liberalize the sale of nonprescription drugs; and could devolve financing as well as delivery of health care to regional governments.

36. One area that has been underutilized in Spain relative to other European countries is cost-sharing. As in virtually all European countries, Spain requires a copayment for pharmaceuticals purchases, at least for individuals under the age of 65. About half of western European countries apply cost sharing for visits to primary care physicians, and most also apply cost sharing to in-patient and specialty outpatient care. The most common form of cost sharing is copayments or coinsurance; only Switzerland uses deductibles. To guard against equity concerns, virtually all countries relying on cost-sharing use some form of out-of-pocket maximum to limit the amount that individuals or households are required to pay for health care costs, and none put caps on the services that will be provided to individuals. It is worth noting that while the introduction of cost-sharing mechanisms will likely have an impact on demand for health care services, the link between the introduction of cost sharing and lower health care expenditure has not been conclusively drawn.[55] At a minimum, however, greater reliance on user fees will shift some of the burden for health care financing from the budget to households.

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[54] In addition, the reference price will be calculated as the weighted average of prices for drugs representing 20 percent of the market for each reference group. Given the low market penetration of generics in Spain, most reference prices will therefore include some high price brand names. Lombardía (1999) estimates that in most cases, reference prices will be only about 10 percent below the current prices of the most expensive brand names.

[55] The clearest example of this is the case of the United States, which has the highest degree of cost sharing and the highest total health expenditure in the OECD. The lack of a connection between health care demand and expenditure may reflect a tendency of doctors in countries with relatively lower demand for health care to substitute more expensive services for cheaper ones. WHO (1997).

Evaluating the Efficiency of Health Care Expenditure in Spain

37. This Appendix draws inferences about the efficiency of health care spending in Spain through two techniques: regression analysis and free disposal hull (FDH) analysis. The results suggest that while health spending in Spain is relatively efficient, by some measures there exists room to improve outcomes.

38. A few notes of caution should be introduced at the outset. As no single indicator can capture the health status of a country's entire population, three separate indicators of health status were examined to evaluate the efficiency of health care spending: (i) potential life years lost per 100,000 men (excluding suicides and road accidents); (ii) life expectancy for males aged 65; and (iii) infant mortality rates. However, these are relatively coarse indicators of health status that may not fully capture all the nuances of the health status of a country's population. This may especially be the case for life expectancy and infant mortality, where all European countries have already achieved relatively strong outcomes. A related point is that evaluating the efficiency of health care expenditure using these indicators assumes that the goal of health care expenditure is solely to achieve improvements in these indicators. However, it is likely that in most countries improvements in these indicators may constitute only one of many competing priorities. Indeed, given the low levels of infant mortality that already apply in Europe, for example, further improvements in this indicator could possibly constitute a relatively low priority in some countries. Finally, using these indicators to evaluate the efficiency of health care expenditure suggests that they are largely a function of expenditure. Of course, life expectancy and infant mortality in particular are determined by a variety of factors, of which spending on health care is only one.[56]

Regression results

39. Data on the three indicators for a sample of 21–25 OECD countries were regressed on two different measures of health care expenditure: total spending on health care as a percentage of GDP, and per capita expenditure in PPP-adjusted U.S. dollars. The data were obtained from the *OECD Health Data 1998* and cover 1996, in the case of infant mortality rates and life expectancy and 1994, in the case of PLYL. The sample includes all countries for which data were available, with the exception of the United States.[57] In principle, efficiency should be measured relative to absolute expenditures, with per capita spending in PPP-adjusted dollars the explanatory variable, but this could introduce a bias in favor of low-income countries if the cost of a given health input (for example, doctor's salaries) is lower in PPP terms in low income countries than in higher income countries. The use of health

[56] However, the regression analysis conducted below finds that depending on the indictor used, some 20 to 60 percent of the variation in these indicators across OECD countries is captured by variations in health care expenditure.

[57] As health care in the United States is financed on a different model than in other OECD countries it was excluded from the sample. Not coincidentally, the extraordinarily high level of expenditure on health care in the United States renders it an outlier.

expenditure as a percentage of GDP as the independent variable may help address this concern.

40. All six regressions identified significant relationships between health outcomes and expenditure variables at a 90 percent or greater significance level. In fact, with the exception of the regression involving PLYL and expenditure as a share of GDP, all relationships were significant at levels of greater than 95 percent. The coefficient of determination (r-squared) varied from about 0.2 to more than 0.6. In addition, the signs of all the coefficients were consistent with the assumption that greater levels of expenditure are correlated with better health outcomes. Table A1, below, gives the estimated coefficients and t-statistics (calculated using heteroskedasticity-consistent standard errors) for each of the equations.

Table A1. Regression Results

#	Dependent Variable	Constant	Expenditure in PPP US$	Expenditure as percent GDP	r-squared
(1)	PLYL	10,234	-2.66	...	0.457
		(7.12)	(-3.25)		
(2)	PLYL	10,426	...	-537.8	0.137
		(4.36)		(-1.90)	
(3)	Life expectancy	13.27	0.0012	...	0.339
		(17.52)	(2.74)		
(4)	Life expectancy	12.26	...	0.365	0.214
		(10.00)		(2.50)	
(5)	Infant mortality	12.38	-.0042	...	0.606
		(6.79)	(-3.85)		
(6)	Infant mortality	16.90		-1.387	0.460
		(4.05)		(-2.69)	

Sources: OECD Health Data 1998; and Fund staff calculations.

41. To evaluate the efficiency of health care expenditure in Spain, we can examine the residuals from each of the six equations. Equations (1) and (2) generate predicted values of PLYL of 7,268 years and 6,446 years, respectively, compared to an actual value of 6,348 years. Equations (3) and (4) generate predicted values for life expectancy of 14.6 years and 15.0 years, respectively, compared to an actual value of 15.8 years. Finally, Equations (5) and (6) generate predicted infant mortality rates of 7.7 per 1,000 births and 6.6 per 1,000 live births, respectively, compared to an actual value of 5.0 per 1,000 births. As actual health status indicators are in all six cases better than their predicted values, we can conclude that the efficiency of health care expenditure in Spain is relatively high.

Free disposal hull analysis

42. FDH analysis is an intuitive tool that can be used to identify best practices in government spending and to assess how country governments are faring in comparison to these practices.[58] The technique uses observations of combinations of inputs and outputs from a sample of countries to create a presumed production possibilities frontier, and then measures the extent to which each country is located within the frontier as an indication of that country's relative efficiency in producing the output. The closer a country is to the frontier, the higher its efficiency score, with a maximum score of 1 for countries located along the frontier. A country is relatively efficient (with an efficiency score of 1) if there is no other country that produces as much output using fewer inputs. A country is relatively inefficient (with a score of less than 1) if there is at least one country that produces as much or more output using fewer inputs.

43. A major advantage of FDH analysis is that it imposes only weak restrictions on the production technology. In particular, there is no assumption that the technology is linear. The only assumption is that there is free disposal of inputs and outputs, so that if a producer can obtain a given level of output with a given level of inputs, it can always obtain at least as much output with a larger volume of inputs.[59] In addition, the characterization of producers located below the production possibilities frontier as "inefficient" implicitly assumes that there are no omitted variables and that the PPF is therefore a function solely of the specified inputs.[60] (If, for example, infant mortality depends not only on health care expenditure but also on access to clean water, the fact that country A spends less on health care and has the same infant mortality rate as country B would not necessarily imply that country B was less efficient than country A. The difference in health outcomes could instead reflect limited access to clean water in country B).

44. FDH analysis may be a particularly useful tool for studying health outcomes, as the assumption of a linear production function (as in the regression analysis above) may be inappropriate in the area of health care expenditure. From a technical point of view, most health indicators are bounded either above (for example, life expectancy) or below (infant mortality and PLYL). From a more practical view, it is unreasonable to expect that an additional dollar (or percentage point of GDP) in health expenditure will result in equivalent increases in health care indicators in countries where output indicators are relatively low, for example because access to health services is limited, and in countries where health care

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[58] See, for example, Gupta and others (1997), which also provides more details on the procedure.

[59] This assumption is required to ensure the existence of a continuous production possibilities frontier.

[60] Alternatively, the analysis could assume that any omitted variables are held by all producers at precisely equal levels, so that producers vary only in the amount of the specified input they employ and the efficiency of their production techniques.

indicators are close to the theoretical maximum. Another important difference between regression and FDH analysis is that while regression analysis allows for a judgment about the efficiency of expenditure relative to sample averages, FDH analysis measures efficiency relative only to observed best practices.

45. FDH analysis allows the efficiency of producers to be measured in two directions: with respect to outputs and to inputs. If we imagine input and output combinations for various producers as being arrayed on a graph, with output on the Y-axis and inputs on the X-axis, the extent of a production unit's output inefficiency is a function of its vertical distance from the PPF (how much additional output could it produce with its existing level of inputs?), while its input inefficiency is a function of its horizontal distance from the PPF (how much lower could its inputs be without reducing its present level of output?). The output efficiency score for a country is equal to its actual level of output divided by the feasible level of output (given the volume of inputs) as defined by the PPF. A country's input efficiency score is equal to the minimum volume of inputs consistent with its current level of output (as determined by the PPF), divided by its actual volume of inputs. Thus, the output score measures the extent of underproduction for a given level of spending, while the input score measures the amount of overspending for a given level of output.

46. Rather than focusing on a single output variable, FDH analysis was conducted to measure the efficiency of production with respect to PLYL, infant mortality, and male life expectancy at age 65. As the analysis assumes that higher levels of output are preferable to lower ones, it was necessary to redefine PLYL per 100,000 males as the inverse of PLYL per capita,[61] and the infant mortality rate as 1 minus the mortality rate. The input variable was defined as PPP-adjusted health care expenditure in U.S. dollars. All data came from the *OECD Health Data 1998* and reflect the most recent year available. Tables A2–A4 present the input and output efficiency scores for each country and indicator.

47. Each of the tables presents both input and output scores and relative rankings for each country for which data are available. Countries that are independently efficient—that is, countries that neither dominate nor are dominated by other countries—are treated as outliers and omitted from the rankings. In practice, this affects only the results using the infant survival rate as the dependent variable, where three countries (Mexico, Poland, and Turkey) were found to be independently efficient.

48. The fact that output scores are in general much higher than input ones, especially for life expectancy and infant survival, means that there is much less variation in these variables than in expenditure. In other words, while most countries are achieving very similar rates of infant survival, and thus have output scores for this variable that are extremely close to 1.00 (the lowest is 0.96), there is considerably more variation in the amount of health expenditure per capita in the sample of countries. Nevertheless, there is little difference between the rankings obtained using input or output efficiency scores: the correlation between the two rankings is 0.84 in the case of PLYL, 0.83 in the case of infant survival, and 0.57 in the case

[61] That is, (100,000/PLYL).

of male life expectancy at age 65. In addition, countries that do well in one variable tend to do so in the others, as well: the correlation between input rankings for PLYL and life expectancy is 0.59; that for input rankings of infant survival and life expectancy is 0.46, and that for infant survival and PLYL 0.29.

49. Overall, the data suggest that the efficiency of health care expenditure in Spain is quite high when the output is defined as infant survival and life expectancy at age 65, although efficiency with respect to producing low levels of PLYL is less impressive. Spain is located on the PPF with respect to infant survival rates, meaning that there is no country that achieves a higher survival rate (lower mortality rate) while spending less than Spain. Although Spain is relatively inefficient with respect to life expectancy, the very high value of the efficiency score means that the country is only slightly inside the PPF.[62] Although in principle Spain should be able to achieve a greater life expectancy given its level of expenditure, the overall increase based on best practices in the sample of OECD countries would likely be small. On the other hand, the input efficiency score with respect to life expectancy suggests that Spain could spend considerably less on health care—up to 20 percent– without necessarily reducing life expectancies. Data on PLYL are less positive: Spain ranks 17th out of 25 countries in output efficiency, and given its level of expenditure ought in principle to be able to reduce its PLYL by about 18 percent. Alternatively, best practices suggest Spain could—in principle—spend less than half of what it currently does on health care without necessarily increasing its PLYL. Of course, the caveats offered at the outset about the interpretation of these results continue to apply. Specifically, outcomes may depend on more than simply expenditure, and differences in outcomes across indicators may reflect varying priorities rather than efficiency levels.

[62] The PPF at Spain's level of expenditure is defined by Greece, which achieved a life expectancy of 16.1 additional years with per capita spending of only $888, compared to 15.8 years and $1,115 for Spain.

Table A2. FDH Analysis Results, Dependent Variable PLYL

	Input	Rank	Independently Efficient	Output	Rank	Independently Efficient
Australia	.94	9		.85	13	
Austria	.51	19		.71	20	
Canada	.81	11		.77	16	
Czech Rep	.59	17		.60	25	
Denmark	.49	21		.69	21	
Finland	.64	15		.89	10	
France	.27	25		.63	24	
Germany	.24	26		.65	23	
Greece	1.00	1		1.00	1	
Hungary	.59	16		.42	26	
Iceland	1.00	1		1.00	1	
Ireland	.70	12		.93	8	
Italy	.56	18		.93	9	
Japan	1.00	1		1.00	1	
Korea	1.00	1		1.00	1	
Luxembourg	.42	24		.72	19	
Mexico	1.00	1		1.00	1	
Netherlands	.95	8		.86	12	
Norway	.87	10		.82	14	
New Zealand	.42	23		.77	17	
Poland	.97	7		.86	11	
Portugal	.50	20		.66	22	
Spain	.48	22		.82	15	
Sweden	1.00	1		1.00	1	
Switzerland	.67	14		.76	18	
U.K.	.67	13		.97	7	

Sources: OECD Health Data 1998; and Fund staff calculations.

Table A3. FDH Analysis Results, Dependent Variable Infant Survival Rate

	Input	Rank	Independently Efficient	Output	Rank	Independently Efficient
Australia	.63	20		.98	22	
Austria	.64	18		.99	17	
Belgium	.53	23		.98	23	
Canada	.44	25		.98	24	
Czech Rep	1.00	1		1.00	1	
Denmark	.62	21		.99	19	
Finland	1.00	1		1.00	1	
France	.70	15		.99	15	
Germany	.49	24		.99	16	
Greece	1.00	1		1.00	1	
Hungary	.89	8		.98	20	
Iceland	1.00	1		1.00	1	
Ireland	.87	9		.99	10	
Italy	.70	13		.98	21	
Japan	1.00	1		1.00	1	
Korea	1.00	1		1.00	1	
Luxembourg	.65	17		.99	14	
Mexico			+			+
Netherlands	.63	19		.99	18	
Norway	.72	12		1.00	9	
New Zealand	.70	14		.97	25	
Poland			+			+
Portugal	.84	10		.99	11	
Spain	1.00	1		1.00	1	
Sweden	.82	11		1.00	1	
Switzerland	.55	22		.99	12	
Turkey			+			+
UK	.69	16		.99	13	
USA	.23	26		.96	26	

Sources: OECD Health Data 1998; and Fund staff calculations.

Table A4. FDH Analysis Results, Dependent Variable Male Life Expectancy at age 65

	Input	Rank	Independently Efficient	Output	Rank	Independently Efficient
Australia	.50	12		.95	12	
Austria	.20	22		.92	15	
Belgium	.21	21		.92	16	
Canada	.81	6		.98	6	
Czech Rep	.40	14		.80	25	
Denmark	.20	24		.86	22	
Finland	.26	19		.90	18	
France	.45	13		.98	8	
Germany	.16	26		.89	20	
Greece	1.00	1		1.00	1	
Hungary	.59	9		.78	26	
Iceland	.89	5		1.00	1	
Italy	.56	10		.97	10	
Japan	1.00	1		1.00	1	
Korea	.67	8		.85	23	
Mexico	1.00	1		1.00	1	
Netherlands	.20	23		.87	21	
Norway	.19	25		.94	14	
New Zealand	.28	17		.96	11	
Poland	.97	4		.82	24	
Portugal	.33	16		.89	19	
Spain	.80	7		.98	7	
Sweden	.53	11		.99	5	
Switzerland	.36	15		.98	8	
UK	.27	18		.91	17	
USA	.23	20		.95	13	

Sources: OECD Health Data 1998; and Fund staff calculations.

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Table 1. Spain: Demand and Output, 1993-98

	1996	1997	1998	1988-93	1994-98	1994	1995	1996	1997	1998
	In billions of pesetas at current prices			Avg. percent chg. at constant prices		Year-on-year percent changes at constant prices				
Consumption	57,924.1	60,861.5	64,144.6	3.0	2.0	0.6	1.6	1.8	2.7	3.4
Private	45,668.2	48,276.8	51,115.6	2.4	2.3	0.9	1.6	2.0	3.1	3.8
Public	12,255.9	12,584.7	13,029.0	5.4	1.1	-0.3	1.8	0.9	1.4	1.6
Gross investment	15,223.9	16,101.2	17,846.1	0.6	5.5	3.8	8.9	1.2	3.6	10.0
Fixed capital formation	14,975.7	16,028.7	17,627.4	1.4	5.2	2.5	8.2	1.3	5.1	9.0
Change in stocks 1/	248.2	72.5	218.7	-0.2	0.1	0.3	0.2	-0.0	-0.3	0.2
Total domestic demand	73,148.0	76,962.7	81,990.7	2.2	2.8	1.3	3.2	1.6	2.9	4.9
Exports of goods and services	18,760.5	22,106.1	23,936.5	6.0	12.0	16.7	10.0	10.6	14.8	7.8
Aggregate demand	94,777.3	102,349.3	105,927.2	3.0	4.8	4.2	4.6	3.6	5.7	5.6
Imports of goods and services	18,165.2	21,172.2	23,276.9	7.2	10.5	11.3	11.0	7.4	12.2	10.6
Gross domestic product	73,743.3	77,896.6	82,650.3	2.1	2.9	2.3	2.7	2.4	3.5	3.8
Percentage change in:										
GDP at current prices	5.7	5.6	6.1	8.8	6.3	6.3	7.7	5.7	5.6	6.1
GDP deflator	3.2	2.0	2.2	6.5	3.2	4.0	4.8	3.2	2.0	2.2
Memorandum items.										
Decomposition of fixed capital formation by:										
Sectors:										
Construction	9,873.9	10,212.2	11,071.0	3.7	2.9	1.9	6.6	-2.0	1.3	6.5
Machinery and equipment	5,101.8	5,816.6	6,556.4	-2.2	9.1	3.7	11.2	7.1	11.0	12.7
Agents:										
Private fixed investment	12,654.7	13,620.7	...	0.5	...	5.0	9.6	4.9	5.6	...
Public fixed investment	2,321.0	2,408.0	...	6.0	...	-7.3	2.4	-15.8	1.7	...

Source: Ministry of Economy and Finance.

1/ Changes at constant prices in stockbuilding are expressed in percent of real GDP in the previous period.

Table 2. Spain: Quarterly Evolution of GDP, 1996-98

(Year-on-year percentage change at constant prices)

	1996				1997				1998			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Consumption	1.5	1.8	1.9	1.8	1.9	2.4	3.1	3.5	3.4	3.5	3.4	3.2
Private	1.3	2.0	2.3	2.4	2.5	2.8	3.4	3.8	3.9	3.9	3.8	3.7
Public	2.5	1.3	0.2	-0.1	0.1	1.1	2.1	2.3	1.8	1.8	1.6	1.2
Gross investment	2.8	0.8	0.3	1.0	1.5	2.1	4.2	6.7	8.9	10.1	10.3	10.6
Fixed capital formation	2.6	0.7	0.4	1.6	2.9	3.8	5.8	7.7	8.4	9.1	9.3	9.4
Change in stocks 1/	0.1	0.0	-0.0	-0.1	-0.3	-0.4	-0.3	-0.2	0.1	0.2	0.2	0.3
Total domestic demand	1.8	1.6	1.5	1.6	1.8	2.4	3.3	4.2	4.7	5.0	4.9	4.9
Exports of goods and services	6.9	9.0	12.2	14.1	15.3	15.6	15.0	13.3	10.6	8.5	6.5	5.9
Aggregate demand	2.9	3.2	3.9	4.5	4.9	5.5	6.2	6.4	6.2	5.9	5.4	5.2
Imports of goods and services	5.5	6.6	8.2	9.2	10.1	11.4	13.4	13.9	12.5	11.3	9.5	9.4
Gross domestic product	2.1	2.2	2.5	2.9	3.2	3.4	3.7	3.8	3.9	3.9	3.8	3.6
GDP deflator	3.9	3.3	2.9	2.6	2.1	1.9	2.0	2.1	2.2	2.3	2.2	2.3
Memorandum items:												
Fixed capital formation by sector:												
Construction	1.8	-2.4	-4.2	-3.1	-1.3	0.3	2.6	3.9	5.0	6.2	7.1	7.8
Machinery and equipment	4.0	6.2	8.4	9.8	10.0	9.6	10.7	13.5	13.6	13.3	12.5	11.6

Source: Ministry of Economy and Finance.

1/ Changes at constant prices in stockbuilding are expressed in percent of real GDP in the previous period.

Table 3. Spain: Contribution to the Growth of Real Aggregate Demand, 1992-98

	1992	1993	1994	1995	1996	1997	1998
			(In percent)				
Private consumption	1.1	-1.1	0.5	0.8	0.9	1.4	1 7
Public consumption	0.5	0.3	-0.0	0.2	0.1	0.2	0.2
Private fixed investment	-0 4	-2.0	0.7	1.3	0.7	0.8	
Public fixed investment	-0.5	0.1	-0.3	0.1	-0.5	0.0	...
Change in inventories	0.1	-0.8	0.2	0.1	-0.0	-0.2	0.2
Total domestic demand	0.8	-3 5	1.1	2.5	1.3	2.2	4.9
Exports	1 2	1.5	3 2	2.1	2.4	3.5	2.0
Memorandum items:							
			(Percent change)				
Aggregate demand	2.0	-2.1	4.2	4.6	3.6	5.7	5.6
Gross domestic product	0.7	-1.2	2.3	2.7	2.4	3.5	3.8

Sources: Ministry of Economy and Finance; and staff calculations.

Table 4. Spain: Factors Accounting for Growth in Private Consumption, 1992-97 1/

	Real private consumption	Total employment	Real earned income per worker	Net Direct taxes per worker 2/	Real disposable income per worker	Change in personal savings rate
	(Average of period percentage change)					
1992	2.2	-1.9	3.5	9 2	2.8	-1.2
1993	-2.2	-4.3	4.1	-5.2	5.1	2.7
1994	0.9	-0.9	-0.9	-0.6	-0.9	-2 3
1995	1.6	2.7	0.4	-9.2	1.4	2.0
1996	2.0	2.9	-1 4	2.4	-1.8	-0 8
1997	3.1	3.0	-1.1	-3.7	-0.8	-0.9

Sources: Staff calculations on data from the Ministry of Economy and Finance; and Cuentas Financieras, Bank of Spain.

1/ Income includes those of households and unincorporated business.

2/ Direct taxes plus social security contribution minus transfers received.

Table 5. Spain: Household Disposable Income, 1992-97

	1992	1993	1994	1995	1996	1997
	(In billions of pesetas)					
Disposable income	41,447	44,115	45,475	49,556	51,854	54,134
Changes in percent in nominal terms	7.3	6.4	3.1	9 0	4.6	4.4
Changes in percent in real terms	0.9	0.9	-1.8	4.3	1.2	1.9
Wage income	28,947	30,061	30,781	32,451	34,180	36,310
share of income	69.8	68.1	67.7	65.5	65.9	67 1
Nonwage income	17,299	18,664	19,461	21,785	22,765	23,006
share of income	41.7	42.3	42.8	44.0	43.9	42.5
Social and current transfers	10,422	11,432	11,565	12,007	12,615	13,170
share of income	25.1	25.9	25.4	24.2	24.3	24.3
Direct taxes	5,751	5,741	6,032	6,334	6,646	6,707
share of income	13.9	13.0	13.3	12.8	12.8	12.4
Social security contributions	9,470	10,301	10,300	10,353	11,060	11,645
share of income	22.8	23.4	22.6	20.9	21.3	21.5
Private consumption	37,277	38,482	40,723	43,314	45,668	48,277
Gross savings	4,170	5,633	4,752	6,144	6,031	5,852
Savings ratio 1/	10.1	12.8	10.4	12.4	11.7	10.8

Source: Ministry of Economy and Finance.

1/ Gross savings in percent of disposable income.

Table 6 Spain: GDP by Sectors, 1992-98
(In constant prices)

	1992	1993	1994	1995	1996	1997	1998
				(Changes in percent)			
Real GDP at market prices	0.7	-1.2	2.3	2.7	2.4	3.5	3.8
Agriculture and fishing	-1.4	-0.3	-9.5	-10.6	21.1	-1.3	0.8
Industrial	-1.2	-3.3	3.1	4.5	0.6	4.5	5.3
Excluding construction	-0.0	-2.7	3.5	4.0	1.4	5.4	5.1
Construction	-5.4	-5.6	1.8	6.4	-2.2	1.0	6.0
Services	2.1	0.7	2.9	2.8	2.4	3.2	2.7
Market	1.8	0.6	3.7	3.0	2.8	3.6	3.1
Nonmarket	3.0	0.8	0.5	2.4	1.3	1.8	1.3
				(Share of GDP at market prices)			
Agriculture and fishing	4.9	5.0	4.4	3.8	4.5	4.3	4.2
Industrial	35.2	34.4	34.7	35.3	34.7	35.0	35.5
Excluding construction	27.5	27.1	27.4	27.8	27.5	28.0	28.4
Construction	7.6	7.3	7.2	7.5	7.2	7.0	7.1
Services	53.8	54.8	55.1	55.2	55.2	55.0	54.4
Market	40.2	40.9	41.5	41.6	41.8	41.8	41.5
Nonmarket	13.6	13.8	13.6	13.5	13.4	13.2	12.8

Sources: INE; and Ministry of Economy and Finance.

Table 7. Spain: Production Indicators, 1992-98

	1992	1993	1994	1995	1996	1997	1998	1997				1998			
								I	II	III	IV	I	II	III	IV
	(Changes in percent over same period of previous year)														
Industrial production															
Total	-2.9	-4.7	7.3	4.7	-0.7	6.9	5.4	0.8	9.2	9.0	8.5	10.2	3.6	5.2	3.0
Manufacturing sector	-3.5	-4.9	8.7	5.6	-0.8	7.2	6.2	1.7	9.2	8.8	9.1	11.9	4.6	5.9	2.8
By destination:															
Intermediate goods	-2.5	-4.4	7.4	4.5	-1.2	5.9	4.2	-1.8	9.0	9.1	7.9	8.2	2.5	4.5	2.1
Consumption goods	-2.4	-4.1	7.2	1.6	-1.5	6.7	5.5	3.6	8.1	6.6	8.4	9.8	3.4	6.0	3.3
Investment goods	-4.7	-7.5	7.6	14.2	3.0	10.4	8.4	2.7	13.0	15.3	10.8	17.3	7.5	5.2	4.5
Housing starts	3.3	-6.4	19.2	28.7	-5.1	12.5	26.2	5.4	11.5	12.5	19.8	47.3	6.7	26.5	27.2
Commercial vehicles production	6.8	-20.9	20.5	19.7	26.2	16.5	10.5	15.8	46.4	2.1	5.9	13.0	8.1	16.5	6.2
Automobile production	1.0	-16.0	21.3	7.3	-1.0	3.7	10.2	-5.8	2.6	7.1	12.7	15.4	7.1	13.4	6.4
	(In percent of total capacity)														
Memorandum item:															
Capacity utilization 1/	73.4	70.7	75.1	78.1	77.0	79.2	80.7	77.4	79.2	80.6	79.5	79.9	81.0	80.9	80.7

Sources: Bank of Spain, Statistical Bulletin, and Ministry of Economy and Finance, Sintesis Mensual de Indicadores Economicos.

1/ Industrial sector excluding construction

Table 8. Spain: Prices, 1992-98

	1992	1993	1994	1995	1996	1997	1998	1996 I	1996 II	1996 III	1996 IV	1997 I	1997 II	1997 III	1997 IV
	(Average of period: percent change)							(End-of-period; annual percent change)							
Consumer prices	5.9	4.6	4.7	4.7	3.6	2.0	1.8	2.2	1.6	2.0	2.0	1.8	2.1	1.6	1.4
Food products	3.7	1.1	5.7	5.3	3.7	0.5	1.6	1.0	-0.4	0.7	1.5	1.7	2.3	1.1	0.6
Non-food products	7.1	6.2	4.3	4.4	3.5	2.6	1.9	2.7	2.4	2.6	2.2	1.8	2.0	1.9	1.7
Energy	6.7	7.5	3.6	3.5	3.7	2.4	-3.8	3.5	1.9	2.7	0.6	-2.3	-3.0	-5.7	-6.6
Other Industrial	4.5	4.6	3.5	3.9	3.2	1.7	1.5	1.8	1.5	1.4	1.4	1.3	1.4	1.5	1.6
Services	8.8	7.5	5.4	5.1	3.7	3.5	3.6	3.5	3.3	3.7	3.5	3.2	3.6	3.8	3.7
Harmonized inflation 1/	...	...	...	...	3.6	1.9	1.8	2.2	1.4	1.9	1.9	1.7	2.0	1.6	1.4
Underlying inflation 2/	6.8	5.6	4.6	4.9	3.6	2.1	2.3	2.1	1.9	2.1	2.0	2.1	2.4	2.3	2.2
Industrial prices	1.4	2.4	4.3	6.4	1.7	1.0	-0.7	0.8	0.8	1.6	0.9	0.3	-0.2	-1.6	-2.1
Of which: Energy	2.3	3.6	3.0	2.0	3.0	0.5	-7.7	2.3	0.3	0.4	-3.1	-7.1	-6.4	-9.5	-11.0
By destination:															
Consumer goods	2.9	3.4	4.4	5.0	3.9	0.9	0.4	1.2	0.7	1.0	0.7	0.6	0.6	-0.1	0.2
Investment goods	2.3	1.3	1.8	4.2	2.4	1.3	0.6	1.4	1.2	1.1	1.2	0.7	0.7	0.6	0.3
Intermediate goods	-0.2	1.8	4.8	8.3	-0.5	1.1	-2.1	0.2	1.0	2.4	0.9	-0.2	-1.3	-3.6	-4.9
Memorandum items:															
GDP deflator	6.9	4.3	4.0	4.8	3.2	2.0	2.2	2.1	1.9	2.0	2.1	2.2	2.3	2.2	2.3
Private consumption deflator	6.4	5.6	4.9	4.7	3.4	2.5	2.0	2.5	2.5	2.5	2.6	2.5	2.1	1.7	1.7
Inflation differentials with respect to:															
EMU	...	...	...	..	1.4	0.3	0.7	0.7	0.1	0.1	0.3	0.7	0.6	0.8	0.6

Source: Bank of Spain, Statistical Bulletin.

1/ Inflation as calculated by Eurostat on a consistent basis across EU countries.
2/ Excluding energy and unprocessed food from the total CPI.

Table 9. Spain. Population and Unemployment, 1992-98 1/

	1992	1993	1994	1995	1996	1997	1998
	(In thousands)						
Population over 16 years of age	30,990	31,272	31,569	31,880	32,125	32,345	32,534
(Annual growth rate)	1.0	0.9	0.9	1.0	0.8	0.7	0.6
Economically active population	15,155	15,319	15,468	15,625	15,936	16,121	16,265
(Annual growth rate)	0.5	1.1	1.0	1.0	2.0	1.2	0.9
Employment	12,366	11,838	11,730	12,042	12,396	12,765	13,205
(Annual growth rate)	-1.9	-4.3	-0.9	2.7	2.9	3.0	3.4
Unemployed	2,789	3,481	3,738	3,584	3,540	3,356	3,060
Unemployment rate	18.4	22.7	24.2	22.9	22.2	20.8	18.8
Labor force participation rate: Total	48.9	49.0	49.0	49.0	49.6	49.8	50.0
Male	64.7	64.3	63.3	62.7	63.1	63.0	63.2
Female	34.2	34.8	35.6	36.2	37.0	37.5	37.8
Memorandum items							
Beneficiaries of unemployment benefits (in percent of):							
Registered unemployed 2/	63.3	67.3	57.8	50.7	50.5	49.4	49.1
Unemployed net of agriculture 2/	80.4	82.7	70.8	62.8	63.4	62.3	61.9
All unemployed 3/	58.5	55.4	47.0	40.7	37.9	37.0	36.9

Sources: INE, Labor Force Survey, and Ministry of Economy and Finance, Síntesis de Indicadores Económicos.

1/ Annual averages

2/ Excludes assistance to temporary agricultural workers.

3/ Includes assistance to temporary agricultural workers.

Table 10. Spain: Contribution to Total Employment Growth
by Sectors and Categories, 1993-98

	1993	1994	1995	1996	1997	1998	1998			
							I	II	III	IV
	(Quarterly percentage change)									
Dependent employees	-4.3	-0.7	3.7	3.8	4.6	4.6	0.6	1.7	1.3	0.6
contribution to total growth	-3.2	-0.5	2.7	2.8	3.4	3.5	0.5	1.3	1.0	0.5
By professional category										
Public	-2.4	-2.7	3.1	5.4	1.0	-1.5	-1.2	-0.2	0.3	-1.6
contribution to total growth	-0.4	-0.5	0.5	1.0	0.2	-0.3	-0.2	-0.0	0.1	-0.3
Private	-4.9	-0.0	3.9	3.3	5.7	6.5	1.2	2.2	1.6	1.2
contribution to total growth	-2.7	-0.0	2.2	1.9	3.2	3.8	0.7	1.3	1.0	0.7
By type of employment										
Full time	-5.1	-1.4	2.9	3.5	3.9	4.5	0.4	1.8	1.8	0.4
contribution to total growth	-3.5	-1.0	2.0	2.4	2.7	3.2	0.3	1.2	1.3	0.3
Part time	10.3	10.7	15.4	7.8	12.7	5.3	2.9	0.6	-4.3	3.5
contribution to total growth	0.4	0.5	0.7	0.4	0.7	0.3	0.2	0.0	-0.3	0.2
By type of contract										
Permanent contracts	-2.6	-2.9	2.0	5.5	4.9	5.4	0.4	2.3	0.6	2.0
contribution to total growth	-1.3	-1.4	1.0	2.7	2.4	2.7	0.2	1.2	0.3	1.0
Temporary contracts	-7.7	3.9	7.0	0.6	4.0	3.0	1.1	0.4	2.7	-2.1
contribution to total growth	-1.9	0.9	1.7	0.2	1.0	0.8	0.3	0.1	0.7	-0.5
Non-salaried	-4.2	-1.5	-0.2	0.4	-1.8	-0.2	0.5	0.1	1.0	-1.5
contribution to total growth	-1.1	-0.4	-0.0	0.1	-0.5	-0.1	0.1	0.0	0.2	-0.3
Of which:										
Self-employed	-2.5	-0.2	0.1	-0.2	-1.4	-0.3	0.3	0.2	0.1	-2.1
contribution to total growth	-0.4	-0.0	0.0	-0.0	-0.2	-0.0	0.0	0.0	0.0	-0.3
Total	-4.3	-0.9	2.7	2.9	3.0	3.4	0.6	1.3	1.2	0.1

Source: Bank of Spain, Statistical Bulletin.

Table 11. Spain: Employment by Sectors, 1992 98

	1992	1993	1994	1995	1996	1997	1998	1998			
								I	II	III	IV
	(Quarterly percentage change)										
Agriculture	-6.9	-4.4	-3.9	-3.9	-2.7	-0.8	-0.6	8.8	-8.8	-1.1	0.2
contribution to total growth	-0.7	-0.4	-0.4	-0.4	-0.2	-0.1	-0.1	0.7	-0.8	-0.1	0.0
Industry	-3.0	-9.3	-2.6	0.5	0.6	3.2	4.9	-1.4	3.2	1.5	0.2
contribution to total growth	-0.7	-2.1	-0.6	0.1	0.1	0.6	1.0	-0.3	0.6	0.3	0.0
Construction	-6.1	-9.0	-2.7	7.2	3.6	5.7	5.2	-0.2	4.5	2.7	2.4
contribution to total growth	-0.6	-0.9	-0.3	0.6	0 3	0.5	0.5	-0.0	0.4	0.3	0.2
Services	0.2	-1.5	0.5	3.8	4.5	3.0	3.2	0.3	1.6	1.2	-0.3
contribution to total growth	0.1	-0.9	0.3	2.3	2.7	1.9	2.0	0.2	1.0	0.8	-0.2
Total	-1.9	-4.3	-0.9	2.7	2.9	3.0	3.4	0.6	1.3	1.2	0.1

Source: Bank of Spain, Statistical Bulletin.

Table 12. Spain: Indicators of Labor Costs, 1992-98

	1992	1993	1994	1995	1996	1997	1998	1998			
								I	II	III	IV
	(Annual and quarterly percentage changes)										
Contractual wage increases (In percent) 1/	7.3	5.5	3.6	3.9	3.8	2.9	2.6	2.6	2.6	2.6	2.6
Net wages per employee 2/											
Nominal	7.5	6.4	4.7	4.5	4.5	3.4	2.3	2.8	2.3	2.0	2.0
Real 3/	1.6	1.8	0.0	-0.2	0.9	1 5	0.4	0.9	0.3	0.0	0 5
Unit labor costs 4/	8.7	5.1	-0.1	1.6	2.0	1.0	...	...	...	...	...
Average compensation per employee 4/	11.6	8.5	3.1	1.7	1.5	1 6	..	...	...	...	...
Productivity per worker	2.7	3.3	3.2	0.1	-0.5	0 5	0.3	0.6	0.3	0.2	0.3
GDP	0.7	-1.2	2 3	2.7	2.4	3.5	3.8	3.9	3.9	3.8	3.6
Total employment 5/	-1.9	-4.3	-0.9	2.7	2.9	3.0	3.4	3 3	3.6	3.6	3.3
Dependent Employment	-3.2	-4.3	-0.7	3.7	3.8	4.6	4.6	4.8	4.9	4.4	4.3
Unit labor costs in manufacturing	8.2	5.2	-1.9	-0 6	4 9	1 3	1.6	1.4	1.6	1.8	1.8
Value added in manufacturing	-0.2	-2.9	3.6	4.5	0.4	6.1	5.4	6.1	5.7	5.2	4.8
Employment in manufacturing	-3.2	-5.3	-2.0	1.7	1.4	4.4	5.5	5.7	6.9	5.4	4.1
Average compensation in manufacturing	11 6	7.9	3.6	2.2	3.9	2.9	1.6	1.7	0.4	1.6	2 5

Sources: Bank of Spain, Statistical Bulletin; and Ministry of Economy and Finance.

1/ Based on collective wage agreements.

2/ Excluding social security contributions; data from the wage survey by INE, excluding agriculture.

3/ Deflated by the consumer price index.

4/ National accounts definitions.

5/ Data on employment are those from the Encuesta de Poblacion Activa (EPA).

Table 13. Spain: General Government–Overall Balances, National Accounts Basis, 1992–98

(In percent of GDP)

	1992	1993	1994	1995	1996	1997	1998
Overall balance (Maastricht definition)	-4.1	-7.0	-6.3	-7.1	-4.5	-2.6	-1.8
Central government	-2 8	-6.3	-5.1	-6.2	-3.5	-2.0	-1.4
Territorial governments	-1.1	-1.2	-1.0	-0.7	-0.6	-0.3	-0.2
Social security	-0.1	0.5	-0.2	-0.3	-0.4	-0.2	-0.2

Source. Bank of Spain, *Cuentas Financieras* , and Ministry of Finance, *Subdirección General de Previsión y Coyuntura* .

Table 14. Spain: General Government Nonfinancial Operations, National Accounts Basis, 1992–98

(In percent of Maastricht GDP)

	1992	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*
Current revenues	41.4	41.6	40.4	38.2	39.1	39.6	40.0
Indirect taxes	10.2	9.5	10.1	9.8	9.9	10.2	10.9
Direct taxes	12.3	11.8	11.4	11.1	11.4	11.6	11.3
Personal income taxes	8.8	8.5	9.2	8.8	8.8	8.4	8.1
Corporate income taxes and other	3.6	3.4	2.1	2.3	2.5	3.2	3.2
Social security contributions	14.5	14.8	14.5	13.3	13.6	13.6	13.6
Other current revenues	4.4	5.4	4.5	4.0	4.2	4.2	4.3
Current expenditures	40.6	43.3	41.9	40.6	39.9	38.7	37.8
Public consumption	17.0	17.4	16.8	16.2	16.2	15.7	15.3
Current transfers	16.0	16.8	16.3	15.3	15.3	14.9	14.5
Interest payments	4.4	5.2	4.8	5.4	4.9	4.4	3.9
Subsidies	1.7	2.1	2.0	1.9	1.7	1.6	1.9
Other current expenditures	1.6	1.8	2.0	1.7	1.8	2.0	2.1
Current balance	0.8	-1.7	-1.5	-2.3	-0.8	1.0	2.2
Capital revenues	0.9	0.9	1.1	1.3	1.4	1.2	1.2
Gross fixed capital formation	4.0	4.0	3.9	3.5	2.9	2.9	3.1
Capital transfers and other	1.8	2.1	2.0	2.6	2.2	1.9	2.0
Primary balance	0.3	-1.8	-1.5	-1.7	0.5	1.8	2.2
Overall balance (Maastricht definition)	-4.1	-7.0	-6.3	-7.1	-4.5	-2.6	-1.8
Government debt (Maastricht definition)	48.1	60.1	62.5	64.1	68.5	67.5	65.6

Source: Bank of Spain, *Cuentas Financieras*; and Ministry of Finance, *Subdirección General de Previsión y Coyuntura*.

Table 15. Spain: General Government Financing, 1992–97

	1992	1993	1994	1995	1996	1997
			(In billions of pesetas)			
Net change in liabilities	3,926	7,715	4,727	6,091	6,216	2,627
Loans from financial institutions	502	355	579	523	540	-518
Of which: Bank of Spain	-100	-31	-39	36	-48	-48
Short-term securities	-92	120	958	143	1,672	-1,547
Bonds	1,755	7,162	1,983	4,476	3,723	4,984
Non-negotiable securities	819	-48	-51	-54	-58	-1,014
Loans in foreign currency	218	239	396	233	54	-98
Foreign currency loans from residents	-4	58	13	11	28	-11
Direct loans from abroad	222	181	383	222	26	-87
Other 1/	724	-114	862	770	285	820
			(In percent of GDP)			
Net change in liabilities	6 6	12 6	7.2	8 5	8.2	3.3
Loans from financial institutions	0.8	0.6	0.9	0.7	0.7	-0.6
of which: Bank of Spain	-0.2	-0 1	-0 1	0.1	-0.1	-0.1
Short-term securities	-0.2	0 2	1.5	0.2	2.2	-1.9
Bonds	2 9	11.7	3.0	6.2	4.9	6.2
Non-negotiable securities	1 4	-0 1	-0.1	-0.1	-0.1	-1.3
Loans in foreign currency	0.4	0 4	0.6	0.3	0.1	-0.1
Foreign currency loans from residents	0.0	0 1	0.0	0.0	0.0	0.0
Direct loans from abroad	0 4	0.3	0.6	0.3	0.0	-0.1
Other 1/	1.2	-0 2	1.3	1.1	0.4	1.0
Memorandum items:						
General government balance	-2,450	-4,276	-4,138	-5,124	-3,423	-2,042
Of which: State	-1,690	-3,896	-3,363	-4,486	-2,619	-1,619
Change in deposits at the Bank of Spain	39	2,271	-1,336	-306	990	-853

Source: Bank of Spain, *Cuentas Financieras*.

1/ Includes changes in cash and deposit balances

Table 16. Spain: General Government Financing by Debt Holder, 1992–97 1/

	1992	1993	1994	1995	1996	1997
			(In billions of pesetas)			
Net financing	3,926	7,715	4,727	6,091	6,216	2,627
Resident	3,385	1,743	7,160	3,579	5,776	960
Of which: in foreign currency	-4	58	13	12	27	-12
Nonresident	541	5,972	-2,433	2,512	440	1,667
Of which: in pesetas	319	5,791	-2,816	2,290	414	1,754
			(In percent of GDP)			
Total outstanding debt	54.7	66.5	69.4	71.4	75.9	75.4
Resident	48.2	49.8	57.4	57.2	61.9	59.8
Of which: in foreign currency	0.1	0.2	0.2	0.3	0.2	0.1
Nonresident	6.5	16.7	12.0	14.1	14.0	15.7
Of which: in pesetas	5.6	15.5	10.3	12.4	12.2	14.0
Debt according to Maastricht criteria 2/	48.1	60.1	62.5	64.1	68.5	67.4

Source. Bank of Spain, *Cuentas Financieras.*

1/ Not computed according to Maastricht definition.
2/ Maastricht debt excludes intra-public sector debt as well as liabilities not taking the form of negotiable instruments or loans.

Table 17. Spain: State Nonfinancial Operations on a National Accounts Basis, 1992–97 /1

	1992	1993	1994	1995	1996	1997
			(In percent of GDP)			
Current revenue	21.3	21.1	20.3	19.4	20.0	20.4
Indirect taxes	7 6	6.9	7.4	7.2	7.4	7.4
Taxes on income and wealth	10.6	10.0	9.5	9.4	9.5	9.7
Social security taxes	1.0	1.1	1.0	1.0	1.0	1.0
Other current revenues	2.1	3.2	2.3	1 9	2.1	2.2
Current expenditure	21.2	23.7	23.0	22.7	21.6	20.8
Public consumption	5.2	5.4	5.1	5.0	4.8	4.6
Current transfers	11.8	13.1	13.0	12.3	12.0	12.0
Interest payments	3.5	4.1	3.9	4.5	4.0	3.6
Subsidies	0.8	1.0	1.0	0 9	0.8	0.6
Current balance (deficit -)	0.1	-2.6	-2.6	-3.3	-1.6	-0.5
Net capital transfers	-1.9	-2.5	-1.4	-1.7	-1.1	-0.7
Gross fixed capital formation	1.0	1.1	1.0	1.1	0.6	0.7
Net purchases of land	0.0	0.1	0.1	0.1	0.2	0.1
Primary balance (deficit -)	0.6	-2.2	-1.3	-1.8	0.6	1.5
Overall balance (deficit -)	-2.8	-6.3	-5.1	-6.2	-3.5	-2.0

Sources: Bank of Spain, *Cuentas Financieras.*

1/ Excludes central government agencies.

Table 18. Spain: State Financing, 1992–1997

	1992	1993	1994	1995	1996	1997
	(In billions of pesetas)					
Net change in liabilities	2,621	6,816	3,107	4,957	4,701	1,460
Short-term securities	205	152	968	92	1,671	-1,560
Bonds	1,534	6,680	1,595	4,046	3,365	4,591
Loans in pesetas	48	19	190	152	215	-516
Of which: Bank of Spain	-31	-31	-39	-39	-39	-39
Loans in foreign currency	99	136	296	157	-13	-91
Of which: from non-residents	103	80	266	138	-42	-85
Nonnegotiable securities	655	-48	-51	-54	-58	-850
Other 1/	80	-124	109	564	-479	-114
	(In percent of GDP)					
Total liabilities	42.0	52.4	54.0	55.8	59.1	58.1
Short-term securities	17.8	17.5	18.0	16.5	17.8	14.9
Bonds	16.0	26.9	27.7	30.7	33.5	37.6
Loans in pesetas	3.6	3.6	3.6	3.5	3.6	2.8
Of which: Bank of Spain	3.3	3.1	2.9	2.6	2.4	2.2
Loans in foreign currency	0.4	0.7	1.1	1.2	1.1	0.9
Of which: from non-residents	0.4	0.6	0.9	0.9	0.9	0.8
Non-negotiable securities	1.8	1.6	1.5	1.3	1.1	0.0
Other	2.3	2.1	2.0	2.6	1.9	1.8
Memorandum items:						
General government balance	-2,450	-4,276	-4,138	-5,124	-3,423	-2,042
Of which: State	-1,690	-3,896	-3,363	-4,486	-2,619	-1,619

Source: Bank of Spain, *Cuentas Financieras.*

1/ Includes changes in cash and deposit balances.

Table 19. Spain: Recent State Operations (National Accounts Basis)

(In billions of pesetas)

	1997	1998		1999	Percentage Change	
					1998	1999
	Jan–Dec.	Jan–Dec.	Jan–April	Jan–April	Jan–Dec.	Jan–April
Revenues	16,039	17,317	5,969	6,862	8.0	15.0
Taxes on income and wealth	7,233	7,377	2,525	2,953	2.0	17.0
Indirect taxes	5,926	6,686	2,600	3,063	12.8	17.8
VAT	3,676	4,052	1,779	2,177	10.2	22.4
Other indirect taxes	2,250	2,634	821	886	17.1	7.9
Dividends and interest revenues	714	853	286	275	19.5	-3.8
Transfers	1,190	1,394	261	263	17.1	0.8
Other revenues	976	1,007	297	308	3.2	3.7
Expenditure	17,721	18,549	6,233	7,034	4.7	12.9
Public consumption	3,497	3,576	984	942	2.3	-4.3
Interest payments	2,825	2,727	1,359	1,942	-3.5	42.9
Subsidies	494	595	181	156	20.4	-13.8
Transfers	7,491	8,536	2,946	3,264	14.0	10.8
Gross fixed capital formation	686	711	92	69	3.6	-25.0
Other expenditures	2,728	2,404	671	661	-11.9	-1.5
Balance	-1,682	-1,232	-264	-172	-26.8	-34.8

Source: Bank of Spain, *Boletín Económico*.

Table 20: Spain: Details of Recent State Operations--Cash Basis

	1996 1/		1997 2/		1998	
	billion pesetas	percent of GDP	billion pesetas	percent of GDP	billion pesetas	percent of GDP
Revenues	14,630	19.3	16,637	20.8	17,520	20.6
Taxes on income and wealth	6,750	8.9	7,882	9.9	7,457	8.8
Personal income tax 3/	5,249	6.9	5,540	6.9	4,992	5.9
Corporate income tax	1,373	1.8	2,095	2.6	2,324	2.7
Other direct taxes	128	0.2	247	0.3	141	0.2
Indirect taxes	5,813	7.7	6,253	7.8	7,016	8.3
VAT	3,618	4.8	4,004	5.0	4,373	5.2
Excise taxes	2,054	2.7	2,065	2.6	2,391	2.8
Other indirect taxes	141	0.2	184	0.2	252	0.3
Fees and other income	419	0.6	468	0.6	684	0.8
Capital income 4/	941	1.2	1,306	1.6	1,391	1.6
Current transfers	320	0.4	433	0.5	614	0.7
Capital transfers	335	0.4	282	0.4	326	0.4
Unclassified income	51	0.1	13	0.0	32	0.0
Expenditure	17,710	23.4	18,687	23.4	18,634	21.9
Current expenditures	15,983	21.1	16,994	21.2	16,665	19.6
Wages and salaries	2,933	3.9	2,992	3.7	3,053	3.6
Goods and services	372	0.5	390	0.5	388	0.5
Interest payments	3,378	4.5	3,596	4.5	3,334	3.9
Current transfers	9,300	12.3	10,016	12.5	9,890	11.6
Capital expenditures	1,727	2.3	1,693	2.1	1,969	2.3
Investment	938	1.2	847	1.1	898	1.1
Capital transfers	789	1.0	846	1.1	1,071	1.3
Cash Balance	-3,080	-4.1	-2,050	-2.6	-1,114	-1.3

Sources: *Intervencion General de la Administracion del Estado* and Fund staff estimates.

1/ Excluding spending recorded in 1996 but resulting from overruns incurred in 1995.

2/ Includes Ptas. 105.3 billion to cover overruns incurred in 1995, which have already been recorded in that year on a national accounts basis.

3/ From 1998, 15 percent of personal income taxes is collected directly by the regions and is no longer transferred by them to the state.

4/ Includes privatization revenues accrued directly to the state.

Table 21. Spain: Recent State Financing Operations, 1994–98

(In billions of pesetas)

	1994	1995	1996	1997	1998 /1
Net change in liabilities	3,107	4,957	4,718	1,515	1,473
Securities denominated in pesetas	2,426	3,799	4,808	2,584	1,552
Short–term	989	35	1,654	-1,458	-1,916
Long–term	1,395	3,675	3,142	4,062	3,517
Other 2/	42	89	12	-20	-49
Securities in foreign currency	137	338	228	447	1,094
Short–term	-21	56	17	-103	30
Long–term	158	282	211	550	1,064
Loans in pesetas	190	152	214	-516	-391
Of which: Bank of Spain	-39	-39	-39	-39	0
Loans in foreign currency	296	157	-13	-92	-47
Other	58	509	-520	-909	-735
Memorandum items:					
Change in deposits at the Bank of Spain	-1,358	-283	968	-893	1,942
Assumption of liabilities	243	435	448	0	0

Source: Bank of Spain, *Statistical Bulletin.*

1/ January-November.

2/ Includes nonnegotiable securities and the assumption by the government of nongovernment securities.

Table 22. Spain: Nonfinancial Operations of the Social Security System, 1992–97 1/

(In percent of GDP)

	1992	1993	1994	1995	1996	1997
Current revenues	18.9	20.1	19.7	18.3	18.2	18.1
Social security contributions	13.4	13.7	13.4	12.2	12.5	12.6
Transfers from the government	5.1	6.0	6.0	5.7	5.3	5.2
Other current revenues	0.4	0.4	0.3	0.4	0.4	0.3
Current spending	19.2	20.2	19.8	18.5	18.5	18.2
Consumption	4.6	4.6	4.6	4.2	4.2	4.1
Social security benefits	14.3	15.2	14.9	13.9	13.9	13.7
Other spending	0.3	0.4	0.4	0.4	0.4	0.4
Gross saving	-0.4	-0.1	-0.2	-0.3	-0.4	-0.1
Net capital transfers	0.5	0.9	0.1	0.1	0.1	0.1
Gross fixed capital formation	0.2	0.2	0.2	0.2	0.2	0.2
Overall balance	-0.1	0.5	-0.2	-0.3	-0.4	-0.2

Source: Bank of Spain, *Cuentas Financieras.*

1/ National accounts basis.

Table 23. Spain: Social Security System–Recent Operations 1/

(In billions of pesetas)

	1997 Jan.–Nov.	1998 Jan.–Nov.	Percentage Change
Revenue	10,589.6	11,599.2	9.5
Contributions	6,991.3	7,584.0	8.5
Transfers from the State	3,568.3	3,972.8	11.3
Other	30.0	42.4	41.3
Expenditure	10,783.2	11,389.9	5.6
By activity:			
Wages and salaries	754.4	789.1	4.6
Goods and services	375.3	421.3	12.3
Benefits 2/	9,609.3	10,132.8	5.4
Other	44.2	46.7	5.7
By type of benefit:			
Economic	6,940.1	7,256.6	4.6
Pensions	6,265.9	6,598.2	5.3
Temporary disability	470.9	446.3	-5.2
Other economic benefits	203.3	212.1	4.3
Social	175.3	178.2	1.7
Health	2,493.9	2,698.0	8.2
Other (incl. administrative costs)	1173.9	1257.1	7.1
Overall balance	-193.6	209.3	...
(in percent of annual GDP)	-0 2	0.2	

Source: Ministry of Economy and Finance, *Sintesis Mensual de Indicadores Economicos.*

1/ Transactions basis. Excludes unemployment benefits.
2/ Includes social security transfers to regional governments.

Table 24. Spain: Nonfinancial Operations of Territorial Governments, 1992–97 1/

	1992	1993	1994	1995	1996	1997
			(In percent of GDP)			
Current revenue	10.1	10.4	10.2	10.0	10.2	10.6
Indirect taxes	2.6	2.6	2.6	2.6	2.5	2.7
Direct taxes	1.8	1.9	1.8	1.8	1.8	1.8
Transfers from the State	4.8	4.9	4.9	4.8	4.9	5.2
Other current revenues	0.8	0.9	0.8	0.9	0.9	0.9
Current expenditure	9.0	9.3	8.9	8.8	9.0	9.2
Public consumption	6.2	6.3	6.2	6.1	6.3	6.2
Current transfers	1.2	1.2	1.0	1.0	1.0	1.3
Interest payments	0.9	1.0	0.9	0.9	0.9	0.9
Other current spending	0.8	0.9	0.8	0.8	0.8	0.8
Current balance	1.1	1.1	1.3	1.2	1.1	1.4
Net capital transfers	0.4	0.3	0.3	0.3	0.3	0.2
Gross fixed capital formation	2.6	2.6	2.5	2.2	2.0	1.9
Primary balance (deficit -)	-0.3	-0.3	-0.1	0.3	0.3	0.5
Overall balance (deficit -)	-1.1	-1.2	-1.0	-0.7	-0.6	-0.3

Source: Bank of Spain, *Cuentas Financieras.*

1/ National accounts basis. Territorial governments include regional governments and municipalities.

Table 25. Spain: Financial Relations with the EC, 1992-98

	1992	1993	1994	1995	1996	1997	1998
	(In billions of pesetas)						
Transfers from the EC to Spain							
Total	975.3	1129.5	1150.2	1754.0	1651.6	1731.8	2033.4
Current	477.4	606.9	705.9	749.7	655.2	763.9	893.7
Capital	497.9	522.6	444.3	1004.3	996.4	967.8	1139.7
Transfers from Spain to the EC							
Total	647.8	740.6	803.4	615.9	739.3	900.4	984.2
Balance	327.5	388.9	346.8	1138.1	912.3	831.4	1049.2
As percent of GDP	0.6	0.6	0.5	1.6	1.2	1.1	1.3

Source: Bank of Spain, Statistical Bulletin.

Table 26. Spain: Monetary Survey, 1992-98
(Stocks: in billions of pesetas; end of period)

	1992	1993	1994	1995	1996	1997	1998 Oct.
A1. Net foreign assets	3,785.7	10,298.3	7,006.5	8,844.6	8,642.4	7,217.7	3,654.8
Bank of Spain	5,730.2	6,223.8	6,731.6	7,350.0	7,825.5	8,112.7	8,098.3
Other monetary institutions	-1,944.5	4,074.5	274.9	1,494.6	816.9	-895.0	-4,443.5
A2. Total domestic credit	65,560.6	66,672.1	74,418.8	79,559.8	86,687.2	93,348.0	96,715.5
Credit to general government	19,430.7	19,578.2	25,795.3	27,791.9	30,979.9	29,997.4	25,240.6
of which:							
Loans	5,470.3	3,633.0	5,623.2	6,467.2	6,168.3	6,618.1	1,867.2
Securities	10,633.5	11,833.6	15,738.4	17,340.1	18,363.8	17,054.4	18,078.5
Money market credits	4,300.9	5,165.7	5,567.1	5,121.5	7,229.4	7,104.0	6,100.6
(-) Provisions made to ICO 1/	974.0	1,054.0	1,133.4	1,136.9	781.6	779.1	805.7
Credit to private sector	46,130.0	47,093.9	48,623.5	51,767.8	55,707.3	63,350.5	71,474.8
A3. Other items (net)	-5,521.5	-7,213.6	-7,149.5	-7,417.3	-8,381.9	-9,685.4	-10,702.1
L. Total assets (L = L1 +L2 +L3 = A1 +A2 +A3)	63,824.8	69,756.8	74,275.8	80,987.1	86,947.7	90,880.3	89,668.2
L1. Liquid assets held by the public (ALP)	59,449.7	65,429.2	70,045.8	76,479.0	82,118.8	85,674.3	83,766.5
M3	54,237.5	59,260.7	63,675.8	70,439.4	73,819.5	77,136.6	75,756.4
M2	25,690.3	26,966.7	28,753.4	29,637.5	31,717.5	35,483.7	36,801.0
M1	15,631.3	16,180.5	17,337.6	17,887.8	19,116.1	21,834.9	22,334.2
Other components of ALP 2/	5,212.2	6,168.4	6,369.9	6,039.6	8,299.3	8,537.7	8,010.0
L.2 Other nonmonetary liabilities of the Private sector	1,382.6	1,247.7	1,298.1	1,350.3	1,537.8	1,582.0	1,651.1
L.3 Other nonmonetary liabilities of the Public sector	2,992.4	3,079.9	2,932.0	3,157.7	3,291.1	3,624.0	4,250.5
Memorandum items:							
Credit to general government							
Inclusive of provisions made to ICO	9,740.0	10,540.0	11,334.0	11,368.7	7,816.4	7,790.8	8,057.2
Monetary base	7,752.6	7,791.4	8,593.9	8,929.7	9,251.6	9,861.7	9,394.1
of which: commercial bank reserves	1,246.1	802.3	936.8	862.4	733.4	870.1	726.8

Source: Bank of Spain, Statistical Bulletin.

1/ Official Credit Institutions.

2/ Includes long-term securities issued by official credit institutions, non-interbank private asset transfers, endorsed bills and commercial paper guarantees, treasury notes and bills held by the public, and short-term securities of other governments.

Table 27. Spain: Monetary Survey, 1992-98
(Stocks: end-of-period; year-over-year percentage change)

	1992	1993	1994	1995	1996	1997	1998 Oct.
A1. Net foreign assets	3.2	172.0	-32.0	26.2	-2.3	-16.5	-39.6
Bank of Spain	17.3	-41.5	-7.2	12.0	-31.0	-24.0	-22.2
Other monetary institutions	-14.1	213.6	-24.8	14.2	28.7	7.5	-17.5
A2. Total domestic credit	6.0	1.7	11.6	6.9	9.0	7.7	6.0
Credit to general government	5.0	0.8	31.8	7.7	11.5	-3.2	-14.7
of which:							
Loans	9.3	8.2	7.5	0.3	-31.2	-0.3	3.8
Securities	-2.3	11.3	33.0	10.2	5.9	-7.1	4.0
Money market credits	15.2	20.1	7.8	-8.0	41.2	-1.7	-18.4
(-) Provisions made to ICO 1/	9.3	8.2	7.5	0.3	-31.2	-0.3	3.8
Credit to private sector	6.5	2.1	3.2	7.6	8.5	13.1	16.2
A3. Other items (net)	-30.9	-30.6	0.9	-3.7	-13.0	-15.6	-14.6
L. Total assets (L = L1 + L2 = A1 +A2 +A3)	4.2	9.3	6.5	9.0	7.4	4.5	2.0
L1. Liquid assets held by the public (ALP)	5.1	10.1	7.1	9.2	7.4	4.3	1.0
M3	4.8	9.3	7.5	10.6	4.8	4.5	2.3
M2	-0.4	5.0	6.6	3.1	7.0	11.9	10.8
M1	-1.7	3.5	7.2	3.2	6.9	14.2	10.6
Other components of ALP 2/	9.3	18.3	3.3	-5.2	37.4	2.9	-9.8
L.2 Other nonmonetary liabilities of the Private sector	-25.0	-9.8	4.0	4.0	13.9	2.9	11.1
L.3 Other nonmonetary liabilities of the Public sector	3.6	2.9	-4.8	7.7	4.2	10.1	20.4
Memorandum items:							
Credit to general government inclusive of provisions made to ICO	9.3	8.2	7.5	0.3	-31.2	-0.3	3.8
Monetary base	0.5	0.5	10.3	3.9	3.6	6.6	-0.3
of which: Commercial bank reserves	-24.3	-35.6	16.8	-7.9	-15.0	18.6	-14.7

Source: Bank of Spain, Statistical Bulletin.

1/ Official Credit Institutions.

2/ Includes long-term securities issued by official credit institutions, non-interbank private asset transfers, endorsed bills and commercial paper guarantees, treasury notes and bills held by the public, and short-term securities of other governments.

Table 28. Spain: Monetary Aggregates, 1992-98

	1992	1993	1994	1995	1996	1997	1998 Oct.
	(In billions of pesetas; end of period)						
ALP2 = ALP + g	61,203	66,757	71,088	77,382	82,927	86,504	84,644
ALP = M3 + f	59,450	65,429	70,046	76,479	82,119	85,674	83,766
M3 = M2 + d + e	54,238	59,261	63,676	70,439	73,820	77,137	75,756
M2 = M1 + c	25,690	26,967	28,753	29,638	31,718	35,484	36,801
M1 = a + b	15,631	16,181	17,338	17,888	19,116	21,835	22,334
(a) Currency in circulation	6,025	6,509	7,164	7,535	7,941	8,378	8,115
(b) Demand deposits	9,607	9,672	10,173	10,353	11,175	13,457	14,219
(c) Saving deposits	10,059	10,786	11,416	11,750	12,601	13,649	14,467
(d) Time deposits	17,829	20,620	22,181	24,749	24,227	21,480	19,778
(e) Other components of M3 1/	10,718	11,674	12,741	16,053	17,875	20,173	19,177
(f) Other components of ALP 2/	5,212	6,168	6,370	6,040	8,299	8,538	8,010
(g) Commercial paper	1,754	1,328	1,043	903	808	830	877
	(Year-over-year percentage change)						
ALP2	-0.6	-24.3	-21.5	-13.4	-10.5	2.7	10.4
ALP	5.1	10.1	7.1	9.2	7.4	4.3	1.0
M3	4.8	9.3	7.5	10.6	4.8	4.5	2.3
M2	-0.4	5.0	6.6	3.1	7.0	11.9	10.8
M1	-1.7	3.5	7.2	3.2	6.9	14.2	10.6
Currency in circulation	7.4	8.0	10.1	5.2	5.4	5.5	0.5
Demand deposits	-6.7	0.7	5.2	1.8	7.9	20.4	17.3
Saving deposits	1.6	7.2	5.8	2.9	7.2	8.3	11.2
Time deposits	11.6	15.7	7.6	11.6	-2.1	-11.3	-8.9
Other components of M3	7.1	8.9	9.1	26.0	11.3	12.9	0.2
Other components of ALP	9.3	18.3	3.3	-5.2	37.4	2.9	-9.8
Commercial paper	-0.6	-24.3	-21.5	-13.4	-10.5	2.7	10.4
Memorandum items:							
Velocity of circulation: 3/							
ALP2	0.97	0.91	0.91	0.90	0.89	0.90	0.98
ALP	0.99	0.93	0.93	0.91	0.90	0.91	0.99
M3	1.09	1.03	1.02	0.99	1.00	1.01	1.09

Source: Bank of Spain, Statistical Bulletin.

1/ Includes foreign currency deposits, short-term securities of credit institutions, long-term securities of deposit money institutions and repo asset sales.

2/ Includes long-term securities issued by official credit institutions, non-interbank private asset transfers, endorsed bills and commercial paper guarantees, treasury notes and bills held by the public, and short-term securities of other governments.

3/ Annual GDP; end-of-period monetary aggregate.

Table 29. Spain: Main Interest Rates, 1993-98

	1993	1994	1995	1996	1997	1998	1997				1998			
							I	II	III	IV	I	II	III	IV
	(Period averages in percent)													
Interbank market														
Bank of Spain overnight intervention rate	11.8	7.8	9.3	7.8	5.6	4.3	6.2	5.7	5.3	5.1	4.7	4.4	4.3	3.8
Bank of Spain 10-day intervention rate	11.3	7.7	8.8	7.5	5.4	4.2	6.0	5.4	5.2	4.9	4.6	4.3	4.2	3.5
1-month interbank rate	12.2	7.9	9.2	7.6	5.5	4.3	6.0	5.4	5.3	5.1	4.7	4.4	4.4	3.8
3-month interbank rate	11.7	8.0	9.4	7.5	5.4	4.2	5.9	5.3	5.3	5.0	4.6	4.4	4.3	3.7
Commercial banks														
Prime rate	13.1	8.9	10.0	8.5	6.1	5.0	6.7	6.0	6.0	5.7	5.4	5.1	5.1	4.5
1-3 years commercial credits	14.6	10.9	11.3	9.6	7.3	6.0	8.0	7.3	7.0	6.8	6.4	6.1	6.0	5.5
Demand deposits	7.4	5.1	5.1	4.3	3.2	2.5	3.4	3.3	3.1	3.1	2.9	2.7	2.2	2.1
1-2 years deposits	9.3	6.8	8.3	6.1	3.9	2.9	4.3	4.0	3.8	3.5	3.2	3.0	2.9	2.4
Government securities 1/														
1-year Treasury bills	10.5	7.9	9.7	7.2	4.9	3.7	5.3	5.1	4.7	4.6	4.1	3.9	3.8	3.1
3-years government bonds	10.2	9.3	10.9	7.7	5.3	4.1	5.6	5.4	5.1	5.0	4.4	4.4	4.1	3.5
10-years government bonds	10.2	9.9	11.2	8.8	6.4	4.8	6.9	6.7	6.2	5.9	5.3	5.1	4.7	4.3

Source: Bank of Spain, Statistical Bulletin.

1/ Secondary markets.

Table 30. Spain: Financial Market Developments, 1992-98

(In billions of pesetas)

	1992	1993	1994	1995	1996	1997	1998	1998 I	1998 II	1998 III	1998 IV
Net issues of obligations:											
General government	1,176.3	6,743.9	2,732.5	4,134.2	5,136.9	2,949.4	1,091.3	1,795.3	750.8	423.0	-1,877.8
Central government 1/	1,299.0	6,499.9	2,426.4	3,799.2	4,808.3	2,584.2	914.1	1,752.1	707.3	401.1	-1,946.4
Short-term	180.5	201.9	989.2	35.5	1,654.4	-1,457.6	-2,002.5	-83.2	-1,581.2	15.0	-353.1
Medium to long-term	1,118.5	6,298.0	1,437.2	3,763.8	3,153.9	4,041.8	2,916.6	1,835.4	2,288.5	386.0	-1,593.4
Credit institutions	-18.3	486.9	340.7	300.5	182.1	482.1	189.7	131.0	206.4	-39.7	-108.0
Other resident sectors	165.8	249.6	-99.8	-189.6	-57.7	-256.8	524.4	-26.1	11.4	17.8	521.4
Net issues of commercial paper	-6.6	-397.6	-353.9	-171.2	-102.9	-5.8	54.5	46.0	-27.6	24.2	12.0
Net issues of equities:											
Credit institutions	82.5	170.3	375.3	96.0	33.6	34.6	810.1	-15.9	798.1	23.0	4.9
Other resident sectors	566.5	363.6	562.5	641.0	320.1	130.0	709.3	118.2	489.7	20.5	80.9
Nonfinancial institutions	557.7	351.0	551.0	613.4	299.9	121.3	679.7	102.9	488.0	19.9	68.9
Indices of activity in secondary markets:											
Stock exchange: turnover/capitalization ratio (%)	44.8	42.0	60.3	46.7	53.9	78.5	91.2	22.4	26.6	26.6	21.2
Madrid stock exchange price index (1985=100)	230.5	270.8	314.6	296.1	367.3	556.0	817.7	786.4	876.6	779.6	828.1
Memorandum item:			(As a share of GDP)								
Net debt outstanding (period average) of:											
General government	30.8	35.9	41.7	44.2	47.8	51.0	52.3	52.6	52.8	52.6	51.3
Central government	29.5	34.7	40.1	42.1	45.5	48.3	49.5	49.8	50.0	49.8	48.5
Short-term debt	15.4	15.4	15.9	17.0	16.1	16.9	13.0	14.9	13.0	12.0	12.0
Medium-and long-term debt	14.2	19.3	24.2	25.1	29.4	31.4	36.5	34.9	37.0	37.7	36.4
Stock exchange capitalization	16.8	25.5	23.5	24.6	32.3	44.4	57.7	60.1	56.3	45.9	56.5

Source: Bank of Spain, Statistical Bulletin.

1/ Excludes nonmarketable bonds.

Table 31. Spain: Exchange Rate Indicators, 1993-98

	1993	1994	1995	1996	1997	1998	1998							
							MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
							(Period averages)							
Nominal														
Peseta/US dollar	127.2	134.0	124.7	126.7	146.4	149.4	150.7	152.1	152.6	151.8	144.5	139.2	143.2	142.0
Peseta/deutsche mark	76.9	82.6	87.0	84.2	84.5	84.9	84.9	84.9	84.9	84.9	84 9	85.0	85.0	85.1
Peseta/ECU	148.9	158.9	163.0	160.7	165.9	167.2	167.2	167.5	167.5	167.2	166.8	166.3	166.5	166.5
							(Index 1990=100)							
Nominal Effective Exchange Rates														
vs. Developed Countries	86.6	80.8	80.3	80.9	77 2	76.9	76.8	76.8	76.8	77.1	77.6	77.9	77.4	77 4
vs. EU Countries	88.8	83.1	82.0	82.2	79.2	78.7	78.8	78.8	78.9	78.9	78.9	78.8	78.8	78.8
vs. EMS Narrow Band	83.0	76 9	73.5	75.2	74.6	74.2	74.1	74.2	74.2	74.2	74.2	74.1	74.1	74.1
							(Index 1990=100)							
Real Effective Exchange Rates 1/														
vs. Developed Countries	90.5	86.2	87.5	89.2	85.3	85.3	84.9	84.8	85.2	85.8	86.3	86.6	86.0	86.2
vs. EU Countries	92.3	88.1	88.6	90.0	86.8	86.5	86.0	85.9	86.3	86 7	87.0	87.3	87.1	87.3
vs. EMS Narrow Band	88.0	83.6	82.1	85.5	85.1	85.3	84.9	85.0	85.3	85.5	85.6	85 6	85.5	85.7
							(Index 1990=100)							
Real Effective Exchange Rates 2/														
vs. Developed Countries	93.8	86.6	85.2	88.4	86.0	87.2	86.7	87.2	88.4	88.6	88.8	89.2	88.8	89.1
vs. EU Countries	95.6	88.7	86.2	88.8	87.2	88.1	87.7	88.1	89.5	89.4	89.2	89.6	89.5	89.9
vs. EMS Narrow Band	89.7	83 5	79.2	84.3	86.5	88.3	88.0	88.5	90.6	90.5	90.3	...	...	...

Source: Bank of Spain.

1/ Based on CPI indices.

2/ Based on unit labor costs in manufacturing.

Table 32. Spain: Profit and Loss Account of the Banking System

(as percent of total assets)

	Total		Banks		Savings Banks	
	1996	1997	1996	1997	1996	1997
Net interest margin	2.53	2.42	2.06	1.94	3.33	3.20
Gross interest margin	3.34	3.22	2.94	2.80	4.01	3.91
Operating margin	1.21	1.15	1.02	0.95	1.53	1.47
Pre-tax income	0.84	0.90	0.70	0.74	1.06	1.16
Pre-tax income as percent of own funds	14.64	15.64	12.60	13.84	18.08	18.45

Source: Bank of Spain, *Annual Report.*

Table 33. Spain: Balance of Payments, 1992-98

	1992	1993	1994	1995	1996	1997	1998
	(Transaction basis; in billions of pesetas)						
Current account	-2,186	-736	-884	25	31	341	-211
Goods	-3,088	-1,897	-1,967	-2,269	-2,029	-1,928	-2,775
Exports	6,757	7,877	9,889	11,646	13,018	15,590	16,386
Imports	-9,846	-9,773	-11,856	-13,915	-15,048	-17,518	-19,161
Services	1,272	1,445	1,941	2,216	2,513	2,824	3,160
Income	-588	-455	-1,039	-516	-771	-983	-1,122
Current transfers	219	170	181	594	318	428	526
Capital account	382	377	307	745	840	933	936
Financial account	2,411	560	675	-136	-528	-459	-165
Spanish investment abroad 1/	-490	-1,579	-716	-642	-1,277	-4,214	-9,533
Foreign investment in Spain 1/	2,615	8,124	-1,571	3,494	1,245	2,777	4,244
Other Spanish investment abroad 2/	-4,112	-8,989	1,354	-4,608	307	-259	-3,598
Other foreign investment in Spain 2/	2,620	2,401	1,601	773	2,270	2,960	6,685
Changes in reserves	1,778	604	7	846	-3,072	-1,722	2,038
Errors and omissions	-608	-202	-98	-634	-343	-815	-560

Source: Bank of Spain, Boletín estadístico.

1/ Including foreign direct investment and marketable securities.

2/ Including loans, deposits, and repurchase operations.

Table 34. Spain: Balance of Payments, 1992-98

	1992	1993	1994	1995	1996	1997	1998
	(Transaction basis; in billions of U.S. dollars)						
Current account	-21.3	-5.8	-6.6	0.2	0.2	2.3	-1.4
Goods	-30.2	-14.9	-14.7	-18.2	-16.0	-13.2	-18.6
Exports	66.0	61.9	73.8	93.4	102.8	106.5	109.7
Imports	-96.2	-76.8	-88.5	-111.6	-118.8	-119.6	-128.3
Services	12.4	11.4	14.5	17.8	19.8	19.3	21.2
Income	-5.7	-3.6	-7.8	-4.1	-6.1	-6.7	-7.5
Current transfers	2.1	1.3	1.4	4.8	2.5	2.9	3.5
Capital account	3.7	3.0	2.3	6.0	6.5	6.4	6.3
Financial account	23.5	4.4	5.0	-1.1	-4.2	-3.1	-1.1
Spanish investment abroad 1/	-4.8	-12.4	-5.3	-5.1	-10.1	-28.8	-63.8
Foreign investment in Spain 1/	25.5	63.8	-11.7	28.0	9.8	19.0	28.4
Other Spanish investment abroad 2/	-40.2	-70.6	10.1	-37.0	2.4	-1.8	-24.1
Other foreign investment in Spain 2/	25.6	18.9	12.0	6.2	17.9	20.2	44.7
Changes in reserves	17.4	4.7	0.1	6.8	-24.3	-11.8	13.6
Errors and omissions	-5.9	-1.6	-0.7	-5.1	-2.7	-5.6	-3.7

Source: Bank of Spain, Boletin estadistico.

1/ Including foreign direct investment and marketable securities.

2/ Including loans, deposits, and repurchase operations.

Table 35. Spain. Current Account Balance, 1992-98

	1992	1993	1994	1995	1996	1997	1998
				(Transaction basis; in billions of pesetas)			
Merchandise, net	3,088.5	-1,896.6	-1,966.8	-2,268.7	-2,029.2	-1,927.8	-2,774.6
Receipts	6,757.3	7,876.8	9,889.2	11,645.8	13,018.4	15,590.4	16,386.5
Payments	9,845.7	9,773.4	11,856.0	13,914.5	15,047.6	17,518.2	19,161.1
Services, net	1,272.0	1,445.4	1,940.8	2,216.5	2,513.1	2,824.2	3,159.8
Tourism and travel	1,699.1	1,913.4	2,325.1	2,611.2	2,866.1	3,276.9	3,710.8
Receipts	2,265.1	2,516.1	2,879.0	3,168.2	3,489.7	3,938.0	4,458.0
Payments	566.0	602.7	553.9	556.9	623.7	661.1	747.2
Other services	-427.1	-468.0	-384.3	-394.7	-352.9	-452.7	-551.0
Receipts	1,181.9	1,385.8	1,623.4	1,821.5	2,129.1	2,530.4	2,858.4
Payments	1,609.0	1,853.8	2,007.7	2,216.2	2,482.1	2,983.1	3,409.5
Income, net	-587.6	-454.6	-1,039.4	-516.3	-771.4	-983.3	-1,122.5
Investment income	-610.1	-454.9	-1,040.2	-515.9	-768.2	-982.9	-1,123.2
Receipts	1,417.7	1,492.6	1,147.2	1,681.9	1,759.8	1,887.3	2,121.5
Payments	2,027.9	1,947.5	2,187.4	2,197.8	2,528.0	2,870.3	3,244.7
Labor income	22.5	0.3	0.8	-0.4	-3.2	-0.4	0.8
Receipts	24.7	15.0	13.9	19.7	22.2	35.2	46.1
Payments	2.2	14.6	13.1	20.1	25.4	35.5	45.3
Transfers, net	218.6	169.9	181.3	594.0	318.2	427.6	526.3
Private	702.5	803.1	931.6	1,009.4	923.7	1,086.0	1,224.0
Official	-483.9	-633.3	-750.3	-415.4	-605.5	-658.4	-697.8
				(As percent of GDP)			
Memorandum items:							
Current account balance	-3.7	-1.2	-1.4	0.0	0.0	0.4	-0.3
Merchandises	-5.2	-3.1	-3.0	-3.3	-2.8	-2.5	-3.4
Services	2.2	2.4	3.0	3.2	3.4	3.6	3.8
Tourism	2.9	3.1	3.6	3.7	3.9	4.2	4.5
Income	-1.0	-0.7	-1.6	-0.7	-1.0	-1.3	-1.4

Source: Bank of Spain, Boletín Estadístico.

Table 36. Spain: External Trade, 1992-98 1/

	1992	1993	1994	1995	1996	1997	1998
	(Percentage change; unless otherwise indicated)						
Exports, f.o.b. (total in billions of pesetas)	6,605.7	7,754.6	9,796.3	11,423.1	12,931.0	15,267.6	16,289.6
Value	6.1	17.4	26.3	16.6	13.2	18.1	6.7
Unit price	1.0	5.1	4.3	6.5	1.0	3.2	0.1
Volume	4.9	11.7	21.2	9.7	12.0	14.5	6.6
Exports, f.o.b. (nonenergy; in billions of pesetas)	6,417.5	7,534.8	9,589.3	11,236.3	12,580.6	14,867.2	15,924.3
Value	7.9	17.4	27.3	17.2	12.0	18.2	7.1
Unit price	1.5	4.7	4.3	6.3	0.6	3.3	0.5
Volume	6.1	12.0	22.0	10.4	11.3	14.5	6.5
Exports, f.o.b. (manufactured final goods; in billions of pesetas)	2,809.0	3,243.1	4,149.3	4,790.9	5,413.5	6,260.0	6,896.8
Value	11.1	15.5	27 9	15.5	13.0	15.6	10.2
Unit price	3.7	6.8	2.3	2.0	1.0	3.4	1.4
Volume	7.0	7.8	24.9	13.8	11.9	11.9	8.6
Imports, c.i.f. (total in billions of pesetas)	10,205.0	10,131.0	12,348.7	14,318.3	15,435.7	17,966.5	19,838.0
Value	5.5	-0.7	21.9	15.9	7.8	16.4	10.4
Unit price	-1.2	5.1	5.9	4.4	0.3	3.6	-2.3
Volume	6.8	-5.7	15.2	11.0	7.5	12.4	13.1
Imports, c.i.f. (nonenergy; in billions of pesetas)	9,180.8	9,029.6	11,190.7	13,130.5	14,033.6	16,352.2	18,553.3
Value	6.4	-1.6	23.9	17.3	6.9	16.5	13.5
Unit price	-0.1	4.3	6.3	4.4	-1.1	3.0	0.4
Volume	6.6	-5.8	16.7	12.4	8.1	13.1	13.1
Imports, c.i.f. (energy in billions of pesetas)	1,024.2	1,101.4	1,158.0	1,187.7	1,402.1	1,614.2	1,284.7
Value	-2.2	7.5	5.1	2.6	18.1	15.1	-20.4
Unit price	-10.1	11.0	3.1	4.2	17.3	9.9	-29.5
Volume	8.6	-4.2	3.2	-1.3	1.0	4.3	13.3
Trade balance (in billions of pesetas)	-3,599.3	-2,376.4	-2,552.4	-2,895.2	-2,504.7	-2,698.8	-3,548.4
Memorandum items.							
Exports, f.o.b. (in billions of US$)	58.5	55.3	74.0	93.2	98.9	101.6	114.7
Imports, c.i.f. (in billions of US$)	90.4	72.2	93.3	116.9	118.1	119.6	139.7
Real total domestic demand in Spain	1.0	-3.9	1.7	3.2	-1.8	1.2	1.2
Market growth 2/	4.7	1.1	9.7	8.3	5.6	11.4	6.7

Sources: Ministry of Economy and Finance, Sintesis Mensual de Indicadores Economicos; and Fund staff estimates.

1/ Based on customs statistics.
2/ Calculated on the basis of the movement in non-oil goods import volumes of Spain's major trading partners.

Table 37. Spain: Trade Composition by Products, 1992-98 1/

	1992	1993	1994	1995	1996	1997	1998
Net			(In billions of pesetas)				
Consumer goods	-103.1	385.2	919.5	1,377.7	1,542.9	1,730.5	1,480.5
Food	64.0	189.1	254.6	323.3	539.9	738.7	656.7
Other consumer goods	-167.1	196.1	665.0	1,054.4	1,003.1	991.9	823.7
Intermediate goods	-2,595.4	-2,269.1	-2,839.2	-3,488.4	-3,269.9	-3,538.3	-3,908.1
Capital goods	-900.8	-492.5	-632.7	-784.5	-777.7	-891.1	-1,120.8
Exports			(Percent change; unless otherwise indicated)				
Consumer goods (in billions of pesetas)	2,743.1	3,210.2	4,137.0	4,820.1	5,309.5	6,130.4	6,651.1
Value	10.3	17.0	28.9	16.5	10.2	15.5	8.5
Price	3.5	7.1	4.8	6.2	2.8	2.0	3.7
Volume	6.7	9.2	22.8	10.2	7.3	13.0	4.7
Food (in billions of pesetas)	838.6	1,013.2	1,258.4	1,455.2	1,662.0	1,988.1	2,052.9
Value	12.3	20.8	24.2	15.6	14.2	19.6	3.3
Price	1.1	3.1	6.0	11.0	4.2	-1.3	0.7
Volume	11.7	16.6	17.3	4.0	9.6	20.9	2.7
Other consumer goods (in billions of pesetas)	1,904.5	2,197.0	2,878.6	3,364.9	3,647.5	4,142.3	4,598.2
Value	9.4	15.4	31.0	16.9	8.4	13.6	11.0
Price	4.6	8.8	4.1	4.0	2.2	3 5	5.1
Volume	4.5	5.8	25.5	13.0	6.3	9.4	5.7
Intermediate goods (in billions of pesetas)	2,937.7	3,464.5	4,350.1	5,147.8	5,821.7	6,991.0	7,302.8
Value	0.5	17.9	25.6	18.3	13.1	20.1	4.5
Price	-1.3	3.8	5.5	9.6	0.1	4.6	-1.5
Volume	1.7	13.6	19.1	8.0	12.9	14.9	6.0
Investment goods (in billions of pesetas)	924.9	1,079.9	1,309.3	1,455.2	1,799.8	2,146.3	2,335.7
Value	13.3	16.8	21.2	11.1	23.7	19.3	8.8
Price	1.5	3.7	-2.2	-1.6	-0.4	2.8	-4.1
Volume	11.4	12.5	23.6	13.6	23.7	17.0	13.0
Imports			(Percent change; unless otherwise indicated)				
Consumer goods (in billions of pesetas)	2,846.2	2,825.0	3,217.5	3,442.4	3,766.6	4,399.8	5,170.6
Value	21.5	-0.7	13.9	7.0	9.4	16.8	17.5
Price	1.1	6.4	2.9	2.2	2.0	4.5	2.8
Volume	20.4	-6.8	10.9	4.5	7.4	11.8	14.4
Food (in billions of pesetas)	774.6	824.1	1,003.8	1,131.9	1,122.2	1,249.4	1,396.1
Value	13.6	6.4	21.8	12.8	-0.9	11.3	11.7
Price	3.2	2.3	5.1	5.0	-1.6	1.3	0.7
Volume	10.2	3.4	16.3	7.4	0.9	9.8	11.1
Other consumer goods (in billions of pesetas)	2,071.6	2,000.9	2,213.7	2,310.6	2,644.4	3,150.4	3,774.5
Value	24.8	-3.4	10.6	4.4	14.4	19.1	19.8
Price	0.2	7.9	2.2	0.9	3.6	5.8	3.5
Volume	24.6	-10.6	8.6	3.2	10.5	12.7	15.8
Intermediate goods (in billions of pesetas)	5,533.1	5,733.6	7,189.3	8,636 2	9,091.6	10,529.3	11,210.9
Value	3.5	3.6	25.4	20.1	5.3	15 8	6.5
Price	-3.2	3.8	8.1	5.4	-0.4	2.9	-4.5
Volume	6.8	-0.2	16 0	13.9	5.8	12.6	11.5
Investment goods (in billions of pesetas)	1,825.7	1,572.4	1,942.0	2,239.6	2,577.5	3,037.4	3,456.6
Value	-8.1	-13.9	23.5	15.3	15.1	17.8	13.8
Price	1.7	9.2	2.9	3.8	0.7	4.7	-2.8
Volume	-9.3	-21.2	19.9	11.0	14.2	12.5	17.3

Source: Ministry of Economy and Finance, Síntesis Mensual de Indicadores Económicos.

1/ Based on customs statistics.

Table 38. Spain: Direction of Trade, 1992-98

	1992	1993	1994	1995	1996	1997	1998
				(In billions of pesetas)			
Export							
World Total	6,605.7	7,754.6	9,796.3	11,423.1	12,931.0	15,267.6	16,289.6
OECD	5,535.5	6,230.7	8,019.2	9,350.4	10,434.4	12,191.3	13,283.6
(Percentage of total)	83.8	80.3	81.9	81.9	80.7	79.9	81.5
United States	315.3	372.7	481.9	472.2	544.0	677.9	687.3
Japan	61.6	71.9	131.7	157.1	155.1	160.0	148.6
EC	4,845.9	5,348.1	6,917.2	8,264.6	9,238.1	10,681.3	11,660.9
(Percentage of total)	73.4	69.0	70.6	72.3	71.4	70.0	71.6
France	1,335.0	1,465.6	1,971.2	2,345.8	2,600.9	2,796.5	3,189.6
Germany	1,036.5	1,132.6	1,390.4	1,760.1	1,879.1	2,046.7	2,220.4
Italy	719.4	704.4	902.2	1,045.3	1,129.8	1,490.5	1,519.0
Portugal	496.5	563.2	762.6	951.1	1,112.5	1,380.0	1,518.8
Developing countries 1/	868.5	1,261.6	1,475.4	1,709.2	1,942.7	1,916.8	...
(Percentage of total)	13.1	16.3	15.1	15.0	15.0	12.6	...
OPEC	231.9	307.0	305.5	338.0	350.8	416.2	430.4
Latin America	315.4	482.0	610.4	642.8	782.9	983.7	1,081.0
Others	1,070.2	1,523.9	1,777.1	2,072.7	2,496.6	3,076.3	1,823.0
Import							
World Total	10,205.0	10,131.0	12,348.7	14,318.3	15,435.7	17,966.5	19,838.0
OECD	8,203.4	8,000.2	9,779.9	11,364.6	12,255.6	14,056.8	15,809.0
(Percentage of total)	80.4	79.0	79.2	79.4	79.4	78.2	79.7
United States	755.0	739.2	901.0	919.1	977.7	1,134.5	1,163.5
Japan	475.6	434.5	440.0	472.7	436.3	495.6	605.5
EC	6,485.7	6,308.0	7,915.4	9,362.5	10,226.9	11,706.0	13,289.8
(Percentage of total)	63.6	62.3	64.1	65.4	66.3	65.2	67.0
France	1,619.3	1,700.1	2,155.7	2,454.9	2,754.7	3,133.5	3,616.1
Germany	1,673.7	1,514.9	1,803.7	2,189.6	2,284.8	2,658.6	3,058.3
Italy	1,003.1	856.4	1,104.5	1,310.0	1,471.8	1,691.0	1,933.1
Portugal	275.8	268.7	343.2	421.6	452.6	486.0	555.2
Developing countries 1/	1,756.3	1,787.4	2,188.4	2,495.0	2,749.9	2,832.7	...
(Percentage of total)	17.2	17.6	17.7	17.4	17.8	15.8	...
OPEC	586.2	590.9	738.8	789.1	963.9	1,217.4	1,017.9
Latin America	445.3	454.7	542.3	619.3	638.8	782.9	773.4
Others	2,001.6	2,130.8	2,568.9	2,953.6	3,180.1	3,909.6	2,377.3
Net							
World Total	-3,599.3	-2,376.4	-2,552.4	-2,895.2	-2,504.7	-2,698.8	-3,548.4
OECD	-2,668.0	-1,769.5	-1,760.7	-2,014.3	-1,821.2	-1,865.5	-2,525.4
United States	-439.7	-366.4	-419.2	-446.8	-433.7	-456.6	-476.2
Japan	-414.0	-362.7	-308.3	-315.7	-281.1	-335.7	-456.9
EC	-1,639.9	-959.9	-998.2	-1,098.0	-988.7	-1,024.8	-1,628.9
France	-284.2	-234.5	-184.5	-109.0	-153.8	-337.0	-426.6
Germany	-637.1	-382.2	-413.3	-429.4	-405.6	-612.0	-837.9
Italy	-283.6	-152.0	-202.4	-264.8	-341.9	-200.5	-414.1
Portugal	220.7	294.5	419.4	529.6	659.9	894.0	963.6
Developing countries	-887.8	-525.8	-713.0	-785.8	-807.2	-915.9	...
OPEC	-354.3	-283.9	-433.3	-451.1	-613.1	-801.2	-587.5
Latin America	-129.8	27.2	68.0	23.5	144.0	200.8	307.6

Source: Ministry of Economy and Finance.

1/ Data for 1997 refer to January-October.

Table 39. Spain: Selected Indicators of Export Performance, 1992-98

	1992	1993	1994	1995	1996	1997	1998 1/
	(Annual percentage changes; unless otherwise indicated)						
Market growth 2/	4.7	1.1	9.7	8.3	5.6	11.4	6.7
Export growth 3/							
Total	6.1	12.0	22.0	10.4	11.3	14.5	6.5
Industry	7.0	7.8	24.9	13.8	11.9	11.9	8.6
Market share	1.4	10.9	12.3	2.1	5.7	3.1	-0.2
Tourist arrivals (in thousands)	...	...	...	58,350.0	60,655.0	64,963.0	70,950.0
(Annual percentage change)	...	...	...	...	4.0	7.1	9.2
Indices of real effective exchange rate:							
based on export prices relative to:							
Industrial countries	-0.5	-9.3	-4.9	2.8	0.6	-1.8	0.1
EU countries	-1.3	-7.8	-5.0	1.8	0.4	-0.8	-0.4
EMS narrow band	-2.5	-8.9	-5.8	0.4	3.2	1.0	-1.0
based on ULC in manufacturing relative to:							
Industrial Countries	1.4	-8.8	-7.7	-1.6	3.7	-2.6	1.3
EU countries	0.7	-6.8	-7.2	-2.8	3.0	-1.7	1.0
EMS narrow band 4/	-1.4	-12.2	-6.9	-5.1	6.4	2.6	2.1
Memorandum items:							
End-of-period exchange rates							
Pesetas per U.S. dollar	112.9	140.3	132.3	122.5	130.7	150.3	142.0
(percentage change)	-1.5	24.3	5.3	-6.9	1.6	15.6	2.0
Pesetas per deutsche mark	71.4	82.1	84.1	85.1	84.2	84.6	85.1
(percentage change)	4.7	17.2	7.3	5.4	-3.3	0.3	0.5

Sources: Bank of Spain; IMF, World Economic Outlook; and Fund staff estimates.

1/ Real effective exchange rate data for 1998 refer to January-October.

2/ Calculated on the basis of the growth of non-oil import volumes of Spain's major trading partners.

3/ Non-oil exports, in volume terms.

4/ Data for 1998 refer to January-September.