

Could any objective factors explain why the euro zone's natural unemployment rate has fallen 2 percentage points in 11 years?

We evaluate the euro zone's natural unemployment rate by comparing the actual unemployment rate with trends in inflation and income sharing. We find that, from 1994 to 2005, the euro zone's natural unemployment rate fell by around 2 percentage points.

We then ask whether there are factors that can explain this decline in the natural unemployment rate in the past and could result in a noticeable contraction in the natural unemployment rate in the future.

The following factors could be considered:

- *changes in the terms of trade (relative price of imports);*
- *technological progress, trends in productivity gains;*
- *the functioning of the labour market: weight of trade unions, role played by insiders, level of centralisation of pay talks, job protection and geographical mobility of labour;*
- *the level of out-of-work income and the generosity of unemployment benefits;*
- *changes in the taxation of labour (direct taxes and welfare contributions), in the "tax wedge", i.e. the divergence between labour costs borne by companies and the net after-tax wage for employees, and in the minimum wage;*
- *globalisation and a country's capacity to enjoy favourable international specialisation.*

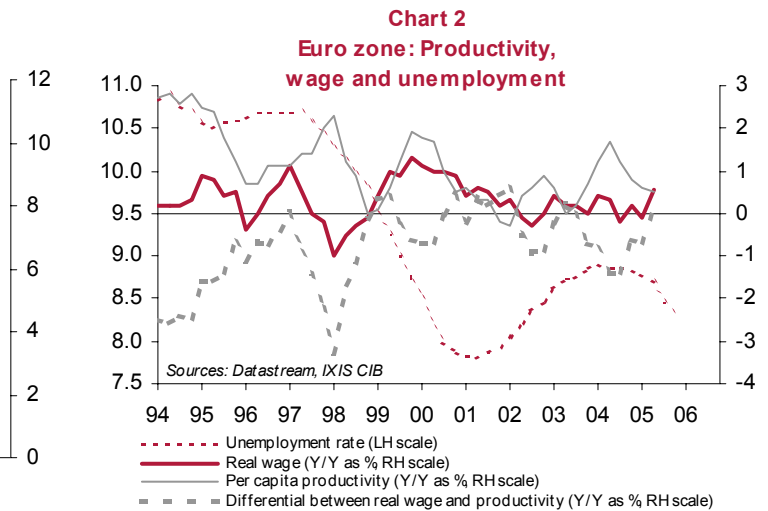
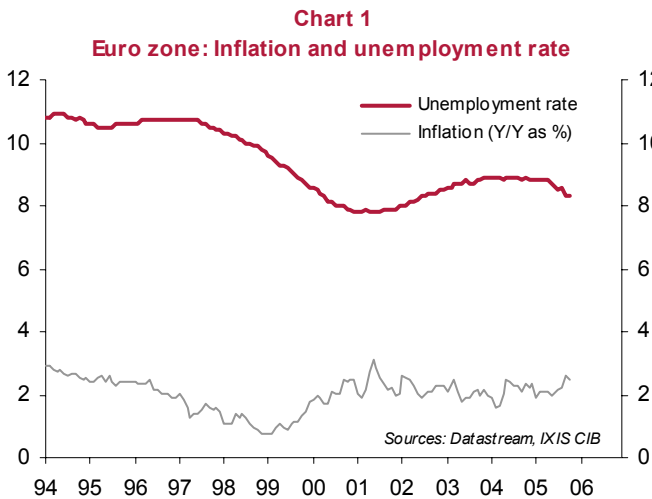
The following factors do play a role: an improvement in the operandus modi of the labour market (wage formation, capacity to create jobs in services and increased integration within the euro zone) and the contraction in the tax wedge.

Author: *Patrick Artus*

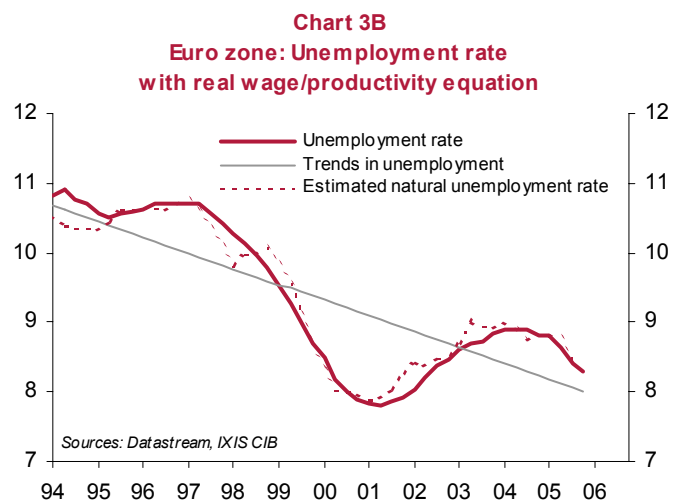
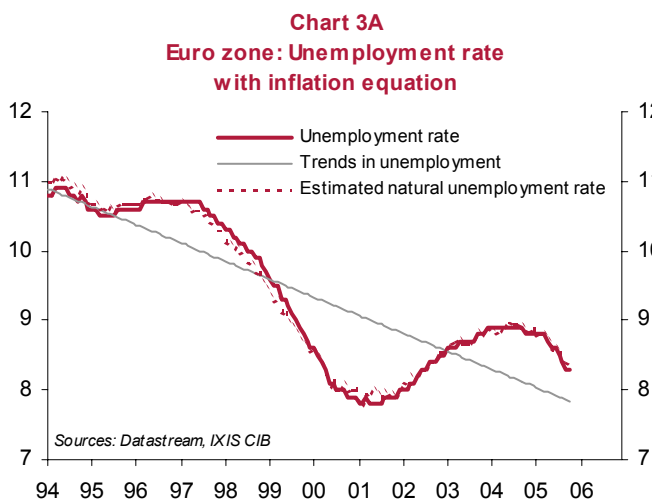
An assessment of the natural unemployment rate in the euro zone

We are simply going to compare the level of the unemployment rate, inflation and changes in income sharing between wages and profits.

When the euro zone's unemployment rate sank to a low, in 2000 and early 2001, inflation was rising slightly (Chart 1), and the real wage was increasing somewhat faster than productivity (Chart 2).



The **econometric estimate** shows effectively a negative effect of the differential between inflation and average inflation (coefficient -0.20) and the gap between growth in the real wage and growth in productivity (coefficient -0.19) on the euro zone's unemployment rate. **Charts 3A** and **3B** show the **long-run trend of unemployment** in the euro zone, and the **natural unemployment rate estimated as the unemployment rate adjusted for the estimated effects of differential between inflation and average inflation or of the gap between the rise in real wages and productivity gains.**



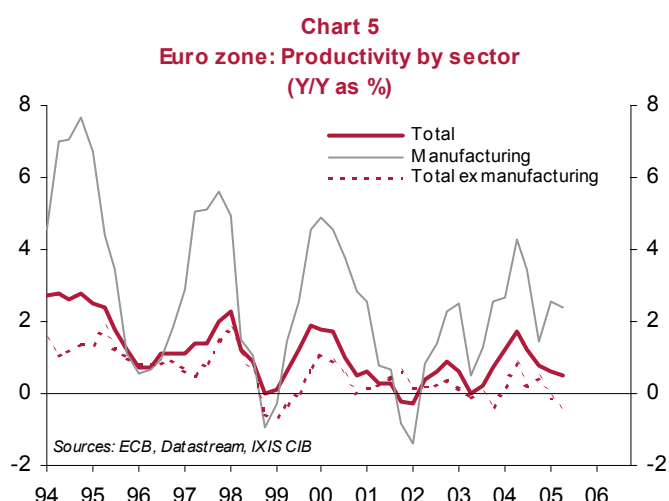
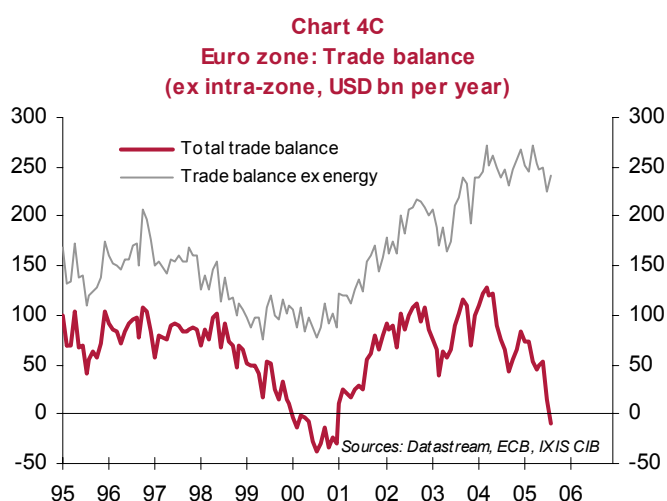
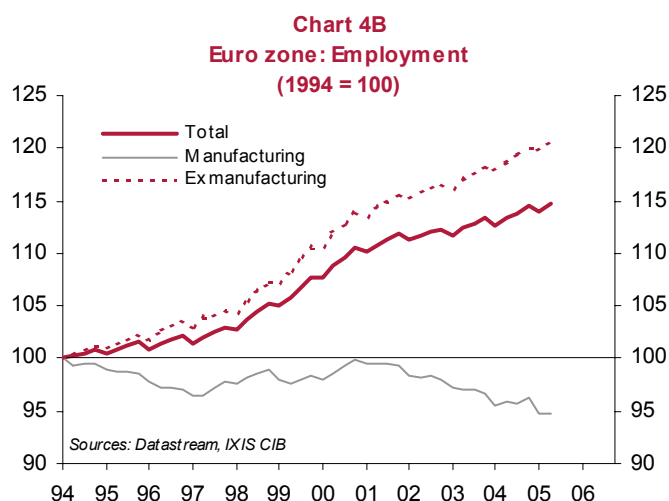
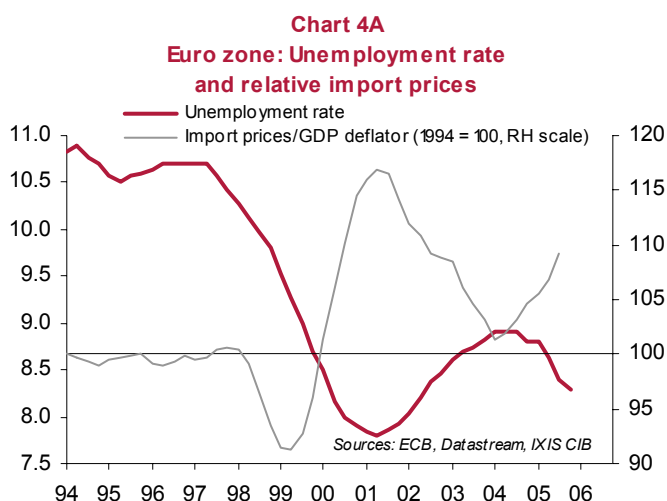
It does seem that the euro zone's natural unemployment rate has declined, by 2-2.5 percentage points, between 1994 and 2005. We seek to single out the determinants of this (probable) decline in natural unemployment.

First possible determinant of changes in the natural unemployment rate: International influences

These influences are:

- **developments in terms of trade:** a fall in the relative price of imports drives down natural unemployment by enabling a higher level of employment increase to be compatible with price stability;
- **the quality of international specialisation versus emerging countries;** job losses that are not offset by job creation in other sectors, i.e. in the sectors affected by competition from emerging countries, lead to a rise in the natural unemployment rate; the same point holds if a bad international specialisation structurally hurts foreign trade.

The relative price of imports is 10% higher in 2005 than in 1994, and this is not a move in the right direction (Chart 4A). Total employment has hardly grown, employment in manufacturing has contracted (Chart 4B), but the trade balance (excluding energy) has slightly improved (Chart 4C). All in all, these international influences are unlikely to have played a significant role.



Second possible determinant of changes in the natural unemployment rate: Technical progress

Higher productivity gains lead to a fall in the natural unemployment, by paving the way for higher non-inflationary growth. These productivity gains are normally linked to the research and innovation growth. As is well known, **productivity gains have declined in the euro zone (Chart 5)**, because of, *inter alia*, the fading research drive (Tables 1A and 1B).

Table 1A
Gross domestic expenditure on R&D – Total (as % of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
France	2.42	2.41	2.42	2.43	2.47	2.31	2.30	2.22	2.17	2.18	2.18	2.23	2.20	2.20
Germany	2.67	2.57	2.48	2.40	2.31	2.26	2.26	2.29	2.31	2.44	2.49	2.51	2.52	2.42
Italy	1.30	1.24	1.20	1.14	1.07	1.00	1.01	1.05	1.07	1.04	1.07	1.11	1.20	1.20
Spain	0.83	0.85	0.89	0.89	0.82	0.81	0.83	0.82	0.89	0.88	0.91	0.92	0.99	1.05
Euro zone (*)	2.10	2.00	2.00	1.90	1.90	1.80	1.80	1.80	1.80	1.90	1.90	1.90	2.00	1.90

(*)By weighting of the four largest euro-zone countries, IXIS-CIB calculation
 Sources: Eurostat, OECD (JP, US. Theme 9-6/2001 – 3/2003)

Table 1B
Gross domestic expenditure on R&D – companies (as % of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
France	1.43	1.46	1.49	1.48	1.45	1.41	1.41	1.39	1.35	1.38	1.36	1.41	1.43	1.36
Germany	1.93	1.75	1.65	1.57	1.49	1.49	1.48	1.54	1.57	1.70	1.75	1.75	1.75	1.73
Italy	0.47	0.47	0.44	0.42	0.38	0.39	0.40	0.40	0.47	0.46	0.50	0.50	0.56	0.58
Spain	0.75	0.68	0.66	0.60	0.56	0.53	0.54	0.52	0.52	0.51	0.53	0.55	0.54	0.55
Euro zone (*)	1.36	1.28	1.24	1.19	1.14	1.13	1.12	1.14	1.15	1.20	1.23	1.24	1.25	1.23

(*)By weighting of the four largest euro-zone countries, IXIS-CIB calculation
 (**)Weighting: France: 0.27; Germany: 0.39; Italy: 0.22; Spain: 0.12
 Sources: Eurostat, OECD 2004

Technical progress therefore is unlikely to be a determinant of the fall in natural unemployment.

Third possible determinant of changes in the natural unemployment rate: Functioning of the labour market

All the factors that imply a **non-competitive operandus modi** of the labour market lead to a rise in the natural unemployment, for example:

- sectoral or geographical segmentation of employment;
- "insider" behaviour of trade unions that represent only employees who have kept a job;
- excessively stringent job protection;
- insufficient importance granted by trade unions to lowering unemployment; apart from insider behaviour, corporatism, monopoly behaviour, representation of a single category of wage earners;
- a level of negotiation that does not enable the return to full employment to be included as a target — when pay talks are excessively decentralised, for example.

We will now seek to ascertain whether **real wages adjust according to the situation in the labour market, whether there is hysteresis in unemployment and whether mobility between sectors and between regions is sufficiently developed.**

As is well known, job protection is stringent in the euro zone (Table 2) and has hardly declined. With respect to the other points we are looking at:

- **the real wage** does seem to be negatively correlated with trends in unemployment (move in line with employment, Chart 6);

Chart 6
Euro zone: Joblessness rate, employment and real wage

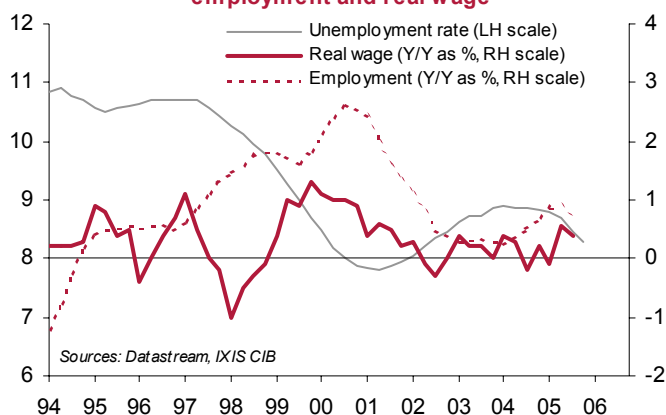


Table 2
Degree of job protection

Scale from 0 to 6, with values increasing in line with the degree of stringency of regulations	Late 1980s	Late 1990s
United States	0.1	0.2
United Kingdom	0.8	0.8
Euro zone (*)	2.8	2.6

Source: OECD Employment Outlook 2004

(*)Weighted index: Germany, France, Italy, Spain

- as we have seen above, **growth in jobs in services** is still not robust enough to bring back full employment, but it has accelerated since 2001 (**Charts 7 and 4B**);

Chart 7
Euro zone: Employment by sector (1999 = 100)

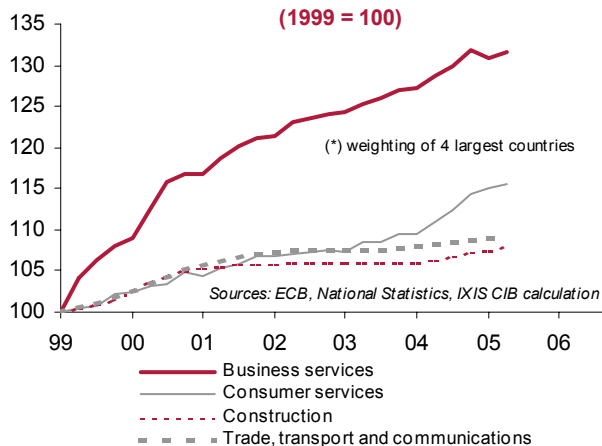
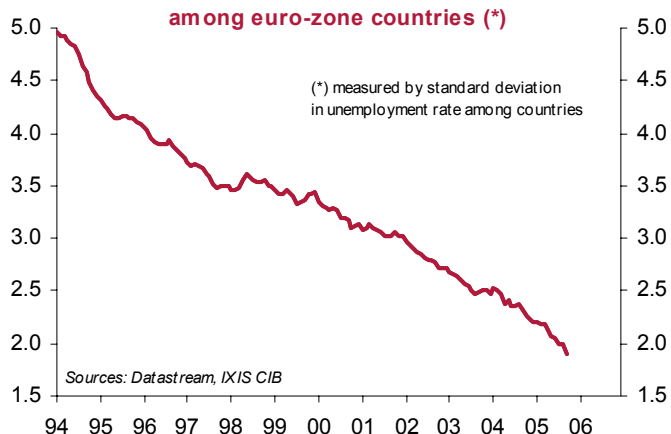


Chart 8
Dispersion of unemployment among euro-zone countries (*)



- the dispersion of unemployment between EMU countries has decreased significantly (**Chart 8**), and this might be the sign of a greater integration of the labour market.

There is perhaps an improvement — in terms of wage formation, the capacity to create jobs in services and increased integration — in the way the euro-zone labour market operates.

Fourth possible determinant of changes in the natural unemployment rate: Out-of-work incomes and taxes

As is well known, the natural unemployment rate is all the higher as:

- **out-of-work incomes** are higher in comparison with earned incomes;
- the **larger the tax wedge (gap between the total labour costs borne by the company that employs staff and their net wage (net of contributions and taxes))**;
- the higher the **minimum wage**.

In the first case (high out-of-work income), the **reservation wage** (demanded to work) is increased, and this drives natural unemployment upwards. In the second case, i.e. significant tax wedge, as well as the third, i.e. high minimum wage, corporate demand for labour is low for a given wage.

Tables 3 and 4 show that the generosity of unemployment benefit systems is high on average, and has not been reduced in the past ten years (see also Chart 9); Table 5 (see also Chart 10) shows that the relative minimum wage has not decreased; by contrast, the tax wedge has decreased by two percentage points— a positive development.

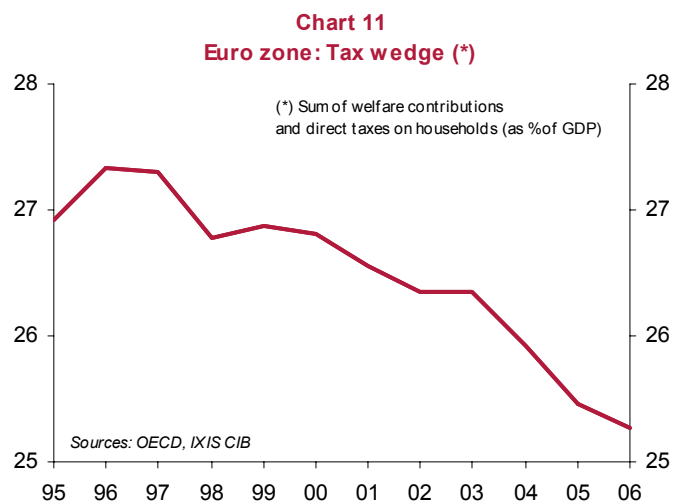
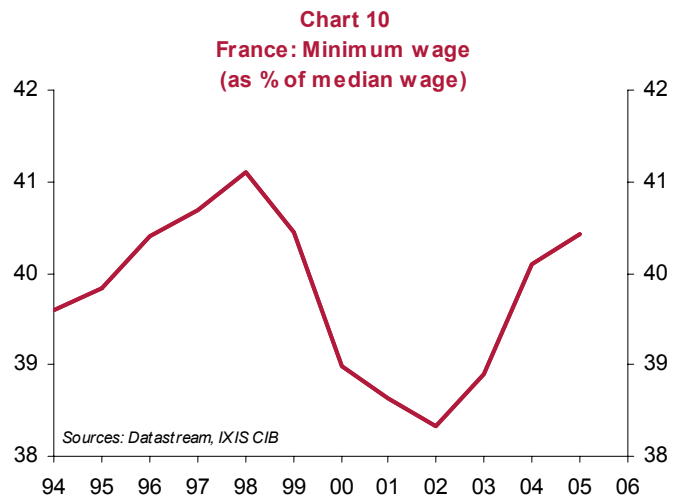
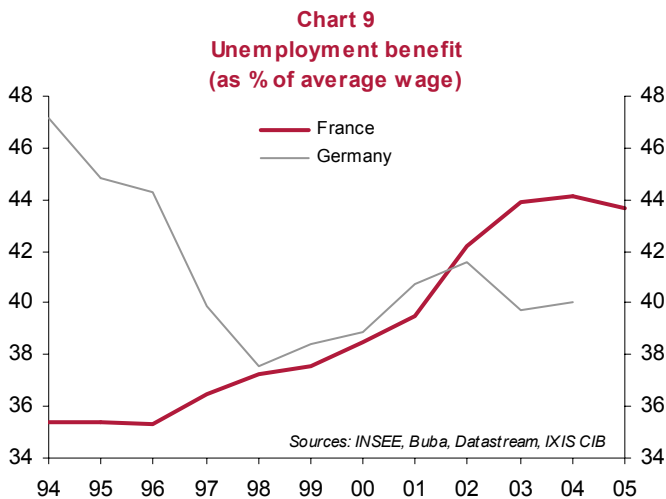


Table 3
Maximum duration of benefits

	Type of benefit*	Maximum duration of benefits
Germany	UIB	12 months
	AJS	36 months
France	UIB	24 months
	AJS	unlimited
Italy	UIB	6 months
Austria	UIB	30 weeks
	AJS	unlimited
Belgium	UIB	unlimited
Finland	UIB	2 years
	AJS	unlimited
Greece	UIB	5 months
Ireland	UIB	15 months
	AJS	unlimited
Netherlands	UIB	36 months
	GMI	-
Portugal	AJS	15 months
Spain	UIB	24 months

* Types of benefits: UIB: Unemployment Insurance Benefit, AJS: Aid to Job Seekers, GMI: Guaranteed Minimum Income
 Source: OECD Economic Review n° 27, 1996

Table 4
The OECD summary measure of benefit entitlements

	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001
Germany	30	29	29	28	28	28	29	28	26	26	27	28
Austria	29	29	25	29	28	29	31	27	33	32	33	31
Belgium	46	45	44	43	43	42	42	40	39	40	39	38
Spain	21	28	28	34	34	34	34	32	32	31	31	31
Finland	27	24	25	34	36	34	39	38	36	34	34	32
France	24	31	31	34	38	37	38	38	37	37	37	44
Greece	6	6	6	7	8	7	13	13	15	16	17	13
Ireland	28	28	32	28	30	27	29	31	26	29	29	30
Italy	1	1	1	0	0	3	3	17	19	18	34	34
Netherlands	47	48	47	54	56	55	53	53	52	52	52	53
Portugal	7	9	7	22	31	32	34	35	35	35	45	41

The OECD summary measure is defined as the average of the gross unemployment replacement rates for two earnings levels, three family situations and three durations of unemployment.
 Sources: OECD, 2004, Benefits and Wages: OECD Indicators.

Table 5
Minimum wage in euros

	1999	2000	2001	2002	2003	2004	2005
Belgium	1,074	1,096	1,118	1,163	1,163	1,186	1,210
Greece	505	526	544	552	605	605	668
Spain	416	425	433	516	526	537	599
France	1,036	1,049	1,083	1,126	1,154	1,173	1,197
Ireland	-	945	945	1,009	1,073	1,073	1,183
Luxembourg	1,162	1,191	1,259	1,290	1,369	1,403	1,467
Netherlands	1,064	1,092	1,154	1,207	1,249	1,265	1,265
Portugal	357	371	390	406	416	426	437

Source: Eurostat

Conclusion: Can the downward move in the natural unemployment rate in the euro zone be explained?

We first sought to **measure the euro zone's natural unemployment rate** by adjusting actual unemployment for the effects of the differential between inflation and average inflation or the distortion in income sharing.

We found that the euro zone's natural unemployment rate fell by about 2 percentage points from 1994 to 2005.

We subsequently tried to **explain the downward trend in the natural unemployment rate by drawing on:**

- international influences: terms of trade and productive specialisation;
- trends in productivity;
- changes in various characteristics of the way the labour market operates;
- changes in levels of out-of-work incomes, the minimum wage, the reservation wage and the taxation of labour.

The following factors probably play a role:

- **the improvement in the way the labour market operates:** wage formation, capacity to create jobs in services, increased integration of the euro zone's labour market;
- **the decline in the tax wedge,** i.e. the sum of welfare contributions and direct taxes on households.