● ● ● **BULLETIN**

OF E.U. AND US INFLATION AND MACROECONOMIC ANALYSIS
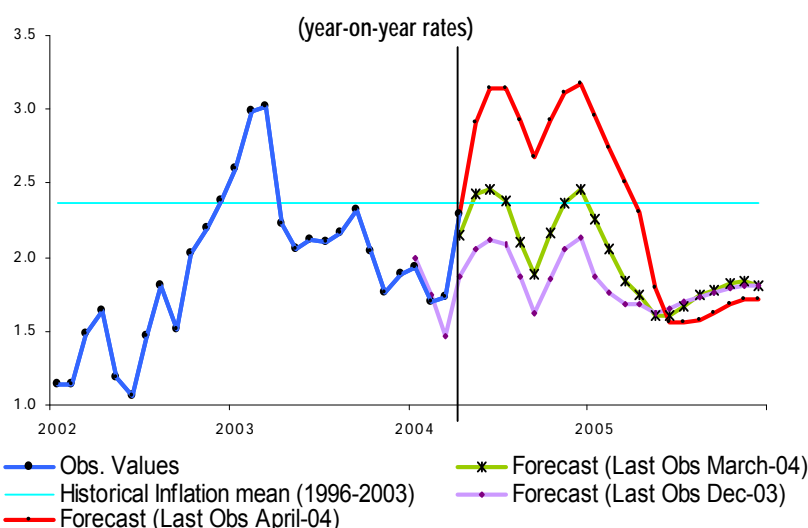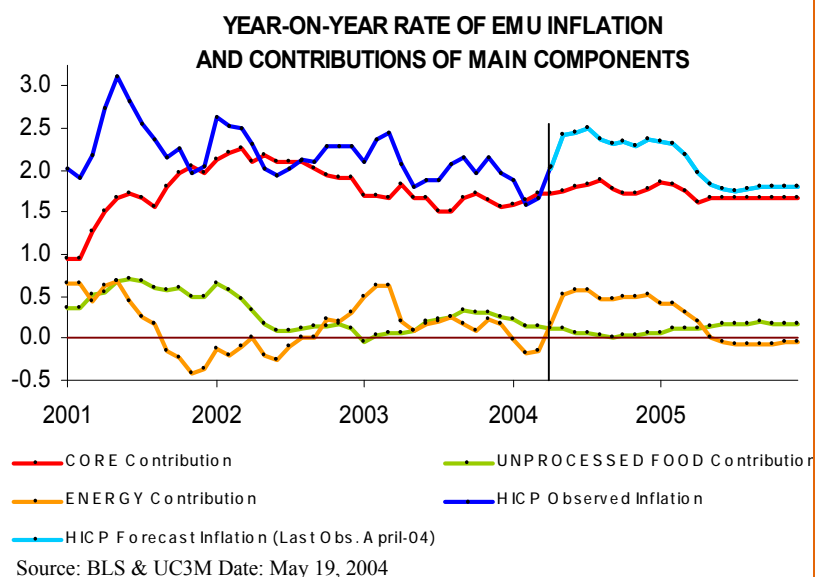
Universidad Carlos III de Madrid

Total inflation perspectives in the U.S. have been gradually worsening since the first few months of

ANNUAL FORECASTS FOR TOTAL INFLATION IN USA

(year-on-year rates)

- ■ Obs. Values
- ─ Historical Inflation mean (1996-2003)
- ● Forecast (Last Obs April-04)
- ✳ Forecast (Last Obs March-04)
- ● Forecast (Last Obs Dec-03)

Source: BLS & UC3M   Date: May 25, 2004

The inflation of energy products is behind the increase in total inflation in the EMU throughout 2004 and early in 2005

YEAR-ON-YEAR RATE OF EMU INFLATION
AND CONTRIBUTIONS OF MAIN COMPONENTS

- CORE Contribution
- ENERGY Contribution
- HICP Forecast Inflation (Last Obs. April-04)
- UNPROCESSED FOOD Contribution
- HICP Observed Inflation

Source: BLS & UC3M Date: May 19, 2004

Monthly Debate
The Capitalism to Come:
OWNERSHIP, INFORMATION AND SCOPE
by Juan Urrutia. See Page. 30

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CONSEJERÍA DE ECONOMÍA
E INNOVACIÓN TECNOLÓGICA
Comunidad de Madrid

BULLETIN

OF E.U. AND US INFLATION AND MACROECONOMIC ANALYSIS

Universidad Carlos III de Madrid

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TERMINOLOGY USED:

In inflation analysis it is advisable to break down a consumer price index for a country or an economic area in price indexes corresponding to homogenous markets. An initial basic breakdown used in this publication is 1) Non-processed Food price index (ANE) 2) Energy price index (ENE), 3) Processed Food (AE), 4) Other commodities (MAN), 5) Other services (SERV). The first two are more volatile than the others, and in Espasa et al. (1987) a **core inflation** measure exclusively based on the latter ones was proposed; the Spanish Statistical Institute and Eurostat proceed in the same way. Later, in the BULLETIN EU & US INFLATION AND MACROECONOMIC ANALYSIS was proposed to eliminate from components of core inflation those indexes which are excessively volatile.

Thus, the previous basic breakdown has been amplified for Spain in the following manner: a) ANE, b) ENE, c) Tobacco, Oils and Fats, and Tourist Packages, d) Processed Foods excluding Tobacco, Oils and Fats, (AEX).ge) Other Goods (MAN), and f) Other services, excluding Tourist Packages (SERT). The measure of inflation obtained with the AEX, MAN, and SERVT indexes we term **trend inflation**, as an alternative indicator similar to core inflation, but termed trend inflation to indicate a slightly different construction. The measure of inflation established with the price indexes excluded from the CPI to calculate trend inflation or core inflation, depending on the case, is termed **residual inflation**.
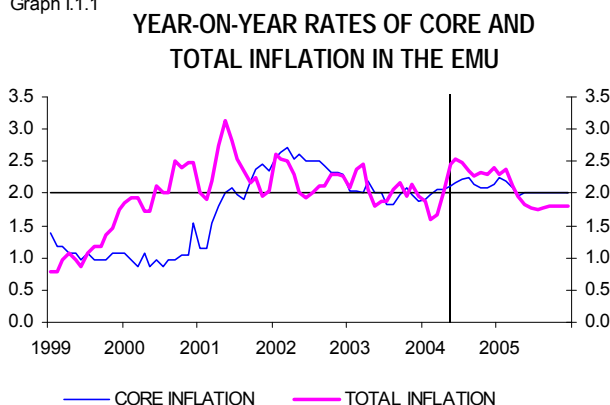
For the United States the breakdown by markets is principally based on four components: Food, Energy, Services, and Commodities. **Trend inflation** or **core inflation** is based in this case as the aggregation of services and non-energy commodities.

I. MAIN POINTS AND NEW RESULTS

I.1. ECONOMIC AND MONETARY UNION

❑ With information up to May 25, a new rise in annual inflation is expected in the euro zone, bringing the annual rate up to 2.4%. Since February this year, annual inflation in Europe has been constantly growing, from the 1.6% registered in February to 2.0% in April, and this trend is not expected to change until July this year, when it will start to fall very gradually. All this expected evolution is heavily conditioned by the medium-term performance of the crude oil market, as the European inflation graph on the cover shows.

Graph I.1.1

YEAR-ON-YEAR RATES OF CORE AND TOTAL INFLATION IN THE EMU

CORE INFLATION — TOTAL INFLATION

Source: EUROSTAT & UNIVERSIDAD CARLOS III
Date: May 19, 2004

❑ Inflation in the euro zone in April performed slightly better than expected, with a growth of 0.43% in the monthly rate instead of the 0.51% forecast, bringing April's annual rate to 2.03%. The main innovations occurred in energy, which performed slightly better than expected, 1.06% compared with the 1.40% forecast, and non-processed food, which performed slightly worse than expected, 0.33% instead of the expected 0.28%. Innovation was practically null in core inflation, true to forecast (tables 2.1.1 of section II.1 and A2 in the appendix).

❑ The expected performance of inflation in the euro zone is characterised by the stability of annual core inflation in 2004, with rates of around 2.1%, and the marked volatility of annual inflation in energy and non-processed food. The total annual inflation rate will therefore range in 2004 from the 1.6% observed in February to the 2.5% forecast for the three central months of the year, whereas core inflation remains stable. This difference between the evolution of total and core inflation is caused by the performance of energy prices, which started to grow in March and are expected to continue to do so until the end of the year, with which they will continue to affect the annual rate of total inflation until mid-2005 (see cover graph on contributions to European inflation).

❑ In 2004, we forecast a mean total inflation rate of 2.2%, one tenth above the forecast published last month, with which the probability of the mean annual inflation rate exceeding 2% has again increased – as we can see from fan chart 1.1 2 of the forecasting intervals for 2004 – to well above 60%. On the other hand, the risk of deflation in the EMU disappeared several months ago.
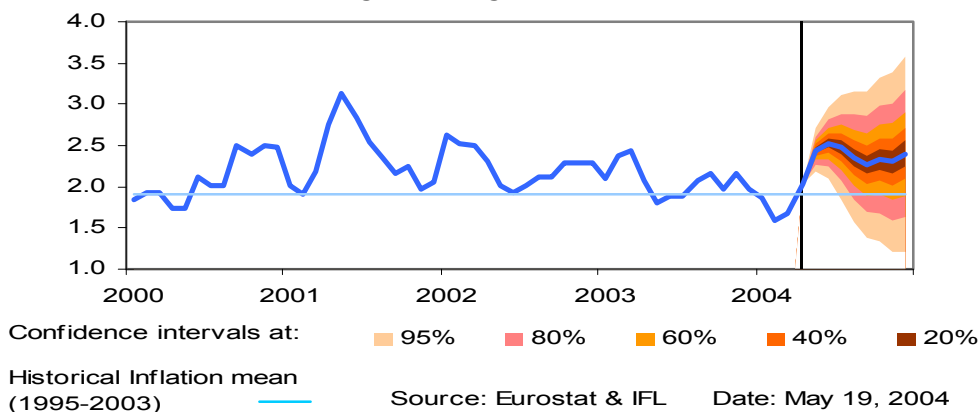
Graph I.1.2

ANNUAL FORECASTS FOR THE EMU INFLATION
(year-on-year rates)

Confidence intervals at: ■ 95% ■ 80% ■ 60% ■ 40% ■ 20%

Historical Inflation mean (1995-2003) ——

Source: Eurostat & IFL   Date: May 19, 2004

Graph I.1.3

YEAR-ON-YEAR RATES OF NON-ENERGY INDUSTRIAL GOODS INFLATION IN THE EMU AND THE USA

Source: BLS, EUROSTAT, IFL & UC3M
Date: May 25 / 2004

Graph I.1.4

YEAR-ON-YEAR RATES OF SERVICES INFLATION IN THE EMU AND THE USA
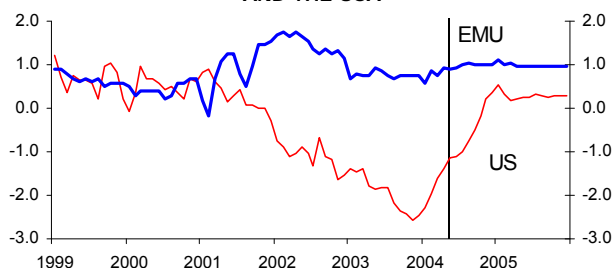
Source: BLS, EUROSTAT, IFL & UC3M
Date: May 25 / 2004

❑ The differential between total inflation in the EMU and the USA prior to 2002 was systematically one percentage point, in favour of the Economic and Monetary Union. The annual inflation rate last year and in the first months of this year in the two economies appears to converge at values of around 2%, but due to the rapid rise in crude oil prices, which influenced energy prices in both economies starting in March, this situation has changed. Since March, both inflation rates have started to rise again, because of the greater sensitivity of U.S. inflation to crude oil market fluctuations. We thus expect the differential between the two economies for the rest of 2004 to be more than one half a percent in favour of the EMU, and this situation should remain unaltered until mid-2005 (see page 16).

❑ Independently from the above, the inflation differential in services continues to be in favour of the EMU, in non-energy industrial goods in favour of the U.S. Whereas expectations for the mean annual rates of service prices, excluding owner's equivalent rents in the U.S., are 3.4% in 2004 and 3.5% in 2005, compared to the 3.2% observed in 2003, in the EMU they are 2.5% in 2004 and 2005, compared to the 2.6% also observed in 2003. In non-energy industrial goods, the corresponding rates for the U.S. have a negative value of 0.9% in 2004 and a positive value of 0.3% in 2005 in the U.S. and 0.9% in 2004 and 0.1% in 2005 in the EMU (Graphs I.1.3).

Table I.1.1

FORECASTS FOR THE MEAN ANNUAL RATES IN THE HICP OF THE EMU

Harmonised Indices of Consumer Prices (HICP)	2000*	2001*	2002*	2003*	Forecasts	
					2004	2005
TOTAL INFLATION (100%)	2.1	2.3	2.3	2.1	**2.2**	**1.9**
CORE INFLATION (84,17%)	1.0	1.9	2.5	2.0	**2.1**	**2.0**
Non energy processed goods HICP (42,85%)	0.6	1.5	1.9	1.5	**1.7**	**1.6**
Services HICP (41,33%)	1.5	2.5	3.1	2.6	**2.5**	**2.5**
RESIDUAL INFLATION (15,82%)	7.5	4.4	1.1	2.6	**2.6**	**1.3**
Non Processed Food HICP (7,69%)	1.7	7.0	3.1	2.2	**1.1**	**1.8**
Energy HICP (8,13%)	13.0	2.3	-0.6	3.0	**3.9**	**0.8**

* Observed Values (revised)
(1) Monthly and annual rates can be found in tables A5A and A5B in the appendix.

Source: Eurostat & UC3M/ Date: May 19, 2004

I.2 MACROECONOMIC TABLE OF EURO-ZONE

	Annual Averages Growths				
	2001	**2002**	**2003**	**Forecasts BIMA (*)**	
				2004	**2005**
GDP p m	**1.6**	**0.9**	**0.4**	**1.6**	**2.0**
Demand					
Final Consumption Expenditure	1.9	0.8	1.2	1.6	2.2
Gross Fixed Capital Formation	-0.3	-2.8	-1.2	1.7	1.9
Contribution of Domestic Demand	0.9	0.3	1.0	1.7	2.0
Exports of Goods and Services	3.4	1.5	0.0	3.8	4.4
Imports of Goods and Services	1.7	-0.1	1.5	4.5	4.7
Contribution of Net Exports	0.7	0.6	-0.6	-0.1	0.0
Supply					
Gross Value Added Total (market prices)	1.6	0.9	0.4	1.6	2.0
Net Taxes	-2.9	-0.4	0.2	-0.4	0.8
Gross Value Added at basic prices: Total	1.9	0.9	0.5	1.7	2.0
Gross Value Added at basic prices: Agriculture	-1.2	0.6	-3.1	0.9	0.9
Gross Value Added at basic prices: Industry	0.5	0.2	-0.1	1.3	1.7
Gross Value Added at basic prices: Construction	-0.6	-1.1	-0.8	-0.1	-0.2
Gross Value Added at basic prices: Services	2.7	1.4	0.8	1.9	2.3
Wholesale and Retail Trade	3.3	1.1	0.7	1.7	2.3
Financial Intermediation	2.9	2.1	0.5	1.8	2.5
Public Administration	1.7	0.8	1.3	2.1	1.9
Prices					
HICP. annual average	2.3	2.3	2.1	2.2	1.9
HICP. dec./dec.	2.3	2.2	2.1	2.4	1.8
Employment					
Unemployment rate	8.0	8.4	8.8	8.7	8.5
Others Economic Indicators					
Index of Industrial Production (excluding construction)	0.4	-0.5	0.3	1.3	1.7

Source: EUROSTAT & UC3M
Date: May 26. 2004

(*) Bulletin EU & USA Inflation and Macroeconomic Analysis.

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I.3. UNITED STATES

❑ The general index forecast for **May** is a 0.44% increase, with the annual rate rising from 2.29% to 2.90%. This significant upturn may be completely explained by energy prices. We expect core inflation to rise by -0.01%, with the annual rate slightly decreasing from 1.76% to 1.69% (chapter II shows the details).

Table I.3.1
OBSERVED VALUES AND FORECAST ON CONSUMER PRICE FIGURES IN US
-April 2004-

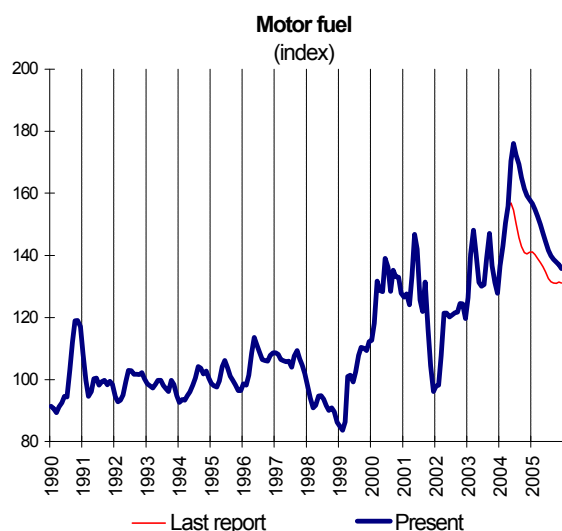| CONSUMER PRICES INDEX (CPI)	Monthly Growth (T^1_1)		Confidence Intervals at 80% level (+ -)
	observed (a)	forecasts (b)	
Residual Inflation	0.71	0.59	0.39
Core Inflation	0.20	0.08	0.15
Total inflation	**0.32**	**0.19**	0.13

Source: BLS & Universidad Carlos III Madrid
Data: May 25, 2004

❑ In April, the U.S. CPI rose by 0.32% from the previous month's figure, over one tenth more than expected: 0.19%, with the annual rate rising five tenths, from 1.74 to 2.29% (see Table I.3.1[1]).

❑ Two components basically explain this deviation; on the one hand, the cost of shelter, both actual rent and owner's equivalent rent of primary residence, and, on the other, lodging away from home, partly due to its moderate performance last year because of the Iraq war, the annual rate of which has risen from 7.0% to 8.8%.

❑ Core inflation rose by 0.20% from the previous month's figure instead of the expected 0.08%, with the annual rate increasing from 1.61% to 1.76%. The increase in non-energy manufactured products was 0.14%, lower than the 0.21% forecast, with the annual rate growing from -1.61% to -1.40%. On the other hand, service prices rose 0.22% instead of the expected 0.02%, with the annual rate rising from 2.92% to 3.10%. Core inflation, not including owner's equivalent rent of primary residence and tobacco, and therefore comparable with the underlying rate in Europe excluding food, rose by 0.18%, more than the 0.02% forecast, with the annual rate growing from 1.47% to 1.58% (see Graph I.3.1).

❑ For 2004 and 2005, we forecast mean total annual inflation rates of 2.6% and 2.0%, representing five tenths and two tenths more, respectively, for each year, than the last report (see Table I.3.2 and Graph I.3.2).

❑ During April, as in the previous month, there has been a surprising increase in core inflation, due to the prices of rent and lodging, which, together with the high increases in the price of crude oil on international markets, explain why expectations are also revised upwards.

❑ Thus, the forecast is that core inflation will register a stronger acceleration along the year, from the current 1.8% to 2.4% in December, compared to last month's report, where an annual rate of 2.1% was forecast for December. Considering the mean annual rate, the revision upwards is only one tenth for 2004, from 1.7% to 1.8%, and three tenths for 2005, from 2.1% to 2.4%.

❑ The most significant change is in energy prices, the mean annual rate of which goes from 5.0% to 10.1%. Oil prices have reached historical levels, and the path forecast is gloomier than that of last month. The deterioration of mid-term expectations due to a perceived structural crisis adds to the strong increase, in the last few days, of international market crude oil prices (see Graph I.3.1). As the graph shows, petrol prices will have increased 34% over the December 2003 level, with a fall in prices predicted to start in June, reaching similar levels to the average of the last four years by the end of 2005.

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1 The official information provided is with one decimal aggregation error

Graph I.3.1

Motor fuel
(index)

Source: Universidad C.III Madrid & BLS / Date: May 25, 2004

Graph I.3.2

CHANGE IN THE EXPECTATIONS OF TOTAL INFLATION
(Year-on-year rate)
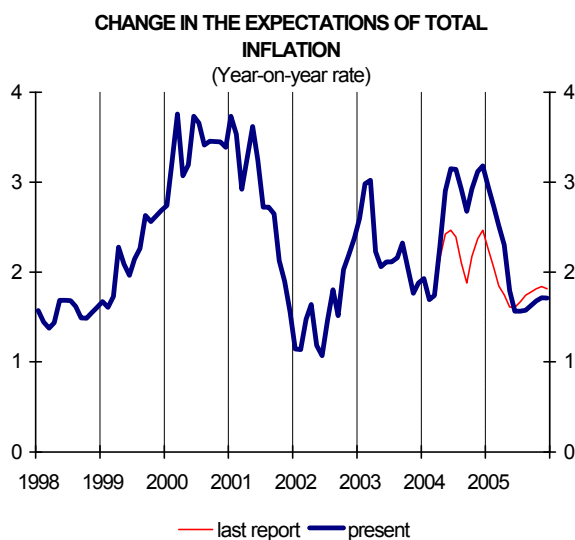
Source: Universidad C.III Madrid & BLS / Date: May 25, 2004

Table I.3.2

AVERAGE ANNUAL RATE OF GROWTH IN US

CONSUMER PRICES INDEX (CPI)	2000	2001	2002	2003	2004 (forecasts)	2005 (forecasts)
Food (1)	2.3	3.1	1.8	2.1	**3.2**	**2.5**
Energy (2)	16.9	3.8	-5.9	12.2	**10.1**	**-3.3**
Residual Inflation (3=2+1)	**6.8**	**3.3**	**-0.8**	**5.3**	**5.6**	**0.4**
Non-food and non-energy goods (4)	0.5	0.3	-1.1	-2.0	**-0.9**	**0.3**
Less tobacco	-0.1	-0.2	-1.5	-2.1	**-1.1**	**0.2**
-Durable goods	-0.5	-0.6	-2.6	-3.2	**-2.3**	**0.3**
-Nondurable goods	1.4	1.1	0.4	-0.7	**0.4**	**0.3**
Non-energy services (5)	3.3	3.7	3.8	2.9	**3.0**	**3.2**
-Services less owner's equivalent rent of primary residence (5-a)	3.5	3.6	3.6	3.2	**3.4**	**3.5**
-Owner's equivalent rent of primary residence (a)	3.0	3.8	4.1	2.4	**2.5**	**2.9**
Core Inflation (6=4+5)	**2.4**	**2.7**	**2.3**	**1.5**	**1.8**	**2.4**
Core inflation less owner's equivalent rent of primary residence (6-a)	2.2	2.3	1.7	1.1	1.6	2.2
Core inflatión less owner's equivalent rent of primary residence and tobacco	2.1	2.1	1.5	1.1	1.6	2.2
Total inflation (7=6+3)	**3.4**	**2.8**	**1.6**	**2.3**	**2.6**	**2.0**
All items less owner's equivalent rent of primary residence (7-a)	3.5	2.6	1.0	2.2	2.7	1.7

Source: BLS & Universidad Carlos III Madrid
Data: May 25, 2004

(*) Monthly and annual growth rates can be found in tables A6A and A6B in Appendix

I.4. SPAIN

- The total monthly inflation rate expected for May is 0.5%, increasing the expected annual rate to 3.4% instead of the 2.7% observed in April (graph I.4.1).

- The monthly rate of total inflation in April, 1.37%, was slightly higher than our forecast, 1.30%. Core inflation (processed food, industrial goods and services) registered an upward innovation derived especially from processed food. Residual inflation (non-processed food and energy) also rose due to non-processed food (table I.4.1)

- The annual rate of **core inflation** (processed food, non-energy industrial goods and services) was 2.4% in April 2004, greater than the 2.2% observed in March of the same year. This is largely explained by the evolution of processed

Table I.4.1 OBSERVED VALUES AND FORECASTS IN THE MONTH-ON-MONTH RATE OF GROWTH IN THE COMPONENTS OF THE CPI IN SPAIN			
Consumer Price Index (CPI)	**Observed growth April 2004**	**Forecast**	*Confidence interval at 80%*
Total Inflation(100%)	1.37	1.30	± 0.15
Core inflation (82.28%)	1.49	1.44	± 0.13
Residual inflation (17.72%)	0.79	0.68	± 0.22

(*) At 80% confidence level
Source : INE & UC3M / Date: May 14, 2004

food prices, which registered a monthly rate of 0.53% above the expected 0.28%, due a marked increase in the price of oils and fats, 9.30% instead of the expected 0.88%. Non-energy industrial goods performed slightly worse than expected, with a monthly rate of 2.99% instead of the forecast 2.73%. As for services, most components, such as transport, restaurants and housing, continued to rise in April, maintaining annual rates of over 4%, whereas university expenses have an annual rate of over 5% (5.05).

Table I.4.2 FORECASTS FOR THE MEAN ANNUAL RATES OF GROWTH IN THE CPI IN SPAIN			Forecasts	
Consumer Prices Index (CPI)	**2002**	**2003**	**2004**	**2005**
TOTAL INFLATION (100%)	3.5	3.0	**3.1**	**2.9**
CORE INFLATIÓN (82,28%)	3.7	2.9	**2.7**	**2.9**
TREND INFLACIÓN (77,21%)	3.4	2.9	**2.5**	**2.7**
Non energy industrial goods (30,05%)	2.5	2.0	**0.9**	**1.4**
Services CPI (35,05%)	4.6	3.7	**3.8**	**4.0**
Processed food CPI (17,17%)	4.3	3.0	**3.7**	**3.2**
RESIDUAL INFLATION (17,72%)	2.6	3.6	**5.4**	**3.7**
Non processed food CPI (8,60%)	5.8	6.0	**4.6**	**4.3**
Energy CPI (9,12%)	-0.2	1.4	**5.2**	**1.5**

Monthly and annual rates can be found in tables A7A and A7B in the appendix
Source: INE. IFL & .UC3M / Date: May 25 , 2004

Graph I.4.1

ANNUAL RATES OF RESIDUAL INFLATION AND ITS COMPONENTS IN SPAIN
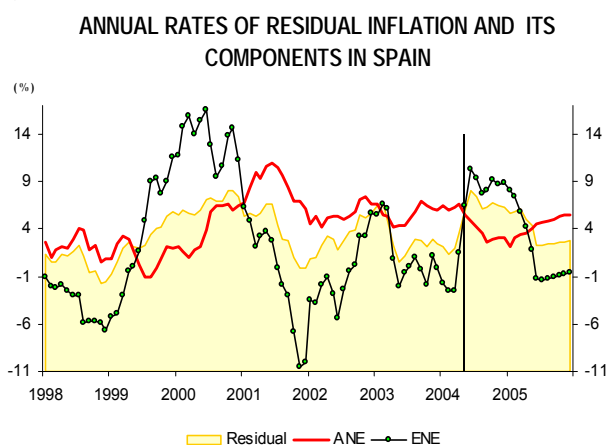
Source: INE, IFL & UC3M / Date: May 25, 2004

- In April 2004, the annual rate of inflation in non-energy industrial goods in Spain, 0.7% remained beneath the annual rate observed in the EMU, 0.9% and the annual rate in Spain is expected to be around 1.3% at the end of 2004, above the 1.0% expected for the EMU. Likewise, the mean annual rate expected for non-energy industrial goods in Spain is 0.9%, the same as the mean annual rate forecast for the EMU. In the U.S. negative expectations are maintained for the mean annual rate of non-energy industrial goods, -0.9% for 2004 and 0.3% for 2005, compared with a negative 2.0% value observed in 2003.

- For this month, the annual rate of core inflation is forecast to increase to 2.8%, after the 2.4% observed in April, with an expected annual rate of 4.1% in processed food, 0.8% in non-energy industrial good prices, and 4.0% in services. The mean annual rate of core inflation in 2004 will be around 2.7%, beneath the 2.9% registered in 2003, but more than the 2.5% forecast last month, due to the worse performance expected in processes food, especially tobacco prices and, to a lesser extent, higher prices of fats and oils (table I.4.2).

Graph I.4.2

CONTRIBUTIONS TO TOTAL INFLATION IN SPAIN
(YEAR-ON-YEAR RATES)

Year-on-Year TOTAL Inflation   Contrib. of ANE
Contrib. of ENE   Contrib. of IPSEBENE

Source: INE & UC3M   Date: May 25, 2004
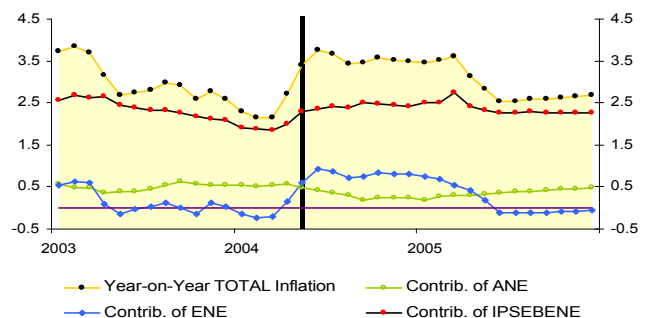
- In the EMU, the annual rate of core inflation in April 2004 was 2.1%, the same as in March. The forecast for the mean annual rate of core inflation in the EMU remain at around 2.1% in 2004 and 2.0% in 2005, compared with the 2.7% and 2.9% forecast in Spain for the same years. Therefore, the differential between Spain and the euro zone for 2004 is expected to be more than half a percentage point in favour of the EMU.

- As for the evolution of residual inflation, the mean annual rate of non-processed food prices was 6.0% in 2003 and a mean annual rate of 4.6% is expected for 2004, and 4.3% for 2004 (graph I.4.2).

- Total inflation in Spain for the remaining months of 2004 and the first few months of 2005 will have an annual rate of over 3.5% because of the higher contribution of energy. The contribution of core inflation and non-processed food is expected to remain stable until 2005. The fall in the contribution of energy for the second half of 2005 will make total annual inflation return to levels close to those observed in 2003 (see graph I.4.2).

Graph I.4.3

ANNUAL FORECASTS FOR TOTAL INFLATION IN SPAIN
(year-on-year rates)

Confidence intervals at: 95%   80%   60%   40%   20%

Historical Inflation mean (1996-2003)

Source: INE & UC3M   Date: May 25, 2004
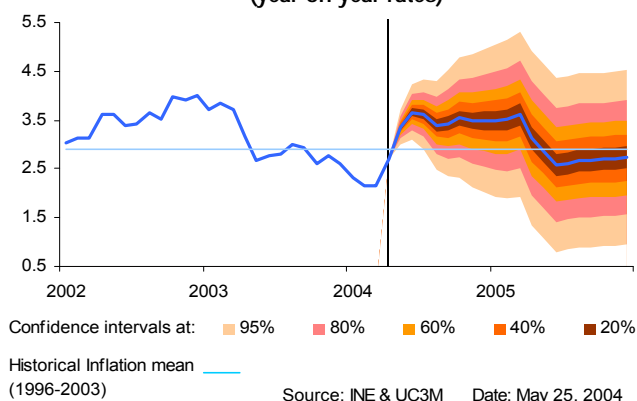
- The most inflationist element in May's CPI will once again be energy, due to the persistent increase in international oil prices, which has increased our forecasts for monthly and annual inflation published in last month's bulletin. We expect the annual rate to have a positive value of 6.5% in May, increasing to 10.3% in June, 2004. The mean annual rate forecast for 2004 is 5.2%, much greater than the 2.2% value published in April's bulletin and the 0.6% published in March.

- With all the above, a monthly total inflation rate of 0.5% is expected in May, with an annual rate of 3.4%. The forecasts for annual inflation for May and the following months are based on the increase in processed food prices in April and May, largely tobacco and fats, and the considerable rise in energy prices.

- The mean annual total inflation rate in Spain was 3.0% in 2003, and mean annual rate forecasts increase to 3.1% in 2004 and 2.9% in 2005, greater than the 2.6% and 2.8% forecast for 2004 and 2005, respectively, in last month's bulletin (table I.4.2). Graph I.4.3 shows the high probability of the total annual inflation rate in 2004 exceeding its historic mean of 2.9%.

I.5. MACROECONOMIC TABLE OF SPANISH ECONOMY

MACROECONOMIC TABLE AND INDICATORS (*)					
			Annual Rates		
			Forecasts BIMA(*)		Budget
	2002	**2003**	**2004**	**2005**	**2004**
Private Final Consumption Expenditure	2,6	3,0	3,3	3,4	3,1
Public Final Consumption Expenditure	4,4	4,6	4,1	3,4	2,9
Gross Fixed Capital Formation	1,0	3,0	3,4	3,8	3,8
Equipment	-5,4	1,9	4,0	5,8	(3)
Building	4,2	3,7	3,0	2,2	3,0
Other products	2,6	2,8	3,5	5,8	(3)
Inventory change (1)	0,0	0,1	0,0	0,0	0,0
Domestic Demand	2,6	3,3	3,4	3,5	3,3
Exports of Goods and Services	0,0	4,0	5,5	7,1	6,3
Imports of Goods and Services	1,8	6,7	6,8	7,4	7,0
Net Exports (1)	-0,6	-1,0	-0,6	-0,4	-0,4
GDP	**2,0**	**2,4**	**2,9**	**3,2**	**3,0**
GDP, current prices	6,6	6,7	6,4	6,5	5,9
Prices and Costs					
CPI, annual average	3,5	3,0	3,1	2,9	
CPI, dec./dec.	4,0	2,8	3,5	2,7	
Average earning per worker	3,8	3,9	3,5	3,4	
Unit labour cost	3,1	2,9	2,6	2,6	
Labour Market (Data poll labour force)					
Labour Force (% variation)	3,0	2,6	2,3	2,0	
Employment: Data adjusted from changes in the employment survey					
Annual average variation in %	2,0	2,7	3,0	3,0	
Annual average variation in thousands	312,5	437,0	500,8	515,9	
Unemployment rate	11,4	11,3	10,7	9,9	11,0
Basic balances					
Foreign sector					
Current Account (m. ε.)	-18,691	-23,660	-20,247	-19,023	
Net lending or borrowing (% GDP) (2)	-1,6	-2,0	-2,6	-2,3	-2,6
AA.PP. (Total) / Public Administration					
Net lending or borrowing (% GDP) (2)	-0,1	0,0	-0,1	-0,1	
Other Economic Indicators					
Index of Industrial Production	0,1	1,6	2,8	3,0	

(1) Contributions to GDP growth
(2) In term of national accounts
(3) Equipment goods and other goods: Forecast PGE, 5.0; Forecast BIAM, 5.2.

Source: INE & IFL
Date: May 26, 2004.

(*) Bulletin EU & USA Inflation and Macroeconomic Analysis.

Section Sponsorship:
Cátedra Fundación Universidad Carlos III de Predicción y Análisis Macroeconómico.

I.6 FORECAST SUMMARY

INFLATION FORECASTS AND EVOLUTION IN THE EMU AND USA (1998-2005)								
	1998	1999	2000	2001	2002	2003	Forecasts	
							2004	2005
TOTAL INFLATION								
Euro-zone (100%).	1.1	1.1	2.1	2.3	2.3	2.1	**2.2**	**1.9**
USA (81.5%). [1]	1.1	2.1	3.5	2.6	1.0	2.2	**2.7**	**1.7**
A HOMOGENEOUS MEASURE OF CORE INFLATION [2]								
Services and Non-energy industrial goods excluding food and tobacco.								
Euro-zone (72.34%).	1.4	1.1	1.0	1.8	2.4	1.8	**1.8**	**1.9**
USA (55.6%).[1]	1.8	1.4	2.1	2.1	1.5	1.1	**1.6**	**2.2**
DIFFERENT COMPONENTS OF THE HOMOGENEOUS MEASURE OF CORE INFLATION								
(1) Services.								
Euro-zone (41.33%).	1.9	1.5	1.5	2.5	3.1	2.6	**2.5**	**2.5**
USA (27.4%).[1]	2.9	2.7	3.5	3.6	3.6	3.2	**3.4**	**3.5**
(2) Non-energy industrial goods excluding food and tobacco.								
Euro-zone (31.01%).	0.9	0.7	0.4	0.9	1.5	0.8	**0.9**	**1.0**
USA (29.0%).	-0.1	-0.5	-0.1	-0.2	-1.5	-2.1	**-1.1**	**0.2**
INFLATION IN EXCLUDED COMPONENTS FROM THE HOMOGENEOUS MEASURE OF CORE INFLATION								
(1) Food.								
Euro-zone (19.53%).	1.6	0.6	1.4	4.5	3.1	2.8	**2.8**	**2.6**
USA (14.9%).	2.2	2.1	2.3	3.1	1.8	2.1	**3.2**	**2.5**
(2) Energy.								
Euro-zone (8.13%).	-2.6	2.4	13.0	2.3	-0.6	3.0	**3.9**	**0.8**
USA (9.90%).	-7.7	3.6	16.9	3.8	-5.9	12.2	**10.1**	**-3.3**

[1] less owner´s equivalent rent of primary residence.
[2] This homogeneous measure of underlying inflation does not coincide with the usual measure of core inflation for the EMU nor for the USA. It has been constructed in order to compare the data in the EMU and in the USA.

Source: EUROSTAT, BLS, IFL & UC3M.
Date: May 25 / 2004

YEAR-ON-YEAR RATES OF INFLATION IN THE EMU AND USA

YEAR-ON-YEAR RATES OF TOTAL INFLATION IN THE EMU AND TOTAL INFATION LESS OWNER´S EQUIVALENT RENT OF PRIMARY RESIDENCE IN USA
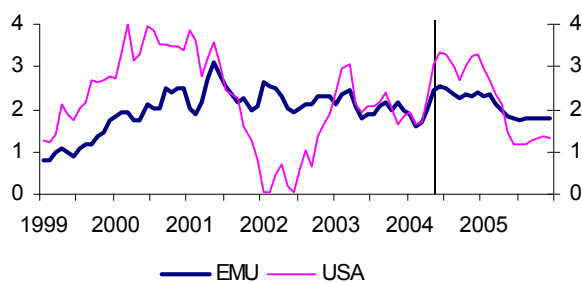
YEAR-ON-YEAR RATES OF HOMOGENEOUS CORE INFLATION IN THE EMU AND THE USA
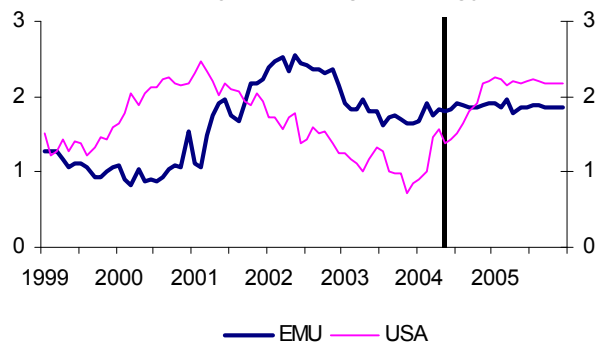
YEAR-ON-YEAR RATES OF SERVICES INFLATION IN THE EMU AND THE USA
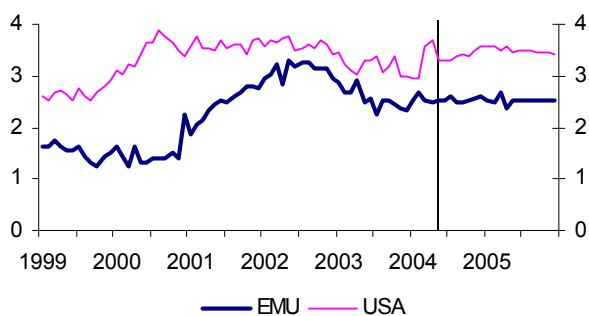
YEAR-ON-YEAR RATES OF NON-ENERGY INDUSTRIAL GOODS INFLATION IN THE EMU AND THE USA (EXCLUDING TOBACCO)
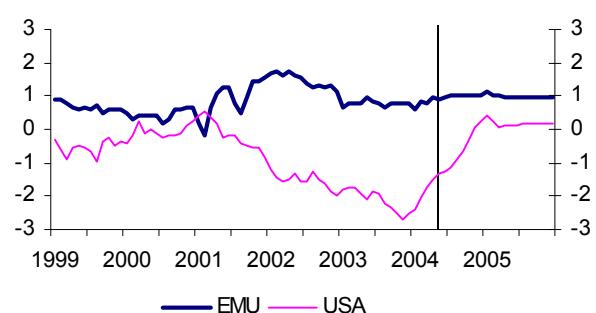
YEAR-ON-YEAR RATES OF FOOD INFLATION IN THE EMU AND THE USA

YEAR-ON-YEAR RATES OF ENERGY INFLATION IN THE EMU AND THE USA
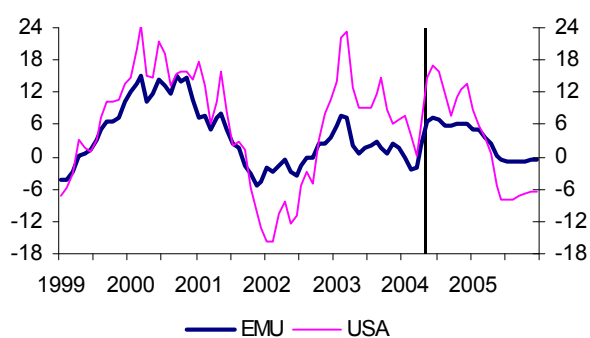
Source: EUROSTAT, BLS, IFL & UC3M
Date: May 25 / 2004

| INFLATION FORECASTS AND EVOLUTION IN THE EMU AND SPAIN (1998-2005)							Forecasts	
	1998	1999	2000	2001	2002	2003	2004	2005
TOTAL INFLATION								
Spain (100%).	1.8	2.3	3.4	3.6	3.5	3.0	**3.1**	**2.9**
Euro-zone (100%).	1.1	1.1	2.1	2.3	2.3	2.1	**2.2**	**1.9**
CORE INFLATION								
Services and Non-energy processed goods.								
Spain (81.40%).	2.2	2.2	2.5	3.4	3.8	2.9	**2.7**	**2.9**
Euro-zone (84.18%).	1.4	1.1	1.0	1.9	2.5	2.0	**2.1**	**2.0**
DIFFERENT COMPONENTS OF CORE INFLATION								
(1) Services.								
Spain (34.87%).	3.6	3.4	3.7	4.2	4.5	3.5	**3.7**	**4.0**
Euro-zone (41.33%)	1.9	1.5	1.5	2.5	3.1	2.6	**2.5**	**2.5**
(2) Non-energy processed goods.								
Spain (46.53%).	1.4	1.7	1.7	2.9	3.1	2.4	**2.2**	**2.1**
Euro-zone (43.26%).	1.1	0.7	0.6	1.5	1.9	1.5	**1.7**	**1.6**
INFLATION IN EXCLUDED COMPONENTS FROM CORE INFLATION								
1) Non-processed food.								
Spain (9.40%).	2.1	1.2	4.2	8.7	5.6	5.6	**4.5**	**4.3**
Euro-zone (7.69%).	2.0	0.0	1.7	7.0	3.1	2.2	**1.1**	**1.8**
(2) Energy.								
Spain (9.14%).	-3.8	3.2	13.3	-1.0	-0.2	1.3	**5.2**	**1.5**
Euro-zone (8.13%).	-2.6	2.4	13.0	2.3	-0.6	3.0	**3.9**	**0.8**

Source: EUROSTAT, BLS, IFL & UC3M.
Date: May 25 / 2004.

YEAR-ON-YEAR RATES OF INFLATION IN THE EMU AND SPAIN

YEAR-ON-YEAR RATES OF TOTAL INFLATION IN THE EMU AND SPAIN

YEAR-ON-YEAR RATES OF SERVICES AND NON-ENERGY PROCESSED GOOS IN THE EMU AND SPAIN
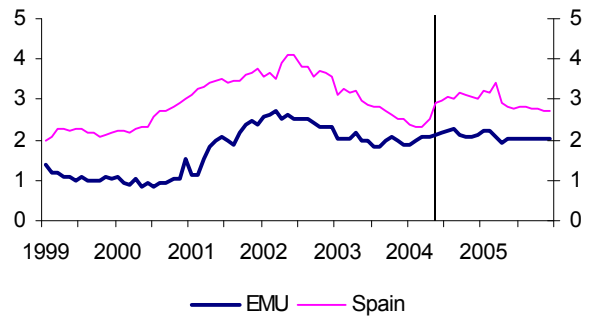
YEAR-ON-YEAR RATES OF SERVICES INFLATION IN THE EMU AND SPAIN
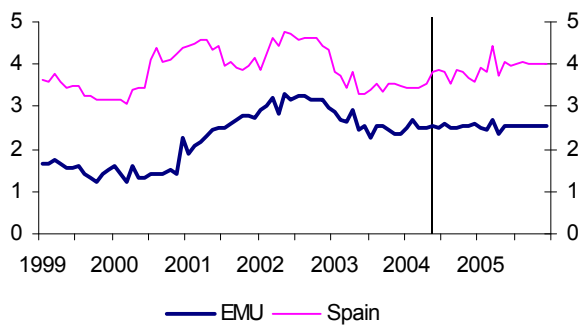
YEAR-ON-YEAR RATES OF NON-ENERGY PROCESSED GOODS INFLATION IN THE EMU AND SPAIN
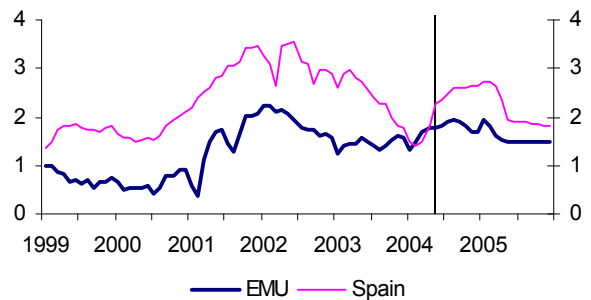
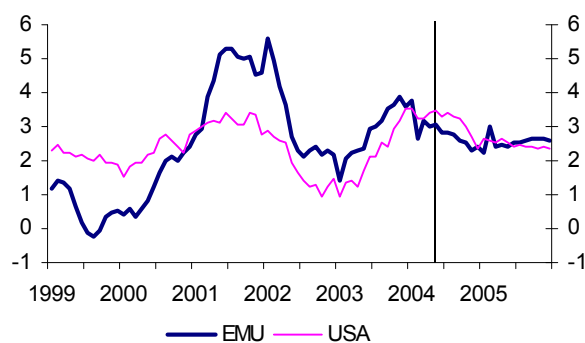### YEAR-ON-YEAR RATES OF NON-PROCESSED FOOD IN THE EMU AND SPAIN
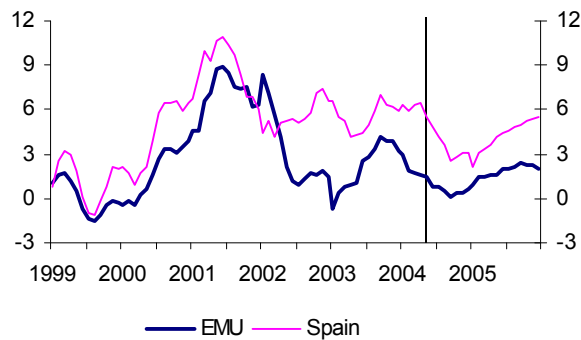
YEAR-ON-YEAR RATES OF ENERGY INFLATION IN THE EMU AND SPAIN
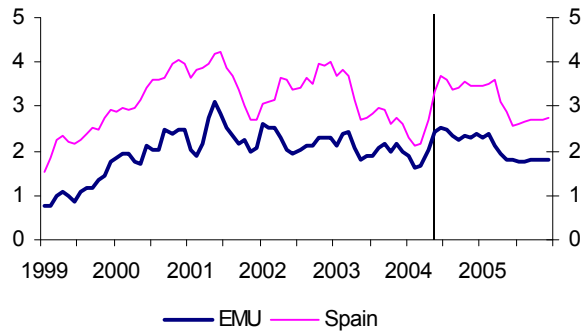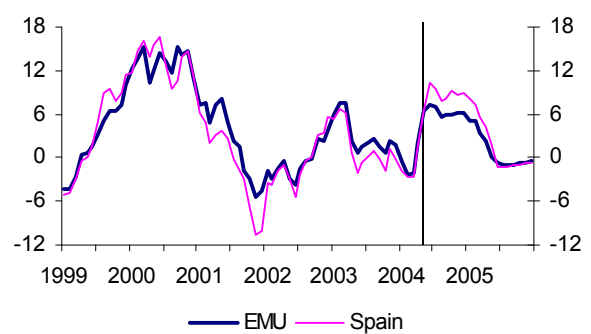

Source: EUROSTAT, BLS, IFL & UC3M.
Date: May 25 / 2004.

I.7 INFLATION FORECASTS OF DIFFERENT INSTITUTIONS

INFLATION FORECASTS OF DIFFERENT INSTITUTIONS[1]										
	BIAM[2]		CONSENSUS FORECASTS[3]		IMF[4]		ECB[5]		OCDE[6]	
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
EMU	2.2	1.9	1.8	1.6	1.7	1.6	1.8	1.8	1.5	1.4
USA	2.7	1.7	2.2	2.1	2.3	2.2	-	-	1.7	1.8
SPAIN	3.1	2.9	2.5	2.5	2.7	2.7	-	-	2.8	2.9

1   The forecasts are based on CPI in USA and Spain and on HICP in the EMU.
2   Bulletin EU & USA Inflation and Macroeconomic Analysis , May 2004
3   May 10, 2004.
4   IMF. World Economic Outlook. April 2004.
5   ECB. Monthly Bulletin. Survey of Professional Forecasters. May 2004
6   OECD Economic Outlook. December 2003.

Our forecasts for total inflation in the EMU and Spain are slightly greater than the previsions derived from other institutions because with the methodology applied in our Bulletin, total inflation is breaking down in core and residual inflation. Last one is composed by inflation in non-processed food and energy prices.

The innovations come in different components are transferred in future thorough different multipliers. The innovations derived from residual inflation are less persistent.

Core inflation in the EMU and Spain is expected to be quite stable, at 2.1% in 2004 and 2.0% in 2005 in the EMU and 2.7% for 2004 and 2.9% in 2005, in the case of Spain. Non-energy industrial goods inflation expectations for 2004 for UME and Spain have been revised downward compared with the previous bulletin. Total inflation in 2004 and 2005 will be benefit from an expected lower inflation rate in non-energy industrial goods but energy prices are expected to increase due to the evolution of crude prices.

II. ANALYSIS OF INFLATION, MONETARY POLICY AND INTERNATIONAL ANALYSIS

II.1 Economic and Monetary Union

In May2004, inflation in the EMU registered a monthly rate of 0.4% with a year-on-year rate of 2.0%.

In May 2004 inflation in the Monetary Union registered a month-on-month rate of 0.43% instead of the 0.51% expected; with a year-on-year rate of 2.03%. Since February this year, annual inflation in Europe has been constantly growing, from the 1.6% registered in February to 2.0% in April, and this trend is not expected to change until July this year, when it will start to fall very gradually The main innovations occurred in energy, which performed slightly better than expected, 1.06% instead of the forecast 1.40%, and non-processed food, slightly worse than expected, 0.33% instead of the forecast 0.28%. Innovation was null in core inflation, as expected. Core inflation in April was 2.1%, whereas inflation in processed food and energy was 1.60% and 1.97%, respectively. (Tables 1 and A2 in the appendix).

Table 1 summarises the discrepancies between observed and forecast values for the different basic aggregations in the Euro-Zone (see table A1B in the appendix for the disaggregation scheme followed in this Bulletin).

Table II.1.1 OBSERVED AND FORECAST VALUES ON CONSUMER PRICE FIGURES IN THE EMU			
Consumer Price Index (HICP)	**Current growth April 04**	**Forecast**	**Confidence intervals (a)**
(1) Processed food - AE (9.463%)(b)	0.09	**0.17**	± 0.09
(2) Tobacco (2.373%)	0.45	**0.10**	± 0.13
(3) Commodities - MAN (31.009%)	0.75	**0.62**	± 0.10
Non-Energy Manufactured Goods - BENE **[1+2+3]** (42.845%)	0.59	**0.49**	± 0.09
(4) Services - SERV (41.334%)	0.34	**0.39**	± 0.14
Core Inflation:			
Non-Energy Manufactured Goods and Services, (excluding fats, oils, tobacco and tourist packages**) -** **IPSEBENE [1+2+3+4] (84.178%)**	0.44	**0.44**	± 0.08
(5) Non-Processed Food - ANE (7.689%)	0.33	**0.28**	± 0.46
(6) Energy Goods - ENE (8.133%)	1.06	**1.40**	± 0.60
Residual Inflation:			
Fats, Oils, Tobacco, Tourist Packages, Non-Processed Food and Energy **-** **R [5+6] (15.822%)**	0.74	**0.86**	± 0.39
Total Inflation: **HICP [1+2+3+4+5+6] (100%)**	0.43	**0.51**	± 0.09

(a) At 80% confidence level
(b) Excluding tobacco prices
 Source: EUROSTAT, IFL & UC3M/ Date: May 18, 2004

It is important to note the existence of rounding errors in the aggregation of different sectors of HICP in the EMU. Eurostat publishes data with one decimal point and apparently they use more decimals in obtaining the aggregate indexes. The question is that the aggregate values can not be exactly reproduced up to a decimal point by the users of Eurostat data. For this reason, aggregation errors are marked in the forecast errors tables in the appendix (table A2).

The only relevant upwards innovation was registered in process foods due to tobacco prices

The breakdown of the harmonised consumer price index into basic market groups shows that the prices of processed food, excluding tobacco (the AE index), registered a monthly

growth of 0.09% instead of the 0.17% growth predicted. The prices of tobacco registered a rate of 0.45%, higher than the 0.10% forecast. The prices of the remaining processed goods excluding energy prices (the MAN index) registered a rate of 0.75%, instead of the 0.62% forecast. With this, core inflation registered a monthly growth of 0.44%, with a null innovation. Finally, in Residual inflation (non-processed food and energy), there was a downward innovation, 0.74% instead of 0.86% (see table A5A and A5B)..

The forecast for the year-on-year rate of inflation in May 2004 is 2.4%.

Total European expected inflation will rise again in May. The expected monthly inflation rate is a positive value of 0.5%. The year-on-year rate will increase to 2.4%, compared to the 2.1% registered last April. The expectations for the average annual rate are 2.2% in 2004 and 1.9% in 2005, compared to the 2.1% registered in 2003.

Table 2 summarises the forecasts for the different components in the Monetary Union. Monthly and annual rates may be found in tables A5A and A5B in the appendix.

Table II.1.2 AVERAGE ANNUAL RATE OF GROWTH IN MONETARY UNION							
	Observed					Forecasts	
	1999	2000	2001	2002	2003	2004	2005
Residual Inflation **15.822%**	1.2	7.5	4.4	1.1	2.6	**2.6**	**1.3**
Non-Processed Food 7.689%	0.0	1.7	7.0	3.1	2.2	**1.1**	**1.8**
Energy 8.133%	2.4	13.0	2.3	-0.6	3.0	**3.9**	**0.8**
Core Inflation **84.178%**	1.1	1.0	1.9	2.5	2.0	**2.1**	**2.0**
Processed Food[a] 9.463%	0.5	0.6	2.7	2.4	2.1	**1.8**	**2.2**
Tobacco 2.373%	3.1	3.4	3.8	5.9	8.4	**12.2**	**6.7**
Non-Energy Commodities 31.009%	0.7	0.4	0.9	1.5	0.8	**0.9**	**1.0**
Non-Energy Services 41.334%	1.5	1.5	2.5	3.1	2.6	**2.5**	**2.5**
Total Inflation **100%**	1.1	2.1	2.3	2.3	2.1	**2.2**	**1.9**

(a) Excluding tobacco prices
Source: EUROSTAT, IFL & UC3M/ Date: May 19, 2004

The average annual rate in 2003, 2.1%, is achieved through decreases in core inflation in 2003 to 2.0% in relation to the 2.5% observed in 2002, due to the favourable evolution of prices of non-energy industrial goods and services and the absence of the euro-rounding effect in the year-on-year rates of 2003, and increases in residual inflation, due to prices of energy compared with the values registered in 2002. The expected evolution of core inflation will be similar to last year; energy is the component that is increasing the performance of total inflation during 2004 from March, and this trend is not expected to change until March, 2005.

By country, the expectations for month-on-month inflation for next March is 0.2% for Germany, 1.5% in Spain, 0.4% in Italy and 0.3% in France.

Table 3 summarises average annual growth rates for the main countries. Monthly and annual forecasts for all countries can be found in tables A4A, A4B, A4C and A4D in the appendix.

Table II.1.3	ANNUAL AVERAGE RATES OF GROWTH						
	Observed					**Forecasts**	
	1999	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Spain HICP (11.11%) *	2.2	3.5	2.8	3.6	3.1	**3.1**	**3.0**
Germany HICP (29.26%)	0.6	1.4	1.9	1.3	1.0	**1.7**	**1.1**
France HICP (20.70%)	0.6	1.8	1.8	1.9	2.2	**2.4**	**1.9**
Italy HICP (19.26%)	1.7	2.6	2.3	2.6	2.8	**2.6**	**3.0**
EMU HICP (100%)	1.1	2.1	2.3	2.3	2.1	**2.2**	**1.9**
United kingdom HICP	2.1	0.8	1.2	1.3	1.4	**1.3**	**1.3**

* country weights in the total HICP for the EMU
 Source: EUROSTAT, IFL & UC3M/ Date: May 25 / 2004

Inflation expectations vary considerably among countries (see table II.1.3). For one year ahead these expectations go from 0.13% for Germany to values around 3.0% for Portugal, Spain, Italy and Greece. Consequently, the corresponding actual real interest rates are negative for these countries. On the other hand these rates are higher than 1% for Germany and Finland. These differentials are indicative of the different investment situations that the countries of the Euro-area face.

Table II.1.4	INFLATION EXPECTATIONS		ACTUAL REAL INTEREST RATES	
	Three Months	**One Year**	**Three Months**	**One Year**
Italy	2.88	2.97	-0.80	-0.68
France	2.23	1.87	-0.15	0.42
Germany	1.62	1.14	0.46	1.15
Belgium	2.30	2.24	-0.22	0.05
Netherlands	2.05	2.34	0.03	-0.05
Portugal	3.02	3.14	-0.93	-0.85
Austria	1.51	1.49	0.57	0.80
Finland	0.13	0.39	1.96	1.90
Ireland	2.32	2.63	-0.23	-0.34
Luxembourg	2.74	2.60	-0.66	-0.31
Spain	3.13	2.89	-1.05	-0.60
Greece	2.98	2.82	-0.89	-0.53

Source: ECB, Eurostat & EFN

Date:May 19, 2004

Table 5 shows annual observed HICP rates for energy and those corresponding to the remainder of goods and services – denominated HICP excluding energy.

Table II.1.5	ANNUAL GROWTH HICP											
	HICP excluding Energy						HICP energy					
	Observed				Forecasts		Observed				Forecasts	
	Apr. 2004	Media 2001	Media 2002	Media 2003	Media 2004	Media 2005	Apr. 2004	Media 2001	Media 2002	Media 2003	Media 2004	Media 2005
Germany	1.5	1.5	1.4	0.8	**1.5**	**1.1**	2.6	5.7	0.3	4.0	**3.5**	**1.6**
Spain	2.9	4.0	3.4	3.2	**3.0**	**3.1**	1.4	-1.0	-0.2	1.3	**5.2**	**1.5**
France	2.4	2.1	2.3	2.2	**2.3**	**1.8**	1.4	-1.5	-1.5	2.3	**3.8**	**2.9**
Italy	2.6	2.4	3.0	2.8	**2.6**	**2.9**	-0.8	1.6	-2.6	3.2	**1.0**	**3.4**
Monetary Union	2.0	2.3	2.6	2.0	**2.0**	**2.0**	2.0	2.3	-0.6	3.0	**3.9**	**0.8**

Source: EUROSTAT, IFL & UC3M/ Date: May 19, 2004

There is an important inflation differential among countries.

Year-on-year rates of energy prices in April, 2004 registered values higher than 1% in these four countries, as shown in table 5. For non-energy prices, Germany registered in April a year-on-year rate of 1.5%; forecasts for the annual average rates will be around 1.5% in 2004 and 1.1% in 2005. France registered for the HICP excluding energy a year-on-year rate of 2.45% in February and the forecasts for the annual average rate are 2.3% in 2004 and 1.8% in 2005. The observed value for the annual rate in Italy was 2.57% and forecasts are 2.6% in 2004 and 2.9% in 2005. In the case of Spain, the annual rate was 2.94% in March and a mean annual rate of 3.0% is expected in 2004 and 3.1% in 2005. Therefore, in the HICP excluding energy, German inflation will perform better than French inflation, which will in turn perform better than Italian and Spanish inflation.

In order to obtain a causal explanation for the inflation forecasts derived from this Bulletin – see BIMA Nº 113 -, a regression between these forecasts and the forecasts resulting from the macroeconomic model shown in Dreger (2002)[2] is performed. With regards to inflation expectations, inflation pressure has been compensated, especially from the second quarter of 2004 onwards, by the increase in the output gap and the favorable performance of import prices, confirming comments made in previous bulletins that given the expected evolution of the output gap and other variables affecting inflation, the ECB could go some way further in applying a loose monetary policy. Nevertheless, in the last quarter of 2005, when the compensation will come to an end the ECB could then change its monetary policy

HICP YEAR-ON-YEAR RATES OF GROWTH IN THE EMU

Graph II.1.1

Non Energy Processed Commodities (BENE) and Sevices (SERV)
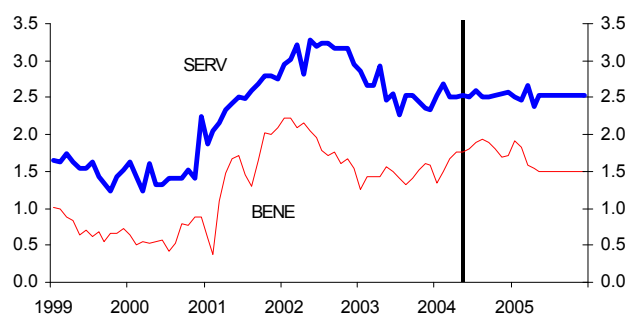
CORE, Residual and total inflation
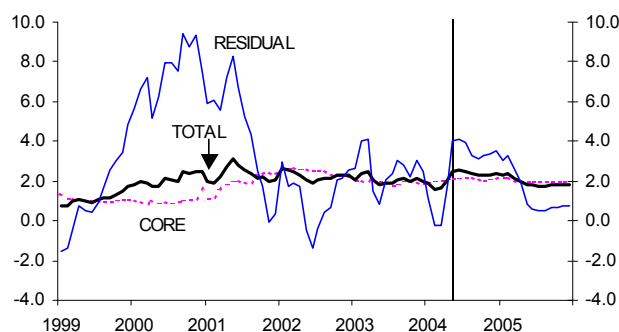
Source: EUROSTAT, IFL & UC3M/ Date: May 19, 2004

2 Dreger, C. (2002) "A macroeconometric model for the Euro economy". Institute for Economic Research Halle (IWH).

II.2 Industrial Production in the EMU and USA.

The Industrial Production Index published for March 2004 has behaved worst than expected in the global index, capital, durable and intermediate goods, as expected in Non-Durable and better than forecasted in energy goods, as it can be seen in table II.2.1.

Table II.2.1 FORECASTS AND OBSERVED DATA IN THE ANNUAL RATE OF GROWTH OF THE DIFFERENT EMU IPI COMPONENTS CORRESPONDING TO MARCH		
	Forecast for March	**Observed in March[*]**
Capital	1.13	0.42
Durable	2.18	0.90
Intermediate	2.77	0.47
Non Durable	1.38	1.26
Energy	2.11	3.14
Total	1.90	1.02

Working day adjusted data.
Source: Eurostat and UC3M.

The expectations now are a little more optimistic than in the last report with an average rate of growth of 1.3 and 1.7% for both 2004 and 2005 instead of the 1.9 % previously forecasted. The expectations of growth for the different sectors are shown in table II.2.2.

Table II.2.2 ANNUAL AVERAGE RATES FOR INDUSTRIAL PRODUCTION IN EMU[***]								
	1998	1999	2000	2001	2002	2003	2004	2005
Capital	6.7	2.4	8.1	1.6	-1.5	0.0	**1.4**	**2.8**
Durable	4.2	1.3	6.1	-2.1	-5.7	-4.1	**0.5**	**-0.1**
Intermediate	3.7	1.9	6.2	-0.5	0.0	0.4	**1.4**	**1.6**
Non Durable	2.1	1.2	0.9	0.8	0.5	-0.1	**0.7**	**0.8**
Energy	1.6	0.8	1.9	1.4	1.0	3.0	**2.2**	**1.6**
Total EMU	3.8	1.8	5.2	0.4	-0.5	0.3	**1.3**	**1.7**

[***]Bold figures are forecasts. Working day adjusted data.
Source: Eurostat and UC3M.
Date: May, 26th 2004

In USA, the last published data corresponds to April and has been again an upwards innovation in all the components analyzed in this publication, as it can be seen in table II.2.3.

Table II.2.3 FORECASTS AND OBSERVED DATA IN THE ANNUAL RATE OF GROWTH OF THE DIFFERENT EMU IPI COMPONENTS CORRESPONDING TO APRIL		
	Forecast for April	**Observed in April**
Durable Consumer Goods	5.33	7.12
Non Durable Consumer Goods	0.71	2.46
Equipment and Supplies	3.24	4.65
Materials	4.47	5.10
TOTAL USA	**3.18**	**4.54**

Source: Federal Reserve and UC3M

Table II.2.4 shows the updated forecasts. The average rate of growth for IP in 2004 has been revised from 3.8% to 4.4% and in 2005 from 3.3% to 3.6%.

Table II.2.4
ANNUAL AVERAGE RATES FOR INDUSTRIAL PRODUCTION IN USA[1]

	1998	1999	2000	2001	2002	**2003**	**2004**	**2005**
Durable Consumer goods	7.2	6.9	3.9	-5.8	4.7	2.3	**5.7**	**4.3**
Non Durable Consumer Goods	2.3	-0.1	1.7	0.4	-0.6	-1.7	**2.9**	**1.5**
Equipment and Supplies	8.1	4.8	5.9	-4.1	-0.6	0.4	**4.6**	**3.3**
Materials	5.2	5.7	5.3	-4.5	0.4	0.5	**4.8**	**4.1**
TOTAL USA	5.6	4.3	4.7	-3.5	-0.6	0.2	**4.4**	**3.6**

(1)　　Bold figures are forecasts.
Source: Federal Reserve and IFL.
Date: May 26th, 2004

II.3 United States

In **April**, the U.S. CPI rose by 0.32% from the previous month's figure, over one tenth more than expected: 0.19%, with the annual rate rising five tenths, from 1.74 to 2.29% (see **Table II.3.1**). Two components basically explain this deviation; on the one hand, the cost of shelter, both actual rent and owner's equivalent rent of primary residence, and, on the other, lodging away from home, partly due to its moderate performance last year because of the Iraq war, the annual rate of which has risen from 7.0% to 8.8% (see **Graph II.3.3**).

Table II.3.1

OBSERVED VALUES AND FORECAST ON CPI IN US
April 2004

CONSUMER PRICES INDEX (CPI)	Relative importance Dec. 2003	Annual Growth (T^1_{12}) observed	Monthly Growth (T^1_1)		Confidence Intervals at 80% level (+ -)
			observed (a)	forecasts (b)	
Food (1)	14.4	3.42	0.05	**0.07**	0.34
Energy (2)	7.1	5.65	1.96	**1.57**	1.06
Residual Inflation (3=2+1)	**21.5**	**4.25**	**0.71**	**0.59**	**0.39**
Non-food and non-energy goods (4)	**22.3**	**-1.40**	**0.14**	**0.21**	**0.31**
Less tobacco	21.4	-1.52	0.15	**0.11**	0.20
-Durable goods	11.3	-3.52	-0.09	**-0.17**	0.31
-Nondurable goods	11.0	0.77	0.35	**0.60**	0.45
-Non-durable goods less tabacco	10.2	0.71	0.39	**0.42**	0.30
-Tobacco	0.8	1.15	-0.06	**2.83**	3.76
Non-energy services (5)	**56.3**	**3.10**	**0.22**	**0.02**	**0.15**
-Services less owner's equivalent rent of primary residence (5-a)	32.9	3.69	0.18	**-0.04**	0.24
-Owner's equivalent rent of primary residence (a)	23.4	2.28	0.27	**0.12**	0.13
Core Inflation (6=4+5)	**78.5**	**1.76**	**0.20**	**0.08**	**0.15**
Core inflation less owner's equivalent rent of primary residence (6-a)	55.2	1.57	0.18	**0.06**	0.19
Core inflatión less owner's equivalent rent of primary residence and tobacco	54.3	1.58	0.18	**0.02**	0.17
Total inflation (7=6+3)	**100.0**	**2.29**	**0.32**	**0.19**	**0.13**
All items less owner's equivalent rent of primary residence (7-a)	76.6	2.31	0.34	**0.21**	**0.14**

Source: BLS & Universidad Carlos III Madrid
Data: May 25, 2004

Core inflation rose by 0.20% from the previous month's figure instead of the expected 0.08%, with the annual rate increasing from 1.61% to 1.76%.

Core inflation rose by 0.20% from the previous month's figure instead of the expected 0.08%, with the annual rate increasing from 1.61% to 1.76%. The increase in non-energy manufactured products was 0.14%, lower than the 0.21% forecast, with the annual rate growing from -1.61% to -1.40%. On the other hand, service prices rose 0.22% instead of the expected 0.02%, with the annual rate rising from 2.92% to 3.10%. Core inflation, not including owner's equivalent rent of primary residence and tobacco, and therefore comparable with the underlying rate in Europe excluding food, rose by 0.18%, more than the 0.02% forecast, with the annual rate growing from 1.47% to 1.58% (see **Graph II.3.5**.)

Two components basically explain this deviation; on the one hand, the cost of shelter, both actual rent and the owner's equivalent rent of primary residence, and, on the other, lodging away from home.

By components, the index for commodities less food and energy without tobacco increased by 0.15% instead of the 0.11% expected, with the annual rate going from –1.75% to –1.52%. Non-durable goods prices, excluding the index for tobacco, increased by 0.39%, instead of the 0.42% expected, with the annual rate going from 0.40% to 0.71%. Regarding non-durable goods, the annual rate of the apparel index went from –0.08% to 0.32% (see **Graph II.3.1**). And the index for tobacco decreased by 0.06% as opposed to the increase forecast of 2.83%, with the annual rate going from 0.50% to 0.77%. Durable goods prices decreased by 0.09% as opposed to the forecast -0.17%, with the annual rate going from –3.68% to 3.52%. With regards to durable goods, the annual rate of the new car index went from the previous month's –1.01% to –0.58%.

The index for services excluding owner's equivalent rent of primary residence shows an increase of 0.18%, which was more than the expected -0.04%, with the annual rate going from 3.57% to 3.69%. The index for owner's equivalent rent of primary residence increased by 0.27%, instead of the forecast of 0.12%, with the annual rate going from 2.01% to 2.28% (see **Graph II.3.4**).

Graph II.3.1

.SOME COMMODITIES.
(YEAR ON YEAR RATES)
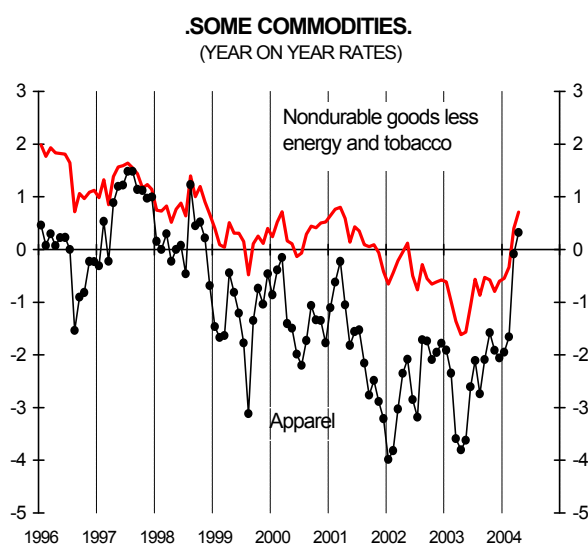
Source: Universidad C.III Madrid & BLS / Date: May 25, 2004

Graph II.3.2

Motor fuel
(index)
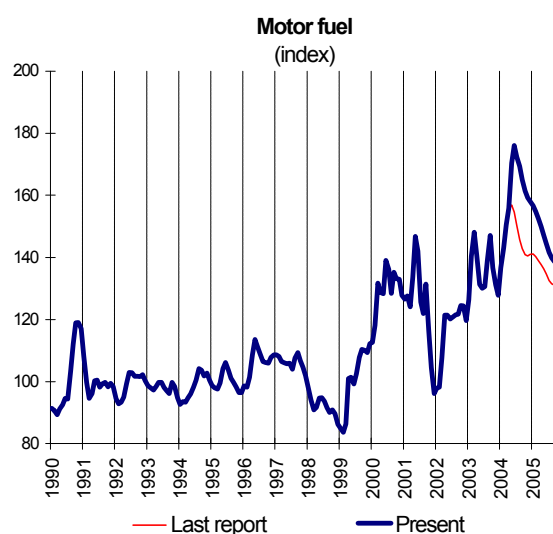
Source: Universidad C.III Madrid & BLS / Date: May 25, 2004

The difference between the index for services (excluding the index for owner's equivalent rent of primary residence) and the index for commodities less food and energy (excluding tobacco prices) decreased by one tenth to 5.2 points, from the previous month's figure.

Residual inflation increased by 0.71%, more than expected: 0.59%, with the annual rate rising from 2.30% to 4.25%. By components, food prices have increased by 0.05%, exactly as expected, with the annual rate going from 3.25% to 3.42%. The index for energy performed worse than expected, with an increase of 1.96% as opposed to the forecast 1.57%. Its annual rate has gone from 0.35% to 5.65%.

*The general index forecast for **May** is a 0.41% increase, with the annual rate rising from 2.29% to 2.88%.*

The general index forecast for **May** is a 0.44% increase, with the annual rate rising from 2.29% to 2.90%. This significant upturn may be completely explained by energy prices. We expect core inflation to rise by -0.01%, with the annual rate slightly decreasing from 1.76% to 1.69%.

By components, the expected increase in the index for services is 0.09%, 0.21% for the index for owner's equivalent rent of primary residence and 0.01% for the rest. The annual rate of the index for owner's equivalent rent of primary residence will increase to 2.41%. The year-on-year rate for the index for all other services, on the whole, will decrease from 3.69% to 3.30% (see **Graph II.3.4**).

Graph II.3.3

.SOME SERVICES.
(YEAR ON YEAR RATES)

Graph II.3.4

SERVICES
(YEAR-ON-YEAR RATES)
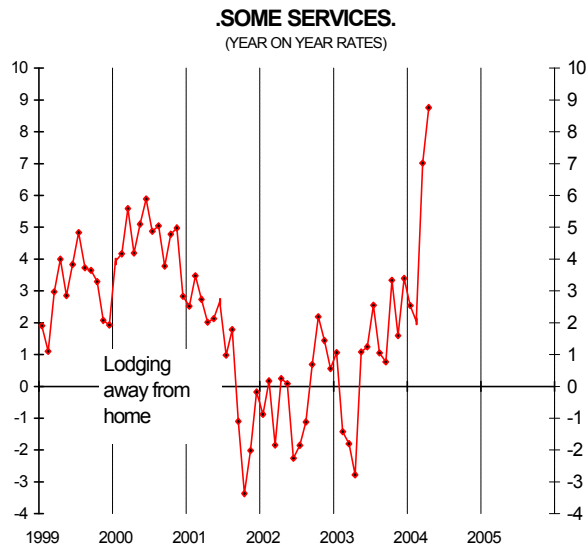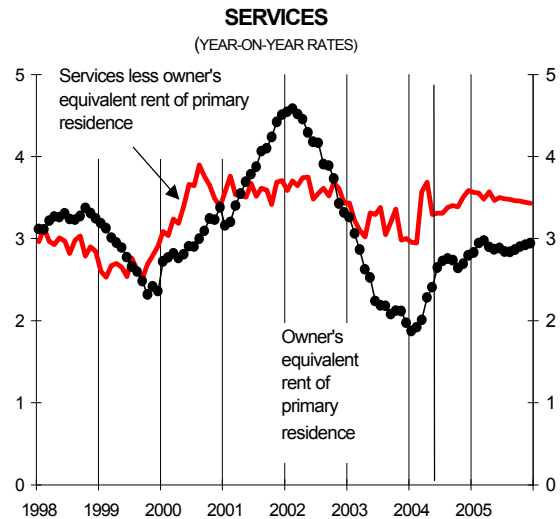
Taking commodities less food and energy into consideration, the expected decrease is 0.28%, with the annual rate going from –1.40% to –1.13%. Excluding the index for tobacco, the predicted rise is -0.37%, which would leave the year-on-year rate at –1.33%, as opposed to last month's –1.52%. Durable goods prices are expected to decrease 0.19%, leaving the annual rate at –3.13%. Non-durable goods prices are forecast to rise -0.38%, bringing the annual rate from 0.77% to 0.94%. Within the index of non-durable goods, tobacco prices are predicted to increase by 2.13%, which would leave the year-on-year rate at 3.82%.

The expected increase in residual inflation is 2.06%, which would leave the year-on-year rate at 7.32%, as opposed to last month's 4.25%. With regards to residual inflation, the expected increase for the food index is 0.28%. Energy prices are expected to increase by 5.35%, which would leave the year-on-year rate at 14.71%, as opposed to last month's 5.65%.

For 2004 and 2005, we forecast mean total annual inflation rates of 2.6% and 2.0%, representing five tenths and two tenths more, respectively, for each year, than the last report.

For **2004** and **2005,** we forecast mean total annual inflation rates of 2.6% and 2.0%, representing five tenths and two tenths more, respectively, for each year, than the last report (see **Graph II.3.6**).

Graph II.3.5   (year-on-year rate)
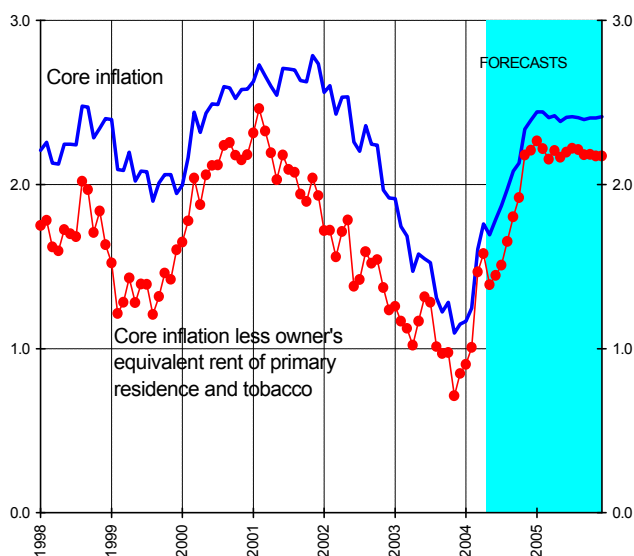
Source: Universidad C.III Madrid & BLS / Date: May 25, 2004

Graph II.3.6

CHANGE IN THE EXPECTATIONS OF TOTAL INFLATION
(Year-on-year rate)
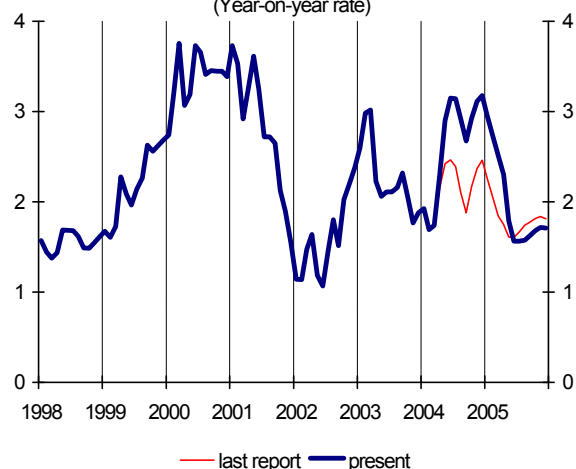
Source: Universidad C.III Madrid & BLS / Date: May 25, 2004

During April, as in the previous month, there has been a surprising increase in core inflation, due to the prices of rent and lodging, which, together with the high increases in the price of crude oil on international markets, explain why expectations are also revised upwards.

Thus, the forecast is that core inflation will register a stronger acceleration along the year, from the current 1.8% to 2.4% in December, compared to last month's report, where an annual rate of 2.1% was forecast for December. Considering the mean annual rate, the revision upwards is only one tenth for 2004, from 1.7% to 1.8%, and three tenths for 2005, from 2.1% to 2.4%.

The most significant change is in energy prices, the mean annual rate of which goes from 5.0% to 10.1%. Oil prices have reached historical levels, and the path forecast is gloomier than that of last month. The deterioration of mid-term expectations due to a perceived structural crisis adds to the strong increase, in the last few days, of international market crude oil prices (**see Graph II.3.2**). As the graph shows, petrol prices will have increased 34% over the December 2003 level, with a fall in prices predicted to start in June, reaching similar levels to the average of the last four years by the end of 2005.

Table II.3.2 shows the average annual growth rate forecasts for 2004 and 2005 for the different components of the USA Consumer Price Index (monthly and annual rates can be found in **Tables A6A and A6B** in the Appendix).

Table II.3.2

AVERAGE ANNUAL RATE OF GROWTH IN US (*)

CONSUMER PRICES INDEX (CPI)	2000	2001	2002	2003	2004 (forecasts)	2005 (forecasts)
Food (1)	2.3	3.1	1.8	2.1	**3.2**	**2.5**
Energy (2)	16.9	3.8	-5.9	12.2	**10.1**	**-3.3**
Residual Inflation (3=2+1)	**6.8**	**3.3**	**-0.8**	**5.3**	**5.6**	**0.4**
Non-food and non-energy goods (4)	0.5	0.3	-1.1	-2.0	**-0.9**	**0.3**
Less tobacco	-0.1	-0.2	-1.5	-2.1	**-1.1**	**0.2**
-Durable goods	-0.5	-0.6	-2.6	-3.2	**-2.3**	**0.3**
-Nondurable goods	1.4	1.1	0.4	-0.7	**0.4**	**0.3**
Non-energy services (5)	3.3	3.7	3.8	2.9	**3.0**	**3.2**
-Services less owner's equivalent rent of primary residence (5-a)	3.5	3.6	3.6	3.2	**3.4**	**3.5**
-Owner's equivalent rent of primary residence (a)	3.0	3.8	4.1	2.4	**2.5**	**2.9**
Core Inflation (6=4+5)	**2.4**	**2.7**	**2.3**	**1.5**	**1.8**	**2.4**
Core inflation less owner's equivalent rent of primary residence (6-a)	2.2	2.3	1.7	1.1	**1.6**	**2.2**
Core inflatión less owner's equivalent rent of primary residence and tobacco	2.1	2.1	1.5	1.1	**1.6**	**2.2**
Total inflation (7=6+3)	**3.4**	**2.8**	**1.6**	**2.3**	**2.6**	**2.0**
All items less owner's equivalent rent of primary residence (7-a)	3.5	2.6	1.0	2.2	**2.7**	**1.7**

(*) Monthly and annual growth rates can be found in tables A6A and A6B in Appendix

Source: BLS & Universidad Carlos III Madrid
Data: May 25, 2004

II.4 Spain

The CPI for April 2004 showed a monthly rate of 1.37% with a year-on-year rate of 2.7%.

The CPI for April 2004 showed a month-on-month rate of 1.37%, higher than our predicted 1.30%, with a year-on-year rate of 2.7%, compared to the 2.1% registered in March.

Core inflation, calculated on the basis of the IPSEBENE index, registered a year-on-year rate of 2.4% in April, lower than total inflation.

Core inflation registered a slightly upward innovation in the goods market derived specially from prices of processed foods; residual inflation registered an upward innovation too, derived from prices of non-processed food.

Residual inflation registered an upward innovation.

To analyse this in greater detail, please refer to tables II.4.1 and II.4.2. Table II.4.1 shows the breakdown used in this Bulletin to study inflation behaviour (there is a more detailed version in table A1A at the end of the document) and table II.4.2 summarises prediction errors made for different components.

Table II.4.1

SPANISH CPI DISAGGREGATION [*]

1. Processed Foods CPI	AE (17.17%)	*Trend Inflation* (1+2+3) IPSEBENE (82.28%)	
2. Non Energy Commodities CPI	MAN (30.05%)		
3. Non Energy Services CPI (excluding Tourism)	SERV (35.05%)		*CPI* (100%)
4. Non Processed Foods CPI	ANE (8.60%)		
5. Energy CPI	ENE (9.12%)		

[*] More detailed information can be found in table A1 in Appendix.

Source: IFL & UC3M

Table II.4.2

OBSERVED VALUES AND FORECASTS ON CONSUMER PRICE FIGURES IN SPAIN

Consumer Price Index (CPI)	Current growth April 04	Forecast	Confidence Intervals [*]
(1) AE (17,17%)	0.53	0.28	± 0.18%
(2) MAN (30,05%)	2.99	2.73	± 0.16%
(3) SER (35,05%)	0.74	0.95	± 0.17%
IPSEBENE [1+2+3] (82,28%)	1.49	1.44	
IPSEBENE-X-T (77,21%)	1.49	1.32	± 0.13%
(5) ANE (8,60%)	0.26	-0.07	± 1.09%
(6) ENE (9,12%)	1.28	1.53	
R [5+6] (17.72%)	0.79	0.68	± 0.22%
IPC (100%)	1.37	1.30	± 0.15%

[*] At 80% confidence level.

Source: INE, IFL & UC3M Date: May 14, 2004

Prices of **non-energy industrial goods,** MAN registered a month-on-month rate of 2.99% in April, higher than our prediction of 2.73%. The year-on-year rate registered in April was 0.73%, higher than the value registered in March. The inflation differential in the commodities market with the EMU has stayed below 0.5 percentage points in the last few months and we expect it to narrow in the second half of the year. The year-on-year rates of growth in apparel and footwear were 1.37% and 2.86%, respectively. If these increases in prices are not reflected in improved quality of corresponding goods, the Spanish economy will suffer a loss of competitiveness in relation to Europe, which will translate to lower economic growth. The average annual rate in non-energy industrial goods prices was 2.0% in 2003 and the predictions are 0.9% in 2004, and 1.4% in 2005.

The month-on-month rate of **inflation in processed food,** AE in April was 0.53%, above our prediction, 0.28%. Prices of processed food are now affected by offers that the National Statistics Institute (INE) picks up; this fact leads to a more erratic evolution of these kinds of prices. The year-on-year rate in April grew to 2.9%, compared to the 2.4% registered in March. The mean growth expectations for inflation in processed food will remain at 3.7% in 2004, and 3.2% in 2005, with respect to the 3.0% observed in 2003.

Table II.4.3 shows a summary of average annual predictions for the different components that make up core and residual inflation (more detailed information may be found in tables A7A and A7B at the end of the document.)

Table II.4.3 SPANISH AVERAGE RATES OF GROWTH							Forecasts	
	1998	1999	2000	2001	2002	2003	2004	2005
Residual Inflation	**0.4**	**2.8**	**6.7**	**3.7**	**2.6**	**3.6**	**5.4**	**3.7**
Fats	-11.1	14.9	-7.6	-7.3	15.2	3.4	**17.2**	**10.8**
Tobacco	7.9	4.3	2.5	4.9	7.4	3.8	**6.2**	**2.5**
Tourism	15.4	7.2	12.3	7.1	8.7	3.1	**2.8**	**7.2**
Non Processed Foods	2.1	1.2	4.2	8.7	5.8	6.0	**4.6**	**4.3**
Energy	-3.8	3.2	13.3	-1.0	-0.2	1.4	**5.2**	**1.5**
Core Inflation	**2.2**	**2.2**	**2.5**	**3.4**	**3.7**	**2.9**	**2.7**	**2.9**
BENE-X	1.6	1.5	1.9	3.1	2.6	2.3	**1.7**	**1.8**
Processed Food excluding fats and tobacco	1.4	0.8	1.4	4.1	3.1	2.9	**2.7**	**2.8**
Non-energy industrial goods	1.5	1.5	2.1	2.6	2.5	2.0	**0.9**	**1.4**
SERV-T	3.3	3.3	3.5	4.1	4.3	3.5	**3.7**	**3.9**
CPI Inflation	**1.8**	**2.3**	**3.4**	**3.6**	**3.1**	**3.0**	**3.1**	**2.9**

[*] More detailed information can be found in tables A6A and A6B in Appendix.

Source: INE, IFL & UC3M / Date: May 25 / 2004

Graph II.4.1 AVERAGE RATES OF GROWTH OF CPI INFLATION
IN GOODS (BENE) AND IN SERVICES (SER) IN SPAIN
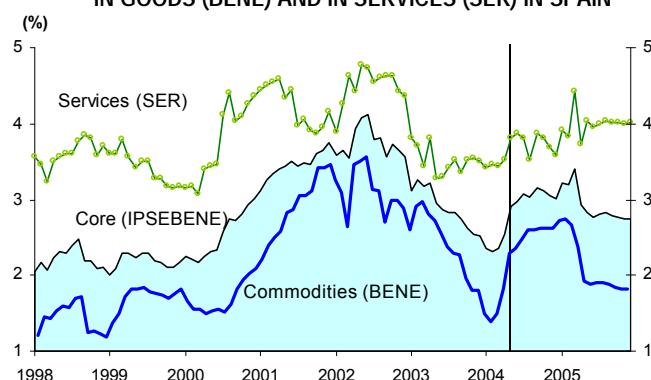
Source: INE, IFL & UC3M / Date: May 25 / 2004

The inflation differential between inflation in services and inflation in non energy industrial goods is 3.0 p.p. inApril.

With regards to the **services sector,** including the components known as tourist packages (the SERV index), it registered a month-on-month rate of inflation of 0.74%, less than our forecast, 0.95%. The evolution of service prices is especially worrisome in universities, restaurants, education, housing and medicine, which show annual rates of growth greater than 4%. The inflation differential between the non-energy industrial goods market and the services market, was 3.0 percentage points in April, compared to the 1.7 p.p. observed last February. This differential is greater than the corresponding figure in the EMU, 1.6 p.p. The year-on-year rate of growth of services in April was 3.7%, while in the Euro-zone it was 2.5%. Mean growth expectations will increase to 3.8 % in 2004 and 4.0% in 2005, compared to the 3.7% observed in 2003.

The mean annual rate of core inflation will be 2.7% in 2004 and 2.9% in 2005.

With the aforementioned innovations in the goods and the services market, **core inflation**, calculated on the IPSEBENE index, registered a year-on-year rate of 2.4% in April, greater than the figure registered last month, 2.2%. It is predicted that the average rate of growth of core inflation will be 2.7% in 2004, rising to 2.9% in 2005, compared to the 2.9% observed in 2003.

Residual inflation registered an upward innovation.

The prices which serve as a basis for calculating **residual inflation** have registered a downward innovation in the energy sector and a strong upward innovation in non-processed foods.

As a consequence of the current evolution in crude oil prices and the exchange rate, the expectations of average growth in consumer energy prices are a positive value of 5.2% in 2004, and 1.5% in 2005, compared to the 1.4% observed in 2003. As far as average growth of non-processed foods is concerned, expectations are 4.6% in 2004 and 4.3% in 2005, compared to the 6.0% observed in 2003.

Graph II.4.2 ANNUAL RATES OF TOTAL AND CORE
INFLATION IN SPAIN
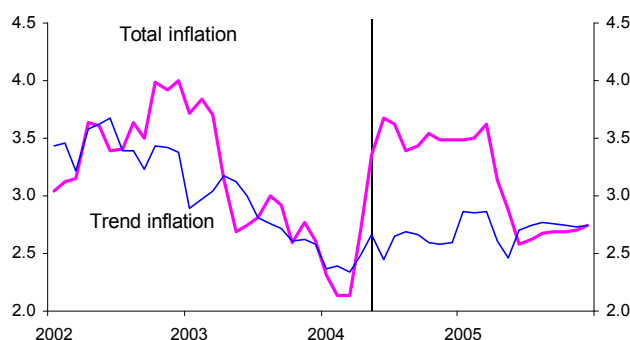
Source: INE, IFL & UC3M / Date: May 25, 2004

As a result, **the prediction of the month-on-month inflation rate for May 2004** is a value of 0.6%; the year-on-year rate will increase to 3.4%, slightly different from the last observed month, 2.7%. The month-on-month core inflation rate will be a positive value of 0.5%. The average inflation rate within the overall CPI is placed at 3.1% in 2004 and 2.9% in 2005, compared to the 3.0% observed in 2003. The average rate of core inflation will be 2.7% in 2004 and 2.9% in 2005, compared to the 2.9% observed in 2003.

Table II.4.4 shows the average annual rates between 2000 and 2005 of the different sectors in the EMU and Spain, where the relevant differential in non-energy industrial goods and services can be observed.

Table II.4.4 **HARMONIZED CPI ANNUAL GROWTH BY SECTORS IN THE EMU AND SPAIN 2000-2001-2002-2003-2004-2005**		2000	2001	2002	2003	Forecasts	
						2004	2005
AE[a]	EMU	1.1	2.9	3.0	3.3	3.9	3.1
	SPAIN	0.9	3.4	4.3	3.0	3.7	3.2
MAN	EMU	0.4	0.9	1.5	0.8	0.9	1.0
	SPAIN	2.1	2.6	2.5	2.0	0.9	1.4
BENE	EMU	0.6	1.5	1.9	1.5	1.7	1.6
	SPAIN	1.7	2.9	3.1	2.4	2.2	2.1
SERV	EMU	1.5	2.5	3.1	2.6	2.5	2.5
	SPAIN	3.7	4.2	4.6	3.7	3.8	4.0
IPSEBENE	EMU	1.0	1.9	2.5	2.0	2.1	2.0
	SPAIN	2.5	3.4	3.7	2.9	2.7	2.9
ANE	EMU	1.7	7.0	3.1	2.2	1.1	1.8
	SPAIN	4.2	8.7	5.8	6.0	4.6	4.3
ENE	EMU	13.0	2.3	-0.6	3.0	3.9	0.8
	SPAIN	13.3	-1.0	-0.2	1.4	5.2	1.5
RESIDUAL	EMU	7.5	4.4	1.1	2.6	2.6	1.3
	SPAIN	2.5	3.5	2.6	3.6	5.4	3.7
HICP	EMU	2.1	2.3	2.3	2.1	2.2	1.9
CPI	SPAIN	3.4	3.6	3.5	3.0	3.1	2.9

(a) Including tobacco prices
Source: INE, EUROSTAT, IFL & UC3M / Date: May 25, 2004

THE CAPITALISM TO COME:

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PART II: OWNERSHIP, INFORMATION AND SCOPE

II.0. INTRODUCTION

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In the first part of THE CAPITALISM TO COME, I have attempted to show how homo posteconomicus is psychologically denser, rationally more complex and socially less individualistic than his predecessor, homo economicus. These differences, together with the importance of science in the knowledge society, ICTs and globalisation, are predicting perceivable changes in the specific way in which capitalism works, changes that have been described in each of the chapters in the first part. This homo posteconomicus is a user of the economic-social system who at the same time makes up this system. This user can therefore be considered as something more than a rational consumer. He is at the same time a producer, either of science or new forms of wealth, and an intermediary who ends up generating language, rules and customs which give a community a specific form. These ideas will be very useful, in the third part, to discuss the ideas of firm, market or State; but they first have to help us to elaborate other ideas concerning ownership, information and, for want of a better word, what I will refer to as scope. The individual user, in any of his roles, is the owner of the yield of his work and of the means of production, and he also receives, processes and issues information, either directly or indirectly. Likewise, his behaviour is what determines the scope of a community.

In this second part of THE CAPITALISM TO COME, I will be considering ownership, information and scope, attempting as usual to discover what we can expect in these fields in a near future dominated by ICTs, knowledge and globalisation. In the third chapter of this part, I will explore what the idea of fraternity, contemplated in more depth that in the first part, reveals in terms of the physical space, or scope, in which it operates, considering the notion of polis and the consequences of, on the one hand, integrating different polis, or dividing them, with their advantages and disadvantages and, on the other, providing public goods. The second chapter will be centred on information and

transactions costs, concepts in which the importance of ITCs is fundamental. The reduction of transaction costs will give rise to a proliferation of markets which, in the form of outsourcing or in other ways, will explain what at times, when relativising the idea of ownership, is known as access. Information problems, either related to its scarcity or asymmetry, will give rise to more than a few paradoxes and, in spite of ICTs, we will see how aporias arise in relation to transparency or the possibility of collective action. In the first chapter, however, we approach intellectually more stimulating problems by attempting to delimit the why, nature and extension of private ownership. In spite of the attempted relativisation of ownership rights, either limiting or increasing them, the chapter emphasises that such attempts are not very convincing and that incentives determine the role to be played by private ownership in the capitalism we are entering in this first decade of the 21st century.

CHAPTER II.1. OWNERSHIP AND INCENTIVES

Summary

SUMMARY

In this second part of THE CAPITALISM TO COME, I will be taking a look at the variations that both ownership as a central institution, information as a product and scope of action as a territorial and political reference, will be suffering due to the progress of ICTs, the new role played by information besides being considered as a product, and globalisation. In this first chapter of the second part, I focus on private ownership, an institution the centrality of which for the free market to work was not understood until relatively recently, and which is now running the risk of spreading too much or not spreading enough in certain areas, or of once again being ignored due to certain ambiguous announcements of gratuity.

The definitive solution to the "socialist calculation" problem has revealed the importance of private ownership for solving the problem of the lack of incentives which would arise without it, and the subsequent problems for the Market Economy. This central role, however, does not justify the duration and scope of what is being done in the intellectual property field. It is gradually being accepted that what starts as an institution destined to trade-off the incentive to create against the need for diffusion, becomes an unnecessary barrier for creativity. I believe that I can safely predict that, in the immediate future, there will be a reduction in copyright duration and a drastic decrease in the range of tangible or intangible goods the inventors of which deserve protection by intellectual property rights. Indirectly, this will accelerate the rotation of goods typical of the destructive creation involved in the competitive process.

The mistaken appreciation that access is replacing ownership (as networks are replacing the market) has led to a prediction of the emergence of gratuity in some of its manifestations. An in-depth discussion of these ideas, however, shows that what now appears to be free access is no more than the result of the emergence of other non-free markets in another field or the "gratuitousness" (unreasonable or apparently irrational) required by market enlargement.

The study of patronage and the continued examination of science, are very useful for dissipating this confusion about access as the elimination of ownership. Patronage, although in some cases it has something of potlatch or the ritual destruction of wealth, does not represent the weakening of interest as the driving force behind economic development or the institution of private ownership. Those who believe that the great

history of resource allocation starts with the natural Market institution, continues with the State as a do-it-yourself enthusiast attempting to repair market failures, is perfected in the institution of patronage, with generosity flourishing, and that this is the culmination of the gruelling construction of civil society are, I believe, mistaken. This history starts with the State (or with the Lord, to be more precise), continues with patronage as the means used by the Lord for the Market to flourish and continue to maintain its power by means of its "purchasing power", and ends with the Market, which is indeed the basis of civil society. If I am not mistaken, in the near future the CAPITALISM TO COME will be witness to a proliferation of patronage, but without being associated to distinction or moral superiority; there will be no tricks or attempts to disguise that it is a rent-seeking mechanism, especially in the hands of ghost Foundations evidently aiming at broadening the markets.

Science, however, is the institution that will most clearly play this social role of enlarging the playground where the game of competition is played. We will be the privileged witnesses of a science less based on inertia and following other footsteps, and more experimental and rebellious. And, we may be scandalised when interest and private ownership start to haunt this "temple of access". The Open Science system will be unable to resist the siren songs that incentives will represent for scientists and a good organisation of science may necessarily involve certain forms of privatisation.

II.1.0. INTRODUCTION

Private ownership does not have a good reputation. Private ownership is theft for an anarchist and the private ownership of means of production is, for a Marxist, the main obstacle to be eliminated if we wish to accelerate the coming of a communist paradise. In less extreme terms and until very recently, public companies seemed to be a good solution for the provisioning of certain good which were either of strategic importance for the nation or were defined as public goods, and the social function of ownership was referred to as if the right to ownership had evident limitations which nevertheless had to be highlighted to prevent abuse. There is no better example of this mistrust of private ownership that the 1978 Spanish Constitution which, in consonance with the type of market system being established, one described as "social" in Title VII, considers in article 33 that private ownership (like freedom of enterprise in article 38) is a very important right "affecting all public authorities" (art 53); but not a fundamental right that can be alleged before the ordinary jurisdiction for special and fast proceedings, since it is found in section 2 of chapter II of Title I, and not in section 1.

Yet private ownership is a basic feature of a market economy, without which capitalism would not be viable as a resource allocation system and it would therefore not have developed as it has. It is a question of incentives, which I will be contemplating in section II.1, where I will remember that, due to the question of incentives, so-called market socialism was bound to fail and that incentives are also what conventionally justify intellectual property rights.

The defence of private ownership as a necessity for capitalism to work must inevitably be overwhelming. It is therefore difficult to be sympathetic to the barriers that our fundamental text attempts to impose on the exercise of private initiative and on private ownership. It describes circumstances in which nationalisation (art. 128) and planning (art. 131) are applicable and attempts to promote the cooperative form of enterprise and the workers' participation in the ownership of means of production (art. 129). The Spanish economy, however, has travelled a different route much more in consonance with the central nature of private ownership. It has been a long time since we have heard a political party, however far to the left of the political spectrum it may be, referring to the nationalisation of a company or sector, or to economic planning. On the other hand, we have witnessed the gradual privatisation of public companies and, at the same time, a significant outbreak of popular capitalism which has led to workers holding company shares in the same terms as any other saver.

Given this central aspect of private ownership in the capitalist system, it can only be expected to grow in strength during the market enlargement process involved in

globalisation. We could, however, question whether the enormous potential of information and communication technologies (ICTs) and the greater intangibility of assets in the information society, will not relativise the crucial role played by private ownership in how capitalism works. Rifkin, in his famous book called The Age of Access, appears to insinuate that ownership once was to the market what access is to the net today and that, consequently, ownership and the market will be less important in the capitalism to come, with cooperation taking the place of competition. In section II.2, I will attempt to explain that Rifkin's arguments are not very solid. What is really occurring in the Information Society based on the massive use of ICTs is that we are witnessing a huge proliferation of markets which, at times, may give the impression that ownership rights are losing force, even though this is not the case. I will also attempt to show that the increase in gratuity or cooperation that we think we are seeing is possibly no more than an intelligent strategy aimed at enlarging the field for a new form of competition that will certainly require private ownership. The figures of science and patronage are paradigmatic if we are to understand what is already announced for the capitalism to come in terms of ownership. We will see how patronage should not be seen as a weakening of private ownership, but as a process which, in an attempt to compensate for market failures, helps to create new markets. And we will also see how the last refuge for free access, science, is mediated by the force of the demands for incentives, leading us to believe that we may be seeing, in a more or less immediate future, if not the privatisation of science, certainly changes in the way it is managed, moving in that direction.

II.1.1. PRIVATE OWNERSHIP AND INCENTIVES

In the first part of this section, I will briefly explain the reason for the initial success of the ideas of Lange and Lerner concerning why the possibility and good operation of market socialism did not survive the incentives revolution, a revolution showing that private ownership is essential for the market system to work. What is specifically essential is that one can take possession of the results of one's work even though it often seems that they are difficult to obtain if one cannot charge a price for them because they are easily accessible by nature. In the second part, I provide a critical perspective of this issue of intellectual property which, in my opinion, seems to be wrongly leading us to broaden its scope more than is reasonable.

II.1.1.A.- Market socialism

General Equilibrium Theory is at the very heart of the Neoclassic Economy that arose in the 1870's and was formally configured in the mid-20th century[1]. It is a theory of resource allocation through the market mechanism. Given initial endowments of each good allocated to each household economy owning them, this economy uses the income consisting of the value of its initial endowment and its share in company profits to buy what it wants on different markets. Firms, on the other hand, decide on the input/output vector that maximises their profits and market the respective quantities of each good. Household and business economy plans are compatible when there is a price vector matching the aggregate demand for each good equal to the aggregate supply. This price vector is the equilibrium one and the quantities required to empty the market form the equilibrium allocation.

The market is not the only possible resource-allocating mechanism. Consider an alternative mechanism that we could call "unanimous veto". In this mechanism, each allocation proposed is considered to be based on equilibrium or, to avoid confusion with market mechanism equilibrium, as Pareto-efficient (as a tribute to Pareto, the "inventor" of this allocation mechanism), if and only if there is no other that is better for all household economies; in other words, if this allocation is not unanimously vetoed.

Let us now consider all the market mechanism's equilibrium allocations in a private ownership economy and all the Pareto-efficient allocations of an economy in which all the resources are not owned by the economic agents. How are these two sets of allocations related? The two famous Welfare Theorems answer this question. All

market equilibrium allocations in a private ownership economy are Pareto-efficient (Theorem 1) and all Pareto-efficient allocations of an economy with the same total initial allowances but without private ownership can be sustained by competitive equilibrium (Theorem 2). This second Theorem tells us that for any Pareto-efficient allocation there is a price vector which, with this allocation, constitutes the equilibrium (competitive) of a private ownership economy with initial allowances equal to said allocation.

Both the General Equilibrium Theory and the Welfare Theory (with its two theorems) were established during the cold war years by scientists, like Arrow for instance, who according to Philip Mirowski, were repressed socialists working for the Rand Corporation[2]. It would not be surprising, then, to find that this analytical core of Neoclassic Theory is also a response to the accusation of the impossibility of central planning. This impossibility seems evident, given the computing difficulties involved in such planning, but it just so happens that there is something even "better" than this central planning, which is available thanks to the second welfare theorem. Let's say that, as socialists, we want a specific Pareto-efficient allocation of final goods: one that is perfectly equalitarian, for instance. To implement this, we would not have to tell each firm what it has to produce or each family what it has to consume. As Lange and Lerner showed, each in his own way, it would be sufficient to calculate the price vector that would sustain this allocation as one of equilibrium, publish it and tell firms and families, based on the technology available and a perfectly equalitarian initial allocation of ownership rights, to maximise profits and utility, respectively, operating on the markets according to their own interests.

For years it seemed that, unlike central planning, this market socialism was feasible in spite of the difficulty involved in calculating the equilibrium price vector. However, no-one realised for some time that this calculation required asking each individual agent about his preferences and each firm about its technology and that therefore it was not certain that they would all tell the truth. They would be more likely to refer the preferences and technologies which, used to calculate consumption and production, would leave them in the best possible position. There was no incentive to tell the truth. More generally, unanimous veto and competitive market mechanisms are not generally incentive-compatible. In a less technical way, we could say that no-one is willing to do what the general equilibrium model prescribes if they cannot reap the benefits of such behaviour. I will not work as I should or would, if the results of my work benefit someone else or if I cannot make decisions on my savings.

The problem of the "socialist calculation", as the discussion arising from the ideas put forward by Lange and Lerner came to be known, is not a question of computing but of appropriation. Private ownership is a necessary condition for the market mechanism to work. That is the first lesson in this chapter on ownership and incentives. The problem gets a little more complicated when we consider intellectual property.

II.1.1.B.- Intellectual property

For nearly half a century, thanks to the work of Arrow[3], we have known that there is an evident conflict between invention and the diffusion of that invention. The easier the invention spreads, the less the inventor will receive in exchange for his investment, and he will have less incentive to invent. Today, invention should be understood as including not only technological innovation but also artistic or scientific creation, which is naturally subject to the same trade-off between reinforcement of intellectual property rights and the widespread use of the product of intellectual activity.

I wrote about this problem some time ago[4], revealing that some of the debates on this subject were cause for concern. Things move fast in this area, and there are now three main issues subject to controversy. The problem of AIDS in Africa, in relation to discussions on the use of generic drugs, has questioned the suitability of the patent system; the Napster case, and now Kazaa or other music sharing systems, has questioned the suitability of copyright laws; and free software, like Linux, threatens proprietary software. These cases are all outrageous. In the first place, how can large pharmaceutical firms insist on maintaining the temporary monopoly provided by a patent

in spite of human suffering in countries that cannot afford sufficient medication against AIDS? Secondly, how can large recording companies complain about the free distribution of music over the Internet? And thirdly, how can we accept that software, which is only language after all, can be patented and its use restricted?

However, we are forced to recognise that all these problems are related to incentives: if pharmaceutical firm cannot benefit from the monopoly of the sales of a drug which came into existence thanks to its research programme, it will have no incentive to investigate; if the recording company cannot profit from its music it will have no incentive to produce it; and who is going to waste time creating software that can be copied and used by anyone? It seems that private ownership is fundamental if incentives are going to work as such. Pharmaceutical and recording companies must have the right to own the products of their intellectual activity (although only temporarily, so that these easy-to-copy products can eventually benefit us all) and, initially, software authors should be able to control the use of their products. It is this necessary allocation of ownership that takes place thanks to patents or copyright. The position is by no means absurd, since it establishes a degree of equilibrium between the interests involved; it could also be described as liberal in the sense that it is based on the exercising of freedom by economic agents once ownership rights have been assigned. However, it is well worth taking a second look at this conventional argument[5]. For reasons of simplicity, let us concentrate on copyright; the argument, initially, has two parts. First, creative activity demands a heavy initial investment leading to the existence of increasing returns to scale making competition unviable. Second, the corresponding natural monopoly is not viable either, if the product can be reproduced at a low cost. Consequently, if we want the creative activity in question to exist, it is <u>necessary</u> to make the monopoly viable by artificially increasing the cost of reproducing the product of the invention. Nearly all economists have this conventional argument saved on their hard disk, so it is not easy to change the idea. But it is, however, based on theoretical and practical fallacies.

We will start with the theoretical difficulties, the most surprising. Readers who are sufficiently interested, or who are usually concerned with detail, can take a look at the article by Michele Boldrín and David Levine. The generic argument is as follows. If the invention or creative idea is embodied into a product (and this is always so); if the reproduction or imitation or copy requires a certain degree of intellectual or technical ability which means that it will always have a cost (which is generally so[6]) and there are limits to reproduction capacity (which is quite obvious in most cases), the present discounted value of the quasi-rents received by the initial creator in the absence of copyrights, is positive. It is not only positive, however, but in certain circumstances it may grow as the costs of reproducing the product decrease. The creator, therefore, may not need the monopoly and the copyright to artificially increase reproduction costs.

Strictly speaking, all this means not that copyright is not at times socially convenient (this will depend on the quantitative incentive required by the inventor to create), or that the inventor or creator will not improve his situation the more effectively managed his rights are. In general, monopolies live better when their monopolistic power is increased. What this argument implies is that, unlike what everyone has believed for the last half a century, the burden of proof in order to justify the need for the artificial monopoly provided by copyright, must lie with whoever applies for it. There is no evidence that the information producers could obtain without copyright protection would be sufficient to cover their opportunity costs. This suggests that there could be institutional arrangements other than copyright, and that there could be more socially acceptable ways of capitalising the inventor's efforts.

Let's leave the theory now and go on to the practice. It is not surprising that the Spanish Authors' Union (SGAE) is attempting to exploit existing copyright to benefit artists in general and that the Plastic Artists' Union (VEGAP) is defending the rights of plastic artists. In this respect, whoever buys a compact disk, an oil painting or proprietary software has limited ownership rights: he cannot tear the canvas, or reproduce the CD in a toaster or copy the software; and if he does, he will be pursued and, if finally caught, will have to pay for it. All this, of course, benefits writers, artists, musicians or software

designers. But what about consumers and society in general? These restrictions prevent consumers and other producers from making full use of these goods. If we think about it, this has two socially dangerous consequences: it reduces competition and also reduces innovation and technological progress, which is at least as harmful. It is evident that it reduces competition: in this case the old economist's hard disk can be applied, acknowledging that this monopolistic power is a "necessary evil". We have already argued that evil is not certainly necessary but moreover, and more important still, in the long term this monopolistic power reduces innovation. This may seem heretic, but in general what we call "piracy" is no more than technological progress, innovation and, ultimately, a future barely perceived as a possibility[7].

The latter is particularly true in the case of software. As we will see, the free software movement and the Linux operative system will be magnificent examples to show us how, in the capitalism to come, where incentives will still be operating, we will have to leave space for certain types of gratuity which I shall be explaining in the next section.

II.1.2. OWNERSHIP AND ACCESS

In the first part of this section, I argue that science, far from representing a production system that is premonitory of the capitalism to come, as some maintain, will be radically changing basically because the incentives that scientists will have to accept or disregard in the Knowledge Society will be huge. This change may even involve the privatisation of basic science. In the second part, I discuss different notions of gratuity associated to ICTs and offer a new concept of patronage with less emphasis on generosity or what is now called Corporate Social Responsibility, and more on how it can help to mitigate market failures, to create markets or to modulate a community's identifying features.

II.1.2.A.- Access: private ownership of science

I have already indicated in the introduction to this chapter that Rifkin seems to wrongly think that ownership is going to be replaced by access, as the (competitive) market is going to be replaced by (cooperative) networks. He mistakes market proliferation for weakened ownership and thinks that supplier and customer networks will be able to provide whatever is needed without going to the market. This leads us to think that the capitalism to come may be like the open science system to which we referred in previous chapters. Results are public in this system and their producers do not expect more payment than mere acknowledgement.

It would appear, then, that an examination of how science works could tell us something about the capitalism to come and the role to be played by private ownership. This lengthy examination will show us that, unlike what we expect, the information society will bring forces tending to privatise science, both due to the incentives available for scientists and the wish to increase their creativity.

In chapter I.2. I introduced the user as a producer of science. We saw how the Open Science System in the Republic of Science is like a legacy left to modernity by feudalism, generating a class of system users, scientists, which for historic reasons ended up selling themselves cheap for love of the truth. However, we continued, the scientist-author and entrepreneur/hero figures are starting to converge, and in the immediate future we can expect to see a scientist/entrepreneur; in the first place because the incentive to appropriate scientific results is going to be greater, capable of overcoming the scientist's reluctance and, secondly, because there is no longer anything to sustain all the arguments against science being provided by the market. Consequently, we saw that the only problems affecting the optimal provision of science were the lock-ins and path-dependence arising from the network-effect that necessarily affect science and hinder the optimal strategy that I described as experimental and rebellious. What I aim to do here is to show how the power of ICTs and the privatisation of science are capable of

overcoming the last obstacle in the way of the optimal provision of science, a crucial factor in the knowledge society. I will start by attempting to explain my ideas about how ICTs can bring perfect competition to the science market, something that is somewhat surprising when I have just mentioned that the network effect generates increasing returns to scale on the demand side. We will centre our attention, then, on the increasing returns to scale produced by the "network effect" which, as I indicated earlier, produces lock-ins and path-dependence, phenomena which present a serious epistemic problem. In a situation like this, and this would be the case in the science market, it is apparently impossible to consider that there is a situation of perfect competition. We have always learned that it is incompatible with increasing returns, which are what characterise science according to the description provided by the sociologists who study the subject. Nevertheless, I will attempt to argue that the new information and communication technologies (ICTs), and especially the Internet, can lead to a borderline situation in which things occur as if competition was perfect. I have recently developed this argument in Urrutia (2003 a) and will here merely include a kind of proof in two steps.

In the first step, I refer to the notion of perfect competition developed by Makowski and Ostroy and recently summarised in their joint article in the JEL. For the Walsarian, and in general Neoclassical, tradition, perfect competition is identified by the parametric nature of the price vector which corresponds to the price-accepting nature of the economic agents, justified by their large number. However, for the Austrian, and also the Marshallian, tradition, competition can be described as perfect if there are no entry barriers, since the way to prevent a new competitor from appearing in this circumstance is to lower price until the incentive has disappeared. The ideas put forward by Makowski and Ostroy reconciliate the two notions of perfect competition, introducing a highly intuitive terminology. Competition would be perfect in the absence of all monopolistic power. This monopolistic power occurs when my threat to leave the group is credible and such a threat will not be taken into account if I am not contributing something really positive to the group. We can therefore say that there is perfect competition, and that monopolistic power has disappeared, when no-one contributes anything to the group, when there is no need for the individual presence of the members. In other words, there is perfect competition when the group can be disintegrated into smaller groups and eventually into individual economic agents. The advantage of this terminology is that it clearly shows that there is no perfect competition in economic sectors in which the "network-effect" is present: if each individual member adds value to the network, he has a certain degree of monopolistic power.

To show that ICTs, and specifically the Internet, can give rise to a situation of perfect competition, I have to show, in a second step, that these new technologies exhaust the "network effect". Since what new individual members contribute is getting smaller and smaller, I have to show that, with ICTs, it is possible to create a network of all the individual members of an economic system. Indeed, ICTs reduce transaction costs in general, and in particular they reduce the cost of forming and completing networks. The Internet can complete a single network by means of a process that we could call netweaving, which consists of creating identity-based networks based on mutual trust. For example, with the Internet a network can be formed of all the members of a certain scientific school, among whom there is mutual trust in the pooling of approaches and methods. And this can occur for each and every school so that they are not only like a telephone network, which at the most provides the possibility of contacting all the members, but also increases the probability of all the members coming into contact. On the other hand, since it is perfectly possible to belong to several networks, or schools, all economic agents, or scientists, end up belonging to a network of overlapping networks. We can say that, in the limit, we all belong to the same network and all possible sharing of ideas has already taken place.

In view of this second step, it seems natural to admit that the "network effect" has been exhausted and that perfect competition has arisen. For example, the demand of this idea is perfectly elastic: a similar, but better articulated, idea would leave me without a single reader. In other words, I cannot persuade everyone all the time with an idea I have had or a discovery I have made: there is always the possibility of a sub-set of scientists

concentrating on a similar but alternative idea (possibly better, more elegant or more attractive) or a discovery of similar importance. In this extreme situation, the lock-in and path-dependence have disappeared and what flourish are the rebellion and experimentation driven by the capacity to contradict established ideas. What I said in Urrutia (2003 b) about business strategies and management, moreover, is immediately applicable to science. Taking up a position, or being the first to establish a scientific "truth" guarantees nothing, because that position can be attacked at any time; establishing a standard, or a line of research, only guarantees your fifteen minutes of fame. To ensure customer loyalty, or create disciples, is a problem, and the loyalty of employees or the members of the scientific school in question, is impossible. We can see, then, that in this extreme situation to which ICTs can lead, the epistemic problem has disappeared in the sense that rebellion and experimentation flourish, without irreversibility or dependence on the order in which ideas appear.

ICTs have given rise to increasing returns in research being compatible with perfect competition so that, in the extreme, there is no epistemic problem and science is compatible with private initiative. But could the private owner of a scientific firm not stop the process towards the limit that I have just described?

I can now consider the problem of the privatisation of basic science. My aim is to show that it is conceivable from the economic perspective. I specifically aim to show that an investigator who owns a firm producing basic science, can correctly provide the good.

Beforehand, however, we should recognise that this is no easy thing, acknowledging that the owner of a scientific firm does not necessarily have the incentives required to attempt to reach the limit where the epistemic problems have disappeared. Indeed, the aim of entrepreneurs is for competition not to be perfect, a situation as close to a monopoly as possible. The cleverest managers (scientific or business) will ensure that the community formed by their school or customers, and structured as a network via the Internet, will not spread completely. They will admit the existence of other communities formed by their competitors' customers or other schools. It is in the interest of firms (including scientific firms) to delay the arrival of perfect competition in order to make the most of a certain degree of monopolistic power.

As we will now see, the question of whether the private ownership of basic research firms should be allowed becomes a problem of incentives, from which we should be able to deduce the desirable characteristics of whoever holds title to them. This is not an easy problem because there is no universally admitted economic theory of ownership. The nearest I am aware of is the work relating to the idea of incomplete contracts and the nature of firms. Indeed, a firm is no more than a bundle of contracts: but all possible contingencies cannot be taken into account in any of the bundle's components. As Hart explains, in these conditions of incomplete contracts, the important thing from the point of view of efficiency is who holds the residual rights; in other words, who has decision-making powers when unforeseen circumstances arise in the contracts making up the firm. This is a subtle argument, difficult to explain. We will concentrate on the case of a scientific firm. Imagine that the central contract for the forming of the firm is between the State and a special class of private agent, which I will call Scientist, and that it consists of specifying *ex ante* the complementary investments of one and the other. The State provides the infrastructure (a cyclotron, for instance), which it does not value as such, and the Scientist, who does value the cyclotron as such, provides his human capital, that is his ability to use the cyclotron. If the contract was complete we would have the problem of identifying the first best, ownership would not be relevant to efficiency and there would be no incentive problem. Indeed, there is no incentive problem in a complete contract because the obvious criterion for deciding on the respective complementary investments is the maximisation of joint benefits. And this is the obvious criterion because the eventual distribution of the benefits is perfectly specified. This specification, or who the benefits belong to, affects distribution but not efficiency. However, it seems evident that such a contract cannot be complete. A cyclotron is not a standard machine and its specifications can vary, as can the application with which the scientist provides his ability, so there will be many circumstances in which it is impossible to verify whether the established agreements are being fulfilled *ex ante*. It is clear than when this contract is

incomplete, the distribution of the joint benefits cannot be perfectly specified in all contingencies, and a first best situation is therefore not attainable. The second best will now depend on the incentives. However, ownership is essential for incentives (and therefore to achieve second best) because it determines who is entitled to continue with the project after the infrastructure is in place, should an unexpected disagreement arise between the State and the Scientist.

Let us consider that the State and the Scientist are going to produce a private good together. Imagine that ownership is allocated to the Scientist. In this case it is evident that the State has no incentive to invest much in the infrastructure, because if the owner decides not to continue, it will not be able to use it. Imagine, on the other hand, that ownership lies with the State. In this case the State has an incentive to invest more, because it can decide to continue should a disagreement arise. In other words, when a private good is produced by means of an incomplete contract, ownership has to lie with the investor, in this case the State. This is how Hart explains that ownership should be allocated to investors.

Now consider that the State and the Scientist are together going to produce the public good that we call science. This is a very different situation. Imagine that the State has ownership and that it has decided to make a large investment. In this case, if the agreement is cancelled because of an unforeseen contingency, there are two possibilities: the State decides either to interrupt or continue with the project. In the former case, it has wasted a large investment, and in the latter the returns go to the Scientist, so it could be thought that the State has no incentive to make a large investment. Now imagine that the Scientist has ownership and that the State has decided to make a heavy investment. If the agreement falls through, it is in the Scientist's interest to continue with the project even if he has to transfer part of the surplus to the State because he, the Scientist, places great value on the infrastructure itself. Consequently, the State has an incentive to make a heavy investment. This is how Besley and Ghatak justify that ownership should lie with the scientist, who values the public good more than the investor.

It is satisfying to find that it is passion for the truth that justifies scientists as entrepreneurs, as owners of scientific firms, since it was precisely this characteristic that explained why scientists should accept low salaries for the services provided to their masters, as we have seen. It is precisely this characteristic of their preferences that justifies allocating ownership to a scientist; but not to any scientist because in science, as in any other sector, the entrepreneur, the scientist, has incentives to delay the movement towards perfect competition, attempting to retain monopolistic power derived from the growing returns produced by the "network effect". If Celera's human genome sequencing methods had been competing with others, it would possibly not have been in Venter's interests to make complete use of the small advantage derived from imposing his method on the entire scientific and technological community because, as we have seen, this would erode his own monopoly. It would have been better to delay the process, sharing the market with another, possibly public, firm. Perfect competition is preferable, however, from the social perspective. The way to get rid of these perverse incentives is to give ownership of the firm to whoever shows a greater passion for the truth.

We have shown, then, that private ownership and the provision of science are compatible. Not only can science be provided in appropriate amounts but private initiative, far from generating an epistemic problem, can be expected to constitute a solution. When passion for the truth flourishes, the entrepreneur-scientist, who is also an author and a hero, will bring the rebelliousness and experimentation that, oddly enough, characterise not only the best research strategy but also perfect competition.

Finally, if I am allowed to become sidetracked for a minute, I would go so far as to explain what I expect Science to be in the 21st century. Firstly, scientific enterprise will be owned by scientists doubling up as entrepreneurs. Secondly, this private enterprise will belong to the entrepreneur/researcher who shows more passion for the truth and more faith in his own method. Thirdly, it would not be strictly necessary to grant patents to the

products of such a scientific enterprise[8].

II.1.2. B.- Gratuity and patronage

Once we have admitted the private ownership of science, including basic science, we have to be aware that, although we have not recommended the granting of patents, since the discounted value from the quasi-rent obtained is positive, and unlike what Rifkin suggests, it does not appear that there will be anything free in the capitalism to come. However, as we shall now discuss, there are certain senses in which we can refer to <u>gratuity</u> as something of the future, and as something related in a certain way to <u>patronage</u>.

I will start, then, by considering gratuity as a phenomenon manifest in three curious categories[9]. <u>Free of cost</u> or why are there goods with a zero price in a market system? <u>Gratuitous</u> or why are there extraordinary forms of celebration representing an unreasonable waste? <u>Free</u> or how do we understand the free cooperation between programmers who are members of the free software movement?

If I start by considering what is <u>free of cost</u> (for the user) I immediately come up against the idea of a free good. This notion is one of the first things that economics students learn about when they are told that there are goods, like the air, the demand for which (at a zero price) is smaller than the existing supply at that price. But if we define our goods with a little more detail, for instance dividing air into more or less polluted, we can easily admit that this intellectual category is no more than a curiosity that we can disregard to really study scarcity, goods that are bound to have a positive price, and cannot be free of cost. However, there is a sense in which we can refer to goods with a null price, goods which, although they are paid for in individual transactions, provide nothing to society when the supply increases, which could be the case for some types of hand labour, professional skills or raw materials. They are not completely free of cost but society would not suffer if a unit of such goods was destroyed.

The interesting thing about these two types of good is that their private ownership is not worth much for their owners, because the market system does not need them to operate. As all economists know (although possibly not in their first year), the market system is a mechanism which enables the simultaneous aggregation of all the information of relevance for decision-making into a single and sufficient statistic, the price vector, and at the same time provides, by means of contemplating this price vector, all the incentives required to work, save and trade in the best possible way. For these two extraordinary characteristics of the price system to be in place, the rights on which private ownership is based are required, precisely the focal point of this chapter. Well, the private ownership of free or null price goods is irrelevant for the market operation. Without it, the market would continue to be a magnificent and efficient epistemological processor, as Hayek would say. I would go so far as to suggest that the State is not too concerned with defending the (eventual) owner of the air or whoever has professional qualifications that exceed the needs of the system. However, as the guarantor of the market operation, the State will very much defend the private ownership of other really scarce goods.

Now, if we wish to really understand the role of ownership in the determination of what is <u>free of cost,</u> we have to analyse another two interesting phenomena. The first is well known and related to complementariness. The customer of a famous tailor, who charged the same for a suit with or without a waistcoat, ordered a waistcoat, expecting to pay nothing for it. This was not the case because, at the time, a jacket and a waistcoat were complementary items. Like the case of the tailor and the waistcoat, Microsoft charges nothing for the Internet Explorer, but only provides it together with the Windows operative system. This type of gratuity appears to have offended Judge Jackson and the Court of Appeal. This question of what is <u>free of cost</u> or not is ceasing to be a joke. As we shall now see, it can be very serious indeed.

The second phenomenon we have to analyse has to do with the size of the market, and I am referring not only to the number of participants but also to the number of goods. The size of the market at any given time is determined by the benefit I obtain by extending it (since I am, for instance, the owner of a good that could well become a

tradable item, like tantalum when mobile phones appeared) and the cost of doing so, a both physical (corresponding to the production of the product or operations on a distant market) and non-physical (corresponding to the local clientele's acquisition of trust in a new and unknown product or a distant clientele's trust in a known product) cost. Well, if the costs of the two ways of extending the market are small, which could be the case thanks to <u>netweaving</u> on the Internet, the incentive provided by private ownership for the purpose of extending the market to a given size does not have to be too high, so that private ownership is less necessary or could be redefined in a less rigid manner. In the limit, a strange way of seeing things that economists share with mathematicians, ownership does not appear to be necessary for the market to perform what I have called the epistemic function. It is questionable, then, whether all things will have a positive price and some end products may be free of cost, something that is technologically feasible thanks to the enormous increasing returns to scale that will affect the production of these mass commodities. <u>Free of cost</u> may cease to be an unimportant conceptual category and appear as the distinctive sign of the foreseeable future. In this future, there are certain touches of abundance which lead us to question, initially, not only the functionality of private ownership, but the functionality of the State, or of the market itself as a way of rationing scarcity, as we shall immediately see.

Let us now turn our attention to <u>gratuitousness.</u> Consider, for instance, three genuine gratuitous acts which cannot be explained by the logic of scarcity and its rational functionality and which are three ways of using human energy subject to another logic, possibly of abundance, guided by an expressive rationality indicative of who one wants to be or the community to which one wants to belong. Let us consider language, potlach and the "frontier" or colonisation of the American west. The three things share the fact that they are a feast of over-abundance. Consider potlach as a generic term covering many different American tribal practices described by anthropologists, observing the practice consisting of ritually and collectively destroying the goods produced together by the group. There is also something of this in the ease with which language reconstructs syntax, changes semantic content and leads to the proliferation of a thousand different forms in its pragmatics. Like potlach, it is something collective that we do without thinking, wasting a great deal of social energy. Finally, consider the "frontier" spirit: the colonisation of virgin land was also a collective process, with no pre-conceived plan and wasting both lives, land and collective energy.

What interest can these three social phenomena, which I have arbitrarily and gratuitously placed into the same package, have for an economist? In a first approach to gratuity, on which the idea of <u>free of cost</u> is based, I have just said that the reduction of the costs of extending the market can enlarge it so much that we could imagine the disappearance of private ownership, the State and the market itself as institutions linked to the logic of scarcity, or paying tribute to need, since they perform no function in a situation of over-abundance governed by a different logic. What I want to explain now is that in the past, when the Internet had not reduced the costs of extending the market (both the physical costs and those associated to the acquisition of trust), markets had to be extended <u>gratuitously</u>. Indeed, extending the market system means having access to new territories to be able to produce more of the old goods or new goods, for more people; but it also means creating a new language to understand the new goods, or the new individuals making up the more extended market; and finally, it means winning the trust of the new individuals accessing trade. But this market extension cannot be carried out simply through the presence of a private ownership which, although it governed, in the reduced market we now wish to extend, the relationship among the individuals and between these and the State that protected it, did not affect the new economic agents that the market is now accessing. Extending the market is not a market problem, it is something complicated which, initially, requires gratuitous and risky acts, since one is entering virgin territory where no-one guarantees that what I produce or purchase is mine. Oddly enough, language, "frontier" and potlach perform the epistemic function of the market, its unprecedented capacity to aggregate information and react correctly to it, without the need for private ownership or a protective State. The colonisation of the "frontier" provides access to new pastures or new farm land, language gives access to new meanings which help to form a community organised around the collective

destruction of energy and hierarchically structured according to the generosity of gifts or self-destruction. The incentives necessarily associated to private ownership do not work here; the contacts, transactions and production required to extend the market are gratuitous, by instinct in the case of language, by pioneer spirit in the case of the "frontier", and by the suicidal impulse of self-destruction in the case of potlach. And this gratuity does not need State protection; it is not on the defensive but on the offensive, attacking and normally coming up against resistance.

However, this gratuitously obtained market extension is not eternal. The luxury of the "frontier" spirit, the wasting of resources, or the instinct of language are not eternal, like the sun. A time arrives when the cost of the extension increases and, if it is to continue, it needs more tangible incentives associated to private ownership. I no longer destroy my own wealth to demonstrate my power, and my pioneer spirit has nowhere to flourish. The only thing that remains is the language instinct which is now used to reinvent private ownership and the State. The ugly head of scarcity has reared up again and the collective and gratuitous spirit only subsists in language; order prevails once more.

Before going on to discuss what is _free_, as a third category of gratuity, I would like to consider one lesson we have learned from our thoughts on gratuitousness or waste. If globalisation is an attempt to extend the market, given private ownership, beyond the limits marked by the new information and communication technologies, we cannot expect it to do so with the same language, without the "frontier" spirit or heavy expenditure to gain authority and trust. But this is how we are going about it. We should not be surprised, then, that the anti-globalisation movements need a new language, combat a false non-participative pioneer spirit and represent destruction for the sake of it. We refer to them as irrational; but perhaps they are unwilling to behave with the functional rationality typical of need and are driven by an expressive and spectacular rationality typical of abundance, of too much energy. If this discourse made sense, the confrontation with anti-globalisation movements would only be successful when globalisers are willing to share and create words, to work together in new fields and to respond to violence with the mass destruction of their own wealth. If this was to occur, private ownership would return and a more global State would arise to protect the new order. I get the impression that shortcuts are useless; but I will return to this in the fourth and final part of this assay on the capitalism to come.

These ideas may seem to be mere speculation but, if we open our eyes, we can recognise them at the very heart of the technological revolution that we are experiencing. The revolution of the so-called ICTs is led not by hardware, which is finally adapted, but by the development of software. The war in software development is between alternative strategies. On the one hand, the strategy of proprietary software defending the private ownership of the software developed by a firm's programmers, that is their patentability or copyright together with the non-disclosure of their source and, on the other, the free software strategy organised in a libertarian movement defending access to the source of any programme and the obligation to reveal said source or, in their own words, to establish the copyleft. This war is no joke, and the plausible victory of free software movement, or open source movement, has been used by the lawyers defending Microsoft in its historical lawsuit for non-competitive practises.

What I find interesting is that this movement, which is already quite institutionalised, is the perfect representation of the aspect of gratuity that I have called _free_. Far from accepting that an improvement to the source-code, or its very creation, can be protected by a copyright which, although its applications can be used under license, does not allow for the free examination of this source-code, the movement is organised to create a free software statute, according to which the source created by any member of the movement can be transmitted under a GPL (General Purpose License), by which it cannot become privately owned by users and possibly improved, in which case it is made available once again as free software.

The history of this movement is well known and significant. Before the early 1970's, each physical computer had its own operative system, and the compatibility problem was without solution. This defect gave rise to the appearance of hackers, a

series of interested users who introduce their own programme into their own machine for purposes of their own. The UNIX project changed all this. It is a modular concept enabling the easy adaptation of programmes to different hardware models. It saw the light in ATT (Unix System Labs), but was transferred to the University of California, Berkeley and improved by university hackers until Berkeley Software Distribution (BSD) was developed. The battle between ATT and Berkeley was the starting point for everything that followed. ATT represents the development of proprietary software, an innovation process under the logic of scarcity with its private ownership defended by the State. Berkeley (where the free speech movement had arisen 20 years earlier) represents the free development of software in a community of privileged users who share all their innovations, neither charging for them nor protecting them with private ownership or copyright. This battle was taken to court and, as usual, both of them suffered from it. But in the meantime, in the mid-80's, Richard Stallman, a programming genius, created the Free Software Foundation (FSF) and the GNU project (a recursive acronym saying "GNU's not UNIX"). Stallman and his friends are attempting to construct a luxury operative system in the UNIX style (but not UNIX) based on free software. "An operative system enables us to do many things. An operative system would enable a hackers' community to work in a cooperative manner". Events then took hold and Stallman and Linus Torvald joined forces to create the GNU/LINUX system which is a true competitor for Microsoft. We can also suggest that it is winning the war, since it has been adopted by much of the public sector in Europe.

This brief summary helps us to realise that the free software movement is the perfect example of something that is free and also corresponds to the way of extending the market gratuitously, as I described earlier. We don't need much imagination to recognise that the policy of this movement represents a spontaneous desire for freedom similar to what drives the creation of language; they are, after all, creating language; that is precisely what they are doing. Also evident is the pioneer spirit driving hackers and the sacrificial aspect behind Stallman and Torvald's encumbrance as heads of the movement; they are its leaders because they are giving a great deal and giving up a great deal. But it is also true that, once gratuity has done its work, we return to the reign of necessity. This is occurring, for instance, in Red Hat, a company which, although it belongs to the movement, is applying a reasonable charge for some of its applications. Gradually, the movement is starting to appear as a normal company with trade prices, private ownership and the use of non-State controls.

To end this section and complete this chapter in which we contemplate private ownership as essential for capitalist development, we should now return our attention to the patronage phenomenon as a case of apparent gratuity in the form of a gratuitous and apparently irrational act. I will attempt to show, unlike the usual opinions on the subject, that patronage does not represent the culmination of the civil society that is so often referred to nowadays, but can be considered as a gratuitous way of creating markets or influencing institutions. The following is based on several prior articles that I will attempt to summarise here[10].

As an introduction to the subject of patronage, it may be a good idea to disassociate it from what is now known as Corporate Social Responsibility. The corporate scandals arising from the bursting of the dotcom bubble (from Enron to Parmalat and including Worldcom), the recent but intense environmental sensitivity of many organisations and associations, and the growing concern for working conditions, especially for children, have encouraged this attitude in corporations that need to obtain good qualifications in the area in order not to be penalised by increasingly important ethical funds, funds which, in spite of the limitations they themselves impose on their investments, show no systematic fall in the quality of their performance. Many corporations hope that they will comply with their Corporate Social Responsibility by providing patronage in one way or the other.

This patronage is part of what Boulding once called the Grants Economy, a set of unilateral exchanges driven by generosity and not interest. Within this general label of Grants Economics we would place what has been given the name of the Third Sector,

which is neither related to the State like the public sector, nor aims at a profit, like a firm in the private sector. The qualitative determination of this Third Sector is not easy, but different studies conducted in recent years[11] lead me to suggest that 0.5% of the GDP is the maximum size of this sector world-wide. Since patronage is generally associated to culture, and private donations are not the major source of financing in this sub-sector, I don't believe I am far wrong if I say that patronage in itself, as part of the Third Sector, represents under 0.20% of the GDP on a world-wide scale. It is not an activity, therefore, worthy of great economic attention, barring the fact that it is related to gratuity and points us towards some general principles that I believe may have an impact on the capitalism to come.

A standard definition of patronage is provided by Cánovas in an article in the issue of Economía Industrial mentioned in footnote 10. This author says that patronage is the "protection altruistically provided by an individual or organisation to culture and art". I would like to distinguish between Domesticated Patronage and Rebellious Patronage, depending on whether it is related to an administrative or anthropological concept of culture. The former is related to conventional cultural services (the opera, for instance) and cultural assets (such as an oil painting), whereas the latter refers to the uses, beliefs, institutions or language forms generated by man's capacity to form communities, generating a culture medium without which mankind could not live in society. In domesticated culture, patronage can be understood as a way of mitigating the market failures typical of cultural goods, whereas in a rebellious culture, this patronage would be more related to the desire to support or hinder the evolution of uses, institutions, beliefs and "memes" in general. We will now consider how patronage is related to these two types of culture in more detail.

When we consider the cultural services or assets associated to the administrative culture, we have to study how the markets providing these goods work. They are usually modelled as follows. On the production side, we model a constant returns technology with a productivity growth rate much lower than is applied to the production of other types of good, a phenomenon known as the cost disease, or the Baumol effect, to honour its discoverer. On the consumption side, we generally assume Cobb-Douglas utility functions defined not in relation to the services or assets themselves but to the generic attributes that they represent (music in the case of opera, painting in the other case) and which can only be obtained by minimal doses of their consumption which, in turn, evolve increasingly with the habit created by their consumption. Both the cost disease and habit-forming explain some important features of these markets. Habit-forming explains why we have to distinguish between the short and long terms when we refer to the equilibrium of these markets and how, in the short term, there is an opportunity to broaden then by fostering habit-forming. On the other hand, the cost disease implies that, if we want society to maintain a constant proportion of cultural consumption, expenditure on the production of cultural goods in relation to expenditure on the production and consumption of other types of good has to increase constantly with subsequent financing problems. If we now consider, as is often the case, that culture is a merit-good that the market underproduces, it is easy to accept an explanation of patronage which has nothing to do with generosity. Indeed, in order to maintain relative expenditure on culture, the State provides tax benefits for private or corporate patrons so that they can cover part of the necessarily growing grants required. These patrons agree to play this role for two basic reasons. First, it can help to form habits and this is an important part of the creation of markets which may generate a profit for the patrons in the future. Secondly, patronage is something that distinguishes the individual or corporation that practices it (it gives distinction) and allows them to belong to the elite among music or painting "connoisseurs", to continue with our examples. In other words, patronage "buys" reputation. If, moreover, one wishes to consolidate that reputation, it is possible to do so by establishing a Foundation with non-recoverable capital.

If we now turn our attention to rebellious culture, we need to understand how the cultural "memes" arise on which a patron may act. The best way of understanding the emergence of "memes" or behavioural patterns identifying a certain community is to consider that they are the result of the dynamics of a population in which an evolutive game develops with behavioural patterns evolving according to their results when used in

a static game between sub-sets (generally couples) of the population. The equilibrium of these games can be an equilibrium in evolutionary stable strategies of the static game (protected from the invasion of mutants) or an evolutionary stable equilibrium (or the "meme" to which the dynamics of these patterns in the population tend) or a Nash equilibrium of the static game. What is interesting is that the evolutive game can end by reaching an equilibrium which is not protected against the invasion of mutating patterns, in which case, it would be possible to start an invasion of new patterns, putting an end to the previous equilibrium and taking the population to a new one. Whoever started such an invasion could be considered as a <u>sui generis</u> patron.

It is this strange figure of the rebellious patron, who is in any case related to the figure of the master to which I referred elsewhere[12], that I find most interesting in relation to the capitalism to come. The domesticated patron may cover a questionable Corporate Social Responsibility and could well become a figure with a reputation for supporting cultural consumption and spreading its potential civilising effect, but it has nothing to do with gratuity or the possible disappearance of the need for private ownership. However, the rebellious patron could become someone with influence on society derived from the configuration or destruction of "memes", someone who is much like our "frontier" pioneer, member of the free software movement or ritual destroyer of his own wealth.

NOTES:

[1] It is conventional to consider that K. Arrow, together with G. Debreu, is the father of General Competitive Equilibrium Theory or the contemporary version of the Neoclassic Value Theory. See Arrow, K and G. Debreu (1954).

[2] The work by Mirowski quoted in the REFERENCES was recently presented at the seminar of the Spanish chapter of the SIAME (Sociedad Iberoamericana de Metodología Económica). It was written as a tribute to Feyerband, who is praised as a philosopher of science committed to science not being isolated from political power relations.

[3] See Arrow, K (1962).

[4] See Urrutia (2003 a).

[5] See Boldrin and Urrutia.

[6] If the copy really was cost free, the author, in the absence of copyright, would obtain no returns for his invention and it could not be appropriated. See Quah

[7] This idea, which was originally considered to be practically heretic, is gradually finding its way to orthodoxy. In the April, 2004 issue of The Economist, there is a summary of a book by Lawrence Lessig which is very significant in this respect, starting with its title: Killing Creativity. The book's main argument is that the exaggerated extension of copyright over time and the exaggerated extension of protection to many goods and services is on its way to creating a "Culture of concession" instead of a "free culture" in which creativity would flourish.

[8] There is a fourth characteristic that is only indirectly related to ownership, but is directly related to access to scientific results. Initially such results are public; but access to them is limited by the business model of scientific publishers. Until very recently, the readers of scientific magazines paid for access to their content, either in print or in electronic format. The authors merely transferred their copyright to the publisher in question; but they are now going to have to pay to be read. According to PLoS (Public Library of Science), access will be free and for this to happen, the costs will have to paid either by the authors or the institutions for which they work. This reminds us of the Open Source Movement in the software field. In both cases we apparently find cases of gratuity, but they both show that what is happening is that technological changes are transferring payment to someone other than the user or into the future; to the creator in the case of science, and towards the future in the case of open source producers.

[9] The following is practically a literal version of three articles published in EXPANSION in the summer of 2001 and included in Economía en Porciones: "Lo Libre", Lo Gratuito" and "Lo Gratis". See Urrutia (2003 a)

[10] Urrutia (1989), Urrutia (1996 a) and Urrutia (1996 b)

[11] See Salamon y Anheir and the BBVA Foundation publication

[12] Contemplated in Urrutia (2003 e)

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TABLES & PLOTS

TABLES:

- A1A: Spanish CPI desaggregation.
- A1B: EMU HICP desaggregation.
- A1C: USA HICP desaggregation
- A2: Europe forecast errors for euro-zone and Monetary Union countries.
- A3: HICP Europe forecast errors by sectors in Monetary Union.
- A4A: Harmonized Consumer Price Index (HICP) Annual Growth Rates for 2003,2004, and 2005 for EMU. countries.
- A4B: Harmonized Consumer Price Index (HICP) Annual Growth Rates for 2003,2004, and 2005 for EMU countries.
- A4C: Harmonized Consumer Price Index (HICP) Monthly Growth Rates for 2003,2004, and 2005 for EMU countries.
- A4D: Harmonized Consumer Price Index (HICP) Monthly Growth Rates for 2003,2004, and 2005 for EMU countries.
- A5A: Harmonized Consumer Price Index (HICP) Annual Growth Rates by sectors for 2003,2004, and 2005 for EMU.
- A5B: Harmonized Consumer Price Index (HICP) Monthly Growth Rates for 2003,2004, and 2005 for EMU.
- A6A: US CPI Annual Growth Rates for 2003,2004, and 2005.
- A6B: US CPI Monthly Growth Rates for 2003,2004, and 2005.
- A7A: Spanish CPI Annual Growth rates for 2003,2004, and 2005.
- A7B: Spanish CPI Monthly Growth rates for 2003,2004, and 2005.

PLOTS:

- A1A: HICP monthly growth rates in EMU.
- A1B: CPI monthly growth rates in US.
- A1C: CPI monthly growth rates in Spain
- A2A: Annual Forecast For The EMU Inflation
- A2B: Annual Forecast For The USA Inflation
- A2C: Annual Forecast For The Spanish Inflation

METHODOLOGY: ANALYSIS OF SPANISH INFLATION BY SECTORS

BASIC COMPONENTS AGGREGATES	BASIC COMPONENTES	BASIC COMPONENTS AGGREGATES

BENE
48.230%
1 + 2 + 4

AE
17.175%
1 + 4

IPSEBENE
82.284%
1 + 2 +3 +4 + 5

(1) AE-X
13.731%
processed food excluding fats and tobacco CPI.

(2) MAN
30.053%
non-energy industrial goods CPI

(3) SERV-T
33.815%
services excluding packages tourist CPI

(4) X
3.046%
fats and tobacco CPI

(5) T
1.149%
tourist packages CPI

(6) ANE
9.398%
non-processed food CPI

(7) ENE
9.142%
energy CPI

BENE-X
43.784%
1 + 2

IPSEBENE-X-T
77.599%
1 + 2 + 3

R
22.404%
4 + 5 + 6 + 7

IPC
1 + 2 + 3 + 4 + 5 + 6 + 7

CORE INFLATION
IT IS CALCULATED ON THE IPSEBENE INDEX

RESIDUAL INFLATION
IT IS CALCULATED ON THE R INDEX

TREND INFLATION
IT IS CALCULATED ON THE IPSEBENE-X-T INDEX

GLOBAL INFLATION
IT IS CALCULATED ON THE IPC INDEX

IPC = 0.13731 **AE-X** + 0.30153 **MAN** + 0.33725 **SERV- T** + 0.03046 **X** + 0.01149 **T** + 0.09398 **ANE** + 0.09142 **ENE**   **(weights 03)**

Source: INE & Instituto Flores de Lemus, Universidad Carlos III

Methodology: *Analysis of EMU inflation by SECTORS*

BASIC COMPONENTS AGGREGATES	*BASIC COMPONENTS*
IPSEBENE *84.178%* **1 + 2 +3 + 4** **BENE** *42.845%* **1 + 2 + 3** **RESIDUAL INFLATION** *15.822%* **5 + 6** *CORE INFLATION* (IT IS CALCULATED ON THE IPSEBENE INDEX)	**(1) AE** [a] *9.463%* HICP Processed Food **(2) TOBACCO** *2.373%* HICP Tobacco **(3) MAN** *31.009%* HICP Non Energy Industrial Goods **(4) SERV** *41.334%* HICP Services **(5) ANE** *7.689%* HICP Non processed Food **(6) ENE** *8.133%* HICP Energy
IPCA = 0.09463 **AE** + 0.02373 **TOBACCO** + 0.31009 **MAN** + 0.41334 **SERV** + 0.07689 **ANE** + 0.08133 **ENE**	

(a) To date the aggregate AE, following Eurostat methodology, included tobacco prices. From now on, our definition of AE, processed food, is more accurate and does therefore not include tobacco prices.

Source: EUROSTAT & Instituto Flores de Lemus, Universidad Carlos III

Methodology: *Analysis of USA inflation by SECTORS*

BASIC COMPONENTS AGGREGATES		*BASICS COMPONENTS*
CORE CPI *78.54%* **1 + 2 +3+4+5**	**SERVICES LESS ENERGY** *56.28%* 1+2	**(1) OWNERS' EQUIVALENT RENT OF PRIMARY RESIDENCE** *23.38%*
		(2) SERVICES LESS OWNER' EQUIVALENT RENT OF PRIMARY RESIDENCE *32.90%*
	COMMODITIES LESS FOOD AND ENERGY *22.25%* 3+4+5	**(3) TOBACCO** *0.81%*
		(4) NON DURABLES LESS TOBACCO *10.17%*
		(5) DURABLES *11.28%*
RESIDUAL CPI *21.46%* **6 +7 +8 +9**		**(6) FOOD** *14.38%*
	ENERGY *7.08%* **7 + 8+9**	**(7) GAS** *1.17%*
		(8) ELECTRICITY *2.43%*
		(9) MOTOR FUEL AND FUEL OIL *3.48%*
HIPC =0.5628(SERV. – ENERGY) + 0.2225(COMM. - FOOD AND ENERGY) + 0.1438FOOD + 0.0708ENERGY		

Source: EUROSTAT & Instituto Flores de Lemus, Universidad Carlos III

Table A2

FORECAST ERRORS IN THE MONTHLY INFLATION RATE FOR APRIL IN THE EUROPEAN UNION

	Weights 2004 MU	Weights 2004 EU	Observed Monthly Rate	Forecast	Observed Annual Rate	Confidence Intervals at 80%
Spain	111.07		1.39	1.12	2.74	± 0.15
Germany	292.58		0.27	0.04	1.66	± 0.29
Austria	31.43		-0.09	0.03	1.54	± 0.37
Belgium	33.18		0.53	-0.14	1.69	± 0.32
Finland	15.65		0.00	-0.01	-0.35	± 0.37
France	206.97		0.27	0.22	2.36	± 0.20
Greece	26.55		0.38	0.35	3.09	± 0.78
Netherlands	52.90		0.33	0.38	1.48	± 0.33
Ireland	12.86		0.31	0.50	1.66	± 0.30
Italy	192.65		0.76	0.77	2.31	± 0.23
Luxembourg	2.73		0.51	-0.07	2.70	± 0.32
Portugal	21.43		0.97	0.80	2.38	± 0.66
Denmark		11.78	0.09	0.09	0.52	± 0.27
United Kingdom		181.92	0.36	0.00	1.19	± 0.33
Sweden		18.65	0.26	0.00	1.07	± 0.50

(1) aggregation error -0.03%

(2)aggregation error -0.08%

Source: EUROSTAT, IFL & UC3M

Date: May 18, 2004

Table A3					

FORECAST ERRORS IN THE MONTHLY INFLATION RATE FOR APRIL 2004 BY SECTORS IN THE EMU

	Weights 2004	Observed Monthly Growth	Forecast	Annual Growth Observed	Confidence interval at 80%
HICP Processed Food	118.36	0.17	0.16	3.93	± 0.14
HICP Processed Food excluding tobacco	94.63	0.09	0.17	1.66	± 0.09
HICP Tobacco	23.73	0.45	0.10	13.13	± 0.13
HICP Non Energy Industrial Goods	310.09	0.75	0.62	0.94	± 0.10
HICP Non Energy Processed Goods	428.45	0.59	0.49	1.76	± 0.09
HICP Services	413.34	0.34	0.39	2.50	± 0.14
CORE INFLATION (1)	841.78	0.44	0.44	2.06	± 0.08
HICP Unprocessed Food	76.89	0.33	0.28	1.60	± 0.46
HICP Energy (2)	81.33	1.06	1.40	1.97	± 0.60
RESIDUAL INFLATION (3)	158.22	0.74	0.86	1.83	± 0.39
GLOBAL INFLATION (4)	1000.00	0.43	0.51	2.03	± 0.09
(1) aggregation error 0.02%					
(2) aggregation error -0.03%					
(3) aggregation error 0.04%					
(4) aggregation error -0.09%					

Source: EUROSTAT , IFL & UC3M

Date: May 18, 2004

Table A4A

HARMONIZED CPI (HICP) ANNUAL GROWTH FOR EMU COUNTRIES   (1)

	EMU12		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Avr 03/02(b)	Avr 04/03(b)	Avr 05/04(b)
Spain HICP	11.11%	2003	3.8	4.2	4.1	3.1	2.8	2.6	2.5	2.5	2.4	2.6	2.8	2.7	3.1		
		2004	2.3	2.2	2.2	2.7	**3.2**	**3.4**	**3.3**	**3.1**	**3.2**	**3.3**	**3.2**	**3.2**		2.9	
		2005	**3.3**	**3.3**	**3.4**	**2.9**	**2.8**	**2.6**	**2.6**	**2.7**	**2.7**	**2.8**	**2.8**	**2.8**			2.9
Germany HICP	29.26%	2003	0.9	1.2	1.2	1.0	0.6	0.9	0.8	1.1	1.1	1.1	1.3	1.1	1.0		
		2004	1.2	0.8	1.1	1.7	**2.2**	**2.1**	**2.1**	**1.9**	**1.9**	**2.0**	**2.0**	**2.0**		1.7	
		2005	**1.6**	**1.6**	**1.4**	**1.2**	**0.9**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**			1.1
Austria HICP	3.14%	2003	1.7	1.8	1.8	1.3	0.9	1.0	1.0	1.0	1.4	1.1	1.3	1.3	1.3		
		2004	1.2	1.5	1.5	1.5	**1.6**	**1.6**	**1.6**	**1.6**	**1.5**	**1.6**	**1.5**	**1.5**		1.5	
		2005	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**			1.5
Belgium HICP	3.32%	2003	1.2	1.6	1.7	1.4	0.9	1.5	1.4	1.6	1.7	1.4	1.8	1.7	1.5		
		2004	1.4	1.2	1.0	1.7	**2.4**	**2.3**	**2.4**	**2.1**	**2.2**	**2.3**	**2.2**	**2.2**		1.9	
		2005	**2.6**	**2.5**	**2.6**	**2.3**	**2.2**	**2.1**	**2.2**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**			2.2
Finland HICP	1.57%	2003	1.4	2.1	1.9	1.3	1.1	1.2	1.0	1.2	1.2	0.9	1.2	1.2	1.3		
		2004	0.8	0.4	-0.4	-0.4	**-0.3**	**-0.2**	**0.1**	**0.0**	**-0.1**	**-0.1**	**0.0**	**0.0**		0.0	
		2005	**0.2**	**0.0**	**0.3**	**0.3**	**0.4**	**0.4**	**0.6**	**0.5**	**0.4**	**0.5**	**0.5**	**0.5**			0.4
France HICP	20.70%	2003	1.9	2.5	2.6	1.9	1.8	1.9	1.9	2.0	2.3	2.3	2.5	2.4	2.2		
		2004	2.2	1.9	1.9	2.4	**2.8**	**2.8**	**2.8**	**2.6**	**2.4**	**2.4**	**2.4**	**2.5**		2.4	
		2005	**2.2**	**2.1**	**2.1**	**2.0**	**1.8**	**1.7**	**1.7**	**1.7**	**1.8**	**1.8**	**1.8**	**1.8**			1.9
Netherlands HICP	5.29%	2003	2.7	2.9	2.8	2.2	2.3	2.1	2.1	2.2	2.0	1.9	2.0	1.6	2.2		
		2004	1.5	1.3	1.2	1.5	**1.5**	**1.7**	**1.6**	**1.6**	**1.7**	**1.8**	**1.9**	**2.1**		1.6	
		2005	**2.2**	**2.2**	**2.3**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**			2.3
Ireland HICP	1.29%	2003	4.7	5.1	4.9	4.6	3.9	3.8	3.9	3.9	3.8	3.3	3.3	2.9	4.0		
		2004	2.3	2.2	1.8	1.7	**1.9**	**2.0**	**2.0**	**1.9**	**2.0**	**2.1**	**2.1**	**2.2**		2.0	
		2005	**2.4**	**2.4**	**2.6**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**			2.6
Italy HICP	19.26%	2003	2.9	2.6	2.9	3.0	2.9	2.9	2.9	2.7	3.0	2.8	2.8	2.5	2.8		
		2004	2.2	2.4	2.3	2.3	**2.5**	**2.6**	**2.6**	**2.7**	**2.5**	**2.7**	**2.8**	**2.9**		2.6	
		2005	**3.4**	**3.1**	**3.0**	**3.0**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**	**2.9**			3.0
Luxembourg HICP	0.27%	2003	3.3	3.2	3.7	3.0	2.3	2.0	1.9	2.3	2.7	1.8	2.0	2.4	2.5		
		2004	2.3	2.4	2.0	2.7	**2.9**	**3.0**	**3.6**	**3.0**	**2.6**	**2.9**	**2.8**	**2.8**		2.8	
		2005	**3.2**	**2.2**	**2.4**	**2.3**	**2.5**	**2.6**	**3.0**	**2.6**	**2.4**	**2.8**	**2.7**	**2.6**			2.6
Portugal HICP	2.14%	2003	4.0	4.1	3.8	3.7	3.7	3.4	2.9	2.9	3.2	2.8	2.3	2.3	3.3		
		2004	2.2	2.1	2.2	2.4	**2.4**	**2.6**	**2.8**	**2.8**	**2.6**	**2.7**	**3.0**	**3.1**		2.6	
		2005	**3.2**	**3.2**	**3.2**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**			3.1
Greece HICP	2.65%	2003	3.3	4.2	3.9	3.3	3.5	3.6	3.5	3.3	3.3	3.2	3.5	3.1	3.5		
		2004	3.1	2.6	2.9	3.1	**3.0**	**3.1**	**3.3**	**3.3**	**3.1**	**3.0**	**3.0**	**2.9**		3.0	
		2005	**3.0**	**3.1**	**2.8**	**2.8**	**2.7**	**2.7**	**2.9**	**2.9**	**2.7**	**2.7**	**2.7**	**2.6**			2.8

* The annual rate of growth reflects fundamental changes in prices with respect to monthly growth rates
(1) Figures in bold type are forecasted values.
(2) Annual average rate of growth.

Source: EUROSTAT, IFL & UC3M
Date: May 19, 2004

Table A4B

HARMONIZED CPI (HICP) ANNUAL GROWTH FOR EU COUNTRIES (1)

	EU15		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	*Avr 03/02(b)*	*Avr 04/03(b)*	*Avr 05/04(b)*
Denmark HICP	1.18%	2003	2.6	2.9	2.8	2.5	2.1	2.0	1.8	1.5	1.7	1.1	1.4	1.2	2.0		
		2004	1.0	0.7	0.0	0.5	**1.1**	**1.1**	**1.3**	**1.4**	**1.2**	**1.6**	**1.5**	**1.6**		**1.1**	
		2005	**1.7**	**1.8**	**2.2**	**2.0**	**1.9**	**2.0**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**			**1.9**
UK HICP	18.19%	2003	1.4	1.6	1.6	1.5	1.2	1.1	1.3	1.4	1.4	1.4	1.3	1.3	1.4		
		2004	1.4	1.3	0.9	1.2	**1.4**	**1.6**	**1.3**	**1.3**	**1.4**	**1.3**	**1.3**	**1.3**		**1.3**	
		2005	**1.2**	**1.2**	**1.5**	**1.4**	**1.4**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**			**1.3**
Sweden HICP	1.87%	2003	2.6	3.3	2.9	2.3	2.0	2.0	2.4	2.2	2.3	2.0	2.0	1.8	2.3		
		2004	1.3	0.2	0.4	1.1	**1.2**	**1.3**	**1.3**	**1.4**	**1.3**	**1.3**	**1.4**	**1.4**		**1.1**	
		2005	**1.6**	**1.9**	**1.7**	**1.5**	**1.5**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**			**1.6**

* The annual rate of growth reflects fundamental changes in prices with 6 months lags with respect to monthly growth rates.

(1) Figures in bold type are forecasted values.

(2) Annual average rate of growth.

Source: EUROSTAT, IFL & UC3M

Date: May 19, 2004

Table A4C

HARMONIZED CPI (HICP) MONTHLY GROWTH FOR EMU COUNTRIES (1)

	EMU12		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	D03 / D02	D04 / D03	D05 / D04
Spain HICP	11,11%	2003	-0.4	0.2	0.8	0.8	-0.1	0.1	-0.6	0.5	0.2	0.7	0.3	0.2	2.7		
		2004	-0.8	0.1	0.7	1.4	**0.4**	**0.3**	**-0.7**	**0.2**	**0.4**	**0.8**	**0.3**	**0.2**		**3.2**	
		2005	**-0.7**	**0.0**	**0.8**	**0.9**	**0.3**	**0.1**	**-0.6**	**0.3**	**0.4**	**0.8**	**0.3**	**0.2**			**2.8**
Germany HICP	29.26%	2003	-0.1	0.6	0.2	-0.3	-0.3	0.2	0.3	0.1	-0.2	-0.1	-0.2	0.9	1.1		
		2004	0.0	0.2	0.5	0.3	**0.2**	**0.1**	**0.3**	**-0.1**	**-0.1**	**-0.1**	**-0.2**	**1.0**		**2.0**	
		2005	**-0.5**	**0.2**	**0.2**	**0.1**	**0.0**	**0.1**	**0.3**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**1.0**			**1.0**
Austria HICP	3.14%	2003	0.2	0.2	0.3	-0.1	-0.2	0.0	-0.1	0.3	0.3	0.0	0.2	0.3	1.3		
		2004	0.1	0.5	0.4	-0.1	**-0.1**	**-0.1**	**-0.1**	**0.3**	**0.2**	**0.1**	**0.1**	**0.3**		**1.5**	
		2005	**0.1**	**0.4**	**0.3**	**-0.1**	**-0.1**	**0.0**	**-0.1**	**0.3**	**0.2**	**0.1**	**0.1**	**0.3**			**1.5**
Belgium HICP	3.32%	2003	-1.0	2.1	0.3	-0.2	-0.4	0.4	-1.2	1.7	0.2	-0.4	0.2	0.0	1.7		
		2004	-1.3	1.9	0.1	0.5	**0.3**	**0.2**	**-1.1**	**1.5**	**0.2**	**-0.3**	**0.1**	**0.0**		**2.2**	
		2005	**-1.0**	**1.8**	**0.2**	**0.3**	**0.2**	**0.2**	**-1.0**	**1.4**	**0.2**	**-0.2**	**0.1**	**0.0**			**2.1**
Finland HICP	1.57%	2003	0.2	0.9	0.4	-0.1	-0.1	-0.1	-0.5	0.2	0.5	-0.1	-0.1	0.1	1.2		
		2004	-0.3	0.4	-0.4	0.0	**0.0**	**0.0**	**-0.3**	**0.1**	**0.3**	**0.0**	**0.0**	**0.1**		**0.0**	
		2005	**-0.1**	**0.3**	**-0.2**	**0.0**	**0.0**	**0.0**	**-0.1**	**0.1**	**0.2**	**0.0**	**0.0**	**0.1**			**0.5**
France HICP	20.70%	2003	0.3	0.7	0.5	-0.2	-0.1	0.2	-0.1	0.3	0.5	0.2	0.1	0.1	2.4		
		2004	0.1	0.4	0.4	0.3	**0.3**	**0.2**	**-0.1**	**0.1**	**0.2**	**0.2**	**0.1**	**0.2**		**2.5**	
		2005	**-0.2**	**0.4**	**0.4**	**0.2**	**0.1**	**0.1**	**-0.1**	**0.2**	**0.3**	**0.2**	**0.1**	**0.2**			**1.8**
Netherlands HICP	5.29%	2003	0.6	0.8	0.9	0.1	-0.1	-0.5	-0.1	0.2	0.8	-0.2	-0.4	-0.6	1.6		
		2004	0.5	0.6	0.8	0.3	**0.0**	**-0.4**	**-0.1**	**0.3**	**0.9**	**0.0**	**-0.3**	**-0.4**		**2.1**	
		2005	**0.5**	**0.6**	**0.9**	**0.4**	**0.0**	**-0.4**	**-0.1**	**0.3**	**0.9**	**0.0**	**-0.3**	**-0.4**			**2.4**
Ireland HICP	1.29%	2003	0.0	1.0	0.7	0.5	-0.2	0.1	-0.4	0.6	0.2	0.0	0.0	0.4	2.9		
		2004	-0.6	0.9	0.4	0.3	**0.1**	**0.2**	**-0.4**	**0.6**	**0.2**	**0.2**	**0.0**	**0.5**		**2.2**	
		2005	**-0.5**	**0.9**	**0.5**	**0.4**	**0.1**	**0.2**	**-0.4**	**0.6**	**0.2**	**0.2**	**0.0**	**0.5**			**2.7**
Italy HICP	19.27%	2003	-0.3	-0.4	1.2	0.8	0.2	0.1	-0.1	-0.3	0.8	0.3	0.3	0.0	2.5		
		2004	-0.6	-0.2	1.1	0.8	**0.4**	**0.2**	**-0.1**	**-0.2**	**0.6**	**0.5**	**0.4**	**0.1**		**2.9**	
		2005	**-0.1**	**-0.4**	**0.9**	**0.7**	**0.4**	**0.1**	**-0.1**	**-0.2**	**0.5**	**0.5**	**0.3**	**0.1**			**2.9**
Luxembourg HICP	0.27%	2003	-0.3	1.1	0.5	-0.2	-0.2	0.0	-0.8	1.2	0.7	-0.4	0.4	0.2	2.4		
		2004	-0.3	1.3	0.1	0.5	**0.0**	**0.1**	**-0.1**	**0.6**	**0.4**	**-0.1**	**0.3**	**0.2**		**2.8**	
		2005	**0.0**	**0.3**	**0.3**	**0.4**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**			**2.6**
Portugal HICP	2.14%	2003	0.1	0.0	0.1	0.8	0.7	0.0	-0.2	0.1	0.2	0.2	0.1	0.1	2.3		
		2004	0.0	-0.2	0.2	1.0	**0.8**	**0.2**	**0.1**	**0.1**	**0.1**	**0.3**	**0.4**	**0.1**		**3.1**	
		2005	**0.1**	**-0.1**	**0.3**	**0.9**	**0.7**	**0.2**	**0.1**	**0.1**	**0.1**	**0.3**	**0.4**	**0.1**			**3.1**
Greece HICP	2.67%	2003	-0.8	-0.2	2.5	0.2	0.5	-0.2	-2.1	0.0	2.0	0.4	0.4	0.4	3.1		
		2004	-0.8	-0.7	2.9	0.4	**0.4**	**-0.1**	**-1.9**	**0.0**	**1.8**	**0.3**	**0.3**	**0.3**		**2.9**	
		2005	**-0.8**	**-0.6**	**2.6**	**0.3**	**0.4**	**-0.1**	**-1.7**	**0.0**	**1.6**	**0.3**	**0.3**	**0.3**			**2.6**

(1) Figures in bold type are forecasted values.
(2) Annual average rate of growth.

HARMONIZED CPI (HICP) MONTHLY GROWTH FOR EU COUNTRIES (1)

	EU15		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	D03 / D02	D04 / D03	D05 / D04
Denmark HICP	**1.18%**	2003	0.2	0.7	0.8	0.0	-0.3	0.0	-0.6	-0.1	0.8	-0.3	0.2	-0.2	1.2		
		2004	-0.1	0.4	0.1	0.5	**0.3**	**0.0**	**-0.4**	**0.0**	**0.6**	**0.1**	**0.1**	**-0.1**		**1.6**	
		2005	**0.0**	**0.5**	**0.5**	**0.3**	**0.2**	**0.1**	**-0.4**	**0.0**	**0.6**	**0.1**	**0.1**	**-0.1**			**1.9**
UK HICP	**18.19%**	2003	-0.6	0.4	0.4	0.3	0.0	-0.1	-0.1	0.4	0.3	0.2	-0.1	0.4	1.3		
		2004	-0.5	0.3	0.0	0.5	**0.3**	**0.1**	**-0.3**	**0.3**	**0.3**	**0.1**	**0.0**	**0.3**		**1.3**	
		2005	**-0.6**	**0.3**	**0.2**	**0.4**	**0.3**	**0.0**	**-0.3**	**0.3**	**0.3**	**0.1**	**0.0**	**0.3**			**1.3**
Sweden HICP	**1.87%**	2003	0.3	1.0	0.6	-0.4	-0.1	-0.2	-0.2	-0.1	0.8	0.1	-0.3	0.2	1.8		
		2004	-0.3	-0.1	0.9	0.3	**0.1**	**-0.1**	**-0.2**	**0.0**	**0.6**	**0.1**	**-0.1**	**0.2**		**1.4**	
		2005	**-0.1**	**0.2**	**0.6**	**0.1**	**0.1**	**-0.1**	**-0.1**	**0.0**	**0.5**	**0.1**	**-0.1**	**0.2**			**1.6**

(1) Figures in bold type are forecasted values.
(2) Annual average rate of growth.

Table A5A

HARMONIZED CPI (HICP) ANNUAL GROWTH BY SECTORS IN THE EMU 2003-2004-2005 (a)

			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Avr 03/02(b)	Avr 04/03(b)	Avr 05/04(b)
AE	9.46%	2003	1.9	2.1	2.2	2.1	2.1	2.2	2.0	2.0	2.0	2.2	2.1	1.9	2.1		
		2004	1.9	1.9	1.7	1.7	1.7	1.7	1.8	1.9	1.9	1.8	1.9	2.0		1.8	
		2005	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2			2.2
TOBACCO	2.37%	2003	6.7	7.7	7.5	7.9	7.9	7.6	7.7	7.5	7.8	9.3	11.7	11.7	8.4		
		2004	9.0	8.3	13.9	13.1	14.1	14.1	14.1	14.1	13.9	12.5	10.0	9.8		12.2	
		2005	12.5	12.2	6.7	6.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4			6.7
MAN	31.01%	2003	0.7	0.8	0.8	0.8	0.9	0.9	0.8	0.7	0.8	0.8	0.8	0.8	0.8		
		2004	0.6	0.9	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0		0.9	
		2005	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			1.0
BENE	42.85%	2003	1.3	1.4	1.4	1.4	1.6	1.5	1.4	1.3	1.4	1.5	1.6	1.6	1.5		
		2004	1.3	1.5	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.7	1.7		1.7	
		2005	1.9	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5			1.6
SER	41.33%	2003	2.9	2.7	2.7	2.9	2.5	2.6	2.3	2.5	2.5	2.5	2.4	2.3	2.6		
		2004	2.5	2.7	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.5	2.6	2.6		2.5	
		2005	2.5	2.5	2.7	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			2.5
IPSEBENE	84.18%	2003	2.0	2.0	2.0	2.2	2.0	2.0	1.8	1.8	2.0	2.1	2.0	1.9	2.0		
		2004	1.9	2.0	2.1	2.1	2.1	2.2	2.2	2.3	2.1	2.1	2.1	2.1		2.1	
		2005	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			2.0
ANE	7.69%	2003	-0.7	0.3	0.8	0.9	1.1	2.6	2.8	3.3	4.2	3.8	3.8	3.2	2.2		
		2004	2.9	1.9	1.7	1.6	1.5	0.8	0.7	0.5	0.1	0.3	0.4	0.7		1.1	
		2005	0.9	1.4	1.5	1.6	1.6	2.0	2.0	2.2	2.4	2.2	2.2	2.1			1.8
ENE	8.13%	2003	5.9	7.6	7.5	2.2	0.6	1.6	2.0	2.7	1.6	0.8	2.3	1.8	3.0		
		2004	-0.3	-2.3	-2.0	2.0	6.4	7.1	6.9	5.7	5.8	6.0	6.1	6.2		3.9	
		2005	5.0	5.0	3.5	2.3	0.1	-0.7	-1.0	-1.0	-0.9	-0.8	-0.6	-0.5			0.8
HICP	100.00%	2003	2.1	2.4	2.4	2.1	1.8	1.9	1.9	2.1	2.2	2.0	2.2	2.0	2.1		
		2004	1.9	1.6	1.7	2.0	2.4	2.5	2.5	2.4	2.3	2.3	2.3	2.4		2.2	
		2005	2.3	2.4	2.1	2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8			1.9

Source: EUROSTAT, IFL & UC3M
Date: May 19, 2004

HARMONIZED CPI (HICP) MONTHLY GROWTH RATES BY SECTORS IN THE EMU 2003-2004-2005 (a)

			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	D03 / D02	D04 / D03	D05 / D04
AE	9.46%	2003	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.0	1.9		
		2004	0.2	0.2	0.0	0.1	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.1**		2.0	
		2005	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.1**			2.2
TOBACCO	2.37%	2003	4.2	1.0	0.1	1.2	0.1	0.1	0.1	0.1	0.3	1.4	2.3	0.3	11.7		
		2004	1.7	0.3	5.3	0.4	**1.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**		9.8	
		2005	**4.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**			5.4
MAN	31.01%	2003	-1.4	0.0	1.1	0.6	0.3	-0.2	-1.4	-0.1	1.1	0.6	0.3	-0.1	0.8		
		2004	-1.6	0.3	1.0	0.8	**0.2**	**-0.1**	**-1.4**	**-0.1**	**1.1**	**0.6**	**0.3**	**-0.1**		1.0	
		2005	**-1.5**	**0.2**	**1.1**	**0.7**	**0.2**	**-0.1**	**-1.4**	**-0.1**	**1.1**	**0.6**	**0.3**	**-0.1**			1.0
BENE	42.85%	2003	-0.8	0.1	0.9	0.5	0.3	-0.1	-1.0	0.0	0.9	0.5	0.3	0.0	1.6		
		2004	-1.0	0.3	1.1	0.6	**0.3**	**0.0**	**-0.9**	**0.0**	**0.8**	**0.5**	**0.2**	**0.0**		1.7	
		2005	**-0.8**	**0.2**	**0.8**	**0.5**	**0.2**	**0.0**	**-0.9**	**0.0**	**0.8**	**0.5**	**0.2**	**0.0**			1.5
SER	41.33%	2003	-0.2	0.3	0.2	0.3	0.0	0.3	0.6	0.3	-0.3	-0.1	-0.1	0.9	2.3		
		2004	0.0	0.5	0.0	0.3	**0.0**	**0.3**	**0.7**	**0.2**	**-0.3**	**-0.1**	**-0.1**	**0.9**		2.6	
		2005	**-0.1**	**0.5**	**0.2**	**0.0**	**0.2**	**0.3**	**0.7**	**0.2**	**-0.3**	**-0.1**	**-0.1**	**0.9**			2.5
IPSEBENE	84.18%	2003	-0.5	0.3	0.5	0.4	0.1	0.1	-0.2	0.1	0.4	0.3	0.1	0.4	1.9		
		2004	-0.5	0.4	0.6	0.4	**0.1**	**0.1**	**-0.1**	**0.1**	**0.3**	**0.2**	**0.1**	**0.4**		2.1	
		2005	**-0.4**	**0.3**	**0.5**	**0.3**	**0.2**	**0.1**	**-0.1**	**0.1**	**0.3**	**0.2**	**0.1**	**0.4**			2.0
ANE	7.69%	2003	1.4	0.3	0.5	0.4	0.3	0.6	-0.6	-0.4	1.2	-0.3	-0.2	0.0	3.2		
		2004	1.1	-0.7	0.3	0.3	**0.2**	**-0.1**	**-0.6**	**-0.6**	**0.8**	**-0.1**	**-0.1**	**0.3**		0.7	
		2005	**1.3**	**-0.1**	**0.4**	**0.4**	**0.2**	**0.2**	**-0.6**	**-0.5**	**1.0**	**-0.2**	**-0.2**	**0.2**			2.1
ENE	8.13%	2003	3.1	1.9	1.0	-2.9	-2.1	0.0	0.5	1.1	-0.1	-0.3	-0.2	-0.2	1.8		
		2004	1.0	-0.1	1.3	1.1	**2.2**	**0.7**	**0.3**	**0.0**	**0.0**	**-0.1**	**-0.1**	**-0.1**		6.2	
		2005	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**			-0.5
HICP	100.00%	2003	-0.1	0.4	0.6	0.1	-0.1	0.1	-0.1	0.2	0.4	0.1	0.1	0.3	2.0		
		2004	-0.2	0.2	0.7	0.4	**0.3**	**0.2**	**-0.1**	**0.1**	**0.3**	**0.1**	**0.1**	**0.4**		2.4	
		2005	**-0.3**	**0.3**	**0.5**	**0.3**	**0.2**	**0.1**	**-0.2**	**0.1**	**0.3**	**0.2**	**0.1**	**0.4**			1.8

Source: EUROSTAT, IFL & UC3M
Date: May 19, 2004

US ANNUAL RATES OF GROWTH ON CPI AND ITS COMPONENTS(1)

		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Avr 03/02(b)	Avr 04/03(b)	Avr 05/04(b)
Non energy commodities less food (1)	2003	-1.4	-1.5	-1.4	-1.8	-1.9	-1.8	-1.8	-2.2	-2.4	-2.4	-2.6	-2.5	-2.0		
	2004	-2.3	-2.0	-1.6	-1.4	**-1.1**	**-1.1**	**-1.0**	**-0.8**	**-0.5**	**-0.2**	**0.2**	**0.4**		-0.9	
	2005	**0.5**	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**			0.3
Non energy services (2)	2003	3.4	3.2	3.0	2.9	3.0	2.9	2.9	2.7	2.8	2.9	2.6	2.6	2.9		
	2004	2.5	2.5	2.9	3.1	**2.9**	**3.0**	**3.0**	**3.1**	**3.1**	**3.1**	**3.2**	**3.3**		3.0	
	2005	**3.3**	**3.3**	**3.3**	**3.3**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**	**3.2**			3.2
Core inflation (3=1+2)	2003	1.9	1.7	1.7	1.5	1.6	1.5	1.5	1.3	1.2	1.3	1.1	1.1	1.5		
	2004	1.2	1.2	1.6	1.8	**1.7**	**1.8**	**1.9**	**2.0**	**2.1**	**2.1**	**2.3**	**2.4**		1.8	
	2005	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**			2.4
Core inflation less owner's equivalent rent of primary residence	2003	1.4	1.2	1.2	1.0	1.2	1.3	1.3	1.0	0.9	1.0	0.7	0.8	1.1		
	2004	0.9	1.0	1.5	1.6	**1.4**	**1.5**	**1.5**	**1.7**	**1.8**	**1.9**	**2.2**	**2.2**		1.6	
	2005	**2.3**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**			2.2
Food (4)	2003	1.0	1.4	1.4	1.2	1.7	2.1	2.1	2.5	2.4	2.9	3.2	3.6	2.1		
	2004	3.5	3.3	3.2	3.4	**3.5**	**3.3**	**3.4**	**3.3**	**3.2**	**3.0**	**2.7**	**2.4**		3.2	
	2005	**2.7**	**2.6**	**2.5**	**2.6**	**2.5**	**2.4**	**2.5**	**2.4**	**2.4**	**2.4**	**2.4**	**2.4**			2.5
Energy (5)	2003	14.1	22.0	23.4	13.0	9.0	9.3	9.1	11.8	14.7	8.8	6.2	6.9	12.2		
	2004	7.8	3.8	0.4	5.6	**14.7**	**16.9**	**15.8**	**11.8**	**7.7**	**11.1**	**12.6**	**13.5**		10.1	
	2005	**8.8**	**5.9**	**3.5**	**0.5**	**-5.2**	**-7.8**	**-8.0**	**-7.8**	**-7.1**	**-6.7**	**-6.5**	**-6.5**			-3.3
All items (6=3+4+5)	2003	2.6	3.0	3.0	2.2	2.1	2.1	2.1	2.2	2.3	2.0	1.8	1.9	2.3		
	2004	1.9	1.7	1.7	2.3	**2.9**	**3.1**	**3.1**	**2.9**	**2.7**	**2.9**	**3.1**	**3.2**		2.6	
	2005	**2.9**	**2.7**	**2.5**	**2.3**	**1.8**	**1.6**	**1.6**	**1.6**	**1.6**	**1.7**	**1.7**	**1.7**			2.0
All items less owner's equivalent rent of primary residence	2003	2.4	3.0	3.1	2.1	1.9	2.1	2.1	2.2	2.4	2.0	1.7	1.9	2.2		
	2004	1.9	1.6	1.7	2.3	**3.1**	**3.3**	**3.3**	**3.0**	**2.7**	**3.0**	**3.2**	**3.3**		2.7	
	2005	**3.0**	**2.7**	**2.4**	**2.1**	**1.5**	**1.2**	**1.2**	**1.2**	**1.3**	**1.3**	**1.3**	**1.3**			1.7

(1) Figures in bold type are forecasted values.
(2) Mean level of 2003 over 2002 growth rate.
(3) Mean level of 2004 over 2003 growth rate.
(4) Mean level of 2005 over 2004 growth rate.

Source: BLS & Universidad Carlos III Madrid
Data: May 25, 2004

Table A6B

US MONTHLY RATES OF GROWTH ON CPI AND ITS COMPONENTS (1)

		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	D03 / D02	D04 / D03	D05 / D04
Non energy commodities less food (1)	2003	-0.6	0.3	0.4	-0.1	-0.6	-0.7	-0.6	-0.1	0.4	0.1	-0.4	-0.6	-2.5		
	2004	-0.4	0.6	0.7	0.1	**-0.3**	**-0.6**	**-0.5**	**0.1**	**0.6**	**0.5**	**0.0**	**-0.5**		**0.4**	
	2005	**-0.2**	**0.4**	**0.6**	**0.2**	**-0.2**	**-0.6**	**-0.4**	**0.1**	**0.6**	**0.5**	**0.0**	**-0.5**			**0.3**
Non energy services (2)	2003	0.5	0.4	0.2	0.0	0.3	0.2	0.4	0.3	0.0	0.4	-0.1	0.0	2.6		
	2004	0.5	0.4	0.6	0.2	**0.1**	**0.3**	**0.4**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**		**3.3**	
	2005	**0.5**	**0.5**	**0.6**	**0.2**	**0.0**	**0.3**	**0.4**	**0.3**	**0.0**	**0.3**	**0.0**	**0.0**			**3.2**
Core inflation (3=1+2)	2003	0.2	0.4	0.3	0.1	0.1	-0.1	0.1	0.2	0.1	0.3	-0.2	-0.2	1.1		
	2004	0.2	0.4	0.6	0.2	**0.0**	**0.0**	**0.2**	**0.3**	**0.2**	**0.4**	**0.0**	**-0.1**		**2.4**	
	2005	**0.3**	**0.4**	**0.6**	**0.2**	**0.0**	**0.0**	**0.2**	**0.2**	**0.2**	**0.4**	**0.0**	**-0.1**			**2.4**
Core inflation less owner's equivalent rent of primary residence	2003	0.2	0.5	0.3	0.1	0.0	-0.1	0.0	0.1	0.0	0.3	-0.3	-0.3	0.8		
	2004	0.2	0.6	0.8	0.2	**-0.1**	**-0.1**	**0.1**	**0.3**	**0.2**	**0.4**	**-0.1**	**-0.2**		**2.2**	
	2005	**0.3**	**0.5**	**0.7**	**0.2**	**-0.1**	**-0.1**	**0.1**	**0.2**	**0.1**	**0.4**	**-0.1**	**-0.2**			**2.2**
Food (4)	2003	0.1	0.5	0.2	-0.1	0.2	0.4	0.1	0.4	0.2	0.6	0.4	0.7	3.6		
	2004	0.1	0.2	0.2	0.1	**0.3**	**0.2**	**0.2**	**0.3**	**0.1**	**0.3**	**0.1**	**0.3**		**2.4**	
	2005	**0.4**	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.1**	**0.3**			**2.4**
Energy (5)	2003	3.4	6.2	5.3	-3.2	-3.0	1.9	0.3	2.7	2.8	-5.3	-2.8	-1.0	6.9		
	2004	4.2	2.3	1.8	2.0	**5.4**	**3.8**	**-0.6**	**-0.8**	**-0.9**	**-2.4**	**-1.4**	**-0.2**		**13.5**	
	2005	**-0.1**	**-0.4**	**-0.5**	**-1.0**	**-0.6**	**0.9**	**-0.8**	**-0.7**	**-0.2**	**-1.9**	**-1.2**	**-0.2**			**-6.5**
All items (6=3+4+5)	2003	0.4	0.8	0.6	-0.2	-0.2	0.1	0.1	0.4	0.3	-0.1	-0.3	-0.1	1.9		
	2004	0.5	0.5	0.6	0.3	**0.4**	**0.3**	**0.1**	**0.2**	**0.1**	**0.1**	**-0.1**	**0.0**		**3.2**	
	2005	**0.3**	**0.3**	**0.4**	**0.1**	**-0.1**	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**-0.1**	**0.0**			**1.7**
All items less owner's equivalent rent of primary residence	2003	0.5	1.0	0.7	-0.3	-0.2	0.1	0.1	0.4	0.3	-0.2	-0.4	-0.2	1.9		
	2004	0.6	0.7	0.8	0.3	**0.5**	**0.4**	**0.0**	**0.1**	**0.0**	**0.1**	**-0.2**	**-0.1**		**3.3**	
	2005	**0.3**	**0.4**	**0.5**	**0.1**	**-0.1**	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**-0.2**	**-0.1**			**1.3**

(1) Figures in bold type are forecasted values.
(2) December 2003 over December 2002 growth rate.
(3) December 2004 over December 2003 growth rate.
(4) December 2005 over December 2004 growth rate.

Source: BLS & Universidad Carlos III Madrid
Data: May 25, 2004

Table A7A

"CONSUMER PRICE INDEX, ANNUAL GROWTH RATES IN SPAIN 2003-2004-2005 (a)

			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Avr 03/02(b)	Avr 04/03(b)	Avr 05/04(b)
(1) AE	17.17%	2003	3.7	4.2	4.1	3.1	2.8	2.6	2.5	2.5	2.4	2.6	2.8	2.7	3.0		
		2004	2.5	2.4	2.4	2.9	4.1	4.3	4.3	4.4	4.5	4.3	4.3	4.2		3.7	
		2005	4.3	4.3	4.3	4.0	2.9	2.8	2.8	2.7	2.7	2.6	2.6	2.6			3.2
(2) MAN	30.05%	2003	2.0	2.2	2.3	2.6	2.6	2.5	2.2	2.0	2.1	1.5	1.2	1.2	2.0		
		2004	0.7	0.5	0.5	0.7	0.8	0.8	0.9	1.0	1.0	1.2	1.3	1.3		0.9	
		2005	1.4	1.5	1.6	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.4			1.4
(3) SER	35.05%	2003	4.0	3.9	3.6	4.0	3.5	3.5	3.6	3.7	3.5	3.7	3.7	3.6	3.7		
		2004	3.6	3.6	3.6	3.7	4.0	4.0	4.0	3.7	4.0	4.0	3.8	3.7		3.8	
		2005	3.9	3.8	4.4	3.7	4.0	3.9	4.0	4.0	4.0	4.0	4.0	4.0			4.0
IPSEBENE (4)=(1)+(2)+(3)	82.28%	2003	3.2	3.3	3.2	3.3	3.0	2.9	2.9	2.8	2.8	2.6	2.6	2.5	2.9		
		2004	2.3	2.3	2.2	2.4	2.8	2.9	3.0	2.9	3.1	3.0	3.0	2.9		2.7	
		2005	3.1	3.1	3.4	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.8			2.9
IPSEBENE-XT	77.21%	2003	2.9	3.0	3.0	3.2	3.1	3.0	2.8	2.8	2.7	2.6	2.6	2.6	2.9		
		2004	2.4	2.4	2.3	2.5	2.7	2.5	2.6	2.7	2.7	2.6	2.6	2.6		2.5	
		2005	2.9	2.8	2.9	2.6	2.5	2.7	2.7	2.8	2.8	2.7	2.7	2.7			2.7
(5) ANE	8.60%	2003	7.2	5.9	5.6	4.5	4.6	4.8	5.5	6.5	7.7	7.0	6.7	6.4	6.0		
		2004	6.5	6.1	6.5	6.8	5.7	5.1	4.2	3.4	2.2	2.7	3.0	3.0		4.6	
		2005	2.2	3.4	3.5	3.6	4.1	4.5	4.6	4.8	5.0	5.3	5.4	5.5			4.3
(6) ENE	9.12%	2003	5.5	6.7	6.1	0.8	-1.9	-0.6	0.0	1.1	-0.2	-1.8	1.1	-0.1	1.4		
		2004	-1.7	-2.5	-2.5	1.4	6.5	10.3	9.4	7.8	8.1	9.1	8.7	8.8		5.2	
		2005	8.0	7.4	5.7	4.2	1.8	-1.2	-1.4	-1.2	-1.1	-1.0	-0.8	-0.7			1.5
IPC	100%	2003	3.7	3.8	3.7	3.1	2.7	2.7	2.8	3.0	2.9	2.6	2.8	2.6	3.0		
		2004	2.3	2.1	2.1	2.7	3.4	3.7	3.7	3.4	3.5	3.6	3.5	3.5		3.1	
		2005	3.5	3.5	3.6	3.1	2.8	2.5	2.5	2.6	2.6	2.6	2.6	2.7			2.9

'* T1,12 growth rate lags fundamental changes in prices 6 months with respect to monthly growth rates. It is necessary to evaluate forecast in order to analyze current situation.
** Weights on General CPI are shown in brackets.
(a) Figures in bold type are forecasted values
(b) 2003 over 2002 mean growth
(c) 2004 over 2003 mean growth
(d) 2005 over 2004 mean growth

Source: INE, IFL & UC3M
Date: May 25, 2004

Table A7B

CONSUMER PRICE INDEX, MONTHLY GROWTH RATES IN SPAIN 2003-2004-2005 (a)

			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	D03 / D02	D04 / D03	D05 / D04
(1) AE	17.17%	2003	0.5	0.6	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.1	2.7		
		2004	0.4	0.5	0.3	0.5	**1.3**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**	**0.2**	**0.1**		4.2	
		2005	**0.5**	**0.4**	**0.3**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**			**2.6**
(2) MAN	30.05%	2003	-3.1	0.0	1.0	2.7	0.5	-0.2	-3.5	-0.3	1.0	2.3	1.1	-0.1	1.2		
		2004	-3.6	-0.2	0.9	3.0	**0.5**	**-0.1**	**-3.4**	**-0.2**	**1.0**	**2.5**	**1.2**	**-0.1**		1.3	
		2005	**-3.5**	**-0.1**	**1.0**	**2.8**	**0.5**	**-0.2**	**-3.4**	**-0.2**	**1.0**	**2.5**	**1.2**	**-0.1**			**1.4**
(3) SER	35.05%	2003	0.6	0.4	0.5	0.7	-0.2	0.4	0.7	0.7	-0.5	0.2	-0.2	0.4	3.6		
		2004	0.6	0.4	0.5	0.7	**0.1**	**0.4**	**0.6**	**0.4**	**-0.1**	**0.1**	**-0.3**	**0.3**		3.7	
		2005	**0.8**	**0.3**	**1.0**	**0.1**	**0.4**	**0.3**	**0.6**	**0.4**	**-0.2**	**0.1**	**-0.3**	**0.3**			**4.0**
IPSEBENE (4)=(1)+(2)+(3)	82.28%	2003	-0.8	0.3	0.6	1.3	0.1	0.1	-1.0	0.2	0.2	1.0	0.4	0.1	2.5		
		2004	-1.0	0.2	0.6	1.5	**0.5**	**0.2**	**-0.9**	**0.2**	**0.3**	**1.0**	**0.3**	**0.1**		2.9	
		2005	**-0.8**	**0.2**	**0.9**	**1.1**	**0.4**	**0.1**	**-0.9**	**0.2**	**0.3**	**0.9**	**0.3**	**0.1**			**2.8**
IPSEBENE-XT	77.21%	2003	-0.9	0.2	0.7	1.3	0.3	0.1	-1.3	0.1	0.4	1.1	0.5	0.1	2.6		
		2004	-1.1	0.2	0.6	1.5	**0.4**	**-0.1**	**-1.1**	**0.1**	**0.4**	**1.1**	**0.5**	**0.1**		2.6	
		2005	**-0.8**	**0.2**	**0.7**	**1.2**	**0.3**	**0.1**	**-1.1**	**0.1**	**0.4**	**1.1**	**0.5**	**0.1**			**2.7**
(5) ANE	8.60%	2003	0.4	-1.5	0.5	0.0	0.6	0.3	1.5	1.9	2.2	-0.4	0.0	0.9	6.4		
		2004	0.6	-1.9	0.8	0.3	**-0.4**	**-0.3**	**0.7**	**1.1**	**1.0**	**0.0**	**0.3**	**0.9**		3.0	
		2005	**-0.2**	**-0.8**	**0.9**	**0.4**	**0.1**	**0.0**	**0.9**	**1.2**	**1.2**	**0.3**	**0.5**	**1.0**			**5.5**
(6) ENE	9.12%	2003	2.2	1.3	1.4	-2.6	-2.5	-0.6	0.9	1.4	-0.4	-1.1	0.3	-0.3	-0.1		
		2004	0.6	0.4	1.5	1.3	**2.3**	**3.0**	**0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**		8.8	
		2005	**-0.2**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**			**-0.7**
IPC	100.00%	2003	-0.4	0.2	0.7	0.8	-0.1	0.1	-0.6	0.5	0.3	0.7	0.3	0.2	2.6		
		2004	-0.7	0.0	0.7	1.4	**0.6**	**0.4**	**-0.7**	**0.2**	**0.3**	**0.8**	**0.3**	**0.2**		3.5	
		2005	**-0.7**	**0.1**	**0.8**	**0.9**	**0.3**	**0.1**	**-0.7**	**0.3**	**0.4**	**0.8**	**0.3**	**0.2**			**2.7**

** Weights on General CPI are shown in brackets.
(a) Figures in bold type are forecasted values
(b) December 2003 over December 2002.
(c) December 2004 over December 2003.
(d) December 2005 over December 2004.

Source: INE, IFL & UC3M
Date: May 25, 2004

HCPI MONTH-ON-MONTH RATES OF GROWTH IN THE EMU
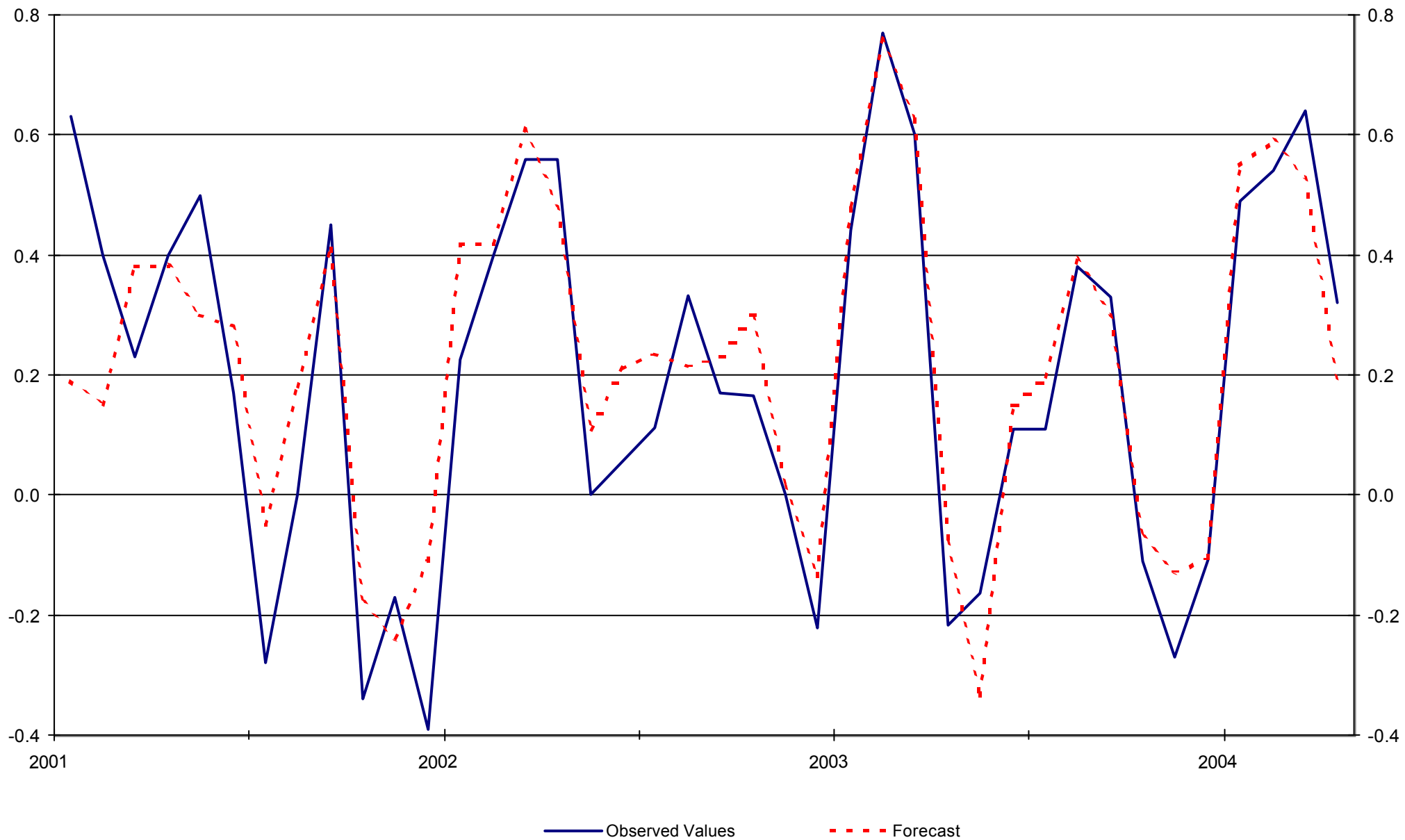
Observed Values   Forecast

Source: EUROSTAT, IFL & UC3M   Date: May 18, 2004

Graph A1B

CPI MONTHLY GROWTH RATES IN USA

Observed Values   Forecast

CPI MONTH-ON-MONTH RATES OF GROWTH IN SPAIN
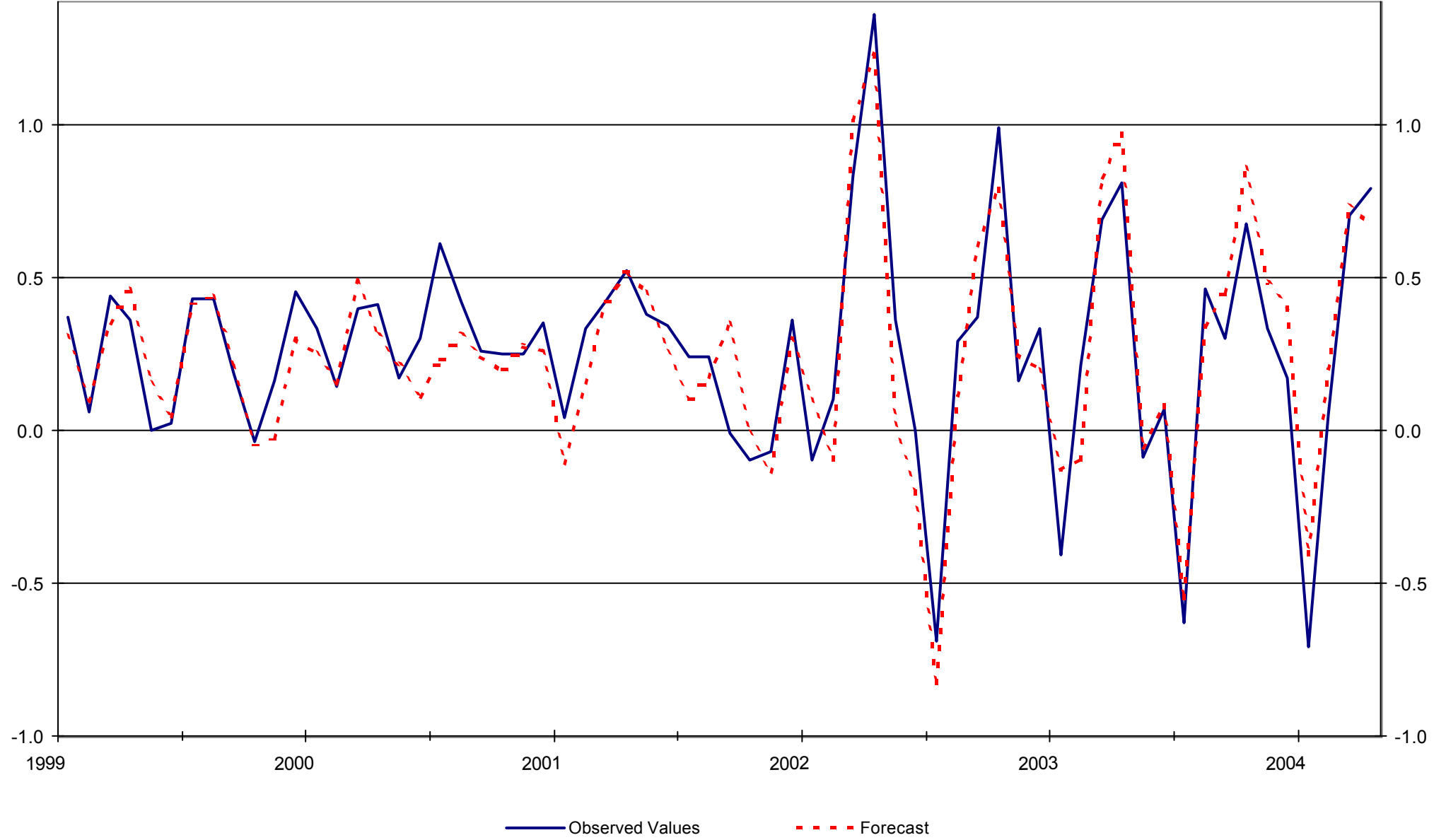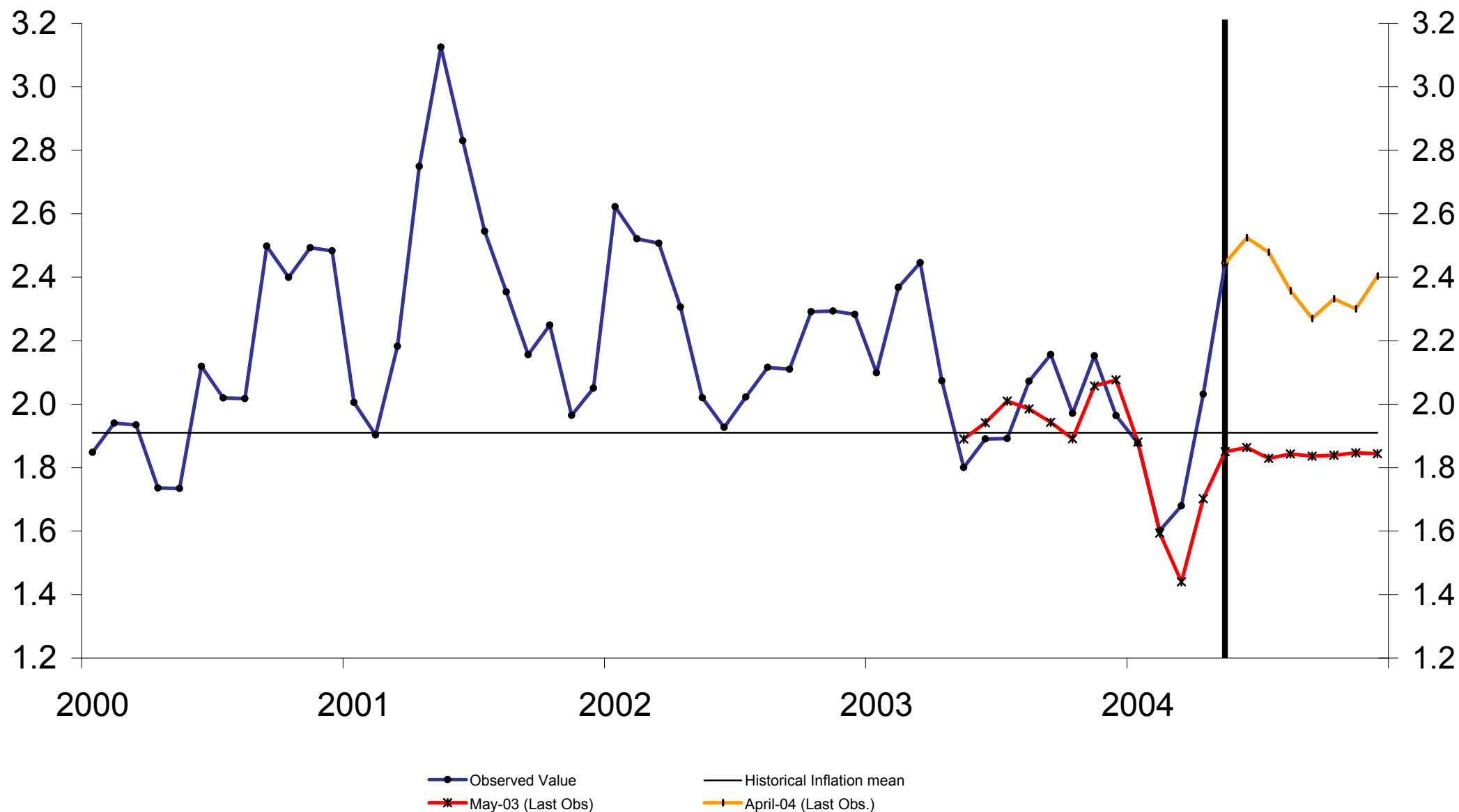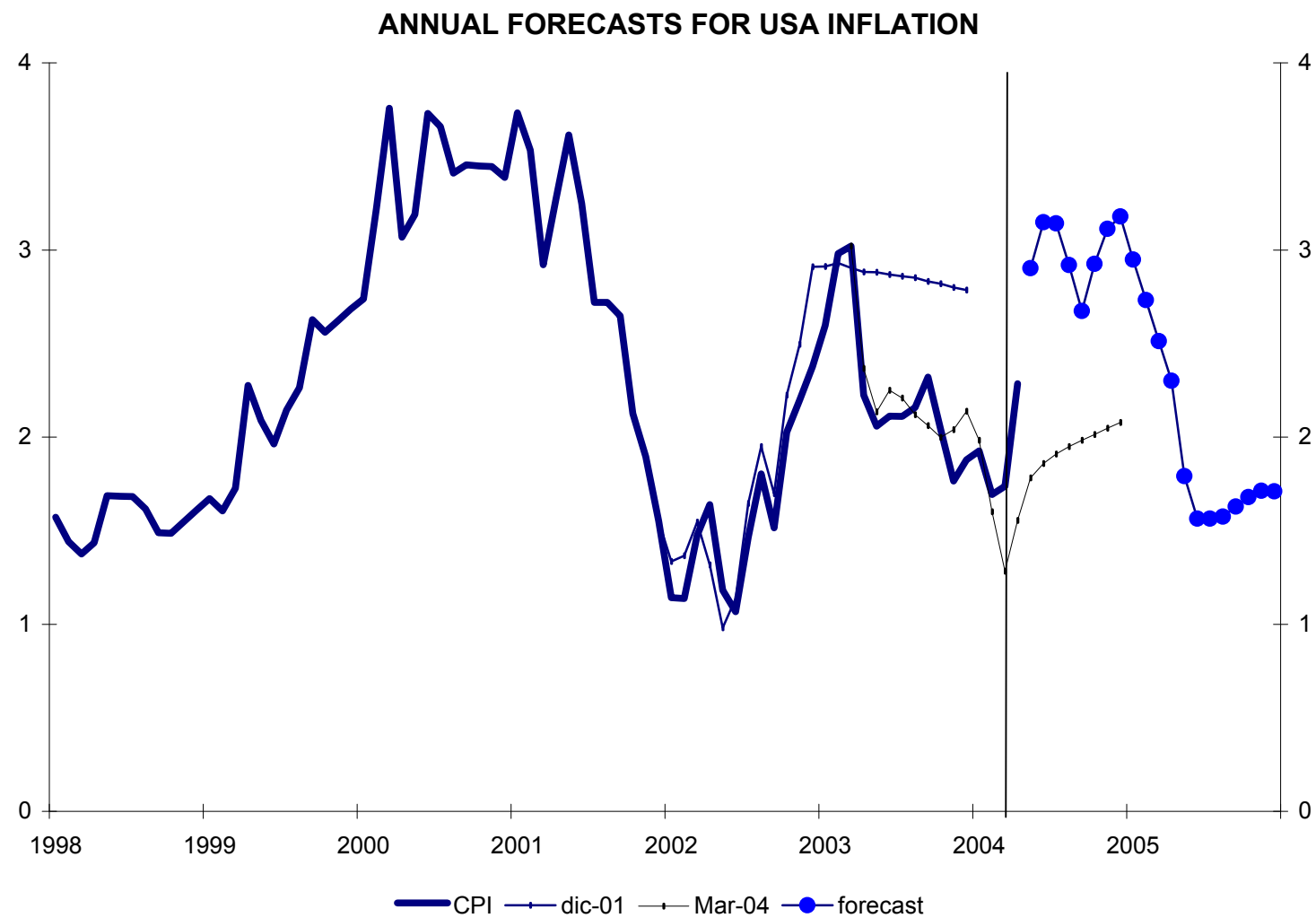
Observed Values   Forecast

Graph A2A

ANNUAL FORECASTS FOR THE EMU INFLATION
(year-on-year rates)

Observed Value — Historical Inflation mean
May-03 (Last Obs) — April-04 (Last Obs.)

Source: Eurostat & EFN   Date: May 25, 2004

Graph A2B

ANNUAL FORECASTS FOR USA INFLATION

CPI —•— dic-01 —•— Mar-04 —●— forecast

Graph A2C

ANNUAL FORECASTS FOR TOTAL INFLATION IN SPAIN
(year-on-year rates)

Obs. Values
Forecast (Last Obs Dec-03)
Historical Inflation mean (1996-2003)
Forecast (Last Obs Mar-04)
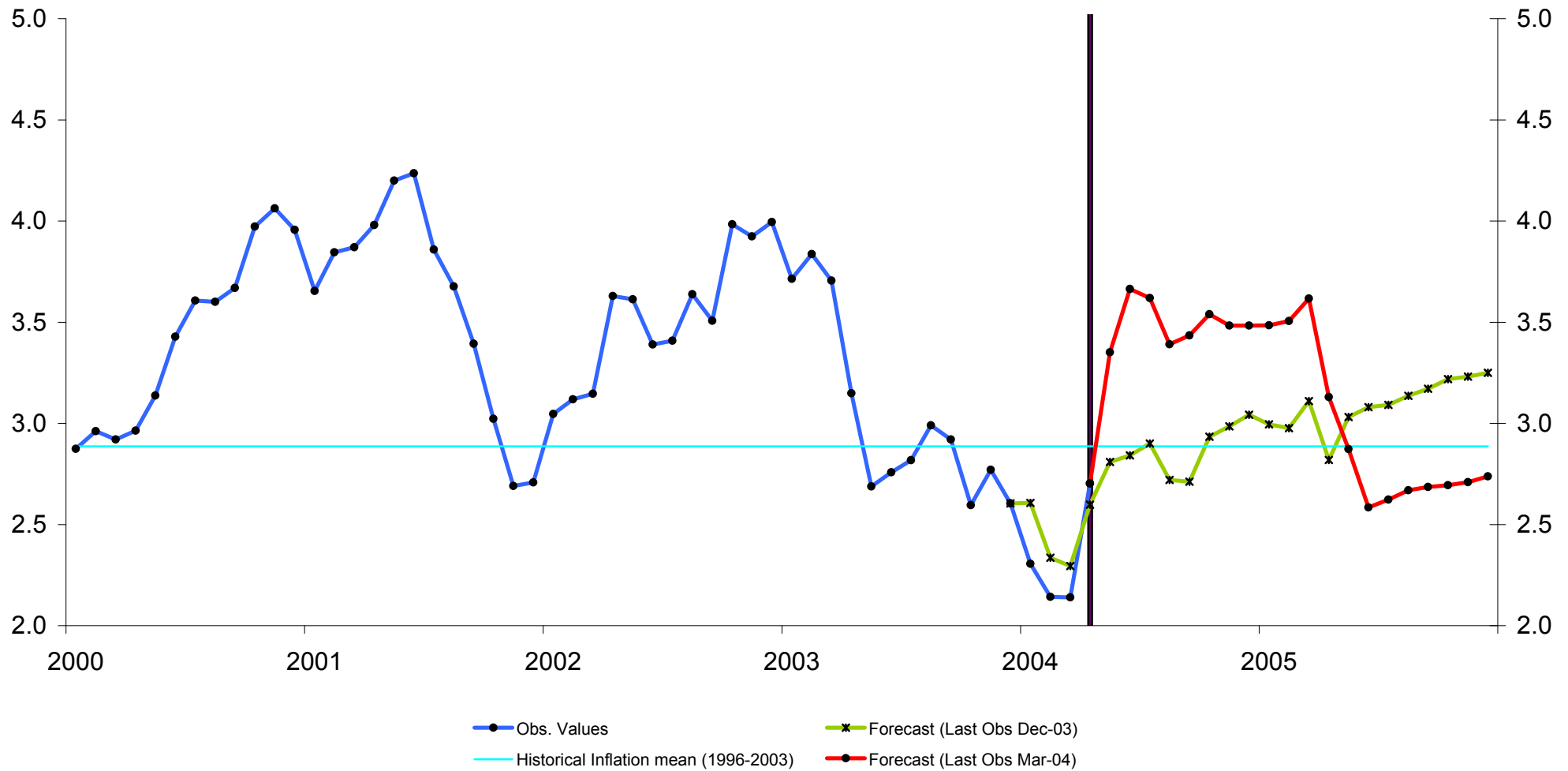
Source: INE, IFL & UC3M   Date: May 25, 2004

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INTERNATIONAL INFLATION FORECASTS

| | MAY 2004 | | AVERAGE ANNUAL RATES | | | | |
	Monthly Rate	Annual Rate	2001*	2002*	2003*	2004	2005
ECONOMIC MONETARY UNION							
Total Inflation	0.3	2.4	2.3	2.3	2.1	2.2	1.9
Core Inflation	0.1	2.1	1.9	2.5	2.0	2.1	2.0
Goods	0.2	0.9	0.9	1.5	0.8	0.9	1.0
Services	0.0	2.5	2.5	3.1	2.6	2.5	2.5
GDP			1.6	0.9	0.4	1.6	2.0
Private Final Consumption Expenditure			1.9	0.8	1.2	1.6	2.2
Gross Fixed Capital Formation			-0.3	-2.8	-1.2	1.7	1.9
Exports of Goods and Services			3.4	1.5	0.0	3.8	4.4
Imports of Goods and Services			1.7	-0.1	1.5	4.5	4.7
Gross Value Added Total			1.6	0.9	0.4	1.6	2.0
Gross Value Added Agriculture			-1.2	0.6	-3.1	0.9	0.9
Gross Value Added Industry			0.5	0.2	-0.1	1.3	1.7
Gross Value Added Construction			-0.6	-1.1	-0.8	-0.1	-0.2
Gross Value Added Services			2.7	1.4	0.8	1.9	2.3
OTHER ECONOMIC INDICATOR							
Industrial Production Index (excluding construction)			0.4	-0.5	0.3	1.3	1.7
UNITED STATES							
Total Inflation	0.4	2.9	2.8	1.6	2.3	2.6	2.0
Core Inflation	0.0	1.7	2.7	2.3	1.5	1.8	2.4
Goods	-0.3	-1.1	0.3	-1.1	-2.0	-0.9	0.3
Services	0.1	2.9	3.7	3.8	2.9	3.0	3.2

*Observed values.

SPANISH ECONOMY FORECASTS

| | MAY 2004 | | AVERAGE ANNUAL RATES | | | | |
	Monthly Rate	Annual Rate	2001*	2002*	2003*	2004	2005
Total Inflation	0.6	3.4	3.6	2.7	2.7	2.8	3.0
Trend Inflation	0.5	2.8	3.4	3.0	2.9	2.9	2.8
Goods	0.5	0.8	3.1	2.6	2.5	2.2	2.0
Services	0.1	4.0	7.1	3.5	3.5	3.6	3.7

*Observed values.

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