



# Statistics in focus

## ECONOMY AND FINANCE

THEME 2 – 20/2003

## PRICES AND PURCHASING POWER PARITIES

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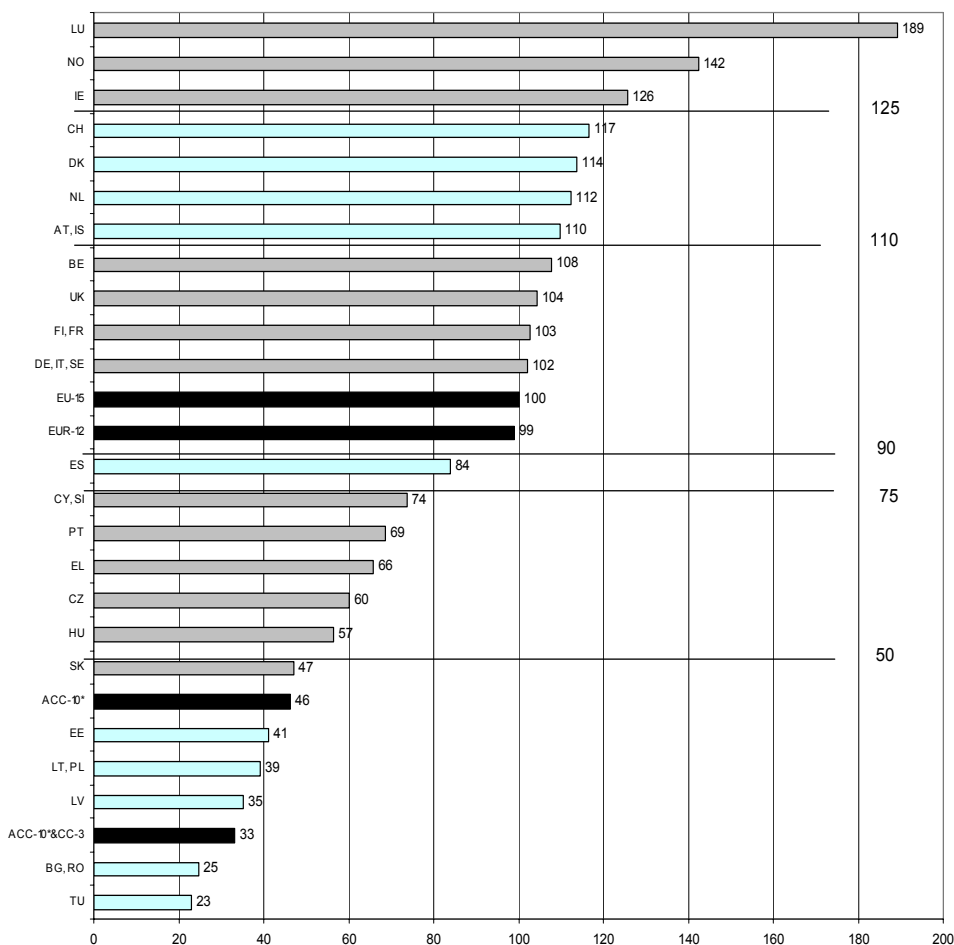
# GDP per capita in Purchasing Power Standards for EU, Acceding and Candidate Countries and EFTA<sup>(1)</sup>

## Nowcast 2002

*Silke STAPEL and Peeter LEETMAA*

This article presents first estimates of the per capita GDP volume index for 2002 for the 31 countries <sup>(2)</sup> participating in the Eurostat coordinated group of the European Comparison Programme (ECP). Eurostat publishes these nowcast results for the first time.

**Chart 1: Per capita volume index at the level of total GDP  
2002 nowcast results, EU-15=100**



\*Without Malta

<sup>(1)</sup> Excluding Liechtenstein

<sup>(2)</sup> The 15 EU Member States, the 10 Acceding Countries, however excluding Malta, the 3 Candidate Countries, Iceland, Norway and Switzerland

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## The need for early estimates of PPP and their provisional character

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A frequent user complaint is that the PPP results come too late for their purposes and that there are no early estimates available.

So far, preliminary PPP results for the reference year T have been available 12 months, and final results 24

months, after the end of the reference year. Eurostat, therefore developed, tested and introduced a nowcasting model for PPP, which produces early estimates of PPP and related economic indicators, five months (t+5) after the end of the reference period.

### Box 1: Provisional character of the nowcast results

The first estimates (nowcast) of PPP and related economic indicators for 2002 presented in this paper have a very provisional character. This provisional status arises from the input data situation at the point in time of nowcasting.

Two main basic data sets are required for the calculation of PPP: prices from the PPP price surveys and weights (GDP expenditure) from National Accounts (NA). Fully validated results of PPP price surveys are usually available only 12 months after the survey has been executed. This is not a long delay, given the extent of the exercise, involving twice per year price collection for about 500 very well specified consumer price items in 31 countries and the necessary subsequent thorough validation process at country, country group and overall European level. At the point in time when the nowcasting is undertaken (t+5), generally no price data from price surveys is available for the reference year t in question. Therefore, the PPP of the previous year have to be extrapolated with annual average price indices such as e.g. the HICP or the national CPI for consumer goods and services.

NA information on main expenditure aggregates becomes available for the first time by the end of April following the reference year. At this point in time it is limited to a few main aggregates. These few main aggregates are, however, the first "hard facts" available for a reference year in the framework of the NA. For the aggregation of PPP more detailed expenditure weights are necessary, so that the detailed expenditure structure of the year 2001 is used to estimate detailed weights for 2002 by scaling it to the newly available information for 2002 at main aggregates level. A detailed description of the nowcast methodology employed and the related tests is given in the source mentioned on page 3.

Malta is currently undertaking a revision of its National Accounts in order to adopt ESA95. The revision results are expected to become available in summer 2003. To avoid multiple revisions of data and user confusion, the Maltese statistical office and Eurostat decided not to issue results for 2000 to 2002 before the revision is finalised. For Slovenia, it is important to underline that the data published here for 2002 are not comparable to the data previously published by Eurostat. This is due to a major revision of the Slovenian National Accounts, which is already reflected in the 2002 results, but not yet in earlier years.

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## Per capita GDP volume index , nowcast 2002

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The **per capita GDP volume indices** shown in **Chart 1** represent the real volumes of production and consumption (GDP values in national currency, converted using PPP) in per capita terms, expressed in relation to the European Union average. If the per capita GDP volume index of a country is higher than 100, this country's level of production and consumption per head is higher than the EU average and vice versa. However, these indices are not intended to rank countries strictly. In fact, they only provide an indication of the comparative order of magnitude of the per capita GDP volume in one country in relation to others.

It is therefore preferable to use these indices for dividing countries into groups of a comparable level. In this respect, the 2002 nowcast results presented here highlight the following groups of countries:

**Group I** ( $\geq 125\%$  of the EU average): Ireland, Luxembourg and Norway;

**Group II** ( $\geq 110\%$  and  $< 125\%$  of the EU average): Austria, Denmark, Iceland, the Netherlands and Switzerland;

**Group III** ( $\geq 90\%$  and  $< 110\%$  of the EU average, i.e. close to the EU average): Belgium, Germany, France, Italy, Finland, Sweden and United Kingdom;

**Group IV** ( $\geq 75\%$  and  $< 90\%$  of the EU average): Spain;

**Group V** ( $\geq 50\%$  and  $< 75\%$  of the EU average): Czech Republic, Cyprus, Greece, Hungary, Portugal and Slovenia;

**Group VI** ( $< 50\%$  of the EU average): Bulgaria, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia and Turkey;.

These results do not reveal any surprises and are very much in line with the preliminary results for 2001, published in December 2002 by Eurostat.

The PPP underlying the volume index above and the related price level index is available from the dashboards listed on the last page.

## ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

### How are PPP calculated and what is PPS?

In their simplest form, PPP are a set of relative prices, which show the ratio of the prices in national currency of the same good or service in different countries (e.g. a loaf of bread costs 1.87 euro in France, 1.68 euro in Germany, 95 pence in the UK, etc). For the price collections, a basket of comparable goods and services is used, selected as representative of the whole range of goods and services, as well as of consumption patterns in the various countries. The simple relative prices at product level are subsequently aggregated (weighted together) to PPP for groups of products, for total consumption and finally for GDP.

To fix a numerator for the PPP calculation, usually one country is used as a base country and set to equal 1. For the European Union the selection of a single country (currency) as a base seemed inappropriate. Therefore, PPS is the artificial common reference currency unit used in the European Union to express the volume of economic aggregates for the purpose of spatial comparisons. Economic volume aggregates in PPS are obtained by dividing their original value in national currency units by the respective PPP.

### Why PPP and not exchange rates?

The differences in values of GDP between countries, even when revaluated in a common currency using exchange rates, do not only correspond to a “volume of goods and services” component but also to a “level of prices” component, which can sometimes assume sizeable proportions. Exchange rates are determined by many factors, which reflect demand and supply on the currency markets, such as international trade and interest rate differentials. In other words, exchange rates usually reflect other elements than price differences alone. Therefore, the use of exchange rates as conversion factors in cross-country comparisons is not advisable. With other words, exchange rates tell you how much money your national currency would buy you, while we want to know how much national money you would have to spend to buy a well defined basket of comparable and representative goods and services.

To obtain a pure comparison of volumes, it is, therefore, essential to use special conversion rates (spatial deflators) which remove the effect of price level differences between countries. PPP are such currency conversion rates that convert nominal final expenditures on product groups, aggregates and GDP of the different countries taking part in the comparison into comparable volumes, expressed in PPS units.

With the launch of the euro, for the first time, prices can be compared directly between the countries in the euro-zone. However, the euro has different purchasing power in the individual euro-zone countries, depending on the national price levels. Therefore, it is still necessary to calculate PPP for the establishment of pure volume aggregates in PPS. In other words, for the non-euro-zone countries PPP are currency converters and eliminate the effects of different price levels, while for the euro-zone countries they only fulfil a price deflator function.

### Publication calendar 2003

- 2. May 2003 – Relative prices for Furniture, glassware and tableware
- 6. June 2003 – Nowcast of the GDP per capita in PPS 2002
- 30. June 2003 - Relative prices for services
- 31. October 2003 – Revision of the PPP 1995 to 2000 – first aggregated results
- 15. December 2003 – Final PPP data 2001 and preliminary data 2002
- 19. December 2003 – Relative prices for Transport goods and services

### To know more about:

*“Purchasing Power Parities and Real Expenditures, 1999 Benchmark Year”, OECD 2002*

*“Nowcasting of PPP”, Eurostat paper for the CONFERENCE OF EUROPEAN STATISTICIANS, Consultation on the European Comparison Programme, Geneva, 2003*

*“Eating, drinking, smoking – comparative price levels in EU, EFTA and Candidate Countries” Statistics in focus 42-2002, Eurostat, 2002*

*“Purchasing Power Parities and related economic indicators for EU, Acceding Countries and Candidate Countries and EFTA”, Statistics infocus 56-2002, Eurostat 2002*

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