

PURCHASING POWER PARITIES AND RELATED ECONOMIC INDICATORS FOR THE EUROPEAN UNION, ICELAND, NORWAY, SWITZERLAND AND POLAND

PRELIMINARY RESULTS FOR 1997

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Ian DENNIS

Overview

Market exchange rates are commonly used for international comparisons of economic aggregates expressed in nominal values. However, they do not allow a real comparison of the volume of goods and services produced and used in different countries because exchange rates quite often reflect other elements than price level differences alone.

The calculation of *purchasing power parities* (PPPs) makes it possible to eliminate the combined impact of price level differences and other elements from the comparison and thus obtain a real volume comparison between countries of, for example, Gross Domestic Product (GDP) per capita, one of the main indicators of economic activity.

The results for 1997 which are presented in the following table clearly demonstrate this. In general, the use of market exchange rates overestimates the real volume of GDP of countries where price levels are high, and vice versa. Use of PPPs for the conversion of national figures reveals striking differences between nominal values and real volumes, such as Switzerland (-25%), Denmark (-18%), Portugal (+51%) and Poland (+130%). However, differences in per capita volumes of goods and services consumed remain quite significant. For example, the per capita GDP of Greece is only 40% of Luxembourg, or 65% of Germany, when measured in PPP-based real volumes.

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Contents

	PAGE
Overview	1
Table of results	2
Commentary on the results	3
Methodological notes	3



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**Purchasing power parities and related economic indicators for the European Union,
Iceland, Norway, Switzerland and Poland
Preliminary results for 1997**

1	2 <u>Exchange rate</u>	3 <u>Purchasing power parity</u>	4 <u>Price level index</u>	5 <u>GDP per capita value index</u>	6 <u>GDP per capita volume index</u>
B	40.53	39.30	97	110	114
DK	7.48	9.11	122	149	122
D	1.964	2.178	111	118	106
EL	309.4	236.4	76	53	69
E	165.9	133.7	81	64	80
F	6.613	6.983	106	110	104
IRL	0.7475	0.7160	96	97	102
I	1929	1711	89	91	102
L	40.53	42.70	105	180	171
NL	2.211	2.203	100	107	108
A	13.82	14.50	105	118	113
P	198.6	131.7	66	47	72
FIN	5.881	6.459	110	104	95
S	8.65	10.36	120	119	100
UK	0.6923	0.6987	101	101	100
EU-15	1	1	100	100	100
IS	80.44	86.39	107	124	115
N	8.02	9.86	123	161	131
CH	1.644	2.184	133	166	125
PL	3.716	1.615	43	17	39

Column 2 Exchange rate (1 ECU in national currency units)
 Column 3 Purchasing power parity (1 PPS in national currency units)
 Column 4 Price level index (EU-15 = 100)
 Column 5 GDP per capita value index, based on ECU values (EU-15 = 100)
 Column 6 GDP per capita volume index, based on PPS values (EU-15 = 100)

Note:

These preliminary results are based on the price data and the estimates of GDP nominal values in national currency and of population levels that were available in Eurostat in March 1999. These estimates will be revised and definitive results will be published later this year. The results presented here are subject to sampling and other errors; small differences between the measures are unlikely to be statistically significant.

Commentary on the results

Columns 2 and 3 of the table show the exchange rates and the purchasing power parities for the different countries. The ratio between the PPP and the exchange rate is an indicator of the relative price level in each country. For comparison purposes, this ratio is shown in relation to the Community average in Column 4. If the figure is higher than 100, the country concerned is relatively expensive as compared to the Community average, and the use of market exchange rates over-estimates the volumes; the opposite is true if the price level index is lower than 100.

Column 4 reveals differences between the various price levels of 66 to 122 for EU countries and of 43 to 133 for all countries. This clearly demonstrates the importance of using PPPs instead of market exchange rates for comparing the economies of different countries.

Other significant indicators for international comparisons are the per capita GDP indexes in Columns 5 and 6 which represent the relation between the per capita GDP of each country and the average per capita GDP of the EU. It is worth noting that the index can be significantly different according to whether market exchange rates (Column 5) or PPPs (Column 6) are used.

Thus, Denmark, for which the per capita value index is 149 if the calculation is based on data in ECU, changes to a volume index of 122 if the conversion factor is PPP. This is related to its high price level index (122). The opposite phenomenon can be observed for Greece and Portugal for which per capita value indices of 53 and 47 respectively change to per capita volume indices of 69 and 72. The 1 : 3.5 ratio of per capita GDP between Portugal and Switzerland for data in ECU is less than 1 : 2 if the conversion factor is PPP. This result again shows the need to have purchasing power parities as a tool to obtain real volume comparisons between countries.

Volume indices should not be used to establish a strict ranking of countries; in fact they only give an indication of the comparative *order of magnitude* (in volume terms) of economic activity in each country in relation to others. Thus, when comparing per capita volume indices for France and Italy (104 and 102 respectively), the conclusion which can be drawn is that per capita GDP in volume terms in these two countries is of the same order of magnitude, and that a comparison of the per capita value indices for these two countries computed using exchange rates (110 and 91 respectively) gives a biased view, due to the difference in price levels

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

PPPs are obtained using the price ratios between the different countries for a basket of goods and services which are both comparable and representative. The individual price ratios are aggregated, according to well defined criteria, up to the GDP global parity level.

Switzerland, Iceland and Norway participate in the Eurostat annual comparison programme as EFTA countries. Poland has been a full member since 1994. Ten more countries have since joined the comparison programme: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania, Slovak Republic and Slovenia.

For 1997, Eurostat, the Statistical Office of the European Communities, calculated purchasing power parities for the Member States, Iceland, Norway, Switzerland and Poland.

This note presents only the main results for per capita GDP. More detailed results will be published later in the year.

To know more about:

- "Purchasing power parities and related economic indicators: detailed results for 1995 and 1996" (published March 1999).
- "Purchasing power parities and related economic indicators: detailed results for 1997" (in preparation).

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