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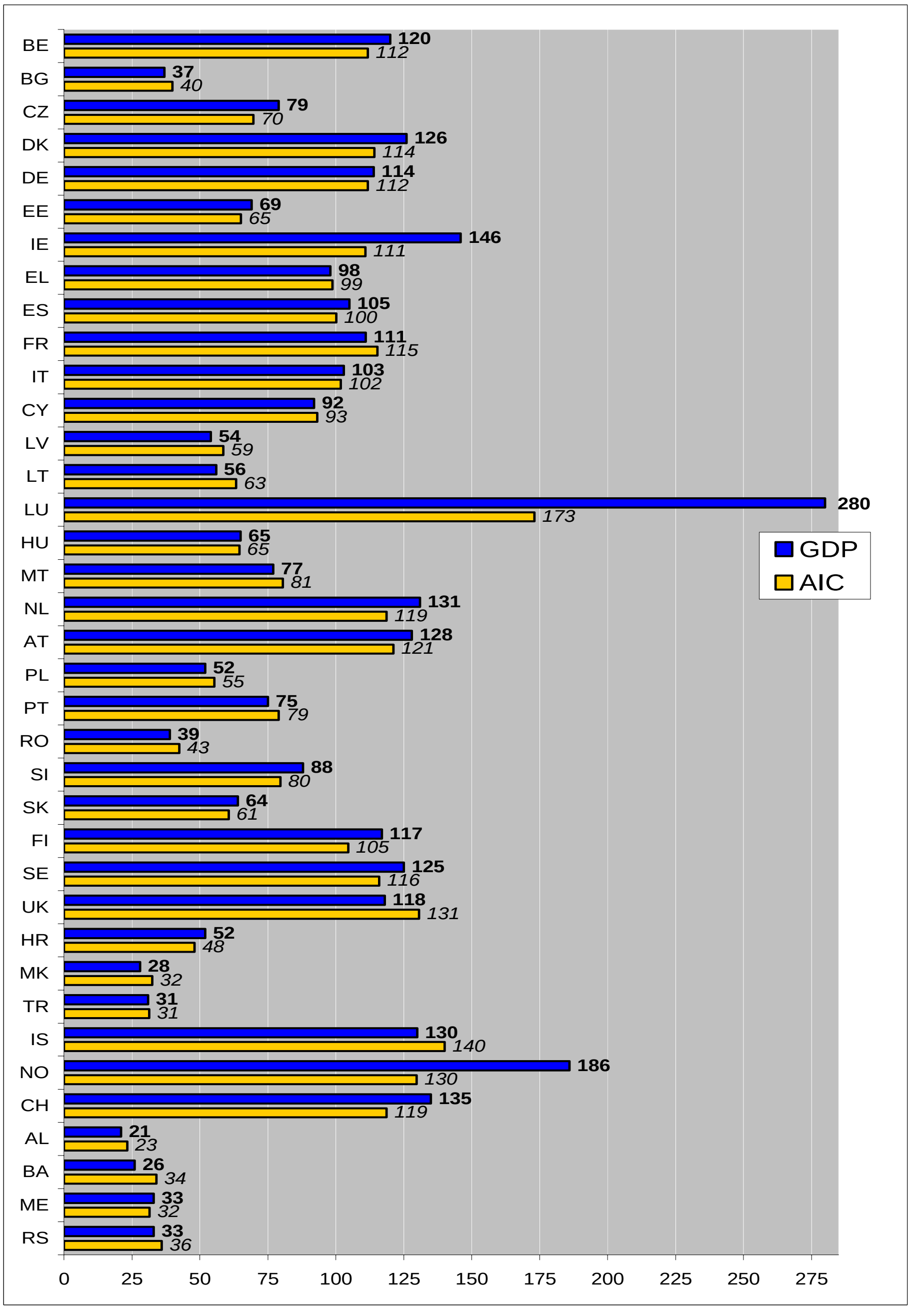
GDP per capita, consumption per capita and comparative price levels in Europe

Final results for 2004 and preliminary results for 2005 and 2006

This article presents estimates of the comparative price levels of 37 European countries, as well as these countries' Gross Domestic Product (GDP) and Actual Individual Consumption (AIC) per capita adjusted for differences in price levels. These indicators are based on Purchasing Power Parities (PPPs) and National Accounts data. The countries covered are the 27 EU Member States, the 3 EU candidate countries, 3 Member States of the European Free Trade Association (EFTA) and 4 countries in the Western Balkans

Chart 1: Volume indices of GDP and AIC per capita 2006, EU27=100.



For explanation of the country codes, see Methodological notes

Source: Eurostat

The European Comparison Programme (ECP) is an international statistical programme involving Eurostat and the National Statistical Offices of the participating countries, as well as the OECD and its non-European Member States. The ECP is aimed at making annual volume comparisons of National Accounts, in practice of GDP and its main components. Volume comparisons imply that for each country a price level indicator is required. This indicator is referred to as a Purchasing Power Parity (cf. box 1).

Box 1: Purchasing Power Parities and related economic indicators

Purchasing Power Parities (PPPs) are currency conversion rates that are applied in order to convert economic indicators from national currency to an artificial common currency, called the Purchasing Power Standard (PPS), which equalizes the purchasing power of different national currencies and enables meaningful volume comparisons between countries. For example, if the GDP or AIC per capita expressed in the national currency of each country participating in the comparison is divided by its PPP, the resulting figures neutralise the effect of different price levels and thus indicate the real volume of GDP or AIC at a common price level. In table 1, countries' GDP and AIC per capita are expressed as indices with EU27=100. The choice of basis for the indices is arbitrary, and does not affect the relatives between any pair of countries. When divided by the nominal exchange rate of a given year, the PPP provides an estimate of the comparative price level of a given country relative to, for instance, as in our charts and tables, the EU27 total. Table 2 shows countries' comparative price levels of GDP and AIC per capita.

Per capita volume indices

The per capita volume indices, shown in chart 1 and table 1, represent the real volume of GDP and AIC in per capita terms. They are expressed in relation to the European Union (EU27=100). If the per capita GDP (or AIC) volume index of a certain country is higher than 100, that country's level of GDP (or AIC) in per capita terms is higher than the corresponding level for the EU27 as a whole. The indices should be interpreted with some caution, allowing for error margins. For example, in 2006 the GDP volume index per capita for Spain is 105, while that of Italy is 103. In reality, these figures tell us that the GDP per capita is of similar magnitude in the two countries.

Relative volumes of GDP per capita

In 2006, the volume index of GDP per capita ranges from 21 (Albania) to 280 (Luxembourg), while Bulgaria at 37 has the lowest GDP per capita among the 27 EU Member States. Luxembourg's GDP is thus 13.3 times higher than Albania's, and 7.5 times higher than Bulgaria's, in per capita terms. It should be noted, though, that the figure for Luxembourg is influenced by the country's large share of cross-border workers who, while contributing to GDP, are not considered part of the resident population. Norway, a major petroleum exporting country with a relatively small population, also stands out with a GDP per capita that clearly exceeds that of most other European countries. Ireland, Switzerland, the Netherlands, Iceland, Austria, Denmark, Sweden and Belgium are among the countries with a comparatively high GDP per capita. They are followed by the United Kingdom, Finland, Germany and France.

Among the 15 "old" EU Member States, GDP per capita in 2006 is 3.7 times higher in Luxembourg than in Portugal (75), while Portugal's GDP per capita is just above one half of Ireland's (146). Among the new Member States, Cyprus and Slovenia clearly exceed the GDP level of Portugal, while the Czech Republic and Malta are around the same level as Portugal. Most of the new Member States are less well off, with a volume index of GDP per capita ranging from 37 in Bulgaria and 39 in Romania, to 69 in Estonia. Poland's GDP per capita is around one half of Spain's or Italy's, as is Croatia's, an EU candidate country.

The two other candidate countries, the Former Yugoslav Republic of Macedonia and Turkey, together with Serbia, Montenegro, Bosnia-Herzegovina and Albania, all come out with a GDP per capita below the poorest EU Member States. This is especially so for Albania and Bosnia-Herzegovina, while Montenegro and Serbia are closer to the level of Bulgaria, but still only at about one third of the EU27 average.

GDP per capita volume indices are mainly constructed to compare countries at a given point in time, and small changes from one year to the next should not be over-interpreted. The overall picture seems to remain quite stable throughout 2004-2006, although there are indications that the relatively poorer countries seem to be catching up with the relatively richer ones. For the three Baltic countries Estonia, Latvia and Lithuania, this development is quite pronounced.

Relative volumes of consumption per capita

While GDP is a useful indicator of the countries' level of economic activity, it may be more fruitful to look at the volume indices for consumption if we want to compare the relative living standards of households. Actual Individual Consumption (AIC) comprises household final consumption expenditure (goods and services purchased by households directly), as well as the consumption of individual services, notably health and education services, provided by government and non-profit organisations. The volume indices for AIC per capita provide a somewhat different picture than the GDP indices.

GDP and AIC per capita can be expected to be highly correlated, since AIC represents a share of 67 percent of GDP on average. Nevertheless, although the differences in AIC per capita are considerable across countries, this is to a lesser extent so than for GDP. In particular, the countries with the highest GDP per capita come out closer to the overall European level when we look at their volume indices for AIC. This is particularly so in the case of Luxembourg, Norway, Ireland, Switzerland and the Netherlands, while the United Kingdom, Iceland and the majority of the relatively poorer countries have somewhat higher relative levels of AIC than of GDP. Still, AIC per capita in the United Kingdom - the country with the highest AIC per capita after Luxembourg - is 3.2 times higher than that of Bulgaria, and almost 1.7 times higher than that of Portugal.

Table 1: Volume indices of GDP and AIC for 2004-2006, EU27=100

	GDP			AIC		
	2004	2005	2006	2004	2005	2006
BE	121	121	120	113	113	112
BG	34	35	37	37	38	40
CZ	75	77	79	69	69	70
DK	126	127	126	111	112	114
DE	117	115	114	115	114	112
EE	57	63	69	55	59	65
IE	142	144	146	106	110	111
EL	94	97	98	95	97	99
ES	101	103	105	99	100	100
FR	111	112	111	115	116	115
IT	107	105	103	103	103	102
CY	91	93	92	90	93	93
LV	46	50	54	47	51	59
LT	51	53	56	57	60	63
LU	254	265	280	173	176	173
HU	63	64	65	63	65	65
MT	77	77	77	82	82	81
NL	130	131	131	118	118	119
AT	129	129	128	122	122	121
PL	51	51	52	54	54	55
PT	75	76	75	78	80	79
RO	34	35	39	38	38	43
SI	85	87	88	78	78	80
SK	57	61	64	55	58	61
FI	117	115	117	102	102	105
SE	125	124	125	113	114	116
UK	122	120	118	134	131	131
HR	49	50	52	47	47	48
MK	27	28	28	31	32	32
TR	29	29	31	29	30	31
IS	132	135	130	130	140	140
NO	165	180	186	128	128	130
CH	135	134	135	120	120	119
AL	:	20	21	:	22	23
BA	:	25	26	:	31	34
ME	:	30	33	:	29	32
RS	:	33	33	:	35	36

Source: Eurostat

Comparative price levels

Table 2 shows the comparative price levels at the level of GDP and AIC expressed as price level indices (PLIs) with EU27=100. The PLIs for GDP and AIC are usually closely correlated, a fact which is hardly surprising, given that AIC normally makes up the predominant part of GDP.

Together with Denmark, the three EFTA countries Iceland, Norway and Switzerland stand out with Europe's highest price levels. Ireland, the United Kingdom, Finland and Sweden also have comparatively high price levels, while France, Germany and Italy come out closer to the EU27 level. The price levels in the new Member States are generally significantly lower than in the old EU15, though less so for Slovenia, Malta and particularly Cyprus. As with the volume indices, small changes in PLIs from one year to the next should be interpreted with caution. Still, a certain trend towards price convergence can be observed over the years 2004-2006, as illustrated by the coefficients of variation of the PLIs for AIC shown at the bottom of table 2.

The lowest comparative price levels in Europe can be found in Bulgaria and in the Former Yugoslav Republic of Macedonia, which both come out below the level of Serbia, Montenegro, Bosnia-Herzegovina and Albania. These six Balkan countries all have price levels below 50 percent of the EU27 level.

Table 2: Comparative price level indices of GDP and AIC for 2004-2006, EU27=100

	GDP			AIC		
	2004	2005	2006	2004	2005	2006
BE	106	106	107	108	107	107
BG	35	36	38	36	37	38
CZ	53	57	60	51	54	57
DK	134	135	137	141	142	142
DE	106	106	105	107	106	105
EE	58	59	61	55	57	59
IE	119	121	120	126	125	126
EL	83	83	84	84	85	86
ES	90	91	90	89	90	91
FR	112	109	109	109	107	107
IT	104	103	103	107	106	106
CY	88	87	88	90	89	89
LV	49	51	56	49	50	53
LT	48	51	53	46	48	50
LU	110	109	109	113	112	113
HU	60	61	58	57	58	55
MT	67	68	69	69	69	70
NL	108	106	106	106	104	104
AT	104	103	104	104	103	103
PL	49	56	58	48	55	56
PT	85	84	84	88	87	87
RO	38	46	50	38	48	50
SI	73	73	73	74	75	74
SK	51	53	55	49	50	53
FI	116	116	115	123	123	122
SE	118	118	118	122	119	119
UK	111	112	114	110	112	113
HR	61	63	64	61	64	65
MK	37	37	37	39	39	40
TR	54	61	59	54	63	63
IS	128	147	142	136	151	142
NO	127	130	131	137	142	142
CH	135	133	129	143	140	136
AL	:	46	47	:	47	48
BA	:	44	46	:	46	48
ME	:	43	42	:	49	50
RS	:	39	42	:	42	45
Coefficients of variation of PLIs						
Euro area (EA13)	0.138	0.139	0.135	0.144	0.142	0.140
EU27	0.342	0.323	0.310	0.360	0.338	0.327
All 37 countries	:	0.393	0.380	:	0.405	0.387

Source: Eurostat

A global comparison: The International Comparison Programme

While the European Comparison Programme covers most European countries and the non-European OECD countries, the International Comparison Programme (ICP) aims at producing similar indicators on a global basis. 146 countries took part in the latest round of the ICP, which was conducted in 2005 under the coordination of the World Bank. Selected results of the 2005 ICP round are presented below. For more detailed data, please consult the ICP website.

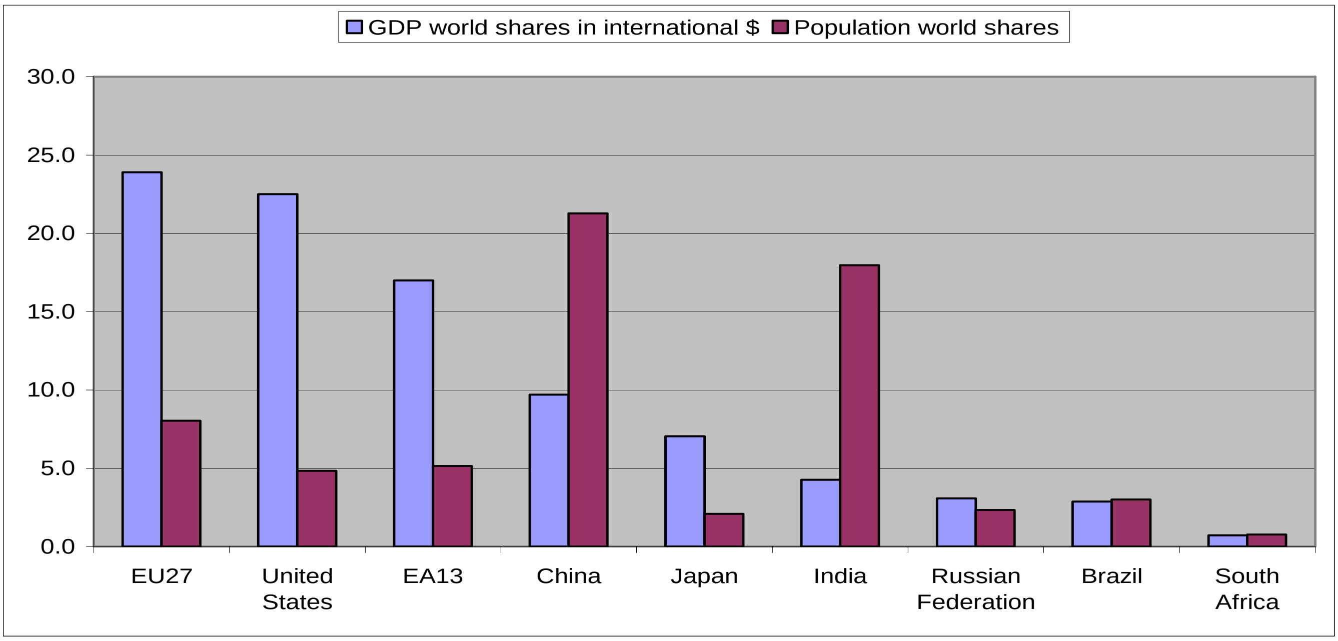
Table 3: ICP 2005 results for selected economies

	GDP per Capita		GDP, bln		Price Level Index	GDP per Capita Indices (US=100)		Shares (WORLD=100)		
economy	PPP	US$	PPP	US$	US=100	PPP	US$	GDP in PPP	GDP in US$	Population
EU27	26 465	27 839	13 018	13 694	105	63.4	66.7	23.9	31.1	8.0
United States	41 674	41 674	12 376	12 376	100	100.0	100.0	22.5	27.9	4.8
EA13	29 323	31 798	9 260	10 042	108	70.3	76.2	17.0	22.8	5.2
China	4 091	1 721	5 333	2 244	42	9.8	4.1	9.7	5.1	21.3
Japan	30 290	35 604	3 870	4 549	118	72.7	85.4	7.0	10.3	2.1
India	2 126	707	2 341	779	33	5.1	1.7	4.3	1.8	18.0
Russian Federation	11 861	5 328	1 698	763	45	28.5	12.8	3.1	1.7	2.3
Brazil	8 606	4 791	1 585	882	56	20.7	11.5	2.9	2.0	3.0
South Africa	8 477	5 162	398	242	61	20.3	12.4	0.7	0.5	0.8

Source: ICP

Table 3 compares some major economies with respect to their GDP and GDP per capita, as well as their comparative price levels. It is of particular interest to observe the impact of applying PPPs in place of nominal exchange rates. For example, while the economy of the United States appears to be about 5.5 times bigger than China's at nominal exchange rates, the difference is just 2.3 times when differences in price levels are taken into account.

Chart 2: The relative size of selected economies



Source: ICP

A similar effect can be seen for GDP per capita. The indices based on nominal exchange rates, containing both a price and a volume component, tend to exaggerate the differences between relatively rich and relatively poor countries and regions. Still, unsurprisingly, the volume of GDP per capita in countries like India, China, South Africa and Brazil remains very substantially below the level of the United States, the EU27 or Japan.

For further ICP results, please visit the ICP website at www.worldbank.org/data/icp.

Results for the OECD and CIS (Community of Independent States) countries can be found at the OECD's website.

Box 2: Regular annual PPP revisions at Eurostat

PPPs are established on an annual basis, therefore only annual revisions apply. According to the regular publication calendar, PPPs are released as preliminary estimates 12 months after the end of the reference year (T) and revised after 24 months, while the final results are released 36 months after the end of the reference year. In addition, an early estimate of PPPs, based on projections, is published - at a high aggregation level - 5 months after the end of the reference year. This regular PPP revision / release calendar is in line with the data delivery timetable for national accounts data as given in the ESA95 regulation(1). Thus, the 2004 results presented in this publication should be regarded as final, while the 2005 and 2006 results are still preliminary.

In the Eurostat database, expenditure categories of national accounts in PPS terms are frequently updated to take into account revisions in national accounts data, as the PPPs are always applied to the latest available national accounts data.

(1) ESA95; European System of Accounts 1995, Council Regulation (EC) 2223/1996 of 25 June 1996

➢ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

What are PPPs and PLIs?

The data in this publication are produced by the Eurostat-OECD Purchasing Power Parity (PPP) programme. The full methodology used in the programme is described in the *Eurostat-OECD Methodological manual on purchasing power parities* which is available free of charge from the Eurostat website.

In their simplest form PPPs are nothing more than price relatives that show the ratio of the prices in national currencies of the same good or service in different countries. For example, if the price of a hamburger in France is 2.84 euros and in the United States it is 2.20 dollars, the PPP for hamburgers between France and the United States is 2.84 euros to 2.20 dollars or 1.29 euros to the dollar. In other words, for every dollar spent on hamburgers in the United States, 1.29 euros would have to be spent in France in order to obtain the same quantity and quality – or volume – of hamburgers.

Comparative price levels as presented in this publication are the ratios of PPPs to exchange rates. They provide a measure of the differences in price levels between countries by indicating for a given product group the number of units of common currency needed to buy the same volume of the product group or aggregate in each country.

Price level indices (PLIs) provide a comparison of the countries' price levels with respect to the European Union average: if the price level index is higher than 100, the country concerned is relatively expensive compared to the EU average and vice versa. The EU average is calculated as the weighted average of the national PLIs, weighted with the expenditures corrected for price level differences. Price level indices are not intended to rank countries strictly. In fact, they only provide an indication of the order of magnitude of the price level in one country in relation to others, particularly when countries are clustered around a very narrow range of outcomes. The degree of uncertainty associated with the basic price data and the methods used for compiling PPPs, may affect in such a case the minor differences between the PLIs and result in differences in ranking which are not statistically or economically significant.

The main use of PPPs is to convert expenditures (including GDP) of different countries into real expenditures (and real GDP). Real expenditures are valued at a uniform price level and so reflect only differences in the volumes purchased in countries. PPP and real expenditures provide the price and volume measures required for international comparisons.

Country codes used in this publication

AL	Albania	**IT**	Italy
AT	Austria	**LT**	Lithuania
BA	Bosnia-Herzegovina	**LU**	Luxembourg
BE	Belgium	**LV**	Latvia
BG	Bulgaria	**ME**	Montenegro
CH	Switzerland	**MK**[1]	Former Yugoslav Republic of Macedonia
CY	Cyprus		
CZ	Czech Republic	**MT**	Malta
DE	Germany	**NL**	Netherlands
DK	Denmark	**NO**	Norway
EE	Estonia	**PL**	Poland
EL	Greece	**PT**	Portugal
ES	Spain	**RO**	Romania
FI	Finland	**RS**	Serbia[2]
FR	France	**SE**	Sweden
HR	Croatia	**SI**	Slovenia
HU	Hungary	**SK**	Slovakia
IE	Ireland	**TR**	Turkey
IS	Iceland	**UK**	United Kingdom

[1]MK is a provisional code which does not prejudge in any way the definitive nomenclature for this country, which will be agreed following the conclusion of negotiations currently taking place on this subject at the United Nations.

[2]Including Kosovo, under the auspices of the United Nations, pursuant to UN Security Council Resolution 1244 of 10 June 1999.

Further information:

Data: EUROSTAT Website/Economy and finance/Data

Economy and finance

- Prices
  - Purchasing power parities

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