

Price levels for investment vary by a factor of up to two between EU countries ...

...but price dispersion is much higher for construction than for other investments

In 2009, the highest price level for investment among the EU Member States was observed in Denmark at 26% above the EU average, while in the cheapest Member State, Romania, the price level was 38% below the EU average.

These are the main findings of the results of two price surveys carried out in 2009 within the Eurostat-OECD Purchasing Power Parities (PPP) Programme. These two surveys cover construction (residential buildings, non-residential buildings and civil engineering works) and machinery, equipment and other products, respectively.

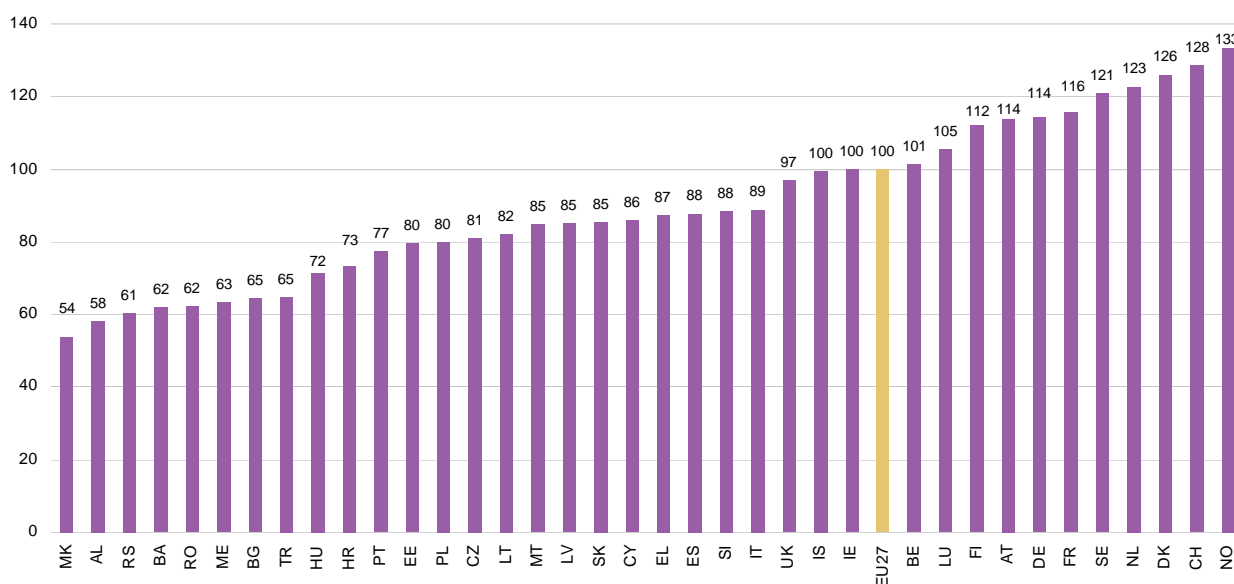
A total of 37 countries participated in the surveys (see the methodological notes).

The results of the surveys are expressed in "price level indices" (PLIs), which provide a comparison of countries' price levels with respect to the EU average: if the PLI is higher than 100,

the country concerned is relatively expensive compared to the EU average, while if the index is lower than 100, then the country is relatively inexpensive compared to the EU average.

Chart 1 shows the 2009 PLIs for investment. On the following pages, PLIs are shown for sub-groups of products. Chart 1 shows that the Western Balkan Countries are the cheapest countries for investments, in particular the former Yugoslav Republic of Macedonia with a PLI of 54. On the other side of the spectrum, Norway, Switzerland and Denmark record the highest price levels for investments, with PLIs of 133, 128 and 126, respectively.

Figure 1: Price level index for investment, 2009, EU27=100



Source: Eurostat (online data code: prc.ppp.ind)

Box 1: Investment

Investment (Gross fixed capital formation in national accounts terms) accounts on average for 19 per cent of Gross Domestic Product (GDP) in EU Member States. It is made up of the following categories:

- Machinery, equipment and other products:
 - . Metal products and equipment, except electrical and optical equipment
 - . Fabricated metal products, except machinery and equipment
 - . Engines and turbines, pumps and compressors
 - . Other general purpose machinery
 - . Agricultural and forestry machinery
 - . Machine tools
 - . Machinery for metallurgy, mining, quarrying and construction
 - . Machinery for food, beverages and tobacco processing
 - . Machinery for textile, apparel and leather production
 - . Other special purpose machinery
 - . Electrical and optical equipment
 - . Office machinery
 - . Computers and other information processing equipment
 - . Electrical machinery and apparatus
 - . Radio, TV and communications equipment and apparatus
 - . Medical, precision and optical instruments, watches and clocks
 - . Transport equipment
 - . Road transport equipment
 - . Other transport equipment
 - . Boats, steamers, tugs, floating platforms, rigs
 - . Locomotives, rail-cars, vans and wagons, other rail equipment
 - . Aircraft, helicopters, hovercrafts and other aeronautical equipment
 - . Products of agriculture, forestry, fisheries and aquaculture
 - . Software
 - . Other products
- Construction
 - . Residential buildings
 - . Non-residential buildings
 - . Civil engineering works

Box 2: The impact of exchange rate changes on PLIs

As explained in the methodological notes, the PLI for a given country is calculated as its purchasing power parity (PPP) divided by its annual average exchange rate to the euro. This implies that exchange rate movements have an impact on the PLIs. A depreciation of a country's currency against the euro will make the country cheaper in comparison to euro area countries and this will show as a decrease of the relative price level expressed in the PLI.

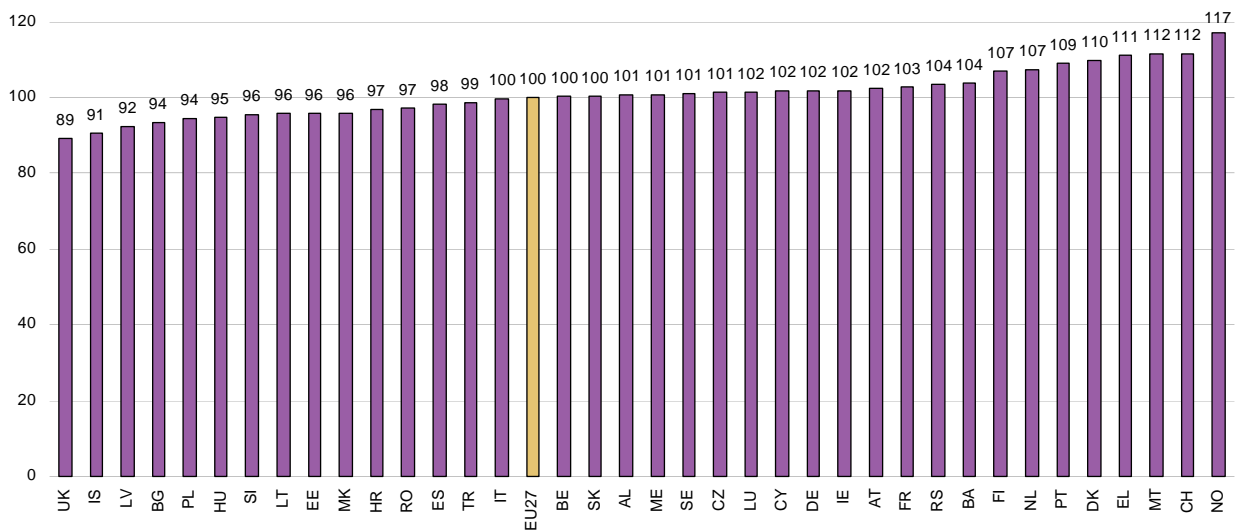
In 2009, several countries experienced relatively large exchange rate movements. The most prominent examples are Iceland and the United Kingdom (with depreciations of 50% and 23% between 2007 and 2009, respectively). This explains in part some changes in the position of countries in PLIs compared to previously published data for 2007.

Machinery, equipment and other products

Chart 2 shows the PLIs for machinery and equipment including metal products and equipment, electrical and optical equipment and transport equipment (refer to box 1 for the classification of investment products used). The main characteristic shown by this chart is its almost flat profile - the price levels for this type

of product are quite similar across countries. Prices in the most expensive country, Norway, are only 31% higher than those in the least expensive country, the United Kingdom. The low price level of the United Kingdom can be partially explained by the depreciation of the pound sterling (see box 2).

Figure 2: Price level index for machinery and equipment, 2009, EU27 = 100



Source: Eurostat (online data code: [prc_ppp_ind](#))

Box 3: Main characteristics of the 2009 survey on prices for machinery, equipment and other products

The survey on prices for machinery, equipment and other products is carried out every 2 years. The 2009 survey, whose results are shown in this SIF, was carried out in April and May 2009.

Countries collect prices for a list of 621 items, divided over 17 subgroups in four main categories: metal products and equipment, electrical and optical equipment, transport equipment and software.

From the subgroups listed in box 1, no prices are collected for other transport equipment, boats, steamers, tugs, floating platforms and rigs, locomotives, rail-cars, vans, wagons and other rail equipment, aircrafts, helicopters, hovercrafts and other aeronautical equipment, and products of agriculture, forestry and other products. PLIs for these subgroups are estimated taking PPPs of other subgroups as proxy.

Prices refer to purchasers' prices including non-deductible VAT.

Table 1: Price level indices for machinery, equipment and software, 2009, EU27 = 100

	Investment	Machinery and equipment	Metal products and equipment	Electrical and optical equipment	Transport equipment	Software
NO	133	117	115	111	126	133
CH	128	112	113	113	106	115
DK	126	110	113	107	110	106
NL	123	107	104	112	107	107
SE	121	101	105	102	96	115
FR	116	103	103	102	105	104
DE	114	102	105	101	101	100
AT	114	102	97	105	109	95
FI	112	107	107	105	111	115
LU	105	102	99	107	98	101
BE	101	100	96	107	100	119
EU27	100	100	100	100	100	100
IE	100	102	94	96	108	113
IS	100	91	96	92	79	82
UK	97	89	89	92	86	83
IT	89	100	103	94	100	94
SI	88	96	96	99	90	122
ES	88	98	91	106	100	98
EL	87	111	115	114	107	101
CY	86	102	99	102	102	88
SK	85	100	100	103	95	120
LV	85	92	91	96	89	107
MT	85	112	108	114	113	104
LT	82	96	91	103	94	100
CZ	81	101	101	110	95	105
PL	80	94	96	101	85	102
EE	80	96	97	102	87	112
PT	77	109	106	109	114	112
HR	73	97	93	102	91	98
HU	72	95	92	100	95	114
TR	65	99	98	104	90	85
BG	65	94	90	101	90	95
ME	63	101	96	106	100	97
RO	62	97	101	103	89	107
BA	62	104	105	104	102	99
RS	61	104	100	104	109	95
AL	58	101	97	103	101	105
MK	54	96	91	100	98	101
Variation coefficients						
EA16	15.9	4.7	5.7	5.2	6.3	8.8
EU15	14.2	5.4	6.5	6.0	6.9	9.1
EU27	19.0	5.8	6.3	5.4	8.9	9.0
All 37	24.6	6.3	6.6	5.4	9.8	10.6

Source: Eurostat (online data code: [prc_ppp_ind](#))

Table 1 shows the countries' PLIs for the aggregate machinery and equipment as well as for its three main sub-groups: metal products and equipment, electrical and optical equipment, transport equipment. In addition, the PLIs for software are shown.

Countries are sorted according to their overall price level for investment (first column). The shaded fields indicate the highest and lowest PLIs per category among the 27 EU Member States. The highest and lowest PLIs among all 37 participating countries are marked in bold.

With the exception of transport equipment (where Poland is slightly cheaper), the United Kingdom is the least expensive Member State for all categories in the table. Malta is the most expensive Member State for machinery and equipment and for electrical and optical equipment. For the latter category, Malta shares the highest price level with Greece, which is also the most expensive Member State for metal products and equipment. For transport equipment and software, the most expensive Member States are Portugal and Slovenia, respectively.

At the bottom of the table, variation coefficients are provided for the euro area (EA16), the 15 "old" Member States (EU15), the European Union (EU27) and the group of all countries participating in the program (All 37). The variation coefficient is defined as the standard deviation of the PLIs of the respective group of countries as percentage of their average PLI. The higher the variation coefficient, the higher is the price dispersion in the respective category.

The variation coefficients at the bottom of table 1 confirm the relatively low price dispersion across countries for these investment products.

The category that shows the highest homogeneity of price levels across countries is for electrical and optical equipment, while the category showing the highest price dispersion is for software.

Construction

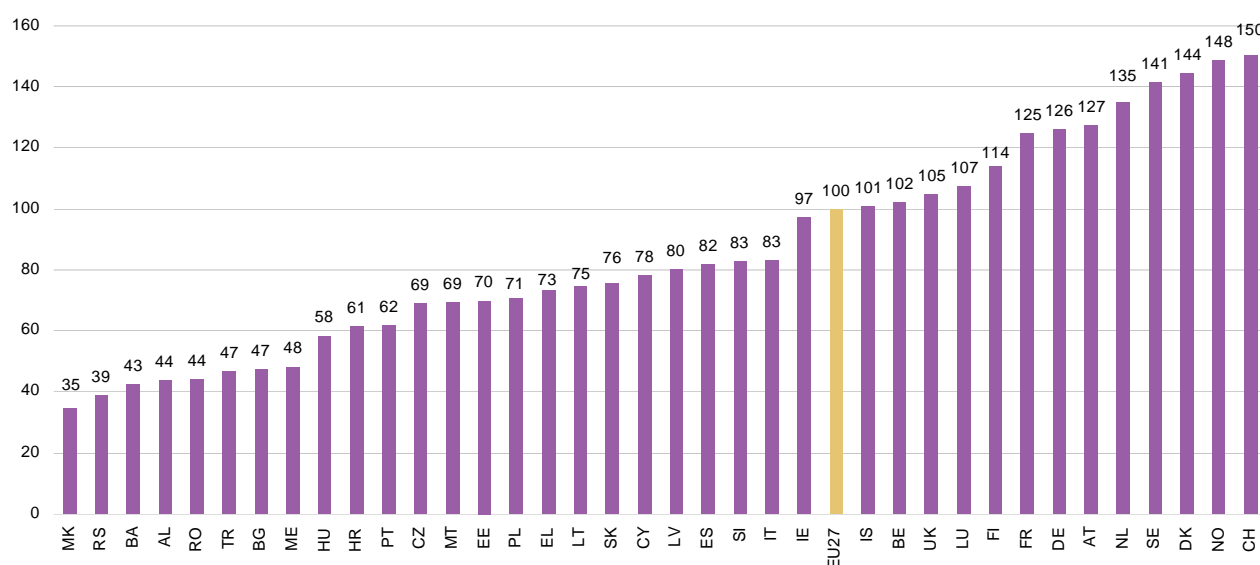
Chart 3 shows the PLIs for construction. They range from 35% for the cheapest country, the former Yugoslav Republic of Macedonia, to 150% for the most expensive, Switzerland. That means that the most expensive country is more than 4 times as expensive as the cheapest one.

The former Yugoslav Republic of Macedonia, Serbia, Bosnia-Herzegovina, Albania, Romania, Turkey, Bulgaria and Montenegro are the cheapest

countries for investment in construction, showing price levels under 50% of the EU average. On the other hand, Sweden, Denmark, Norway and Switzerland are the most expensive countries for investment in construction, with PLIs of more than 40% above the EU average.

There is a group of countries whose price levels are close to the EU27 average: Ireland, Iceland, Belgium, United Kingdom and Luxembourg.

Chart 3: Price level index for construction, 2009, EU27 = 100



Source: Eurostat (online data code: [prc_ppp_ind](#))

Box 4: Main characteristics of the 2009 survey on construction prices

The 2009 survey on construction prices, whose results are published in this SIF, was carried out in April and May 2009.

Countries collect prices for a list of "bills of quantities", which are comparable construction projects such as a detached house, an office building or an asphalt road. Each bill of quantities consists of a number of chapters or major components (like earthworks, concrete, masonry, etc.) which are made up of items or elementary components (like excavation of the terrain, dumping and compacting of soil, etc.).

The construction projects are divided into 3 sub-groups: residential buildings (comprising 4 bills of quantities: detached house, Portuguese house, Nordic house and apartment building), non-residential buildings (comprising 3 bills of quantities: factory building, office building and primary school) and civil engineering works (also 3 bills of quantities: asphalt road, bridge and sewer main).

Countries are asked to collect purchasers' prices for the bills of quantities, i.e., prices actually paid in markets for the elementary components that make up those bills of quantities and the additional expenses incurred that build up to the project total cost paid by the client. Non-deductible VAT is added to these purchasers' prices.

Table 2: Price level indices for construction and its components, 2009, EU27 = 100

	Investment	Construction	Residential buildings	Non-residential buildings	Civil Engineering Works
NO	133	148	156	154	136
CH	128	150	169	148	127
DK	126	144	158	139	128
NL	123	135	138	140	121
SE	121	141	140	136	155
FR	116	125	122	125	129
DE	114	126	128	132	107
AT	114	127	130	125	125
FI	112	114	116	112	113
LU	105	107	118	112	93
BE	101	102	99	102	108
EU27	100	100	100	100	100
IE	100	97	101	97	93
IS	100	101	129	92	90
UK	97	105	88	112	126
IT	89	83	79	74	105
SI	88	83	72	79	109
ES	88	82	77	85	87
EL	87	73	69	75	77
CY	86	78	80	73	81
SK	85	76	69	76	86
LV	85	80	60	82	111
MT	85	69	61	71	85
LT	82	75	74	71	83
CZ	81	69	58	70	84
PL	80	71	63	69	87
EE	80	70	65	69	81
PT	77	62	63	66	59
HR	73	61	60	63	64
HU	72	58	50	57	77
TR	65	47	40	43	67
BG	65	47	44	46	55
ME	63	48	50	53	46
RO	62	44	40	41	57
BA	62	43	43	41	47
RS	61	39	35	40	44
AL	58	44	42	41	50
MK	54	35	34	36	35
Variation coefficients					
EA16	15.9	26.7	31.7	26.7	20.0
EU15	14.2	23.4	26.4	22.7	22.2
EU27	19.0	31.6	37.4	32.1	25.0
All 37	24.6	40.1	46.3	40.7	33.1

Source: Eurostat (online data code: [prc_ppp_ind](#))

Table 2 shows the PLIs for the main categories of construction expenditure (residential buildings, non-residential buildings and civil engineering works). In this table countries are sorted according to their PLI for total investment (first column).

As in table 1, the shaded fields indicate the highest and lowest PLIs per category among the 27 EU Member States. The highest and lowest PLIs among all 37 participating countries are marked in bold.

Romania is the Member State that shows the lowest price levels for all categories of construction, except civil engineering works, where Bulgaria is slightly cheaper. Denmark (for residential buildings), Netherland (for non-residential buildings) and Sweden (for civil engineering works) are the most expensive Member States.

Price dispersion is most pronounced within the 37 country group. It is much less pronounced in the euro area than in the EU as a whole. Price dispersion for all categories of construction is higher than that for investment, due to the higher share of labour input into construction and the high dispersion of wages across countries.

METHODOLOGICAL NOTES

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 for 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.

Country abbreviations:

EU member states

BE	Belgium	LU	Luxembourg
BG	Bulgaria	HU	Hungary
CZ	Czech Republic	MT	Malta
DK	Denmark	NL	Netherlands
DE	Germany	AT	Austria
EE	Estonia	PL	Poland
IE	Ireland	PT	Portugal
EL	Greece	RO	Romania
ES	Spain	SI	Slovenia
FR	France	SK	Slovakia
IT	Italy	FI	Finland
CY	Cyprus	SE	Sweden
LV	Latvia	UK	United Kingdom
LT	Lithuania		

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 by 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 cause 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 to reflect only differences in the volumes purchased in countries. PPP and real expenditures provide the price and volume measures required for international comparisons.

Candidate countries

HR	Croatia
MK*	former Yugoslav Republic of Macedonia
TR	Turkey

EFTA countries

CH	Switzerland
IS	Iceland
NO	Norway

Western Balkan countries

AL	Albania
BA	Bosnia and Herzegovina
ME	Montenegro
RS	Serbia

**MK: 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 UN*

Further information

Eurostat Website: <http://ec.europa.eu/eurostat>

Data on Purchasing Power Parities:

http://epp.eurostat.ec.europa.eu/portal/page/portal/purchasing_power_parities/data/database

More information about Purchasing Power Parities:

http://epp.eurostat.ec.europa.eu/portal/page/portal/purchasing_power_parities/introduction

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