

Price levels of investment vary by more than two to one across EU

The spread of construction prices is larger than for other investments

In 2011, the highest price level for investment among the EU Member States was observed in Sweden at 36% above the EU average, while in the cheapest Member State, Romania, the price level was 41% below the EU average.

These conclusions are drawn from the results of two price surveys carried out in 2011 within the framework of the Eurostat-OECD Purchasing Power Parities (PPP) Programme. The two surveys cover construction and machinery, equipment and other products.

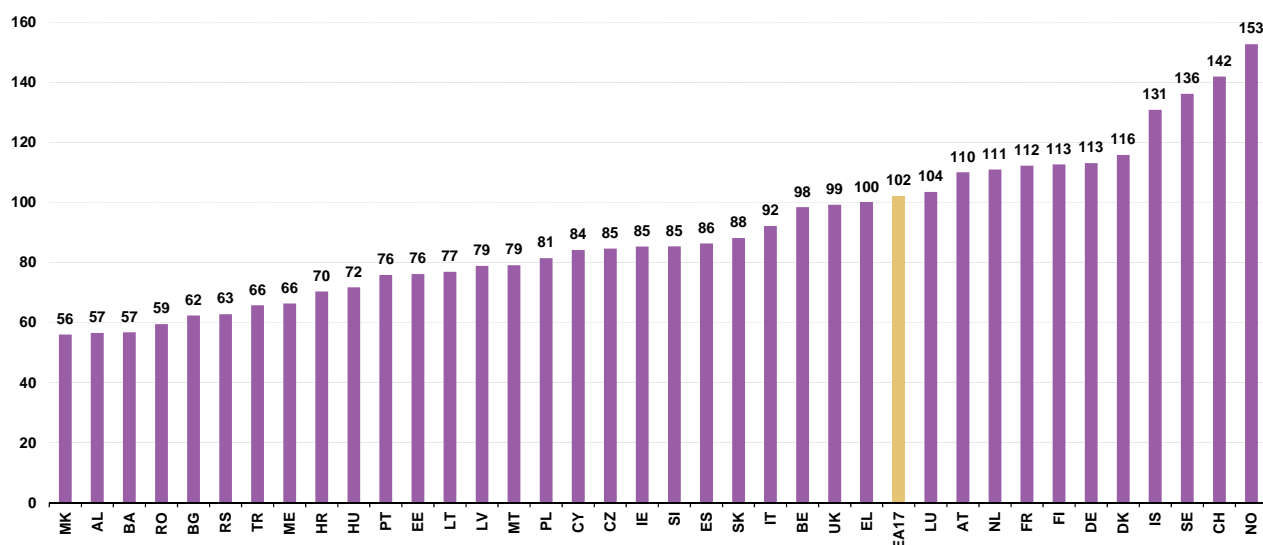
A total of 37 countries participated in the surveys (see the methodological notes).

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.

Figure 1 shows the 2011 PLIs for total investment. The cheapest country for investments is the former Yugoslav Republic of Macedonia with a PLI of 56, followed by Albania and Bosnia and Herzegovina with a PLI of 57 each. On the other end of the spectrum, Norway, Switzerland and Sweden record the highest price levels for investments, with PLIs of 153, 142 and 136, respectively.

Figure 1: Price level indices for investment, 2011, 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/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. An appreciation of a country's currency against the euro will make the country more expensive in comparison to euro area countries and this will show as an increase of the relative price level expressed in the PLI.

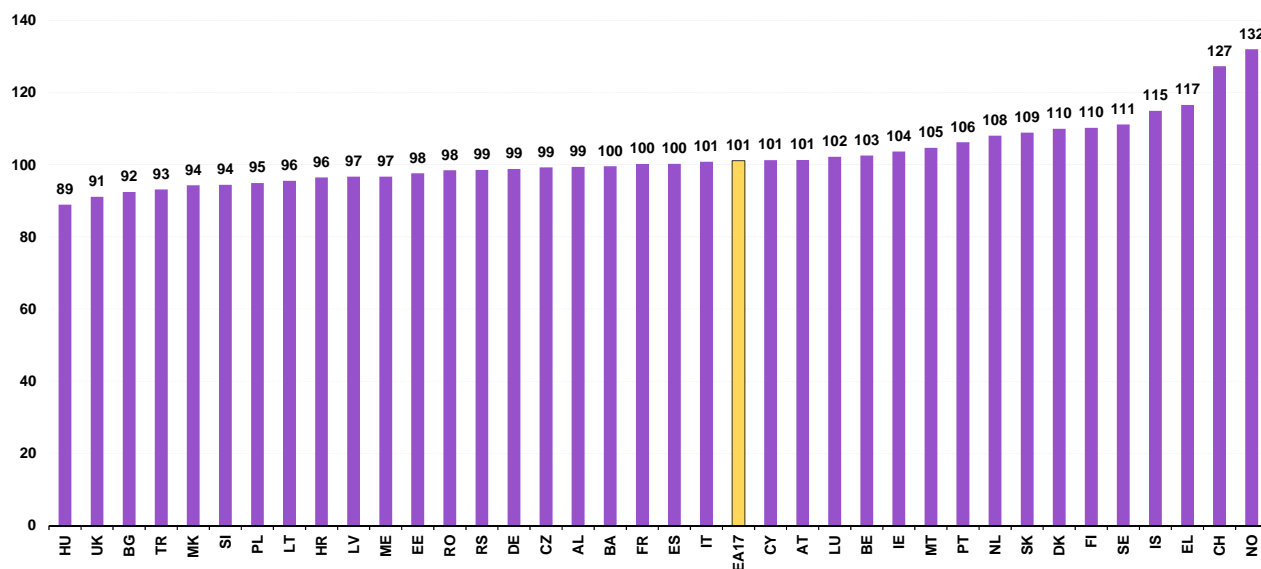
In 2011, the most prominent example is Sweden with an appreciation of 15% between 2009 and 2011. This explains in part some changes in the position of this country in PLIs compared to previously published data for 2009.

Machinery, equipment and other products

Figure 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 that

the price levels for this type of products are relatively homogeneous across countries. Prices in the most expensive country, Norway, are 48% higher than those in the least expensive country, Hungary.

Figure 2: Price level indices for machinery and equipment, 2011, EU27=100



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

Box 3: Main characteristics of the 2011 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 2011 survey, whose results are shown in this SIF, was carried out in three months - April, May and June.

Countries collect prices for a list of 549 items, divided over 17 sub-groups in four main categories: metal products and equipment, electrical and optical equipment, transport equipment and software.

From the sub-groups 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 sub-groups are estimated taking PPPs of other sub-groups as proxy.

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

Table 1: Price level indices for machinery, equipment and software, 2011, EU27 = 100

	Investment	Machinery and equipment	Metal products and equipment	Electrical and optical equipment	Transport equipment	Software
SE	136	111	111	113	110	115
DK	116	110	110	114	110	91
DE	113	99	96	102	101	106
FI	113	110	108	111	114	103
FR	112	100	100	97	101	97
NL	111	108	110	104	107	101
AT	110	101	96	108	103	96
LU	104	102	104	104	100	99
EA17	102	101	101	102	101	100
EL	100	117	126	121	104	108
UK	99	91	93	89	93	94
BE	98	103	103	104	102	96
IT	92	101	104	101	96	111
SK	88	109	112	117	92	121
ES	86	100	100	101	100	94
SI	85	94	92	97	93	92
IE	85	104	101	100	107	89
CZ	85	99	101	101	93	101
CY	84	101	101	104	96	95
PL	81	95	97	98	87	98
MT	79	105	97	111	112	98
LV	79	97	96	102	90	107
LT	77	96	96	95	94	109
EE	76	98	99	99	93	98
PT	76	106	103	107	111	99
HU	72	89	86	94	89	92
BG	62	92	88	101	90	97
RO	59	98	98	100	95	97
NO	153	132	131	121	139	119
CH	142	127	134	126	122	100
IS	131	115	108	130	114	109
HR	70	96	98	99	92	88
ME	66	97	97	101	89	98
TR	66	93	91	93	96	83
RS	63	99	97	102	97	97
MK	56	94	92	97	93	87
AL	57	99	98	99	99	100
BA	57	100	95	112	92	89
Variation coefficients						
EA17	13.9	5.0	7.3	6.1	6.4	7.5
EU27	19.4	6.4	8.0	6.9	7.8	7.5
All 37	27.4	8.9	10.2	8.8	10.6	8.5

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 and transport equipment. In addition, the PLIs for software are shown. Countries are sorted according to their overall price level for investment (first column) within the following groups: EU27, EFTA, Croatia (accessing country), Candidate countries, Potential candidate countries. 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.

According to table 1, Greece is the most expensive Member State for total machinery and equipment, as well as for metal products and equipment and electrical and optical equipment. Finland has the highest price level for transport equipment, while Slovakia shows the highest prices for software, among the EU Member States.

On the other hand, Hungary is the cheapest Member State for total machinery and equipment and metal products and equipment. The United Kingdom is the least expensive Member State for electrical and optical equipment, whereas Poland is cheapest for transport equipment. Ireland has the lowest price level for software among the Member States.

At the bottom of the table, variation coefficients are provided for the euro area (EA17), 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.

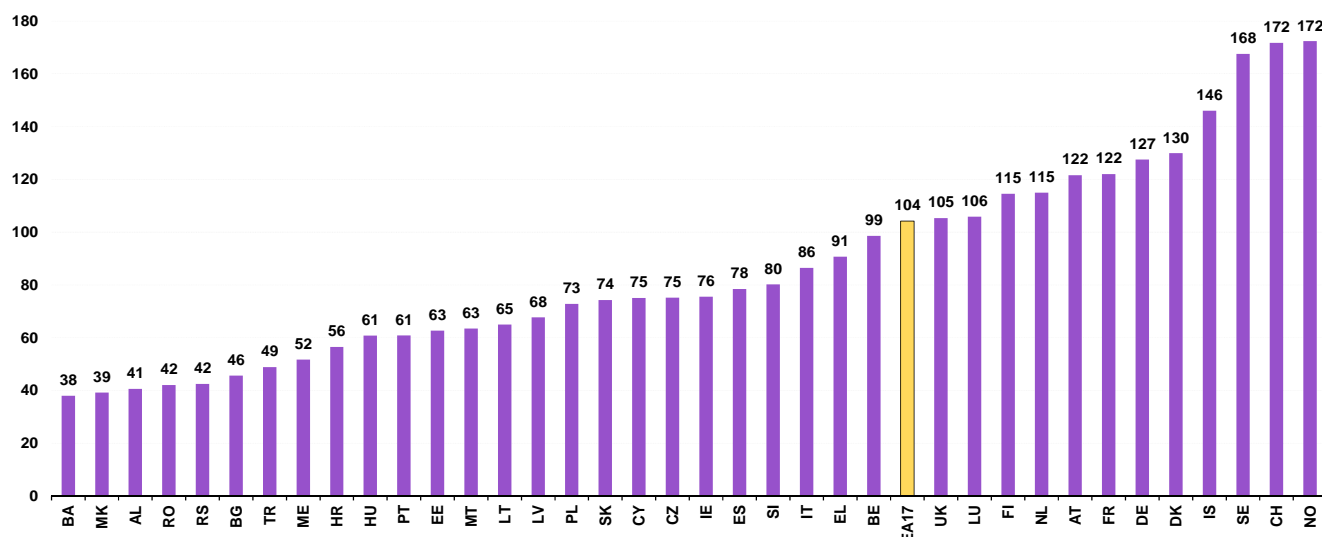
Among all 37 countries, the category that shows the highest homogeneity of price levels across countries is software, while the category showing the highest price dispersion is transport equipment.

Construction

Figure 3 below presents the PLIs for construction. The country with the lowest price level is Bosnia and Herzegovina, with PLI of 38. The most expensive countries for construction investment are Norway and Switzerland with PLIs of 172, more than 4 times as expensive as Bosnia and Herzegovina.

Republic of Macedonia, Albania, Romania, Serbia, Bulgaria and Turkey are the cheapest countries for investment in construction, showing price levels under 50% of the EU average. On the other hand, Iceland, Sweden, Switzerland and Norway are the most expensive countries for investment in construction, with PLIs of more than 40% above the EU average.

Figure 3: Price level indices for construction, 2011, EU27=100



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

Box 4: Main characteristics of the 2011 survey on construction prices

The 2011 survey on construction prices, whose results are published in this SIF, was carried out in three months – May, June and July 2011.

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, a house representative for Portugal, a house representative for Nordic countries and apartment building), non-residential buildings (comprising 2 bills of quantities: factory building and office building) and civil engineering works (also 2 bills of quantities: asphalt road and bridge).

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, 2011, EU27 = 100

	Investment	Construction	Residential buildings	Non-residential buildings	Civil engineering works
SE	136	168	172	169	160
DK	116	130	138	130	115
DE	113	127	131	130	114
FI	113	115	118	111	112
FR	112	122	117	120	136
NL	111	115	118	116	110
AT	110	122	132	119	107
LU	104	106	122	103	92
EA17	102	104	105	105	102
EL	100	91	85	104	82
UK	99	105	84	113	144
BE	98	99	101	91	103
IT	92	86	85	84	95
SK	88	74	69	76	81
ES	86	78	75	81	83
SI	85	80	73	83	90
IE	85	76	76	78	74
CZ	85	75	64	77	91
CY	84	75	70	72	88
PL	81	73	59	71	95
MT	79	63	56	66	73
LV	79	68	58	74	71
LT	77	65	60	64	73
EE	76	63	60	63	68
PT	76	61	60	60	66
HU	72	61	49	61	80
BG	62	46	35	50	53
RO	59	42	38	41	50
NO	153	172	194	167	154
CH	142	172	188	194	128
IS	131	146	182	137	126
HR	70	56	48	63	60
ME	66	52	45	52	64
TR	66	49	36	53	76
RS	63	42	36	42	50
MK	56	39	31	43	47
AL	57	41	36	40	47
BA	57	38	35	37	46
Variation coefficients					
EA17	13.9	24.0	28.4	23.5	19.9
EU27	19.4	32.9	39.6	32.4	27.7
All 37	27.4	43.9	54.3	43.9	33.9

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) within the following groups: EU27, EFTA, Croatia (accessing country), Candidate countries, Potential candidate countries.

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 residential buildings, where Bulgaria is slightly cheaper. Sweden is the most expensive Member State for all construction categories.

Price dispersion is most apparent within the 37 country group. It is much less significant in the euro area (EA17) than in the EU as a whole. Price dispersion for all categories of construction is higher than that for total investment, due to the higher share of labour input into construction and the high dispersion of wages across countries. Price dispersion is less in civil engineering than for residential and non-residential buildings.

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 euro and in the United Kingdom it is 2.20 pound sterling, the PPP for hamburgers between France and the United Kingdom is 2.84 euro to 2.20 pounds or 1.29 euro to the pound. In other words, for every pound spent on hamburgers in the United Kingdom, 1.29 euro would have to be spent in France in order to obtain the same quantity and quality – or volume – of hamburgers.

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.

EFTA countries

IS*	Iceland
NO	Norway
CH	Switzerland

Acceding state and candidate countries

ME	Montenegro
HR	Croatia (accessing state)
MK**	former Yugoslav Republic of Macedonia
RS	Serbia
TR	Turkey

Potential candidate countries

AL	Albania
BA	Bosnia and Herzegovina

* also a candidate country

**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

Further information about Purchasing Power Parities:

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

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