

## RATES OF CONVERSION

To compare a single country's real GDP over a period of years, it is necessary to remove movements that are due to price changes. In the same way, in order to compare the real GDPs of a group of countries at a single point in time, it is necessary to remove any differences in their GDPs that are due to differences in their price levels. Price indices are used to remove the effects of price changes in a single country over time; purchasing power parities (PPPs) are used to remove the effects of the different levels of prices within a group of countries at a point in time.

Market exchange rates are sometimes used to convert GDP in different currencies to a common currency. However, comparisons of GDP based on exchange rates do not reflect the real volumes of goods and services in the GDP of the countries being compared. For many of the low-income countries, for example, the differences between GDP converted using market exchange rates and GDP converted using PPPs are considerable. In general, the use of market exchange rates understates the real GDP of low-income countries and overstates the real GDP of high-income countries.

### Definition

PPPs are currency converters that equalise price levels between countries. The PPPs shown here have been calculated by comparing the prices in OECD countries of a common basket of about 2 500 goods and services. Countries are not required to price all the items in the common basket because some of the items may be hard to

find in certain countries. However, the common basket has been drawn up in such a way that each country can find prices for a wide range of the goods and services that are representative of their markets.

The goods and services to be priced cover all those that enter into final expenditure: household consumption, government services, capital formation and net exports. Prices for the different items are weighted by their shares in total final expenditure to obtain the PPPs for GDP shown here.

Comparative price level indices are the ratios of PPPs to market exchange rates. At the level of GDP they provide a measure of the differences in the general price levels of countries.

### Comparability

The PPPs shown here for the OECD and the Russian Federation have been calculated jointly by the OECD and Eurostat using standard procedures. In consultation with their member countries, OECD and Eurostat keep their methodology under review and improvements are made regularly. PPPs for non-OECD countries, with the exception of the Russian Federation, are calculated within the framework of the International Comparison Programme (ICP). There are six regions in the ICP programme of which five – Africa, Asia-Pacific, the Commonwealth of Independent States (CIS), Latin America & Caribbean and Western Asia – are ICP regions overseen by the Global Office at the World Bank.

### Overview

Over the period 1999-2011, there were significant differences between changes in PPPs and changes in market exchange rates; even when the two indicators moved in the same direction, changes differed in their magnitude.

For Turkey, the Russian Federation and Poland the difference between GDP estimates for 2011 based on either PPPs or market exchange rate is over 60%. For India, the difference is around 190%.

Price level indices are PPPs estimates for 2011 divided by market exchange rates for the same year, with the OECD set equal to 100. In general, there is a positive correlation between GDP levels and the price level. Australia, Denmark, Norway and Switzerland, four OECD countries with high per capita income, also recorded the highest price levels in 2011, exceeding the OECD level by 35% or more, while India had price levels of around 40% of the OECD average. Changes in price level indices should be however interpreted with caution as they are highly dependent on changes in exchange rates.

### Sources

- OECD (2012), "PPP benchmark results 2008", OECD National Accounts Statistics (database).
- For Brazil, China, Indonesia and South Africa: International Monetary Fund (IMF) (2011), *World Economic Outlook Database*, IMF, Washington DC.

### Further information

#### Analytical publications

- Bournot, S., F. Koechlin and P. Schreyer (2011), "2008 benchmark PPPs: Measurement and Uses", OECD Statistics Brief, No. 17.

#### Online databases

- OECD (2012), OECD National Accounts Statistics (database).

#### Statistical publications

- OECD (2011), *National Accounts at a Glance*, OECD Publishing.

#### Websites

- OECD Prices and Purchasing Power Parities (PPP), [www.oecd.org/std/ppp](http://www.oecd.org/std/ppp).



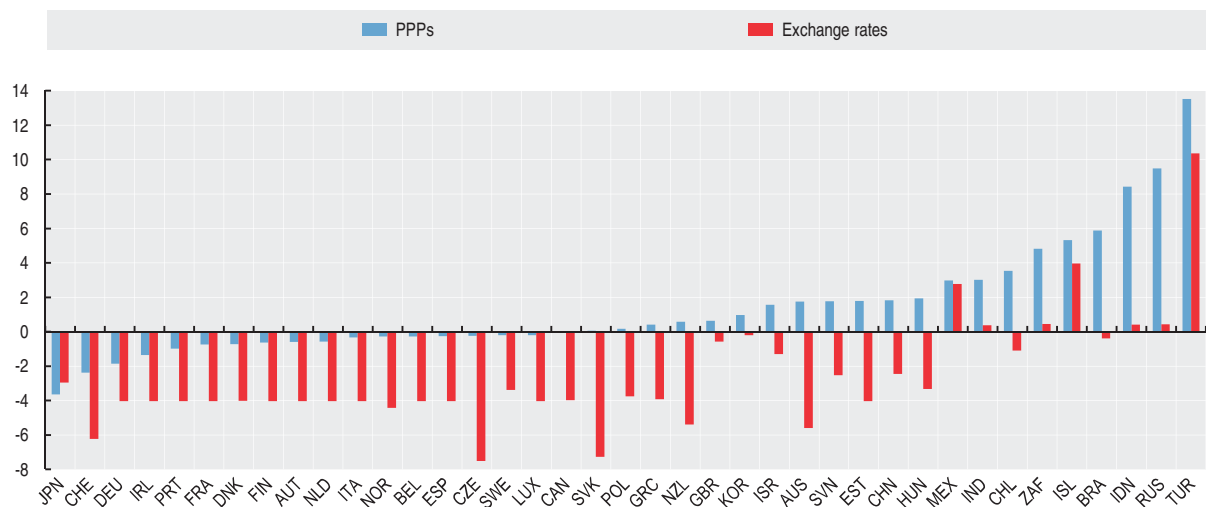
**Purchasing power parities**  
National currency units per US dollar

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	1.30	1.31	1.33	1.34	1.35	1.37	1.39	1.41	1.43	1.48	1.46	1.53	1.56
Austria	0.917	0.900	0.918	0.896	0.885	0.874	0.886	0.856	0.867	0.852	0.846	0.852	0.848
Belgium	0.921	0.891	0.886	0.865	0.879	0.897	0.900	0.883	0.886	0.874	0.860	0.864	0.867
Canada	1.19	1.23	1.22	1.23	1.23	1.23	1.21	1.21	1.21	1.23	1.20	1.22	1.23
Chile	277	284	288	296	307	321	334	363	372	365	376	400	402
Czech Republic	14.1	14.2	14.2	14.3	14.0	14.3	14.3	14.0	13.9	14.3	13.9	14.2	13.9
Denmark	8.47	8.41	8.47	8.30	8.54	8.40	8.59	8.32	8.23	8.01	7.89	7.87	7.82
Estonia	0.44	0.46	0.48	0.48	0.48	0.49	0.50	0.52	0.55	0.55	0.52	0.52	0.54
Finland	1.00	0.99	1.01	1.00	1.01	0.98	0.98	0.95	0.94	0.92	0.91	0.92	0.93
France	0.960	0.939	0.919	0.905	0.938	0.940	0.923	0.903	0.893	0.882	0.868	0.872	0.872
Germany	0.975	0.967	0.956	0.942	0.918	0.897	0.867	0.837	0.830	0.812	0.804	0.809	0.802
Greece	0.681	0.678	0.671	0.660	0.689	0.696	0.714	0.699	0.718	0.701	0.699	0.707	0.706
Hungary	101.1	107.9	110.7	114.9	120.6	126.3	128.6	128.5	131.3	129.4	126.8	130.1	130.7
Iceland	79.7	84.3	89.0	91.3	94.5	94.2	99.1	107.2	113.0	117.4	127.8	135.5	141.6
Ireland	0.930	0.962	0.993	1.004	1.014	1.006	1.010	0.984	0.958	0.952	0.904	0.861	0.839
Israel	3.50	3.44	3.42	3.46	3.63	3.53	3.72	3.83	3.74	3.87	4.02	4.02	4.02
Italy	0.818	0.817	0.808	0.845	0.854	0.873	0.867	0.833	0.817	0.789	0.783	0.805	0.790
Japan	162	155	149	144	140	134	130	125	120	117	115	111	107
Korea	755	746	758	770	794	796	789	775	769	786	804	825	821
Luxembourg	0.941	0.940	0.949	0.934	0.942	0.923	0.953	0.914	0.924	0.906	0.906	0.922	0.920
Mexico	5.63	6.10	6.31	6.55	6.82	7.22	7.13	7.19	7.38	7.47	7.71	7.93	8.19
Netherlands	0.907	0.892	0.907	0.902	0.927	0.909	0.896	0.868	0.857	0.842	0.841	0.839	0.842
New Zealand	1.43	1.44	1.47	1.47	1.50	1.51	1.54	1.49	1.50	1.49	1.48	1.51	1.53
Norway	9.33	9.13	9.18	9.11	9.12	8.99	8.90	8.69	8.77	8.75	8.92	9.01	8.88
Poland	1.74	1.84	1.86	1.83	1.84	1.86	1.87	1.84	1.84	1.86	1.86	1.86	1.87
Portugal	0.697	0.700	0.706	0.708	0.706	0.716	0.684	0.662	0.660	0.649	0.635	0.638	0.633
Slovak Republic	0.501	0.526	0.522	0.528	0.555	0.573	0.566	0.555	0.545	0.533	0.513	0.520	0.528
Slovenia	0.511	0.532	0.565	0.588	0.615	0.611	0.612	0.608	0.629	0.634	0.637	0.642	0.634
Spain	0.733	0.734	0.740	0.733	0.753	0.759	0.765	0.736	0.728	0.720	0.710	0.715	0.716
Sweden	9.29	9.13	9.35	9.35	9.34	9.11	9.38	9.08	8.88	8.77	8.94	9.03	8.95
Switzerland	1.87	1.85	1.84	1.77	1.78	1.75	1.74	1.66	1.60	1.55	1.53	1.52	1.46
Turkey	0.202	0.283	0.428	0.613	0.774	0.812	0.831	0.847	0.864	0.890	0.917	0.967	1.005
United Kingdom	0.653	0.636	0.627	0.628	0.641	0.633	0.636	0.627	0.645	0.651	0.654	0.659	0.678
United States	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Brazil	0.92	0.96	1.02	1.11	1.23	1.30	1.36	1.39	1.43	1.52	1.59	1.69	..
China	3.30	3.29	3.29	3.25	3.27	3.40	3.45	3.47	3.62	3.82	3.76	3.95	..
India	13.3	13.6	13.8	14.0	14.2	14.5	14.7	14.9	15.3	16.2	16.9	18.4	..
Indonesia	2 612	2 775	3 102	3 233	3 338	3 531	3 934	4 347	4 698	5 432	5 829	6 237	..
Russian Federation	5.54	7.31	8.32	9.27	9.87	11.55	12.74	12.64	13.97	14.34	14.48	15.96	18.10
South Africa	2.93	3.12	3.28	3.58	3.70	3.81	3.87	4.00	4.19	4.47	4.75	4.99	..

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**Changes in exchange rates and purchasing power parities**

Average annual growth in percentage, 2000-11



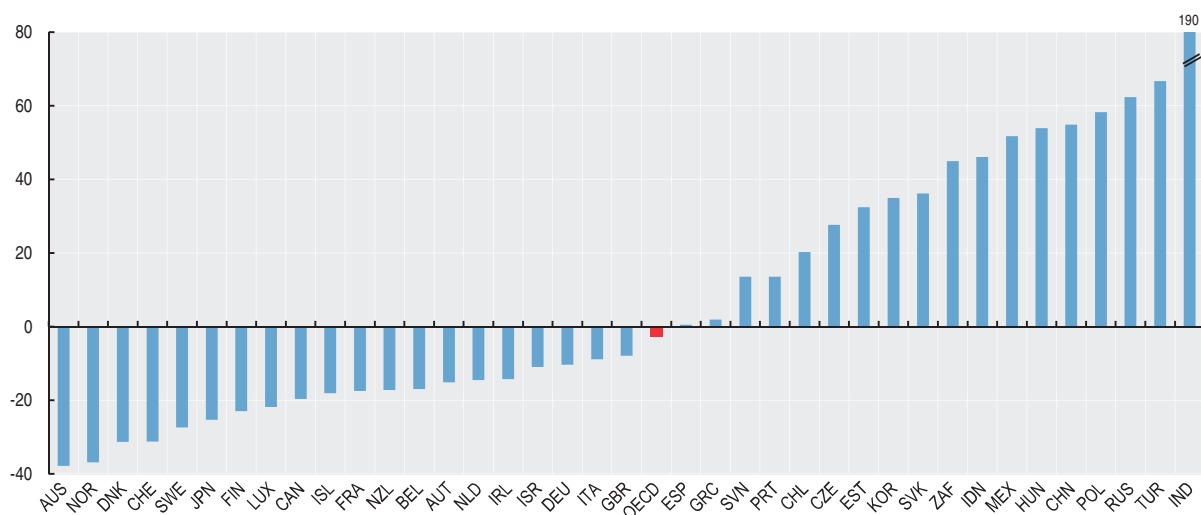
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**Exchange rates**  
National currency units per US dollar

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	1.5500	1.7248	1.9334	1.8406	1.5419	1.3598	1.3095	1.3280	1.1951	1.1922	1.2822	1.0902	0.9695
Austria	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Belgium	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Canada	1.4857	1.4851	1.5488	1.5693	1.4011	1.3010	1.2118	1.1344	1.0741	1.0670	1.1431	1.0302	0.9895
Chile	508.78	539.59	634.94	688.94	691.40	609.53	559.77	530.28	522.46	522.46	560.86	510.25	483.67
Czech Republic	34.569	38.598	38.035	32.739	28.209	25.700	23.957	22.596	20.294	17.072	19.063	19.098	17.696
Denmark	6.9762	8.0831	8.3228	7.8947	6.5877	5.9911	5.9969	5.9468	5.4437	5.0981	5.3609	5.6241	5.3687
Estonia	0.938	1.084	1.117	1.062	0.886	0.805	0.804	0.797	0.731	0.683	0.719	0.755	0.719
Finland	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
France	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Germany	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Greece	0.89698	1.07234	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Hungary	237.15	282.18	286.49	257.89	224.31	202.75	199.58	210.39	183.63	172.11	202.34	207.94	201.06
Iceland	72.335	78.616	97.425	91.662	76.709	70.192	62.982	70.180	64.055	87.948	123.638	122.242	115.954
Ireland	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Israel	4.1397	4.0773	4.2057	4.7378	4.5541	4.4820	4.4877	4.4558	4.1081	3.5880	3.9323	3.7390	3.5781
Italy	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Japan	113.91	107.77	121.53	125.39	115.93	108.19	110.22	116.30	117.75	103.36	93.57	87.78	79.81
Korea	1 188.8	1 131.0	1 291.0	1 251.1	1 191.6	1 145.3	1 024.1	954.8	929.3	1 102.1	1 276.9	1 156.1	1 108.3
Luxembourg	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Mexico	9.560	9.456	9.342	9.656	10.789	11.286	10.898	10.899	10.928	11.130	13.514	12.636	12.423
Netherlands	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
New Zealand	1.8896	2.2012	2.3788	2.1622	1.7221	1.5087	1.4203	1.5421	1.3607	1.4227	1.6002	1.3874	1.2659
Norway	7.7992	8.8018	8.9917	7.9838	7.0802	6.7408	6.4425	6.4133	5.8617	5.6400	6.2883	6.0442	5.6046
Poland	3.9671	4.3461	4.0939	4.0800	3.8891	3.6576	3.2355	3.1032	2.7680	2.4092	3.1201	3.0153	2.9629
Portugal	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Slovak Republic	1.3730	1.5281	1.6051	1.5046	1.2206	1.0707	1.0296	0.9858	0.8197	0.7091	0.7198	0.7550	0.7194
Slovenia	0.75851	0.92913	1.01297	1.00254	0.86427	0.80279	0.80414	0.79715	0.73064	0.68268	0.71984	0.75505	0.71936
Spain	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268	0.71984	0.75505	0.71936
Sweden	8.2624	9.1622	10.3291	9.7371	8.0863	7.3489	7.4731	7.3783	6.7588	6.5911	7.6538	7.2075	6.4935
Switzerland	1.5022	1.6888	1.6876	1.5586	1.3467	1.2435	1.2452	1.2538	1.2004	1.0831	1.0881	1.0429	0.8880
Turkey	0.4188	0.6252	1.2256	1.5072	1.5009	1.4255	1.3436	1.4285	1.3029	1.3015	1.5500	1.5029	1.6750
United Kingdom	0.61806	0.66093	0.69466	0.66722	0.61247	0.54618	0.55000	0.54349	0.49977	0.54397	0.64192	0.64718	0.62414
United States	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Euro Area	0.9386	1.0854	1.1175	1.0626	0.8860	0.8054	0.8041	0.7971	0.7306	0.6827	0.7198	0.7550	0.7194
Brazil	1.8139	1.8294	2.3496	2.9204	3.0775	2.9251	2.4344	2.1753	1.9471	1.8338	1.9994	1.7592	..
China	8.2783	8.2785	8.2771	8.2770	8.2770	8.2768	8.1943	7.9734	7.6075	6.9487	6.8314	6.7703	6.4615
India	43.055	44.942	47.186	48.610	46.583	45.316	44.100	45.307	41.349	43.505	48.405	45.726	46.670
Indonesia	7 855.15	8 421.78	10 260.90	9 311.19	8 577.13	8 938.85	9 704.74	9 159.32	9 141.00	9 698.96	10 389.90	9 090.43	8 770.43
Russian Federation	24.620	28.129	29.169	31.349	30.692	28.814	28.284	27.191	25.581	24.853	31.740	30.368	29.382
South Africa	6.1095	6.9398	8.6092	10.5407	7.5648	6.4597	6.3593	6.7716	7.0454	8.2612	8.4737	7.3212	7.2611

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**Differences in GDP when converted to US dollars using exchange rates and PPPs**  
PPP-based GDP minus exchange rate-based GDP as per cent of exchange rate-based GDP, 2011



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Indices of price levels

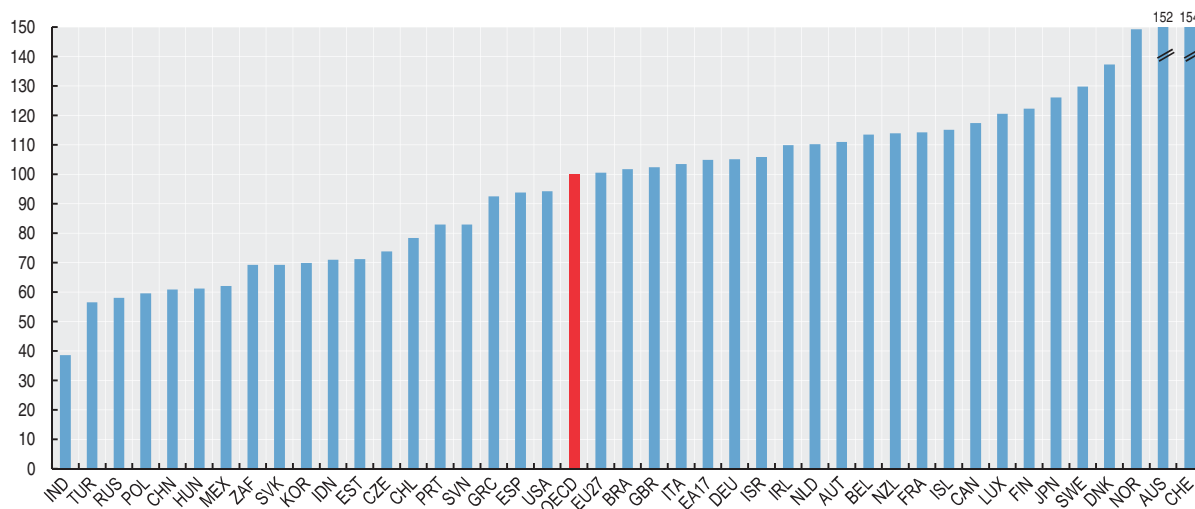
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	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	85	81	77	81	90	99	104	106	115	117	112	137	152
Austria	100	89	92	94	103	107	109	108	115	118	116	110	111
Belgium	100	88	89	91	102	109	110	111	117	121	117	111	113
Canada	82	89	88	87	90	93	99	107	109	109	103	115	117
Chile	56	56	51	48	46	52	59	69	69	66	66	76	78
Czech Republic	42	39	42	49	51	55	59	62	66	79	72	72	74
Denmark	124	111	114	117	133	138	141	140	146	148	145	136	137
Estonia	48	45	48	50	56	59	61	65	73	76	71	68	71
Finland	109	98	102	105	117	119	120	119	124	127	124	118	122
France	104	93	92	95	109	115	113	113	118	122	119	112	114
Germany	106	95	96	99	106	109	106	105	110	112	110	104	105
Greece	77	68	67	69	80	85	87	88	95	97	95	91	92
Hungary	43	41	43	50	55	61	63	61	69	71	62	61	61
Iceland	112	115	102	111	127	132	155	153	170	126	102	108	115
Ireland	101	95	100	105	118	123	124	124	127	131	124	111	110
Israel	86	90	91	81	82	77	82	86	88	102	100	105	106
Italy	89	80	81	89	99	106	106	105	108	109	107	104	103
Japan	145	154	138	128	124	122	116	107	99	107	121	123	126
Korea	65	71	66	68	69	68	76	81	80	67	62	69	70
Luxembourg	102	93	95	98	109	112	117	115	122	125	124	119	121
Mexico	60	69	76	76	65	63	64	66	65	63	56	61	62
Netherlands	98	88	91	94	108	111	110	109	113	116	115	108	110
New Zealand	77	70	69	76	89	98	106	97	107	99	91	106	114
Norway	122	111	115	127	132	131	136	136	144	146	140	145	149
Poland	45	45	51	50	49	50	57	59	64	73	59	60	60
Portugal	76	69	71	74	82	87	84	83	87	90	87	82	83
Slovak Republic	37	37	36	39	47	52	54	56	64	71	70	67	69
Slovenia	69	61	63	65	73	75	75	76	83	88	87	83	83
Spain	80	72	74	77	87	92	94	92	96	99	97	92	94
Sweden	115	107	102	107	119	122	124	123	127	126	115	122	130
Switzerland	127	117	122	126	136	138	138	132	129	135	139	141	154
Turkey	49	48	39	45	53	56	61	59	64	64	58	63	57
United Kingdom	108	103	101	105	108	114	114	115	125	113	100	99	102
United States	102	107	112	111	103	98	98	100	97	94	98	97	94
EU 27	94	86	86	90	98	103	102	102	107	108	103	99	100
OECD	100	100	100	100	100	100	100	100	100	100	100	100	100
Brazil	52	56	49	42	41	44	55	64	71	78	79	95	102
China	41	43	44	44	41	40	41	44	46	52	54	57	61
India	32	32	33	32	31	31	33	33	36	35	34	38	39
Indonesia	30	35	34	39	40	39	40	48	50	53	55	67	71
Russian Federation	23	28	32	33	33	39	44	47	53	54	45	51	58
South Africa	49	48	43	38	50	58	60	59	58	51	55	67	69

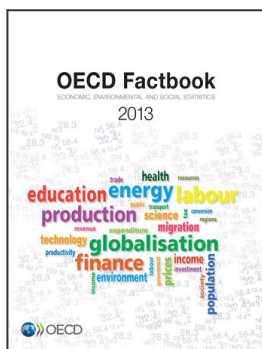
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Indices of price levels

OECD=100, 2011



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