

RATES OF CONVERSION

To compare a single country's real GDP over a period of years, it is necessary to remove any 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.

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.

Overview

Over the period 1995-2008, 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 – as illustrated by the experience of Ireland and the Czech Republic.

Market exchange rates are sometimes used to convert the 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. For Turkey and Mexico, the difference between GDP estimates for 2008 based on either PPPs or market exchange rate is over 35%. For India the difference is above 180%. 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.

Price level indices are the PPPs estimates for 2008 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 price levels. Denmark, Norway and Switzerland, three of the OECD countries with the highest per capita income, also recorded the highest price levels in 2008, exceeding the OECD level by 40% or more, while India had a price levels of around 35% of the OECD average.

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 expenditures to obtain the PPPs for GDP shown here.

Comparability

The PPPs shown here 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.

Sources

- OECD (2008), *Purchasing Power Parities and Real Expenditures: 2005 Benchmark Year, 2007 Edition*, OECD, Paris.
- For Brazil, China, India, Indonesia and South Africa: IMF (2009), *World Economic Outlook (WEO)*, IMF, Washington, DC.

Further information

Analytical publications

- Schreyer, P. and F. Koechlin (2002), "Purchasing Power Parities – Measurement and Uses", OECD Statistics Brief, No. 3, March, OECD, Paris, www.oecd.org/std/statisticsbrief.

Statistical publications

- OECD (2009), *Main Economic Indicators*, OECD, Paris.
- OECD (2010), *National Accounts of OECD Countries*, OECD, Paris.

Web sites

- Joint World Bank-OECD Seminar on Purchasing Power Parities, 2001, www.oecd.org/std/ppp/seminar2001.
- OECD Purchasing Power Parities, www.oecd.org/std/ppp.



Purchasing power parities

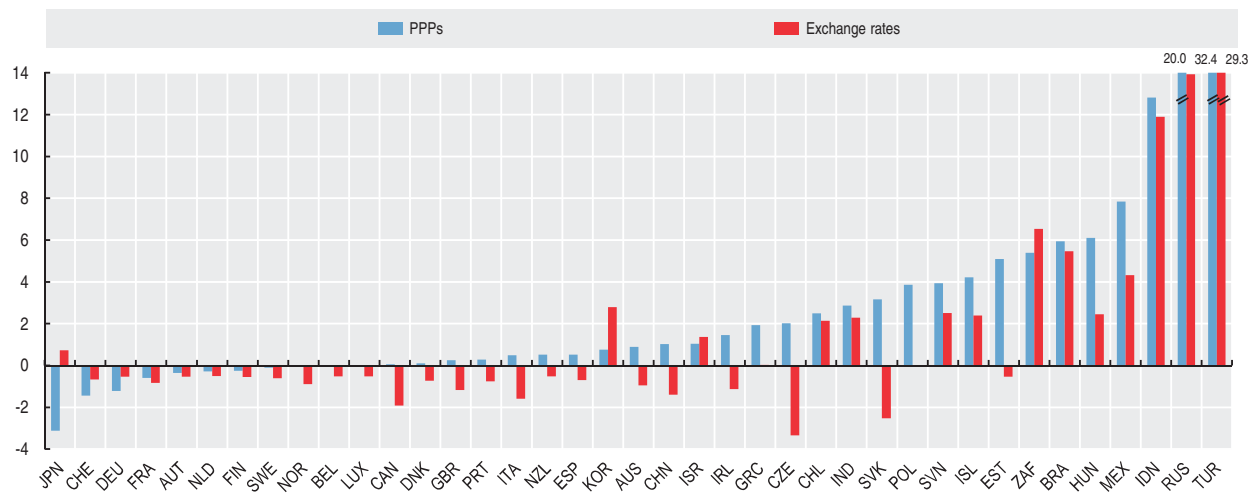
National currency units per US dollar

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Australia	1.32	1.33	1.32	1.31	1.30	1.31	1.33	1.34	1.35	1.37	1.39	1.41	1.42	1.48
Austria	0.935	0.931	0.924	0.918	0.917	0.900	0.917	0.896	0.885	0.874	0.886	0.877	0.885	0.893
Belgium	0.912	0.913	0.912	0.925	0.921	0.891	0.886	0.865	0.879	0.896	0.900	0.905	0.910	0.912
Canada	1.22	1.21	1.21	1.19	1.19	1.23	1.22	1.23	1.23	1.23	1.21	1.21	1.21	1.23
Czech Republic	11.1	12.0	12.7	13.9	14.1	14.2	14.2	14.3	14.0	14.3	14.3	14.4	14.3	14.4
Denmark	8.48	8.45	8.43	8.39	8.47	8.41	8.47	8.30	8.54	8.40	8.59	8.53	8.53	8.59
Finland	1.00	1.00	1.00	1.00	1.00	0.99	1.01	1.00	1.01	0.98	0.98	0.97	0.96	0.97
France	0.994	0.989	0.974	0.967	0.960	0.939	0.919	0.905	0.938	0.940	0.923	0.925	0.915	0.919
Germany	1.006	0.994	0.990	0.988	0.975	0.967	0.955	0.942	0.918	0.896	0.867	0.858	0.851	0.858
Greece	0.574	0.605	0.630	0.662	0.681	0.678	0.671	0.660	0.689	0.695	0.714	0.716	0.728	0.736
Hungary	61.7	73.2	85.0	94.2	101.1	107.9	110.7	114.9	120.6	126.3	128.6	131.6	134.7	134.0
Iceland	73.1	75.0	74.5	77.2	79.7	84.3	88.9	91.3	94.5	94.2	99.1	109.8	115.1	125.1
Ireland	0.824	0.828	0.853	0.882	0.930	0.962	0.993	1.004	1.015	1.006	1.010	1.008	0.981	0.986
Italy	0.789	0.810	0.816	0.808	0.818	0.817	0.808	0.845	0.854	0.873	0.867	0.854	0.840	0.840
Japan	175	170	168	167	162	155	149	144	140	134	130	124	120	116
Korea	691	713	733	767	755	745	757	770	794	796	789	763	757	762
Luxembourg	0.950	0.948	0.958	0.948	0.941	0.940	0.948	0.934	0.942	0.923	0.953	0.937	0.947	0.951
Mexico	2.93	3.76	4.35	4.96	5.63	6.10	6.31	6.55	6.81	7.21	7.13	7.37	7.49	7.82
Netherlands	0.916	0.910	0.910	0.906	0.907	0.893	0.906	0.902	0.927	0.909	0.896	0.889	0.877	0.883
New Zealand	1.46	1.47	1.46	1.45	1.43	1.44	1.47	1.47	1.50	1.51	1.54	1.52	1.54	1.56
Norway	9.17	9.05	9.09	9.39	9.33	9.13	9.18	9.11	9.12	8.99	8.90	8.90	8.99	9.10
Poland	1.18	1.36	1.52	1.66	1.74	1.84	1.86	1.83	1.84	1.86	1.87	1.89	1.89	1.93
Portugal	0.649	0.661	0.672	0.693	0.697	0.700	0.706	0.708	0.706	0.716	0.684	0.678	0.679	0.673
Slovak Republic	0.433	0.444	0.455	0.470	0.501	0.526	0.522	0.528	0.555	0.572	0.566	0.569	0.563	0.562
Spain	0.710	0.719	0.719	0.719	0.733	0.734	0.740	0.733	0.753	0.759	0.765	0.754	0.745	0.759
Sweden	9.38	9.26	9.30	9.37	9.29	9.14	9.35	9.35	9.34	9.10	9.38	9.31	9.10	9.26
Switzerland	1.98	1.94	1.89	1.88	1.87	1.85	1.84	1.77	1.78	1.75	1.74	1.70	1.64	1.64
Turkey	0.025	0.043	0.076	0.131	0.202	0.283	0.428	0.613	0.774	0.812	0.831	0.868	0.898	0.958
United Kingdom	0.641	0.642	0.635	0.645	0.653	0.636	0.627	0.628	0.641	0.632	0.636	0.642	0.656	0.662
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	1.00
Brazil	0.69	0.79	0.84	0.86	0.92	0.96	1.02	1.11	1.23	1.30	1.36	1.39	1.41	1.46
Chile	264	266	273	275	278	285	289	296	307	320	334	363	371	364
China	3.32	3.46	3.46	3.39	3.30	3.29	3.29	3.25	3.27	3.40	3.45	3.46	3.61	3.79
Estonia	4.76	5.79	6.27	6.71	6.95	7.12	7.46	7.47	7.53	7.60	7.85	8.34	8.83	9.08
India	11.0	11.3	12.2	13.1	13.4	13.6	13.8	14.0	14.2	14.5	14.7	14.8	15.1	15.9
Indonesia	1 136	1 211	1 340	2 322	2 612	2 775	3 102	3 233	3 338	3 531	3 934	4 347	4 703	5 446
Israel	3.11	3.36	3.57	3.79	3.50	3.44	3.42	3.46	3.63	3.53	3.72	3.67	3.56	3.56
Russian Federation	1.72	2.45	2.78	3.26	5.54	7.32	8.32	9.27	9.89	11.55	12.74	14.29	15.79	18.42
Slovenia	0.399	0.434	0.461	0.485	0.511	0.532	0.565	0.588	0.615	0.611	0.612	0.623	0.645	0.659
South Africa	2.34	2.48	2.64	2.81	2.96	3.15	3.32	3.61	3.70	3.81	3.87	4.02	4.26	4.63

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Changes in exchange rates and purchasing power parities

Average annual growth in percentage, 1998-2008



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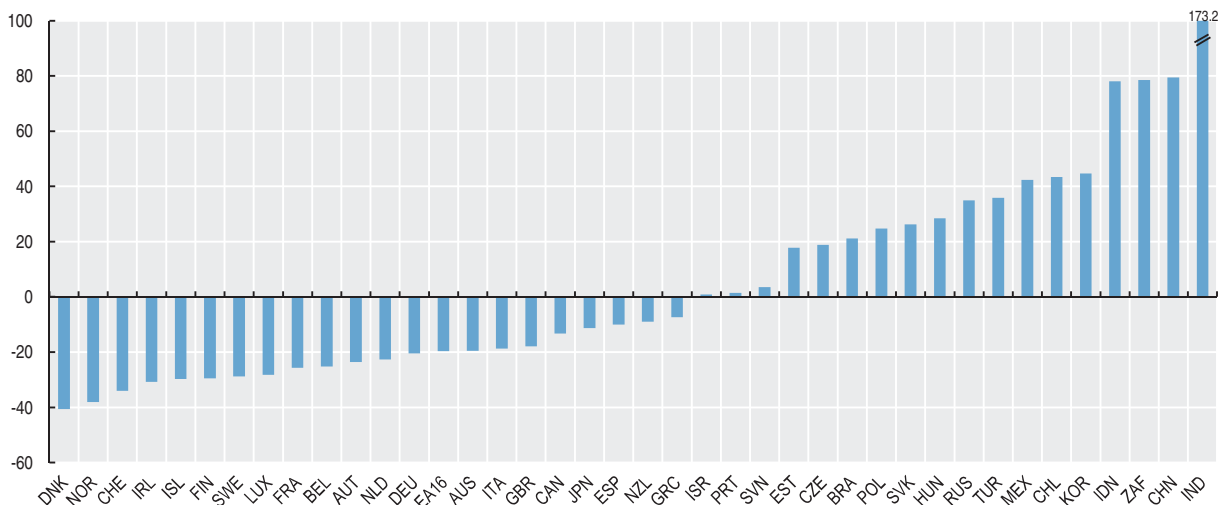
Exchange rates
National currency units per US dollar

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Australia	1.3490	1.2779	1.3474	1.5918	1.5500	1.7248	1.9334	1.8406	1.5419	1.3598	1.3095	1.3280	1.1951	1.1922
Austria	0.73265	0.76936	0.88691	0.89962	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Belgium	0.73079	0.76752	0.88681	0.89982	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Canada	1.3724	1.3635	1.3846	1.4835	1.4857	1.4851	1.5488	1.5693	1.4011	1.3010	1.2118	1.1344	1.0741	1.0670
Czech Republic	26.541	27.145	31.698	32.281	34.569	38.598	38.035	32.739	28.209	25.700	23.957	22.596	20.294	17.072
Denmark	5.6024	5.7987	6.6045	6.7008	6.9762	8.0831	8.3228	7.8947	6.5877	5.9911	5.9969	5.9468	5.4437	5.0981
Finland	0.73442	0.77258	0.87314	0.89881	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
France	0.76095	0.77986	0.88980	0.89938	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Germany	0.73275	0.76938	0.88661	0.89970	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Greece	0.67986	0.70642	0.80134	0.86729	0.89698	1.07234	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Hungary	125.68	152.65	186.79	214.40	237.15	282.18	286.49	257.89	224.31	202.75	199.58	210.39	183.63	172.11
Iceland	64.692	66.500	70.904	70.958	72.335	78.616	97.425	91.662	76.709	70.192	62.982	70.180	64.055	87.948
Ireland	0.79198	0.79362	0.83757	0.89170	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Italy	0.84127	0.79687	0.87958	0.89668	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Japan	94.06	108.78	120.99	130.91	113.91	107.77	121.53	125.39	115.93	108.19	110.22	116.30	117.75	103.36
Korea	771.3	804.5	951.3	1 401.4	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
Luxembourg	0.73079	0.76752	0.88681	0.89982	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Mexico	6.419	7.599	7.918	9.136	9.560	9.456	9.342	9.656	10.789	11.286	10.898	10.899	10.928	11.130
Netherlands	0.72863	0.76503	0.88545	0.90018	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
New Zealand	1.5239	1.4549	1.5124	1.8683	1.8896	2.2012	2.3788	2.1622	1.7221	1.5087	1.4203	1.5421	1.3607	1.4227
Norway	6.3352	6.4498	7.0734	7.5451	7.7992	8.8018	8.9917	7.9838	7.0802	6.7408	6.4425	6.4133	5.8617	5.6400
Poland	2.4250	2.6961	3.2793	3.4754	3.9671	4.3461	4.0939	4.0800	3.8891	3.6576	3.2355	3.1032	2.7680	2.4092
Portugal	0.75371	0.76937	0.87445	0.89835	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Slovak Republic	0.9863	1.0175	1.1159	1.1695	1.3730	1.5281	1.6051	1.5046	1.2206	1.0707	1.0296	0.9858	0.8197	0.7091
Spain	0.74940	0.76125	0.87997	0.89788	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Sweden	7.1333	6.7060	7.6349	7.9499	8.2624	9.1622	10.3291	9.7371	8.0863	7.3489	7.4731	7.3783	6.7588	6.5911
Switzerland	1.1825	1.2360	1.4513	1.4498	1.5022	1.6888	1.6876	1.5586	1.3467	1.2435	1.2452	1.2538	1.2004	1.0831
Turkey	0.0458	0.0814	0.1519	0.2607	0.4188	0.6252	1.2256	1.5072	1.5009	1.4255	1.3436	1.4285	1.3029	1.3015
United Kingdom	0.63367	0.64096	0.61084	0.60382	0.61806	0.66093	0.69466	0.66722	0.61247	0.54618	0.55000	0.54349	0.49977	0.54397
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	1.000
Euro area	0.76452	0.78756	0.88180	0.89199	0.93863	1.08540	1.11751	1.06255	0.88603	0.80537	0.80412	0.79714	0.73064	0.68268
Brazil	0.9177	1.0051	1.0780	1.1605	1.8139	1.8294	2.3496	2.9204	3.0775	2.9251	2.4344	2.1753	1.9471	1.8338
Chile	396.77	412.27	419.30	460.29	508.78	539.59	634.94	688.94	691.40	609.53	559.77	530.28	522.46	522.46
China	8.3510	8.3140	8.2900	8.2790	8.2780	8.2790	8.2770	8.2770	8.2770	8.2770	8.1940	7.9730	7.6080	6.9490
Estonia	11.465	12.038	13.882	14.075	14.678	16.969	17.478	16.612	13.856	12.596	12.584	12.466	11.434	10.694
India	32.430	35.430	36.310	41.260	43.060	44.940	47.190	48.610	46.580	45.320	44.100	45.310	41.350	43.510
Indonesia	2 249	2 342	2 909	10 014	7 855	8 422	10 261	9 311	8 577	8 939	9 705	9 159	9 141	9 699
Israel	3.0113	3.1917	3.4494	3.8001	4.1397	4.0773	4.2057	4.7378	4.5541	4.4820	4.4877	4.4558	4.1081	3.5880
Russian Federation	4.559	5.121	5.785	9.705	24.620	28.129	29.169	31.349	30.692	28.814	28.284	27.191	25.581	24.853
Slovenia	0.49457	0.56486	0.66637	0.69326	0.75851	0.92913	1.01297	1.00254	0.86427	0.80279	0.80414	0.79715	0.73064	0.68268
South Africa	3.6270	4.2990	4.6080	5.5280	6.1090	6.9400	8.6090	10.5410	7.5650	6.4600	6.3590	6.7720	7.0450	8.2610

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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, 2008



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Indices of price levels

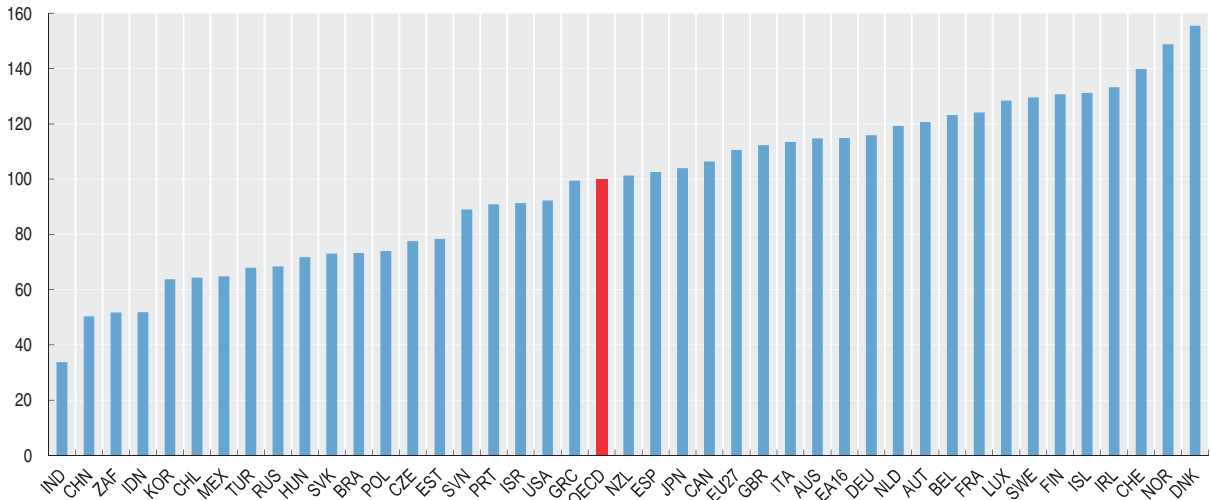
OECD = 100

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Australia	86	95	97	84	85	81	77	80	90	98	104	105	114	115
Austria	113	111	103	104	99	88	92	93	102	106	108	109	116	121
Belgium	110	110	102	105	100	88	89	90	102	109	110	112	119	123
Canada	78	82	86	82	81	88	88	87	90	92	98	105	107	106
Czech Republic	37	41	40	44	42	39	42	48	51	54	59	63	67	78
Denmark	134	134	126	128	123	111	114	117	133	137	140	142	149	155
Finland	120	120	113	114	108	98	101	105	117	118	119	121	125	131
France	115	117	108	110	104	92	92	94	108	114	113	115	119	124
Germany	121	119	110	112	105	95	96	98	106	109	106	106	111	116
Greece	74	79	78	78	77	67	67	69	80	84	87	89	95	99
Hungary	43	44	45	45	43	41	43	49	55	61	63	62	70	72
Iceland	100	104	104	111	112	114	102	110	126	131	154	155	171	131
Ireland	92	96	101	101	101	94	99	105	117	122	123	125	128	133
Italy	83	94	92	92	89	80	81	88	99	106	106	106	110	113
Japan	164	144	137	130	144	153	137	127	123	121	115	106	97	104
Korea	79	82	76	56	64	70	66	68	68	68	76	79	78	64
Luxembourg	115	114	107	108	102	92	95	97	109	112	116	116	124	128
Mexico	40	46	54	56	60	69	76	75	65	62	64	67	65	65
Netherlands	111	109	102	103	98	88	91	94	107	110	109	110	114	119
New Zealand	85	93	95	79	77	70	69	75	89	98	106	97	108	101
Norway	128	129	127	127	121	111	114	126	132	130	135	137	146	149
Poland	43	46	46	49	45	45	51	50	48	50	57	60	65	74
Portugal	76	79	76	79	75	69	71	74	82	87	83	84	89	91
Slovak Republic	39	40	40	41	37	37	36	39	47	52	54	57	65	73
Spain	84	87	81	82	79	72	74	77	87	92	93	93	97	103
Sweden	116	127	120	120	114	106	101	106	118	121	123	125	128	130
Switzerland	148	145	129	132	127	117	122	126	135	138	137	134	130	140
Turkey	47	48	49	51	49	48	39	45	53	56	61	60	66	68
United Kingdom	89	92	103	109	107	103	101	104	107	113	113	117	125	112
United States	88	92	99	102	102	107	112	111	102	98	98	99	95	92
EU27 total	97	99	96	98	94	85	86	89	98	102	102	103	108	111
OECD total	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Brazil	66	72	77	76	52	56	48	42	41	43	55	63	69	73
Chile	59	59	64	61	56	56	51	48	45	51	58	68	68	64
China	35	38	41	42	40	42	44	44	40	40	41	43	45	50
Estonia	37	44	45	49	48	45	48	50	56	59	61	66	74	78
India	30	29	33	32	32	32	33	32	31	31	33	32	35	34
Indonesia	45	48	45	24	34	35	34	38	40	39	40	47	49	52
Israel	91	97	102	102	86	90	91	81	82	77	81	81	83	91
Russian Federation	33	44	47	34	23	28	32	33	33	39	44	52	59	68
Slovenia	71	71	68	71	68	61	62	65	73	74	75	77	84	89
South Africa	57	53	56	52	49	48	43	38	50	58	60	59	58	52

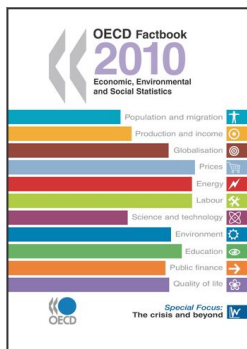
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Indices of price levels

OECD = 100, year 2008



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