



Relative prices in PPP terms 4.12

	International price level	Relative price level (price level of GDP = 100)										
	ratio of PPP rate to \$ exchange rate 1998	Private consumption								Transport and communications 1998	Government consumption 1998	Gross fixed capital formation 1998
		Private consumption 1998	All food 1998	Bread and cereals 1998	Clothing and footwear 1998	Fuel and power 1998	Health care 1998	Education 1998				
Albania	36	116	122	98	121	130	70	124	75	103	139	
Antigua and Barbuda	89	111	102	100	179	141	155	129	51	68	98	
Argentina	76	105	99	99	101	99	124	135	107	95	88	
Armenia	28	131	167	161	190	210	66	176	36	64	156	
Australia	100	105	51	77	73	103	132	75	214	185	73	
Austria	128	111	54	74	70	108	160	89	263	193	69	
Azerbaijan	27	125	173	142	157	23	63	117	47	67	176	
Bahamas, The	87	101	89	85	102	83	128	123	110	120	86	
Bahrain	72	118	98	79	92	781	111	107	115	131	158	
Bangladesh	25	15	133	132	110	70	70	81	25	73	139	
Barbados	53	86	158	152	146	130	154	190	130	168	180	
Belarus	..	106	128	117	108	52	81	121	74	94	97	
Belgium	113	101	67	85	100	129	160	92	286	220	77	
Belize	69	98	97	76	78	129	92	93	86	88	128	
Benin	47	101	97	96	129	112	90	121	104	78	136	
Bermuda	142	109	76	94	85	82	134	92	166	192	68	
Bolivia	44	96	97	102	132	95	74	80	84	78	152	
Botswana	56	82	70	73	78	69	112	71	103	103	99	
Brazil	73	110	101	105	89	121	147	117	96	77	102	
Cameroon	47	100	108	103	122	134	63	79	99	76	115	
Canada	84	103	61	67	89	87	135	88	301	254	70	
Chile	60	103	122	124	98	80	122	133	121	88	106	
Congo, Rep.	90	82	102	103	107	100	46	80	67	48	129	
Côte d'Ivoire	52	94	112	109	113	128	90	101	81	77	164	
Croatia	76	97	100	106	115	100	142	104	121	130	109	
Czech Republic	45	102	79	73	111	102	68	135	122	113	104	
Denmark	136	108	69	95	74	148	164	101	263	200	73	
Dominica	75	105	114	123	103	142	68	119	74	71	129	
Ecuador	54	106	107	107	116	86	108	88	82	72	101	
Egypt, Arab Rep.	39	95	94	84	97	82	165	104	95	119	200	
Estonia	50	105	76	78	86	67	81	88	70	87	117	
Fiji	57	99	95	95	113	129	132	122	110	91	128	
Finland	118	109	65	103	93	97	174	102	253	195	68	
France	124	107	59	83	78	115	137	83	258	196	66	
Gabon	82	90	98	112	100	90	134	64	79	97	192	
Georgia	28	109	146	137	162	136	62	129	36	41	215	
Germany	133	99	66	90	87	128	176	89	355	266	87	
Greece	96	108	55	89	99	111	101	64	166	133	69	
Grenada	70	102	115	103	109	143	61	158	63	70	139	
Guinea	33	93	113	108	78	136	30	127	131	108	191	
Hong Kong, China	110	98	86	70	86	70	118	67	294	279	88	
Hungary	48	97	71	89	85	92	76	141	125	115	103	
Iceland	115	100	84	116	105	71	115	99	260	216	82	
Indonesia	39	95	91	86	107	73	85	83	57	54	154	
Iran, Islamic Rep.	43	89	139	151	93	18	57	37	76	104	122	
Ireland	91	112	57	73	72	104	136	98	221	176	72	
Israel	112	112	69	106	69	90	153	85	239	192	60	
Italy	97	105	65	86	75	124	137	84	234	193	72	
Jamaica	67	104	132	105	134	154	73	62	86	84	99	
Japan	151	109	101	126	86	134	115	72	258	211	80	
Jordan	41	88	91	120	110	114	43	89	79	38	144	
Kazakhstan	28	97	118	111	109	64	88	131	65	72	148	
Kenya	34	99	122	121	75	147	71	162	112	85	154	
Korea, Rep.	83	108	160	200	175	70	136	29	160	199	82	
Kyrgyz Republic	23	124	160	167	98	104	80	164	50	64	172	
Latvia	44	101	109	95	139	112	79	136	86	96	133	
Lebanon	80	64	69	96	59	34	55	93	128	34	98	



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		Private consumption 1998	All food 1998	Bread and cereals 1998	Clothing and footwear 1998	Fuel and power 1998	Health care 1998	Education 1998	1998			
Lithuania	40	99	96	81	122	102	74	98	84	104	141	
Luxembourg	115	108	62	82	100	99	163	75	409	290	76	
Macedonia, FYR	59	99	88	104	101	110	104	92	131	125	125	
Madagascar	39	106	108	105	94	177	63	119	77	49	134	
Malawi	42	93	95	100	79	143	29	121	179	115	137	
Mali	40	117	110	113	96	156	72	166	90	59	125	
Mauritius	48	107	108	112	84	108	68	98	93	89	92	
Mexico	49	98	72	88	63	72	119	94	105	104	102	
Moldova	26	109	141	116	137	120	91	110	74	95	171	
Mongolia	33	86	84	90	71	76	50	92	104	134	145	
Morocco	41	105	129	136	66	120	86	85	97	101	96	
Nepal	19	120	141	140	132	117	90	87	58	85	70	
Netherlands	113	100	60	77	81	109	152	102	293	221	83	
New Zealand	101	110	56	79	84	76	129	80	215	151	72	
Nigeria	..	101	142	145	97	165	80	73	137	108	112	
Norway	128	113	78	102	80	81	199	112	276	217	73	
Oman	63	91	95	93	83	59	74	98	78	153	122	
Pakistan	28	109	109	101	121	102	59	102	102	77	137	
Panama	60	89	100	85	108	92	70	78	73	139	105	
Peru	60	106	113	117	100	93	85	109	145	101	97	
Philippines	33	97	112	113	122	244	92	106	49	113	132	
Poland	52	102	81	80	123	116	122	114	121	103	98	
Portugal	87	106	68	80	104	173	169	112	151	120	84	
Qatar	70	92	100	118	74	67	91	81	125	148	151	
Romania	25	98	108	95	83	60	79	89	77	85	164	
Russian Federation	42	93	97	104	94	27	95	136	94	106	106	
Senegal	44	103	111	123	89	150	73	103	97	68	143	
Sierra Leone	32	110	138	139	131	160	54	37	150	97	123	
Singapore	114	103	65	59	84	44	79	86	154	188	87	
Slovak Republic	44	99	90	93	113	114	112	137	143	137	115	
Slovenia	71	109	68	82	80	102	96	85	166	133	74	
Spain	96	112	51	76	66	95	137	75	191	152	65	
Sri Lanka	29	96	121	108	87	71	52	61	62	70	163	
St. Kitts and Nevis	70	103	104	113	111	93	66	124	99	77	115	
St. Lucia	75	102	110	134	110	121	60	77	74	85	107	
St. Vincent and the Grenadines	65	105	129	118	115	180	54	123	67	62	156	
Swaziland	33	119	116	118	145	132	84	84	96	80	115	
Sweden	135	106	61	92	75	99	176	93	271	206	70	
Switzerland	159	110	64	84	67	88	190	85	379	268	70	
Syrian Arab Republic	131	58	128	198	117	56	30	86	35	29	193	
Tajikistan	17	89	127	146	116	28	49	92	19	35	142	
Tanzania	40	108	113	111	107	138	31	190	134	87	132	
Thailand	49	136	120	104	187	90	90	104	142	140	74	
Trinidad and Tobago	56	95	86	91	88	28	128	77	116	95	120	
Tunisia	43	102	111	126	128	104	65	93	105	99	101	
Turkey	51	102	69	83	125	134	154	91	118	109	103	
Turkmenistan	10	101	151	105	183	7	91	60	47	62	107	
Ukraine	27	93	113	84	109	83	75	99	71	83	165	
United Kingdom	101	103	62	74	74	110	139	100	270	188	72	
United States	100	101	54	83	57	72	211	74	374	243	75	
Uruguay	73	104	95	106	99	99	125	110	80	90	87	
Uzbekistan	..	88	118	116	83	31	64	138	48	70	313	
Venezuela, RB	53	97	90	90	109	101	101	87	73	49	107	
Vietnam	21	103	110	97	76	114	93	136	92	75	148	
Yemen, Rep.	63	97	185	147	108	120	58	122	39	24	315	
Zambia	50	110	112	117	76	133	30	151	120	59	103	
Zimbabwe	30	103	112	118	96	131	53	121	110	90	100	



Relative prices in PPP terms 4.12

About the data

This table presents information on the relative prices of components of GDP based on newly released data from the 1996 round of ICP surveys. Where data are not available for 1996, they have been extrapolated from the 1993 survey. The data are then updated to 1998 using similar procedures. The International Comparison Programme (ICP) collects data on prices paid for a large set of comparable items in more than 100 countries. Purchasing power parities (PPPs) computed from these data allow comparisons of prices and real GNP expenditures across countries. PPPs are used in table 1.1 to measure GNP at internationally comparable prices and in table 4.11 to evaluate the structure of consumption.

A country's international price level is the ratio of its PPP rate to its official exchange rate for U.S. dollars. PPPs can be thought of as the exchange rate of dollars for goods in the local economy, while the U.S. dollar exchange rate measures the relative cost of domestic currency in dollars. Thus the international price level is an index measuring the cost of goods in one country at the current rate of exchange relative to a numeraire country, in this case the United States. An international price level above 100 means that the general price level in the country is higher than that in the United States. For example, Japan's international price level of 151 in 1998 implies that the price of goods and services in Japan was, in general, 51 percent higher than the price of comparable goods and services in the United States. By contrast, Kenya's price level of 34 means that a bundle of goods and services purchased for \$100 in the United States cost only \$34 in Kenya in 1998.

The relative prices of the components of GDP shown in the table are calculated from their international prices measured relative to each country's price level of GDP. A figure above 100 indicates that the price of that component is higher than the average price level of GDP. This is not the same as saying that the component is more expensive in that country than in the United States. It indicates only that the price for that component is higher than the general price level prevailing in the country.

Relative prices for consumption items tend to be close to the overall price level of GDP. This is to be expected because consumption accounts for a large share of GDP. Relative prices for investment goods (gross fixed capital formation) in developing countries usually tend to be higher than those for other components of GDP. For example, Indonesia's rel-

ative price level of 154 for investment goods indicates a price level 54 percent higher than the overall price level. This reflects the fact that a large share of physical capital must be imported from high-income economies with higher average price levels.

Box 4.12

A question of methodology

Converting values expressed in different national currencies to a common currency and price level requires solving a difficult index number problem. The International Comparison Programme has devised several methods for doing this, but each has its drawbacks. For table 4.12 the Elteto-Koves-Szulc (EKS) formula was applied to generate purchasing power parities (PPPs) for each of the main economic aggregates in the national accounts. The EKS formula is based on a modified geometric averaging procedure applied within each expenditure category to every possible binary price ratio between all countries for each item. Implicitly, each price, whether from a rich country or a poor one, is given more or less equal weight.

The EKS formula is the preferred way of calculating individual PPPs across all countries for a single expenditure item. The problem is that the results do not add up. For example, the PPP-adjusted values for the components of private consumption do not sum to the PPP-adjusted value for total consumption.

A different procedure is needed to calculate the real shares of GNP or GDP in comparable terms. For this, compilers have adopted the Geary-Khamis method. This method uses national accounts values to weight different national prices to reflect their relative importance. Its drawback is the greater weight it gives to rich country prices, which raises poor countries' national accounts values in real terms and may give a distorted view of the expenditure shares in those countries.

To obtain the consumption shares in table 4.11, the Geary-Khamis method has been modified to attribute equal weight to all countries' prices. This modified method is similar to the Geary-Khamis method with "super country weights" adopted by the Penn World Tables to solve the same problem. Aggregates calculated with the EKS formula and the modified Geary-Khamis method generally differ by less than 5 percent.

Work is under way to develop a formula that provides consistency both between and across countries. And work continues on improving the consistency of the basic national accounts aggregates measured in nominal values, because such factors as the treatment of stocks and estimates of the net foreign balance can significantly affect the resulting PPPs for different expenditure components.

Definitions

- **International price level** is the ratio of a country's PPP rate to its official exchange rate for U.S. dollars.
- **Private consumption** includes the consumption expenditures of individuals, households, and non-governmental organizations.
- **All food** includes all food purchased for household consumption.
- **Bread and cereals** comprise the main staple products—rice, flour, bread, and all other cereals and cereal preparations.
- **Clothing and footwear** include purchases of new and used clothing and footwear and repair services.
- **Fuel and power** exclude energy used for transport (rarely reported to be more than 1 percent of total consumption in low- and middle-income economies).
- **Health care and education** include government as well as private expenditures.
- **Transport and communications** cover all personal costs of transport, telephones, and the like.
- **Government consumption** includes spending on goods and services for collective consumption less spending on recreational and other related cultural services, education, health care, and housing. Expenditure on government final consumption consists of compensation of employees, consumption of intermediate goods and services, and consumption of fixed capital and indirect taxes paid less proceeds from sales of goods and services to other sectors (such as fees charged by municipalities and other government agencies, school fees, fees for medical and hospital treatment and drug sales, and sales of maps and charts).
- **Gross fixed capital formation** comprises expenditures on construction, producer durables, and changes in stocks. Construction includes residential and nonresidential buildings and roads, bridges, and other civil engineering activities. Producer durables include machinery and nonelectrical equipment, electrical machinery and appliances, and transport equipment. Changes in stocks cover increases in the value of materials and supplies, works in progress, and livestock (including breeding stock and dairy cattle).

Data sources

PPP data come from the ICP, which is coordinated by the United Nations regional economic commissions and other international organizations. The World Bank collects detailed ICP benchmark data from regional sources, establishes global consistency across the regional data sets, and computes regression-based estimates for nonbenchmark countries. The data on which this table are based will appear in the World Bank's *Purchasing Power Parities: International Comparison of Volume and Price Levels* (forthcoming b).