

NEW INTERNATIONAL COMPARISONS OF GDP AND CONSUMPTION BASED ON PURCHASING POWER PARITIES FOR THE YEAR 2011

The OECD, in partnership with Eurostat, has calculated new benchmark purchasing power parities (PPPs) for GDP and final consumption for the year 2011 for 47 countries following a common methodology¹ (see Box, page 6). These benchmark PPPs will be included in the world-wide comparison undertaken by the World Bank for the International Comparison Programme².

Detailed 2011 PPP benchmark results are available at <http://stats.oecd.org/Index.aspx?DataSetCode=PPP2011>. They include PPPs, price level indices and associated estimates of real expenditures on GDP for some 50 categories of goods and services.

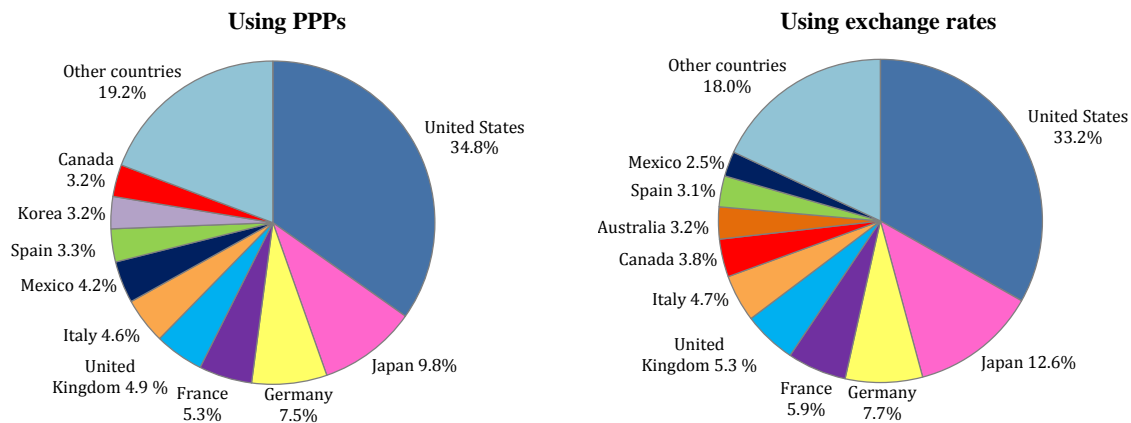
PPPs are the adequate tool for many cross-country comparisons of economic data

Gross Domestic Product (GDP) and income levels across countries are often compared by converting national data into a common currency using exchange rates. However, exchange rates are not able to reflect the relative international prices of all the goods and services that are included in GDP. Indeed, while exchange rates reflect relative prices in goods and services that are traded internationally, they do not reflect relative prices of a number of products, particularly many services, for which international markets do not exist. In addition, exchange rates are also affected by many other factors such as interest rates and capital flows which can often induce volatility that is unrelated to price developments across countries.

PPPs, on the other hand, are currency conversion rates that correct for the differences in price levels across a broader basket of goods and services that better reflects the goods and services that are included in GDP. The Eurostat-OECD PPP programme covers a basket of around 3000 goods and services, reflecting all categories of final demand (including consumer goods and services, government services, investment goods as well as net exports). When applied to nominal values of GDP or final consumption, PPPs enable comparisons in real terms (volumes) of these aggregates.

PPPs provide a clearer picture of the relative size of economies

Figure 1. Gross domestic product at current PPPs and current exchange rates
Largest economies in the OECD area, percentage of OECD total, 2011



Source: Eurostat and OECD databases

¹ Eurostat-OECD Manual on Purchasing Power Parities, available at : <http://www.oecd.org/std/ppp/manual>.

² www.worldbank.org/data/icp: the world-wide benchmark PPPs will be released in March 2014.

PPP-based GDP data provide a clearer picture of the relative importance of economies than comparisons based on market exchange rates. On the basis of the 2011 results, the ten largest economies in the OECD and Europe, measured on a PPP basis, are the United States, Japan, Germany, France, United Kingdom, Italy, Mexico, Spain, Korea and Canada. Comparisons between exchange-rate and PPP based GDP data reveal the importance of PPP-based conversions (Figure 1). For instance, using PPPs, Mexico turns out to be a larger economy than Canada.

More generally, as shown in Table 2, the gap in GDP between high-income and low-income countries narrows when PPPs are used instead of exchange rates. This reflects the generally lower price levels in lower-income countries – PPPs are able to account for these differences while exchange rates are not. In PPP terms, the Russian Federation's economy represents more than 7% of the total OECD area (compared to 4 % using exchange rate conversions), which is a bigger share than United Kingdom (4.9 %) or France (5.3 %).

GDP per capita provides an average measure of economic activity ...

GDP per capita is the most frequently used measure of the average level of macro-economic activity. Figure 2 shows that in 2011, GDP per capita measured on a PPP basis, ranged from 27 in Bosnia Herzegovina to 246 in Luxembourg³, with GDP per capita for the OECD area set at 100. It is important to note however that, despite the large data collection covering 3000 products, there is still an inevitable margin of error in PPP conversions and, so, some care is needed when interpreting data for those countries with similar GDP per capita levels. For example, the precision of the data means that it is not possible to state that real GDP per capita for Australia (116), Denmark (116) or Sweden (116) is significantly different from real GDP per capita for Canada (114) or Germany (114).

It should also be kept in mind that GDP does not include international payments of income such as profits received from abroad or remittances sent abroad. Gross national income (GNI) takes such flows into account. For some countries, in particular Switzerland, Ireland and Luxembourg, moving from GDP to GNI can markedly change their relative position. However, for most other OECD countries, GNI and GDP rankings are very similar and, so, no separate table with GNI/GDP comparisons is provided in this note.

...but for comparisons of material well-being of households, actual individual consumption per capita is preferred

High levels of GDP per capita do not necessarily mean high levels of household consumption as high GDP may reflect high levels of investment, net exports or government consumption. The set of benchmark results for 2011 therefore also presents PPPs for household consumption expenditure. However, simple international comparisons of household expenditure on goods and services can be misleading if adjustments for government services such as health or education provided to households are not made, since the delivery of these services to households differs across countries. In some countries, the services are provided for 'free' and paid 'indirectly' via taxation, and so are not recorded as household final consumption (HHFC), while in others the services may be paid for by households at point-of-delivery, and are thus included in HHFC. Therefore, the levels of consumption shown in the table below include all types of consumption, notably the value of those services provided by government for free or at low cost. The data show what households actually consume ('*actual individual consumption*') as opposed to what they purchase. This constitutes a measure of average household material well-being.

The picture emerging from comparisons of real Actual Individual Consumption (AIC) per capita reveals that differences between countries are much smaller than when comparisons are made based on real GDP per capita (Figure 2, Table 2). With the value for the OECD average set at 100, the data show that real Actual Individual Consumption per capita ranges from 32 in Albania to 145 in the United States. Luxembourg, Switzerland, Norway, the Netherlands, Ireland, Denmark and Korea are among the countries where relative households' average material well-being is lower than real GDP per capita, while the opposite is true for Greece, the United States and the United Kingdom.

³ One particular feature of Luxembourg's economy which to some extent explains very high GDP per capita is the fact that a large number of foreign residents are employed in the country and thus contributes to its GDP, while at the same time they are not included in the resident population.

Developments over time in OECD countries...

Table 3 below provides a comparison of countries' relative positions in terms of both real GDP per capita and real Actual Individual Consumption per capita between 2008 and 2011. Some care is needed in interpretation: the price and expenditure structures used as weights in the construction of 2011 PPPs differ from those used in 2008, hindering an exact match between national estimates of real GDP per capita and estimates for comparisons of benchmark years. Also, a new PPP benchmark year typically brings with it improvements and changes in methodologies and data sources.

Compared with the last benchmark results for the year 2008, the relative positions of countries have remained relatively stable. That said, the effect of the economic crisis is visible: for instance, real GDP per capita for Greece fell from 14% below the OECD average in 2008 to 26% below the OECD average in 2011. A marked change in positions is also observable for Iceland (from 15% to 6% above the OECD average), Spain (from 4% to 11% below the OECD average), Slovenia (from 15% to 22% below the OECD average) and the United Kingdom (from 7% above average to 3% below the average). It is also apparent that, over the 2008-11 period, real GDP per capita increased in several lower-income OECD countries relative to the OECD average, in particular in Israel (from 26% to 16% below average), Mexico (from 56% to 52% below average), Poland (from 48% to 40% below average) and Turkey (from 56% to 51% below average).

Further information

Participating countries

The 2011 round is the tenth and most recent round of the joint Eurostat-OECD PPP programme. Eurostat co-ordinates the data collection for 37 countries: 28 European Union Member States (Austria, Belgium, Bulgaria, Croatia, Cyprus(1), Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Slovak Republic, Spain, Sweden, United Kingdom), 3 member states of the European Free Trade Area (EFTA) (Iceland, Norway and Switzerland), 4 EU candidate countries (FYROM, Montenegro, Republic of Serbia, Turkey) and 2 potential candidate countries (Albania and Bosnia and Herzegovina).

The OECD co-ordinates the data collection for 10 countries: 9 non-European OECD countries (Australia, Canada, Chile, Israel, Japan, Korea, New Zealand, Mexico and the United States) and the Russian Federation which has been participating to the Eurostat-OECD PPP programme since 1996.

Health PPPs

A new methodology was implemented for the calculation of health PPPs. Health services account for a large and increasing share of production and expenditure in OECD countries but there are also noticeable differences between countries in health expenditure per capita. The new methodology moves away from the input perspective towards an output perspective. For the 2011 round, the main focus has been on hospital services which constitute the bulk of health expenditures in most countries. For more information, see the Eurostat-OECD Methodological manual on Purchasing Power Parities (PPPs), www.oecd.org/std/ppp/manual.

Further reading

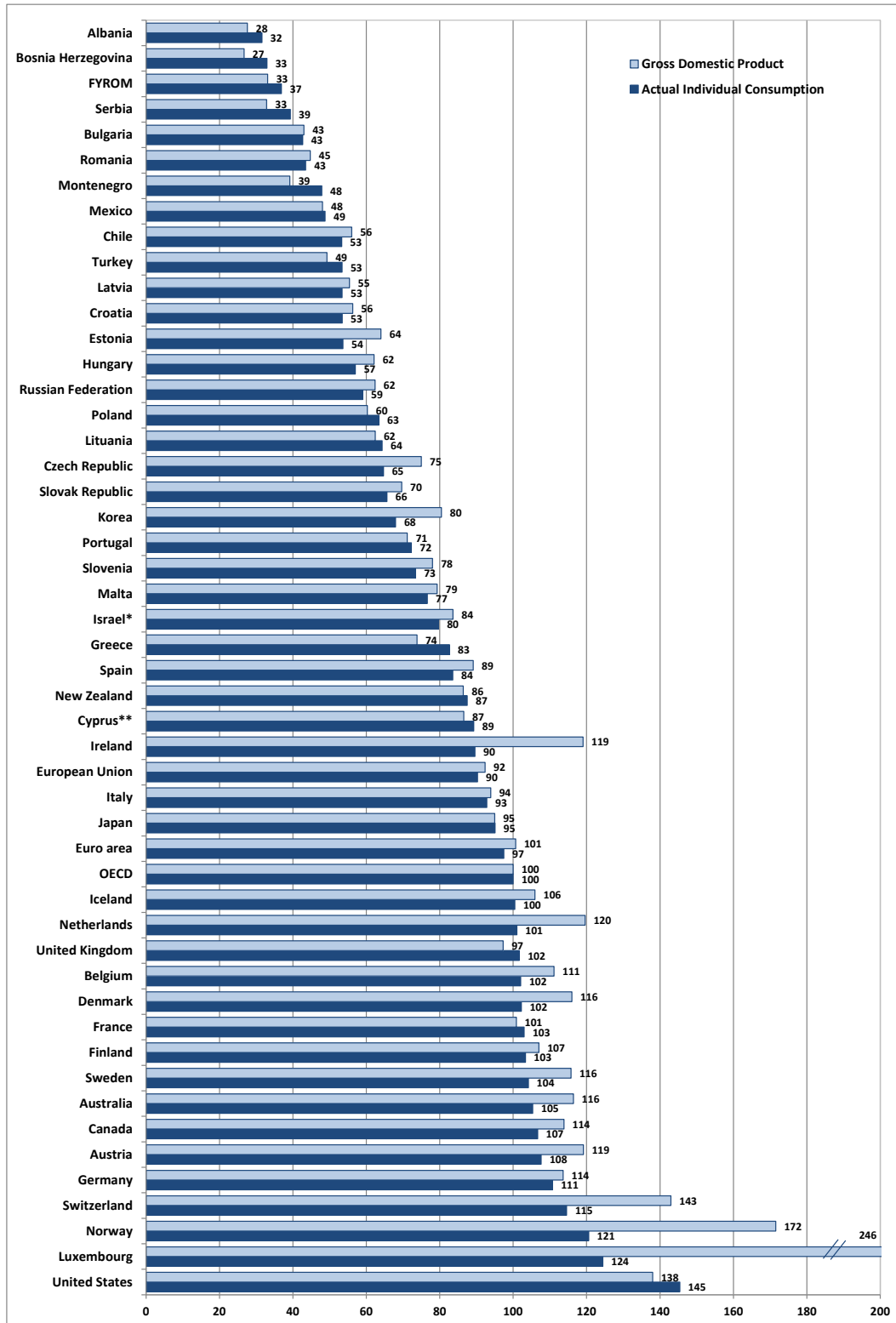
≈ Eurostat-OECD Methodological manual on Purchasing Power Parities (PPPs), www.oecd.org/std/ppp/manual

≈ OECD Purchasing Power Parities, 2011 Benchmark Results, <http://stats.oecd.org/Index.aspx?DataSetCode=PPP2011>

≈ OECD, Purchasing Power Parities, www.oecd.org/std/ppp

≈ Eurostat, Purchasing Power Parities, http://epp.eurostat.ec.europa.eu/portal/page/portal/purchasing_power_parities/introduction

**Figure 2. Per capita volume indices for GDP and Actual Individual Consumption, 2011
OECD=100**



Source: Eurostat and OECD databases

* The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

** Footnote by Turkey: The information in this document with reference to « Cyprus » relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

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Table 2: Summary results for Actual Individual Consumption (AIC) and GDP, 2011

| Country | Exchange rates | GDP | | | | | | AIC | |
|------------------------|---------------------------|---------------------------|---------------------------|----------------------|-------------------|-------------------|-------------------|----------------------------|---------------------------|
| | | PPPs | Price levels ¹ | Nominal ² | Real ³ | Nominal per head | Real per head | Real per head ⁴ | Price levels ¹ |
| | National currency per USD | National currency per USD | Index | % of total OECD | % of total OECD | % of OECD average | % of OECD average | % of OECD average | Index |
| Australia | 0.969 | 1.511 | 148 | 3.18 | 2.14 | 173 | 116 | 105 | 146 |
| Austria | 0.719 | 0.830 | 110 | 0.89 | 0.81 | 131 | 119 | 108 | 111 |
| Belgium | 0.719 | 0.839 | 111 | 1.10 | 0.99 | 123 | 111 | 102 | 115 |
| Canada | 0.990 | 1.243 | 119 | 3.80 | 3.18 | 136 | 114 | 107 | 121 |
| Chile | 483.7 | 348.0 | 68 | 0.54 | 0.78 | 38 | 56 | 53 | 69 |
| Czech Republic | 17.69 | 13.47 | 72 | 0.46 | 0.64 | 54 | 75 | 65 | 72 |
| Denmark | 5.360 | 7.689 | 137 | 0.71 | 0.52 | 158 | 116 | 102 | 148 |
| Estonia | 0.719 | 0.524 | 69 | 0.05 | 0.07 | 44 | 64 | 54 | 70 |
| Finland | 0.719 | 0.907 | 120 | 0.56 | 0.47 | 128 | 107 | 103 | 124 |
| France | 0.719 | 0.845 | 112 | 5.94 | 5.31 | 113 | 101 | 103 | 112 |
| Germany | 0.719 | 0.779 | 103 | 7.74 | 7.52 | 117 | 114 | 111 | 102 |
| Greece | 0.719 | 0.693 | 92 | 0.62 | 0.67 | 68 | 74 | 83 | 93 |
| Hungary | 201.0 | 123.7 | 59 | 0.29 | 0.50 | 36 | 62 | 57 | 57 |
| Iceland | 116.1 | 133.6 | 109 | 0.03 | 0.03 | 116 | 106 | 100 | 110 |
| Ireland | 0.719 | 0.827 | 109 | 0.48 | 0.44 | 130 | 119 | 90 | 123 |
| Israel* | 3.578 | 3.945 | 105 | 0.55 | 0.53 | 88 | 84 | 80 | 106 |
| Italy | 0.719 | 0.768 | 102 | 4.69 | 4.61 | 95 | 94 | 93 | 104 |
| Japan | 79.81 | 107.5 | 128 | 12.58 | 9.82 | 122 | 95 | 95 | 129 |
| Korea | 1108 | 854.6 | 73 | 2.38 | 3.24 | 59 | 80 | 68 | 72 |
| Luxembourg | 0.719 | 0.906 | 120 | 0.12 | 0.10 | 295 | 246 | 124 | 138 |
| Mexico | 12.42 | 7.673 | 59 | 2.50 | 4.25 | 28 | 48 | 49 | 58 |
| Netherlands | 0.719 | 0.832 | 110 | 1.78 | 1.62 | 132 | 120 | 101 | 113 |
| New Zealand | 1.266 | 1.486 | 112 | 0.34 | 0.31 | 97 | 86 | 87 | 110 |
| Norway | 5.606 | 8.973 | 152 | 1.05 | 0.69 | 261 | 172 | 121 | 166 |
| Poland | 2.964 | 1.823 | 59 | 1.10 | 1.88 | 35 | 60 | 63 | 55 |
| Portugal | 0.719 | 0.628 | 83 | 0.51 | 0.61 | 59 | 71 | 72 | 87 |
| Slovak Republic | 0.719 | 0.508 | 67 | 0.20 | 0.30 | 47 | 70 | 66 | 66 |
| Slovenia | 0.719 | 0.625 | 83 | 0.11 | 0.13 | 65 | 78 | 73 | 85 |
| Spain | 0.719 | 0.705 | 93 | 3.10 | 3.33 | 83 | 89 | 84 | 98 |
| Sweden | 6.496 | 8.820 | 129 | 1.14 | 0.88 | 150 | 116 | 104 | 134 |
| Switzerland | 0.887 | 1.441 | 155 | 1.41 | 0.91 | 221 | 143 | 115 | 170 |
| Turkey | 1.682 | 0.987 | 56 | 1.65 | 2.95 | 28 | 49 | 53 | 56 |
| United Kingdom | 0.624 | 0.698 | 106 | 5.25 | 4.94 | 104 | 97 | 102 | 111 |
| United States | 1.000 | 1.000 | 95 | 33.15 | 34.84 | 131 | 138 | 145 | 94 |
| OECD | | 1.051 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Cyprus** | 0.719 | 0.673 | 89 | 0.05 | 0.06 | 77 | 87 | 89 | 92 |
| Malta | 0.719 | 0.558 | 74 | 0.02 | 0.03 | 59 | 79 | 77 | 76 |
| Euro area | 0.719 | 0.781 | 103 | 27.96 | 27.07 | 104 | 101 | 97 | 105 |
| Bulgaria | 1.407 | 0.660 | 45 | 0.11 | 0.26 | 19 | 43 | 43 | 44 |
| Croatia | 5.351 | 3.802 | 68 | 0.13 | 0.19 | 38 | 56 | 53 | 70 |
| Latvia | 0.508 | 0.347 | 65 | 0.06 | 0.09 | 36 | 55 | 53 | 66 |
| Lithuania | 2.484 | 1.567 | 60 | 0.09 | 0.15 | 37 | 62 | 64 | 60 |
| Romania | 3.049 | 1.615 | 50 | 0.39 | 0.77 | 23 | 45 | 43 | 52 |
| European Union | 0.719 | 0.752 | 100 | 37.71 | 37.90 | 92 | 92 | 90 | 101 |
| Albania | 101.4 | 45.45 | 43 | 0.03 | 0.06 | 12 | 28 | 32 | 44 |
| Bosnia and Herzegovina | 1.407 | 0.724 | 49 | 0.04 | 0.08 | 13 | 27 | 33 | 51 |
| FYROM | 44.23 | 18.68 | 40 | 0.02 | 0.06 | 13 | 33 | 37 | 42 |
| Montenegro | 0.719 | 0.369 | 49 | 0.01 | 0.02 | 19 | 39 | 48 | 51 |
| Russian Federation | 29.38 | 17.35 | 56 | 4.05 | 7.21 | 35 | 62 | 59 | 48 |
| Serbia | 73.34 | 37.29 | 48 | 0.09 | 0.19 | 16 | 33 | 39 | 50 |

Source: Eurostat and OECD databases

| | |
|---|---|
| 1. Ratio between PPPs and exchange rates. If larger (smaller) than 100, residents' purchasing power is lower (higher) than suggested by exchange rate conversion. | 2. GDP in national currency converted by exchange rate. |
| | 3. GDP in national currency converted by PPPs for GDP. |
| | 4. AIC in national currency per inhabitant converted by PPPs for AIC. |

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Table 3: Real GDP per capita and Real Actual Individual Consumption (AIC) per capita

| Country | 2008 | | 2011 | |
|-----------------|-------------------|-------------------|-------------------|-------------------|
| | Real GDP per head | Real AIC per head | Real GDP per head | Real AIC per head |
| Australia | 114 | 109 | 116 | 105 |
| Austria | 116 | 104 | 119 | 108 |
| Belgium | 108 | 97 | 111 | 102 |
| Canada | 114 | 109 | 114 | 107 |
| Chile | 48 | 43 | 56 | 53 |
| Czech Republic | 75 | 66 | 75 | 65 |
| Denmark | 116 | 104 | 116 | 102 |
| Estonia | 64 | 59 | 64 | 54 |
| Finland | 111 | 97 | 107 | 103 |
| France | 99 | 102 | 101 | 103 |
| Germany | 108 | 103 | 114 | 111 |
| Greece | 86 | 90 | 74 | 83 |
| Hungary | 59 | 56 | 62 | 57 |
| Iceland | 115 | 121 | 106 | 100 |
| Ireland | 123 | 103 | 119 | 90 |
| Israel* | 74 | 75 | 84 | 80 |
| Italy | 97 | 93 | 94 | 93 |
| Japan | 98 | 94 | 95 | 95 |
| Korea | 78 | 65 | 80 | 68 |
| Luxembourg | 245 | 136 | 246 | 124 |
| Mexico | 44 | 46 | 48 | 49 |
| Netherlands | 125 | 108 | 120 | 101 |
| New Zealand | 85 | 88 | 86 | 87 |
| Norway | 179 | 121 | 172 | 121 |
| Poland | 52 | 54 | 60 | 63 |
| Portugal | 73 | 76 | 71 | 72 |
| Slovak Republic | 68 | 59 | 70 | 66 |
| Slovenia | 85 | 73 | 78 | 73 |
| Spain | 96 | 91 | 89 | 84 |
| Sweden | 115 | 105 | 116 | 104 |
| Switzerland | 138 | 112 | 143 | 115 |
| Turkey | 44 | 42 | 49 | 53 |
| United Kingdom | 107 | 120 | 97 | 102 |
| United States | 141 | 150 | 138 | 145 |
| OECD | 100 | 100 | 100 | 100 |

Source: OECD database

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