# Appendix

## A1. Benchmarking procedure

An additional final step is required to calculate the size of the shadow economy in a meaningful way, as a percentage of GDP. This last step is called a benchmarking procedure. There are different benchmarking procedures that are applied to calibrate the index, but there is no agreement on which procedure is superior[[1]](#footnote-1)[29]. This additional step requires a prior estimation of the size of the shadow economy to be available. The exogenous estimations of the relative size of the shadow economy at the base year (=1999) for the countries in the sample are extracted from Schneider et al. (2010). The following benchmarking procedure is applied to calibrate the ordinal estimates into cardinal values and convert this index to % units (real values).



where ῆ denotes the value of the MIMIC index at time t according to the structural equation (1), ῆ𝑒𝑦𝑒 is the value of the MIMIC index in the base year which in our model is 1999, and ɳ ∗ 𝑒𝑦𝑒 is the exogenous (prior) estimation of the size of the shadow economy in the base year (=1999).

Based on the application of this benchmarking procedure, we are able to calculate the final estimates of the size of the shadow economy as a percentage of GDP for the given period of our study and to reach a trend of the development of the shadow economy for our sample from 1999 to 2013.

## A2. MIMIC Methodology[[2]](#footnote-2)

The MIMIC model has the advantage over the other methods because various observable and measurable causes and indicators are considered at the same time regarding the complex and unrecorded nature of the shadow economy. For the estimation of the size of the shadow economy for our sample, the Maximum Likelihood (ML) method in STATA 14 software is used. We used the Satorra-Bentler as a special option with the ML estimation to improve the chi-square statistic of goodness of fit in case of non-normal time-series [30]. The Satorra-Bentler gives us the same parameters as the default ML estimation. A detailed documentation of the variables used in the MIMIC model estimations is available upon request.

|  |  |  |
| --- | --- | --- |
| **Variables** | **Source** | **Definition** |
| **Total tax revenues as % of GDP** | World Bank Indicators 2016 | Overall taxes, including all forms  of direct and indirect taxation at all levels of government, as a percentage of GDP. |
| **Government expenditures as % of GDP** | World Bank Indicators 2016 | Government expenditures,  including consumption and transfers, as a percentage of GDP. |
| **Unemployment-rate (15–64)** | World Bank Indicators 2016 | The share of the labor force that is  without work but available for and seeking employment. |
| **Self-Employment rate as % of total employed** | World Bank Indicators 2016 | Workers who, working on their own account or with one or a few partners or in cooperative, hold the type of jobs defined as a "self- employment jobs" i.e. jobs where the remuneration is directly dependent upon the profits derived from the goods and services produced. Self-employed workers include three sub-categories of employers: own-account workers, members of producers' cooperatives, and contributing family workers. |
| **Economic Freedom Index** | Heritage Foundation 2016 | Based on 10 quantitative and  qualitative factors, grouped into four broad categories: Rule of Law, Limited Government, Regulatory Efficiency and Open Markets. Each of the ten economic freedoms within these categories is graded on a scale of 0 to 100. A country’s overall score is derived by averaging these ten economic freedoms, with equal weight being given to each. |

|  |  |  |
| --- | --- | --- |
| **Variables** | **Source** | **Definition** |
| **Business Freedom Index** | Heritage Foundation 2016 | A quantitative measure of the  ability to start, operate, and close a business that represents the overall burden of regulation as well as the efficiency of government in the regulatory process. The business freedom score for each country is a number between 0 and 100, with 100 equaling the freest business environment. |
| **GDP growth rate** | World Bank Indicators 2016 | Annual percentage growth rate of GDP at market prices based on constant local currency. |
| **M1 over M2** | World Bank Indicators 2016 | The sum of currency outside banks and demand deposits other than those of central government (M1) as proportional to the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government (M2). |
| **Labor force participation rate** | World Bank Indicators 2016 | The proportion of the population ages 15–64 that is economically active: all people who supply labor for the production of goods and services during a specified period. |

**Table A3:** List and Sources of the Variables used

**Note:** Missing values were replaced by extrapolated figures if possible.

## Table A4: Tables of the size of the shadow economy according to country groups

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 1 | Australia | 14.4 | 14.15 | 14.68 | 14.36 | 14.24 | 14.10 | 14.26 | 14.20 | 14.04 | 14.53 | 14.32 | 14.28 | 13.79 | 14.28 | 14.82 | 14.30 |
| 2 | Austria | 10 | 9.28 | 10.03 | 9.97 | 9.99 | 9.90 | 9.67 | 9.31 | 9.23 | 9.83 | 10.11 | 10.05 | 9.75 | 10.18 | 10.13 | 9.83 |
| 3 | Bahamas,  The | 26.3 | 25.73 | 26.68 | 27.80 | 27.62 | 26.26 | 22.69 | 22.85 | 22.78 | 28.41 | 30.70 | 31.71 | 25.99 | 26.03 | 29.11 | 26.71 |
| 4 | Belgium | 22.7 | 20.81 | 22.32 | 22.75 | 23.76 | 23.16 | 22.90 | 21.82 | 21.70 | 23.22 | 23.91 | 23.79 | 23.45 | 24.56 | 25.34 | 23.08 |
| 5 | Canada | 16.3 | 15.48 | 15.40 | 16.20 | 16.48 | 15.18 | 15.35 | 15.36 | 16.19 | 16.55 | 17.56 | 17.45 | 15.85 | 16.66 | 16.58 | 16.17 |
| 6 | Chile | 19.9 | 18.22 | 18.54 | 18.21 | 19.19 | 17.75 | 18.26 | 18.25 | 20.05 | 21.15 | 20.34 | 20.59 | 19.19 | 19.81 | 19.74 | 19.28 |
| 7 | Cyprus | 29.2 | 28.64 | 27.77 | 29.61 | 33.11 | 33.18 | 34.26 | 34.35 | 36.42 | 37.26 | 29.34 | 29.75 | 30.59 | 32.64 | 33.79 | 31.99 |
| 8 | Czech  Republic | 19.3 | 18.87 | 18.02 | 20.36 | 20.60 | 20.18 | 19.73 | 17.23 | 16.76 | 18.00 | 19.66 | 19.99 | 18.58 | 18.48 | 18.47 | 18.95 |
| 9 | Denmark | 18.4 | 17.65 | 17.85 | 18.07 | 18.37 | 18.70 | 17.88 | 17.82 | 18.47 | 19.38 | 21.39 | 21.51 | 20.05 | 20.15 | 19.91 | 19.04 |
| 10 | Estonia | 33 | 33.14 | 23.17 | 24.70 | 24.96 | 25.41 | 22.48 | 19.69 | 21.08 | 35.64 | 43.86 | 37.82 | 24.96 | 21.70 | 22.94 | 27.64 |
| 11 | Finland | 18.4 | 18.08 | 16.70 | 17.70 | 18.70 | 18.66 | 18.90 | 17.73 | 17.43 | 18.79 | 20.32 | 20.09 | 19.47 | 20.44 | 20.68 | 18.81 |
| 12 | France | 15.7 | 14.32 | 14.44 | 15.09 | 15.63 | 15.41 | 15.77 | 15.17 | 14.79 | 15.10 | 16.37 | 14.86 | 14.43 | 14.98 | 15.03 | 15.14 |
| 13 | Germany | 16.4 | 15.74 | 15.27 | 16.57 | 17.40 | 16.78 | 16.45 | 14.31 | 13.94 | 14.66 | 16.27 | 15.65 | 15.18 | 15.91 | 15.96 | 15.77 |
| 14 | Greece | 28.5 | 28.11 | 27.61 | 30.02 | 28.80 | 28.17 | 29.46 | 28.47 | 29.85 | 30.65 | 35.72 | 37.62 | 42.34 | 43.67 | 39.39 | 32.56 |
| 15 | Hungary | 25.4 | 23.49 | 24.30 | 25.64 | 27.10 | 26.42 | 26.18 | 25.76 | 25.47 | 26.84 | 28.97 | 27.94 | 25.20 | 24.37 | 23.88 | 25.80 |
| 16 | Iceland | 16 | 15.91 | 16.04 | 16.72 | 17.05 | 16.66 | 16.28 | 16.95 | 16.60 | 17.36 | 17.53 | 17.57 | 16.71 | 15.42 | 15.76 | 16.57 |
| 17 | Ireland | 16.1 | 14.33 | 14.18 | 15.88 | 16.20 | 16.47 | 16.26 | 16.66 | 17.55 | 20.17 | 21.14 | 20.22 | 17.77 | 16.65 | 15.56 | 17.01 |
| 18 | Israel | 22.7 | 23.01 | 23.33 | 24.00 | 23.90 | 21.63 | 20.65 | 20.28 | 20.04 | 19.94 | 19.39 | 19.80 | 19.56 | 19.82 | 20.45 | 21.23 |
| 19 | Italy | 27.8 | 25.55 | 26.00 | 26.35 | 26.73 | 27.03 | 26.75 | 28.47 | 27.48 | 29.16 | 31.58 | 30.22 | 31.22 | 32.02 | 32.01 | 28.56 |
| 20 | Japan | 11.4 | 11.72 | 12.59 | 13.61 | 12.92 | 13.52 | 12.87 | 12.65 | 13.89 | 14.56 | 15.53 | 15.34 | 15.44 | 15.50 | 15.56 | 13.81 |
| 21 | Korea, Rep. | 28.3 | 25.57 | 27.84 | 29.15 | 31.36 | 31.66 | 32.64 | 32.30 | 33.81 | 35.12 | 36.24 | 33.49 | 34.36 | 34.15 | 34.77 | 32.05 |
| 22 | Luxembourg | 10 | 9.37 | 10.00 | 10.91 | 11.33 | 11.23 | 11.56 | 10.20 | 10.26 | 10.38 | 11.16 | 10.85 | 10.63 | 11.63 | 13.47 | 10.87 |
| 23 | Malta | 27.4 | 27.16 | 28.48 | 31.03 | 30.70 | 31.70 | 30.06 | 32.53 | 32.46 | 21.83 | 22.42 | 21.84 | 21.29 | 21.50 | 21.62 | 26.80 |
| 24 | Netherlands | 13.3 | 12.60 | 12.90 | 13.94 | 14.88 | 14.50 | 14.39 | 13.94 | 14.12 | 14.38 | 16.18 | 16.56 | 16.01 | 16.21 | 16.38 | 14.69 |
| 25 | New Zealand | 13 | 12.35 | 12.23 | 12.24 | 12.37 | 12.45 | 13.10 | 13.96 | 13.85 | 15.24 | 14.93 | 14.32 | 13.91 | 13.76 | 13.13 | 13.39 |
| 26 | Norway | 19.2 | 19.06 | 20.57 | 21.22 | 21.05 | 20.83 | 19.80 | 18.23 | 18.69 | 18.99 | 20.56 | 20.99 | 20.43 | 20.52 | 19.92 | 20.01 |
| 27 | Poland | 27.7 | 32.78 | 31.20 | 28.80 | 29.42 | 26.36 | 23.37 | 22.00 | 21.46 | 24.18 | 27.49 | 28.48 | 27.76 | 26.87 | 26.62 | 26.97 |
| 28 | Portugal | 23 | 23.26 | 23.99 | 25.49 | 26.02 | 25.74 | 26.45 | 25.37 | 24.12 | 25.29 | 26.02 | 26.94 | 27.30 | 25.97 | 26.42 | 25.43 |
| 29 | Slovak  Republic | 18.9 | 19.24 | 18.00 | 26.56 | 21.98 | 21.14 | 19.29 | 19.08 | 22.14 | 27.00 | 26.47 | 24.77 | 23.52 | 23.71 | 19.85 | 22.11 |
| 30 | Slovenia | 27.3 | 26.95 | 25.96 | 27.70 | 28.00 | 27.03 | 26.90 | 25.86 | 25.16 | 26.28 | 28.14 | 29.01 | 29.48 | 29.97 | 29.49 | 27.55 |
| 31 | Spain | 23 | 18.87 | 19.60 | 20.59 | 22.54 | 21.47 | 22.17 | 21.57 | 24.99 | 28.85 | 30.40 | 30.86 | 28.59 | 27.62 | 28.11 | 24.61 |
| 32 | Sweden | 19.6 | 17.87 | 17.86 | 18.13 | 19.45 | 19.33 | 19.25 | 18.43 | 18.26 | 18.54 | 19.90 | 18.84 | 18.53 | 18.65 | 18.95 | 18.77 |
| 33 | Switzerland | 8.8 | 9.21 | 9.13 | 9.12 | 10.05 | 9.65 | 9.16 | 8.75 | 8.44 | 8.47 | 9.42 | 8.79 | 8.87 | 9.18 | 9.35 | 9.09 |
| 34 | United  Kingdom | 12.8 | 12.33 | 12.89 | 12.94 | 13.50 | 13.55 | 13.74 | 13.99 | 14.00 | 15.03 | 15.08 | 15.26 | 14.43 | 13.84 | 13.26 | 13.78 |
| 35 | United States | 8.8 | 8.90 | 9.03 | 9.39 | 8.99 | 8.51 | 8.43 | 8.68 | 9.36 | 10.50 | 10.58 | 10.45 | 8.95 | 8.63 | 8.29 | 9.17 |
|  | Time  Average | 19.69 | 19.08 | 18.99 | 20.02 | 20.41 | 19.99 | 19.64 | 19.21 | 19.57 | 20.89 | 21.97 | 21.65 | 20.67 | 20.73 | 20.71 | 20.21 |

**Table A4.1:** The size of the shadow economies of 35 High Income OECD countries

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 1 | Algeria | 34.20 | 39.30 | 34.84 | 30.87 | 28.47 | 24.58 | 25.66 | 30.22 | 30.05 | 36.89 | 35.21 | 37.79 | 46.42 | 29.80 | 27.24 | 32.77 |
| 2 | Angola | 48.8 | 42.24 | 26.90 | 19.51 | 21.69 | 16.49 | 16.98 | 18.90 | 18.27 | 20.74 | 19.84 | 18.11 | 19.43 | 18.14 | 23.30 | 23.29 |
| 3 | Argentina | 25.2 | 27.84 | 29.29 | 26.10 | 24.51 | 17.96 | 19.73 | 20.06 | 22.00 | 24.08 | 27.64 | 28.06 | 28.85 | 35.08 | 36.10 | 26.17 |
| 4 | Bahrain | 18.6 | 14.72 | 15.40 | 15.67 | 15.16 | 14.48 | 12.67 | 11.00 | 9.89 | 9.04 | 10.11 | 10.58 | 10.94 | 14.57 | 13.59 | 13.09 |
| 5 | Bangladesh | 36 | 38.69 | 33.14 | 38.10 | 43.97 | 39.27 | 41.25 | 31.10 | 47.17 | 44.73 | 34.46 | 34.45 | 37.12 | 40.31 | 42.61 | 38.83 |
| 6 | Barbados | 33.8 | 32.24 | 34.62 | 37.72 | 45.13 | 41.94 | 39.16 | 34.54 | 42.23 | 45.03 | 47.12 | 48.22 | 49.26 | 41.05 | 39.94 | 40.80 |
| 7 | Belize | 45.2 | 37.07 | 40.53 | 48.20 | 51.11 | 50.08 | 48.85 | 48.37 | 51.32 | 55.78 | 58.05 | 62.45 | 56.81 | 55.80 | 52.81 | 50.83 |
| 8 | Benin | 51.2 | 50.55 | 53.65 | 55.12 | 59.64 | 58.05 | 59.24 | 58.42 | 60.49 | 65.63 | 67.85 | 68.71 | 65.74 | 67.39 | 66.52 | 60.55 |
| 9 | Bhutan | 29.6 | 37.77 | 35.99 | 34.91 | 35.10 | 35.09 | 37.03 | 36.49 | 32.15 | 32.68 | 35.48 | 32.44 | 31.75 | 33.04 | 34.60 | 34.28 |
| 10 | Bolivia | 67 | 72.33 | 71.70 | 76.91 | 73.86 | 73.83 | 78.62 | 70.98 | 67.20 | 64.20 | 75.55 | 81.20 | 76.92 | 68.17 | 66.04 | 72.30 |
| 11 | Botswana | 33.9 | 31.54 | 29.01 | 29.64 | 27.29 | 26.93 | 22.43 | 20.98 | 22.96 | 25.89 | 25.46 | 21.71 | 22.33 | 23.79 | 25.11 | 25.93 |
| 12 | Brazil | 40.8 | 39.40 | 40.31 | 43.15 | 39.97 | 41.56 | 40.88 | 41.55 | 41.72 | 41.00 | 41.08 | 40.54 | 38.02 | 37.52 | 41.18 | 40.58 |
| 13 | Burkina Faso | 41.3 | 47.00 | 56.34 | 46.58 | 46.28 | 49.02 | 46.44 | 50.72 | 55.47 | 49.92 | 48.10 | 48.68 | 48.72 | 51.53 | 52.60 | 49.25 |
| 14 | Burundi | 39.1 | 33.56 | 35.27 | 34.42 | 39.16 | 42.37 | 42.32 | 43.99 | 58.79 | 62.07 | 57.54 | 64.44 | 56.88 | 52.74 | 49.74 | 47.49 |
| 15 | Cabo Verde | 36.5 | 37.30 | 37.15 | 36.96 | 36.39 | 39.01 | 38.70 | 39.83 | 36.84 | 36.06 | 35.66 | 39.02 | 37.11 | 22.44 | 20.98 | 35.33 |
| 16 | Cambodia | 50.4 | 49.71 | 42.75 | 48.72 | 46.21 | 41.66 | 34.77 | 31.84 | 48.85 | 54.75 | 57.06 | 58.51 | 57.23 | 58.26 | 57.48 | 49.21 |
| 17 | Cameroon | 33.3 | 31.70 | 32.63 | 31.81 | 30.70 | 32.03 | 30.98 | 30.49 | 33.39 | 34.44 | 44.69 | 37.62 | 45.22 | 37.43 | 37.40 | 34.92 |
| 18 | Central  African Republic | 42.8 | 41.91 | 37.15 | 37.32 | 29.81 | 32.46 | 31.68 | 25.17 | 25.66 | 26.67 | 26.33 | 28.60 | 26.71 | 27.32 | 34.66 | 31.62 |
| 19 | Chad | 45.8 | 43.78 | 40.30 | 35.82 | 32.13 | 26.39 | 22.92 | 21.02 | 18.66 | 16.80 | 14.55 | 13.30 | 14.74 | 16.05 | 15.72 | 25.20 |
| 20 | China | 13.2 | 13.19 | 14.77 | 13.81 | 13.46 | 13.01 | 13.11 | 13.37 | 13.85 | 13.24 | 13.57 | 13.71 | 13.11 | 13.92 | 13.79 | 13.54 |
| 21 | Colombia | 39.4 | 32.45 | 29.91 | 27.95 | 28.15 | 27.28 | 28.06 | 26.30 | 28.76 | 28.45 | 31.30 | 29.36 | 29.16 | 29.18 | 29.85 | 29.70 |
| 22 | Comoros | 39.3 | 35.82 | 42.84 | 42.54 | 38.75 | 37.56 | 37.47 | 38.92 | 38.61 | 45.65 | 47.44 | 46.86 | 51.01 | 52.96 | 46.11 | 42.79 |
| 23 | Congo, Dem.  Rep. | 34 | 9.82 | 21.76 | 34.32 | 29.71 | 38.23 | 42.75 | 56.04 | 53.89 | 51.87 | 67.53 | 60.72 | 81.85 | 78.47 | 89.20 | 50.01 |
| 24 | Congo, Rep. | 49.5 | 41.58 | 45.61 | 58.27 | 54.62 | 50.68 | 41.71 | 45.97 | 52.55 | 38.11 | 42.61 | 38.92 | 34.74 | 46.14 | 42.47 | 45.57 |
| 25 | Costa Rica | 26.1 | 26.14 | 30.17 | 31.62 | 30.53 | 29.89 | 28.74 | 27.57 | 28.91 | 32.97 | 34.87 | 37.16 | 34.44 | 35.45 | 36.73 | 31.42 |
| 26 | Cote d'Ivoire | 41.4 | 43.70 | 38.68 | 39.03 | 43.45 | 43.37 | 43.57 | 42.12 | 42.57 | 41.02 | 39.20 | 39.26 | 32.67 | 44.36 | 41.04 | 41.03 |
| 27 | Dominican  Republic | 32.4 | 37.39 | 41.48 | 42.65 | 37.28 | 36.75 | 33.79 | 31.17 | 35.27 | 39.60 | 36.02 | 39.40 | 38.43 | 46.14 | 43.54 | 38.09 |
| 28 | Ecuador | 34.2 | 35.05 | 36.27 | 34.72 | 29.81 | 29.89 | 30.44 | 29.63 | 32.96 | 36.98 | 45.16 | 43.80 | 42.49 | 45.57 | 47.21 | 36.94 |
| 29 | Egypt, Arab  Rep. | 35.5 | 41.03 | 37.40 | 37.31 | 38.15 | 39.02 | 38.22 | 38.43 | 32.97 | 31.85 | 37.37 | 38.39 | 39.39 | 39.53 | 39.35 | 37.59 |
| 30 | El Salvador | 46.5 | 45.37 | 51.45 | 47.40 | 48.12 | 48.06 | 47.16 | 51.14 | 47.80 | 51.10 | 51.62 | 54.26 | 52.77 | 54.12 | 58.60 | 50.37 |
| 31 | Equatorial  Guinea | 32.7 | 23.65 | 18.18 | 28.51 | 17.76 | 20.32 | 17.35 | 20.67 | 18.26 | 19.85 | 35.16 | 38.12 | 37.43 | 40.84 | 42.48 | 27.42 |
| 32 | Eritrea | 38.1 | 32.53 | 27.57 | 26.33 | 29.20 | 25.11 | 24.53 | 20.74 | 20.65 | 20.89 | 18.38 | 19.84 | 18.17 | 12.74 | 12.78 | 23.17 |
| 33 | Fiji | 32.9 | 32.55 | 33.61 | 32.24 | 30.66 | 28.27 | 28.84 | 36.39 | 34.93 | 32.31 | 28.23 | 26.99 | 24.71 | 26.26 | 25.52 | 30.29 |
| 34 | Gabon | 46.2 | 42.21 | 60.74 | 56.87 | 58.12 | 56.81 | 51.01 | 49.83 | 53.02 | 49.00 | 56.03 | 50.32 | 45.69 | 57.82 | 53.43 | 52.47 |
| 35 | Gambia, The | 46.1 | 52.83 | 52.57 | 52.82 | 54.57 | 54.68 | 51.35 | 52.19 | 59.54 | 74.62 | 81.35 | 79.77 | 78.65 | 64.30 | 64.80 | 61.34 |
| 36 | Ghana | 42 | 40.96 | 39.82 | 38.30 | 40.75 | 41.90 | 52.85 | 34.12 | 39.97 | 38.55 | 39.74 | 36.44 | 55.49 | 61.09 | 57.01 | 43.93 |
| 37 | Guatemala | 51.6 | 53.98 | 69.76 | 78.31 | 74.69 | 70.03 | 61.02 | 63.47 | 65.42 | 71.00 | 73.33 | 72.35 | 68.53 | 70.86 | 70.82 | 67.68 |
| 38 | Guinea | 39.7 | 40.97 | 41.11 | 49.96 | 43.21 | 39.52 | 40.13 | 49.89 | 39.53 | 48.80 | 50.24 | 67.98 | 57.10 | 56.29 | 53.60 | 47.87 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 39 | Guinea-Bissau | 40.4 | 46.21 | 37.24 | 37.30 | 36.89 | 32.24 | 29.03 | 27.52 | 26.09 | 20.47 | 21.19 | 24.70 | 21.46 | 20.70 | 18.00 | 29.30 |
| 40 | Guyana | 33.4 | 41.38 | 42.77 | 44.01 | 48.78 | 46.45 | 45.23 | 37.67 | 37.03 | 41.29 | 40.05 | 40.26 | 31.94 | 33.65 | 34.30 | 39.88 |
| 41 | Haiti | 54.8 | 58.21 | 58.29 | 60.49 | 54.23 | 48.56 | 54.43 | 55.38 | 51.32 | 52.53 | 48.41 | 44.97 | 46.75 | 50.87 | 54.73 | 52.93 |
| 42 | Honduras | 50.3 | 57.28 | 63.34 | 65.52 | 67.53 | 72.43 | 64.83 | 60.49 | 71.07 | 76.41 | 81.45 | 78.60 | 71.67 | 69.22 | 72.41 | 68.17 |
| 43 | Hong Kong  SAR, China | 17 | 15.16 | 20.65 | 24.34 | 24.26 | 21.56 | 19.49 | 19.38 | 19.50 | 21.75 | 22.04 | 22.58 | 19.93 | 21.81 | 23.66 | 20.87 |
| 44 | India | 23.2 | 23.77 | 21.47 | 20.71 | 21.54 | 21.20 | 20.67 | 22.18 | 21.04 | 21.72 | 22.43 | 22.22 | 20.71 | 22.25 | 21.24 | 21.76 |
| 45 | Indonesia | 19.7 | 22.01 | 20.40 | 19.44 | 20.24 | 22.69 | 19.30 | 19.31 | 16.17 | 16.99 | 18.56 | 17.33 | 19.39 | 19.25 | 20.25 | 19.40 |
| 46 | Iran, Islamic  Rep. | 19.1 | 20.85 | 20.02 | 16.99 | 12.45 | 17.17 | 16.04 | 21.89 | 14.54 | 16.81 | 21.12 | 20.10 | 16.94 | 16.84 | 16.71 | 17.84 |
| 47 | Jamaica | 36.4 | 36.31 | 36.25 | 35.60 | 33.45 | 34.72 | 37.75 | 38.37 | 42.16 | 45.72 | 47.55 | 45.30 | 44.45 | 46.72 | 45.17 | 40.40 |
| 48 | Jordan | 19.4 | 21.76 | 20.44 | 19.43 | 17.91 | 18.01 | 17.94 | 20.04 | 18.34 | 17.52 | 17.38 | 16.60 | 17.06 | 17.58 | 16.14 | 18.37 |
| 49 | Kenya | 33.7 | 32.53 | 34.89 | 35.71 | 33.56 | 29.04 | 31.12 | 24.86 | 25.97 | 27.73 | 27.06 | 26.07 | 25.58 | 25.32 | 26.37 | 29.30 |
| 50 | Kuwait | 20.1 | 16.12 | 18.21 | 19.78 | 17.31 | 15.98 | 11.52 | 9.87 | 10.60 | 10.13 | 15.09 | 14.26 | 13.13 | 13.00 | 12.58 | 14.51 |
| 51 | Lao PDR | 30.9 | 31.19 | 39.01 | 34.17 | 35.83 | 40.23 | 44.18 | 45.66 | 50.79 | 58.83 | 64.98 | 59.73 | 62.95 | 74.05 | 80.41 | 50.19 |
| 52 | Lebanon | 34.10 | 34.82 | 31.45 | 36.49 | 34.98 | 32.92 | 31.98 | 32.89 | 28.66 | 29.67 | 29.32 | 28.50 | 29.43 | 28.33 | 32.16 | 31.71 |
| 53 | Lesotho | 31.7 | 33.62 | 32.26 | 36.12 | 31.78 | 35.11 | 31.36 | 34.04 | 32.94 | 30.65 | 32.59 | 39.05 | 37.53 | 36.51 | 33.35 | 33.91 |
| 54 | Liberia | 44.2 | 43.57 | 41.16 | 31.39 | 33.50 | 54.90 | 54.60 | 51.91 | 62.21 | 76.93 | 64.90 | 67.76 | 70.76 | 76.84 | 82.04 | 57.11 |
| 55 | Macao SAR,  China | 13.3 | 12.30 | 12.82 | 12.66 | 12.73 | 11.50 | 11.38 | 10.84 | 12.36 | 14.03 | 14.29 | 14.51 | 14.50 | 14.72 | 12.64 | 12.97 |
| 56 | Madagascar | 40.1 | 44.33 | 44.85 | 36.95 | 36.07 | 34.95 | 38.02 | 44.58 | 56.10 | 46.81 | 41.02 | 43.65 | 44.69 | 42.70 | 44.82 | 42.64 |
| 57 | Malawi | 39.9 | 39.48 | 42.04 | 37.51 | 36.72 | 34.41 | 36.09 | 34.58 | 33.76 | 36.20 | 39.34 | 35.59 | 41.01 | 40.58 | 44.07 | 38.09 |
| 58 | Malaysia | 32.2 | 31.65 | 40.70 | 39.41 | 36.45 | 36.72 | 32.27 | 32.75 | 31.98 | 34.00 | 36.49 | 34.08 | 35.34 | 38.41 | 37.35 | 35.32 |
| 59 | Maldives | 30.3 | 34.63 | 25.29 | 25.12 | 22.69 | 24.71 | 24.73 | 24.71 | 22.86 | 20.12 | 18.94 | 18.33 | 19.93 | 19.23 | 18.32 | 23.33 |
| 60 | Mali | 42.5 | 40.63 | 40.51 | 42.95 | 48.71 | 48.26 | 44.55 | 47.32 | 45.49 | 44.49 | 45.22 | 45.13 | 44.85 | 44.82 | 46.61 | 44.80 |
| 61 | Mauritania | 35.5 | 36.39 | 36.40 | 44.00 | 46.87 | 45.23 | 45.29 | 40.60 | 45.06 | 39.51 | 40.39 | 39.14 | 33.12 | 36.79 | 39.04 | 40.22 |
| 62 | Mauritius | 23.3 | 21.55 | 21.09 | 21.52 | 25.18 | 24.63 | 24.12 | 22.90 | 19.13 | 19.77 | 22.86 | 23.46 | 24.11 | 23.23 | 23.89 | 22.72 |
| 63 | Mexico | 30.8 | 31.05 | 31.34 | 30.82 | 31.47 | 30.49 | 30.92 | 29.79 | 29.13 | 32.72 | 35.07 | 31.97 | 30.42 | 32.91 | 31.51 | 31.36 |
| 64 | Morocco | 36.5 | 35.77 | 34.89 | 36.96 | 35.12 | 36.79 | 39.11 | 37.76 | 34.76 | 38.34 | 37.10 | 36.57 | 38.76 | 40.69 | 40.72 | 37.32 |
| 65 | Mozambique | 36 | 31.76 | 35.03 | 36.02 | 36.82 | 41.49 | 42.35 | 42.28 | 39.67 | 42.68 | 46.56 | 48.10 | 50.56 | 53.54 | 63.09 | 43.06 |
| 66 | Namibia | 31.4 | 30.74 | 28.98 | 26.79 | 26.71 | 27.79 | 27.37 | 26.17 | 32.72 | 33.92 | 31.99 | 25.77 | 21.42 | 30.25 | 33.54 | 29.04 |
| 67 | Nepal | 37.2 | 43.23 | 36.62 | 34.57 | 34.92 | 36.71 | 38.50 | 35.45 | 39.90 | 43.69 | 48.71 | 47.56 | 48.06 | 49.87 | 49.38 | 41.62 |
| 68 | Nicaragua | 45.7 | 47.92 | 46.53 | 45.30 | 50.63 | 52.29 | 48.75 | 49.25 | 51.28 | 53.19 | 54.25 | 53.97 | 49.09 | 44.49 | 46.49 | 49.27 |
| 69 | Niger | 41.7 | 37.47 | 32.69 | 35.10 | 38.05 | 43.69 | 43.05 | 42.83 | 42.86 | 42.47 | 44.51 | 44.74 | 40.83 | 41.46 | 41.20 | 40.84 |
| 70 | Nigeria | 46 | 56.21 | 55.41 | 37.84 | 32.86 | 37.08 | 43.47 | 40.52 | 51.28 | 74.29 | 79.42 | 47.77 | 48.03 | 46.42 | 42.94 | 49.30 |
| 71 | Oman | 19.1 | 16.20 | 16.30 | 18.14 | 16.14 | 15.90 | 15.40 | 14.42 | 13.69 | 10.45 | 14.80 | 13.44 | 12.92 | 15.03 | 16.07 | 15.20 |
| 72 | Pakistan | 37 | 30.74 | 30.47 | 31.11 | 31.52 | 28.27 | 26.59 | 26.25 | 29.41 | 31.63 | 31.87 | 34.87 | 31.31 | 34.28 | 36.05 | 31.43 |
| 73 | Papua New  Guinea | 35.5 | 33.53 | 35.84 | 32.90 | 33.28 | 33.60 | 34.09 | 34.27 | 34.75 | 35.16 | 35.58 | 38.71 | 37.27 | 33.89 | 35.84 | 34.95 |
| 74 | Paraguay | 38 | 43.28 | 48.36 | 37.37 | 36.80 | 29.03 | 39.02 | 35.26 | 35.44 | 36.19 | 43.92 | 41.47 | 41.51 | 49.98 | 53.73 | 40.62 |
| 75 | Peru | 60.1 | 57.33 | 57.88 | 61.68 | 59.73 | 58.15 | 61.91 | 61.23 | 57.28 | 58.91 | 59.49 | 55.47 | 57.06 | 62.23 | 61.90 | 59.36 |
| 76 | Philippines | 43.8 | 45.74 | 44.43 | 38.38 | 38.51 | 31.70 | 34.05 | 29.63 | 36.81 | 35.45 | 36.31 | 36.56 | 36.20 | 39.15 | 38.72 | 37.69 |
| 77 | Qatar | 18.7 | 15.67 | 15.56 | 13.97 | 13.34 | 12.87 | 12.62 | 12.22 | 10.99 | 8.97 | 12.18 | 10.24 | 9.77 | 10.06 | 10.45 | 12.51 |
| 78 | Rwanda | 40.5 | 34.47 | 41.50 | 36.12 | 38.95 | 30.05 | 46.90 | 44.94 | 41.61 | 36.07 | 37.42 | 35.73 | 34.87 | 37.50 | 38.55 | 38.35 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 79 | Saudi Arabia | 18.7 | 19.13 | 21.48 | 19.17 | 19.33 | 18.08 | 15.82 | 16.68 | 15.99 | 13.19 | 16.55 | 16.16 | 15.23 | 16.52 | 17.73 | 17.32 |
| 80 | Senegal | 45 | 48.59 | 40.08 | 43.77 | 45.28 | 51.10 | 49.52 | 49.07 | 48.86 | 48.43 | 52.87 | 55.27 | 52.45 | 57.01 | 52.58 | 49.33 |
| 81 | Sierra Leone | 48.6 | 62.06 | 56.55 | 61.02 | 54.49 | 48.09 | 47.31 | 49.27 | 43.62 | 48.42 | 54.14 | 52.95 | 51.53 | 52.80 | 54.74 | 52.37 |
| 82 | Singapore | 13.3 | 14.13 | 15.64 | 15.41 | 14.31 | 12.49 | 12.01 | 12.39 | 12.45 | 14.16 | 13.46 | 13.35 | 11.95 | 12.61 | 13.44 | 13.41 |
| 83 | Solomon  Islands | 31.7 | 35.08 | 34.57 | 31.09 | 30.23 | 36.63 | 43.26 | 45.88 | 48.50 | 51.18 | 53.54 | 57.13 | 57.02 | 60.57 | 66.23 | 45.51 |
| 84 | South Africa | 28.4 | 28.49 | 29.29 | 28.43 | 27.10 | 27.37 | 28.48 | 27.88 | 28.73 | 30.38 | 31.00 | 31.58 | 30.71 | 30.06 | 30.62 | 29.23 |
| 85 | Sri Lanka | 45.2 | 45.66 | 45.53 | 56.06 | 52.93 | 52.08 | 52.45 | 60.20 | 56.72 | 62.60 | 66.31 | 52.49 | 36.45 | 27.62 | 18.44 | 48.72 |
| 86 | Suriname | 39.7 | 40.48 | 34.45 | 27.86 | 30.66 | 28.15 | 24.95 | 25.11 | 30.04 | 32.07 | 30.52 | 29.36 | 27.52 | 33.37 | 30.44 | 30.98 |
| 87 | Swaziland | 43.5 | 42.35 | 40.46 | 40.13 | 37.80 | 37.65 | 37.70 | 35.25 | 36.51 | 35.10 | 40.69 | 46.54 | 41.29 | 43.17 | 36.33 | 39.63 |
| 88 | Tanzania | 58.6 | 63.70 | 57.32 | 55.30 | 65.01 | 66.60 | 76.27 | 69.43 | 76.46 | 63.86 | 70.58 | 65.35 | 65.93 | 66.78 | 68.24 | 65.96 |
| 89 | Thailand | 53.4 | 52.18 | 49.50 | 51.46 | 54.73 | 55.66 | 58.27 | 55.64 | 56.97 | 60.21 | 60.67 | 60.49 | 63.07 | 63.68 | 68.70 | 57.64 |
| 90 | Timor-Leste | 35.5 | 40.99 | 41.35 | 39.72 | 36.60 | 35.40 | 33.70 | 35.44 | 35.09 | 33.52 | 39.89 | 41.35 | 42.44 | 41.62 | 42.20 | 38.32 |
| 91 | Togo | 34.4 | 35.38 | 33.14 | 28.70 | 29.85 | 29.44 | 29.81 | 31.55 | 27.19 | 29.35 | 31.03 | 28.55 | 28.25 | 34.86 | 39.14 | 31.38 |
| 92 | Trinidad and  Tobago | 34.7 | 26.77 | 30.39 | 29.63 | 28.16 | 25.58 | 28.25 | 31.63 | 27.43 | 30.16 | 36.13 | 35.61 | 32.74 | 33.80 | 34.10 | 31.01 |
| 93 | Tunisia | 38.7 | 38.24 | 39.10 | 39.65 | 39.73 | 38.21 | 39.10 | 36.56 | 36.07 | 40.25 | 40.89 | 44.50 | 43.60 | 43.64 | 39.45 | 39.85 |
| 94 | Turkey | 32.7 | 29.51 | 38.50 | 43.00 | 38.64 | 34.65 | 36.08 | 32.63 | 38.26 | 41.27 | 43.30 | 40.56 | 36.70 | 41.38 | 32.70 | 37.33 |
| 95 | Uganda | 43.50 | 50.51 | 48.16 | 52.61 | 50.92 | 40.01 | 49.16 | 47.32 | 47.49 | 41.59 | 36.22 | 36.24 | 45.79 | 31.76 | 32.80 | 43.61 |
| 96 | United Arab  Emirates | 26.3 | 23.27 | 27.35 | 30.53 | 27.85 | 31.58 | 26.28 | 24.96 | 22.05 | 22.05 | 30.47 | 25.11 | 23.90 | 21.27 | 28.41 | 26.09 |
| 97 | Uruguay | 50.5 | 50.81 | 48.34 | 48.36 | 48.27 | 52.99 | 55.01 | 56.55 | 48.70 | 49.55 | 52.68 | 53.62 | 55.34 | 56.70 | 58.35 | 52.38 |
| 98 | Venezuela,  RB | 33.8 | 29.92 | 39.16 | 36.64 | 35.39 | 32.03 | 26.08 | 26.68 | 29.03 | 34.72 | 50.10 | 37.89 | 32.50 | 32.98 | 31.64 | 33.91 |
| 99 | Vietnam | 15.8 | 14.87 | 14.55 | 14.49 | 14.53 | 15.60 | 14.39 | 14.65 | 16.21 | 15.98 | 16.37 | 22.80 | 21.41 | 21.78 | 24.14 | 17.17 |
| 100 | Yemen, Rep. | 27.7 | 27.68 | 26.91 | 23.79 | 24.82 | 25.22 | 22.63 | 26.27 | 25.16 | 27.87 | 31.34 | 36.13 | 37.68 | 37.02 | 38.92 | 29.28 |
| 101 | Zambia | 49.3 | 50.33 | 49.21 | 46.00 | 44.88 | 42.73 | 40.42 | 37.60 | 37.05 | 35.37 | 32.20 | 31.66 | 34.02 | 33.19 | 36.65 | 40.04 |
|  | Time Average | 36.50 | 36.50 | 36.78 | 36.77 | 36.27 | 35.85 | 35.84 | 35.49 | 36.47 | 37.70 | 39.64 | 39.09 | 38.50 | 39.17 | 39.59 | 37.34 |

**Table A4.2:** The size of the shadow economies of 101 Developing countries

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Aver.** |
| 1 | Albania | 35.70 | 27.77 | 32.64 | 39.03 | 40.10 | 39.04 | 42.15 | 41.06 | 42.58 | 45.28 | 46.97 | 47.21 | 49.51 | 50.78 | 51.96 | 42.12 |
| 2 | Armenia | 46.6 | 48.25 | 56.59 | 55.03 | 53.63 | 39.92 | 43.99 | 37.28 | 35.12 | 30.62 | 41.99 | 50.74 | 50.54 | 44.82 | 48.47 | 45.57 |
| 3 | Azerbaijan | 61 | 62.81 | 51.10 | 36.29 | 42.10 | 46.32 | 44.41 | 49.68 | 46.34 | 43.94 | 46.76 | 45.43 | 43.32 | 46.23 | 46.54 | 47.48 |
| 4 | Belarus | 48.3 | 45.01 | 53.02 | 48.35 | 52.08 | 49.61 | 51.44 | 51.84 | 52.62 | 51.03 | 45.71 | 41.66 | 37.35 | 36.71 | 37.67 | 46.83 |
| 5 | Bosnia and  Herzegovina | 34.3 | 30.24 | 38.06 | 36.87 | 36.69 | 36.99 | 38.82 | 34.96 | 34.71 | 32.37 | 36.08 | 37.13 | 39.44 | 38.41 | 36.45 | 36.10 |
| 6 | Bulgaria | 36 | 42.52 | 37.56 | 31.63 | 31.86 | 31.65 | 32.49 | 33.15 | 33.11 | 34.42 | 35.97 | 37.30 | 33.99 | 33.59 | 35.55 | 34.72 |
| 7 | Croatia | 33.8 | 36.71 | 30.34 | 27.09 | 23.01 | 25.92 | 25.91 | 24.26 | 25.48 | 26.06 | 29.83 | 30.34 | 31.66 | 32.10 | 31.61 | 28.94 |
| 8 | Georgia | 34 | 16.65 | 22.46 | 28.76 | 26.80 | 38.91 | 49.97 | 41.84 | 61.11 | 78.74 | 74.47 | 61.46 | 57.13 | 57.27 | 53.20 | 46.85 |
| 9 | Kazakhstan | 43.8 | 39.50 | 43.33 | 42.67 | 47.04 | 52.78 | 37.52 | 35.83 | 42.97 | 42.60 | 49.84 | 47.37 | 50.91 | 56.58 | 55.69 | 45.90 |
| 10 | Kyrgyz  Republic | 41.4 | 41.00 | 44.15 | 44.44 | 36.43 | 35.90 | 39.19 | 38.58 | 41.91 | 41.82 | 42.56 | 42.57 | 43.16 | 47.93 | 44.82 | 41.72 |
| 11 | Latvia | 30.8 | 28.53 | 26.71 | 26.11 | 26.20 | 23.95 | 23.59 | 22.64 | 24.35 | 33.94 | 34.75 | 31.07 | 24.29 | 20.96 | 19.92 | 26.52 |
| 12 | Lithuania | 33.8 | 35.38 | 28.75 | 28.93 | 25.07 | 25.49 | 24.79 | 24.87 | 26.41 | 34.52 | 39.13 | 34.36 | 26.00 | 21.85 | 21.95 | 28.75 |
| 13 | Macedonia,  FYR | 39 | 31.68 | 41.52 | 41.19 | 39.25 | 39.33 | 31.84 | 29.32 | 30.06 | 32.12 | 32.75 | 30.21 | 32.66 | 30.73 | 29.93 | 34.11 |
| 14 | Moldova | 36 | 25.40 | 40.49 | 51.57 | 53.85 | 49.79 | 49.41 | 58.98 | 55.58 | 62.37 | 72.20 | 70.66 | 61.45 | 62.37 | 55.80 | 53.73 |
| 15 | Mongolia | 18.4 | 20.84 | 23.41 | 21.64 | 22.08 | 24.41 | 21.62 | 23.53 | 23.07 | 23.51 | 21.44 | 21.41 | 19.76 | 18.44 | 21.35 | 21.66 |
| 16 | Montenegro | 34.3 | 36.79 | 40.18 | 40.34 | 39.93 | 37.57 | 39.72 | 38.20 | 31.00 | 33.70 | 32.52 | 31.82 | 33.50 | 31.35 | 28.75 | 35.31 |
| 17 | Romania | 34.3 | 35.30 | 35.01 | 31.56 | 37.12 | 32.61 | 33.98 | 30.16 | 30.80 | 33.13 | 35.29 | 33.50 | 31.90 | 32.13 | 30.65 | 33.16 |
| 18 | Russian  Federation | 36 | 33.71 | 38.92 | 42.19 | 41.34 | 40.05 | 44.45 | 43.14 | 44.65 | 48.46 | 49.51 | 45.64 | 42.38 | 44.94 | 46.37 | 42.78 |
| 19 | Serbia | 34.3 | 33.04 | 35.59 | 39.17 | 41.52 | 39.07 | 36.53 | 32.19 | 28.51 | 29.44 | 31.58 | 37.35 | 34.74 | 32.42 | 27.95 | 34.23 |
| 20 | Tajikistan | 43.5 | 34.28 | 38.50 | 40.55 | 41.53 | 48.47 | 60.72 | 51.83 | 48.49 | 52.96 | 63.57 | 64.12 | 69.77 | 53.03 | 63.76 | 51.67 |
| 21 | Ukraine | 52.7 | 52.57 | 48.52 | 47.09 | 47.09 | 44.92 | 50.23 | 52.76 | 53.88 | 52.77 | 60.07 | 59.49 | 53.60 | 54.24 | 53.53 | 52.23 |
|  | Time Average | 38.48 | 36.09 | 38.42 | 38.12 | 38.32 | 38.22 | 39.18 | 37.91 | 38.70 | 41.14 | 43.95 | 42.90 | 41.29 | 40.33 | 40.09 | 39.54 |

## Table A4.3: Size of the shadow economies of 21 Transition countries

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 1 | **Albania** | 35.70 | 27.77 | 32.64 | 39.03 | 40.10 | 39.04 | 42.15 | 41.06 | 42.58 | 45.28 | 46.97 | 47.21 | 49.51 | 50.78 | 51.96 | 42.12 |
| 2 | **Algeria** | 34.20 | 39.30 | 34.84 | 30.87 | 28.47 | 24.58 | 25.66 | 30.22 | 30.05 | 36.89 | 35.21 | 37.79 | 46.42 | 29.80 | 27.24 | 32.77 |
| 3 | **Angola** | 48.8 | 42.24 | 26.90 | 19.51 | 21.69 | 16.49 | 16.98 | 18.90 | 18.27 | 20.74 | 19.84 | 18.11 | 19.43 | 18.14 | 23.30 | 23.29 |
| 4 | **Argentina** | 25.2 | 27.84 | 29.29 | 26.10 | 24.51 | 17.96 | 19.73 | 20.06 | 22.00 | 24.08 | 27.64 | 28.06 | 28.85 | 35.08 | 36.10 | 26.17 |
| 5 | **Armenia** | 46.6 | 48.25 | 56.59 | 55.03 | 53.63 | 39.92 | 43.99 | 37.28 | 35.12 | 30.62 | 41.99 | 50.74 | 50.54 | 44.82 | 48.47 | 45.57 |
| 6 | **Australia** | 14.4 | 14.15 | 14.68 | 14.36 | 14.24 | 14.10 | 14.26 | 14.20 | 14.04 | 14.53 | 14.32 | 14.28 | 13.79 | 14.28 | 14.82 | 14.30 |
| 7 | **Austria** | 10 | 9.28 | 10.03 | 9.97 | 9.99 | 9.90 | 9.67 | 9.31 | 9.23 | 9.83 | 10.11 | 10.05 | 9.75 | 10.18 | 10.13 | 9.83 |
| 8 | **Azerbaijan** | 61 | 62.81 | 51.10 | 36.29 | 42.10 | 46.32 | 44.41 | 49.68 | 46.34 | 43.94 | 46.76 | 45.43 | 43.32 | 46.23 | 46.54 | 47.48 |
| 9 | **Bahamas, The** | 26.3 | 25.73 | 26.68 | 27.80 | 27.62 | 26.26 | 22.69 | 22.85 | 22.78 | 28.41 | 30.70 | 31.71 | 25.99 | 26.03 | 29.11 | 26.71 |
| 10 | **Bahrain** | 18.6 | 14.72 | 15.40 | 15.67 | 15.16 | 14.48 | 12.67 | 11.00 | 9.89 | 9.04 | 10.11 | 10.58 | 10.94 | 14.57 | 13.59 | 13.09 |
| 11 | **Bangladesh** | 36 | 38.69 | 33.14 | 38.10 | 43.97 | 39.27 | 41.25 | 31.10 | 47.17 | 44.73 | 34.46 | 34.45 | 37.12 | 40.31 | 42.61 | 38.83 |
| 12 | **Barbados** | 33.8 | 32.24 | 34.62 | 37.72 | 45.13 | 41.94 | 39.16 | 34.54 | 42.23 | 45.03 | 47.12 | 48.22 | 49.26 | 41.05 | 39.94 | 40.80 |
| 13 | **Belarus** | 48.3 | 45.01 | 53.02 | 48.35 | 52.08 | 49.61 | 51.44 | 51.84 | 52.62 | 51.03 | 45.71 | 41.66 | 37.35 | 36.71 | 37.67 | 46.83 |
| 14 | **Belgium** | 22.7 | 20.81 | 22.32 | 22.75 | 23.76 | 23.16 | 22.90 | 21.82 | 21.70 | 23.22 | 23.91 | 23.79 | 23.45 | 24.56 | 25.34 | 23.08 |
| 15 | **Belize** | 45.2 | 37.07 | 40.53 | 48.20 | 51.11 | 50.08 | 48.85 | 48.37 | 51.32 | 55.78 | 58.05 | 62.45 | 56.81 | 55.80 | 52.81 | 50.83 |
| 16 | **Benin** | 51.2 | 50.55 | 53.65 | 55.12 | 59.64 | 58.05 | 59.24 | 58.42 | 60.49 | 65.63 | 67.85 | 68.71 | 65.74 | 67.39 | 66.52 | 60.55 |
| 17 | **Bhutan** | 29.6 | 37.77 | 35.99 | 34.91 | 35.10 | 35.09 | 37.03 | 36.49 | 32.15 | 32.68 | 35.48 | 32.44 | 31.75 | 33.04 | 34.60 | 34.28 |
| 18 | **Bolivia** | 67 | 72.33 | 71.70 | 76.91 | 73.86 | 73.83 | 78.62 | 70.98 | 67.20 | 64.20 | 75.55 | 81.20 | 76.92 | 68.17 | 66.04 | 72.30 |
| 19 | **Bosnia and Herzegovina** | 34.3 | 30.24 | 38.06 | 36.87 | 36.69 | 36.99 | 38.82 | 34.96 | 34.71 | 32.37 | 36.08 | 37.13 | 39.44 | 38.41 | 36.45 | 36.10 |
| 20 | **Botswana** | 33.9 | 31.54 | 29.01 | 29.64 | 27.29 | 26.93 | 22.43 | 20.98 | 22.96 | 25.89 | 25.46 | 21.71 | 22.33 | 23.79 | 25.11 | 25.93 |
| 21 | **Brazil** | 40.8 | 39.40 | 40.31 | 43.15 | 39.97 | 41.56 | 40.88 | 41.55 | 41.72 | 41.00 | 41.08 | 40.54 | 38.02 | 37.52 | 41.18 | 40.58 |
| 22 | **Bulgaria** | 36 | 42.52 | 37.56 | 31.63 | 31.86 | 31.65 | 32.49 | 33.15 | 33.11 | 34.42 | 35.97 | 37.30 | 33.99 | 33.59 | 35.55 | 34.72 |
| 23 | **Burkina Faso** | 41.3 | 47.00 | 56.34 | 46.58 | 46.28 | 49.02 | 46.44 | 50.72 | 55.47 | 49.92 | 48.10 | 48.68 | 48.72 | 51.53 | 52.60 | 49.25 |
| 24 | **Burundi** | 39.1 | 33.56 | 35.27 | 34.42 | 39.16 | 42.37 | 42.32 | 43.99 | 58.79 | 62.07 | 57.54 | 64.44 | 56.88 | 52.74 | 49.74 | 47.49 |
| 25 | **Cabo Verde** | 36.5 | 37.30 | 37.15 | 36.96 | 36.39 | 39.01 | 38.70 | 39.83 | 36.84 | 36.06 | 35.66 | 39.02 | 37.11 | 22.44 | 20.98 | 35.33 |
| 26 | **Cambodia** | 50.4 | 49.71 | 42.75 | 48.72 | 46.21 | 41.66 | 34.77 | 31.84 | 48.85 | 54.75 | 57.06 | 58.51 | 57.23 | 58.26 | 57.48 | 49.21 |
| 27 | **Cameroon** | 33.3 | 31.70 | 32.63 | 31.81 | 30.70 | 32.03 | 30.98 | 30.49 | 33.39 | 34.44 | 44.69 | 37.62 | 45.22 | 37.43 | 37.40 | 34.92 |
| 28 | **Canada** | 16.3 | 15.48 | 15.40 | 16.20 | 16.48 | 15.18 | 15.35 | 15.36 | 16.19 | 16.55 | 17.56 | 17.45 | 15.85 | 16.66 | 16.58 | 16.17 |
| 29 | **Central African**  **Republic** | 42.8 | 41.91 | 37.15 | 37.32 | 29.81 | 32.46 | 31.68 | 25.17 | 25.66 | 26.67 | 26.33 | 28.60 | 26.71 | 27.32 | 34.66 | 31.62 |
| 30 | **Chad** | 45.8 | 43.78 | 40.30 | 35.82 | 32.13 | 26.39 | 22.92 | 21.02 | 18.66 | 16.80 | 14.55 | 13.30 | 14.74 | 16.05 | 15.72 | 25.20 |
| 31 | **Chile** | 19.9 | 18.22 | 18.54 | 18.21 | 19.19 | 17.75 | 18.26 | 18.25 | 20.05 | 21.15 | 20.34 | 20.59 | 19.19 | 19.81 | 19.74 | 19.28 |
| 32 | **China** | 13.2 | 13.19 | 14.77 | 13.81 | 13.46 | 13.01 | 13.11 | 13.37 | 13.85 | 13.24 | 13.57 | 13.71 | 13.11 | 13.92 | 13.79 | 13.54 |
| 33 | **Colombia** | 39.4 | 32.45 | 29.91 | 27.95 | 28.15 | 27.28 | 28.06 | 26.30 | 28.76 | 28.45 | 31.30 | 29.36 | 29.16 | 29.18 | 29.85 | 29.70 |
| 34 | **Comoros** | 39.3 | 35.82 | 42.84 | 42.54 | 38.75 | 37.56 | 37.47 | 38.92 | 38.61 | 45.65 | 47.44 | 46.86 | 51.01 | 52.96 | 46.11 | 42.79 |
| 35 | **Congo, Dem.**  **Rep.** | 34 | 9.82 | 21.76 | 34.32 | 29.71 | 38.23 | 42.75 | 56.04 | 53.89 | 51.87 | 67.53 | 60.72 | 81.85 | 78.47 | 89.20 | 50.01 |
| 36 | **Congo, Rep.** | 49.5 | 41.58 | 45.61 | 58.27 | 54.62 | 50.68 | 41.71 | 45.97 | 52.55 | 38.11 | 42.61 | 38.92 | 34.74 | 46.14 | 42.47 | 45.57 |
| 37 | **Costa Rica** | 26.1 | 26.14 | 30.17 | 31.62 | 30.53 | 29.89 | 28.74 | 27.57 | 28.91 | 32.97 | 34.87 | 37.16 | 34.44 | 35.45 | 36.73 | 31.42 |
| 38 | **Cote d'Ivoire** | 41.4 | 43.70 | 38.68 | 39.03 | 43.45 | 43.37 | 43.57 | 42.12 | 42.57 | 41.02 | 39.20 | 39.26 | 32.67 | 44.36 | 41.04 | 41.03 |

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| No. | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 39 | **Croatia** | 33.8 | 36.71 | 30.34 | 27.09 | 23.01 | 25.92 | 25.91 | 24.26 | 25.48 | 26.06 | 29.83 | 30.34 | 31.66 | 32.10 | 31.61 | 28.94 |
| 40 | **Cyprus** | 29.2 | 28.64 | 27.77 | 29.61 | 33.11 | 33.18 | 34.26 | 34.35 | 36.42 | 37.26 | 29.34 | 29.75 | 30.59 | 32.64 | 33.79 | 31.99 |
| 41 | **Czech Republic** | 19.3 | 18.87 | 18.02 | 20.36 | 20.60 | 20.18 | 19.73 | 17.23 | 16.76 | 18.00 | 19.66 | 19.99 | 18.58 | 18.48 | 18.47 | 18.95 |
| 42 | **Denmark** | 18.4 | 17.65 | 17.85 | 18.07 | 18.37 | 18.70 | 17.88 | 17.82 | 18.47 | 19.38 | 21.39 | 21.51 | 20.05 | 20.15 | 19.91 | 19.04 |
| 43 | **Dominican Republic** | 32.4 | 37.39 | 41.48 | 42.65 | 37.28 | 36.75 | 33.79 | 31.17 | 35.27 | 39.60 | 36.02 | 39.40 | 38.43 | 46.14 | 43.54 | 38.09 |
| 44 | **Ecuador** | 34.2 | 35.05 | 36.27 | 34.72 | 29.81 | 29.89 | 30.44 | 29.63 | 32.96 | 36.98 | 45.16 | 43.80 | 42.49 | 45.57 | 47.21 | 36.94 |
| 45 | **Egypt, Arab Rep.** | 35.5 | 41.03 | 37.40 | 37.31 | 38.15 | 39.02 | 38.22 | 38.43 | 32.97 | 31.85 | 37.37 | 38.39 | 39.39 | 39.53 | 39.35 | 37.59 |
| 46 | **El Salvador** | 46.5 | 45.37 | 51.45 | 47.40 | 48.12 | 48.06 | 47.16 | 51.14 | 47.80 | 51.10 | 51.62 | 54.26 | 52.77 | 54.12 | 58.60 | 50.37 |
| 47 | **Equatorial Guinea** | 32.7 | 23.65 | 18.18 | 28.51 | 17.76 | 20.32 | 17.35 | 20.67 | 18.26 | 19.85 | 35.16 | 38.12 | 37.43 | 40.84 | 42.48 | 27.42 |
| 48 | **Eritrea** | 38.1 | 32.53 | 27.57 | 26.33 | 29.20 | 25.11 | 24.53 | 20.74 | 20.65 | 20.89 | 18.38 | 19.84 | 18.17 | 12.74 | 12.78 | 23.17 |
| 49 | **Estonia** | 33 | 33.14 | 23.17 | 24.70 | 24.96 | 25.41 | 22.48 | 19.69 | 21.08 | 35.64 | 43.86 | 37.82 | 24.96 | 21.70 | 22.94 | 27.64 |
| 50 | **Fiji** | 32.9 | 32.55 | 33.61 | 32.24 | 30.66 | 28.27 | 28.84 | 36.39 | 34.93 | 32.31 | 28.23 | 26.99 | 24.71 | 26.26 | 25.52 | 30.29 |
| 51 | **Finland** | 18.4 | 18.08 | 16.70 | 17.70 | 18.70 | 18.66 | 18.90 | 17.73 | 17.43 | 18.79 | 20.32 | 20.09 | 19.47 | 20.44 | 20.68 | 18.81 |
| 52 | **France** | 15.7 | 14.32 | 14.44 | 15.09 | 15.63 | 15.41 | 15.77 | 15.17 | 14.79 | 15.10 | 16.37 | 14.86 | 14.43 | 14.98 | 15.03 | 15.14 |
| 53 | **Gabon** | 46.2 | 42.21 | 60.74 | 56.87 | 58.12 | 56.81 | 51.01 | 49.83 | 53.02 | 49.00 | 56.03 | 50.32 | 45.69 | 57.82 | 53.43 | 52.47 |
| 54 | **Gambia, The** | 46.1 | 52.83 | 52.57 | 52.82 | 54.57 | 54.68 | 51.35 | 52.19 | 59.54 | 74.62 | 81.35 | 79.77 | 78.65 | 64.30 | 64.80 | 61.34 |
| 55 | **Georgia** | 34 | 16.65 | 22.46 | 28.76 | 26.80 | 38.91 | 49.97 | 41.84 | 61.11 | 78.74 | 74.47 | 61.46 | 57.13 | 57.27 | 53.20 | 46.85 |
| 56 | **Germany** | 16.4 | 15.74 | 15.27 | 16.57 | 17.40 | 16.78 | 16.45 | 14.31 | 13.94 | 14.66 | 16.27 | 15.65 | 15.18 | 15.91 | 15.96 | 15.77 |
| 57 | **Ghana** | 42 | 40.96 | 39.82 | 38.30 | 40.75 | 41.90 | 52.85 | 34.12 | 39.97 | 38.55 | 39.74 | 36.44 | 55.49 | 61.09 | 57.01 | 43.93 |
| 58 | **Greece** | 28.5 | 28.11 | 27.61 | 30.02 | 28.80 | 28.17 | 29.46 | 28.47 | 29.85 | 30.65 | 35.72 | 37.62 | 42.34 | 43.67 | 39.39 | 32.56 |
| 59 | **Guatemala** | 51.6 | 53.98 | 69.76 | 78.31 | 74.69 | 70.03 | 61.02 | 63.47 | 65.42 | 71.00 | 73.33 | 72.35 | 68.53 | 70.86 | 70.82 | 67.68 |
| 60 | **Guinea** | 39.7 | 40.97 | 41.11 | 49.96 | 43.21 | 39.52 | 40.13 | 49.89 | 39.53 | 48.80 | 50.24 | 67.98 | 57.10 | 56.29 | 53.60 | 47.87 |
| 61 | **Guinea- Bissau** | 40.4 | 46.21 | 37.24 | 37.30 | 36.89 | 32.24 | 29.03 | 27.52 | 26.09 | 20.47 | 21.19 | 24.70 | 21.46 | 20.70 | 18.00 | 29.30 |
| 62 | **Guyana** | 33.4 | 41.38 | 42.77 | 44.01 | 48.78 | 46.45 | 45.23 | 37.67 | 37.03 | 41.29 | 40.05 | 40.26 | 31.94 | 33.65 | 34.30 | 39.88 |
| 63 | **Haiti** | 54.8 | 58.21 | 58.29 | 60.49 | 54.23 | 48.56 | 54.43 | 55.38 | 51.32 | 52.53 | 48.41 | 44.97 | 46.75 | 50.87 | 54.73 | 52.93 |
| 64 | **Honduras** | 50.3 | 57.28 | 63.34 | 65.52 | 67.53 | 72.43 | 64.83 | 60.49 | 71.07 | 76.41 | 81.45 | 78.60 | 71.67 | 69.22 | 72.41 | 68.17 |
| 65 | **Hong Kong SAR, China** | 17 | 15.16 | 20.65 | 24.34 | 24.26 | 21.56 | 19.49 | 19.38 | 19.50 | 21.75 | 22.04 | 22.58 | 19.93 | 21.81 | 23.66 | 20.87 |
| 66 | **Hungary** | 25.4 | 23.49 | 24.30 | 25.64 | 27.10 | 26.42 | 26.18 | 25.76 | 25.47 | 26.84 | 28.97 | 27.94 | 25.20 | 24.37 | 23.88 | 25.80 |
| 67 | **Iceland** | 16 | 15.91 | 16.04 | 16.72 | 17.05 | 16.66 | 16.28 | 16.95 | 16.60 | 17.36 | 17.53 | 17.57 | 16.71 | 15.42 | 15.76 | 16.57 |
| 68 | **India** | 23.2 | 23.77 | 21.47 | 20.71 | 21.54 | 21.20 | 20.67 | 22.18 | 21.04 | 21.72 | 22.43 | 22.22 | 20.71 | 22.25 | 21.24 | 21.76 |
| 69 | **Indonesia** | 19.7 | 22.01 | 20.40 | 19.44 | 20.24 | 22.69 | 19.30 | 19.31 | 16.17 | 16.99 | 18.56 | 17.33 | 19.39 | 19.25 | 20.25 | 19.40 |
| 70 | **Iran, Islamic Rep.** | 19.1 | 20.85 | 20.02 | 16.99 | 12.45 | 17.17 | 16.04 | 21.89 | 14.54 | 16.81 | 21.12 | 20.10 | 16.94 | 16.84 | 16.71 | 17.84 |
| 71 | **Ireland** | 16.1 | 14.33 | 14.18 | 15.88 | 16.20 | 16.47 | 16.26 | 16.66 | 17.55 | 20.17 | 21.14 | 20.22 | 17.77 | 16.65 | 15.56 | 17.01 |
| 72 | **Israel** | 22.7 | 23.01 | 23.33 | 24.00 | 23.90 | 21.63 | 20.65 | 20.28 | 20.04 | 19.94 | 19.39 | 19.80 | 19.56 | 19.82 | 20.45 | 21.23 |
| 73 | **Italy** | 27.8 | 25.55 | 26.00 | 26.35 | 26.73 | 27.03 | 26.75 | 28.47 | 27.48 | 29.16 | 31.58 | 30.22 | 31.22 | 32.02 | 32.01 | 28.56 |
| 74 | **Jamaica** | 36.4 | 36.31 | 36.25 | 35.60 | 33.45 | 34.72 | 37.75 | 38.37 | 42.16 | 45.72 | 47.55 | 45.30 | 44.45 | 46.72 | 45.17 | 40.40 |
| 75 | **Japan** | 11.4 | 11.72 | 12.59 | 13.61 | 12.92 | 13.52 | 12.87 | 12.65 | 13.89 | 14.56 | 15.53 | 15.34 | 15.44 | 15.50 | 15.56 | 13.81 |
| 76 | **Jordan** | 19.4 | 21.76 | 20.44 | 19.43 | 17.91 | 18.01 | 17.94 | 20.04 | 18.34 | 17.52 | 17.38 | 16.60 | 17.06 | 17.58 | 16.14 | 18.37 |
| 77 | **Kazakhstan** | 43.8 | 39.50 | 43.33 | 42.67 | 47.04 | 52.78 | 37.52 | 35.83 | 42.97 | 42.60 | 49.84 | 47.37 | 50.91 | 56.58 | 55.69 | 45.90 |

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| No. | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 78 | **Kenya** | 33.7 | 32.53 | 34.89 | 35.71 | 33.56 | 29.04 | 31.12 | 24.86 | 25.97 | 27.73 | 27.06 | 26.07 | 25.58 | 25.32 | 26.37 | 29.30 |
| 79 | **Korea, Rep.** | 28.3 | 25.57 | 27.84 | 29.15 | 31.36 | 31.66 | 32.64 | 32.30 | 33.81 | 35.12 | 36.24 | 33.49 | 34.36 | 34.15 | 34.77 | 32.05 |
| 80 | **Kuwait** | 20.1 | 16.12 | 18.21 | 19.78 | 17.31 | 15.98 | 11.52 | 9.87 | 10.60 | 10.13 | 15.09 | 14.26 | 13.13 | 13.00 | 12.58 | 14.51 |
| 81 | **Kyrgyz Republic** | 41.4 | 41.00 | 44.15 | 44.44 | 36.43 | 35.90 | 39.19 | 38.58 | 41.91 | 41.82 | 42.56 | 42.57 | 43.16 | 47.93 | 44.82 | 41.72 |
| 82 | **Lao PDR** | 30.9 | 31.19 | 39.01 | 34.17 | 35.83 | 40.23 | 44.18 | 45.66 | 50.79 | 58.83 | 64.98 | 59.73 | 62.95 | 74.05 | 80.41 | 50.19 |
| 83 | **Latvia** | 30.8 | 28.53 | 26.71 | 26.11 | 26.20 | 23.95 | 23.59 | 22.64 | 24.35 | 33.94 | 34.75 | 31.07 | 24.29 | 20.96 | 19.92 | 26.52 |
| 84 | **Lebanon** | 34.10 | 34.82 | 31.45 | 36.49 | 34.98 | 32.92 | 31.98 | 32.89 | 28.66 | 29.67 | 29.32 | 28.50 | 29.43 | 28.33 | 32.16 | 31.71 |
| 85 | **Lesotho** | 31.7 | 33.62 | 32.26 | 36.12 | 31.78 | 35.11 | 31.36 | 34.04 | 32.94 | 30.65 | 32.59 | 39.05 | 37.53 | 36.51 | 33.35 | 33.91 |
| 86 | **Liberia** | 44.2 | 43.57 | 41.16 | 31.39 | 33.50 | 54.90 | 54.60 | 51.91 | 62.21 | 76.93 | 64.90 | 67.76 | 70.76 | 76.84 | 82.04 | 57.11 |
| 87 | **Lithuania** | 33.8 | 35.38 | 28.75 | 28.93 | 25.07 | 25.49 | 24.79 | 24.87 | 26.41 | 34.52 | 39.13 | 34.36 | 26.00 | 21.85 | 21.95 | 28.75 |
| 88 | **Luxembourg** | 10 | 9.37 | 10.00 | 10.91 | 11.33 | 11.23 | 11.56 | 10.20 | 10.26 | 10.38 | 11.16 | 10.85 | 10.63 | 11.63 | 13.47 | 10.87 |
| 89 | **Macao SAR, China** | 13.3 | 12.30 | 12.82 | 12.66 | 12.73 | 11.50 | 11.38 | 10.84 | 12.36 | 14.03 | 14.29 | 14.51 | 14.50 | 14.72 | 12.64 | 12.97 |
| 90 | **Macedonia, FYR** | 39 | 31.68 | 41.52 | 41.19 | 39.25 | 39.33 | 31.84 | 29.32 | 30.06 | 32.12 | 32.75 | 30.21 | 32.66 | 30.73 | 29.93 | 34.11 |
| 91 | **Madagascar** | 40.1 | 44.33 | 44.85 | 36.95 | 36.07 | 34.95 | 38.02 | 44.58 | 56.10 | 46.81 | 41.02 | 43.65 | 44.69 | 42.70 | 44.82 | 42.64 |
| 92 | **Malawi** | 39.9 | 39.48 | 42.04 | 37.51 | 36.72 | 34.41 | 36.09 | 34.58 | 33.76 | 36.20 | 39.34 | 35.59 | 41.01 | 40.58 | 44.07 | 38.09 |
| 93 | **Malaysia** | 32.2 | 31.65 | 40.70 | 39.41 | 36.45 | 36.72 | 32.27 | 32.75 | 31.98 | 34.00 | 36.49 | 34.08 | 35.34 | 38.41 | 37.35 | 35.32 |
| 94 | **Maldives** | 30.3 | 34.63 | 25.29 | 25.12 | 22.69 | 24.71 | 24.73 | 24.71 | 22.86 | 20.12 | 18.94 | 18.33 | 19.93 | 19.23 | 18.32 | 23.33 |
| 95 | **Mali** | 42.5 | 40.63 | 40.51 | 42.95 | 48.71 | 48.26 | 44.55 | 47.32 | 45.49 | 44.49 | 45.22 | 45.13 | 44.85 | 44.82 | 46.61 | 44.80 |
| 96 | **Malta** | 27.4 | 27.16 | 28.48 | 31.03 | 30.70 | 31.70 | 30.06 | 32.53 | 32.46 | 21.83 | 22.42 | 21.84 | 21.29 | 21.50 | 21.62 | 26.80 |
| 97 | **Mauritania** | 35.5 | 36.39 | 36.40 | 44.00 | 46.87 | 45.23 | 45.29 | 40.60 | 45.06 | 39.51 | 40.39 | 39.14 | 33.12 | 36.79 | 39.04 | 40.22 |
| 98 | **Mauritius** | 23.3 | 21.55 | 21.09 | 21.52 | 25.18 | 24.63 | 24.12 | 22.90 | 19.13 | 19.77 | 22.86 | 23.46 | 24.11 | 23.23 | 23.89 | 22.72 |
| 99 | **Mexico** | 30.8 | 31.05 | 31.34 | 30.82 | 31.47 | 30.49 | 30.92 | 29.79 | 29.13 | 32.72 | 35.07 | 31.97 | 30.42 | 32.91 | 31.51 | 31.36 |
| 100 | **Moldova** | 36 | 25.40 | 40.49 | 51.57 | 53.85 | 49.79 | 49.41 | 58.98 | 55.58 | 62.37 | 72.20 | 70.66 | 61.45 | 62.37 | 55.80 | 53.73 |
| 101 | **Mongolia** | 18.4 | 20.84 | 23.41 | 21.64 | 22.08 | 24.41 | 21.62 | 23.53 | 23.07 | 23.51 | 21.44 | 21.41 | 19.76 | 18.44 | 21.35 | 21.66 |
| 102 | **Montenegro** | 34.3 | 36.79 | 40.18 | 40.34 | 39.93 | 37.57 | 39.72 | 38.20 | 31.00 | 33.70 | 32.52 | 31.82 | 33.50 | 31.35 | 28.75 | 35.31 |
| 103 | **Morocco** | 36.5 | 35.77 | 34.89 | 36.96 | 35.12 | 36.79 | 39.11 | 37.76 | 34.76 | 38.34 | 37.10 | 36.57 | 38.76 | 40.69 | 40.72 | 37.32 |
| 104 | **Mozambique** | 36 | 31.76 | 35.03 | 36.02 | 36.82 | 41.49 | 42.35 | 42.28 | 39.67 | 42.68 | 46.56 | 48.10 | 50.56 | 53.54 | 63.09 | 43.06 |
| 105 | **Namibia** | 31.4 | 30.74 | 28.98 | 26.79 | 26.71 | 27.79 | 27.37 | 26.17 | 32.72 | 33.92 | 31.99 | 25.77 | 21.42 | 30.25 | 33.54 | 29.04 |
| 106 | **Nepal** | 37.2 | 43.23 | 36.62 | 34.57 | 34.92 | 36.71 | 38.50 | 35.45 | 39.90 | 43.69 | 48.71 | 47.56 | 48.06 | 49.87 | 49.38 | 41.62 |
| 107 | **Netherlands** | 13.3 | 12.60 | 12.90 | 13.94 | 14.88 | 14.50 | 14.39 | 13.94 | 14.12 | 14.38 | 16.18 | 16.56 | 16.01 | 16.21 | 16.38 | 14.69 |
| 108 | **New Zealand** | 13 | 12.35 | 12.23 | 12.24 | 12.37 | 12.45 | 13.10 | 13.96 | 13.85 | 15.24 | 14.93 | 14.32 | 13.91 | 13.76 | 13.13 | 13.39 |
| 109 | **Nicaragua** | 45.7 | 47.92 | 46.53 | 45.30 | 50.63 | 52.29 | 48.75 | 49.25 | 51.28 | 53.19 | 54.25 | 53.97 | 49.09 | 44.49 | 46.49 | 49.27 |
| 110 | **Niger** | 41.7 | 37.47 | 32.69 | 35.10 | 38.05 | 43.69 | 43.05 | 42.83 | 42.86 | 42.47 | 44.51 | 44.74 | 40.83 | 41.46 | 41.20 | 40.84 |
| 111 | **Nigeria** | 46 | 56.21 | 55.41 | 37.84 | 32.86 | 37.08 | 43.47 | 40.52 | 51.28 | 74.29 | 79.42 | 47.77 | 48.03 | 46.42 | 42.94 | 49.30 |
| 112 | **Norway** | 19.2 | 19.06 | 20.57 | 21.22 | 21.05 | 20.83 | 19.80 | 18.23 | 18.69 | 18.99 | 20.56 | 20.99 | 20.43 | 20.52 | 19.92 | 20.01 |
| 113 | **Oman** | 19.1 | 16.20 | 16.30 | 18.14 | 16.14 | 15.90 | 15.40 | 14.42 | 13.69 | 10.45 | 14.80 | 13.44 | 12.92 | 15.03 | 16.07 | 15.20 |
| 114 | **Pakistan** | 37 | 30.74 | 30.47 | 31.11 | 31.52 | 28.27 | 26.59 | 26.25 | 29.41 | 31.63 | 31.87 | 34.87 | 31.31 | 34.28 | 36.05 | 31.43 |
| 115 | **Papua New Guinea** | 35.5 | 33.53 | 35.84 | 32.90 | 33.28 | 33.60 | 34.09 | 34.27 | 34.75 | 35.16 | 35.58 | 38.71 | 37.27 | 33.89 | 35.84 | 34.95 |
| 116 | **Paraguay** | 38 | 43.28 | 48.36 | 37.37 | 36.80 | 29.03 | 39.02 | 35.26 | 35.44 | 36.19 | 43.92 | 41.47 | 41.51 | 49.98 | 53.73 | 40.62 |
| 117 | **Peru** | 60.1 | 57.33 | 57.88 | 61.68 | 59.73 | 58.15 | 61.91 | 61.23 | 57.28 | 58.91 | 59.49 | 55.47 | 57.06 | 62.23 | 61.90 | 59.36 |

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| No. | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 118 | **Philippines** | 43.8 | 45.74 | 44.43 | 38.38 | 38.51 | 31.70 | 34.05 | 29.63 | 36.81 | 35.45 | 36.31 | 36.56 | 36.20 | 39.15 | 38.72 | 37.69 |
| 119 | **Poland** | 27.7 | 32.78 | 31.20 | 28.80 | 29.42 | 26.36 | 23.37 | 22.00 | 21.46 | 24.18 | 27.49 | 28.48 | 27.76 | 26.87 | 26.62 | 26.97 |
| 120 | **Portugal** | 23 | 23.26 | 23.99 | 25.49 | 26.02 | 25.74 | 26.45 | 25.37 | 24.12 | 25.29 | 26.02 | 26.94 | 27.30 | 25.97 | 26.42 | 25.43 |
| 121 | **Qatar** | 18.7 | 15.67 | 15.56 | 13.97 | 13.34 | 12.87 | 12.62 | 12.22 | 10.99 | 8.97 | 12.18 | 10.24 | 9.77 | 10.06 | 10.45 | 12.51 |
| 122 | **Romania** | 34.3 | 35.30 | 35.01 | 31.56 | 37.12 | 32.61 | 33.98 | 30.16 | 30.80 | 33.13 | 35.29 | 33.50 | 31.90 | 32.13 | 30.65 | 33.16 |
| 123 | **Russian Federation** | 36 | 33.71 | 38.92 | 42.19 | 41.34 | 40.05 | 44.45 | 43.14 | 44.65 | 48.46 | 49.51 | 45.64 | 42.38 | 44.94 | 46.37 | 42.78 |
| 124 | **Rwanda** | 40.5 | 34.47 | 41.50 | 36.12 | 38.95 | 30.05 | 46.90 | 44.94 | 41.61 | 36.07 | 37.42 | 35.73 | 34.87 | 37.50 | 38.55 | 38.35 |
| 125 | **Saudi Arabia** | 18.7 | 19.13 | 21.48 | 19.17 | 19.33 | 18.08 | 15.82 | 16.68 | 15.99 | 13.19 | 16.55 | 16.16 | 15.23 | 16.52 | 17.73 | 17.32 |
| 126 | **Senegal** | 45 | 48.59 | 40.08 | 43.77 | 45.28 | 51.10 | 49.52 | 49.07 | 48.86 | 48.43 | 52.87 | 55.27 | 52.45 | 57.01 | 52.58 | 49.33 |
| 127 | **Serbia** | 34.3 | 33.04 | 35.59 | 39.17 | 41.52 | 39.07 | 36.53 | 32.19 | 28.51 | 29.44 | 31.58 | 37.35 | 34.74 | 32.42 | 27.95 | 34.23 |
| 128 | **Sierra Leone** | 48.6 | 62.06 | 56.55 | 61.02 | 54.49 | 48.09 | 47.31 | 49.27 | 43.62 | 48.42 | 54.14 | 52.95 | 51.53 | 52.80 | 54.74 | 52.37 |
| 129 | **Singapore** | 13.3 | 14.13 | 15.64 | 15.41 | 14.31 | 12.49 | 12.01 | 12.39 | 12.45 | 14.16 | 13.46 | 13.35 | 11.95 | 12.61 | 13.44 | 13.41 |
| 130 | **Slovak Republic** | 18.9 | 19.24 | 18.00 | 26.56 | 21.98 | 21.14 | 19.29 | 19.08 | 22.14 | 27.00 | 26.47 | 24.77 | 23.52 | 23.71 | 19.85 | 22.11 |
| 131 | **Slovenia** | 27.3 | 26.95 | 25.96 | 27.70 | 28.00 | 27.03 | 26.90 | 25.86 | 25.16 | 26.28 | 28.14 | 29.01 | 29.48 | 29.97 | 29.49 | 27.55 |
| 132 | **Solomon Islands** | 31.7 | 35.08 | 34.57 | 31.09 | 30.23 | 36.63 | 43.26 | 45.88 | 48.50 | 51.18 | 53.54 | 57.13 | 57.02 | 60.57 | 66.23 | 45.51 |
| 133 | **South Africa** | 28.4 | 28.49 | 29.29 | 28.43 | 27.10 | 27.37 | 28.48 | 27.88 | 28.73 | 30.38 | 31.00 | 31.58 | 30.71 | 30.06 | 30.62 | 29.23 |
| 134 | **Spain** | 23 | 18.87 | 19.60 | 20.59 | 22.54 | 21.47 | 22.17 | 21.57 | 24.99 | 28.85 | 30.40 | 30.86 | 28.59 | 27.62 | 28.11 | 24.61 |
| 135 | **Sri Lanka** | 45.2 | 45.66 | 45.53 | 56.06 | 52.93 | 52.08 | 52.45 | 60.20 | 56.72 | 62.60 | 66.31 | 52.49 | 36.45 | 27.62 | 18.44 | 48.72 |
| 136 | **Suriname** | 39.7 | 40.48 | 34.45 | 27.86 | 30.66 | 28.15 | 24.95 | 25.11 | 30.04 | 32.07 | 30.52 | 29.36 | 27.52 | 33.37 | 30.44 | 30.98 |
| 137 | **Swaziland** | 43.5 | 42.35 | 40.46 | 40.13 | 37.80 | 37.65 | 37.70 | 35.25 | 36.51 | 35.10 | 40.69 | 46.54 | 41.29 | 43.17 | 36.33 | 39.63 |
| 138 | **Sweden** | 19.6 | 17.87 | 17.86 | 18.13 | 19.45 | 19.33 | 19.25 | 18.43 | 18.26 | 18.54 | 19.90 | 18.84 | 18.53 | 18.65 | 18.95 | 18.77 |
| 139 | **Switzerland** | 8.8 | 9.21 | 9.13 | 9.12 | 10.05 | 9.65 | 9.16 | 8.75 | 8.44 | 8.47 | 9.42 | 8.79 | 8.87 | 9.18 | 9.35 | 9.09 |
| 140 | **Tajikistan** | 43.5 | 34.28 | 38.50 | 40.55 | 41.53 | 48.47 | 60.72 | 51.83 | 48.49 | 52.96 | 63.57 | 64.12 | 69.77 | 53.03 | 63.76 | 51.67 |
| 141 | **Tanzania** | 58.6 | 63.70 | 57.32 | 55.30 | 65.01 | 66.60 | 76.27 | 69.43 | 76.46 | 63.86 | 70.58 | 65.35 | 65.93 | 66.78 | 68.24 | 65.96 |
| 142 | **Thailand** | 53.4 | 52.18 | 49.50 | 51.46 | 54.73 | 55.66 | 58.27 | 55.64 | 56.97 | 60.21 | 60.67 | 60.49 | 63.07 | 63.68 | 68.70 | 57.64 |
| 143 | **Timor-Leste** | 35.5 | 40.99 | 41.35 | 39.72 | 36.60 | 35.40 | 33.70 | 35.44 | 35.09 | 33.52 | 39.89 | 41.35 | 42.44 | 41.62 | 42.20 | 38.32 |
| 144 | **Togo** | 34.4 | 35.38 | 33.14 | 28.70 | 29.85 | 29.44 | 29.81 | 31.55 | 27.19 | 29.35 | 31.03 | 28.55 | 28.25 | 34.86 | 39.14 | 31.38 |
| 145 | **Trinidad and Tobago** | 34.7 | 26.77 | 30.39 | 29.63 | 28.16 | 25.58 | 28.25 | 31.63 | 27.43 | 30.16 | 36.13 | 35.61 | 32.74 | 33.80 | 34.10 | 31.01 |
| 146 | **Tunisia** | 38.7 | 38.24 | 39.10 | 39.65 | 39.73 | 38.21 | 39.10 | 36.56 | 36.07 | 40.25 | 40.89 | 44.50 | 43.60 | 43.64 | 39.45 | 39.85 |
| 147 | **Turkey** | 32.7 | 29.51 | 38.50 | 43.00 | 38.64 | 34.65 | 36.08 | 32.63 | 38.26 | 41.27 | 43.30 | 40.56 | 36.70 | 41.38 | 32.70 | 37.33 |
| 148 | **Uganda** | 43.50 | 50.51 | 48.16 | 52.61 | 50.92 | 40.01 | 49.16 | 47.32 | 47.49 | 41.59 | 36.22 | 36.24 | 45.79 | 31.76 | 32.80 | 43.61 |
| 149 | **Ukraine** | 52.7 | 52.57 | 48.52 | 47.09 | 47.09 | 44.92 | 50.23 | 52.76 | 53.88 | 52.77 | 60.07 | 59.49 | 53.60 | 54.24 | 53.53 | 52.23 |
| 150 | **United Arab Emirates** | 26.3 | 23.27 | 27.35 | 30.53 | 27.85 | 31.58 | 26.28 | 24.96 | 22.05 | 22.05 | 30.47 | 25.11 | 23.90 | 21.27 | 28.41 | 26.09 |
| 151 | **United Kingdom** | 12.8 | 12.33 | 12.89 | 12.94 | 13.50 | 13.55 | 13.74 | 13.99 | 14.00 | 15.03 | 15.08 | 15.26 | 14.43 | 13.84 | 13.26 | 13.78 |
| 152 | **United States** | 8.8 | 8.90 | 9.03 | 9.39 | 8.99 | 8.51 | 8.43 | 8.68 | 9.36 | 10.50 | 10.58 | 10.45 | 8.95 | 8.63 | 8.29 | 9.17 |
| 153 | **Uruguay** | 50.5 | 50.81 | 48.34 | 48.36 | 48.27 | 52.99 | 55.01 | 56.55 | 48.70 | 49.55 | 52.68 | 53.62 | 55.34 | 56.70 | 58.35 | 52.38 |
| 154 | **Venezuela, RB** | 33.8 | 29.92 | 39.16 | 36.64 | 35.39 | 32.03 | 26.08 | 26.68 | 29.03 | 34.72 | 50.10 | 37.89 | 32.50 | 32.98 | 31.64 | 33.91 |
| 155 | **Vietnam** | 15.8 | 14.87 | 14.55 | 14.49 | 14.53 | 15.60 | 14.39 | 14.65 | 16.21 | 15.98 | 16.37 | 22.80 | 21.41 | 21.78 | 24.14 | 17.17 |
| 156 | **Yemen, Rep.** | 27.7 | 27.68 | 26.91 | 23.79 | 24.82 | 25.22 | 22.63 | 26.27 | 25.16 | 27.87 | 31.34 | 36.13 | 37.68 | 37.02 | 38.92 | 29.28 |

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| No. | **Countryname** | **1999** | **2000** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **Averages** |
| 157 | **Zambia** | 49.3 | 50.33 | 49.21 | 46.00 | 44.88 | 42.73 | 40.42 | 37.60 | 37.05 | 35.37 | 32.20 | 31.66 | 34.02 | 33.19 | 36.65 | 40.04 |
|  | **Time Average** | 33.02 | 32.56 | 33.04 | 33.22 | 33.01 | 32.63 | 32.67 | 32.18 | 33.00 | 34.41 | 36.28 | 35.71 | 34.90 | 35.21 | 35.45 | 33.82 |

**Table A5:** Size of the shadow economies of 157 countries in Alphabetical order

1. For further details on the different benchmarking procedures, see Dell’Anno and Schneider (2009). [↑](#footnote-ref-1)
2. For a detailed explaination of the MIMIC methodology and its assumptions, refer to Hassan and Schneider (2016). [↑](#footnote-ref-2)