

## Annex to chapter 8

### 1. Data for SDG 8

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SDG 8 comprises 12 targets and a total of 17 indicators (six of which contain multiple subindicators). Of these indicators, eight are tier I, five are tier II, and four are tier III for which data are not available, as the indicators are still in the process of methodological definition.

The United Nations Statistics Division provides data sets for a total of 13 indicators: 8.1.1 - Annual growth rate of real gross domestic product (GDP) per capita; 8.2.1 - Annual growth rate of real GDP per employed person; 8.3.1 - Proportion of informal employment in non-agriculture employment, by sex; 8.4.1 - Material footprint, material footprint per capita, and material footprint per GDP; 8.4.2 - Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP; 8.5.1 - Average hourly earnings of female and male employees, by occupation, age and persons with disabilities; 8.5.2 - Unemployment rate, by sex, age and persons with disabilities; 8.6.1 - Proportion of youth (aged 15–24 years) not in education, employment or training; 8.7.1 - Proportion and number of children aged 5–17 years engaged in child labour, by sex and age; 8.8.1 - Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status; 8.10.1 - (a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults; 8.10.2 - Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider; and 8.a.1 - Aid for Trade commitments and disbursements.

We examine data availability in the Arab region and implement data substitution, when needed, based on the criterion of having to cover half or more of the total Arab region's population and at least the third of the Arab countries for an indicator/subindicator to be kept in the analysis. This leads us to omit indicators 8.3.1, 8.5.1, 8.6.1 and 8.8.1.

Indicators 8.4.1 and 8.4.2 are the exact repetitions of 12.2.1 (Material footprint, material footprint per capita, and material footprint per GDP) and 12.2.2 (Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP), respectively, and are, evaluated in both chapters.

The data used in the analysis of SDG 8 was downloaded on 2 July 2018. After a country level data check following a major update of the Global SDG Indicators Database of the United Nations Statistics Division on 8 July 2019, we realize that the data for 8.4.1 (Material footprint, material footprint per capita, and material footprint per GDP) had been totally removed from the database. When the United Nations Statistics Division updated its data again on 6 August 2019, the data for this indicator were added/provided again but only covering the world aggregates and not the countries, regions or subregions. Therefore, 8.4.1 is omitted from our analysis.

However, we do not attempt to substitute any data for indicators 8.1.1 and 8.2.1 throughout years because they measure the annual growth rates of real GDP per capita and per employed person, respectively, which technically cannot be substituted as growth rates depict changes across years.

Data availability in 2017 for indicators 8.1.1 and 8.2.1 is complete for the world, including for the Arab region (the values for members of the Gulf Cooperation Council are missing for the Arab region for all time periods), which implies that there is no need for data substitution in the first place. Similarly, data is complete for the two series of indicator 8.a.1. For indicator 8.4.2 (Domestic material consumption per capita, by type of raw material), no data substitution was actually made for 2017 since data availability is complete or nearly complete for this year, especially as compared to previous years. This subindicator covers 184 countries and territories, including 21 Arab countries.

The rest of the indicators/subindicators are subject to our data substitution scheme for the year 2017, considering the data spanning 2009–2017. Table 8.1 shows the number of substituted data points for each year, including those from Arab countries.

**Table 8.1 Data substitution scheme for selected indicators and subindicators**

Indicator or subindicator	Number of substituted data points (Arab)	Year
	89 (8)	2016
	17 (0)	2015
	15 (2)	2014
	6 (0)	2013
8.5.2 (Unemployment rate, by sex, age and persons with disabilities)	9 (2)	2012
	10 (3)	2011
	9 (0)	2010
	5 (2)	2009
	5 (1)	2016
	12 (0)	2015
	16 (2)	2014
8.7.1 (Proportion of children engaged in economic activity, by sex and age)	11 (0)	2013
	16 (2)	2012
	11 (3)	2011
	9 (1)	2010
	4 (1)	2016
	11 (0)	2015
	15 (2)	2014
8.7.1 (Proportion of children engaged in economic activity and household chores, by sex and age)	9 (0)	2013
	14 (2)	2012
	9 (3)	2011
	9 (1)	2010

	153 (14)	2016
	19 (4)	2015
	2 (0)	2014
8.10.1 (Number of automated teller machines (ATMs) per 100,000 adults)	5 (0)	2013
	4 (2)	2012
	1 (0)	2009
	157 (15)	2016
	16 (3)	2015
8.10.1 (Number of commercial bank branches per 100,000 adults)	2 (0)	2014
	6 (1)	2013
	3 (1)	2012
	9 (3)	2014
8.10.2 (Proportion of adults (15 years and older) with an account at a financial institution or mobile-money-service provider)	5 (5)	2011

We note that the data of 8.5.2 are disaggregated by age group, including three categories: 15–24 years old, 25 years old and older, and 15 years old and older. We omit the first two series and keep the last one (15 years old and older) since it is more inclusive of the population and it has slightly better data availability than the other two.

Indicator 8.7.1 consists of two subindicators: “Proportion of children engaged in economic activity” and “Proportion of children engaged in economic activity and household chores”; where the second is a broader measure of the child labour problem than the first and includes the first. Thus, we visualize and analyse both subindicators separately in a stacked bar chart where the latter includes the former, as this is more informative and interesting than choosing to evaluate one of them and omitting the other. The data of these two series is not disaggregated by age group but we note that, for some observations, children aged 5–14 years are covered, whereas, for other observations, children aged 5–17 years are covered. Furthermore, these two series together cover only 71 low- and middle-income countries globally, including nine Arab countries. As such, the data cover merely one country from Oceania and zero members of the Gulf Cooperation Council.

Target 8.10 includes two indicators: 8.10.1, which has two subindicators (Number of automated teller machines (ATMs) per 100,000 adults and Number of commercial bank branches per 100,000 adults), and 8.10.2 (Proportion of adults with an account at a bank or other financial institution or with a mobile-money-service provider, in percent). Both indicators only address people aged 15 years and older.

As for indicator 8.a.1 (Aid for Trade commitments and disbursements), we drop the two series which represent the “Total official flows committed for Aid for Trade, by donor” and the “Total official flows disbursed for Aid for Trade, by donor” (where data is provided for only 29 donor countries) and we only keep the series which measure the committed official flows and disbursements by recipient. The two preserved series reflect the patterns of the donor countries’ contributions and assistance, knowing that donor countries are in the driving seat in development financing. Therefore, the results derived from the two series by recipient can help with the formulation of policy recommendations as they indicate if there is need for donor countries to alter the amount of development assistance that they commit and pledge or to reconsider the countries/ regions that they target. For each of the two preserved subindicators, the main data sets provided by the United Nations Statistics Division only include recipient countries and omit the donor countries, and given the nature of construction of a full matrix consisting of all countries in the world, take missing values. We then visualized and analyse the two preserved subindicators separately but in the same chart since this allows us to compare the aggregate of total committed official flows to the aggregate of total disbursed official

flows for every region/subregion, noting that both subindicators are on the same scale, range and unit. This comparison provides a more accurate image of the reality as it informs on the extent to which international financial institutions meet their commitments and on the actual amounts of official flows that the regions/subregions receive compared to what they expect.

This leaves us with nine integral indicators/subindicators with which we can assess the position of the region by 2030, as noted in box 8.1.

<b>Box 8.1</b>	<b>Summary list of preserved and examined indicators/subindicators</b>
	<ul style="list-style-type: none"> <li>• Indicator 8.1.1 – Annual growth rate of real GDP per capita</li> <li>• Indicator 8.2.1 – Annual growth rate of real GDP per employed person</li> <li>• Indicator 8.4.2 – 1 series out of 54 – Domestic material consumption per capita, by type of raw material</li> <li>• Indicator 8.5.2 – Unemployment rate, by sex, age and persons with disabilities</li> <li>• Indicator 8.7.1 – Proportion and number of children aged 5–17 years engaged in child labour, by sex and age</li> <li>• Indicator 8.10.1 – (a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults</li> <li>• Indicator 8.10.2 – Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider</li> <li>• Indicator 8.a.1 – 2 series out of 4 – Aid for Trade commitments and disbursements</li> </ul>

However, we lose the ability to determine the region's position on the rest of the targets, indicators, and subindicators as noted in box 8.2, including those listed in table 8.2 on targets, indicators, tiers and data availability in Arab countries for SDG 8, but that do not have sufficient data.

<b>Box 8.2</b>	<b>Summary list of omitted targets</b>
	<ul style="list-style-type: none"> <li>• 8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services</li> <li>• 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training</li> <li>• 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment</li> <li>• 8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products</li> <li>• 8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization</li> </ul>

Annex 8.2 contains a graph for each of the evaluated series/indicators, showing the country level data values of the series/indicator for the years whose data points were used for every included country.

The global, regional and subregional aggregates of 8.a are calculated using a total sum. The aggregates of all the other series and indicators are calculated using a weighted average. The method of aggregation, in general, as well as the weighting variables to be used for the weighted averages and the weighting variables' properties are all chosen based on what is advised by the corresponding SDG Indicators Metadata Repository or by the original source of the corresponding data that is referred to by this metadata. If none of these two references advise on the aggregation methods or weights, the decisions are made based on the most common scientific logic fitting the case and its feasibility (e.g. the availability of the needed data for the weighting variables). The year of the weighting variable data is the most commonly used year for the data of the respective series/indicator. The weight that was used for 8.1.1 and 8.4.2 is Total Population in 2015 (World Population Prospects). The weight used for 8.2.1 is the latest (2016) total employed people (ILO <http://data.un.org/Explorer.aspx?d=SNAAMA>, SDG Indicators Metadata Repository), for 8.5.2 it is 2016 total labour force modeled estimates – because 117 observations are covered by the ILO labour force survey, from which the labour force weight that we would more ideally use comes, thus we use the alternative weight (ILO <http://data.un.org/Explorer.aspx?d=SNAAMA>, SDG Indicators Metadata Repository), for 8.7.1 it is the latest (2015) estimates of the population aged 5–17 years (World Population Prospects, SDG Indicators Metadata Repository), and for 8.10.1 it is the latest (2015) estimates of the population aged 15 years and older (World Population Prospects, SDG Indicators Metadata Repository). All the gender ratio aggregates are weighted with their respective weights as well.

The chapter includes more details about the weighting variable and method.

We calculate the world, regional and subregional averages for each indicator and include the target value – when available – to facilitate comparability. Target 8.5 aims to “achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value, by 2030”, thus we consider the target value as the average natural rate of unemployment (the minimum unemployment rate possible) in the world over history. Since recent research by the Federal Reserve Bank of San Francisco suggests “the natural unemployment rate has been remarkably stable over the past 100 years, hovering between 4.5 and 5.5% for long periods”, we set the target value as the mid-point of this range, i.e. at 5 per cent. Target 8.7 aims to “end child labour in all its forms, by 2025”, thus we set the target value as 0 per cent of children aged 5–17 years that are engaged in child labour (i.e. 0 per cent for each of the two series, the one only measuring children's engagement in economic activity and the one additionally measuring their engagement in domestic chores). However, for the rest of the evaluated targets, it is not possible to infer the official desired target values, and thus they are not shown.

Of the indicators that we can use, three have sex disaggregated data with sufficient availability: 8.5.2, 8.7.1 (both series), and 8.10.2. We calculate the regional, subregional and cluster averages for each of these ratios. For 8.7.1, we only explore sex disaggregation for the series that forms a broader measure of child labour (Proportion of children engaged in economic activity and household chores).

We construct the female-to-male ratios for indicator 8.5.2, indicator 8.10.2 and the broader series of indicator 8.7.1, and again check for data availability. We then undertake the same data substitution process on these ratios for optimal data availability in 2017 that is parallel or almost parallel to the aggregated forms of the respective indicators.

**Table 8.2 Data substitution scheme for female-to-male ratios of selected indicators and subindicators**

Indicator or subindicator	Number of substituted data points (Arab)	Year	
8.5.2 (Unemployment rate, by sex, age and persons with disabilities)	87 (8)	2016	
	15 (0)	2015	
	14 (2)	2014	
	6 (0)	2013	
	9 (2)	2012	
	7 (0)	2011	
	10 (2)	2010	
	6 (2)	2009	
	8.7.1 (Proportion of children engaged in economic activity, by sex and age) and (Proportion of children engaged in economic activity and household chores, by sex and age)	4 (1)	2016
		11 (0)	2015
15 (2)		2014	
9 (0)		2013	
14 (2)		2012	
9 (3)		2011	
9 (1)		2010	
8.10.2 (Proportion of adults (15 years and older) with an account at a financial institution or mobile-money-service provider)	9 (3)	2014	
	5 (5)	2011	

The female-to-male ratio of 8.5.2 has 21 observations from different regions (including many Arab observations) with values that significantly exceed 200 per cent. Nevertheless, we do not cap this ratio to 200 since these values are numerous and a high female-to-male ratio for the unemployment rate is very significant and representative of many observations.

**Table 8.3 Targets, indicators, tiers and data availability for Arab countries – SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all)**

Target	Indicator	Number of subindicators	Tier	Data availability*
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	8.1.1 Annual growth rate of real GDP per capita	1 chosen out of 1	Tier I	22

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	8.2.1 Annual growth rate of real GDP per employed person	1 chosen out of 1	Tier I	21
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.3.1 Proportion of informal employment in non-agriculture employment, by sex	(Dropped) 1	Tier II	x
8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead	8.4.1 Material footprint, material footprint per capita, and material footprint per GDP	(No data)	Tier II	x
	8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	1 chosen out of 54	Tier I	21
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	(Dropped) 1	Tier II	x
	8.5.2 Unemployment rate, by sex, age and persons with disabilities	1 chosen out of 1	Tier I	17
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (aged 15–24 years) not in education, employment or training	(Dropped) 1	Tier I	x
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	8.7.1 Proportion and number of children aged 5–17 years engaged in child labour, by sex and age	2 chosen out of 2	Tier II	9

8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status	(Dropped) 2	Tier II	x
	8.8.2 Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status	(No data)	Tier III	x
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate	(No data)	Tier II	x
	8.9.2 Proportion of jobs in sustainable tourism industries out of total tourism jobs	(No data)	Tier III	x
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	8.10.1 (a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults	2 chosen out of 2	Tier I	20
	8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider	1 chosen out of 1	Tier I	22
8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries	8.a.1 Aid for Trade commitments and disbursements	2 chosen out of 4	Tier I	22
8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization	8.b.1 Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	(No data)	Tier III	x

\* Figures refer to the number of Arab countries with data for the indicator, while x means there are no data or the indicator was dropped.

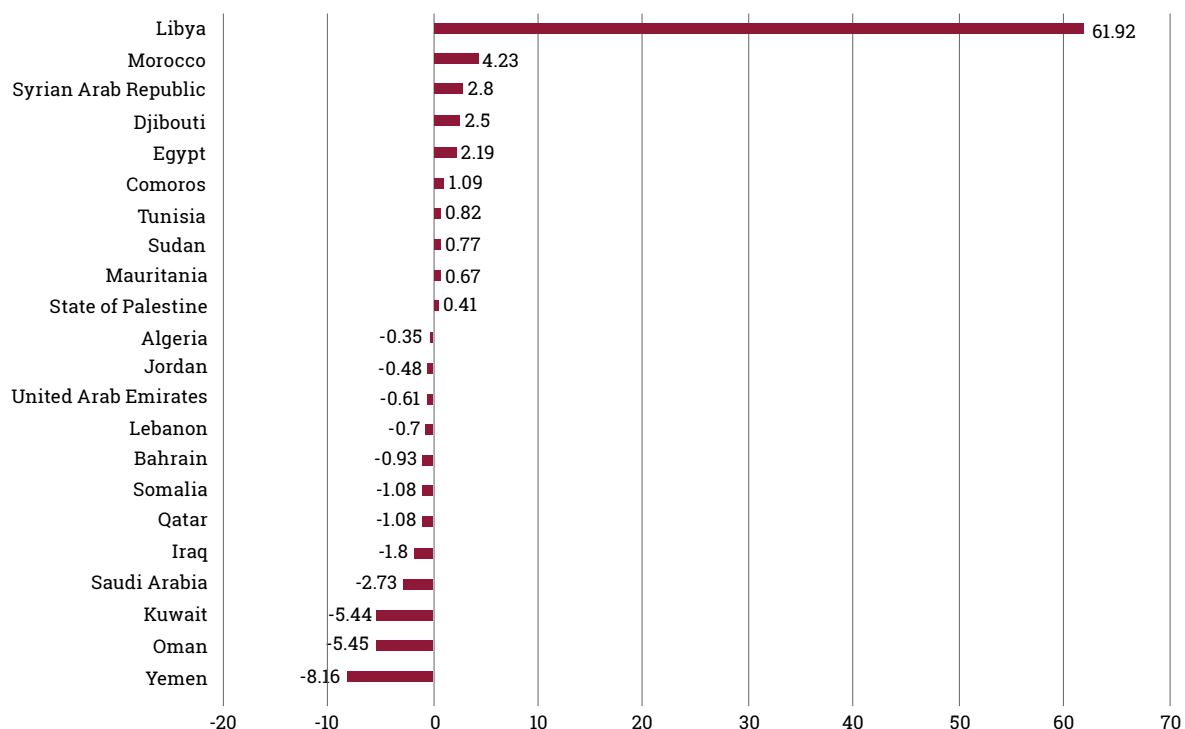
Source: <https://unstats.un.org/sdgs/indicators/indicators-list/> and author's calculations.



## 2. Country graphs

**Figure 8.1 Indicator 8.1.1 - Annual growth rate of real GDP per capita**

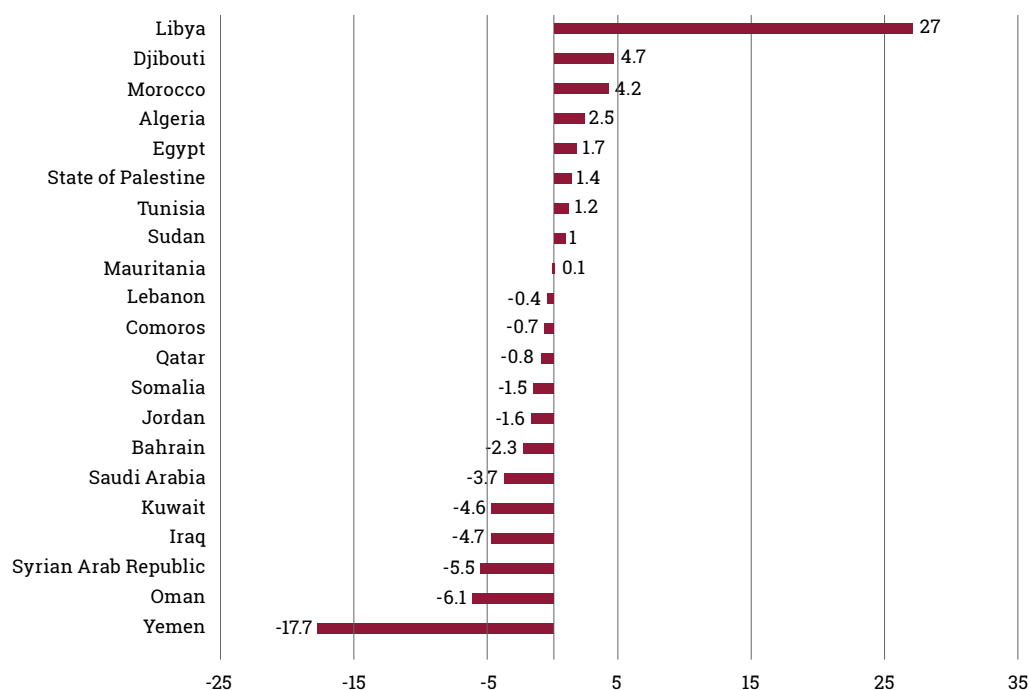
Annual growth rate of real GDP per capita (percent)



Note: All data are for 2017.

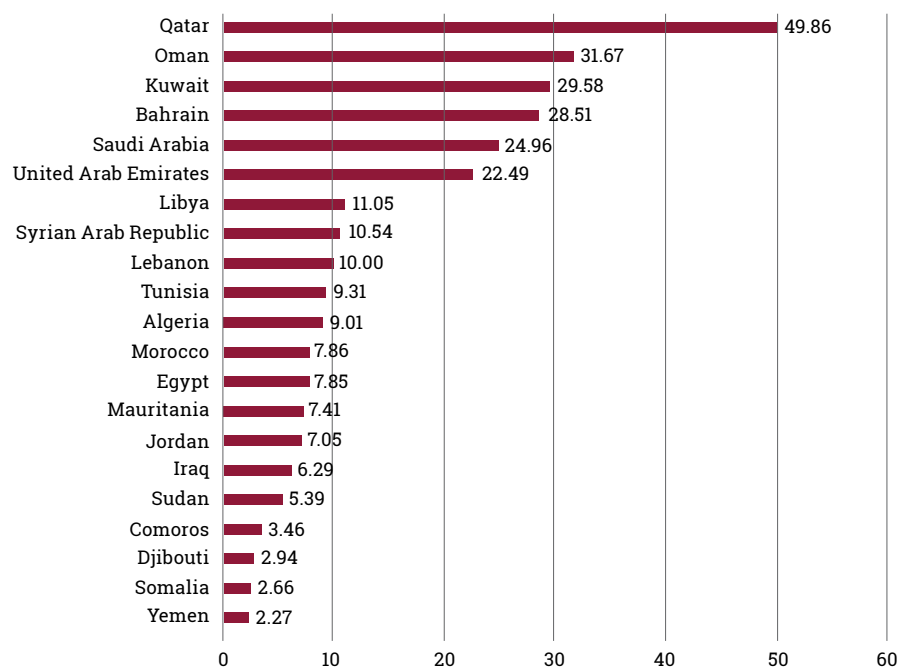
**Figure 8.2 Indicator 8.2.1 - Annual growth rate of real GDP per employed person**

Annual growth rate of real GDP per employed person (percentage)



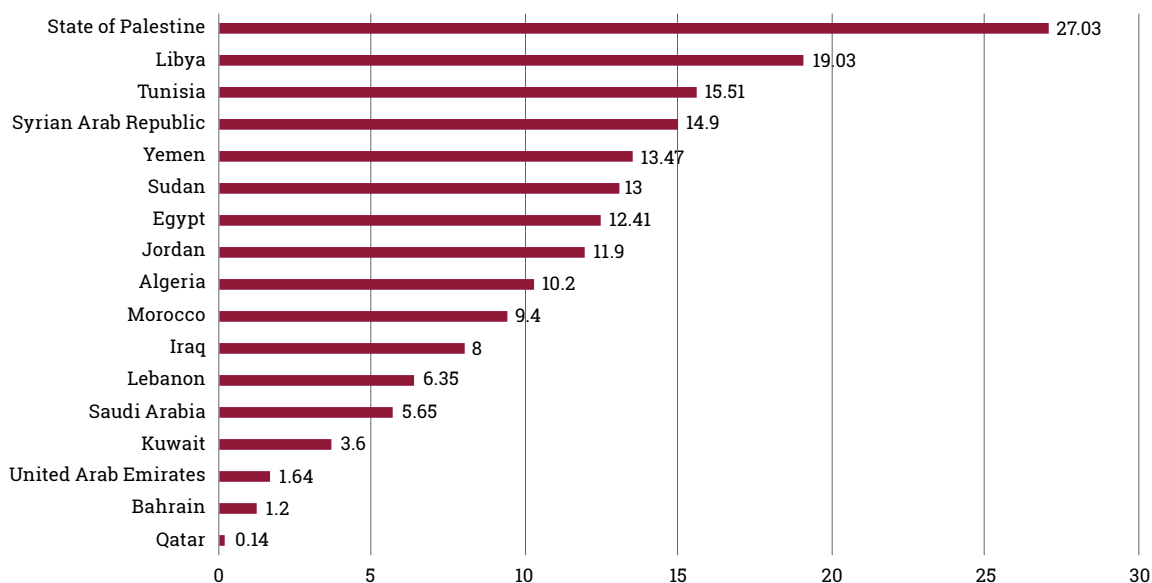
Note: All data are for 2017.

**Figure 8.3 Indicator 8.4.2 - Domestic material consumption per capita, by type of raw material**  
Domestic material consumption per capita (metric tons)



Note: All data are for 2017.

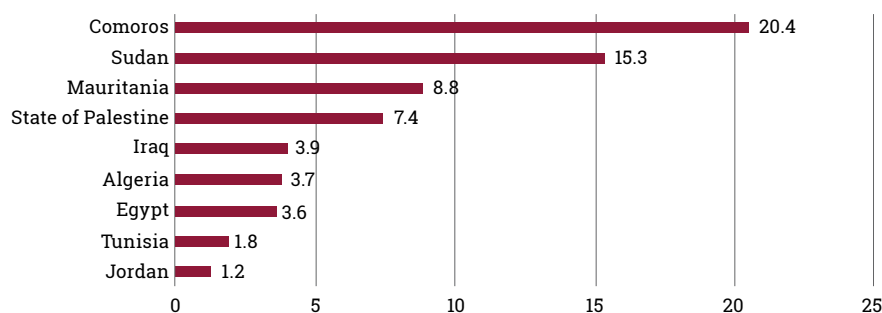
**Figure 8.4 Indicator 8.5.2 - Unemployment rate, by sex, age and persons with disabilities**  
Unemployment rate (percentage)



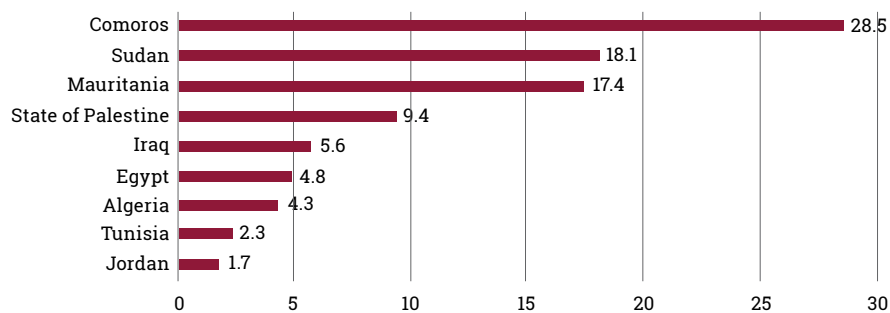
Note: All data are for 2016 apart from Lebanon and Sudan (2009), Iraq, Kuwait and Syrian Arab Republic (2011), Bahrain and Libya (2012) and Jordan and Yemen (2014).

**Figure 8.5** Two series of indicator 8.7.1 - Proportion and number of children aged 5–17 years engaged in child labour, by sex and age

Proportion of children engaged in economic activity (percentage)



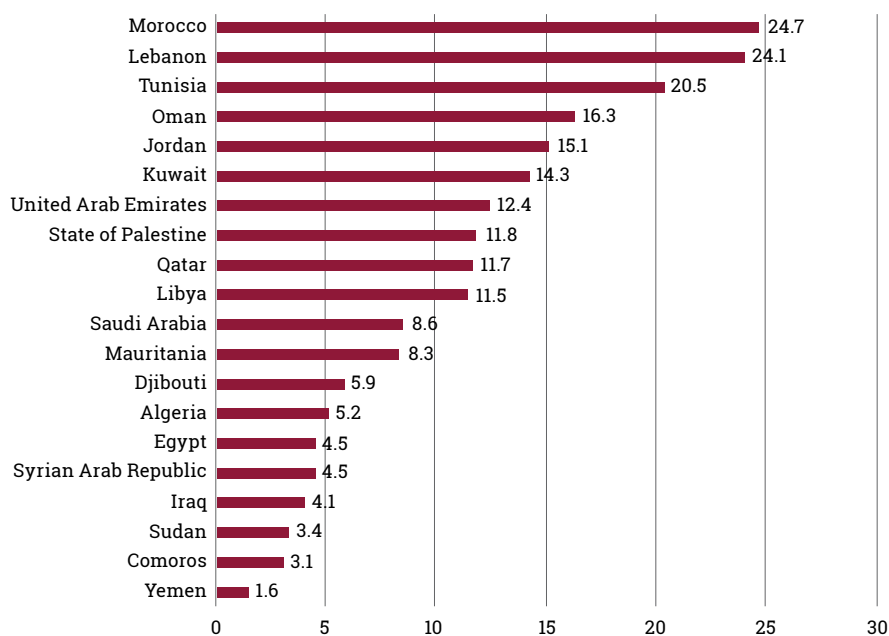
Proportion of children engaged in economic activity and household chores (percentage)



Note: Data for 8.7.1 are from the following years: State of Palestine (2010), Iraq, Mauritania and Tunisia (2011), Algeria and Comoros (2012), Egypt and Sudan (2014) and Jordan (2016).

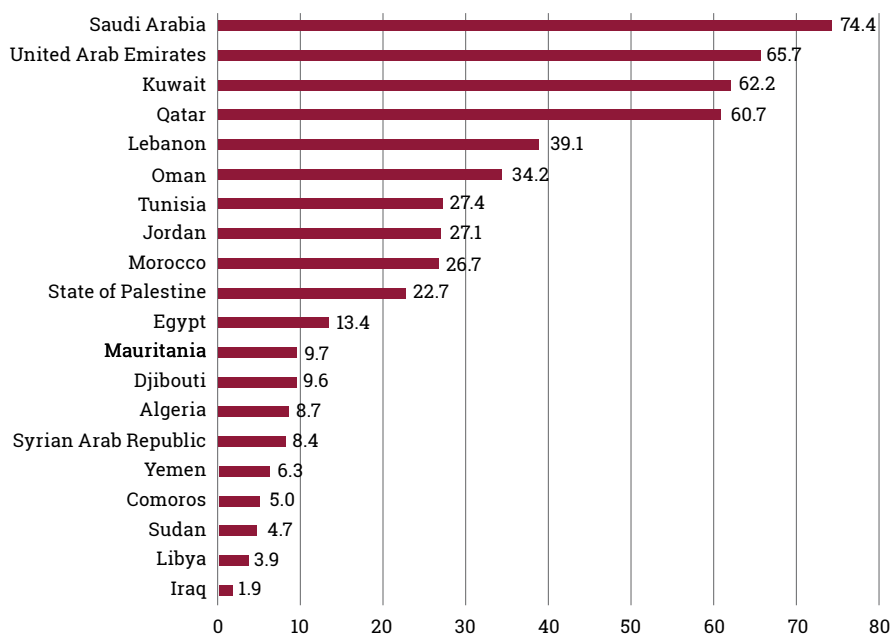
**Figure 8.6** Indicator 8.10.1 - (a) Number of commercial bank branches per 100,000 adults and (b) Number of automated teller machines (ATMs) per 100,000 adults

(a) Number of commercial bank branches per 100,000 adults



Note: Data are from 2016 apart from Libya (2012), Syrian Arab Republic (2013) and Egypt, Sudan and Yemen (2015).

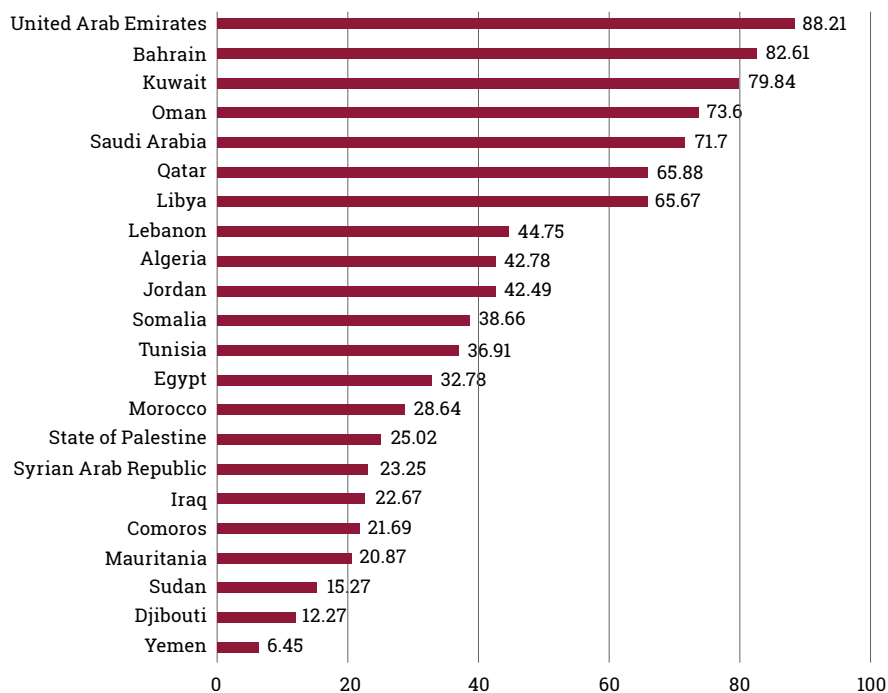
(b) Number of automated teller machines (ATMs) per 100,000 adults



Note: Data are from 2016 apart from Libya and Syrian Arab Republic (2012) and Egypt, Iraq, Sudan and Yemen (2015).

**Figure 8.7 Indicator 8.10.2 - Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider**

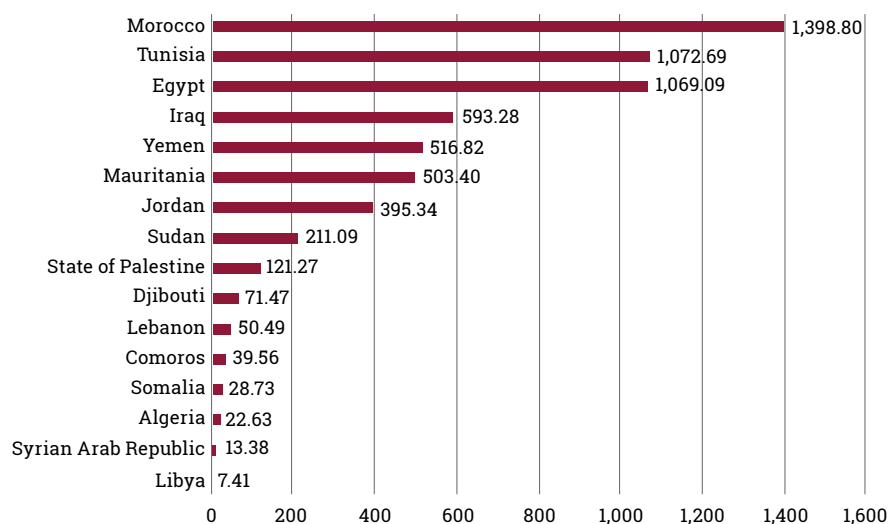
Proportion of adults with an account at a bank or other financial institution or with a mobile-money-service provider (percentage)



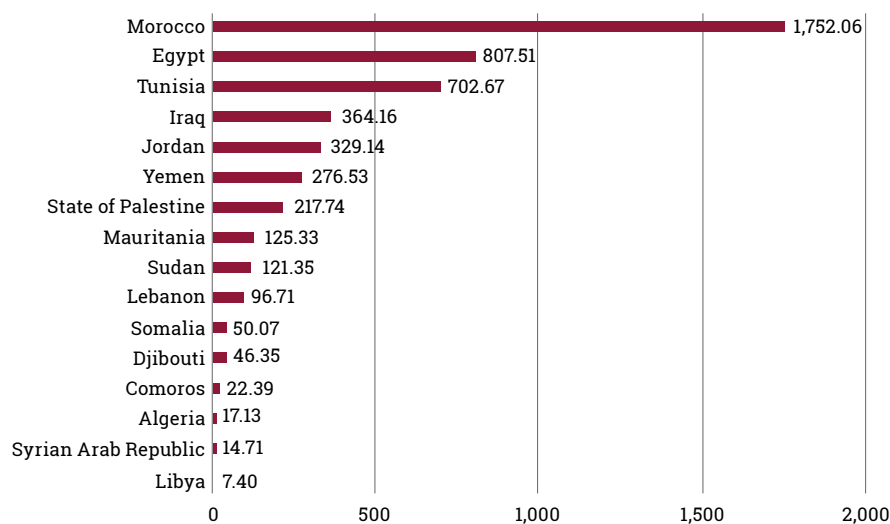
Note: Data are from 2017 apart from Comoros, Djibouti, Oman, Qatar and Syrian Arab Republic (2011) and Somalia, Sudan and Yemen (2014).

**Figure 8.8 Two series of indicator 8.a.1 - Aid for Trade commitments and disbursements**

Total official flows committed for Aid for Trade (millions of constant 2017 United States dollars)



Total official flows disbursed for Aid for Trade, by recipient (millions of constant 2017 United States dollars)



Note: Data for 8.a.1 are from 2017.