



**SUSTAINABLE  
DEVELOPMENT  
GOALS**

# **Assessing the progress on the achievement of the 2030 Agenda for Sustainable Development**



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# 2030 Agenda for Sustainable Development



## Sustainable Development Goal 9:

- 1) build resilient infrastructure
- 2) promote sustainable industrialization
- 3) foster innovation

Industrialization is the shift from manual labour to machines and technology in manufacturing, and is essential for economic growth.

Manufacturing is a crucial stepping stone in economic development, technological progress and productivity growth. This contributes to higher living standards for the population.

Although industrialization contributes to the universal objective of economic growth, its impact differs depending on the country's given stage of Development.



# 2030 Agenda for Sustainable Development

## UNIDO and SDG 9

- 1) UNIDO is recognized as a custodian agency for six indicators under SDG-9.
- 2) UNIDO's custodianship includes indicators measuring trends in Inclusive and Sustainable Industrial Development (ISID). These indicators cover economic, environmental, and social dimensions.
- 3) As a custodian agency, UNIDO is responsible for collecting and reporting data, ensuring compliance with standards, and contributing to the development of methodologies.



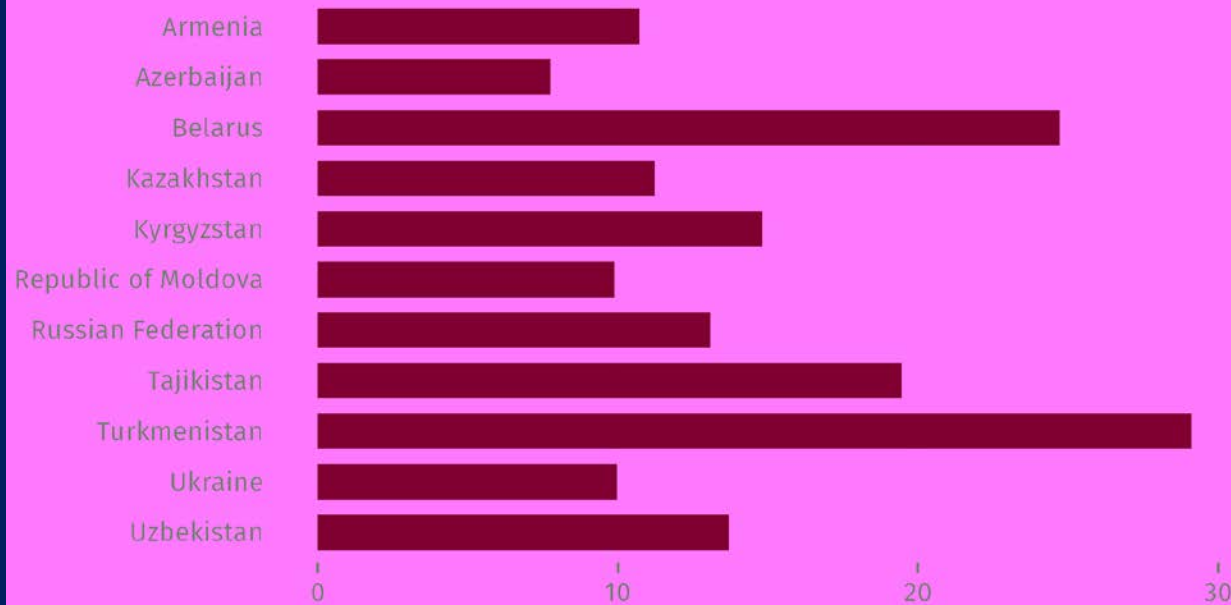
# 2030 Agenda for Sustainable Development

Target	Indicators	Custodian Agencies	Data Source
<b>9.2</b> Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	<b>9.2.1</b> Manufacturing value added as a proportion of GDP and per capita; <b>9.2.2</b> Manufacturing employment as a proportion of total employment	UNIDO	9.2.1: National accounts 9.2.2: Labor force statistics
<b>9.3</b> Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets	<b>9.3.1</b> Percentage share of small-scale industries in total industry value added; <b>9.3.2</b> Percentage of small-scale industries with a loan or line of credit	UNIDO World Bank	9.3.1: SME statistics, economic statistics 9.3.2: Financial sector statistics
<b>9.4</b> By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	<b>9.4.1</b> CO <sub>2</sub> emission per unit of value added	UNIDO IEA	Energy balances
<b>9.b</b> Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	<b>9.b.1</b> Percentage of medium and high-tech manufacturing value added in total value added	UNIDO	Structural business statistics

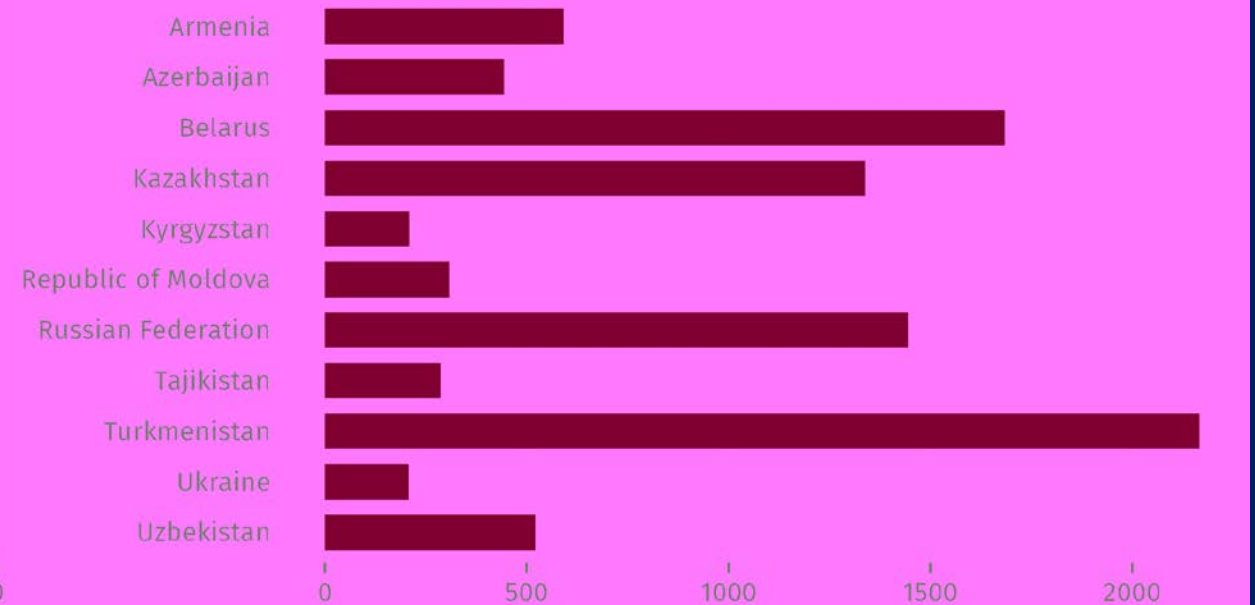


# Industry related SDG 9 indicators

SDG 9.2.1: MVA as a proportion of GDP, 2024  
Percentage



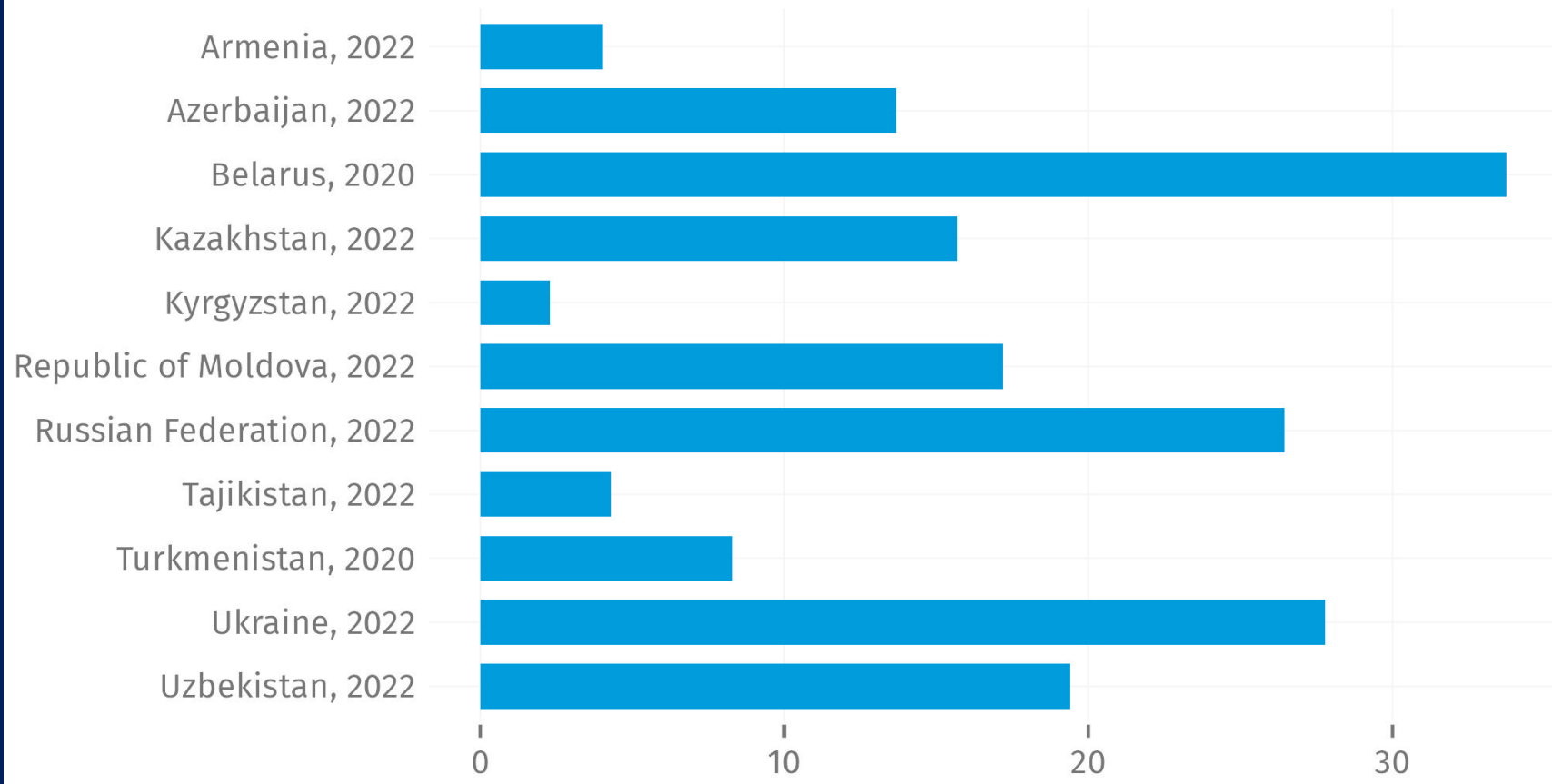
SDG 9.2.1: MVA per capita, 2024  
2015 US dollars





# Industry related SDG 9 indicators

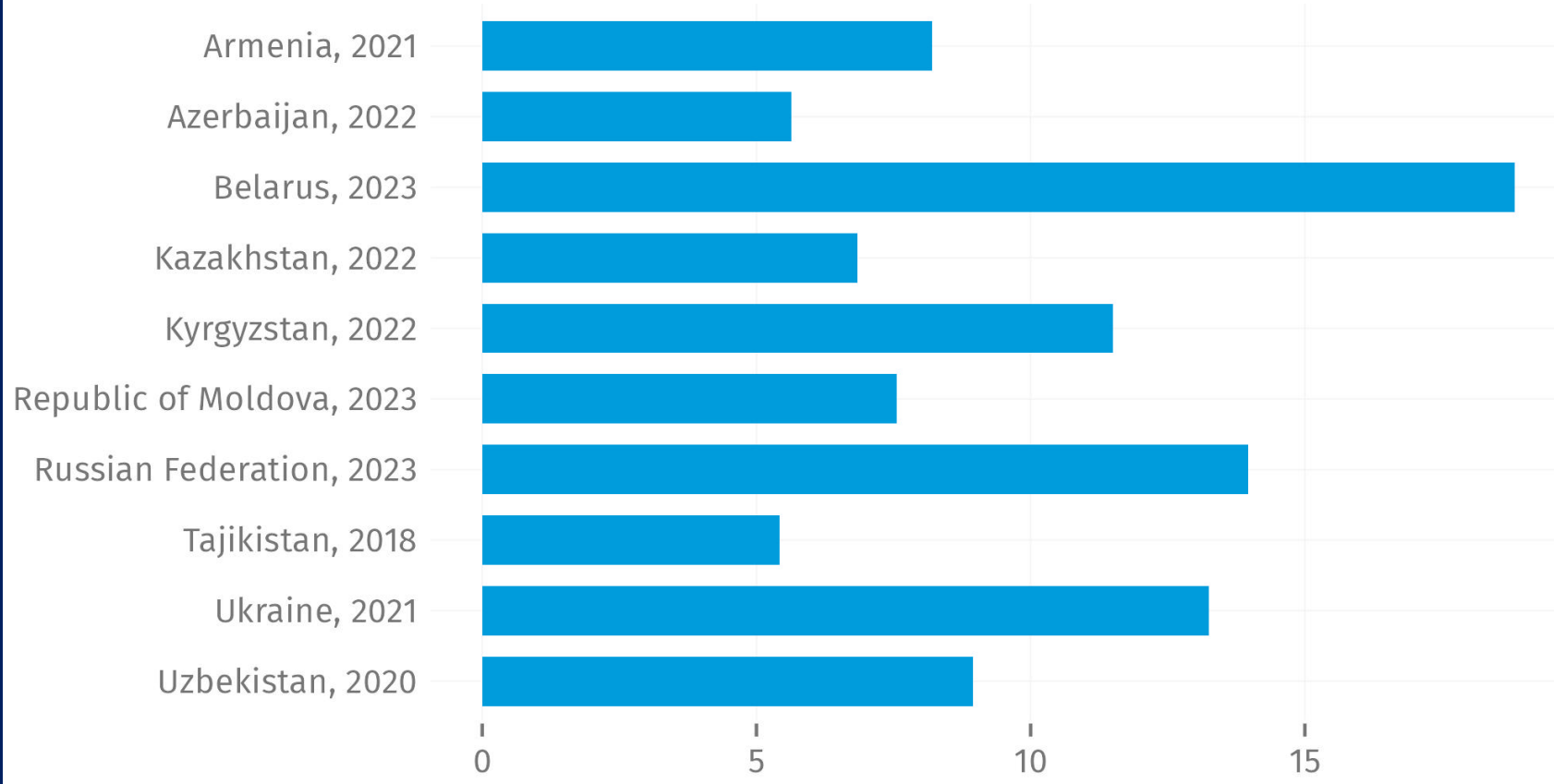
SDG 9.b.1: Share of MHT industries in MVA  
Percentage





# Industry related SDG 9 indicators

## SDG 9.2.2: Share of manufacturing in total employment Percentage

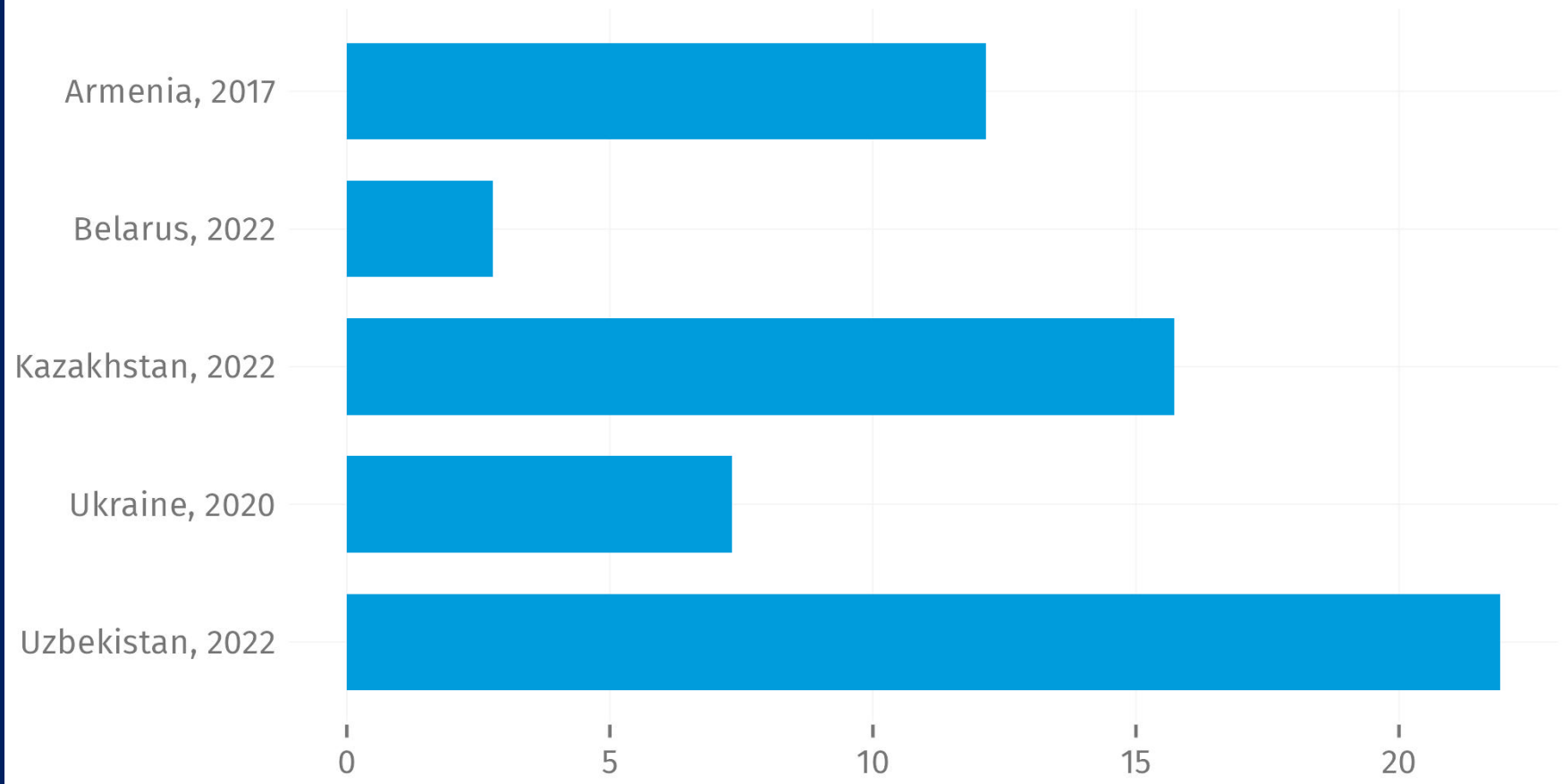






# Industry related SDG 9 indicators

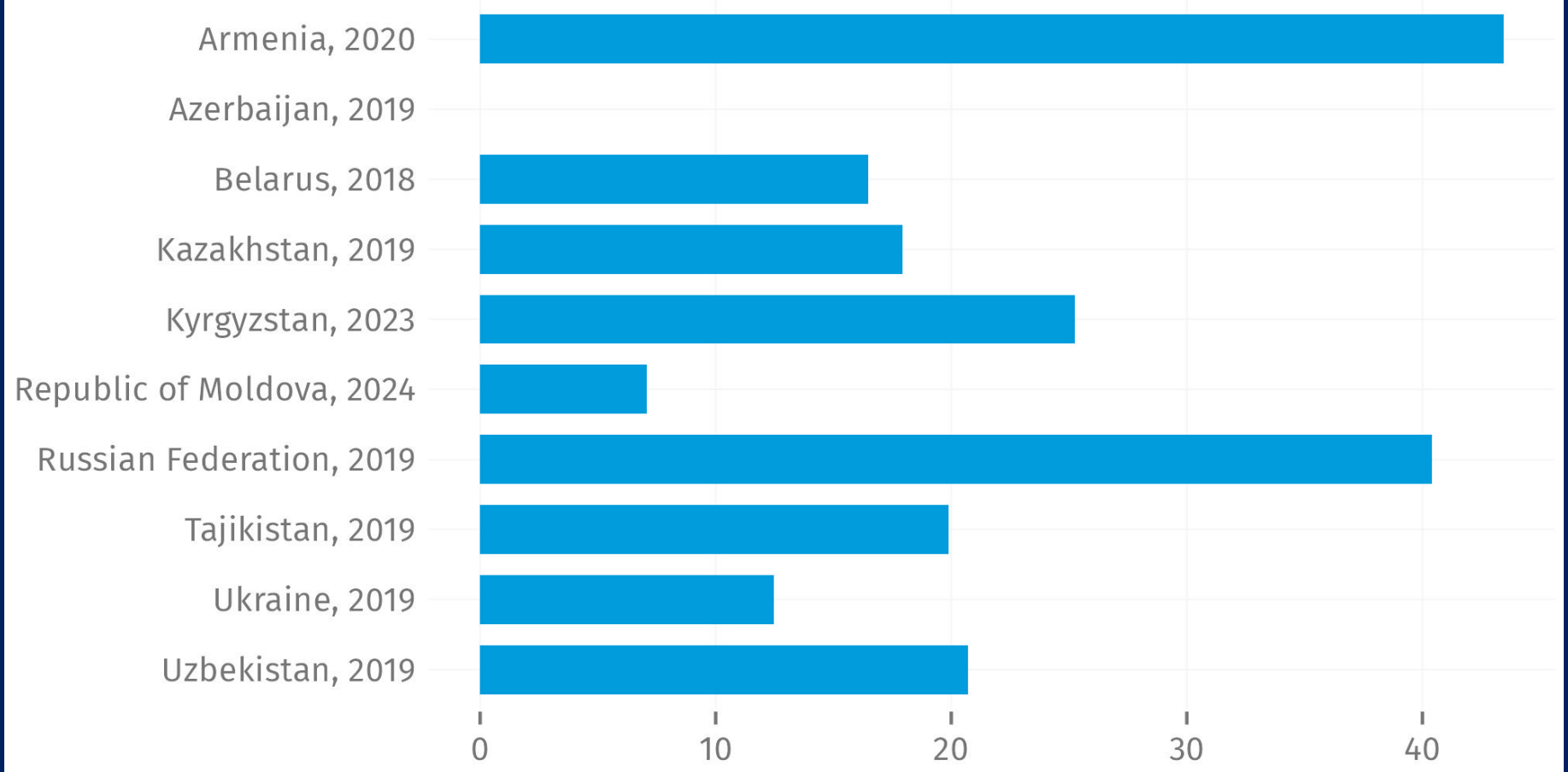
SDG 9.3.1: Share of small firms in MVA  
Percentage





# Industry related SDG 9 indicators

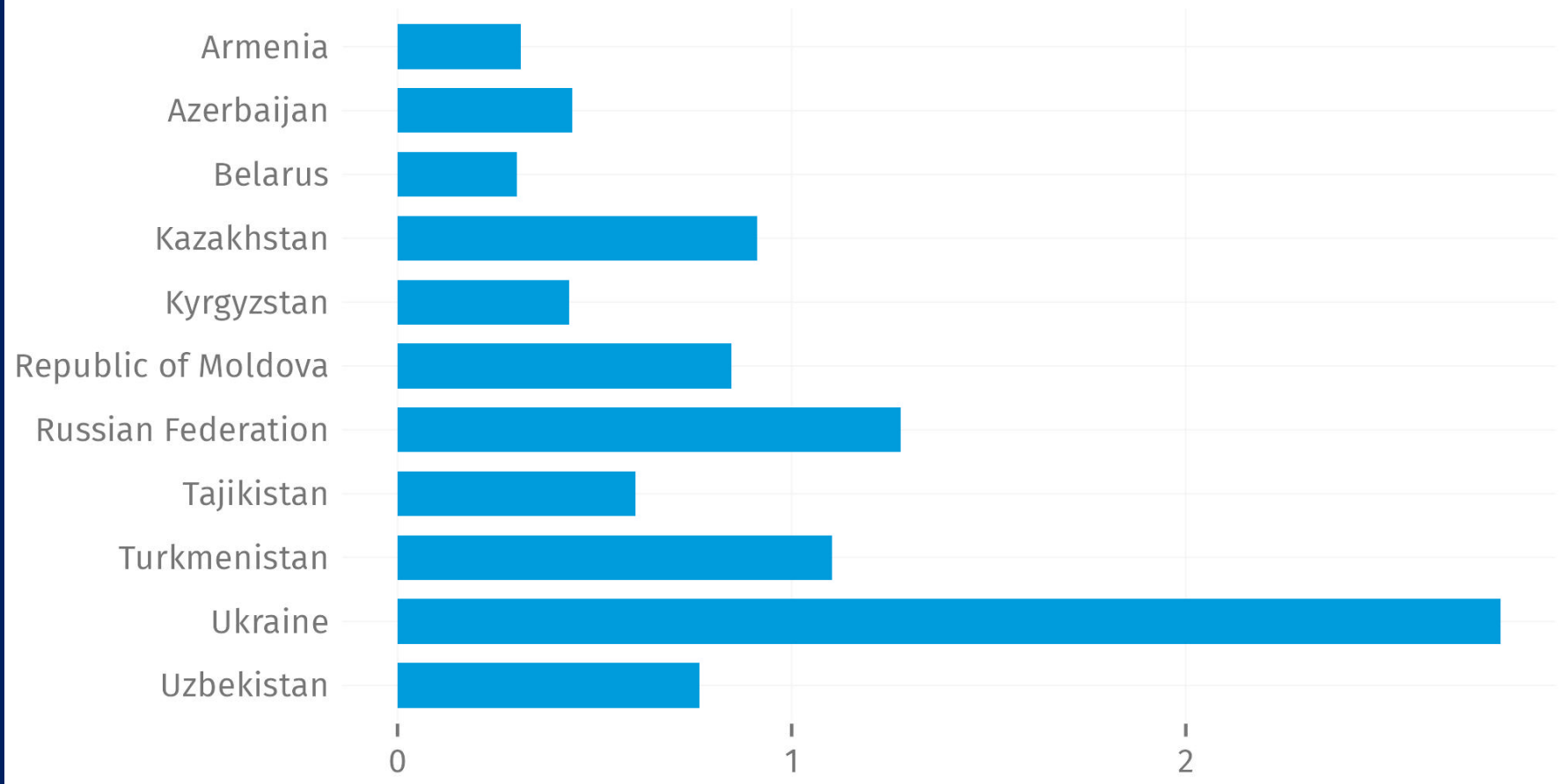
## SDG 9.3.2: Share of small firms with access to finance Percentage





# Industry related SDG 9 indicators

SDG 9.4.1: CO2 emission per unit of MVA, 2021  
Percentage





# SDG 9 Progress Assessment and Outlook

***Progress:*** *How much progress has already been achieved?*

***Outlook:*** *How likely is it that the target will be reached by 2030?*

Setting concrete 2030 end values essential for assessing progress towards SDG targets!



# SDG 9 Progress Assessment and Outlook

## Type of target level and means of setting 2030 end value

SDG-based, absolute target in the future	End value (absolute) specified in the SDGs, e.g. infant mortality at 12 per 1 000 live births (target 3.2).
SDG-based, target relative to starting position	End value (relative) specified in the SDGs, e.g. reduce by half the proportion of people living in poverty (target 1.2).
Other international agreement or shared aspiration, absolute target in the future	End value set by international agreements, good practices or other established frameworks, e.g. achieve the target of 0.7 per cent of gross national income for official development assistance (target 17.2).
No explicit value	End value must be determined empirically.

SDG 9.2.1a and 9.2.2 aim to double manufacturing's share in GDP and employment for LDCs

SDG 9.2.1b, 9.3.1, 9.3.2, 9.4.1, 9.b.1



# SDG 9 Progress Assessment and Outlook

## Progress (Current Status Index)

$$CSI_{2021} = \frac{I_{2021} - I_{2000}}{|TV - I_{2000}|} \times D$$

$$D = \begin{cases} -1, & CO2 \\ 1, & rest \end{cases}$$

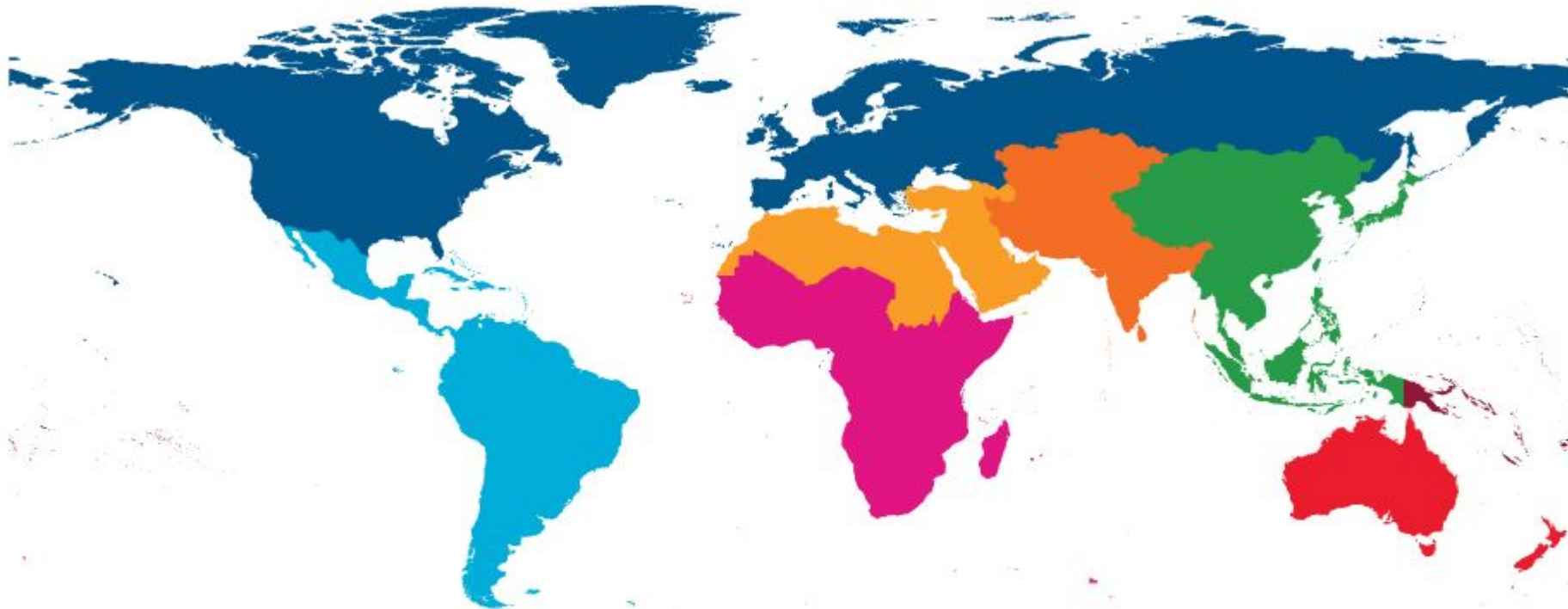
$$TV = (1 + g_{BM})^{2030-2021} \times I_{2021}$$

- TV measures the progress a country could achieve in each indicator by 2030 if it grew at the rate of the top three countries in the *benchmark group* ([SDG geographic regions](#))
- $g_{BM}$  average annual growth rate of the benchmark group after controlling for outliers



# SDG 9 Progress Assessment and Outlook

## Progress (Current Status Index) Benchmark Groups



● Sub-Saharan Africa    ● Northern Africa and Western Asia    ● Central and Southern Asia    ● Eastern and South-Eastern Asia  
● Latin America and the Caribbean    ● Australia and New Zealand    ● Oceania\*    ● Europe and Northern America





Notes: • Oceania\* refers to Oceania excluding Australia and New Zealand throughout the publication.  
• The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.



# SDG 9 Progress Assessment and Outlook

## Progress (Current Status Index)

- *CSI* falls within the range  $[-1, 1]$ , with positive values implying progress towards the target *TV*

Current Status Index	Progress	Text	Symbol
$[-1; 0]$	Negative	The country's performance has deteriorated or stagnated since 2000	 Negative
$(0; 0.2]$	Insignificant	The country has made only insignificant progress since 2000	 Insignificant
$(0.2; 0.56]$	Fair	The country has made respectable progress since 2000	 Fair
$(0.56; 1]$	Substantial	The country has made substantial progress since 2000	 Substantial





# SDG 9 Progress Assessment and Outlook

## Progress (Current Status Index) 2021

Country	MVApc	MVAsh	EMPsh (modelled)	MHTsh	CO2
Armenia	Substantial	Insignificant	Negative	Negative	Substantial
Azerbaijan	Fair	Negative	Insignificant	Fair	Substantial
Belarus	Fair	Fair	Negative	Negative	Substantial
Kazakhstan	Fair	Negative	Negative	Substantial	Substantial
Kyrgyzstan	Insignificant	Negative	Fair	Negative	Substantial
Republic of Moldova	Fair	Negative	Negative	Substantial	Insignificant
Russian Federation	Insignificant	Negative	Negative	Negative	Insignificant
Tajikistan	Insignificant	Negative	Insignificant	Fair	Negative
Turkmenistan	Fair	Negative	Substantial	Substantial	Negative
Ukraine	Insignificant	Negative	Negative	Negative	Substantial
Uzbekistan	Fair	Negative	Negative	Insignificant	Substantial



# SDG 9 Progress Assessment and Outlook

## Outlook (Achievement Likelihood Indicator)

$I_{2030}$  computed using an ARIMA model for values from 1990 onwards

$$AL_{2021} = 1 - \frac{|TV - I_{2030}|}{|TV - I_{2021}|}$$

$$TV = (1 + g_{BM})^{2030-2021} \times I_{2021}$$




- TV measures the progress a country could achieve in each indicator by 2030 if it grew at the rate of the top three countries in the *benchmark group* ([SDG geographic regions](#))
- $g_{BM}$  average annual growth rate of the benchmark group after controlling for outliers (set a z-score of 2)



# SDG 9 Progress Assessment and Outlook

## Outlook (Achievement Likelihood Indicator)

- $AL$  falls within the range  $[0, 1]$ , with greater  $AL$  as  $I_{2030}$  approaches  $TV$

Achievement Likelihood	Outlook	Text	Symbol
0	Reverse trend	To reach the target in 2030, the country has to reverse its negative trend	 Reverse trend
(0; 0.8]	Accelerate progress	To reach the target in 2030, the country will need to accelerate progress	 Accelerate progress
(0.8; 1]	On track	If the economy continues to progress at current speed, it is likely to reach the target in 2030	 On track



# SDG 9 Progress Assessment and Outlook

## Outlook (Achievement Likelihood Indicator) 2021

Country	MVApc	MVAsh	EMPsh (modelled)	MHTsh	CO2
Armenia	On track	Reverse trend	Reverse trend	Reverse trend	Reverse trend
Azerbaijan	Accelerate progress	Accelerate progress	Accelerate progress	Reverse trend	Reverse trend
Belarus	Accelerate progress	Accelerate progress	Accelerate progress	Reverse trend	Accelerate progress
Kazakhstan	Accelerate progress	Reverse trend	Reverse trend	On track	On track
Kyrgyzstan	Reverse trend	Accelerate progress	Accelerate progress	Reverse trend	On track
Republic of Moldova	Accelerate progress	Reverse trend	Accelerate progress	Reverse trend	Reverse trend
Russian Federation	Accelerate progress	Reverse trend	Reverse trend	Accelerate progress	Accelerate progress
Tajikistan	Reverse trend	Accelerate progress	Accelerate progress	Reverse trend	Accelerate progress
Turkmenistan	Accelerate progress	On track	On track	On track	On track
Ukraine	Accelerate progress	Reverse trend	Reverse trend	Accelerate progress	Accelerate progress
Uzbekistan	Accelerate progress	Accelerate progress	Accelerate progress	Accelerate progress	Reverse trend



## SDG 9 Index

- To facilitate international comparisons and a general evaluation of performance towards SDG 9, UNIDO proposed the **SDG 9 Index**
- Composite indicator of the five SDG 9 indicators with sufficient data availability (excludes 9.3.1 and 9.3.2)
- Currently covering 135+ economies, updated annually



# SDG 9 Index

## Methodology

1. Outlier Processing: calculate z-score of each indicator and replace any cases beyond the z-score threshold of 3 with the next most extreme non-outlier value
2. Normalization: normalized according to the min-max method within the range [0, 1]
  - i. Higher values for MVAsh, MVApc, EMPsh and MHTsh considered positive

$$I_X = \frac{X_i - \min X}{\max X - \min X}$$

- ii. Lower values of CO2 considered positive (apply inverse normalization, so highest CO2 assigned a value of 0 and lowest to a value of 1)

$$I_X = \frac{\max X - X_i}{\max X - \min X}$$



# SDG 9 Index

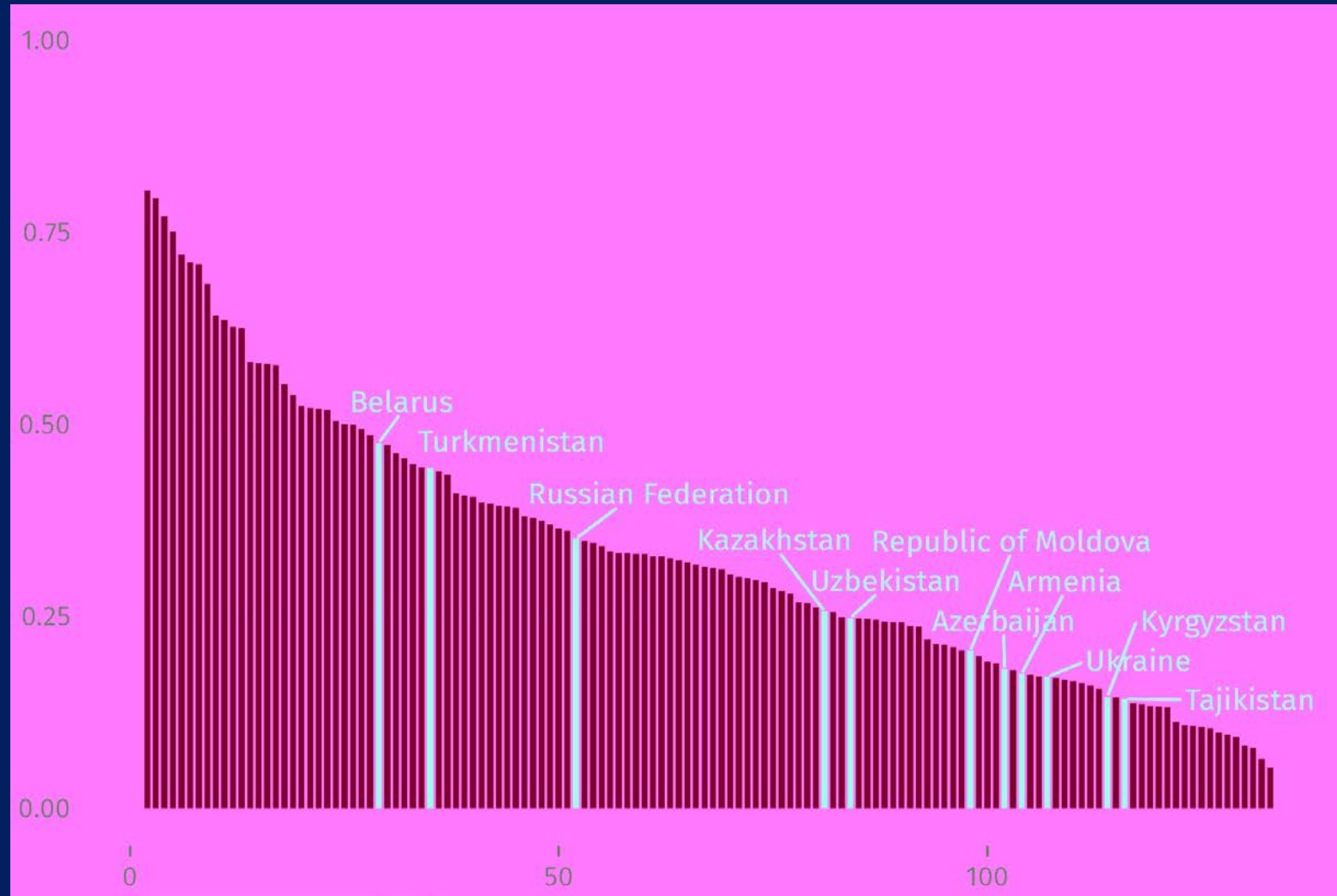
## Methodology

3. The composite index is built through a geometric mean

$$SDG9Ind = \left( \prod_{i=1}^5 I_i \right)^{1/5}$$



# SDG 9 Index, 2021

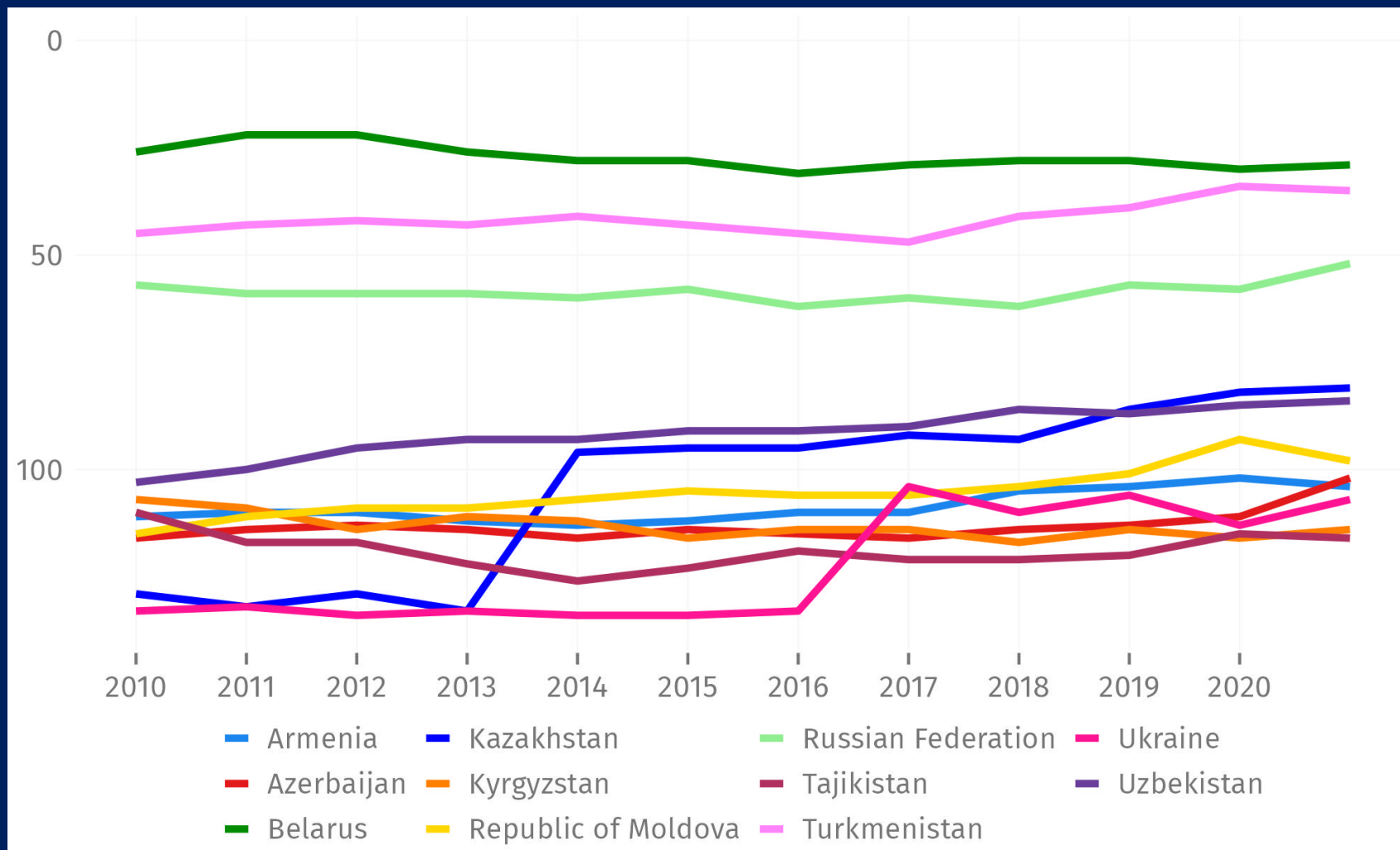






# SDG 9 Index

## Ranking over the years





# Resources

- International Yearbook of Industrial Statistics [2023](#), [2024](#)
- Industrial Development Report [2020](#), [2022](#), [2024](#)
- SDG 9 Progress Report [2017](#), [2019](#), [2021](#), [2023](#)
- Kynčlová P., Upadhyaya S., and Nice T. (2020). Composite index as a measure on achieving Sustainable Development Goal 9 (SDG-9) industry-related targets: The SDG-9 index. *Applied Energy*, 265, 114755.
- Bidarbakhtnia, A. (2020). Measuring Sustainable Development Goals (SDGs): An Inclusive Approach. *Global Policy*, 11(1), 56-67.
- OECD (2008). *Handbook on Constructing Composite Indicators – Methodology and User Guide*. OECD Publishing. Paris.
- UNIDO Data Portal: <https://stat.unido.org/>
- UNIDO Industrial Analytics Platform: <https://iap.unido.org/>



# Thank you!

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