



صندوق النقد العربي
ARAB MONETARY FUND

Measuring Human Capital: The Situation in the Arab Region

Dr. Ahmed Ragab
Arab Monetary Fund

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The WB defines human capital as "the knowledge, skills, and health that people accumulate throughout their lives to realize their potential as productive members of society."

Measuring human capital has, however, been a challenge, hampering policymakers' ability to make informed and timely investment decisions.

The aim of this presentation, therefore, is to examine the current data and methodologies of human capital, with a specific focus on Arab countries.

The presentation identifies data gaps, measurement challenges, suggestions for data collection, methodology and future trends.

Challenges and Opportunities for Unlocking Human Capital Potential



Human Capital Assessment and Policy Prioritization



Identifying gaps in education and health that need priority investments.



Assessing policy trade-offs to prioritize interventions with the highest returns.



Benchmarking policy progress by tracking outcomes over time and relative to other countries.



Strengthening accountability by setting targets and monitoring progress towards goals.



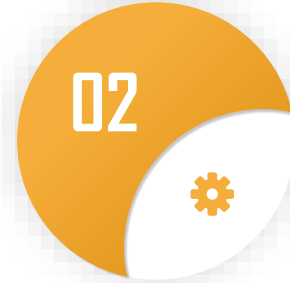
Forecasting future productivity by estimating long-term economic returns of current investments.

Methodologies for Measuring Human Capital (HC)



Indicator Approach

- Uses proxy measures like years of schooling or health metrics or create index combining multiple dimensions.
- Provides snapshot of human capital levels but lacks comprehensive valuation and consistency with national accounts.



Cost Approach

- Values human capital based on investment costs with focus on education expenditures.
 - Consistent with national accounting for assets but doesn't fully capture future income returns on investment.



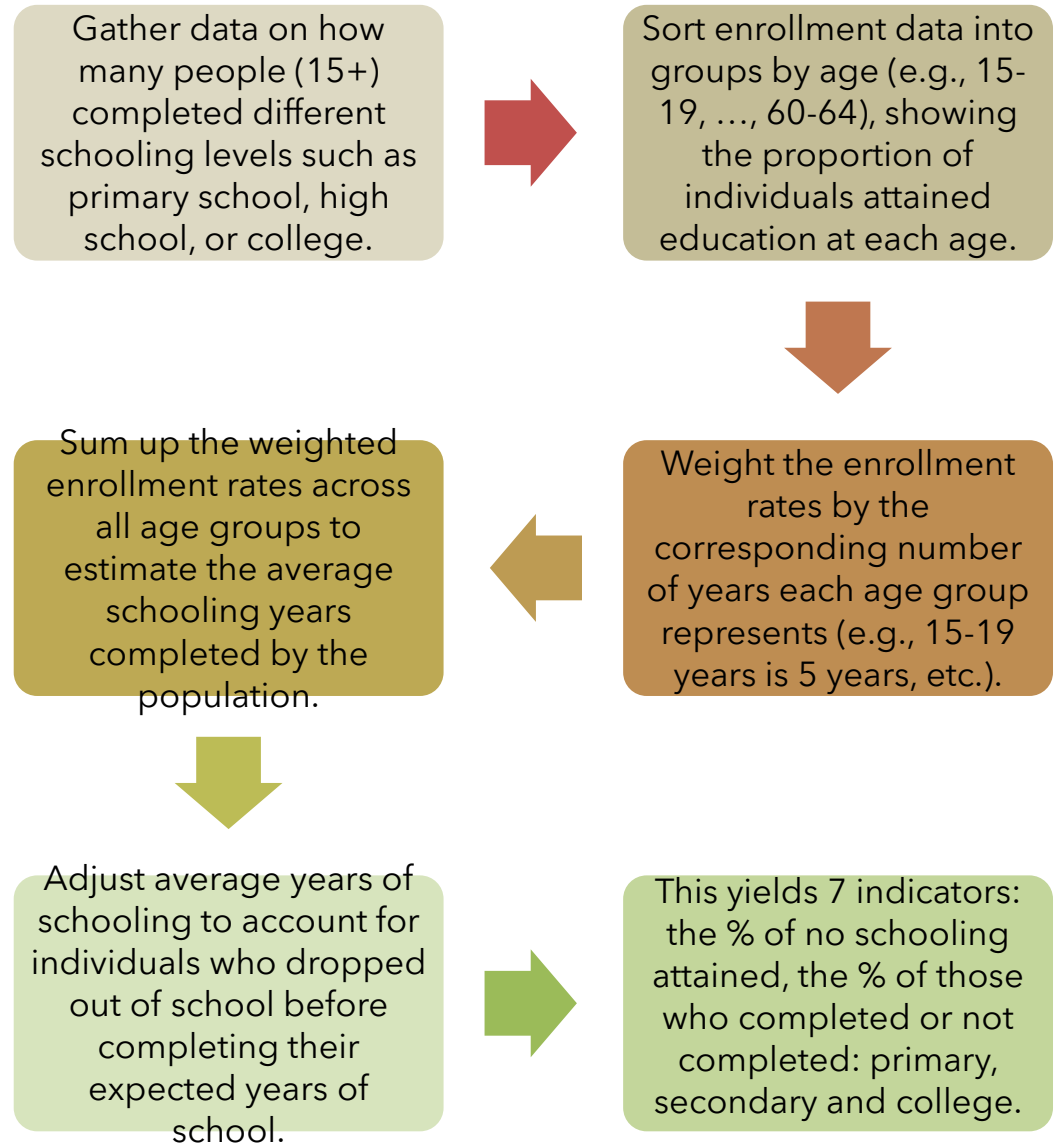
Income Approach

- Values human capital based on expected future earnings by estimating present value of lifetime earnings.
 - Consistent with national accounting but requires assumptions about future incomes.



Barro-Lee Methodology for Measuring HC

- Barro-Lee uses education levels, measured by the average years of schooling among the working-age population 15+, as a proxy for human capital.
- It relies on data sources such as censuses, household surveys, and educational records to gather information about educational attainment within a population.
- It calculates the average years of schooling as follows:



Pros and Cons of Barro-Lee Methodology

Relies on readily available data on education levels, making it easy to apply.

Utilizes data spanning multiple decades to capture trends and changes in education.

Allows for cross-country comparisons of human capital development.

Helps assess the impact of human capital on a country's economic performance.

Measures human capital through education attainment, overlooking skills and health.

Ignores quality of education that may vary among countries with equal schooling years.

Focuses solely on formal education and does not account for informal learning, such as on-the-job training, or experience.

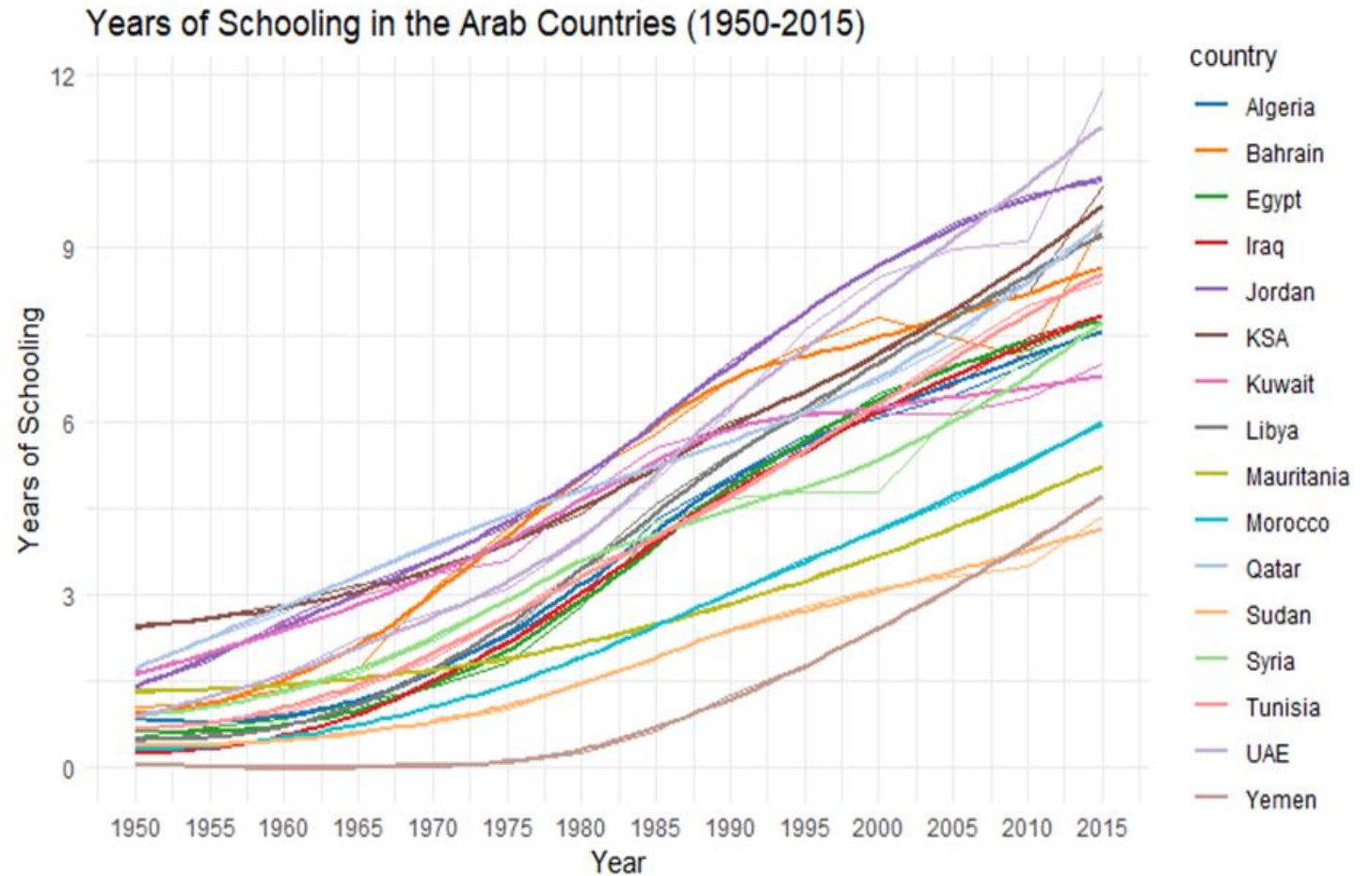
Treats all years of education the same can result in flawed evaluations of human capital.

Data are only available for census years and missing years are filled by forward and backward extrapolation of census/survey observations on education attainment.



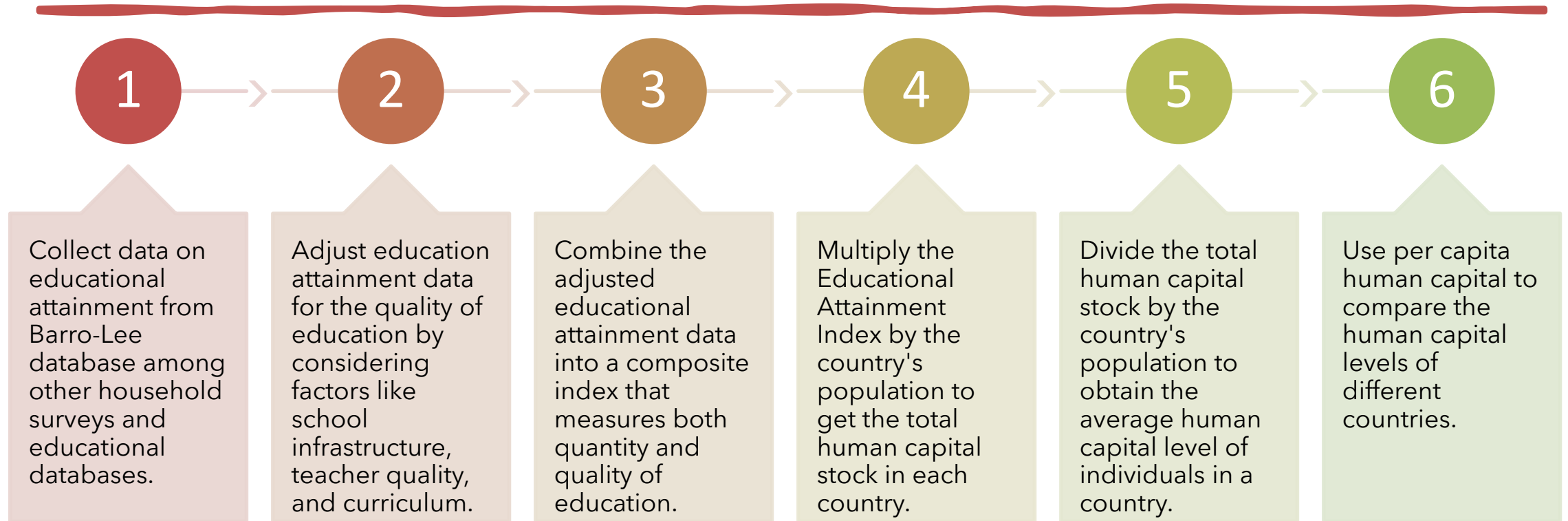
The Situation in the Arab Region

- The data covers 146 countries, including 16 Arab countries and expands the period from 1950 to 2015, at latest.
- The data shows a positive trend in the average years of schooling between 1950-2015, with increasing minimum (0.3-4.3), maximum (2.4-11.7), and average (0.9-7.9) values.
- This shows that the educational landscape in the Arab region has improved over time.
- Meanwhile, the gap in the average years of schooling has widened overtime, increasing from 2.4 in 1950 to 7.4 in 2015.

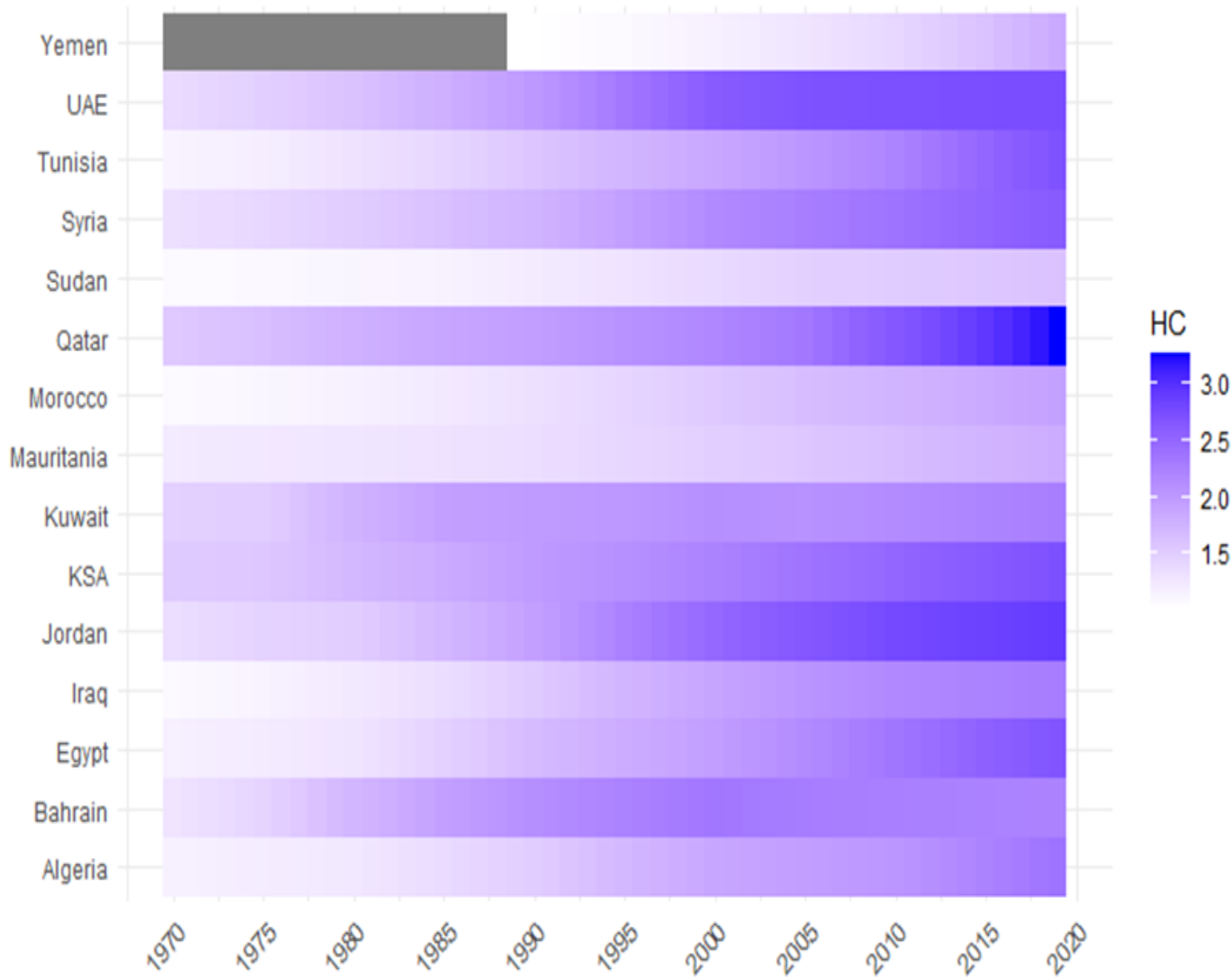


Source: Barro-Lee Educational Attainment Dataset, Sep 2023.

Penn World Table (PWT) Methodology for Measuring Human Capital



Heatmap of PWT Human Capital Index by Country and Year



Interpreting the PWT HC Index

The PWT-HC Index shows the overall level of HC in a specific country that combines both the quantity (how many people have education) and quality (how good that education is) dimensions of education.

It may oversimplify complex education and skill dynamics & quality adjustments can be subjective and challenging to measure.

The data covers 15 Arab countries & expands the period from 1950 to 2020, at latest.

The data shows a positive trend in overall level of HC, indicating improved quantity and quality over time.

Meanwhile, the gap between Arab countries in the HC levels has widened overtime.

Source: PWT HC Dataset, Sep 2023.

Assessment of Human Capital Quality

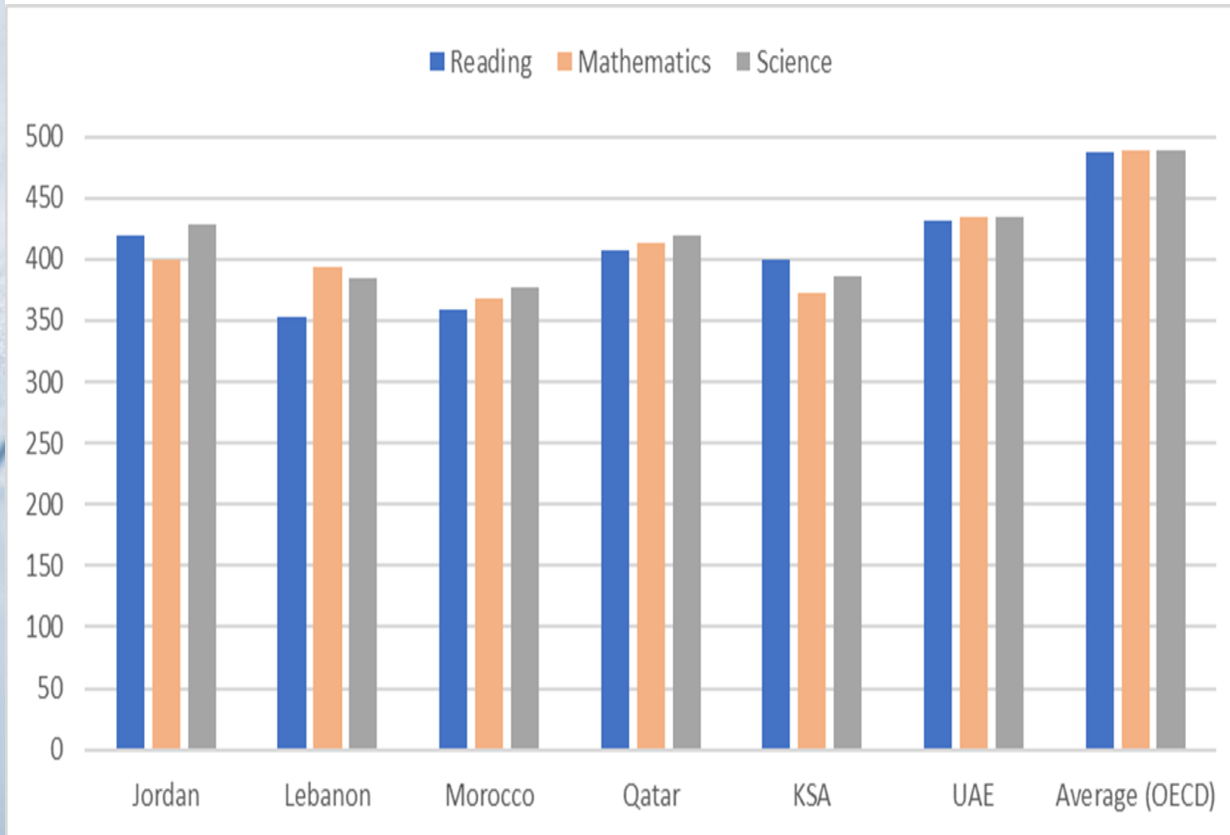
The Program for International
Students Assessment (PISA)

The OECD Teaching and Learning
International Survey (TALIS)

The Program for International
Assessment of Adult Competencies
(PIAAC)

Trends in International Mathematics
and Science Study (TIMSS)

The Program for International Students Assessment (PISA)



Source: PISA, Round of 2018.

The program evaluates the abilities of 15 years old students globally, each 4 years, in 3 subjects: reading, math & science.

It collects data on students' backgrounds, education, and attitudes.

It interviews researchers, policymakers, parents, and school principals, to assess the quality of education systems.

In 2018, 79 countries participated, including six from the Arab region.

Quality differences among various subjects in Arab countries are minimal.

Differences among Arab countries are also minimal.

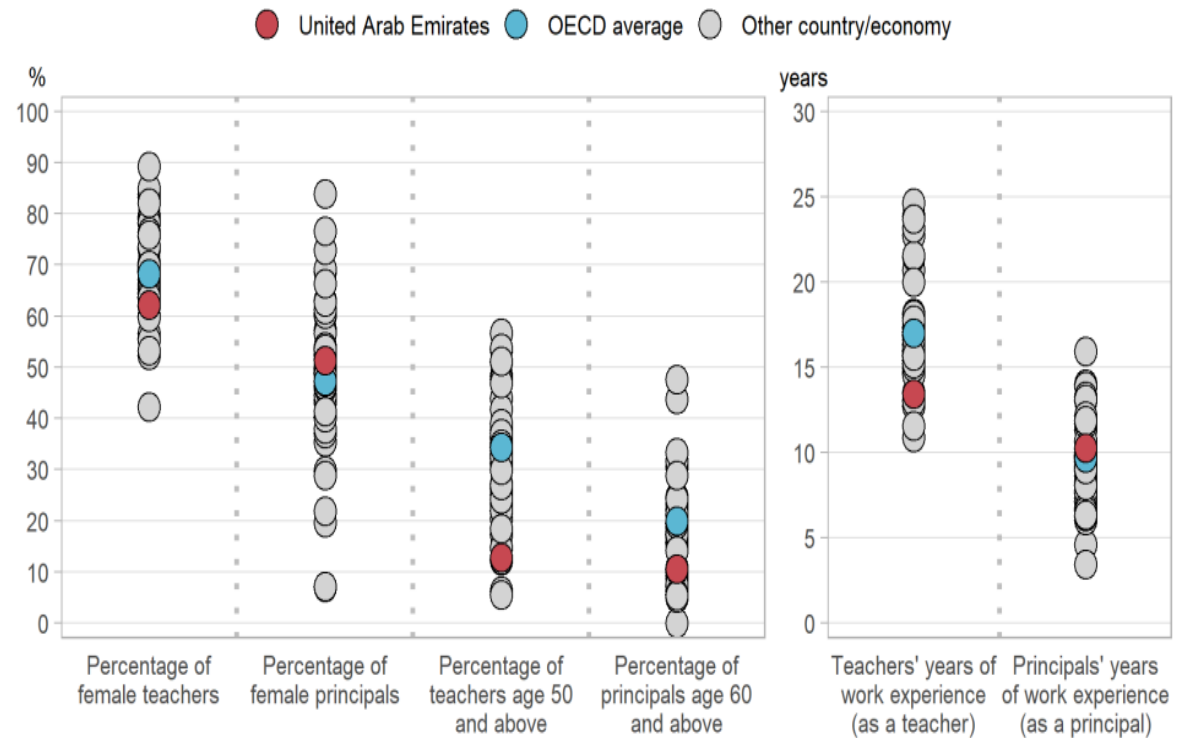
There is a larger level difference between countries in the Arab region and OECD.

The OECD Teaching and Learning International Survey (TALIS)

TALIS interviews teachers and school principals to evaluate various aspects of education systems, including teacher training, professional development, and job satisfaction.

The survey includes a small number of countries, 48 in total in 2018, most of these countries are advanced, and only the UAE and Saudi Arabia are from the Arab region.

Socio-demographic and experience profiles of teachers and school leaders



Source: TALIS, Round of 2018, UAE Report.

The Program for International Assessment of Adult Competencies (PIAAC)

It assesses the skills and competencies of adults aged 16-65 in areas such as literacy, numeracy, and digital problem-solving.

It provides data on a country's workforce's abilities, helping policymakers make decisions about education and training.

PIAAC surveys are conducted periodically, providing a comprehensive view of adult skills on a global scale.

It does not cover all relevant adult competencies, potentially overlooking important skills.

Sampling methods and participation rates can impact the representativeness of data in some countries.

It does not fully account for cultural and language differences when assessing competencies.

This survey is carried out in more than 40 advanced countries, and none of these countries are from the Arab region.

Trends in International Mathematics & Science Study (TIMSS)

	Grade 4		Grade 8	
Country	Mathematics	Science	Mathematics	Science
UAE	481	473	473	473
Bahrain	480	493	481	486
KSA	398	402	394	431
Oman	431	435	411	457
Qatar	449	449	443	475
Kuwait	383	392	403	444
Morocco	383	374	388	394
Lebanon			429	377
Jordan			420	452
Egypt			413	389
Scale Score	500		500	

Source: TIMSS, Round of 2019.

The survey monitors trends in mathematics and science achievement every 4 years at the 4th and 8th grades.

It administers tests and questionnaires to samples of students, teachers, and school principals.

TIMSS may not capture all aspects of education quality, such as teaching methods or cultural nuances.

TIMSS may not always be directly comparable due to variations in curriculum and testing.

TIMSS may not account for the cultural and contextual differences that affect mathematics & science learning.

In the last TIMSS round of 2019, 7 Arab countries participated in the tests for the 4th grade and 10 countries for the 8th grade.

Weak Arab performance relative to the scale score benchmark.

The Human Capital Index (HCI) of the World Bank

- The index was launched in 2018 as a comprehensive measure of a country's investment in its people's health and education.
- The HCI measures the human capital stock that a child born today can expect to attain by age 18, given the risks of poor health or poor education in her country.
- The HCI constitutes of three main components:

Component 1: Survival from birth to school age, measured by under-5 mortality rates.

Component 2: Expected Years of Learning-Adjusted School, combining information on the quantity (expected number of years of school a child can expect to attain by age 18) and quality (international student achievement testing programs) of education.

Component 3: Health is captured by two proxies: (i) adult survival rates, defined as the fraction of 15-year-olds that survive until age 60; (ii) the rate of stunting for children under age 5.

Construction & Interpretation of the WB-HCI

The overall index is constructed as a geometric mean of the previous components after transforming the sub-components into contributions to productivity compared to high-quality education and health standards, (full education = 14 years of study and high-quality test score = 625, full health: adult survival rate up to 60 = 100 percent with no stunting in children under five).

The HCI is measured in terms of the productivity of the next generation of workers, relative to the benchmark of complete education and full health. A value of X for a particular country means that the productivity as a future worker of a child born in a given year in that country is only a fraction X of what it could be under the benchmark of complete education and full health.



The Position of Arab Countries on the WB's HCI of 2020

indicator	C1: Probability of Survival to Age 5	C2: Expected Years of School	Harmonized Test Scores	C3: Survival Rate from Age 15-60	Fraction of Children Under 5 Not Stunted	Human Capital Index (HCI)	Uncertainty Interval
Algeria	0.98	11.85	374.09	0.91	0.88	0.53	[0.53,0.54]
Bahrain	0.99	12.85	451.71	0.93		0.65	[0.64,0.66]
Comoros	0.93	8.17	392.23	0.78	0.69	0.40	[0.36,0.43]
Egypt	0.98	11.46	355.99	0.86	0.78	0.49	[0.48,0.51]
Iraq	0.97	6.93	363.43	0.84	0.87	0.41	[0.40,0.41]
Jordan	0.98	11.14	429.95	0.89		0.55	[0.54,0.56]
Kuwait	0.99	12.03	383.40	0.94		0.56	[0.55,0.57]
Lebanon	0.99	10.16	389.89	0.93		0.52	[0.50,0.52]
Mauritania	0.92	7.73	342.09	0.80	0.77	0.38	[0.35,0.41]
Morocco	0.98	10.38	380.41	0.93	0.85	0.50	[0.49,0.51]
Oman	0.99	12.76	423.51	0.91		0.61	[0.60,0.62]
Qatar	0.99	12.83	427.48	0.96		0.64	[0.63,0.64]
KSA	0.99	12.36	398.97	0.92		0.58	[0.56,0.59]
Sudan	0.94	7.08	379.63	0.79	0.62	0.38	[0.36,0.39]
Tunisia	0.98	10.57	384.08	0.91	0.92	0.52	[0.51,0.52]
UAE	0.99	13.46	448.04	0.94		0.67	[0.66,0.68]
Palestine	0.98	12.20	412.32	0.89	0.93	0.58	[0.57,0.59]
Yemen	0.95	8.13	321.33	0.80	0.54	0.37	[0.35,0.39]

Source: The World Bank, HCI Database, Sep 2023.



The WEF-HCI ranks countries on how well they are developing their human capital on a scale from 0 (worst) to 1 (best).

It considers 4 thematic dimensions (Education & Skills, Health & Wellness, Workforce & Employment, and Enabling Environment) and five distinct age groups (0-14, 15-24, 25-54, 55-64, 65+) to capture the human capital potential of a country.

Each pillar is composed of specific indicators and sub-indicators that assess human capital development within each category.

Data is normalized to create a common scale across all indicators with different measurements.

Different weights are assigned to each pillar and indicator to reflect their relative importance in overall human capital development.

The HCI score for a country is calculated by aggregating the scores from each pillar and indicator using the assigned weights.

The Human Capital Index of the World Economic Forum



AGE GROUP

Share of total population (range of country values)¹

COMPONENT (Subindex weighting)	INDICATOR	AGE GROUP				
		0-14 (13%-48%)	15-24 (9%-22%)	25-54 (26%-70%)	55-64 (3%-14%)	65+ (1%-27%)
Capacity (25% of total Index score)	Literacy and numeracy					
	Primary education attainment rate					
	Secondary education attainment rate					
	Tertiary education attainment rate					
Deployment (25% of total Index score)	Labour force participation rate					
	Employment gender gap					
	Unemployment rate					20
	Underemployment rate					
Development (25% of total Index score)	Primary education enrolment rate					
	Quality of primary schools					
	Secondary education enrolment rate					
	Secondary enrolment gender gap					
	Vocational education enrolment rate					
	Tertiary education enrolment rate					
	Skill diversity of graduates					
	Quality of education system					

Construction & Interpretation
of the WEF-HCI

Results of the Participant Arab Countries in the WEF-HCI 2017, as Latest

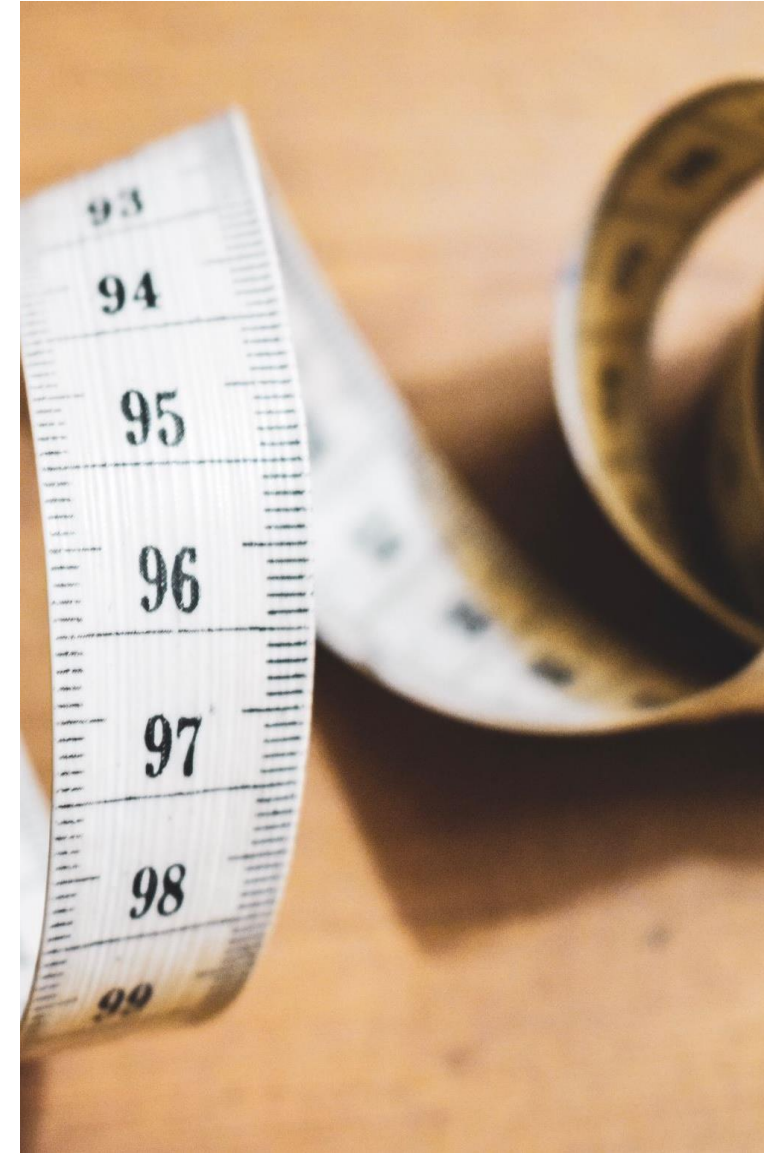
	Capacity	Deployment	Development	Know-How	Overall Index
Jordan	73.54	35.31	66.59	57.15	58.15
UAE	60.36	64.91	75.82	60.84	65.48
Bahrain	76.31	67.85	61.91	53.87	64.98
Tunisia	48.07	42.28	61.78	50.89	50.76
Algeria	46.32	53.25	61.07	45.41	51.51
KSA	70.56	47.7	63.23	52.6	58.52
Qatar	58.67	78.5	67.45	51.25	63.97
Kuwait	49.41	67.44	55.66	51.8	56.08
Egypt	64.58	46.02	58.71	54.66	55.99
Morocco	49.39	50.11	53.9	44.49	49.47
Mauritania	41.22	46.13	38.79	38.61	41.19
Yemen	34.95	34.16	34.39	38.43	35.48

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Source: The World Economic Forum, HCI Database, Sep 2023.

Concluding Remarks & the Way Forward

- Invest in Data Collection and Infrastructure.
- Standardize Data Collection Methods Across Countries.
- Develop standardized assessments to measure skills, competencies, and literacy levels.
- Ensure that data is disaggregated by gender.
- Leverage technology for data collection and analysis, e.g. using mobile surveys & data analytics to gather real-time information.
- Engage government, academia, civil society, and development organizations to follow progress of human capital indicators.
- Establish clear goals and targets for improving human capital indicators and regularly monitor progress towards these goals.
- Integrate human capital indicators into broader policy frameworks, such as national development plans, to ensure that investments in human capital are aligned with overall development objectives.





Thank You!