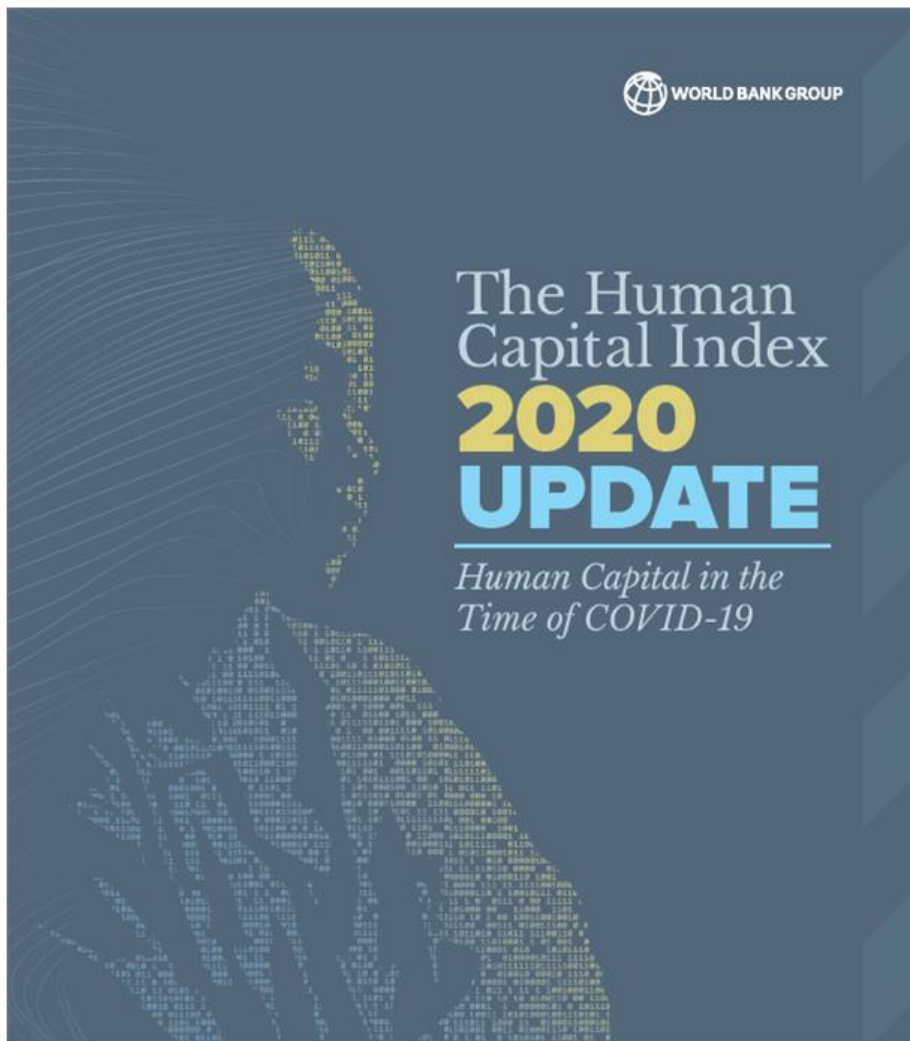


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World Bank Group - HD Chief Economist Office

Paul Corral and Ritika D'souza
May 2021

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HUMAN CAPITAL MATTERS



WHAT IS HUMAN CAPITAL?

Human capital includes education, training medical care, and other additions to knowledge and health [...] accumulated work and other habits.

(Gary Becker, Nobel Prize Lecture: "The Economic Way of Looking at Life", 1992)



Human capital matters for:



Individuals

Investment in human capital is a dynamic process akin to investment in physical capital



Economies

Human capital is a key ingredient for higher income and growth



Societies

Education is associated with more civic participation, trust, and political awareness

DETERMINANTS OF AGGREGATE INCOME

GDP (Y) is a function of **Technology (A)**, **Physical Capital (K)** and **Human Capital (H)**

$$Y = f(A, K, H)$$

Human Capital affects aggregate income in three ways:

1. Directly, as it accumulates and increases H
2. Indirectly, as it complements physical capital in the production process
3. Indirectly, as it affects A – influence on technological progress

Source: *Flabbi and Gatti, 2018*



HUMAN CAPITAL INDEX METHODOLOGY

HUMAN CAPITAL INDEX: COMPONENTS

“*How much human capital can a child born today expect to acquire by age 18, given the risks to poor health and poor education that prevail in the country where she lives?*”

Three ingredients reflect the building blocks of the next generation’s human capital:



SURVIVAL

Will children born today survive to school age?



SCHOOL

How much school will they complete and how much will they learn?



HEALTH

Will they leave school in good health, ready for further learning and/or work?

HUMAN CAPITAL OF AN INDIVIDUAL

- Based on standard measures of human capital per worker from development accounting literature:

$$h_i = e^{\phi s_i + \gamma z_i}$$

where:

- h_i is human capital of individual i
- s_i is learning-adjusted years of school of individual i
- z_i is *latent health* of individual i (mapping to stunting, ASR)
- ϕ, γ are “returns” to education and health

AGGREGATING THE HCI: DISTANCE TO THE FRONTIER

- For ease of interpretation, we express HCI *relative to benchmark of complete education (s^*) and full health (p^*, z^*)*

$$HCI = \frac{p}{p^*} \times e^{\phi(s_{NG} - s^*)} \times e^{\gamma(z_{NG} - z^*)}$$

- The HCI measures the expected productivity as a future worker of a child born today relative to this benchmark, i.e. $0 < HCI \leq 1$
- A value of $0 \leq x \leq 1$ means that the expected productivity as a future worker of a child born today is only a fraction x of what it would be under the benchmark of complete education and full health
- Meaningful units mean no need for rankings

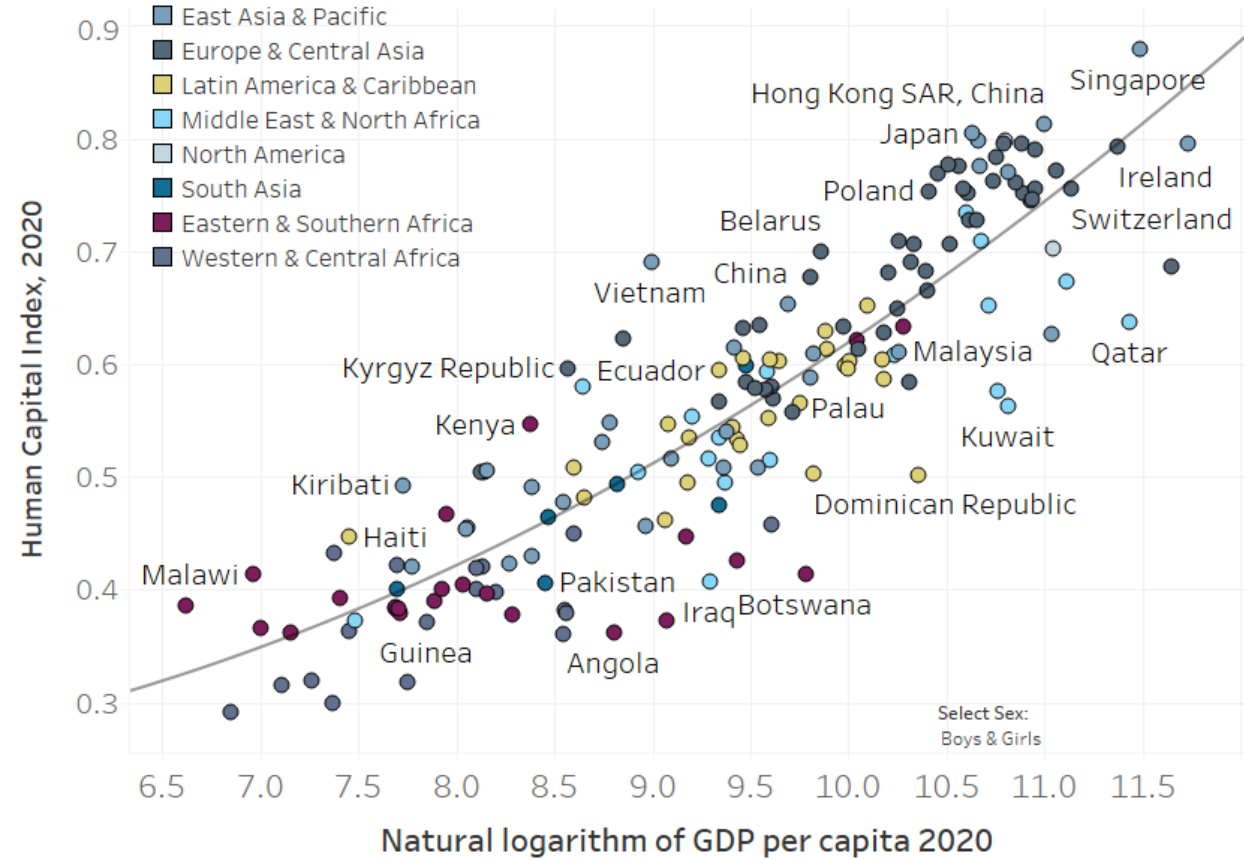


HUMAN CAPITAL INDEX

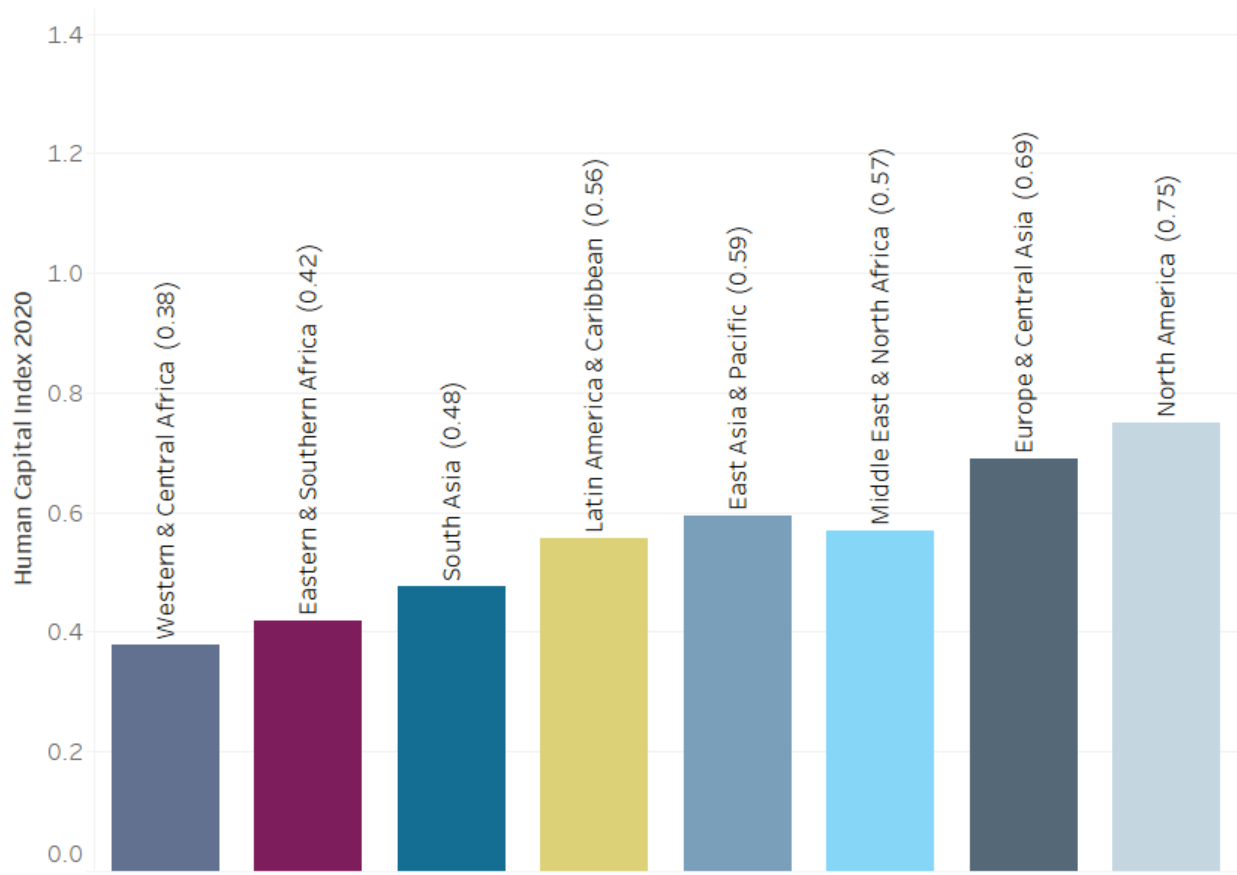
2020 UPDATE

THE 2020 HCI UPDATE

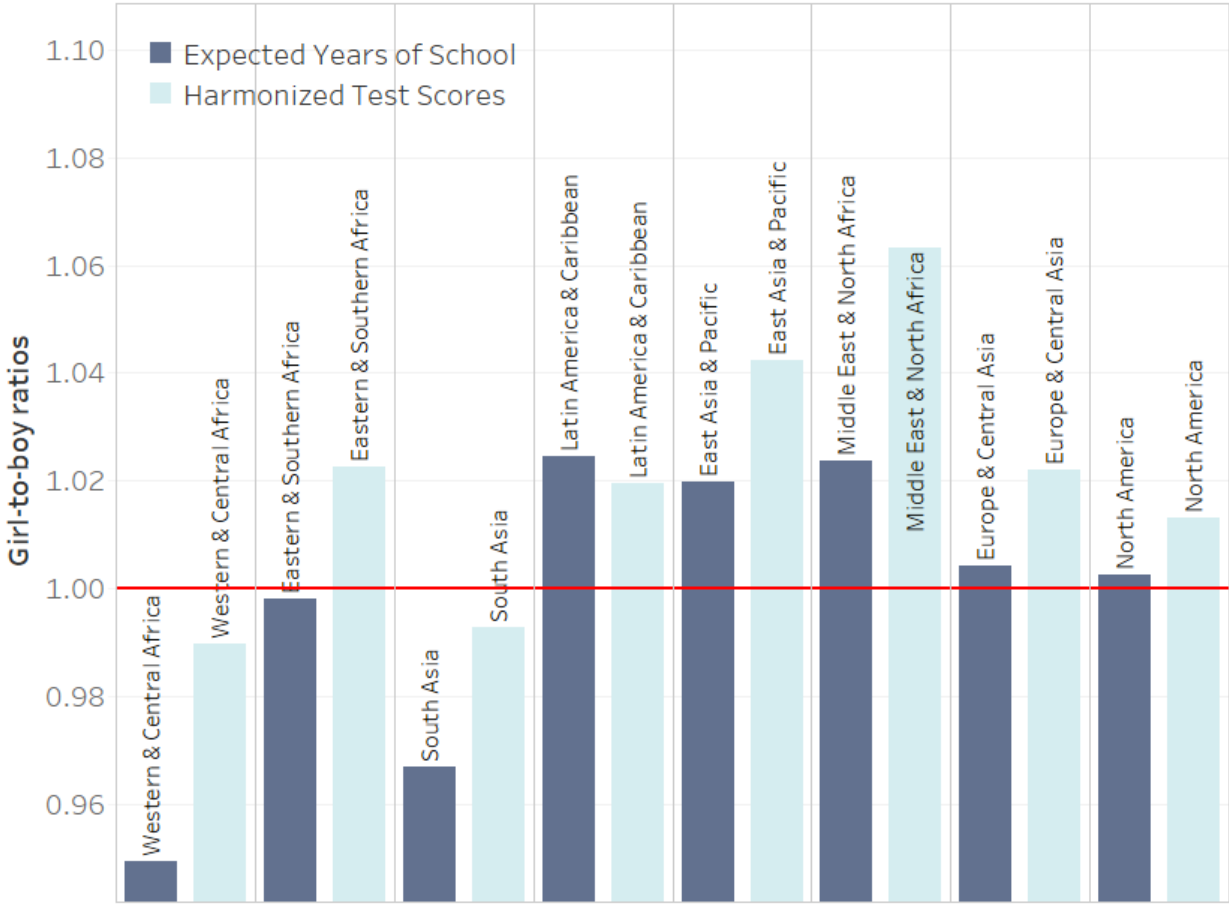
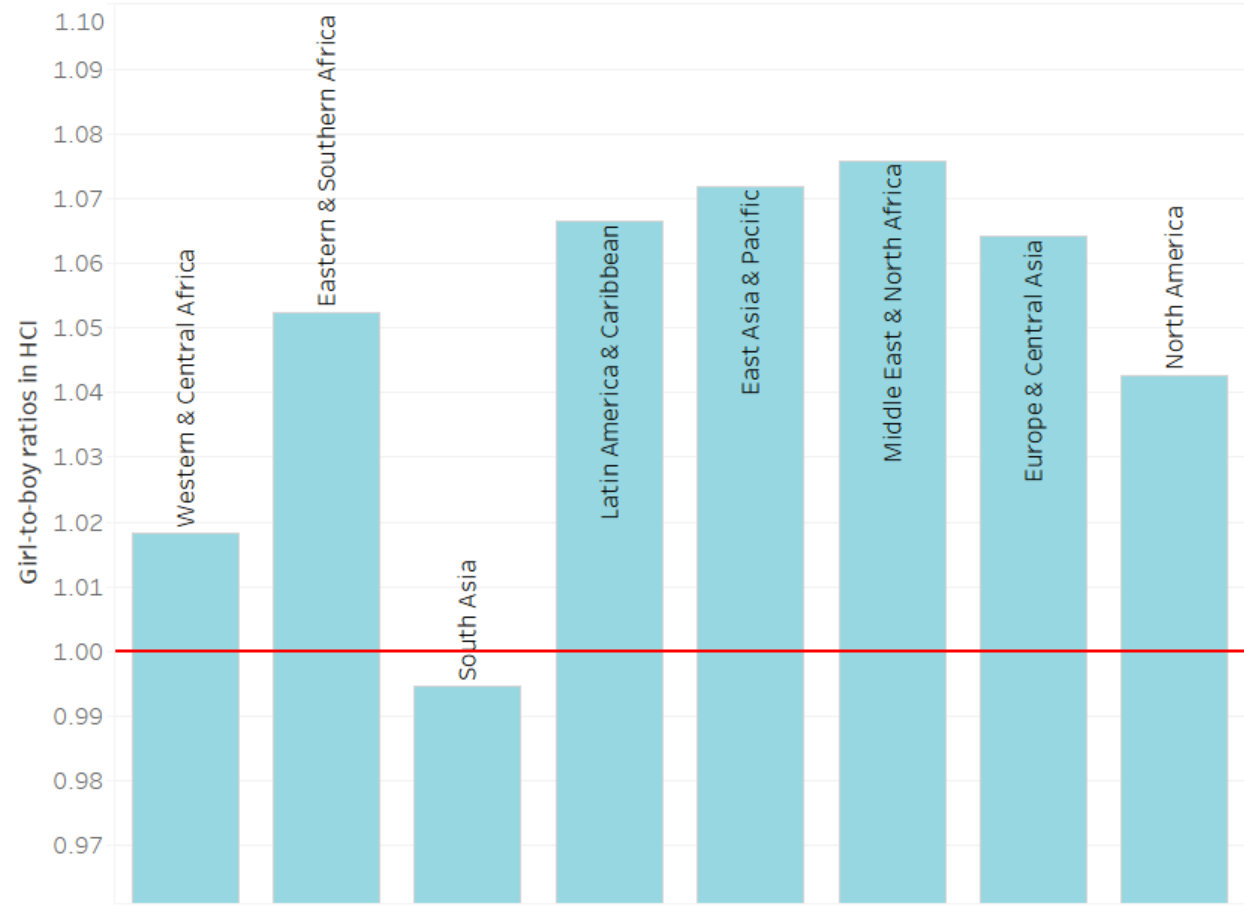
Human Capital Index 2020 (Boys & Girls)



Human Capital Index 2020, by region (Boys & Girls)



HUMAN CAPITAL FOR GIRLS AND BOYS



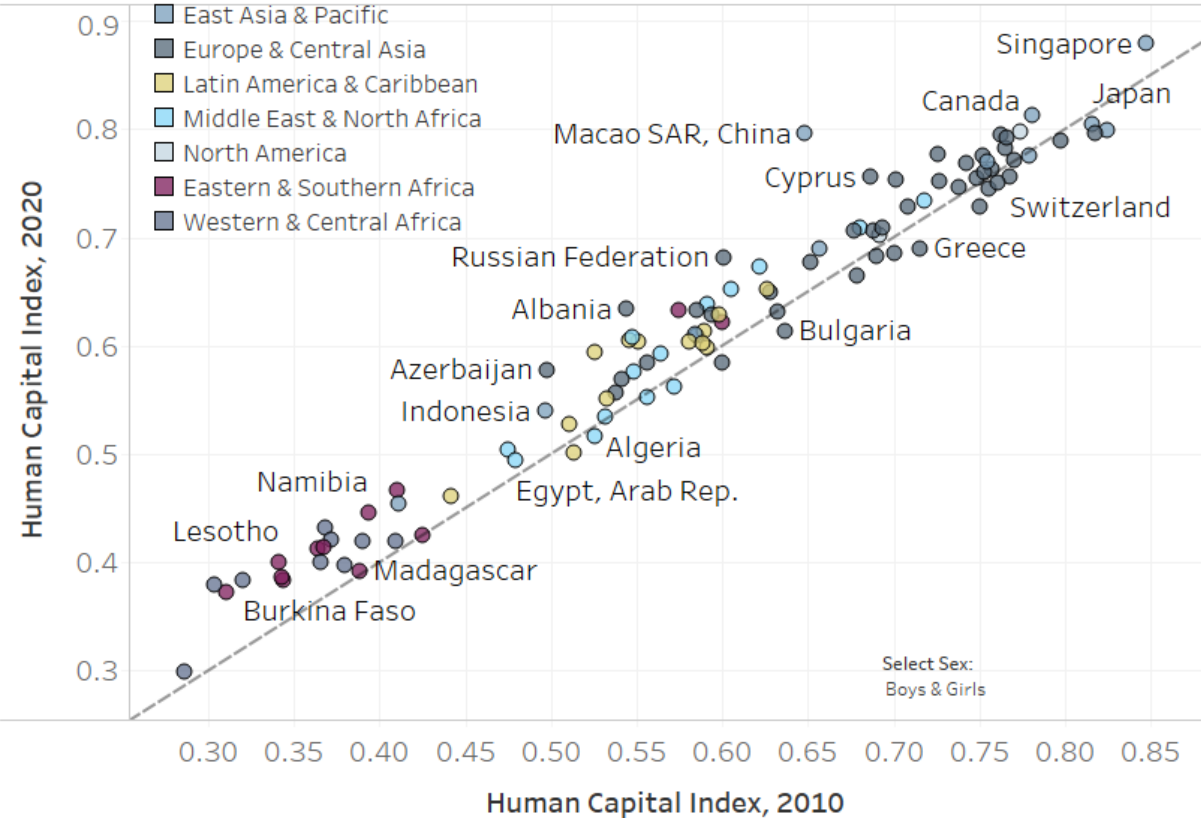


CHANGES IN HUMAN CAPITAL OVER TIME HCI 2010-2020

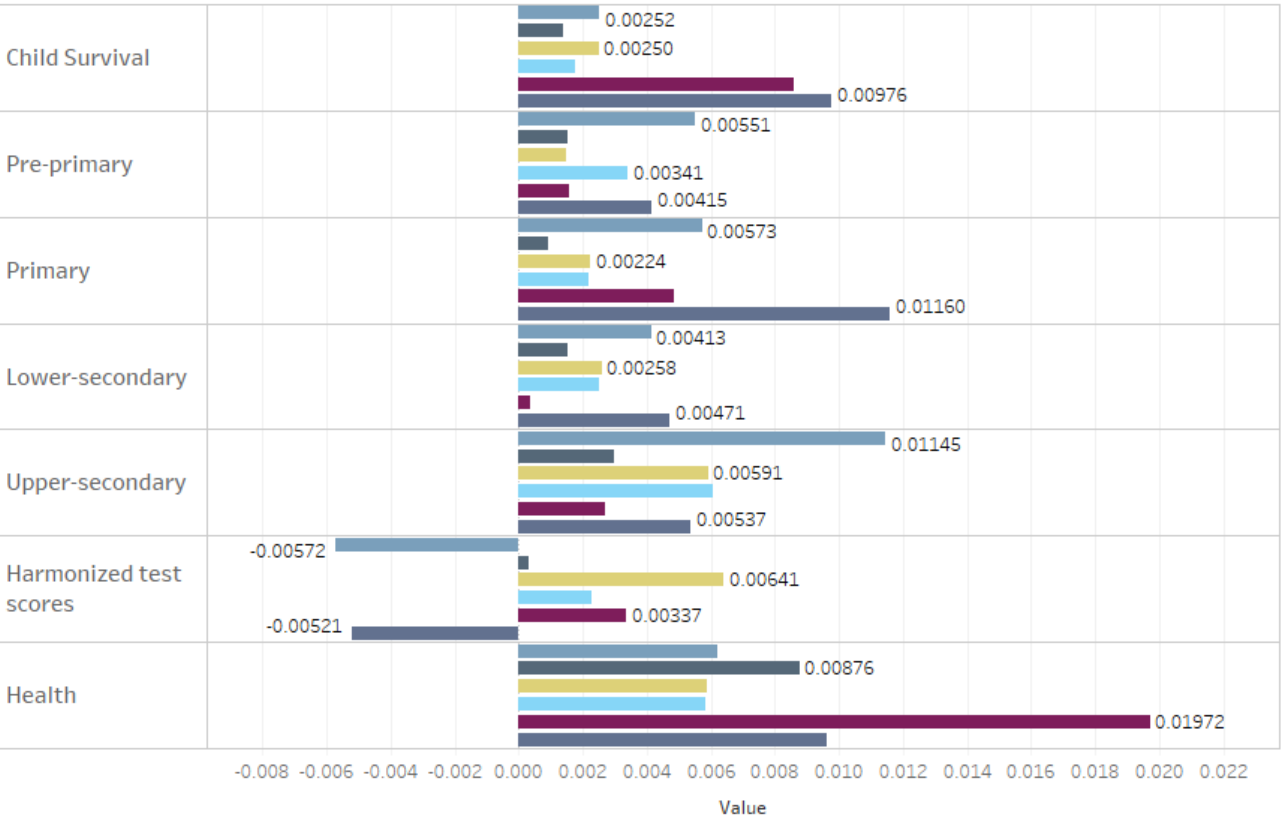
COMPARING HCI 2020 AND HCI 2010

FOR 103 COUNTRIES

Human Capital Index 2010 to 2020 (Boys & Girls)



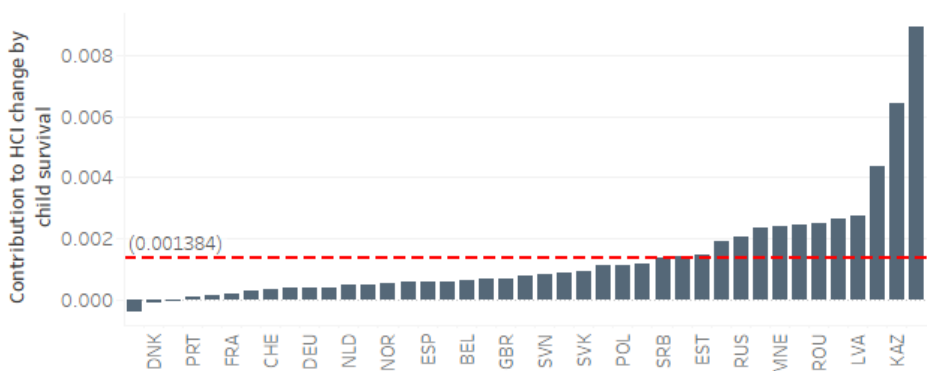
Human Capital Index 2010 to 2020, decomposition (Boys & Girls)



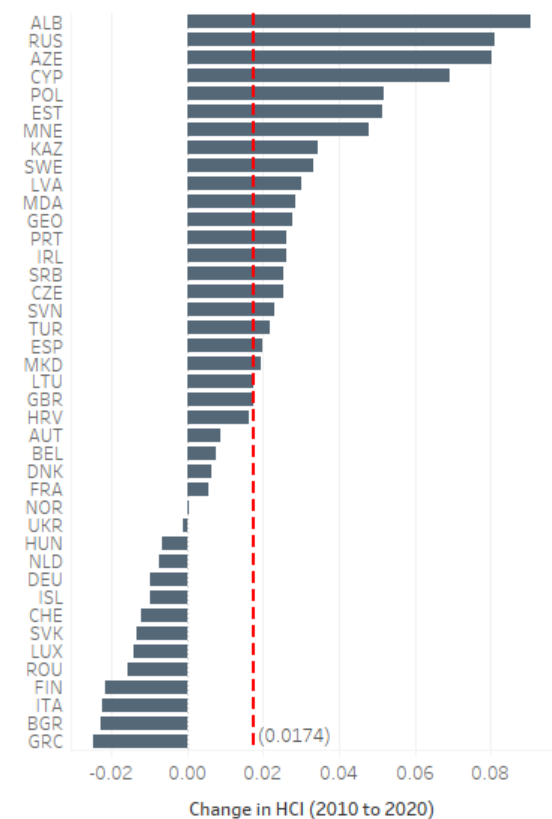
COMPARING HCI 2020 AND HCI 2010 by countries in Europe & Central Asia (N=41)

Select Region/s:
Europe & Central Asia

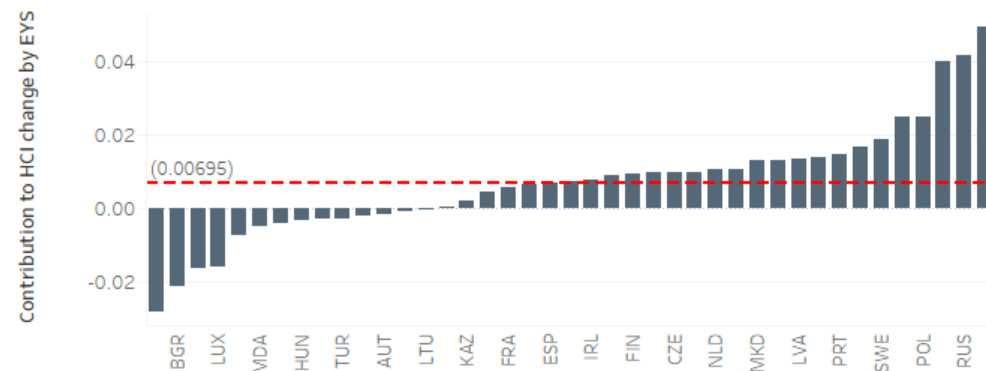
Child survival (2010-2020)



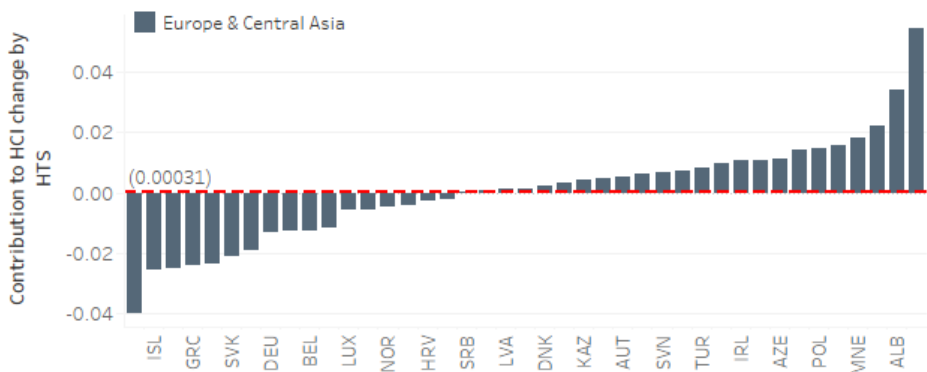
HCI (2010-2020)



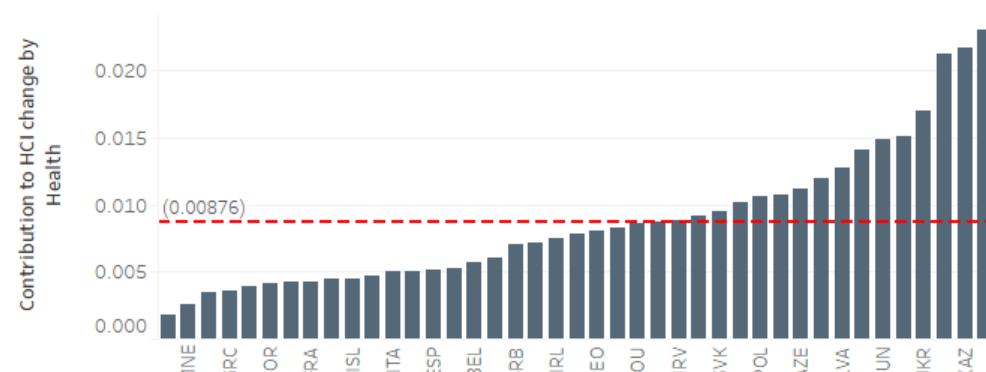
Expected years of school (2010-2020)



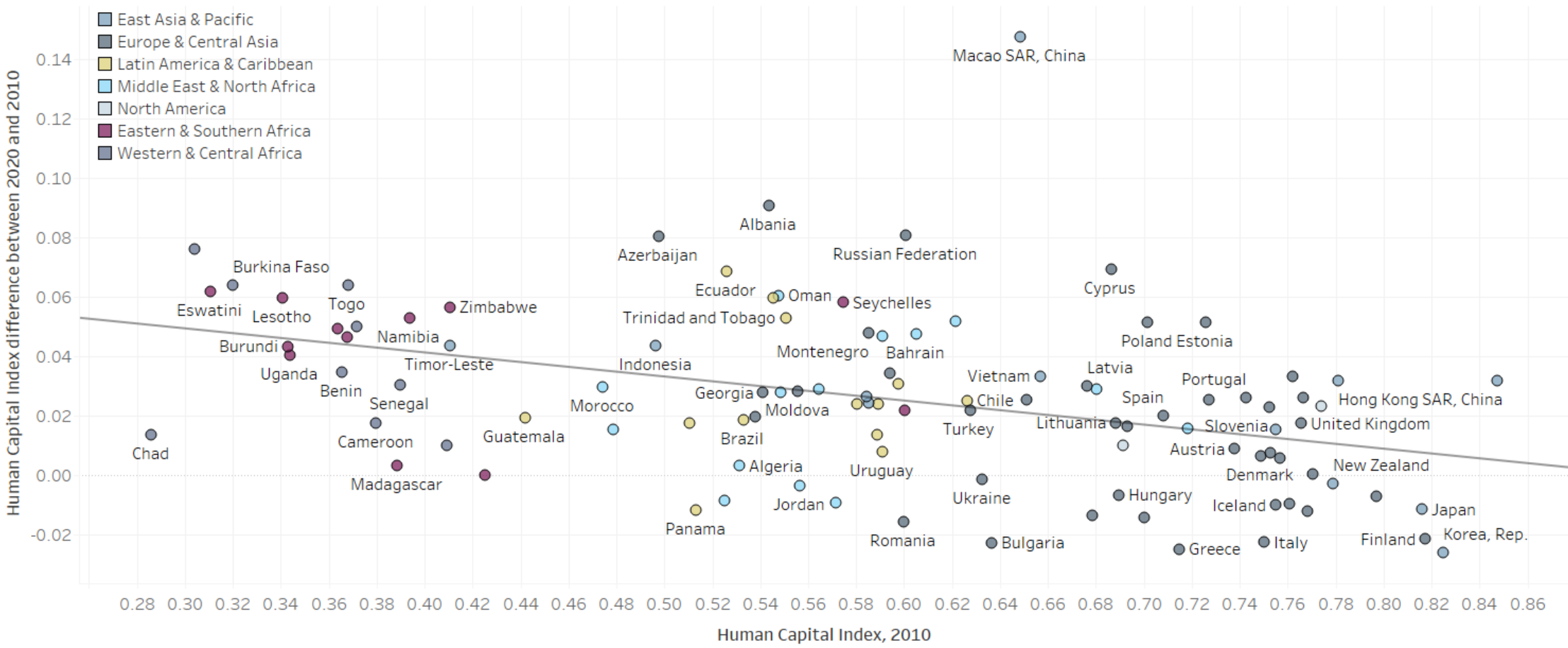
Harmonized test scores (2010-2020)



Health (2010-2020)



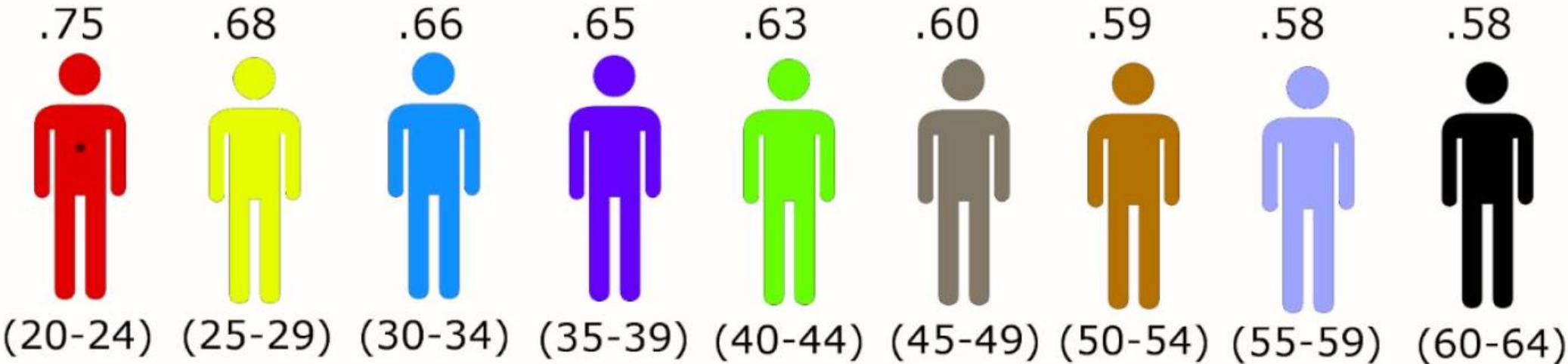
CATCHING UP IN HUMAN CAPITAL



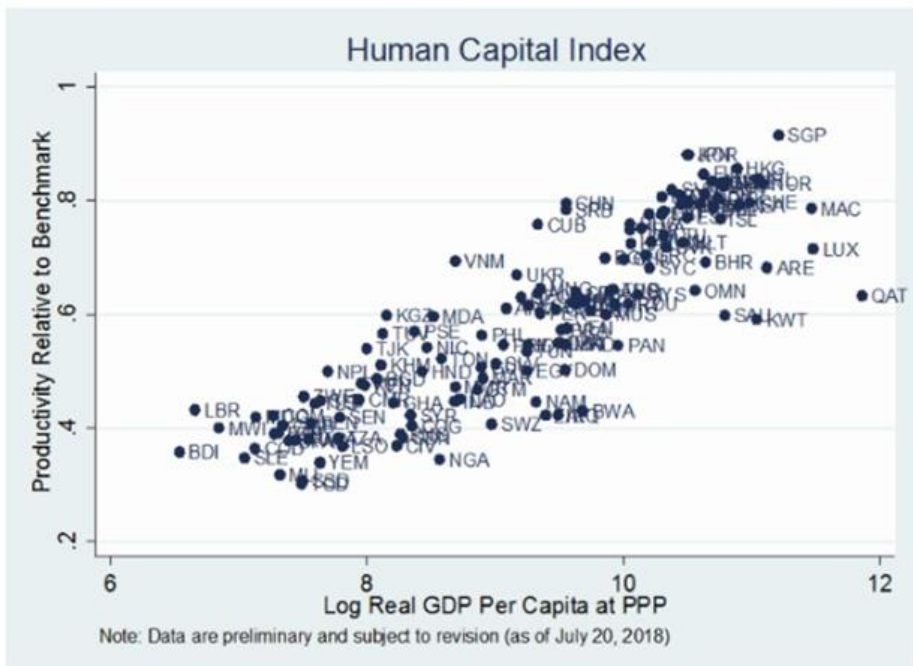


HCI AND GROWTH

THE HCI IS A FLOW MEASURE: INVESTMENTS TAKE TIME TO MATERIALIZE



HCI AND GROWTH



HCI's development accounting origins means we can link it to future levels of growth:

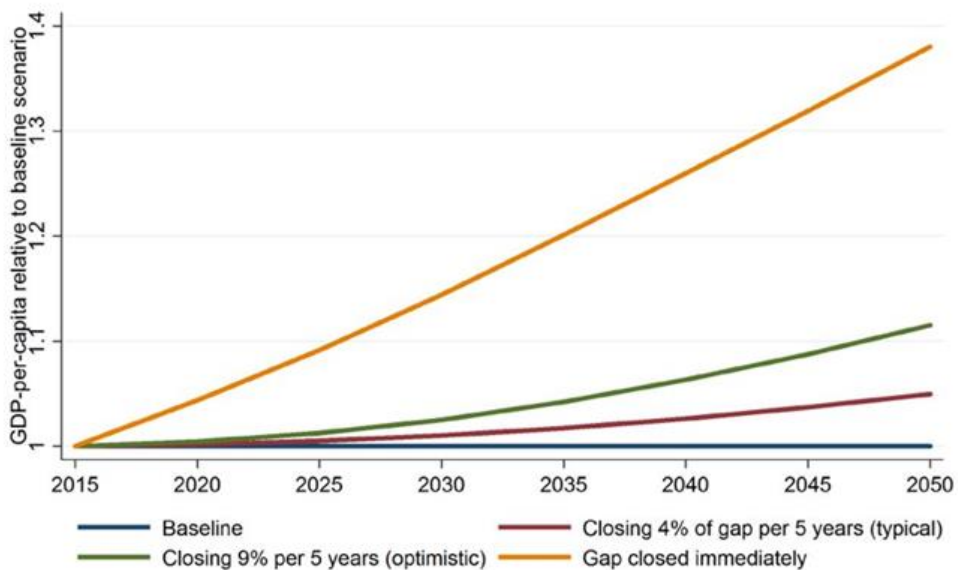
$$y = Ak^\alpha h^{1-\alpha}$$

Holding physical capital-to-output constant, for any two future scenarios where the entire population takes on h_{sq} versus h^* , relative output is:

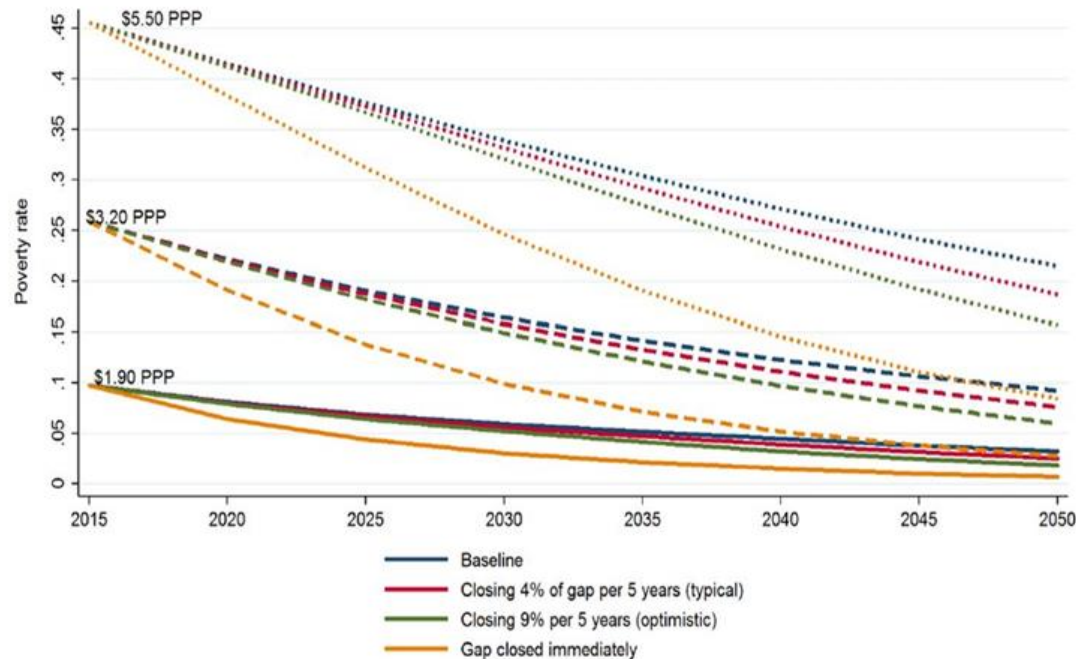
$$\frac{y_{sq}}{y^*} = \frac{h_{sq}}{h^*}$$

HCI AND GROWTH

Relative income per capita



Poverty

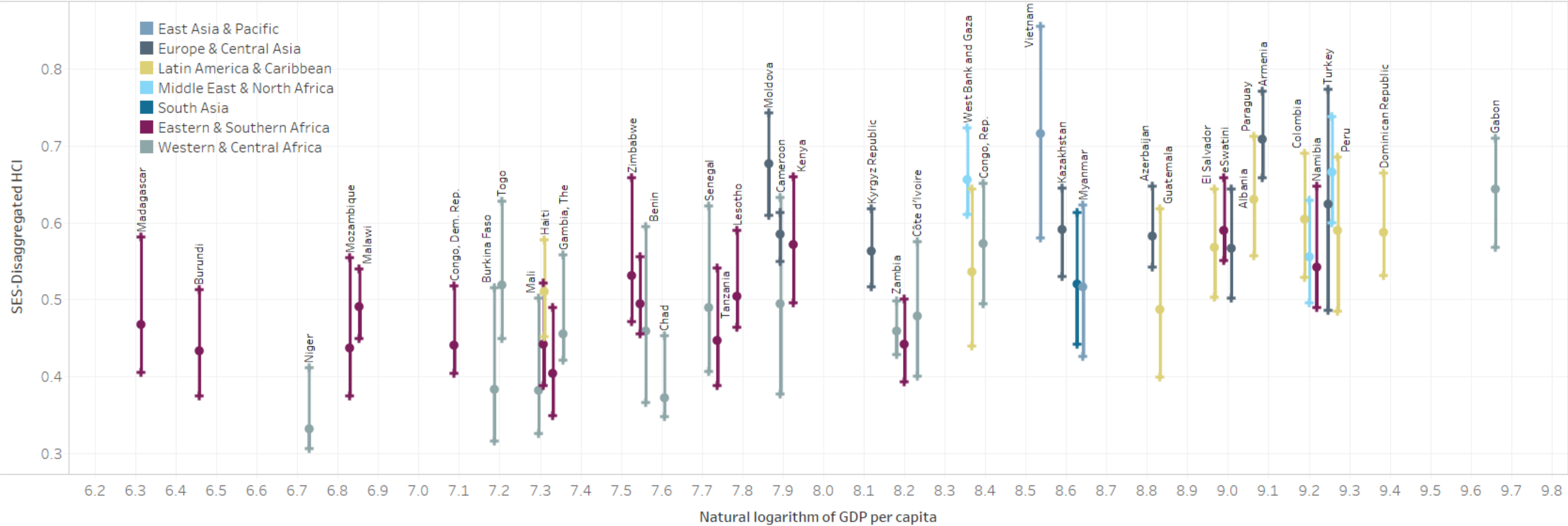


Source: Collin and Weil, 2018



DISAGGREGATION OF HCI

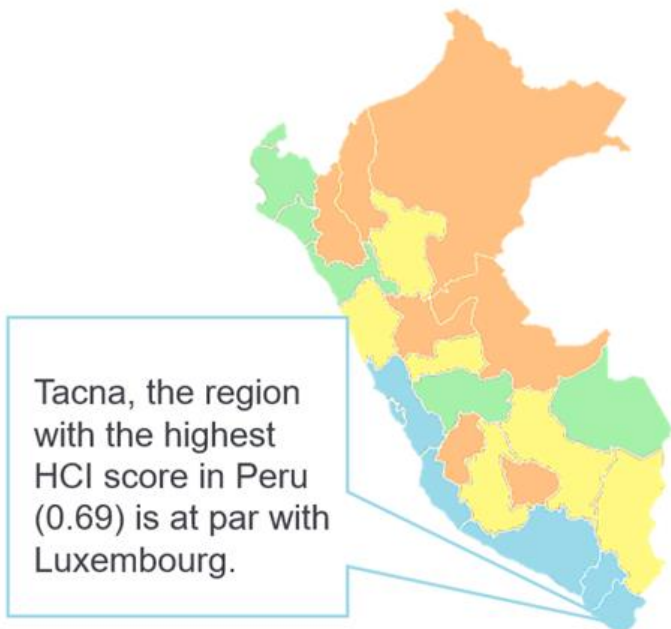
BEYOND THE HEADLINE INDEX: SOCIO-ECONOMIC DISAGGREGATION



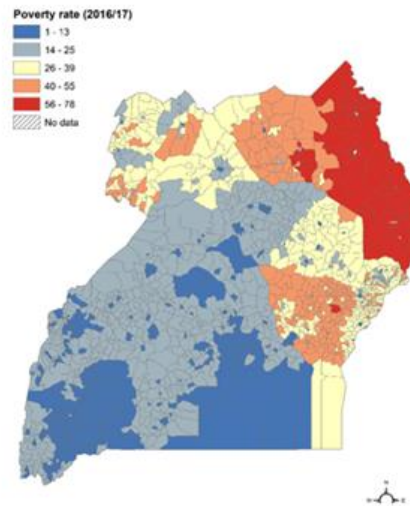
BEYOND THE HEADLINE INDEX: SUBNATIONAL DISAGGREGATION

Governments can look to 'high performers' within the country 'home-grown' solutions to closing human capital gaps.

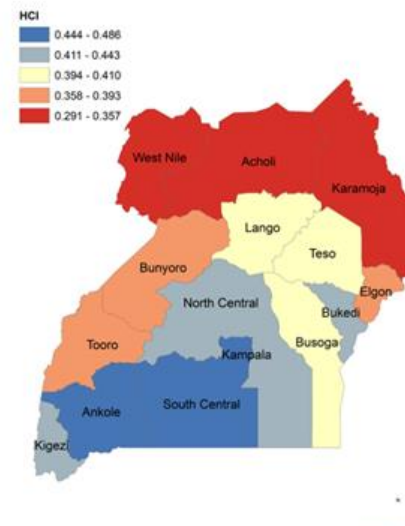
Using multiple methodologies improves targeting effectiveness in reaching the vulnerable and marginalized.



Poverty map (2016/17)



Human Capital Index (2018)



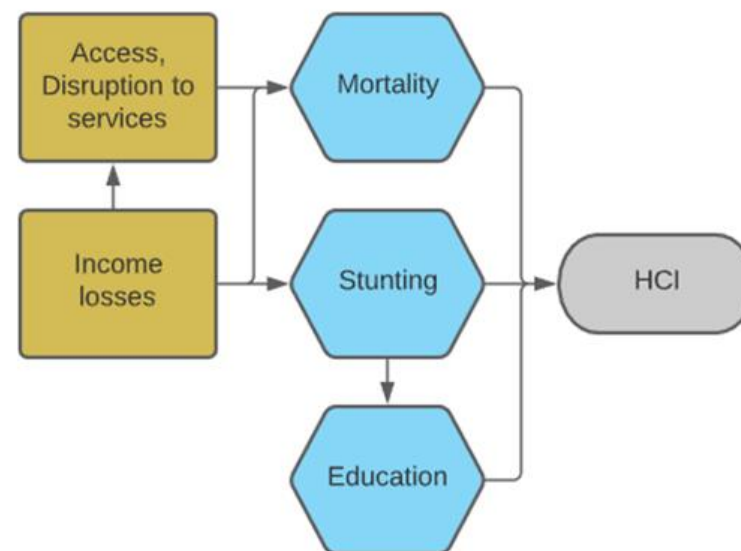


HUMAN CAPITAL IN THE TIME OF COVID-19

COVID-19 THREATENS HUMAN CAPITAL GAINS

Shock to children under 5

- Economic shock due to pandemic and the interruption to health coverage are the main transmission channels
- Projected loss of human capital, as measured by HCI, of almost half a percent
- Losses are expected to be highest for low-income countries nearing 1 percent

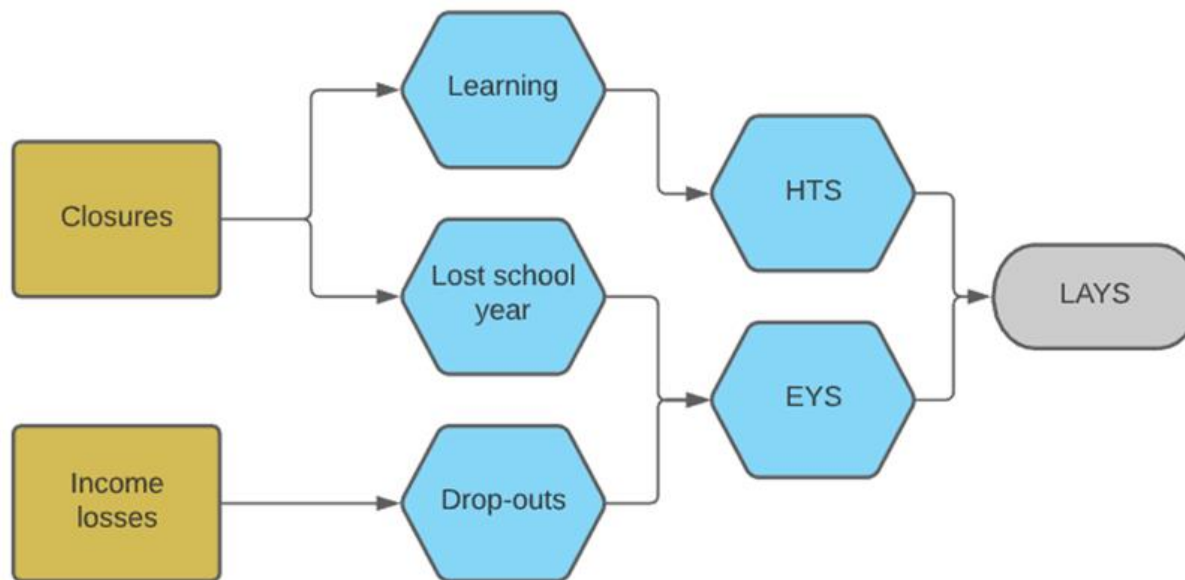


A TEMPORARY SHOCK WITH LONG LASTING EFFECTS

COVID-19 THREATENS HUMAN CAPITAL GAINS

Shock to children in school

- Based on education team's simulations
- Closures and income losses are the channels of impact
- Predicted loss of 0.56 of a school year once learning is factored in (LAYS) for a 5-month school closure
- Higher loss for richer countries due to higher assumed learning gains over the school year
- Equivalent to **4.5% of HCI** or **~2.5 points of the index**



COVID-19 puts at risk the gains achieved over the past decade

Source: Azevedo et al. (2020)



UTILIZING HUMAN CAPITAL

UTILIZATION-ADJUSTED HUMAN CAPITAL INDEX (UHCI)

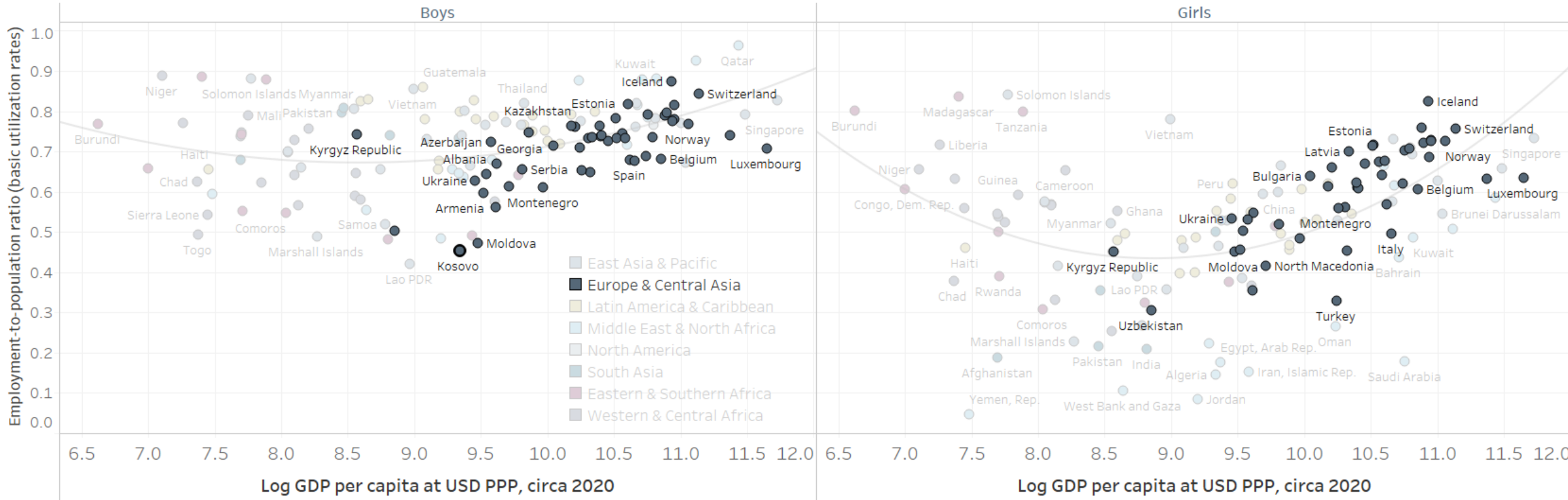
- Adjusts the HCI for labor-market underutilization of human capital, as:
 1. A child born today may not be able to get a job in the future (especially girls)
 2. Even if they do, it might not be a job where can fully utilize human capital

$$UHCI = Utilization Rate \times HCI$$

- UHCI available for 160+ countries, with similar economic interpretation as the HCI
- Basic Utilization Rate: employment/population (captures 1)
- Full Utilization Rate: (i) “better employment”/population (captures 1+2)
(ii) how much human capital to underutilize

UTILIZATION RATES

- Gender gap in utilization not present in HCI → UHCI lower for women than men
- Utilization U-shaped in income level → middle income countries lowest utilization





HUMAN CAPITAL PROJECT



HUMAN CAPITAL PROJECT

> *What is it?*

THE HUMAN CAPITAL PROJECT IS A GLOBAL PLATFORM TO ACCELERATE MORE AND BETTER INVESTMENTS IN PEOPLE GLOBALLY.

- 1. Human Capital Index (HCI):** Makes the case for investment in the human capital of the next generation; released October 2018 & updated 2020.
- 2. Measurement & Research:** A program of measurement, research, and analysis that helps to invest in and protect human capital.
- 3. Country engagement:** Support and peer-learning for countries as they develop and implement accelerated priorities for human capital development.

HOW DOES IT SUPPORT COUNTRIES

- Signals a country's prioritization of HC and creates space for a cross-ministry, "whole of government", vision
- Facilitates alignment around country human capital priorities for World Bank Group, partners, and donors
- Provides a peer-learning platform for high-level government officials across regions & incomes
- Builds capacity of country stakeholders by providing key knowledge & tools linked to human capital agenda
- Facilitates concrete operational support from the World Bank Group, such as for policy operations and analytics



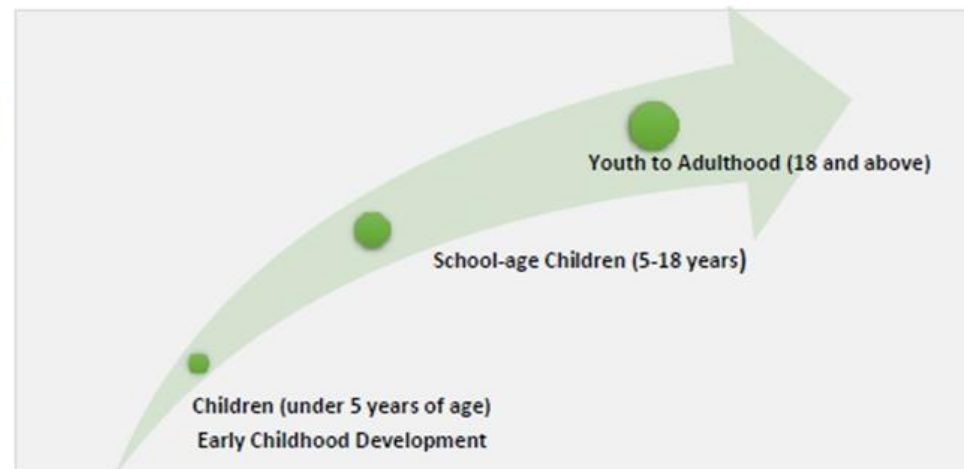
"Mainstream expertise, tools, approaches, partnerships, and collaboration to protect and invest in people"



EXAMPLES OF ANALYTICS

Human Capital Reviews (HCRs)

- Presents a *Framework for a Coordinated Multi-sectoral Approach to human capital formation*
- Analytical framework applies the *Life Cycle Approach* with multiple interventions at each stage of life to achieve optimal human capital results
- ***Ongoing in Eastern Partnership Countries in ECA***



Life Cycle Approach to Human Development: Ensure that all children receive a comprehensive package of services at the critical periods of childhood and early youth to reach their full potential

Early Childhood	School-age Children	Youth to Adulthood
<ul style="list-style-type: none"> ➤ Good health, nutrition, care and stimulation to ensure optimal cognitive, physical and emotional development ➤ Ensure children enroll in pre-school and are well-nourished, attentive and ready to learn 	<ul style="list-style-type: none"> ➤ Equip children with strong foundational (literacy and numeracy) skills that are critical for life-long learning ➤ Ensure children are healthy (and not anemic), enroll and stay in school, and acquire real learning in the classroom 	<ul style="list-style-type: none"> ➤ Ensure that youth are prepared to enter the job market as healthy, skilled, and productive adults including through the acquisition of relevant skills

EXAMPLES OF ACTIVITIES: *Knowledge Exchange*



Just-in-time COVID-related webinars

- **Kyrgyz Republic:** How to safeguard people and continue education during COVID-19.
- **Singapore:** The education system’s COVID-19 response.
- **Rwanda and the Republic of Korea:** How to protect people and markets in a pandemic and track and trace disease using ICT.



“A temporary national hotline was set up and could be dialed by any person needing food assistance.”

Djamilya Ismailova, Head, State Benefits Unit, Ministry of Labor and Social Development, Kyrgyz Republic



“Success does not depend on policies but on successful implementation of those policies.”

Ho Peng, Advisor, Ministry of Education, Singapore



“Local government acted on three main fronts: citizen mobilization, social assistance, and enforcement of social distancing.”

Samuel Dusengiyumva, Permanent Secretary, Ministry of Local Government, Rwanda

QUESTIONS?

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#ProtectandInvestinPeople

<https://www.worldbank.org/humancapital>

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