SARCE | *The Office of the Chief Economist in the South Asia Region*

SOUTH ASIA VACCINATES

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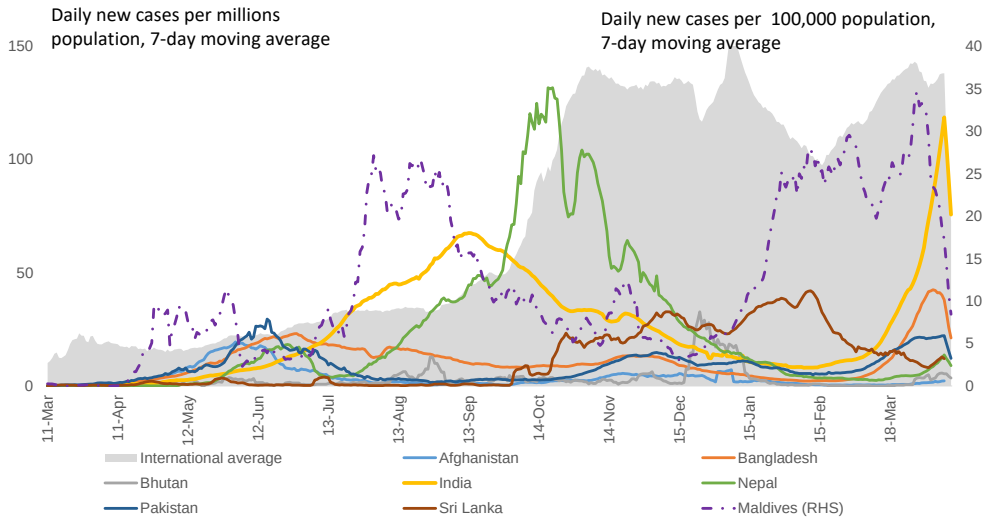
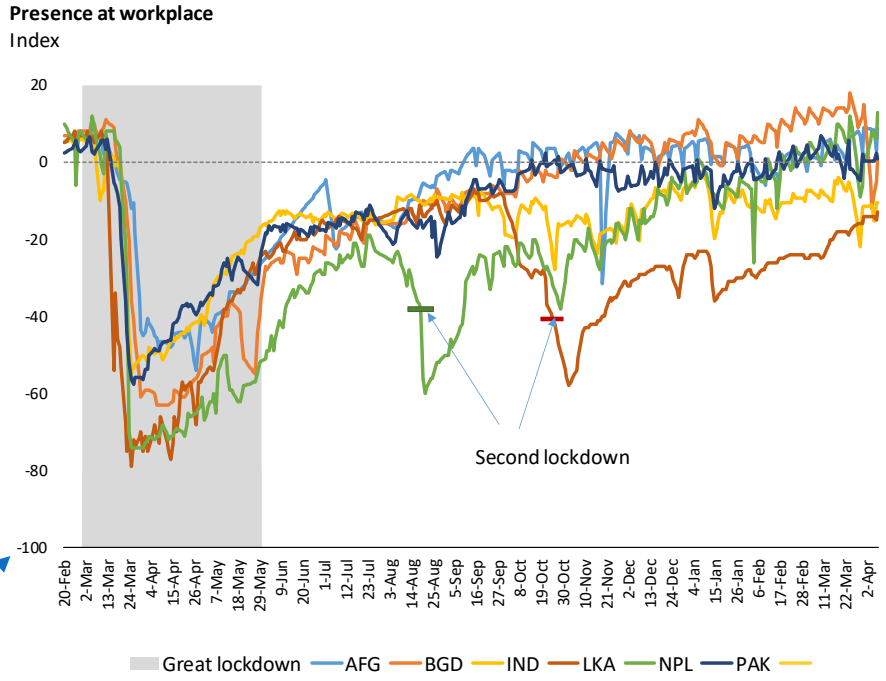
WORLD BANK GROUP

Recent developments: An Incomplete Recovery

Per-capita caseloads and death rate so far better than expected

Except for Maldives all countries below international average for COVID caseload, though at the cost of one of the strictest lockdowns globally

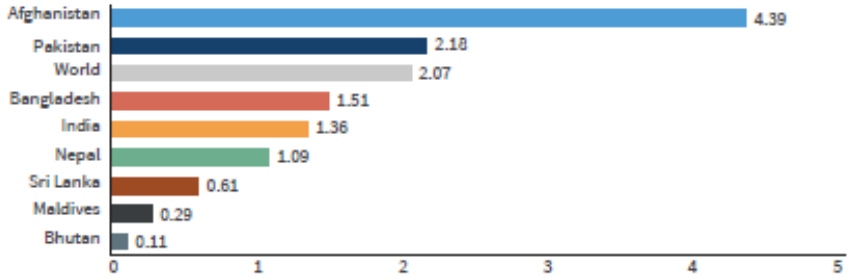




Source: Google COVID-19 Community Mobility Reports

Following one of the strictest lockdowns globally, South Asian countries mostly heeded to recommendations, with some success by early 2021.

Case fatality rate, the ratio of total deaths and total reported cases from SARS-COVID-19

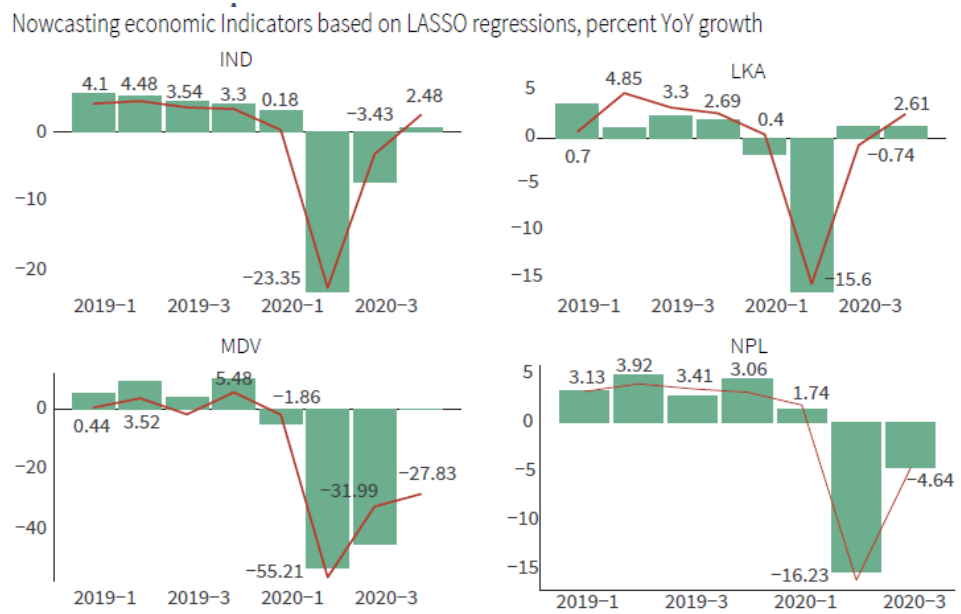


Thou actual cases are surely higher than reported cases, the death rate remains below the global average.

Source: Our World In Data.
Note: Data as of March 25, 2021.

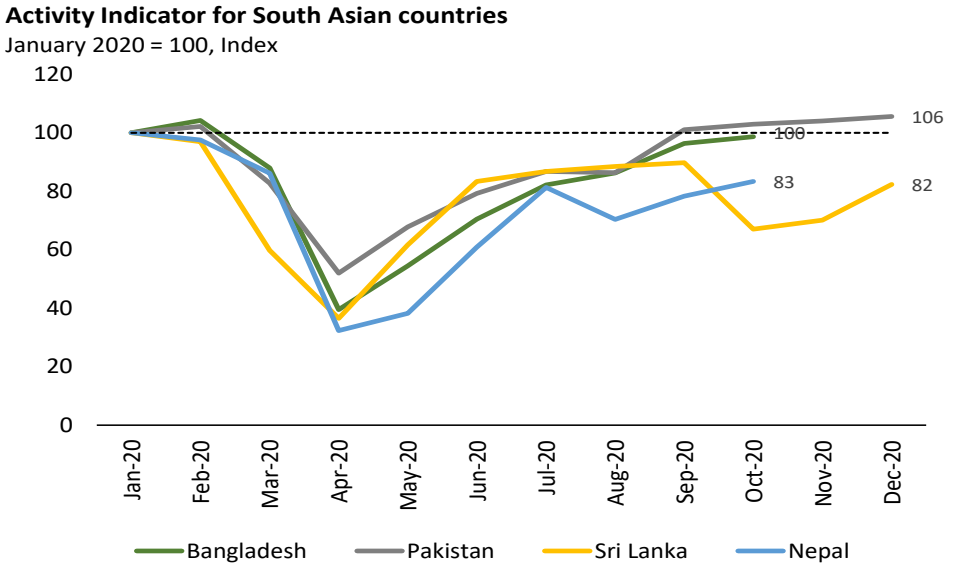
High frequency indicators suggest the recovery started by end-2020, though regional growth for the year fell by a historic 5.4%

Nowcasting techniques used for countries with quarterly data



Note: the line denotes the model prediction and bars the actual values. The nowcasting index uses the set of variables that provide the most accurate in-sample forecast to nowcast the current quarter.
Source: CEIC, Li, Mercer-Blackman and Franco-Bedoya (Forthcoming).

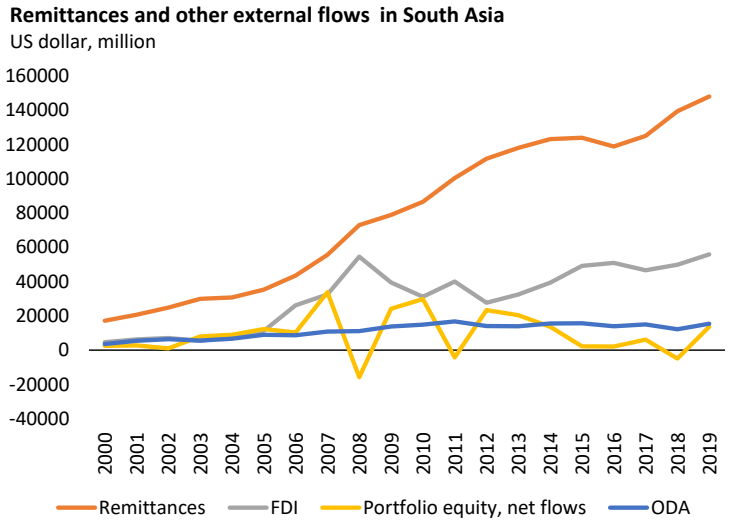
Economic activity indicators suggest Bangladesh and Pakistan also recovering to pre-COVID levels by Q4 2020



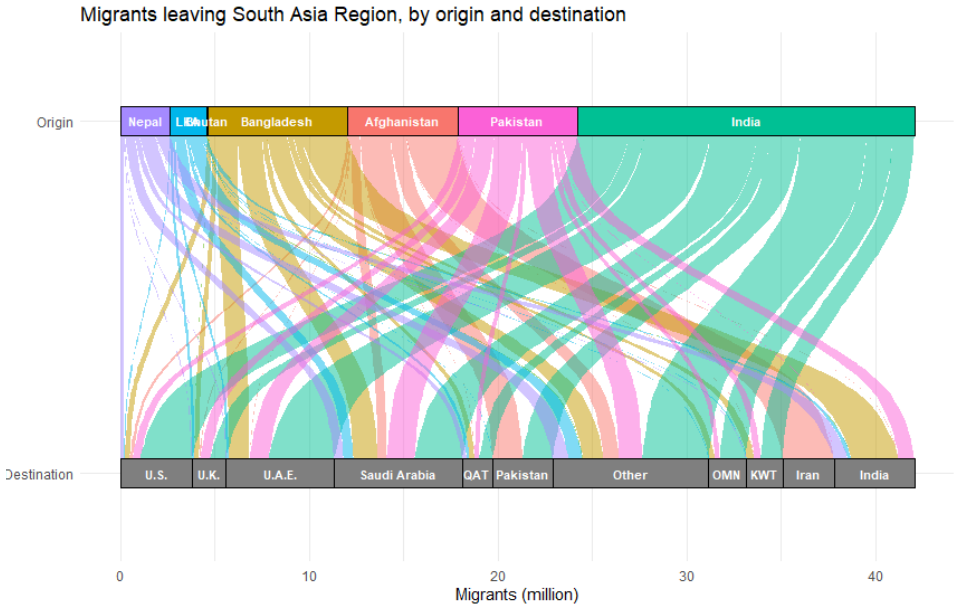
Note: Economic Activity Indicator was constructed by using weights (loadings) generated from *Principal Component Analysis*. Variables such as garment exports, vehicle imports, government tax revenue and google mobility in retail used (see Table 1.2)

Remittance flows are very important for South Asian countries, a stable countercyclical source of income and a lifeline for many low-income households.

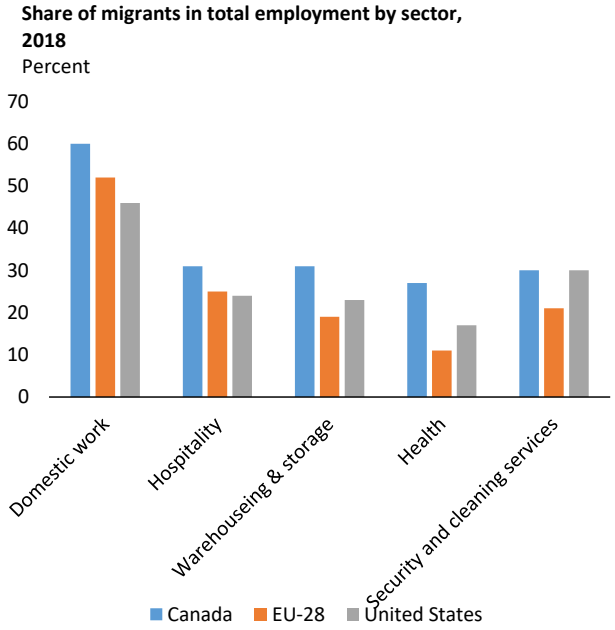
Remittances remain the largest and more stable source of financial flows



Over 40 million migrants work in a host of countries, including in the region, with more than 50 percent in GCC oil-producing countries.



Migrants in selected advanced economies involved in contact-intensive services sectors which had the highest unemployment rates

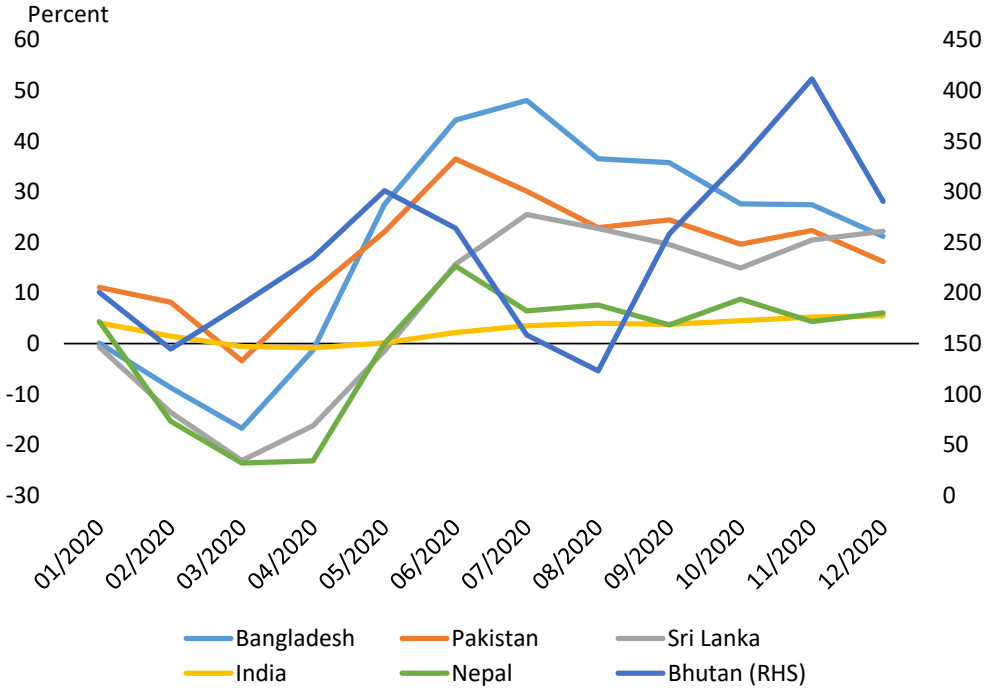


Source: Balance of payments data, KNOMAD, OECD

There was a pick-up of reported remittances despite the global impact of COVID, mostly corroborated by historical relationships.

Year on year growth was surprisingly high, at double-digit rates for most countries, with the increase predicted by our model. Tradeoff is net migration and employability against 'countercyclical' or altruistic motives.

Growth in remittances in 2020, y-o-y, 3-month moving averages



Regression results using macro variables

Signs and significance of equation 1 regression estimations. Dependent variable: growth of bilateral remittances.					Remittances growth, 2020	
Receiving country	Growth rate differential	Short-term interest rate differential	Appreciation	Unemployment rate included	Actual growth (CY)	Predicted growth (CY)
Bangladesh	(-)	(+)***	(-)***	No	18.6	16.8
India	(-)*	(-)	(-)**	No	2.8	39.3
Nepal	(-)*	(+)	(-)	No	-0.8	21.5
Pakistan	(-)	(+)	(+)***	No	17.4	19.2
Sri Lanka	(+)	(+)	(+)	No	5.8	-30.6

*** p<0.01, ** p<0.05, * p<0.1

Note: The predicted total remittances in 2020 for each receiving country was calculated by the sum of predicted remittances from each sending country divided by the share of remittances as total in 2019. The share (weights) for receiving countries Bangladesh, India, Nepal, Pakistan, and Sri Lanka are 0.73, 0.68, 0.64,0.73, and 0.52, respectively. Individual Results for Afghanistan, Bhutan and Maldives are not reported due to insufficient observations. The remittance growth for India in 2020 was estimated by the annual growth of non-resident deposits as actual remittance flows reported by the central bank has not been available for the whole year.

Source: authors. See appendix table 1.1 for data sources.

A host of reasons explain the recent rise in remittances, though the surge is likely to be temporary.

- A portion of the recorded rise in remittances could represent repatriated savings of emigrants returning home.
- Remittances could have shifted from informal (unrecorded) to formal (recorded) channels.
- Financial innovation likely encouraged greater formalization and perhaps higher total remittances.
- Tax policy changes may have encouraged greater remittances, or at least greater formal remittances.
- Some migrants were able to access cash transfers offered by host country governments.
- Dire economic conditions in South Asia could have encouraged greater remittances (altruistic motives).

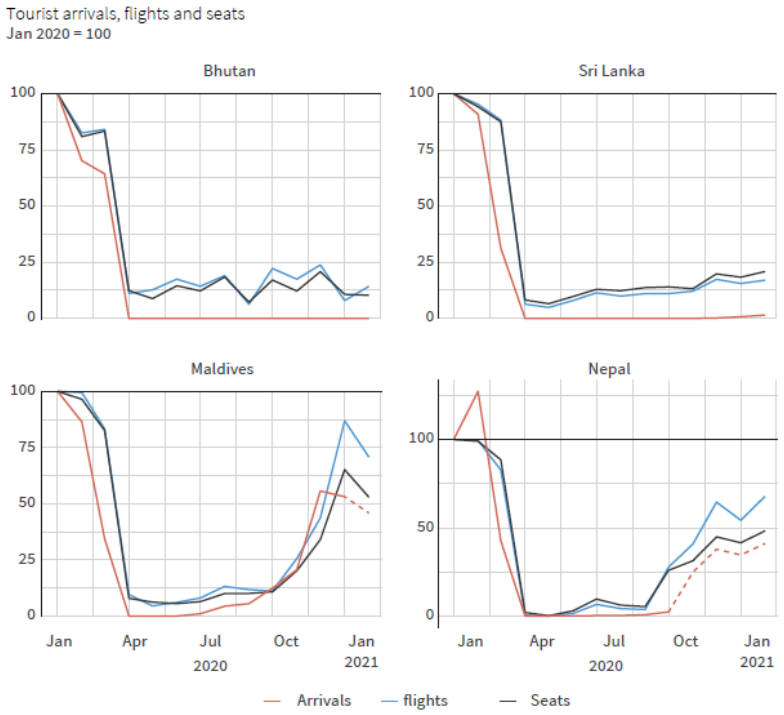
There is not enough data or current evidence to disentangle which factors were most important in explaining the surge of remittances in South Asia, let alone whether they will be *temporary* or *permanent*.

The outlook for remittances is highly uncertain, given the unknown fate of prospective migrants.

- The demand for migrant workers in Gulf Cooperation Countries (GCC) countries is also unlikely to grow as much going forward amid structural changes promoted by the government.
- On the other hand, the pandemic has brought to light the benefits of Fintech for migrants and governments alike.

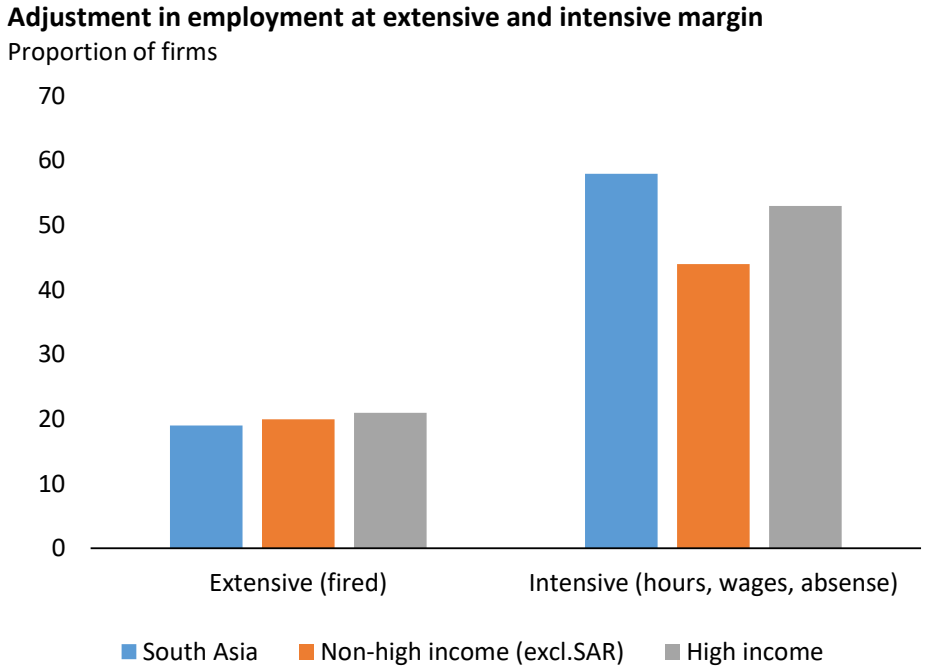
The crisis brought to light the disparate effects of the pandemic across different segments of society, along 7 dimensions:

1. Tourism dependent economies have not recovered, though significant efforts have started in Maldives and Nepal



Source: Maldives Ministry of Tourism and CEIC.
Note: the dashed line used Maldives and Nepal is the prediction of the arrivals based on the number of seats filled in inward passenger flights

2. Firms in South Asia had to adjust by cutting wages and reducing workers, and most were small

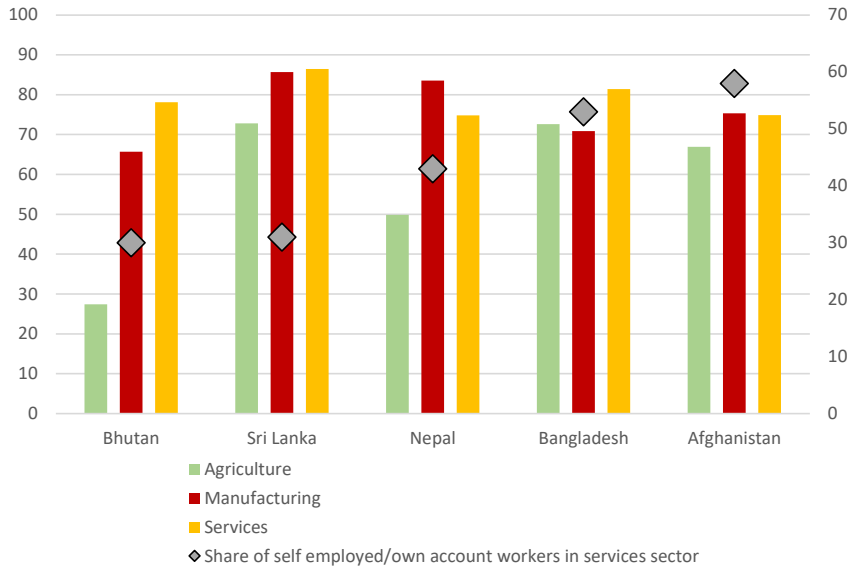


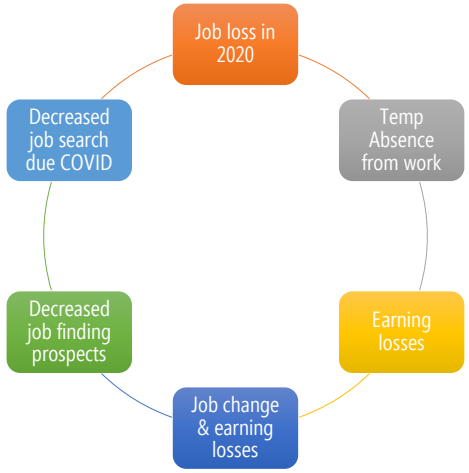
Note: Data includes Afghanistan, Bangladesh, Sri Lanka, Nepal and Pakistan.
Surveys conducted in June-July 2020.
Source: Apedo-Amah et al (2020) using International Finance Corporation Business Pulse Surveys

New evidence from COVID phone surveys show some workers—especially women-disproportionately affected

3. More than 75 percent of workers in services, about half of which are self—employed, experienced some sort of job distress.

Self employed/own account with earning loss and share of total in services sector, and possible reasons for job-market deterioration

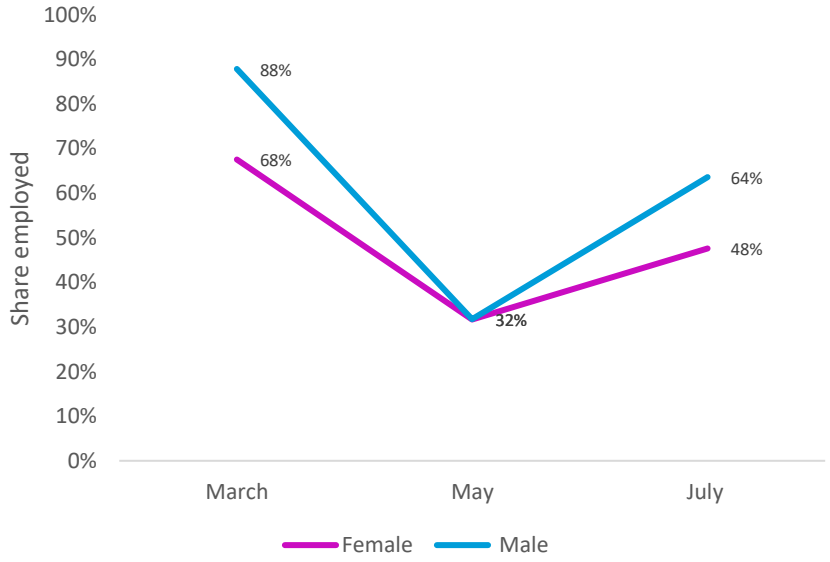




Source: COVID phone surveys,

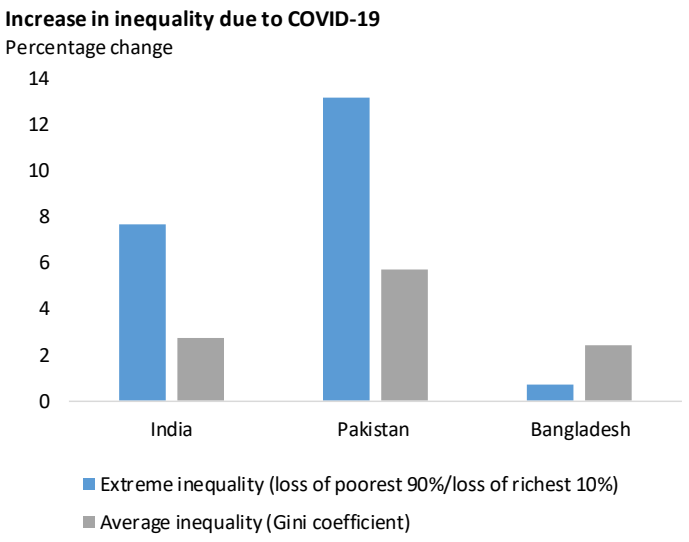
4. Women in households were more likely to stay home or take wage cuts

Employment status in non-agricultural households in six Indian states



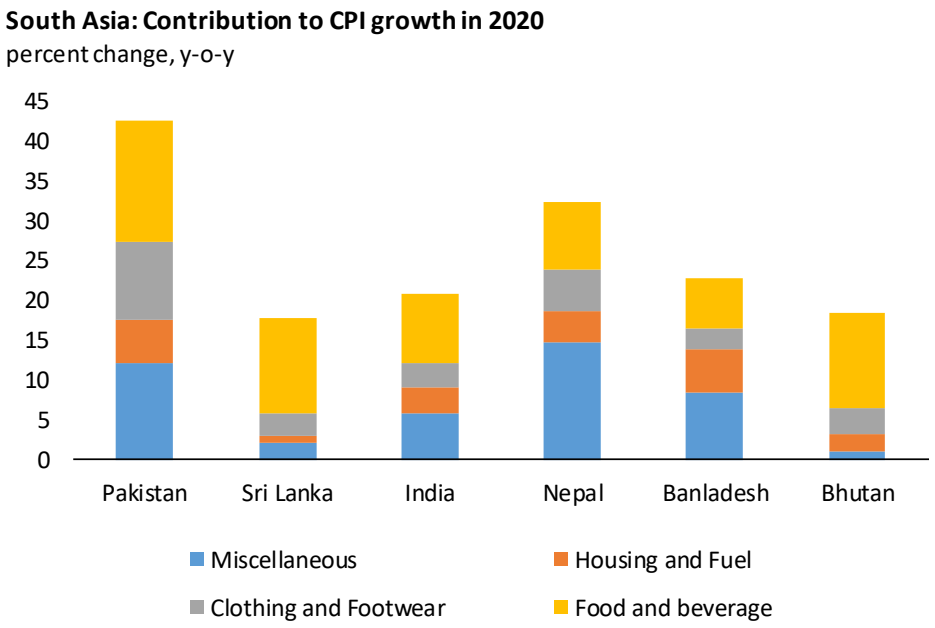
The lower-end of the income distribution affected, as bottlenecks in food supply chains and export restrictions raised food prices.

5. Income inequality in major economies increased.

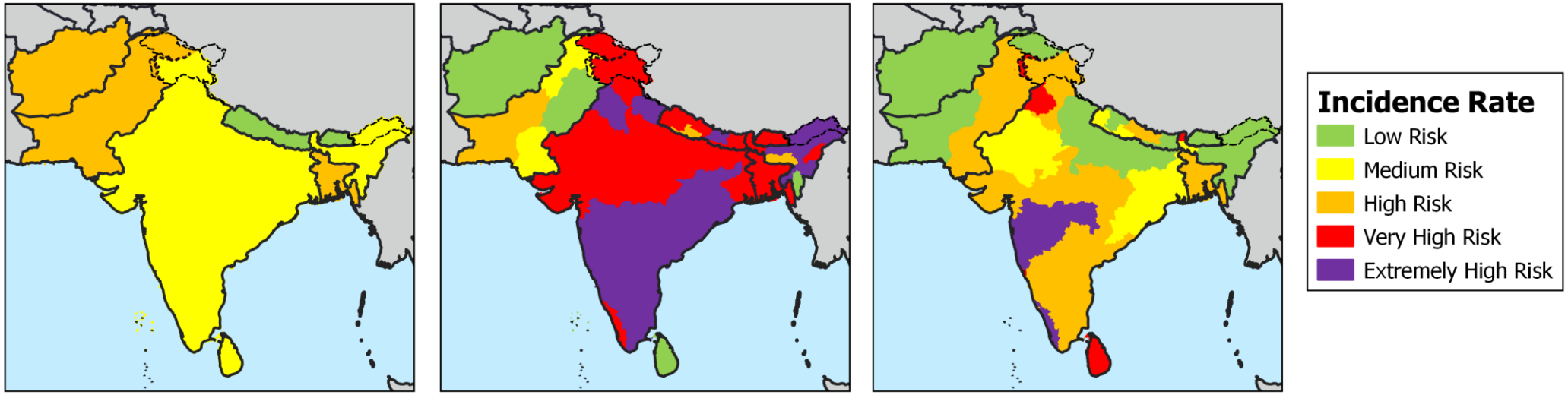


Source: India, PLFS 2017-18; Pakistan, LFS 2017-18; Bangladesh, LFS 2015-16 and World Bank calculations.
Note: consumption per capita is used in India, while wage distribution is used in Pakistan and Bangladesh

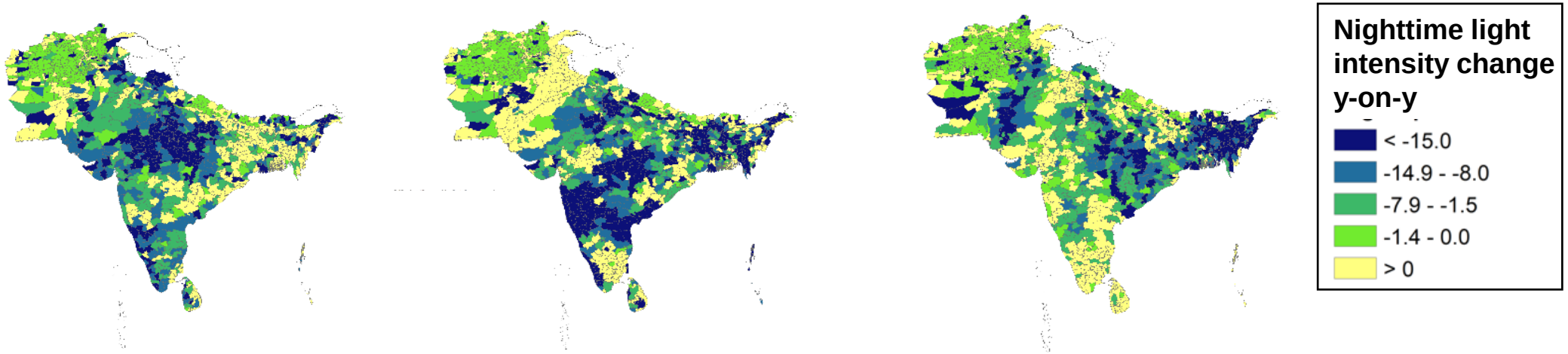
6. Food inflation became the largest contributor to headline inflation, also hurting the poor.



7. Economic activity fell more in some regions more than others, and not always related to COVID cases



April 30, 2020 | August 31, 2020 | February 28, 2021



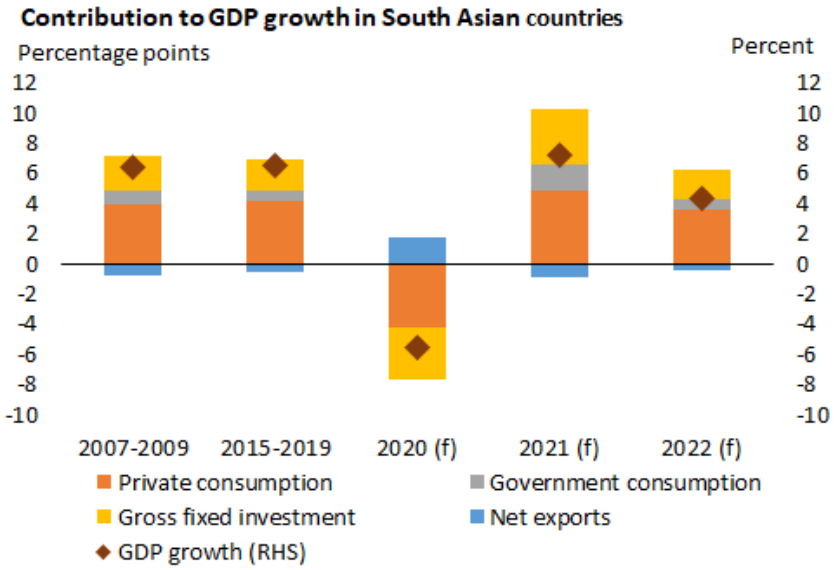
Lockdown(April-May 2020) | Peak (August-September 2020) | Ealy recovery (January-February 2021)

Precarious outlook

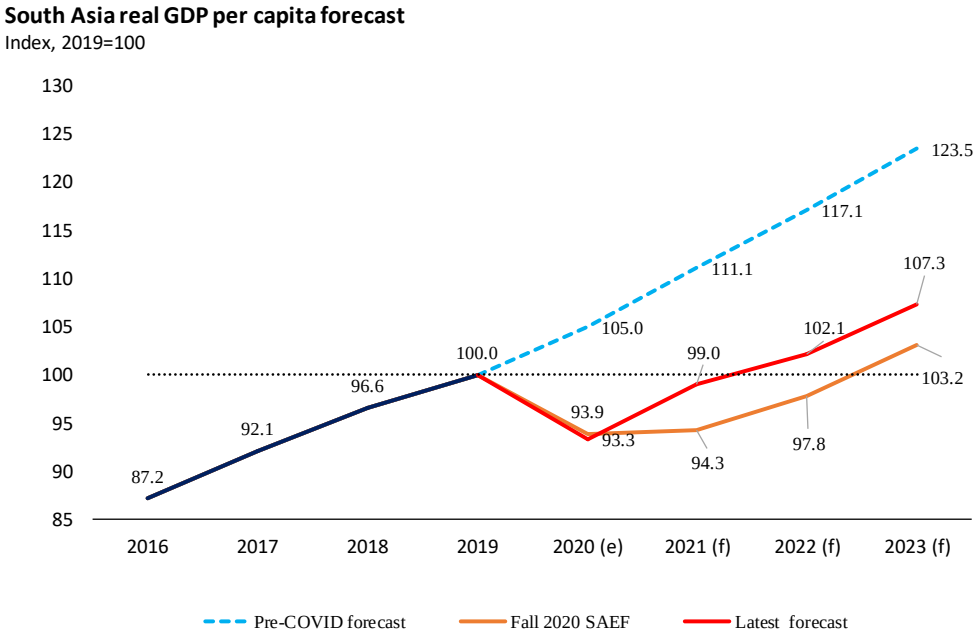
The region will grow strongly in 2021 but would have still lost at least two years of development.

The forecast calls for a 7.2 percent in 2021 and 4.4 percent GDP growth in 2022. Consumption to contribute the most to the pickup in GDP growth in 2021, with 2020's fall an outlier.

Though a slight upward revision from Fall 2020 forecast, 2020 set the region back in terms of per-capita income.



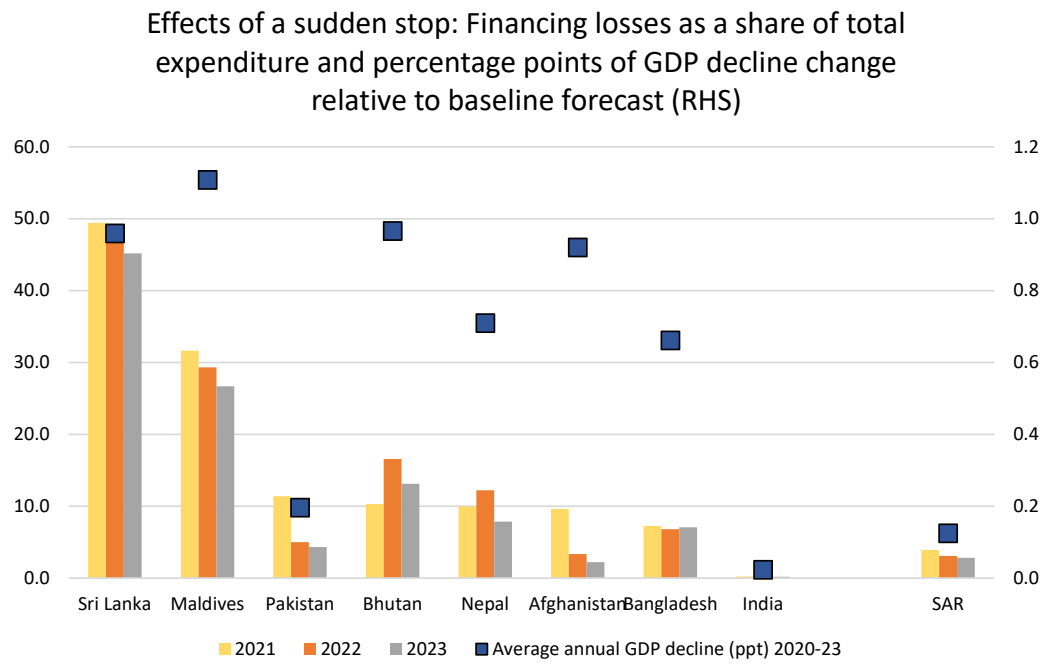
Note: (e)=estimate, (f)=forecast. South Asia aggregates are converted to calendar year. The value of stacked bars for historical figures does not exactly sum to GDP growth due to inventory changes and statistical discrepancies.



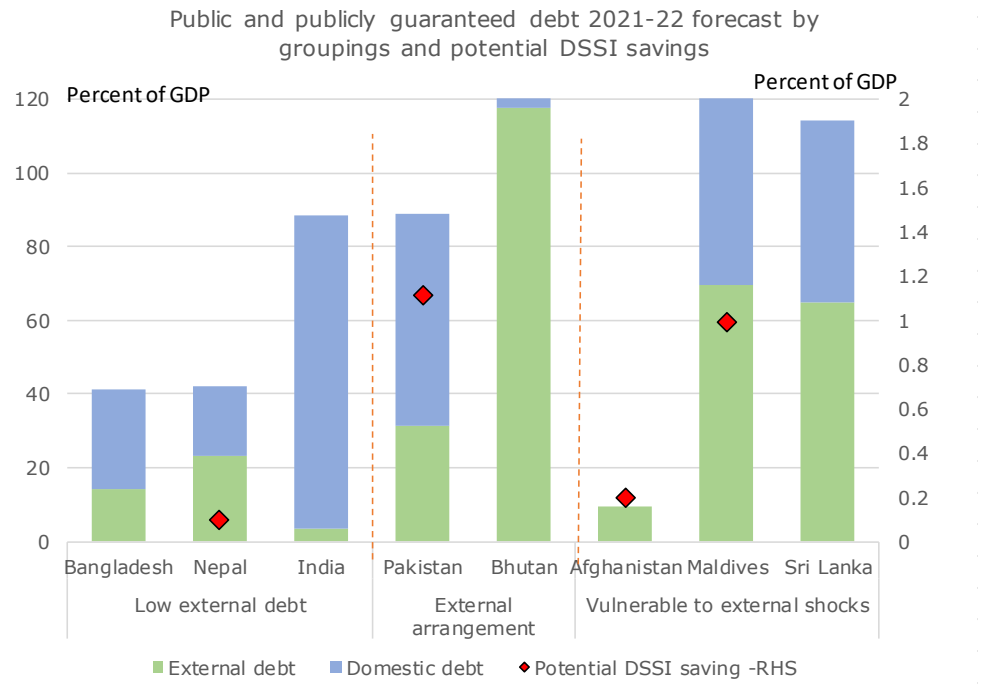
Note: South Asia aggregates are converted to calendar year. Real GDP per capita growth forecast for calendar year 2023 extended using simulations from MFMod.

South Asian countries vary substantially in terms of available fiscal space and vulnerability to external shocks.

The level of fiscal space and external debt service will determine vulnerability to a sudden stop scenario.

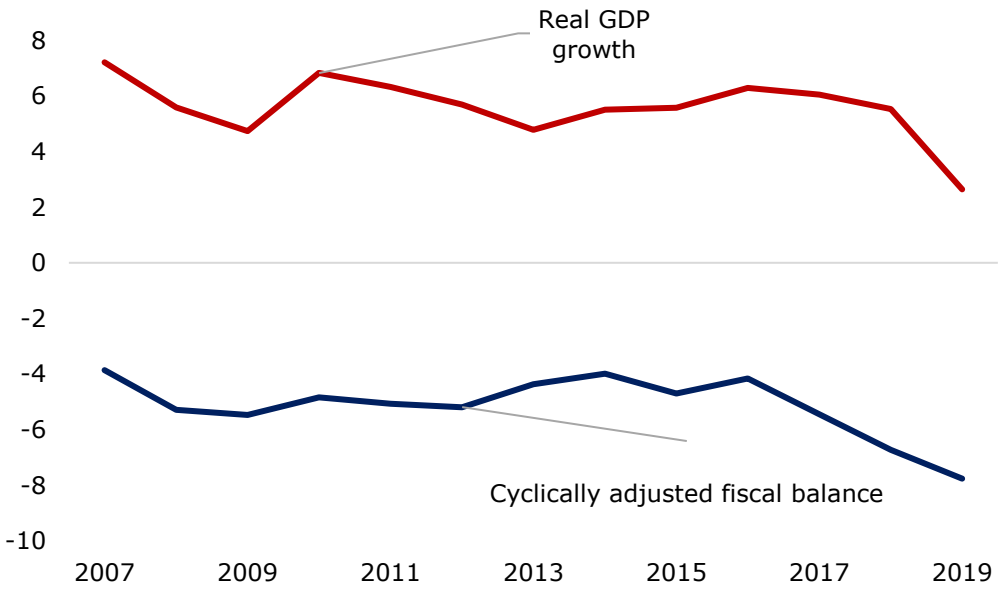


But external vulnerability not necessarily tied to level of debt to GDP. Proactive policies matter.



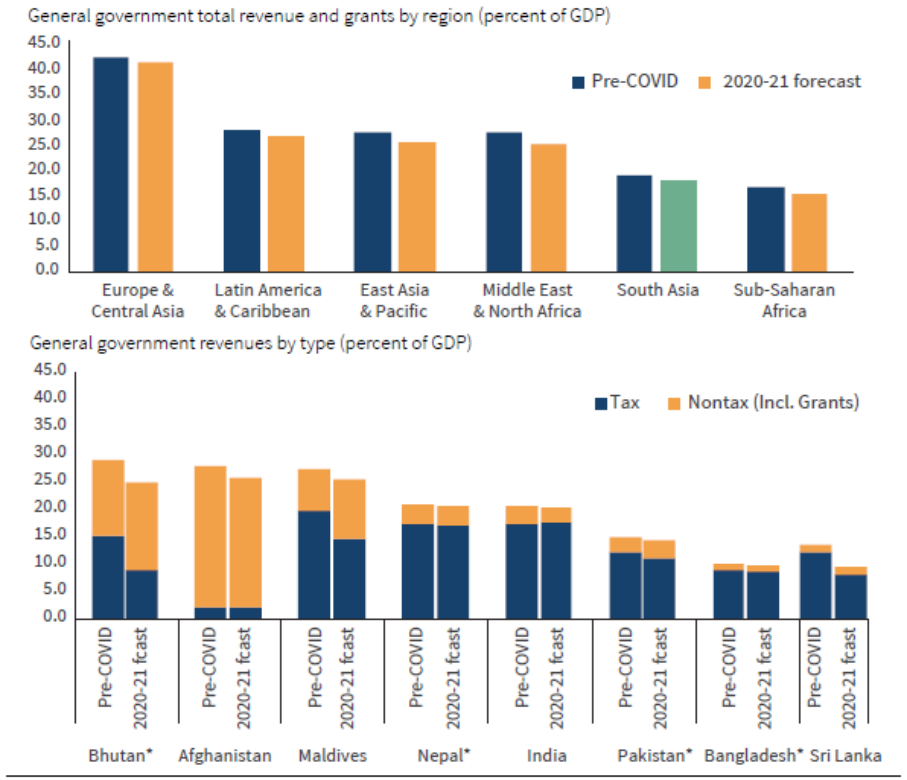
The fiscal challenges for South Asia existed before the crisis…

Fiscal policy in the region has been procyclical and continued in 2020.



Source: author calculations

Government revenue mobilization continues to be low as a share of GDP, particularly tax revenue



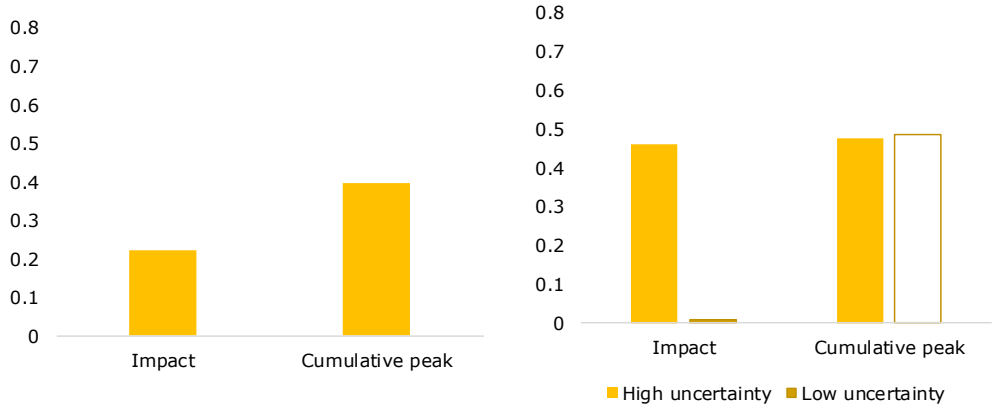
Source: World Bank MPO dataset.

Note: Pre-COVID refers to annual average 2015-2019. Post COVID is average 2020 and 2021 forecast. Countries with asterix show fiscal year (ending mid-2021). For India, last column refers to March 2020-2022. Region aggregates weighted by country GDP in USD.

...yet fiscal stimulus for both current and capital spending should be prioritized. Government consumption to grow 16.8 percent in 2021.

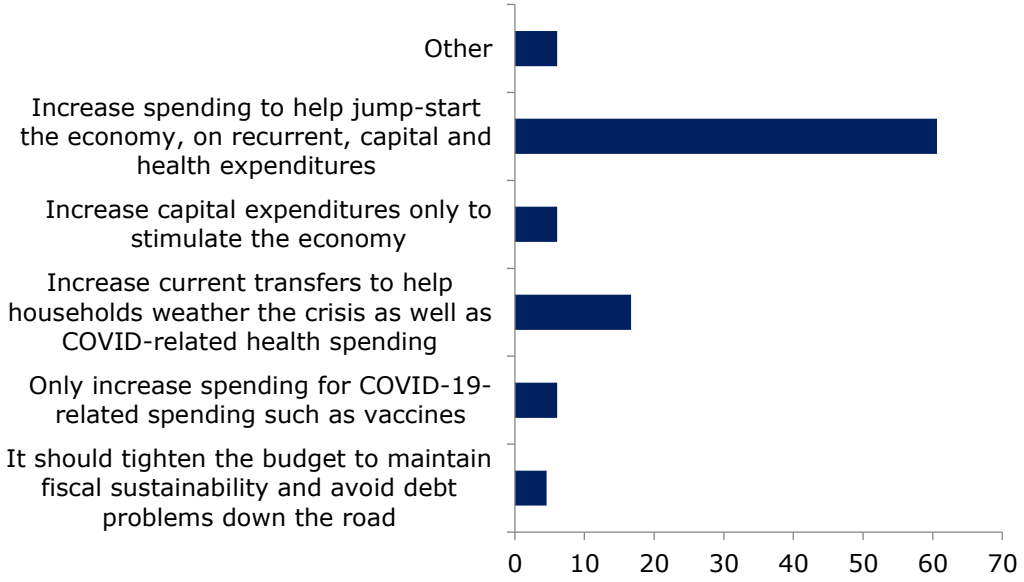
South Asia's government spending multiplier is significant, with larger values under higher uncertainty.

Total expenditure multipliers overall (left panel) and values under high and low uncertainty (right panel).
Source: Our estimations



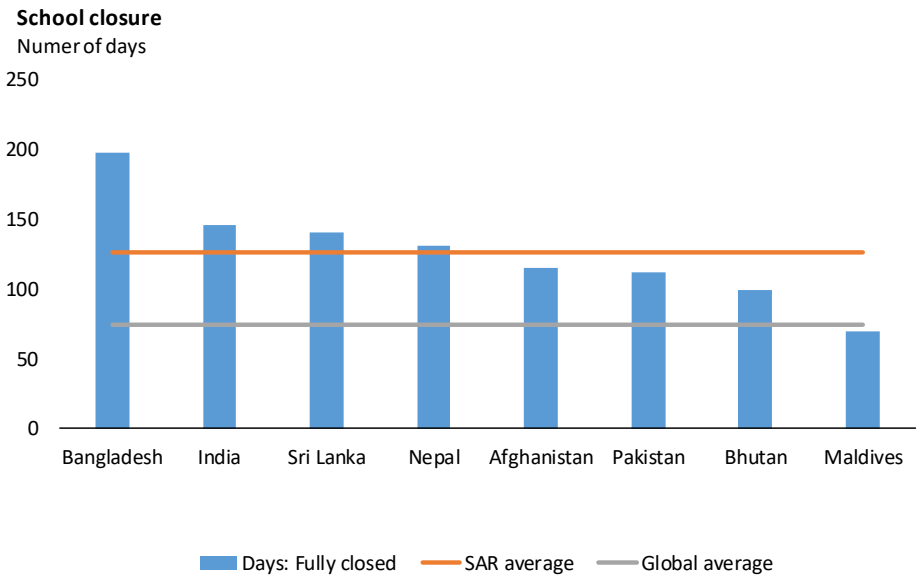
Survey of South Asian experts made this point clear

How should the government think about spending in the upcoming or recently begun fiscal year
Share of responces



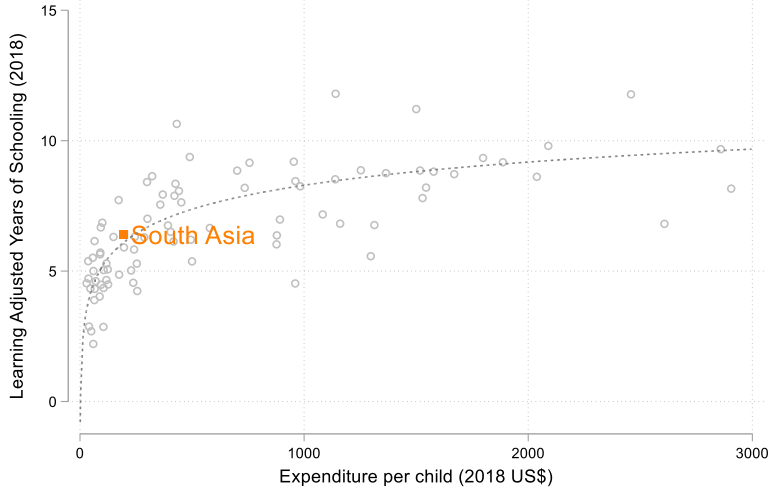
The crisis has increased the appreciation for the long-term 'tail-end risks.' The effect of school closures will be felt for years to come.

The number of dropouts in South Asia could reach 5.5 million students as a result of school closures, leading to an education crisis. COVID restrictions on school closures were very stringent.



Note: Schools are considered fully closed when the closures affect most or all of the schoolchildren enrolled at pre-primary, primary, lower and upper secondary levels. The numbers are calculated based on the period between 11 March 2020 - 2 February, 2021

With strained budgets, despite increases in education spending over the last 2 decades, countries in the region have plenty of scope to improve both spending and education outcomes



Note: Spending per child is computed as total public education spending on primary and secondary education divided by the school-age population. The curved line is an estimated stochastic frontier. The further below the frontier a country lies the less efficient it is. Only countries with less than US$ 3000 per child shown. Where data was missing it was imputed based on country trends and trends within similar countries. Source: Al-Samarrai et.al. 2021.

Theme chapter: South Asia Vaccinates

SOUTH ASIA VACCINATES AGAINST COVID-19

The COVID-19 pandemic has been an unprecedented shock to the global economy, has exacerbated inequalities and has been a dramatic setback towards eradicating poverty;

Therefore, vaccination is a key development priority; unlike other policy measures, such as lockdowns, vaccines save lives and livelihoods.

However, vaccinating at the scale and speed required to end the pandemic is a daunting task never attempted before. This presentation highlights:

- Vaccination has a high benefit/cost ratios;
- Having features of a public good, herd immunity by vaccination requires government intervention and its financing, while high, seems 'feasible';
- However, financing is one of the challenges; allocation of the vaccine, at least in the short run, presents trade-offs between equity and efficiency;
- And delivering the vaccines – given the current preparedness of the health systems and potential vaccine hesitancy – is an additional key obstacle;
- It is especially important to ensure that vaccines are reaching all those eligible, not just those with the privilege and resources to obtain them.

1. Vaccines save lives and livelihoods, benefit / cost
2. Vaccines: private or public goods?
3. Health financing considerations
4. Preparedness of the health systems and equity issues
5. Equity issues

01.
VACCINES SAVE LIVES AND LIVELIHOODS BENEFIT-COST ANALYSIS

COVID-19 IN SOUTH ASIA: A REGION HEAVILY AFFECTED

COVID-19 has taken a terrible toll on South Asian countries:

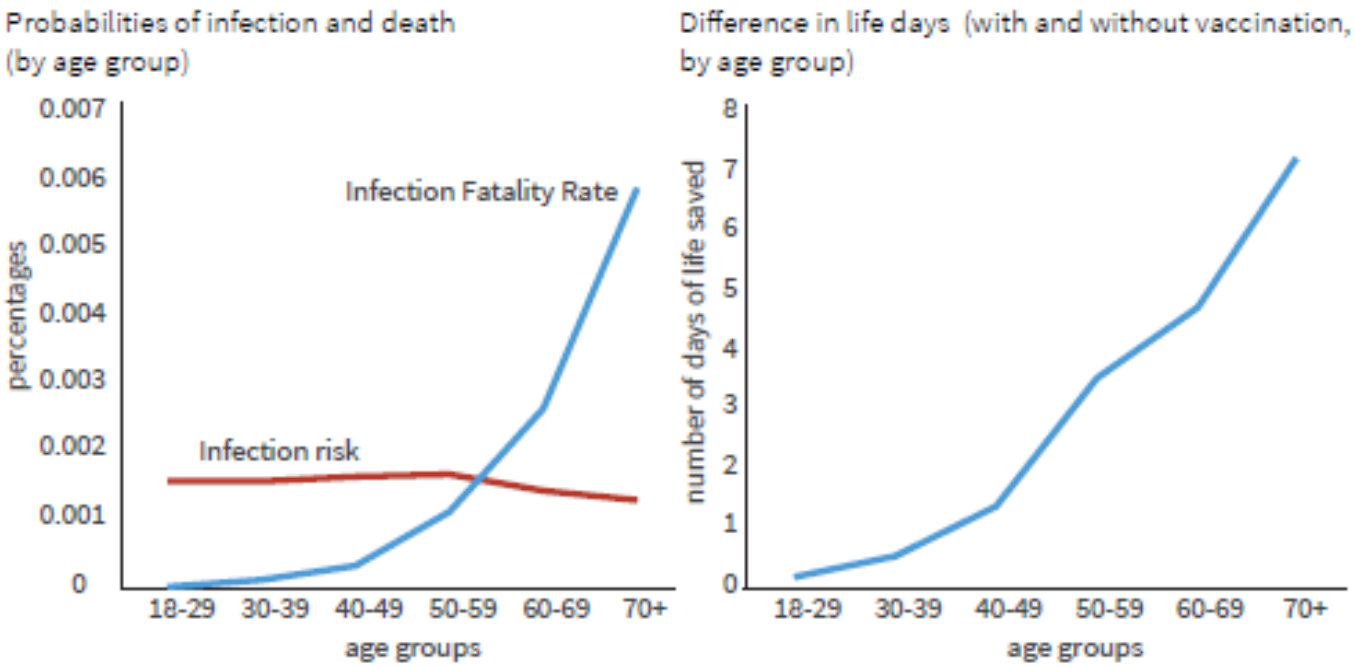
- Over 13 million confirmed cases, 188,000 deaths (through March 23, 2021);
- The pandemic has erased a total of more than 2.5 million years of life;
- GDP in 2020 and 2021 was likely between 10 and 12 percent below the expected level, absent the pandemic and accompanying economic crisis

Country	Total cases	Cases per million	Total deaths	Deaths per million	Case fatality rate (%)
Afghanistan	56,103	1,441	2,463	63	4.4
Bangladesh	570,878	3,466	8,690	53	1.5
Bhutan	869	1,126	1	1	0.1
India	11,646,081	8,439	159,967	116	1.4
Maldives	22,513	41,649	66	122	0.3
Nepal	275,906	9,469	3,016	104	1.1
Pakistan	630,471	2,854	13,863	63	2.2
Sri Lanka	90,200	4,212	546	25	0.6
SAR	13,293,021	7,161	188,612	102	1.4

VACCINES SAVE LIVES

Impact of vaccinations on lives depends on existing seroprevalence and the resulting infection probabilities.

In life years, those in their 70s or older gain more than ten times as much from vaccination as individuals in their 30s despite the somewhat lower infection rates and significantly lower remaining life expectancy among the elderly.



Malani et al. (2021), based on Tamil Nadu seroprevalence study

VACCINES SAVE LIVELIHOODS

Vaccines are a cost-effective investment for South Asia:

- Vaccination can speed up the future recovery forward, rather than undo the past economic damage;
- Ending the pandemic 0.5 to 1.5 years earlier and spurring an earlier recovery could amount to benefits ranging from 2.2 to 6.7 percent of 2019 GDP in Pakistan and 16.0 to 48.1 percent in Maldives

	2021 GDP forecast ($ bn)	Shortfall in GDP at the end of 2021, relative to pre-pandemic forecasts (%)	Cumulative future benefits of vaccination as share of current year GDP (%)
Afghanistan	19.1	7.7	3.8 - 11.5
Bangladesh	284.4	7.2	3.6 – 10.8
Bhutan	2.4	13.3	6.7 - 20.0
India	3240.6	11.0	5.5 – 16.4
Maldives	4.6	32.1	16.0 - 48.1
Nepal	31.4	9.7	4.9 - 14.6
Pakistan	324.7	4.5	2.2 – 6.7
Sri Lanka	91.8	7.5	3.7 – 11.2
SAR	3999	10.7	5.4 - 16.1

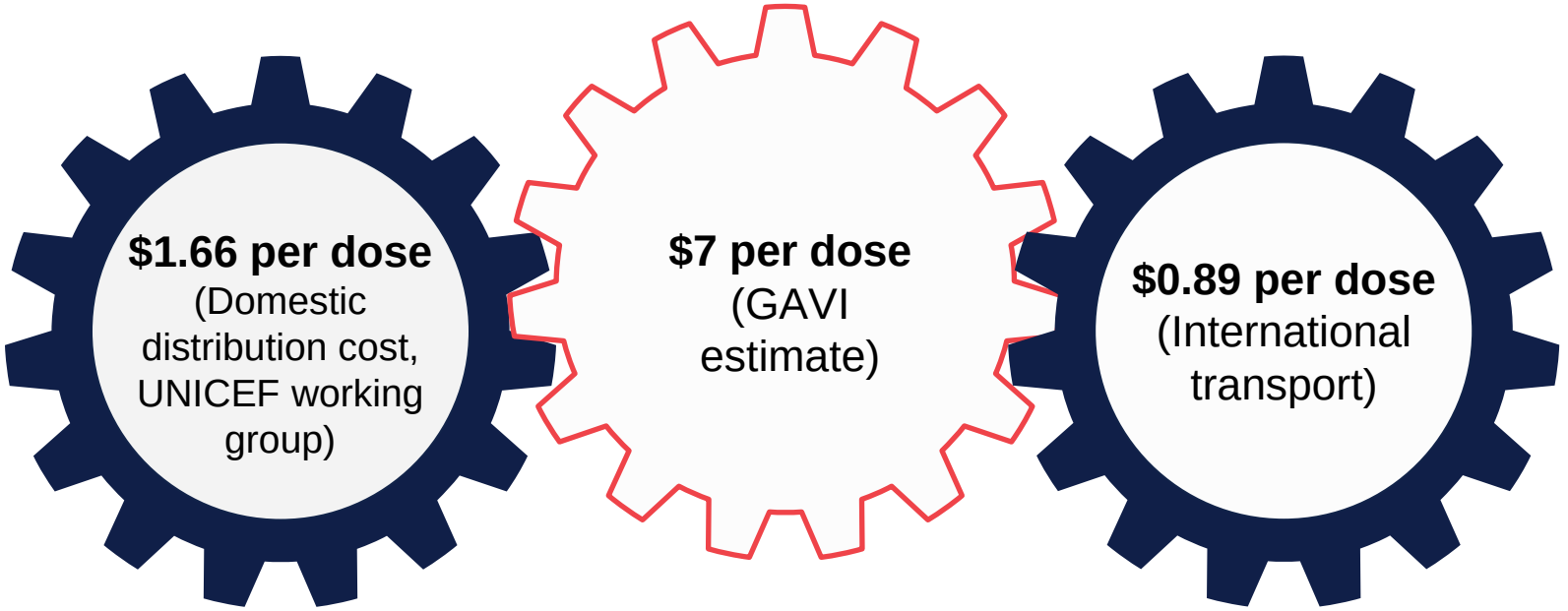
SCENARIOS

Scenario 1: "Pessimistic" costs and coverage in 2021

Scenario 2

Scenario 3

Assumes cost of vaccine per person is US$19.27 <u>across all countries</u>:



A constant 10% wastage rate is also assumed

For all three scenarios, herd immunity of 70% vaccinated population is reached as follows:

- **In 2021, 20% coverage from COVAX + 10% self financed;**
- **In 2022, 0% coverage from COVAX + 40% self-financed.**

SCENARIOS

Scenario 1

Scenario 2: ”Realistic” costs and coverage in 2021

Scenario 3

A constant 10% wastage rate is again assumed

Assumes country-specific costs based on expected/potential procurement agreements/gifts:

AFGHANISTAN
$4 per dose + international and domestic distribution costs (after 20% COVAX coverage)

BHUTAN
Domestic distribution costs only (100% coverage from Indian government gift)

MALDIVES
$4 per dose + international and domestic distribution costs (after 20% COVAX + 10% Indian government gift coverage)

PAKISTAN
$7 per dose + international and domestic distribution costs (after 20% COVAX coverage)

BANGLADESH
$4 per dose + international and domestic distribution costs (after 20% COVAX coverage)

INDIA
$3 per dose + domestic distribution costs only (after 20% COVAX coverage)

NEPAL
$4 per dose + international and domestic distribution costs (after 20% COVAX coverage)

SRI LANKA
$4 per dose + international and domestic distribution costs (after 20% COVAX coverage)

SCENARIOS

Scenario 1 → Scenario 2 → **Scenario 3: "Optimist" costs and "realistic" coverage in 2021**

A constant 10% wastage rate is likewise assumed

Assumes vaccine costs can be negotiated down to a maximum of $3 per dose (plus international and domestic transport costs = total $11.10 per vaccinated person), mirroring the vaccine costs in India:

AFGHANISTAN
$3 per dose + international and domestic distribution costs (after 20% COVAX coverage)

BHUTAN
Domestic distribution costs only (100% coverage from Indian government gift)

MALDIVES
$3 per dose + international and domestic distribution costs (after 20% COVAX + 10% Indian government gift coverage)

PAKISTAN
$3 per dose + international and domestic distribution costs (after 20% COVAX coverage)

BANGLADESH
$3 per dose + international and domestic distribution costs (after 20% COVAX coverage)

INDIA
$3 per dose + domestic distribution costs only (after 20% COVAX coverage

NEPAL
$3 per dose + international and domestic distribution costs (after 20% COVAX coverage)

SRI LANKA
$3 per dose + international and domestic distribution costs (after 20% COVAX coverage)

Benefit cost ratios for achieving herd immunity through vaccinating 70 percent of the population

	Gain from vaccination ($ bn)	Scenario 1 costs ($ bn)	Scenario 2 costs ($ bn)	Scenario 3 costs ($ bn)	Scenario 1 benefit-cost ratio	Scenario 2 benefit-cost ratio	Scenario 3 benefit-cost ratio
Afghanistan	1.47	0.425	0.314	0.271	3.46	4.68	5.44
Bangladesh	20.48	1.838	1.360	1.171	11.14	15.06	17.49
Bhutan	0.32	0.008	0.002	0.002	38.46	168.00	168.00
India	356.47	15.079	8.230	8.230	23.64	43.31	43.31
Maldives	1.48	0.004	0.003	0.002	360.15	546.89	642.00
Nepal	3.05	0.316	0.234	0.202	9.63	13.02	15.12
Pakistan	14.61	2.311	2.421	1.472	6.32	6.04	9.93
Sri Lanka	6.89	0.238	0.176	0.152	28.95	39.14	45.42

02.
VACCINES: PUBLIC OR PRIVATE GOODS?

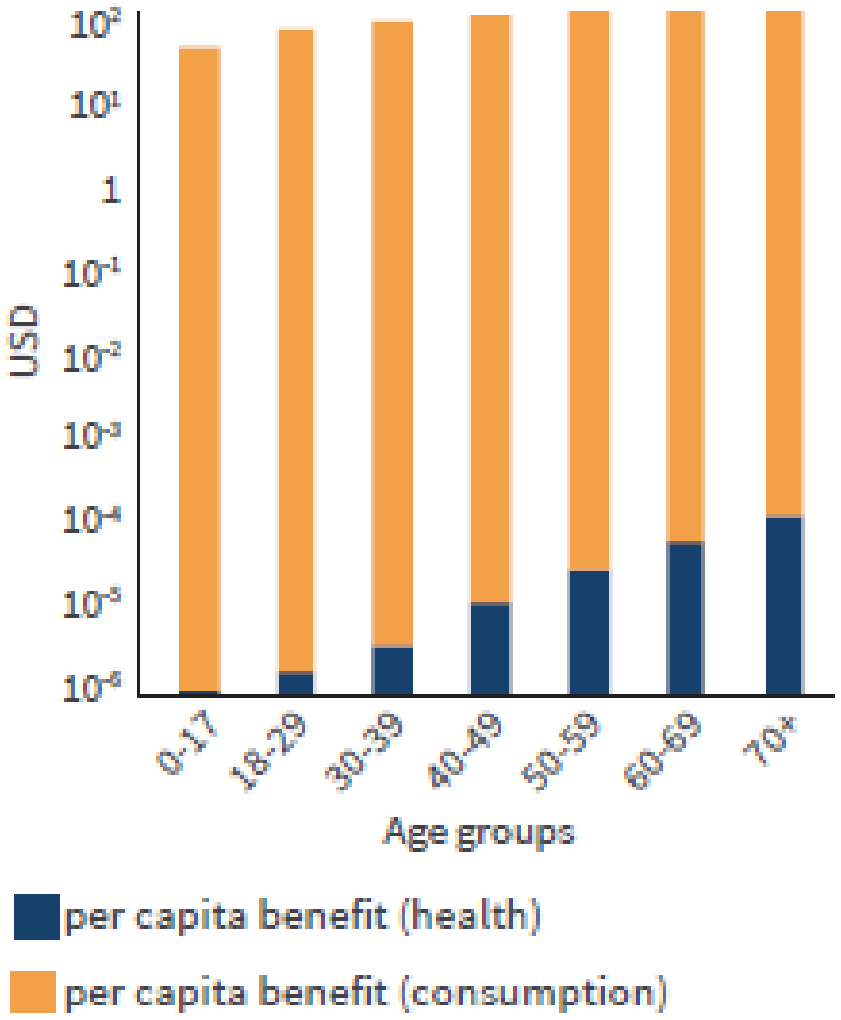
DISEASE ERADICATION AND VACCINES

Benefits >> Costs does not mean that the desirable level of vaccination will be achieved.

Disease eradication (a public good) is obtained via vaccines (private goods), so market mechanisms do not work, and government intervention is needed.

Three types of externalities of vaccination in the case of COVID-19:

- Health externality
- Two economic externalities (preventive vs curative care, and the avoidance of the crisis)



Malani et al. (2021), based on Tamil Nadu

03.
HEALTH FINANCING CONSIDERATIONS

CHALLENGE: WILL GOVERNMENTS BE ABLE TO FUND DISEASE ERADICATION?

South Asia spends the smallest share of GDP in public health and has limited fiscal space to expand its public expenditures to finance the vaccination program.

Classification	Total health spending		Public spending share of GDP (%)	OOP share of total (%)	External share of total (%)
	Per capita (US$)	Share GDP (%)			
East Asia & Pacific	269	6.5	4.8	23	16
Europe & Central Asia	380	6.5	3.2	46	1
Latin America & Caribbean	456	6.8	3.9	33	3
Middle East & North Africa	291	6.1	3.0	40	3
South Asia	187	5.1	2.0	51	5
Sub-Saharan Africa	109	5.6	2.3	37	23
LMICs	261	6.1	3.2	36	12

WHO (2020)

COVID-19 VACCINE COVERAGE AND FINANCING SCENARIOS: PESSIMISTIC SCENARIO

Coverage, costs, budget share, and GDP share associated with 20% coverage from COVAX and 50% self-financing by countries (10% in 2021, 40% in 2022), assuming $19.27 per vaccinated person, by SAR country

Country	Coverage (millions)		Vaccine cost ($millions)		Share health (%)		Share budget (%)		Share GDP (%)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Afghanistan	11.7	15.9	110.2	334.7	43.8	124.8	2.0	5.7	0.56	1.61
Bangladesh	51.0	68.7	481.5	1,444.0	28.3	75.2	1.0	2.5	0.14	0.39
Bhutan	0.2	0.3	2.2	6.5	3.0	9.5	0.2	0.8	0.08	0.23
India	418.7	563.8	3,951.4	11,845.9	13.6	37.9	0.5	1.3	0.14	0.38
Maldives	0.1	0.2	1.1	3.3	0.3	0.7	0.1	0.2	0.02	0.05
Nepal	8.8	11.8	82.7	248.6	15.1	43.8	0.8	2.2	0.24	0.67
Pakistan	63.7	86.6	601.6	1,819.2	18.0	52.0	0.9	2.7	0.22	0.61
Sri Lanka	6.6	8.9	62.5	186.6	4.4	11.9	0.4	1.0	0.07	0.20
SAR ave.					**14.4**	**40.1**	**0.5**	**1.5**	**0.15**	**0.40**

- Vaccine-related costs relatively low in 2021, averaging only 0.5% of government budgets across the region (0.15% of GDP), since only delivery-related costs would need to be financed for two-thirds of the total coverage in 2021.
- Estimated costs in 2022 exceed 2% of government budget in Afghanistan (5.7%), Pakistan (2.7%), Bangladesh (2.5%), and Nepal (2.2%), which is likely to be difficult for governments to cover.

SCENARIO 2: REALISTIC

20% coverage from COVAX and 10% self-financed in 2021, 40% self-financed by countries in 2022, assuming country-specific costs, by country in SAR

Country	Coverage (millions)		Vaccine cost ($millions)		Share health (%)		Share budget (%)		Share GDP (%)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Afghanistan	11.7	15.9	84.5	229.6	33.6	85.6	1.5	3.9	0.43	1.10
Bangladesh	51.0	68.7	369.3	990.4	21.7	51.6	0.7	1.7	0.11	0.27
Bhutan	0.2	0.3	0.8	1.1	1.1	1.6	0.1	0.1	0.03	0.04
India	418.7	563.8	2,450.1	5,780.3	8.4	18.5	0.3	0.6	0.09	0.19
Maldives	0.1	0.2	0.4	2.3	0.1	0.5	0.0	0.1	0.01	0.04
Nepal	8.8	11.8	63.4	170.5	11.6	30.0	0.6	1.5	0.19	0.46
Pakistan	63.7	86.6	601.6	1,819.2	18.0	52.0	0.9	2.7	0.22	0.61
Sri Lanka	6.6	8.9	47.9	128.0	3.4	8.2	0.3	0.7	0.06	0.14
SAR ave.					9.8	23.0	0.4	0.8	0.10	0.23

- Notably lower than Scenario I (pessimistic), but costs remain high for some countries - likely to still need to mobilize additional financing.
- Estimated costs in 2022 exceed 3% of government budget in Afghanistan (3.9%), which is likely to be difficult for the government to cover.

SCENARIO 3: OPTIMISTIC

20% coverage from COVAX and 10% self-financed in 2021, 40% self-financed by countries in 2022, assuming vaccine costs are negotiated down to no more than $11.10 per vaccinated person, by country in SAR.

Country	Coverage (millions)		Vaccine cost ($millions)		Share health (%)		Share budget (%)		Share GDP (%)	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Afghanistan	11.7	15.9	76.0	194.5	30.2	72.5	1.4	3.3	0.39	0.93
Bangladesh	51.0	68.7	331.8	839.2	19.5	43.7	0.7	1.5	0.10	0.23
Bhutan	0.2	0.3	0.8	1.1	1.1	1.6	0.1	0.1	0.03	0.04
India	418.7	563.8	2,450.1	5,780.3	8.4	18.5	0.3	0.6	0.09	0.19
Maldives	0.1	0.2	0.4	1.9	0.1	0.4	0.0	0.1	0.01	0.03
Nepal	8.8	11.8	57.0	144.5	10.4	25.4	0.5	1.3	0.17	0.39
Pakistan	63.7	86.6	414.6	1,057.2	12.4	30.2	0.7	1.6	0.15	0.35
Sri Lanka	6.6	8.9	43.1	108.5	3.0	6.9	0.3	0.6	0.05	0.12
SAR ave.					9.2	20.5	0.3	0.8	0.09	0.21

- Reasonably affordable (~0.3% of budget in 2021, ~0.8% in 2022)
- Demonstrates impact of negotiating price down to Serum level
- However, still potentially unaffordable for Afghanistan (3.3%) in 2022 – only country with cost exceeding 3% of budget

04. PREPAREDNESS OF THE HEALTH SYSTEMS

PREPAREDNESS OF THE HEALTH SYSTEM

Backward-looking assessment: what have been the main challenges and bottlenecks of the health systems in SAR in the recent past (as these may be affecting COVID-19 vaccine campaign).

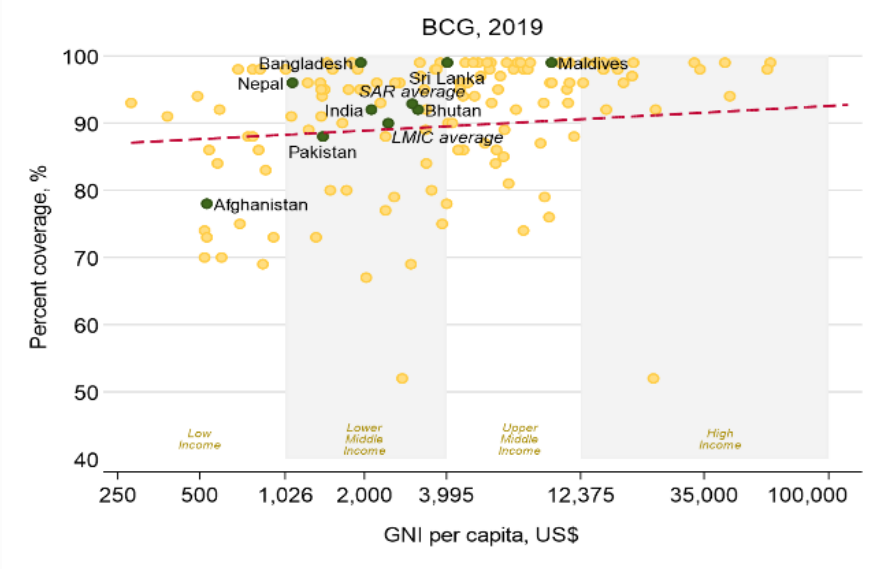
The capacity and performance of the health systems:

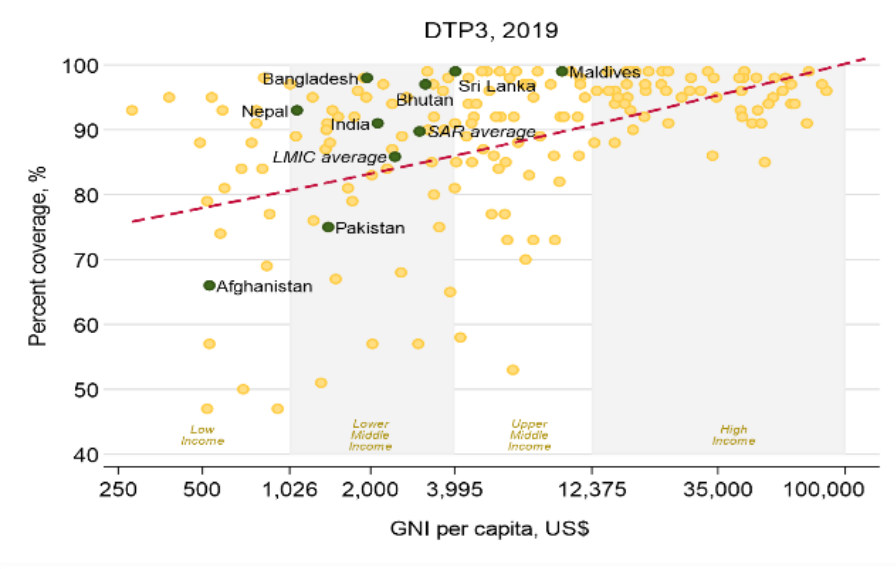
a. Health expenditure and immunization per capita in SAR countries

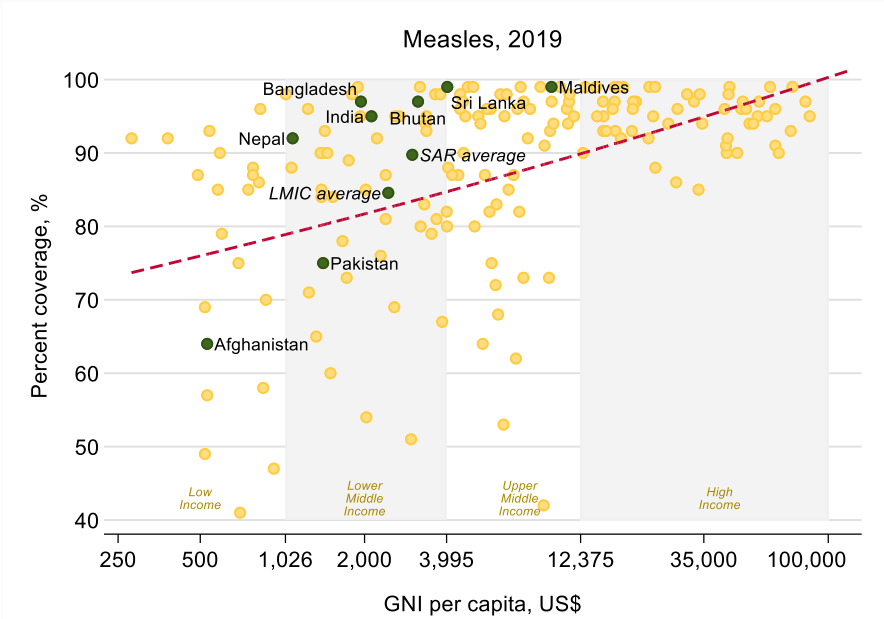
b. Supply side health services issues including immunization

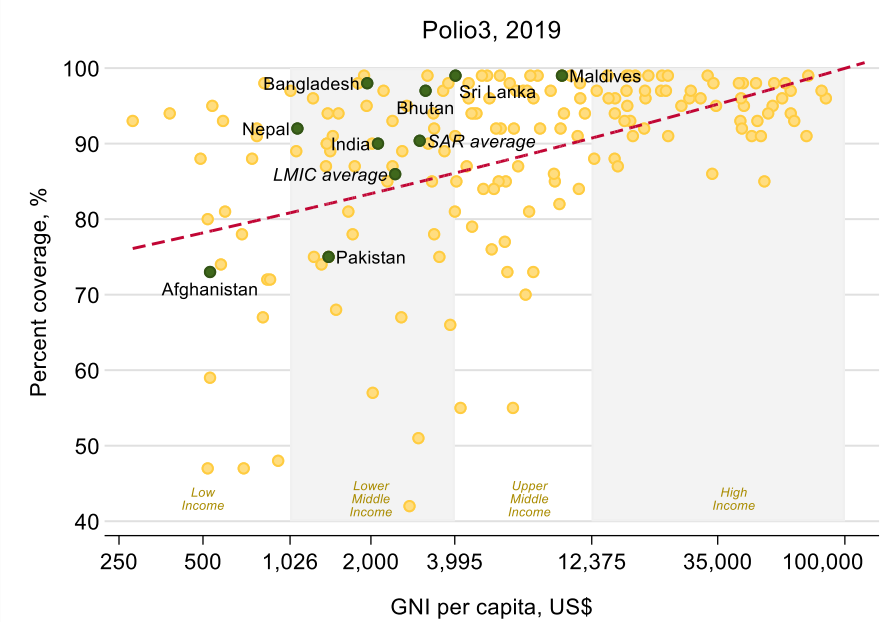
c. Demand side health services issues including immunization

Immunization coverage (%) including Bacillus Calmette–Guérin (BCG) and Diphtheria, Tetanus Pertussis third dose (DTP3), Measles and Polio for Children between 12 and 23 months of age in SAR countries



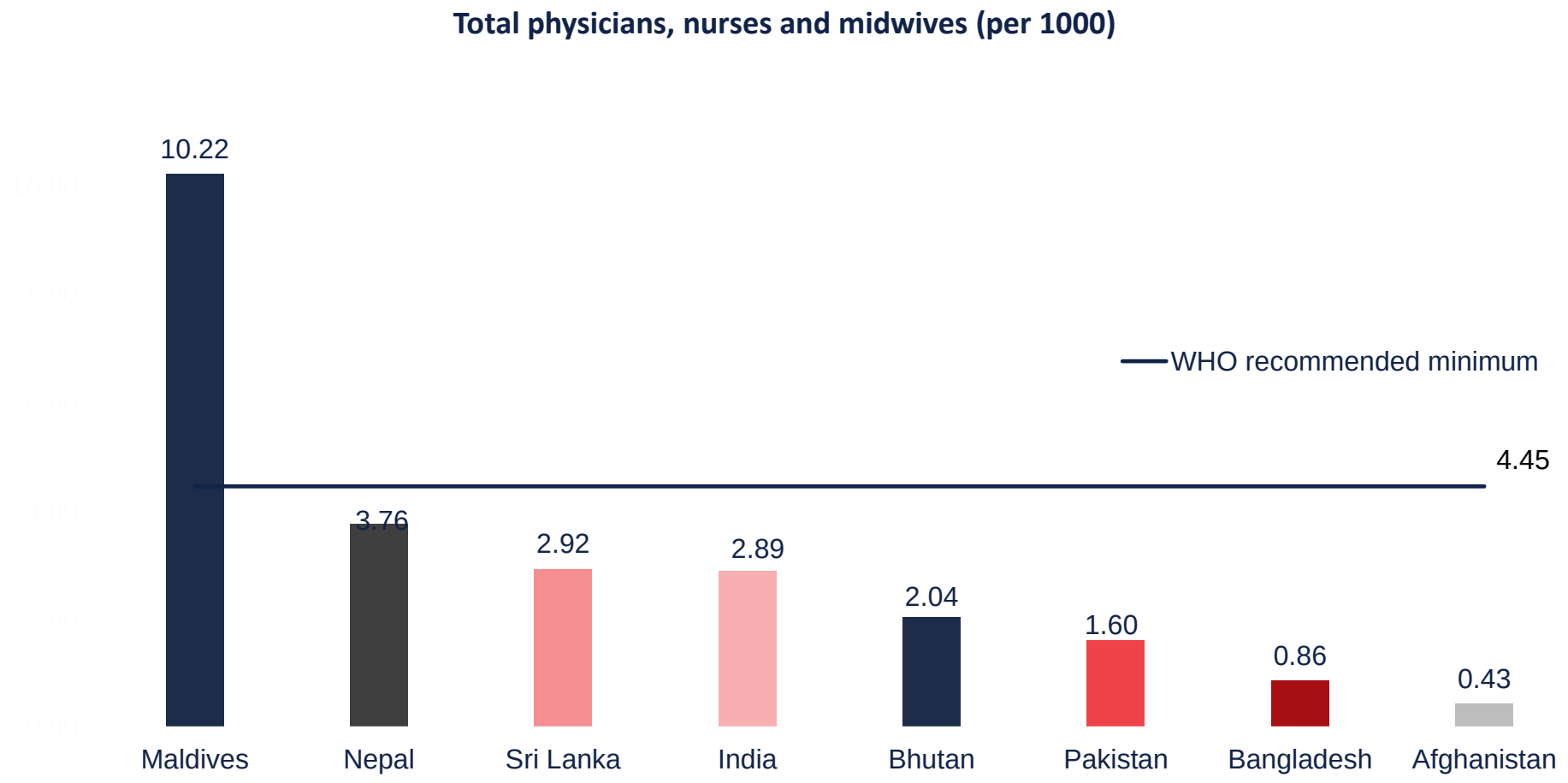






Supply side issues

SUPPLY SIDE BARRIERS: NUMBER OF DOCTORS, NURSES AND MIDWIFES IN SAR COUNTRIES EXCLUDING MALDIVES

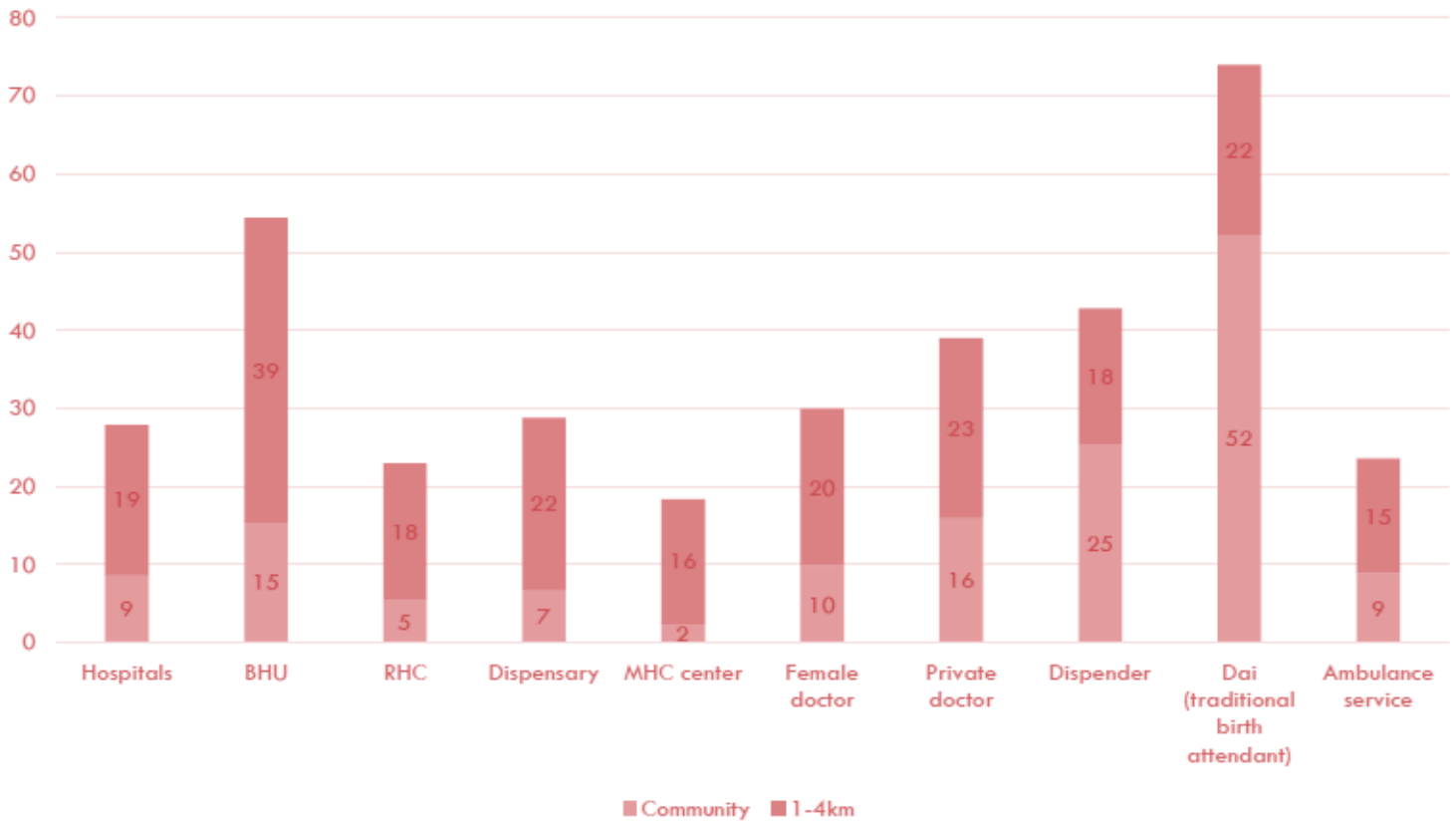


Source: World Bank Group
* Latest data available, 2017 and 2018

SUPPLY SIDE BARRIERS: ACCESS TO HEALTH FACILITIES WITHIN 5 KM DISTANCE IN PAKISTAN

About 50% of the population has access to primary care services within 5km (Basic Health Unit, BHU)

- Access to Rural Health Center is even less at 23%
- Access to hospitals is 28%



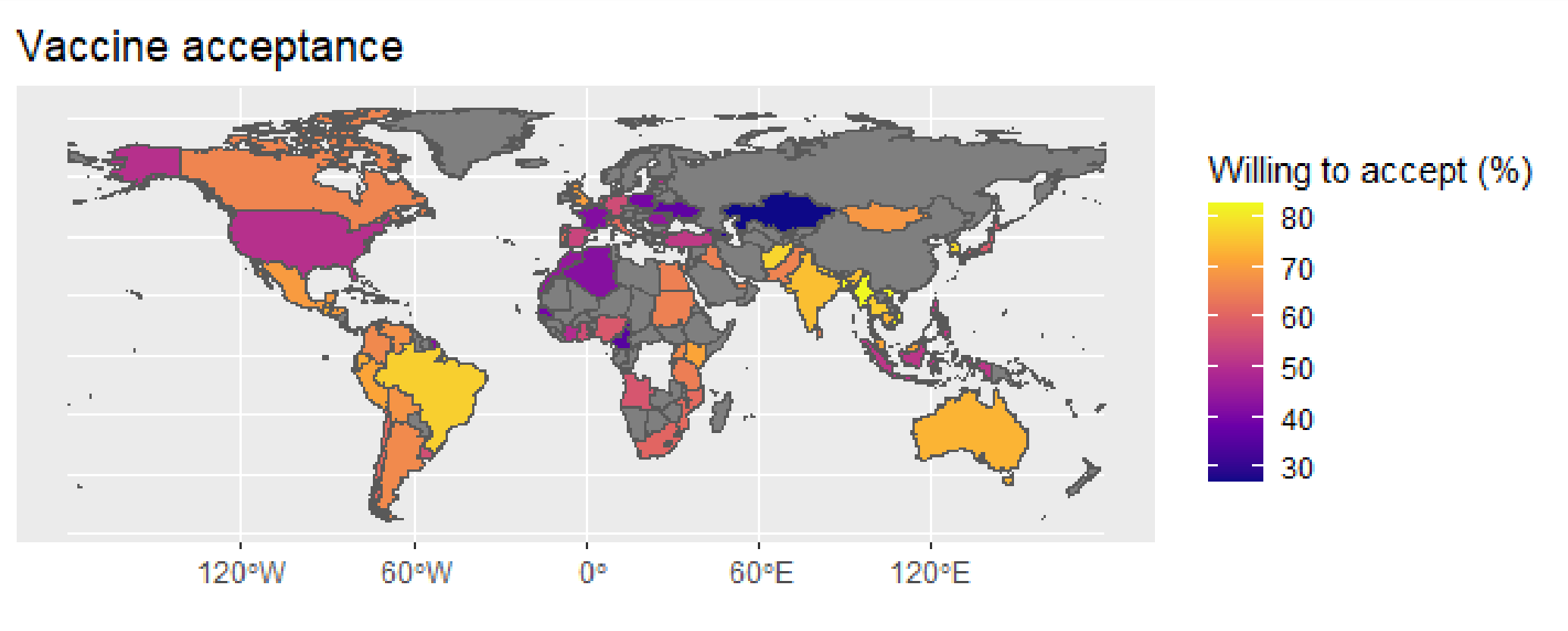
Source: author's production using DHS 2017-18 data.

Demand side issues

With a 90% effective vaccine, need 77.7% acceptance rate to get to 70% (herd immunity); With a 70% effective vaccine, need 100% acceptance rate!

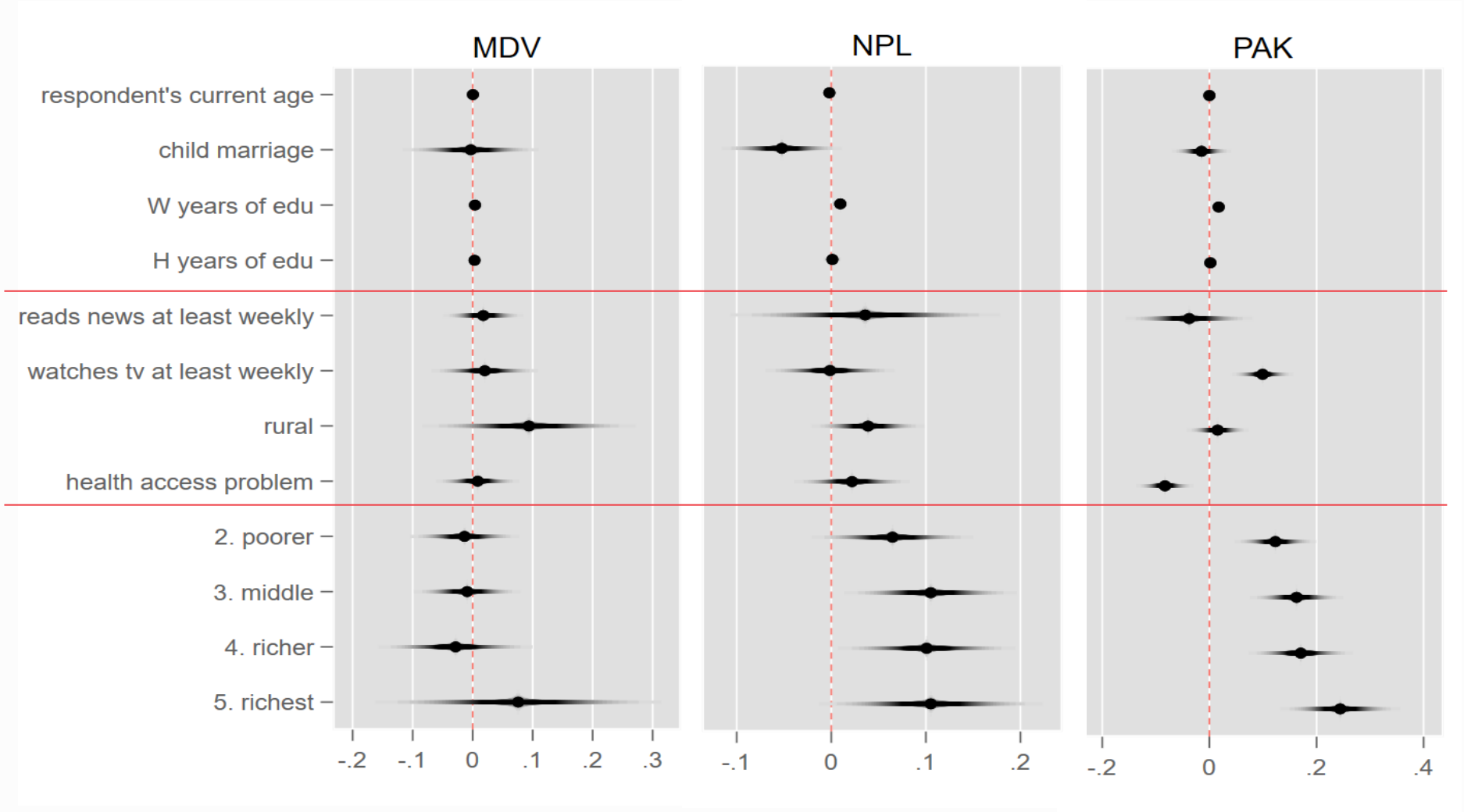
WILLINGNESS TO ACCEPT A VACCINE

AS REPORTED IN A JOINT SURVEY CONDUCTED BY WHO, JOHNS HOPKINS, MIT AND OTHERS ON FACEBOOK



Vaccine acceptance is high in South Asia with a regional average of 74% of the population relative to other regions (North America average is 52%)

Source: COVID-19 Beliefs, Behaviors & Norms Survey of more than 1.2 million Facebook users in 67 countries. Data are weighted to reflect adult population/population using the internet.



DHS Data (eligible women):
Wealth is a significant predictor of tetanus toxoid vaccination only in Nepal and Pakistan, but not so in other countries.

05.
EQUITY ISSUES: ALLOCATION AND PAST PERFORMANCE

THE CHALLENGE OF EQUITY

Both efficiency (maximizing the number of lives saved or income gains) and equity (equal opportunities or doses) are important.

Equity is an issue along multiple dimensions:

- Region
- Income
- Other (gender, age)

Sometimes equity is hard to define. E.g., should we weight lives equally or life years?

Unfortunately, equity and efficiency are sometimes at odds:

- **Region:** Spreading limited vaccines out over multiple regions may not enable release from suppression (lockdown) in any one area. This means equity sacrifices income.

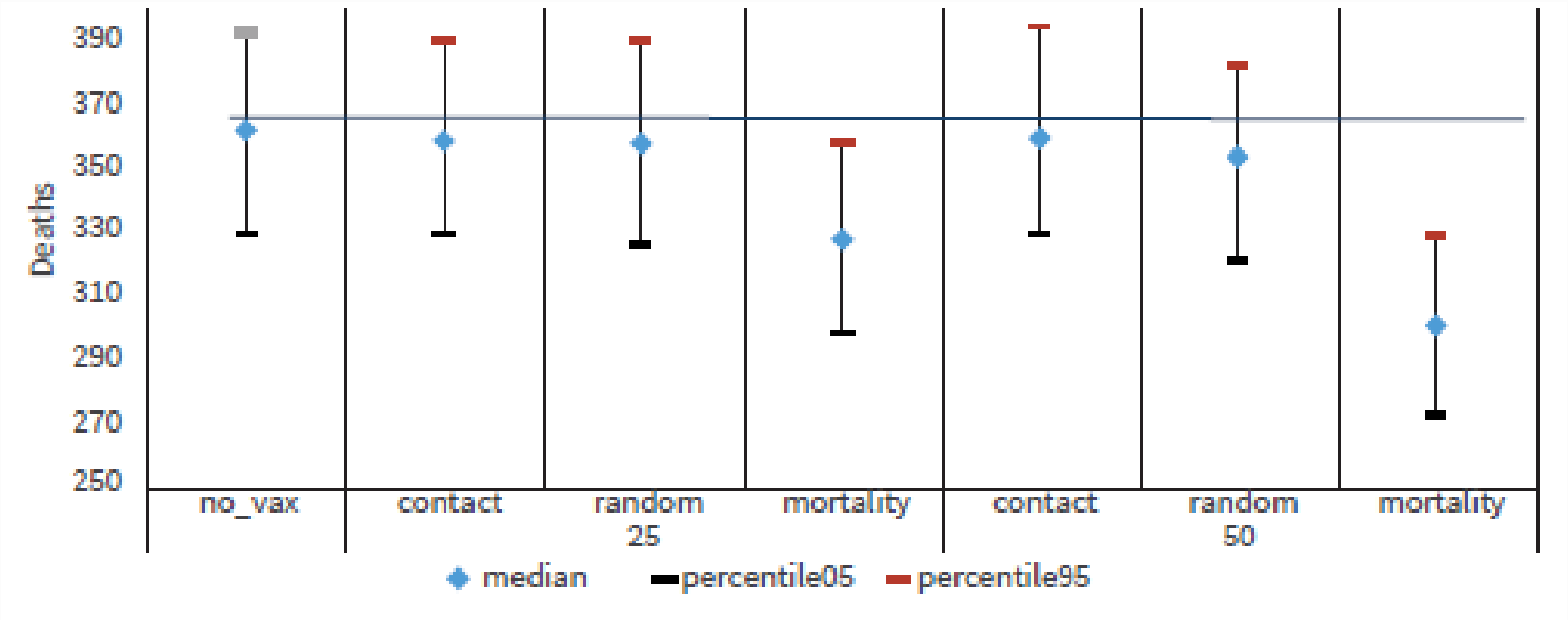
- **Income:** Poor areas have been hit harder (incidence of infection). But higher levels of natural immunity imply lower returns to vaccination.

- **Demographics:** Males may be more at risk of dying.

A SIMULATION FOR INDIA (TAMIL NADU)

Targeting the elderly, as is done by most countries that are distributing vaccines against COVID-19, saves lives.

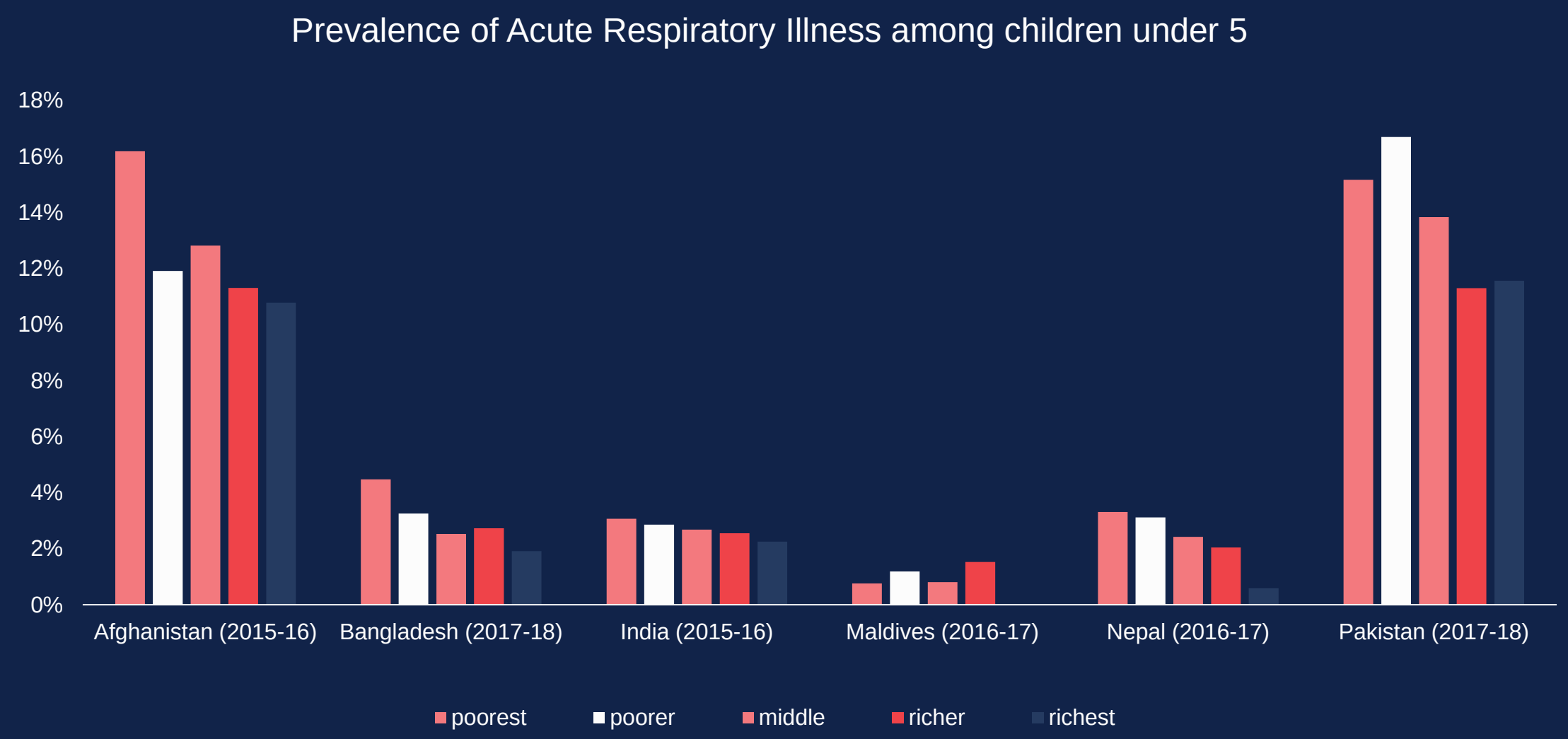
With 50 % of the population vaccinated, the number of COVID-19 deaths falls by 14 % more if the elderly are targeted than if vaccines were allocated randomly



Malani et al. (2021), based on Tamil Nadu seroprevalence study

SAR Health and inequality

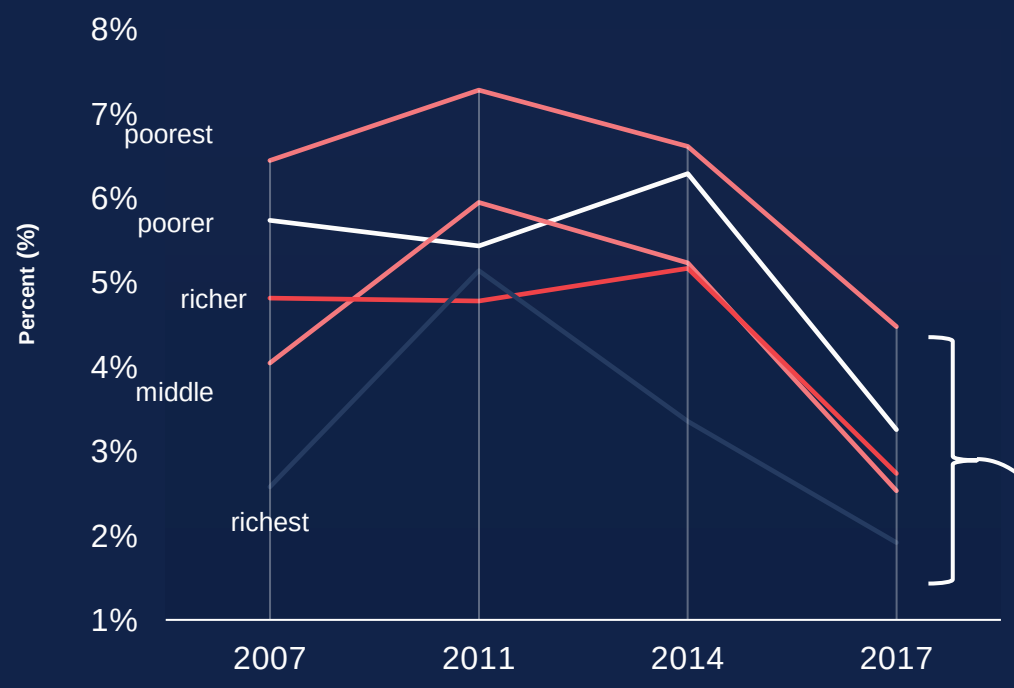
COMMUNICABLE DISEASE BURDEN I.E ARI (CHILDREN UNDER AGE 5) BY WEALTH CATEGORIES

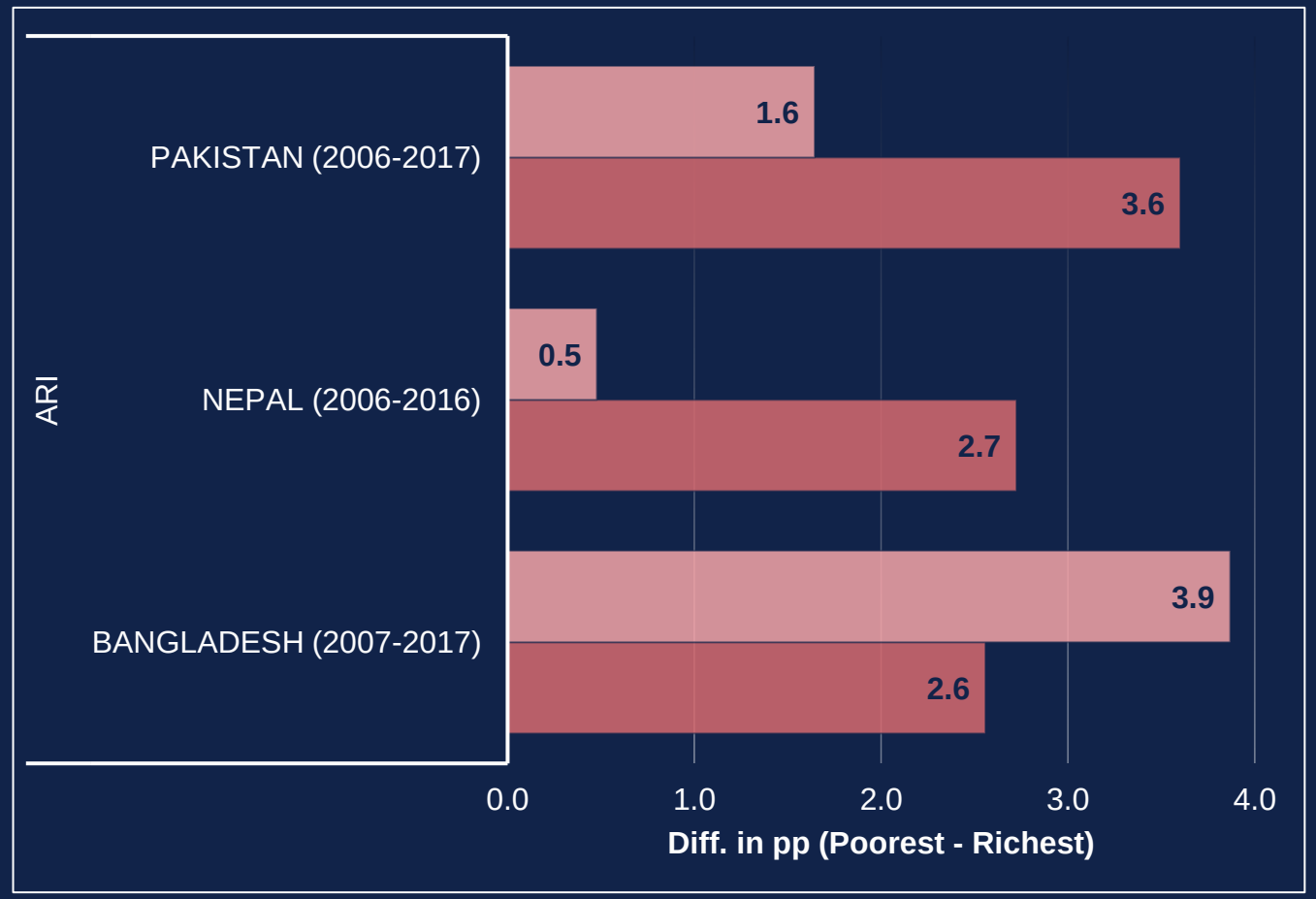


ACUTE RESPIRATORY INFECTION : TRENDS

Bangladesh

Prevalence of ARI among children under 5





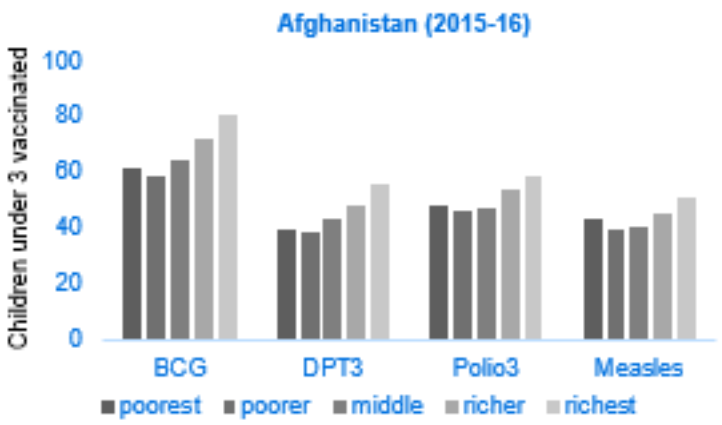
Difference in pp (Poorest - Richest):
2007→ 3.9 pp
2017→ 2.6 pp

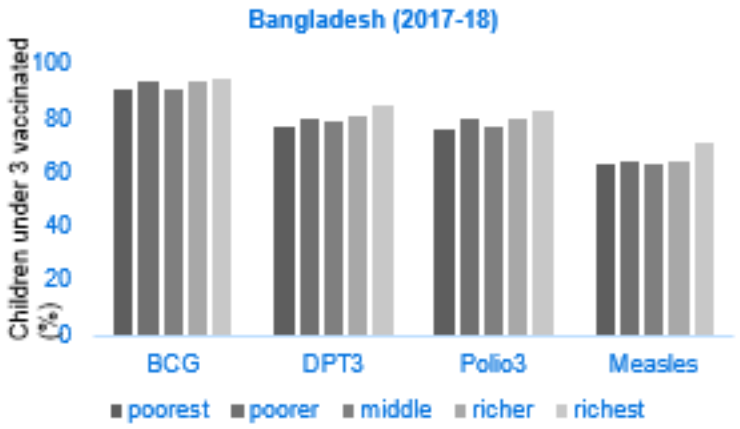
Diff in diff (how much the gap has closed or not):
1.3 = 3.9 – 2.6

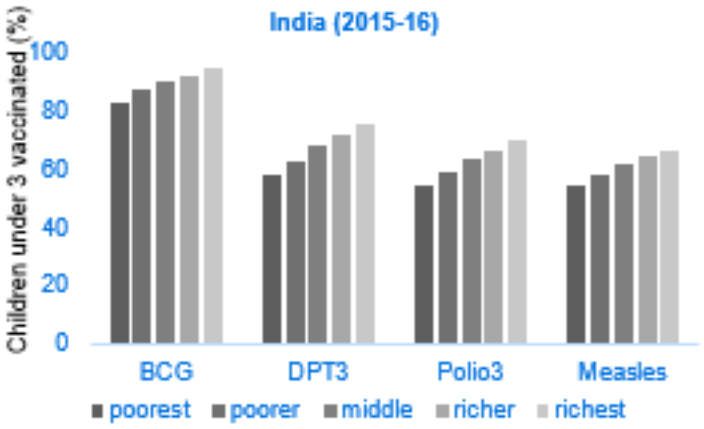
Child immunization coverage

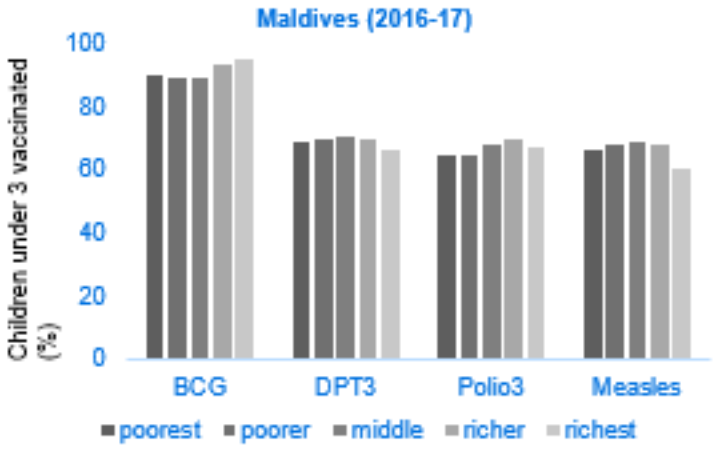
CHILD IMMUNIZATION COVERAGE

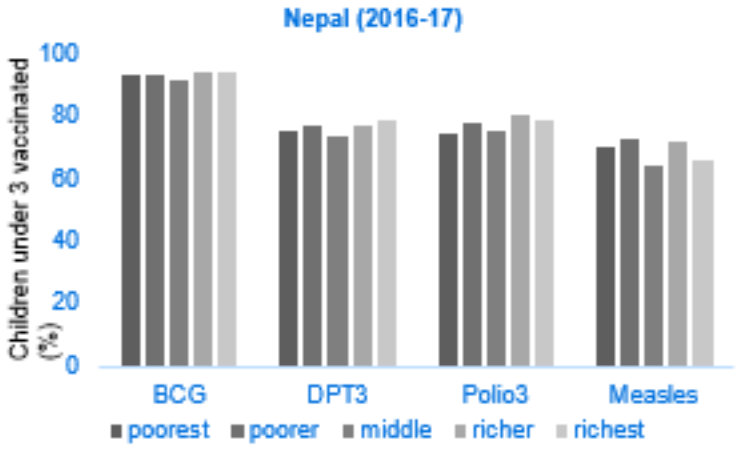
(BCG, DPT3, POLIO3, MEASLES)

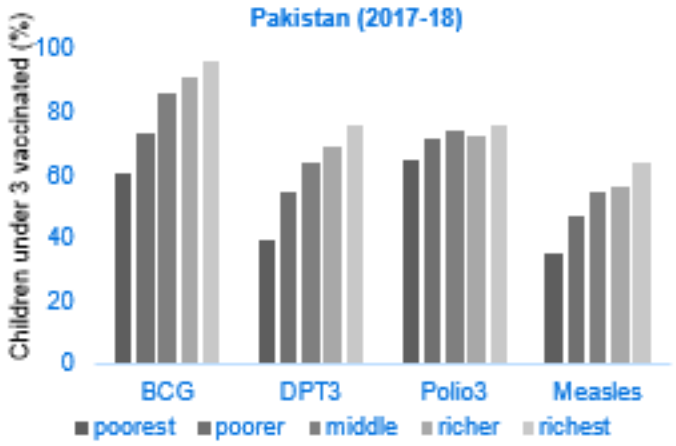




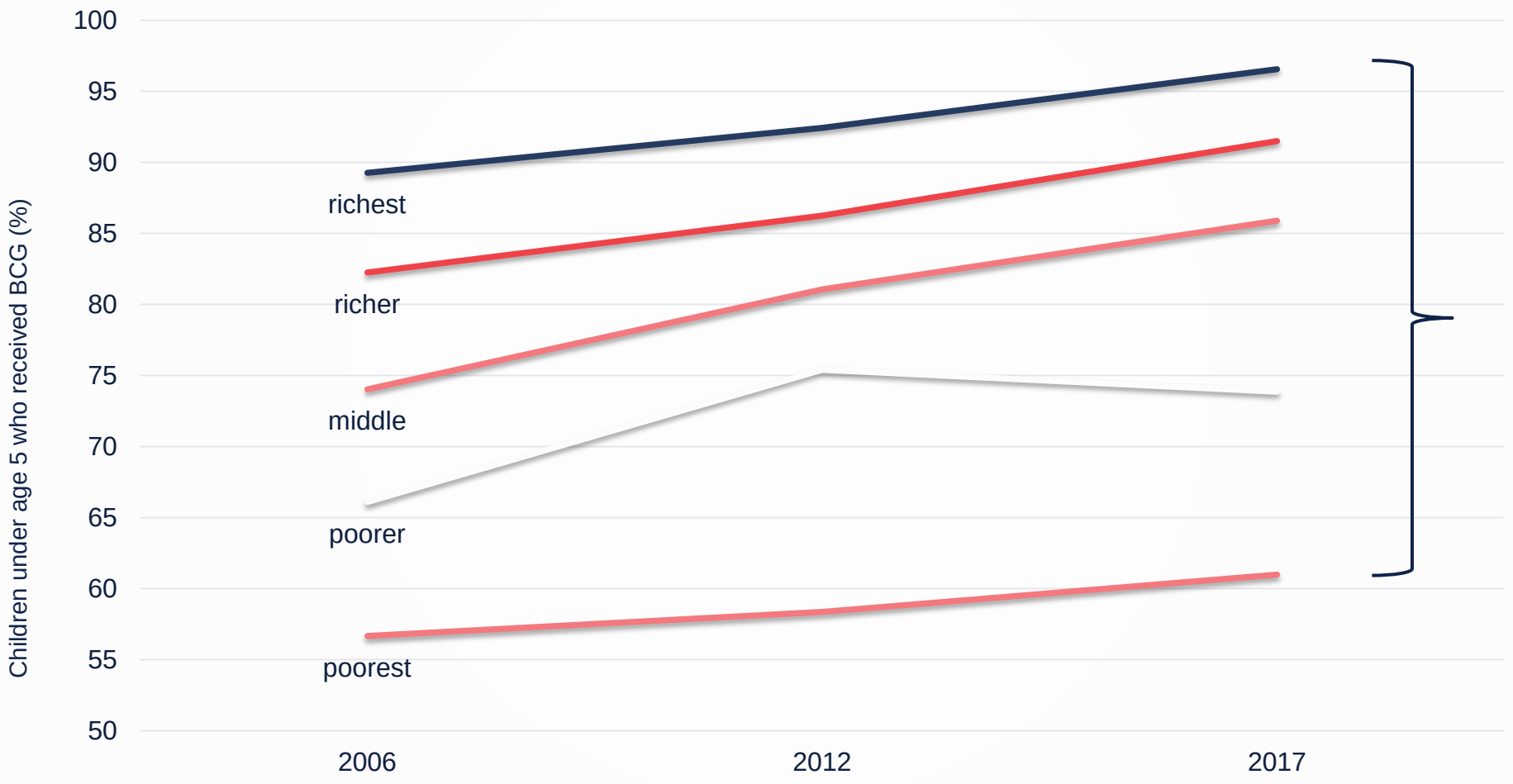








BCG VACCINATION : TRENDS -- AN EXAMPLE FOR PAKISTAN



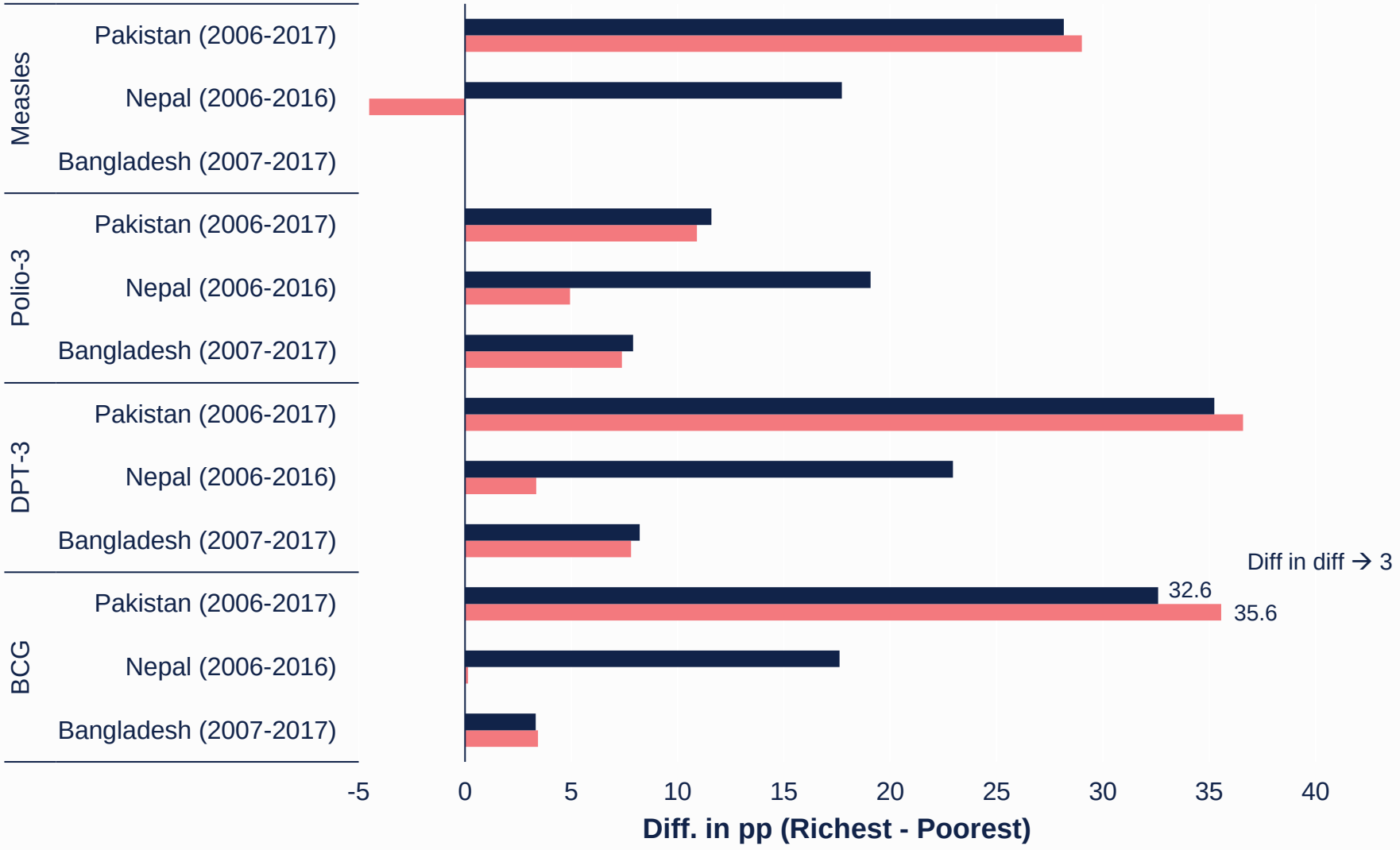
Difference in pp (Richest - Poorest):

2017→ 35.6 pp
2006→ 32.6 pp

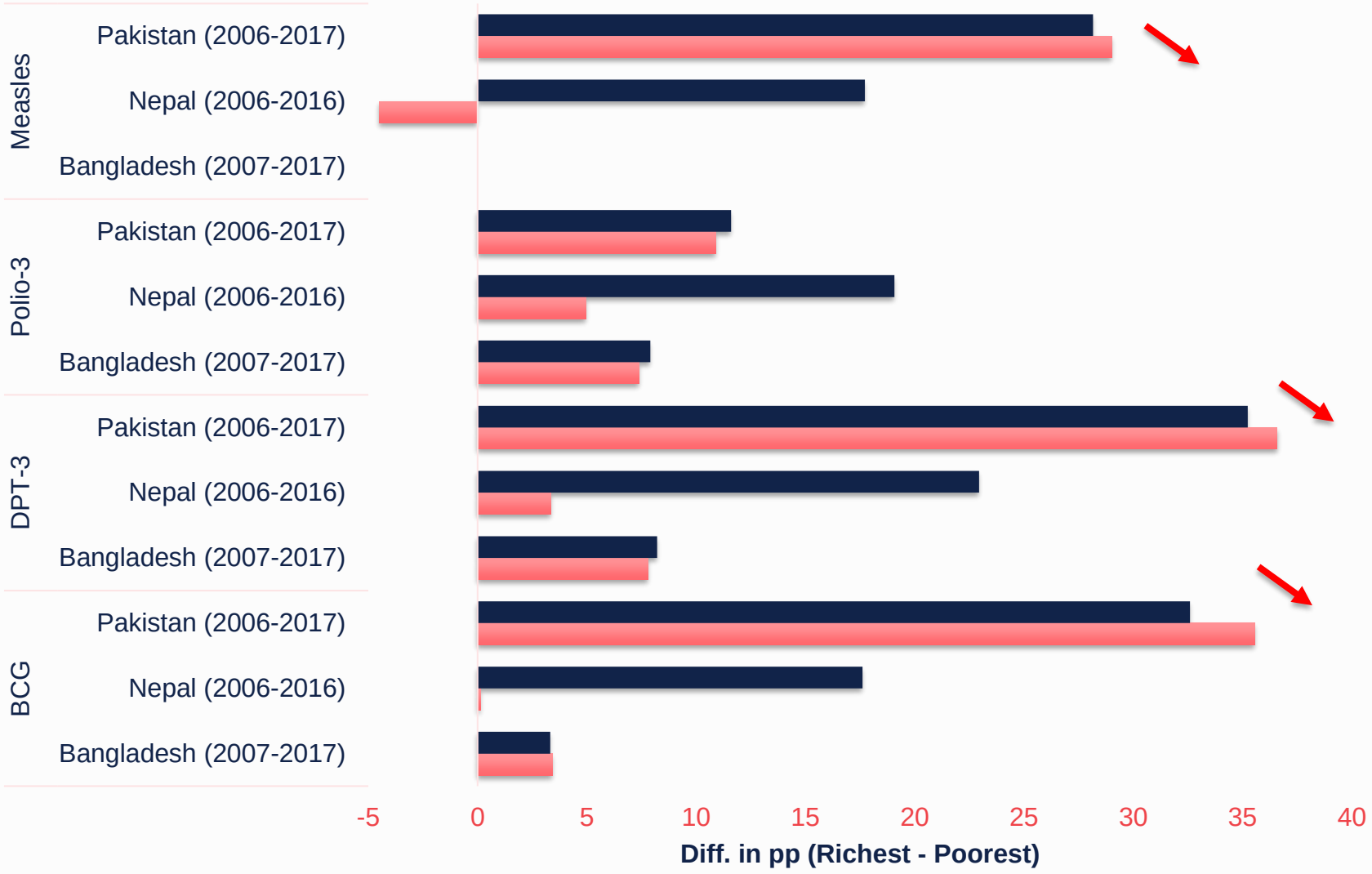
Diff in diff (how much the gap has closed or not):

3 = 35.6 – 32.6

VACCINATION: TRENDS IN THE GAPS BETWEEN POOREST AND RICHEST GROUPS



VACCINATION: TRENDS IN THE GAPS BETWEEN POOREST AND RICHEST GROUPS

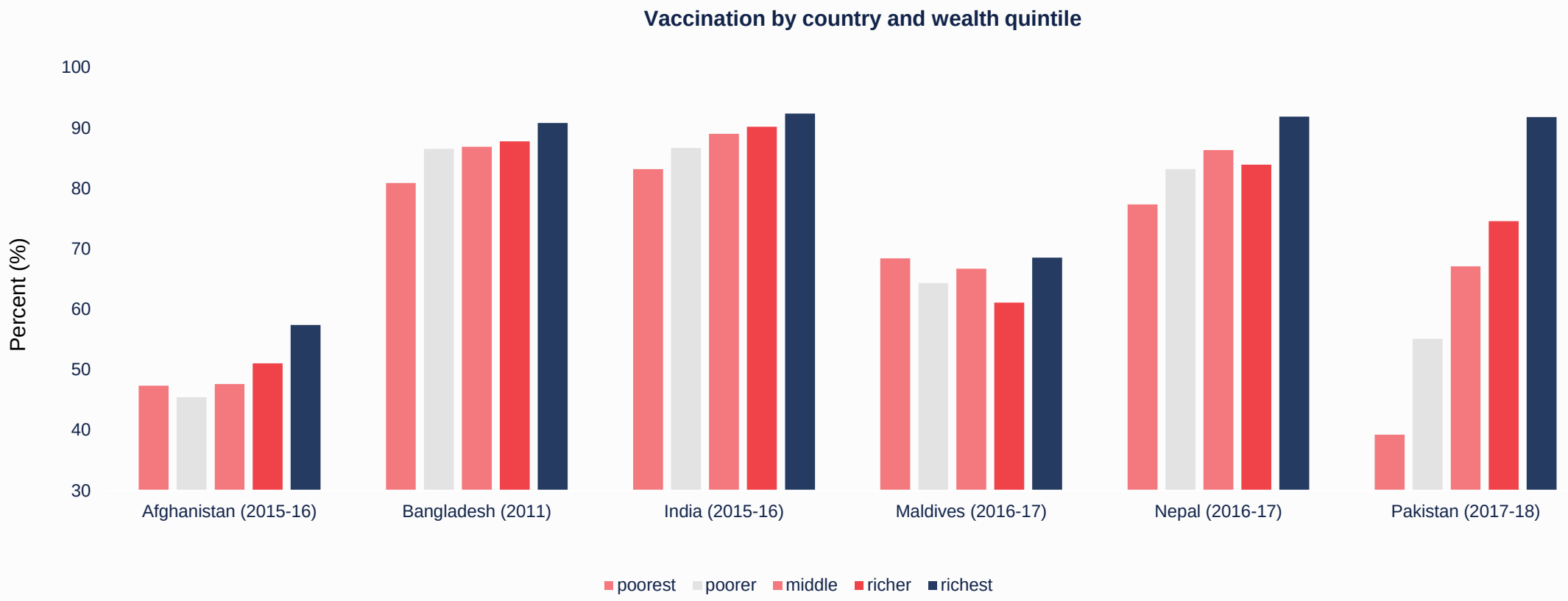


VACCINATION: TRENDS IN THE GAPS BETWEEN POOREST AND RICHEST GROUPS

Adult immunization coverage

ADULT VACCINATION COVERAGE

WOMEN AGE 15-49 WHOSE LAST LIVE BIRTH IN THE PAST 5 YEARS WAS PROTECTED AGAINST NEONATAL TETANUS THROUGH TETANUS TOXOID VACCINATION



SOUTH ASIA VACCINATES AGAINST COVID-19

The COVID-19 pandemic has been an unprecedented shock to the global economy, has exacerbated inequalities and has been a dramatic setback towards eradicating poverty;

Therefore, vaccination is a key development priority; unlike other policy measures, such as lockdowns, vaccines save lives and livelihoods.

However, vaccinating at the scale and speed required to end the pandemic is a daunting task never attempted before. This presentation highlights:

- Vaccination has a high benefit/cost ratios;
- Having features of a public good, herd immunity by vaccination requires government intervention and its financing, while high, seems 'feasible';
- However, financing is one of the challenges; allocation of the vaccine, at least in the short run, presents trade-offs between equity and efficiency;
- And delivering the vaccines – given the current preparedness of the health systems and potential vaccine hesitancy – is an additional key obstacle;
- It is especially important to ensure that vaccines are reaching all those eligible, not just those with the privilege and resources to obtain them.

THANK YOU!

Questions?

https://www.worldbank.org/en/region/sar/brief/office-of-the-chief-economist-south-asia-region