



**#FiscalMonitor**



**FISCAL AFFAIRS**

# **OCTOBER 2020 FISCAL MONITOR, CHAPTER 2**

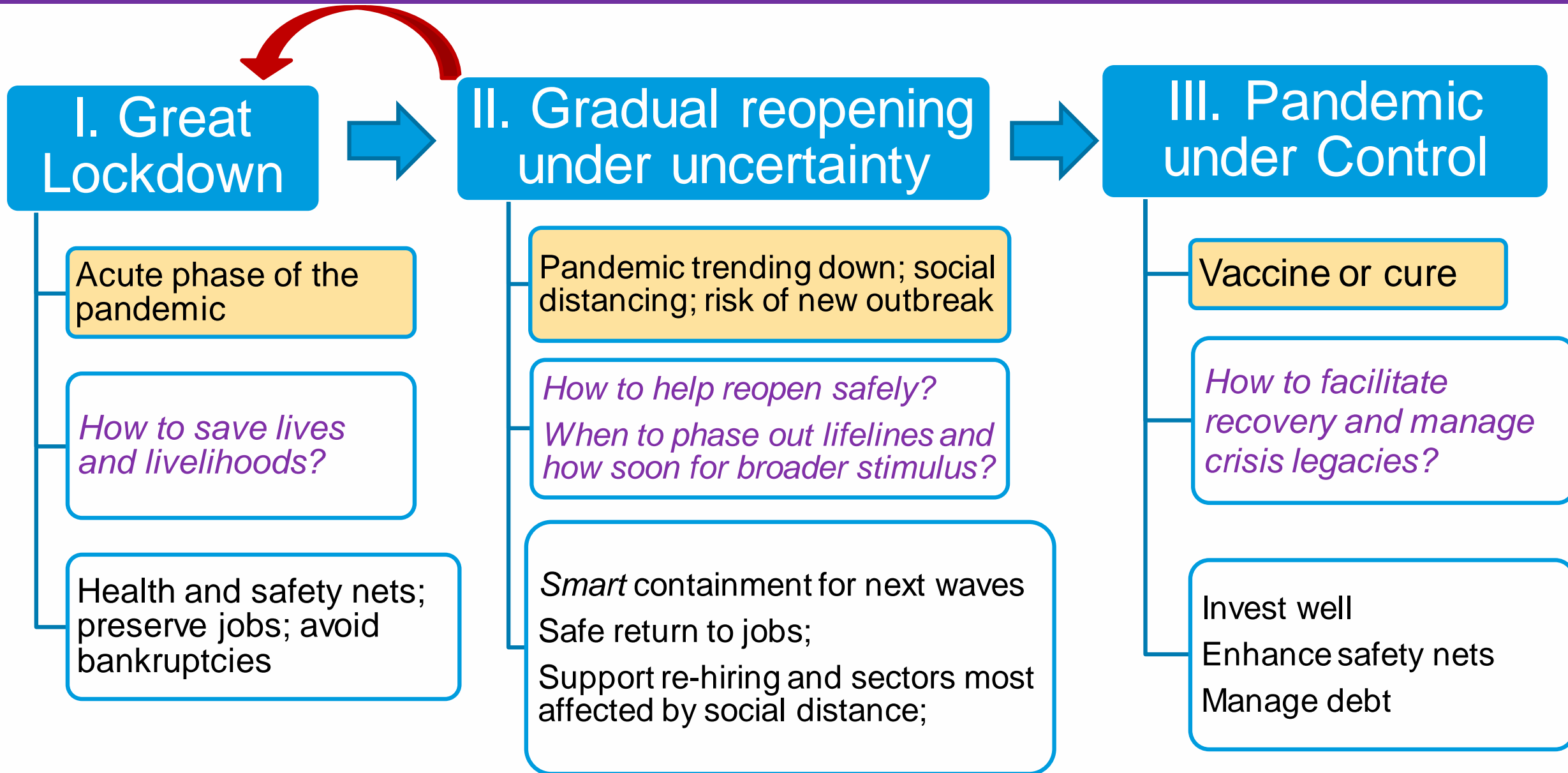
Public Investment For The Recovery

**Raphael Espinoza, IMF Fiscal Affairs Department**

JOINT VIENNA INSTITUTE (JVI), NOVEMBER 3, 2020

Based on work done with Matthieu Bellon, William Gbohoui, Fabien Gonguet, Xuehui Han, Sandra Lizarazo, Mariano Moszoro, Andrea Presbitero, Mouhamadou Sy, and Claude Wendling

# Flexible and Robust Policies Under High Uncertainty

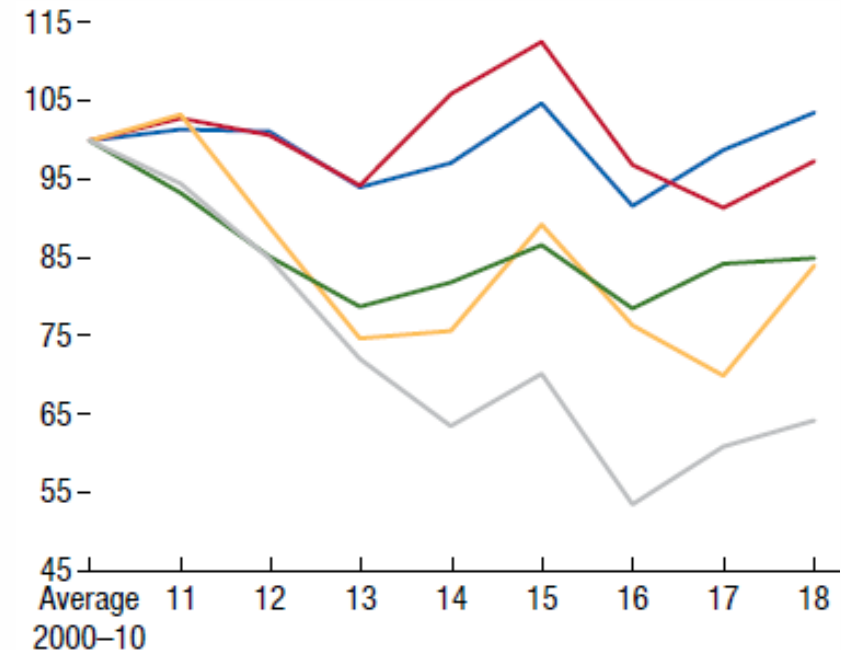


# The Role of Public Investment in The COVID-19 Recovery

- Needed for healthcare, digital infrastructure, environmental protection

## Public Investment/GDP in Advanced and Emerging Market Economies (2000-18)

- Economic affairs (average 2000–18 = 1.2 percent of GDP)
- Education (average 2000–18 = 0.4 percent of GDP)
- Health (average 2000–18 = 0.3 percent of GDP)
- Others (average 2000–18 = 1 percent of GDP)
- Environmental protection<sup>1</sup> (average 2000–18 = 0.17 percent of GDP)



Sources: OECD and IMF staff estimates.

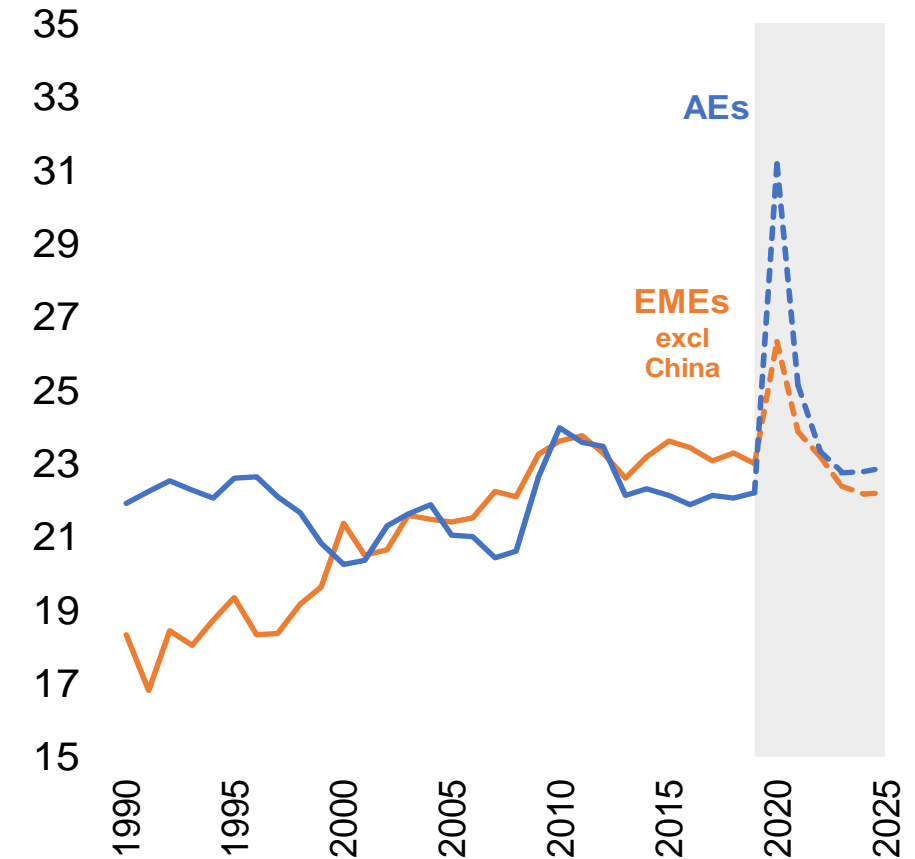
Note: “Others” includes general public services, defense, etc.

<sup>1</sup>Covers waste management, protection of biodiversity, etc.

# The Role of Public Investment in The COVID-19 Recovery

- Needed for healthcare, digital infrastructure, environmental protection
- Macroeconomic conditions ripe for more investment

**Gross Private National Savings**  
(percent of GDP, 1990-2025)

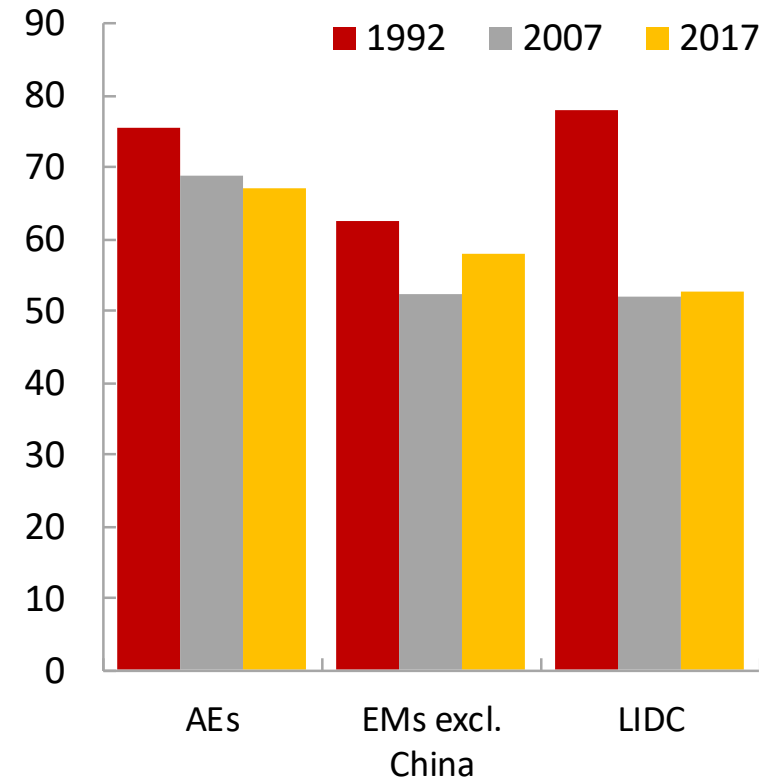


Source: IMF World Economic Outlook and IMF staff estimates .

# The Role of Public Investment in The COVID-19 Recovery

- Needed for healthcare, digital infrastructure, environmental protection
- Macroeconomic conditions ripe for more investment
- Creating assets protects fiscal space

Public Capital Stocks, 1992, 2007, and 2017  
(Ratio to GDP)

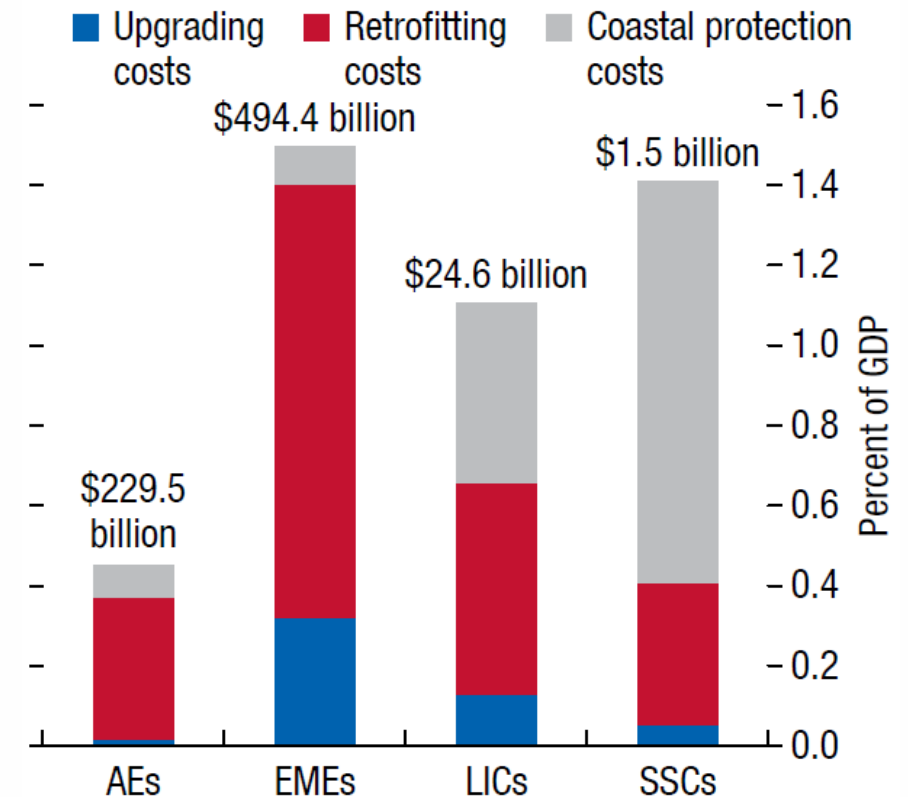


Source: IMF Investment and Capital Stock Dataset.  
Note: AEs = advanced economies; EMs = emerging markets;  
LIDCs = low-income developing countries.

# The Role of Public Investment in The COVID-19 Recovery

- Needed for healthcare, digital infrastructure, environmental protection
- Macroeconomic conditions ripe for more investment
- Creating assets protects fiscal space
- Build sustainable, inclusive, resilient economy

## Annual Climate Change Adaptation Costs (in percent of GDP)



Sources: Rozenberg and Fay 2019; IMF staff estimates.

Note: Upgrading costs estimated WEO projections. Retrofitting costs calculated using share of exposed public assets. Coastal protection costs based on global representations of coastal zones and climate model in Nicholls and others (2019). See Annex 2.7 and Bellon (forthcoming)

# Main Questions Addressed

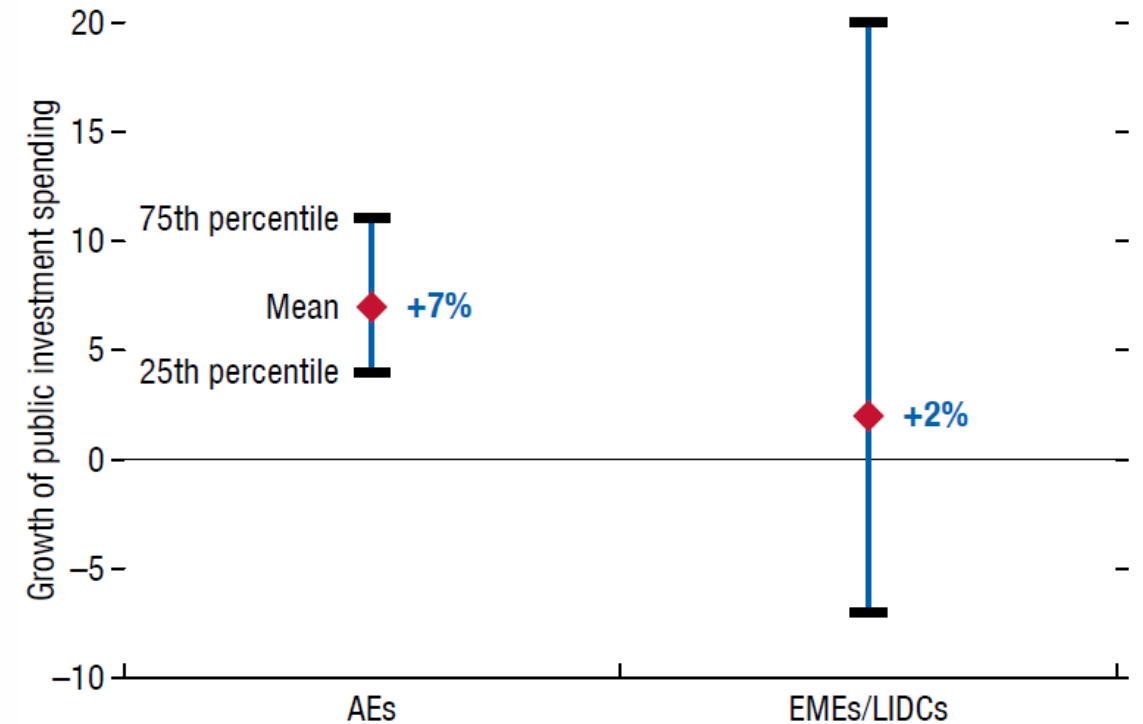
- 1) Can increase in investment be timely?
- 2) Would it create jobs in current circumstances?
- 3) How to maintain the quality of projects?
- 4) What to invest in?

# Investment can be timely if focused on maintenance and existing projects

Steps to take are:

- Invest right now in maintenance
- Review and restart good projects
- Speed up the pipeline
- Start planning now for the new priorities

## Public Investment Spending, March-June 2000 (Year-over-year percentage change)



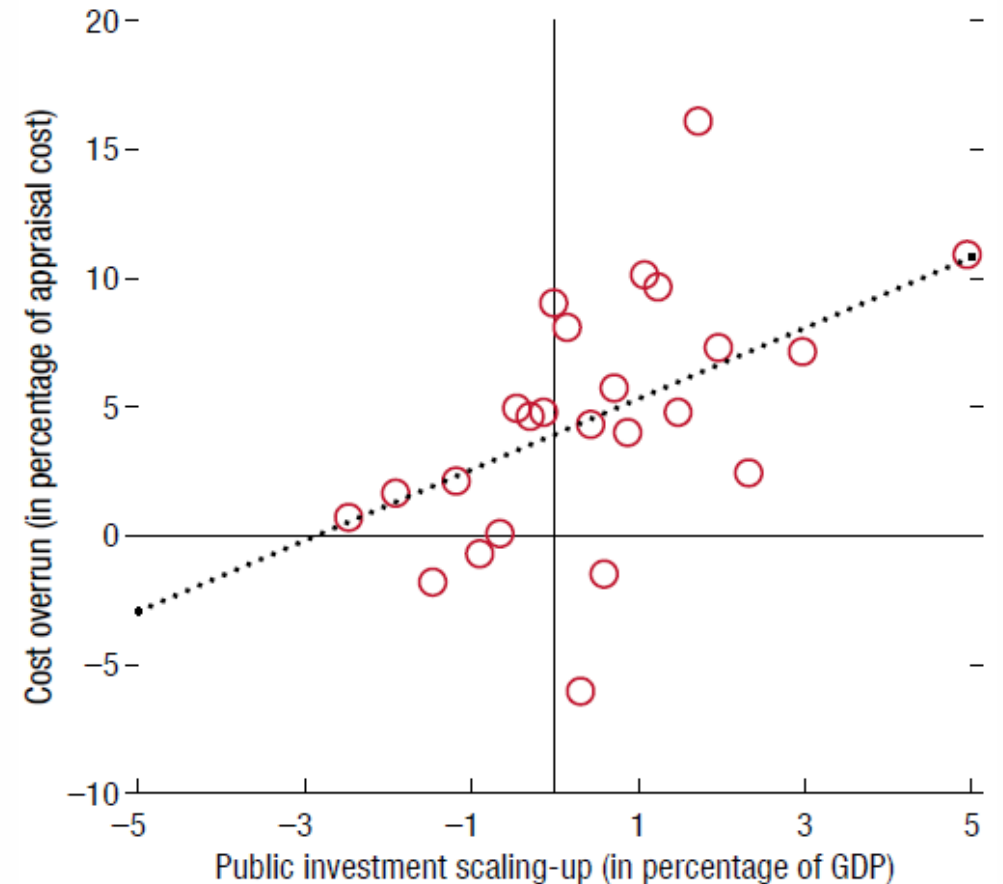
Sources: Staff estimates based on monthly execution numbers for a sample of 13 countries. Notes: Deflated by 2019 end of year CPI inflation. Averages (square) are non-weighted. See Wendling and Weerathunga (Annex 2.2)



# Good governance and preparation limits absorptive capacity constraints

- Analysis of 2,200 World Bank projects
- New data cover 120 countries over 30 years
- Granular analysis of project execution
  - Cost overruns
  - Time delays
- Looking at project- and macro-level variables
- Absorptive capacity constraints can lead to cost overruns of 10 percent.

*Cost overruns are frequent and increase when investment is scaled-up*

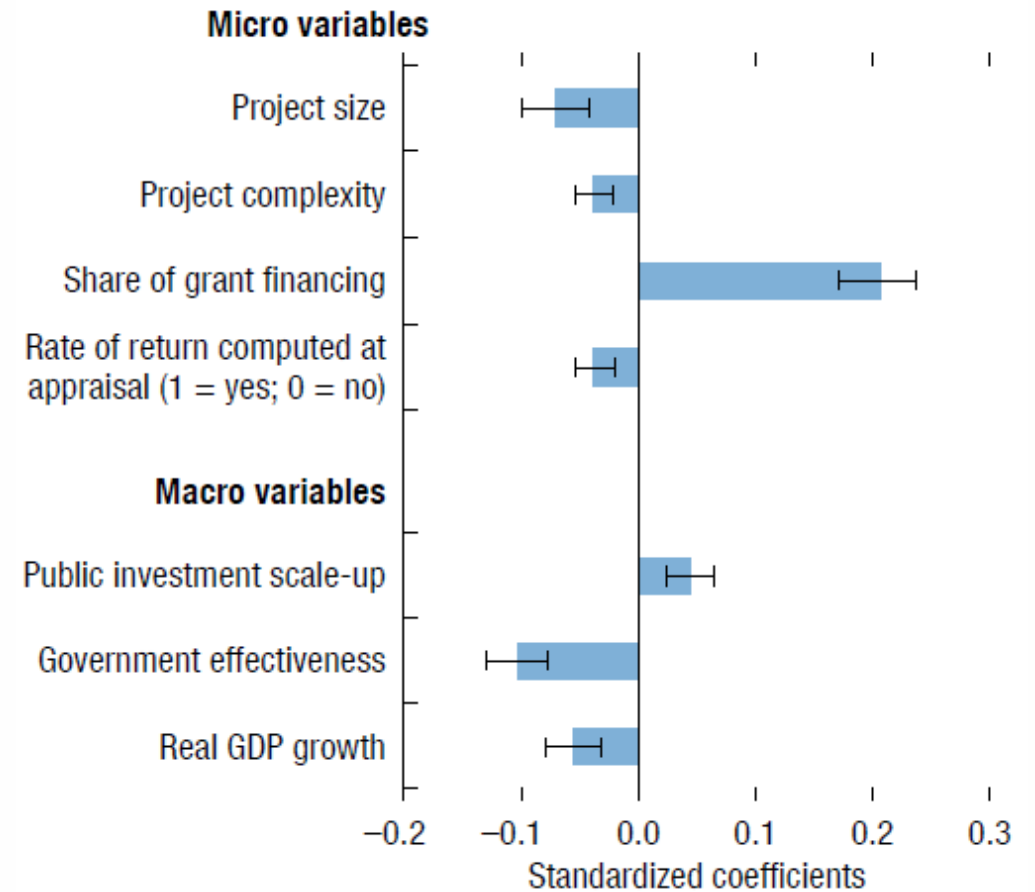


Source: Analysis of the performance of more than 2,200 World Bank-financed projects approved in more than 120 countries. Binned scatter plot controls for project-specific and macro variables as well as fixed effects. See Annex 2.3 and Espinoza and Presbitero (forthcoming)

# Good governance and preparation limits absorptive capacity constraints

*Projects get delayed if less ownership of for countries with less effective administrations*

- Analysis of 2,200 World Bank projects
- New data cover 120 countries over 30 years
- Granular analysis of project execution
  - Cost overruns
  - Time delays
- Looking at project- and macro-level variables
- Absorptive capacity constraints can lead to cost overruns of 10 percent.
- Limited local ownership associated with delays

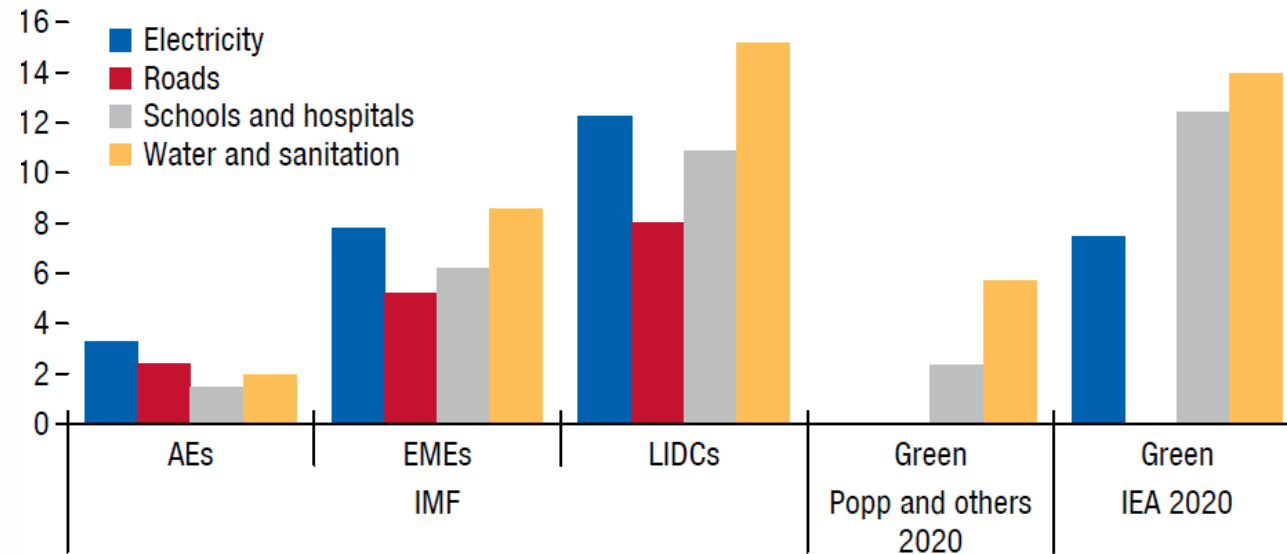


Source: Analysis of the performance of more than 2,200 World Bank-financed projects approved in more than 120 countries. Binned scatter plot controls for project-specific and macro variables as well as fixed effects. See Annex 2.3 and Espinoza and Presbitero (forthcoming) 10

# Assessing the job content of public investment

- Data on 5,600 construction firms covering 41 advanced and emerging economies
- Classification codes such as
  - “Construction of utility projects for electricity”
  - “Highway, Street, and Bridge Construction”
- Job content higher in green infrastructure according to literature
- 1 percent of GDP of investment in advanced and emerging economies creates 7 million jobs directly
- Excludes indirect effects

## Job Content Per US\$1 Million of Additional Investment (Selected infrastructure sectors)



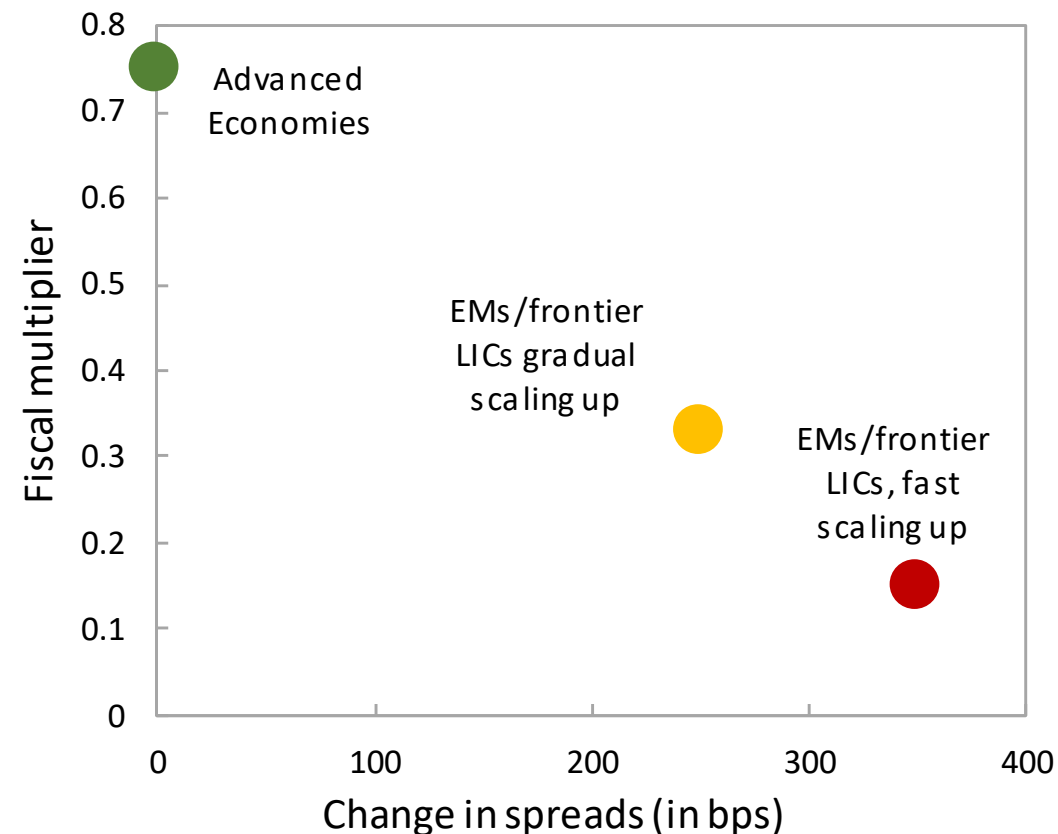
Source: IMF staff estimates; IEA (2020) and Popp et al. (2020)

Notes: Based on regressions of employment on revenues in millions of 2015 US dollars over 1999-2017, covering 47,580 observations for 5,679 privately-owned and SOEs (Compustat and Orbis). IEA (2020) and Popp et al (2020) are specifically for green investment. R&D results based on cross-country regressions using OECD data on R&D and employment. See Annex 2.4 and Moszoro (forthcoming).

# The fiscal multiplier of public investment

- Need to estimate fiscal multipliers
- But this crisis is different.
  - i. High debt levels (reduce multipliers; Huidrom et al 2019)

## Fiscal Multiplier and the Response of Spreads

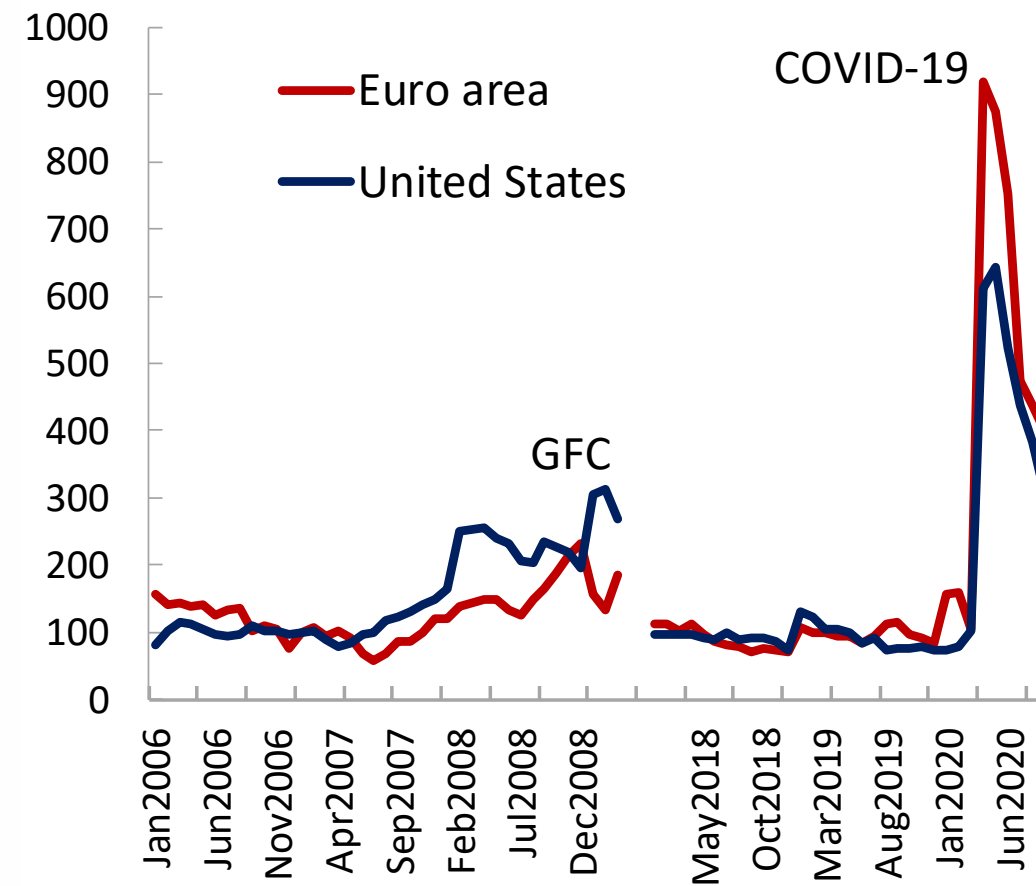


Note: Based on sovereign stress model. EMs = emerging markets; LIC: low-income countries. See Lizarazo (Appendix 2.1)

# The fiscal multiplier of public investment

- Need to estimate fiscal multipliers
- But this crisis is different.
  - i. High debt levels (reduce multipliers; Huidrom et al 2019)
  - ii. Supply constraints (reduce multipliers; Guerrieri and others 2020)
  - iii. Acute uncertainty (uncertain effect: Bloom and others 2019; vs Bachmann and Sims 2019)
  - iv. Weak balance sheets (should reduce multipliers; see Myers 1977)

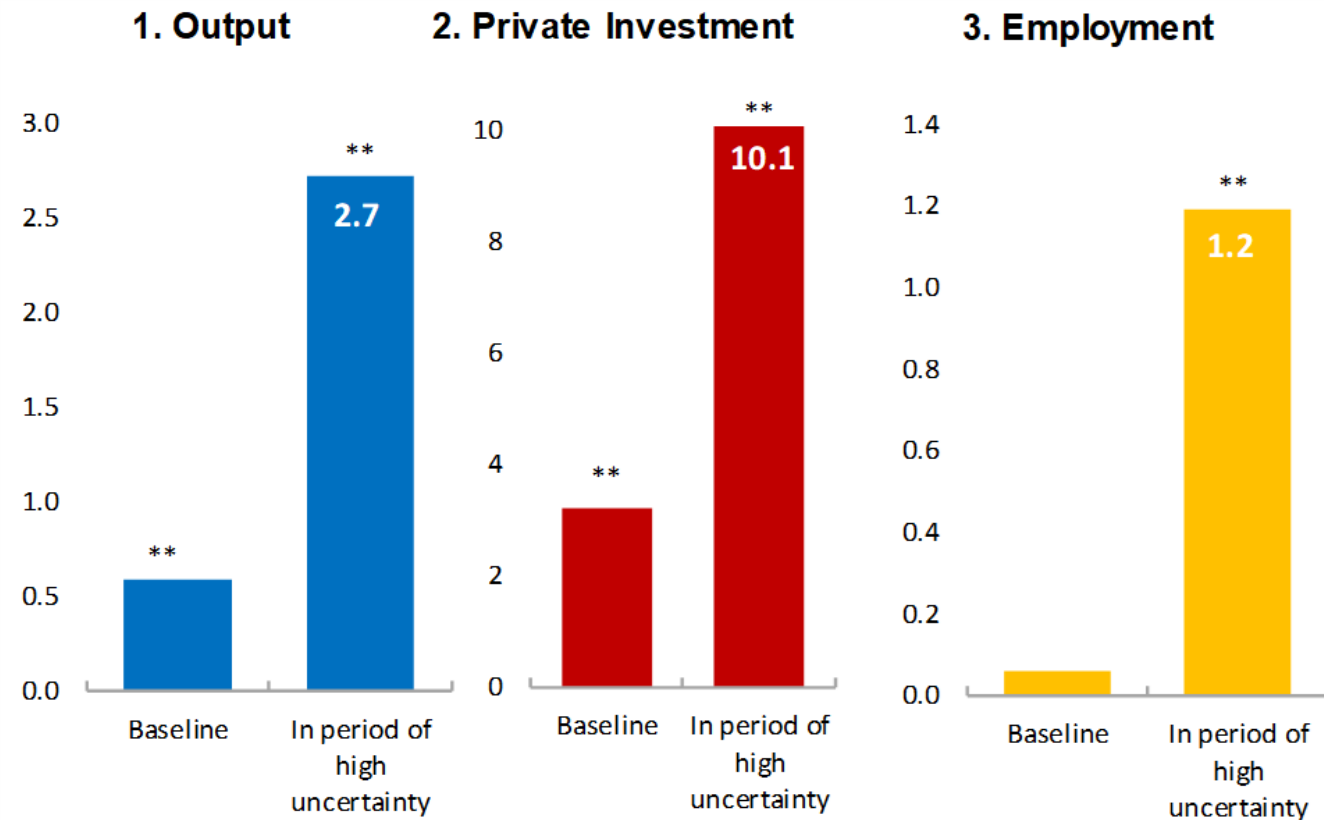
Uncertainty on one-year ahead growth  
(standard deviation across forecasters,  
index 100 = Jan 2007)



# Uncertainty can increase the public investment multiplier

- Panel of 72 countries over 1990-2019
- Shock identified by deviation from IMF desk forecasts (Auerbach and Gorodnichenko 2012)
- Allows for multipliers to depend on uncertainty
- 2-year multiplier above 2 in periods of high uncertainty
- Elasticity of 1.2 for employment
  - 20-33 million jobs created globally for 1 percent of GDP of public investment in AE and EMs

## Uncertainty and the Fiscal Multiplier of Public Investment in AEs and EMs (deviation from baseline, for 1 pc GDP shock to public investment)

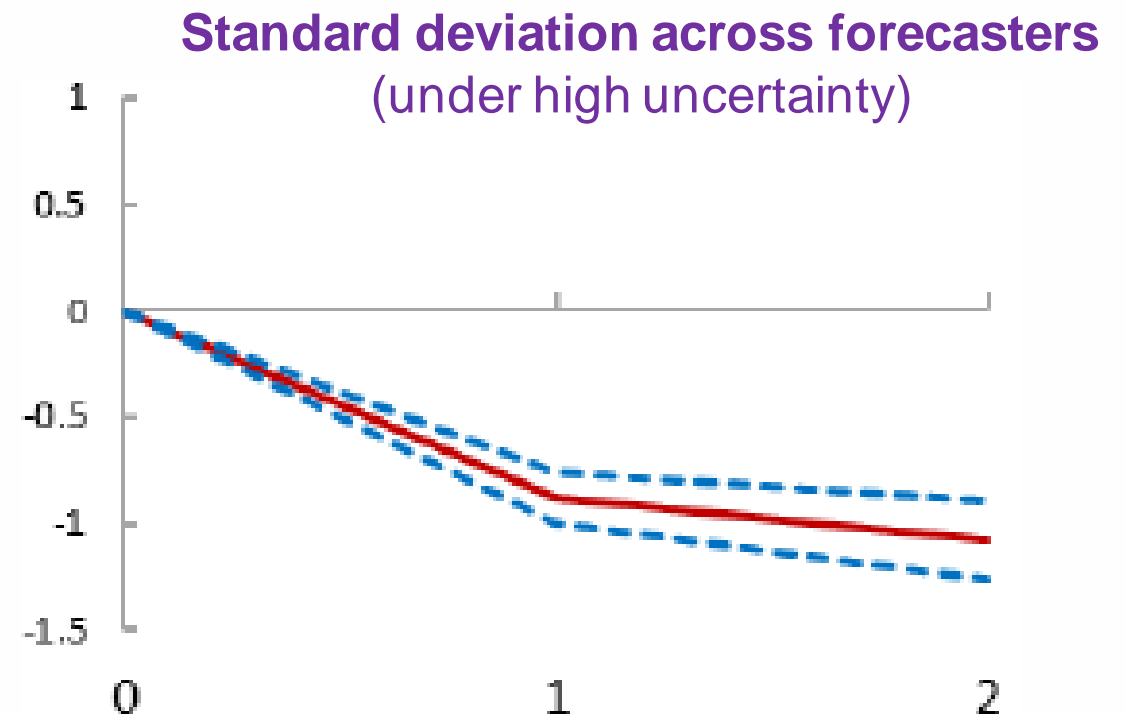
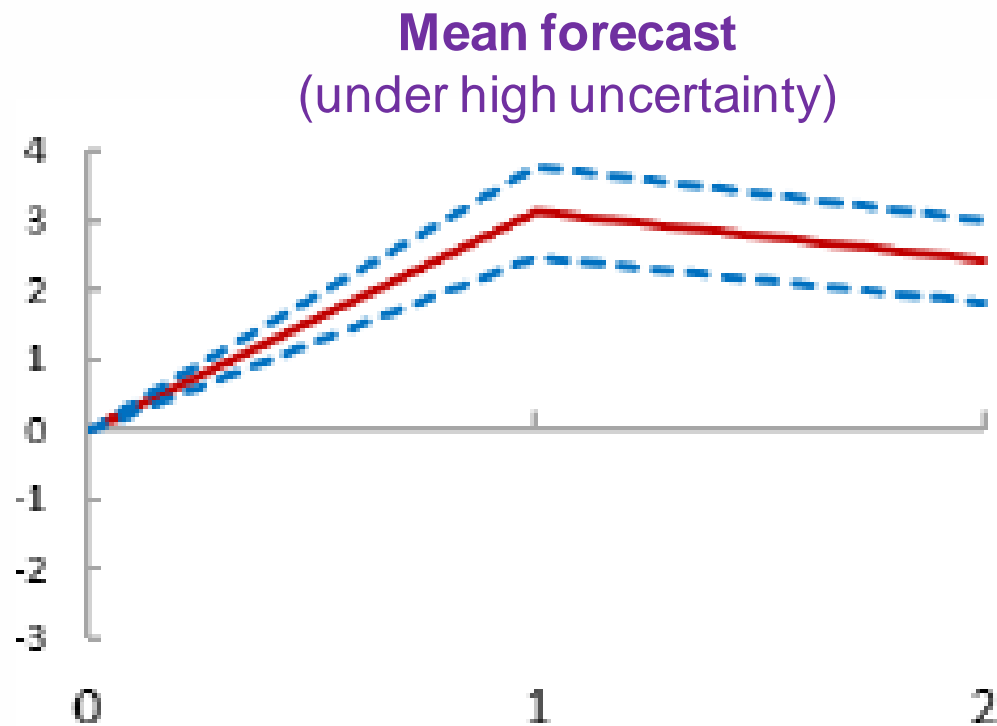


Source: IMF staff estimates for 2-year horizon multiplier.

Note: \*\* for significant at two standard deviation confidence interval. Data cover 72 AEs and EMs. See Gbohoui (Annex 2.5)

# ....possibly because of its effect on expectations

**Effect of Public Investment on professional forecasters' growth forecasts**  
(deviation from baseline, for 1 pc GDP shock to public investment)



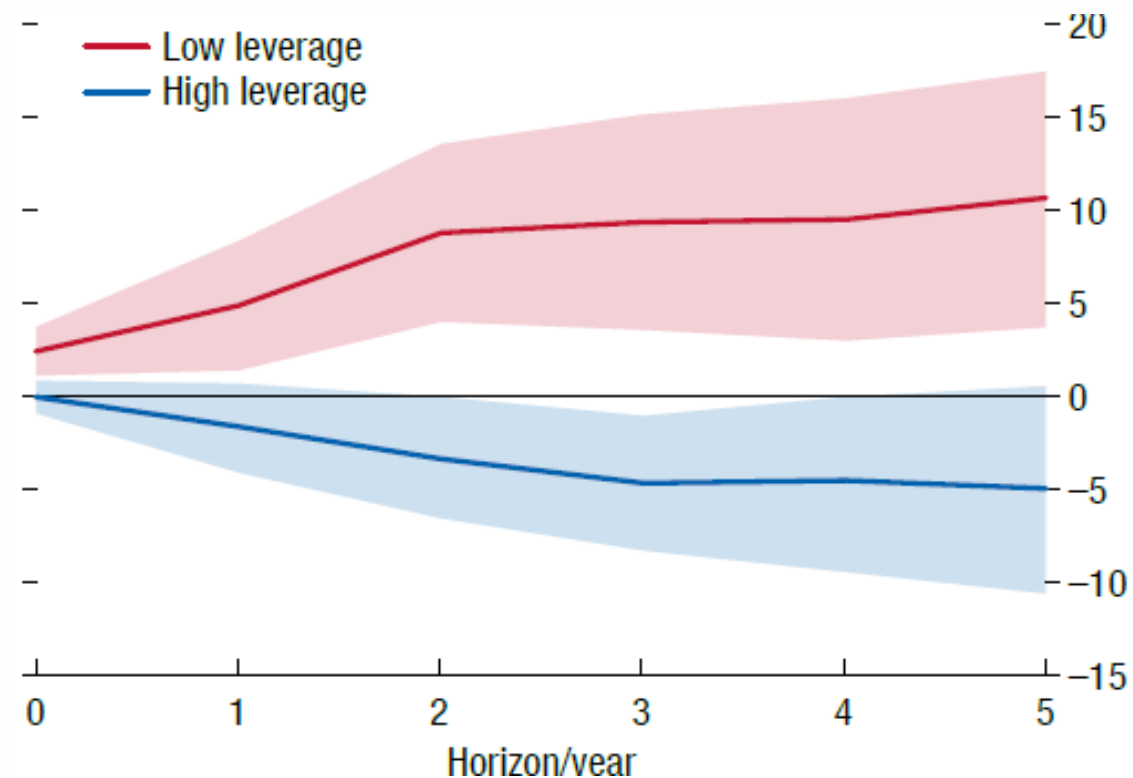
Source: IMF staff estimates.

Note: \*\* for significant at two standard deviation confidence interval. Data cover 72 AEs and EMs. See Gbohoui (Annex 2.5)

# The multiplier could be lower because of weak corporate balance sheets

- Does balance sheet strength affect firm's response to fiscal shocks?
- Shock identified again using deviation from IMF desk forecasts, with non-linear local projections
- Differentiate firms by leverage ratio and by cash constraints (proxied by past profits)
- Data on 400,000 firms across 49 countries
- Firms with high leverage do not increase investment after spending shock
- Important complementarity with measures to support firms

## Response of Corporate Investment to Public Investment (deviation from baseline, for a 1 pc shock)



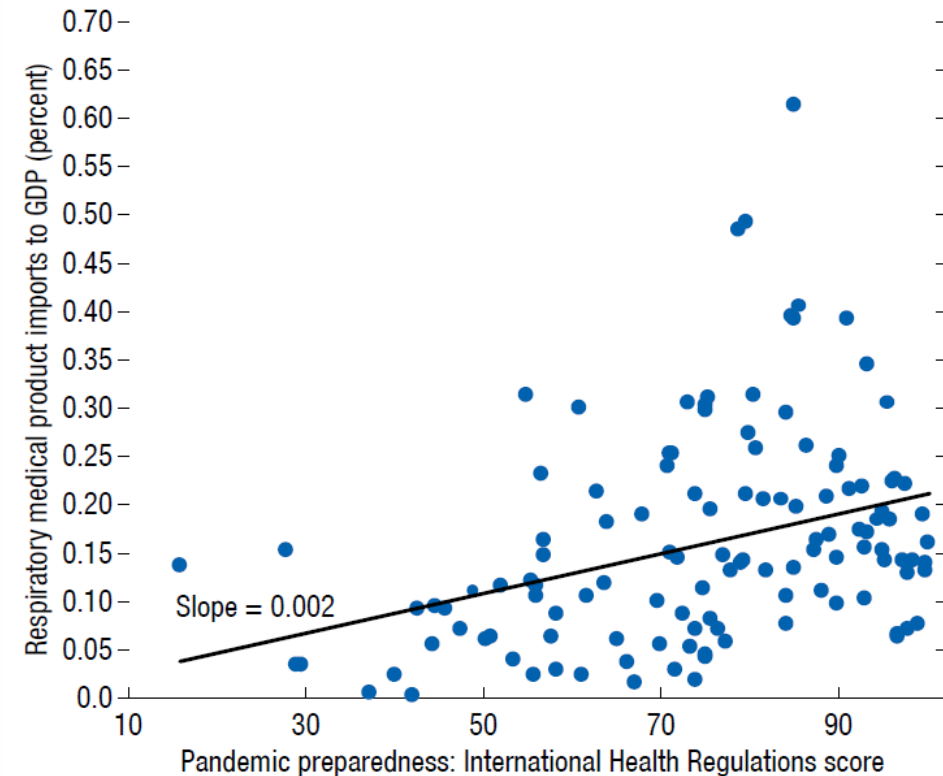
Note: Cumulative effect on private investment of a 1 percent shock in public investment. Estimated based on a database of about 400,000 private firms covering 26 advanced economies and 23 emerging and developing economies. See Espinoza, Gamboa and Sy (2020)



# Where to invest in?

- Short-term needs in health care, safe transportation and buildings, social housing
- Cost of increasing preparedness to pandemics not so high
- Building resilience requires investment in digital infrastructure

## Spending on Medical Products and WHO Index of Pandemic Preparedness



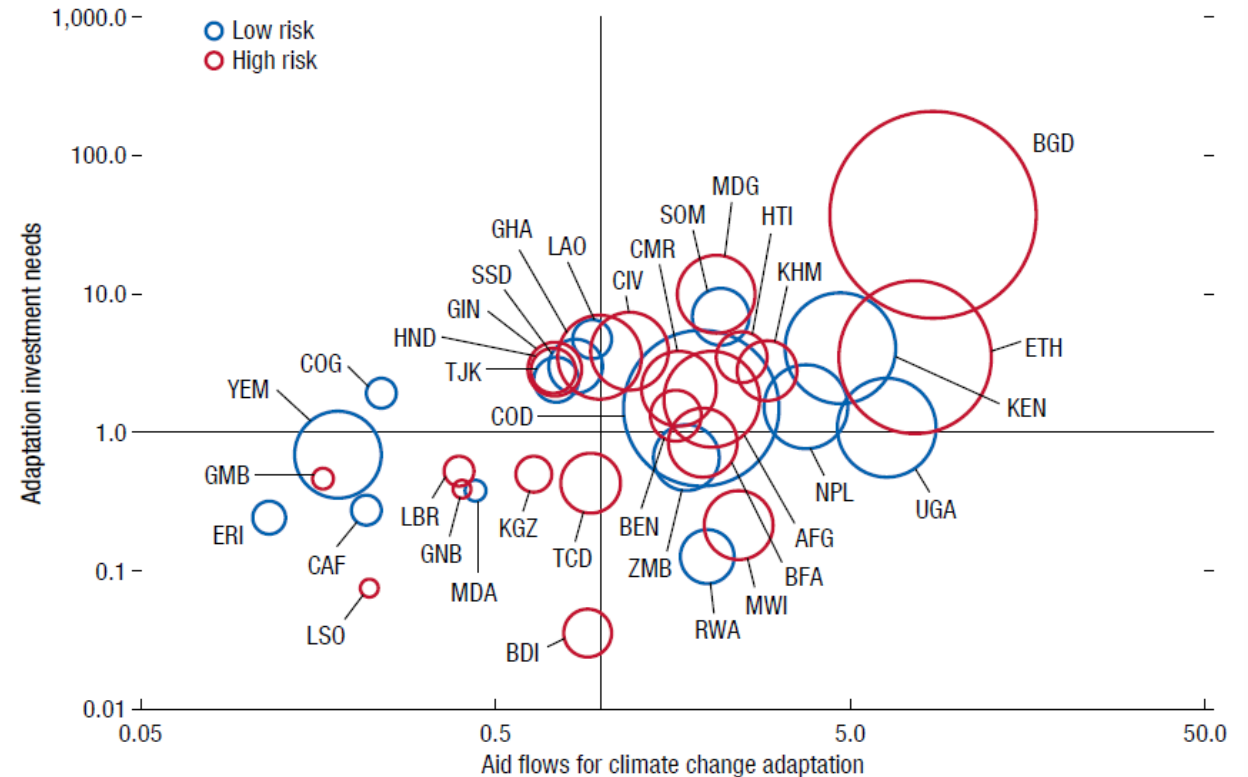
Sources: WHO Index of Health Regulation (IHR); COMTRADE; and IMF staff estimates.

Note: The figure shows the correlation between IHR index and spending on imported medical products See Han (Annex 2.6).

# Where to invest in?

- Short-term needs in health care, safe transportation and buildings, social housing
- Cost of increasing preparedness to pandemics not so high
- Building resilience requires investment in digital infrastructure
- Climate change in the next crisis coming. Large needs but low-income countries will need more aid

## Public Investment in Adaptation to Climate Change Needs and Aid Flows (in 100 million US dollars, log scale)



Sources: Bellon (forthcoming); OECD; and IMF staff estimates.

Note: The size of the bubble is the population size. The United Nations University Institute for Environment and Human Security World Risk Index for 2018 is used to measure natural disaster risk.

# Conclusion: public investment as part of the recovery strategy

Phase	1. Great Lockdown	2. Partial Reopening	3. Post-Pandemic
<b>Priority</b>	Save lives and livelihoods	Safe reopening	Inclusive, smart, sustainable economies
<b>Key fiscal policies</b>	Lifelines for people/firms	Preserve lifelines; target support better	Fiscal stimulus, repair balance sheets
<b>Role of public investment</b>	Safe projects, start planning	Boost maintenance and job-rich projects	Infrastructure needs; increase resilience to crises
<b>Preferable project characteristics</b>	Maintenance	Maintenance; large short-term multiplier	Transformational; large long-term multiplier
<b>Public investment management actions</b>	Review planned and active projects	Reprioritize, restart feasible projects	Strengthen planning, budgeting and implementation
<b>Priority sectors</b>	Health	Health, infrastructure schools, transport	Health, climate change, digital

Note: Countries do not necessarily progress smoothly through all phases of pandemic. Appropriate fiscal responses will be country-specific.

JUST RELEASED

# Public Investment for the Recovery

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