



April 2021 WEO – Chapter 2

After-Effects of the COVID-19 Pandemic: Prospects for Medium- Term Economic Damage

MAY 10, 2021

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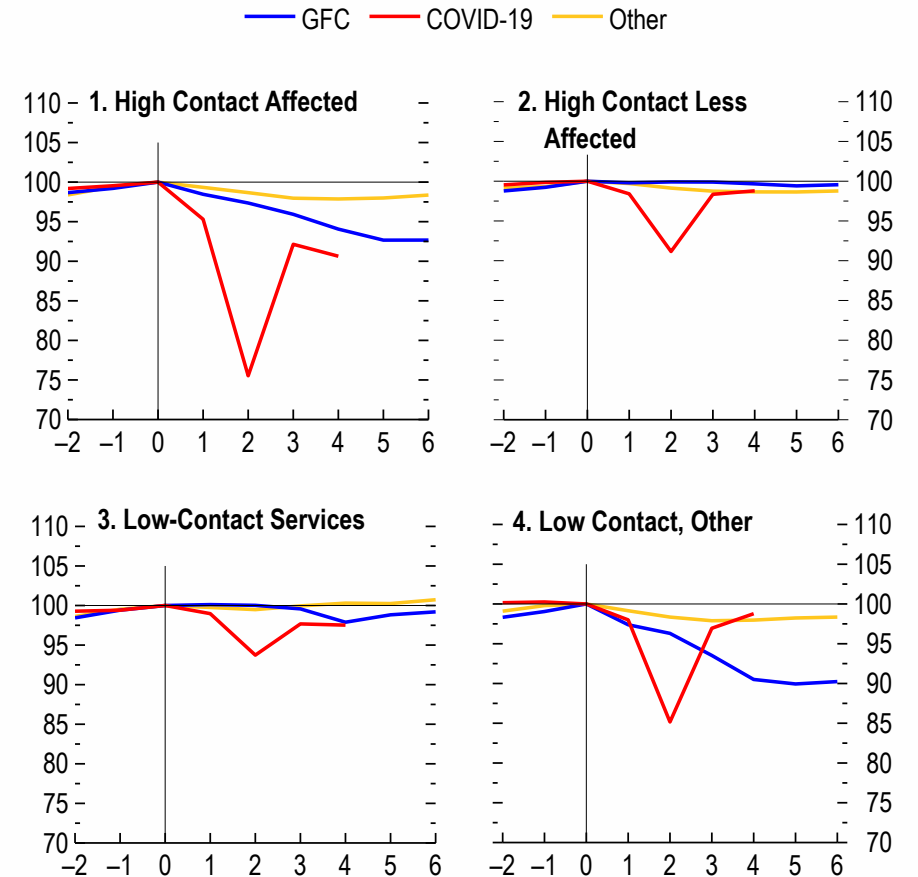
Motivation

- The COVID-19 pandemic has led to a severe global recession
 - Output decline three times as much as in GFC, in half the time
 - A unique crisis with differential impacts
 - Accompanied by an unprecedented policy response
 - And great uncertainty about the recovery path
- This chapter tackles the following questions:
 - What can we learn from historical experience about prospects for scarring, and the most relevant channels through which it occurs?
 - How important are sectoral spillovers in propagating shocks to the broader economy?
 - What are the implications of the COVID-19 crisis for the medium-term outlook?

The COVID-19 shock: Demand and supply in a low-contact economy

- Sectors can be grouped into:
 - *High contact, affected*: restaurants, transportation, brick-and-mortar retail, etc.
 - *High contact, less affected*: health, groceries, construction, etc.
 - *Low-contact services*: professional and business services
 - *Other low contact*: e.g. manufacturing
- *High-contact, affected* sectors most severely impacted by lockdowns and other pandemic containment measures
- But activity fell across the board, with demand declining due to reduced mobility, heightened uncertainty, and network spillovers

Value Added by Sector Group During Recessions
(Index, last prerecession quarter = 100)



Sources: OECD; US Bureau of Economic Analysis; and IMF staff calculations.
 Note: Data are for 1990:Q1–2020:Q4 from 38 countries (the number of countries used for each recession line varies). Time since the shock (in quarters) on the x-axis. Lines are averages weighted by country's GDP. For the COVID-19 crisis, quarter 0 is 2019:Q4. For the Global Financial Crisis (GFC), quarter 0 is the country-specific date of peak real GDP during 2007–08. Other recessions are country-specific.

The COVID-19 shock: Differential impacts within and across economies

Within:

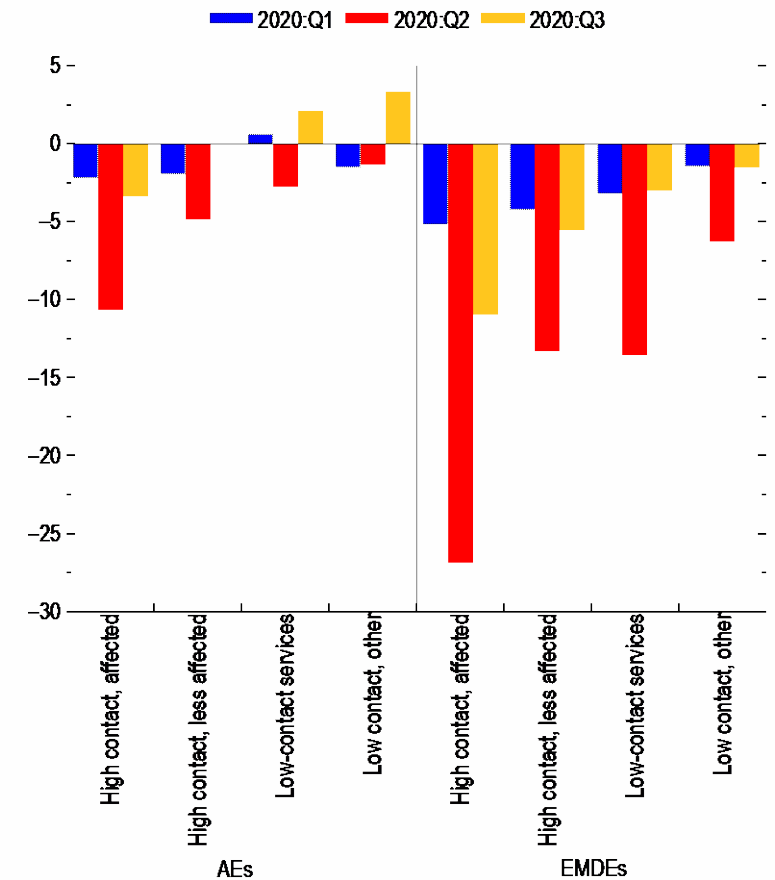
- Employment declines disproportionately among lower-skilled workers
- Exits for small businesses appear to be increasing

Across:

- Countries with larger share of high-contact sectors faced larger contractions
 - Particularly those dependent on tourism, and commodity exporters

Employment, by Sector Group

(Total hours worked, cumulative percent change from 2019:Q4)



Sources: International Labor Organization; and IMF staff calculations.
Note: Data are from 43 economies (27 AEs, 16 EMDEs) for 2019:Q4–2020:Q3. AEs = advanced economies; EMDEs = emerging market and developing economies.

Roadmap

Three sections to the analysis:

1. Historical evidence on recessions
2. Historical evidence on sectoral spillovers
3. Implications of the COVID-19 crisis for the medium-term outlook

Historical evidence on economic recessions

Channels of scarring

- Scarring: persistent damage to supply potential from job losses and firm bankruptcies, and resulting loss of economic ties in production and distribution networks

TFP

- loss of firm-specific know-how due to bankruptcies
- reduction in technology adoption and innovation
- obstacles to resource reallocation

Capital

- delayed or reduced investment during the crisis
- debt overhang, uncertainty, and tighter financial conditions after the recession

Labor

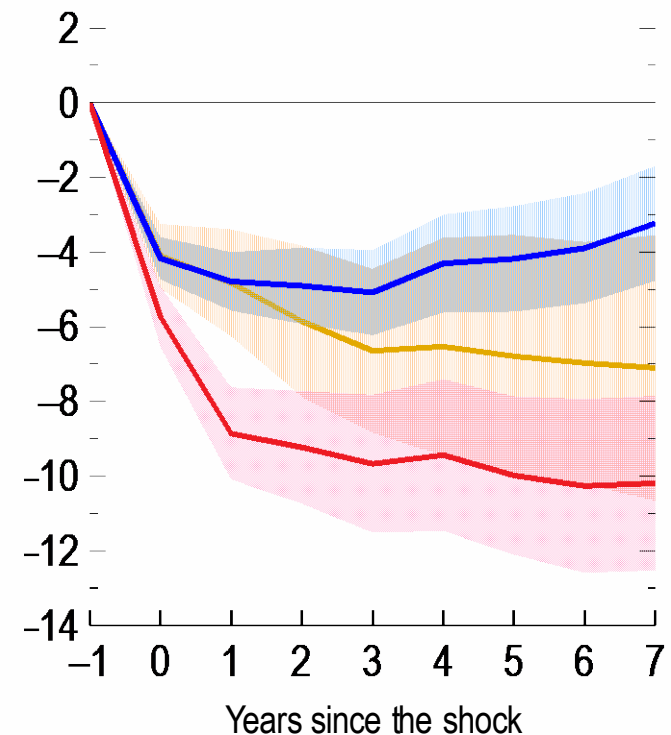
- discouraged unemployed exit labor force
- education interruptions affect long-term human capital accumulation

Medium-term output losses are larger for certain types of recessions

- We estimate the impact of recessions for a sample of about 600 recession episodes in 115 countries, from 1957-2019
- Local projection method with standard macroeconomic control variables, interaction terms for recession types, and country and year fixed effects
 - There are permanent output losses, on average, after all types of recessions
 - The greatest scarring has occurred following financial crises
 - Previous epidemics and pandemics featured lower scarring than recessions with financial crises

Impact on Real GDP per Capita (Percentage points)

— Typical recession — Financial crisis — Past modern pandemic or epidemic

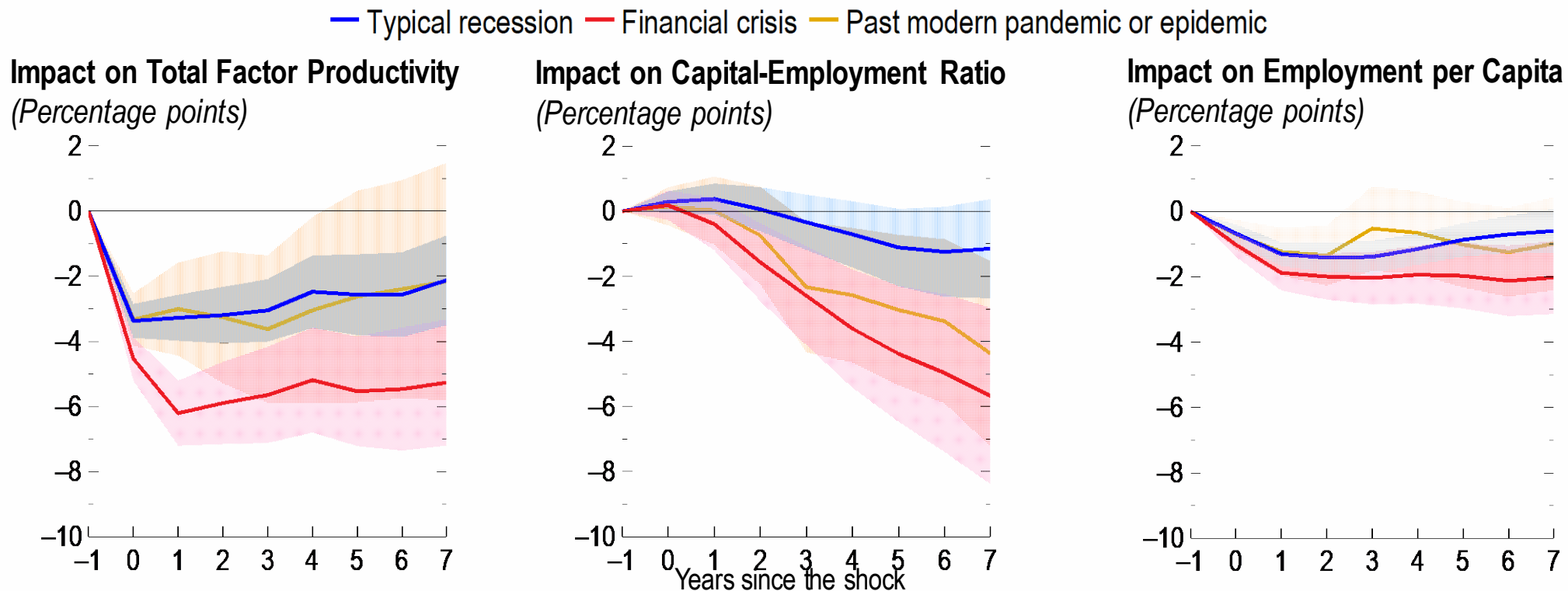


Sources: Penn World Table 10.0; and IMF staff calculations.

Note: The solid lines represent the estimated cumulative impulse response functions and shaded areas represent 90 percent confidence intervals. Past modern pandemics and epidemics include Hong Kong flu, SARS, H1N1, MERS, Ebola, and Zika.

Channels of medium-term output losses

- For typical recessions, medium-term losses in GDP per capita can be attributed mainly to persistently weaker productivity
- Financial crises are associated with permanent deteriorations in TFP, capital-to-worker ratio, and employment

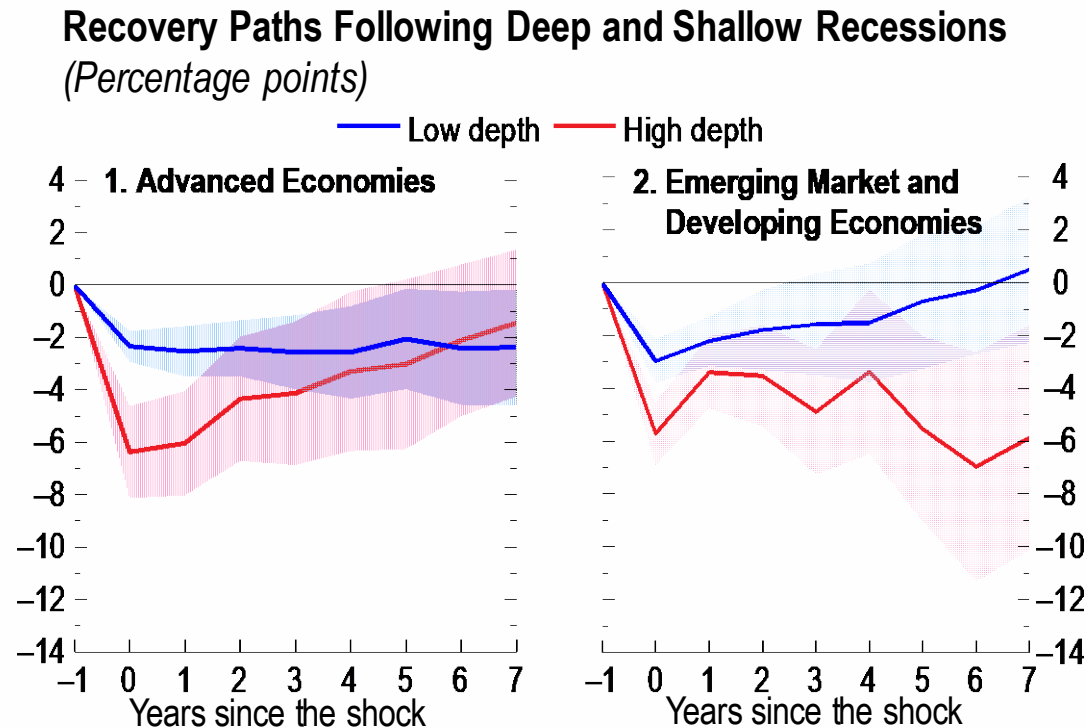


Sources: Penn World Table 10.0; and IMF staff calculations.

Note: The solid lines represent the estimated cumulative impulse response functions and shaded areas represent 90 percent confidence intervals. Past modern pandemics and epidemics include Hong Kong flu, SARS, H1N1, MERS, Ebola, and Zika.

Emerging and low-income countries especially vulnerable

- In advanced economies, ‘V-shaped’ recoveries and no permanent output loss for deep but short-lived recessions
- Emerging market and developing economies experience protracted downturns and permanent losses, on average



Sources: Penn World Table 10.0; and IMF staff calculations.

Note: The solid lines represent the estimated cumulative impulse response functions for real GDP per capita and shaded areas represent 90 percent confidence intervals. High- and low-depth recessions are split based on the median per capita output loss. The figure includes only recessions that last one year and does not include recessions related to financial crises, past modern pandemics and epidemics, disasters, or conflicts.

Historical evidence on sectoral spillovers

Economic shocks: the sectoral dimension

- We quantify size and persistence of effects from historical sectoral shocks

- Focus on outcomes at sector-level
- Effect from shocks in **own** sector vs. shocks in **other** sectors/countries
- Inter-country input-output tables to quantify linkages for 4 transmission channels
 - From suppliers: Downstream effects, Domestic and Foreign
 - From customers: Upstream effects, Domestic and Foreign
- Sample: 31 AEs and 12 EMEs over 1995–2014

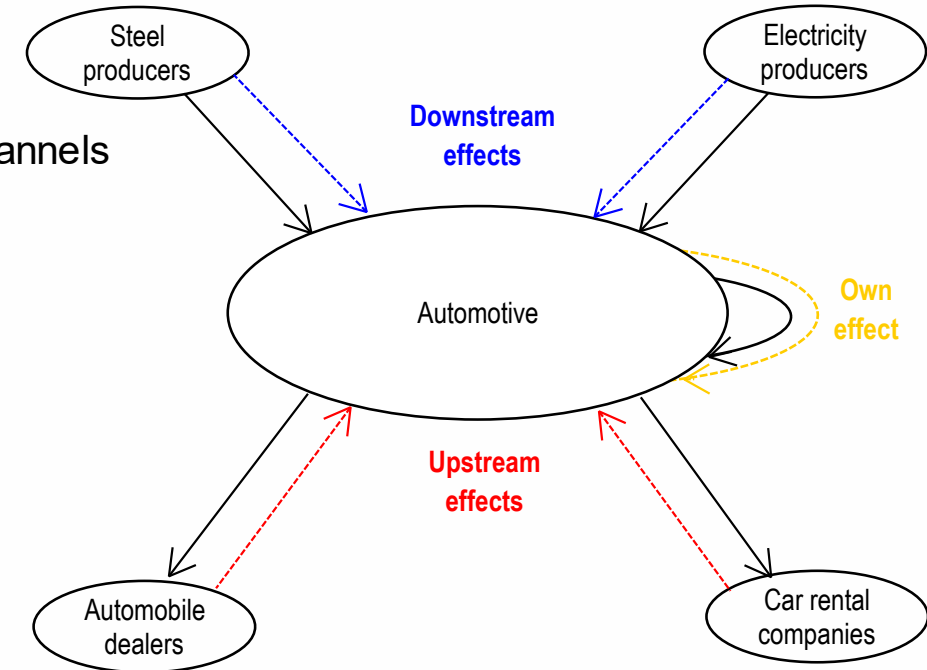
- Building on Acemoglu and others (2016), local projections

$$\Delta \log Y_{s,c,t} = \beta^{own} Shock_{s,c,t} + \beta^{Dn,Dom} Dn_{s,c,t}^{Dom} + \beta^{Dn,For} Dn_{s,c,t}^{For} + \beta^{Up,Dom} Up_{s,c,t}^{Dom} + \beta^{Up,For} Up_{s,c,t}^{For} + \Gamma_{(s,c,t)} + \varepsilon_{s,c,t}$$

- Analyze different shocks

- SUPPLY: sectoral TFP changes
- DEMAND: sectoral government spending changes

Own and Spillover Effects



Source: IMF staff.

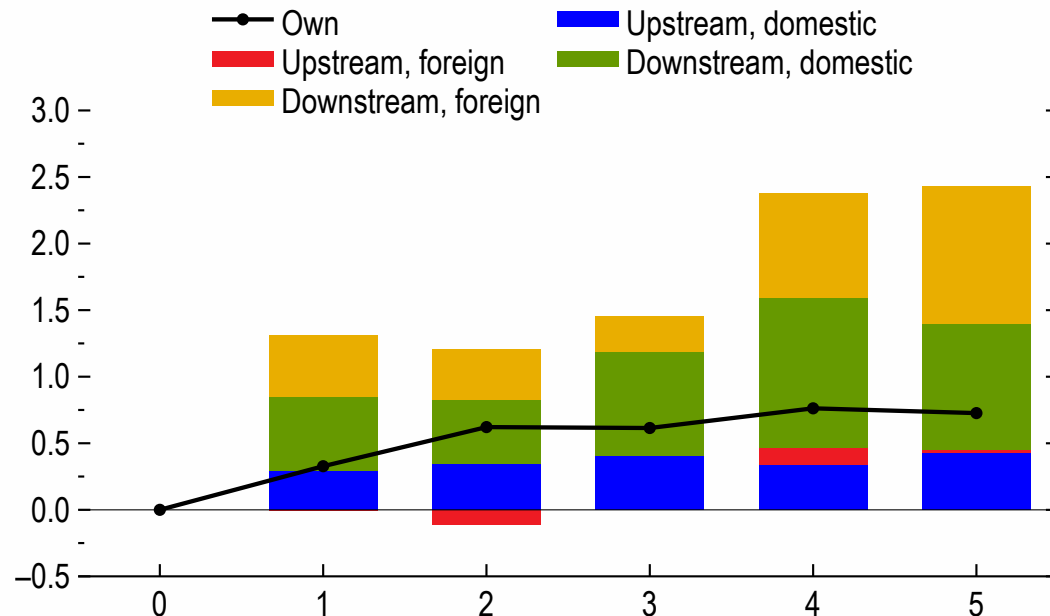
Note: Solid, black arrows correspond to (net) trade flows. Dashed, colored arrows correspond to shocks and their resulting effects on the focal sector (automotive).

Supply shocks: large and persistent downstream effects

- Shock: year-on-year change in sectoral TFP
- Outcome: cumulative sectoral real value-added growth
 - Total network effects 2 times larger than own effect
 - Downstream effects dominate
 - Effects persist up to 5 years

Own and Network Effects of TFP Shock

(Cumulative change in GVA, percentage points)



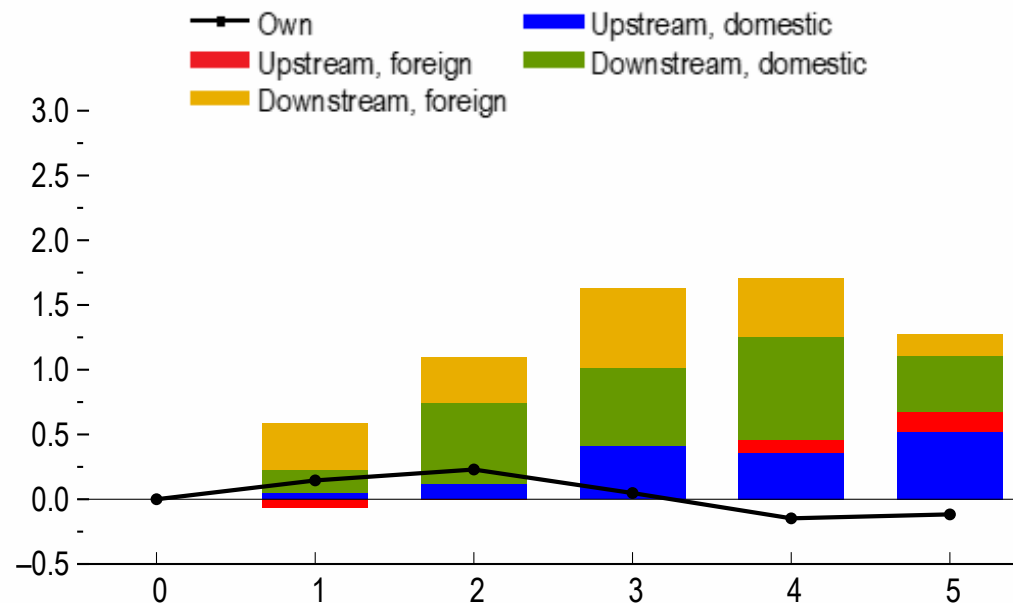
Sources: World Input-Output Database; and IMF staff calculations.

Note: Bars and dots represent the estimated coefficients of the cumulative impulse response function for sectoral GVA from a one standard deviation increase in each shock type.

Demand shocks: large and persistent network effects

- Shock: year-on-year change in government spending in each sector
- Outcome: cumulative sectoral real value-added growth
 - Total network effects 7 times larger than effect of own shock
 - Network effects persist up to 5 years

Own and Network Effects of Govt. Spend Shock
(Cumulative change in GVA, percentage points)



Sources: World Input-Output Database; and IMF staff calculations.

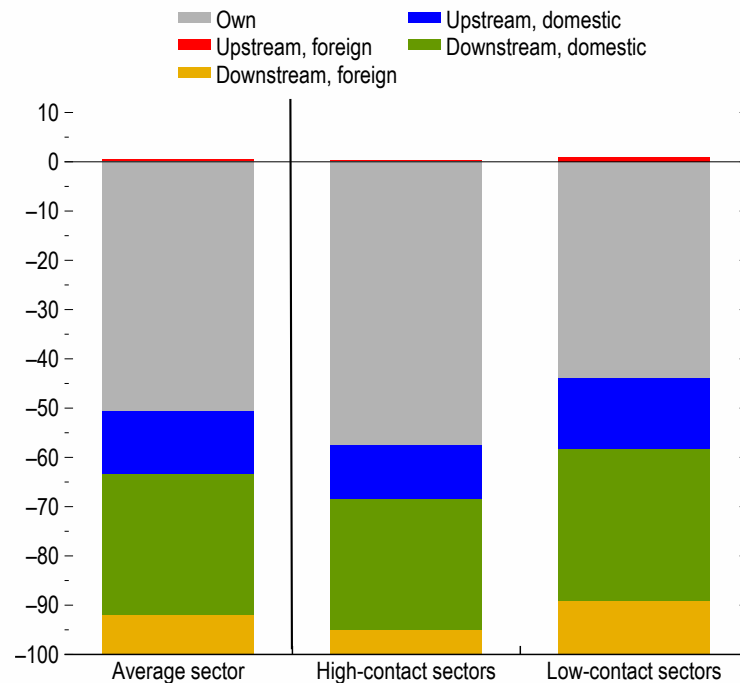
Note: Bars and dots represent the estimated coefficients of the cumulative impulse response function for sectoral GVA from a one standard deviation increase in each shock type.

Network effects amplified the COVID-19 shock

- Back-of-the envelope quantification of COVID-19 sectoral spillovers
- Relative size of spillovers from 'peripheral sectors' is smaller than in previous recessions, still sizable
- Downstream domestic spillovers from supply shocks dominate, limited role of foreign shocks

Relative Own and Spillover Effects from the COVID-19 Shock

(Percent contribution to the 2020 GVA decline)



Sources: World Input-Output Database; OECD Quarterly National Accounts; International Labor Organization; and IMF staff calculations.

Implications of COVID-19 for the Medium Term

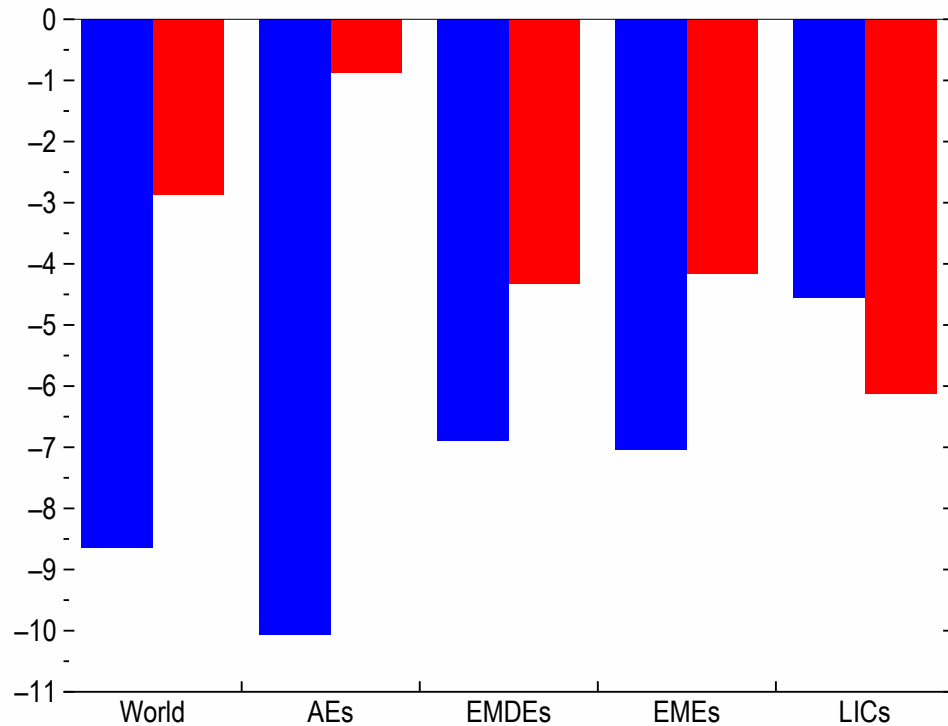
A wide range of possible medium-term outcomes

- Historical evidence suggests that most recessions leave persistent scars
 - Mainly through lower productivity growth and slower capital accumulation
 - Sectoral shocks can also propagate, contributing to a broader downturn
- Divergent recoveries could result from differences in:
 - Path of the pandemic
 - Sectoral composition across countries and capability of businesses and workers to adapt
 - Policy responses and policy space
 - Amplification through the financial system
 - Global spillover channels (e.g. portfolio flows and remittances)

Expected medium-term output losses

Medium-term Output Losses
(Percent difference from precrisis forecast)

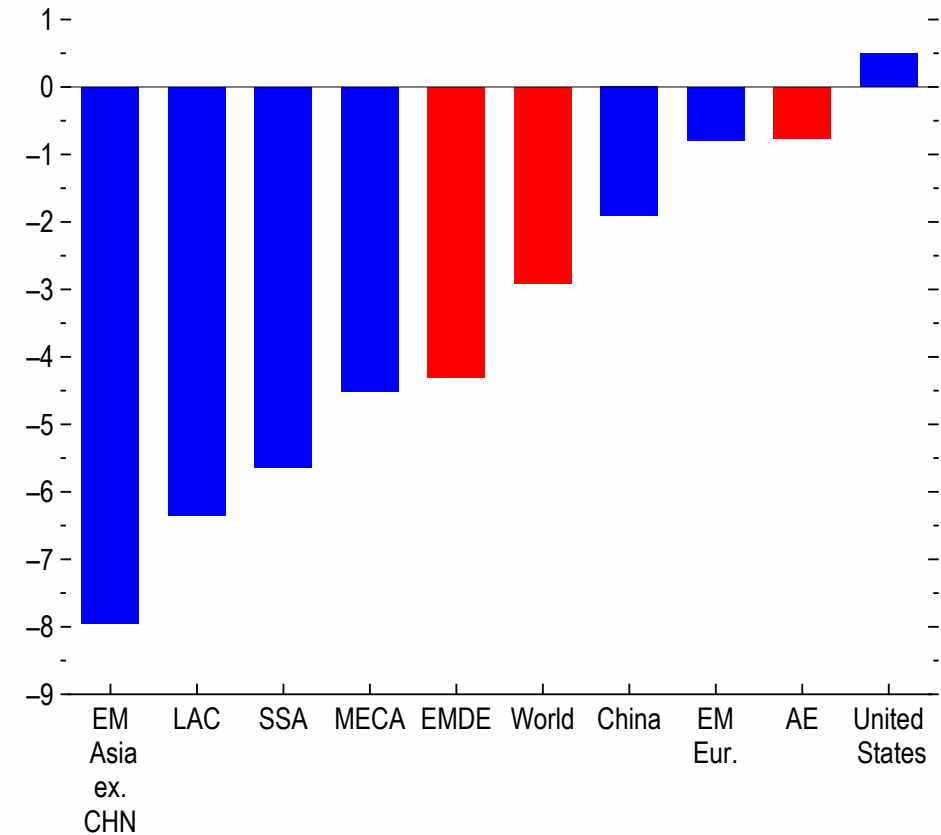
■ Global financial crisis ■ COVID-19



Source: IMF staff estimates.

Note: Bars show the percent difference in real GDP four years after the crisis and anticipated GDP for the same period prior to the crisis for the indicated group.

Medium-Term GDP Losses Relative to Pre-COVID-19, by Region
(Revisions to projected 2024 GDP levels between the January 2020 and April 2021 WEO forecasts, percent)

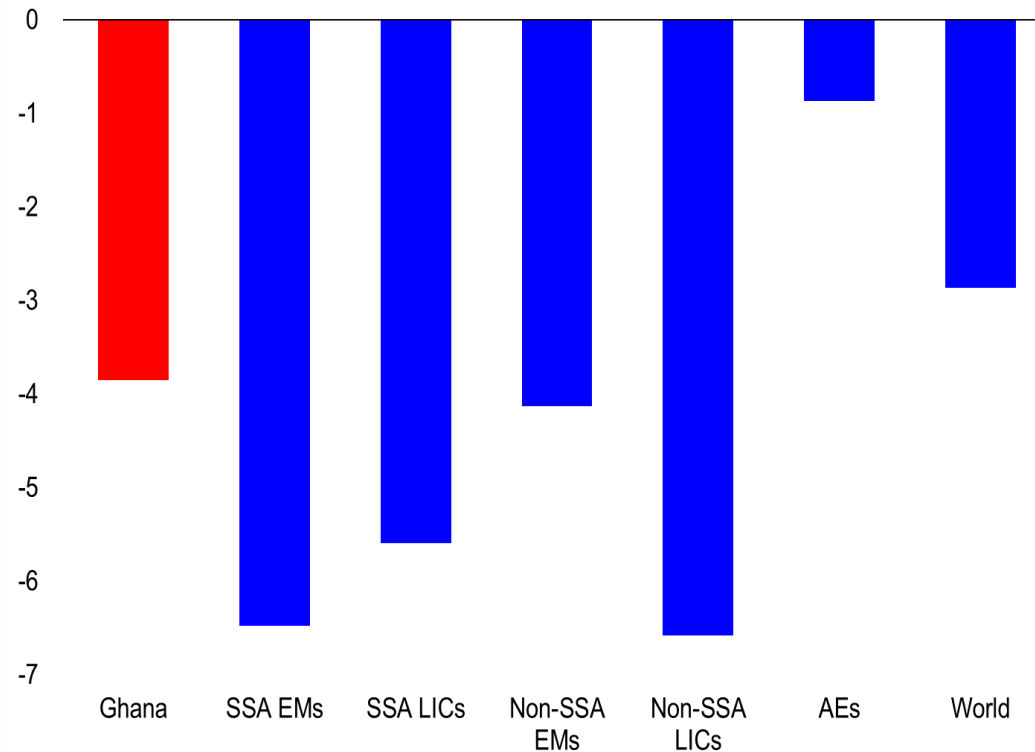


Source: IMF staff estimates.

Expected medium-term output losses: Ghana and comparators

Medium-term Output Losses

(Percent difference from precrisis forecast)



Source: IMF staff estimates.

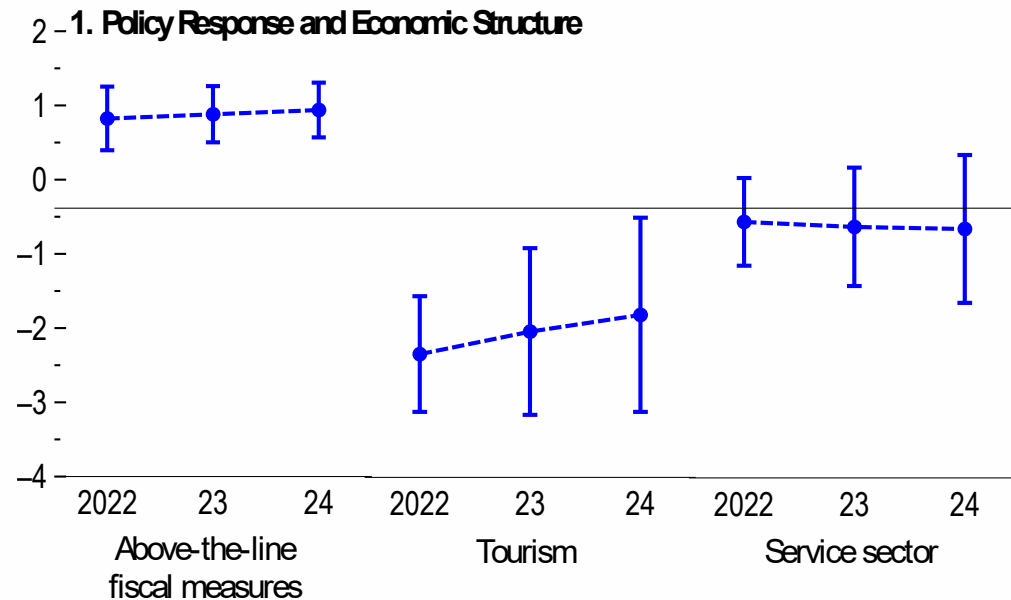
Note: Bars show the percent difference in real GDP four years after the crisis and anticipated GDP for the same period prior to the crisis for the indicated group.

Cross-country variation in expected medium-term output losses

- The average income level, sectoral structure of economy, and size of fiscal policy response in 2020 help explain the variation across economies:
 - Countries that implemented larger fiscal responses are projected to experience smaller losses
 - Largest impacts of the crisis are on the most tourism-dependent economies
 - Economies with larger services sectors are also projected to experience persistent output losses
- But large uncertainty remains

Expected Medium-Term Output Losses: Explanatory Factors

(Percentage points)



Sources: World Bank, *World Development Indicators*; World Travel and Tourism Council; and IMF staff calculations.

Notes: Chart shows point estimate and two standard error ranges for coefficients of a cross-sectional, cross-country regression of forecast revisions on explanatory variables.

A sequenced approach for policies to limit persistent damage

- Targeted support to the most-affected sectors and workers may be most effective while supply constraints remain in place
- Public investment can help boost both supply and demand as constraints ease
- Where fiscal space permits, policymakers should deploy a combined package of better-targeted support for affected households and firms and public investments aimed at the following:
 - Reversing setbacks to human capital accumulation and encouraging employment
 - Supporting productivity, including policies to facilitate resource reallocation
 - Boosting investment

But for many countries, phases of the pandemic may overlap

- Authorities may have to boost and rebuild economies *amid* repeated outbreaks
- Main challenge is to create more fiscal space
 - ▶ Domestic revenue mobilization
 - ▶ Prioritization and efficiency gains on spending
 - ▶ Improve fiscal frameworks in a way that credibly balances the need for short-term support with medium-term consolidation
- Strong international cooperation will be vital to address the growing divergence across countries
 - ▶ Ensure adequate production and universal distribution of vaccines to help developing countries beat back the pandemic
 - ▶ Ensure constrained economies have adequate access to international liquidity for development spending

Conclusion

- Historically, deep recessions have led to persistent output losses, driven largely by TFP losses
- Spillovers have been large amplifiers of sectoral shocks in the past, and have also amplified the COVID-19 shock
- World output anticipated to be 3 percent lower in 2024, with variation across countries
 - Emerging market and developing economies are expected to suffer more scarring
- Addressing the setback to human capital accumulation, measures to support reallocation, and lift investment will be key to limit long-run GDP losses



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THANK YOU!