Short-term Economic Impacts of COVID-19 on the Malawian Economy, 2020-21:
A SAM multiplier modeling analysis

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Outline

- Introduction
- COVID-19 incidence and distribution
- Methodology
- Immediate economy-wide impacts of social distancing
- Faster and slower recovery paths by quarter, 2020–2021
- Some cross-country comparisons
- Summary, caveats and policy implications

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Introduction

- Revised analysis to measure the short- and medium-term <u>economic</u> impacts of COVID-19 on the Malawi economy

- Objective: broad assessment of the economy-wide impacts of social distancing and other lockdown measures during 2020 <u>and</u> 2021

- Focus on 2 scenarios:

  a) Social distancing: 2 months of full enforcement (April –May 2020);

  b) Easing up scenarios following the gradual lifting of restrictions from June till the end of 2021

- Method: Social Accounting Matrix (SAM) multiplier model to measure the direct <u>and</u> indirect impacts of COVID-19 restrictions on production, incomes and poverty

- Caveats: results are highly dependent on demand shocks assumed;
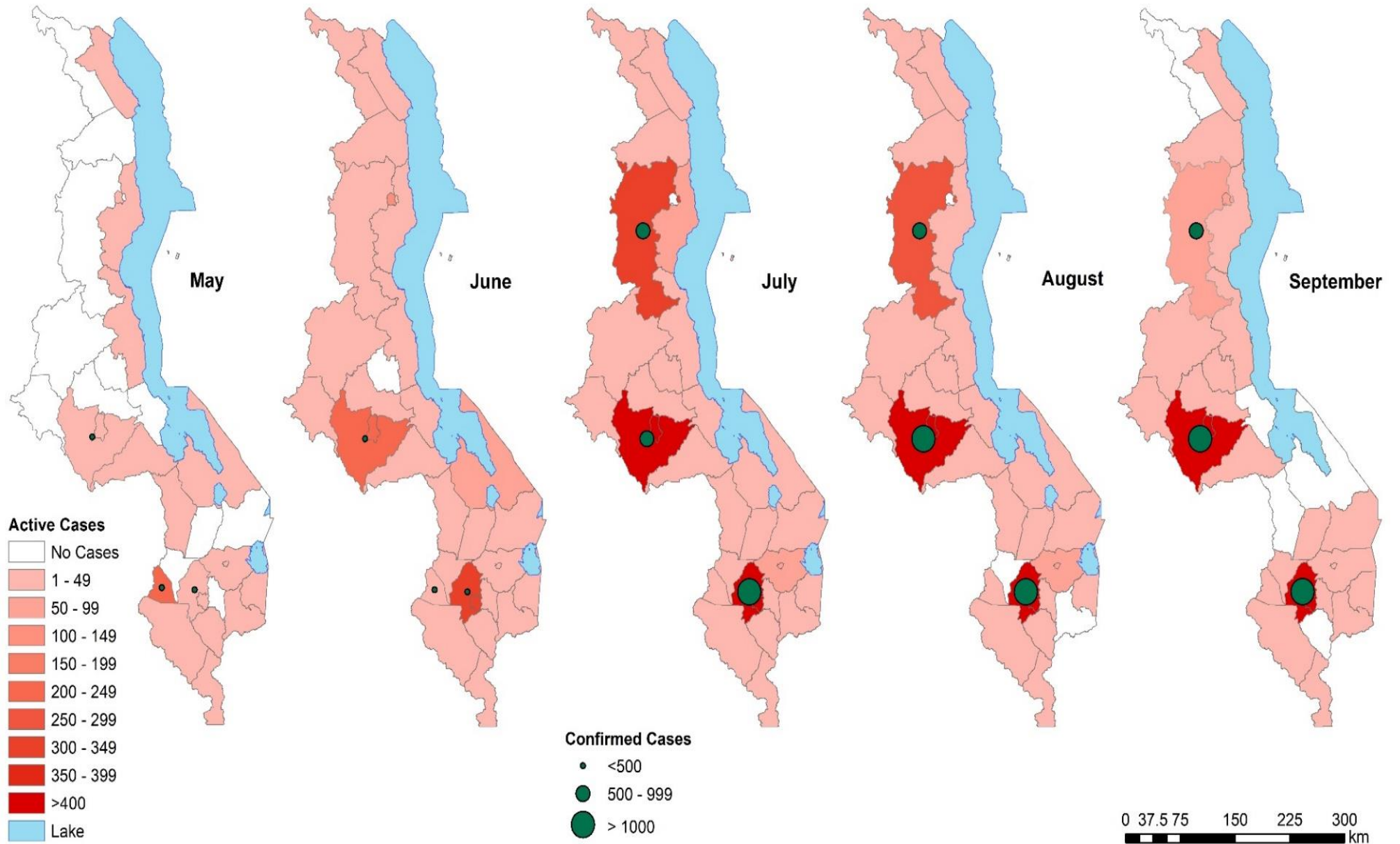
    fixed-price model

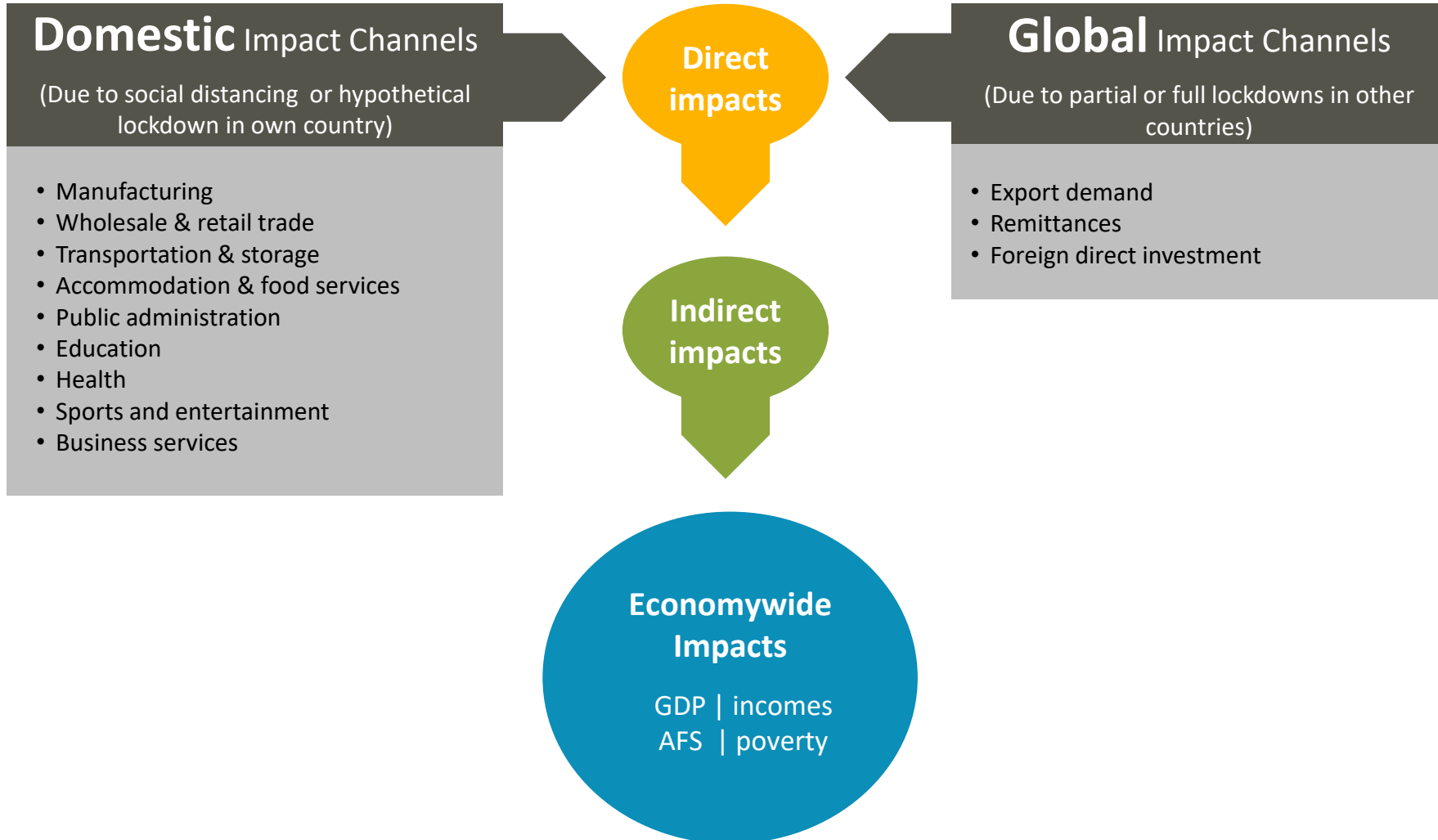# Confirmed active COVID-19 cases since April 2020
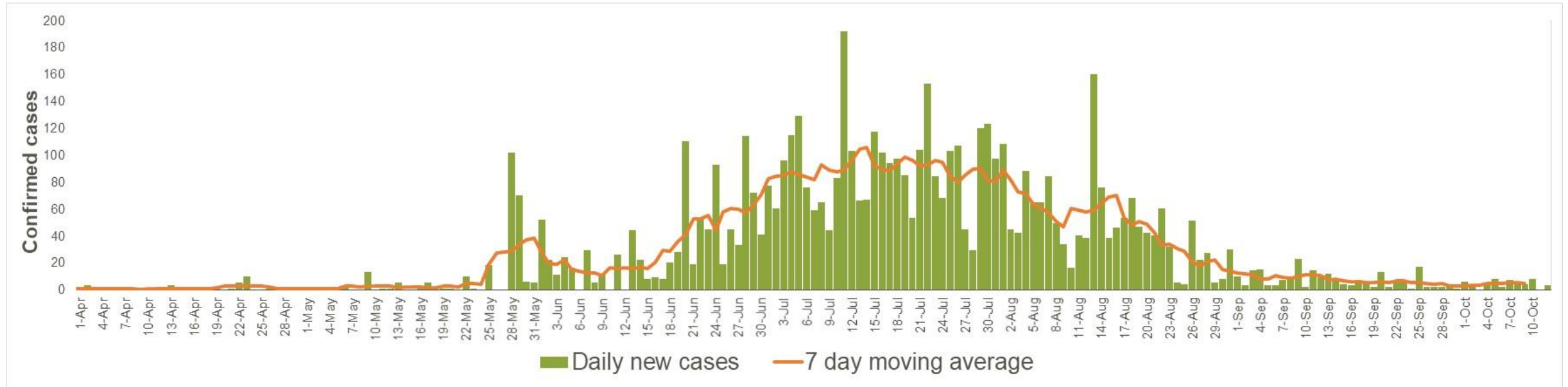
The relatively low incidence of COVID cases in Malawi is still not well-understood, but some of the more plausible socio-economic explanations include:

➢ Young population (55.5% <20 years old, 5.1% > 59 in Sept 2018)
➢ Low urbanization (16% in Sept 2018) and moderate population densities in urban areas
➢ Poor roads and limited mobility between urban and rural areas

Distribution of active COVID-19 cases by district and month

May   June   July   August   September

Active Cases
- No Cases
- 1 - 49
- 50 - 99
- 100 - 149
- 150 - 199
- 200 - 249
- 250 - 299
- 300 - 349
- 350 - 399
- >400
- Lake

Confirmed Cases
- · <500
- ● 500 - 999
- ● > 1000

0 37.5 75 150 225 300 km

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Framework for Analyzing Economic Impacts of COVID-19

Domestic Impact Channels

(Due to social distancing or hypothetical lockdown in own country)

- Manufacturing
- Wholesale & retail trade
- Transportation & storage
- Accommodation & food services
- Public administration
- Education
- Health
- Sports and entertainment
- Business services

Global Impact Channels

(Due to partial or full lockdowns in other countries)

- Export demand
- Remittances
- Foreign direct investment

Direct impacts

Indirect impacts

Economywide Impacts

GDP | incomes
AFS | poverty

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Sectoral contribution to GDP based on the SAM

Sector	Percentage		Sector	Percentage
Agriculture	29.1		**Industry**	16.4
Crops	16.8		Mining	1.4
Livestock	2.9		Manufacturing	9.4
Forestry	8.5		Food processing	3.3
Fishing	0.9		Beverages & tobacco	3.3
			Textiles, clothing & leather	0.4
Services	54.5		Wood & paper products	0.7
Wholesale & retail trade	17.4		Chemicals & petroleum	1
Transport & communication	7.1		Machinery, equipment & vehicles	0.5
Hotels & food services	1.5		Furniture & other manufacturing	0.2
Finance & business services	15		Electricity & water	1.5
Public admin., health & education	8.5		Construction	4.1
Other services	4.9			
			Total	100

Note: Tourism is estimated to have contributed 6.7 percent to GDP in 2019

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Modeling Results

- Specification of shocks and recovery scenarios

- Social distancing versus hypothetical lockdown scenario

- Sector and sub-sectoral effects of social distancing

- Faster and slower recovery scenarios

Note: US$ values presented are in 2018 constant terms
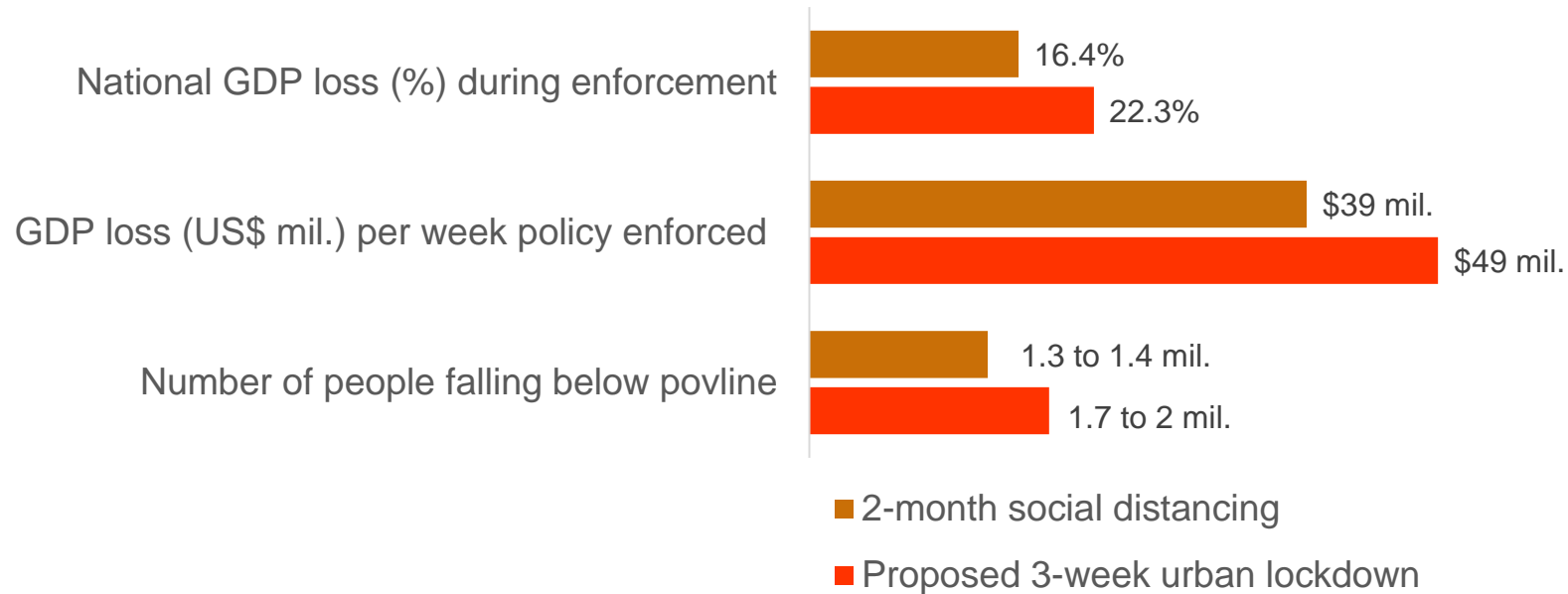
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Details of Shocks and Recovery Scenarios

Impact channels	Initial shocks during Q2		
	Social distancing (2 months)	Urban lockdown (21 days)	External shocks (Q2)
Reduction in manufacturing operations	-5%	-30%	
Restricting non-essential wholesale/retail trade	-20%	-50%	
Transport and passenger travel restrictions	-20%	-80%	
Limiting hotel and restaurant operations	-80%	-80%	
Non-essential business services restricted		-30%	
Restrictions on other business services		-50%	
Government work-from-home orders	-20%	-30%	
Closing all schools in the country	-20%	-80%	
Banning sports & other entertainment	-25%	-50%	
Reduced tobacco exports			-20%
Falling foreign private remittances			-33%
Falling foreign direct investments			-10%

* Colors from green to red represent low to high shock values, respectively.

Note: Tourism impact channel is captured as a consolidation of tourism's share in trade, transport, accommodation & food services, business services, and other services sectors

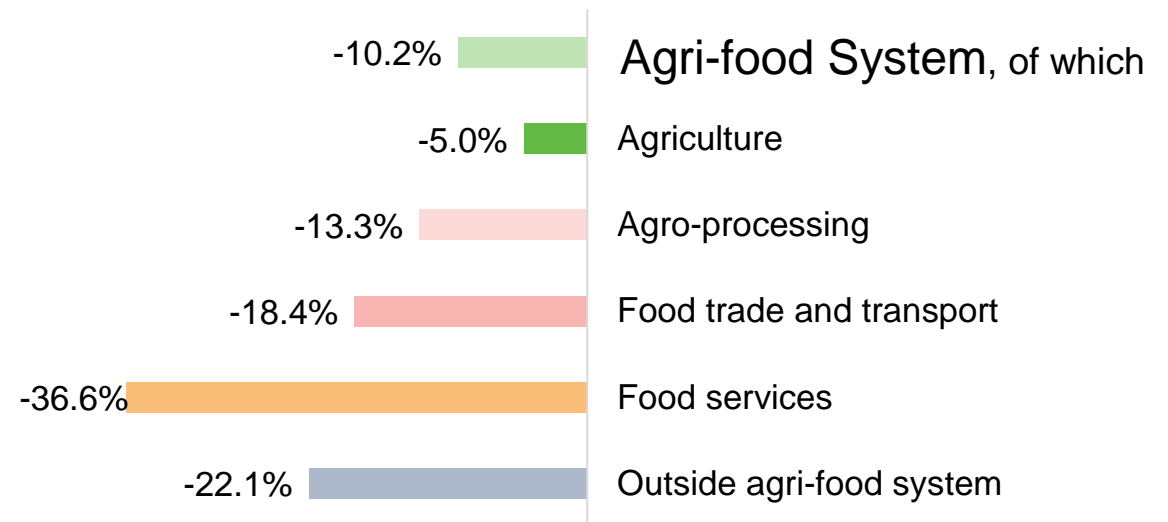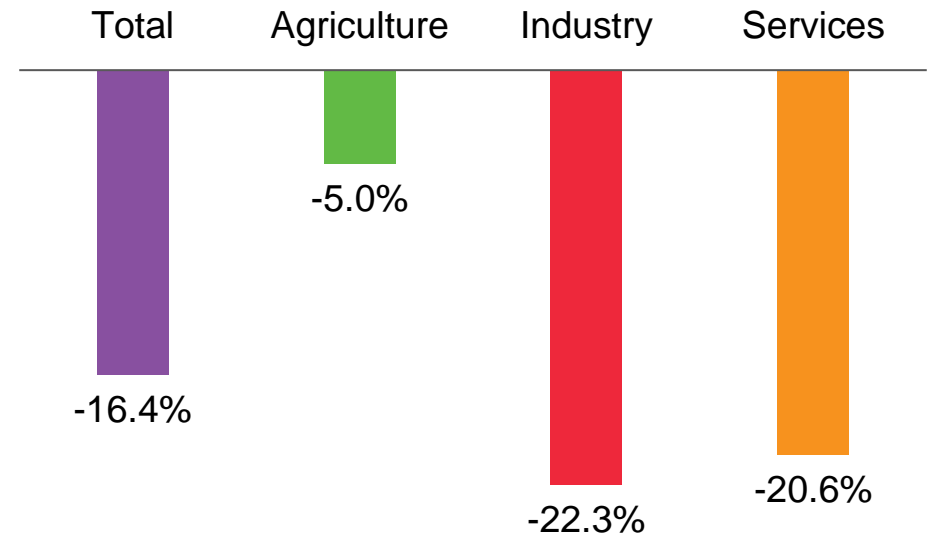|	Period		Social distancing	Urban lockdown	External shocks
2020	Q1	Jan-Mar	Virtually no impact, although some measures (e.g., school closures) introduced March 30th		
	Q2	Apr	Social distancing fully enforced for 2 months	Social distancing measures	Declines in foreign remittances, tobacco exports & foreign direct investments
		May		Hypothetical 21-day urban lockdown	
		Jun	Initial easing up after full enforcement: shocks at 70-90% (faster) or 95%-100% (slower)		
	Q3	Jul-Sep	Recovery: shocks at 50-75% (faster) or 75-95% (slower)		Initial recovery phase: shocks at 90%
	Q4	Oct-Dec	Recovery: shocks at 15-35% (faster) or 35-75% (slower)		Further recovery phase: shocks at 75%
2021	Q1	Jan-Mar	Recovery: shocks at 5-10% (faster) or 10-50% (slower)		Initial recovery phase: shocks at 35%
	Q2	Apr-Jun	Recovery: shocks at 0-5% (faster) or 5-15% (slower)		Final recovery phase: shocks at 10%
	Q3	Jul-Sep	Recovery: shocks at 0% (faster) or 0-5% (slower)		Full recovery phase: shocks at 5%
	Q4	Oct-Dec	Full recovery		Full recovery phase: shocks at 0%

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Social Distancing v. Urban Lockdown Scenarios

National GDP loss (%) during enforcement
- 2-month social distancing: 16.4%
- Proposed 3-week urban lockdown: 22.3%

GDP loss (US$ mil.) per week policy enforced
- 2-month social distancing: $39 mil.
- Proposed 3-week urban lockdown: $49 mil.

Number of people falling below povline
- 2-month social distancing: 1.3 to 1.4 mil.
- Proposed 3-week urban lockdown: 1.7 to 2 mil.

Legend:
- ■ 2-month social distancing
- ■ Proposed 3-week urban lockdown

- In comparison with social distancing, a hypothetical 21-day lockdown in urban areas increases GDP losses by approx. $10 m week
- Overall, the number of people falling below the poverty line from urban lockdown is 0.4 to 0.6m higher

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Sectoral Effects of Social Distancing

- Overall GDP losses of 16.4% (-$314m) during 2 months of full enforcement of social distancing

- Services the most affected in dollar terms (-$215m) followed by industry (-$70m) and then agriculture (-$28m)

- Note: agriculture GDP declines by 5%, but the agri-food system (AFS) contracts by 10.2%, due to direct and indirect effects of social distancing
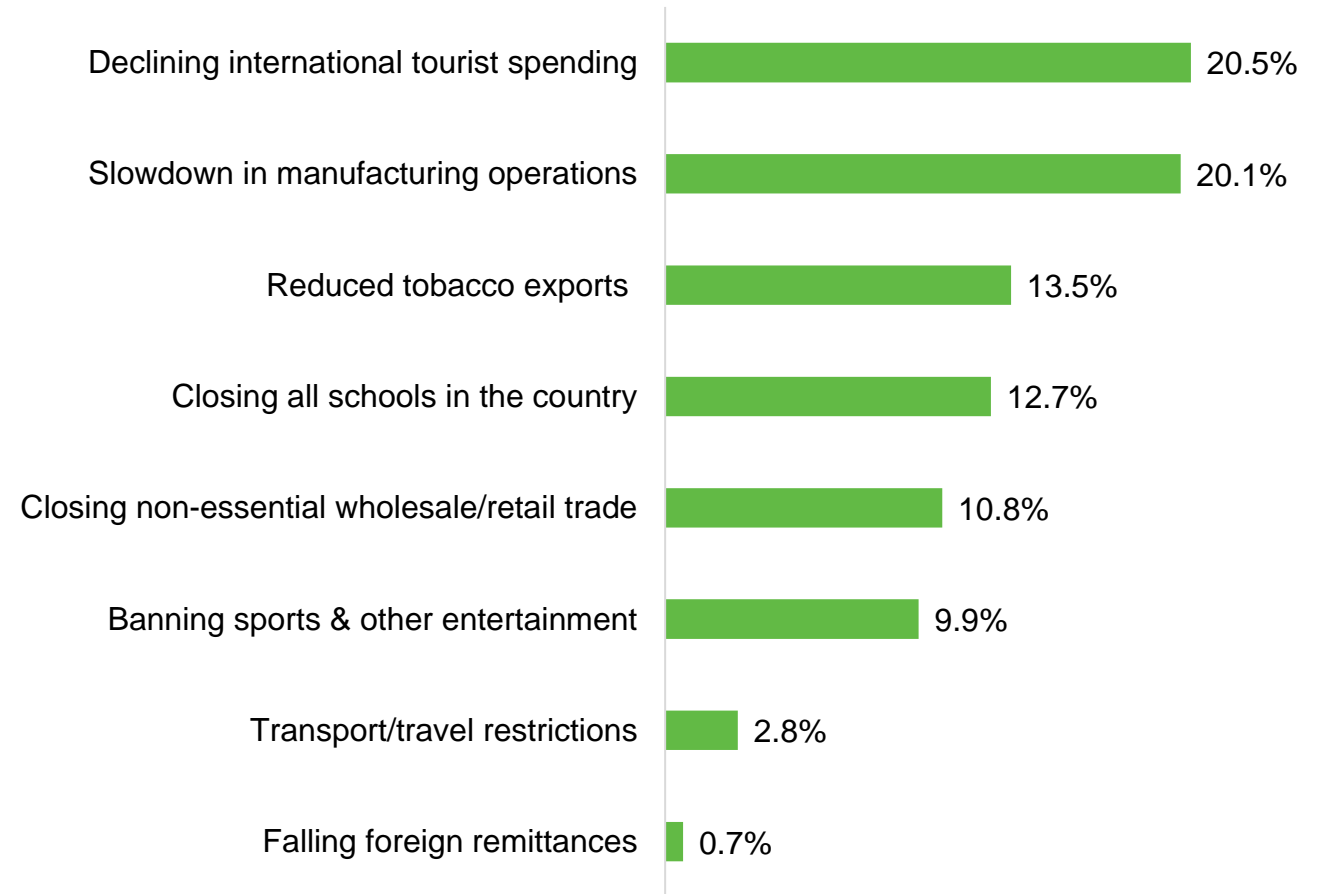

Total	Agriculture	Industry	Services
-16.4%	-5.0%	-22.3%	-20.6%

-10.2%	Agri-food System, of which
-5.0%	Agriculture
-13.3%	Agro-processing
-18.4%	Food trade and transport
-36.6%	Food services
-22.1%	Outside agri-food system

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Sources of GDP losses during Social Distancing

- Overall GDP losses of 16.4% over 2 months

Over two months of social distancing:

- Declining tourist spending accounts for a fifth of the short-term losses
- Slowdown in manufacturing operations and closure of schools also important
- Reduced tobacco export revenue and falling FDI are the most important external shocks
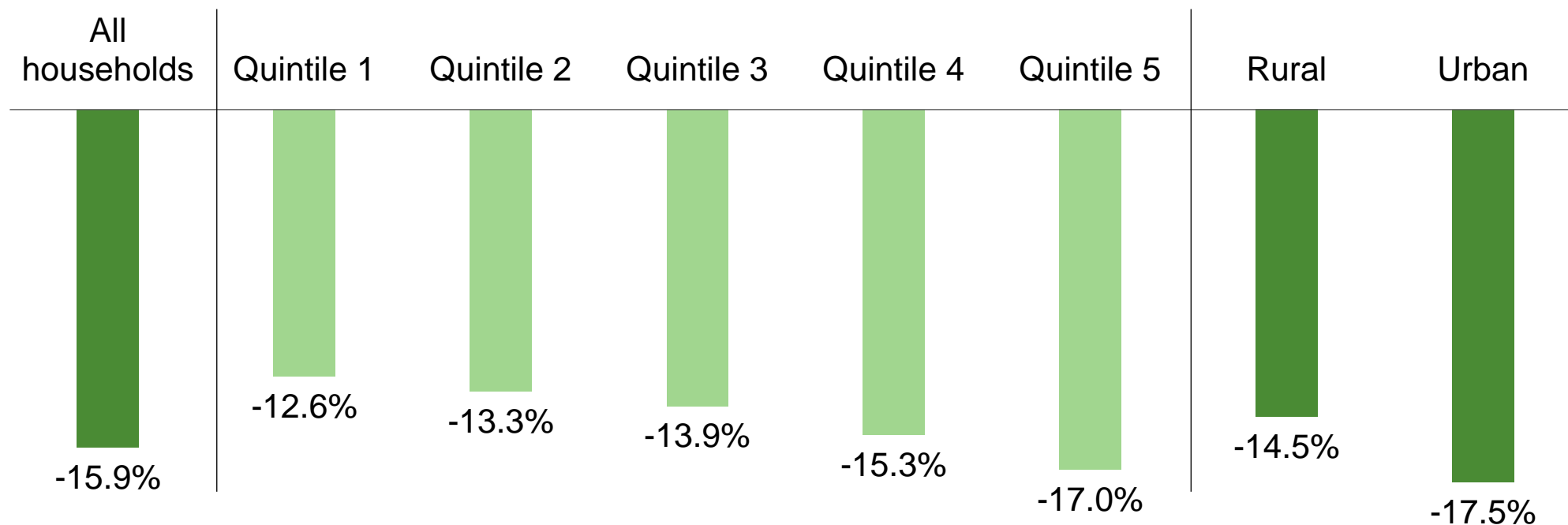
Source	Loss
Declining international tourist spending	20.5%
Slowdown in manufacturing operations	20.1%
Reduced tobacco exports	13.5%
Closing all schools in the country	12.7%
Closing non-essential wholesale/retail trade	10.8%
Banning sports & other entertainment	9.9%
Transport/travel restrictions	2.8%
Falling foreign remittances	0.7%

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Sources of AFS GDP Losses During Social Distancing

- Overall Agri-Food System losses of 10.2% over 2 months
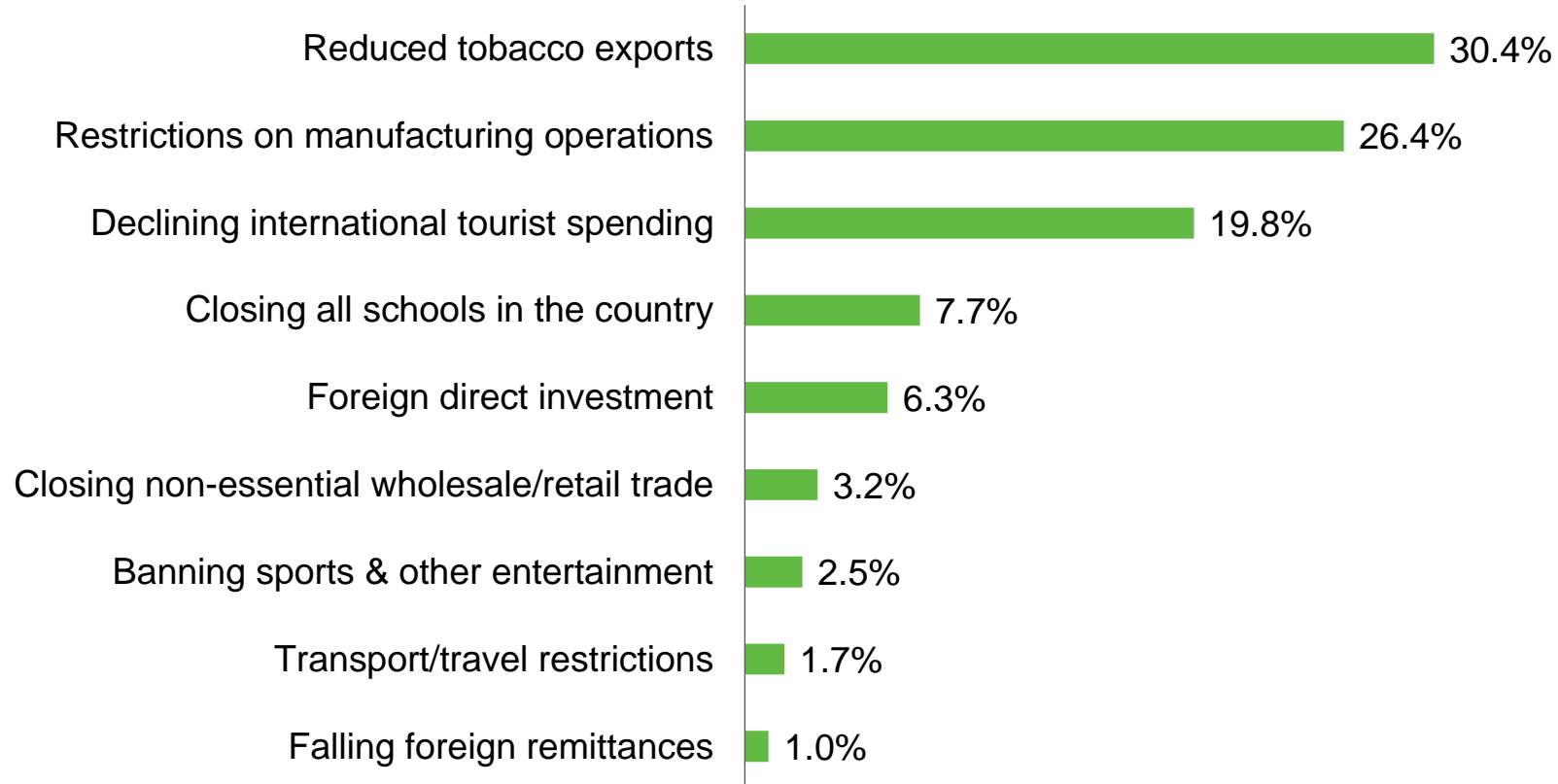
Change in Per Capita Income during Social Distancing over 2 months

All households	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Rural	Urban
-15.9%	-12.6%	-13.3%	-13.9%	-15.3%	-17.0%	-14.5%	-17.5%

- Urban households' income affected most by social distancing measures; this is linked to the sectors and jobs affected most by social distancing policies
- Poorest rural households are the least affected … but still lose 14.5% of incomes during the 2 months of social distancing
- Serious increase in poverty should be expected

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Poverty Impacts of Social Distancing

- National poverty rate increases by 8.4 percentage points (1.5 million additional poor people) after 2 months of social distancing using national poverty line

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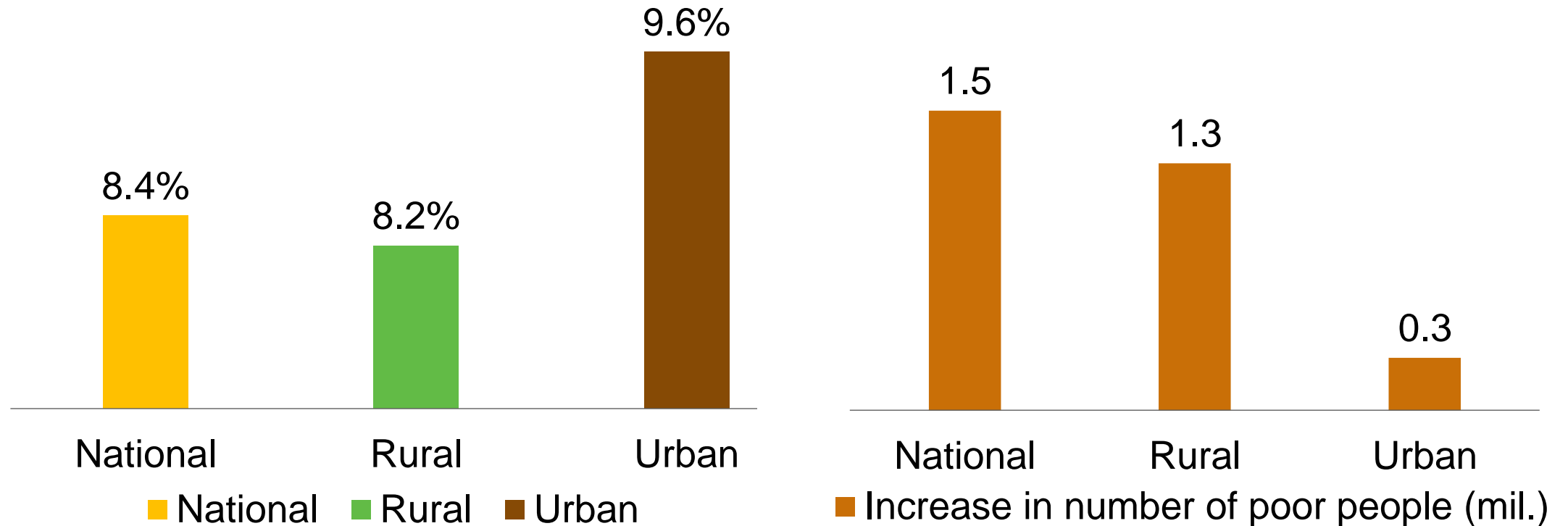
Recovery Scenarios

We consider 2 highly-stylized scenarios

- **Faster easing**: economy recovers strongly from Q3 2020 and almost normal by Q4 2021
- **Slower easing**; modest economic recovery in Q1 2021
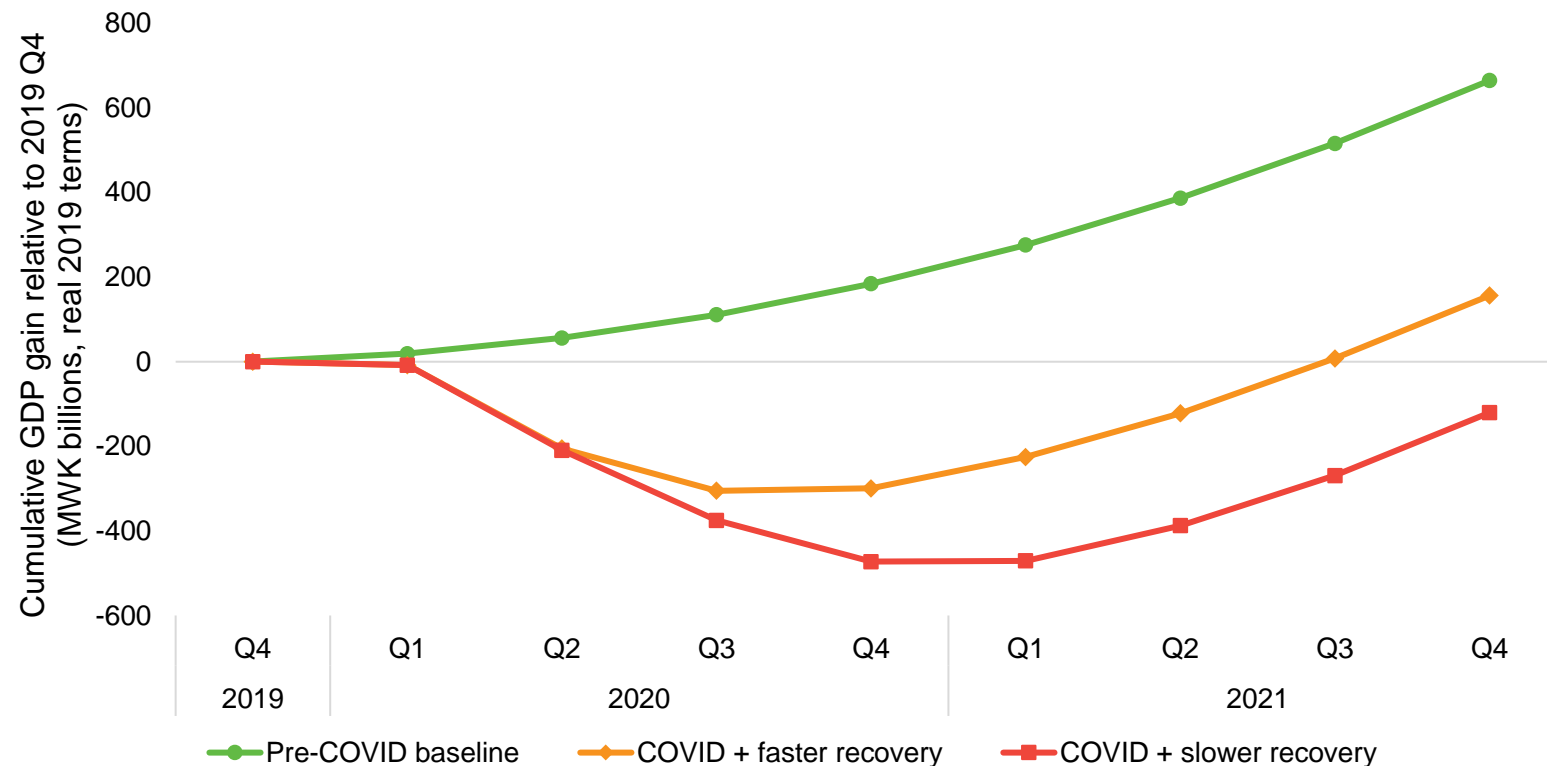
Recovery scenarios (2)

- National GDP is 8.2 to 11.2 lower in 2020 and about 0.4 to 2.1% lower in 2021
- GDP recovers to very close to its level in 2019 by end of 2021 under both faster and slower recovery scenarios
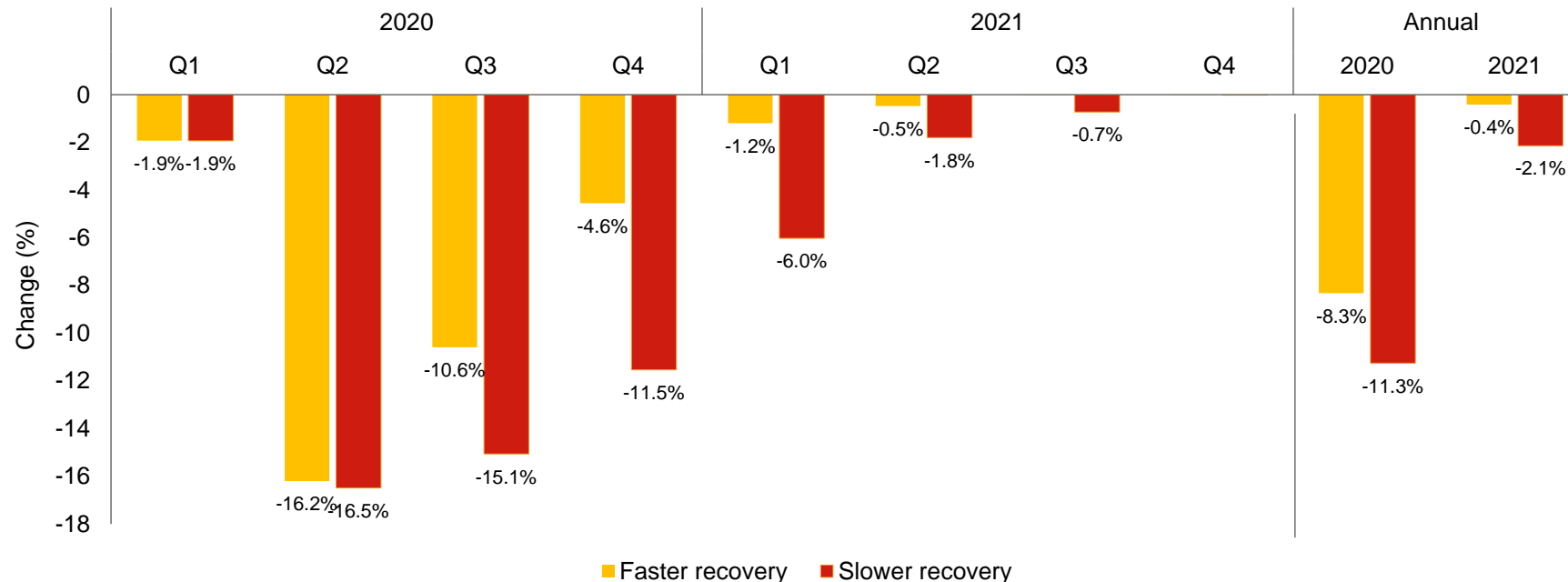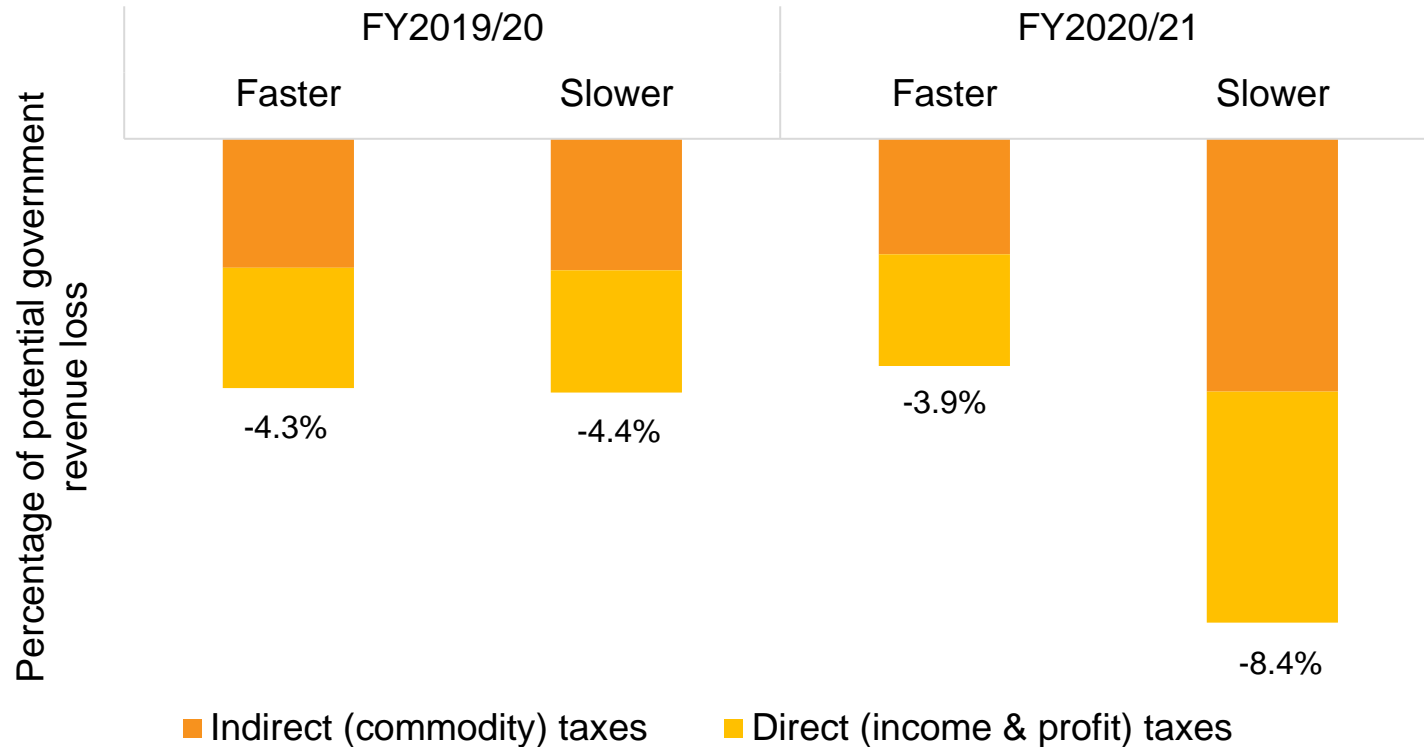
Gendered Impacts on Poverty

- Slightly more female headed households than male-headed households in poverty after Q2 2020
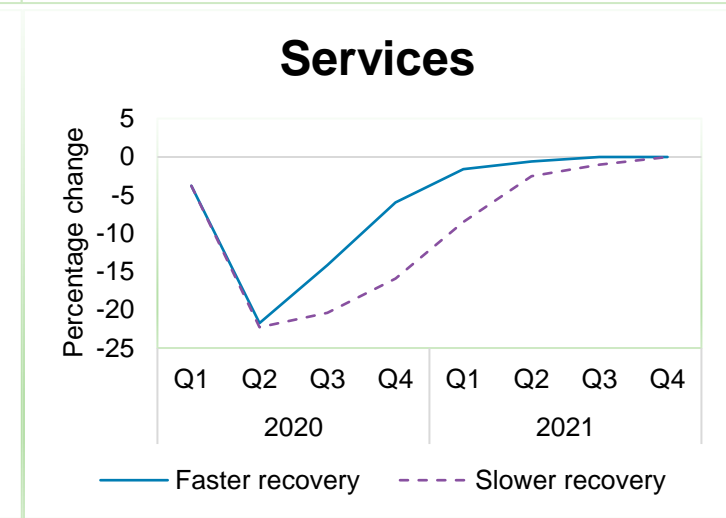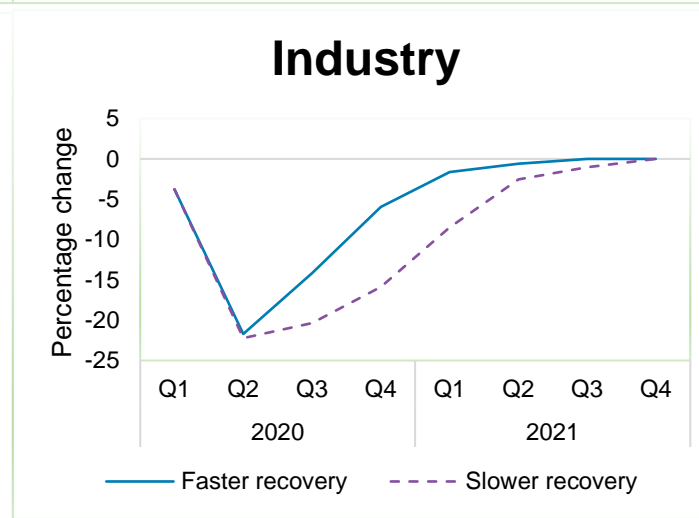- Under both recovery scenarios, differences disappear by the end of Q2 2021
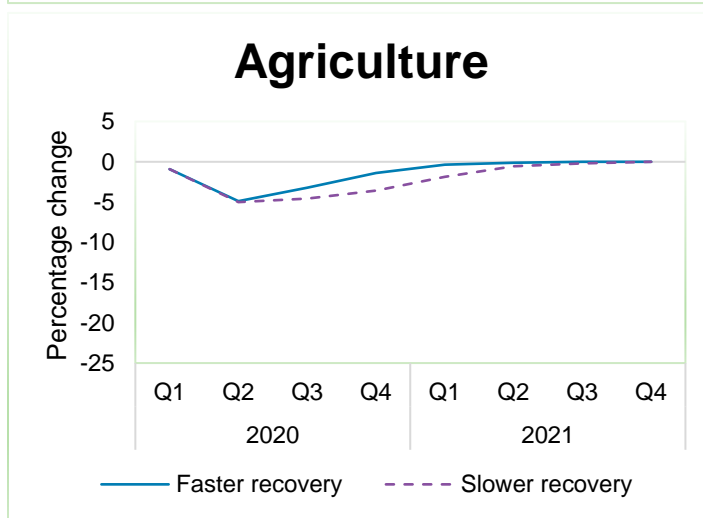

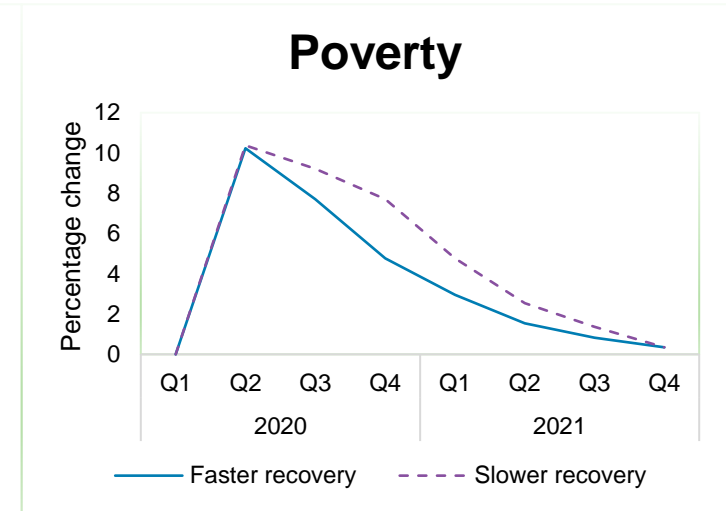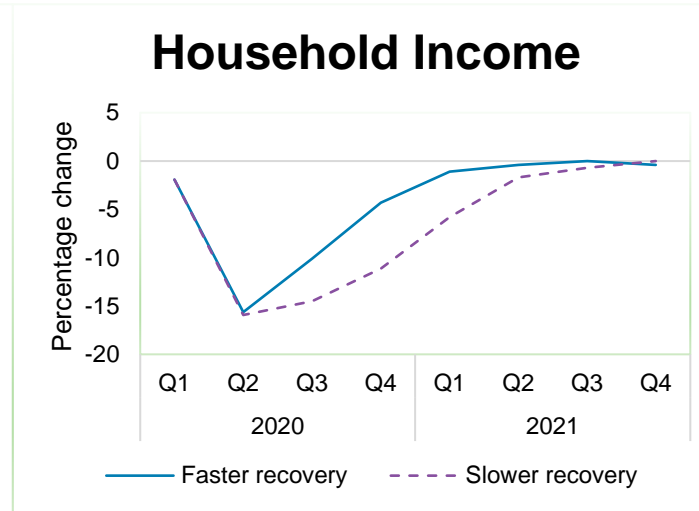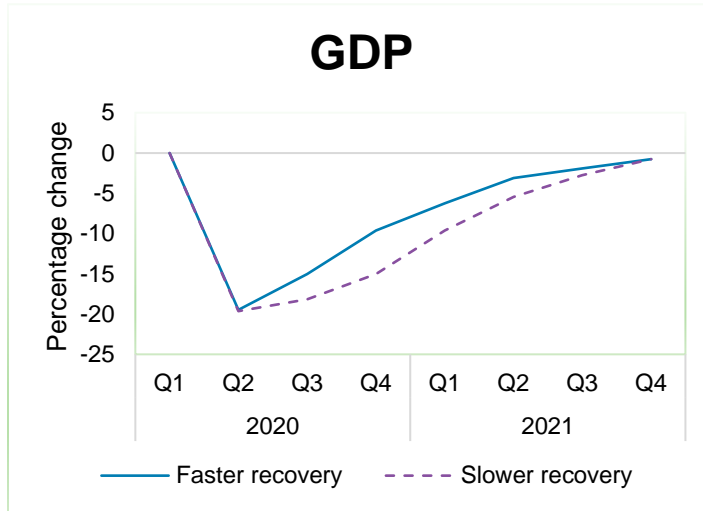
Fast recovery

Slow recovery
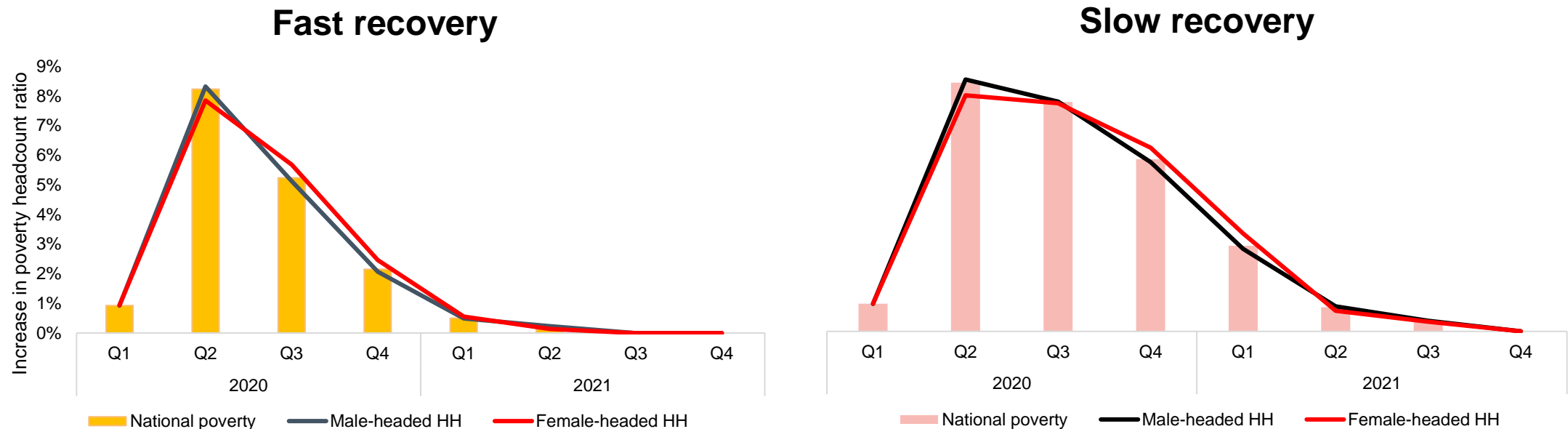
Impact on Government Revenues

- Government revenues decline by 4.3% to 4.4% in the 2019/2020 FY due to COVID-19

- Higher losses in revenue during the 2020/21 FY(about 3.9 to 8.4% decline)

- Slightly more is lost from indirect than from direct taxes under both faster and slower lifting of restrictions

Percentage of potential government revenue loss

FY2019/20		FY2020/21	
Faster	Slower	Faster	Slower
-4.3%	-4.4%	-3.9%	-8.4%

■ Indirect (commodity) taxes   ■ Direct (income & profit) taxes

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Summary of Faster and Slower Recovery Scenarios

GDP, Household Income, Poverty, Agriculture, Industry, Services — Percentage change by quarter (2020–2021), comparing Faster recovery and Slower recovery scenarios.

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Comparison of Results using Initial Shocks with those for Other Countries, 2020 only

		Change in total GDP (%)		Change in poverty rate (%-point)	
		During Q2 (Apr-Jun 2020)	Annual (Jan-Dec 2020)	End of Q2 (Jun 30, 2020)	End of year (Dec 31, 2020)
Countries with mild restrictions	Ethiopia	-12.2 to -12.9	-4.8 to -6.2	7.5 to 7.9	0.6 to 0.9
	Malawi	**-11.1 to -11.4**	**-4.0 to -5.2**	**5.6 to 5.7**	**0.6 to 1.0**
	Sudan	-12.8 to -15.8	-3.7 to -5.7	2.6 to 3.5	0.1 to 0.2
Countries with moderate restrictions	Ghana	-24.2 to -27.4	-8.6 to -12.3	10.5 to 12.1	0.8 to 1.7
	Indonesia	-13.2 to -16.2	-5.3 to -7.3	5.9 to 7.6	0.6 to 1.7
	Kenya	-18.6 to -19.8	-7.5 to -10.0	10.6 to 11.4	1.0 to 1.6
Countries with stringent restrictions	Myanmar [*]	-22.7 to -27	-5.6 to -8.1	10.9 to 17.0	3.2 to 6.0
	Rwanda	x to y	x to y	x to y	x to y
	Nigeria	-22.3 to -25.1	-6.8 to -8.6	8.3 to 9.3	0.2 to 0.7

Source: IFPRI SAM multiplier models, circa July/August 2020

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Summary

- While the short-terms impact of COVID-19 on the Malawi economy are not as heavy as in other African countries, they are still serious:

- Under two months of social distancing:
  - ➤ GDP falls by 16.4% during April/May, and by 16.1 to 16.4% in Q2
  - ➤ Industry and services are most affected, but the agri-food system also contracts by 10.2%.
  - ➤ Around 1.5 million additional people temporarily fall into poverty, mostly in rural areas. However, urban households suffer higher income losses.
  - ➤ Economy recovers as restrictions are lifted but GDP declines by 8.2% to 11.2% during 2020, before recovering to 0.4 to 2.1% of pre-COVID levels in 2021

- Under a hypothetical 21-day lockdown:
  - ➤ GDP falls by 22.3% during lockdown
  - ➤ Around 1.75 million additional people temporarily fall into poverty

Caveats and Extensions

- SAM multiplier models provides a useful accounting framework for highlighting the main direct and indirect production effects of COVID-19 prevention measures on household income, poverty or tax revenues

However …

- Specification of shocks is relatively simple (13 of 70 sectors in SAM)
- Exports, government expenditures and debt, remittances are determined outside model
- Long-term consequences of loss of education likely very serious
- There is no underlying epidemiological model
- A more comprehensive analysis of the medium-term impacts of COVID on the Malawi economy requires a full CGE model (and ideally an updated SAM too!)

BUT this will take much more time and modeling effort!

Policy Implications

- Minimizing the economic impacts of COVID requires:
  - ➤ Maintaining open markets and borders (with appropriate hygiene/social distancing measures) will mitigate COVID-19's impact
  - ➤ Social protection measures needed to protect the most vulnerable (especially informal services/small retailers in urban areas)

- Future monitoring the impact of COVID-19 restrictions on the Malawian economy should pay special attention to their impact on:
  - ➤ tourism and exports
  - ➤ manufacturing activity
  - ➤ the wider agri-food system
  - ➤ the urban informal service sector

- Need to think beyond 'flattening the curve' to 'building back better'

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Questions and Discussion

Visit IFPRI's spotlight page for analyses on the global impact of the COVID-19 pandemic
https://www.ifpri.org/covid-19

Visit IFPRI's COVID-19 Policy Response Portal:
http://massp.ifpri.info/2020/05/18/covid-19-policy-response-cpr-portal/

For further information on IFPRI Malawi's activities, please see:
Website: http://massp.ifpri.info/
Twitter: @IFPRIMalawi

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Additional Slides
(not for presentation)

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Numbers of Policies Implemented and Government Response Stringency Index in selected African countries, April to September 2020

Country	Number of Policies Implemented	Government Response Stringency Index
Ethiopia	114	77.8
Kenya	82	67.6
Mozambique	102	62.0
Malawi	38	55.6
Rwanda	110	78.7
South Africa	n/a	77.8
Tanzania	n/a	25.0
Zambia	73	50.9
Zimbabwe	n/a	78.9

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COVID Cases and Policy Timeline
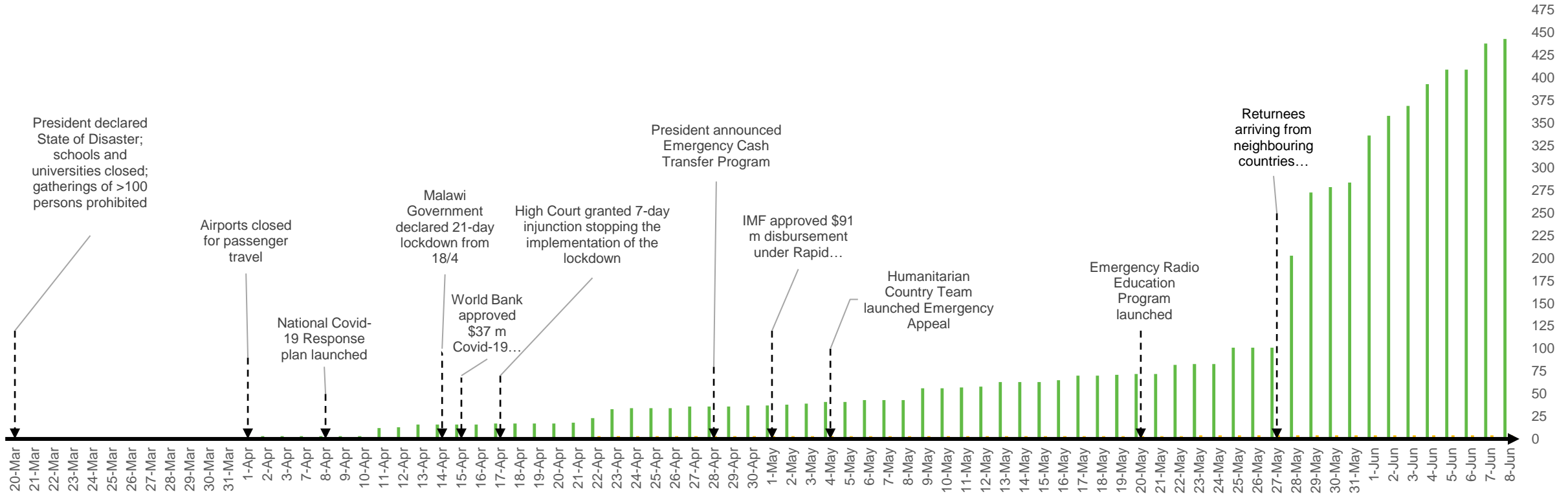
Flu Death Rates during the Great Influenza Pandemic, 1918-20

'A reasonable upper bound for the coronavirus's mortality effects can be derived from the world's experience with the Great Influenza Pandemic … which began and peaked in 1918 and persisted through 1920'

Deaths as percent of national population

Country	1918	1919	1920	Total
Kenya	3.64	2.14	0.00	5.78
India	4.10	0.86	0.26	5.22
Guatemala	2.94	0.00	0.98	3.92
Madagascar	2.20	1.30	0.00	3.50
South Africa	2.11	1.24	0.00	1.81
Spain	1.05	0.14	0.17	1.36
United States	0.39	0.07	0.05	0.52
United Kingdom	0.34	0.12	0.00	0.46
Australia	0.00	0.24	0.04	0.28
Aggregate (48 countries)	1.42	0.52	0.16	2.10

'the Great Influenza Pandemic is estimated to have reduced real per capita GDP by 6.2 percent [and consumption by 8.5 percent] in the typical country'

'the realized real return on government bills is depressed by 14 percentage points'

'the Great Influenza Pandemic and, especially, World War I increased inflation rates at least temporarily'

Source: Barro, R. Ursua, J. and Weng. H. 2020. 'The Coronavirus and the Great Influenza Pandemic'. NBER Working Paper 26866

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