



INTERNATIONAL
FOOD POLICY
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RESEARCH
PROGRAM ON
Policies,
Institutions,
and Markets

Led by IFPRI

Produced under CGIAR's Research Program on
Policies, Institutions, and Markets (PIM)

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Indonesia

Impacts of COVID-19 on Production, Poverty & Food Systems

International Food Policy Research Institute (IFPRI)

in collaboration with

National Development Planning Agency of Indonesia (BAPPENAS) and

Bogor Agricultural University (BAU)

Updated: May 18, 2020

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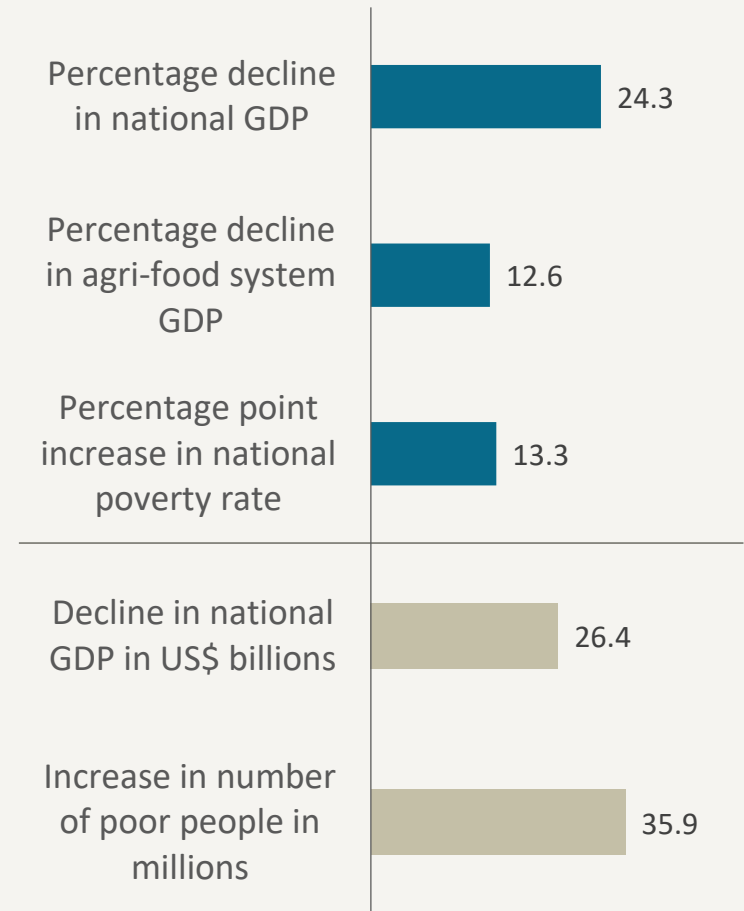
PSBB Imposes Heavy Economic Costs



Updated: April 26, 2020

- **National GDP is estimated to fall by 24% during the 4-week Large Social Distancing Policy (PSBB)**
(US\$26 bil. in lost GDP)
- **Food system is adversely affected by falling consumer & export demand**
(13% agri-food GDP decline, despite exemptions)
- **National poverty rate increases by 13%-points during the partial lock down**
(36 million more people temporarily living below the national poverty line)

Economic impacts during 4-week lockdown period



Costs Likely to Persist Throughout 2020



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- **Economy will recover as restrictions are lifted & people return to work**

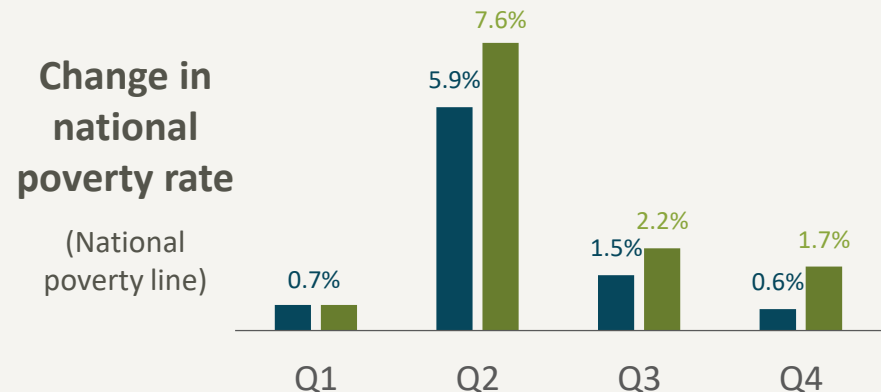
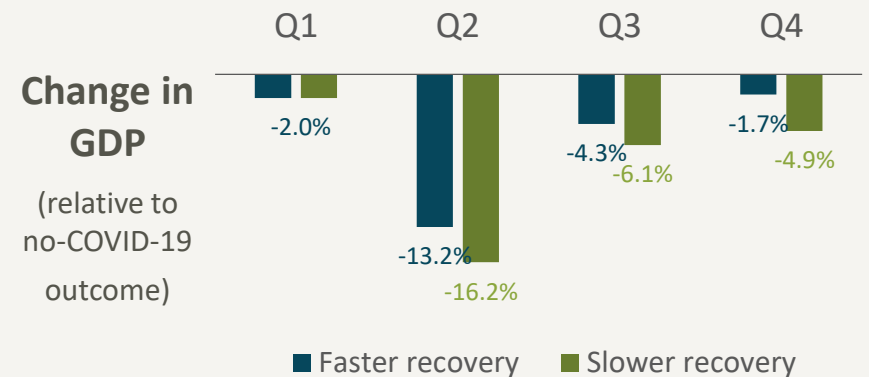
- **But economic losses remain, even with a fast recovery**

(GDP may be 5-7% lower in 2020 compared to a no-COVID scenario)

- **Average GDP & poverty rates for 2020 hide sharp mid-year deteriorations**

(many businesses & people will require government support to cope & recover)

Quarterly national impacts under faster or slower easing of lockdowns





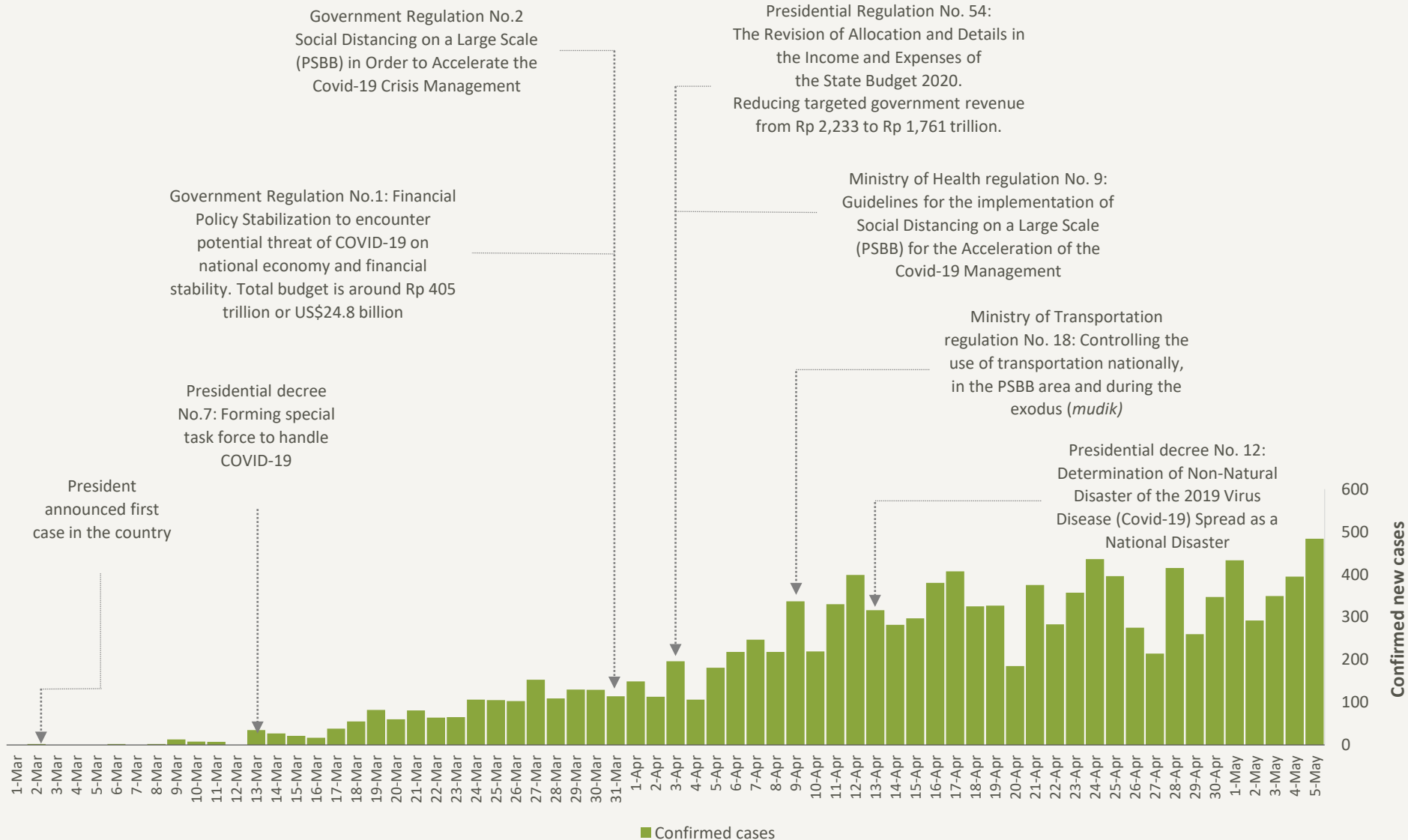
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COVID-19 Outbreak & Partial Lockdown Policies (PSBB) in Indonesia

COVID-19 Cases & Policy Timeline



Updated: April 26, 2020



Cities and States under PSBB (8 May 2020)



Updated: April 26, 2020

- Only part of the economy is under Large Scale Social Distancing (PSBB)

Number of cities and provinces under PSBB

- **Jakarta became the first city imposing the policy, then followed by other cities and province**

- DKI Jakarta, Banten, West Java, Central Java, East Java, Bali ≈ 61% of national GDP
- West Sumatera, North Sumatera, Riau, Jambi, Bengkulu ≈ 13% of national GDP



Sectors Affected by PSBB (1)



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| Sector | Lockdown restrictions or exemptions in targeted regions | Directly Affected? |
|-----------------------------------|--|--------------------|
| Agriculture | <ul style="list-style-type: none"> • Movement restrictions occurring at start of planting season • Suspended development projects | Minimal |
| Mining & crude oil | <ul style="list-style-type: none"> • Continuing to operate (essential sector) • Lower oil prices & export demand (small supply effects to date) | Minimal |
| Manufacturing | <ul style="list-style-type: none"> • Food processing & medicines exempted (essential sector) • Non-essential producing companies closed • Limited access to production inputs from China | High |
| Utilities | <ul style="list-style-type: none"> • Electricity & water distribution exempted (essential sector) | Minimal |
| Construction | <ul style="list-style-type: none"> • Many public works programs reduced in affected areas • Local curfews & border closures reducing activity elsewhere | Some |
| Wholesale & retail trade services | <ul style="list-style-type: none"> • Retailers of essential goods exempted • Wholesale not exempted | Some |
| Transportation, storage & cargo | <ul style="list-style-type: none"> • Air travel closed for the whole May; Bus, train and ship service hours is limited with half maximum capacity; • Ban for Eid al-Fitr exodus from May 7 • Port cargo handling & storage exempted | High |
| Hotels & food services | <ul style="list-style-type: none"> • Restaurant dining is strictly limited • Thousands of hotels closed | High |

Sectors Affected by PSBB (2)



Updated: April 26, 2020

| Sector | Lockdown restrictions or exemptions in targeted regions | Directly Affected? |
|---|---|--------------------|
| Banking, finance & insurance | <ul style="list-style-type: none"> • Money transfer services exempted (essential) • Banks operating with essential staff only | Minimal |
| Professional & business services | <ul style="list-style-type: none"> • Almost all closed or teleworking (e.g., legal, accounting services) • Activities involving in-person field visits affected (e.g., engineers) | Minimal |
| Public admin & law enforcement | <ul style="list-style-type: none"> • Public services & agencies remain open, but most staff teleworking • Public & private security services exempted (essential) | Minimal |
| Education services | <ul style="list-style-type: none"> • All schools closed replaced by online delivery | Minimal |
| Health services | <ul style="list-style-type: none"> • Health services exempted (essential) | Minimal |
| Sports & entertainment | <ul style="list-style-type: none"> • Most sports & outdoor entertainment banned • Some activities operating (e.g., newspapers, radio & TV) | High |
| Other services | <ul style="list-style-type: none"> • In-person religious gatherings banned • Major disruptions to informal repair firms due to market closures | Some |

Global & Other Nationwide Shocks



Updated: April 26, 2020

| Sector | Lockdown restrictions or exemptions in targeted regions | Directly Affected? |
|----------------------------|---|--------------------|
| Export demand | Nationwide <ul style="list-style-type: none">• Decline in demand for exported goods• Reduced international tourism & business travel to Indonesia | Some |
| Remittances | Nationwide <ul style="list-style-type: none">• Declines in the value of remittances sent by national working abroad | Some |
| Foreign Investments | Nationwide <ul style="list-style-type: none">• Fall in foreign investments due to uncondusive economic situation | Some |
| Government revenues | Nationwide <ul style="list-style-type: none">• Fall in tax revenues due to decline in economic activity• Lower trade tax collections due to reduced import demand | Some |

See detailed sector-level assumptions about production & demand shocks in Annex at the end of slide deck



2 Measuring Economic Impacts

Economywide Multiplier Analysis



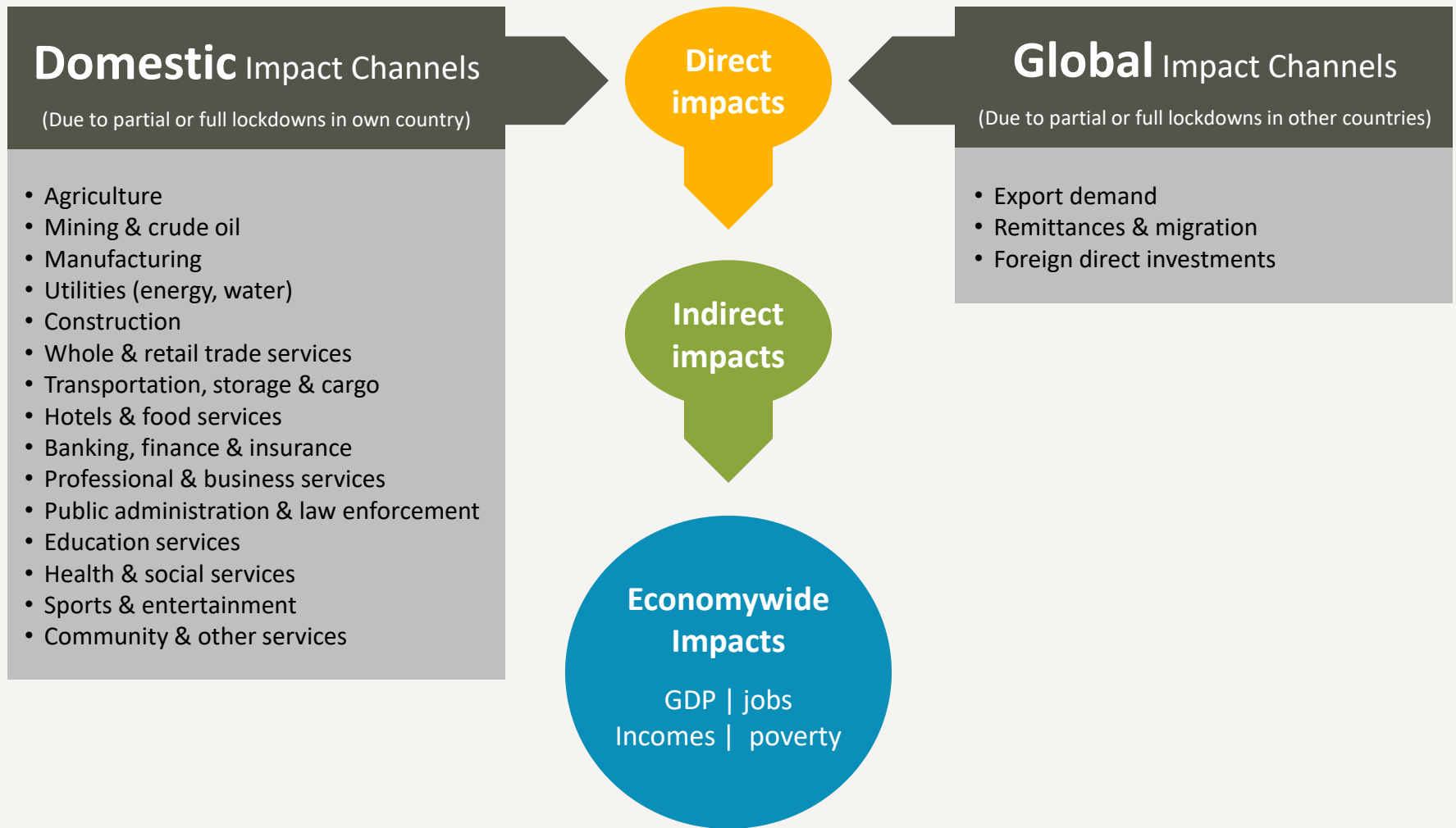
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- **Partial lockdown policies & shocks have direct impacts on the operation of certain sectors**
(e.g., closing businesses, restricting travel, etc.)
- **But it also generates indirect impacts on other sectors involved in supply chains**
(i.e., input suppliers & downstream users)
- **Multiplier analysis uses sector input-output data to measure direct & indirect impacts throughout & across supply chains**
(incl. impacts on GDP, jobs & household incomes)
- **Indonesia model based on 2018 SAM & 2015 household survey data (SUSENAS)**
(results scaled to 2019 GDP & employment levels)

Framework for Analyzing COVID-19



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Impact Channels & Shocks



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- **Partial lockdowns are simulated using a range of impact channels**
 - Shocks to each channel are imposed on the model & impacts are simultaneously traced across all supply chains
- **Multiplier model separates entire Indonesian economy into 86 sectors**
(shocks are calculated bottom-up using supply-use data for 185 goods & services)
- **Size of shocks is estimated by IFPRI's staff & collaborators**
(see Annex)

| Impact channels used to replicate lockdowns | |
|---|--|
| 1 | Direct restrictions on farming |
| 2 | Limiting mining operations |
| 3 | Closing non-essential manufacturing operations |
| 4 | Disruptions to energy and water supply |
| 5 | Limiting construction activities |
| 6 | Closing non-essential wholesale/retail trade |
| 7 | Transport/travel restrictions |
| 8 | Closing hotels, bars and restaurants |
| 9 | Closing non-essential business services |
| 10 | Government work-from-home orders |
| 11 | Closing all schools in the country |
| 12 | Disruptions to hospitals and clinics |
| 13 | Banning sports & other entertainment |
| 14 | Domestic workers & other services |
| 15 | Reduced export demand |
| 16 | Falling foreign remittances |
| 17 | Falling government revenues |

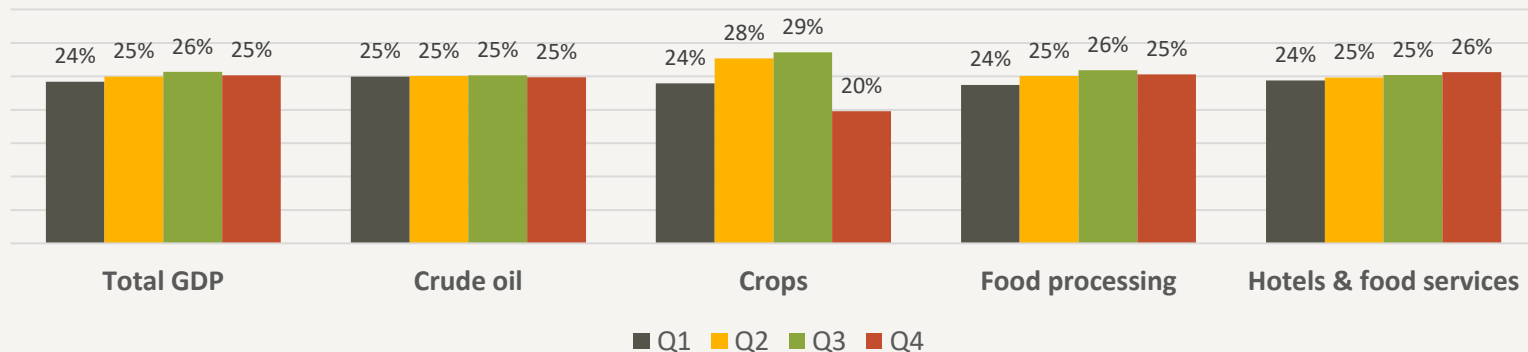
Adjusting for Geography & Seasonality



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- **Shocks are weighted to reflect the geographic targeting of lockdowns policies** (using official data on sectoral GDP by state)
- **Shocks also weighted by importance of Q2-2020 for sectoral GDP**
 - Mid of year is more important for crop GDP
 - Hotels & food services sector is almost proportionally distributed across year
 - Food processing GDP is also evenly distributed across year

Share of annual GDP produced each quarter



Scenarios



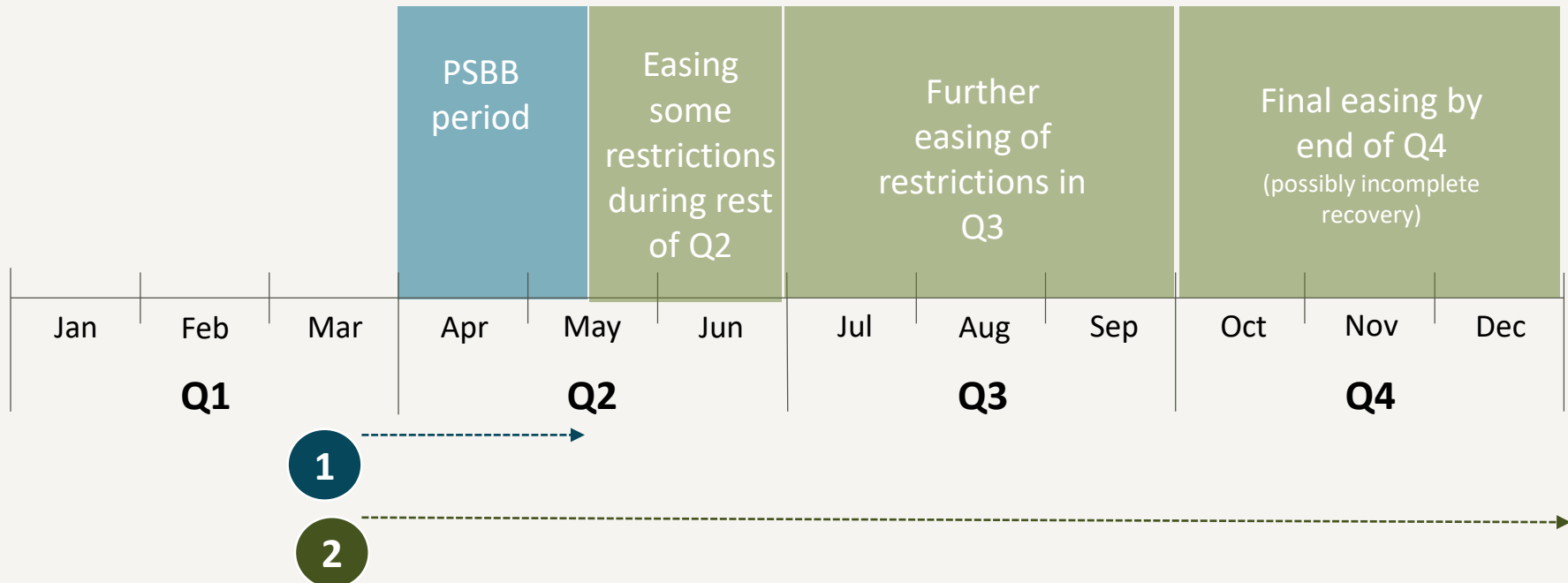
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1. Impacts during only the partial lockdown (PSBB) period

- Partial lock down is implemented for 2 weeks as an effort for mass quarantine
- It started from early April with different starting point across most affected regions
- The 4 week shock is introduced in the model to capture the full partial lockdown effect

2. Impacts for rest of 2020 as lockdowns are lifted each quarter

- We will compare a faster vs. slower easing of restrictions





3

Economic Impacts During the Ongoing Partial Lockdown Period

GDP Losses During Lockdown



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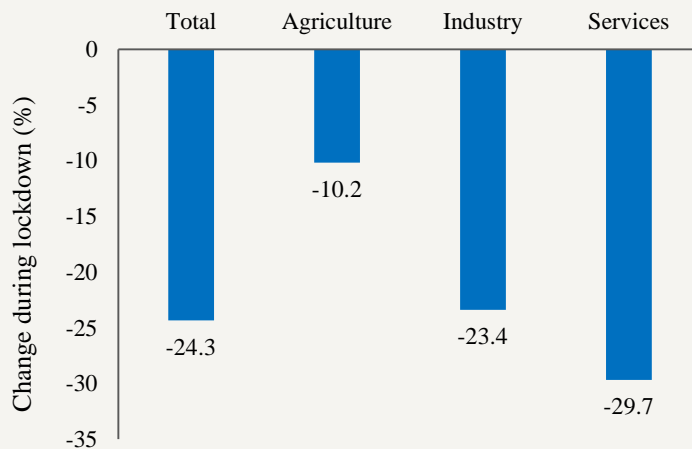
National GDP drops 23% during the 4-week lockdown

(most economic losses occur in the industry & services sectors)

GDP losses accumulate when the lockdown period is extended

(could also increase if tighter restrictions are imposed on more sectors/states)

Change in total GDP during lockdown period (%)



Change in total GDP by duration of lockdown (US\$ bil.)



Sources of GDP Losses

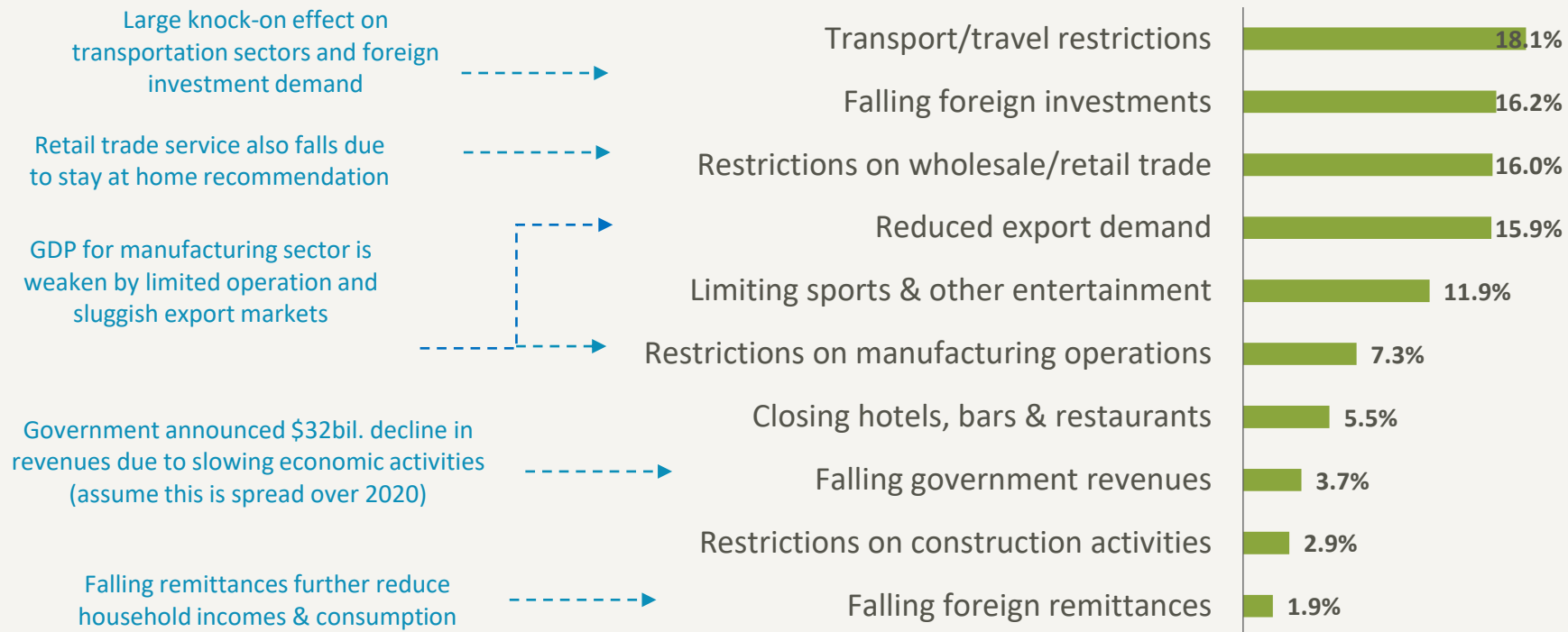


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Restricting transportation and retail trade accounts for one third of GDP losses

(Falling export demand and investment from abroad makes up another third)

Contribution of lockdown restrictions & shocks to loss in total GDP during lockdown (sums to 100%)



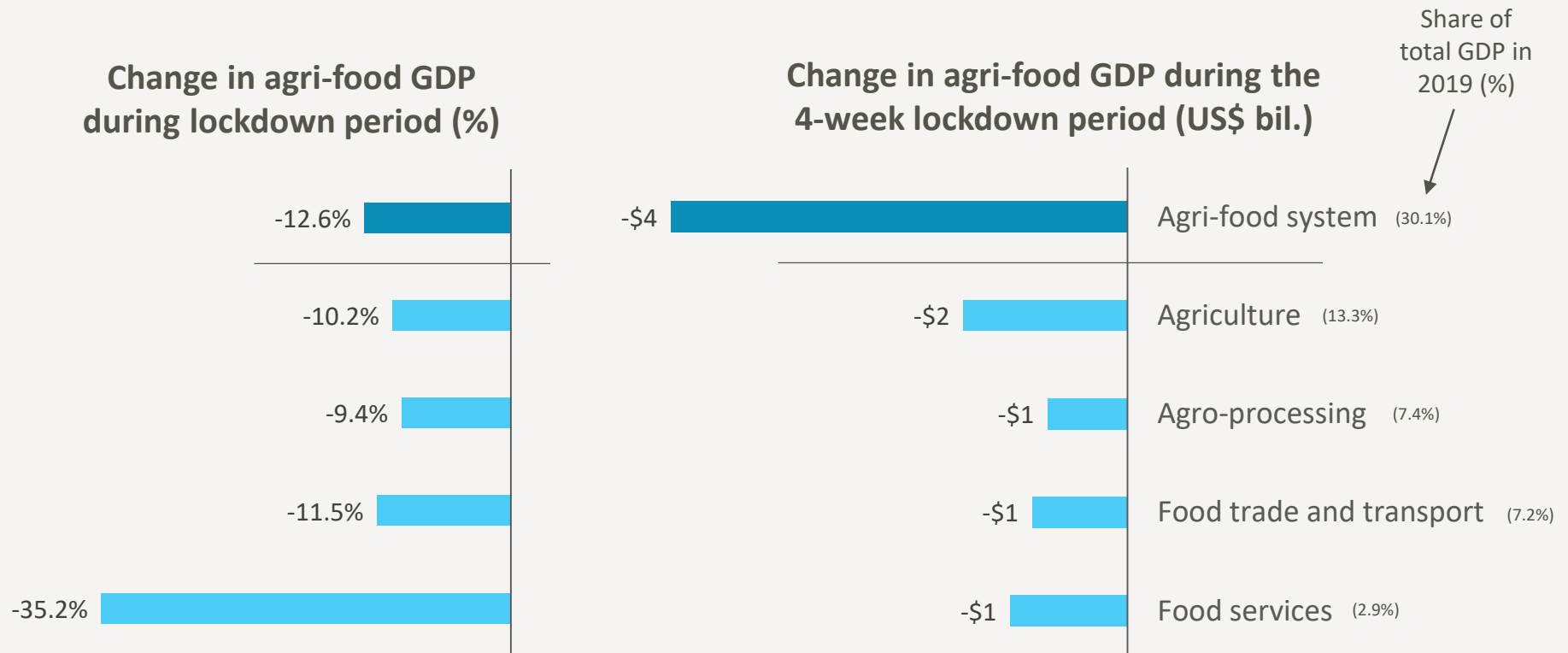
Impacts on the Agri-Food System



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Food supply is exempt from most restrictions, but it is still indirectly affected by falling consumer incomes & other shocks

(food services is directly affected by the closing of hotels, restaurants & bars, but this is a small component of the overall agri-food system)



Sources of Agri-Food System GDP Losses

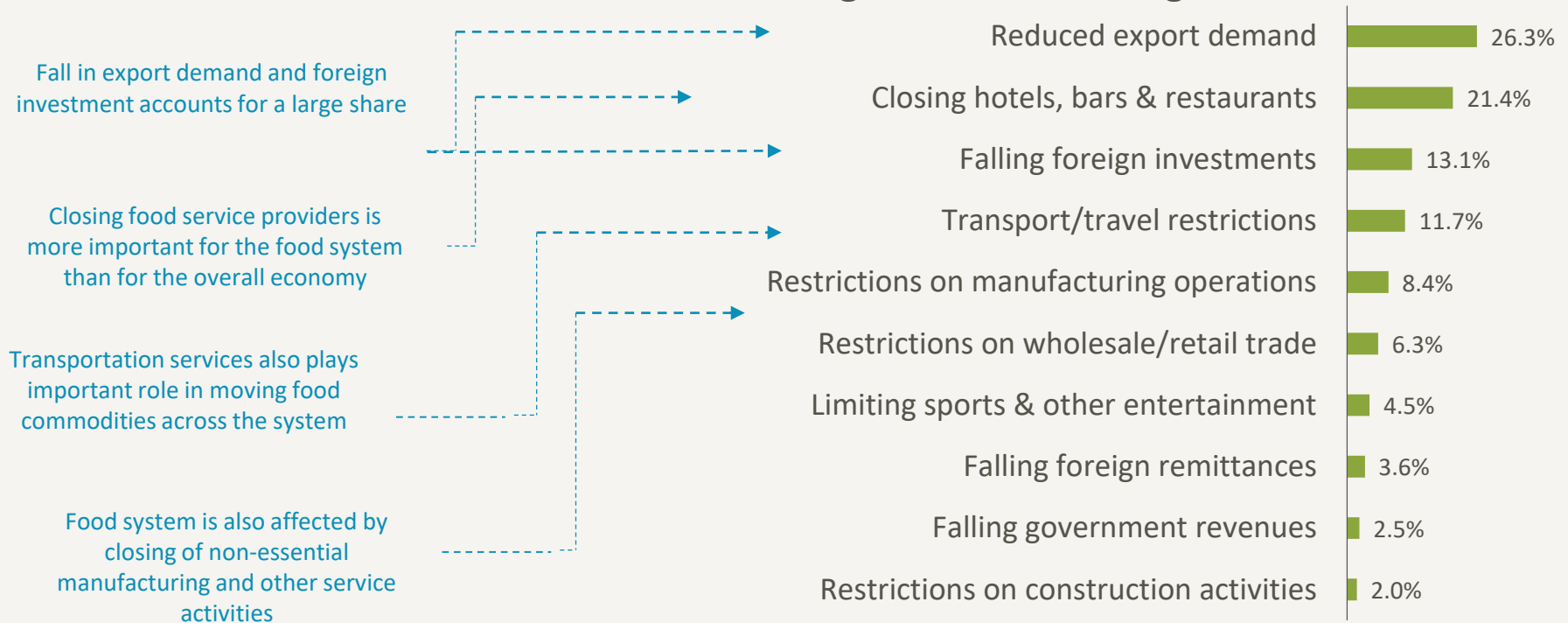


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Reduced export demand causes a large share of agri-food GDP losses

(closing hotels and restaurant and falling foreign investment makes up another third)

Contribution of lockdown restrictions & shocks to loss in agri-food GDP during lockdown (sums to 100%)



Unpacking Agricultural GDP Impacts



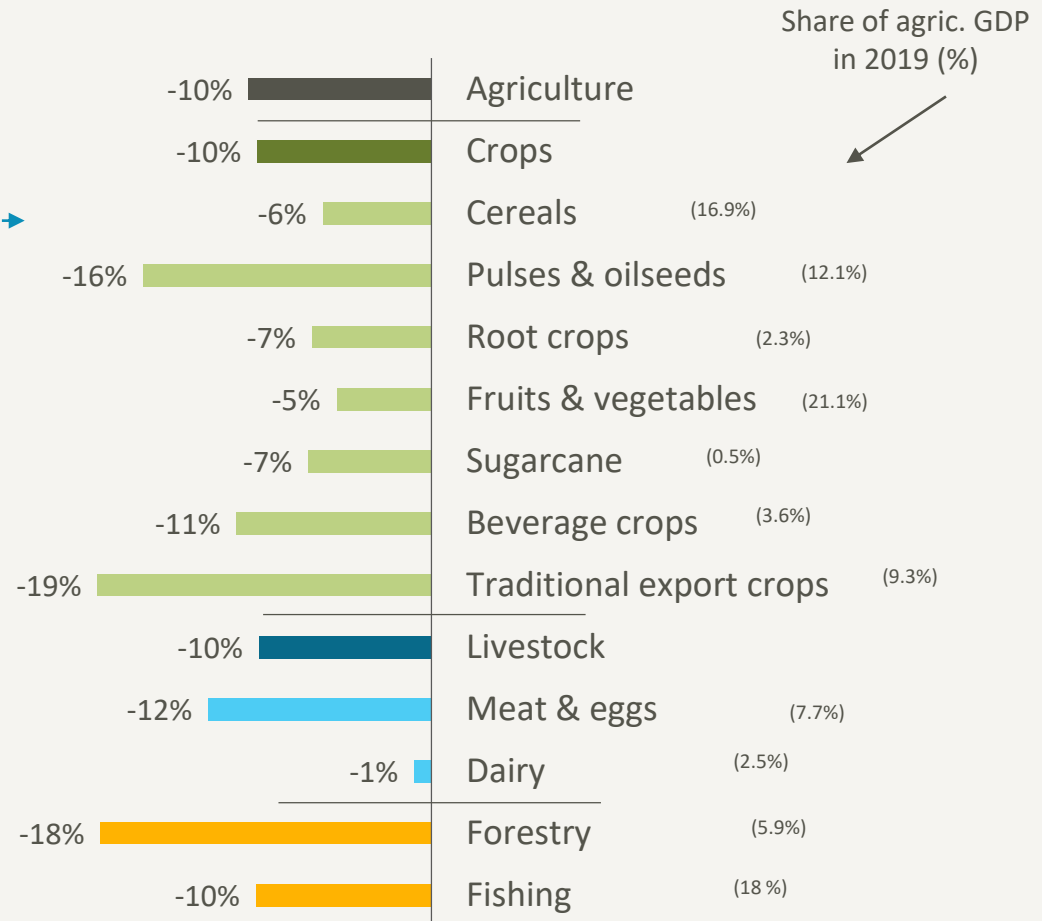
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Change in GDP during the lockdown (%)

Cereal crops is affected through indirect effects on food demand reduction in the downstream sectors

Export crops hurt the most by falling export demand

Decline in investment spending & construction activities reduces demand for timber & wood products



Unpacking Food Processing GDP Impacts



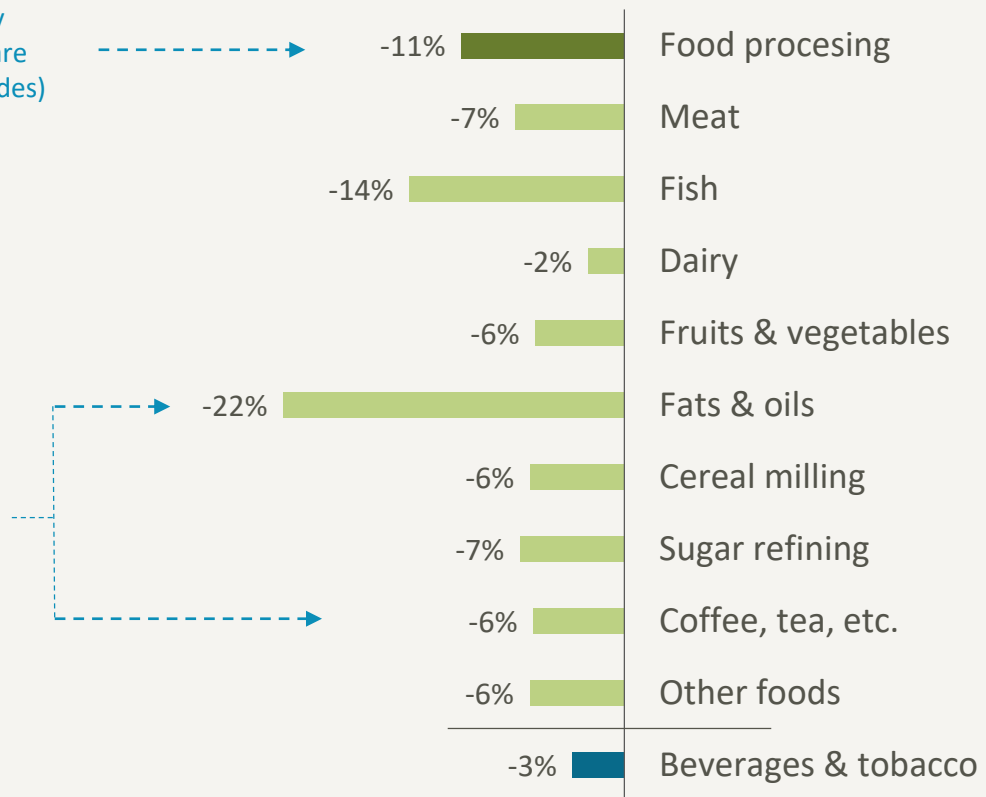
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Note: Agri-food processing is a subsector within manufacturing

Processed foods are more intensively consumed by urban households, who are affected badly by lockdown (see later slides)

Export-oriented crops are typically processed before being exported

Change in GDP during the lockdown (%)



Impacts on Household Incomes



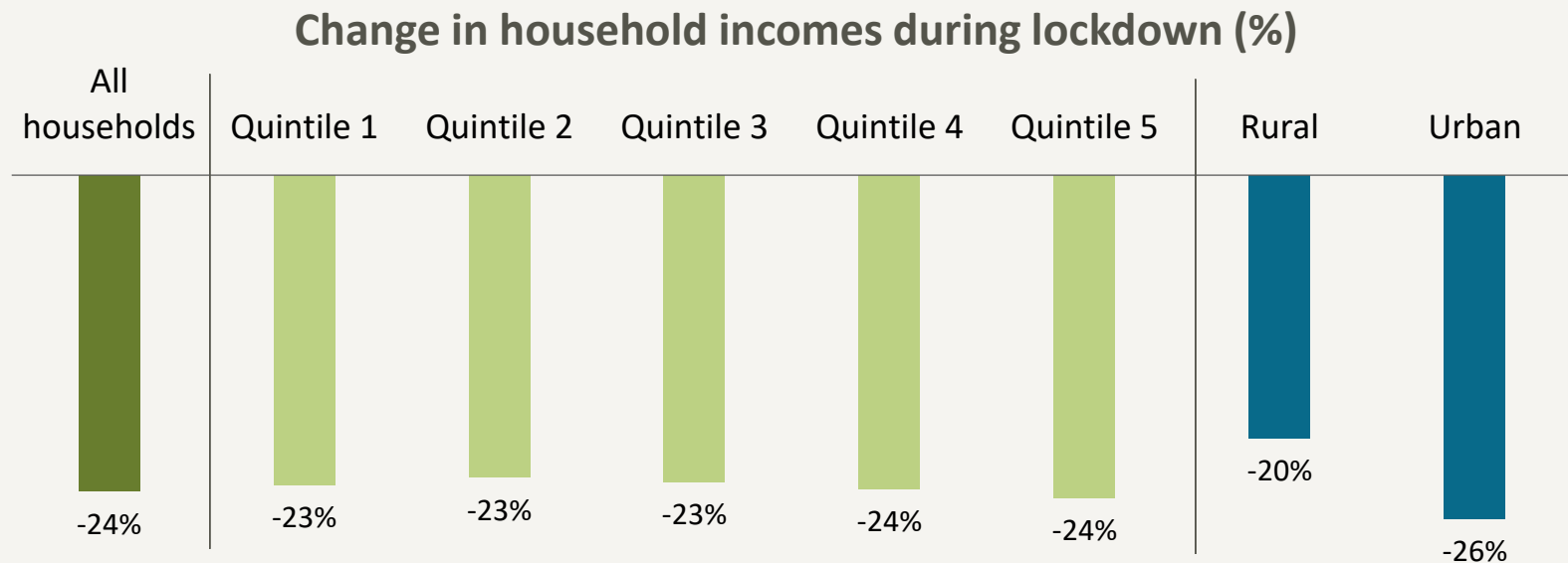
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Higher-income & urban households experience large income losses

(lockdowns target cities; nonpoor more likely to work in manufacturing & services)

But incomes of rural & lower-income households also fall sharply

(mainly due to effects of food system disruptions on smallholder farmer incomes & the closure of urban informal markets where urban poor often work)



Impacts on Household Incomes



Updated: April 26, 2020

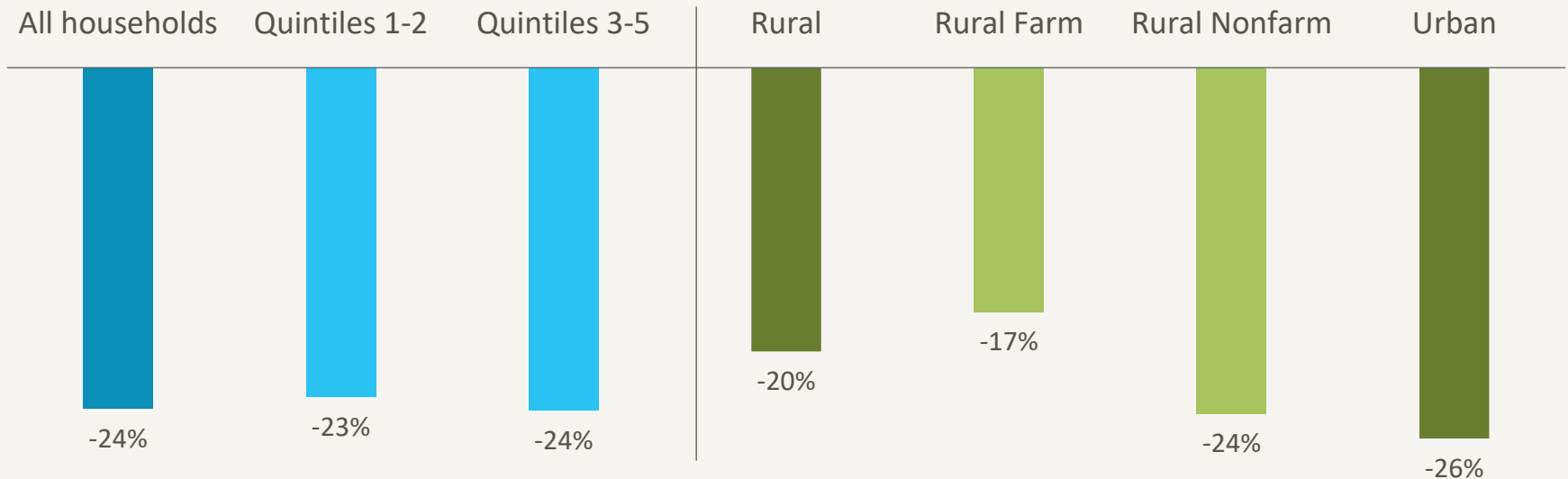
All households experience large income losses

(smaller losses in rural areas because farming only indirectly affected by restrictions)

Slightly larger income losses for higher-income households

(but we do not consider how these households have savings & assets that can help smooth income shocks)

Change in household incomes over 4-week period (%)



Poverty Impacts During the Lockdown

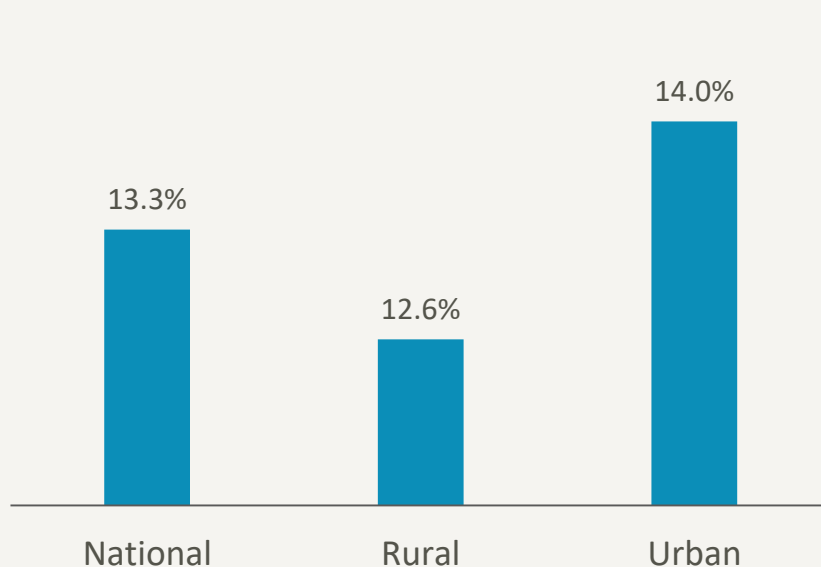


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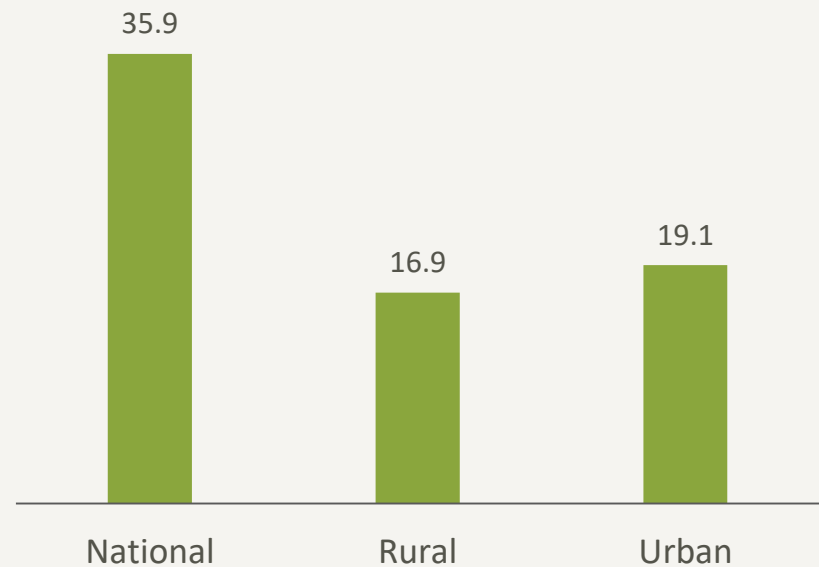
National poverty rate increases by 13%-points during the lockdown period (\approx 36 mil. more poor)

(poverty rate is the share of the population with consumption spending below the national poverty line)

Increase in the share of the national population living in poverty (%)



Increase in number of poor people in Indonesia during the 4-week lockdown period (mil.)





4

Economic Impacts Under Fast & Slow Easing of Restrictions

Easing of Restrictions



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Predicting Indonesia's "post-lockdown" period is challenging

Consider two highly stylized scenarios:

Faster easing: Economy rebounds strongly in Q3 & largely returns to normal by Dec 2020

Slower easing: Modest rebound in Q3 with slower recovery in Q4

| | | Faster easing | Slower easing | Global shocks |
|----|------------|--|---|--|
| Q1 | Jan | No shocks in pre-COVID-19 period | | |
| | Feb | | | |
| | Mar | Economic disorganization prior to the partial lock down | | |
| Q2 | Apr to May | Full partial lockdown period between April and May for 4 weeks | | Remittances & export demand decline from 1 st March onwards |
| | May to Jun | Production losses from lockdown policies fall 80% | Production losses from lockdown policies fall 50% | Shocks reduced by 50% |
| Q3 | Jul | Losses reduced by 90% | Losses reduced by 75% | Shocks reduced by 75-80% |
| | Aug | | | |
| | Sep | | | |
| Q4 | Oct | Losses reduced by 95% | Losses reduced by 90% | Shocks reduced by 90-95% |
| | Nov | | | |
| | Dec | | | |

GDP Impacts with Recovery Scenarios



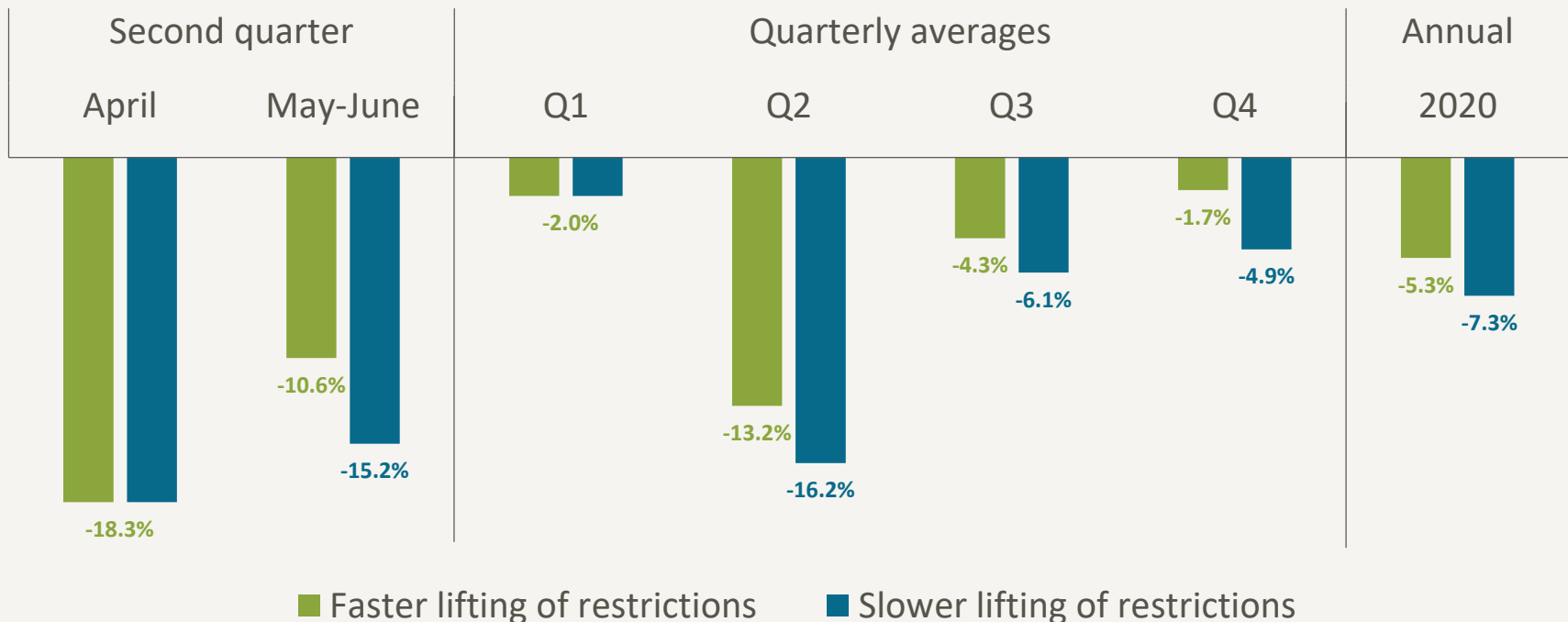
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National GDP is 5-7% lower over 2020 as a result of COVID-19

(given its pre-COVID-19 growth trends, Indonesia may well lose a year or more of growth)

Change in quarterly & annual national GDP with fast or slow easing of restrictions

(changes are relative to a no-COVID growth scenario)



Cumulative Quarterly GDP Losses

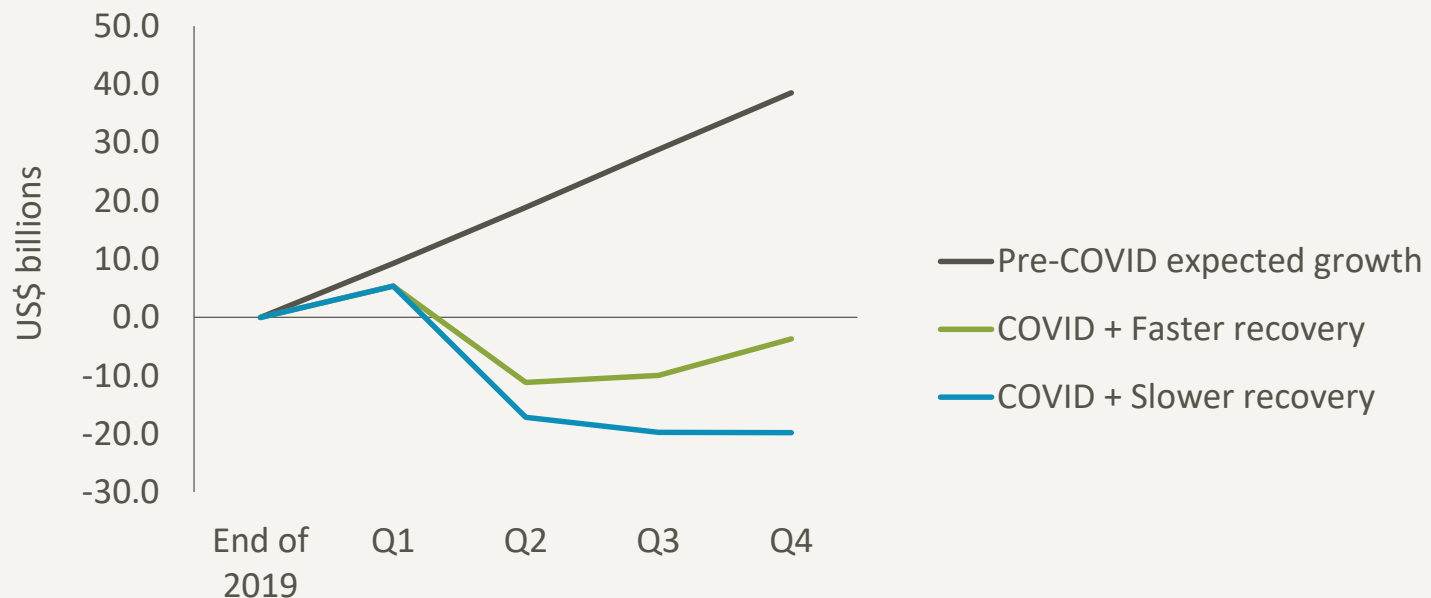


Updated: April 26, 2020

Ethiopia expected to end 2020 with higher GDP than at start of 2019, but below what was expected before COVID

Cumulative changes in 2020 GDP from end of 2019

(pre-COVID expected growth rate for 2020 was 5.1%)



Poverty Impacts with Recovery Scenarios

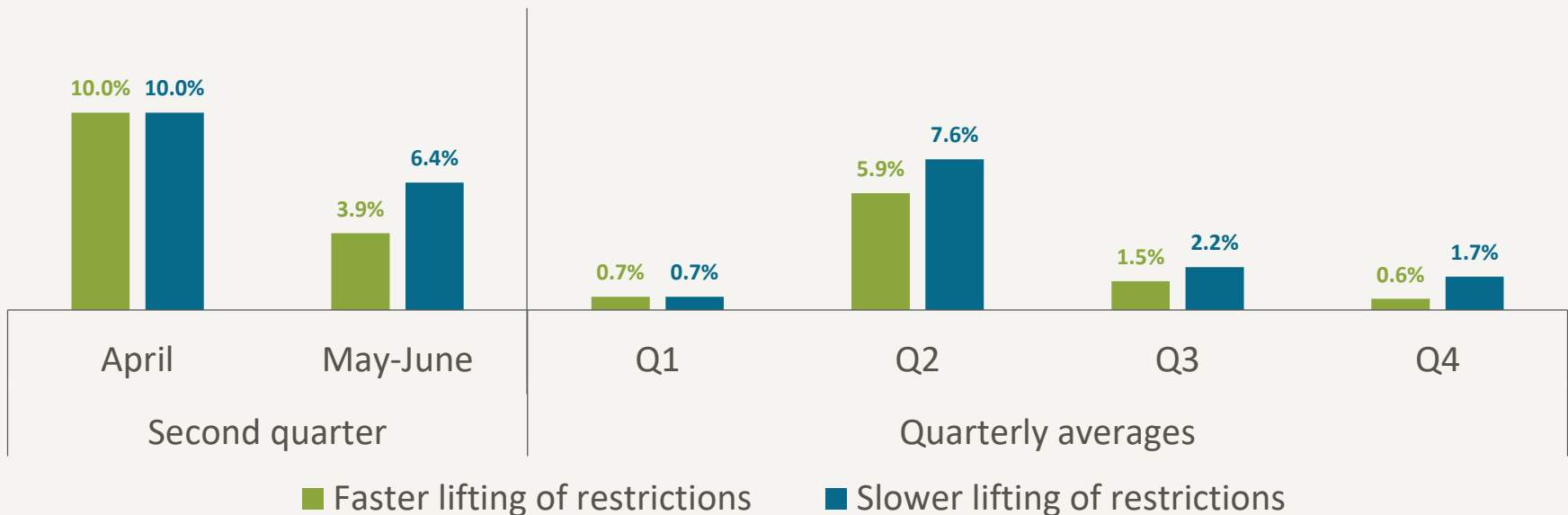


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Poverty stabilizes by end of 2020 as people return to work, incomes recover & consumer demand resumes

But this hides a sharp spike in mid-year poverty, when many households living close to the poverty line will require government or other support to cope

Change in national poverty rate with fast or slow easing of restrictions
(changes are relative to a no-COVID growth scenario)





Detailed Assumptions About Production & Demand Shocks

Channels, Shocks & Affected Sectors (1)



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| Type of restriction or global shock | Major sectors affected ² | Geography affected | Size of shock | Detailed subsectors affected by shock ² |
|---|--|--|---------------------------|--|
| Direct restrictions on farming | Agriculture (A) | | 0% | Crop/animal production, hunting, related service activities (D01); forestry, logging (D02); fishing, aquaculture (D03) |
| Limiting mining operations | Mining, quarrying (B) | | 0% | Coal, lignite (D5); crude petroleum, natural gas (D06); metal ores (D07); quarrying (D08); mining support service activities (D09) |
| Closing non-essential manufacturing operations | Manufacturing (C) | | 0% | Food products (D10); coke, refined petroleum (D19); pharmaceuticals, medicinal chemicals (D21); electromedical equipment (G266) |
| | | Only selected cities & states ¹ | Varied between -1 to -26% | Beverages, tobacco (D11-12); textiles, clothing, leather (D13-15); wood, paper, printing (D16-18); chemicals, rubber, plastics (D20-21); non-metallic minerals (D23); metals (D24-25); equipment, machinery (D26-28 excl. G266); vehicles, transport equipment (D29-30); furniture (D31), other manufactures (D33) |
| Disruptions to energy and water supply | Electricity, gas (D); water supply (E) | | -1% | Electricity, gas, steam supply (D35); water collection, treatment, supply (D36); sewerage, waste collection/remediation (D37-39) |
| Limiting construction activities | Construction (F) | Only selected cities & states ¹ | -3% | Construction of buildings (D41); civil engineering (D42); specialized construction activities (D43) |
| Closing non-essential trading activities | Wholesale/retail trade (G) | | 30% | Agricultural raw materials, live animals (G462); agricultural machinery, equipment, supplies (C4653); food, beverages, tobacco, incl. stalls & markets (G463 G471-472 C4781); construction materials, hardware, plumbing, heating equipment (C4663); automotive fuels (G473) |
| | | Only selected cities & states ¹ | -30% | Motor vehicle trade/repair (D45); wholesale trade (D46 excl. G462-463 C4653 C4663); retail trade (D47 excl. G471-472 G47 C4781) |
| Transport/travel restrictions | Transportation, storage (H) | | 0% | Postal/courier activities (D53); transport via pipeline (G493) |
| | | Only selected cities & states ¹ | -50% | Sea/coastal/inland water transport (C5011-5012 C5022); transport support (G522) |
| | | Only selected cities & states ¹ | -50% | Freight rail/road/air transport (C4912 C4923 G512); warehousing/storage (G521) |
| | | Only selected cities & states ¹ | -50% | Urban/suburban passenger/other land transport (C4911 C4921-4922) |
| | | Only selected cities & states ¹ | -80% | Passenger air transport (G511) |
| Government work-from-home orders | Public administration, defense (O) | | 0% | Public administration, defense, compulsory social security (D84) |

Channels, Shocks & Affected Sectors (2)



Updated: April 26, 2020

| Type of restriction or global shock | Major sectors affected ² | Geography affected | Size of shock | Detailed subsectors affected by shock ² |
|---|--|--|---------------|---|
| Closing non-essential business services | Information, communication (J); finance, insurance (K); real estate (L); professional/scientific/technical activities (M); administrative/support services (N) | Only selected cities & states ¹ | 0% | Publishing activities (D58); programming/broadcasting activities (D60); telecommunications (D61); computer programming/consultancy activities (D62); information service activities (D63); financial services, insurance, pension funding, auxiliary services (D64-66); real estate activities (D68); security and investigation activities (D80) |
| | | Only selected cities & states ¹ | 0% | Accounting, bookkeeping, auditing, tax consultancy (G692); head offices, management consultancy (D70); scientific research/development (D72); advertising, market research (D73); other professional/scientific/technical activities (D74); |
| | | Only selected cities & states ¹ | 0% | Legal activities (G692); architectural/engineering activities (D71); veterinary activities (D75) |
| | | Only selected cities & states ¹ | 0% | Motion picture/video/television program production, etc. (D59); renting/leasing activities (D77); employment activities (D78); travel agencies, tour operators (D79); building services, landscape activities (D81); office administrative, office support, other business support activities (D82) |
| Closing schools | Education (P) | | 0% | Pre-primary and primary education (G851) |
| | | | 0% | Secondary education (G852); Other education (G854) |
| | | | 0% | Higher education (G853); Educational support activities (G855) |
| Disruptions to hospitals and clinics | Human health, social work (Q) | | 0% | Human health activities (D86); residential care activities (D87); social work activities without accommodation (D88) |
| Banning sports & other entertainment | Arts, recreation, entertainment (R) | Only selected cities & states ¹ | -75% | Creative/arts/entertainment activities (D90); libraries, archives, museums, other cultural activities (D91); gambling, betting activities (D92); sports, amusement/recreation activities (D93) |
| Domestic workers & other services | Other service activities (S); households as employers (T); extraterritorial organizations (U) | Only selected cities & states ¹ | 0% | Extraterritorial organizations/bodies (D99) |
| | | Only selected cities & states ¹ | -11% | Membership organizations (D94) |
| | | Only selected cities & states ¹ | -11% | Other personal services (D96); domestic workers/personnel (D97); Other production activities of private households for own use (D98) |
| | | Only selected cities & states ¹ | -11% | Repairing computers & personal/household goods (D95) |

Note: (1) Selected cities and states include DKI Jakarta, West Java, Banten, Central Java, East Java, Bali, West Sumatera, North Sumatera, Riau, Jambi, Bengkulu regions; (2) numbers in parentheses are International Standard Industrial Classification (ISIC Revision 4) codes (by major section with detailed subsectors, D is division, G is group and C is class).