ASIAN INFRASTRUCTURE INVESTMENT BANK

Asian Infrastructure Finance 2021

Global Value Chains as Levers to Sustainable Development

Erik Berglof

Chief Economist of AIIB

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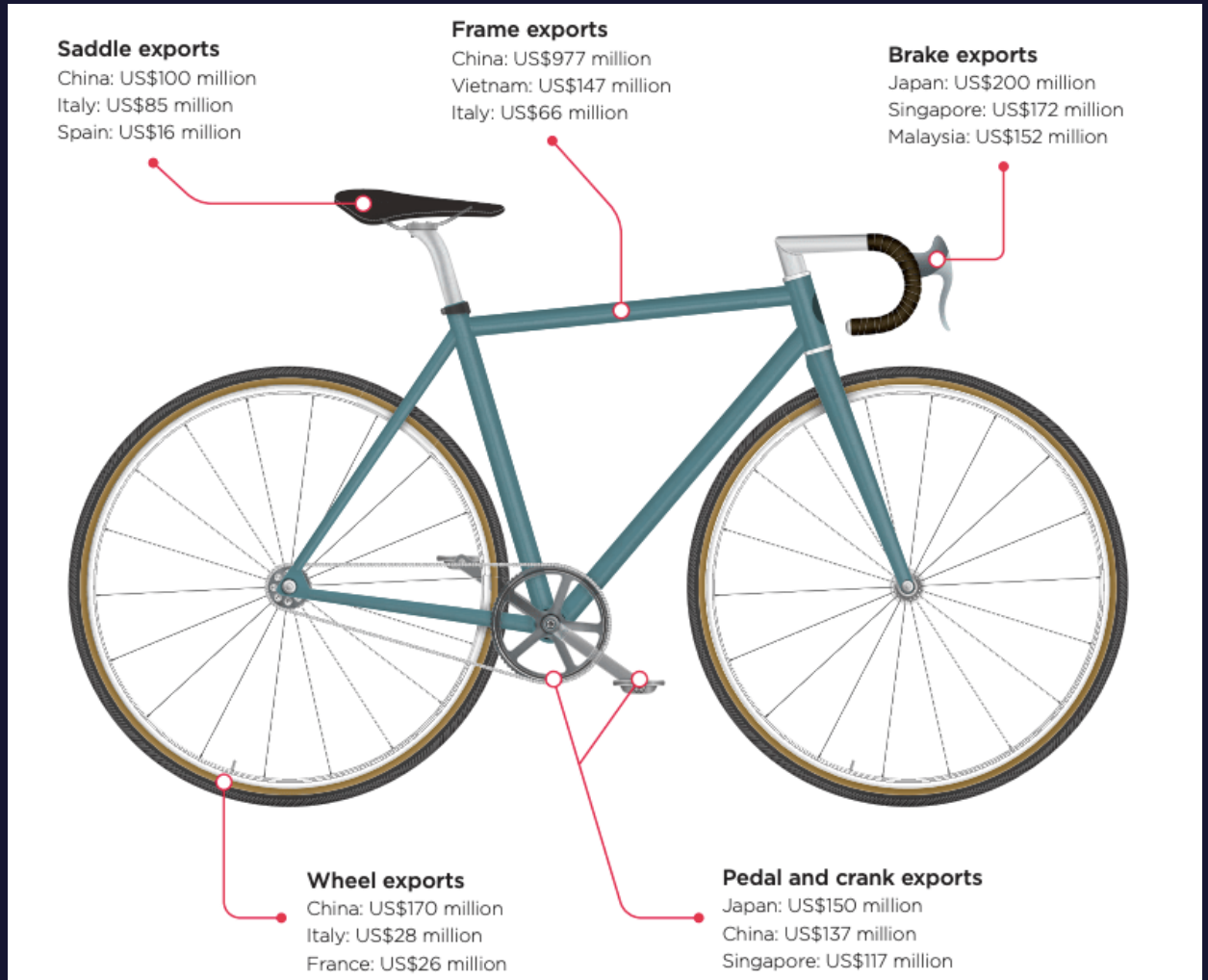
The Global Value Chain of a bicycle



Source: WDR 2020 team, using data from UN Comtrade database. See appendix A for a description of the databases used in this Report.

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Global Value Chains

- **Create development pathways** for many emerging economies
- **Deeply connected with infrastructure** and mutually reinforcing
- **Expansion slowed down** and shifted from advanced to emerging economies

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Challenges and Opportunities

Pandemic shocks
Lockdowns and reopening of economies

Technological change
Digital infrastructure and readiness fundamental to exploit opportunities

Trade tensions
Uncertainty in trade policies impacts GVCs

Net-zero transition
Existential issue for GVC lead firms and countries compete offering green infrastructure

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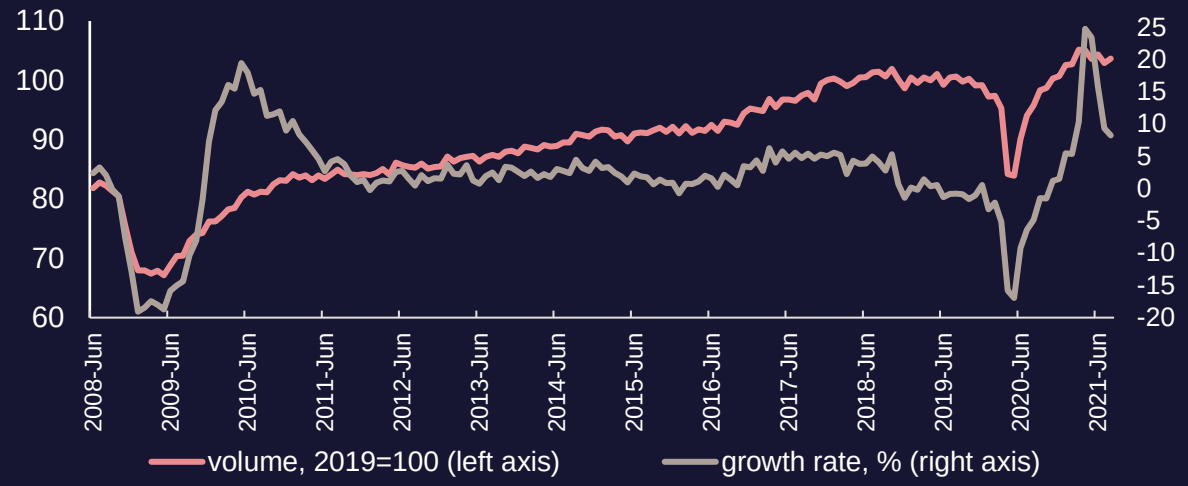
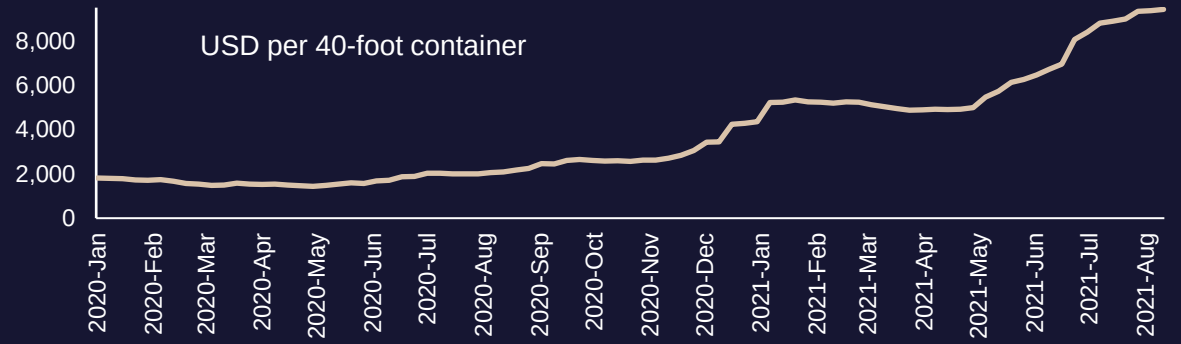
Pandemic shocks persist

Fast recovery of global trade



But bottlenecks in transport



Infrastructure held up well through pandemic

Bottlenecks as economies reopen

Too early to assess impact on GVCs

GVC arrangements sticky

Long term economic drivers likely dominate

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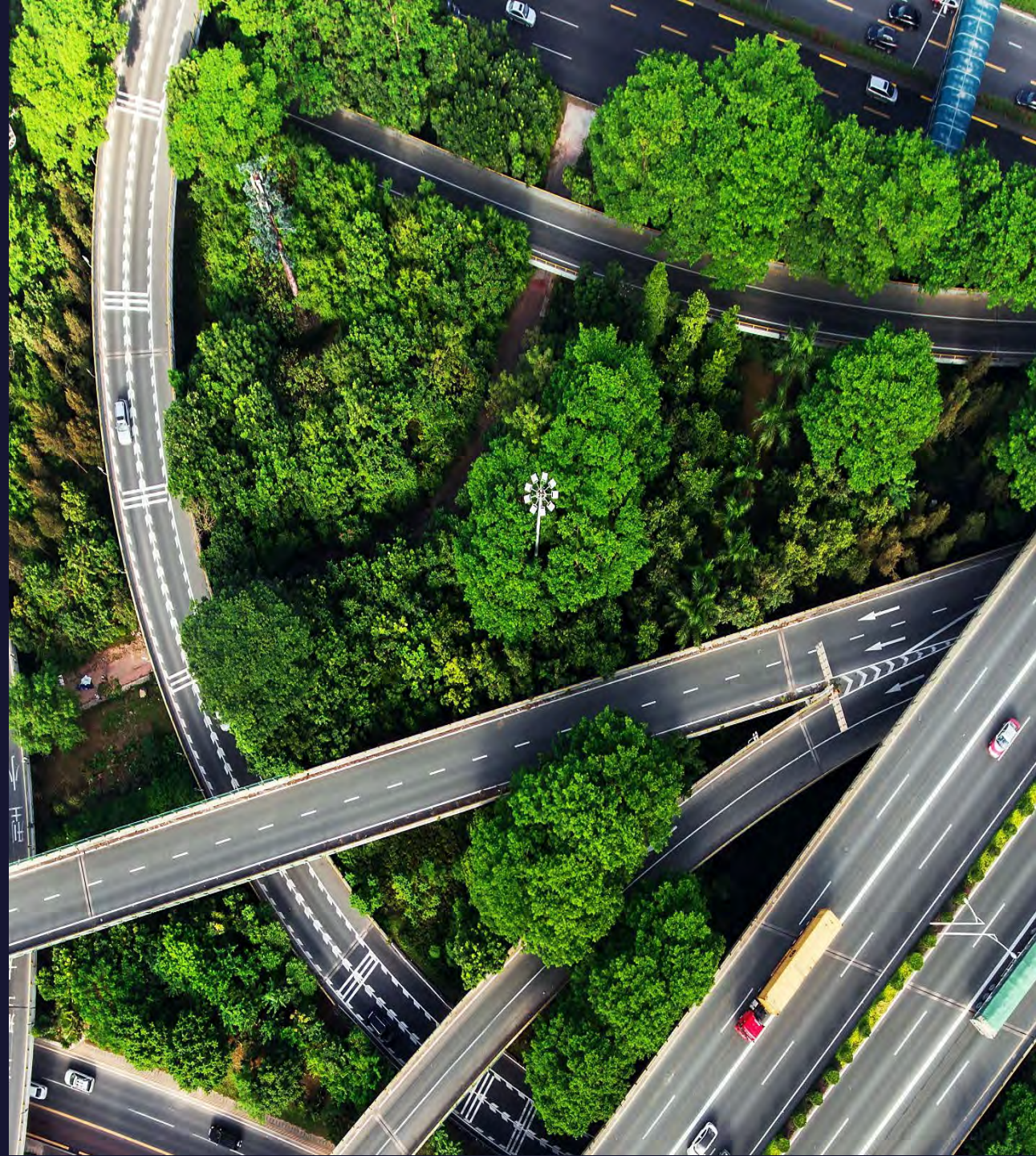
GVC strategy and infrastructure development



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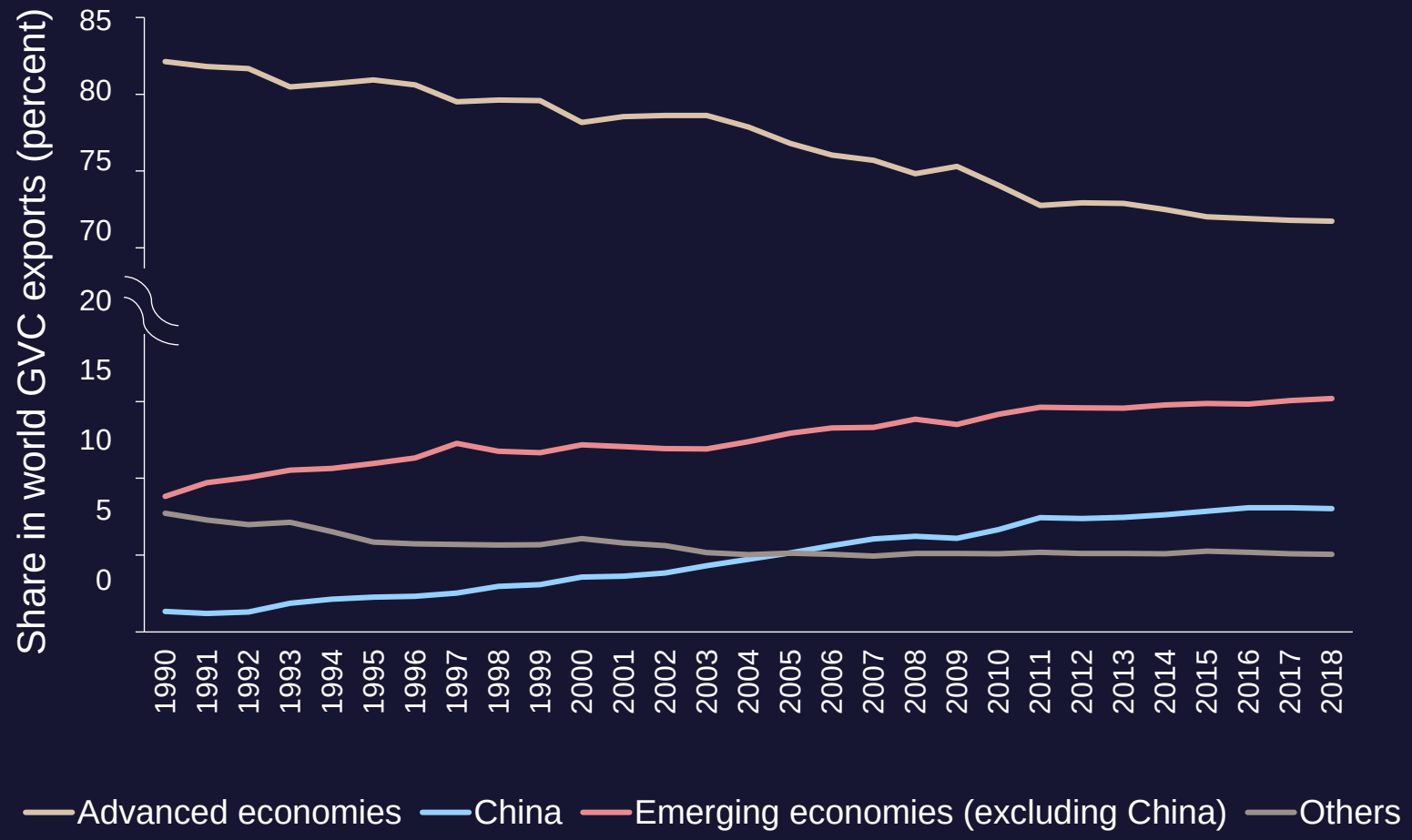
Emerging economies increasing share of GVC exports



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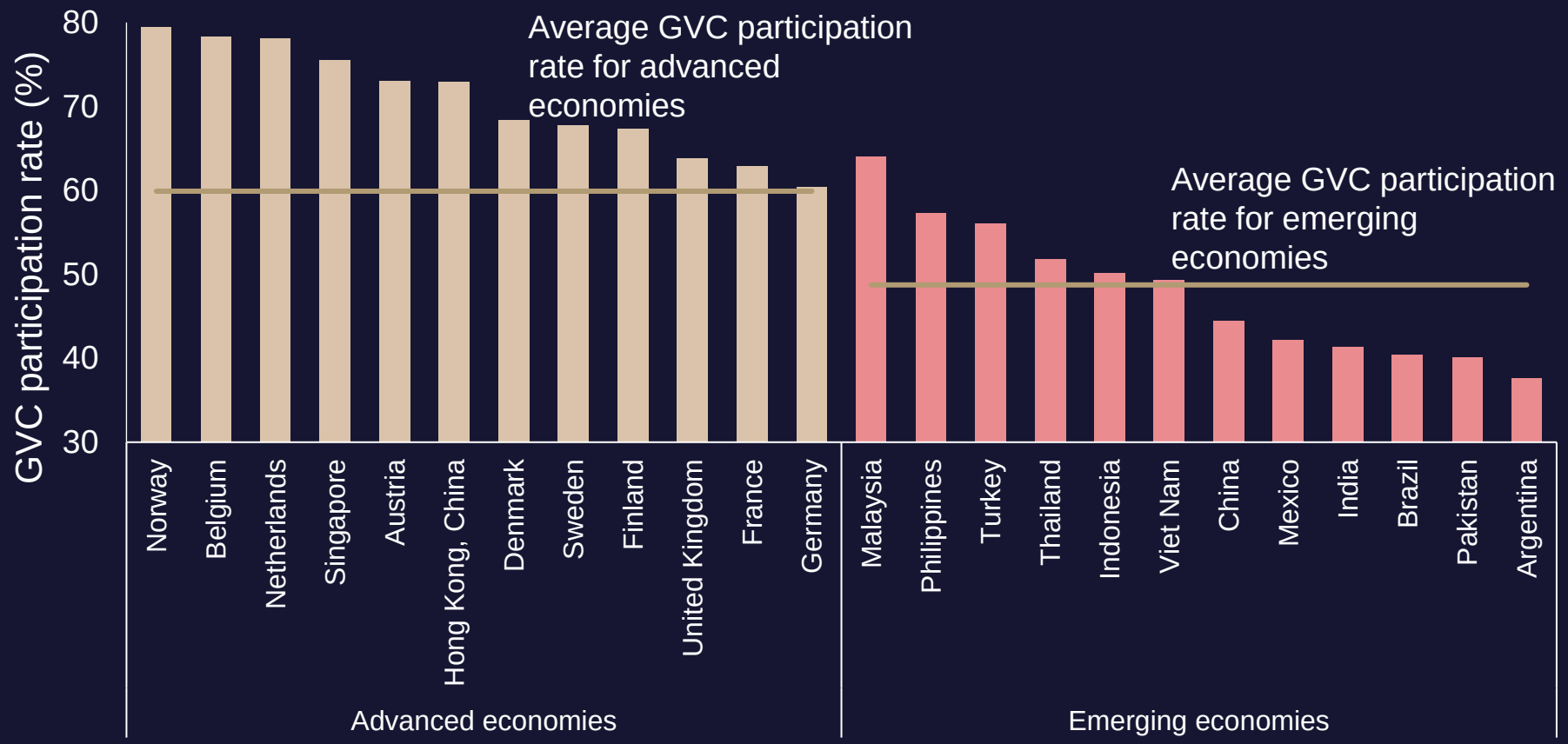
Huge scope to continue expanding GVCs in emerging economies



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GVC upgrading has taken place in many ways

No one-size-fits all

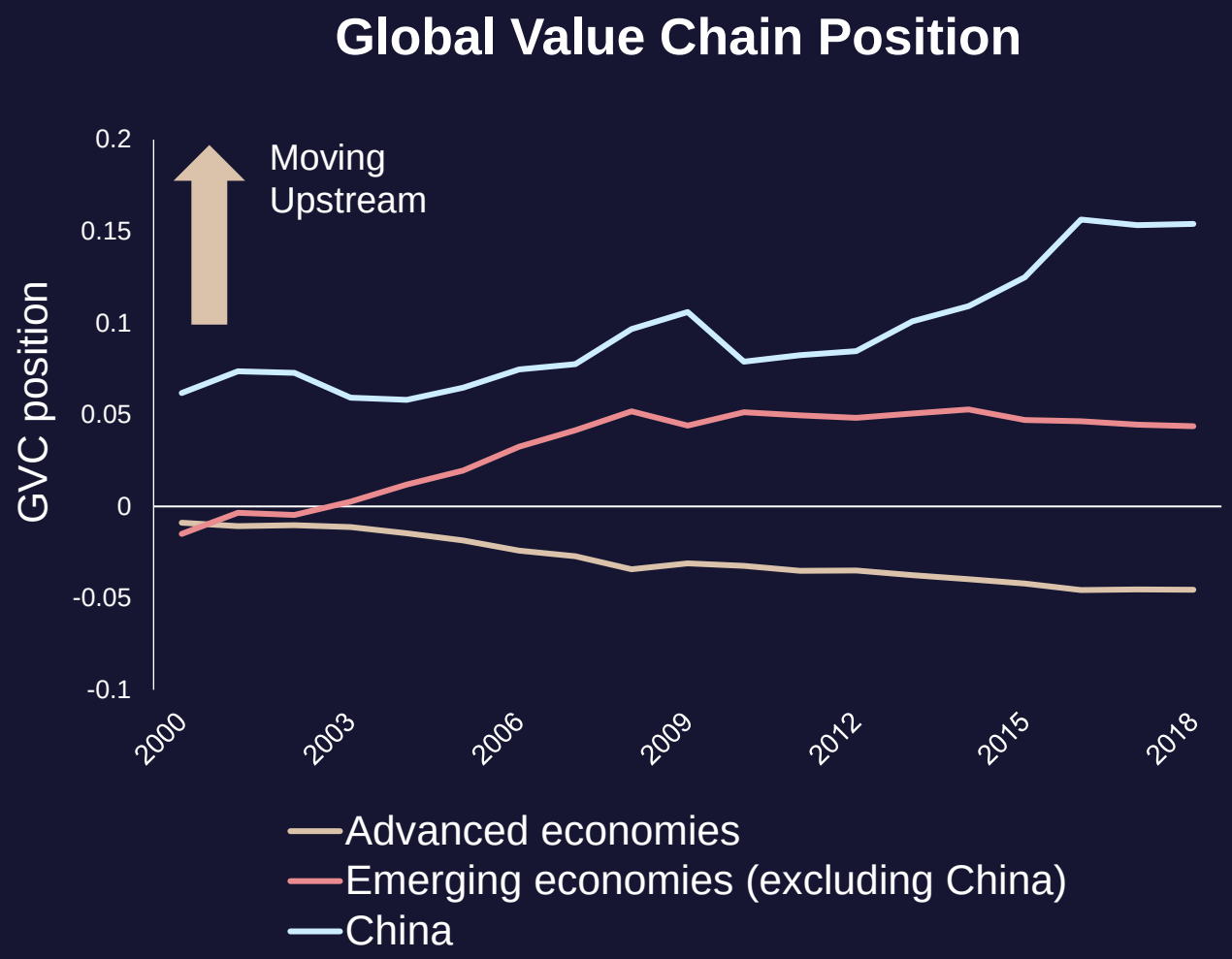
Opportunities in both upstream and downstream GVC activities for innovation and upgrading – nothing inherently good or bad about either

China

Upgraded and imported fewer intermediate goods acquiring capabilities to produce domestically

India

Realized higher value-added through functional upgrading (increasing skill content of individual tasks)



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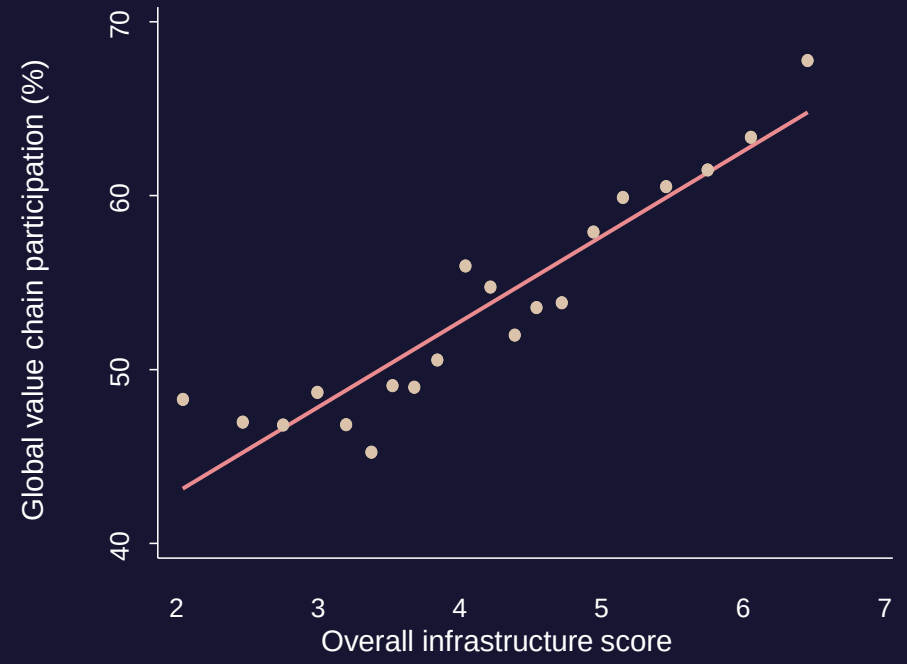
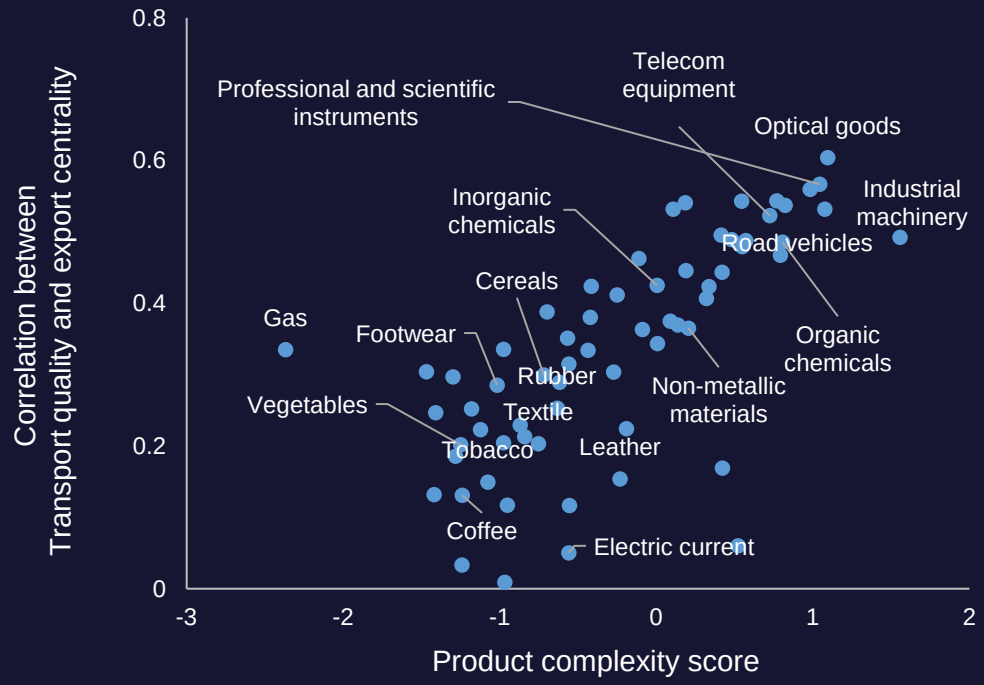
Infrastructure is decisive for expanding GVC participation

- Ability to break up production process and exploit efficiencies depends on infrastructure quality
- A certain level of infrastructure – electricity and transport – is necessary for GVC participation
- Connectivity is especially key for complex products





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GVC strategies determine infrastructure requirements

By **parts of value chain** and **sector**:

- **Pre-production** activities
  - Such as design, research and development and brand building
  - Infrastructure that facilitates face-to-face knowledge exchange (urban areas)
- **Post-production** activities:
  - Such as after-sales service and marketing
  - ICT for engaging with customers and improving logistics

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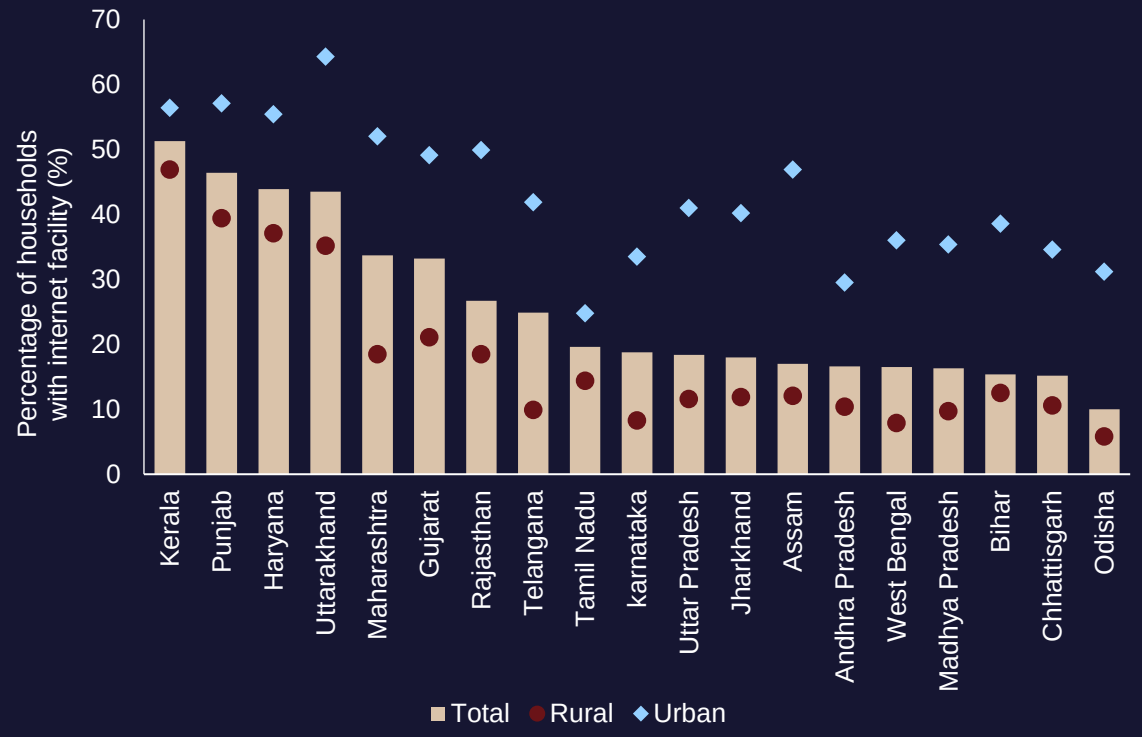
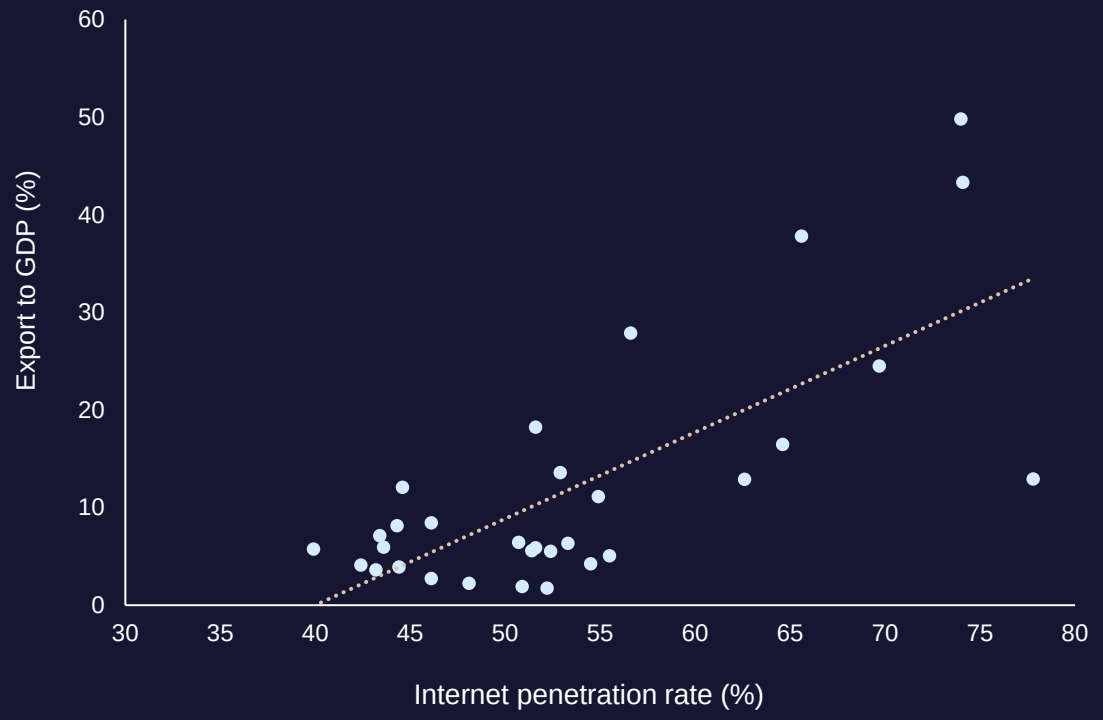
However, digital divide may become a major constraint

In India, the proportion of households that can access internet ranges from more than 50 percent in Kerala to less than 10 percent in Odisha



In China, cities that have better internet coverage have higher exporting intensities



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GVC Infrastructure Strategy

- Ability to break up production process and exploit efficiencies depends on infrastructure quality
- Different parts of value chain and different sectors require different infrastructure
- Digital infrastructure transforming value chains – bridging "digital divides" critical

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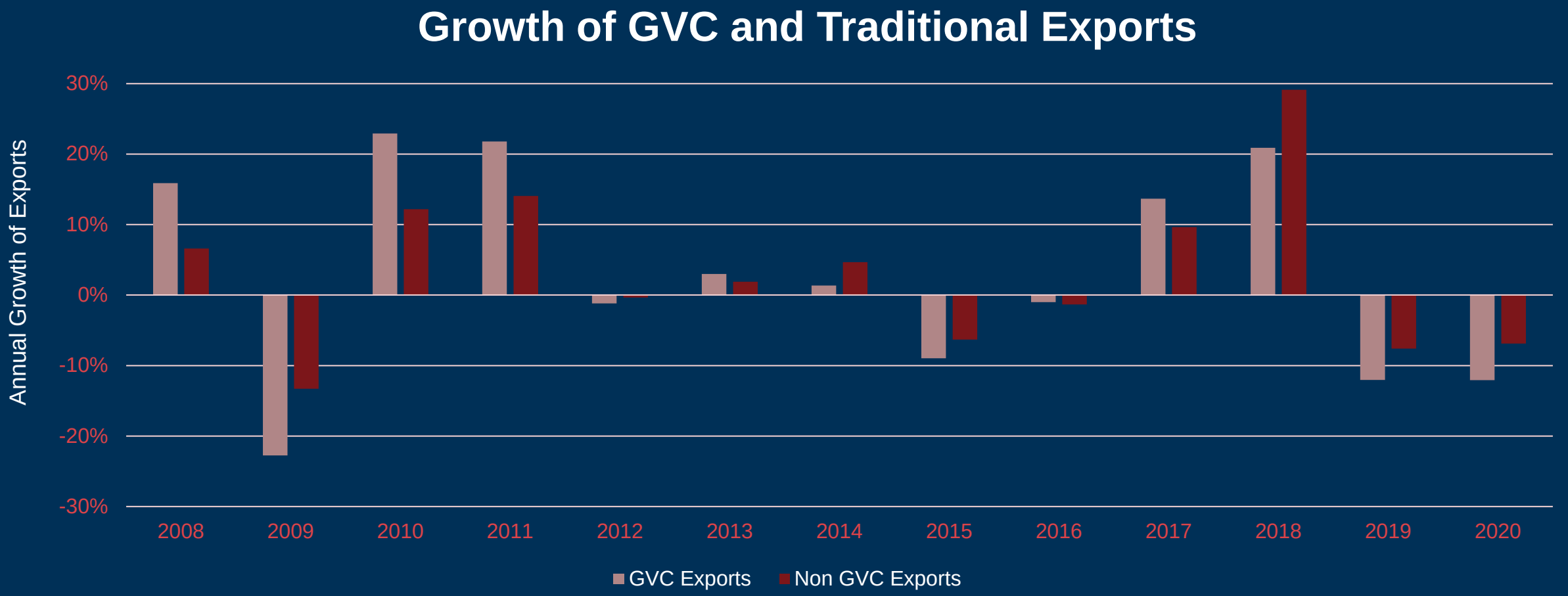
Impact of pandemic

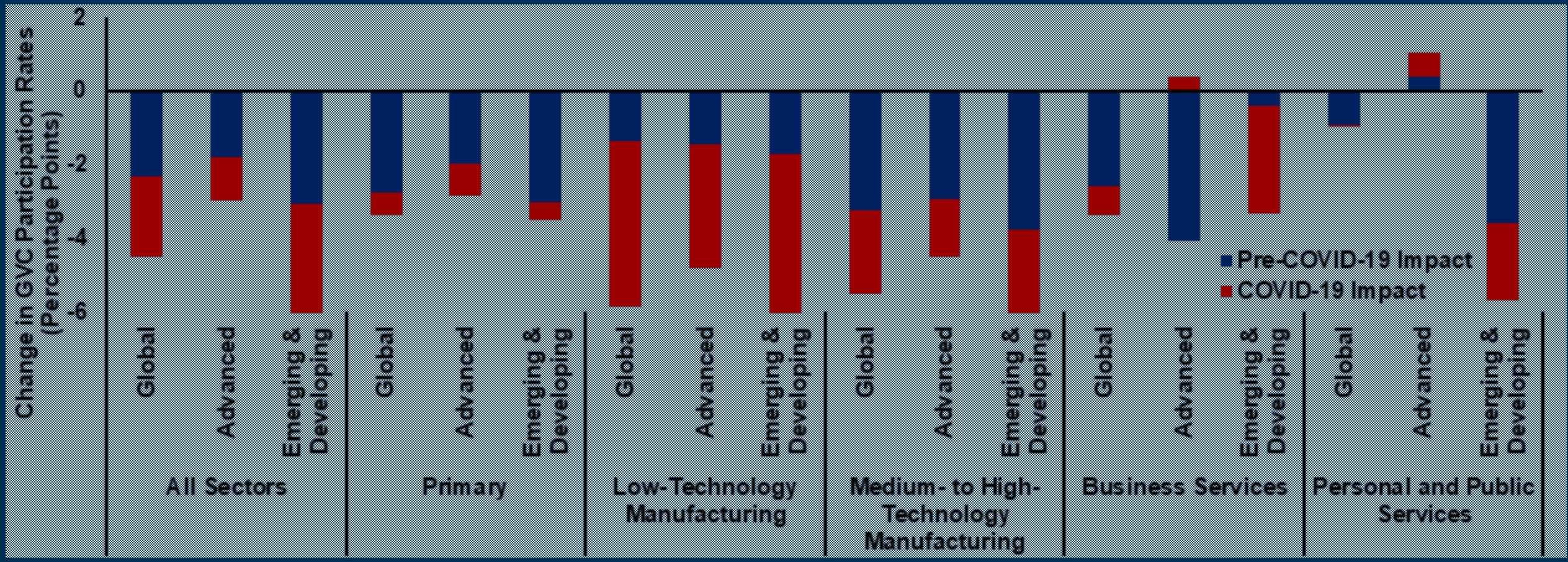
How did the pandemic impact GVCs?



- GVC exports impacted more than traditional exports due to stronger trade linkages
- GVCs proved more resilient to the pandemic compared to previous shocks

Developing countries more affected

Impact of Recent Shocks on GVC Participation

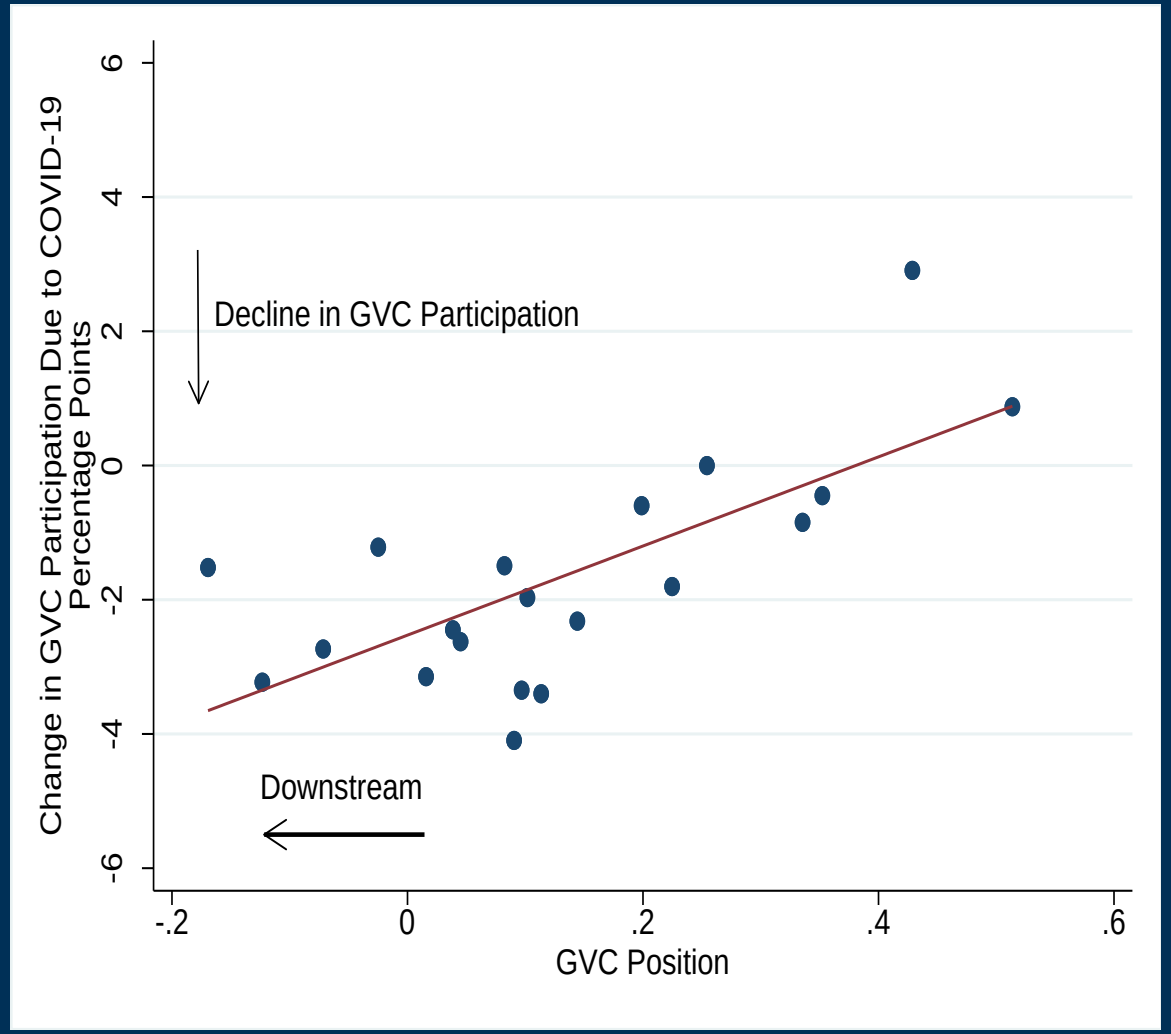


- Developing economies had three-fold higher decline in GVC participation
- Manufacturing most impacted – higher labor intensity and supply side disruptions

Developing countries more impacted

- GVCs hit by supply ***and*** demand shocks
  - Upstream countries more vulnerable to demand shocks
  - Downstream countries more affected by supply side disruptions
- Pandemic impacted downstream countries more.

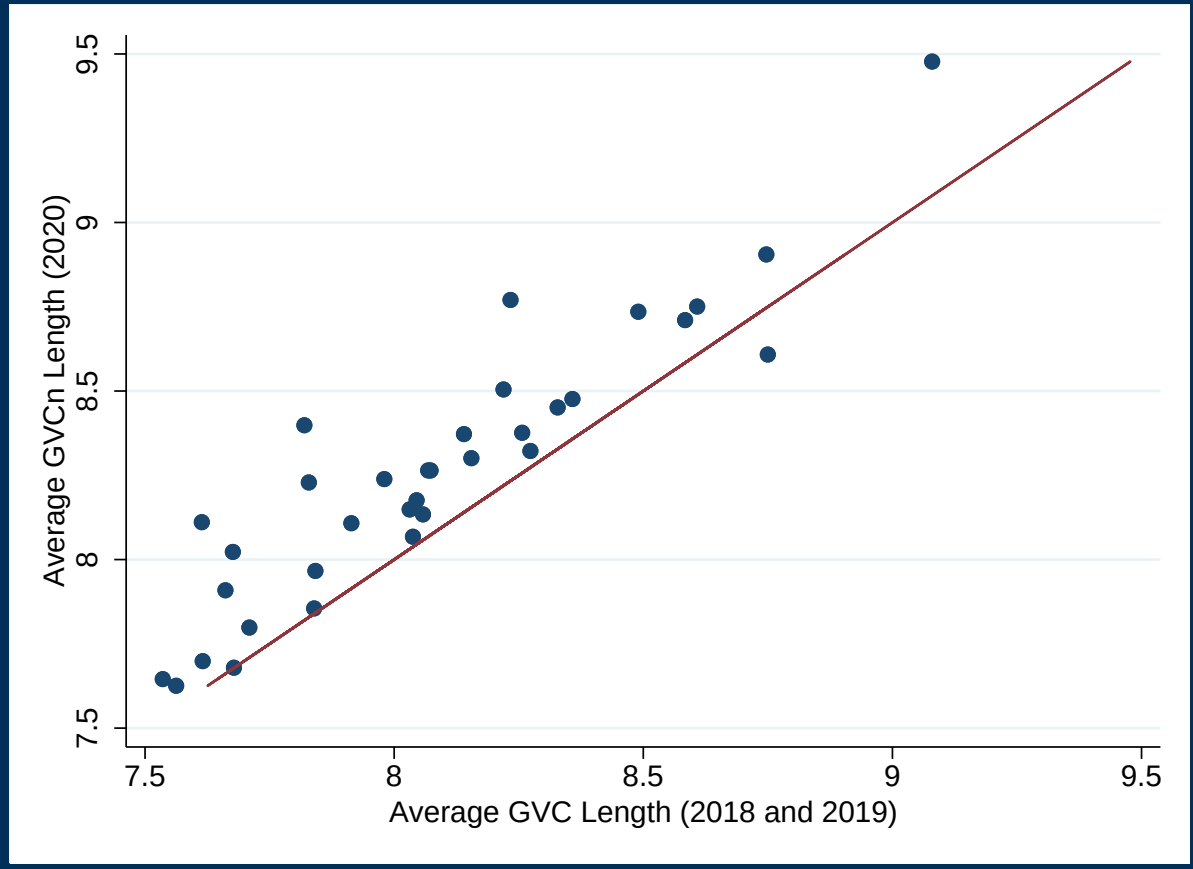
Impact of Pandemic and GVC Position



Limited evidence of reshoring

- Pandemic expected to accelerate reshoring and/or reduce GVC length to mitigate risks
- Little evidence of reshoring so far – GVC lengths increased in sectors
- Disruption in inputs – countries secured substitutes domestically

Comparison of GVC Length (Pre- and Post-COVID-19 Pandemic)



Note: Each point refers to a sector

GVC length measures the average number of stages between primary inputs and final products.

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China and GVCs

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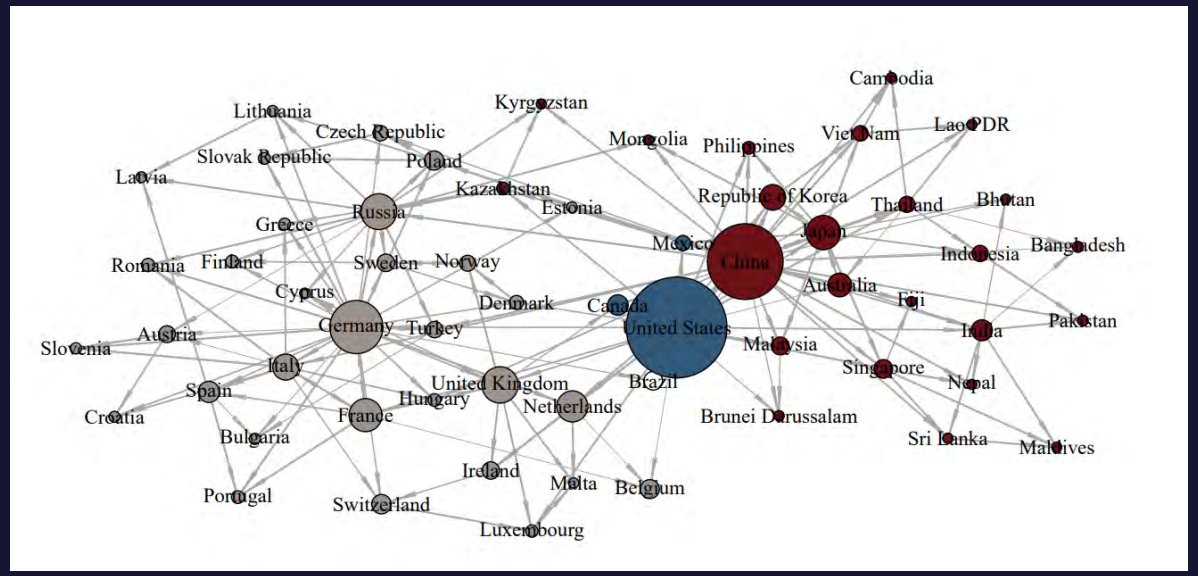
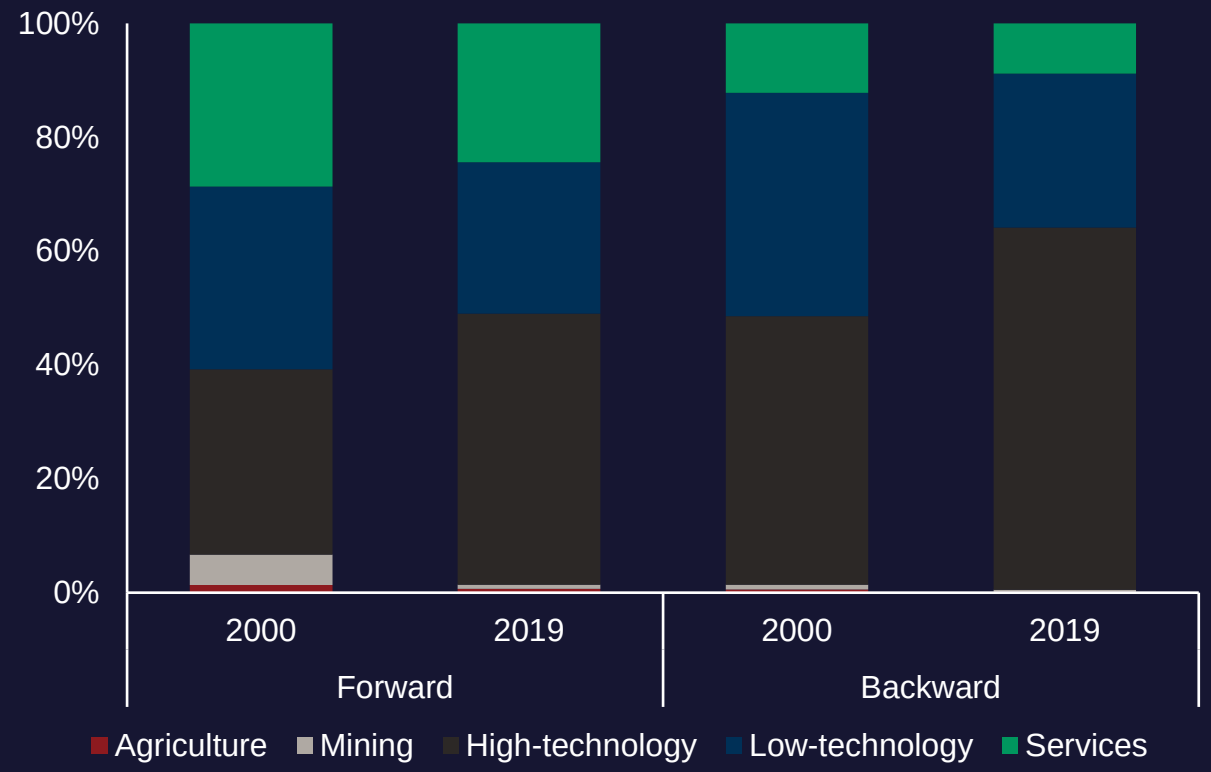
China is moving toward higher value-added GVCs

China has become deeply integrated into GVCs

2019



The contribution of high-technology manufacturing increased significantly



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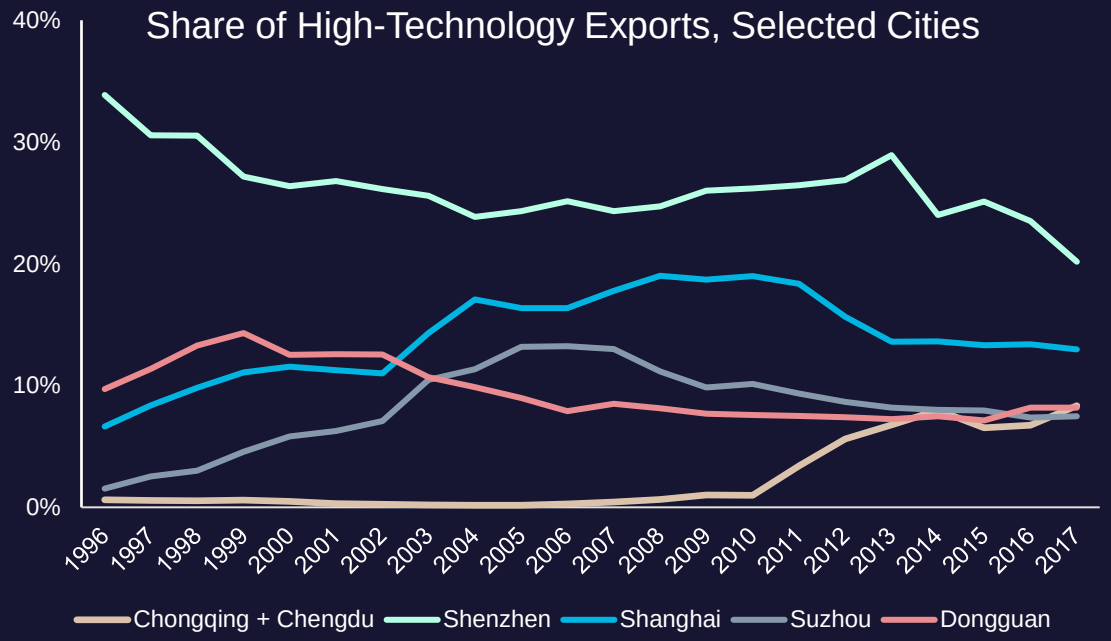
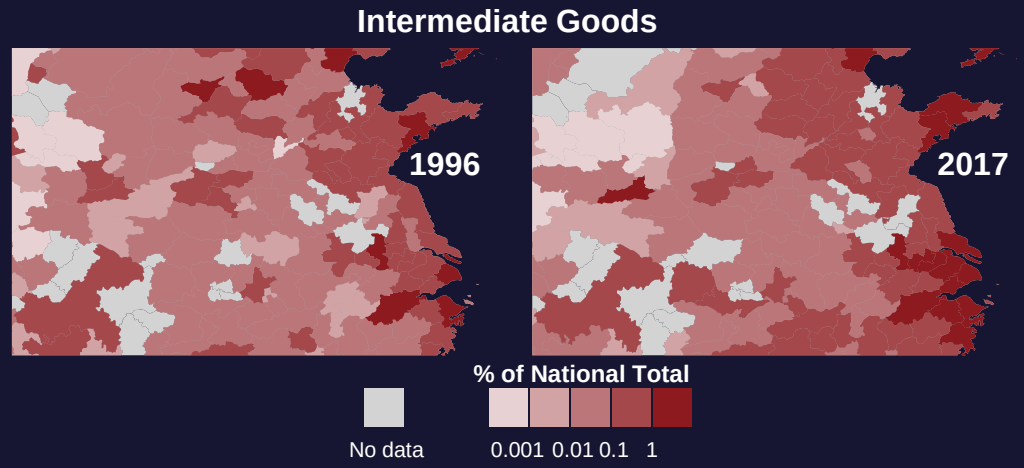
China: Infrastructure facilitated spread of internationalization

- More inland areas exporting more intermediate and high-tech goods
- China-Europe railways turned inland cities like Chengdu and Chongqing into new high-tech export centres



Prefecture Share of National Exports



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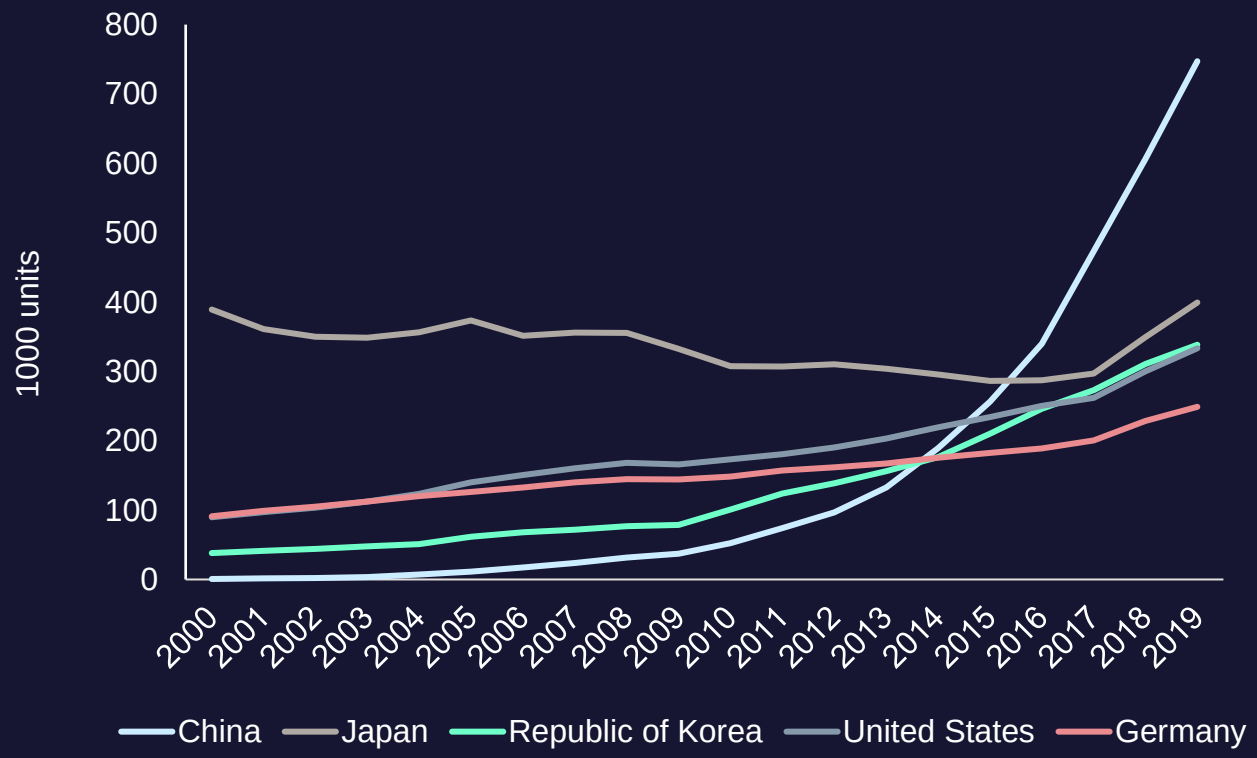
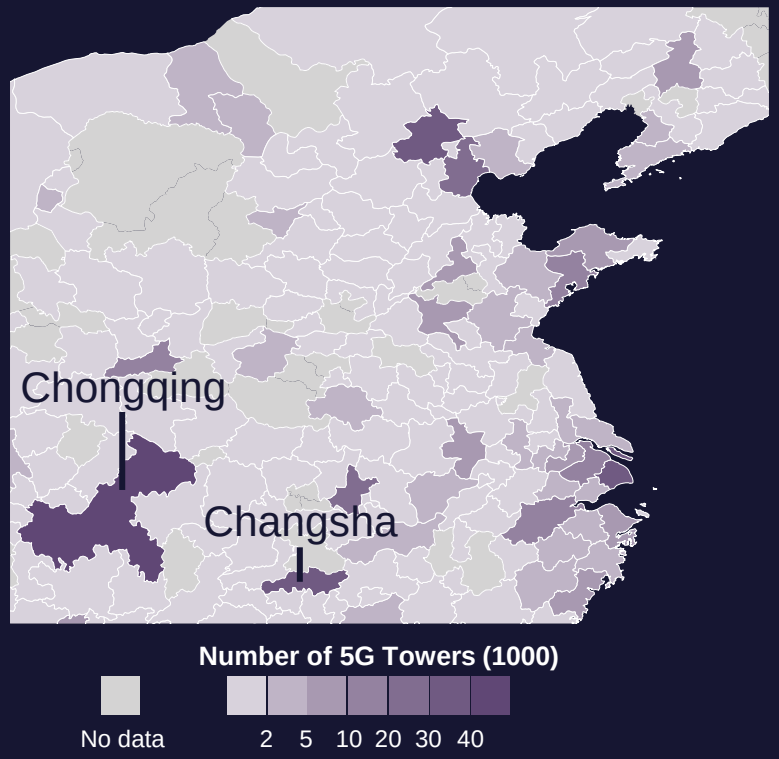
China is planning for the digital future

One of the top five robot adopters

Rapidly expanding 5G towers to inland areas, like Chongqing, Chengdu and Changsha





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India and GVCs

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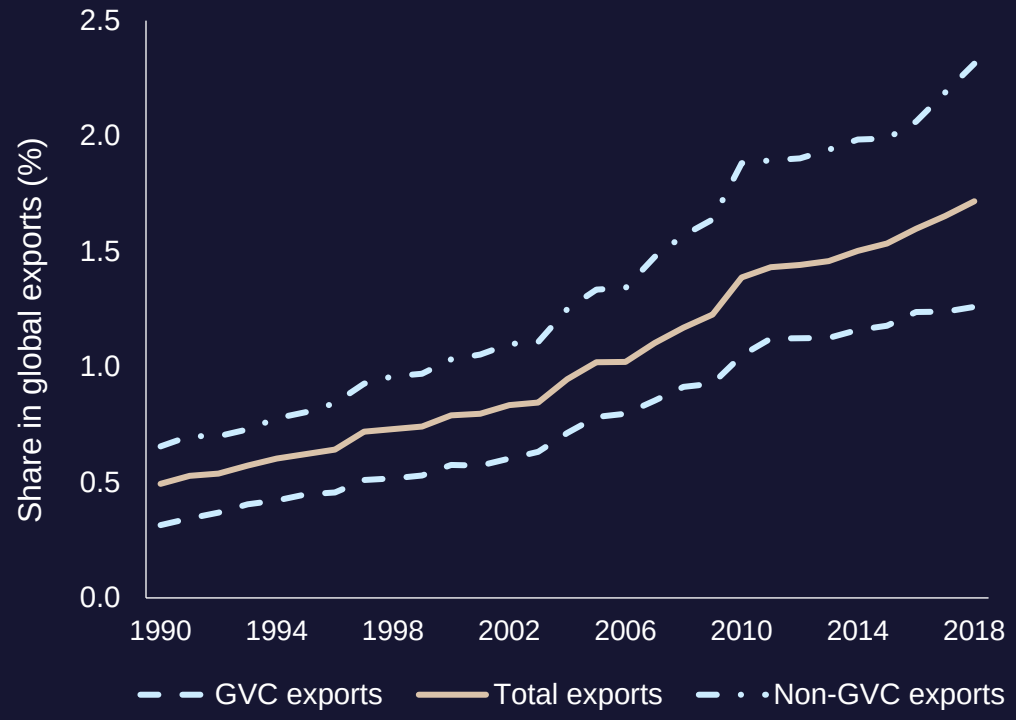
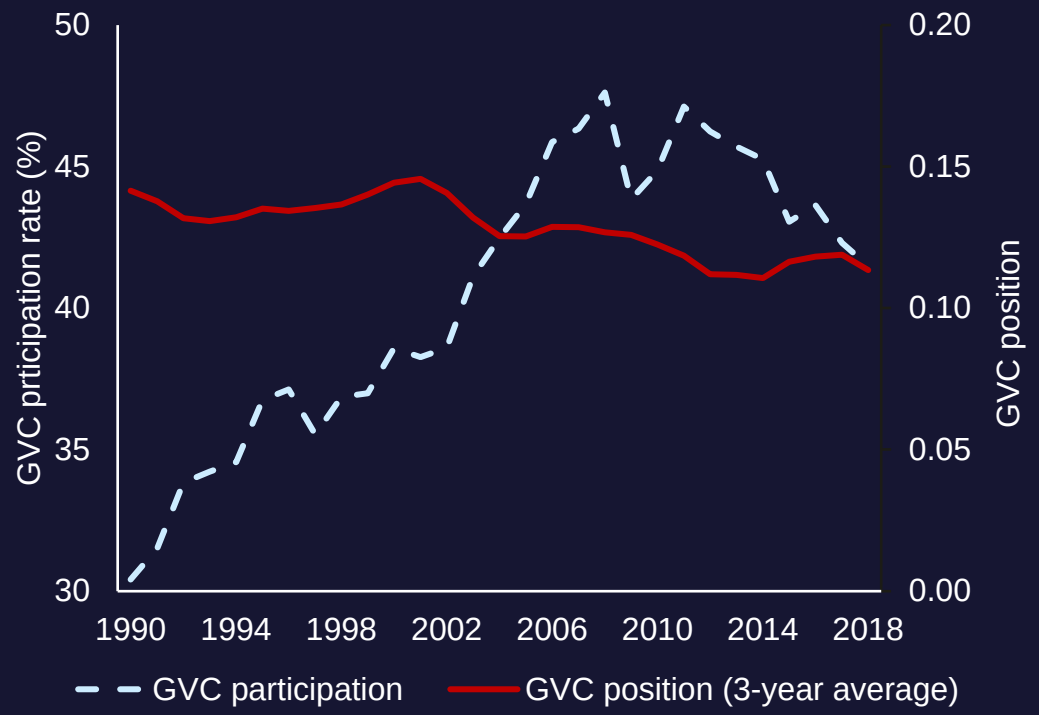
India expanded GVC participation but trails smaller economies

India's share in global exports has more than tripled



… but remains a small player



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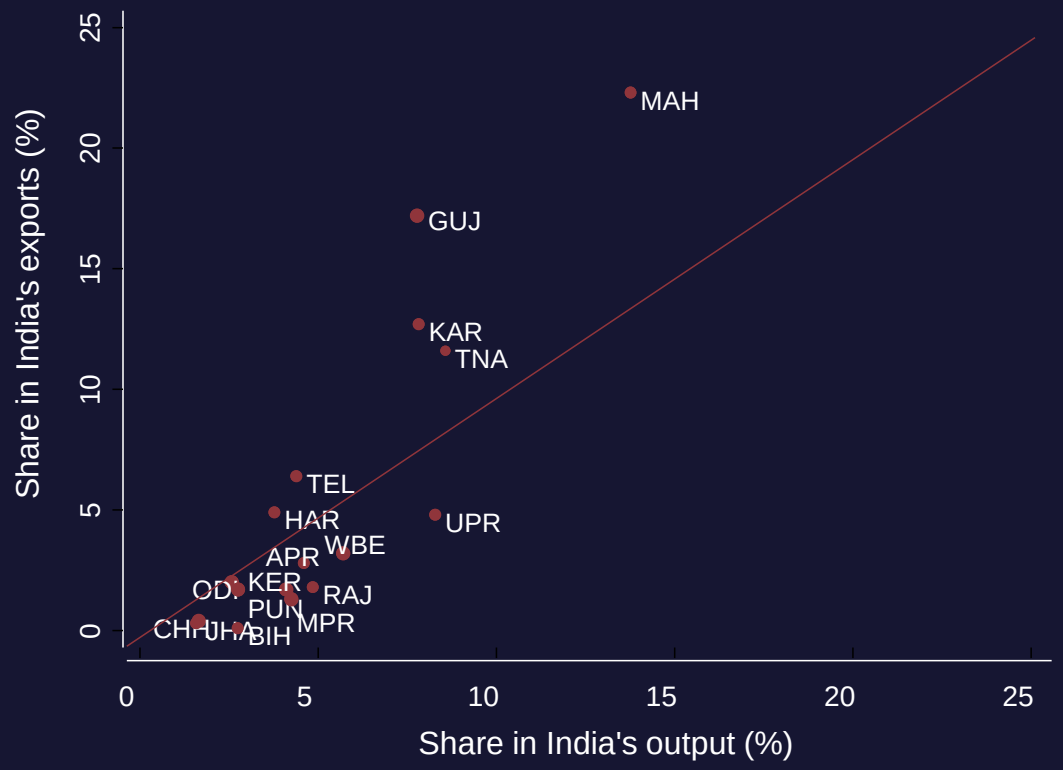
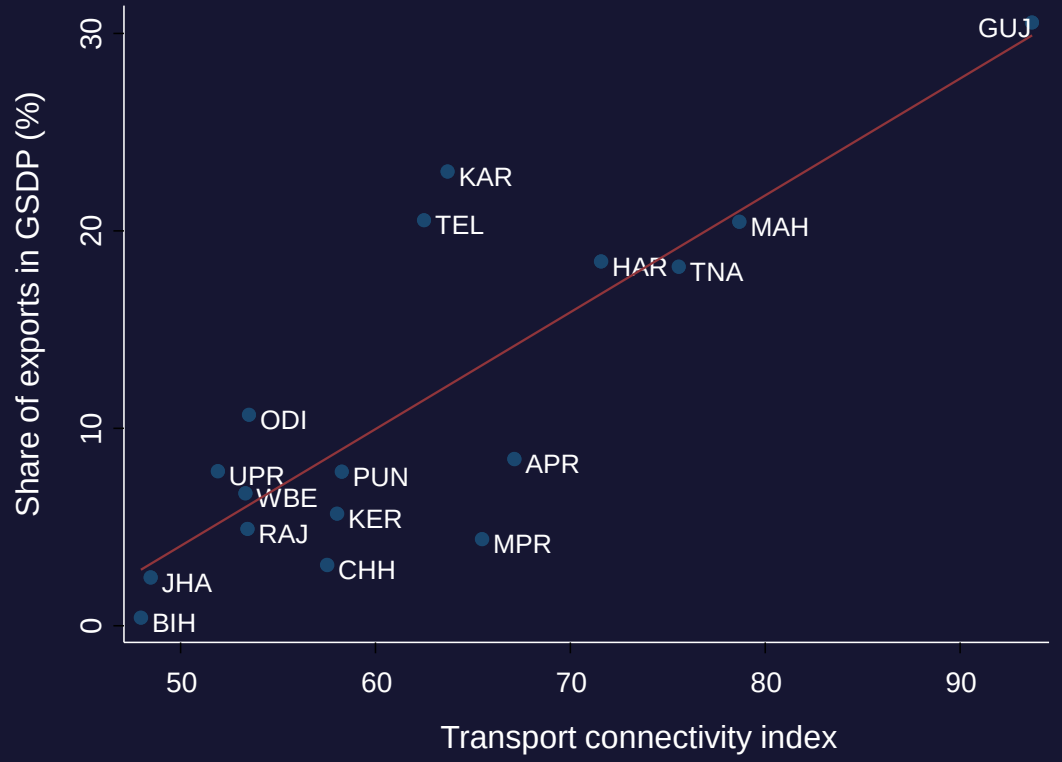
Closing internal infrastructure gaps could boost GVC participation

Exports concentrated in a few states, reflecting diverse Infrastructure and institutional quality



Better regional infrastructure is correlated with greater exports



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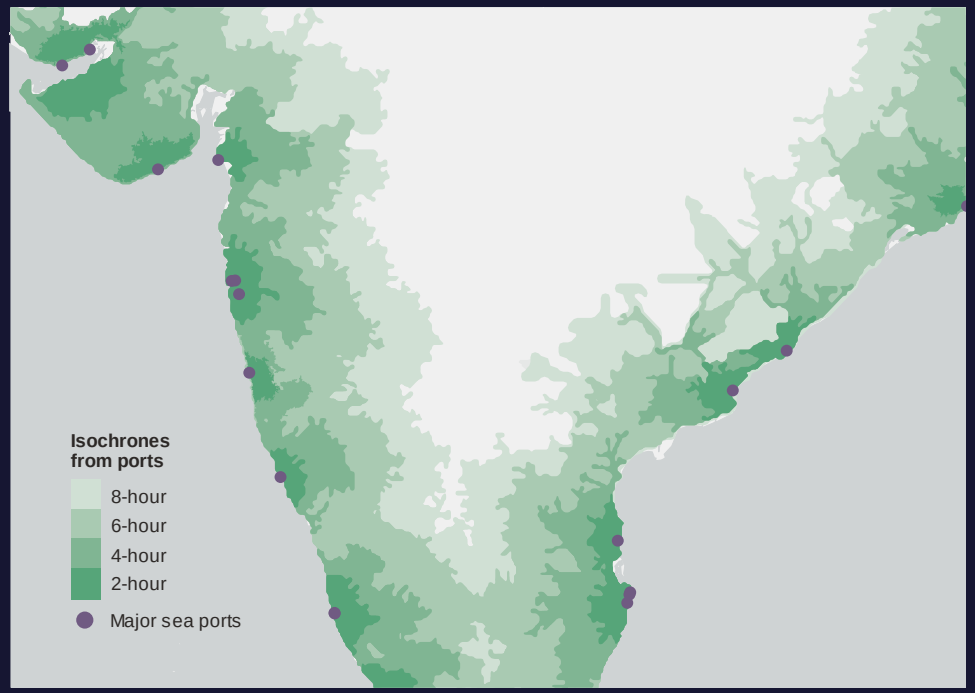
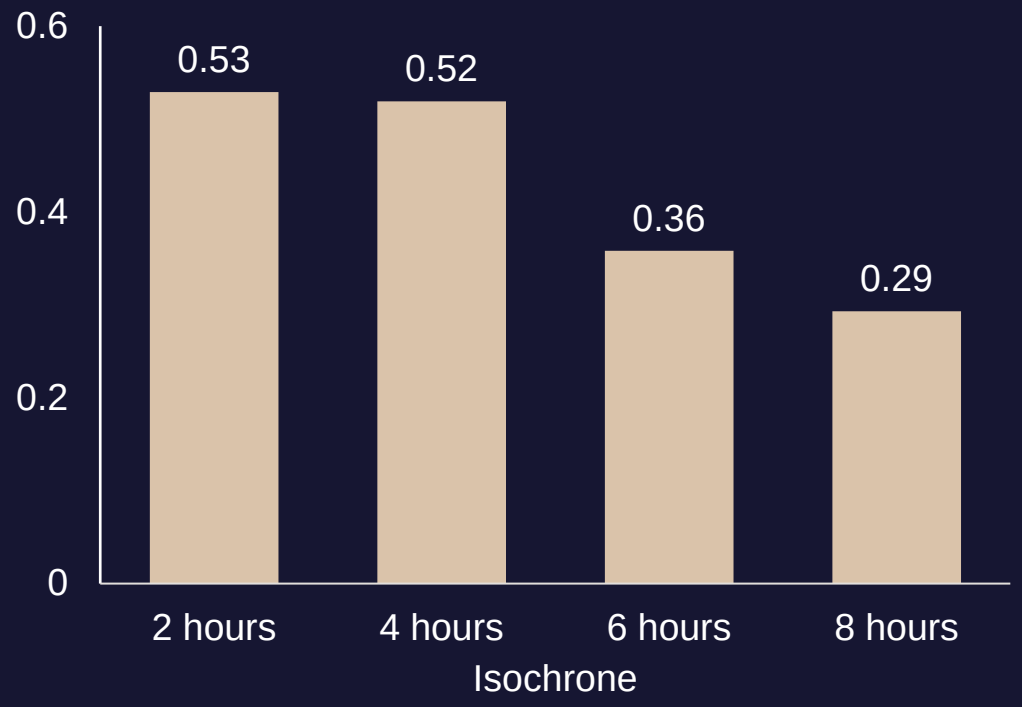
Port efficiency and connectivity to hinterlands critical

Connectivity with hinterland varies across ports



Connectivity is correlated with port export performance



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Towards a policy framework

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Connecting infrastructure to industry development

	GVC-sensitive **Impacting and designed for GVC engagement**	GVC-neutral **Not designed to target GVC engagement**
Place-based **Impacting and designed for specific area, jurisdiction, geography**	• Special economic zones • Regional (subnational) investment promotion agencies • Local content units	Domestic connectivity and accessibility (hard infrastructure)
Place-neutral **Not designed to target a specific area**	• Trade policy and regional connectivity • International connectivity (logistics and customs)	• Institutional quality • Business environment • Soft infrastructure

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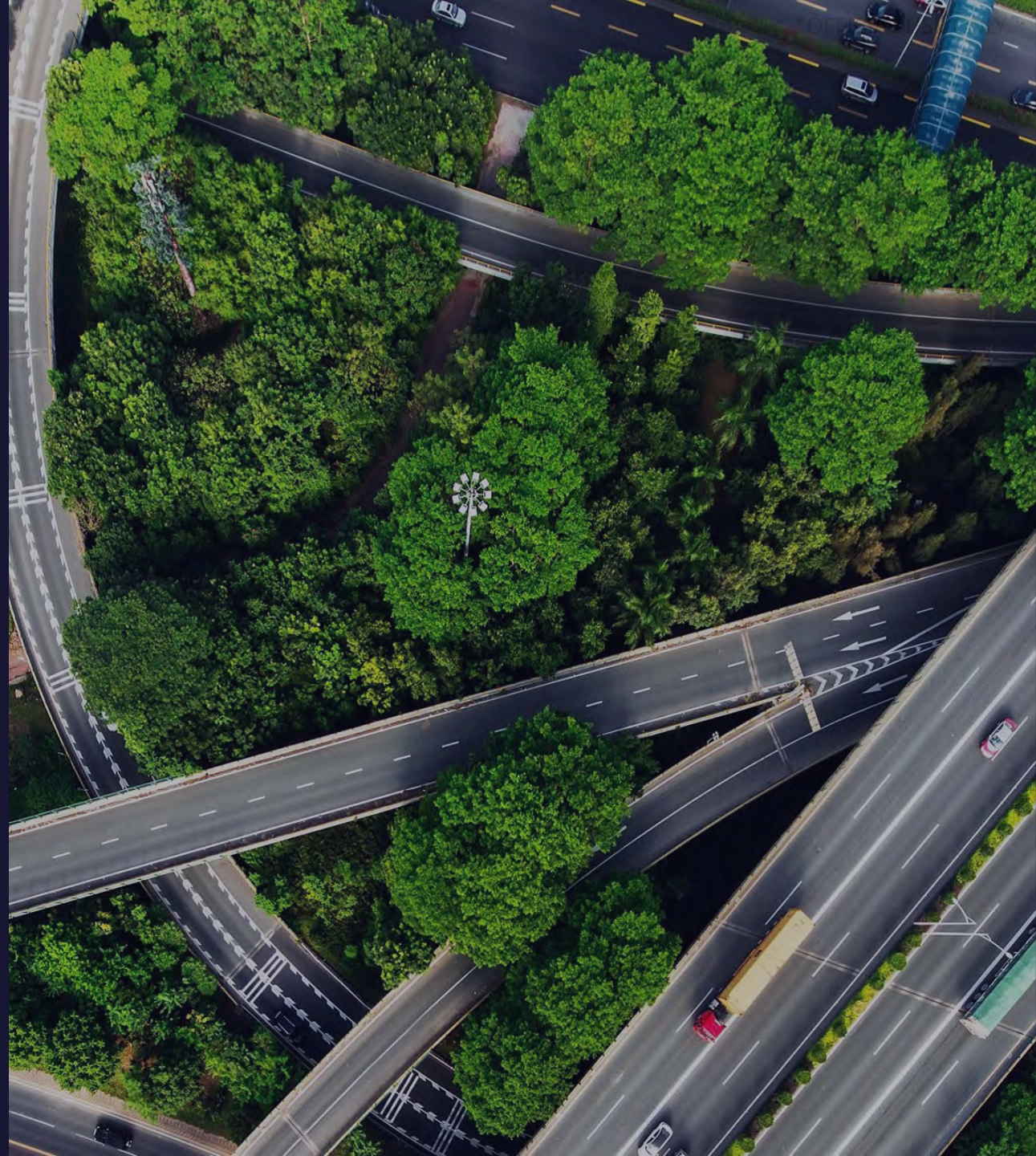
Rich policy options

- **Institutional support and soft infrastructure**
- **Trade policy** and regional connectivity
- **Place-based interventions**, e.g., special economic zones
- **Institutional components**: investment promotion and local content



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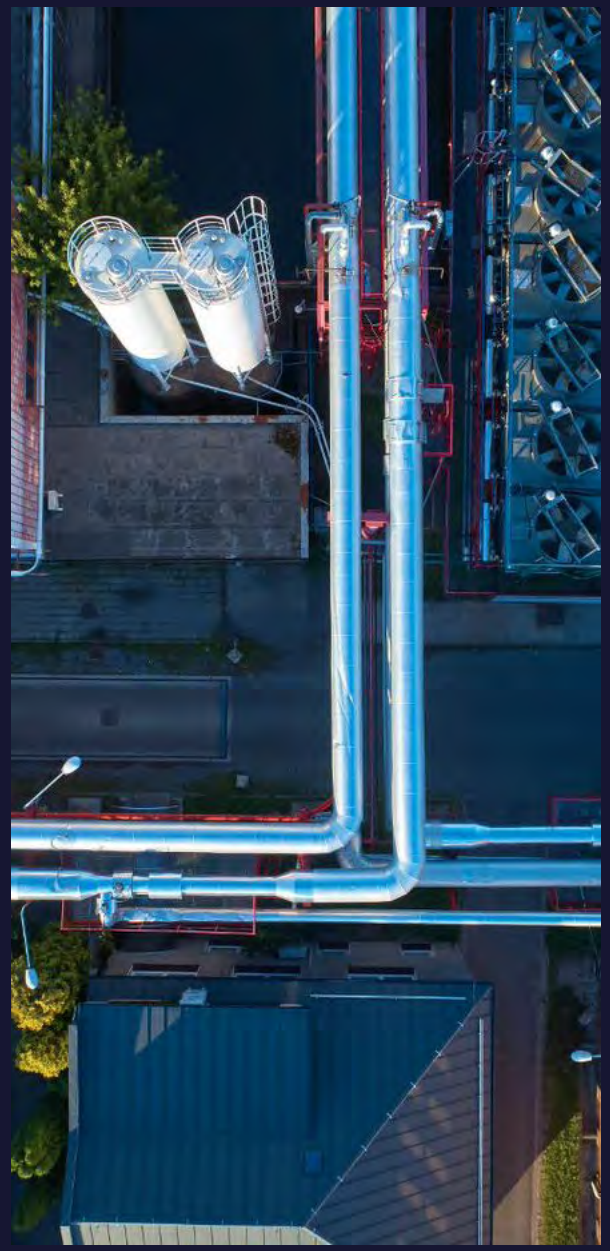
Net zero transition the next frontier



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Sustaining GVCs in Net Zero context

Renewable energy production

Renewable energy trade

International governance

Green comparative advantage

Greening transport & logistics

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Key role of GVC lead firms

Imposing carbon price

Lead firms can “price in” emissions impact of their production and inputs

Common standards

Lead firms can strengthen production standards along their value chains (scope 3 emissions)

Data transparency

Lead firms to report carbon emissions, could play decisive role in increased transparency

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Host governments compete by offering GVCs de-carbonization opportunities

- Renewable energy
- Environmentally-friendly and circular economy production
- Efficient and effective multi-modal green transport systems
- Access to inputs that preserve biodiversity

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Conclusions

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GVC can offer climate-smart development

- **Offer** inclusive transformation opportunities to emerging and developing economies
- **Provide** us with additional tool to achieve Net Zero transition
- **Build** large stakes in peaceful coexistence and common prosperity in Asia and beyond

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Thank you

Connectivity for trade in Asia

Geospatial analysis of transport infrastructure

26 Jan 2021, Beijing

Commissioned by

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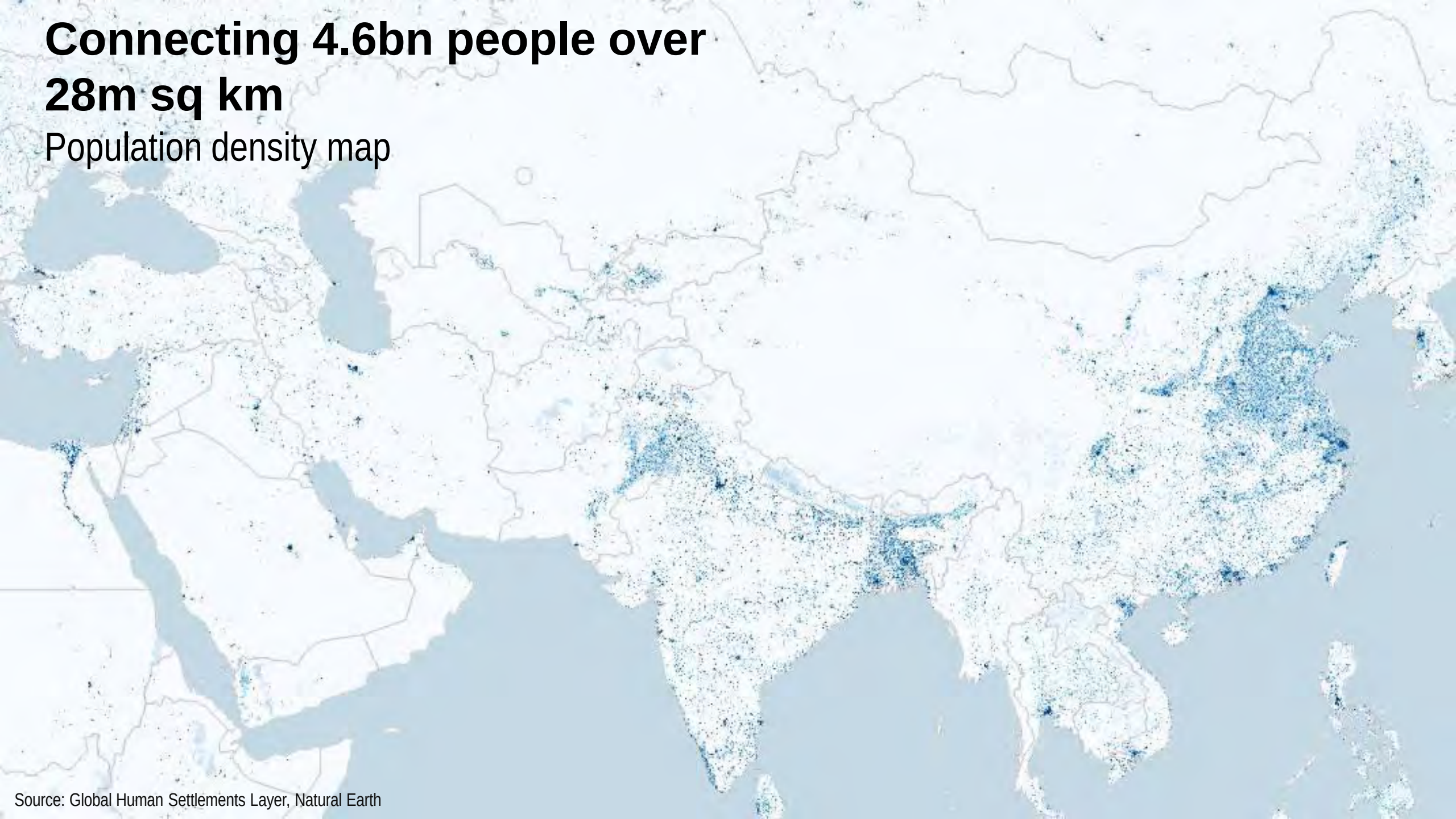
Connecting 4.6bn people over 28m sq km

Population density map



Source: Global Human Settlements Layer, Natural Earth

The vision in 1959

UN Asian Highway Project

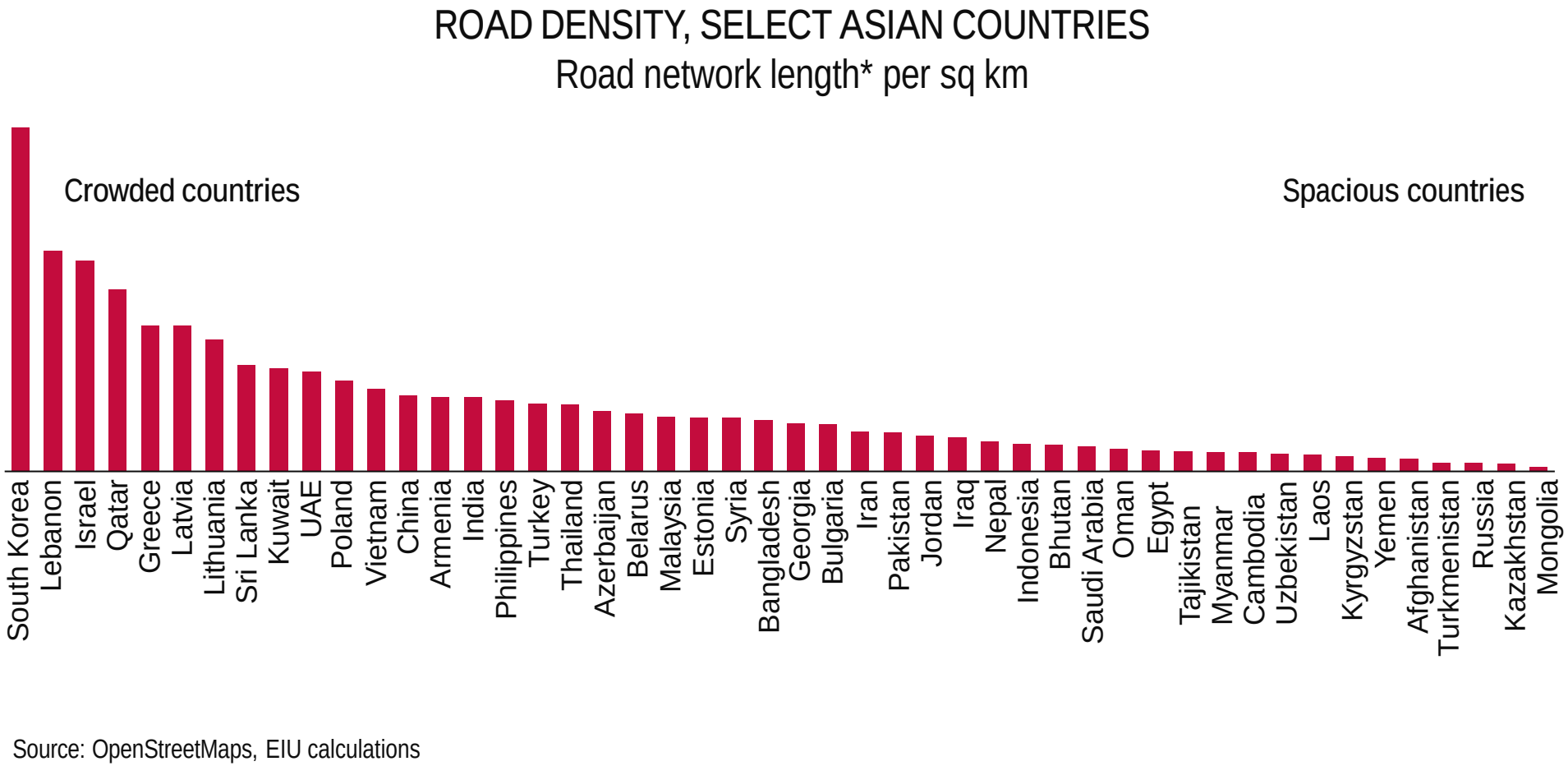
Source: UNESCAP

The reality in 2021

Highways in red

Source: OpenStreetMaps, Natural Earth

How is connectivity measured traditionally?



Source: OpenStreetMaps, EIU calculations

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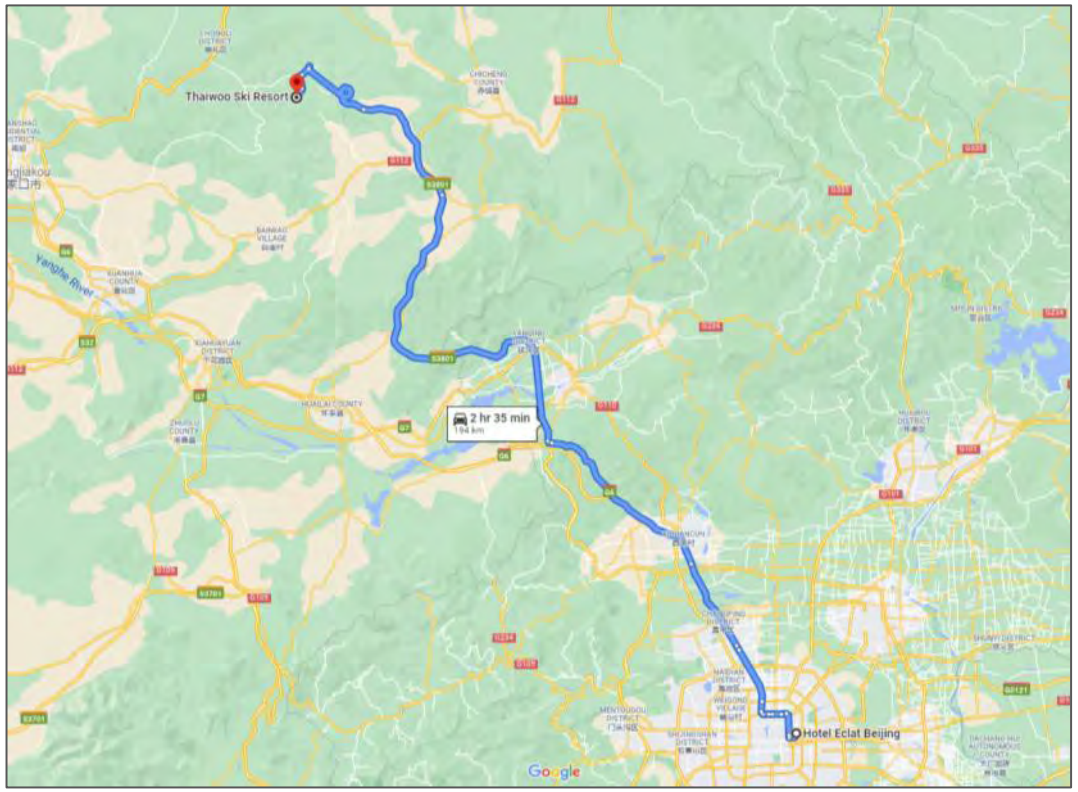
How can we better measure connectivity?

Fastest path to a ski slope



Source: Google Maps

A better measure of connectivity

$$\frac{\text{Time cost of } A}{\text{Time cost of } B} = \text{Path Efficiency}$$

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Developed Asia is world leading, but gaps remain

7,891
Asian cities

~7m
fastest paths

~4m
km of roads

Road Network Efficiency Ratio, AIIB Regional Members

Rank	Country	Expected travel time (hours)	Minimum travel time (hours)	Network Efficiency Ratio	Rank	Country	Expected travel time (hours)	Minimum travel time (hours)	Network Efficiency Ratio
1	China	14.3	11.5	**0.8**	19	Iran	10.3	6.2	**0.61**
2	Germany	3.9	3.2	**0.78**	20	Azerbaijan	2.8	1.7	**0.6**
3	South Korea	2.5	2.0	**0.78**	21	Russia	29.0	16.9	**0.6**
4	Netherlands	1.1	0.9	**0.76**	22	Sri Lanka	2.5	1.5	**0.6**
5	Saudi Arabia	9.1	7.0	**0.76**	23	Hong Kong	0.2	0.1	**0.58**
6	UAE	1.6	1.2	**0.76**	24	Jordan	1.3	0.7	**0.56**
7	Qatar	0.6	0.4	**0.75**	25	Uzbekistan	6.8	3.8	**0.56**
8	Malaysia	3.2	2.4	**0.74**	26	Cambodia	4.2	2.4	**0.55**
9	Israel	1.0	0.7	**0.73**	27	Vietnam	11.8	6.1	**0.54**
10	Indonesia	5.0	3.6	**0.69**	28	Myanmar	6.9	4.0	**0.53**
11	Egypt	3.4	2.4	**0.67**	29	Tajikistan	3.1	1.5	**0.5**
12	Pakistan	8.2	5.6	**0.66**	30	Kazakhstan	22.9	10.6	**0.5**
13	Philippines	2.2	1.4	**0.65**	31	Afghanistan	7.7	3.8	**0.49**
14	Georgia	3.1	2.0	**0.64**	32	Nepal	4.8	2.4	**0.48**
15	Thailand	6.6	4.0	**0.63**	33	Laos	8.1	3.8	**0.48**
16	Turkey	8.3	5.3	**0.63**	34	Mongolia	5.0	2.4	**0.48**
17	Oman	5.1	3.1	**0.61**	35	Bangladesh	4.1	1.9	**0.44**
18	India	16.3	10.0	**0.61**	36	Kyrgyzstan	6.7	1.8	**0.31**

Source: OpenStreetMaps, EIU calculations

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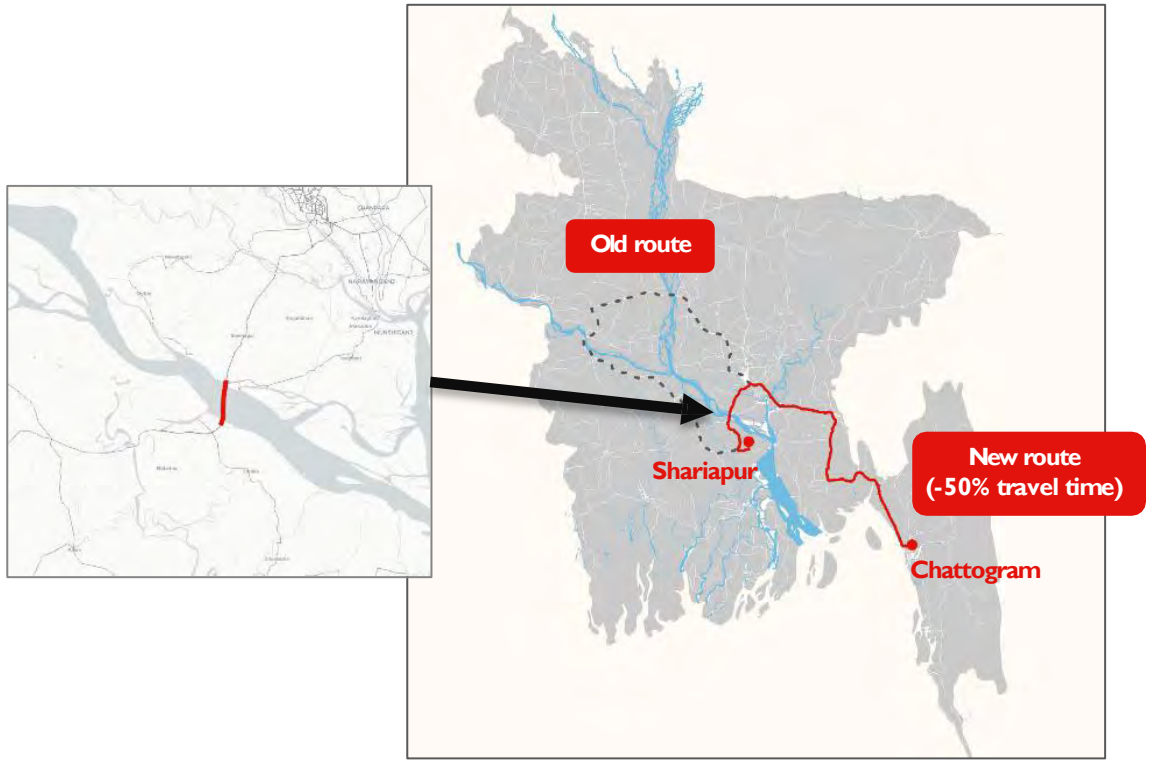
Case study: Bangladesh's missing bridge



Bangladesh's Network Efficiency Ratio

0.44 ▶ 0.50

14% — Network Efficiency Ratio improvement

6 — Ranking improvement

~8,500 out of 37,000 — Fastest paths optimised

74m (47%) — Population affected (% of total)

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Cross border connectivity is where Asia falls down

0.53

cross-border connectivity average

VS

0.63

Domestic connectivity average

Cross-Border Road Network Efficiency Ratio

Rank	Border	Expected travel time (hours)	Minimum travel time (hours)	
1	DEU-NLD	2.86	2.28	**0.79**
2	JOR-SYR	2.12	1.6	**0.75**
3	ISR-LBN	2.77	2.03	**0.73**
4	ARE-OMN	2.74	1.96	**0.71**
5	KWT-SAU	3.18	2.19	**0.69**
6	MYS-SGP	1.08	0.78	**0.68**
7	LVA-RUS	3.74	2.46	**0.66**
8	EST-RUS	4.72	3.07	**0.65**
9	CHN-VNM	5.65	3.66	**0.64**
10	MYS-THA	3.88	2.47	**0.63**
61	CHN-LAO	9.46	3.88	**0.41**
62	IRN-PAK	9.47	3.89	**0.41**
63	LAO-VNM	12.17	5.19	**0.41**
64	ISR-JOR	2.75	1.14	**0.41**
65	KGZ-TJK	10.17	3.78	**0.34**
66	MNG-RUS	12.03	4.09	**0.34**
67	IND-MMR	14.33	4.4	**0.3**
68	KHM-LAO	7.44	1.85	**0.25**
69	IRQ-SAU	14.64	4.34	**0.23**
70	BGD-MMR	-	-	**0**

Source: OpenStreetMaps, EIU calculations

Best connected: Gulf states, developed East and Southeast Asia

Least connected: South Asia and developing Southeast Asia

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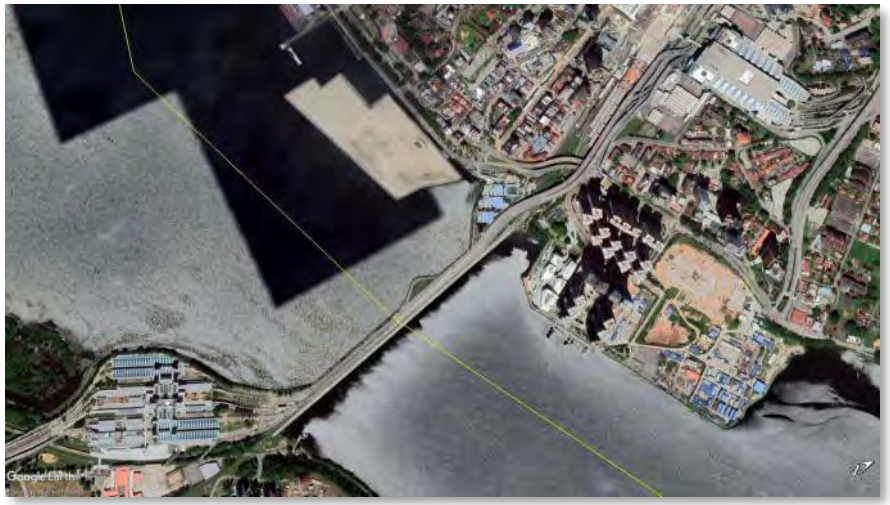
A contrasting look at cross-border infrastructure

Myanmar – India border



Singapore – Malaysia border

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Hard infrastructure needs to be supported by trade-facilitating policies

Northern India – Bangladesh border

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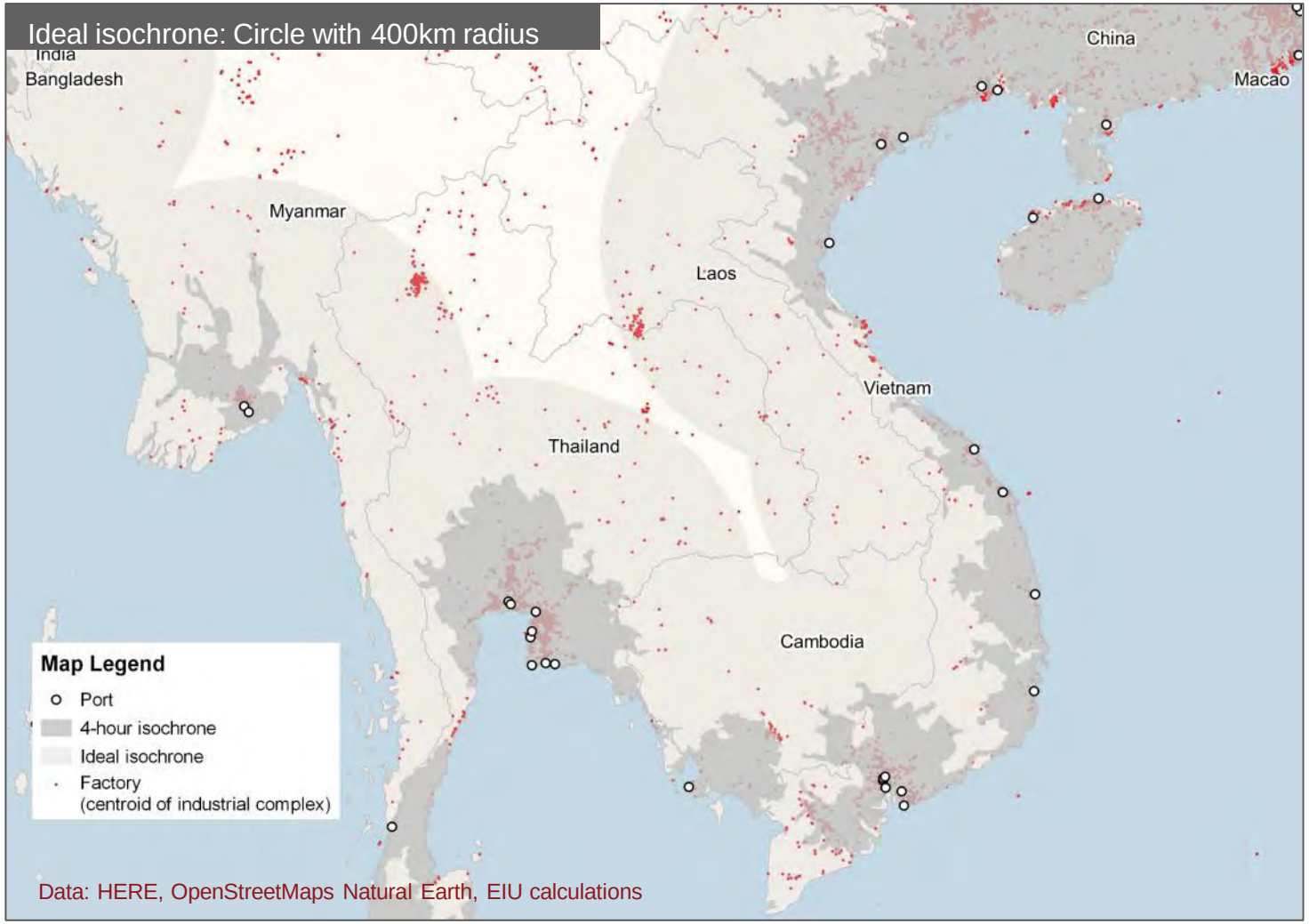
Measuring port connections to factories with isochrones



Connectivity ratio

$$= \frac{\text{Factories in 4-hour isochrone}}{\text{Factories in ideal isochrone}}$$

The Port-Factory Connectivity Ratio benchmarks the number of factories that can actually be reached in a given amount of time from port against the maximum possible.

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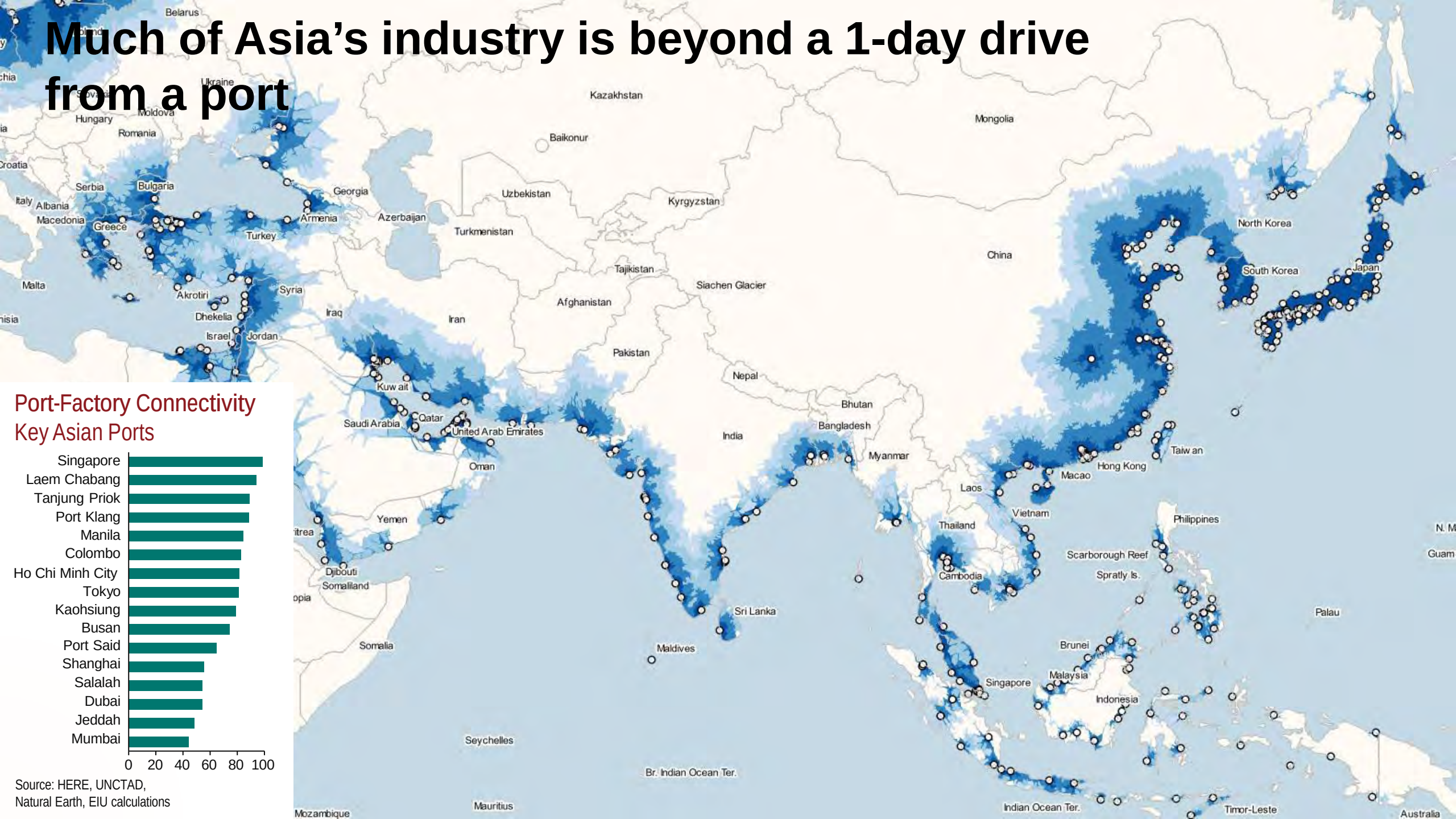
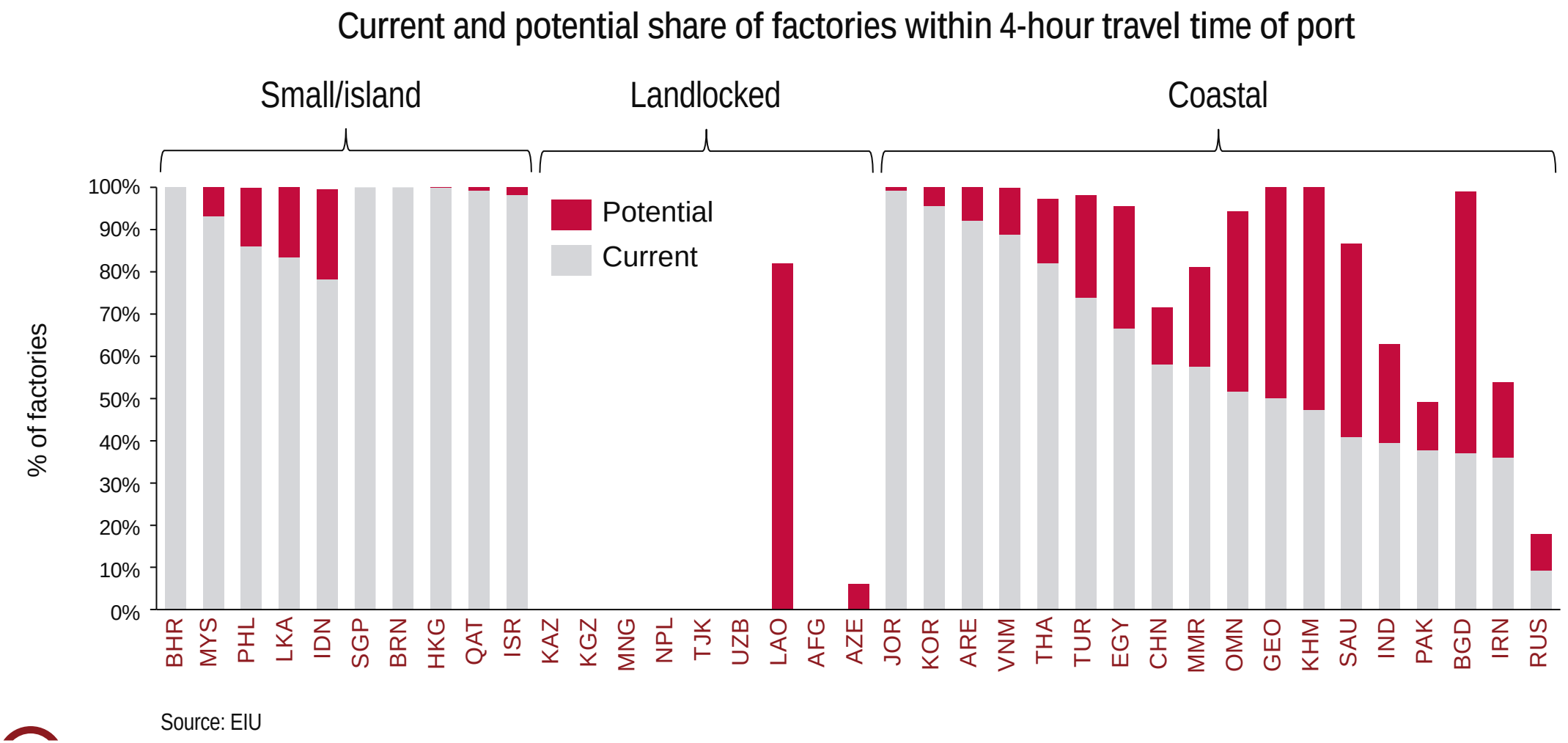
Much of Asia's industry is beyond a 1-day drive from a port



Port-Factory Connectivity
Key Asian Ports

Source: HERE, UNCTAD, Natural Earth, EIU calculations

Many countries can dramatically shorten the drive time to port



Source: EIU

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South Asia is key to unlocking regional economic integration

Source: OpenStreetMaps, Natural Earth