

Global Supply Chains, Vaccines, and COVID-19

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What is a Global Supply/Value Chain?

Supply Chain: All steps businesses take to produce a product or service and deliver it to the customer. When some of the steps distributed across firms in different countries → **Global Supply Chains (GSCs)**

TWO defining characteristics of GSCs:

1. Fragmentation of production and associated hyper-specialization
2. Firm-to-firm relationships (i.e., relational as opposed to anonymized trade)

GSCs and Development

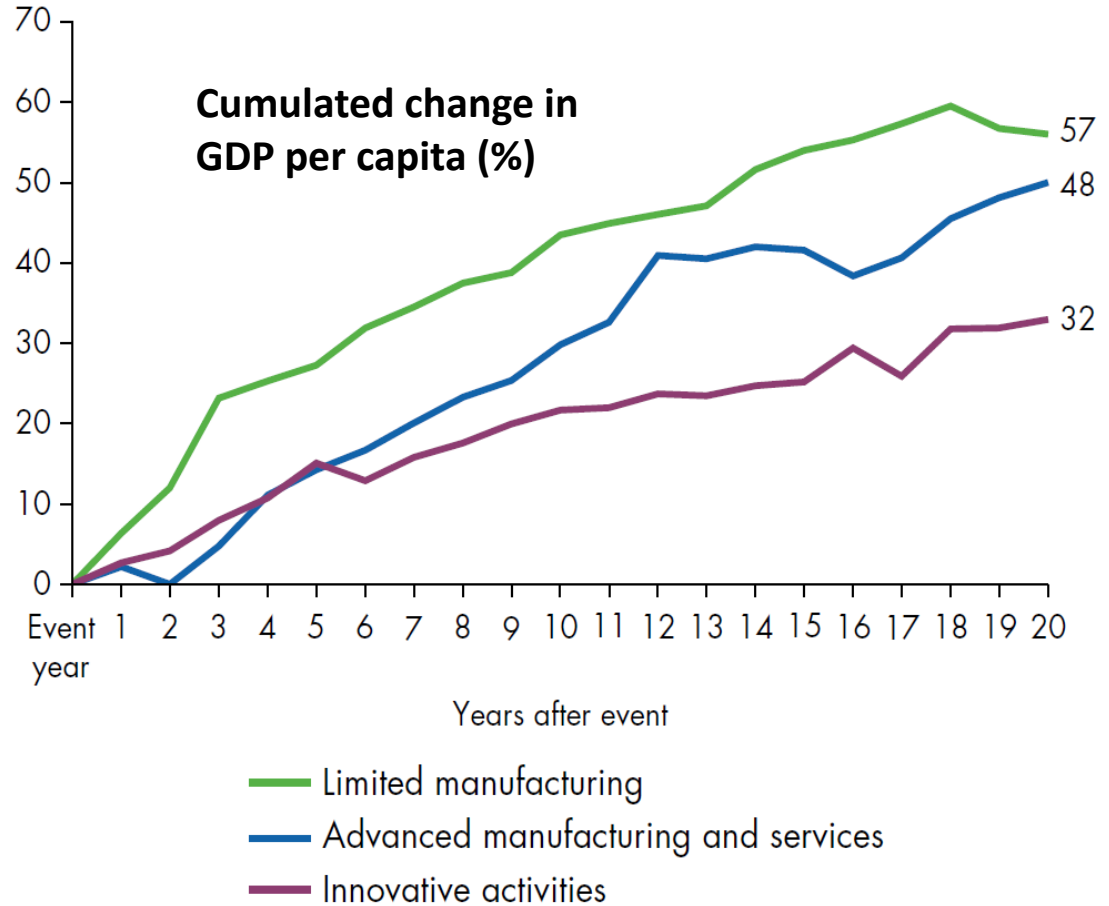
Are GSCs good for development?

- + Fragmentation means that developing countries can participate without having developed full capabilities
- + “Relations” foster knowledge and technology transfer
- Countries can get “stuck” in low-value activities

Evidence?

From World Bank's 2020 WDR: GSCs and Growth

**Incomes grow most
when countries break into
limited manufacturing**



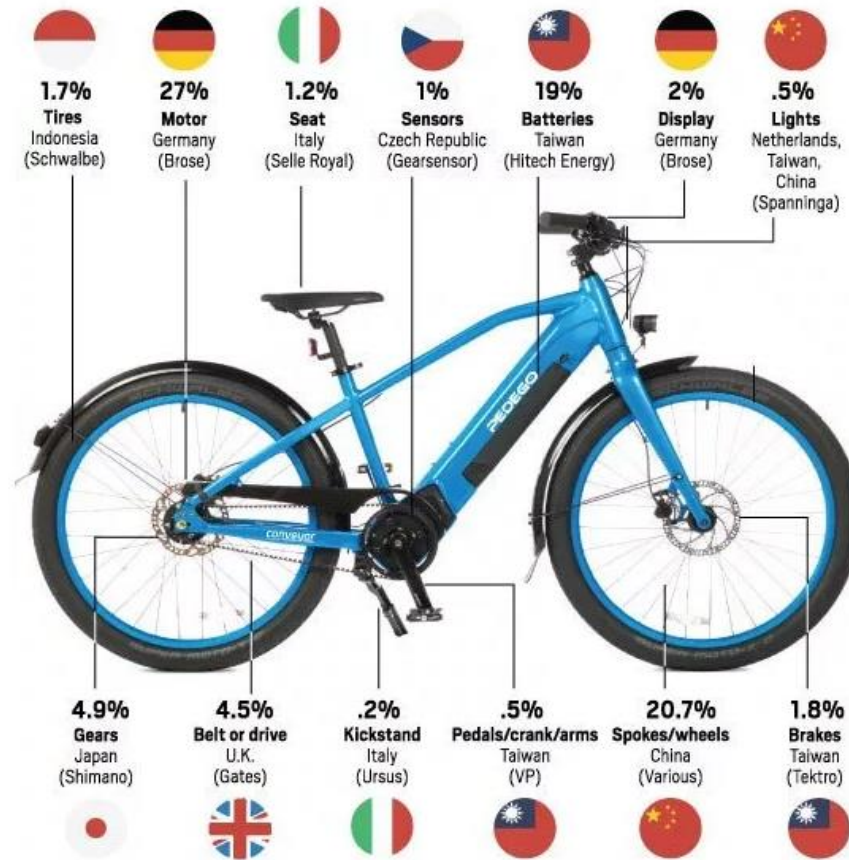
COVID-19 and GSCs

- GSCs have come under fire
 - Responsible for shortages of critical PPE and other products
 - Expose countries to more risk and amplify the effects of crises
- What is the argument?

What a GSC product looks like

Electric bike diversity

The Pedego Conveyor, a \$4,995 commuter bike, is among the newest of the Fountain Valley company's 12 models. It is manufactured outside Shanghai, with about three-quarters of its 50 components from China and the remainder from other Asian and European countries. Components from outside China account for 60 percent of the bike's cost. With the U.S. imposing tariffs on goods from China, production will move to Vietnam this month using the same components. Here's how the component costs break down.



Source: Pedego Electric Bikes

SCNG

Trade, GSCs, and Volatility

Competing Forces:

- **Product or Sector Specialization** exposes the SC to more risk
- **Geographical Diversification** reduces risk

Q: Which force dominates?

- Is the chain as strong as its weakest link, or is it more robust because it can replace a broken link by a working one?

A: Recent paper in the QJE by Caselli et al: Volatility has DECREASED for most countries post-1970s

Trade, GSCs, and Covid-19 Crisis

Various claims not backed by evidence:

- GSCs responsible for shortages of critical PPE and other goods
 - All such shortages proved to be short-lived
- The US and Europe have become exceedingly dependent on China
 - Not true: See paper by Evenett (2020) on medical supplies and medicines.
- GSCs responsible for current “Supply Chain Crisis”
 - Disruption yes, but no “crisis”. Supply and Demand Shocks and domestic labor market shortages more relevant than GSCs.
- GSCs responsible for higher prices and food shortages in LICs. Responsible for increase in poverty
 - Not true: Poverty went up because of loss of income. Not increase in prices. No evidence of significant price increases.

Conclusion

- Many of the claims were premature. Not supported by evidence
- They support a politically motivated narrative that blames trade and GSCs for COVID as well as all other perils
- Heterogeneity of COVID effects across population exposed the huge inequalities, across and within countries
- Lack of trust towards the government and lack of coordination (across states as well as countries) exposed the weaknesses of our political systems

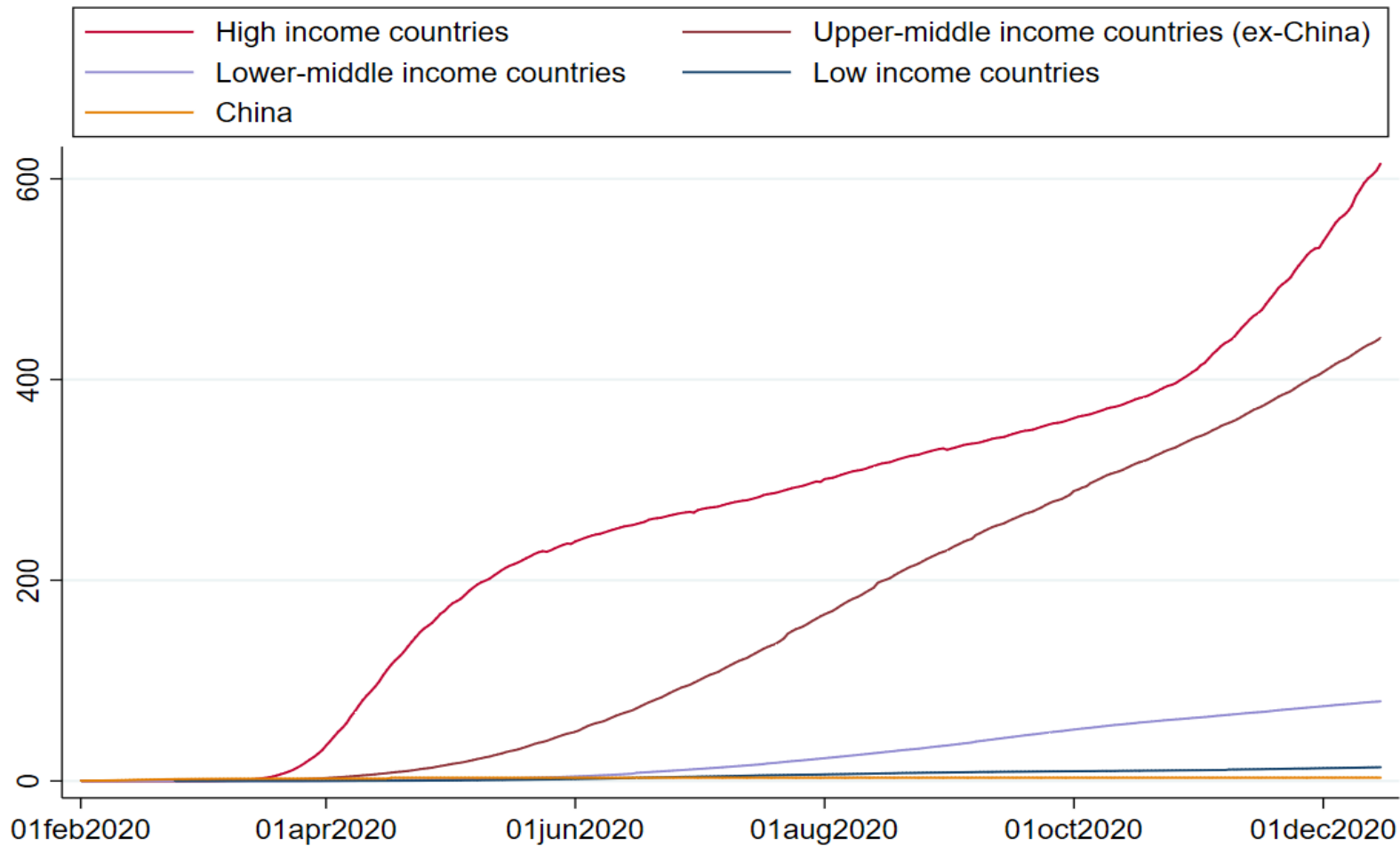
→ Our economic system did not fail us during COVID. COVID exposed the weaknesses of our political system and the lack of trust.

Particular Claim: GSCs responsible for lack of vaccinations in low-income countries

Some points to consider:

- Vaccination rates even in advanced economies remain below target (U.S.).
Reason: Demand not Supply → Lack of Trust
- Direct health impacts of COVID in LICs in Asia and Africa substantially smaller than in HICs and MICs
→ Countries do not view vaccinations as a top priority
- Global production capacity exists (Agarwal and Reed 2020).
But has not been mobilized. Why not?
→ It's Demand, not Supply & Financing Constraints

Total Covid-19 deaths per million people

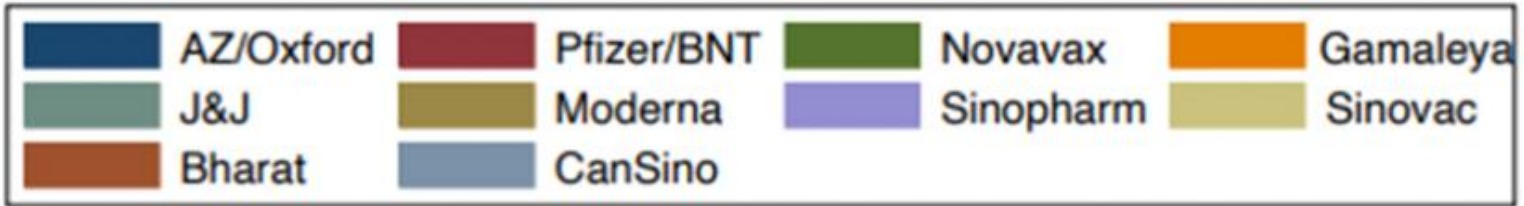
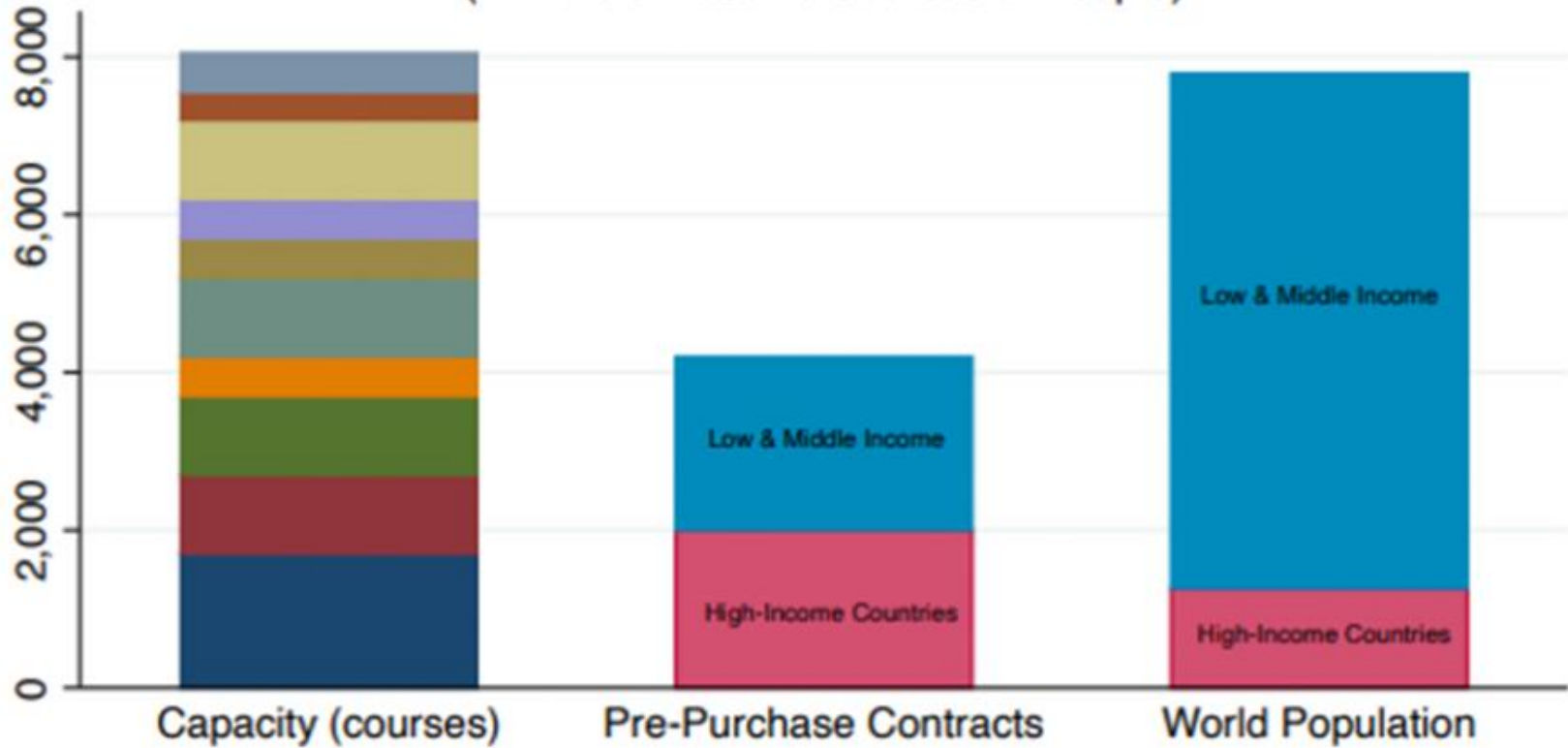


Source: Goldberg and Reed, BPEA 2020

Some Examples (Oct. 28, 2021; Source: Our World in Data)

Country	Deaths per Million	Vaccination Rate Vacc. per 100
U.S.	2290	124.05
U.K.	2054	151.87
France	1797	146.08
Russia	1618	70.20
India	327	74.81
Indonesia	517	67.93
Vietnam	223	78.58
Ecuador	1831	120.15
Peru	5961	102.27
Ethiopia	54	3.69
Congo	45	7.25
Nigeria	14	4.06
Angola	50	17.51

Company-Reported Capacity vs. Pre-Purchases of COVID-19 Vaccines
(Millions of Vaccine Courses or People)



Financing Vaccine Purchases in LICs

- Current system of development assistance not suited to addressing pandemics (banks negotiate with one country at a time)
- Big delays and small scale reduced effectiveness of interventions
- Highly effective vaccines were not approved for use by SRAs for a long time
- COVAX: the right approach, but COVAX capital was not secured until June 2021
- AVAT: not free, and many countries reluctant to place orders. Delays in ordering have resulted in delayed production
- Heavily indebted countries with high poverty rates, reluctant to take loans to finance vaccine purchases

Thank you!