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RESILIENCE AND SHORTENING OF GVCs

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Post (during?) Covid Resilience and shortening of GVCs

Firm level perspective.... 4 crucial issues

1. Decoupling and welfare losses
2. Shortening and diversifying value chains: possible?
3. Relationship based firm level links
4. The impact of automation



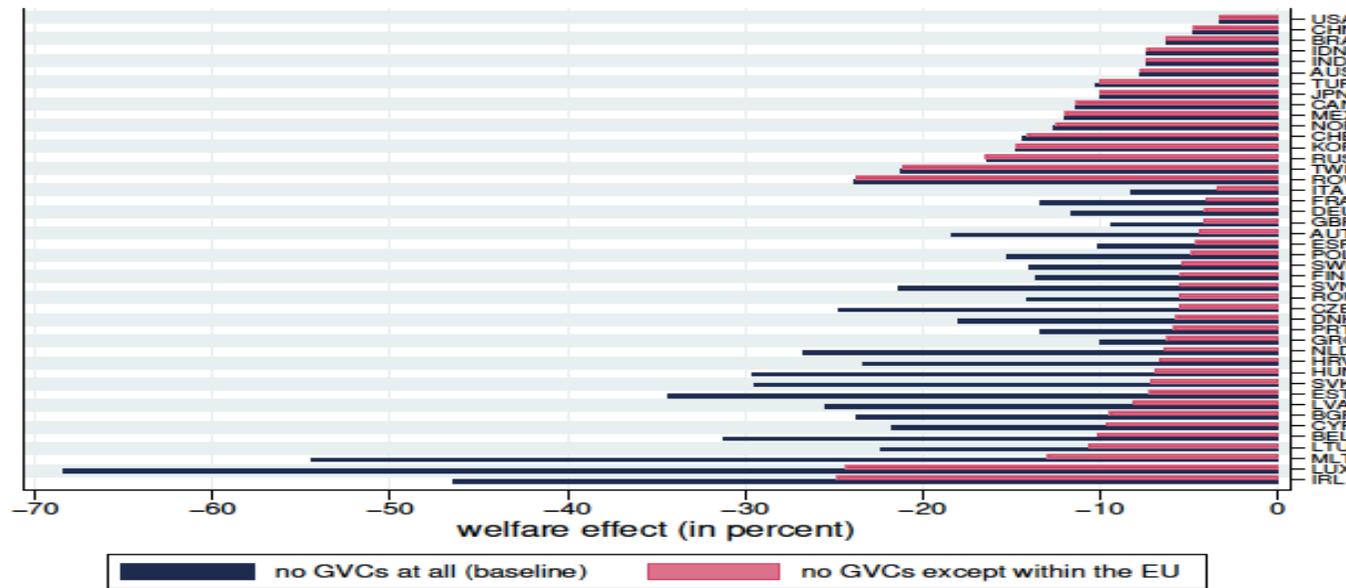
Decoupling and isolation from shocks

Considerable welfare losses

Does decoupling from GVCs make countries (and firms) more resilient to foreign supply shocks?

- Eppinger et al. 2021 simulate the effect of the Covid supply shock in China in early 2020 on individual and groups of countries and find that decoupling does protect from foreign shocks but combined with very large welfare losses.

Figure A.1: Complete decoupling vs. decoupling except within the EU



From Eppinger et al 2021. Increase in (i) all and (ii) except intra EU bilateral trade costs in intermediates. Trade in final goods and (i) domestic and (ii) intra EU IO sourcing allowed

BUT high reliance on intra EU reduces negative impact on EU countries from extra EU decoupling





Shortening of value chains? An opportunity for CEECs?

- What are the conditions for nearby reshoring?
 - Think about trade offs...
 - ⇒ Why were not supply chains shorter before the pandemic?
 - ⇒ Can perceived increase in trade costs with distant partners overcome relative weaknesses of nearby destinations?
 - Usual key parameters still there
 - ⇒ Governance,
 - ⇒ Institutions,
 - ⇒ Technological skills.....



Shortening of value chains? Not so obvious

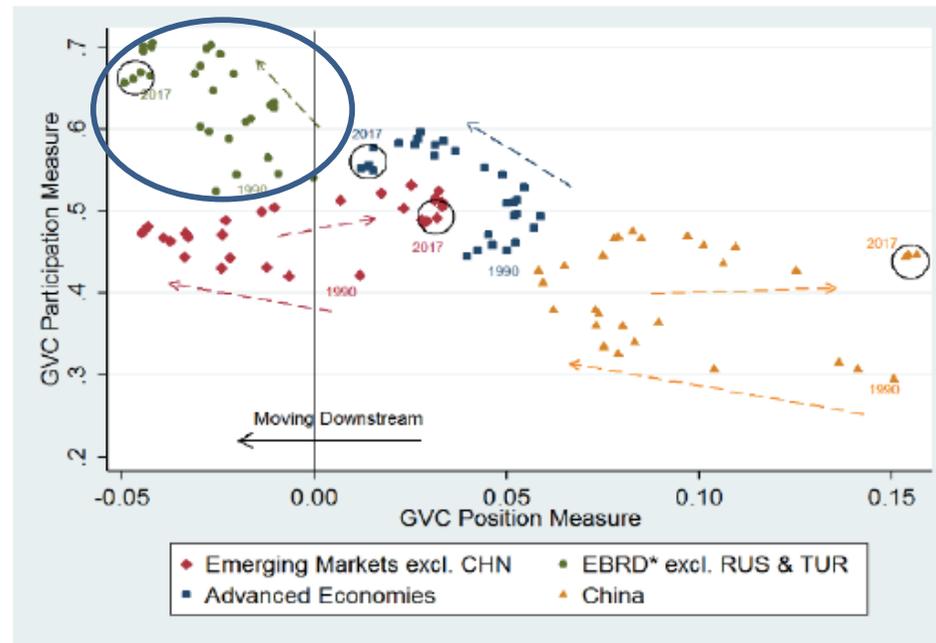
- The case of Mexico, unable to attract Asian divestments of US companies, two lessons : (i) overall conditions matter whatever happens in the rest of the world; (ii) avoid discriminatory rules within FTAs (see USMCA increase in local content requirement in automotive)
- E.g. automotive difficult to strengthen the resilience of GVCs especially for just in time supply networks relying mostly on Tier 1 suppliers (entry barriers).... Transition to alternative powertrains (Klein et al. 2020).
- Broad evidence that specialisation of GVCs in CEECs mostly in production activities with a comparative advantage base in labour (Pellenyi, 2020), though some countries have managed a transition from low to high tech GVCs - Czech Republic (WDR 2019)



Shortening of value chains? Not so obvious

Deepening of GVCs in CEECs, especially Central European and Balcan ones, and relatively higher GVC participation index than other countries

Chart 1: Global GVC Integration over time



But very downstream and even further

Sources: UNCTAD-EORA (2019), and authors calculations

Source, EBRD 2020

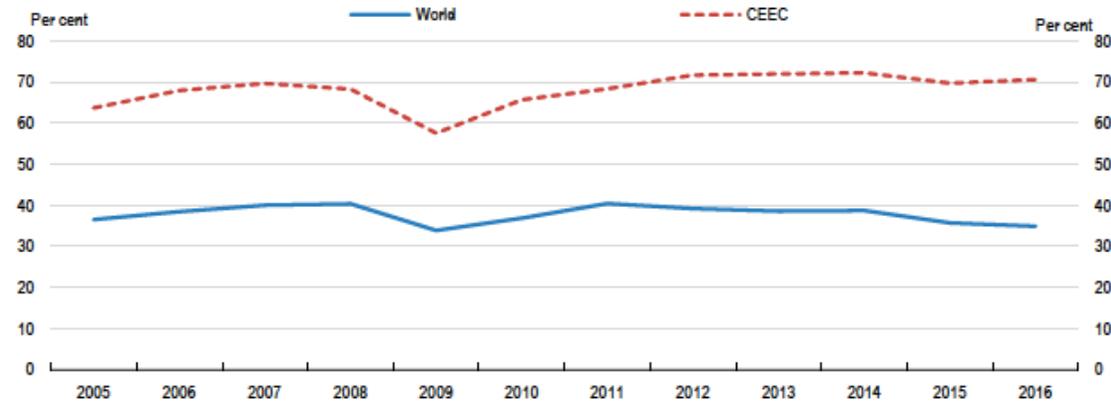




Shortening of value chains? Not so obvious

Figure 10. Import intensity of motor vehicle industry has stabilised at high levels

Import intensity of motor vehicle industry



Shallow value chain (motor vehicles industry)

Note: This indicator takes into account all trade flows of intermediates inputs used in any stage of the value chain, and expresses their overall value as a share of the final output. Calculated for the world, it measures the overall level of fragmentation of production. Source: OECD Trade in Value Added (TiVA) database; OECD Economic Outlook: Statistics and Projections database; UN Comtrade; and IMF

Source, Klein et al., 2020

Table 1: The composition of employment sustained by manufacturing exports

	Export-related employment (% of total)	2018 composition (%)				Composition change between 2011-2018 (pps)			
		R&D	Fabrication	Support	Distribution	R&D	Fabrication	Support	Distribution
Czechia	31.8	4.4	57.2	20.0	18.4	1.7	-3.7	1.1	1.0
Hungary	22.3	7.1	62.7	19.9	10.3	1.5	-2.8	0.8	0.5
Poland	19.6	5.5	63.5	20.5	10.5	1.0	-1.6	1.8	-1.3
Romania	13.0	7.1	67.5	9.6	15.7	0.9	-0.4	-1.0	0.6
Slovenia	24.5	8.7	55.0	26.1	10.2	1.8	-1.7	0.3	-0.4
Slovakia	23.6	3.0	65.9	19.9	11.2	0.5	0.6	1.2	-2.3
Austria	17.2	8.4	55.3	24.5	11.8	4.0	-3.4	1.6	-2.2
Germany	19.6	8.6	44.7	29.7	17.1	0.6	-3.7	2.9	0.2
Finland	15.0	14.4	48.6	23.5	13.5	1.8	-4.6	0.5	2.3
Sweden	12.4	10.4	46.2	29.5	13.9	2.5	-6.0	4.1	-0.5
Spain	10.1	7.6	53.4	25.0	14.0	1.8	-0.7	3.2	-4.3
Portugal	13.0	4.4	64.9	17.6	13.2	1.5	-2.6	1.9	-0.8

Source: calculations based on World Input Output Database and Eurostat, Labour Force Survey.

Growing «servicing» of industry but mostly production

Source, Klein et al., 2020





Shortening of value chains? Essential goods?

Reshoring of Essential Goods (Geopolitical dimension and need for cross country cooperation anyway - US/EU (Chad Brown))

- *Semiconductors supply chain resilience policy*: difficult without coordinated operation with the US (Trade and Technology Council), risk of overcapacity and subsidies by established producers (Taiwan, South Korea, China)
- *Vaccine production*: global logic... insufficient world wide provision
- *Personal Protective Equipments*: insufficient local production and sourcing of inputs.... But post pandemic sustainability of the industry?



Resilience of of value chains and implicit cost of shortening? Relationship specific sunk costs

- Evidence of persistent buyers and sellers relationships on many studies and countries (Antras 2020 for a summary)
- Firm to firm relationships in a a value chain environment are governed by incomplete contracts most of the time
- Specific investment have to be undertaken to develop and consolidate such environments:
 - Search
 - Specific equipment
 - Developmebt of trust and informal practices
- All such investment require time and resources and are immediately foregone as the relationship ends:
 - ⇒ Sunk cost of value chain relationships
 - ⇒ Asymmetry in costs between the decision to offshore and the decision to onshore back (forfeiting a larger fixed cost when moving back).
 - ⇒ Stickiness
- Complementarity between different stages also matters: waves of offshoring and onshoring (motor vehicles)



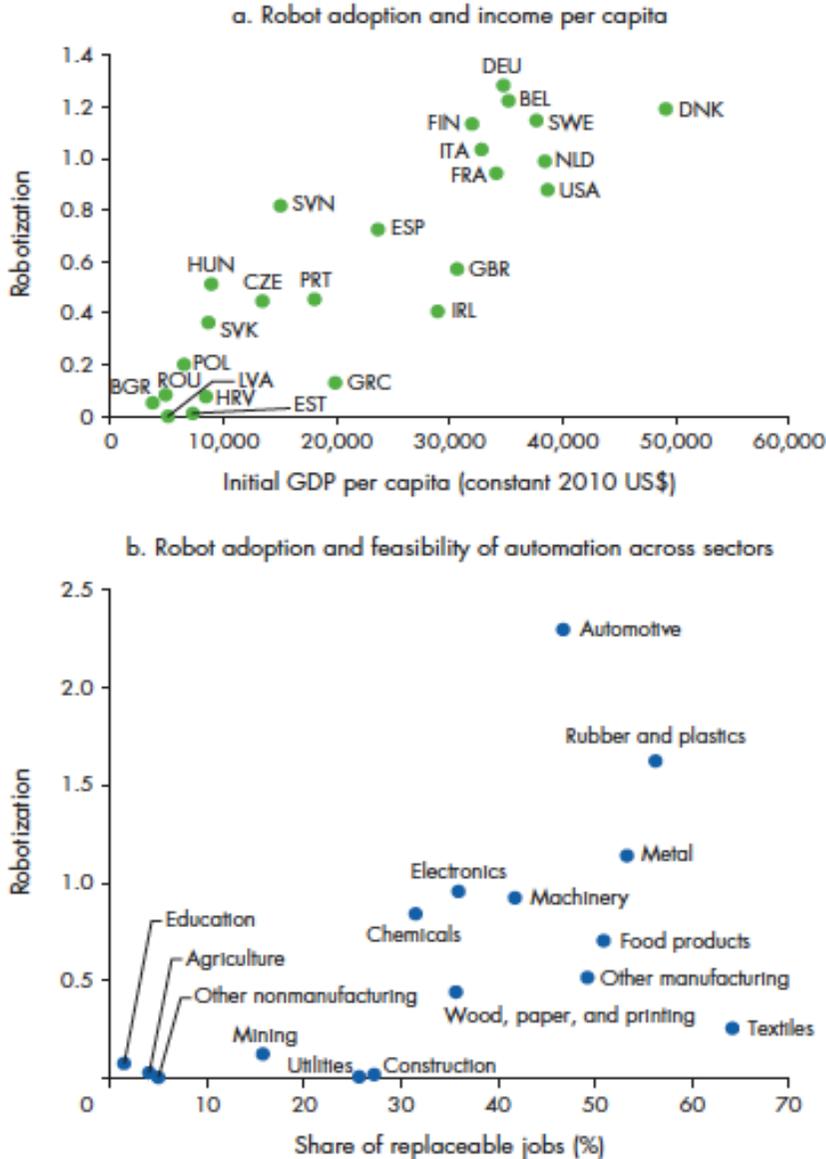
Impact of Automation?

- Everything back home?
- Is there substitutibility between automation and foreign production?
 - ⇒ Evidence shows limited substitution and reshoring
 - ⇒ Possible positive effect because of complementarities between production workers in emerging economies and automation in the North and because of an expansion of activities as a consequence of gains in productivity in the industry (Antras, 2020, WDR 2020)
 - ⇒ Evidence of automation boosting imports from emerging countries



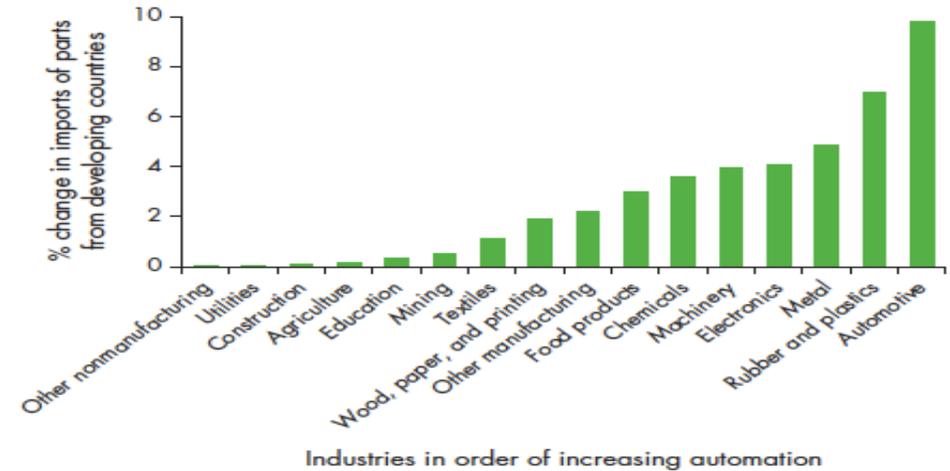
Impact of Automation?

Figure 6.5 Robot adoption is greater in high-income countries and in sectors in which tasks are easily automated



Source: Artuc, Bastos, and Rijkers 2018.

Figure 6.6 Automation in industrial countries has boosted imports from developing countries



Source: Artuc, Bastos, and Rijkers 2018.

Note: The figure depicts the automation-induced increase in imports of parts by developed countries (North) from developing countries (South) by broad sector from 1995 to 2015. The change in imports of parts is measured in log points; a 0.10 increase in log points is roughly equivalent to a 10 percent increase in imports.





Summing Up

- GVCs structure in Europe likely to be resilient... intraEuropean space crucial advantage..
- Some shortening, but not so obvious and unlikely through a pattern of technological upgrading
- Resiliency... good news for CEECs but makes shortening harder.. unless trade costs with distant countries really rump up
- Policy prescriptions... business as usual
 - Improving the investment environment
 - Invest in skills and technological upgrading
 - Support measures for the upgrading of local firms within client supplier relationship



References

Antras, P., and D.Chor 2021, «Global Value Chains», CEPR Discussion Paper 15908

Bown, C., Testimony before the European Parliament Committee on International Trade, September 27, 2021, Peterson Institute <https://www.piie.com/commentary/testimonies/us-trade-policy-and-supply-chain-resilience>

EBRD, 2020, «Global Value Chain Diagnostic. Annex»

Klein, C., J. Hoj and Machlica, G. , 2020, «The impacts of the COVID-19 on teh Automotive Industry in CEECs», Oecd Economics Department Working Papers, 1658

Pellényi Gabor Mark, 2020, «The Role of Central & Eastern Europe in Global Value Chains: Evidence from Occupation level Employment Data», Economic Brief 062, European Commission

Schott, J. «Can Mexico help bring supply chains back to North America?» Peterson Institute <https://www.piie.com/blogs/trade-and-investment-policy-watch/can-mexico-help-bring-supply-chains-back-north-america>

World Bank, World Development Report, 2020, «Trading for Development in the Age of Global value Chains»