FONDATION POUR LES ÉTUDES
ET RECHERCHES
SUR LE DÉVELOPPEMENT
INTERNATIONAL

Dialogues on the Future of Work in the Global South

Building narratives from The Middle East and North Africa

Remarks on MENA prospects in the digital economy

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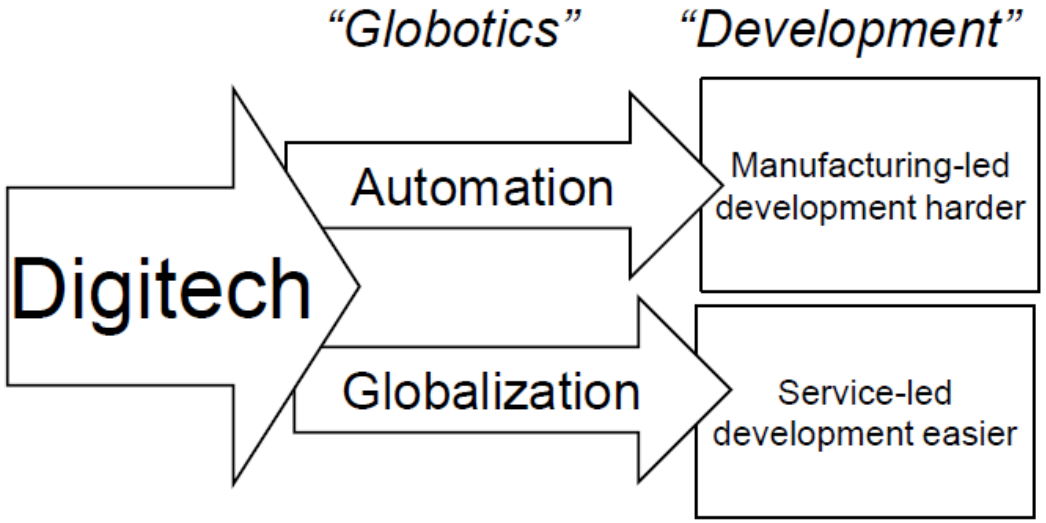
Outline

- **1. Two Challenges: Globotics and Disappearance of jobs**
- **2. MENA absent from supply chain trade (what are impeding costs?) transformation**
- **3. MENA firms are not digitally isolated...**
- **4....but MENA lagging on data central to digital economy.**
- **5. MENA specialized more in transportation and travel services**

Questions raised by forensics/stylized facts

- **6. Where will MENA locate along the Smile Curve?**
- **7. Digitization and value-added along supply chains**
- **8. Heterogenous cross border data transfer policies**
- **9. Patterns of Telecom technology adoption**

1.Two Challenges of Digitalization: (a) Globotics; (b) Disappearance of jobs



Increasingly Difficult to Program →

	Rule-based logic	Pattern recognition	Human work
Variety	Computer processing using deductive rules	Computer processing using inductive rules	Rules cannot be articulated and/or necessary information cannot be obtained
Examples	Calculate basic income taxes	Speech recognition	Writing a convincing legal brief
	Issuing a boarding pass	Predicting a mortgage default	Moving furniture into a third-floor apartment

Source: Frank Levy and Richard Murnane, Dancing with Robots, NEXT report 2013, Third Way.

- AI, and IOT brings a new phase of automation (fourth industrial revolution)—see Hallward-Driemer and Nayar (2017).
- **Telemigration unleashed by ICT** was the hallmark of the third industrial revolution---Baldwin and Forslid (2017**). Service-led development easier. Accelerated by WFH spurred by Covid**.
- But need hard infrastructure (SMC connection), servicification, linkages, technology adoption

- Machine learning and AI present a challenge for employment as shown for tasks based on rule-based logic, but not others.
- For Rodrik skill-biased technical progress will create challenge for developing countries

Source: Melo and Solleder (2021)

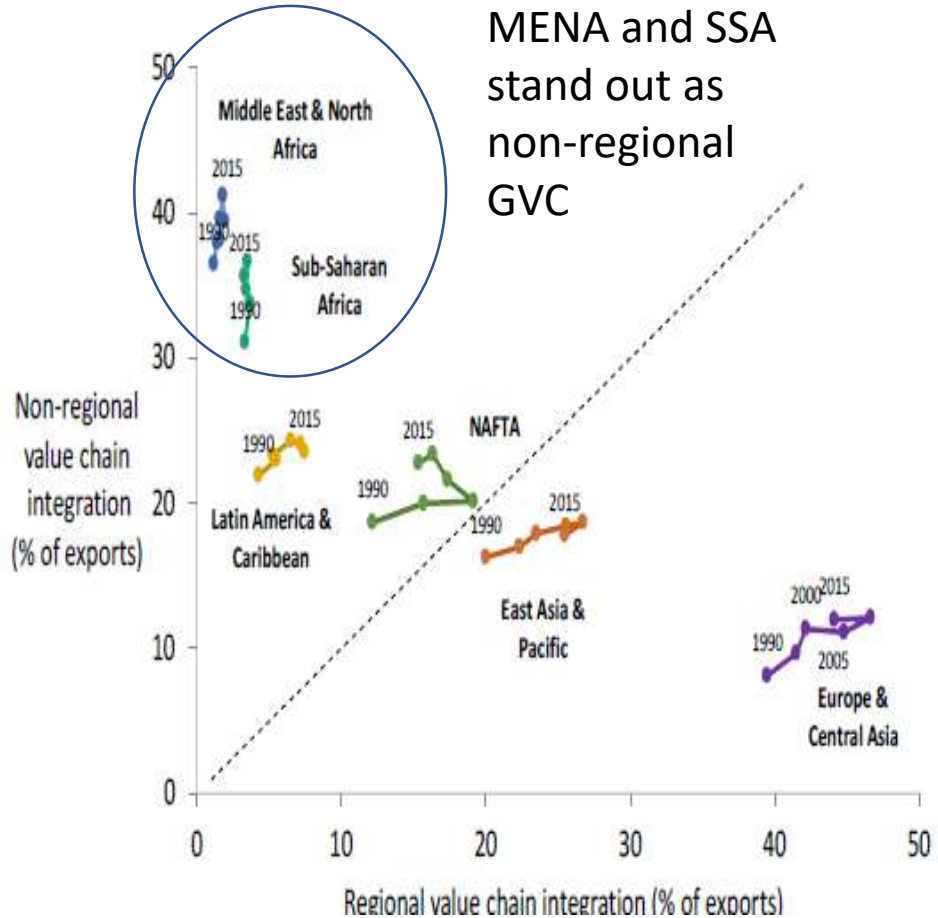
Following remarks about MENA prospects to build an enabling environment for the digital economy

2. Observation GVC participation patterns (1990-2015): MENA absent

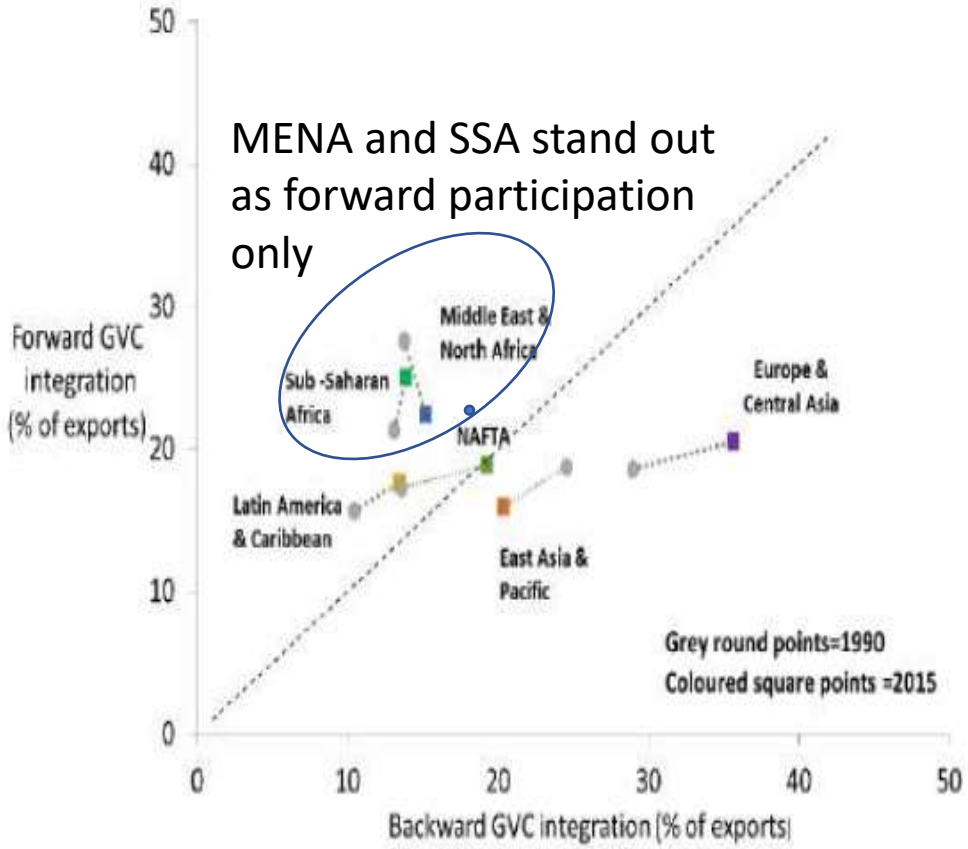
MENA (and SSA) have low GVC participation: Non-regional rather than regional. Also forward (exports go into exports of partners) rather than backward (imports in their exports)

Source: Melo and Twum (2021)

a. Regional vs non-regional GVC participation

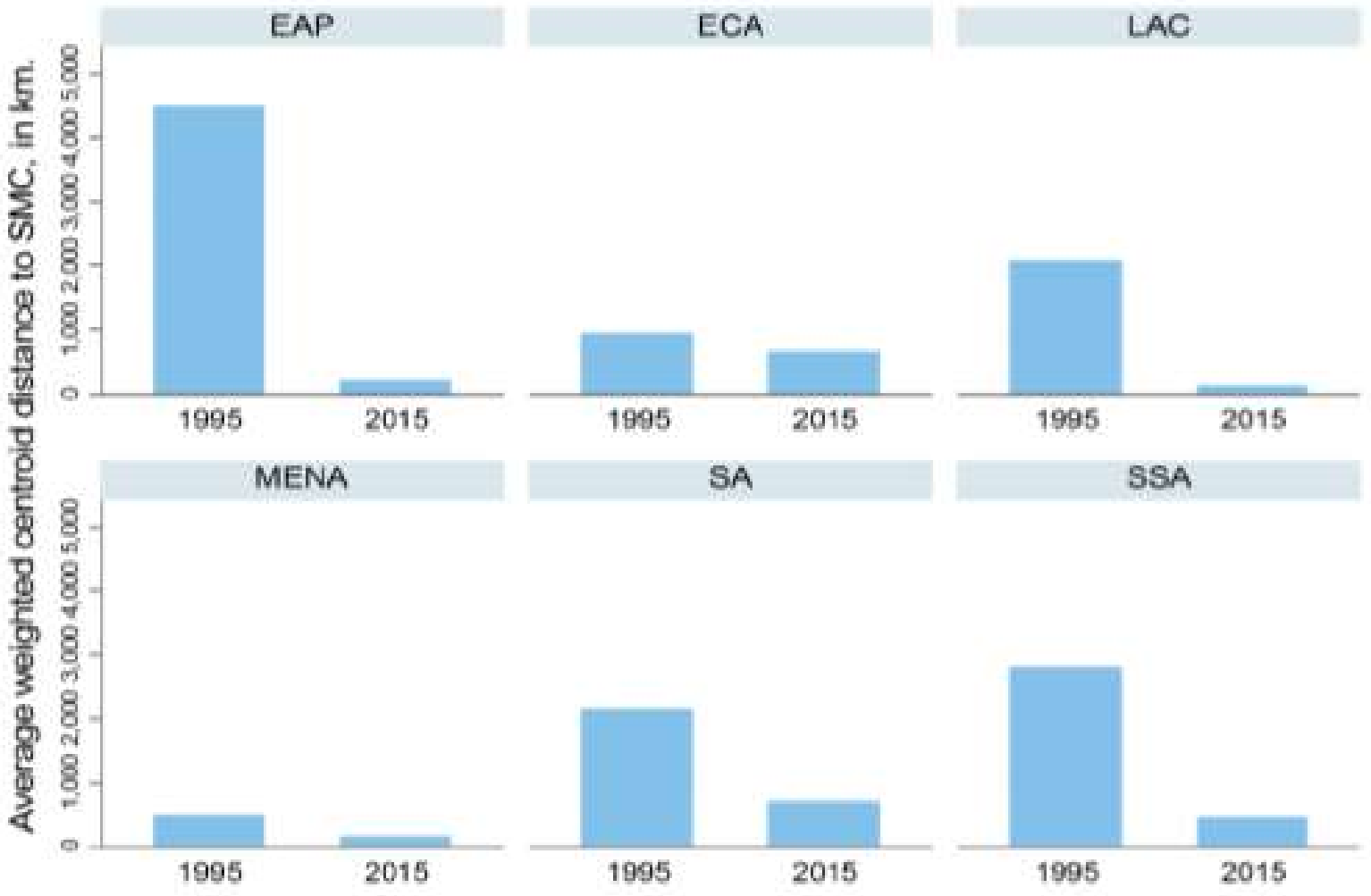


b. Backward vs forward GVC participation



3. MENA firms are not digitally isolated....

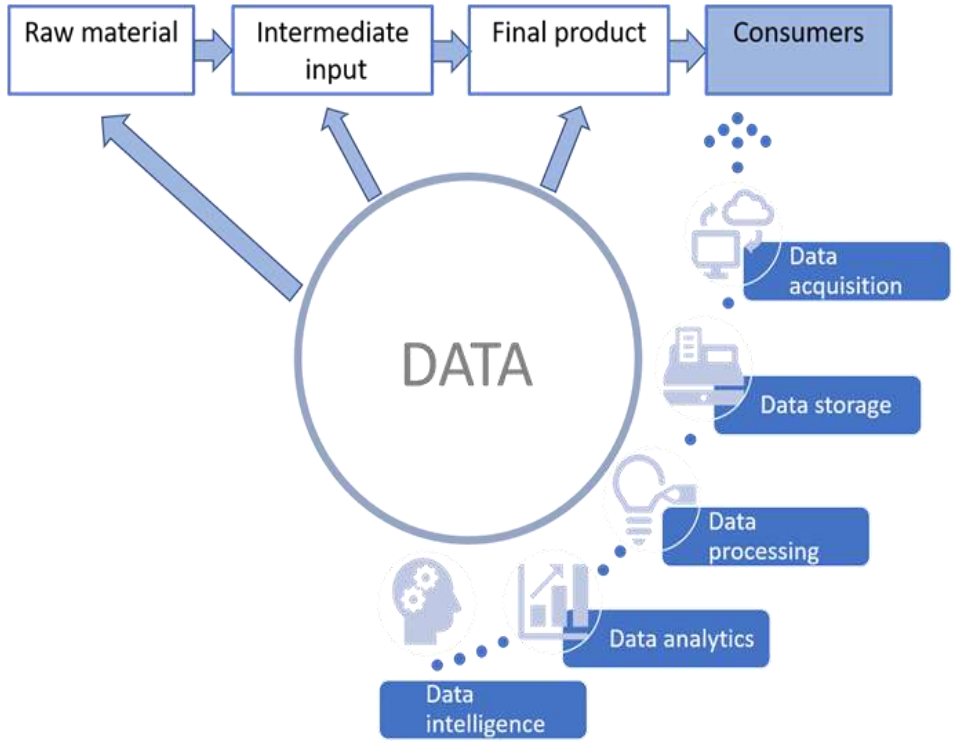
Graph 2. Average regional weighted centroid distances to SMC landing stations, 1995 and 2015.



Source: Cariolle et al. (2020). Averages over 25,000-30,000 WBESS firms

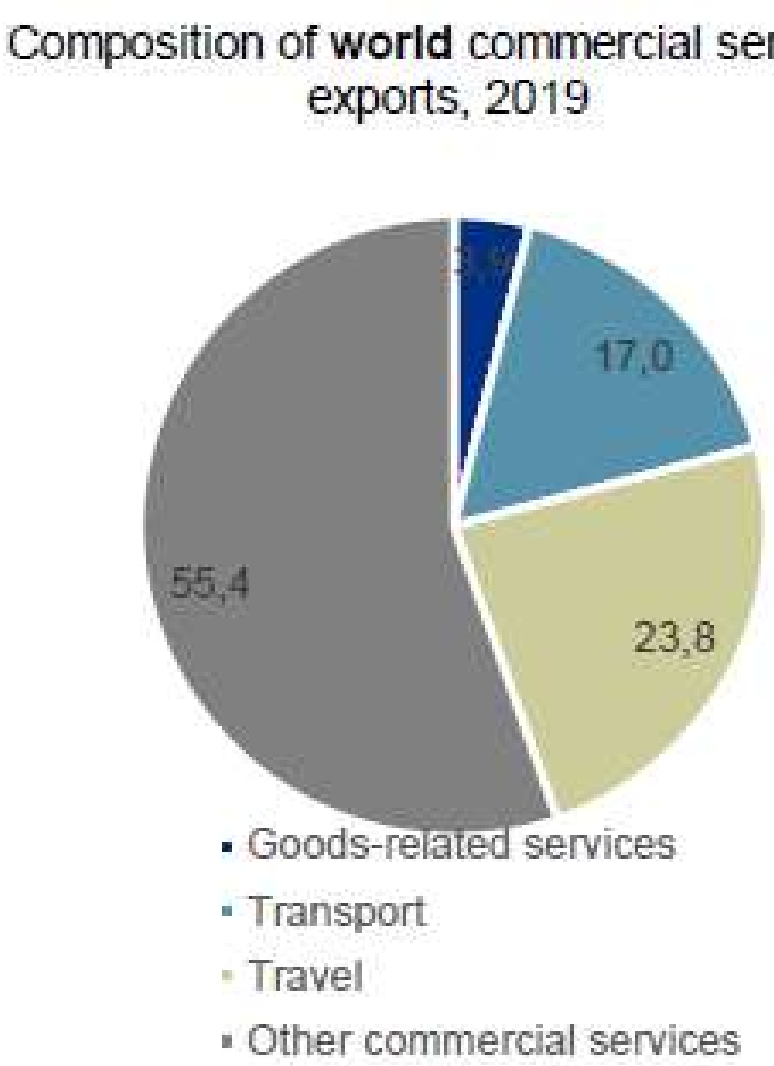
4. ...But MENA lagging on data central to the digital economy model

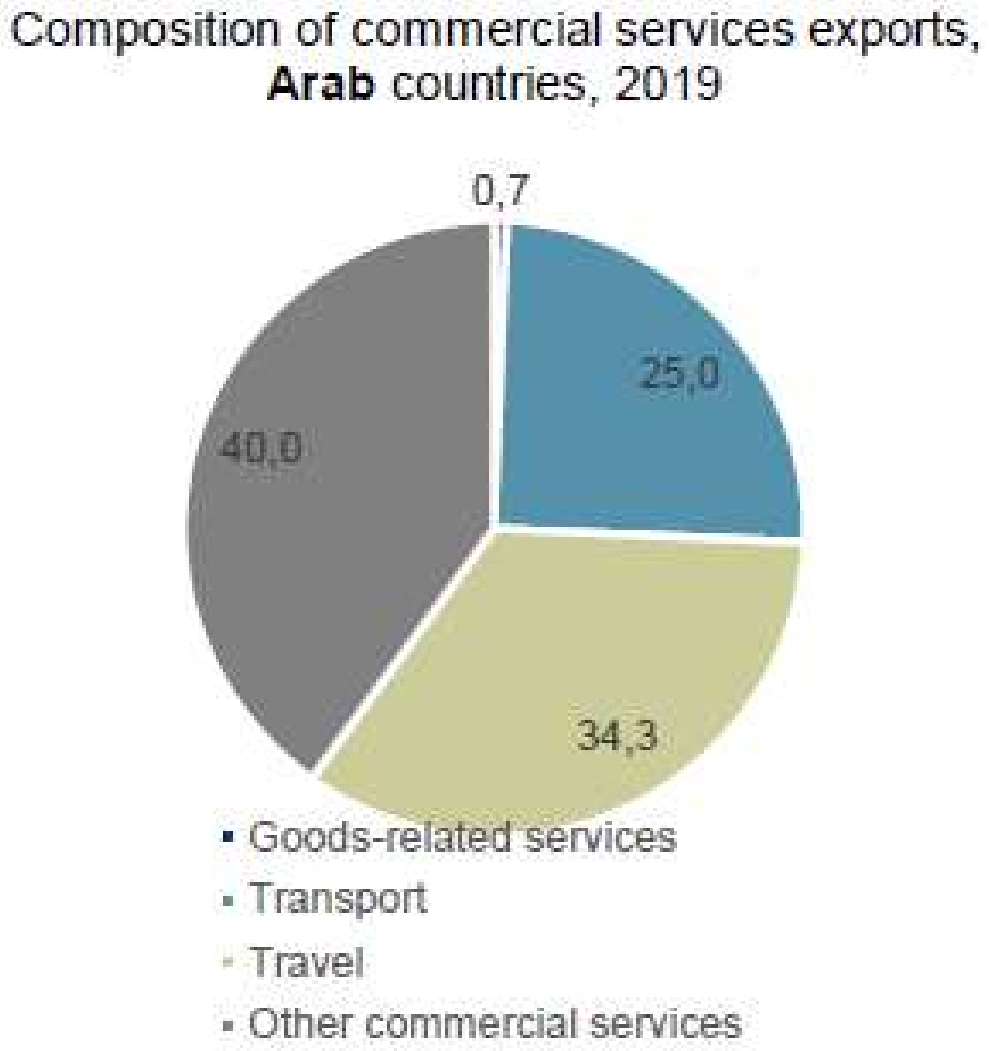
- In digital economy, more of value generated by production processes is associated with data generation and use.
- Digitization: converting analog representations of tangible objects or attributes into a digital format
- Digitalization: applying digital technologies to existing business processes
- Digital transformation: changing or developing new business processes and products using digitalization technologies
- Servicification: process of increasing intensity of the share of services in GDP (value added), or, at the firm level, a shift towards services in revenues
  - Average rate of increase in servicification of Arab countries below that observed in middle-income countries: 7.5 vs. 15 percentage point increase since 1990
  - Services % GDP Arab states =49.7% vs, 54.7% in MICs



Source: Stolen from Hoekman (2021)

5. MENA specialized more in transportation and travel services

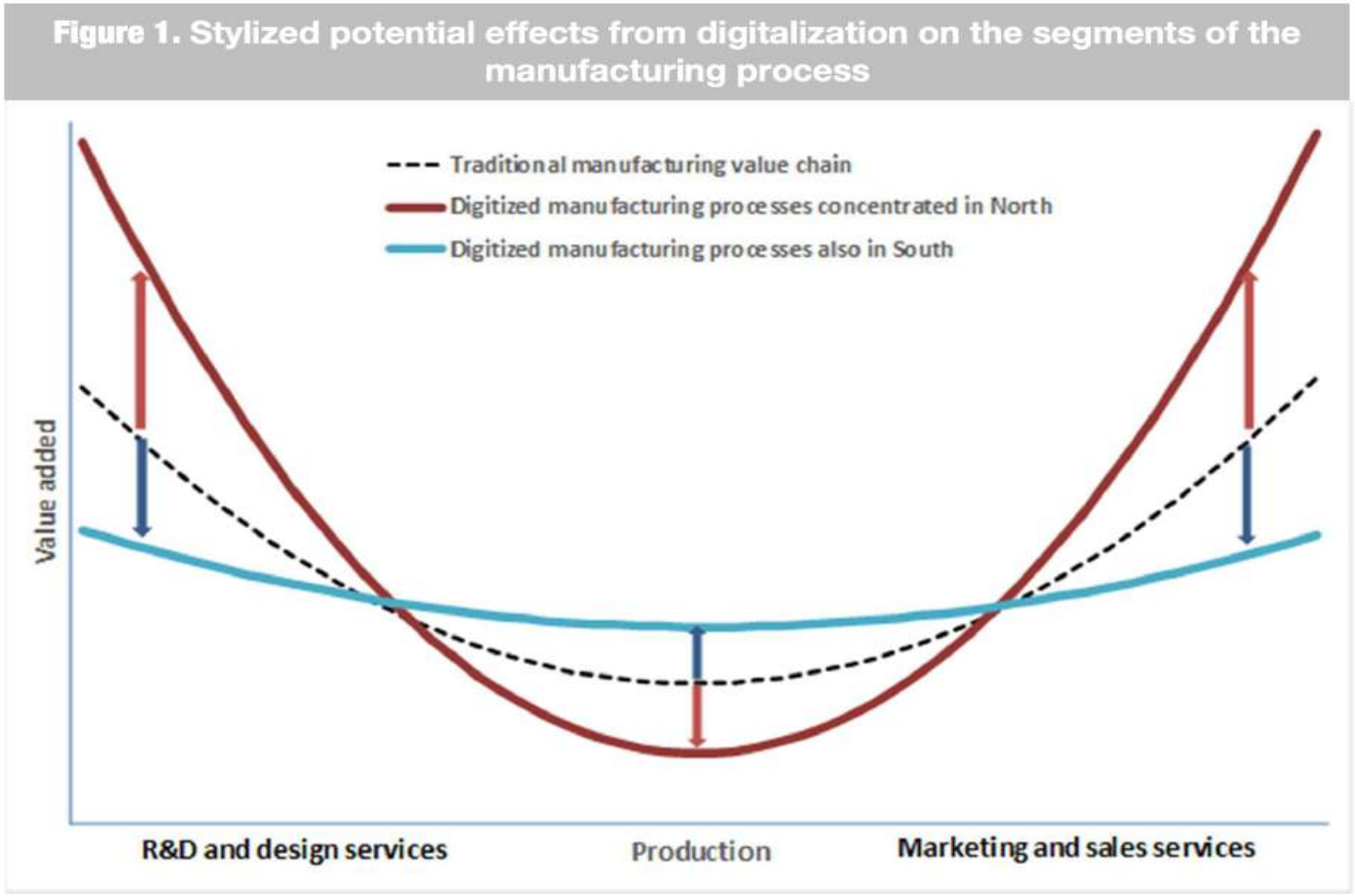


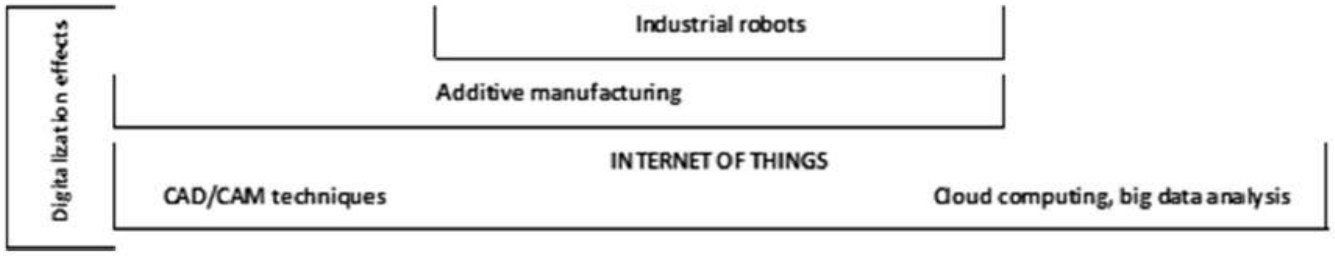


Source: Hoekman (2021)

Questions raised by above forensics/stylized facts

- **Why the weak GVC performance?** Literature suggests high trade costs ('red tape'; NTBs, NTMs); weak institutions/governance (rent-seeking/crony capitalism; State dominance/military);
- Hoekman (2021): **Weak non-transport/non-travel services export performance a red flag** – but better performance by some countries like GCC suggests potential (e.g. Educational levels) is there. MENA ranks on EGDI (e-gov. Dev. Index) are below 100 except for GCC countries
- Forensics above suggest that specialization in 'low tech' services like transport and **tourism not related to firms having insufficient access to hard infrastructure, e.g. submarine cable (SMC) networks**. But then why such specialization? If high trade costs why transport?
- Can digitalization help reduce trade costs for 'intensive' margin trade in supply chains, for 'extensive' margin trade?
- **Shift away from production of tangible service**s towards providing ICT-enabled services? Will factors that constrained GVC trade continue to prevail?
- Remaining slides suggest
  - Policies to raise and flatten the smile curve describing stages of supply chain trade
  - Get better data on regulatory policies like types and prevalence of NTMs
  - Policies for data transmission/ protection
  - Importance of independent regulatory set-up for adoption of innovative telecom technology





6. Where will MENA locate along the Smile Curve?

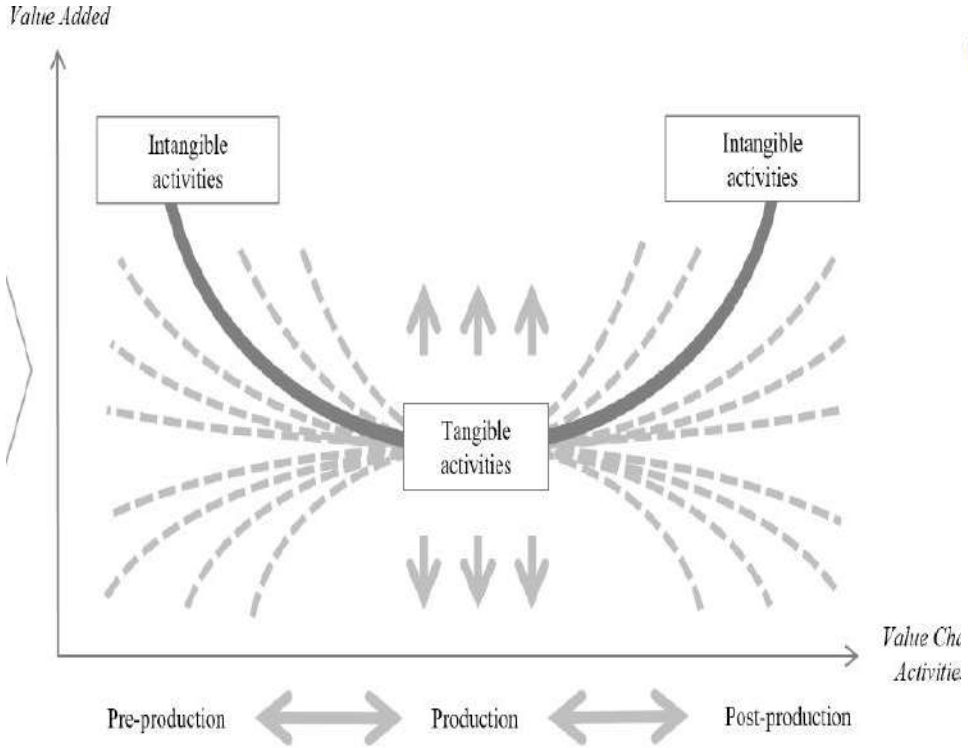
- Digitization is spreading slowly to MENA and SSA –see patterns :1990-2015 above

- Implications for where country fits in terms of the tasks involved in bringing a product down the chain to market (R&D, Design, Production, Marketing, Services).

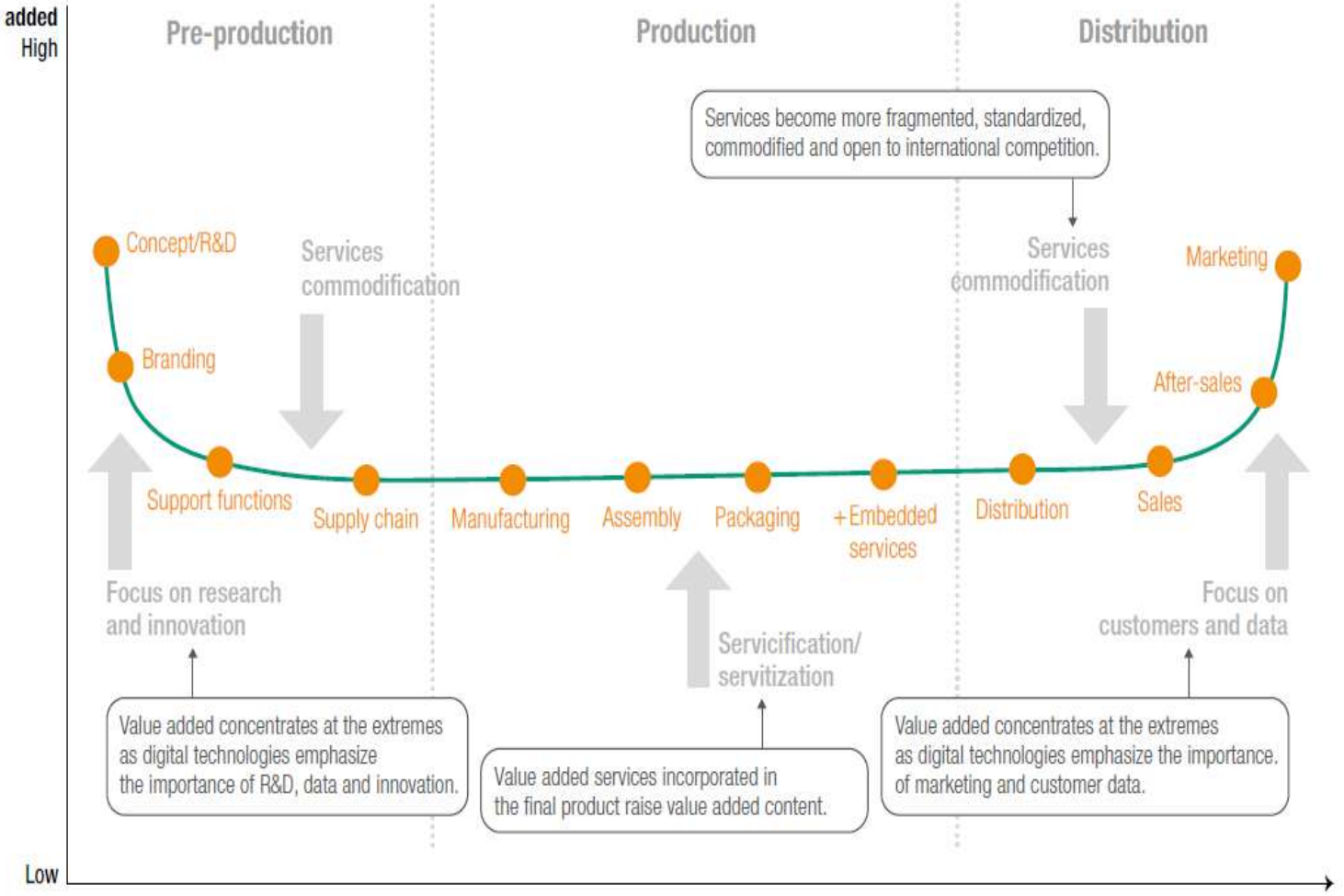
- **Two possible outcomes for MENA countries**

a) Stuck in low VA in middle as digitization goes to north
b) Adopt policies (e.g. education, regulatory) to flatten curve at higher minimum levels at stages ---see next slide)

7. Digitization and value-added along supply chains



Source: Rehnberg and Ponte (2018)



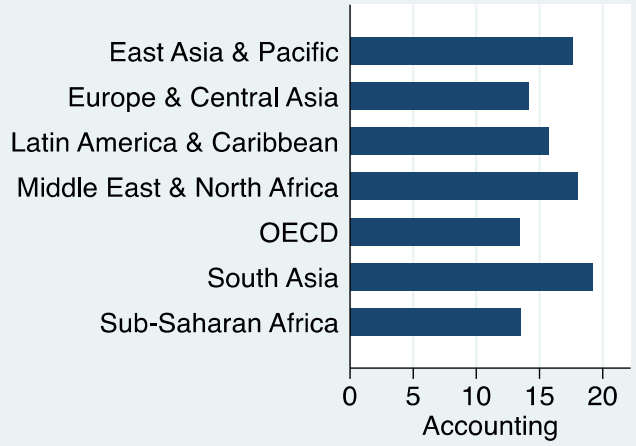
Source: UNCTAD WIR 2020

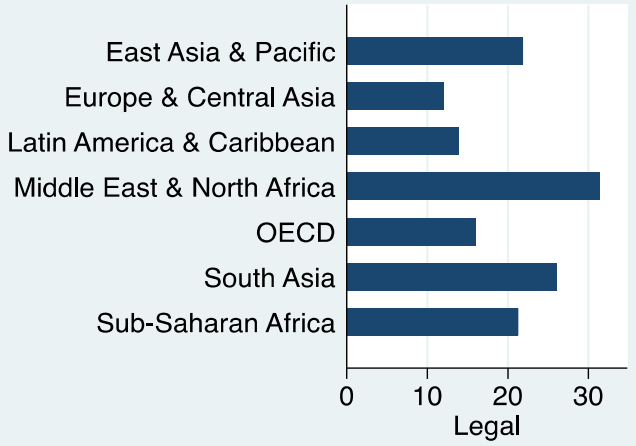
Source: Hoekman (2021)

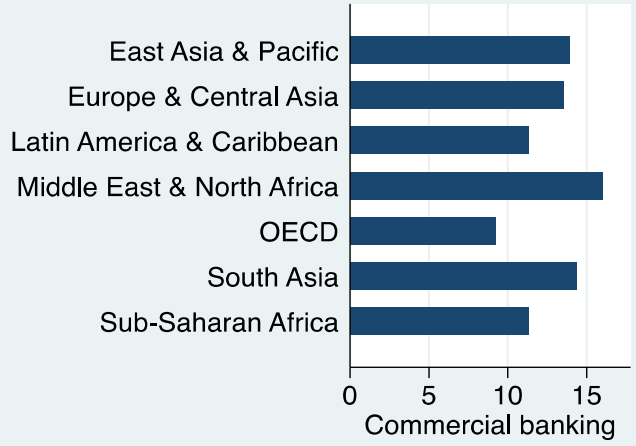
- Digitalization and servicification: adjustment pressures for incumbents and opportunities for new entrants. Capturing **new opportunities depend on enabling environment (supportive regulatory policy, linkages to universities).**

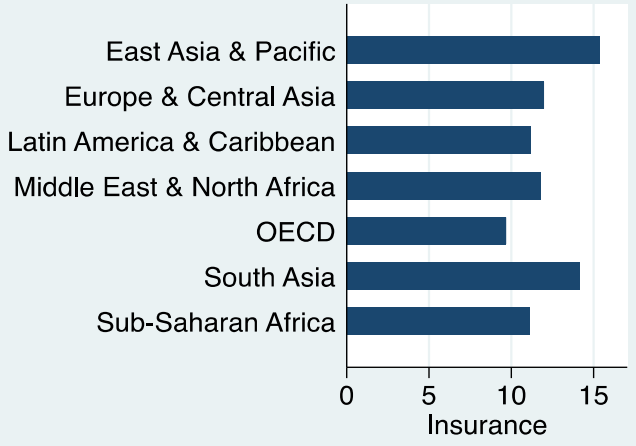
- Will **middle part of smile curve be more or less labor-intensive?** Will middle be reshored (3D, AI)?

8. Ad valorem equivalents, services trade policies by region, 2016









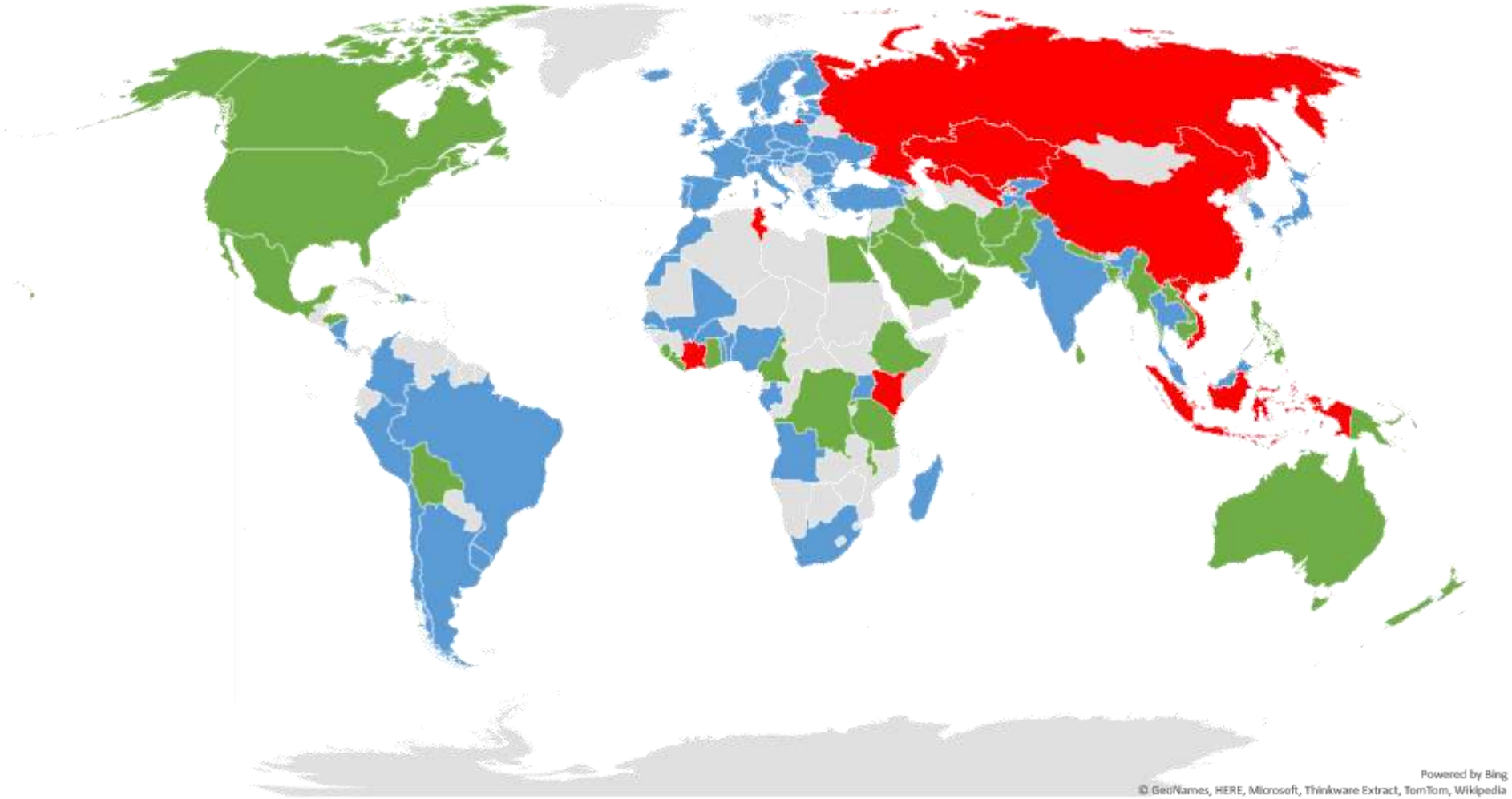
- **Insufficient data** to assess services trade policies for the region, let alone effects

GTA data suggest that since 2009:

- virtually **no liberalization** of trade in services occurred
- most new trade restrictive measures pertain to goods

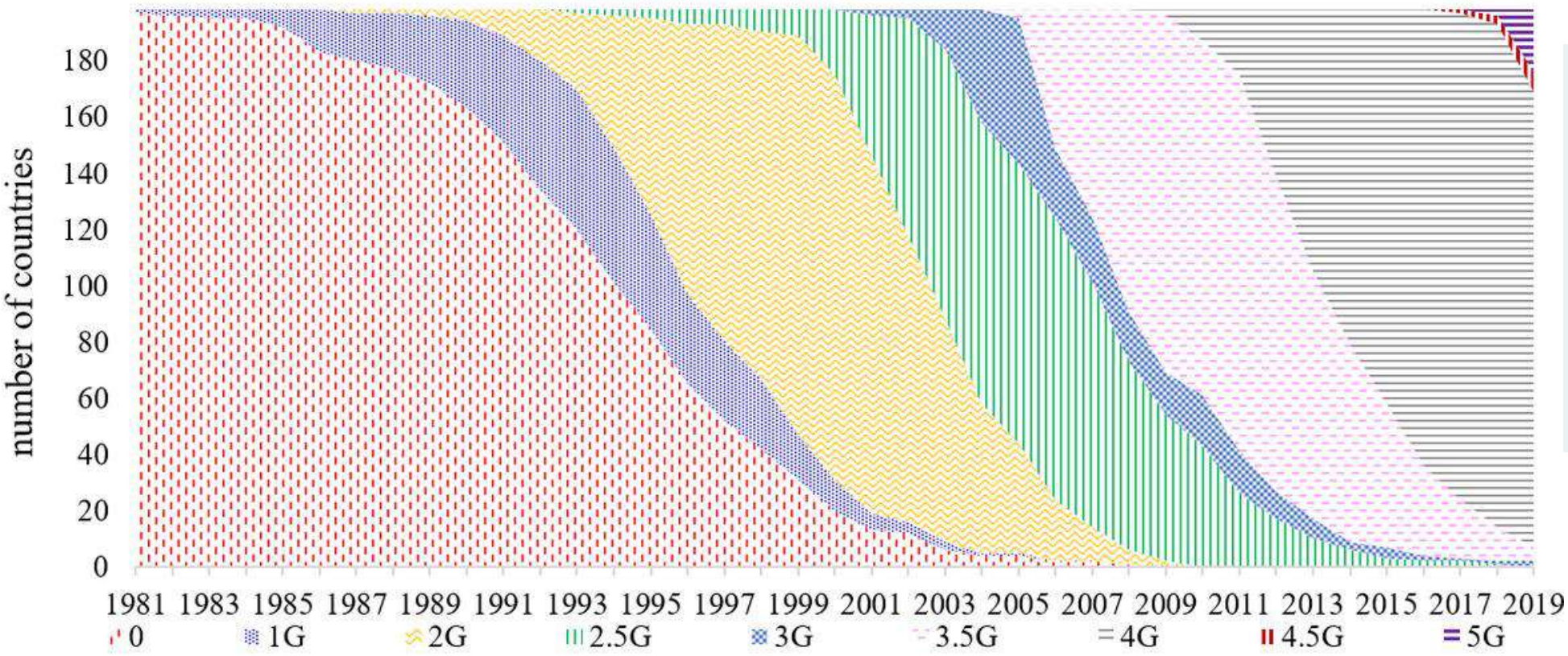
Source: Hoekman and Shepherd, 2020

8. Cross border data transfer policies: open (green); regulated (blue); control (red)



Source: Ferracane and van der Marel (2020).

9. Telecom technology adoption (1): Global evolution



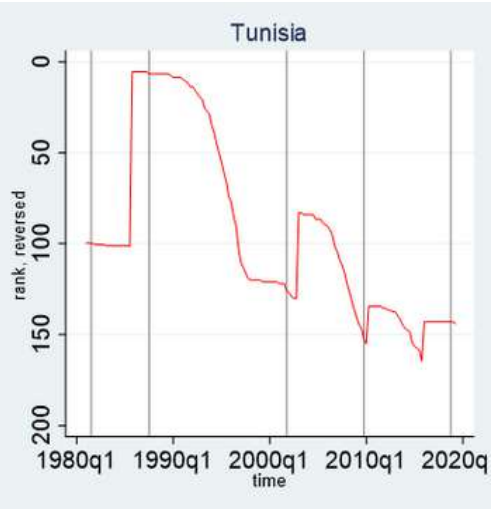
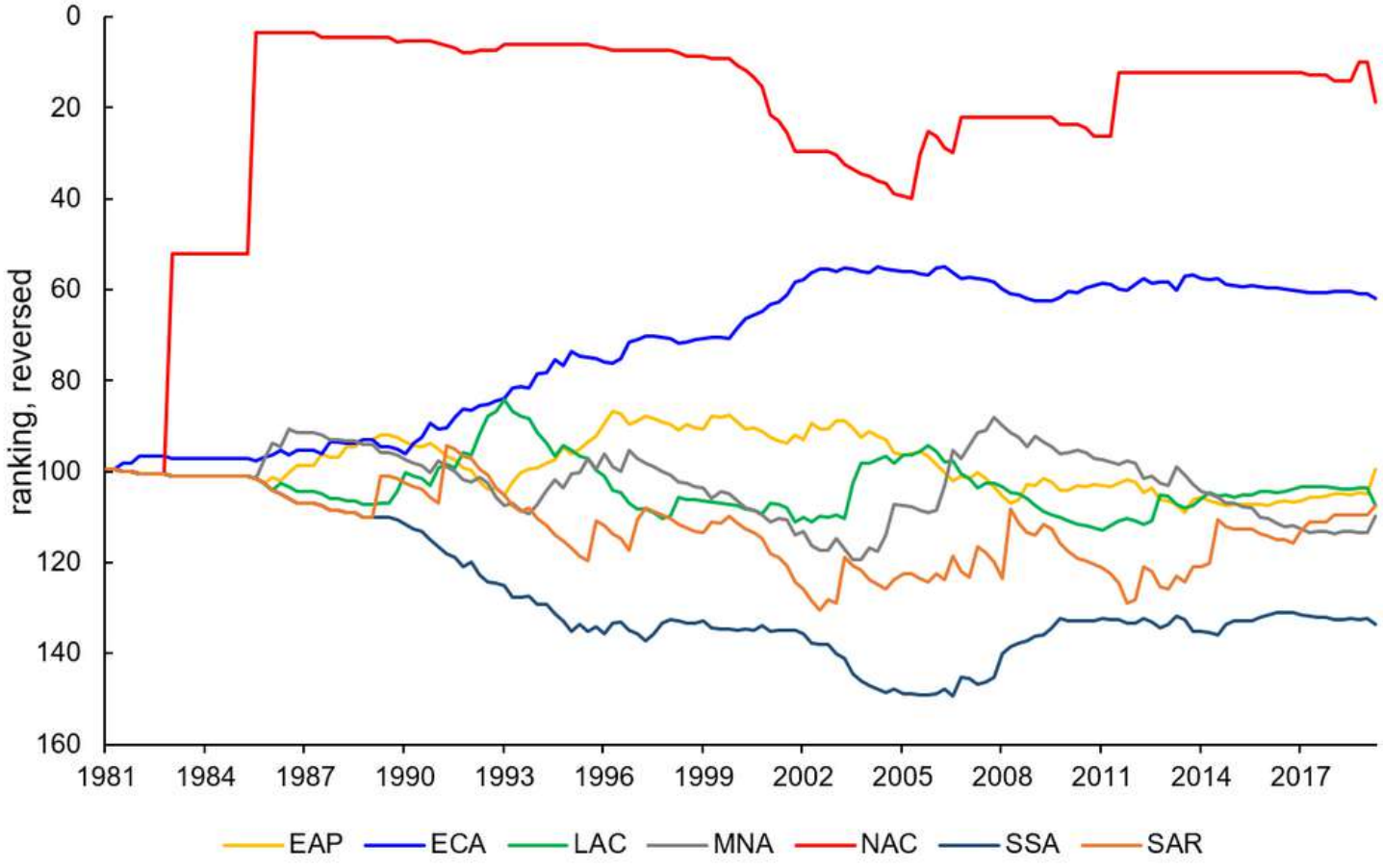


Figure gives count of countries that have adopted each technology standard over the years: 1G (purple) took 14 years to reach 50 ; 10 years for 100 countries to reach 2G (orange area).

Source: Arezki et al. 2021 (here)

- Higher value indicates a higher ranking among all countries in telecom technology adoption.
- Vertical lines is year of introduction of 1G,2G,3G,4G,5G

Telecom technology adoption (2): Regional evolution



- North America (NAC) holds lead
- Europe and Central Asia (ECA) rose to 60th.
- NAC and ECA liberalized early & have independent regulatory schemes
- MENA has fallen since 2008.
- SSA stagnant

→ Foreign competition (proxy for liberalization) increases technology adoption **only when** combined with regulatory independence. More work needed to dig at sources of differences

Source: Arezki et al. 2021 (here)

Thank you!

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