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**Covid-19 and  
*Innovation, Decarbonization,  
Social protection***

**Hans Holz hacker**



# Agenda

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- I. New technologies, Reorganizing global value chains, Asset-light investment
- II. The Covid-19 acceleration
- III. Challenges for the CAREC countries
- IV. Most vulnerable parts of the population in CAREC
- V. Policy implications

# Fast implementation of modern technology

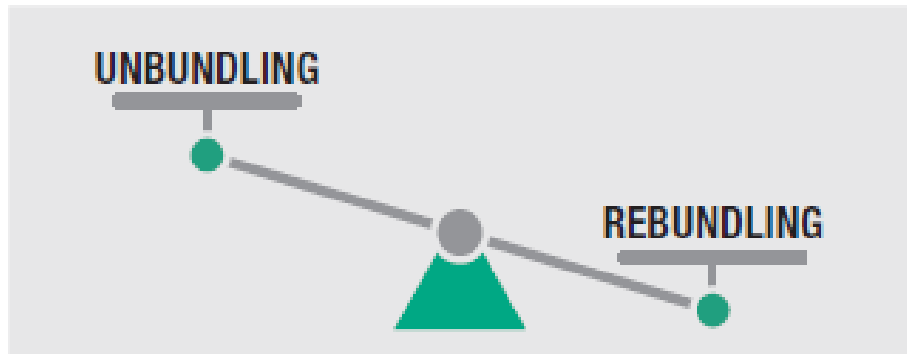
Technology	Growth
<b>Digitalization:</b> <ul style="list-style-type: none"><li>• Internet of things (IoT)</li><li>• Cloud computing</li><li>• Artificial reality and virtual reality</li><li>• Platforms (blockchain, e-commerce, fintech)</li><li>• Big Data analytics</li></ul>	The combined market volume of the IoT (IoT and analytics revenues) more than doubling in five years, from \$240 billion in 2017 to \$520 billion in 2021.
<b>Automation:</b> <ul style="list-style-type: none"><li>• Advanced industrial robotics</li><li>• AI-enabled robotics</li></ul>	Stock of industrial robots tripling in 10 years, from 1.3 million in 2013 to 4.0 million in 2022. Stock of professional service robots nearly quadrupling in four years, from 270,000 units in 2018 to 1 million units in 2022 (mainly logistical and medical robots).
<b>3D printing</b>	The market size of additive manufacturing growing 10 times in 10 years from \$5 billion in 2015 to \$50 billion in 2025, up to over \$350 billion in 2035 (CAGR 2015-2035: > 20%).

Sources: Figures on IoT from Bain & Company (2018); on industrial and service robots from the International Federation of Robotics (2019a; b); on additive manufacturing from The Boston Consulting Group (2017), quoted from UNCTAD's World Investment Report 2020, rearranged by the author

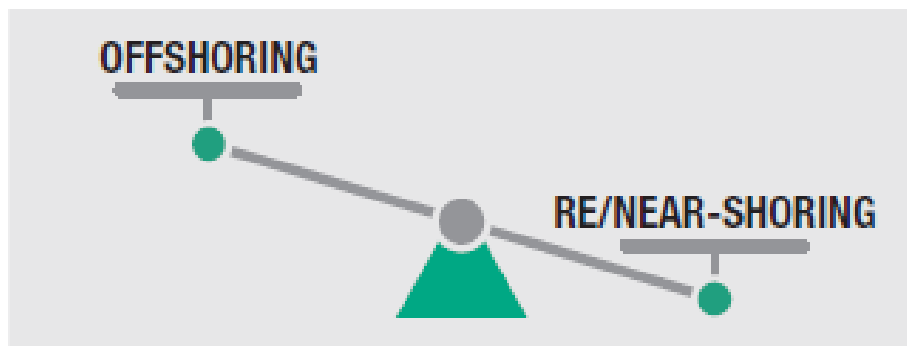
# Miners in the PRC work from home using 5G-enabled machinery to do heavy lifting.



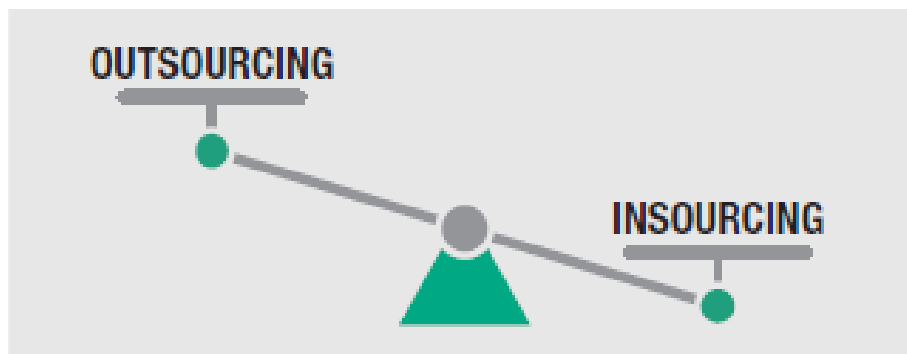
# Digitalization of *production*: rebundling, near-shoring, insourcing



- Advanced industrial robots can perform complex integrated sequential tasks, generally leading to a rebundling of previously separated steps



- Robots reduce the need for MNEs to exploit arbitrage opportunities based on labour costs, leading to reshoring of manufacturing operations from developing to developed and higher-income emerging economies



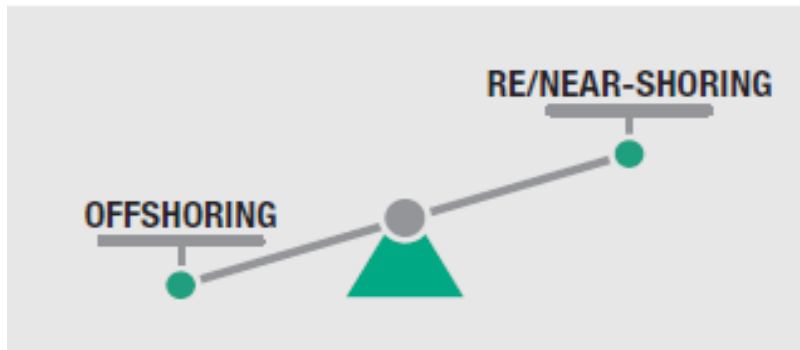
- High capital investment requirements and reshoring are likely to reduce the role of smaller third-party suppliers in favour of more direct governance by MNEs



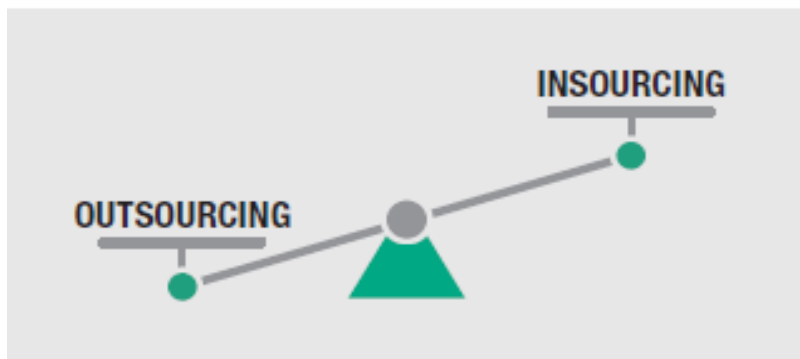
# Digitalization of *services*: unbundling, offshoring, outsourcing



- Digital technologies favour servicification and introduce new mechanisms for coordination and control in fragmented supply chains
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- New digital technologies favour faster, more effective and safer (e.g. through blockchain) remote communication, coordination and control
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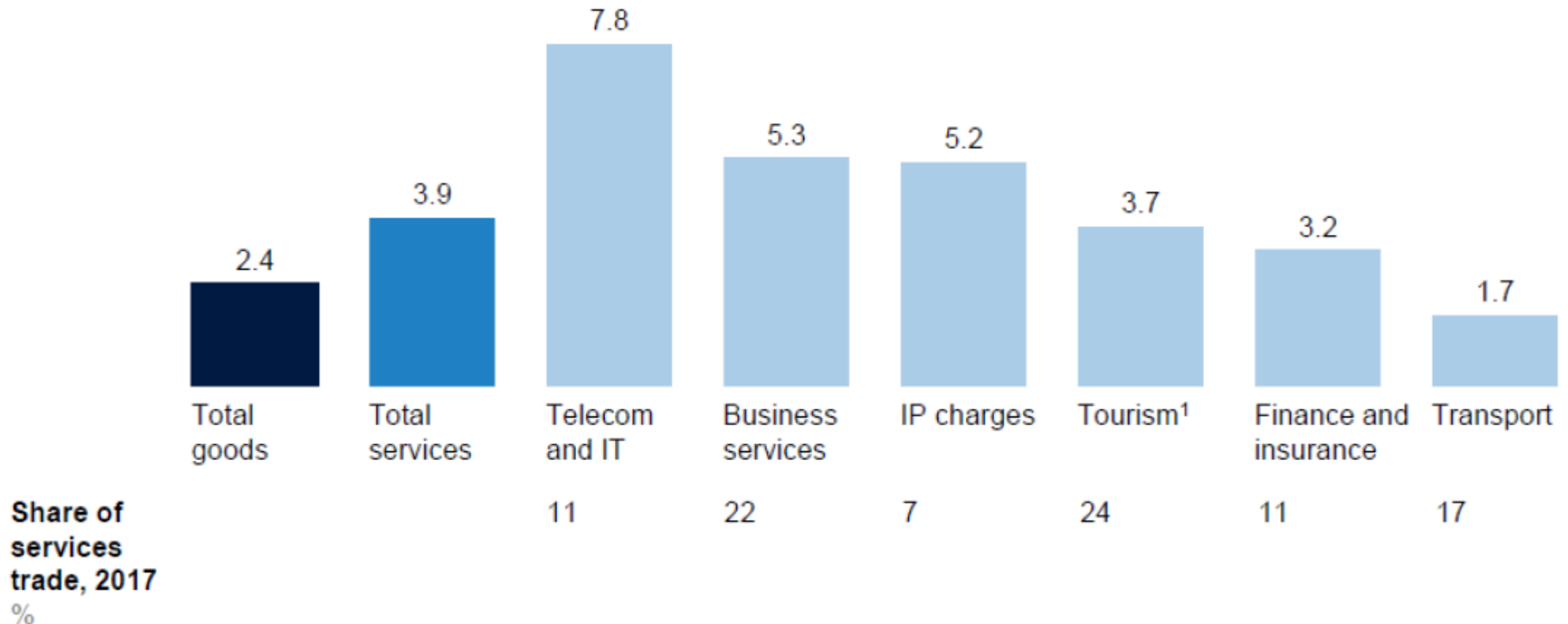
- Services increasingly outsourced to NEMs and third-party providers; role of third parties in production also increases due to servicification
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# Trade in cross-border services is growing much faster than trade in goods.

The services trade is increasing faster than the goods trade, with some types of services growing two to three times faster.

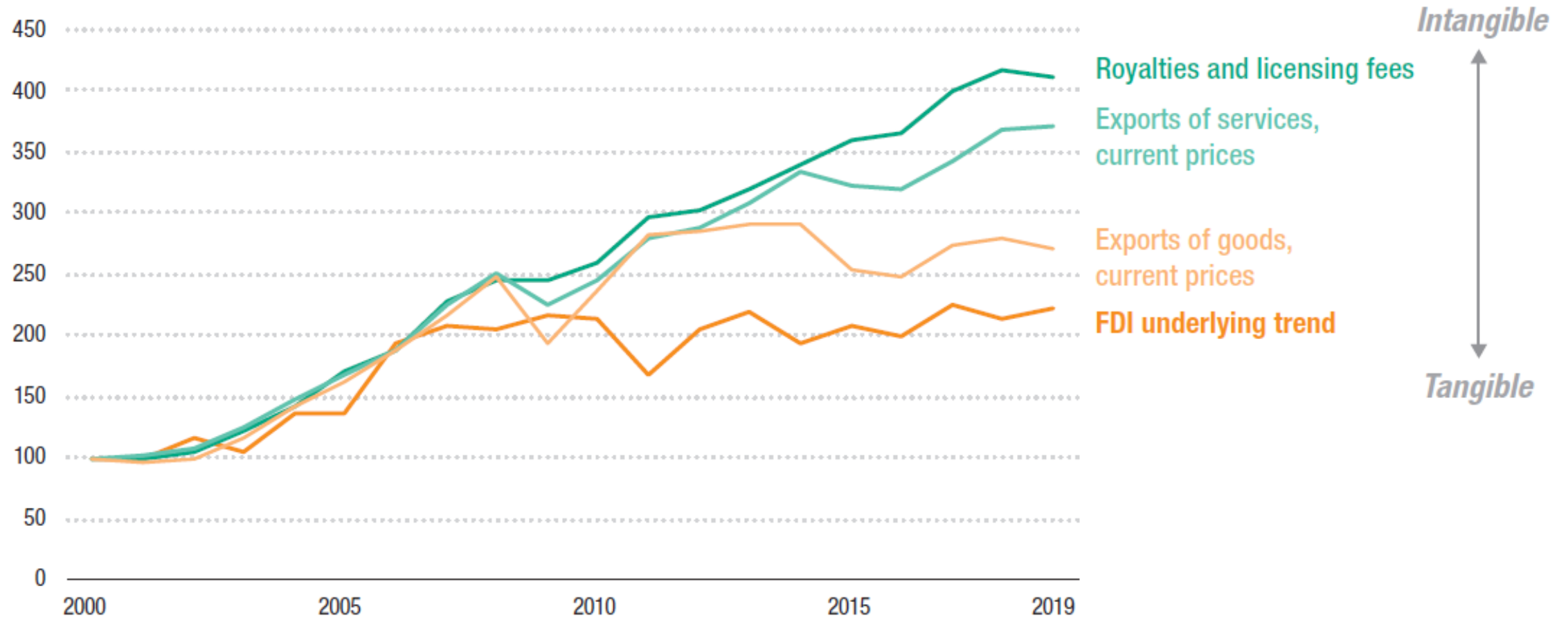
Compound annual growth rate of gross exports, 2007–17  
%

■ Service sectors



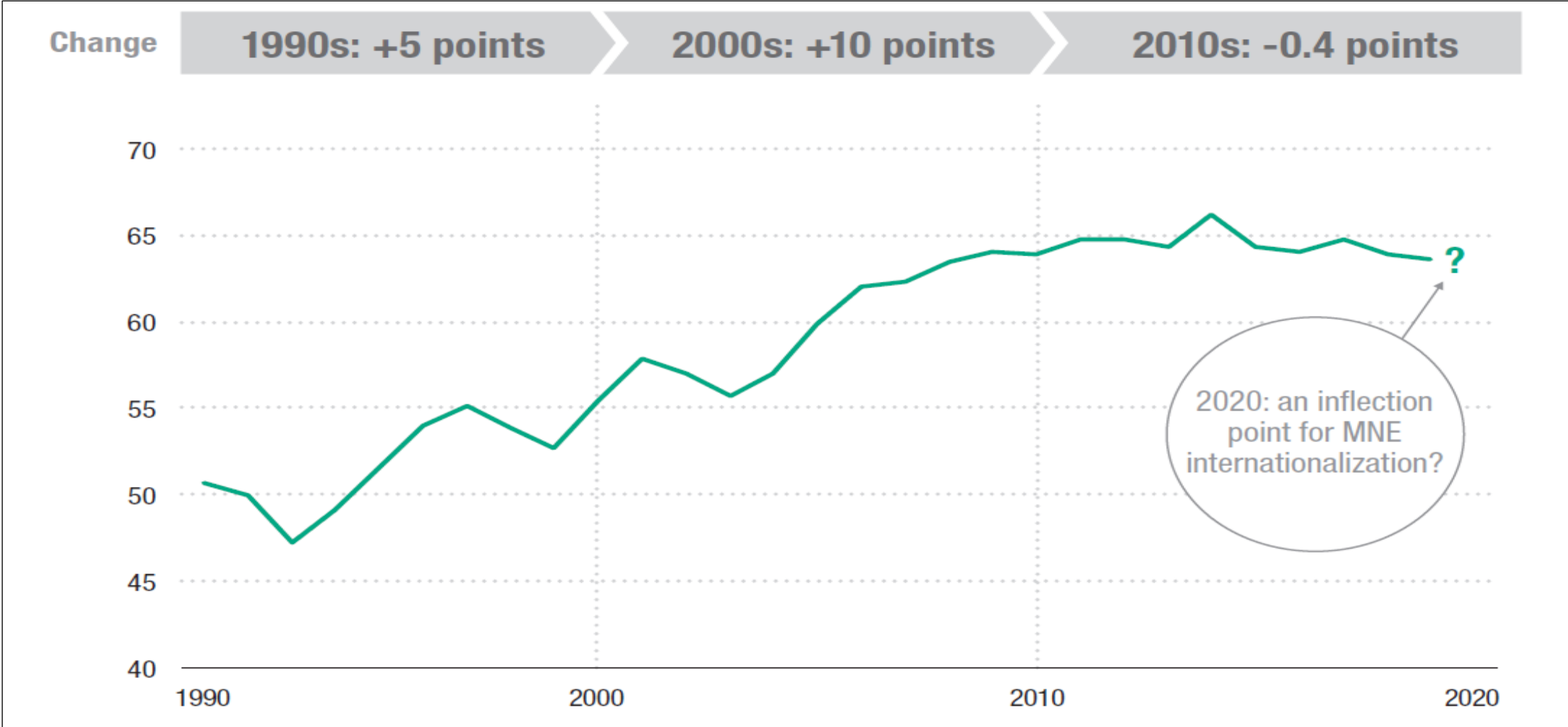
# Tangible is stagnating, intangible is growing.

Index, 2000 = 100





# Internationalization of large international companies has plateaued in the early 2010ies.



Source: UNCTAD, World Investment Report 2020

# More asset-light investment in future?

	2010			2015		
	Share of foreign assets	Share of foreign sales	Ratio, share of foreign sales/share of foreign assets	Share of foreign assets	Share of foreign sales	Ratio, share of foreign sales/share of foreign assets
Tech	51%	71%	1.39	41%	73%	1.78
Automotive and aircraft	53%	68%	1.28	53%	71%	1.34
Other manufacturing	67%	75%	1.12	62%	71%	1.15
Chemicals and pharmaceuticals	59%	69%	1.17	64%	68%	1.06
Total	62%	64%	1.03	62%	64%	1.03
Food, beverages and tobacco	81%	82%	1.01	90%	87%	0.97
Primary	68%	68%	1.00	76%	68%	0.89
Telecom	76%	65%	0.86	66%	57%	0.86
Utilities	61%	55%	0.90	55%	47%	0.85
Petroleum refining and related industries	69%	63%	0.91	73%	60%	0.82
Others	47%	43%	0.91	64%	38%	0.59

Figures are based on the 100 largest multinational enterprises (MNE) on UNCTAD's list.

The share of foreign assets was 58% in 2017-2019, and the share of foreign sales 60%, according to the WIR 2020. **Decrease in relative internationalization**

The ratio of the share of foreign sales to the share of foreign assets has remained unchanged at 1.03. **Unchanged asset-weight**

# Non-equity modes of international governance

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- Contract manufacturing, Services outsourcing
- Contract farming
- Licensing
- Franchising
- Management contracts
- Concessions (including PPP), Strategic alliances

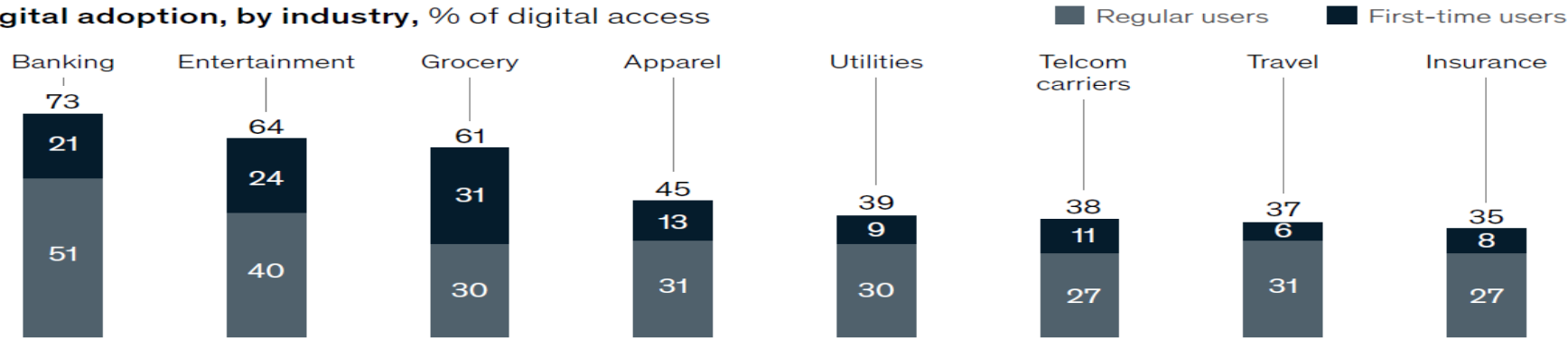
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# Covid-19 is sharply accelerating digitalization.

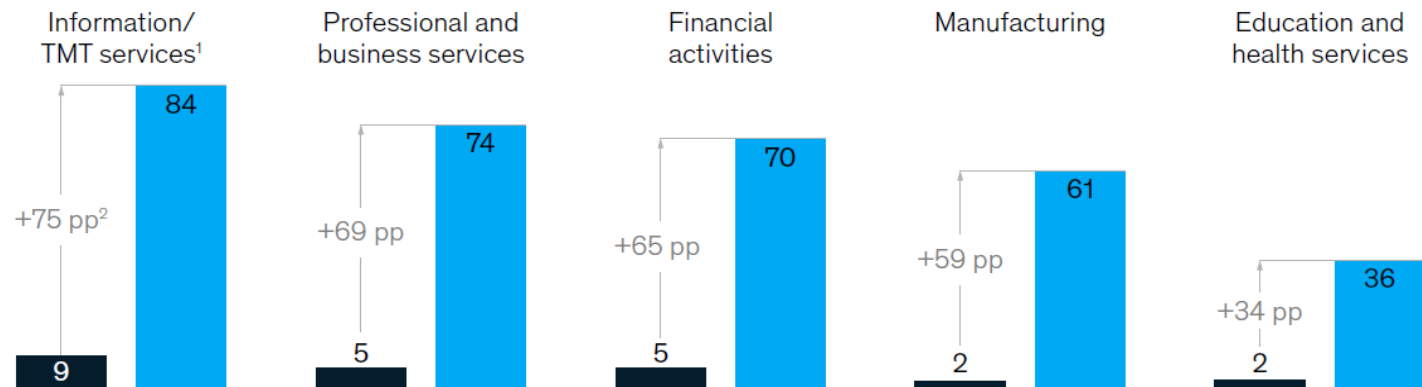
Digital adoption, by industry, % of digital access



75% of people that use digital channels for the first time indicate that they will continue to do so when things return to “normal”.

Note: Figures may not sum to listed totals, because of rounding.  
Source: McKinsey COVID-19 US Digital Sentiment Survey, Apr 25–28, 2020

Share of employees working remotely full time, %



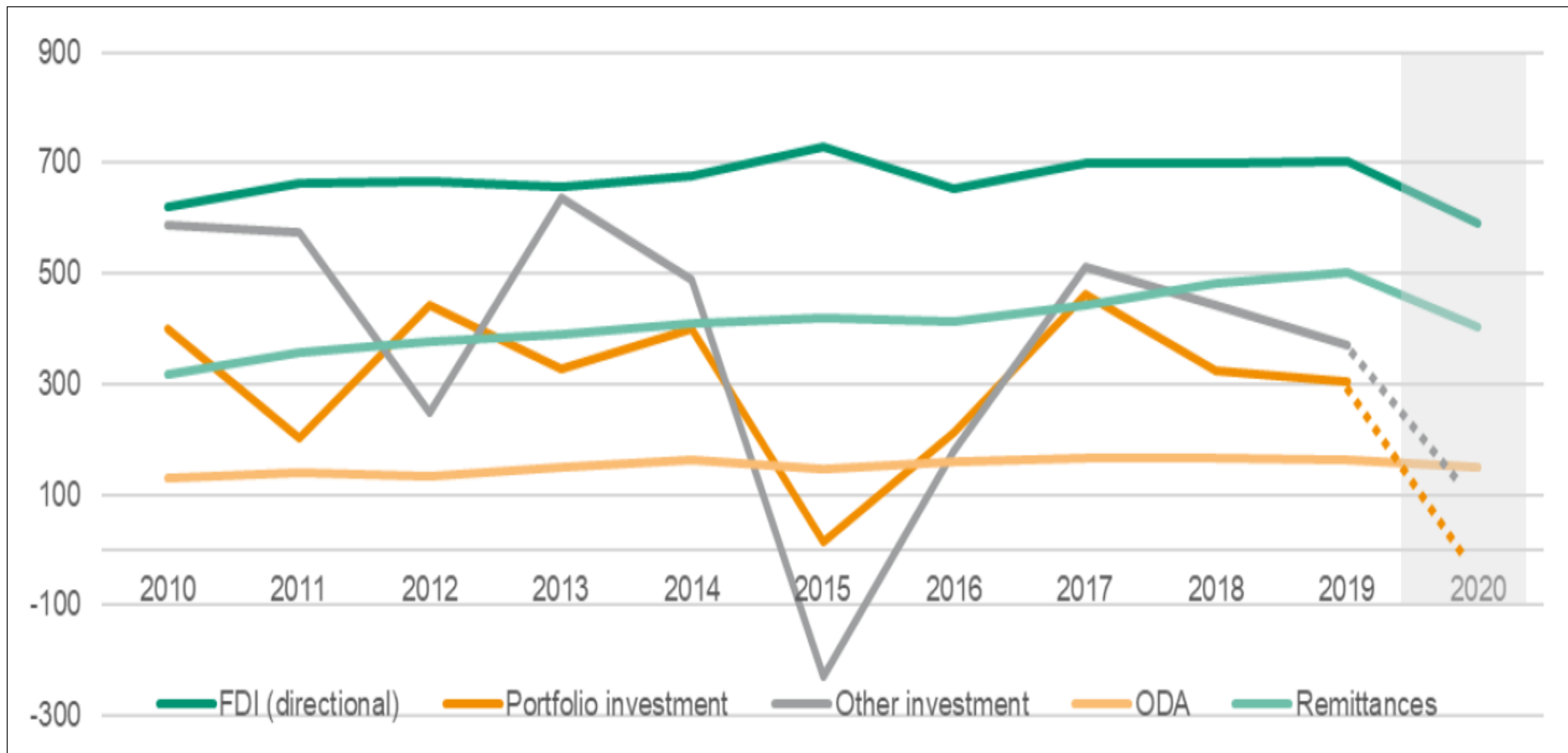
84% of the work force worked remotely in the early stages of the pandemic, 75 percentage points more than before COVID-19.

<sup>1</sup>TMT = technology, media, and telecom. Pre-COVID-19 figures for remote-work frequency in sector sourced from internal survey (unavailable in American Time Use Survey).

<sup>2</sup>Percentage points.

Source: American Time Use Survey, US Bureau of Labor Statistics, n =134; expert interviews; press search; McKinsey analysis

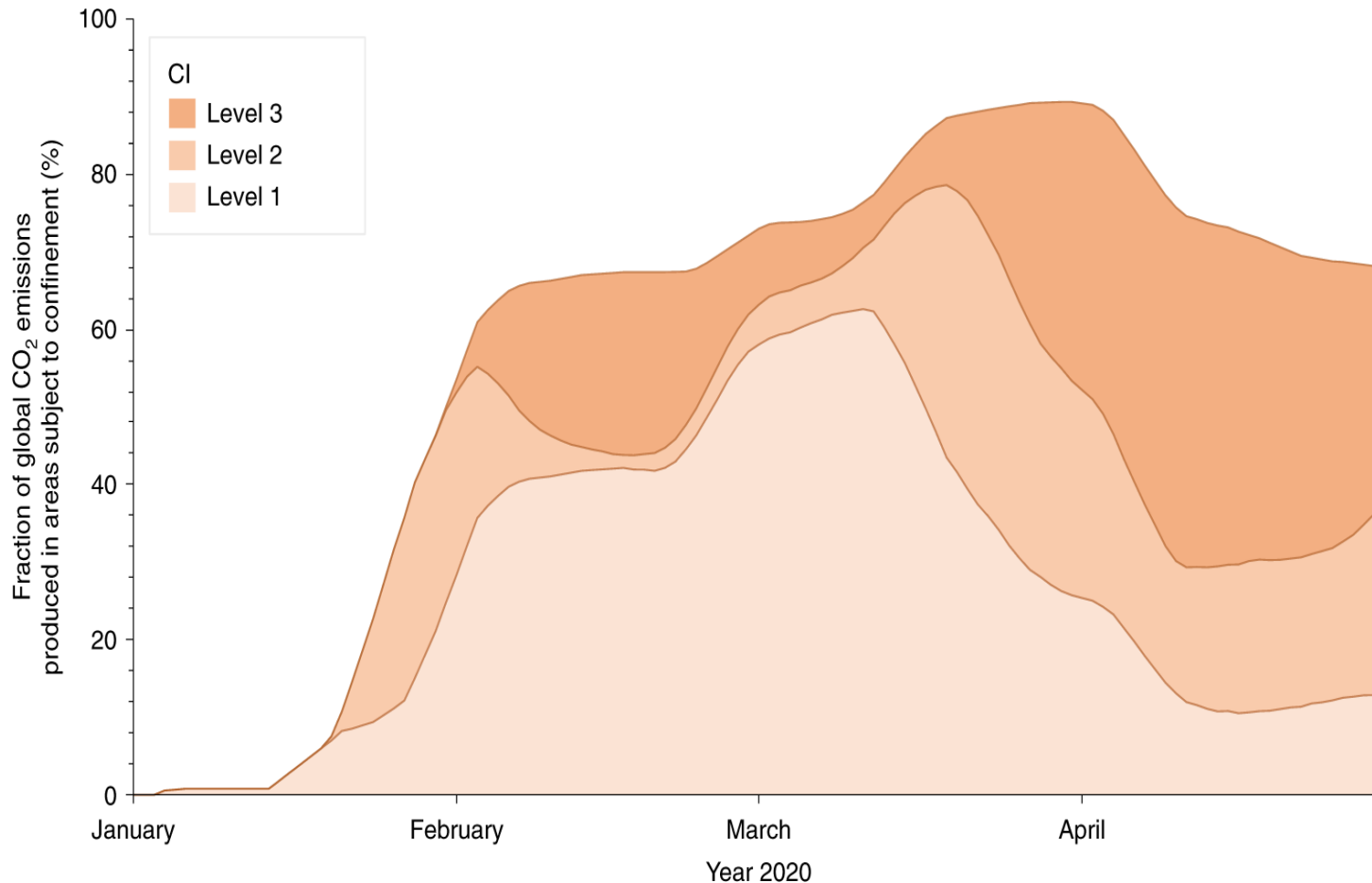
# Covid-19 is further muting Foreign Direct Investment.





# Covid-19 reminded us how much CO2 we produce.

Fraction of global CO2 emissions produced in areas subject to confinement



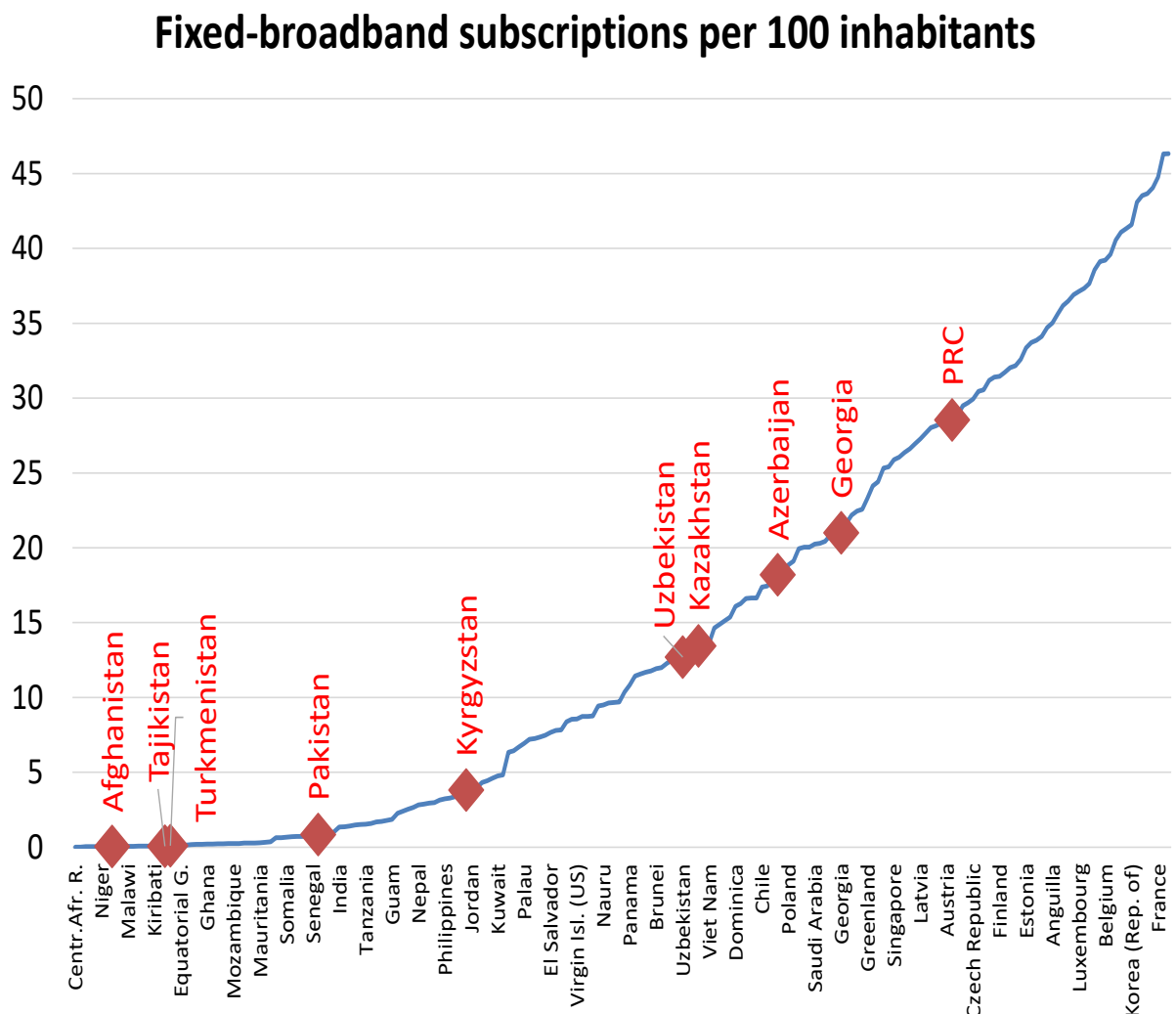
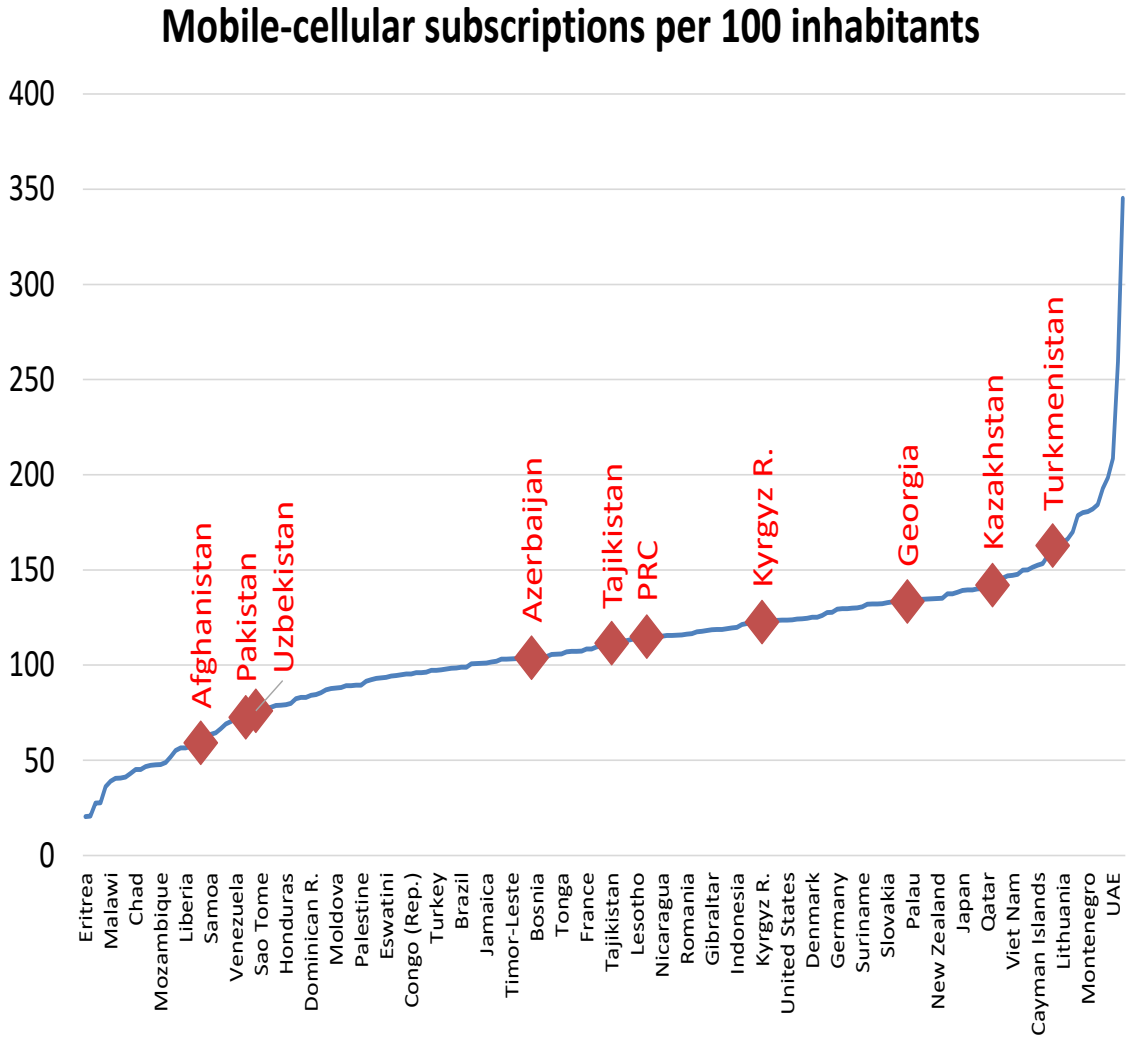
Level	Description	Policy examples
0	No restrictions	
1	Policies targeted at long distance travel or groups of individuals where outbreak first nucleates	Isolation of sick or symptomatic individuals
		Self-quarantine of travellers arriving from affected countries
		Screening passengers at transport hubs
		Ban of mass gatherings >5,000
2	Regional policies that restrict an entire city, region or ~50% of society from normal daily routines	Closure of selected national borders and restricted international travel
		Citizen repatriation
		Closure of all national borders
		Mandatory closure of schools, universities, public buildings, religious or cultural buildings, restaurants, bars and other non-essential businesses within a city or region
		Ban of public gatherings >100
3	National policies that substantially restrict the daily routine of all but key workers	Perhaps also accompanied by recommended closures at a broader or national level
		Mandatory night curfew
		Mandatory national 'lockdown' that requires household confinement of all but key workers
		Ban public gatherings and enforce social distancing >2 m

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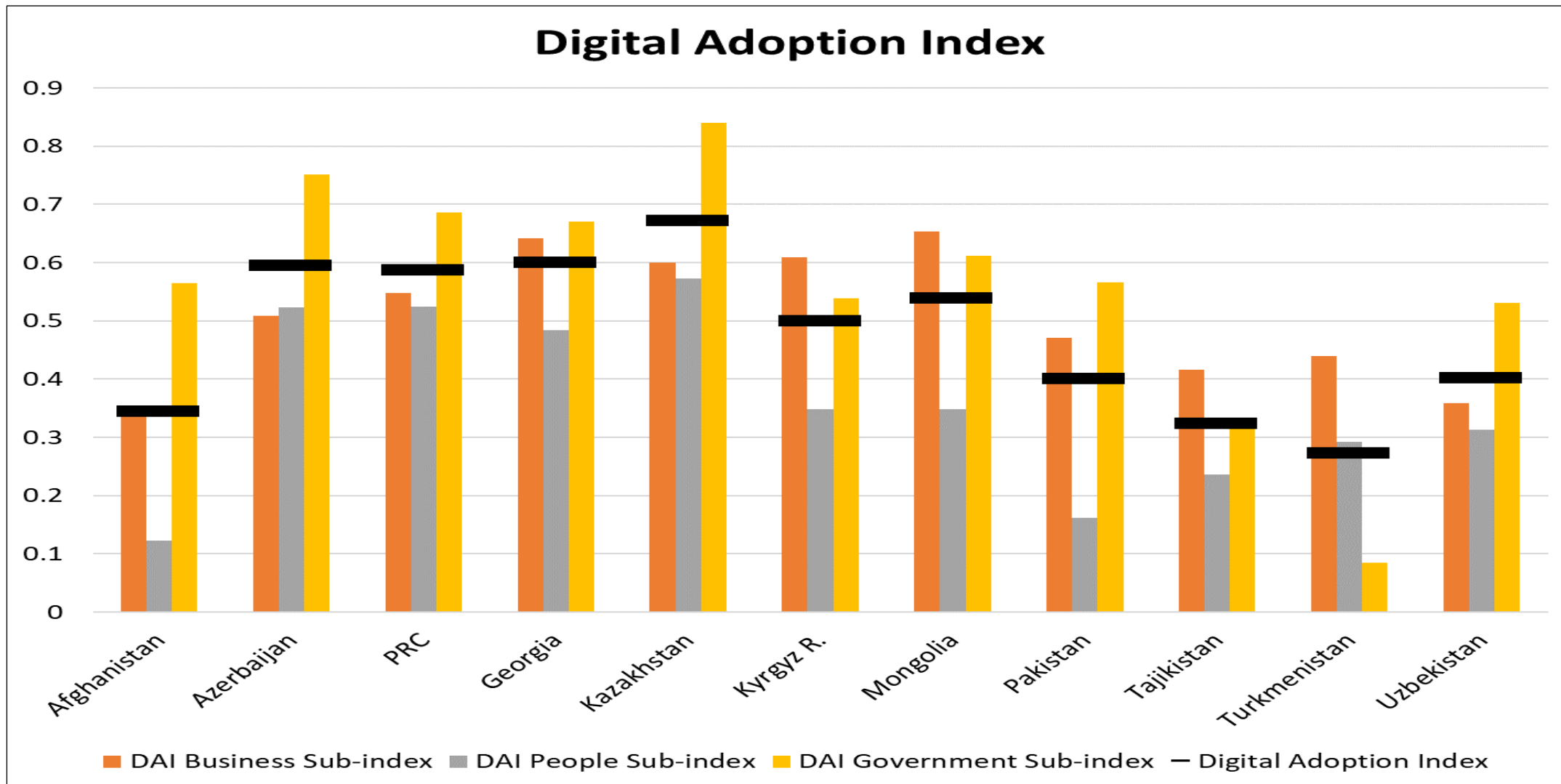
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# Digitalization in the CAREC countries: some must catch up quite a lot



Source: <https://www.itu.int>, 2018 data

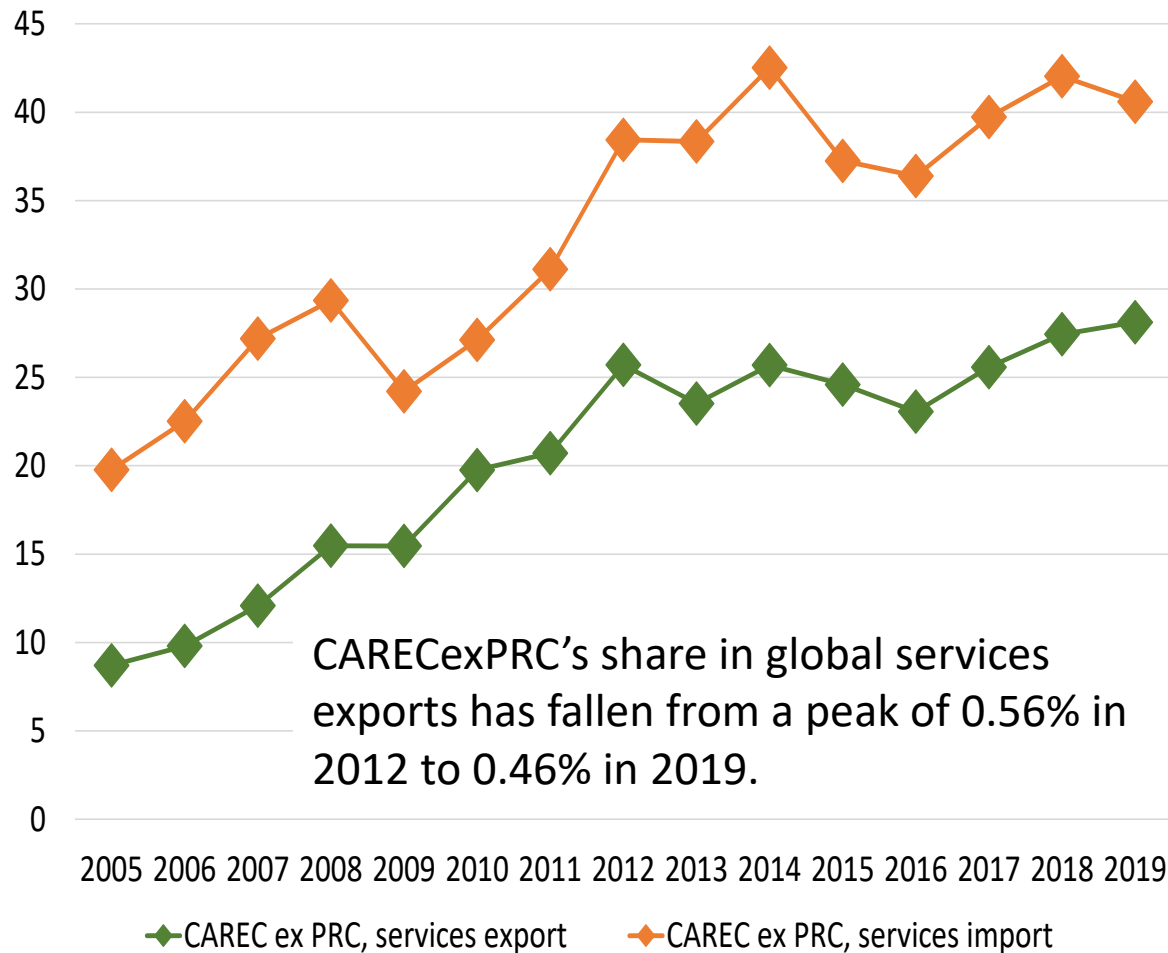
Generally, CAREC governments are better digitally prepared than the private sector.



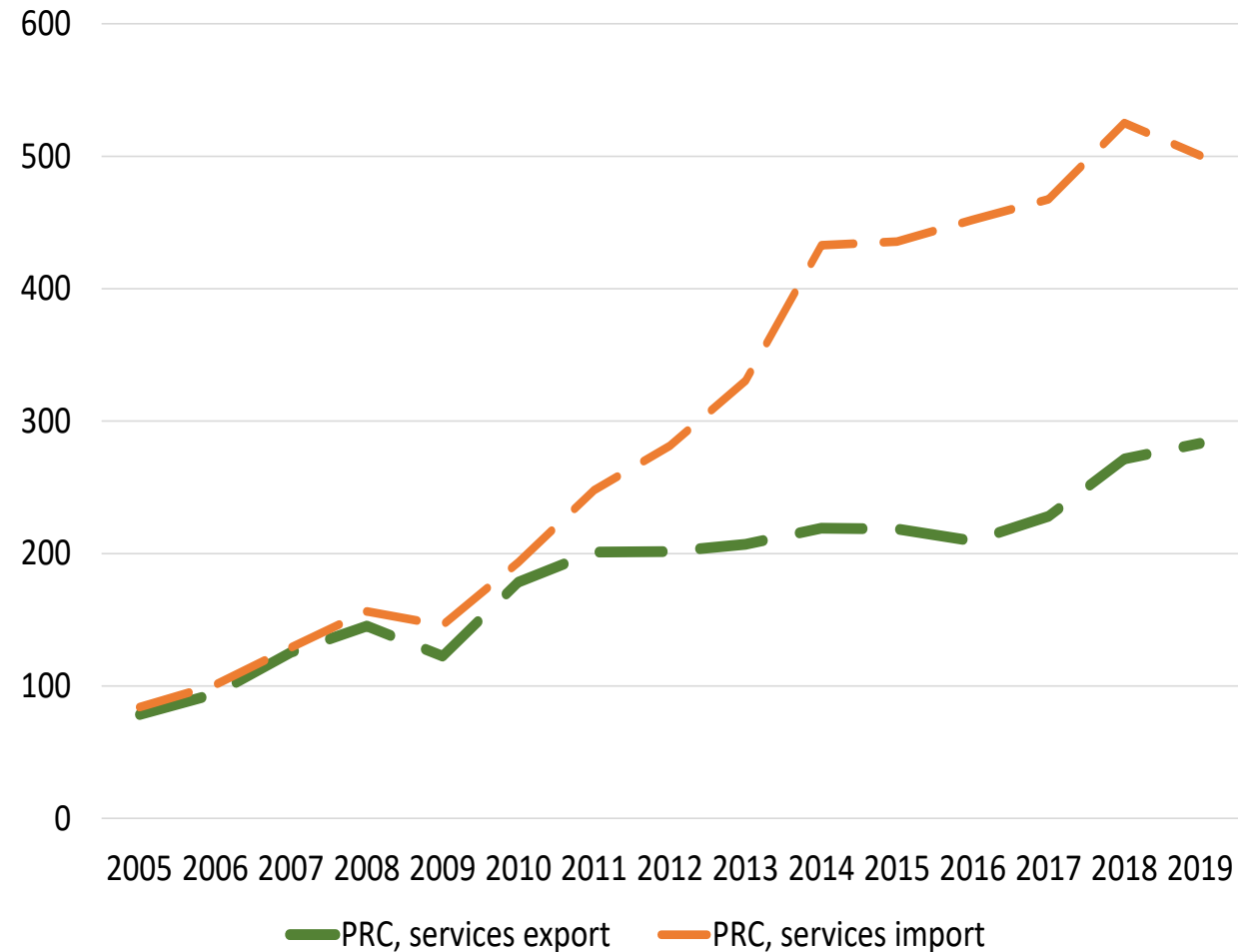
Source: <https://www.itu.int>, 2018 data

# CAREC ex PRC trade in services is stagnating since 2012. PRCs' rising imports might offer opportunities.

Trade in services, USD billion

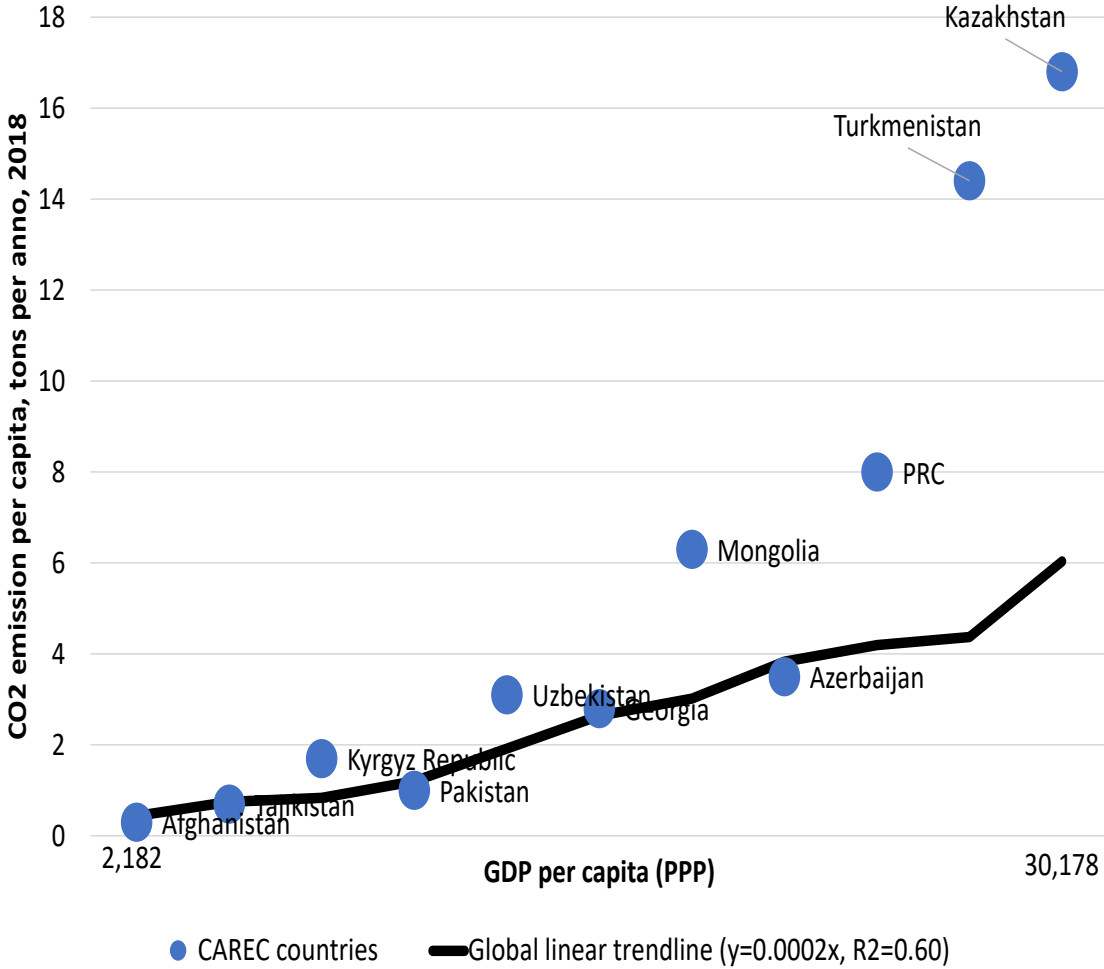
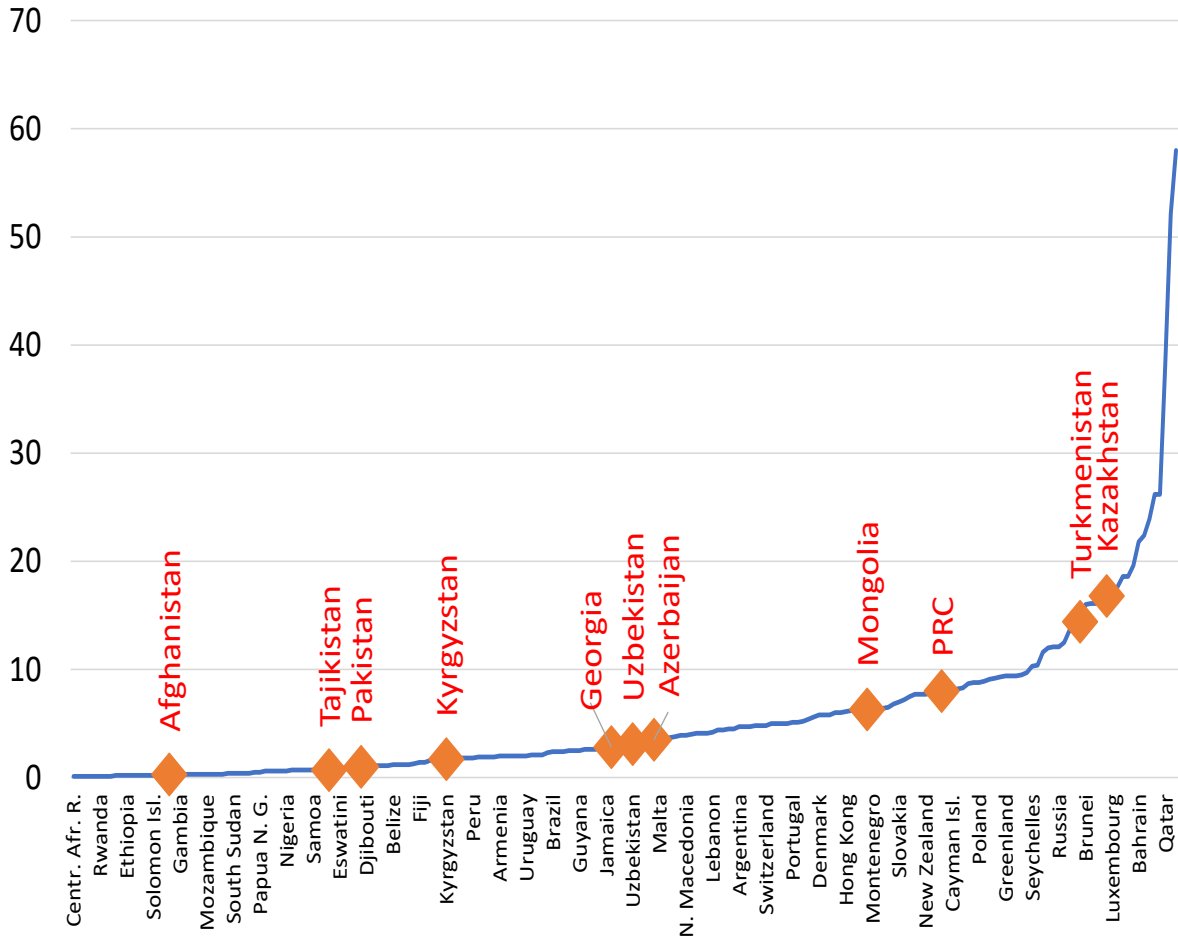


Trade in services, USD billion



# CO2 emissions in the CAREC countries: some must reduce them quite a lot.

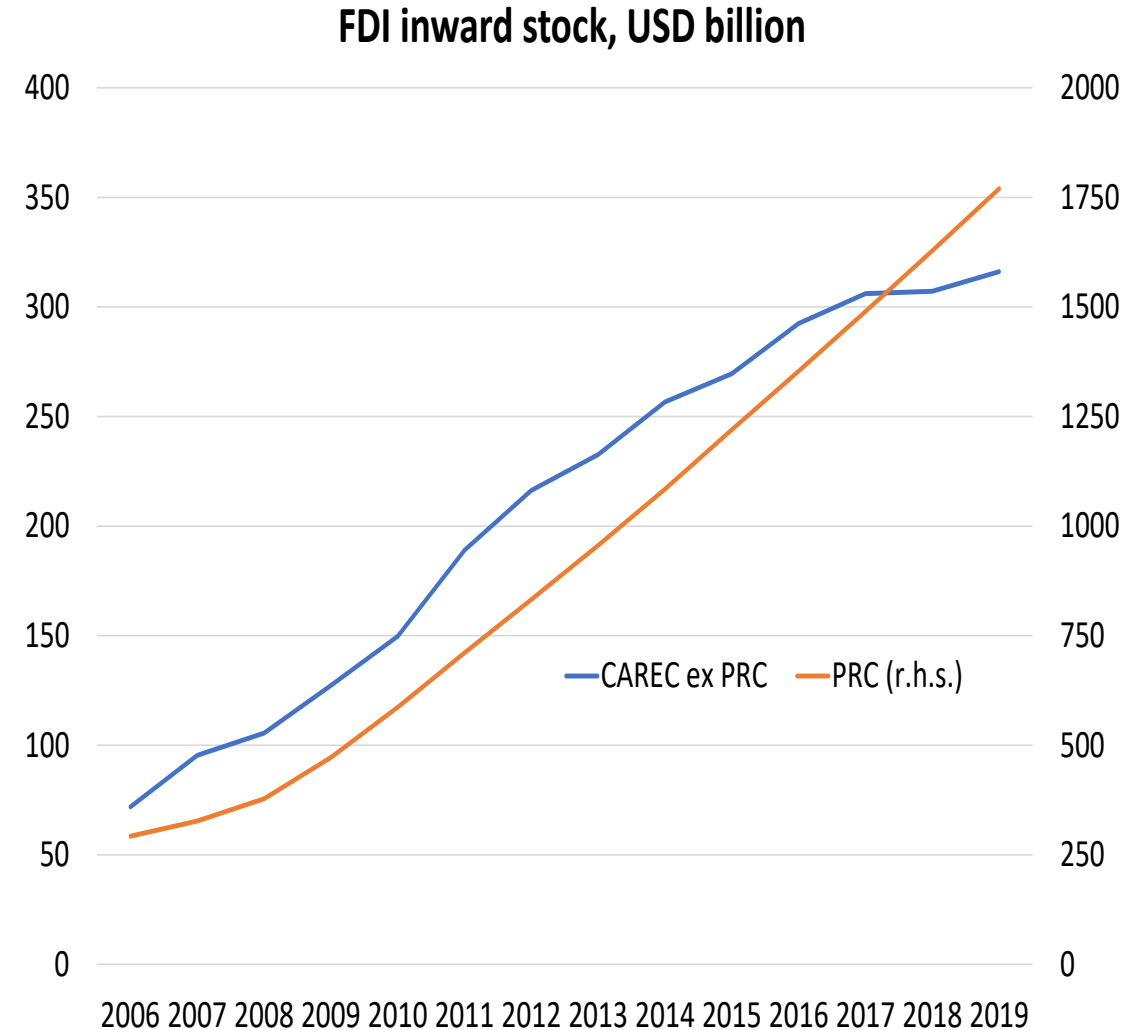
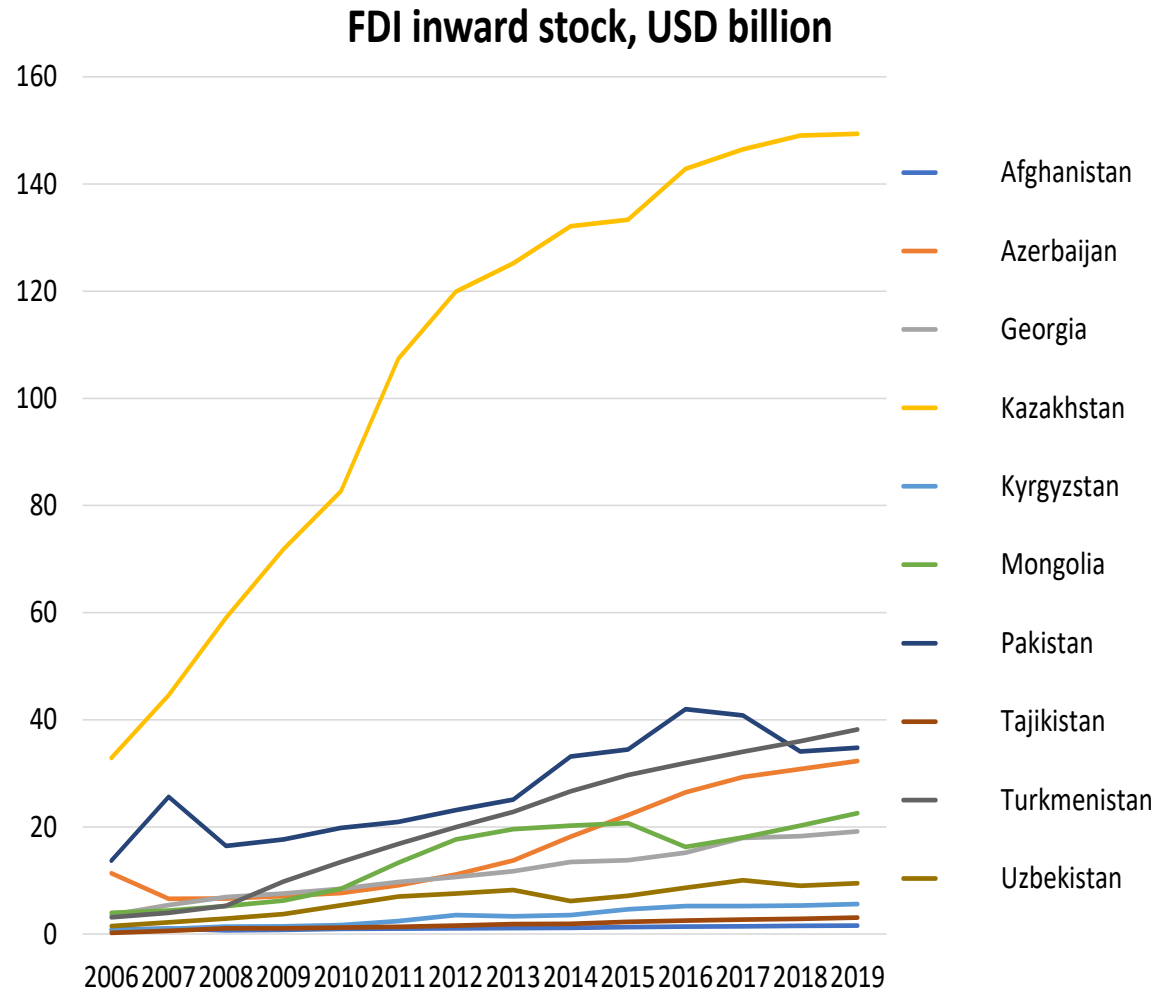
CO2 emission per capita, tons per anno



Source: Emissions Database for Global Atmospheric Research (EDGAR), author's calculation



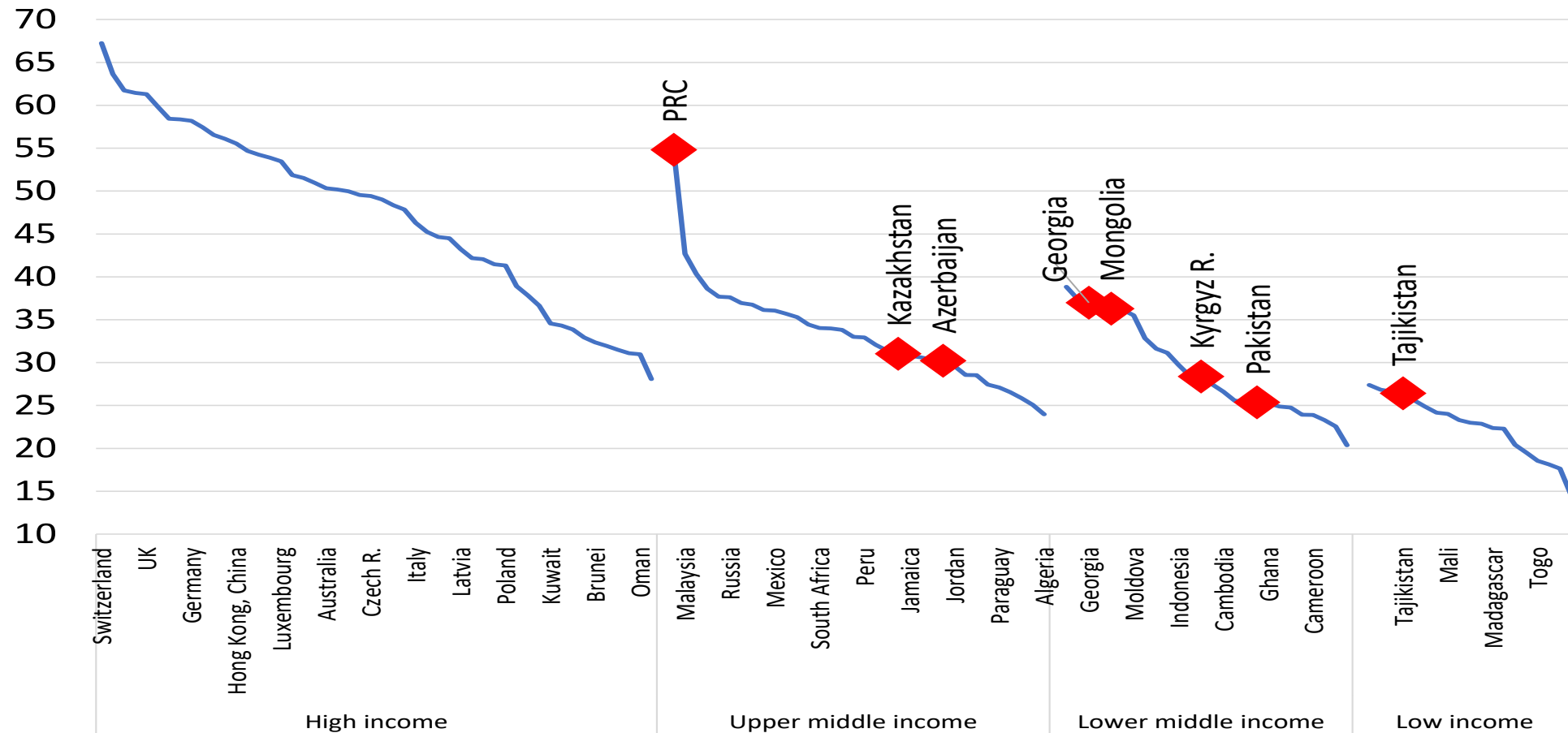
# Is FDI in CAREC flattening off? Will there be enough foreign investment outside mining? Role of NEMs?



Source: UNCTAD, author's calculations

# CAREC countries need to make decisive efforts not to allow a dramatic widening of the knowledge divide.

## Global Innovation Index 2019



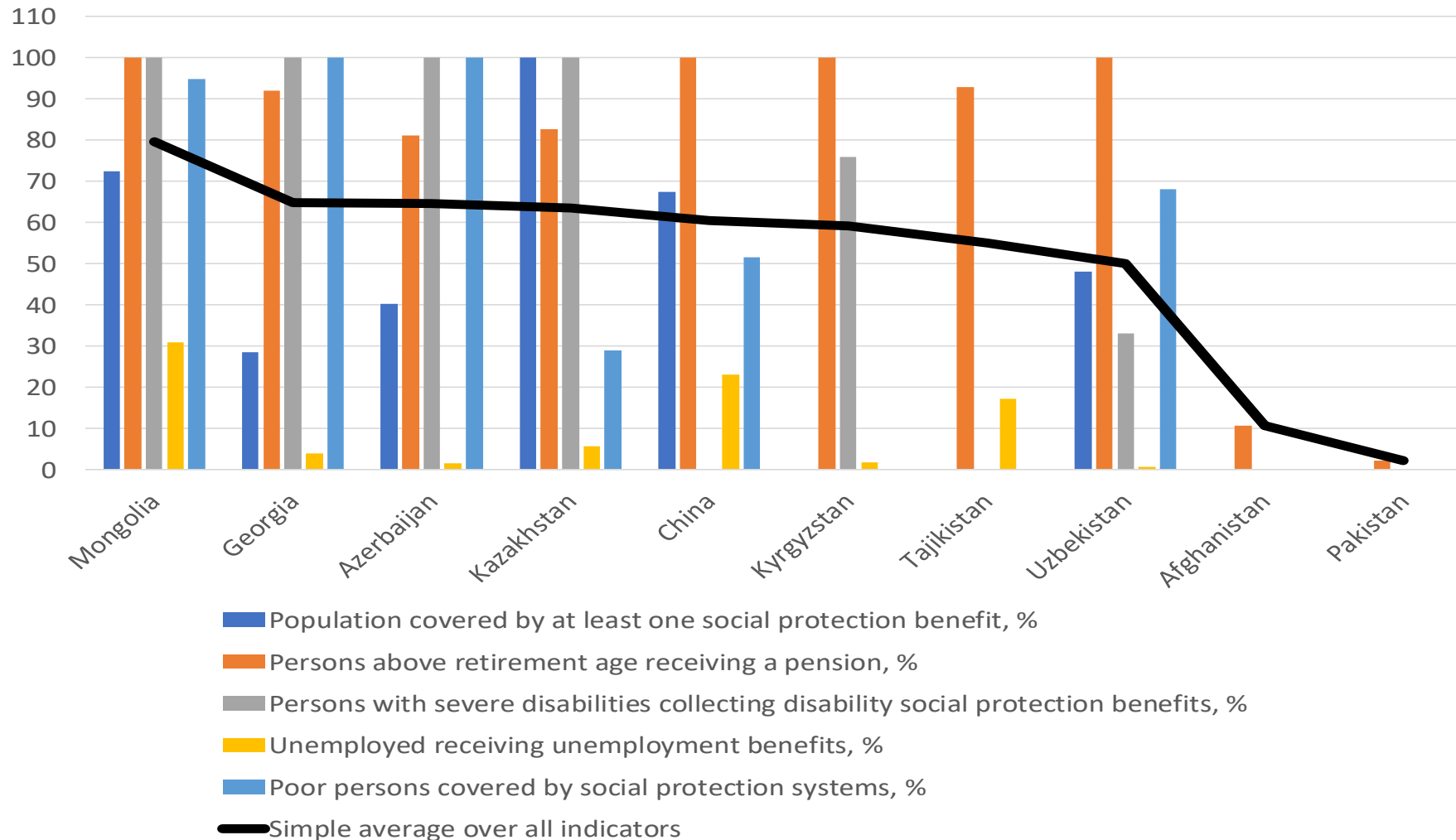
Source: [https://www.wipo.int/edocs/pubdocs/en/wipo\\_pub\\_gii\\_2019.pdf](https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019.pdf)

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# Population covered by social protection, %, latest available



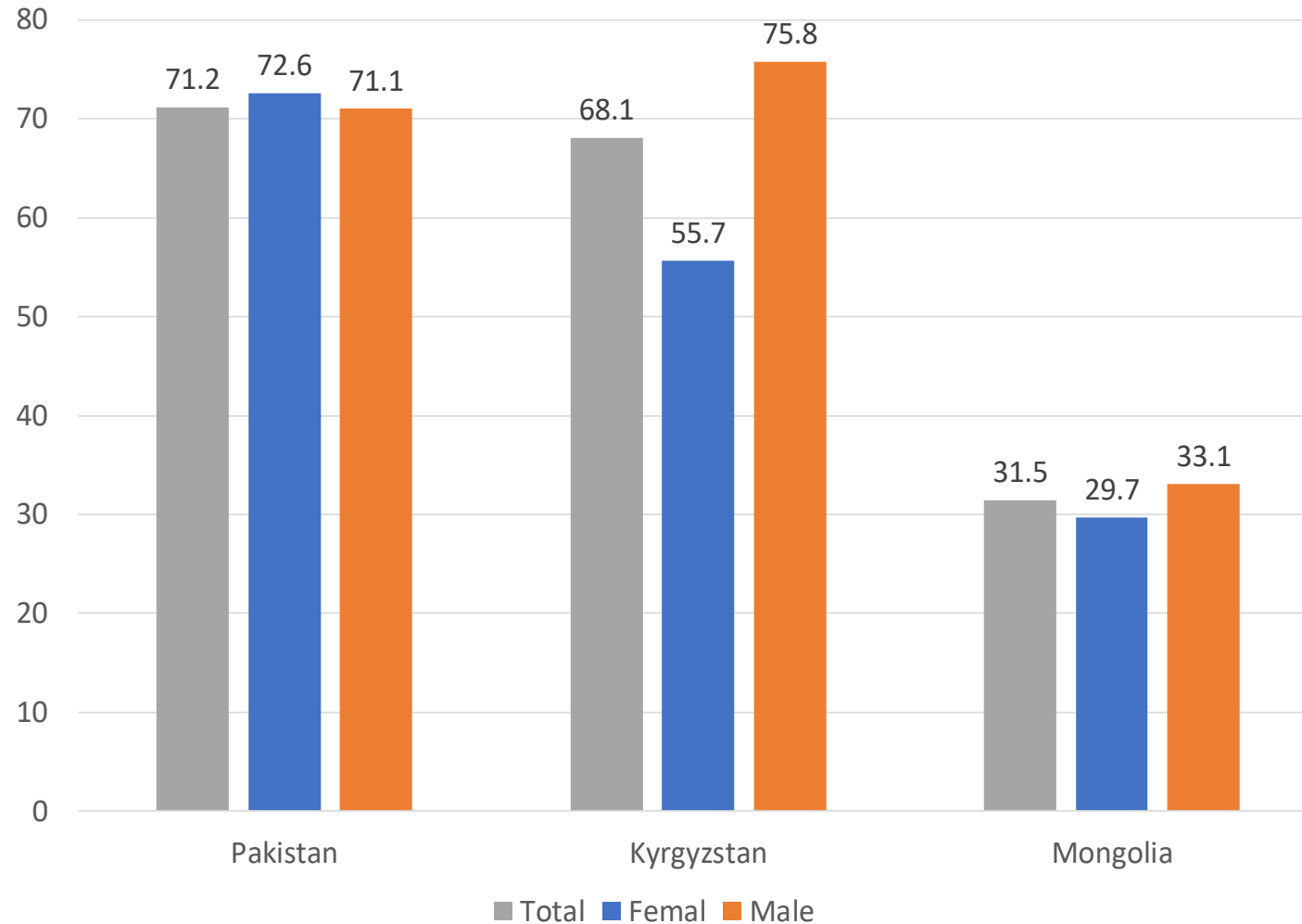
Data availability for vulnerable parts of the population is low in the CAREC region, which by itself is an indication of poor protection.

Unemployment benefits look especially problematic.

There is no data for Turkmenistan

Source: ILOSTAT

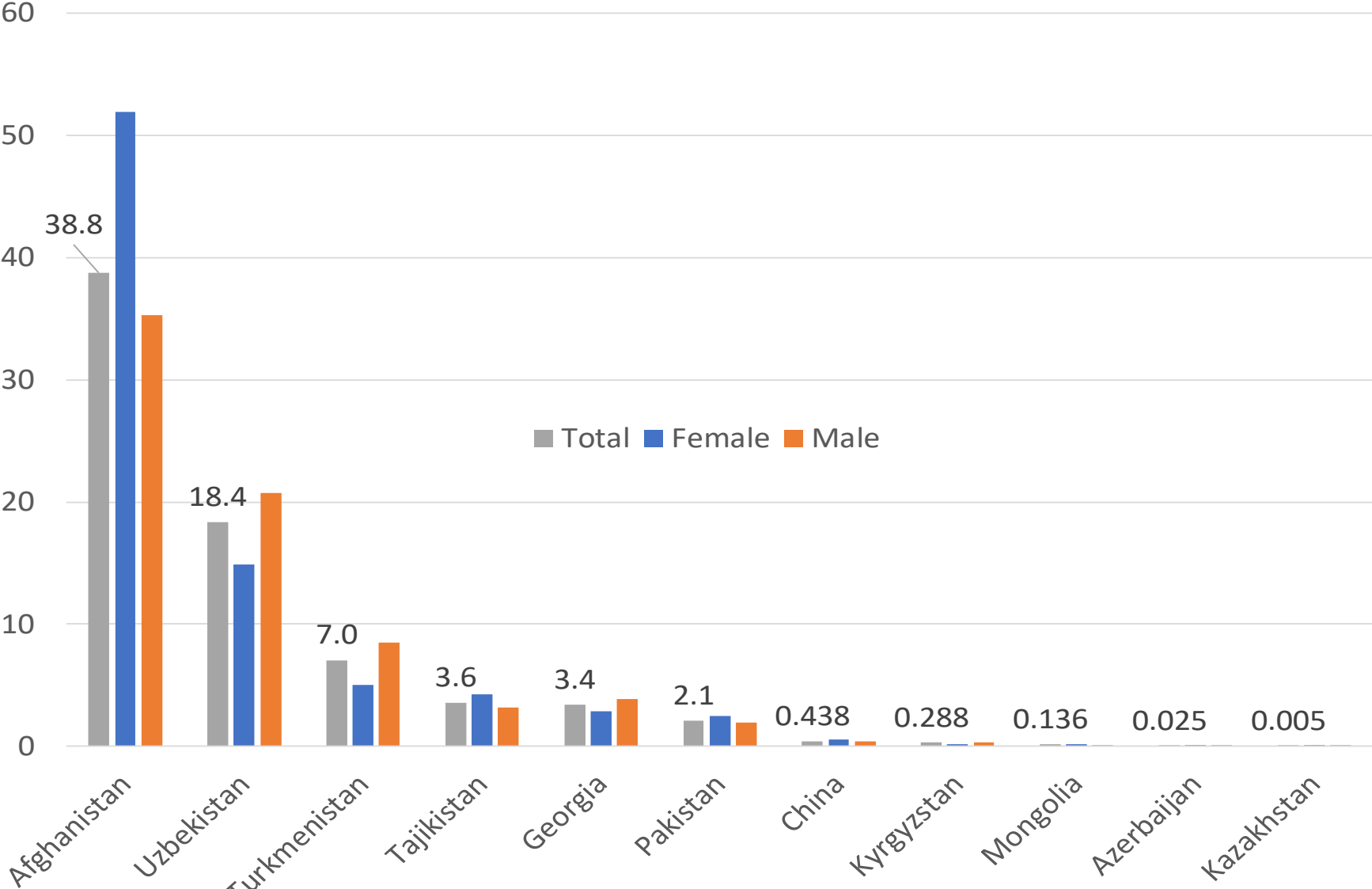
# Informal employment in non-agricultural sector, %, 2018



There are data only for 3 CAREC countries in the ILOSTAT data base.

However, it can be assumed that informality is rather high in most CAREC countries.

# Employed living below US\$1.90 PPP, %, latest available



A high poverty ratio usually coincides with low social protection.

Source: ILOSTAT



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# Policies and actions for meeting the evolving new challenges and opportunities accelerated by Covid-19

- **CAREC countries need speeding up digitalization.**
- **CAREC countries need diversifying into new segments of international value chains.**
- **CAREC countries need speeding up own greening and coping with international decarbonization.**

Needed actions, include:

- Further reform higher and vocational education, especially tech education
- Make national innovation systems (NISs) more efficient
- Upgrade digital infrastructure, e-government, fintech
- Increase the support for incubators and technoparks; help attract more venture capital
- Cooperate regionally to facilitate trade in services, including tourism
- Cooperate regionally to optimize revenues from transcontinental transit traffic
- Cooperate regionally to attract FDI
- Develop legislation and policies for non-equity modes (NEMs) of international governance
- Update tax legislation/policies to better capture digital value added flows
- A whole set of greening policies is needed
- Upgrade policies to cope with the social consequences from Covid-19 and technological change

**Looking forward to a fruitful discussion!**



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