Richard Baldwin, Rikard Forslid, *voxeu*, July 16, 2020

Covid 19, globotics, and development

voxeu.org/article/covid-19-globotics-and-development

Due to Covid-19, the present is catching up to the future faster than usual – at least when it comes to digital transformations. In reaction to the Great Lockdown, companies, governments, and workers around the world have radically accelerated the adoption of digital technology, making remote workers less remote (Kilic and Marin 2020). We tend to focus on the impact for developed nations (Philips 2020, OECD 2020, Brynjolfsson et al. 2020), but this may also be transformative for economic development.

In a speculative discussion paper (Baldwin and Forslid 2020), we argued that globalisation and robotics ('globotics') is likely to disable the traditional manufacturing-led 'journey' of economic development, such as the one China is taking. Instead, it will enable the service-led development journey of the type India is taking.

The Great Lockdown transformed digital transformations

In wealthy economies, the Great Lockdown has changed where we do office work, and how we do it. Employees have had to learn to work remotely, their managers have had to learn how to manage remotely. Everyone has had to invest in the hardware, software, and training that make it possible to create and deliver value from remote location to customers who have had to learn how to buy and use services that are delivered by dispersed teams.

To date, 'remote' has overwhelmingly meant using the same workers, who are located within commuting distance, but technology does not distinguish between 'remote' within the same city and 'remote' across national boundaries. Certainly, other 'distances' matter when it comes to trade in services – things like cultural closeness or local knowledge have value. But vast wage gaps will also matter.

The digital transformation forced by Covid has radically lowered the barriers trade in services – specifically to people sitting in one nation yet working in offices in another nation.

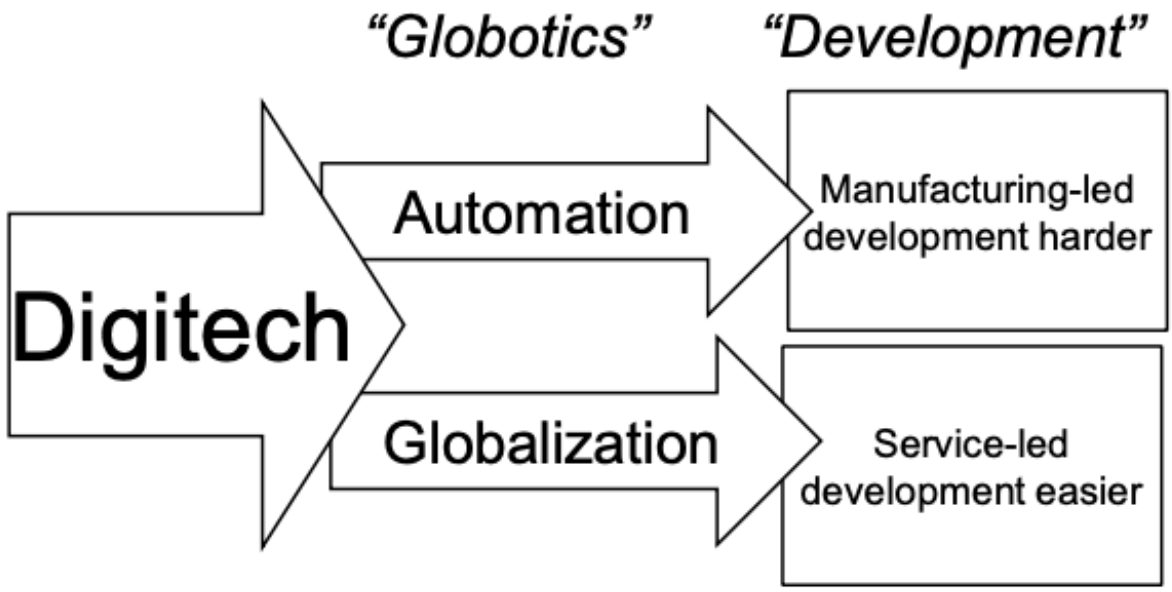
When manufacturing is jobless and services are freely traded

Our paper was based on a thought experiment. We asked: What does development look like when manufacturing becomes jobless and most services are freely traded?

More precisely, we assume that digitech's advance has no effect on the costs of trading goods, but a big effect on the labour-cost share for manufacturing goods (due to automation). Once the labour-cost share gets small enough, more manufacturing will be localised since wage cost differences will no long justify the time and dollar cost of shipping. For services, we assume the opposite: trade costs for services fall a lot, but the labour-cost shares are unaffected.

When emerging markets lose their labour-cost edge, growth driven by manufacturing will become a more difficult route to development. The replacement of humans by robots will weaken the traditional path of structural transformation in developing economies, as workers can no longer transition from farm to factory with little or no training (Figure 1).

Figure 1 Globotics and development



Source: Authors.

Two models of development

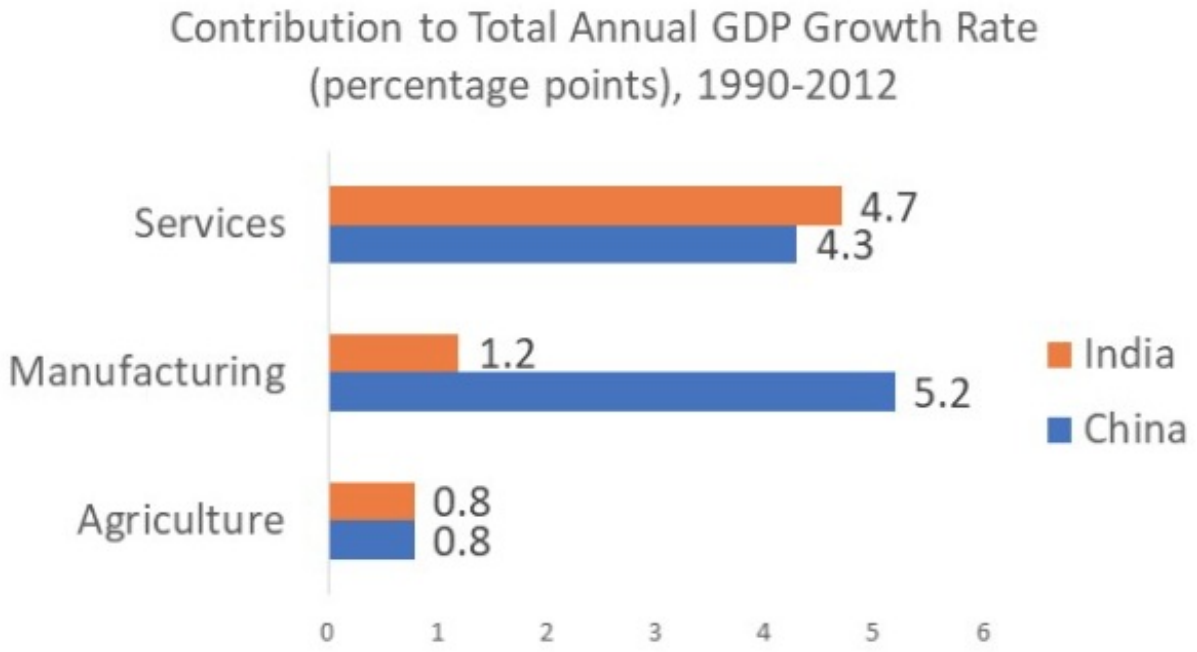
Contrast the development journeys of China and India.

Since at least the 1950s, development theory has stressed industrialisation as a key to development. China is the largest example of this trade-and-development paradigm. Most of the policy and scholarly thinking about India's experience was also focused on manufacturing, but things turned out differently. "What India saw subsequently was a most unusual growth pattern for a developing country," wrote Kauthik Basu (2018), "It was not the manufacturing sector that led India's growth but the services sector."

Two charts contrast China, which 'did it' based on manufacturing, and India, which 'did it' based on services. Figure 2 shows the sectoral contribution to overall GDP growth from each of three sectors – agriculture, manufacturing, and services. China's overall growth was 10.3%, and manufacturing was the dominant sector driving growth. Growth

in India was slower (6.7%), but the figure clearly shows it was driven by services.

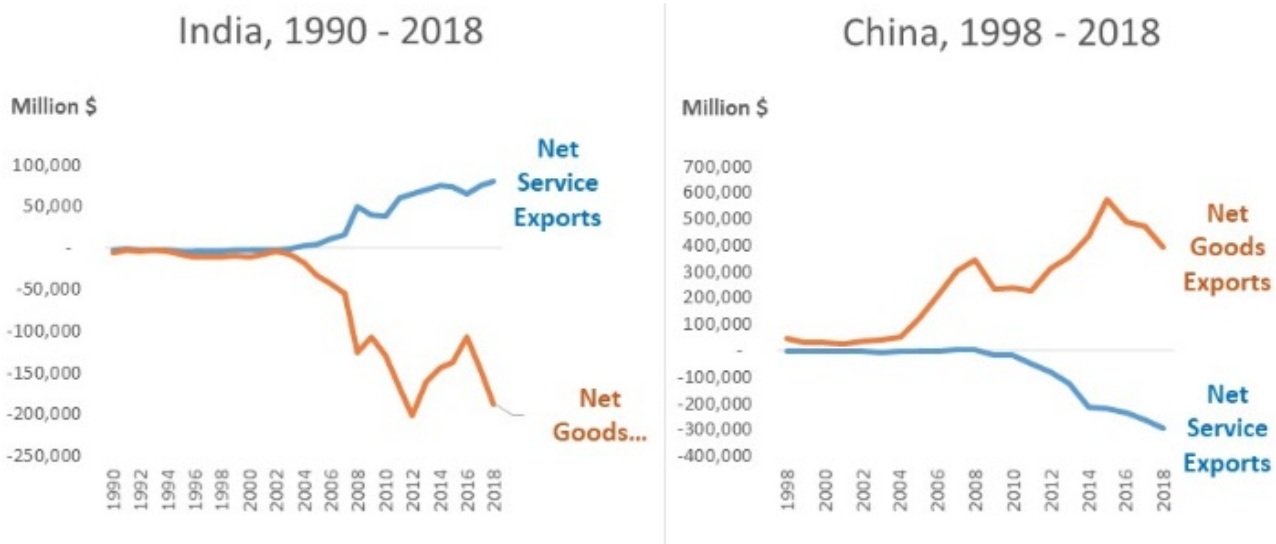
Figure 2 Contribution of different sectors to total GDP growth rate, 1990–2012



Source: Based on data from Ghani and O'Connor (2014)

Figure 3 shows the evolution of net trade positions of the two nations in goods, compared to services. Neither India nor China is a major commodity exporter, and so most goods exported are manufactured. The rapid growth period from around 1990 was associated with India becoming a substantial net exporter of services and a net importer of goods. The Chinese experience was the opposite. China's balance of trade in goods became positive – suggesting that it has a comparative advantage in goods – while its balance in services became negative.

Figure 3 Evolution of net trade position: India and China



Source: Based on World Bank data

The changes that caused India's service exports to boom are themselves evolving. The evolution is affecting the nature of service jobs that are offshored.

- **Trade in services is growing faster than trade in goods.** According to the WTO's 2019 World Trade Report, trade in services has expanded faster than trade in goods since 2005; goods trade rose at an annual pace of 4.6%, while services trade rose at 5.4% (WTO 2019).
- **Telemigration expands**. People are working in offices in one nation, while sitting in another nation (Baldwin 2019).
- **White-collar robots may displace some offshore humans.** Advanced-economy firms also use virtual agents, chatbots, and robotic process automation to replace India-based humans with local software robots (Baldwin 2019).

Telemigration and the globalisation of the advanced economy services sector

Companies in G7 nations use remote workers to perform an increasingly wide range of tasks. These remote workers are currently overwhelmingly in the same nation as their employers, so it is not globalisation – so far.

Wage differences and talent shortages will inevitably cause more companies to turn to foreign-based online service workers. A recent study of the largest internet platform for such work, Upwork.com (Horton et al. 2017), found that:

- The top-three nations hiring telemigrants were high-wage English-speaking nations: the US, Australia and the UK.
- The three biggest sources of telemigrants were the Philippines, India, and Bangladesh.
- The US was the only high-wage nation that was both a major buyer and seller of this sort of online remote labour.

Who are today's foreign freelancers? The online payments company, Payoneer.com, queried 23,000 freelancers worldwide (Sukman 2015):

- About a quarter of respondents were in Latin America and Asia, 20% in Central and Eastern Europe, and about 15% in both the Mideast and Africa.
- The vast majority of freelancers surveyed are in their 20s or 30s (about 85%).
- A bit more than half had university educations.
- The companies paying for their services were about half in North America and Europe (split equally), about 15% in both Latin America and Asia, and 7% in Australia and New Zealand.

Of course, cheap doesn't always win, and not all service sector jobs can be offshored. For accountants, computer programmers, engineers, nurses, and many other service jobs, complete replacement of a domestic worker with a telemigrant is impossible, but

some substitution of low-cost foreign remote workers for high-cost domestic workers would surely save money.

And so, how fast will telemigration grow? The pace will vary. Some sectors lend themselves much more easily to integrating remote workers or have more widely accepted standards than others. Government regulation will also help determine what is feasible. But the speed of growth will be faster than most of us currently believe.

Factors driving telemigration

We have already discussed online freelancing platforms like UpWork. Machine translation and domestic telework are rapidly evolving.

- **Machine translation.** Perhaps most remarkable is how fast digitech is lowering the language barrier. This now rivals average human translation for language pairs where large, hand-translated datasets are available. Google uses humans to score machine translations on a scale from zero (complete nonsense) to six (perfect), in 2015 Google Translate got a grade of 3.6 – far worse than the average human translator (5.1). By 2016, Google translations were scoring 5s.
- **Domestic telework**. Covid-19 has forced a rapid expansion. In turn, this has made it easier on the margin to weave in remote workers from other nations (Brynjolfasson et al. 2020).

As part of this trend to domestic telework, millions of us have taken crash courses in how to use traditional audio-visual telecommunications like Zoom or Skype, but two other technologies are closing the gap between traditional work and telework. They are redefining what it means to work side-by-side with someone. They are going to go a long way towards taking the 'remote' out of remote work.

- **Augmented reality (AR)**. This can project of a digital image on to reality using a headset or glasses – or even a smartphone screen. The big selling point of AR is that it allows an expert sitting somewhere else to 'augment' the reality you are looking at through a video screen on your phone, tablet, or laptop. They can explain what you need to do almost as if they were standing by your side. They do this by placing computer graphics on your screen in a way that looks like it is part of the reality you are looking at. Instead of 'talk you through it', they show you. There is no need for the remote expert to 'paint a word picture' of what needs to be done since both workers are looking at the same reality on the screen.
- **Virtual reality (VR)**. This is a far more immersive experience than AR – your visual and aural senses are filled them with a computer-generated reality. To date, the images are too grainy to fully convey microexpressions for example.

There are other sci-fi forms of telecommunication technology in testing, things like 'holographic telepresence'. This projects real-time, three-dimensional images of people (along with audio) in a way that makes it seem as if the remote person is right next to

you. This is not just fiction – it was used in the 2017 French presidential election and the 2014 Indian election.

Globotics and development

The hardest aspects of development are only marginally changed by globotics, because the trade-and-development component of development is not the hardest part. Even in quite open economies, most economic activity is by, and for, local citizens. It requires all sorts of difficult things like good roads and ports, good institutions, good education, good healthcare, trust among citizens, trust in government, and much more.

But the globotics transformation may eventually redirect the way we think about development if our thought experiment reflects real trends. If labour cost-based trade in manufactured goods comes to an end, and services become freely traded, ways of thinking about development will have to change.

We're not the first to think this. The Pathways for Prosperity Commission's 2018 report, *Charting Pathways for Inclusive Growth,* listed 'Global trade in services' as Pathway Three. The report lists the main ways to unlock the pathways, the most relevant of which is how governments and businesses can create a digital-ready country. Many of the recommendations are similar to those suggested by UNCTAD in its many publications on e-readiness that have stressed five pillars: enabling digital infrastructure, enabling legal and regulatory frameworks, enabling human capital, enabling finance, and enabling coordination. Mattoo (2018) discussed what the new emphasis on services means for international cooperation efforts, and Heuser et al. (2017) examined the role of services in global value chains.

Others have made policy recommendations to drive development through this channel. A study that focuses on creating digitally enabled jobs for African youths (Mastercard Foundation 2019) suggests 'no regret' measures that policymakers could take:

- Collect better data locally
- Monitor international developments closely
- Provide training for local policymakers on digital economy
- Promote the provision of digital 'soft' commerce skills such as digital marketing and relationship management,
- Develop hard skills such as coding
- Embrace a 'test and learn' approach to deal with the uncertainties and rapid pace of change.

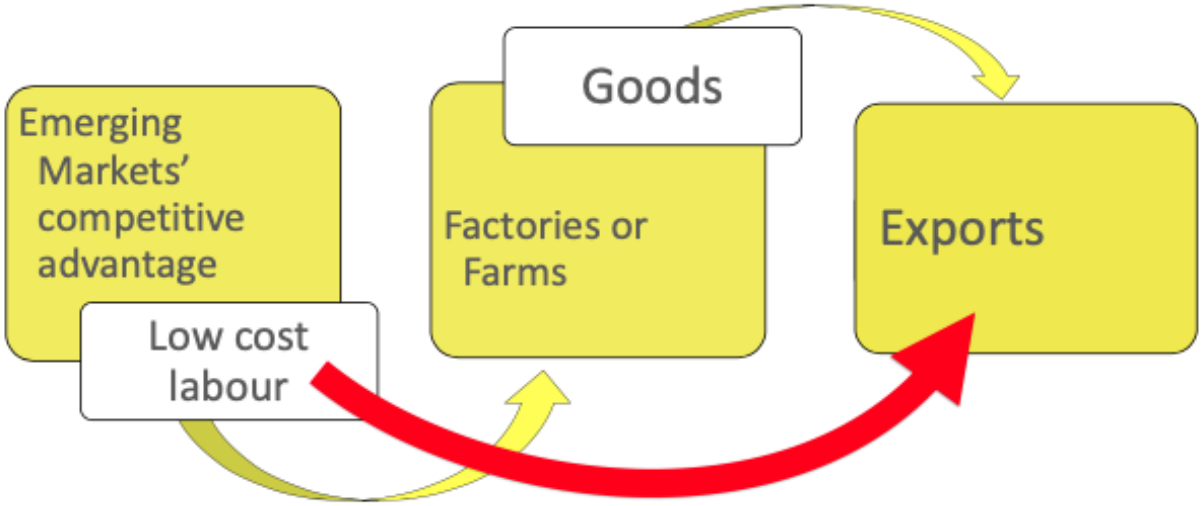
The 2016 ECLAC report, *Innovation and Internationalization of Latin American Services,* also presents many ideas for how governments should think about and prepare for digitech's impact on development (ECLAC 2016).

These policy suggestions focus our attention on how services are different when it comes to development mindsets. We recommend three directions to take, and three to avoid:

- India, not China
- Service value chains, not manufacturing global value chains
- Devices, cities and training, not industry, factories and technology.

Comparative advantage trade in a Ricardian model explains trade in goods as a veil for trade in labour services. Digital technology pulls back that veil. The resulting expansion in service trade is likely to be an overall net export gain for emerging markets, and an overall net import gain for developed economies (Figure 4).

Figure 4 Service and goods export tap the same comparative advantage



Source: Authors.

A different path

The service-led development path – like the one India has taken – may become the norm rather than the exception. Success in the service sector is based on different factors than success in manufacturing, and so development strategies and mindsets will have to change.

But this is a fundamentally optimistic conclusion for developing nations.

Many emerging markets have a comparative advantage in labour, which is low-cost given its productivity. Digitech will allow them to directly export the source of their advantage but *without having first to make goods with that labour and then export the goods*.

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