

Industrial Policy in the Age of the 4IR: South Asian Perspectives

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Trade+Sustainability Hub

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- ▶ Global developments (automation and future of the GVCs)
- ▶ Sri Lanka's exports in 4IR era
- ▶ Sri Lanka's readiness for 4IR
- ▶ Policies and strategies

Global developments (automation and future of the GVCs)

- ▶ 4IR technologies (Schwab, 2016)
 - Artificial Intelligence (AI) and robotics
 - Nanotechnology
 - Big data
 - Internet of things (IoT)
- ▶ Automation poses challenges and opportunities to the industrial sector
 - Opportunities (Gains in efficiency and productivity, decreasing trade costs and effective supply chains, ⇒ High economic growth)
 - Challenges (Inequity, labor market effects, less offshoring (MNCs) (Rodrik, 2018) and re-shoring)

GLOBAL DEVELOPMENTS: AUTOMATION, LABOR MARKET EFFECTS, AND GVCs

- ▶ Automation labor market effects
 - Adverse labor market effects in advanced economies (Grigoli et al., 2020; Acemoglu et al., 2020; Acemoglu and Restrepo, 2020)
 - Re-shoring may reduce the developing countries' ability of capitalising on low factor prices
- ▶ Are automation and offshoring substitutes?
 - Less clear-cut (Antràs, 2020)
 - As noted by Antràs (2020) in the existing literature: automation \Rightarrow imports from developing countries $\uparrow\uparrow$

Sri Lanka's exports in 4IR era

4IR AND SRI LANKA'S EXPORT BASKET

- ▶ Potentially a less impact of agricultural exports
- ▶ Most are consumption goods
- ▶ Automation in developed countries may increase demand for rubber, graphite, and other minerals
- ▶ Industrial sector impact:
 - Textiles: Automation makes near-shoring and re-shoring easy (eg: Sewbots)
 - Automation will depend on factor prices, trade costs, skilled labor force, and the nature of demand
 - Products with fluctuating demand prone to automation

4IR AND SRI LANKA'S EXPORT BASKET

- ▶ HS chapter 85: Electronics and electrical equipment
 - Prone to automation and re-shoring
 - Sector shows a robust growth: ▶ [HS chapter 85](#)
 - The US supply chain realignment for semiconductors (challenge and opportunity)
- ▶ Overall, the direction of the effect is not clear-cut
- ▶ The 4IR-led re-shoring may affect diversification-into complex products- moves
- ▶ Sri Lanka needs to prepare labor force and digital infrastructure to benefit from 4IR and increase resilience

AUTOMATION IN TEXTILES SECTOR

- ▶ High labor cost \Rightarrow automation a solution for LKA
- ▶ Overall, advances in automation and near-shoring remain relatively limited in Asia (ILO, 2021) (still low wage cost in Bangladesh, Cambodia, etc.)
- ▶ Capital requirement is high as the process is complex
- ▶ Sewing needs manipulation of complex motions
- ▶ Advanced Sewbots that use cameras, mapping technologies, artificial intelligence and algorithms
- ▶ Thus, LKA needs to develop skills of the labor force

Sri Lanka's readiness for 4IR

PREPAREDNESS FOR TECHNOLOGICAL INNOVATION AND COMPLEMENTARY ECOSYSTEM TO BENEFIT FROM 4IR

- ▶ Technological preparedness
 - Digital preparedness
 - Capacity to stimulate innovation
- ▶ Complementary ecosystem to benefit from 4IR
 - Developing necessary infrastructure and human capital
 - Enable economic agility

(IPS of Sri Lanka, 2019)

- ▶ As [IPS of Sri Lanka \(2019\)](#) reports; Sri Lanka ICT innovation and capability is not satisfactory

▶ Obstacles

- Low-level of IT literacy and access to internet
- Just around 35% uses internet in 2020 ▶ [Internet usage](#)
- Computer literacy: 32% in 2020 ([DCS of Sri Lanka, 2020](#))
- High sectoral disparities ([IPS of Sri Lanka, 2019](#))

▶ Opportunities

- Rapid growth of internet users
- High subscriptions of mobile phone use
- High mobile phone coverage

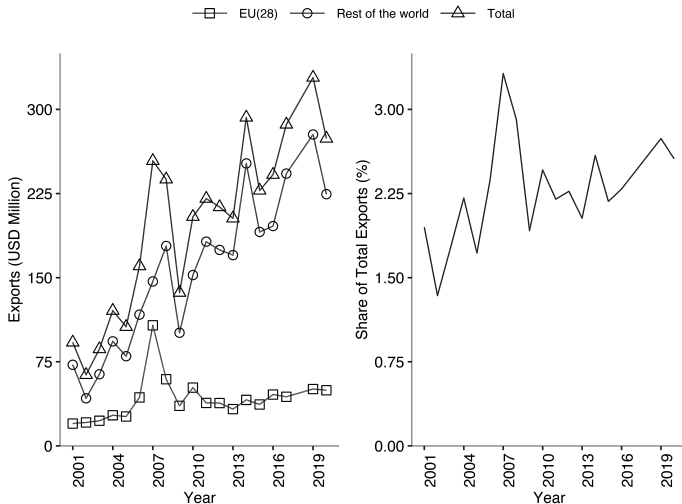
Policies and strategies

- ▶ Is Sri Lanka on a de-coupling trend ? ▶ Trade Openness
 - ▶ Forward Participation
 - ▶ Backward Participation
- ▶ A de-coupling is harmful given that Sri Lanka is a small country
- ▶ Scant evidence to show that 4IR induced automation cause de-globalization + future (political backlash?)
- ▶ 3D printing also needs raw materials ([Antràs, 2020](#))
- ▶ Sri Lanka's way forward is investing on digital readiness and integrating to GVCs to capitalise on high human capital

- ▶ Sri Lanka should empower educated workforce with required digital knowledge (also focus on gender parity)
- ▶ Identification of products that need fast delivery for automation (demand and inventory analyses)
- ▶ Service provision in algorithm and software development
- ▶ Capitalise on US supply chain realignment through vertical integration
- ▶ Capitalise on scale economies
- ▶ None is possible through de-coupling

Thank you!

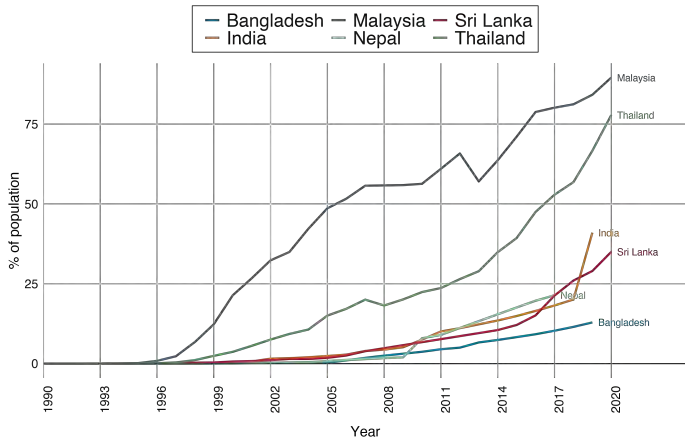
HS CHAPTER 85: EXPORT PERFORMANCE OF SRI LANKA



Source: Author's illustration using Trade Map data

FIGURE 1: Export performance of Sri Lanka in HS chapter 85

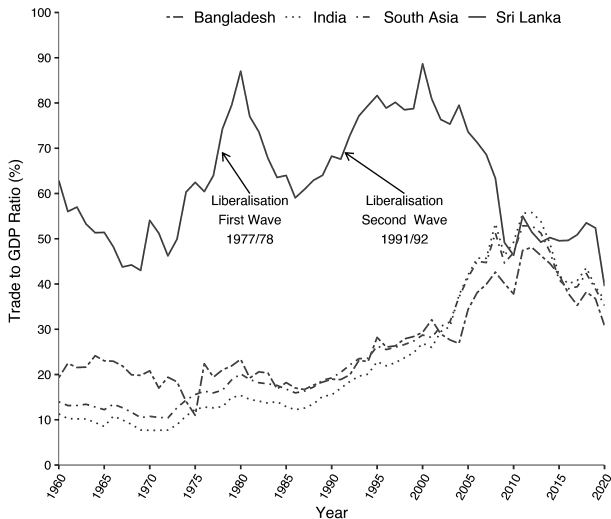
INTERNET USERS AS PERCENTAGE OF POPULATION



Source: Author's illustration using World Development Indicator Data

FIGURE 2: Internet users as a share of population

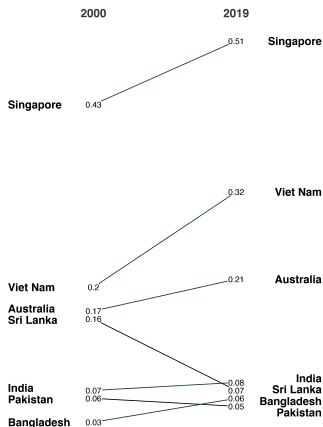
TRADE OPENNESS OF SRI LANKA



Source: Author's illustration using World Development Indicator Data

FIGURE 3: Sri Lanka's trade openness

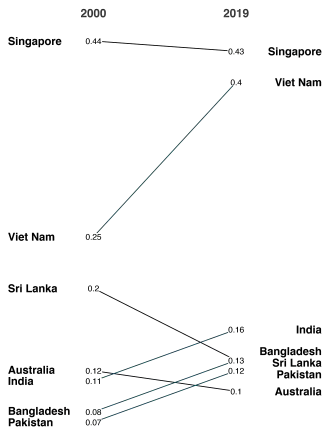
FORWARD GVC PARTICIPATION



Source: Author's illustration using MRIO data of ADB

FIGURE 4: Forward GVC participation by selected countries

BACKWARD GVC PARTICIPATION



Source: Author's illustration using MRIO data of ADB

FIGURE 5: Backward GVC participation by selected countries

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