

The views expressed in this presentation are the views of the author/s and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this presentation and accepts no responsibility for any consequence of their use. The countries listed in this presentation do not imply any view on ADB's part as to sovereignty or independent status or necessarily conform to ADB's terminology.

Transforming Bangladesh's Participation in Trade and Global Value Chains

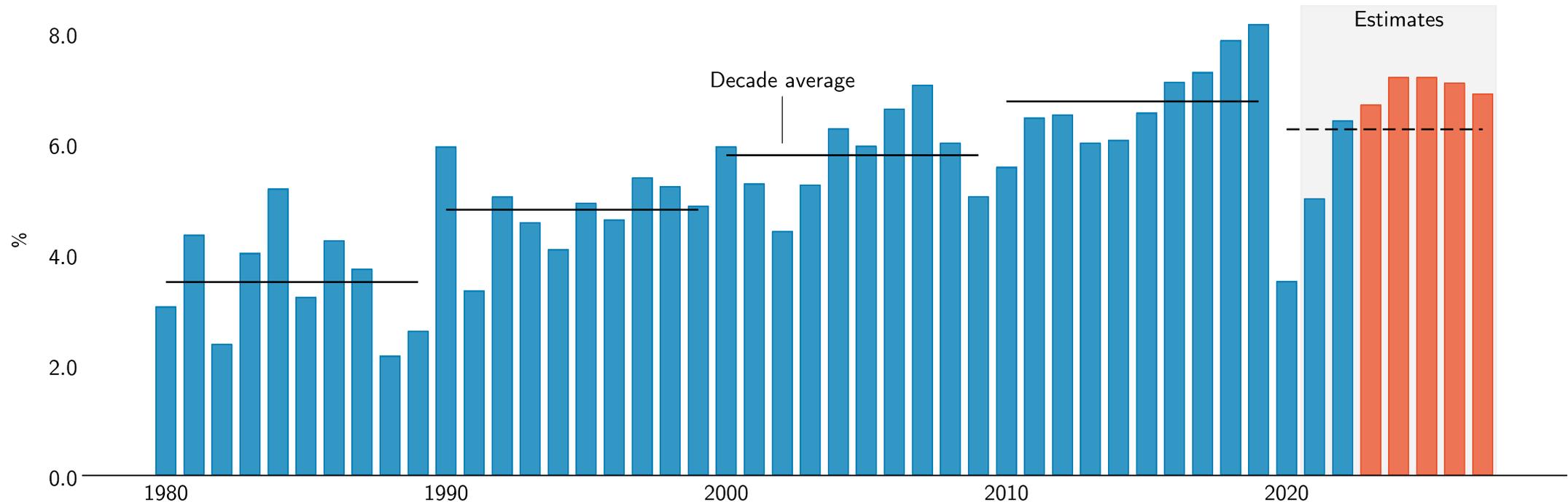
Asia Impact Webinar

20 October 2022

K. Banga and J. Lazatin

Average growth by decade has been rising since the 1980s but is estimated to decline in 2020–2027.

Figure 2.1: Real Gross Domestic Product Growth Rate, Bangladesh, 1980–2027

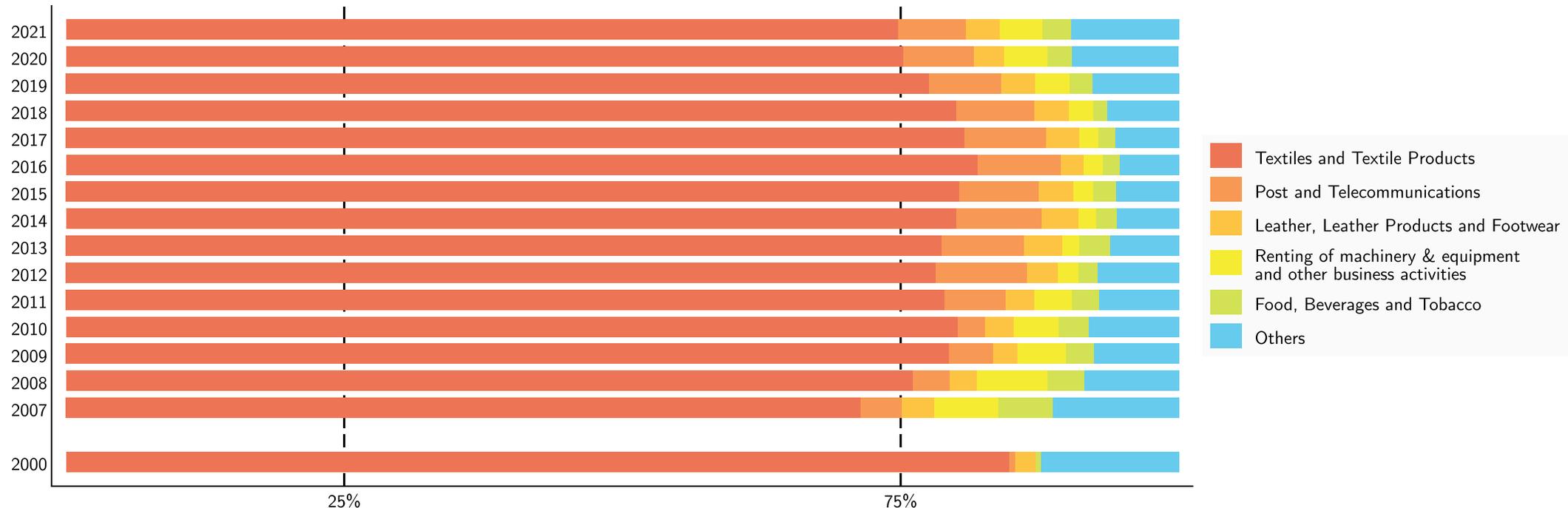


Notes: Growth rates after 2020 are estimates by the International Monetary Fund as of April 2022. Dashed line corresponds to average growth in 2020–2027.

Source: International Monetary Fund. World Economic Outlook Database: April 2022 edition (accessed 11 August 2022).

Across 2000, 2007–2021, the Textiles and Textiles Sectors emerges as the leading export sector by a significant margin from other sectors.

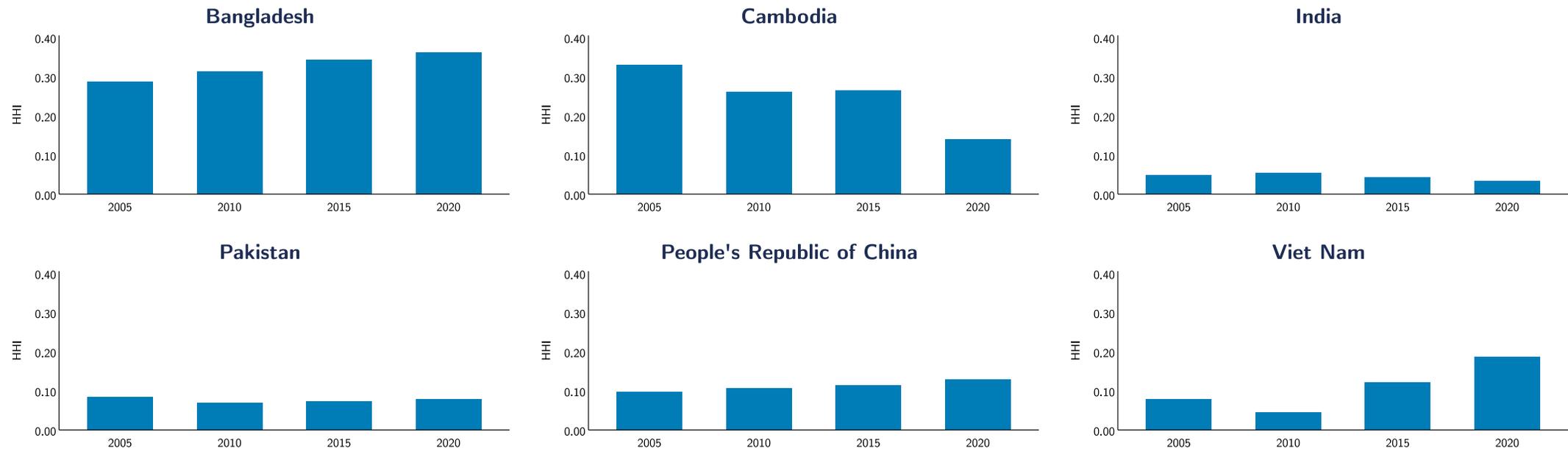
Figure 2.4: Exports by Sector, Bangladesh, 2000, 2007–2020



Source: Asian Development Bank (ADB). 2022. Key Indicators for Asia and the Pacific 2021. Manila; ADB. Multiregional Input–Output Database (accessed 14 July 2022); ADB estimate.

Compared to competitors, Bangladesh's mix of product exports is highly concentrated.

Figure 2.4: Merchandise Export Diversification, Selected Economies, 2005, 2010, 2015, 2020



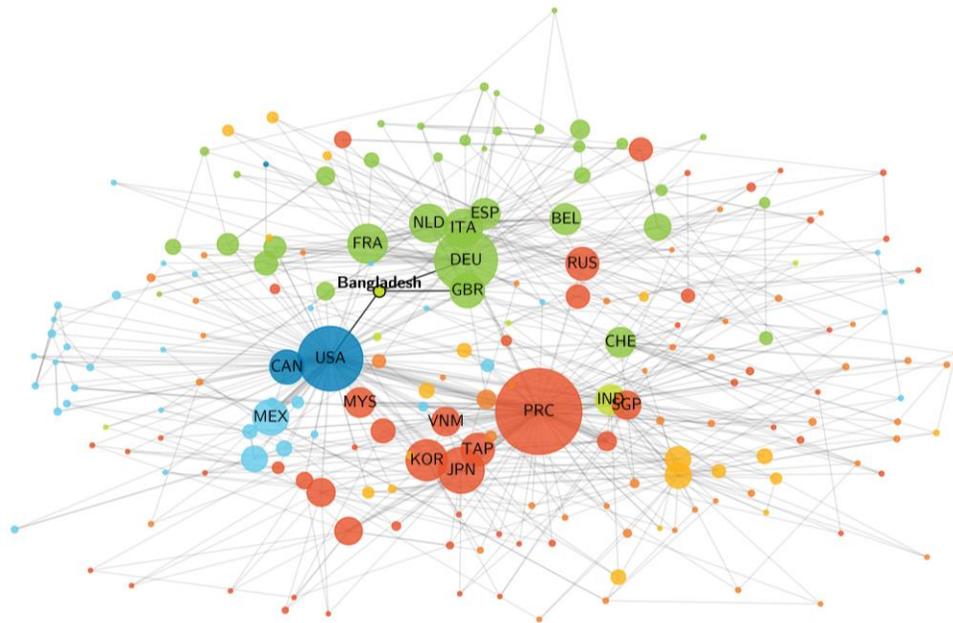
HHI = Herfindahl-Hirschman Index

Notes: Diversification is measured by the normalized Herfindahl-Hirschman Index. A higher Herfindahl-Hirschman Index indicates a lower level of diversification. Products are disaggregated at the two-digit level of

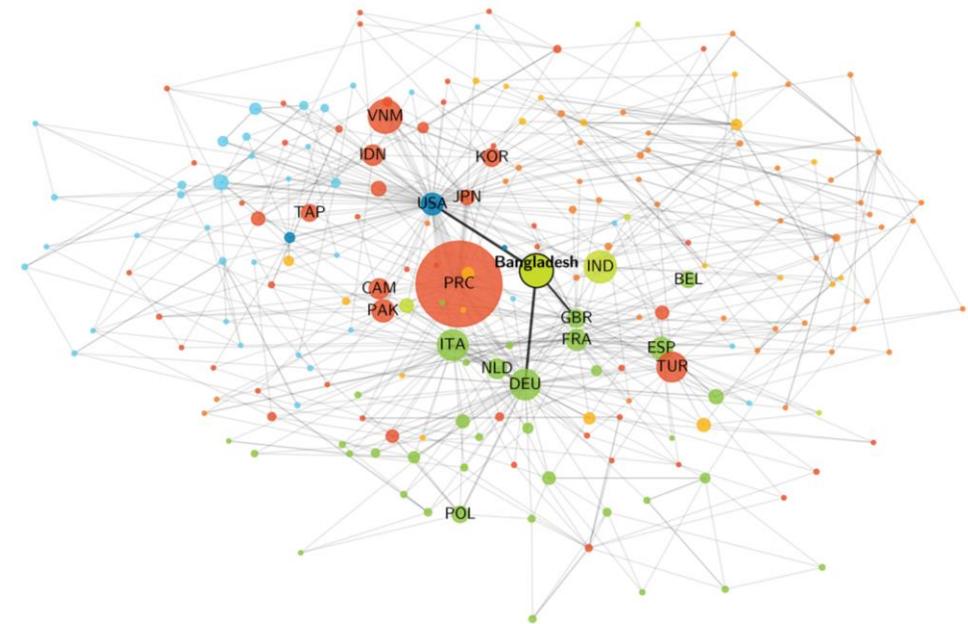
Source: CEPII. BACI International Trade Database (accessed 21 July 2022).

Bangladesh plays a small role in total merchandise exports, but a more significant role in textiles.

Total Merchandise Exports, 2016–2020



Exports of Textile Products, 2016–2020

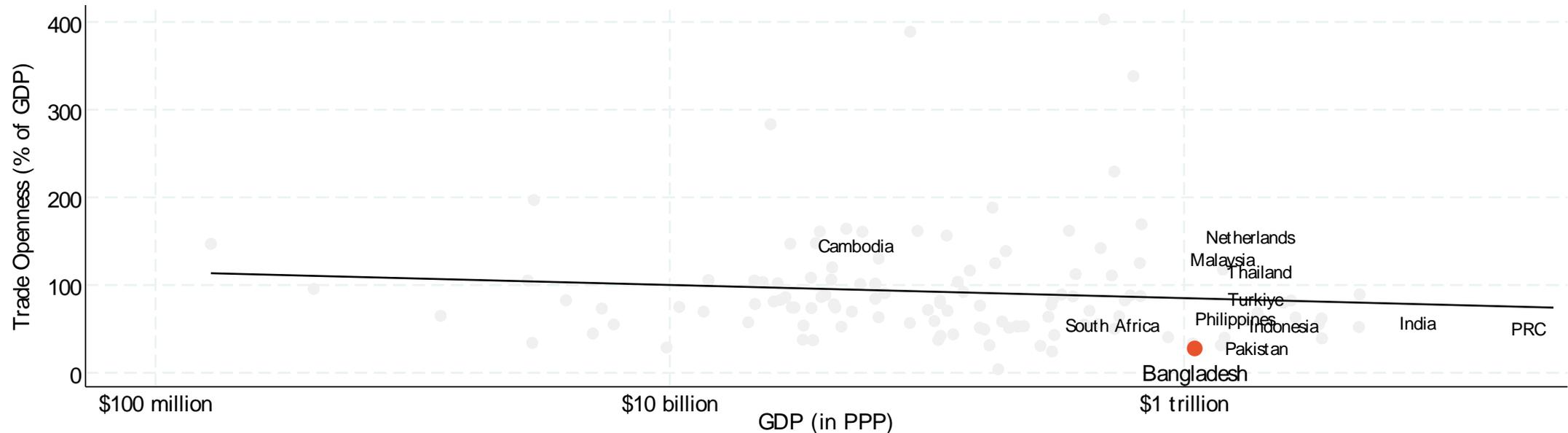


Note: Node size represents export values. Edges include only the top three destination markets.

Source: CEPII. BACI International Trade Database (accessed 21 July 2022).

Given its economic size and product exports, Bangladesh can further increase its trade openness.

Figure 2.5: Trade Openness at Various Levels of Economic Development, 2021



GDP = gross domestic product, PPP = purchasing power parity, PRC = People's Republic of China.

Notes: The horizontal axis is gross domestic product in current international dollars at PPP, transformed using a base-10 log scale. The vertical axis is the sum of exports and imports of goods and services as a share of GDP. Blue nodes refer to economies of similar economic size to Bangladesh, while green nodes refer to economies competing with Bangladesh in the exports of apparel.

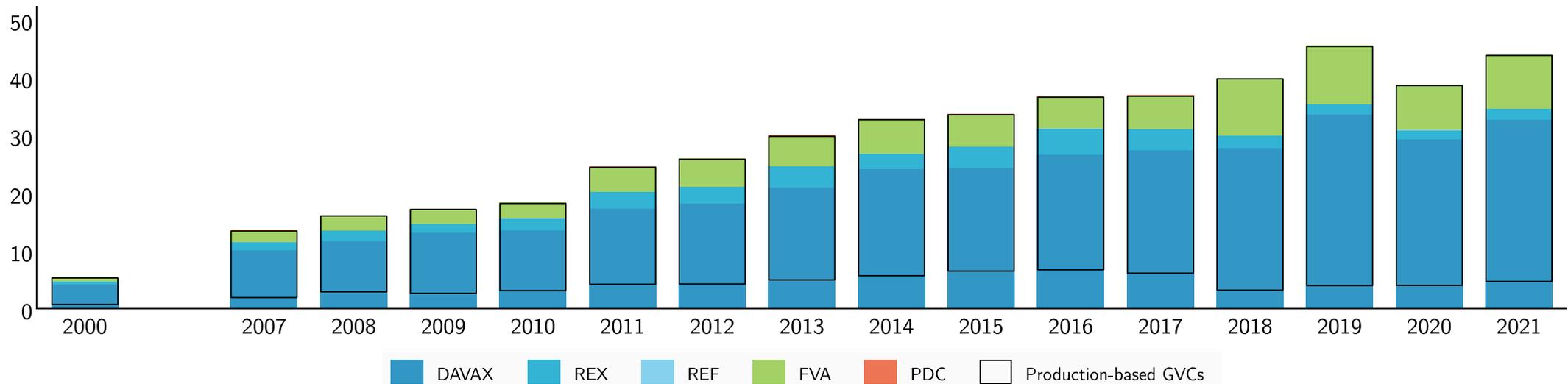
Source: World Bank. World Development Indicators (accessed 11 August 2022).

GVCs

Exports Decomposition, GVC Participation, RCA

Bangladesh's exports is at least 70% non-GVC value-added.

Figure 3.1: Decomposition of Exports into Value-Added Categories, Bangladesh, 2000, 2007–2021 (\$ billion)



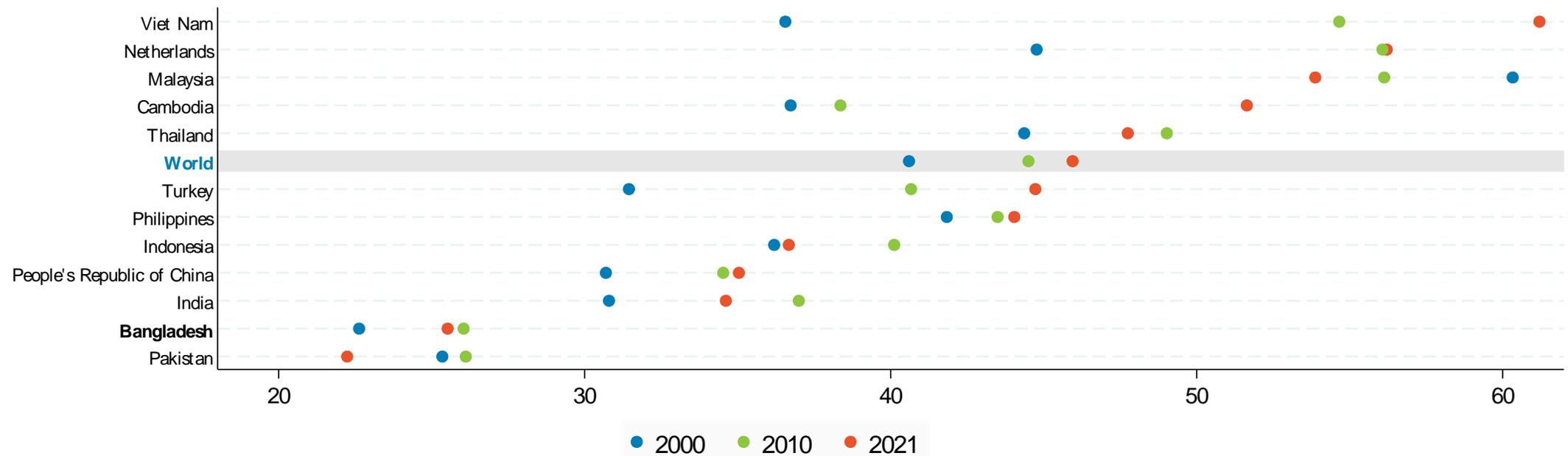
GVC = global value chain.

Notes: Gross exports are decomposed using the methodology in Asian Development Bank (2021). DAVAX are directly absorbed domestic value-added exports. REX are domestic value-added exports reexported by direct importer and eventually absorbed abroad. REF are domestic value-added exports reexported by direct importer and eventually returned to and absorbed at home. FVA are foreign value added embedded in gross exports. PDC are pure double-counting, a result of value added crossing the same border more than once. The boxed portions measure global value chain production according to Wang, Wei, Yu, and Zhu (2017).

Source: Asian Development Bank (ADB). 2022. Key Indicators for Asia and the Pacific 2022. Manila; ADB. Multiregional Input–Output Database (accessed 14 July 2022); and ADB estimates.

Bangladesh's participation in GVCs is low relative to comparator economies.

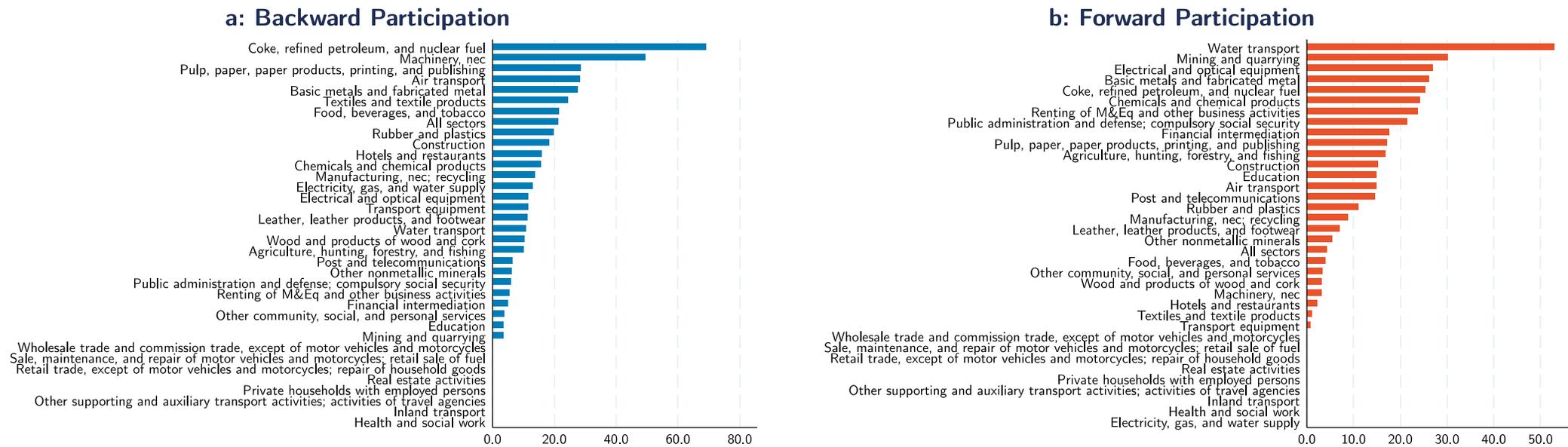
Figure 3.5: GVC Trade-Based Participation Rates, Bangladesh, 2000, 2010, 2021 (percent)



Notes: Participation rates are computed using the methodology in Asian Development Bank (2021). The trade-based participation rate is the share of indirect trade in gross exports.
Source: Asian Development Bank (ADB). 2022. Key Indicators for Asia and the Pacific 2022. Manila; ADB. Multiregional Input–Output Database (accessed 14 July 2022); and ADB estimates.

Economy-wide participation rates also hide variations across sectors, with some sectors participating in GVCs more than other sectors.

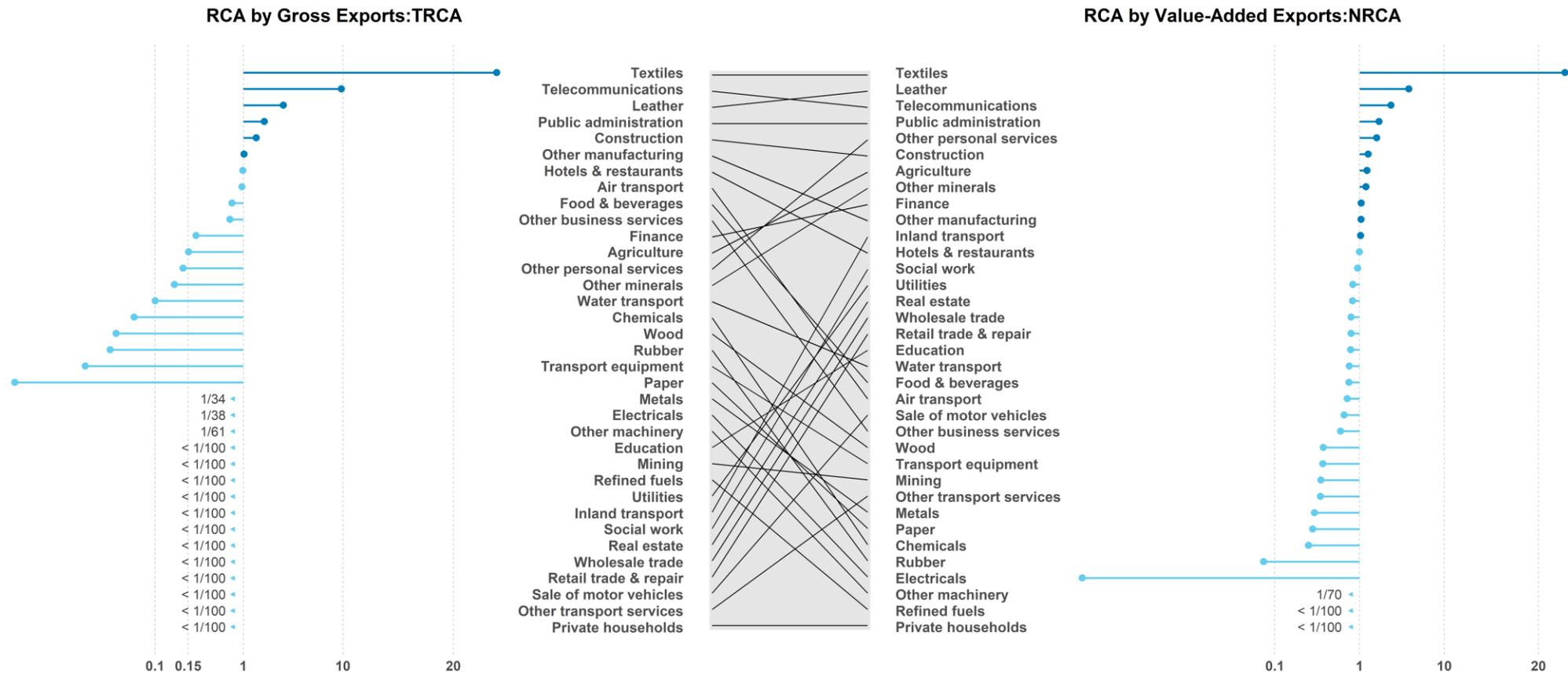
3.6: Trade-based Participation Rates by Sector, Bangladesh, 2021 (percent)



Notes: Trade-based participation rates are computed using the methodology in Asian Development Bank (2021). The backward participation rate is the share of FVA and PDC in gross exports. The forward participation rate is the share of REX and REF in gross exports.

Source: Asian Development Bank (ADB). 2022. Key Indicators for Asia and the Pacific 2022. Manila; ADB. Multiregional Input–Output Database (accessed 14 July 2022); and ADB estimates.

Six sectors shows RCA for both gross exports and value-added exports: 1) Textile and textile products; 2) Leather, leather products, and footwear; 3) Construction; 4) Post and telecommunications; 5) Public administration and defense; and 6) Manufacturing, nec; recycling.



Economic transformation

There is an urgent need for economic transformation in Bangladesh

Evolving geo-political and geo-economic dynamics are challenging garments-led manufacturing economic growth in Bangladesh

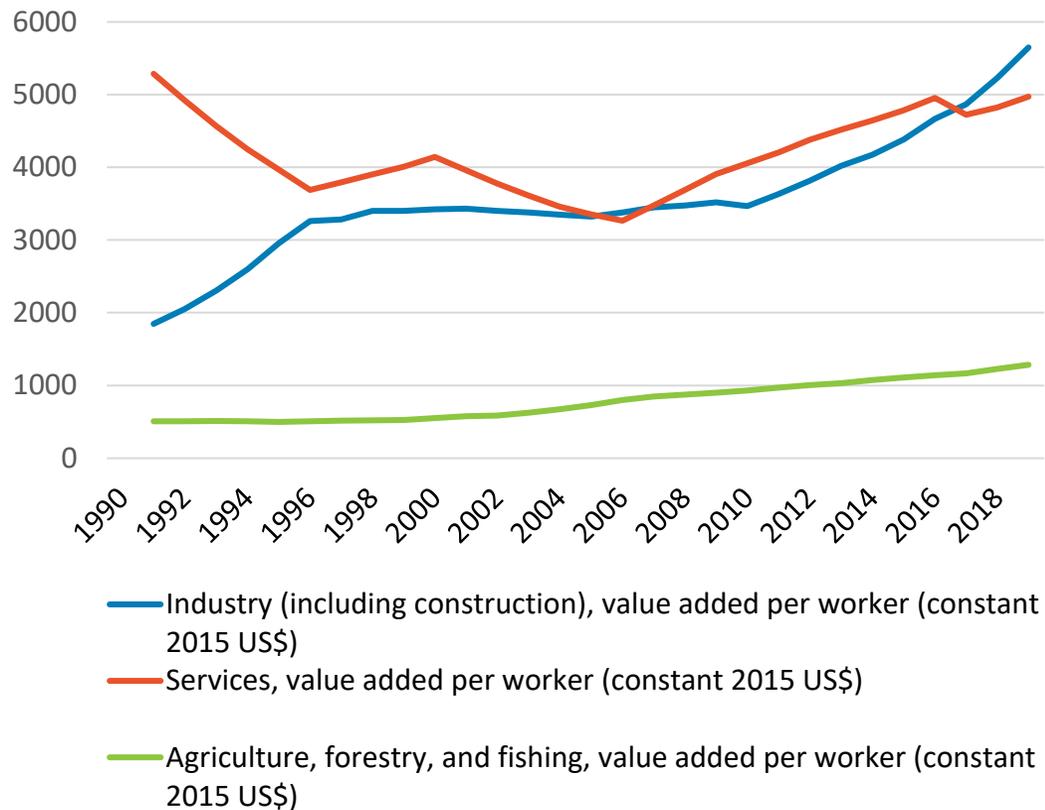
- Mean monthly incomes in Bangladesh's manufacturing sector were 3.1 percent higher in 2018 compared with 2013, with further rises expected post graduation.
- RMG sector was strongly hit from demand disruption during Covid-19; estimated US\$3.2 billion in ready-made garment orders were cancelled or suspended export order from Europe and US.
- Global manufacturing landscape is rapidly evolving with the rise of Industry 4.0; IoT, Big Data, machine learning, 3D printing and robotics are reducing the importance of lower wages in determining competitiveness.
- Increased automation in Bangladesh's trade partners can reduce inward FDI, offshoring of jobs and wages.

Conceptualizing economic transformation

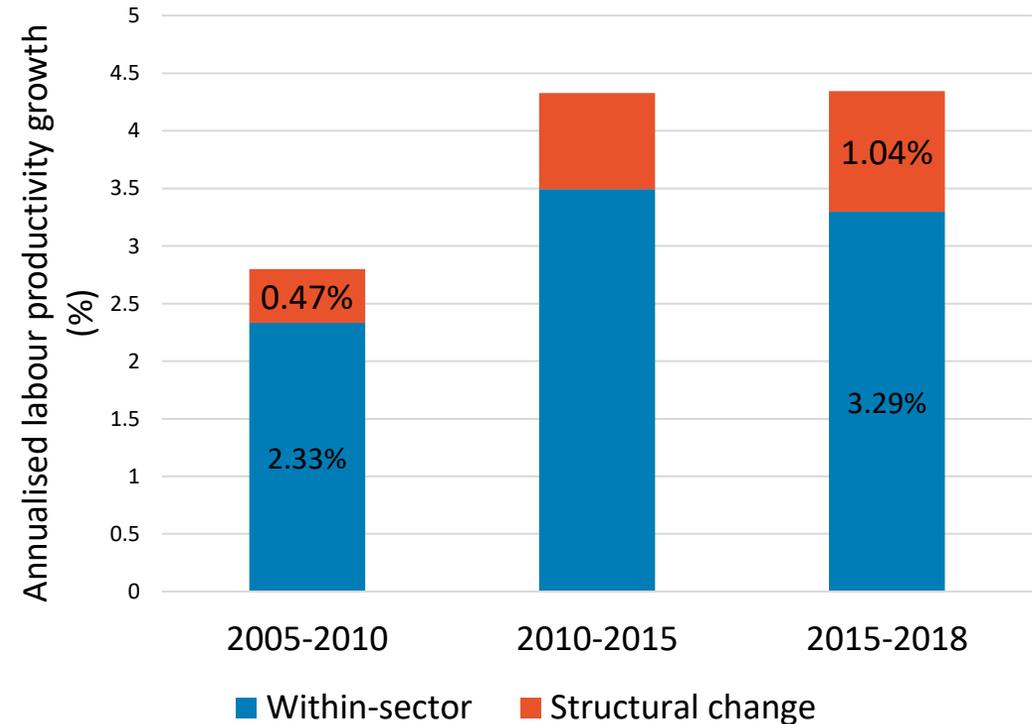
- Economic transformation is defined as a continuous process of (McMillan and Rodrik, 2014);
- **Raising productivity growth**
 - reallocation of resources from low- to high-productivity firms/farms within a given sector
 - productivity improvements within existing firms/ farms by moving into more efficient product lines. E.g. most efficient production line in a Bangladeshi garments factory are two thirds more productive than the least efficient production lines (Woodruff, 2014).
 - Enhanced productivity typically involves trade, production diversification, increased value addition in exports, complex production export structure
- **Structural change**
 - moving labour and other resources from lower to higher-productivity sectors unconditional convergence in manufacturing labour productivity
 - structural change played a substantial role in the productivity catchup of developing countries to the productivity of the United States (Duarte and Restuccia, 2010).
- **Labour productivity growth: “within-sector component” and “between-sector component”**

Structural change has been growth enhancing in Bangladesh; its contribution to labour productivity growth has increased but the “within sector component” still drives productivity growth.

Sectoral labour productivity over time

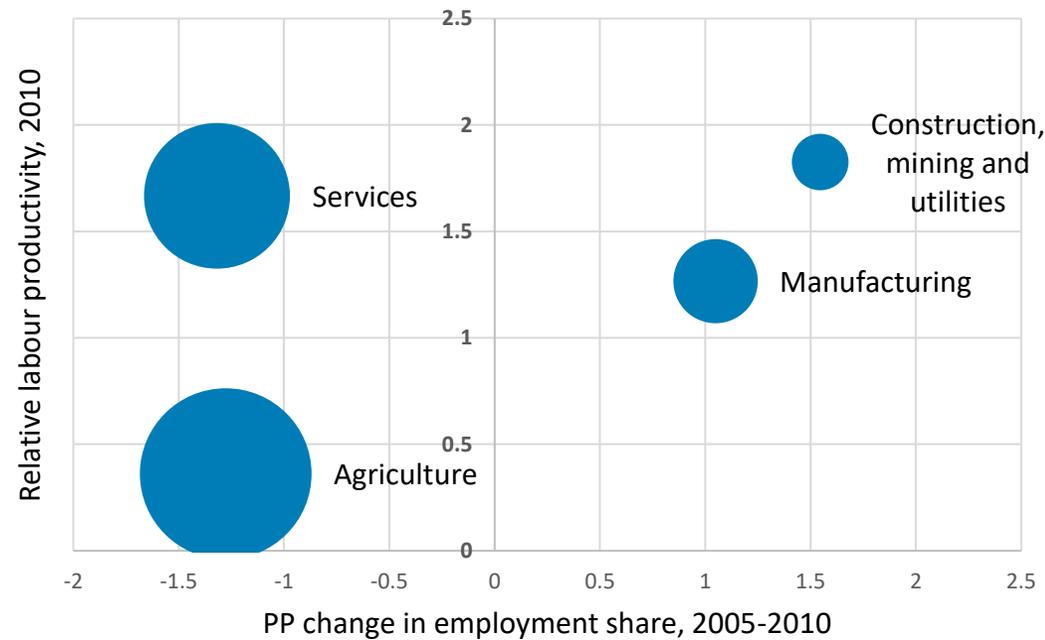


Decomposition of labour productivity change

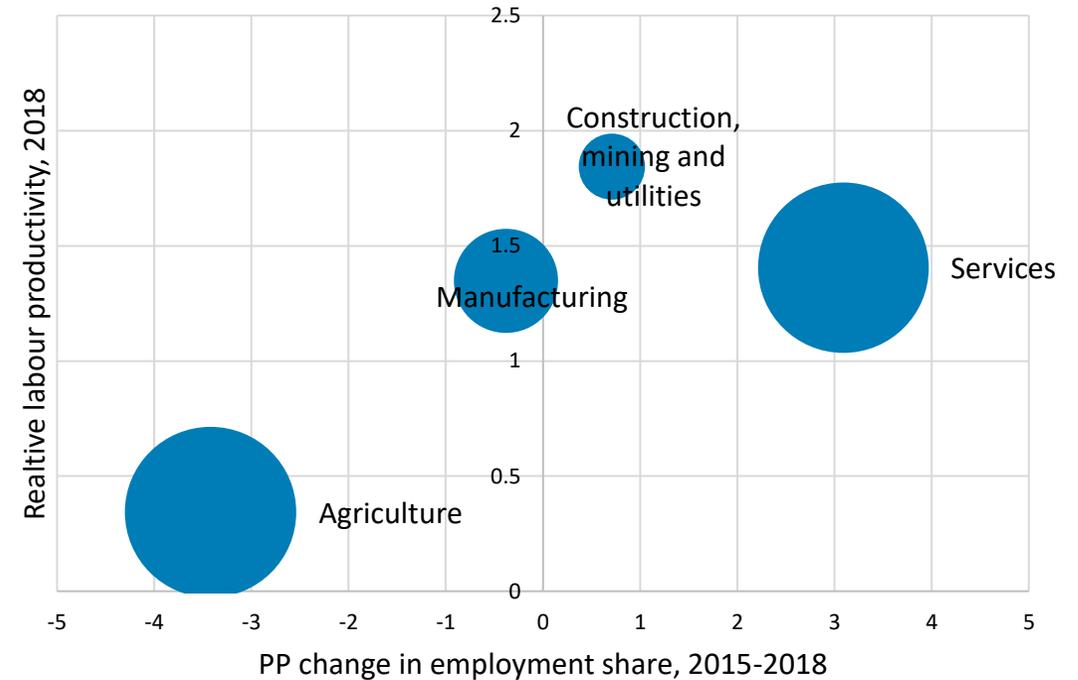


Structural Change in Bangladesh

In the five years leading up to 2010, industrial employment share rose



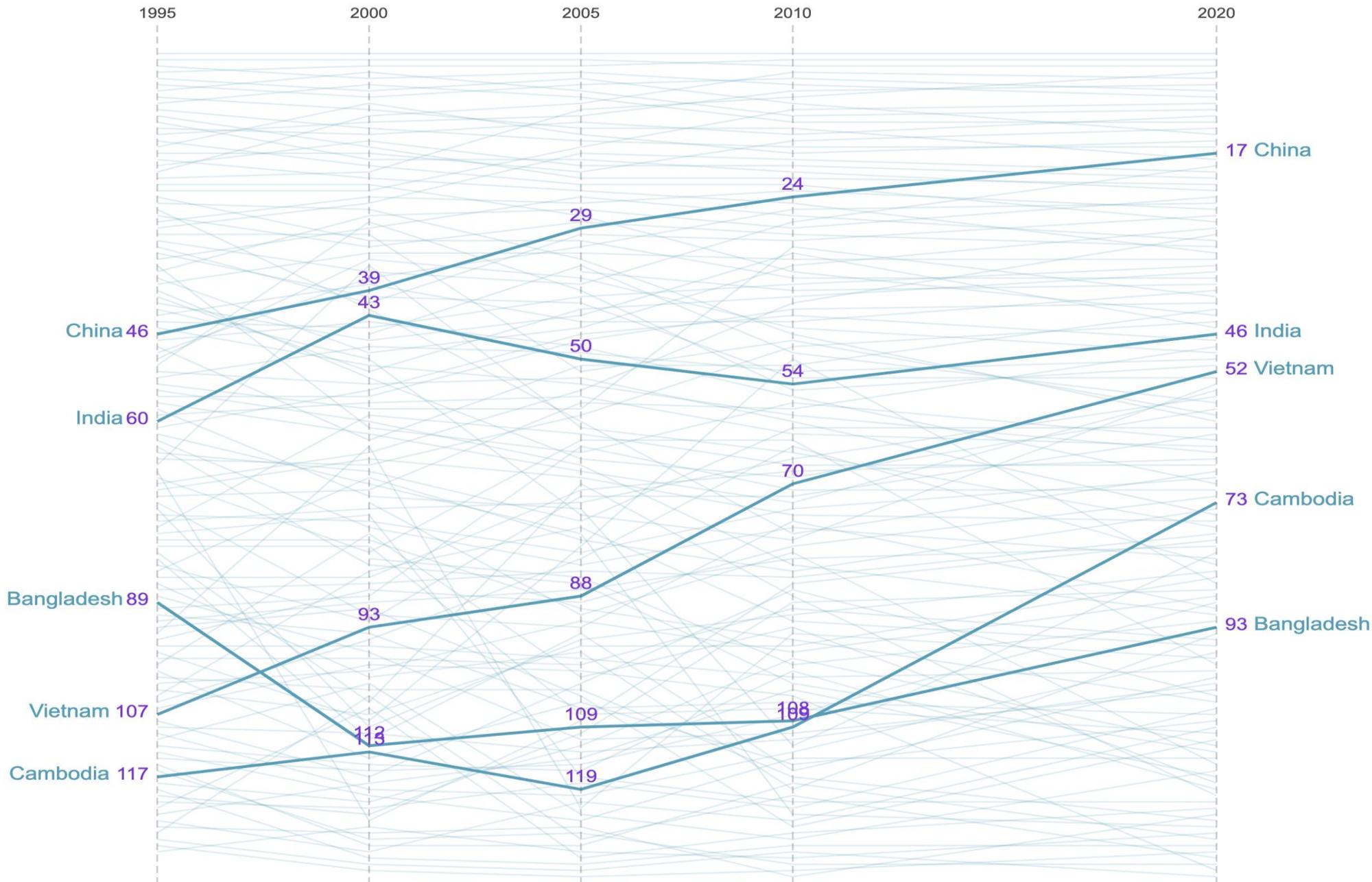
In the three years leading up to 2018, services employment share rose



Note: Size of bubbles represents number of persons employed in each sector in the later year of each of the three periods.

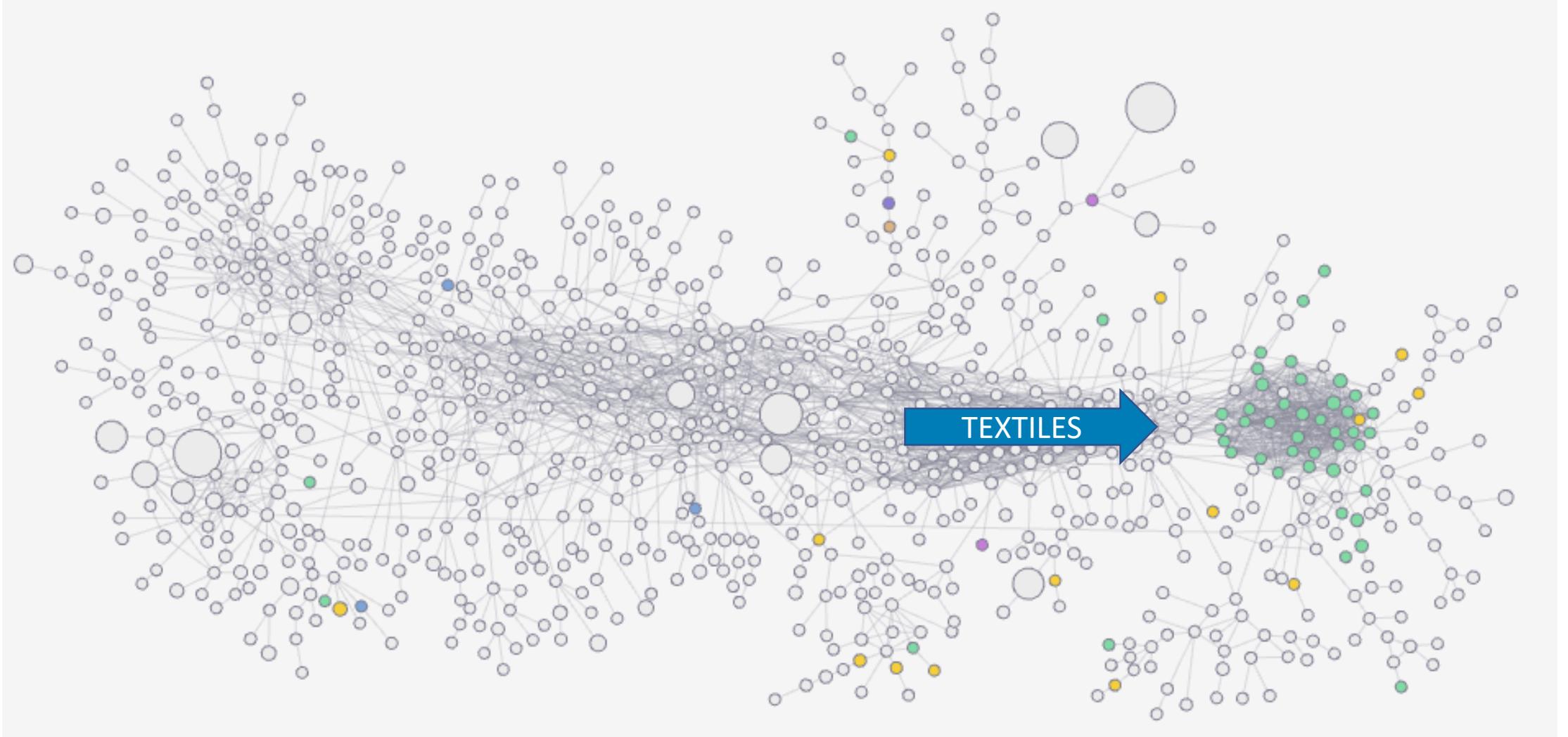
Source: Authors' calculations using sectoral value added and employment share data from the ETD.

Economic complexity remains a key challenge to transformation in Bangladesh



Source: Atlas of EC

Bangladesh has few near-by opportunities to diversify into related products.



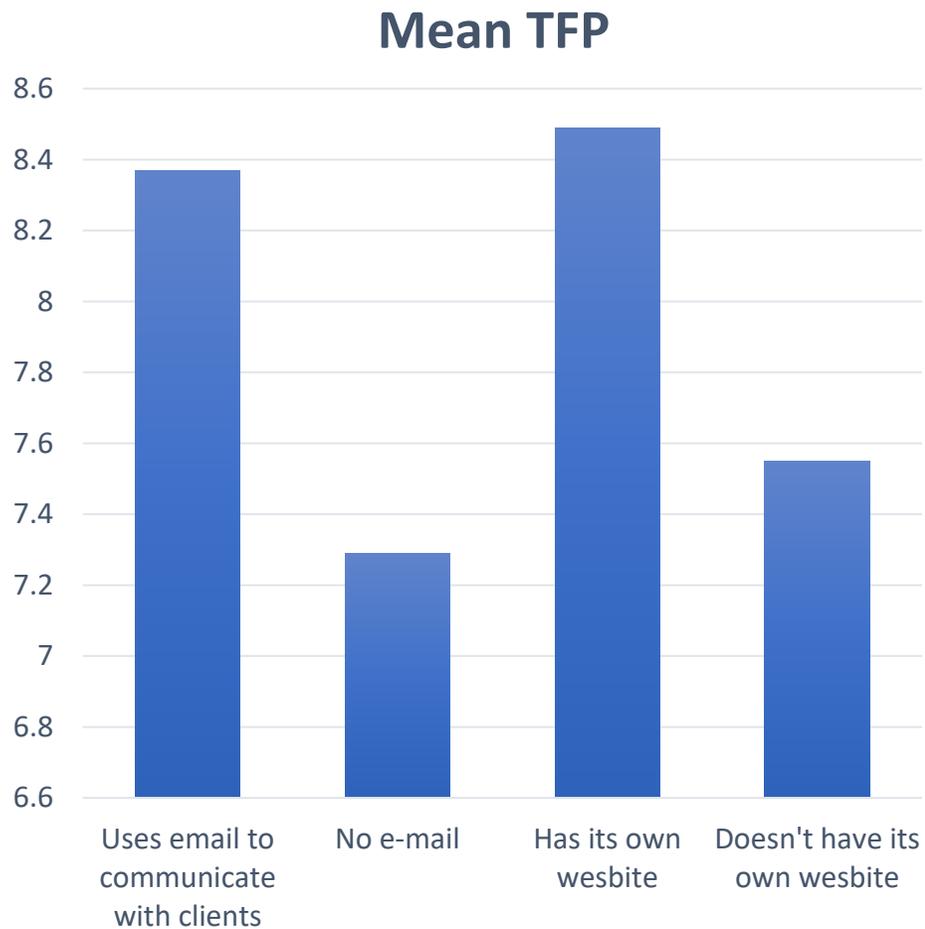
Can digitalization kickstart the next phase of transformation in Bangladesh?

There is significant heterogeneity in digital transformation across manufacturing

Digitalisation rate, 2021, top 10 sectors from ADB MRIO

| | Digitalization rate |
|---|---------------------|
| Computer, electronic, and optical equipment | 56.31% |
| Electrical machinery and apparatus, nec. | 4.55% |
| Coke, refined petroleum, and nuclear fuel | 3.19% |
| Pulp, paper, paper products, printing, and publishing | 2.84% |
| Rubber and plastics | 2.48% |
| Chemicals and chemical products | 2.25% |
| Basic metals and fabricated metal | 2.08% |
| Wood and products of wood and cork | 1.62% |
| Transport equipment | 1.54% |
| Machinery, nec | 1.54% |
| Textiles and textile products | 0.95% |
| Other nonmetallic minerals | 0.83% |
| Food, beverages, and tobacco | 0.69% |
| Leather, leather products, and footwear | 0.58% |

Firm-level evidence suggests that a strong correlation between digitalization in manufacturing and economic transformation



| | Average export intensity (%) | % of GVC firms | % of firms using email | % of firms with a web presence | Average TFP |
|--------------------------------|------------------------------|----------------|------------------------|--------------------------------|-------------|
| Food | 9.93 | 1.90 | 27.30 | 20.92 | 7.49 |
| Garments | 79.99 | 58.60 | 84.37 | 56.32 | 8.21 |
| Leather | 36.20 | 15.42 | 29.89 | 15.65 | 7.75 |
| Textile | 51.90 | 32.37 | 73.15 | 48.32 | 8.09 |
| Machinery and electronics | 6.80 | 6.47 | 41.73 | 24.46 | 7.73 |
| Chemicals, metals and minerals | 4.69 | 10.81 | 58.05 | 42.61 | 7.92 |
| Furniture and wood | 12.02 | 9.68 | 40.43 | 27.65 | 7.52 |
| Plastics and paper products | 26.32 | 16.67 | 47.37 | 21.05 | 7.71 |

Source: Banga, forthcoming, based on WBES panel 2007, 2011, 2013

Panel Probit results: GVC participation

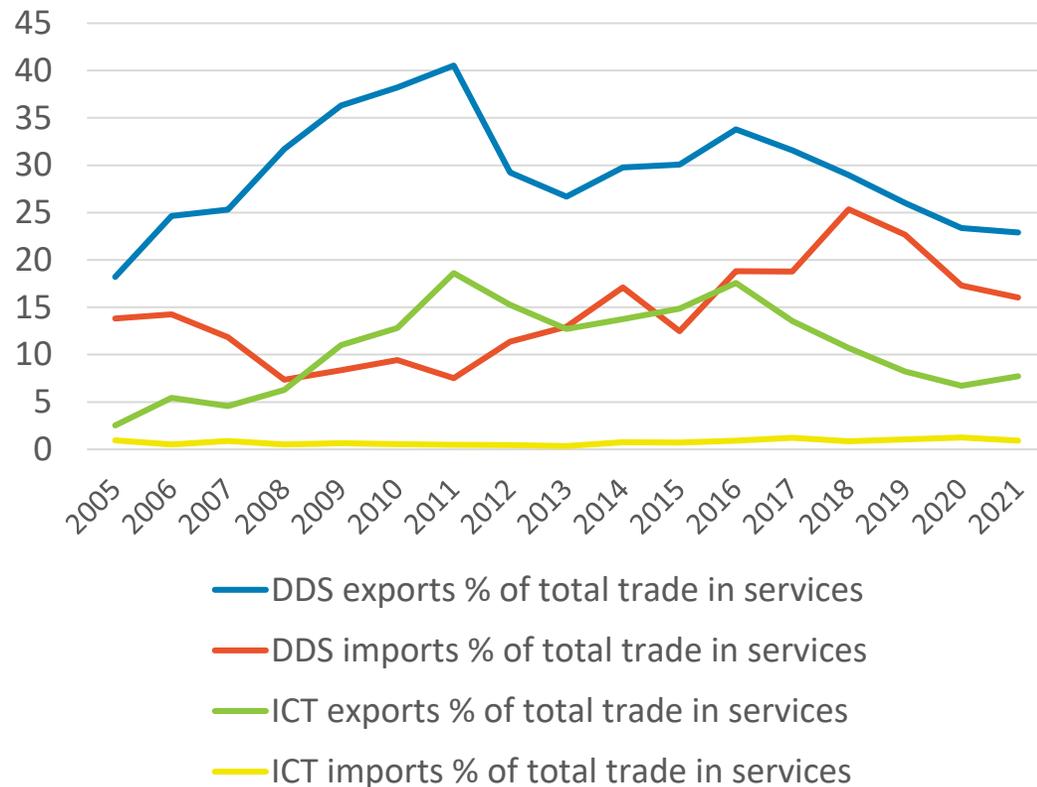
| VARIABLES | Model 1 | Model 2 | Model 3 | Model 4 |
|-----------------------------|----------------------|----------------------|----------------------|----------------------|
| Digital firm | 0.861*** (0.183) | 0.820*** (0.183) | | |
| % Digital firms in industry | | | 0.0749* (0.0382) | 0.0741* (0.0387) |
| ISO certificate | 0.466*** (0.123) | 0.457*** (0.124) | 0.497*** (0.125) | 0.483*** (0.126) |
| Log labour prod | 0.237*** (0.0573) | | 0.276*** (0.0566) | |
| Log TFP | | 0.269*** (0.0597) | | 0.314*** (0.0591) |
| Log capital/worker | 0.0141 (0.0295) | 0.0394 (0.0338) | 0.0327 (0.0283) | 0.0617** (0.0306) |
| Medium firm | 0.839*** (0.169) | 0.770*** (0.168) | 1.160*** (0.165) | 1.055*** (0.165) |
| Large firm | 1.478*** (0.163) | 1.344*** (0.159) | 1.880*** (0.143) | 1.696*** (0.143) |
| Industry, year FE | yes | yes | yes | yes |
| Observations | 1,361 | 1,357 | 1,361 | 1,357 |
| Number of firmid | 1,230 | 1,226 | 1,230 | 1,226 |

Heckman selection models: Outcome- export intensity

| | Outcome 1 | Selection 1 | Outcome 2 | Selection 2 | Outcome 3 | Selection 3 |
|-------------------|-------------------------|--------------------------|-------------------------|--------------------------|------------------------|--------------------------|
| Digital firm | 0.357** (0.152) | 0.714*** (0.129) | | | | |
| Digital firm_2 | | | 0.348** (0.152) | 0.711*** (0.129) | 0.231** (0.111) | 0.480*** (0.138) |
| Capital/worker | -3.55e-06 (2.37e-06) | 4.06e-06** (1.90e-06) | -3.63e-06 (2.38e-06) | 4.27e-06** (1.92e-06) | 2.25e-07 (1.99e-06) | 5.01e-06** (1.95e-06) |
| Foreign firm | -0.0385 (0.228) | 0.542* (0.298) | -0.0327 (0.228) | 0.538* (0.298) | -0.0500 (0.177) | 0.522* (0.303) |
| ISO certificate | | 0.655*** (0.143) | | 0.653*** (0.143) | | 0.631*** (0.147) |
| Importer | 0.472*** (0.152) | 0.680*** (0.126) | 0.478*** (0.152) | 0.669*** (0.127) | 0.178 (0.112) | 0.422*** (0.140) |
| TFP | 0.866*** (0.0755) | 0.356*** (0.0576) | 0.873*** (0.0762) | 0.362*** (0.0575) | 0.972*** (0.0617) | 0.347*** (0.0592) |
| Medium firm | | | | | 1.010*** (0.202) | 0.676*** (0.163) |
| Large firm | | | | | 2.012*** (0.198) | 0.750*** (0.171) |
| Industry, year FE | yes | yes | yes | yes | yes | yes |
| Observations | 1,177 | 1,177 | 1,177 | 1,177 | 1,162 | 1,162 |

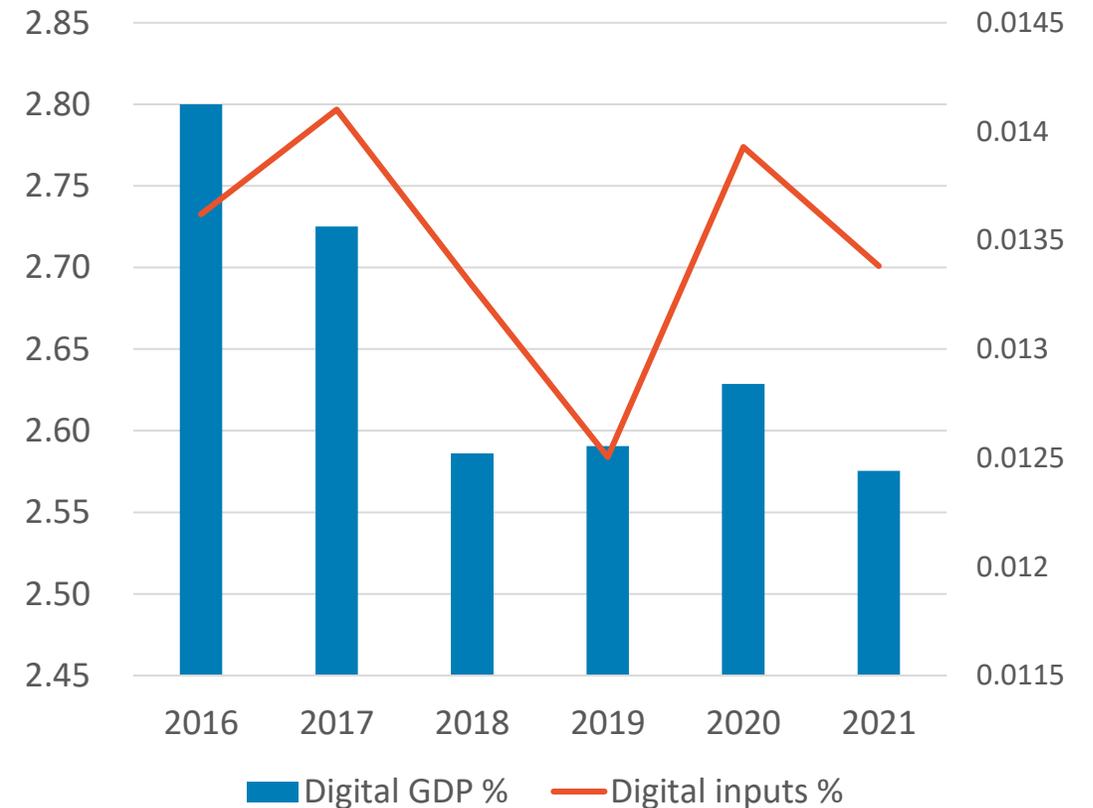
But the scope of digital-driven transformation in Bangladesh is slowing down; need for urgent and targeted investments

Digital and digitally-deliverable services trade



Source: UNCTADStat

Contribution of the digital sector to GDP



Source: Banga, forthcoming, from ADB MRIO

Forthcoming analysis

- Substantiating economic transformation in Bangladesh using;
 - Product-level analysis to identify 6-digit products in which Bangladesh can develop capabilities, depending on competitiveness and scope.
 - Disaggregated FDI data to unpack heterogeneity in inwards investment flows into manufacturing and services sector, by origin
- Substantiating digital-led economic transformation in Bangladesh through ;
 - A deep-dive into digital capabilities at the firm-level; how does Bangladesh compare with other countries?
 - The role of logistics and e-commerce in facilitating digital-transformation in Bangladesh