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VIET NAM 2045

TRADING UP IN A CHANGING WORLD

Pathways to a High-Income Future


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TABLE OF CONTENTS

FIGURES

BOXES

TABLE

ABBREVIATIONS

1	AD	Anti-Dumping
2	AHKFTA JC	The ASEAN – Hong Kong FTA Joint Committee
3	APCA	Administrative Procedure Control Agency
4	ASEAN	Association of Southeast Asian Nations
5	ATP	Assembly, Testing and Packaging
6	BEC	Broad Economic Categories
7	CBAM	Carbon Border Adjustment Mechanism
8	CGE	Computable General Equilibrium model
9	CMT	Cut-make-trim
10	CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
11	CVM	Countervailing measures
12	EAEU	EurAsian Economic Union
13	EAP	East Asia and Pacific
14	ECED	Early Childhood Education and Development
15	ESCs	Employment Service Centers
16	EVFTA	EU-Vietnam Free Trade Agreement
17	EVN	Vietnam Electricity
18	FDI	Foreign direct investment
19	FTA	Free trade agreement
20	GATS	General Agreement on Trade in Services
21	GDP	Gross Domestic Product
22	GHG	Greenhouse Gas
23	GMS	Greater Mekong Subregion
24	GTAP	Global Trade Analysis Project
25	GVC	Global value chains
26	HHI	Herfindahl-Hirschman Index
27	HVDC	High-voltage direct current
28	ICT	Information and communications technology
29	IoT	The internet of things
30	IP	Intellectual property
31	IPAs	Investment Promotion Agencies
32	IPR	Intellectual Property Rights
33	LMIC	Lower Middle-Income Country
34	LMIS	Labor market information system
35	LTGM	Long Term Growth Model
36	MacMap	Market Access Map

37	MFN	Most Favored Nation
38	NTM	Non-Tariff Measures
39	OECD	The Organisation for Economic Co-operation and Development
40	OOG	The Office of Government
41	PDP7	Viet Nam's 7th National Power Development Plan
42	PDP8	Viet Nam's 8th National Power Development Plan
43	PTA	Preferential Trade Agreement
44	QCD	Quality, Cost, and Delivery
45	R&D	Research and Development
46	RCA	Revealed Comparative Advantage
47	RCEP	Regional Comprehensive Economic Partnership
48	SCF	Implement Supply Chain Finance
49	SDP	Supplier Development Program
50	SOEs	State-owned enterprises
51	SPS	Sanitary and Phytosanitary Measures
52	STE	State Trading Enterprises
53	STEM	Science, technology, engineering, and mathematics
54	TBT	Technical Barriers to Trade
55	TED	Total Economy Database
56	TFP	Total Factor Productivity
57	TRAINS	Trade Analysis and Information System
58	TRIMs	Trade-Related Investment Measure
59	TRIPs	Trade-Related Aspects of Intellectual Property Rights
60	TVET	Technical and vocational education and training
61	UMIC	Upper Middle-Income Country
62	US	The United States
63	VET	Vocational and Education Training
64	WDI	World Development Indicators
65	WGI	World Governance Indicators
66	WTO	World Trade Organization

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SUMMARY

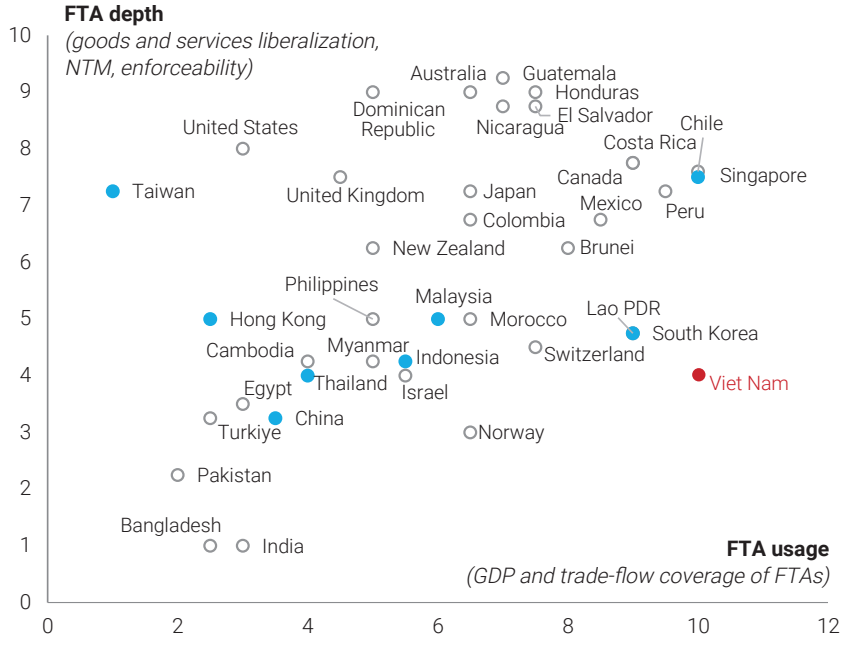
1. This report explores how Viet Nam can leverage the next phase of global and regional integration to achieve its aspiration of becoming a high-income economy by 2045. While Viet Nam's current growth model -- largely based on labor-intensive but relatively low value-added exports—has driven success, it will not be sufficient to propel the country to high-income status. As demonstrated by the experiences of Japan, Korea, Singapore, and now China, Viet Nam will need to continue to move up the value chain, transitioning into higher value-added manufacturing and services through improved technology, skills, and innovation. However, unlike its predecessors, Viet Nam must manage this transition amidst changing economics, geopolitics, and technology, which are rapidly reshaping global trade and investment flows, creating new opportunities and emerging risks. So far Viet Nam has benefited from the ongoing reconfiguration of global supply chains but with intensifying geo-economic fragmentation the future is uncertain. How will Viet Nam navigate the evolving global trading system? Which markets and activities offer the most promising growth opportunities? And, perhaps most importantly, what steps could Viet Nam take today to upgrade its participation in global value chains for growth and job creation tomorrow? These questions are at the core of this report.

2. While Viet Nam has the potential to move up the value chain, success cannot be taken for granted. As with its past achievements, Viet Nam's potential will only be realized through continued structural reforms and strategic investments in human capital and infrastructure. To upgrade its participation in global value chains, overcome emerging domestic constraints and mitigate global risks, the report recommends five complementary policy packages:

a. ***From tariffs reduction to deep (regional) trade integration.*** Viet Nam's past trade policies have achieved significant tariff liberalization and a wide network of bilateral and multilateral trade agreements, covering almost 90 percent of the world's Gross Domestic Product (GDP). The next phase should focus on leveraging these existing and new trade agreements to reduce significant non-tariff barriers, liberalize trade in services, and deepen regional integration (Figure S.1). The rapidly growing middle class and consumer markets across Asia offer significant opportunities. As one of the most export-dependent economies in the world, Viet Nam has a high stake in preserving a rule-based, open global and regional trading and investment system. Its growing economic stature as a dynamic middle-income economy creates opportunities to shape mutually beneficial regional and global cooperation. If the current global geo-economic context makes full-fledged multilateral cooperation difficult, then regional and pluri-lateral agreements may be more fruitfully pursued in the near term. Working with international partners within the Association of Southeast Asian Nations (ASEAN), the Regional Comprehensive Economic Partnership (RCEP), the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the World Trade Organization (WTO) and other settings, Viet Nam

could pro-actively pursue the deepening of commitments around key agendas such as digital trade, harmonization of standards, power trade, and connectivity.

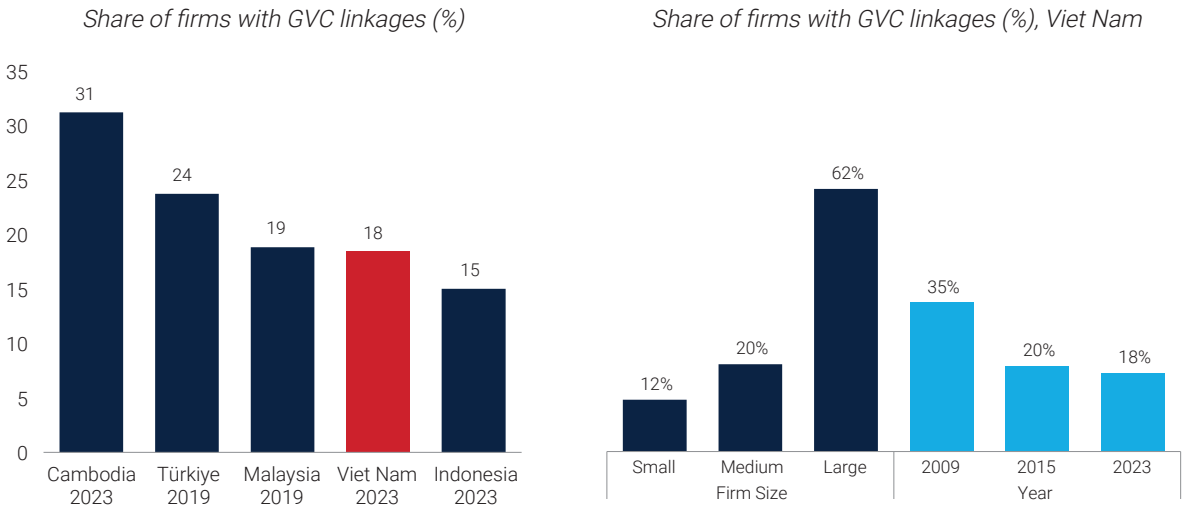
Figure S.1. Viet Nam's FTA strategy has focused on breadth over depth



Source: World Bank using DESTA, BCG.
Notes: FTA usage and depth are measured based on score from 0 to 10, with 10 meaning the highest possible usage or depth, respectively using the methodology from Dur et al (2012) and BCG (2024). Goods liberalization is scored using the effective weighted tariff rate across imported goods with FTA partners. Services liberalization is scored using the number of service types provided for in FTAs. Breadth is measures using the inclusion of nontrade provisions (IP rights, investment flows, etc). Enforceability is measured based the strength of dispute settlement mechanisms.

b. From a dual economy to integrated domestic value chains. Viet Nam's trade integration so far was largely driven by foreign firms. The future should focus on strengthening linkages and productivity spillovers between export firms and the rest of the economy. This would have significant positive impacts on productivity growth while also embedding supply chains more deeply in the domestic economy. Currently, foreign firms account for 73 percent of total exports. In contrast, most domestic firms tend to focus on non-tradable sectors such as traditional services, construction or real estate, and lack the capabilities to participate in global value chains, either directly or indirectly as suppliers. Only 18 percent of firms have Global Value Chains (GVC) linkages in 2023, a decline of 17 percentage points compared to 2009 (Figure S.2). As a result, Viet Nam captures only a fraction of the overall value embedded in the goods it exports. Policies to transition towards an integrated domestic value chains should focus on strengthening the business environment, better connecting GVC firms with local firms, implementing supply chain finance mechanisms, and setting up a supplier development program.

Figure S.2: Limited GVC linkages of Vietnamese domestic firms

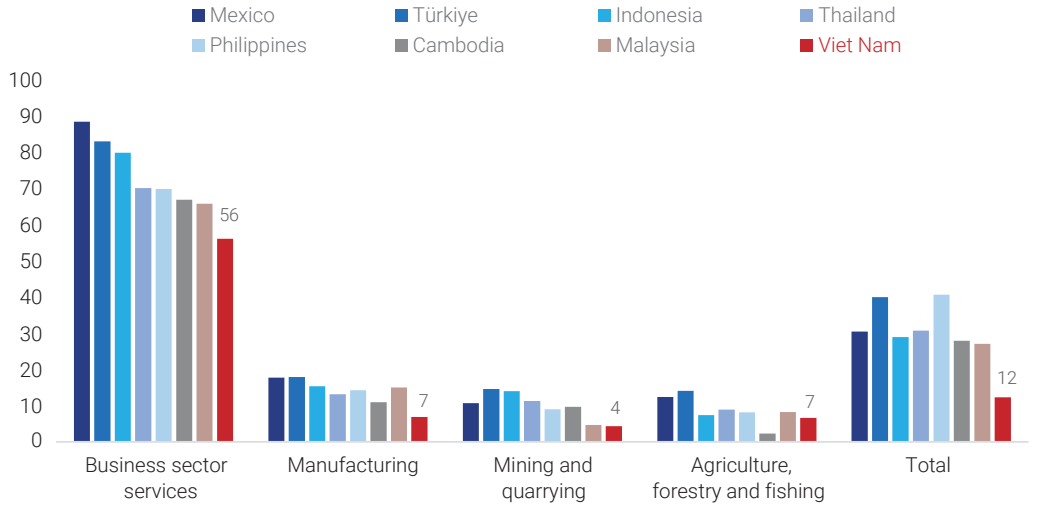


Source: World Bank staff computations.
Data: World Bank Enterprise Survey 2023.
Notes: Figures show average for each bar. A firm is considered to have GVC linkages if it has at least one of the following characteristics: more than 10% foreign equity, using foreign-licensed technology, involved in export (10% or more of sales), involved in imports. Imports are only defined for firms in the manufacturing sector. Firms size is defined following the definition used by the World Bank Enterprise Surveys (WBES) data, which is small (5-19 employees), medium (20-99 employees), and large (100+ employees). The WB Enterprise Surveys are stratified by sector of activity, firm size, and geographical location.

c. ***From labor-intensive final assembly to skill- and technology-intensive high-value activities.*** Viet Nam's past export model has focused mostly on final assembly. The next phase should aim to capture higher value-added activities, including from services. Currently, the overall share of services embedded in its total exports is only 12 percent, and even lower in manufacturing exports at 7 percent (Figure S.3). In comparison, aspirational peers such as Korea have embedded services accounting for at least twice as much of the export value. Additionally, Viet Nam's imports of knowledge services, including business services and royalties which facilitate technology upgrades, trail that of its peers. High-value segments of GVCs often have a significant services component. By promoting stronger "servicification," Viet Nam can upgrade to more advanced products and tasks within GVCs and capture higher value added per worker. However, Viet Nam's services sector faces significant trade and investment barriers. These barriers not only hinder entry of foreign service providers but also reduce competitive pressures on domestic providers, with state-owned enterprises (SOEs) being dominant players in key service sectors, such as energy, finance, and telecommunications. Policies should therefore focus on rationalizing the regulation of cross-border data flows, strengthening intellectual property rights, removing barriers to trade in services and opening-up key domestic service sectors for more competition.

Figure S.3: Servicification of exports remains limited in Viet Nam

Domestic services value added in exports (%), by export category, 2018

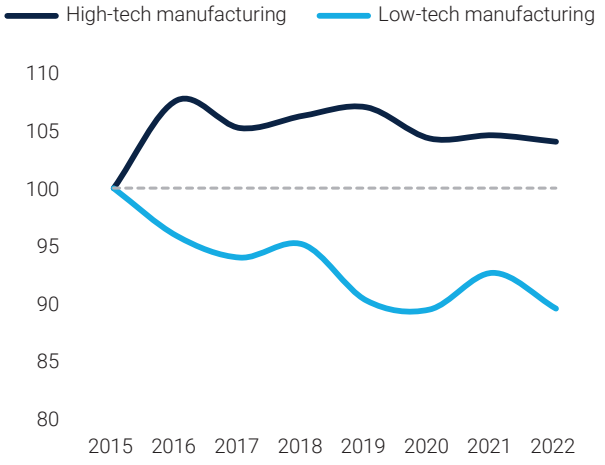


Source: WB staff computations.
Data: OECD-WTO TiVA 2023 release

d. From strong basic education to a high-skilled workforce. Viet Nam's past success in global value chains was driven by the abundant supply of low wage labor with basic skills. The future will depend on adequate supply of high-skilled workers. Historically, the rapid expansion of demand for low skill labor boosted the relative returns to such labor, helping to reduce poverty and ensuring that the benefits of global integration were widely shared across the population. However, this also led to a steady decline in the wage premium for skilled labor. Currently, only a small fraction of the manufacturing workforce – 5 percent – is considered high-skilled, and only 10 percent of the population holds a bachelor's degree, which is below all peers except Indonesia. There are signs that demand for higher skilled labor will intensify in tech-intensive manufacturing sectors, which already pay a higher skill premium (Figure S.4). Technology, especially automation, is compounding this shift in labor demand. Evidence from Viet Nam showed that the adoption of industrial robots has led to more high-skilled jobs but also a decline in employment of low-skilled workers. To move up the value chain, Viet Nam will need to advance on the education and skill ladder. Strategies to enhance skills acquisition and workforce development should prioritize investments in higher education, including building a stronger pipeline of scientists and engineers, enhancing market relevance and skills alignment for tertiary education graduates, promoting research and technology transfer, including through close collaboration with the private sector, improving training and research infrastructure.

Figure S.4: Demand for skilled labor in tech-intensive manufacturing industries

Wage premium of University graduates in manufacturing industries (100=2015)

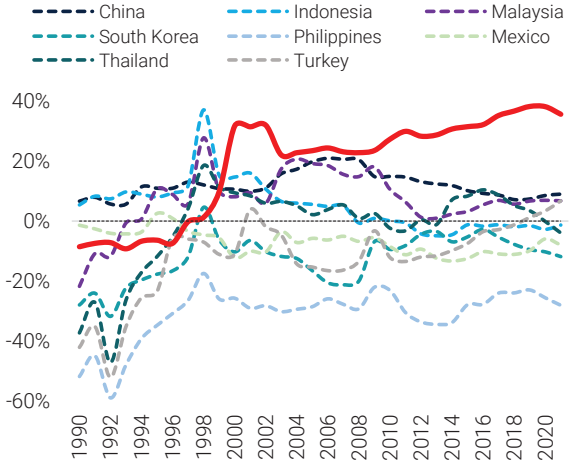


Source: World Bank staff calculations based on LFS.
Notes: Wage premium is measured as the ratio of average monthly income by industry for university or higher graduates compared to upper secondary graduates in the same industry. High-tech manufacturing shows the average wage premium across the following ISIC Rev. 4 classifications: Chemicals, Pharmaceuticals, Computer, Electronic, Optical, Electrical Equipment.

e. From carbon-intensive manufacturing to low-carbon and resilient exports. Viet Nam's past manufacturing and export expansion was powered by an increasingly carbon-intensive energy mix. Moving forward, the focus must shift to cleaner, low carbon production not only to meet Viet Nam's own climate goals, but also to remain competitive in the global market, which is rapidly transitioning towards low carbon products and services. Over the past thirty years, CO_2 emissions from manufacturing have grown three times faster than GDP, with export-related emissions now accounting for more than a third of Viet Nam's CO_2 emissions – higher than in any peer country in the region (Figure S.5, Panel A). Moreover, Viet Nam has seized limited market opportunities in green technology products, with environmental goods representing only 2 percent of its exports, the second lowest share among ASEAN countries. Policies to ensure clean energy supply and boost green exports should focus on enabling accelerated investments in green power infrastructure, reducing non-tariff measures on environmental goods, and progressively implementing electricity tariff reforms and carbon pricing. It is crucial to carefully mitigate the impact of rising energy costs on firms' competitiveness, including through targeted financial support to accelerate the adoption of energy saving and low-carbon technologies. Finally, a large part of Viet Nam's export manufacturing capacity is concentrated in disaster-prone areas (Figure S.5, Panel B). Strengthening the resilience of infrastructure, firms, and workers against climate shocks is paramount.

Figure S.5: A carbon-intensive export production...

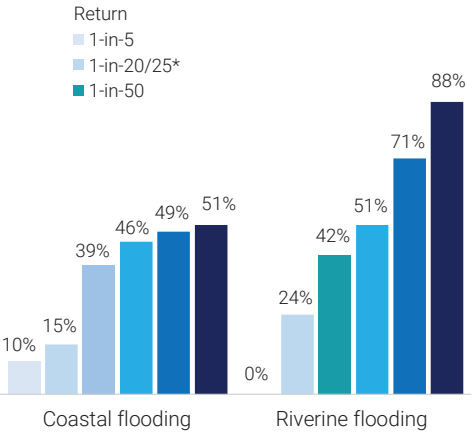
A. Export-related CO_2 emissions (% of production emissions)



Source: Global Carbon Project, Our World in data.
Notes: Export-related emissions correspond to the CO_2 emissions embedded in gross exports minus those embedded in gross imports

...heavily exposed to climate risks

B. Share of industrial zones in coastal provinces exposed to flooding (%)



Source: Rentschler et al. (2020) based on data from World Bank 2020 (industrial zone locations), Braese et al. 2020 (coastal flood data) and Fathom (riverine flood data).
Note: *Riverine: 1-in-20-year flood; coastal: 1-in-25-year flood

3. Viet Nam's transition to high value-added GVC participation will create both opportunities and risks. Some sectors and activities will expand, and some will contract, leading to worker movements within and across sectors and places, or in and out of formality or even the workforce. To make this transition more inclusive and flexible in an uncertain future, policies should focus on enabling more people to take advantage of the better job opportunities that will arise. This can be achieved by alleviating financial and non-financial constraints for disadvantaged students to ensure skill acquisition is easier and more equitable. Additionally, policies should facilitate the movement of people across sectors and locations to take up new and better job opportunities, while ensuring safety nets are in place to support workers who are adversely affected.

4. Viet Nam should act now. Viet Nam's remarkable development success to date was not a coincidence. It was hard earned through progressive structural reforms and investment in human capital and infrastructure. This began with the initial land and price reforms under Doi Moi in the late 1980s and continued with the significant liberalization and opening up during the country's accession to the WTO in 2007. To this day, Viet Nam is harvesting the fruit of these earlier reforms. However, reform implementation and investment has stalled in recent years. Viet Nam needs to reinvigorate reforms to germinate the policy seeds for sustained success tomorrow. Pursuing a comprehensive approach that combines the key policy reforms presented in this report could unlock productivity growth, attract private sector investment, and help lift Viet Nam to high-income status by 2045.

Table 0.1 Policy packages

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policy package 1: From tariffs reduction to deep (regional) trade integration	**Reduce non-tariff policy barriers to trade by:** (i) promoting compliance with international and regional standards; (ii) streamlining border management; and (iii) reducing foreign equity restrictions.	MT
	Enhance regional connectivity by: (i) reducing policy barriers to trade and investment flows across the region; (ii) strengthening physical and digital connectivity to reduce costs, within Southeast Asia as well as with China and South Asia.	MT
	Shape the regional integration agenda by: working proactively with international partners within ASEAN, RCEP, CPTPP and other settings to deepen commitments around key agendas such as digital trade, harmonization of standards, power trade, and connectivity.	MT
Policy package 2: From a dual economy to integrated domestic value chains	**Continue strengthening the business environment:** the Administrative Procedure Control Agency (APCA) in the Office of Government (OOG) should collaborate with ministries to develop a detailed digitalization program and action plan. This includes eliminating physical document requirements and enhancing the data sharing framework (government interoperability) with unified web-based application forms. Moreover, improve the licensing and inspecting framework by adopting a risk-based approach.	ST/MT
	Connect MNEs and local firms by: (i) leveraging Investment Promotion Agencies (IPAs) to strengthen the connection between high potential local suppliers and new or existing foreign investors; (ii) organizing "Meet the Buyer" events or suppliers' forums to help potential suppliers to better understand quality, cost, and delivery (QCD) standards as well as technology and skills gaps; (iii) publishing online "live" databases and directories of local suppliers in English to reduce search costs for foreign firms; and (iv) establishing a Supplier Development Program (SDP) to enhance local firms' capabilities and linkages, including both demand-driven horizontal support and sector-specific vertical measures.	ST/MT
	Implement supply chain finance (SCF) mechanisms between FDI and domestic firms to optimize working capital, convert receivables and inventories to cash, and obtain lower-cost financing, thereby smoothing transactions between FDI firms and local suppliers.optimize working capital, convert receivables and inventories to cash, and obtain lower-cost financing, thereby smoothing transactions between FDI firms and local suppliers.	MT

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policy package 3: From labor-intensive final assembly to skill- and technology-intensive high-value activities	**Reduce barriers to services trade in backbone services sectors such as telecom, finance, and transportation services by:** (i) addressing restrictive telecom regulations to boost competition; (ii) relax stringent foreign exchange rules in finance to enhance Vietnamese banking sector's access to capital and opportunities for collaboration with foreign banks and investors; (iii) eliminating discriminatory regulations against foreign service providers in transport to lower costs; and (iv) reducing barriers in legal services to foster cooperation between Vietnamese and foreign legal professionals.	ST
	Prevent conflict of interest and ensure fair treatment of State-owned enterprises (SoEs) and private sector by: establishing independent regulatory authorities for key services sectors like telecommunications, postal services, and transportation.	MT
	Rationalize cross-border data flow regulations by: revising regulation requiring data localization and the establishment of a commercial presence, such as representative or branch offices for foreign firms offering online services.	MT
	Implement the comprehensive intellectual policy (IP) framework by: strengthening the Vietnamese enforcement agencies that have encountered difficulties in adapting to new regulations, leading businesses to seek alternative protective strategies, such as contractual clauses and market monitoring.	MT
Policy package 4: From strong basic education to a high-skilled workforce	**Develop the workforce for high technology industries by:** (i) developing curricula and training faculty to enhance industry-aligned education and skills: (ii) providing targeted financial and non-financial incentives (scholarships) for potential students; and (iii) investing in upgrading training and R&D facilities in STEM higher education institutions and research institutes.	ST
	Adopt a market-driven, competency-based approach for tertiary education by: (i) establishing sector skills councils involving private sector employers and training institutions to ensure that educational offerings meet the evolving needs of employers and prepare workers for emerging jobs and skills; and (ii) implementing a results-oriented and evidence-based approach using data and feedback loops to continuously improve outcomes and ensure alignment with labor market dynamics.	ST/MT
	Revamp TVET programs to develop a broad set of skills for current and future workforce by: (i) expanding certification bootcamps and apprenticeships, co-	ST/MT

[1] A national program has been recently approved on the workforce development of the semiconductor industry, but has not yet been implemented (Decision 1017-QD-TTg, September 22, 2024).

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policy package 4: From strong basic education to a high-skilled workforce	developing curricula with industry partners to ensure relevance, and focusing on both cognitive, behavioral, and technical skills development; (ii) overhauling training quality and market relevance in vocational education to align with the evolving economic needs. Such an overhaul would include a stronger focus on outcomes rather than outputs, including through results-based financing, and a stronger commitment to quality.	
Policy package 5: From carbon-intensive manufacturing to low-carbon and resilient exports	**Move towards cost-reflective electricity tariffs and carbon pricing to support the decarbonization of the economy while mitigating impacts on competitiveness by:** (i) providing forward guidance to market participants on the expected price trajectory to allow for sufficient time for firms to adapt, including through investments in energy-saving and low carbon technologies; and (ii) providing targeted financial support to firms, including through green finance programs, to encourage wider adoption of and investment in low carbon technologies.	ST/MT
	Accelerate investment in power infrastructure by: (i) accelerating project approval processes to enable the rapid rollout of four 500kV backbones listed in PDP8 to increase the power transfer capacity from the south, which benefits from a power surplus, and scale-up installed capacity in the north; (ii) adopting well known technologies, such as high-voltage direct current (HVDC), will help to maximize energy transfer on longer distances, while reducing the physical footprint impact; and (iii) enabling access to long-term financing for the power sector – both domestic and international - will better match the investments' repayment profile with the operational life of the assets.	MT
	Reduce NTMs limiting trade in environmental goods by: streamlining the large number of technical barriers to trade targeting renewable energy products and the management of solid and hazardous waste.	MT
	Develop a coastal resilience investment program for main urban centers, industrial zones, and connecting infrastructure by: (i) mitigating flood-related risks by upgrading critical road and power assets to climate-resilient design standards; (ii) developing financial mechanisms and making them available before, during, and after disasters to secure financial protection of firms and channel investment in resilient infrastructure; and (iii) companies should systematically assess the vulnerability of their trading environments to natural disasters and consider alternative locations when climate-vulnerability is particularly high.	MT

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policies to make GVC-driven growth and job creation more inclusive	**Enhance labor mobility to take advantage of new opportunities by:** (i) providing career guidance and job search support especially for students and workers from vulnerable backgrounds; (ii) using the unemployment insurance fund effectively to support workers in upskilling on the job or transitioning to new employment opportunities; (iii) expanding active labor market policies to include job search and vocational and education training (VET) systems; and (iv) providing VET institutions with increased autonomy and capacity to prepare workers in ways that meet industry demand. Key policies to indirectly promoting labor mobility are: (v) increasing affordable childcare and strengthening the aged and long-term care system; and (vi) strengthening local capacity and financing around the *ho khau* reforms.	ST/MT
	Develop active labor market programs targeted to those losing jobs as the economy evolves by: (i) expanding the Labor Market Programs focus beyond unemployment insurance to include job search and matching services and training for job seekers; (ii) building a labor market Information System to inform training and job matching functions of the public employment services and vocational and educational training (VET) system; and (iii) increase VET provider linkages to employers.	MT
	Ensure skill upgrading benefits all by: (i) reducing human capital gaps across the lifecycle, including a focus on stunting and Early Childhood Education (ECED), secondary school dropout for poorer children, and the affordability and access of tertiary education; and (ii) encouraging more females to go into STEM fields.	MT

INTRODUCTION

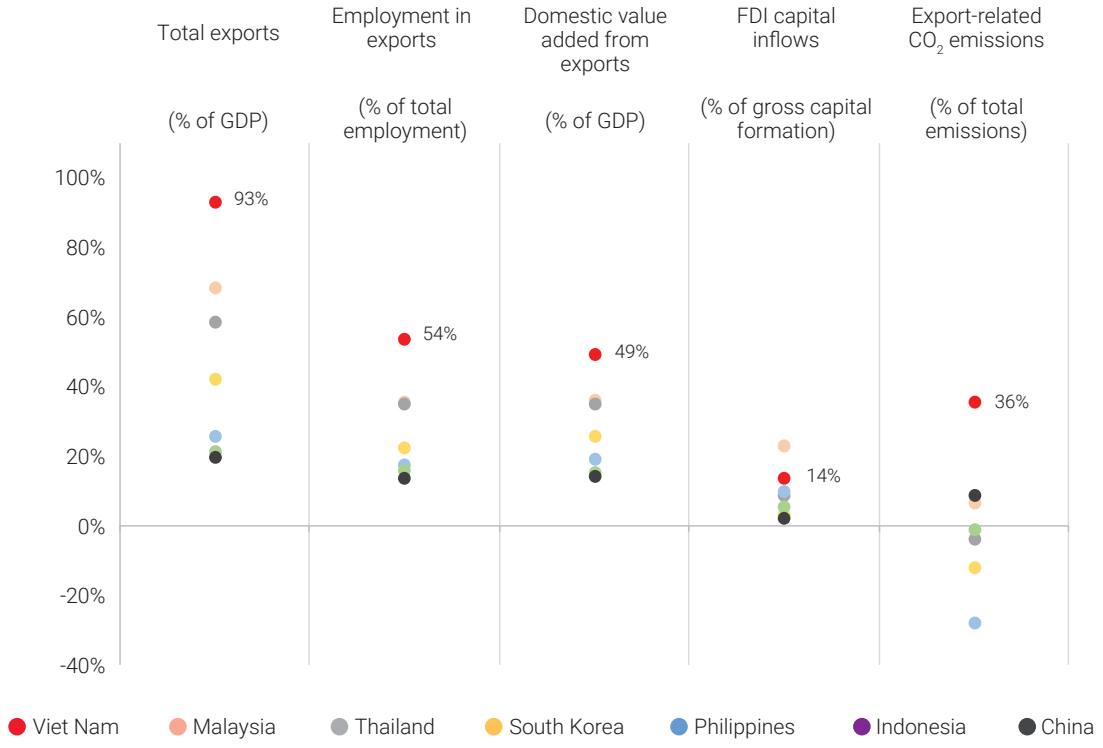
5. The importance of global trade for Viet Nam's development cannot be overstated. Viet Nam stands out even in East Asia, a region often seen as synonymous with export-led growth (Figure 0.1). Over the past twenty years, foreign direct investment (FDI) inflows accounted for about 5 percent of GDP annually, contributing a higher share to overall investment than in almost any other country in the East Asia region.[2] Over this period, exports expanded at 12.7 percent per year on average, rising to nearly 100 percent of GDP in 2023. As Viet Nam deepened its integration into key global value chains (GVC), its export basket shifted from agricultural and commodity exports in the 1990s to low-tech light manufacturing in the 2000s to increasingly more sophisticated high-tech exports during the past decade. Today, about half of the country's GDP is generated -directly or indirectly- by the export sector and every second job depends on exports, making Viet Nam the most trade-dependent economy in East Asia, except Singapore.[3]

6. Viet Nam's economic future will largely depend on its ability to transition to higher-value manufacturing and services. Viet Nam aims to become a high-income country by 2045. Achieving this goal will require more than tripling Viet Nam's current income, implying a sustained average GDP growth per capita of about 6 percent every year over the next twenty years. While a driver of past success, Viet Nam's current export-driven growth model -- based largely on labor-intensive but relatively low value-added final assembly -- will not be sufficient to deliver the labor productivity growth necessary to achieve this objective. As the experience of Japan, Korea, Singapore, and now China shows, Viet Nam will need to continue to move up the value chain, shifting into higher value-added manufacturing and services using improved technology, skills, and innovation (Figure 2). Conversely, if Viet Nam fails to make this transition, it faces a real risk of premature deceleration, potentially impeding its economic progress and leaving it vulnerable to global competition.

[2] Over the period 2000-2022, cumulative FDI inflows represented US$ 197 billion, equivalent to 48.1 percent of today's GDP.

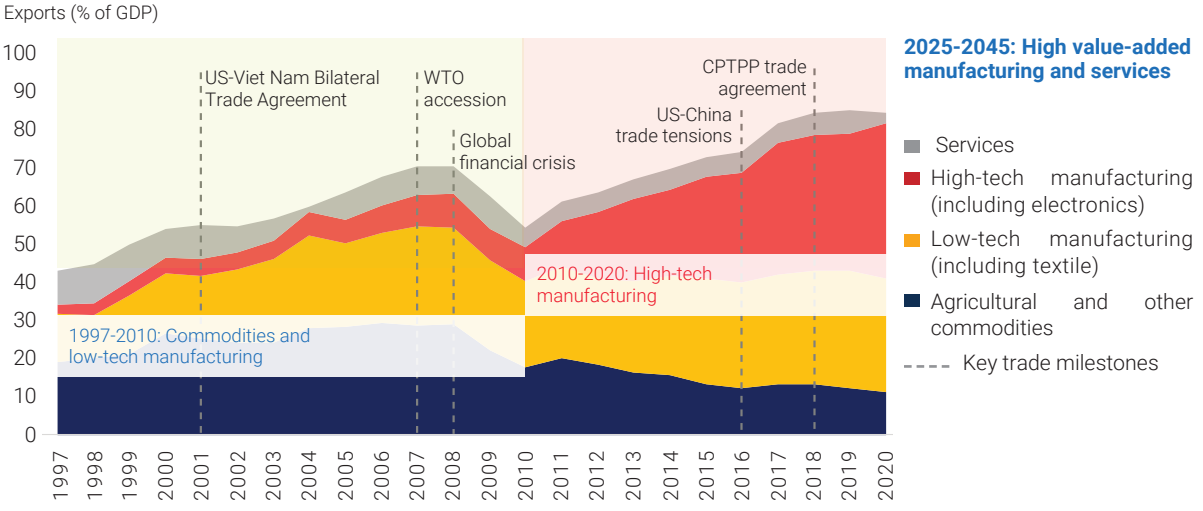
[3] Singapore's exports represent 157 percent of GDP, 53 percent of employment, and 62 percent of domestic value added.

Figure 1: Global trade plays a crucial role in Viet Nam's economy



Source: World Bank staff calculations based on WDI, OECD, UNCTAD, Global Carbon Budget.
Notes: The unit for each panel is indicated in parenthesis. Total exports refer to the total exports of goods and services in 2021. FDI capital inflows are measured in 2022. Employments in exports are the share of domestic employment embodied in foreign final demand in 2020, including direct and indirect employment. Domestic value added from exports is the exported value added generated in the domestic economy (directly by the exporting industry) or indirectly, measured in 2020. Export-related CO_2 emissions are the CO_2 emissions embedded in gross exports minus those embodied in gross imports, as a share of production-based total CO_2 emissions, measured in 2021.

Figure 2: An evolving export growth model to reach Viet Nam's 2045 ambitions of becoming a high-income country



Source: World Bank staff calculations based on WDI

7. Viet Nam will have to manage this transition at a time when the global trading system is undergoing profound changes. Economics, geopolitics, and technology are rapidly reshaping global trade and investment flows. Global trade, especially in goods, has decelerated compared to even a decade ago and value chains are shifting, as both governments and business seek to enhance supply chain resilience. On the demand side, Asia is rising as the world's largest consumer market. Viet Nam – with its deep entanglement in intricate supply networks that stretch across the US, China, and East Asia – finds itself at the heart of these developments. At the same time, disruptive technologies create opportunities for faster technological catch-up but also threats to labor markets, especially in traditional labor-intensive manufacturing and service sectors. Finally, climate change profoundly affects global trade as extreme weather poses risks to supply chains while global efforts to reduce carbon emissions are shifting patterns of demand and comparative advantage, creating opportunities for fast movers but also risks for late comers.

8. Against this backdrop, this report tackles the critical question of where Viet Nam should move next. How will Viet Nam navigate the shifting sands of the global trading system? Which sectors and markets offer the most promising export opportunities? And, perhaps most importantly, what steps could Viet Nam take today to upgrade its GVC participation for growth and job creation tomorrow?

9. While Viet Nam is well positioned to seize new trade opportunities, success cannot be taken for granted. As shown in the report, Viet Nam has gained significant global market share and developed industrial capabilities that position it well to seize new trade opportunities in several high-growth areas. This remarkable development success to date was not a coincidence. It was hard earned through progressive structural reforms and investment in human capital and infrastructure, starting with the *Doi Moi* reforms in the late 1980s to the significant liberalization and opening up during the

country's accession to the WTO almost 20 years ago. To this date, Viet Nam is harvesting the fruit of these earlier reforms. But reform implementation and investment has stalled in recent years. To sustain its past achievements, Viet Nam will need to reinvigorate its reform drive to germinate the policy seeds for sustained success tomorrow.

10. The remainder of the report is structured as follows. Section 1 analyzes the crucial role trade played in Viet Nam's rapid industrialization and development over the last three decades. Section 2 highlights the emerging constraints to the current export-driven model. Section 3 discusses the fundamental shifts in the global environment that shape both opportunities and risks for Viet Nam. Section 4 identifies policy packages to upgrade Viet Nam's participation in global value chains and specific policies needed to realize them. Section 5 examines policies to manage the economic transformation and ensure that no one is left behind. A summary of policy recommendations is provided at the end of the report (Table 2).

1. Global trade and investment generated significant development dividends

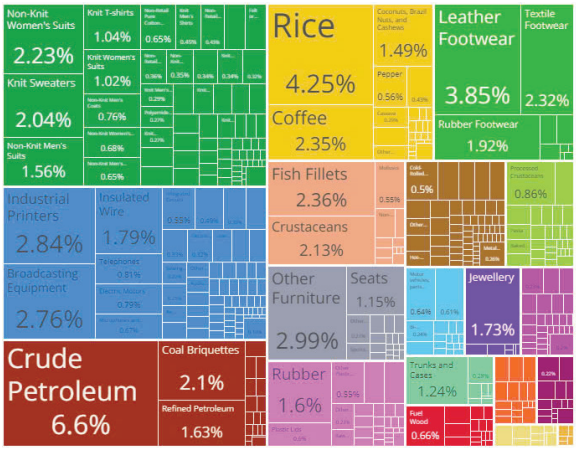
11. Over the last three decades, Viet Nam has become an exemplar of economic success fueled by its integration into GVCs. Viet Nam had one of the most rapid development trajectories to date, with GDP per capita increasing 6-fold in less than 40 years, from less than $600 per person in 1986 to more than $3,650 per person today.[4] Foreign investment and trade were major drivers of Viet Nam's rapid structural transformation, exceptional growth, and fast rise in living standards. By attracting substantial foreign direct investment (FDI), Viet Nam transformed itself into an export powerhouse: export volumes surged from less than 4 percent of GDP in 1988 to nearly 100 percent in 2023, in recent years partly driven by the ongoing reconfiguration of global supply chains (discussed in section 3 of this report). Viet Nam's trade-to-GDP ratio, which includes both exports and imports, is now around 200 percent of GDP, making it one of the world's most open economies. Today, domestic value-added from exports accounts for about half of GDP in Viet Nam, and Viet Nam is now the second-largest smartphone exporter globally (World Bank 2020).

12. The rise of export volumes was underpinned by fast diversification of the export basket towards increasingly more complex electronic products. Viet Nam started as a major exporter of agricultural and food products such as rice, shrimp, cashew nuts and coffee (41 percent of exports in 1995 including 14 percent from coffee alone) before diversifying into more labor-intensive manufacturing sectors such as apparel cut-make-trim (CMT) operations in textile and footwear (28 percent of exports in 2010). Following a rapid transition, Viet Nam is now increasingly focused on electronics final assembly for mobile phones, semi-conductors, and other consumer electronics (38 percent of exports in 2022). Today, close to 50 percent of the export basket is derived from electronics and machinery, and one in four exported products by traded value consists of telephones, semiconductors integrated circuits and broadcasting equipment such as cameras (Figure 3).

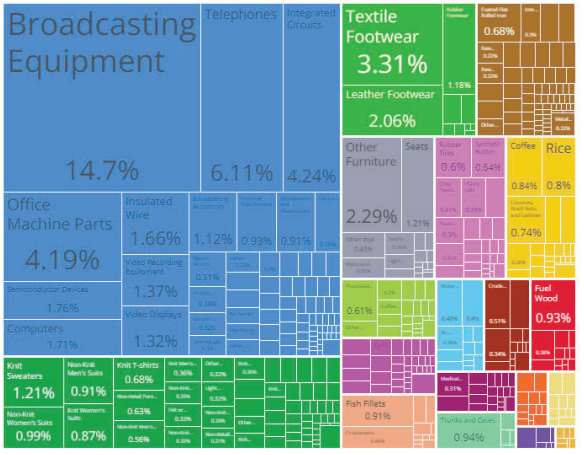
[4] GDP per capita in constant 2015 US$. The year 1986 corresponds to the start of the Doi Moi reforms.

Figure 3: A fast evolving and increasingly complex export basket

A. Export basket, 2010 (Total: US$ 77 billion)



A. Export basket, 2022 (Total: US$ 399 billion)



Source: OEC using Comtrade, BACI dataset.
Notes: Export baskets are shown at the HS1992 4-digit level, which corresponds to about 1,000 product categories. Percentages correspond to the share of total traded value from a given product. Color codes indicate broad product categories: blue indicates machinery and electronics; green indicates textile, footwear, and other garment; light green and yellow indicate agricultural and food products; brown indicates petroleum and other mineral products. Broadcasting equipment include transmit-receive instruments for radio and TV, such as television cameras, digital cameras, and video camera recorders.

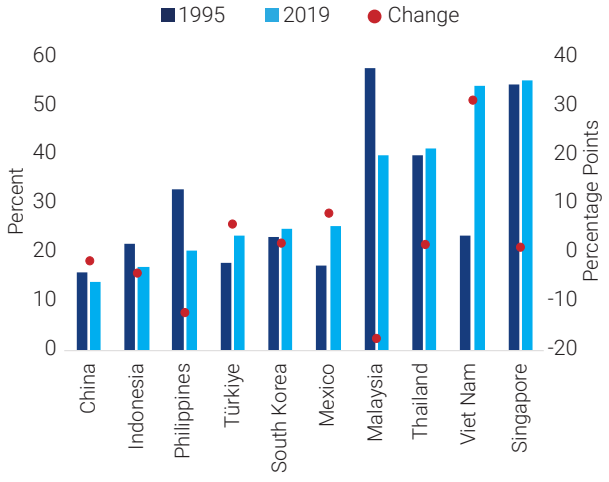
13. In the process, Viet Nam's export sector created millions of jobs. In 1989, export-related jobs accounted for about 15 percent of all employment in Viet Nam, with around 5 million workers (World Bank 2018). By 1995, this proportion had increased to 23 percent, representing 8 million jobs. Over the next six years, the rate of growth for export-driven employment was 13.4 percent annually, reaching 43 percent of total employment by 2001.[5] Export-driven employment grew more slowly after that, albeit still at 2.8 percent per year, to represent just over half (54 percent) of total employment in 2020, or 28.6 million workers. The 30-percentage point rise in the export share of employment from 1995 to 2020 is nearly four times greater than that of the nearest peer country (Figure 4 panel A).[6]

[5] Inclusion of job contribution through indirect links to supplying sectors (Winkler, Aguilar-Luna, Kruse and Maliszewska, 2023).

[6] Throughout this report, comparator countries refer to Indonesia, Malaysia, the Philippines, and Thailand (structural countries), as well as China, South Korea, and Singapore (aspirational countries). Structural countries have economies structurally similar to Viet Nam's and were selected from the EAP region using a rank difference based on the following indicators: GDP in constant 2015 US$, total population, exports as % of GDP, and value added from services, industry, and agriculture as % of GDP. GDP and population are given a weight of 3, and exports a weight of 2, to reflect their importance for GVC participation. Among the six most structurally similar countries, South Korea and China were considered aspirational given their significantly larger GDP compared with Viet Nam. Singapore was also added as an aspirational country based on its GDP per capita of US$ 69,400 (international PPP US$), ranking it first in EAP. The terms comparator and peer countries are used interchangeably and refer to both structural and aspirational countries. Where relevant, data for Türkiye, Mexico, and Bangladesh are also shown given their important role in GVC participation.

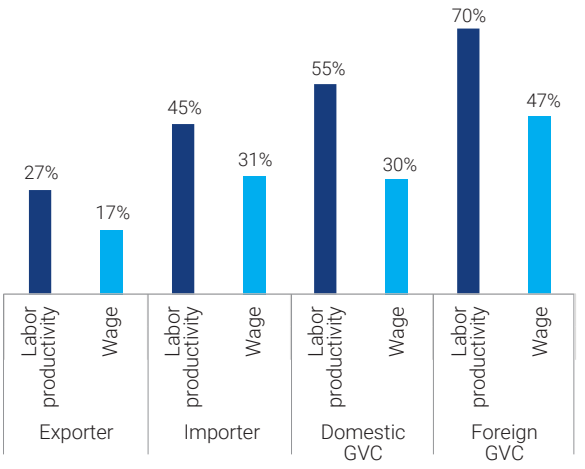
Figure 4: GVC firms create more jobs, are more productive, and pay higher wages

A. Export-driven employment share of total (%)



Source: Winkler, Aguilar-Luna, Kruse and Maliszewska (2023)
Data: OECD TiE

B. Productivity and wage premia offered by firms engaged in GVCs



Source: General Statistics Office of Viet Nam's Enterprise Surveys, reported in World Bank (2020a)
Notes: Productivity and wage premia measured relative to firms operating in the domestic market (not engaged in imports or exports), after Controlling for firm size and sectoral differences

14. Global integration also fostered productivity growth thanks to GVC firms. Reflecting a combination of greater access to frontier technology, scale, and competition, GVC firms (firms engaged in both importing and exporting) exhibit much greater productivity than firms operating in the domestic market. This is confirmed by firm-level evidence showing that firms participating in GVCs are more productive. Controlling for firm size and sectoral differences —a crucial step, as GVC firms are typically larger and situated in more productive sectors— foreign-owned GVC firms still exhibit a notable productivity premium of 70 percent on average (Figure 4, Panel B). Within the manufacturing sector, there is a wide range of productivity premiums, with the highest being 115 percent in the beverage manufacturing sector and the lowest at 38.5 percent in leather manufacturing. Advanced manufacturing sectors, such as chemicals, transport, and electrical equipment, show higher premiums than labor-intensive sectors like leather, wearing apparel, or wood products. Firms that are only importing or exporting (not both) also have significant productivity premia, albeit smaller than GVC firms.

15. Higher labor productivity has in turn driven higher wages in GVC firms. Wages in export-related activities have also been rising since the early 2000s commanding a premium over non-export sectors. The average wage of workers in export-related employment was flat between 1995-2001 before increasing by 3.2 percent annually from 2001-20.[7] Average wages are higher than the equivalent average

[7] OECD Trade in Employment 2023 database and World Bank calculations.

income per worker in the broader economy. In 2016-20, the wage premium was 17 percent for exporters, about 30 percent for importers and GVC firms with domestic ownership, and 47 percent for fully foreign-owned GVC firms (Figure 5, Panel B). Beyond wages, the quality of jobs directly linked to GVCs in Viet Nam has also been better than non-GVC jobs, particularly in terms of job stability and benefits. As a result, Viet Nam's job quality is measured to be one of the highest among developing countries.[8]

16. Strong economic growth and job creation resulted in exceptionally rapid reduction in poverty and vulnerability. Viet Nam's high and sustained growth has driven a dramatic fall in poverty, one of the largest and most rapid declines in history. In 1992, just under half of the country lived below the extreme poverty line of $2.15 per day (2017 PPP). By 2020, almost no one lived in extreme poverty (less than 1 percent) or was poor by Lower Middle-Income Country (LMIC) standards (4 percent), and only 19 percent of the population was below the Upper Middle-Income Country (UMIC) poverty line.[9] Export-driven jobs contributed to this poverty reduction in two ways. First, the rapid expansion in export-related employment from 1995 (and before) to 2001 meant that a large share of workers previously employed in low-productivity agriculture switched into higher-paying manufacturing jobs. Second, the growth in labor productivity and real wages in export-related jobs from 2001 to 2020 boosted real income growth among the increasingly large workforce employed by the export sector. Export-driven job creation has been mostly pro-poor, benefitting more those with less education, reflecting the largely low-skilled employment created by the current model.

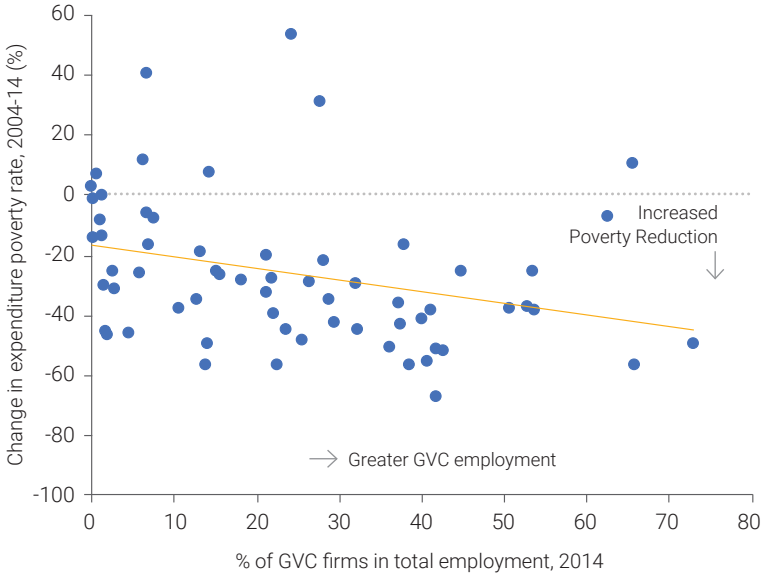
17. However, economic benefits from Viet Nam's GVC integration have not been uniformly distributed across the country. Driven by agglomeration effects and proximity to international gateways – international deep sea and airports – gains from global trade were initially predominantly concentrated in and around the nation's two largest urban centers, Ha Noi and Ho Chi Minh City. Poverty reduction was faster in locations with a larger presence of GVC firms (Figure 5), with some positive spillovers to neighboring provinces. Only recently have other regions, such as the central province of Quang Ngai, started to witness more substantial job growth. Additionally, while GVC integration often motivates the internal migration of people within a country to access new employment opportunities, such movement in Viet Nam involved additional challenges from the *ho khau* system, a household registration policy which has been recently abolished, that used to restrict access to key local services for migrants. Thus, while people could migrate for better opportunities, this might come at the cost of greater barriers to human capital development for their children, for example.

[8] World Bank (2022) Global Job Quality: Evidence from Wage Employment across Developing Countries Dashboard.

[9] LMIC poverty line is $3.65 per day and the UMIC line is $6.85 per day.

Figure 5: GVC benefits were geographically concentrated

Change in provincial poverty (%) versus share of GVC firms in total employment (%)



Source: World Bank calculation using data from Viet Nam customs and GSO Enterprise Survey.

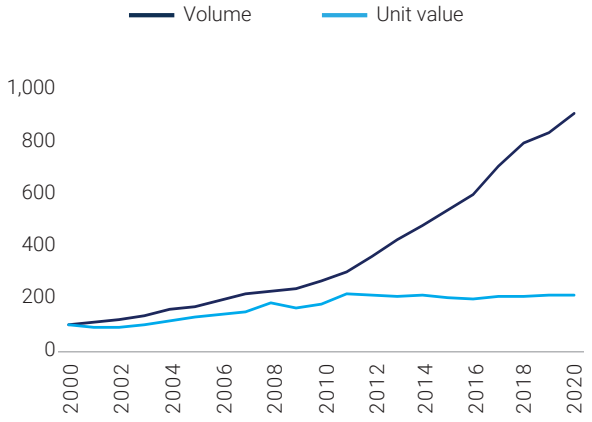
2. Emerging constraints of the current export model

18. While Viet Nam has successfully leveraged global integration to drive development, there are emerging constraints associated with a model that is largely based on abundant and cheap labor. Despite the rapid transition into high-tech manufacturing, Viet Nam's export growth is still largely driven by quantity rather than quality. Viet Nam's average value per unit of exports (a measure of the quality of exports) has doubled reflecting the shift into higher value electronics exports over the past two decades. But the main driver of export growth was quantity with export volumes surged nearly tenfold over the same period (Figure 6, panel A). While scale and specialization in low-cost final assembly was a positive driver of Viet Nam's integration into GVC so far, it may not be enough to provide the labor productivity growth and value addition from trade observed in high-income economies such as Korea (Figure 6, Panel B).

19. Viet Nam's specialization in low-skilled, labor-intensive, low value-added activities is reflected in its relatively low export value-added per capita. Viet Nam's domestic value added from exports recorded a high average annualized growth rate of 22 percent in manufacturing over a relatively short period (2005-19). Its export domestic value added reached over 1,400 USD per capita in 2020 (in constant 2015 terms), up from 117 USD per capita 15 years earlier. It is now on par with China and Türkiye but remains below comparable export-led economies such as Thailand or Malaysia (Figure 6, Panel B). This reflects the concentration of its exports in low value-added GVC segments and activities, capitalizing on its competitive labor costs.

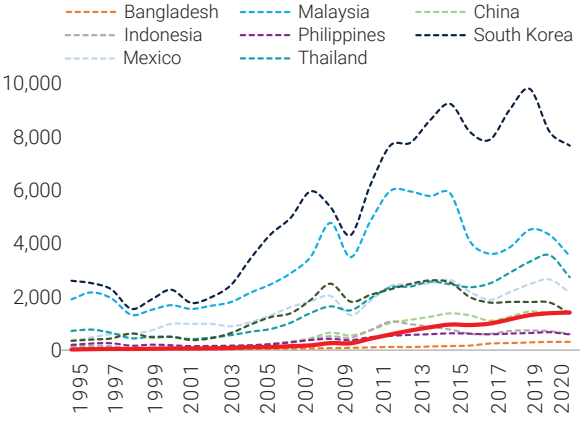
Figure 6: Rapid export growth was driven by quantity not quality of exports...

A. Export Volume and Unit Value (Index 2000=100)



...with relatively low export value-added per capita

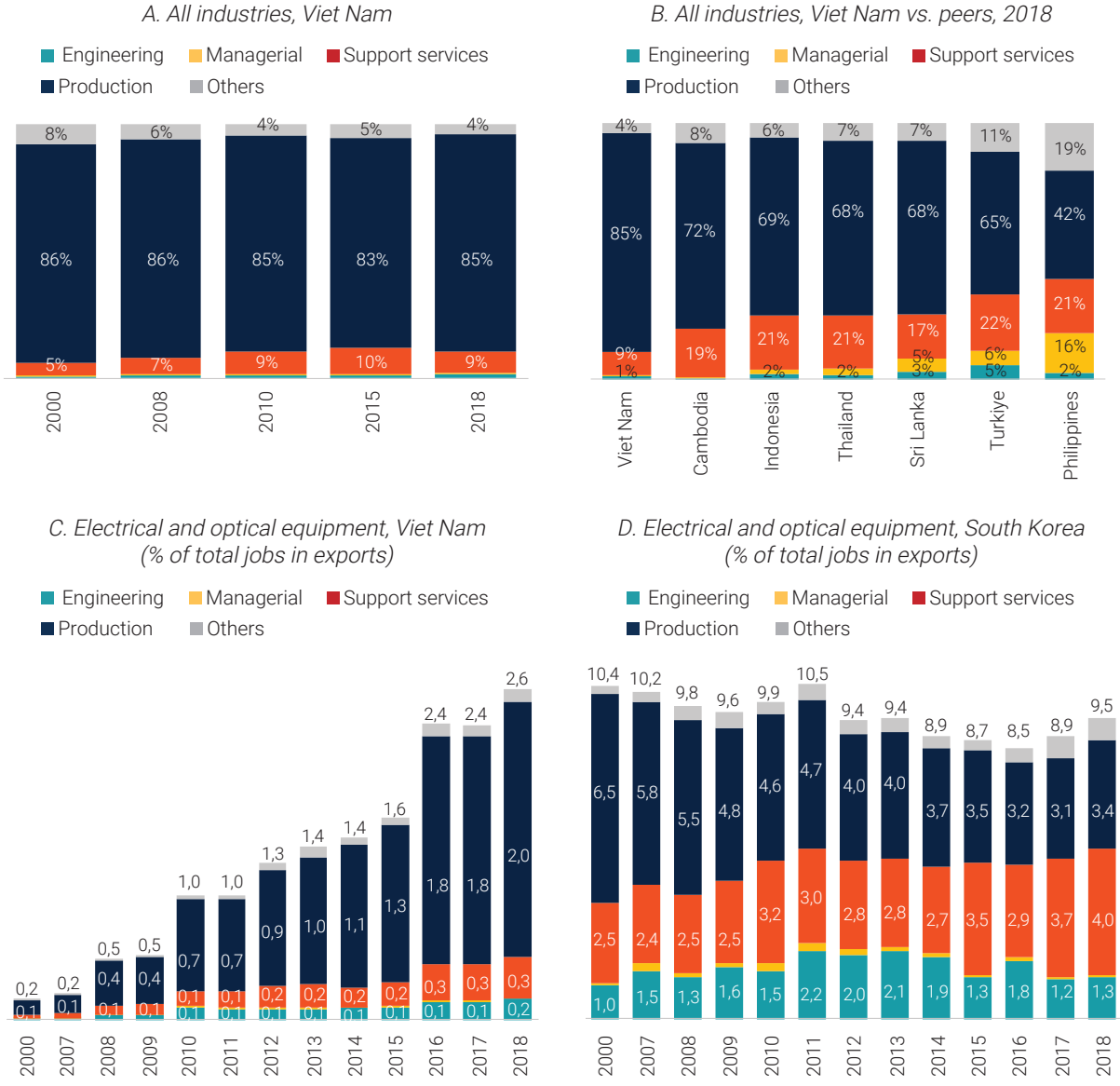
B. Domestic value added in exports per capita (USD), 1995-2020



Source: WDI, UNCTAD, and World Bank staff estimates
Notes: Export unit value indices come from UNCTAD's trade database using data reported by national statistical authorities based on export merchandise trade data. Changes in unit value indices reflect changes in both prices and composition. Higher unit values are generally considered as an indication of higher product quality (see Bykova, Ghodsi and Stehrer 2018 for a review)

20. Viet Nam's main challenge remains to shift its export jobs towards higher value activities such as support services and managerial positions. Today, about 85 percent of Viet Nam's jobs in the export sector consist of production activities such as craft workers, machine operators, and farm laborers which tend to create low value-added (Figure 7, Panel A). Viet Nam's exports rely on a much higher share of production activities than for all its comparators, substantially higher than in Türkiye (55 percent) and twice the share observed in the Philippines (42 percent) (Figure 7, Panel B). Moreover, the high reliance on production activities in Viet Nam's total exports hardly changed since 2000. While Viet Nam's share of support services activities has almost doubled to 9 percent between 2000 and 2018, it continues to trail that of other countries. Viet Nam's high share of production activities is unusual as it has not declined over time despite shifting into a more complex export basket dominated by electronics. Even in high-tech export segments such as electrical and optical equipment, three-in-four jobs in Viet Nam have been linked to production and constitute the bulk of job creation since 2000, while countries boasting higher domestic value added from exports such as South Korea have a more balanced share of production jobs in this sector of about one-in-four jobs (Figure 7, Panels C and D).

Figure 7: Job activities in exports, Viet Nam and peers



Source: Kruse, Timmer, de Vries, and Ye (2023). Note: Job activity content of exports, covering 20 industries
Notes: Peer countries for Panel B include Indonesia (IDN), Cambodia (KHM), Sri Lanka (LKA), Philippines (PHL), Thailand (THA), and Türkiye (TUR). Support services include: other professionals, clerical support workers, and sales workers; Production includes: craft workers and machine operators, agricultural workers, and drivers; Others include: legislators, health professionals, teachers, personal support workers; and other workers.

21. Viet Nam's past success led to the emergence of constraints that hamper the transition towards higher value-added exports. Relatively low wages created a strong comparative advantage in labor-intensive GVC segments, attracting significant FDI, but led to high concentration of economic activity in low value-added final assembly. This, in turn, created a strong demand pull for low-skilled workers, benefitting especially poorer households, but simultaneously dampened the relative returns

to higher education and discouraged private investment in human capital. It also drove the emergence of a dual economy with an over-reliance on the FDI sector for exports but limited participation of domestic enterprises to exports. Similarly, low energy costs supported competitiveness, especially in manufacturing but also induced a relatively high carbon intensity of the export sector. These underlying features of the domestic economy are analyzed in more detail the following sections.

A dual economy with limited linkages between FDI and domestic firms

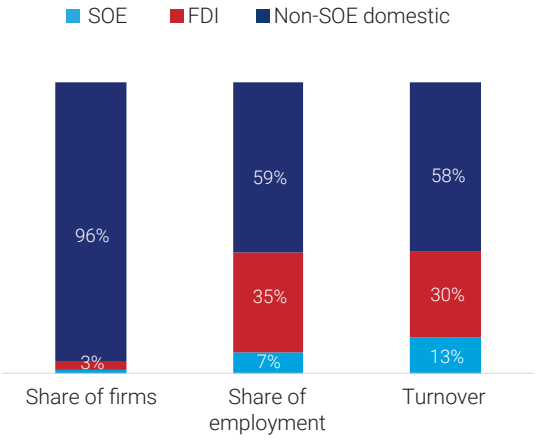
22. Underlying Viet Nam's current export model is a dual economic structure with export activity concentrated within FDI firms and limited participation of domestic firms. FDI firms, while representing only 3 percent of the total 900,000 enterprises operating in Viet Nam, employ a significant number of people—17.8 million workers, or 35 percent of the country's formal workforce (Figure 8, Panel A). These firms are crucial to the export sector, particularly in specific subsectors. For example, majority-owned foreign affiliates accounted for over three-quarters of Viet Nam's exports in machinery and equipment, and around half of the exports in the computer, electronics, and telecom and IT services sectors. On the other hand, domestic firms are largely involved in traditional sectors such as construction, repairs, and hospitality, and are generally inward-looking, focusing on servicing the domestic market (World Bank 2020b). As such, the FDI sector largely operates in isolation rather than as a catalyst for economy-wide growth, with limited spillovers from FDI firms to the domestic private sector in the form of increased demand for inputs, access to new technology, managerial skills, demonstration effects and agglomeration benefits.

23. The dual economy also meant exceptional growth in export-linked employment but zero net job creation from domestic demand. Viet Nam's situation is highly atypical; not only does it lead with the most rapid growth in export-related employment, but it also records stalling job growth tied to domestic demand (Figure 8, Panel B). While domestic consumption is already playing a large part in the economy (accounting for 71 percent of real GDP in 2019, compared to 39 percent in China), the vast majority of jobs remains export-oriented in manufacturing or services (e.g. transport and logistics). Consequently, this dualistic employment growth pattern places Viet Nam in a precarious position, making it exceptionally vulnerable to any downturns in global trade or disruptions in its engagement with GVCs.

24. As a result, the domestic value contribution in key exports is low. While Viet Nam exports today relatively high-technology goods, its domestic value added in some of these key exports is relatively shallow. Manufacturing represents about 65 percent of the total domestic value added from exports, but this share is lower when looking at high-value sectors within manufacturing such as electronics (about 15 percent of total domestic value added compared to 18 percent for textiles). Most export activities rely heavily on imported content, including of components and parts, many of them originating from China. This implies that Viet Nam captures only a fraction of the overall value embedded in the goods it exports. In part, this reflects the nature of cross border supply chains and in part a dual track economy with limited supply linkages, discussed in more detail below.

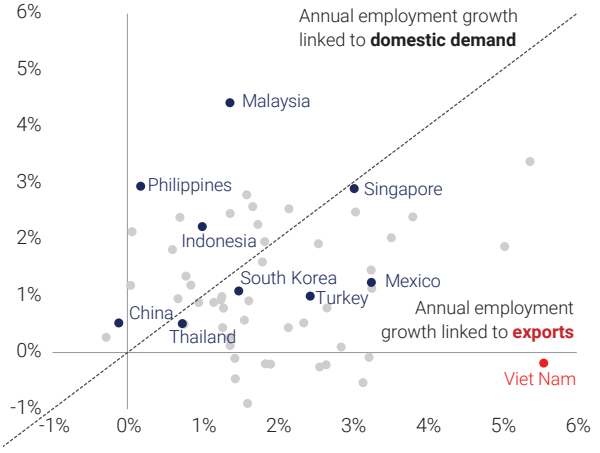
Figure 8: Few but mighty exporting FDI firms are driving all of the employment growth in Viet Nam

A. Share of firms and employment, 2020



Source: GSO, World Bank (2020b)

B. Employment growth from exports vs domestic demand, 1995-2019 (CAGR)



Source: Winkler, Aguilar-Luna, Kruse and Maliszewska (2023)
Data: OECD TiE. The country sample covers 38 OECD countries plus 13 non-OECD countries.

25. In contrast to the FDI sector, Viet Nam's domestic private sector is dominated by small-scale firms, mirroring a pattern observed in lower-income countries. An overwhelming majority of businesses—98 percent—are either household-owned or small, informal enterprises.[10] The 2017 Viet Nam Labor Force Survey reveals that the typical business in the country operates with approximately three workers, including those in household businesses (World Bank 2020b). These businesses are predominantly oriented towards local markets and have a minimal presence in export markets. Only around 17 percent of fully domestically owned firms are engaged in exports. Collectively, these non-state businesses contribute to around one quarter of Viet Nam's total value added. However, they fall short of reaching the productivity levels of larger firms, including state-owned and FDI firms. For instance, manufacturing businesses with fewer than 10 employees demonstrate just 27 percent of the productivity of larger firms with 250 or more employees, highlighting their competitive disadvantage.

26. In addition, Viet Nam presents a stark contrast in terms of investment by FDI firms and domestic enterprises. Over the past decade, Viet Nam has emerged as a leading destination for FDI in the region, with inflows averaging 4.6 percent of its GDP—surpassing all other comparator countries in 2022. As a share of overall investment (gross capital formation), FDI contributed 15 percent on average, again among the highest in the East Asia region. In contrast, domestic private investment has not experienced commensurate growth and remains low, at around 14 percent of GDP, which is incongruent with the country's high national

[10] While Viet Nam's share of informal labor is similar to what is observed in lower middle-income countries, upper middle-income countries have a lower informal labor, close to 60 percent on average, compared to Viet Nam's 80 percent measured in 2016 (ILO 2018; Loayza and Meza-Cuadra2018).

savings rate of 35 percent of GDP in 2021. Domestic private firms face significant challenges in accessing financing (Akhlaque et al., 2017), which hampers their ability to enhance competitiveness and engage in international trade, either as exporters or as suppliers within the trade ecosystem.

27. Weak linkages between FDI and domestic firms limit technological and productivity spillovers, hampering 'catch up' of lagging domestic firms with leading firms. Compared to other economies, Viet Nam has a smaller proportion of firms with GVC linkages, suggesting that the opportunity for productivity spillovers is less than that of its peers.[11] According to the OECD's Activity of Multinational Enterprises database, foreign manufacturing firms in Viet Nam source a lower percentage of their inputs from within the country (53 percent) compared to comparator countries. Similarly, the World Bank's 2023 Multinational Enterprises Pulse Survey indicates that multinationals in Viet Nam source the smallest share of inputs locally among East Asia and Pacific (EAP) region countries. Notably, Viet Nam's domestic manufacturing firms also exhibit a lower reliance on local inputs than many of their counterparts in other countries, pointing to supply-side constraints in domestic production capabilities. While weak linkages are not specific to Viet Nam, challenges such as skill shortages, a lack of information about domestic suppliers, and weak management capacity have been identified as barriers preventing Vietnamese firms from more effectively participating in value chains (Alkhlaque 2017, World Bank 2020).

Limited supply of high skills is an increasingly binding constraint

28. Viet Nam's global integration into GVCs capitalized on its comparative advantage and endowment with abundant but relatively low skilled labor. Viet Nam attracted significant foreign investment in labor-intensive production and led to a high concentration in low value-added final assembly, which is reflected in its current labor demand. Although the manufacturing sector has generated nearly 5 million jobs in the past 15 years, close to 85 percent of all manufacturing jobs are low-skilled (9.4 out of 11.2 million jobs in 2021) while high-skilled positions such as electrical engineers, specialized technicians, programmers, or managers remain scarce, comprising less than 6 percent of all manufacturing jobs in 2021. This is the lowest percentage among peer countries and less than half the proportion seen in Thailand (12.8 percent).

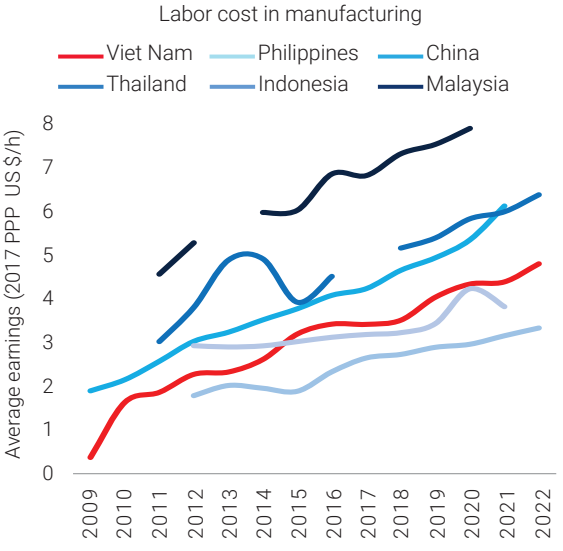
29. However, the advantages of the current export model based primarily on low labor costs and labor-intensive exports will diminish as wages inevitably rise. Viet Nam's rising labor cost has not kept up with productivity, eroding its competitiveness (Figure 9). Labor cost in manufacturing – the average earning per hour worked – has nearly tripled in Viet Nam between 2010-2022 to US$ 4.9/hour, and is now higher than in the Philippines and Indonesia, although it remains lower than in Malaysia, China or Thailand (Figure 9, Panel A). At the same time, labor productivity, which measures the value of output created per hour of work, has remained relatively low, in stark contrast to China and all its peers including Philippines and Indonesia. An average manufacturing worker in Viet Nam creates US$ 6.7 worth of value-added per hour worked, compared to US$ 14.4 /h in China, US$ 19.7 /h in the

[11] Fernandes, Osiewicz, and Taglioni (2024) leverage a recent WB survey to underscore the potential for skills and capabilities upgrading that can be offered by GVC participation in Viet Nam, particularly in the textile and apparel, and ICT sectors.

Philippines, and US$ 27.7 /h in Malaysia. To sustain wage growth while ensuring competitive unit labor costs (the wage cost per unit of output) Viet Nam will need to boost labor productivity, including by transitioning into higher value activities. (Figure 9, Panel B).

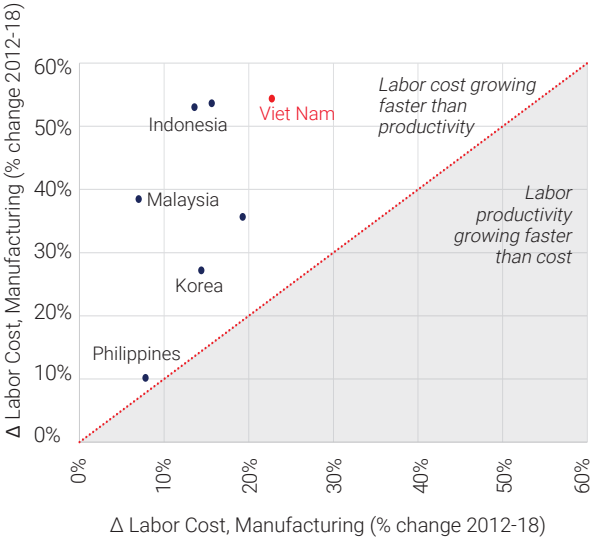
Figure 9: Rising wages erode cost advantage

Rapidly rising wages…



Source: WDI, UNESCO Institute for Statistics (UIS)

B. …exceed labor productivity growth



Source: WDI, ILO, PWT 10.01

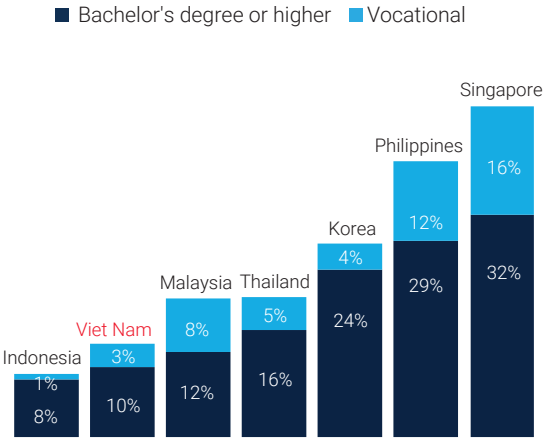
30. Meanwhile, the supply of skilled labor remains limited. Despite the country's commendable achievements in basic education,[12] this success has not been mirrored in tertiary education attainment, which is crucial for high-skilled occupations in fields such as engineering, science, and management (Figure 10, panel A). To match the labor force profile of upper-middle-income countries in 2022, with 15.3 percent of the workforce holding higher education by 2030-2035, Viet Nam must increase the number of workers with tertiary education entering the labor market by 200,000 to 430,000 annually above current projections (World Bank 2023a). With around 2.8 million upper secondary students currently enrolled and Viet Nam's sustained performance in general education quality, access and quality at the secondary education are not key bottlenecks, although the low rates of enrolment for poorer children represents a critical barrier to making skill-driven growth and GVC participation more inclusive, as is discussed later.

[12] Vietnamese students' scores for general education are well above the average in low- and middle-income countries and close to the OECD average in mathematics (OECD PISA, 2022).

Figure 10: A limited supply of skilled workers and jobs

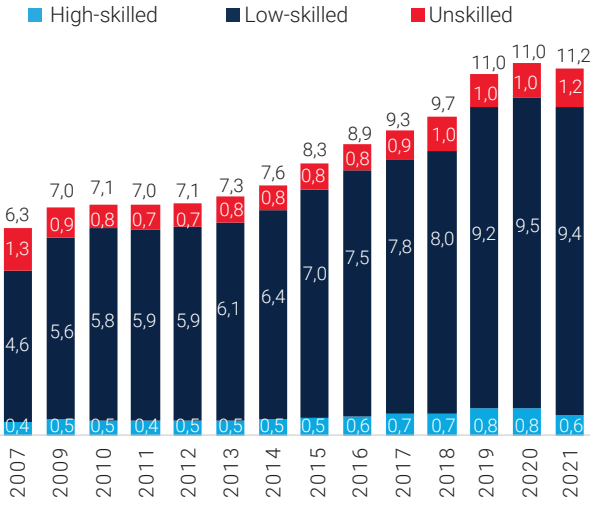
Skilled labor supply is limited

A. Tertiary Education Completion Rates, 2022



More than 90 percent of manufacturing jobs are low-skilled

B.Number of manufacturing jobs (millions)



Source: WDI, UNESCO Institute for Statistics (UIS). (Panel A), LFS, GSO, and ILO (Panel B)
Notes: Skills levels are based on the International Standard Classification of Occupation (ISCO) 08 and the skills requirement of these occupations. High-skilled occupations correspond to managers, professionals, technicians and associate professionals (ISCO skills levels 3 and 4). Low-skilled occupations correspond to clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, and plant, and machine operators, and assemblers (ISCO skills level 2). Unskilled jobs correspond to elementary occupations (ISCO skills level 1)

31. The limited supply of skilled workers presents a significant constraint to upgrading into more skill-intensive, higher value-added activities. A third of employers encounter a dearth of applicants for open positions (World Bank 2018), while 22 percent of managers consider the greatest challenge to be finding a workforce with appropriate education (World Bank 2021b). Already today, nearly 80 percent of manufacturing companies face difficulties in hiring skilled workers (Enterprise & Innovation Survey 2020). Additionally, more than a third of employers perceive the limited capacity of their workforce as the principal impediment to technology adoption. As a result, more than 90 percent of manufacturing jobs remain low-skilled (Figure 11 Panel B). The example of the semiconductor industry – one of the key strategic opportunities for Viet Nam- offers a cautionary tale about the limited availability of skilled posing a risk to seizing opportunities from key industries and markets. There are currently an estimated 5,000 semiconductor chip design engineers in Viet Nam, in stark contrast to the 50,000 engineers needed by 2030 to meet expected demand, including 15,000 chip design engineers (Box 1).

Box 1: The role of Viet Nam in the semiconductor industry

Semiconductors are a uniquely global product. Semiconductors are materials, usually silicon, that can conduct electricity and serve essential functions in modern electronic devices to process, store, and transmit data. Semiconductors are often referred as "chips" and play a crucial role in technologies such computing, wireless communication, the internet of things (IoT), electronics and motor vehicles. The semiconductor industry involves more than 120 different countries (over 60 percent of the countries in the world) that export or import semiconductor products, and a typical production process involves 3+ trips around the world (Figure B1.1). Semiconductors constitute the world's fourth most traded product (Varas et al. 2021), with an estimated market value of US$ 520 billion in 2023, and an exceeding 10 percent expected growth rate in 2024 (WSTS 2023).

The process of producing semiconductors is highly complex, involving more than 500 production steps, and can take up to half a year (Sun and Rose 2015, Varas et al. 2021). These steps are commonly grouped into three main activities:

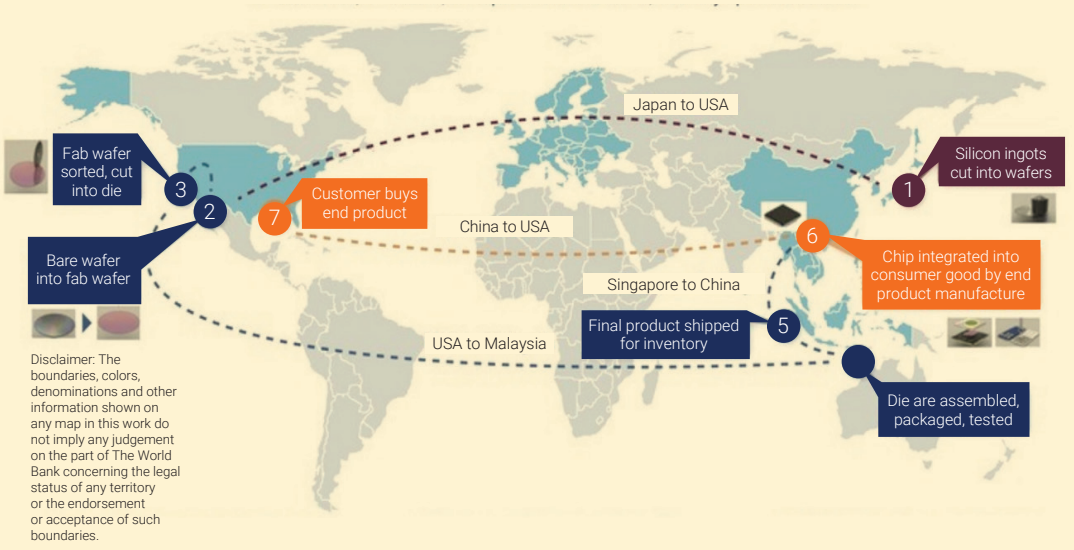
(i) Design: This stage involves setting the requirements of the chip and designing its architecture. It includes extensive research and development (R&D) to generate the basic knowledge for chip design. The design stage represents about half of semiconductor value added (Varas et al. 2021, OECD 2023).

(ii) Fabrication / Foundry: This stage consists in printing the integrated circuit previously designed on a silicon wafer. The process relies on multiple complex and advanced manufacturing stages, including slicing, polishing, and patterning the wafers with integrated circuits using lithography, etching, implanting and other techniques. This stage represents about a quarter of semiconductor value added.

(iii) Assembly, Testing and Packaging: The individual chips are separated from the wafers, packaged into protective frames, and encased in a resin shell. The chips are rigorously tested for quality and functionality. This stage is less skill- and knowledge-intensive than more upstream activities and represents about 6-10 percent of semiconductor value added. Once packaged, finished chips are then shipped to electronic devices before being commercialized.

The semiconductor industry is highly concentrated geographically, reflecting specialization and regional networks. The top-5 semiconductor producing economies account for about 75 percent of semiconductor global value added (OECD 2023). Regions specialize in different stages of the semiconductor supply chain based on their comparative advances. While the US leads in chip designed and advanced manufacturing, East Asia has a comparative edge in wafer fabrication and assembly, packaging, and testing (CSIS 2023).

Figure B 1.1: A typical semiconductor production process takes 4-6 months and involves 3+ trips around the world



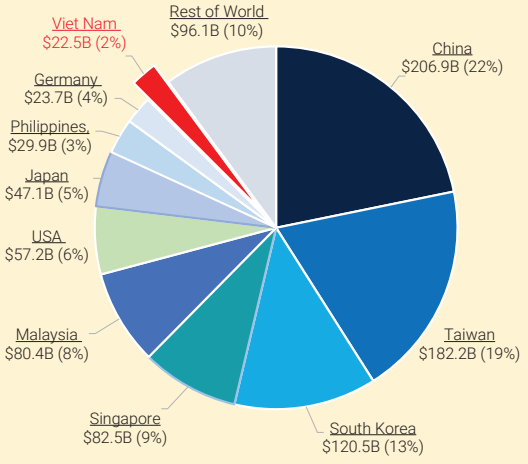
Source: Antras (2024)

Viet Nam is one of the leading countries in semiconductors, focused on low value-added activities in assembly, testing and packaging. With 2 percent of the global export value, Viet Nam is the 10th exporter of semiconductors in the world in 2021, with an export value of US$ 22.5 billion (Figure B1.2). The semiconductor revenue in Viet Nam is also substantial, representing US$ 20.1 billion in 2023, mainly from the sale of integrated circuits. However, Viet Nam does not produce any chip, instead relying entirely on semiconductor chip imports, and only four Vietnamese companies are currently involved in chip design (Wired 2023), including FPT and Viettel High-Tech Industry Corporation. The majority of semiconductor supply chain participation in Viet Nam focuses on assembly and testing phases (6 percent of semiconductor value added) and is conducted by FDI firms (Viet Nam News 2023). Nevertheless, the semiconductor market has been steadily increasing in Viet Nam, and now Viet Nam represents the third largest exporter of semiconductors to the United States with a value of US$ 562 million in 2023 after experiencing a 75 percent y/y growth in exports to the country (Figure B1.2).

Figure B1.2: A thriving semiconductor sector for Viet Nam

Viet Nam is the 10th global exporter of semiconductors

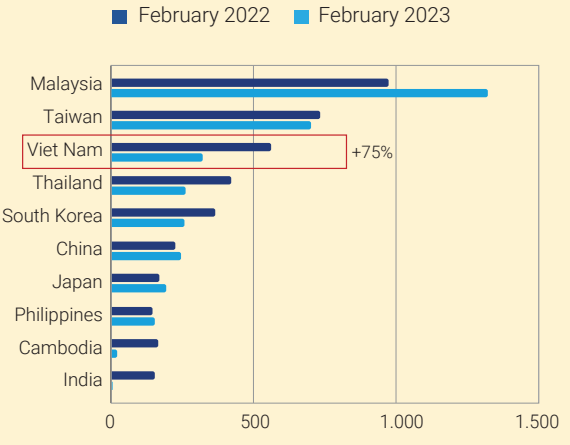
Share of global exports of Semiconductors and Integrated Circuits in 2021 (%)



Source: Observatory of Economic Complexity

Viet Nam is the third exporter of semiconductors to the United States

Top 10 countries in semiconductor exports to the USA (US$ million)



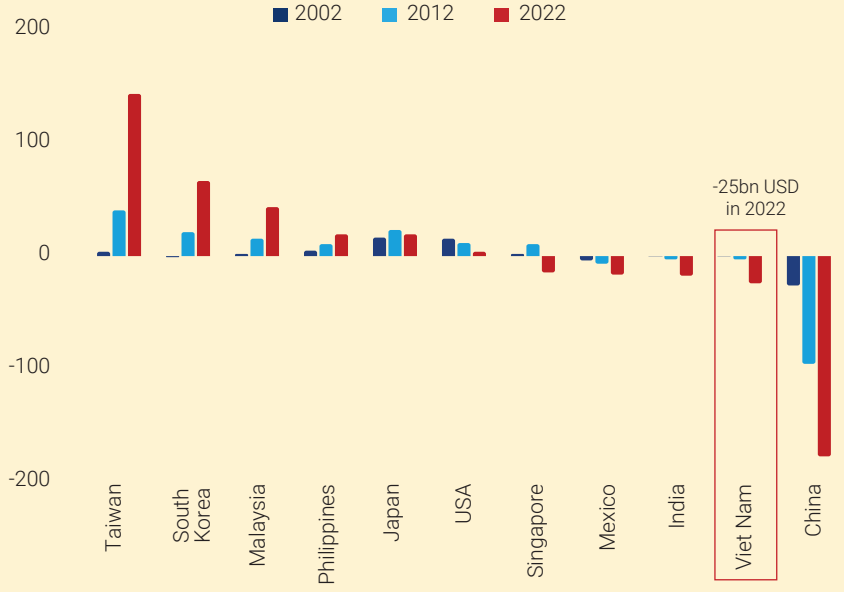
Source: US Census Bureau

Limited domestic manufacturing and design capacity prevents a more upstream participation in semiconductor GVC. Only four Vietnamese firms are involved in chip design, and all are "fabless" companies that don't have manufacturing capabilities in Viet Nam. Moreover, 95 percent of direct investment in semiconductor comes from FDI firms (HCMC Semiconductor Industry Association) that are engaged in assembly, testing, and packaging. As a result, there is no manufacturing capability for semiconductor production in Viet Nam, and limited spillovers from FDI firms in the R&D and design, which are the stages with highest value addition. These stages of production also require capital investments in R&D facilities, equipment, and advanced materials. However, a shift of the ATP segment towards advanced packaging (also called advanced ATP) in Viet Nam, with higher technological requirements focused on interconnecting integrated circuits, could provide a pathway for improving Viet Nam's participation in this value chain (USAID 2024).

Despite Viet Nam's growing importance in semiconductors, its net export balance is negative and has declined significantly, highlighting limited domestic value contribution. Viet Nam is the 10th exporter of semiconductors in the world in 2022, with 2 percent of the global export value, compared to only 0.6 percent yen years earlier in 2012. Yet despite this increased importance, net exports of semiconductors – a proxy for the value contribution of Viet Nam in the global value chain – have sharply declined from close to 0 in 2002 (exports and import values of chips cancelling out) to a net negative export balance of 25bn USD in 2022. In addition, Viet Nam's net export balance deficit is the second largest in the region after China, highlighting the very limited value added in the country from its participation mainly focused on assembly, testing and packaging (ATP) compared to countries engaged in design or advanced packaging such as Taiwan, Korea, or even Malaysia and the Philippines.

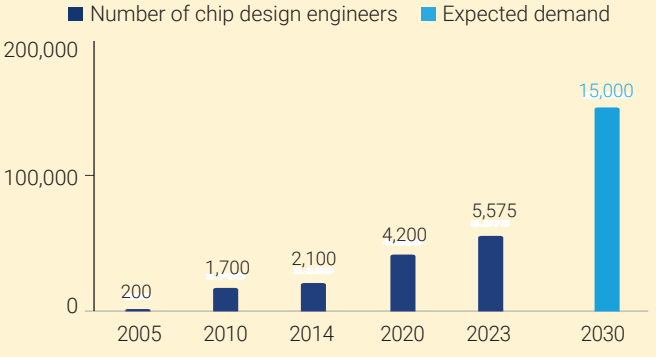
Figure B1.3: Room for increasing Viet Nam's value addition from semiconductors

Net Exports of Semiconductor Chips (billions USD)



Strengthening participation in semiconductors will require addressing shortage of skilled workforce. Viet Nam currently faces a shortage of skilled engineers and workers in the semiconductor industry. CoAsia Semi Viet Nam, a semiconductor design company operating in Viet Nam, estimates that around 5,000 engineers work in semiconductor design in Viet Nam (Wired 2023). The majority of these engineers are scattered around the nearly 40 FDI firms working in semiconductors, and 76 percent of them are based in Ho Chi Minh city (Nhan Dahn 2023). A limited skilled workforce remains a major constraint despite recent partnership with US and efforts to increase trainings (White House 2023, Resolution 124 NQ/CP). It can take up to 12 months of advanced training for recently hired workers to meet their job requirements, and training of chip engineers require significant investment in physical infrastructure. It is estimated that the current number of chip design engineers in Viet Nam represents less than half of the expected demand needed over the next 5 years (Figure B1.4).

Figure B1.4: Demand for chip design engineers is expected to far exceed skills supply



Source: Reuters, Viet Nam Microchip Community, CoAsia SEMI Viet Nam Notes

Emerging infrastructure bottlenecks threaten the competitiveness of Viet Nam's manufacturing sector

32. Viet Nam's manufacturing-led growth was enabled by the rapid expansion of infrastructure, especially connectivity and power supply. The rapid expansion of infrastructure and the growth of the manufacturing sector in Viet Nam have been closely intertwined, contributing to the country's economic development over the last 30 years. The expansion of transport (including roads, railways, and waterways) and power infrastructure has played a crucial role in facilitating the manufacturing and export-led growth.

33. However, energy and transport infrastructure needs could become a constraint to growth going forward. Viet Nam's trade and manufacturing-led growth has been both energy- and transport-intensive in energy. The growth of both energy demand and freight volumes has outpaced the growth of GDP, placing significant demand on infrastructure assets and services (Figure 11, Panels A and B). Recent power blackouts and growing road congestion are concrete manifestations of the emerging challenges. If not addressed, they risk becoming a constraint to future growth. Meeting the steep increase in energy demand will require doubling the existing installed capacity (78 GW in 2021) every ten years and expanding the associated transmission infrastructure.[13] The estimated investment requirements in power generation and grid infrastructure in this decade alone stand at US$135 billion (US$15 billion per year) including private (80 percent) and public (20 percent) investments.

34. Recent energy supply shortages raise concerns about energy security. For the first time since 2010, Viet Nam experienced energy outages in the summer of 2022 and in May-June 2023, particularly in the North of the country, an important center for industrial activity.[14] Against the backdrop of increasing electricity demand, supply has become constrained in the North of the country during the dry season (over May-July). The recent supply deficit was mostly due to the impact of El Nino (Viet Nam experienced record temperatures of 45°C in the North) on water availability, already lower than average due to hydropower overruns prior to the dry season to compensate for the spike in fuel prices observed globally. In contrast, the South of the country had available about 20GW of surplus renewable generating capacity, but it was not possible to transfer this surplus to the North due to inadequate transmission capacity.

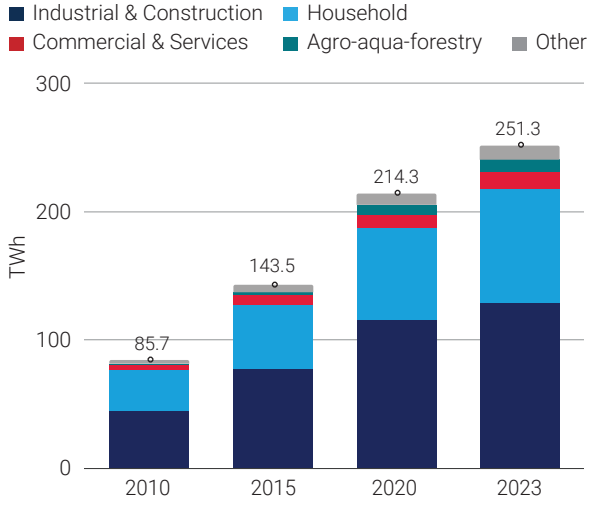
[13] Adding 12,300 km of 500 kV transmission lines and 16,300 km of 220 kV transmission lines by 2030, introducing HVDC lines 5,200 – 8,300 km by 2050 and dedicated lines for offshore wind after 2030; and improved grid interconnection in the Mekong region and in ASEAN.

[14] WB estimates.

Figure 11: Growing infrastructure needs will require connectivity and power investments

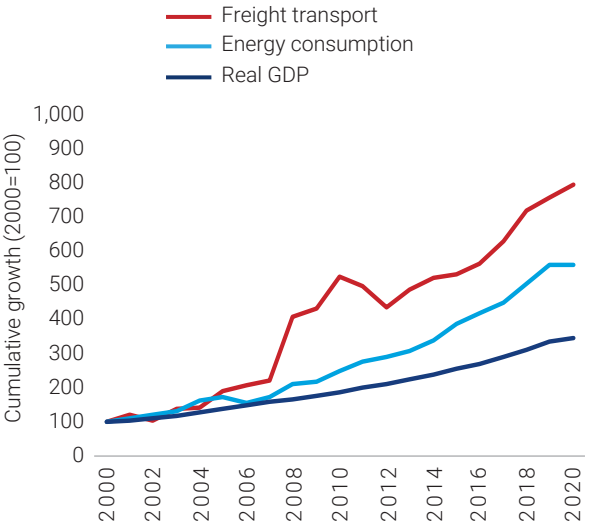
Electricity demand has been growing at an average of 8.5 percent per year

A. Load growth by costumer bracket, 2010-2023, and 2023 breakdown



Growing infrastructure needs have outpaced GDP growth

B. Cumulative growth in energy consumption, GDP and freight transport volume, 2004-2022



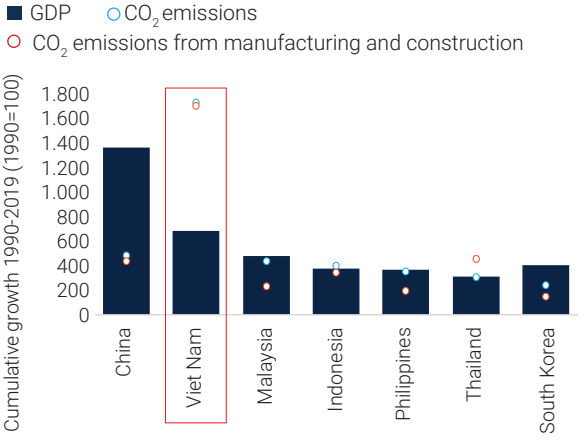
Source: EVN and NLDC annual reports (left figure), WDI, Statistical Review of World Energy, GSO (right figure).
Notes: Each series shows the cumulative growth over the period 2000-2020. Energy consumption is measured as the primary energy consumption in TWh. Real GDP is measured in constant 2015 USD. Freight transport measures the volume of total cargo traffic carried across all modes of transport in millions of ton-km. Freight volume growth for 2000-2004 is derived from the growth of air and rail freight.

35. The growing dependence on coal-based power generation in recent years has led rapid growth of Viet Nam's carbon emissions. Although Viet Nam's global contribution to GHG emissions stands at 0.8 percent of global emissions (355 mtCO_2 emitted in 2020), it has emerged as one of the fastest-growing per capita emitters worldwide over the last three decades. Between 1990 and 2021, CO_2 emissions grew approximately three times faster than GDP (Figure 12, Panel A). Driven by Viet Nam's flourishing but energy-intensive manufacturing sector, trade-related activities contribute significantly to Viet Nam's carbon footprint, with net trade-based emissions accounting for 36 percent of the country's total production-based emissions in 2021, higher than in any other country in the East Asia region. The country's reliance on relatively inefficient technologies has resulted in an energy intensity that is twice as high as the East Asian average for each unit of GDP produced. Additionally, coal-fired power, which accounts for about one-third of Viet Nam's primary energy supply, has contributed not only to fast rising GHG emissions but also local pollution with harmful effects on both human health and the economy. As a result, Viet Nam is one of the most GHG-intensive economies in East Asia with 1.1 kg of CO_2 emitted per dollar of GDP (compared to 0.7 and 0.4 in China and Philippines, respectively), and CO_2 emissions embodied in its exports account for 36 percent of its total CO_2 emissions, one of the highest in the region (Figure 12, Panel B).

36. Besides being carbon-intensive, Viet Nam's industrial sector is particularly susceptible to climate risks. Of 372 industrial zones nationwide, 127 (or 34 percent) are in coastal provinces where they face a heightened risk of flooding. In these coastal regions, about half the industrial zones—including those in Quang Ninh, Thua Thien-Hue, Ba Ria-Vung Tau, and Ho Chi Minh City—are directly vulnerable to 1-in-100-year coastal or riverine flooding events. Ho Chi Minh City is particularly at risk, as the extent of its flood-prone areas could rise from the current 23 percent to 35 percent by 2050.[15] The economic repercussions of these impacts are substantial, with estimated average annual losses to industrial assets in the city amounting to approximately $265 million.

Figure 12: Viet Nam's past economic growth was carbon-intensive....

A. Cumulative growth in GDP and CO_2 emissions, 1990-2019 (1990=100)

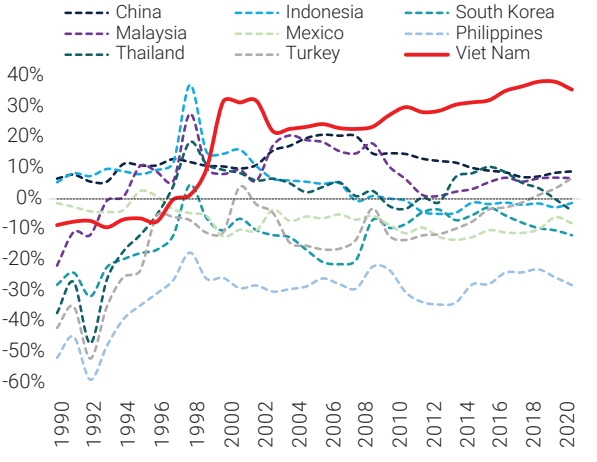


Source: WDI

Notes: CO_2 emissions from manufacturing and constructions are based on the share of total fuel combustion from these industries between 1990-2014, extrapolated to 2019 based on total emission growth

...Partly driven by the export sector

B. Export-related CO_2 emissions (% of production emissions)



Source: Global Carbon Project, Our World in data.

Notes: Export-related emissions correspond to the CO_2 emissions embedded in gross exports minus those embedded in gross imports

37. Emerging infrastructure bottlenecks could erode the competitiveness of the manufacturing sector. Recent energy shortages were short-lived but had a significant impact on businesses. Stable energy supply is key to attracting investors particularly in energy intensive sectors (such as semiconductors). At the same time, global efforts to reduce GHG emissions are reshaping global demand, creating opportunities for fast movers but also risks for late comers. This dynamic endangers Viet Nam's position in international trade as importing nations and consumers may increasingly favor goods with lower carbon intensity in response to climate change. Meanwhile, Viet Nam needs to ensure the resilience of its industrial assets, many of which are located in low lying costal areas against rising climate risks, including increased coastal flooding and typhoons.

[15] McKinsey 2020

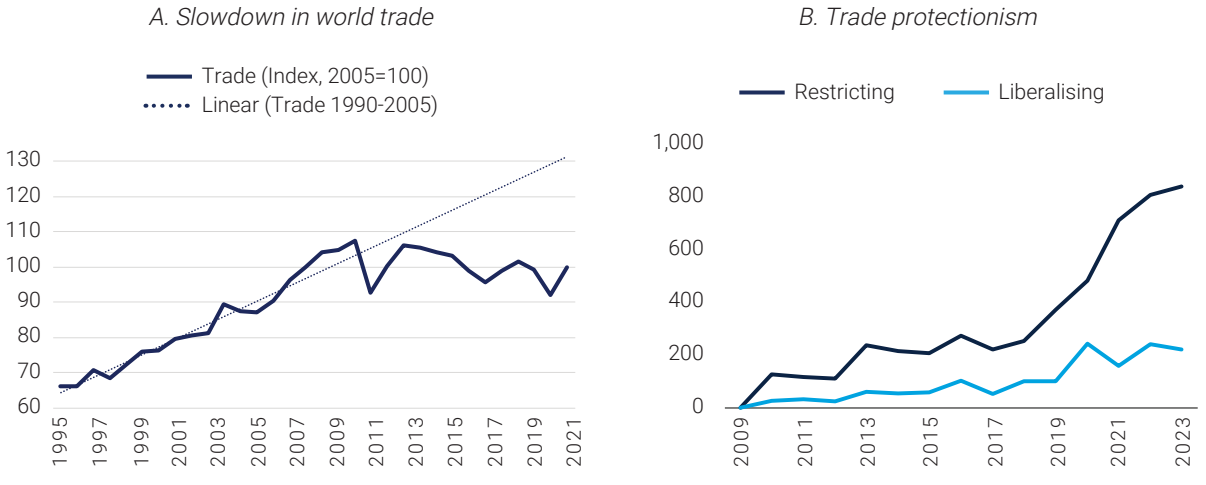
3. Global trade shifts are posing risks but also opportunities for Viet Nam

38. If Viet Nam is in transition, so too is the global economy. On one hand, the ongoing geo-economic tensions are leading to a slowdown in the growth of globally traded goods, which in turn is causing a fragmentation of supply chains. Viet Nam, with its deep entanglement in intricate supply networks that stretch across the US, China, and East Asia, finds itself vulnerable to these developments. On the other hand, as global economic growth decelerates and the epicenter of demand pivots towards Asia, Viet Nam could reap the benefits of increased regional economic integration. But the emergence of new technologies such as robotics and 3D printing indicates a shift towards more automated and locally distributed manufacturing to which companies in Viet Nam will need to adapt.

Geo-economic fragmentation is creating new risks and opportunities for Viet Nam

39. The global trade environment is undergoing significant changes, with global trade growth being on a downward trajectory for more than ten years. Since 2008, the expansion of world trade has been decelerating, in part due to the plateauing of offshoring activities. This shift, characterized by the transfer of manufacturing production from G7 nations to emerging economies, most notably China, had largely run its course by this time (Figure 13 panel A; Baldwin, 2023).

Figure 13: Reshaping of global trade



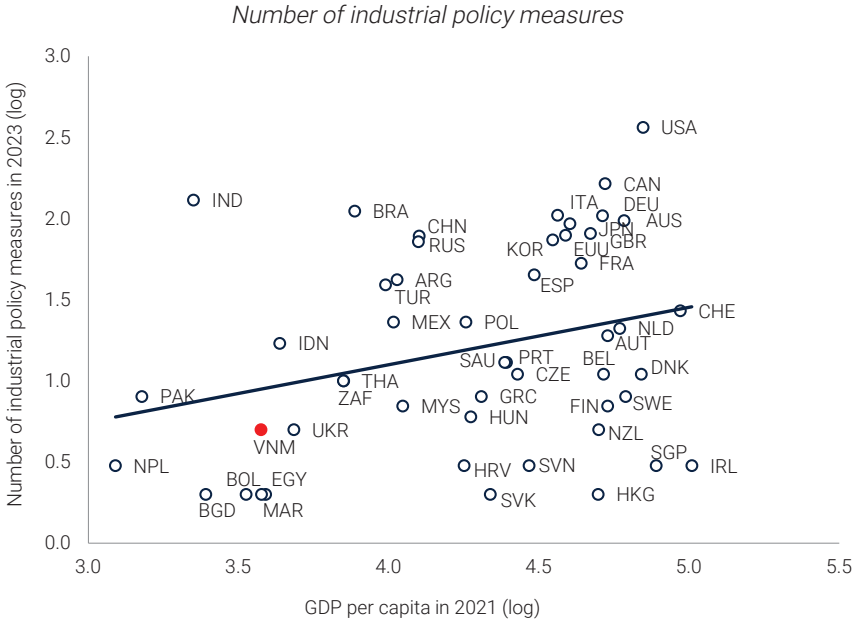
Source: WDI and Global Trade Alert

40. In addition, geo-economic tensions are leading to the fragmentation of GVCs, especially in strategic sectors. Recent years have seen a marked increase in protectionist measures (Figure 13, panel B). The bilateral trade tensions between the U.S. and China have particularly lowered

merchandise trade volumes, notably in sectors of economic or national security interest such as high-tech (e.g., computer chips, medical supplies, rare earth materials), communication (including social media and 5G), and green technology. In addition, major economies have intensified industrial policy efforts, especially in strategic sectors such as semi-conductors and green tech which tilt the playing field in favor of onshoring key supply chains in these sectors.

41. Beyond current tensions, recent years have been marked by a surge in potentially trade-distortive industrial policies. The program "Made in China 2025", the IRA and Chips Act in the US, and the European Chips Act are prominent examples of this resurgence. The term "industrial policy" is fairly broad and refers to many types of different interventions targeting specific sectors (such as domestic subsidies, financial grants, tax-breaks). While Viet Nam has been less engaged in industrial policies, it is potentially exposed to their effects from its export destination markets as the US, China, Japan, Korea are major advocates of such measures. Industrial policies tend to have trade-distortive effects, for instance due to local content requirements that could hurt Vietnamese given the significant value of foreign content in its exports (about 50 percent). The number of new protectionist measures affecting the region's economies has been increasing in recent years and developing EAP economies remain exposed to protectionist trade interventions by other countries (Figure 13, Panel B; Figure 14).

Figure 14: Industrial policies are prevalent in Viet Nam's major export destination markets

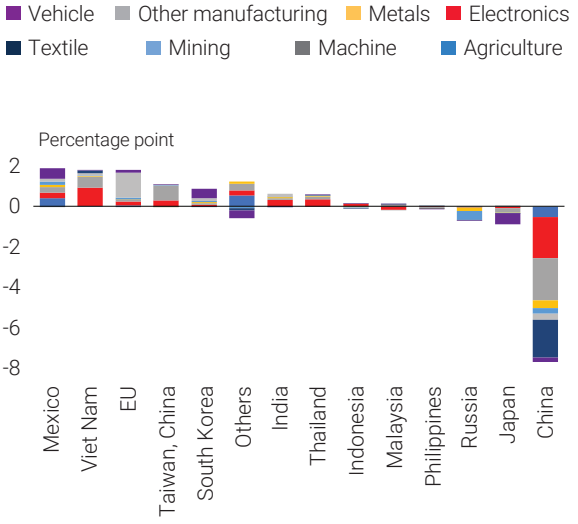


Source: World Bank (2024) based on WDI and the New Industrial Policy Observatory (NIPO)
Notes: New industrial policies, as defined by the NIPO, include both domestic industrial policies, as well as export promotion schemes and import trade barriers. All the potentially trade distortive measures are included. The number of measures doesn't necessarily reflect depth of intervention, see World Bank EAP Update April 2024 for additional results.

42. These shifts in the trade landscape offer some opportunities to Viet Nam. The relocation of several value chains from China in recent years, often described as the 'China Plus One' strategy, is one such example. Additionally, there are expectations (ICC 2023) for the U.S. to deepen trade ties and increase the value of its imports from Viet Nam (ICC 2023, White House 2023). Evidence from the past five years indeed suggests that Viet Nam has gained the most in export market share in the US in areas where China's exports contracted – electronics and machinery (Figure 15, Panel A). Alongside Mexico, Viet Nam emerged as a key "connector" country, attracting more FDI from both the US and China, particularly in the manufacturing sector (Gopinath et al, 2024, World Bank 2024). A deeper product level analysis confirms a positive correlation between the US-China trade decoupling and Viet Nam's export growth (Khandelwal and Taglioni, 2024). Viet Nam's exports grew faster for those products for which the US imposed bi-lateral restrictions on imports from China in the form of tariffs. However, in tandem with growing exports of final goods to the US market, Viet Nam's imports of components from China increased rapidly, creating vulnerabilities associated with concentrated supply dependence (Figure 15, Panel B). At the same time, Viet Nam has attracted more FDI from China,[16] in large part reflecting reconfigurations of value chains from China to reach the US market.[17]

Figure 15: Trade shifts

A. Changes in share of US imports, 2018–23



Source: World Bank

B. Monthly imports from China and exports to the United States

Source: World Bank staff calculations based on Viet Nam General Department of Customs and Haver Analytics for March 2013 – February 2024

[16] https://en.vietnamplus.vn/china-leads-in-number-of-fdi-projects-in-vietnam-in-seven-months-post292098.vnp

[17] https://www.ft.com/content/ede919f5-0d3e-43e5-8ef9-407a17551bb9

43. While creating opportunities, Viet Nam's position at the heart of critical regional and global supply chains also makes the economy vulnerable. For trade-reliant economies like Viet Nam, these developments are concerning. Viet Nam's exports to the U.S. include a significant proportion of intermediate inputs from China, which are now at risk due to potential trade restrictions and a more constrained diffusion of technology across borders.[18] Recent measures by the US on the rules of origins of steel and aluminum products imported from Mexico as well as antidumping investigations of solar panels imported from Viet Nam could signal more stringent policies against connector countries.[19] An assessment of export and import vulnerabilities which is based on concentration, potential for substitution, complexity of supply chain and position of the product in the supply chain reveals that Viet Nam's risk of disruption within GVCs is concentrated among a select number of strategically important products.[20] The vulnerability is predominantly due to imports of machinery and electronic goods from China, which are integral to Viet Nam's export assembly processes. Although the number of vulnerable products is relatively small—24 out of 5,099 imported products, or 0.5 percent—their combined market value is substantial, amounting to 9.5 billion US dollars.[21] The range of vulnerable export products is similarly narrow, with textile goods destined for the U.S. being the most affected. In terms of trade value, however, the potential risk is greater for imports than for exports.

The global demand shift to Asia creates opportunities for Viet Nam to diversify its export markets

44. At the same time, global demand is shifting towards Asia. With rising incomes and the emergence and rapid growth of the middle class, Asia is projected to become the largest source of final demand in the medium-term. Long-term growth projections by the OECD suggest that by 2060, India and China alone will account for close to half the world economy— up from less than a third today. The ASEAN region which already has a combined GDP of more than US$ 2.7 trillion will continue to grow, with GDP expected to more than double over the next two decades, despite slower medium-term growth prospects (World Bank 2020a). In conjunction with convergence in GDP, the Asian middle-class consumer will become a major source of final demand. In fact, Emerging Asia (ASEAN + China) is projected to become the world's largest consumer market within this decade (Figure 16). Already today, intra-Asian trade accounts for around 60 percent of total Asian trade in 2020 (ADB, 2022).

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[18] For instance, the US passed an Export Control Reform Act (ECRA) in the summer of 2018 imposing a license for the export, re-export or transfer of technologies to countries including China, covering technologies such as AI, robotics, nanotechnology and semiconductors. In addition, the US Entity List (entities whose operations pose a risk to US national security or foreign policy, such as Huawei) is increasing and would require specific licenses for the export, re-export or transfer with these companies, further complicating trade for countries whose exports to the US include significant input components from China, as is the case for many of Viet Nam's exports.

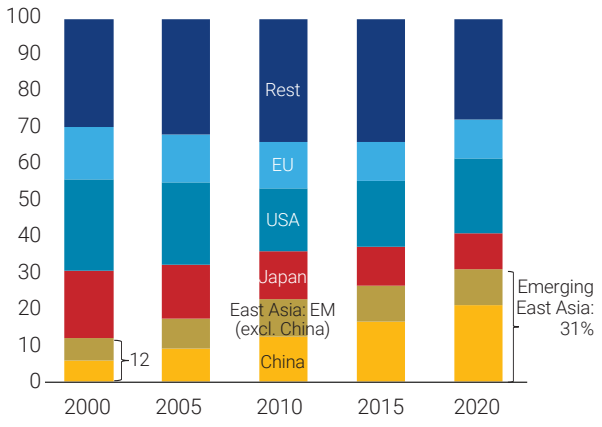
[19] https://www.trade.gov/commerce-initiates-antidumping-and-countervailing-duty-investigations-crystalline-silicon

[20] Vulnerabilities are quantified based on the following factors: (i) the level of market concentration from current trading partners (ii) the level of diversification potential based on the degree of country centrality (iii) the complexity of the product network and (iv) the position of the product in the supply chain.

[21] See Appendix Table A.1

Figure 16: Global demand is shifting to Asia

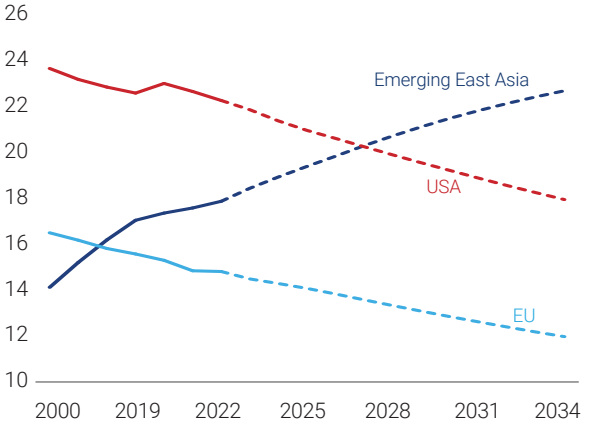
Decomposition of final demand for Viet Nam's exports (Percent of total exports)



Source: OECD Inter-Country Input-Output (ICIO) Tables, staff estimates

Notes: East Asia: EM (excl. China) refers to Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam

Consumer Class spending (Percent of global total)



Source: World Bank staff estimates using World Data Pro! based on various household surveys.

Notes: Middle-class is defined as spending more than USD$12 (PPP adjusted) per day. Emerging East Asia countries included in calculation refer to Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Viet Nam and China

45. These demand shifts are already materializing in Viet Nam's trade flows. While traditional US and EU markets remain important, Viet Nam's export flows have shifted towards Asia. China's share in final demand for Viet Nam's exports increased from 2.4 percent of Viet Nam's GDP in 2000 to more than 10 percent of GDP in most recent years. China and ASEAN together have now become the primary source of final demand for Viet Nam, together surpassing the traditional markets like the U.S. and the EU. While only about 16 cents of every $1 of value-added in Viet Nam's export were generated to ultimately meet consumer or investment demand by emerging economies in Asia in 2000, today nearly 30 cents meet final demand originating within the region. Going forward, the shift of economic power to Asia will have profound effects on the direction, pace and scope of future trade and investment flows, creating significant opportunities for Viet Nam to benefit from deeper regional integration. Regional trade agreements such as CPTPP or partnerships between ASEAN economies are set to become instrumental in deepening regional integration.

Disruptive technological change has accelerated shifts to digital service trade and automation

46. The advent of digital technologies has made services more tradable. Most of the recent global trade deceleration is due to a slowdown in trade of manufactured goods while cross border trade in services, especially digital services, continues to expand. Going forward, trade growth is expected to rely more heavily on tradeable services, including high value-added innovator sectors such as ICT, financial services, and insurance. Digital trade, in the form of goods and services transacted or delivered through

digital networks, is quickly becoming a central element of GVC production. The rise of trade-in-tasks, or "servicification"[22] in production, means that the manufacturing sector increasingly relies on services, whether as inputs, as activities within firms or as output sold bundled with goods (National Board of Trade 2016, Nayyar et al. 2021).

47. Viet Nam's services exports, while growing, have not kept pace with its manufacturing trade. In 2022, service exports accounted for 3.4 percent of GDP, a decline from the 2000s, and a smaller proportion compared to regional peers. The share of services in the export mix has decreased due to the more rapid growth of manufacturing exports. On the positive side, business services exports, excluding public, education, and health services, made up an increasing share of Viet Nam's exported value added (15.8 percent in 2019). While the share of ICT services in Viet Nam's exports is substantial and growing, other business services lag regional leaders. In addition, the domestic services share in Viet Nam's manufacturing exports (indirect services exports) is low, accounting for only 7 percent of the manufacturing export value, with a notable increase in the foreign services value-added share.

48. In this context, openness to imported services remains key, but Viet Nam's import share of innovator services has been trailing that of its peers. Imported innovator services including business services and royalties could allow Viet Nam to tap into foreign knowledge and create productivity spillovers. While the country has consistently imported more services than it exports since 2005, Viet Nam's import share of other business and financial services (10.1 and 2.4 percent, respectively) trails that of its peers. In addition, dependence on imported royalties, i.e., charges for the use of intellectual property, is still lower compared than its South-East Asian peers (5.2 percent vs. about 7 percent).

49. Meanwhile, advances in smart manufacturing and automation call into question the established export-manufacturing-led development path. Technological advances could potentially shorten GVCs or trigger reshoring of production systems, presenting both risks and opportunities. Rapid and disruptive technological changes fueled by automation and related processes are transforming production with the advent of Industry 4.0.[23] This creates more flexible manufacturing and customizations that risks disrupting existing production structures in Viet Nam that are highly reliant on low-skilled labor (Cirera et al. 2021b). The global number of robots installed for industrial production has grown by 18 percent annually on average over the last decade. And Asia has emerged as the world's largest market with 73 percent of all newly deployed robots from the region (IFR 2023). Research shows that 17-30 percent of Viet Nam's exports to OECD countries are in goods that can be produced by robots (World Bank 2020a), posing a threat to employment in these sectors. On the other hand, some of these technologies may enable technological leapfrogging and increase the productivity of developing countries such as Viet Nam, as well as create new, higher skilled jobs in in maintenance and management (Figure 17).

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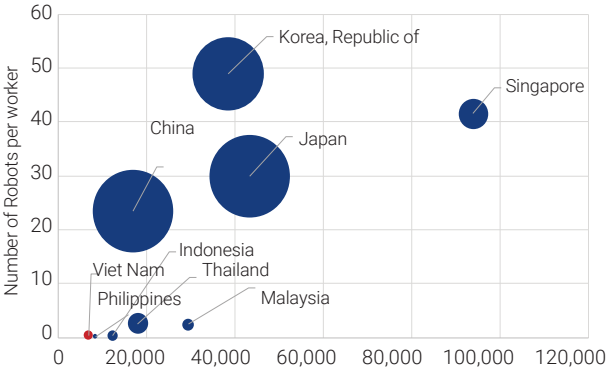
[22] Servicification refers to the increasing reliance of services in trade, whether as inputs, as activities within firms, or as services bundled with traded goods such as technology and knowledge offerings (National Board of Trade 2016).

[23] Industry 4.0 refers to the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of Things (IoT), cloud computing, and cognitive computing.

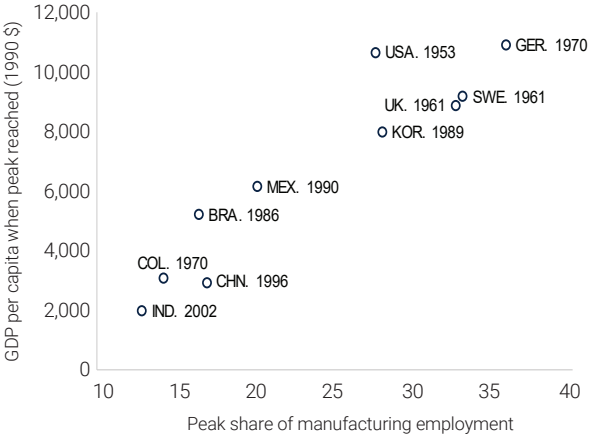
Figure 17: Advanced economies invest more in automation...

Industrial robots per worker vs Per Capita GDP (2017 PPP adjusted US$)



Source: World Bank (2020b)

... and emerging economies start to deindustrialize at lower levels of income than in the past



Source: World Bank (2020b) based on Rodrik (2016)

50. Industrial automation has ambiguous effects on employment and wages. Industrial robots perform a wide variety of tasks with high speed and precision, such as material handling, labeling, packaging, or mechanical cutting. These routine and physical tasks were previously performed by low- and medium-skilled workers, reducing their labor demand and generating displacement effects. However, robots also reduce production costs, increasing productivity and wages, and can create new labor-intensive tasks. Overall, the impact of robots on labor will depend on the degree of substitution between robots and humans, and on productivity gains from robotization (Gregory et al., 2023). With a large fraction of low-skilled workers in manufacturing and a rapid adoption of industrial robots, Viet Nam is heavily exposed to automation in key sectors such as electrical equipment, computers and electronics, and rubber and plastics.[24]

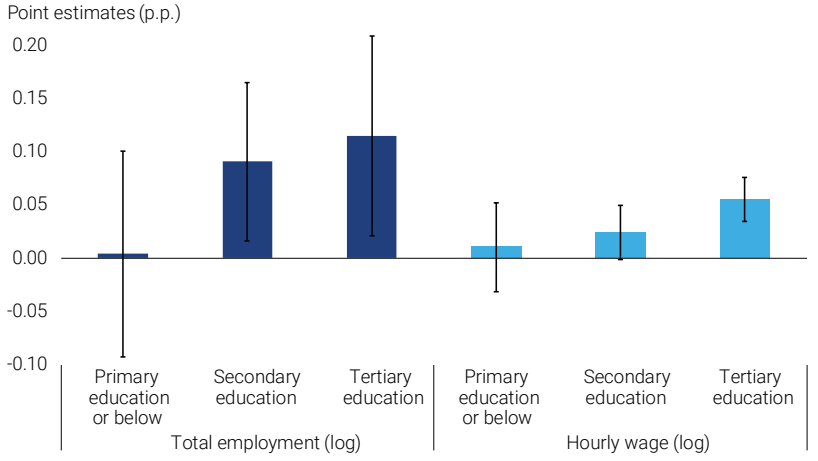
51. Robot adoption in Viet Nam was associated with increased employment and income, especially of higher-educated workers, while low-skilled workers have been displaced into the informal sector. Robot adoption in Viet Nam accelerated after 2016 following government's policy incentives to domestic and foreign investments in key industrial sectors such as electrical equipment and computers and electronics, and was concentrated in industrial zones. Empirical analysis exploiting the variability of industrial composition across different Vietnamese districts and the temporal evolution of robot adoption Vietnamese industries, shows that districts with greater robot adoption have experienced greater increases in overall employment and average wages of workers. Both employment and wages effects are driven by higher-educated workers with at least secondary education who are benefitting most from robot automation. Meanwhile, low-educated workers appear not significantly affected by robot adoption (Figure 18). Further research suggests that this overall impact on low-educated

[24] In 2022, the stock of industrial robots was about 7 per thousand manufacturing workers in Viet Nam, on par with Malaysia and Thailand, ahead of Indonesia and the Philippines but below China (see World Bank 2024).

workers hides a decline in formal employment by low-skilled workers which are partly displaced into the informal sector (World Bank 2024b).

Figure 18. Robot adoption is disproportionally benefitting higher-educated workers

Estimated effects of robot adoption on districts' employment and wages by education level

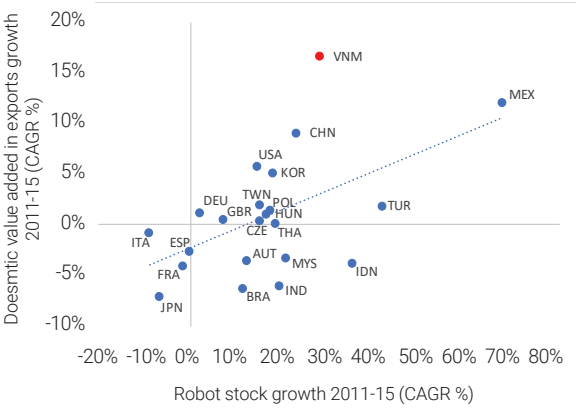


Source: World Bank estimations reported in World Bank (2024b), based on data from International Federation of Robotics (IFR), Viet Nam Labor Force Survey (2011-2020).
Notes: 2SLS estimates of the effects of exposure to robots on local labor market outcomes in Viet Nam during 2014–2020. Exposure to robots is measured as the interaction between the 2011 employment composition by industry in each district and robot adoption by industry-year in Viet Nam, and it is instrumented with "global exposure to robots" that uses the average robot adoption by industry-year across 54 countries. Low-skilled: Primary education (or below); Middle-skilled: Secondary education or high-school; High-skilled: Vocational, college or higher education. All regressions weighted by population in 2011 (baseline year) and controls for district, subregion × year fixed effects, baseline demographic characteristics of districts (log population; share in urban areas; share of migrants; shares of population with primary, secondary, and tertiary education; shares of population under ages 21-55 and older than 56; and share of females), baseline districts' industry shares (employment in primary, manufacturing, services, and the female share of manufacturing employment), and baseline districts' economic characteristics (employment rate, unemployment rate, labor informality rate, share of salaried employment, share of self-employment, female employment rate, exposure to job routinization, log average hourly wage, log average labor income, and log total labor income).

52. Evidence from rubber and plastics suggests that at least in this sector of the Vietnamese economy, robots may be an important complement to labor and not a substitute. In Viet Nam, the stock of industrial robots in the rubber and plastics sector grew by 28 percent annually between 2011-15, the fourth highest rate of 22 countries with data. Concurrently, it enjoyed the highest sectoral growth in domestic value added in exports of any of these countries. The export value added growth relative to the robot growth was far higher than the average such elasticity (fitted line in Figure 18, Panel A), suggesting that Vietnamese firms are employing the new robots effectively to increase sectoral productivity. At the same time, growth in labor value added in the same sector has also grown faster than in any another country (equal with South Korea). The labor value added growth to robot growth elasticity is also far above the sectoral average (Figure 18, Panel B). Thus, it appears – albeit for a relatively short period of data – that increases in robots are also increasing labor productivity, acting more as a complementary investment than a substitute.

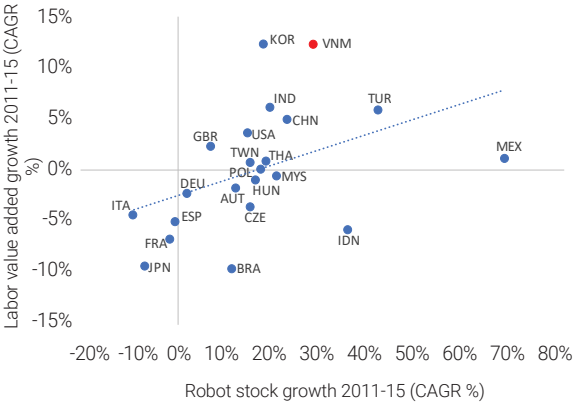
Figure 19: Robotics in rubber and plastics has driven export value added growth, suggesting the robots are acting as complements to labor and not substitutes

A. Growth in robot stock versus domestic value added in exports, rubber and plastics, 2011-15



Source: Authors' calculations using International Federation of Robotics (IFR) and OECD TiVA

B. Growth in robot stock versus labor value added, rubber and plastics, 2011-15



Source: Authors' calculations using International Federation of Robotics (IFR) and OECD TiE.

4. Towards Viet Nam 2045

What will it take to achieve high income status by 2045?

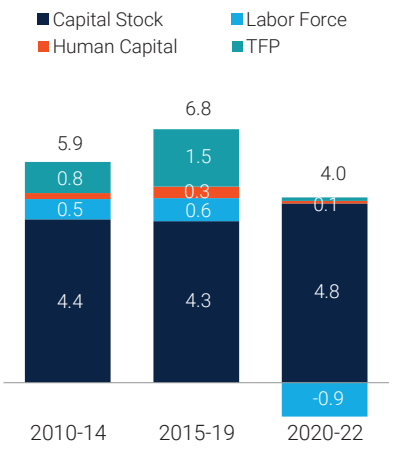
53. Viet Nam's goal of becoming a high-income economy by 2045 is very ambitious. Becoming a high-income country by 2045 would require more than tripling Viet Nam's current income per capita over the next twenty years. This implies sustained per capita GDP growth of about 6 percent every year, and an even higher labor productivity growth of 6.3 percent given the relative decline in working-age population.[25] This required future growth rate is even higher than Viet Nam's impressive past growth since the 1990s (Figure 20, Panel A).[26] Without a significant boost to productivity and investment growth, this goal may be out of reach. Under a business-as-usual scenario, Viet Nam's potential growth is projected to slow to an average annual rate of 5 percent over the next two decades, mainly due to a decline in labor supply growth, leaving Viet Nam's per capita income in 2045 short of the high-income status (Figure 20, Panel B).

[25] Labor productivity is defined as the output produced per worker.

[26] Over 1990-2022, Viet Nam experienced an average 6.5 percent growth in annual GDP growth and a 5.4 percent growth in per capita GDP.

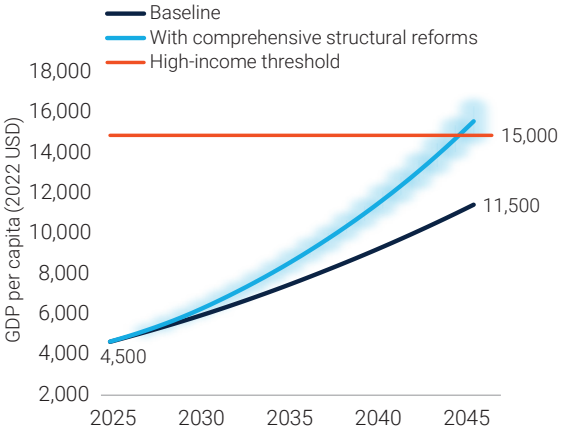
Figure 20 Viet Nam's growth remains driven by capital accumulation

A. Growth decomposition, 2010-2022



Source: World Bank staff calculation using TED database. Growth decomposition is based on GDP growth. Data for 2022 are forecasts from TED. TFP stands for total factor productivity

B. Long-term growth projections

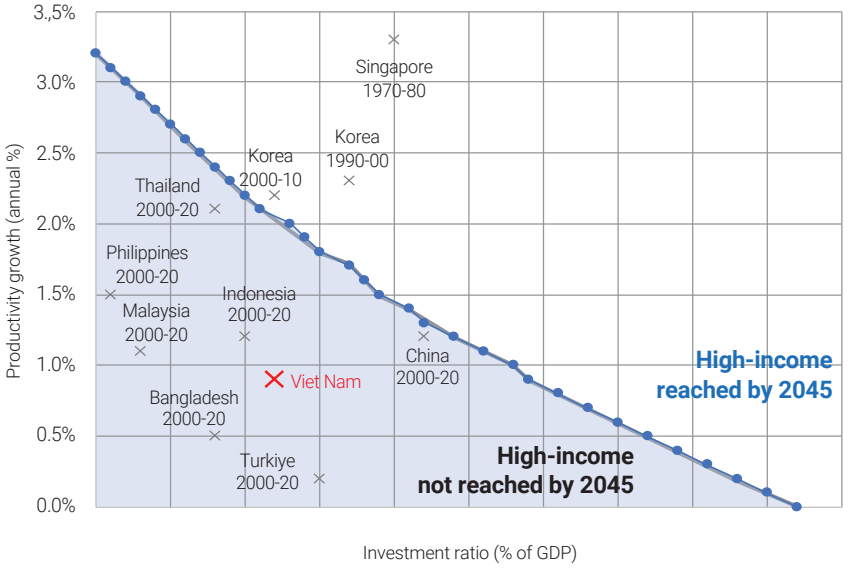


Source: World Bank staff calculation.
Notes: Growth projections are based on a calibrated Solow-Swan model. The GVC upgrading scenario is a reform scenario including all reforms discussed in this report. See technical appendix for more details. Values are expressed in 2022 USD. High-income threshold is based on the World Bank's threshold of a GNI per capita of 13,845 USD or more as of 2022, and a GNI/GDP ratio of 0.93 which is Viet Nam's average over 2012-19. Shaded areas represent modelling uncertainties about future growth from structural reforms.

54. Meeting this ambition will require a significant and sustained growth acceleration, driven by higher productivity growth and investment. Figure 21 shows Viet Nam's current productivity and investment growth against growth levels required to become a high-income economy by 2045 according to growth projections.[27] The figure also shows how these levels compare to peer countries now or when they transitions to high-income status. Viet Nam's historical average productivity growth of 0.9 percent over the last ten years is below most comparators, while its total (public and private) investment rate of 32 percent of GDP is higher than in Thailand and Malaysia but below China (43 percent of GDP). If Viet Nam were to solely rely on higher productivity, it would need to sustain a much higher 2 percent productivity growth every year by 2030 to achieve its high-income ambitions – a path like the one followed by Korea and Singapore when these countries were at Viet Nam's current per capita income level. On the other hand, relying solely on higher investment would require an unsustainable investment ratio of 49 percent of GDP, even higher than China's exceptionally high investment. An illustrative pathway to high-income status by 2045 would require reaching a combined 1.8 percent annual productivity growth and an investment ratio of 36 percent by 2030, an ambitious but reachable goal as illustrated by the growth projections with comprehensive structural reforms (Figure 21).

[27] See Appendix 2 for details of the growth model.

Figure 21. Productivity – Investment space to achieve high-income status by 2045



Source: World Bank staff calculations.
Notes: HIC means High-income country, which represents a GNI per capita of 13,845 USD or more in 2022.

Seizing Opportunities – Five Complementary Policy Packages

55. Transitioning from low value-added activities towards more sophisticated and sustainable participation in GVCs presents a much bigger challenge than that from commodities to basic manufacturing and requires a multifaceted approach to policy reform. A broad range of policies, ranging from deeper trade liberalization to skill upgrading and infrastructure development can help countries accelerate GVC participation, deepen the levels of participation, and better capture the gains from GVCs. Five complementary policy packages would Viet Nam enable to take advantage of the emerging export opportunities to seize the next phase of global trade and investment integration (key policy recommendations for Viet Nam are summarized at the end of this Overview in Table 2):

a. ***From tariffs reduction to (deep) regional trade integration.*** Viet Nam has achieved major tariff liberalization with few gains left to pursue. Reducing significant non-tariff measures (NTM) is the next logical step and offers greater scope for further liberalization. Deepening trade integration especially within Asia will help to further increase market access and diversify imports and exports.

b. ***From a dual economy to integrated domestic value chains.*** Viet Nam lags peers in terms of integrating its domestic economy into GVCs. As such, stronger integration offers outsized gains in terms of economic opportunities and inclusion of the workforce currently left out.

c. ***From labor-intensive final assembly to skill- and technology-intensive high-value activities.*** Viet Nam's current manufacturing heavy export base combined with rapidly evolving digital technologies offers extensive servicification opportunities which could promote value addition and high skills demand. Moreover, the development of the services sector will be less carbon-intensive than manufacturing goods while also being less threatened than manufacturing jobs from automation, offering a degree of resilience.

d. ***From strong basic education to a high-skilled workforce.*** Enhancing the competencies of workers and managers in Viet Nam is pivotal for all identified policy packages to GVC upgrading; it also makes workers more resilient in the face of disruptive technologies, while enabling faster technology adoption.

e. ***From carbon-intensive manufacturing to low-carbon and resilient exports.*** Electricity supply is not keeping pace with demand. Moreover, Viet Nam's carbon-intensive energy sector and heavy export reliance on manufacturing goods (which are more carbon intensive than business services) means the country's exports are more at risk from the global movement to less carbon-intensive trade than its peers. Boosting investment in power infrastructure while greening the manufacturing sector is key to maintain Viet Nam's competitiveness.

56. A comprehensive approach combining all five policy packages could unlock the productivity growth and investment levels needed to become a high-income economy. An illustrative mapping of the policy recommendations of this report shows how much productivity growth and increased investments can be expected for each reform policy package (Figure 22).[28] Each reform has a specific productivity-investment offering, with some reforms primarily increasing productivity growth *(Skills)*, while others are primarily contributing to more investments *(Trade integration, Energy investments)* or a combination of productivity and investment growth *(High-tech and services, Domestic linkages)*. Taken individually, one reform policy package alone would not be sufficient to achieve the significant improvements needed for Viet Nam to become a high-income economy by 2045. However, taken together, a comprehensive GVC reform package could unlock the levels of productivity growth and investments necessary to achieve Viet Nam's ambitions, and benefit from spillovers between policy packages.[29] This comprehensive reform package would also enable seizing specific export opportunities in the product markets where Viet Nam currently holds comparative advantage in textile and high-tech sectors (see Box 1).[30]

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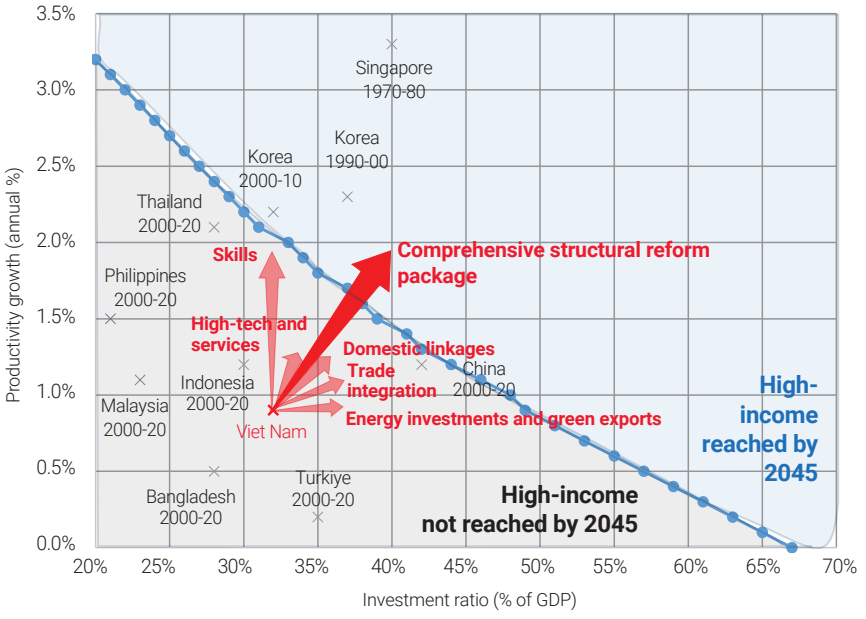
[28] See technical appendix for details.

[29] The levels achieved by a comprehensive GVC upgrading policy package on productivity growth and investment ratio are in the range of 2 percent and 40 percent of GDP, respectively.

[30] According to Decision 1992/QD-BCT in 2021 on prioritized high-technology industries, five high-tech industries include energy, biotechnology, new materials and nanotechnology, electronics and digital technology, and advanced manufacturing and automation industry. By technological intensity, these industries have high- and medium-high-tech intensive, according to OECD taxonomy based on R&D intensity (Galindo-Rueda and Verger, 2016). Decision No. 569/QD-TTg in 2022 defines priority high technologies as ICT, biotechnology, automation and new materials, marine technology; technology for natural disaster prevention and climate change responses; energy technology; environmental technology; space technology; and advanced and intelligent construction, transport and infrastructure technologies.

Figure 22 An illustrative GVC upgrading pathway



Source: World Bank staff calculations.
Notes: HIC means High-income country, which represents a GNI per capita of 13,845 USD or more in 2022.

Box 2. Mapping opportunities – A product-level export opportunity analysis

Given its emerging industrial prowess, Viet Nam is well-positioned to take advantage of several growing market opportunities. An export opportunity analysis is conducted to assess potential growth areas. This analysis is informed by the current share in Viet Nam's export basket; their revealed comparative advantage (RCA); growth in global demand; product space density (i.e., their technological proximity given the current export specialization); and information on the global concentration of competitors and buyers in a sector. Based on this analysis, 15 strategic products have been identified in the apparel, footwear, and electronics sectors. These are mapped in Figure B2.1 based on their "strength" (measured by relative comparative advantage and global export market share) and "potential growth opportunities" (assessed based on global demand growth and product space density).

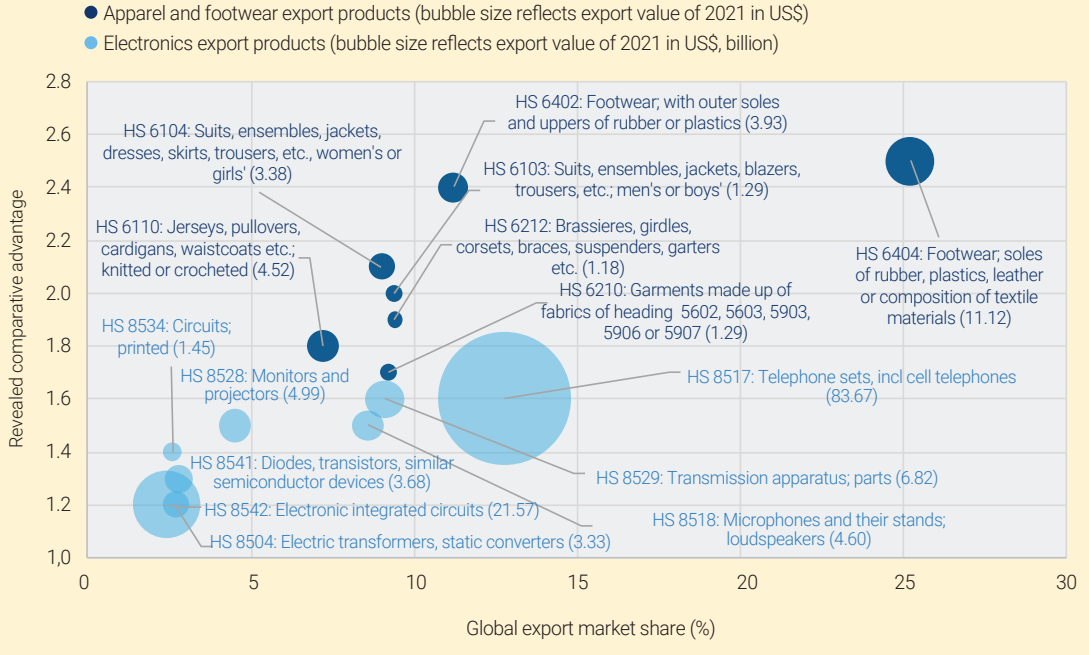
Viet Nam has stronger comparative advantages and capabilities in traditional export sectors, such as garment and footwear, and high-tech products. As can be seen from Figure B2.1 (top panel), footwear and apparel products (blue bubbles in) tend to exhibit stronger revealed comparative advantages and global market shares than electronic products. Viet Nam's product space density – a measure of its existing industrial capabilities- is also generally higher for apparel and footwear products than electronics. This suggests that upgrading traditional manufacturing exports would likely be easier. While some selected apparel subsectors (garments, men's suits, specialized protective wear) also show strong growth opportunities based on increasing global demand, overall growth opportunities are generally more significant for electronics given fast global demand growth for these products (with integrated circuits showing the fastest growth). This implies that some of the most promising "low risk" opportunities will require significant policy efforts to facilitate industrial upgrading.

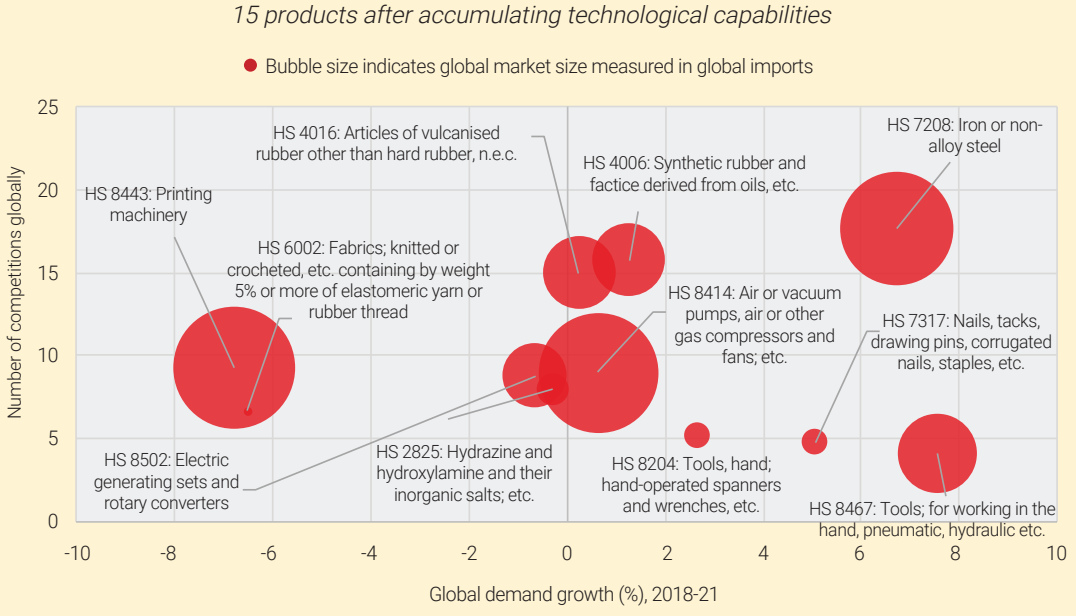
If Viet Nam is able to develop its technological capabilities, it has potential to diversify its range of export products. Complementary analysis suggests that if Viet Nam accumulates technological capabilities in twelve target technologies, it can broaden its range of export products. Technological capabilities are proxied by patents registered in the country. Such technologies include, for instance, wireless communication networks, transmission of digital information, and communication technology. Products that can be produced with these technologies can be considered "higher risk" opportunities because Viet Nam does not yet have its own technological capabilities to produce them. The analysis suggests 92 export products that could be reached. Focusing on the top 15 products where Viet Nam has already existing export capabilities (based on the products' revealed comparative advantage) suggests a wide range of different products. (Figure B2.1, bottom panel).

While the direction of future export competitiveness is difficult to predict, these results could help inform government policy and strategies. Some skill development and infrastructure efforts could be targeted to priority industries where Viet Nam has both existing strength and where growth potential is high. For example, upgrading Viet Nam's participation in the apparel and footwear value chains into original design and original brand manufacturing activities, as Türkiye successfully managed to do, would require building specific technical skills of its workforce. Similarly, upgrading within the electronics, ICT and chips sectors requires Viet Nam to invest in building the necessary engineering skills. Moreover, these sectors are energy intensive (particularly chip manufacturing) which could quickly become a challenge unless greater investments in power generation and transmission prevent electricity shortages as demand increases. Beyond industry-specific measures, horizontal policies are required to address emerging constraints and pave the way for sustainable and inclusive GVC upgrading

Figure B2.1: Export opportunity analysis

15 products with current export strength in 2021





Source: World Bank staff calculations using HS4-digit trade data from WITS, building on Reed (2024), Reed and Nyawo (forthcoming) and World Bank (2024a). Note: All metrics are for 2021, unless otherwise specified.

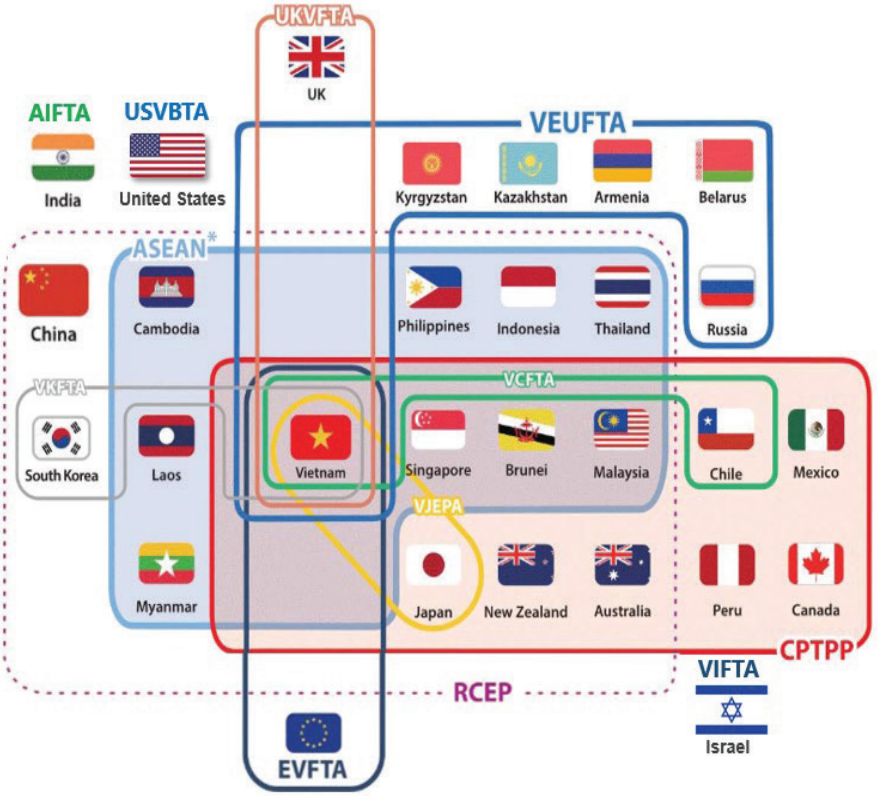
Policy package 1: From tariffs reduction to deep (regional) trade integration

57. Trade agreements have been instrumental for Viet Nam's regional integration and export growth but room for progress remains. Over the past thirty years, Viet Nam has pursued a comprehensive integration strategy with its main trading partners, resulting in its WTO accession in 2007 and a network of trade agreements covering 53 countries, accounting for almost 90 percent of the World's GDP, and approximately 85 percent of Viet Nam's imports and 70 percent of its exports. In addition to the WTO, Viet Nam participates in 19 FTAs covering 87 percent of the world economy and most regions except Africa and the Middle East (Figure 23). As result of these agreements, Viet Nam reduced its average applied weighted tariffs on manufactured goods from 16.6 to 1.1 percent and those on primary goods from 11.2 to 2.7 percent (World Development Indicators). In a context of rising geo-economic fragmentation, trade agreements allowed Viet Nam to emerge as a "connector" country, with positive impact not only on trade but also in terms of domestic development. A firm-level analysis points towards a positive relation between the export intensity of firms in 2017 and the subsequent growth in sales, productivity, and employment (World Bank 2024b).

58. While the coverage of Viet Nam's FTAs is wide, most of them are relatively shallow, focused primarily on tariff reductions with much more limited commitments on services, non-tariff measures and dispute resolution. As can be seen from Figure 0.24, the coverage of Viet Nam's FTAs

in terms of GDP and trade flows is among the highest in the World. In contrast, the depth of these FTAs in Viet Nam - measured as the scope of commitments on non-tariff measures, services and strength of dispute settlement mechanisms - has remained relatively limited.

Figure 23. Viet Nam's extensive FTA network covers 87 percent of the global economy

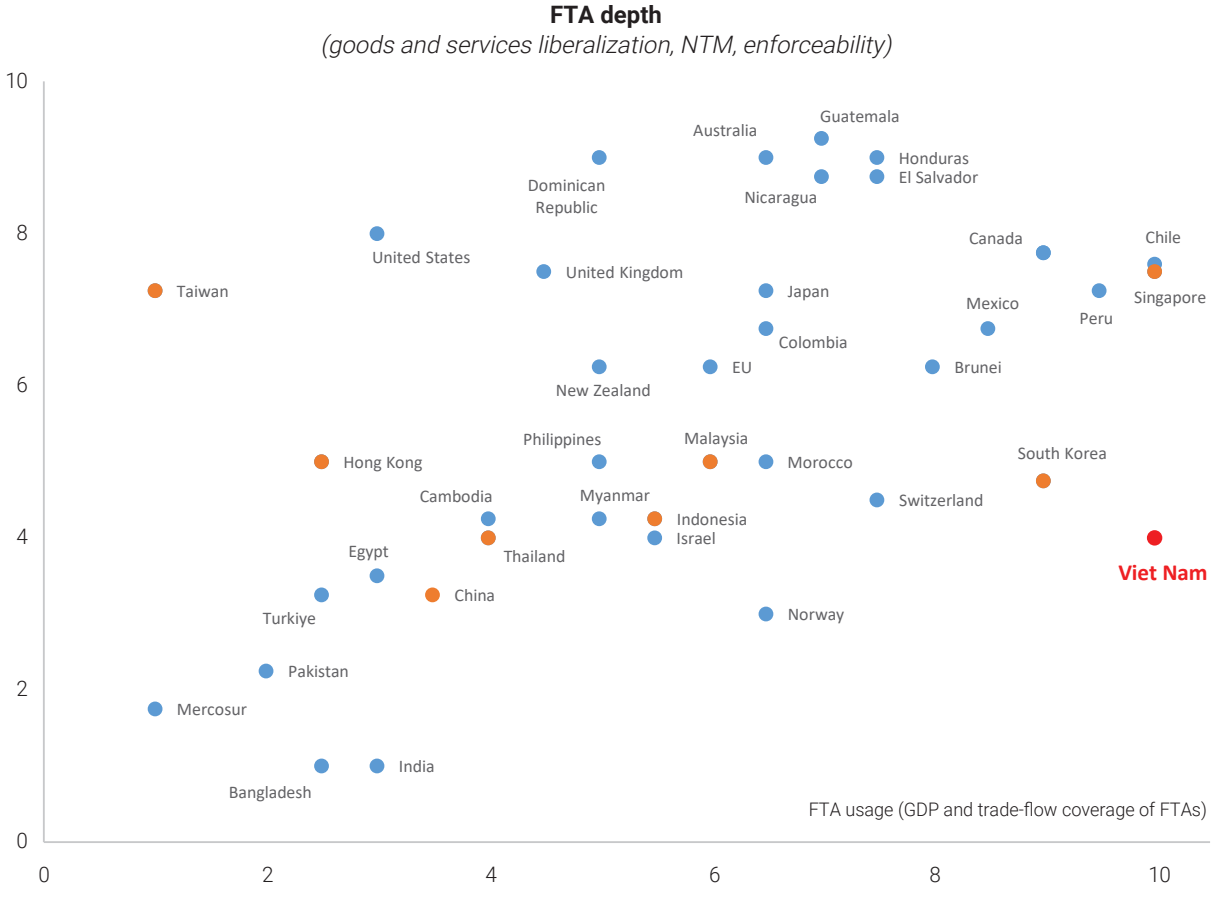


Source: World Bank using WTO and Dezan Shiran.
Notes: The graph shows the latest effective FTAs listed on WTO, as well as the US-Viet Nam bilateral trade agreement (USVBTA) given its important.

59. The bulk of trade liberalization benefits from modern PTAs stems from the reduction of non-tariff measures (NTMs) and the enhancement of domestic regulations. Recent PTAs with major partners, including the EU, United Kingdom, CPTPP, and Regional Comprehensive Economic Partnership (RCEP), are estimated to further reduce trade costs linked to NTMs, with the agri-food sectors experiencing the most significant cost reductions. The reduction is estimated to be nearly 60 percent of the total trade cost reduction achieved in the preceding three decades (Figure 25). This impact arises from reduced trade policy uncertainty, enhanced integration from value chain integration and intermediate goods trade, and specific PTA provisions targeting non-tariff barriers. Modern PTAs cover a wider range of policy areas, offering new market access rights and protecting integration rights, including rules

of origin and technical barriers to trade. Evidence also suggest that PTAs could protect signatories against discriminatory industrial policies.[31] The harmonization of standards and mutual acceptance through PTAs can strengthen domestic institutions and GVC participation. Deepening PTAs thus fosters both economic and resilient GVC upgrading (see Box 2 for estimates of the welfare impacts of NTM cost reduction from CPTPP, EVFTA, and RCEP – two of Viet Nam's major regional PTAs – as well as forthcoming PTAs).

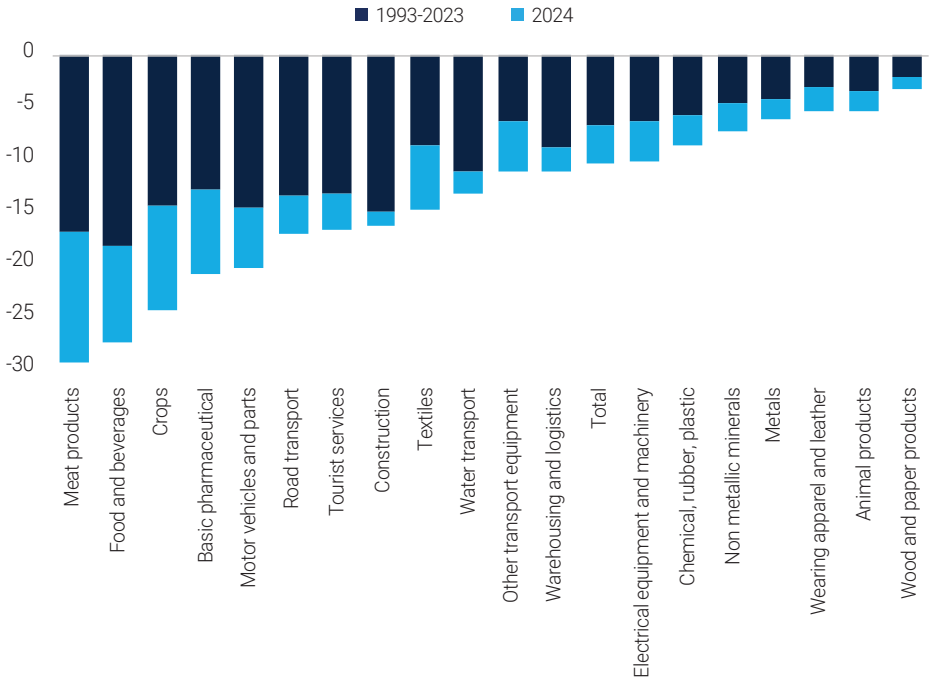
Figure 24. Viet Nam's FTA strategy has focused on breadth over depth



Source: World Bank using DESTA, BCG.
Notes: FTA usage and depth are measured based on score from 0 to 10, with 10 meaning the highest possible usage or depth, respectively using the methodology from Dur et al (2012) and BCG (2024). Goods liberalization is scored using the effective weighted tariff rate across imported goods with FTA partners. Services liberalization is scored using the number of service types provided for in FTAs. Breadth is measures using the inclusion of nontrade provisions (IP rights, investment flows, etc). Enforceability is measured based the strength of dispute settlement mechanisms.

[31] Barattieri, Mattoo and Taglioni (2024).

Figure 25: Past and future tariff equivalent (AVE) PTA-induced NTM trade cost reductions (in %)



Source: World Bank calculations
Notes: Trade weighted trade cost reductions based on gravity regressions.

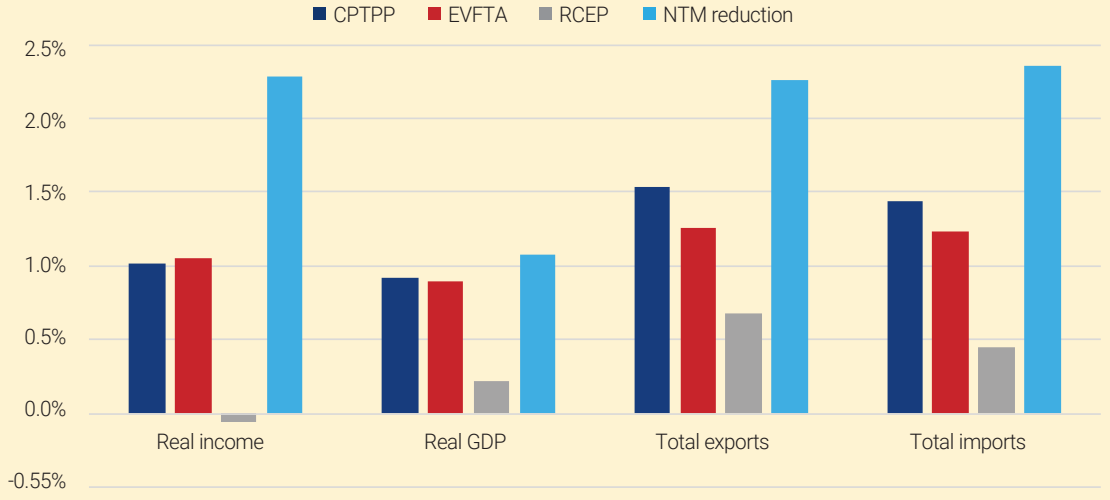
Box 3. Welfare effects of recent and forthcoming non-tariff measures from PTAs

This section evaluates the welfare effects of diminishing NTMs within Viet Nam's existing PTAs by employing a dynamic global general equilibrium model. Details of the Envisage model are given in Appendix 3. The outcomes are benchmarked against a Business-as-Usual scenario, which outlines the anticipated evolution of the global economy. To contextualize the impacts of NTM reductions in PTAs relative to more conventional scenarios of tariff liberalization, this section also examines the results of three distinct tariff liberalization scenarios arising from recent agreements signed by Viet Nam: the CPTPP, EVFTA, and RCEP. The findings presented here reflect estimated impacts for the year 2035.

The application of NTM reductions within existing PTAs is projected to raise Viet Nam's real income, real GDP, and both export and import volumes (Figure B3.1). Decreases in trade costs, facilitated by reductions in tariffs and NTMs, result in a decline in the import unit price. This reduction bolsters the competitiveness of domestic production that uses imported inputs, for both domestic consumption and export purposes. Consequently, there is a shift in production towards sectors where Viet Nam is most competitive, resulting in productivity improvements, trade expansion, and accelerated economic growth. These reductions in trade costs also benefit trade with non-PTA countries, contributing to a slight increase

in trade growth with these nations. Furthermore, the overall welfare effects are closely tied to the sectors where Viet Nam has a comparative advantage. In instances where sectors poised to benefit from the RCEP demonstrate higher productivity than those projected to grow under the baseline scenario, the reallocation of production can lead to more substantial gains in nationwide productivity and income growth. The magnitude of these effects surpasses those observed in the tariff liberalization scenarios under review.[32] However, it is noteworthy that when evaluating the effect on Viet Nam's total exports and imports, the disparity in impact is less pronounced, particularly in comparison to the CPTPP.

Figure B3.1: Macroeconomic impacts, percentage change compared to business-as-usual, 2035



Source: WB staff computations, based on Envisage results.
Note: CPTPP, EVFTA, and RCEP represent three distinct tariff liberalization scenarios arising from recent agreements signed by Viet Nam.

The reduction of NTMs under Viet Nam's existing PTAs is anticipated to enhance exports of food and manufactured goods (Table B2.1, top panel). Specifically, exports of electronics, textiles, wearing apparel, and meat are projected to experience the most substantial expansion in value terms under this scenario, consistent with the NTM reduction presented above (Figure 2.24). A significant growth is foreseen across most manufacturing sectors. The reduction of NTMs within current PTAs is expected to favor exports of tourism services. Conversely, exports of natural resources and energy are estimated to decrease compared to the business-as-usual scenario as production factors labor and capital shift to expanding sectors.

[32] The negative impact on real income in the RCEP scenario is associated to a fall in the tariff revenue and negative terms of trade impact with export prices dropping faster than import prices.

Table B3.1: Impact on exports, percentage change and value change compared to business-as-usual, 2035

Sectors	Exports 2035 (million USD)	CPTPP	EVFTA	RCEP	NTM	CPTPP	EVFTA	RCEP	NTM
		Percentage change (%)				Change in million USD			
Agriculture and food production	48.876	1,5%	0,9%	2,0%	3,4%	755	437	988	1672
Natural resources	27.445	-4,3%	-3,4%	0,2%	-8,2%	-1220	-967	63	-2356
Manufactures	389.619	2,3%	1,9%	0,6%	3,3%	8953	7465	2166	12772
Services	46.536	-1,3%	-1,0%	0,6%	-1,1%	-612	-481	258	-507
Sectors	**Exports 2035 (million USD)**	**CPTPP**	**EVFTA**	**RCEP**	**NTM**	**CPTPP**	**EVFTA**	**RCEP**	**NTM**
		Percentage change (%)				Change in million USD			
Agriculture and food production	326.573	0,4%	0,2%	0,5%	0,4%	1.165	533	1.551	1.192
Natural resources	44.968	-1,9%	-1,5%	-0,7%	-3,8%	-1.173	-913	-434	-2.326
Manufactures	820.638	0,9%	0,8%	0,2%	1,6%	7.017	6.507	1.664	12.661
Services	539.096	0,3%	0,4%	0,0%	0,8%	1.702	2.110	-3	4.414
Sectors	**Exports 2035 (million USD)**	**CPTPP**	**EVFTA**	**RCEP**	**NTM**	**CPTPP**	**EVFTA**	**RCEP**	**NTM**
		Percentage change (%)				Change in million USD			
Agriculture and food production	63.464	1,4%	1,3%	0,6%	2,5%	900	794	405	1585
Natural resources	4.051	1,7%	1,1%	2,4%	2,4%	370	252	533	525
Manufactures	398.454	1,4%	1,2%	0,4%	2,3%	5506	4682	1370	8643
Services	32.891	1,3%	1,3%	-0,2%	3,0%	428	413	-71	989

Source: WB staff computations, based on Envisage results. Note: CPTPP, EVFTA, and RCEP represent three distinct tariff liberalization scenarios arising from recent agreements signed by Viet Nam.

Under the various liberalization scenarios, the production of manufactured goods in Viet Nam is projected to increase markedly (Table B2.1, middle panel). Electronics, textiles, wearing apparel, and transport equipment are expected to witness the greatest expansion under the NTM reduction scenario. Conversely, the production of textiles and apparel is anticipated to experience more substantial growth within the tariff liberalization frameworks of the CPTPP and the EVFTA. Additionally, the implementation of NTM reductions is set to significantly boost the production of services, particularly in the business, communication, and tourist service sectors.

The reduction in the cost of imported intermediate inputs is particularly advantageous to Viet Nam's input-intensive sectors (Table B2.1, bottom panel). Under all examined scenarios, imports of manufactured goods experience a significant upsurge, with the most substantial increase occurring within the NTM reduction scenario. Electronics imports, in particular, register the highest growth under this scenario. Additionally, trade liberalization scenarios contribute to the expansion of imports in certain agricultural products, including crops and food products, as well as services, predominantly tourist services.

Policy options:

60. Deepening regional and global integration continues to offer significant benefits to Viet Nam. There are both economic and strategic reasons to focus on further enhancing bi- and pluri-lateral agreements to achieve deeper integration with strategic markets to diversify both sources of its imports and demand for its exports. Ideally, Viet Nam would pursue multilateral cooperation on trade and investment, for example through the WTO but if the current global political context makes full-fledged multilateral cooperation difficult, then regional and plurilateral agreements may be more fruitfully pursued in the near term. In addition, while Viet Nam's current most important trade partners include the United States and the European Union, regional trade integration and connectivity with economies in East, Southeast and South Asia is emerging as an increasingly critical agenda, especially given the rapidly growing demand from these markets. While diversifying export and import markets, such a strategy would at the same time help increase resilience to shocks and reduce vulnerabilities associated with the concentration of trade partners – China accounts for a third of Viet Nam's imports and the US for 30 percent of its exports.

- **Further strengthen trade relationships to transition from a "connector" country into a trade hub.** Given rising geo-economic fragmentation, Viet Nam's approach of diversifying its trade and investment relationships through multiple, complementary bi-lateral and multi-lateral trade agreements is particularly useful. While preserving market access across major economies this allowed Viet Nam to become a "connector" country and could help the country to progressively develop into a trade hub (rather than a spoke), with positive impact not only on trade but also on productivity and employment. Hubs act as central nodes in trade networks and supply chains, mediating significant flows from across value chains, characterized by advanced industrial capacities, high levels of technology, and strong logistic and organizational capabilities. They are not just the centers of production but also the centers of innovation and control over global value chains. Spokes, on the other hand, are countries or regions that are integrated into the global value chains primarily through their connections with the hubs. They tend to specialize in certain stages of production or services that are part of the larger value chain orchestrated by the hubs. Spokes often benefit from technology transfer and investment from the hubs but may also be dependent on them for access to global markets and advanced technologies.

- **Pro-actively shaping the regional integration agenda.** As the one of the region's largest export economies and 4th largest economy in ASEAN with its GDP approaching half a trillion US$, Viet Nam has high stakes in preserving a rule-based, open global and regional trading and investment system. While the current geo-economic environment is complex, shaped by many factors -both economic and political- Viet Nam's growing regional and global stature as a major emerging economy provide opportunities to shape mutually beneficial regional and global cooperation. Working with international partners within ASEAN, RECEP, CPTPP and other settings, Viet Nam could pro-actively pursue the deepening of commitments around key agendas such as digital trade, harmonization of standards, power trade, and connectivity.

- **Reducing non-tariff policy barriers to trade.** The importance of reducing NTBs has long been recognized as the most significant source of economic gains from trade agreements (World Bank, 2016). Based on international benchmarking and the existing literature on the impact of deep trade agreements,[33] three policy areas would yield significant benefits for Viet Nam:

    - ***First, promoting compliance with international and regional standards.*** Standards-like technical measures improve the quality of products but regulatory differences across countries may create significant trade barriers for firms. Consequently, it is important to create a regulatory environment that makes use of international and regional standards, and to provide a suitable quality-related compliance infrastructure. While Viet Nam is continually looking to harmonize national standards with regional and international standards,[34] its quality-related compliance infrastructure is ranked 62nd in the world and 17th among APEC countries according to the UNIDO QI4SD index, trailing behind the APEC average especially with regards to metrology and standardization.[35] This relatively low performance may create considerable bottlenecks for firms; for example, to certify conformity assessment of their products.

    - ***Second, streamlining border management.*** Viet Nam has significantly improved its trade facilitation infrastructure. However, it is lagging top-performing countries like Malaysia, China, Thailand or Singapore with respect to automation of customs processes and documentation requirements.[36] This likely leads to unnecessary delays at the border and implies significant trade costs for time sensitive industries and those that are integrated in GVCs.

    - ***Third, reducing foreign equity restrictions.*** Viet Nam follows an investment policy regime that facilitates FDI across most sectors. There remain relatively stringent foreign equity restrictions in telecommunication and transport sectors, precisely the ones with high spillover effects on activities of other sectors.[37] Considering Viet Nam's ambitious growth path, such equity restrictions should not become a binding constraint for economic growth.

- **Enhancing regional connectivity:** In addition to reducing policy barriers to trade and investment flows across the region, strengthening physical and digital connectivity is crucial to reducing trade costs. The regional connectivity agenda can be considered at different scales, to reflect the diversity of needs and the nuances of different supply chains. These scales include connectivity within the immediate Southeast Asia neighborhood, and the evolving and expanding links with China as well as to South Asia. Deepening intra-ASEAN connectivity is among the ongoing priority trade initiatives for Viet Nam. Viet Nam has a long history of cooperation on connectivity within the sub-region, through its participation in the Greater Mekong Subregion (GMS) initiative, launched in 1992 by Viet Nam and

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[33] Fontagné et al. (2021) ; Breinlich et al. (2021); Egger et al., (2015)

[34] Viet Nam plans to have 70-75% of their TCVN standards harmonized with international and regional standards by 2030 (Decision 1322/QD-TTg, 31 August 2020) – see e.g., Viet Nam's 2021 WTO Trade Policy Review.

[35] https://hub.unido.org/qi4sd/VNM?compare=OTHER&value=APEC

[36] See OECD Trade Facilitation Index: http://compareyourcountry.org/trade-facilitation/en/1/VNM/VNM/default

[37] See OECD FDI Restrictiveness Index and Viet Nam's 2021 WTO Trade Policy Review

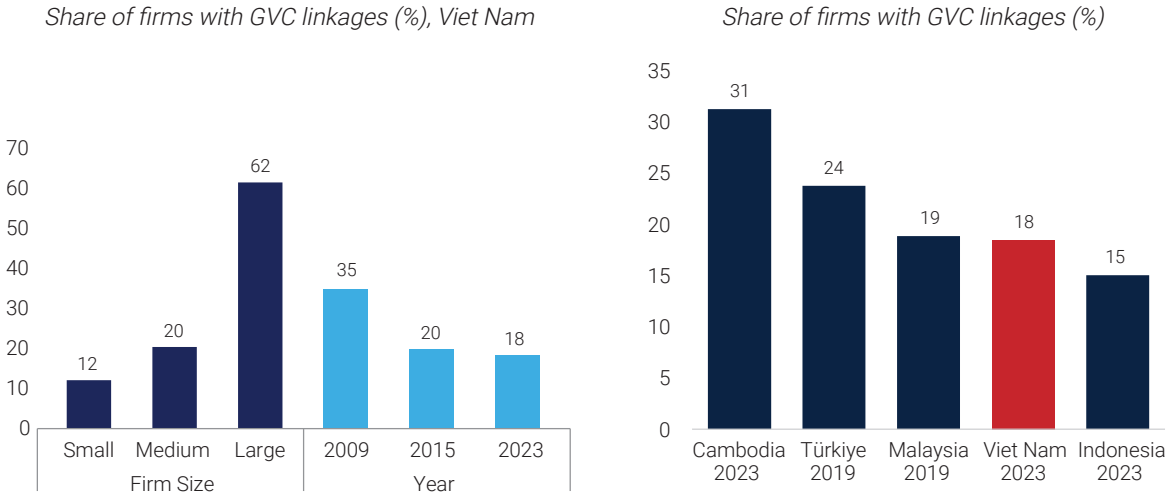
five other riparian states of the Mekong River (Cambodia, China, Lao PDR, Myanmar, and Thailand). The program, still under implementation, focuses on cross-border infrastructure development in a few priority economic corridors with the goal of enhancing economic cooperation among the participating economies. While some of these corridors are lightly traveled, the GMS region's basic core infrastructure could support further trade integration.

Policy package 2: From a dual economy to integrated domestic value chains

61. Large productivity differentials between GVC firms and other Vietnamese firms underscore the importance of strengthening firms' linkages and productivity spillovers. As shown above, firms -foreign or domestic- engaged in trade are on average 70 percent more productive than Vietnamese firms that are not engaged in imports or exports (see Figure 5, right panel). Strengthening linkages and productivity spillovers between these firms and the rest of the economy could have significant positive impacts on productivity and growth rates for the whole economy while also entrenching supply chains more deeply in the domestic economy.

62. However, spillovers from GVC firms to the rest of the economy are limited. Very few domestic firms are engaged -- directly or indirectly -- with GVCs. In fact, the ratio is significantly lower than in other countries and has -- perhaps most worryingly -- declined over time despite Viet Nam's rapid expansion of trade. Only 18 percent of firms have GVC linkages in 2023, a decline of 17 percentage points compared to 2009 (Figure 26, left panel). Similarly, although precise trends are hard to establish, less than 40 percent of Viet Nam's manufacturing firms have linkages to GVCs, again declining compared to 2009, when about 55 percent of manufacturing firms had linkages. Consistent with existing research, firm size matters: 62 percent of large firms exhibit GVC linkages, in contrast to a mere 12 percent of small firms (Figure 26, left panel). Many of Viet Nam's micro and small enterprises may lack the scale and access to skilled labor and technologies to comply with the stringent quality and timeliness requirements, demanded by GVCs. Compared to Malaysia, Türkiye or Cambodia, Viet Nam's firms are notably less connected internationally (Figure 26, right panel). The fact that GVC linkages are concentrated in fewer firms limits the scope for productivity spillovers.

Figure 26: Share of firms with GVC linkages, Viet Nam and select peers



Source: World Bank staff computations.
Data: World Bank Enterprise Survey 2023.
Notes: Figures show average for each bar. A firm is considered to have GVC linkages if it has at least one of the following characteristics: more than 10% foreign equity, using foreign-licensed technology, involved in export (10% or more of sales), involved in imports. Imports are only defined for firms in the manufacturing sector. Firms size is defined following the definition used by the World Bank Enterprise Surveys (WBES) data, which is small (5-19 employees), medium (20-99 employees), and large (100+ employees). The WB Enterprise Surveys are stratified by sector of activity, firm size, and geographical location.

63. The extent of productivity spillovers and linkages not only depends on the spillover potential of foreign companies and GVC participants, but critically also on the absorptive capacity of domestic firms and Viet Nam's institutional framework. The potential for Viet Nam's domestic firms to capitalize on GVC-related spillover benefits may be hindered by their lower managerial capabilities and skill level of their workforce relative to other EAP countries. In addition, domestic firms in Viet Nam face larger obstacles with regards to accessing finance and obtaining construction-related permits or import licenses. While Viet Nam's business climate is generally attractive to foreign investors, including through favorable tax conditions, there is room for improvement of rule of law and control of corruption.

Policy Options

64. Transitioning from a dual economy to integrated domestic value chains in Viet Nam would boost productivity and foster inclusion. The large productivity differential between GVC firms and the rest of the economy provides opportunities for the development of the domestic private sector. Firms with GVC linkages contribute to productivity spillovers to the local economy through supplier linkages or subcontracting relationships which encourage domestic suppliers to improve quality and efficiency to

[38] Besides supplier linkages, competition and demonstration effects help raise the productivity of domestic firms as they are competing with MNEs over input, labor and output markets and are also learning from best practices.

meet international buyer standards.[38] When the productivity gap between foreign and domestic firms is initially too large, one strategy could be to attract tier-1 and lower-tier suppliers. This approach can help bridge the gap and facilitate spillovers and linkages at lower tiers of the supply chain.

65. The development of linkages is inextricably linked to the policies aimed at attracting foreign investors and enhancing the absorptive capacity of domestic firms. Furthermore, Viet Nam stands to gain from the implementation of programs that explicitly target local linkages such as supplier development programs.[39] In Viet Nam, the following policy options would help to develop linkages and increase productivity spillovers:

- **First and foremost, continue strengthening the business environment.** Ensuring an attractive general investment climate and policy environment conducive to trade is key to attracting FDI and creating spillovers. Resolution 68 has made notable progress in terms of reducing regulations and compliance costs in Viet Nam. Going forward, regulatory reform strategies could be enhanced through digitalization. The Administrative Procedure Control Agency (APCA) in the Office of Government (OOG) could work with ministries to develop a detailed program and action plan to eliminate paper documents and improve the quality of the data sharing framework (government interoperability) with unified web-based application forms. Moreover, the licensing and inspecting framework could be improved by implementing a risk-based approach.

- **Connect MNEs and local firms:** A key step for more integrated value chains is to strengthen the connection and the exchange of information between high potential local suppliers and new or existing foreign investors in Viet Nam. Investment promotion agencies (IPAs) often employ strategies such as matchmaking, information dissemination, and the maintenance of supplier databases, as well as aftercare services.[40] "Meet the Buyer" events or suppliers' forums could be organized to provide an opportunity to potential suppliers to get a better understanding of quality, cost and delivery (QCD) standards and technology and skills gap. In parallel, it is important to minimize search costs for foreign firms by publishing on-line quality "live" databases and directories of local suppliers in English which provide thorough assessments of these suppliers' capabilities or other measures capturing the "reputation" among suppliers that could be recognized by foreign firms.[41] IPAs could also support foreign investors in targeting tier-1 or lower tier foreign suppliers to co-locate in Viet Nam. This would help build the necessary eco-system to facilitate GVC linkages and spillovers when domestic capabilities are still low. However, it is important to realize that these strategies are only a necessary but not sufficient condition for successful linkage development.

- **Set up a Supplier Development Program (SDP) to upgrade the absorptive capacity of local firms and enhance linkages and spillovers:** Enhanced supplier development programs, whether established by foreign investors independently or in private-public partnership, are distinguished by their strategic focus on particular suppliers, farmers, sectors, and regions, coupled with the

[39] Farole and Winkler (2014).
[40] Winkler (2022).
[41] World Bank (2017).

establishment of explicit targets. The SDP could include both demand-driven horizontal support measures and vertical measures in specific sectors with potential for linkages. The SDP could also include consulting services for improving managerial skills and technical skills and meeting labor and environmental standards and certification. Behavioral incentives could be targeted towards both local suppliers for upgrading, and to MNEs to encourage them to invest in supplier training. These incentives should be tied to firm performance, targeted, with sunset clause, and designed to minimize market distortions. Successful initiatives have been characterized by a significant engagement of the private sector in the execution of the training component. The scope of these programs extends beyond mere technical instruction, encompassing operational, business, and managerial training, and in certain instances, they also serve to stimulate innovation, as illustrated by Samsung's Research and Development Centre.[42] The recent memorandum of understanding between Samsung Viet Nam and the Ministry of Trade and Investment to develop smart 50 manufacturing factories is also part of Samsung's commitment to increase the number of tier-1 and tier-2 suppliers in the country.[43]

- **Implement supply chain finance (SCF) mechanisms between FDI and domestic firms.** The availability of SCF solutions would allow suppliers and distributors to optimize their working capital by converting their sales receivables and inventories to cash and obtain lower-cost financing. This could smoothen commercial transactions between FDI firms, and their local domestic suppliers. The emerging digitization of supply chains also benefits SCF mechanisms. Digital SCF solutions, for instance, improve transparency through e-invoicing, increase scale through platform approaches, and better predict performance and financial needs of borrowers. Connecting foreign and domestic businesses along the supply chain to digital management, electronic payments, and banking services can help resolve working capital issues and promote the financial inclusion of domestic suppliers.[44]

Policy package 3: From labor-intensive final assembly to skill- and technology-intensive high-value activities

66. The third policy package focuses on Viet Nam's potential to develop a competitive services sector, foster digital trade and promote the 'servicification' of manufacturing exports. Servicification implies that production increasingly incorporates services such as R&D, engineering, transport, logistics, distribution, marketing, sales, after-sale services, IT, management, and back-office support. Looking forward, Viet Nam could leverage the servicification opportunities provided by digital development to increase the value-added of its manufacturing exports. Servicification of manufacturing would contribute to promote sustainable and resilient GVC upgrading, as it helps generate demand for higher skill jobs, increase value added, integrate domestic services sectors into manufacturing processes and increases resilience to trade shocks.

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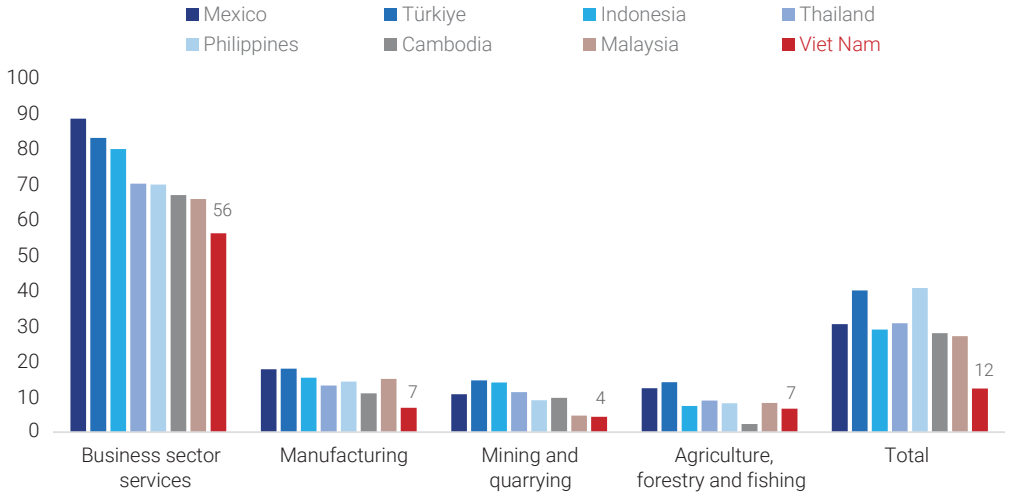
[42] Winkler (2022).
[43] https://investvietnam.vn/vietnamese-suppliers-to-become-part-of-samsung-s-global-value-chain-n2205.html
[44] ttps://documents1.worldbank.org/curated/en/310261613738371600/pdf/Technology-and-Digitization-in-Supply-Chain-Finance-Handbook.pdf

67. Viet Nam's already small domestic services share embodied in its exports has declined further, inhibiting growth potential in domestic value addition. High-value segments of GVCs often have a significant services component. By promoting stronger "servicification," Viet Nam can simultaneously upgrade to more advanced products or tasks within GVCs and capture more value added domestically.[45] However, Viet Nam's share of domestic services in its total exports is only 12 percent, and even lower in manufacturing exports at 7 percent in 2018. In comparison, other countries have shares that are at least twice as high (Figure 27). Moreover, there has been a decline in the share of domestic services value added in Viet Nam's exports by 5 percentage points over time (from 17 percent in 2005). On the other hand, the foreign services value-added share in exports has been steadily increasing over time reaching around 19 percent by 2019. Strengthening the domestic business services sector while remaining open to high-value imported services, including intellectual property, would be key for Viet Nam's GVC upgrading.

Figure 27: Domestic services value added in exports (%), by sector, Viet Nam versus peers, 2018



Source: WB staff computations.
Data: OECD-WTO TiVA 2023 release

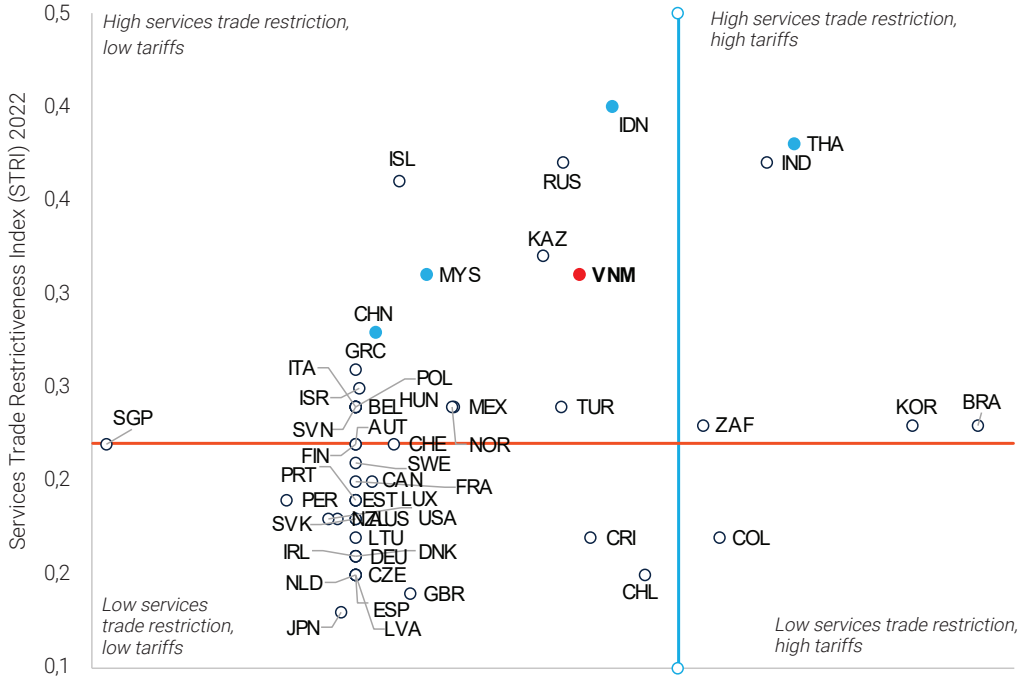
68. While being relatively open to trade in goods, Viet Nam's services trade faces significant restrictions, revealing higher service trade barriers than the global average (Figure 28). Services and digital trade face regulatory challenges embedded in domestic laws, which are less transparent and more complex than tariffs on goods. Viet Nam's services trade barriers, including data localization and commercial presence requirements, and screening and approval mechanisms for majority acquisitions by foreigners, not only hinder the productivity of foreign service providers but also discourage investment due to the increased costs and reduced efficiency they impose. The dominance of state-

[45] Taglioni and Winkler (2016).

owned enterprises (SOEs) across sectors and the absence of independent regulatory authorities further tilt the competitive landscape in favor of SOEs – in contrast to countries like Bangladesh, Malaysia, and the Philippines, which have independent regulators in numerous sub-sectors.

Figure 28. Trade restrictions on services remain high in Viet Nam

Services trade restriction and MFN tariffs in developing East Asia



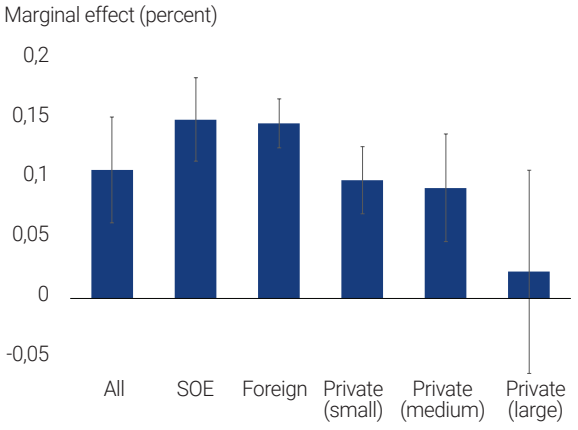
Source: World Bank staff calculation based on original analysis in Constantinescu, Mattoo and Ruta (2018)
Notes: The figure shows average tariff rates on the x-axis and the World Bank Services Trade Restrictiveness Index (STRI), which ranges from 0 to 100, on the y axis. The horizontal line indicates the STRI global median, the vertical line indicates the global median tariff rate. Developing East Asian comparator countries are shown in light blue: China (CHN) Indonesia (IDN), Malaysia (MYS), the Philippines (PHL), Thailand (THL) and Viet Nam (VNM).

69. Reducing barriers to competition in services can spur productivity growth in services sectors as well as in the manufacturing sectors that use these services.[46] Empirical firm level evidence from Viet Nam confirms positive productivity effects of service trade liberalizations on both services firms as well as positive downstream productivity effects on manufacturing firms. In particular, the reduction in restrictions on transport, finance and business sectors over the 2008-2016 period was associated with a 2.9 percent annualized increase in value-added per worker in these sectors (Figure 29, Panel A). Furthermore, the liberalization in services was associated with a 3.1 percent increase in labor productivity of the manufacturing enterprises that use services inputs, benefiting small and medium private enterprises most significantly (Figure 29, Panel B).

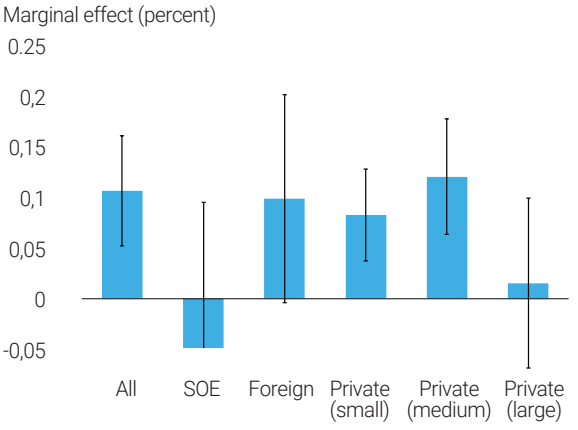
[46] Services Unbound: Technological Change and Policy Reform in East Asia and Pacific (World Bank, forthcoming)

Figure 29: Services trade liberalization have direct and indirect productivity gains

A. Direct effect of services trade liberalization on labor productivity



B. Indirect downstream effect of services trade liberalization on labor productivity in manufacturing industries



Source: Services Unbound (WB, 2024 draft). World Bank staff estimation based on data from Viet Nam enterprise surveys 2008 and 2016.
Notes: OLS regression results. The dependent variable is the change in log value-added per worker between 2016 and 2008. The main explanatory variable is the change in STRI values in Trade, Transport, Finance, Professionals, and Telecommunication sectors between 2016 and 2008 in Panel A, and the change in the "downstream" STRI for manufacturing sectors in Panel B. The downstream STRI is a sector-specific measure for each 2-digit manufacturing sector, calculated by the average STRI of the above five services sectors weighted by the corresponding purchasing value from each manufacturing sectors. The regression sample in panel A consists of all enterprises operating in Trade, Transport, Finance, Professionals, and Telecommunication sectors, and all manufacturing enterprises in Panel B, in 2008 and 2016. All regressions control for firms' baseline revenue and employment. Standard errors clustered at the industry level

Policy options:

70. Facilitating digital trade and services can play a pivotal role in bolstering Viet Nam's GVC upgrading, given their relevance to modern GVC operations. The following policy options would help to promote the development of digital trade and services in Viet Nam:

- **Rationalize the regulation of cross-border data flows:** Revise regulation requiring data localization and establishment of commercial presence for foreign firms offering online services which hinder the productivity of foreign service suppliers by limiting access to efficient data storage options like cloud computing; and create disincentives for foreign investment across sectors.[47]

- **Reduce barriers to services trade in backbone services sectors such as telecom, finance, and transportation services.** This would include to address restrictive regulations in Viet Nam's telecom sector which can reduce competition and hinder the competitiveness of telecom services. Similarly, Viet Nam could relax stringent foreign exchange rules in finance which may limit the Vietnamese

[47] Mathias Bauer et al, The Costs of Data Localization: Friendly Fire on Economic Recovery, ECIPE Occasional Paper (N0. 3/2014).

banking sector's access to capital and opportunities for collaboration with foreign banks and investor. Regulations that discriminate against foreign service providers in transport can increase the cost of Vietnamese transport services should also be addressed. Reducing barriers in legal services would create more opportunities for cooperation and engagement between Vietnamese and foreign legal professionals. Specifically, Viet Nam may consider rationalizing the strict foreign equity limitations in the telecom and finance sectors and also consider reducing the joint venture and resident intermediary requirements in its regulations governing maritime and road transportation sectors.

- **Prevent conflict of interest and ensure fair treatment of State-owned enterprises and private sector by:** Establishing independent regulatory authorities for key services sectors like telecommunications, postal services, and transportation.

- **Ensure the implementation of the IP framework:** Viet Nam has developed a comprehensive intellectual property (IP) framework. The Law on Intellectual Property Rights aligns with major international IP agreements, and it has been updated to conform with the CPTPP. However, the efficacy of this legal framework is still limited as Vietnamese enforcement agencies have encountered difficulties in adapting to new regulations, leading businesses to seek alternative protective strategies, such as contractual clauses and market monitoring.

Policy package 4: From strong basic education to a high-skilled workforce

71. Enhancing quantity and quality of skilled workers in Viet Nam, mostly with tertiary education, is pivotal for GVC upgrading. GVC upgrading necessitates policy frameworks that foster educational advancement and skill acquisition, facilitate the involvement of foreign expertise, and bolster the capabilities of local firms, thereby improving technical, engineering, behavioral, and managerial skills. These skills can underpin Viet Nam's transformation of manufacturing into service-oriented processes, encompassing activities such as research and development, design, marketing, and sales. Moreover, they are instrumental in augmenting the capacity of Vietnamese firms to capitalize on GVC linkages and knowledge spillovers. The alignment of technical standards that specify product properties (e.g., performance and quality requirements) and the mutual recognition agreements inherent in PTAs also depend on skills. Additionally, the transition towards more environmentally sustainable production processes in Viet Nam is contingent upon the availability of specific skill sets, both "green" and "non-green".[48] Finally, developing skills is essential for Viet Nam to seize opportunities for technological advancements and adoption while reducing potential labor market disruptions caused by automation.

72. Higher skills are required to upgrade into higher value activities outside basic manufacturing assembly. In a world characterized by GVCs, a country's exports do not necessarily reflect its comparative advantage. While Viet Nam exports high-tech products, its labor market is predominantly filled with low value-added production activities linked to exports. This is because exports now contain a large portion of imported inputs, in the case of Viet Nam reaching half of its export value. If Viet Nam is to move

[48] See World Bank (2023).

from basic manufacturing assembly into more advanced and non-production activities such as support services and engineering, it will need to significantly strengthen its skilled workforce.

73. To transition to technology- and knowledge-intensive GVCs, Viet Nam needs to address two seemingly contradictory problems: a lack of skilled workers but a declining skilled wage premium. Despite significant advancements in basic education,[49] only a small fraction (5 percent) of the manufacturing workforce is considered highly skilled. Employers report difficulty in finding skilled labor. In 2019, 22 percent of managers reported that the biggest obstacle faced by the firm was an adequately educated workforce, nearly double the rate in 2015, while 75-80 percent of firms cited skills shortages in hiring managers, senior professions, non-production technicians and skilled production workers, compared to 56 percent for unskilled production workers (World Bank 2021b). At the same time, Viet Nam has been experiencing declining skill premiums for those with tertiary education and performing high-skilled non-manual jobs (World Bank 2022b). A declining skill premium, along with the high cost of tertiary education, means that there is less incentive for today's youth (and tomorrow's workers) to invest in higher education and greater skills development.[50] Together these pose a significant problem for Viet Nam's GVC upgrading policy packages: firms cannot find enough skilled workers but falling skill premiums may not encourage more people to invest in skill. How do these two phenomena exist at the same time, and how can they be overcome?

74. Wages for tertiary-educated workers have been increasing over time but not as fast as those for workers with primary and secondary education. Consequently, skilled workers get paid more than those with less education, but the premium is declining. Primary and lower secondary-educated workers have seen wages increasing by 3-4 times (for both men and women), compared to 2.2-2.4 times for those with upper-secondary between 2022 and 2023 (Figure O.30, Panel A) and only around double for those with TVET college or university qualifications (the exception being 2.7 times for male TVET graduates). As a result, the premium for continuing education past upper-secondary has been falling over time (Figure 30, Panel B). In 2013, a university-educated worker received 38 percent higher wage than one with upper secondary, and a TVET-educated worker a 20 percent premium. By 2020, the premium had fallen to 26 and 10 percent respectively.

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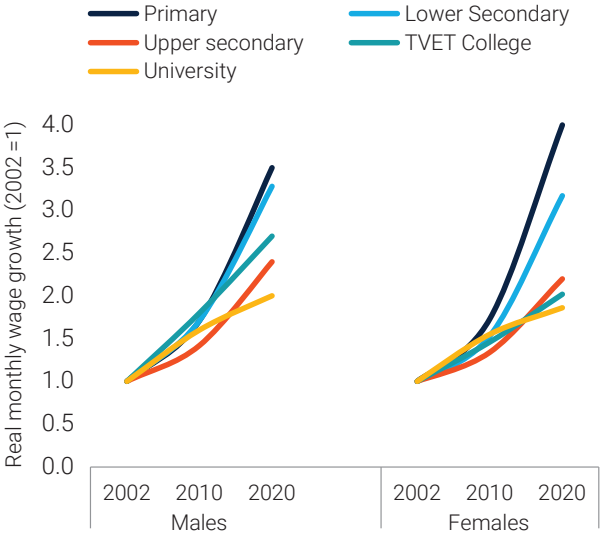
[49] Over the past three decades, Viet Nam has made impressive strides in education, achieving the highest Human Capital Index among lower middle-income nations and scoring on par with the OECD average in mathematics according to the PISA rankings (OECD 2022). The country boasts near-universal primary education enrollment and a 90 percent gross enrollment rate at the secondary level.

[50] Meanwhile, many of those who do invest in greater skill leave the country to see better opportunities, with the country facing a 'brain drain'. Among other reasons, the World Bank (2020) notes constraints on the system include: (i) absence of a clear financing plan to achieve the originally set quantitative targets; (ii) a fragmented tertiary education system of universities, colleges, and vocational education and training (VET) sectors managed by multiple ministries; (iii) an inconsistent regulatory framework that did not encourage private sector expansion even though a high target had been set; and (iv) under-development of alternative modes of education including e-learning and massive open online courses (MOOCs) education.

Figure 30: Wages for tertiary-educated workers have increased more slowly than for those with less education...

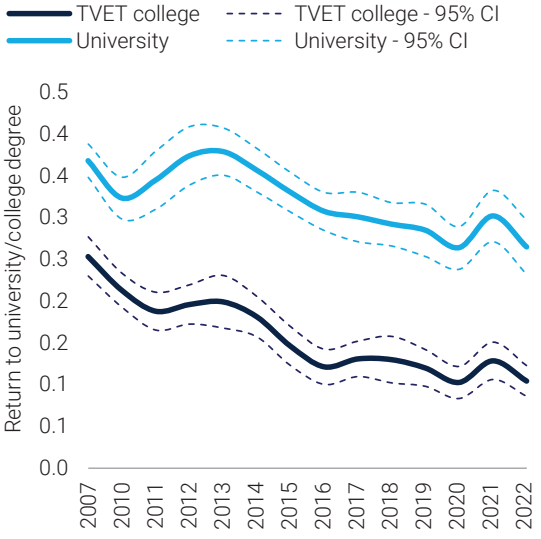
A. Cumulative Change in Real Monthly Wages



Source: World Bank staff calculations using VHLSS.

... While tertiary-educated workers get paid more than those with upper secondary, but the premium has been falling over time

B. Wage premium of tertiary education compared to upper secondary education



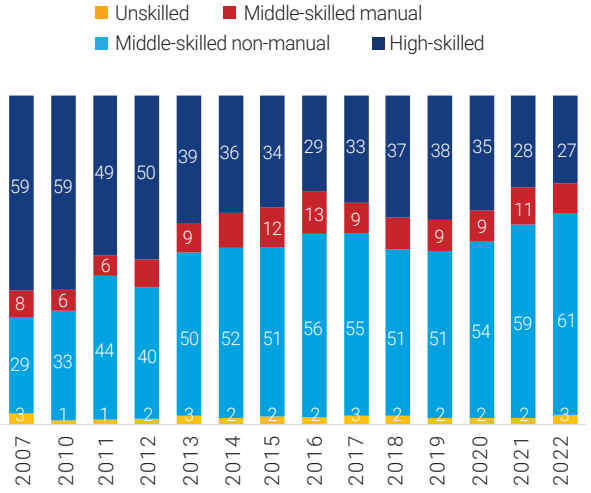
Source: World Bank staff calculations using LFS.
Notes: Coefficient on TVET and University dummies in a Mincer regression of log(wage) on experience, experience squared, other education dummies (upper secondary omitted) and controls for gender, urban and province.

75. This partly reflects Viet Nam's historical comparative advantage in cheap, low-skilled labor-intensive exports, which in turn affects schooling decisions. Models predict that trade will exacerbate initial skill differences across countries by increasing returns to the abundant skill (the Stolper-Samuelson effect). In the case of Viet Nam, decades of sustained FDI into low value-added labor-intensive exports increased the demand for low-skilled labor, driving up their wages. Banh et al. (forthcoming) finds that greater FDI in a province reduces the premium to university-educated workers over those with upper secondary. Moreover, the higher demand and return for less skilled labor can decrease the incentive to continue in school. The greater the expansion in local export manufacturing industries in Mexico, the fewer children continued to the end of high school (Atkin 2016). Similarly, greater regional exposure to the 2001 US-Viet Nam Bilateral Trade Agreement leads to a small decline in school attendance for high school-aged children and an increase in their work participation (Nguyen 2022).

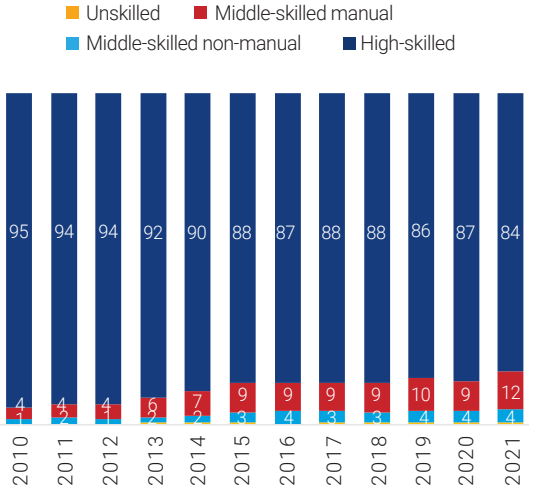
76. The lack of demand for skilled labor has led to occupational downgrading, particularly for younger tertiary-educated workers and TVET graduates. The share of tertiary graduates working in high-skill non-manual jobs has fallen in the last 15 years, particularly for TVET graduates (down 30 points, Figure 31) and younger graduates (down around 20 points for workers aged 20-29 since 2010, Figure 32).

Figure 31. The share of tertiary graduates in high-skilled non-manual jobs has fallen over the last 15 years

A: Distribution of occupations of TVET college-educated workers in manufacturing during 2007-2022



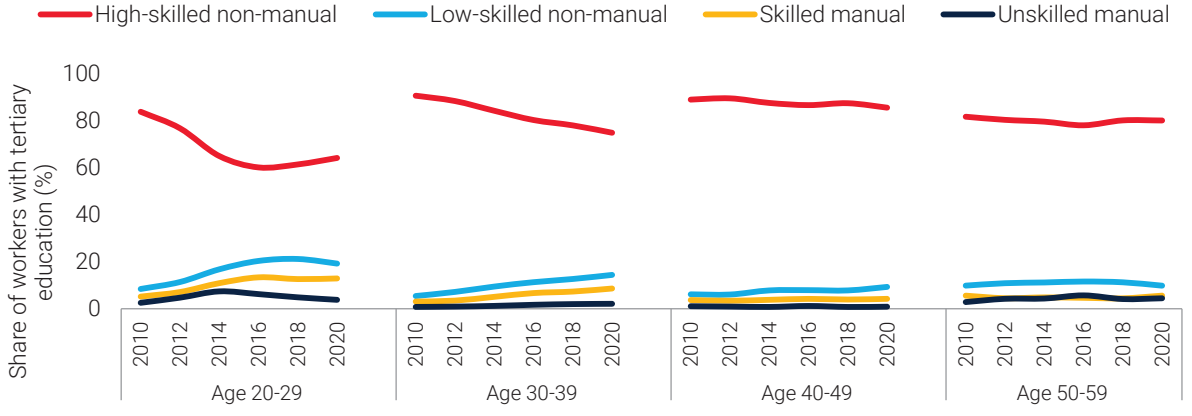
B: Distribution of occupations of university-educated workers in manufacturing during 2007-2022



Source: World LFS, 2007-2022.

Figure 32: The share of young tertiary-educated workers going into high-skill non-manual jobs has fallen by 20 percentage points in a decade

Distribution of occupations among tertiary education workers, by skill and age groups

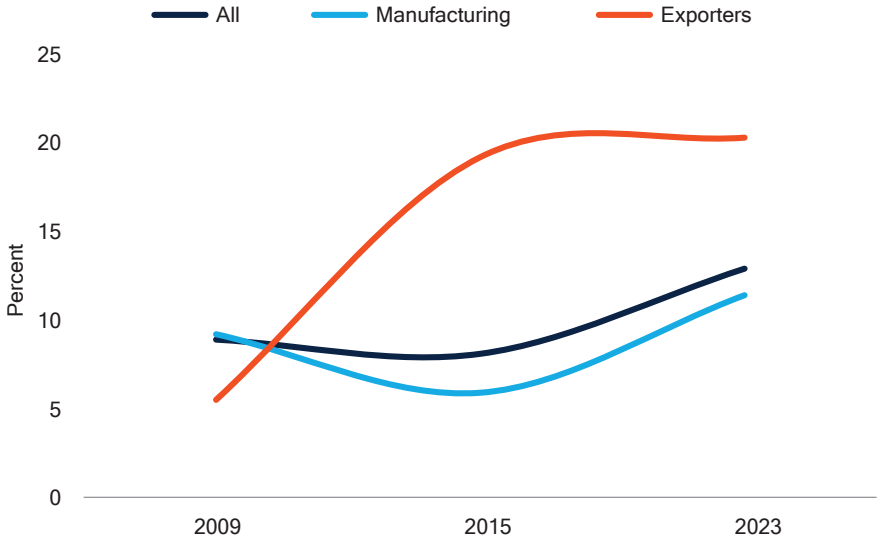


Source: World Bank (2022b) based on LFS.

77. At the same time, there has been a failure to develop the higher-level skills demanded by firms seeking to climb the value chain. Section 2 has already noted the difficulties employers have in hiring skilled workers. This problem has been increasing over time, especially for exporters. In 2009, 9 percent of firms identified an inadequately educated workforce as a major constraint, but only 6 percent of exporters. By 2023, this had risen to 12 percent of all firms but 20 percent of exporters (Figure 33).

Figure 33: Lack of adequate skills is an increasing problem over the last 15 years, particularly for exporters

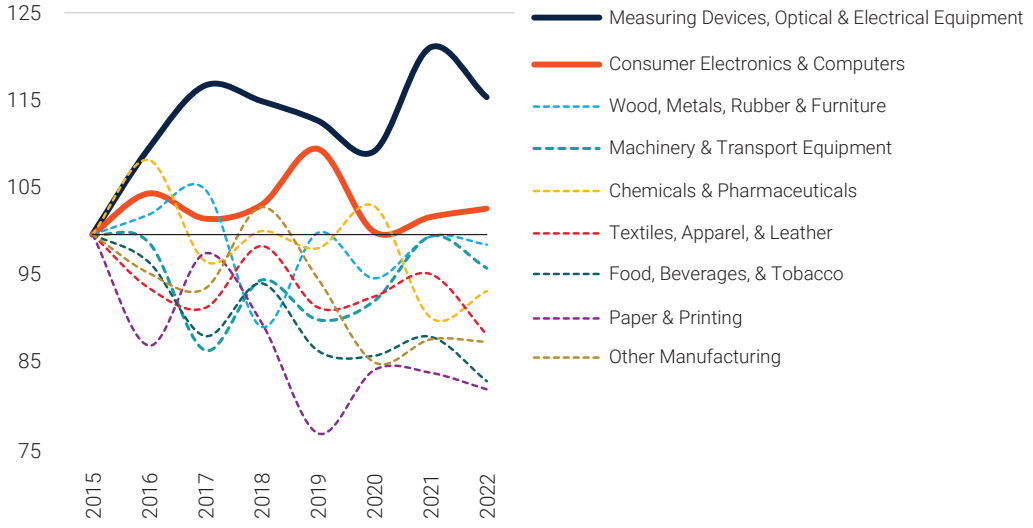
Percent of firms identifying an inadequately educated workforce as a major constraint



78. Skills-intensive manufacturing has experienced a rising wage premium for university graduates, reflecting more acute skills shortages in key sectors such as consumer electronics. While the wage premium for university graduates has remained positive but declined in other manufacturing industries, it has risen by 3 to 15 percent since 2015 in skills-intensive manufacturing fields such as consumer electronics, computers, and optical, measuring devices and electrical equipment (Figure 34).

Figure 34: Skills shortages has been more acute in tech-intensive manufacturing industries, leading to rising wage premium

Wage premium of University graduates in manufacturing industries (100=2015)



Source: World Bank staff calculations based on LFS.
Notes: Wage premium is measured as the ratio of average monthly income by industry for university or higher graduates compared to upper secondary graduates in the same industry.

Policy options:

79. A comprehensive strategy is required to ensure Viet Nam's higher education system is producing not just more university graduates but the right skills. The fifth policy package includes the following options to promote human capital development and upskilling the labor force in Viet Nam:[51]

- **Develop the workforce for high technology industries.** It is critical for Viet Nam to adopt and implement a concrete, feasible workplan to develop the workforce for high technologies, including for the semiconductor industry with a goal of 30,000-50,000 semiconductor engineers and technicians.[52] Creating this science and engineering workforce requires sustained commitment for a significant period with a strong pipeline of undergraduate, graduate and postgrad education and practical training. Priority investment could include curricula and faculty development to further enhance industry-aligned education and skills training, providing targeted financial and non-financial incentives for potential students, and building a connected network of physical and digital infrastructure for research-integrated training and research purposes. In addition, providing better labor market information to potential university entrants, as well as existing workers, on job prospects and wage premium for high-skilled, high-paid occupations can help encourage more prospective students.

[51] This summarizes key recommendations from World Bank (2022c).
[52] A national program has been recently approved on the workforce development of the semiconductor industry, but has not yet been implemented (Decision 1017-QD-TTg, September 22, 2024).

- **Improve the quality, market relevance and alignment of tertiary education.** To enhance market relevance and alignment for skills development at the tertiary level, it is critical to adopt a market-driven, competency-based approach with employers being a key stakeholder of the ecosystem. Training programs should focus on developing skills- including socioemotional ones - rather than traditional degrees, ensuring that curricula, recruitment, and instructor training are all aligned with current and anticipated industry needs. Sector skills councils that involve employers and training institutions can facilitate this alignment, ensuring that educational offerings meet the evolving needs of employers and prepare workers for emerging jobs and skills. Finally, the entire approach should be results-oriented and evidence-based, utilizing data and feedback loops to continuously improve outcomes and ensure alignment with labor market dynamics.

- **Revamp TVET programs to develop a broad set of skills and to support skills development both among the upcoming and current workforce.** This includes expanding certification bootcamps and apprenticeships, co-developing curricula with industry partners to ensure relevance, and focusing on both cognitive, behavioral, and technical skills development. A strategic overhaul to improve training quality and market relevance in vocational education is also necessary to align with the country's evolving economic needs. Such an overhaul would include a stronger focus on outcomes rather than outputs, including through results-based financing, and a stronger commitment to quality.

Policy package 5: From carbon-intensive manufacturing to low-carbon and resilient exports

80. Global demand is expected to progressively favor greener, carbon-neutral production with implications for Viet Nam's competitiveness, market access and GVC participation. Today close to 90 percent of global GDP is generated in countries that have made commitments to achieve net zero GHG emissions sometime over the next 2-4 decades. The net-zero transitions in Viet Nam's major trade and investment partners – the EU, US, and China - will hence have ripple effects on Viet Nam's economy. For example, with implementation of the EU's Carbon Border Adjustment Mechanism (CBAM), Viet Nam's future market access may depend on the carbon intensity of its export product. While Viet Nam is not currently highly exposed to CBAM in its current form, this could change, if CBAM is expanded to a wider set of products.[53] Even in the absence of such policies, consumer preferences and demand may shift. In fact, many large multi-national cooperations, including many of the companies sourcing from Viet Nam have made their own net zero commitment, independent of government commitments. For example, Samsung Electronics – the largest foreign investor in Viet Nam- is committed to reduce direct and indirect emissions to net zero by 2050. Samsung Electronics has also joined RE100, a global initiative dedicated to reducing indirect carbon emissions from power consumption. As part of this commitment, the company plans to match electric power

[53] The CBAM currently only covers cement, iron and steel, aluminum, fertilizers, electricity and hydrogen for which Viet Nam's exports to the EU market are limited.

needs of all international markets where it operates, outside of Korea, with renewable energy.[54] In fact, over one hundred of the largest global cooperations have made climate pledges.[55]

81. To maintain and enhance its competitiveness, Viet Nam will need to both decarbonize its current manufacturing activities while concurrently seizing new opportunities in the growing market for goods and services that feed into the global low-carbon economy. As shown above, Viet Nam's current manufacturing sector is among the most carbon-intensive in the World and CO_2 emissions have continued to rise at a faster pace than output. To stay competitive Viet Nam will need to reverse this trend. At the same time, demand for carbon neutral technology products is rising globally, presenting a significant market opportunity, especially given Viet Nam's existing comparative advantages in manufacturing.

82. Decarbonizing the traditional manufacturing sector will require significant investment in clean power generation and grid infrastructure. However, delays in power generation and transmission investments compromised reliable electricity supply for Viet Nam's firms. About 20 percent of planned power transmission projects under Viet Nam's 7th National Power Development Plan (PDP7) have not secured authorities' approvals for feasibility studies nor financing, and PDP7 did not account for the additional transmission needs to ensure integration of Variable Renewable Energy. Further, lengthy project approval and development for new investments (average 7 years for generation and 3 years for transmission) bear additional risks of inadequate supply, coupled with the uncertainties related to water availability shocks (which have low predictability) and broader impacts of climate hazard on the grid infrastructure and system operation management – as observed during El Nino in 2023 and more recently with the Yagi typhoon.

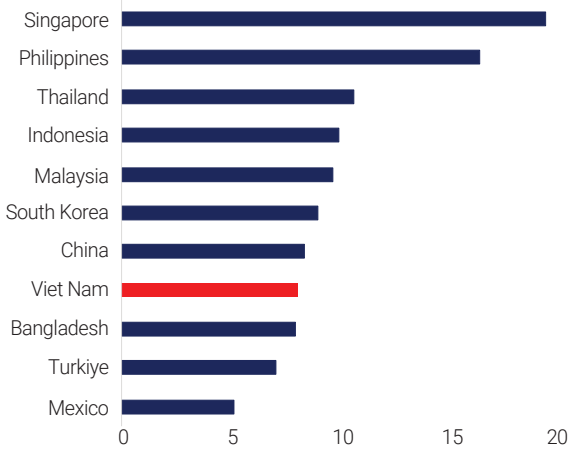
83. A diversified financial strategy could accelerate the pace of energy transition in affordable manner. The Power Development Plan 8 identifies around $135million of investments in generation and transmission for the period of 2021-2023. While private sector is expected to implement 75 percent of investments, public investments are significant. The government's strategy for the energy sector emphasizes reduced reliance on government-guaranteed financing while maximizing domestic borrowing. In this regard, the room for SOEs to finance its capital expenses from domestic borrowing, it is limited by the capacity of domestic banking sector, which may not be adequate to meet SOE investment needs. Moreover, regulatory hurdles prevent EVN from effectively accessing Official Development Assistance (ODA) which could provide longer-maturity loans and at cheaper terms than domestic commercial financing if blended with highly concessional resources. Currently, the Law on Public Debt Management prevents SOEs from accessing ODA financing within a three-year timeframe after experiencing losses, constraining access to finance for EVN Holding (generation investments). As regards transmission and distribution investment, managed by EVN subsidiaries, lack of regulatory clarity prevents EVN from proposing ODA as part of their financing strategy. In Viet Nam, ODA lending to SOEs is required to flow through the commercial banking sector. As a result, overall financing costs are higher since banks charge fees which diminish the concessionality of ODA financing. In addition,

[54] https://news.samsung.com/global/samsung-electronics-announces-new-ennvironmental-strategy
[55] https://www.climatechangenews.com/2021/04/23/100-multinational-corporations-taken-climate-pledge/

channeling ODA funds through commercial banks would trigger the single and affiliated borrower exposure limits regulated by SBV to ensure prudential credit – therefore also constraining access to ODA to the charter capital of domestic commercial banks. The current regulations put additional pressure on EVN financials. Since 2022, EVN started showing signs of financial strain as electricity tariffs charged to households and firms do not cover the full costs to generate, transmit and distribute electricity. As a result, EVN registered losses of about US$2 billion (amounting to roughly 6 percent of annual revenue) over 2022-23, as the spike in coal price caused an increase in the cost of power generation (Figure 35, Panel A). Between 2010 and 2022, the average real retail tariff has remained largely constant and experienced a slight decline. Coupled with above-inflation spikes in prices of commodity inputs, this has contributed to below-cost-recovery revenues and diminished profitability (Figure 35, Panel B), despite the phased tariff increase approved in 2023.

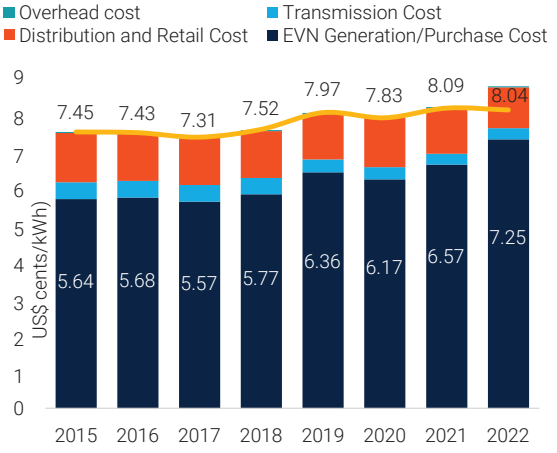
Figure 35: Low electricity tariffs do not reflect full (generation, transmission and distribution) costs

A. Average Electricity Tariff (US¢ / kWh)



Source: EVN, Global Petrol Prices, World Population Review.
Notes: Data for 2023 or latest. Average weighted electricity tariff for households and firms.

B. Electricity tariff compared to full cost



Source: WB estimates, EVN IFRS, MOIT, SBV

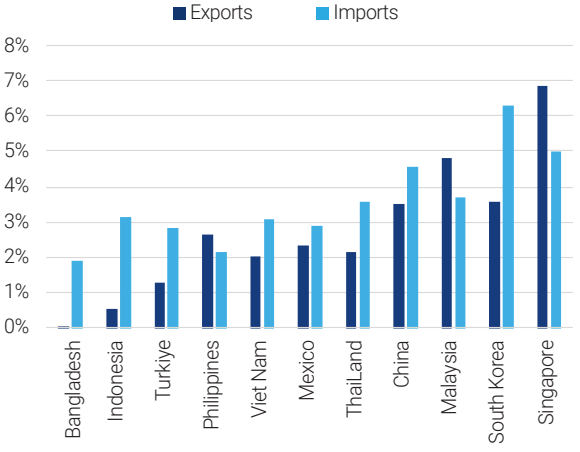
84. At the same time, Viet Nam should seize market opportunities in green technology products. In fact, Viet Nam has already seen rapid growth of environmental goods exports over the last two decades, with a marked increase in renewable energy products like solar cells and heliostats, although this was likely at least in part driven by trade diversion related to trade restrictions in bilateral US-China trade. By 2022, these items constituted three-quarters of the nation's environmental goods exports, a substantial growth from 48 percent in 2001. This surge is attributed to domestic incentives and foreign investments, particularly from China, and the US has become a major market for Vietnamese renewable energy products although recent antidumping investigations create uncertainties for solar

panel exports.[56] Despite the recent surge, environmental goods still represent only 2 percent of Viet Nam's total exports, the second lowest share among ASEAN countries behind Indonesia (although this partly reflects Viet Nam's exceptionally large total exports).

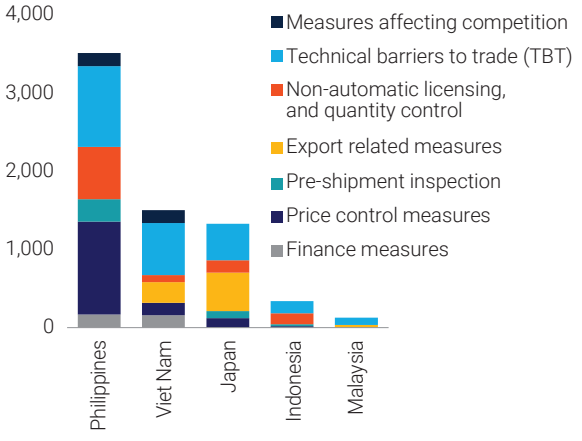
85. Meanwhile, the share of environmental goods imports is still relatively low. Importing environmental goods, which frequently include carbon-efficient technologies, can help mitigate environmental impacts, enhance energy efficiency, and facilitate adaptation to evolving climatic conditions. Viet Nam's imports of environmental goods, however, only account for 3 percent of total goods imports which is much lower than in Korea or Singapore whose shares exceed 6 and 5 percent, respectively (Figure 36, panel A). This is despite Viet Nam's applied tariff rate on environmental goods (0.3 percent) being significantly lower than the global average (2 percent) due to Asia-Pacific Economic Cooperation commitments. Non-tariff measures are also significant in Viet Nam, particularly technical barriers to trade (TBT) (Figure 36, panel B).

Figure 36: Trade in and non-tariff measures on environmental goods

A. Exports and imports of environmental goods (% of merchandise exports and imports)



B. Non-tariff measures on environmental goods



Source: WITS mirror data (left panel). ITC Market Access map (right panel).

86. There are several barriers to greening Viet Nam's manufacturing and trade. The country faces challenges in enforcing energy efficiency standards and carbon pricing, with a lack of institutional capacity and accredited professionals. In addition, the government is developing an emissions trading scheme and GHG emissions accounting framework, but the integration of renewable electricity into the national grid is slow. Direct Power Purchase Agreements are under consideration to facilitate green electricity access for large consumers and to stimulate private investment in renewable energy.

[56] On 15 May 2024, U.S. Department of Commerce initiated antidumping investigations of solar panels imported from Viet Nam, Cambodia, Malaysia and Thailand. International Trade Commission (ITC) final determinations are expected by the end of January 2025.

Nonetheless, policy constraints such as fragmented monitoring systems, regulatory hurdles, a monopolistic electricity market, and fossil fuel subsidies are barriers to greening Viet Nam's trade and transitioning to cleaner operations.

Policy options:

87. The fifth policy package focuses on ensuring energy supply while lowering the carbon-intensity of Viet Nam's manufacturing sector and increasing its resilience to climate shocks to help promote sustainable and resilient GVC upgrading. Rapidly increasing electricity demand poses two key challenges. First, it is critical to accelerate investments in power generation and transmission to prevent electricity shortages. Second, mitigating energy- and carbon-intensity of the industrial sector while reducing its vulnerability to climate change shocks is key to promoting economic and resilient GVC upgrading. The following policy options would help to address these challenges:

- **Continue to move towards cost-reflective electricity tariffs and consider carbon pricing mechanisms to support the decarbonization of the economy while mitigating impacts on competitiveness.** Adequate price signals are important to incentivize firms to improve energy efficiency and reduce carbon intensity. Yet, rising energy costs could also harm competitiveness in the short run. It is therefore important to provide longer term forward guidance to market participants on the expected price trajectory to allow for sufficient time for firms to adapt, including through investments in energy-saving and low carbon technologies. In parallel, to encourage wider adoption of and investment in low carbon technologies the government could consider targeted financial support to firms through green finance programs.

- **Accelerate investment in power infrastructure.** Fast tracking of priority investment in power infrastructure, both generation and transmission, is essential to ensure energy security – particularly in the north of the country. Ensuring that export-oriented companies can access to renewable energy will be key to reduce the carbon-intensity of their production and support their competitiveness. Accelerating project approval processes to enable the rapid rollout of four 500kV backbones listed in PDP8 will increase the power transfer capacity from the south, which benefits from a surplus, and scale-up of installed capacity in the north. Adopting well known technologies, such as high-voltage direct current (HVDC), will help to maximize energy transfer on longer distances, while reducing the physical footprint impact. Enabling access to long-term financing for the power sector – both domestic and international, such as ODA - will better match the investments' repayment profile with the operational life of the assets.

- **Reduce NTMs limiting trade in environmental goods.** While tariffs on environmental goods are low, trade in these goods is mainly restricted by NTMs, especially targeting renewable energy products and the management of solid and hazardous waste. Technical barriers to trade account for about 44 percent of the NTMs on environmental goods, while other measures include those related to exports and competition.

- **Develop a coastal resilience investment program for main urban centers, industrial zones, and connecting infrastructure.** In a context where coastal areas are prone to extreme weather events, flooding-related risks can be mitigated by upgrading road and power assets to climate-resilient design standards. In parallel, financial mechanisms could be developed and made available before, during, and after disasters to secure financial protection of firms and channel investment in resilient infrastructure. Moreover, companies should systematically assess the vulnerability of their trading environments to natural disasters and consider alternative locations when climate-vulnerability is particularly high.

5. Making the high income transition inclusive

88. Viet Nam's transition to high value-added GVC participation will create both opportunities and risks. Some sectors will expand, and some will contract, leading to worker movements within and across sectors and places, or into and out of formality or even the workforce. To make GVC upgrading more inclusive and flexible in an uncertain future, policies should focus on putting more people in a position to take advantage of the better job opportunities that will arise. How? By ensuring that skill acquisition is easier and more equitable. And by making it easier for people to move across sectors and places to take up new and better job opportunities. But not everyone will benefit from better jobs, and some may lose existing ones. So, a third set of policies should focus on safety nets to support people losing jobs or being left behind.

Skills and locations for new job opportunities

89. Workers with more skills in urban areas around Ha Noi and Ho Chi Minh City are more likely to benefit from GVC upgrading sectors. Exactly which workers will benefit from expanding employment and wages in sectors that gain under each policy package is uncertain. But the characteristics of current workers in these sectors help identify the type of workers who will benefit from already working in a sector or from moving into it from another sector or from outside the labor force. Table 0.1 summarizes the sort of workers more likely to be working in which sectors over 2016–20 by looking at their age, gender, education, and location (urban, rural, region). The influence of age and gender varies, with some sectors more likely to employ older workers, some younger, some male workers and some female. Two more consistent results are that workers are more likely to have medium to high skill (proxied by education) and to be working in urban areas around the regions of Ha Noi or Ho Chi Minh City. Exceptions include those currently working in mining services or in sectors in the unintegrated domestic part of the dual economy are more likely to be in rural areas of the Midlands and Northern Mountainous Areas, Northern and Coastal Central, Central Highlands, and Mekong Delta regions. Workers in construction, which benefits under policy package 3, tend to have low skill—while those in the manufacture of metals and fabricated metals, which stand to lose under policy package 4, are more likely to have medium or high skill.

Table 1. Current workers in sectors likely to benefit from GVC upgrading are much more likely to be skilled and concentrated in Ha Noi or Ho Chi Minh City

	Age	Gender	Education	Urban / rural	Region
Sectors likely to benefit under Policy package 1: Reduction in NTMs					
Electronics	Slightly Older	Female	Med/high skill	Rural	1
Textiles		Female			1 and 5
Apparels	Older	Female	Medium skill		1
Tourism	Younger	Female	Mixed skill	Urban	3, 5 and 6
Transport equipment		Male	High skill		1
Construction	Older	Male	Low skill		1
Sectors likely to benefit under Policy package 3: Development of the Services Sector					
Mining services	Older	Male	Medium skill	Rural	2, 3 and 4
Logistics	Older	Male	Med/high skill	Urban	1 and 5
Digital and telecoms			High skill	Urban	1
Financial services			High skill	Urban	1, 5 and 6
Back-office functions		Male	High skill	Urban	1 and 5
Sectors more likely to win under Policy package 5: Clean Energy and Green Exports					
Renewable energy products		Female	Med/high skill		1
Sectors more likely to lose under Policy package 4: Clean Energy and Green Exports					
Metals	Older	Male	Med/high skill		1
Fabricated metals	Older	Male	Medium skill	Urban	1
Agriculture	Younger	Female	Low skill	Rural	2, 3, 4 and 6

Source: LFS 2016-20 and World Bank calculations.
Notes: Reported results for sector 3 is based on analysis of who has benefited least from GVCs discussed in earlier section of report. Reported results for sectors 1, 2 and 4 are qualitative summary of statistically and economically significant coefficients on the control of interest. Region 1 is Red River Delta including Ha Noi. Region 2 is Midlands and Northern Mountainous Areas. Region 3 is Northern and Coastal Central. Region 4 is Central Highlands. Region 5 is Southern Areas including Ho Chi Minh City. Region 6 is Mekong Delta.

90. Policies can help workers in the wrong locations and with the wrong skills take advantage of the better jobs GVCs create. The task of making GVC upgrading more inclusive is easier since sectors likely to benefit do not systematically favor workers based on age or gender. But they do favor those with more education (skill) and are generally located in urban areas in the regions of the two major cities. Even so, most individuals can aspire to gain more skill, whether through more and better study when younger or on-the-job through lifelong training when older. Many sectors require only medium levels of skill (secondary education), not only high (tertiary). And anyone can move to the new job opportunities, at least in theory. Thus, policies that focus on building skills for all—by improving TVET, increasing the number of high-skilled graduates, and providing skill acquisition for underrepresented

minorities will benefit younger and older workers, males and females. But there will be a limit to the skill upgrading that older workers can expect to achieve. Hence the need for greater protection for those who cannot make a switch to the better jobs or lose the ones they have.

Ensuring that skill upgrading benefits all

91. Without complementary policies, higher returns to skills are likely to benefit better-off workers in Viet Nam, which like many countries suffers from unequal skill development across the income distribution. Gaps in human capital outcomes open early. Only 6 percent of children in the richest 20 percent of families are stunted (a key inhibitor of cognitive development, educational attainment, and skill development), compared with 41 percent in the poorest 20 percent of households, a much larger gap than the 19-percentage point average gap globally.[57] These gaps continue in school age, with average test scores for 15-year-olds in the richest quartile 60-80 points higher than those in the poorest quartile,[58] likely reflecting some combination of the stunting disparities from early childhood combined with differences in school cohorts, teacher quality, and parental support at home (Figure 37).

92. Tertiary education gaps are widest between rich and poor and are getting worse over time; there are also ethnic and geographic gaps. In 2006, few Vietnamese children from the poorest households were enrolled in upper secondary (15 percent), much lower than in the richest households (80 percent). By 2016, the poorest enrollment rates had risen to 40 percent, and the gap had closed to 40 points (see figure 36). But the tertiary gap widened: enrollment for the richest children increased from 40 to 85 percent over the period while almost no poor children entered tertiary education. A large and widening gap also exists between the Kinh majority (18 percent enrollment in 2006 increasing to 45 percent by 2018) and ethnic minorities (5 percent increasing to 11 percent), with geographic gaps also significant across regions.[59]

93. Tertiary access gaps are due to problems in high school graduations and unequal admissions into tertiary education. The tertiary enrollment gap between the poorest and richest quintile is nearly 70 percentage points, about 30 points due to differences in high school graduation rates and 40 points due to differences in tertiary rates.[60] Conversely, high school graduation drives around two-thirds of the tertiary gap for ethnic minorities while the urban-rural gap is equally divided between the two.[61] So, while policies can make tertiary education more accessible, they will be less effective without complementary policies to address high school graduation.

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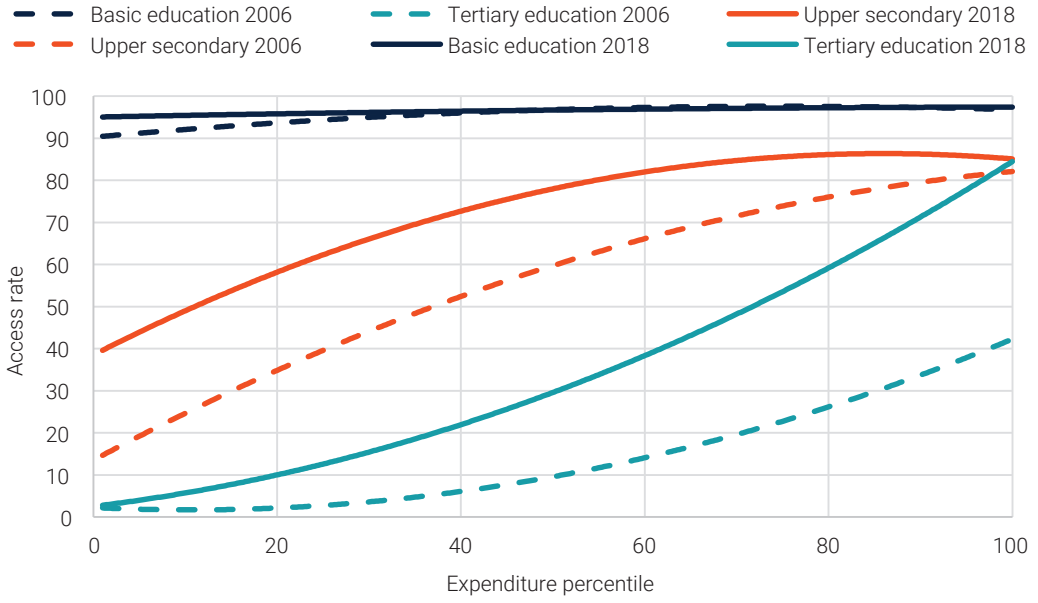
[57] World Bank 2022a.
[58] OECD 2022.
[59] World Bank 2022a.
[60] Results of an Oaxaca-Blinder decomposition; see World Bank (2020c) box 1 for details.
[61] World Bank 2020c.

Figure 37. Secondary enrollment gaps across income groups have closed over time but tertiary gaps have widened...

Access to education by level by decile, 2006 and 2018



Sources: World Bank (2020c) calculations using Viet Nam Household Living Standard Survey (VHLSS) 2006 and 2018 data on individual member education and household consumption expenditures.
Notes: Access rate for a given education level is defined as proportion of individuals in the reference age-group who ever had access to the particular education level. Reference age-groups are ages 6-14 for basic education (grades 1-9), ages 15-17 upper secondary (grades 10-12) and ages 18-24 for tertiary education level (post-secondary). The graphs show averages using second order polynomial smoothing.

94. Female access to tertiary education is nearly equal to male access, but they are underrepresented in key subjects. The proportion of females who access higher education rose from 48 percent in 2006 to 52 percent in 2016, but only 34 percent of STEM students are female.[62] Moreover, females cluster into management, education, or health fields of study while males cluster into IT and science;[63] in 2018, females accounted for only 34 percent of total students enrolled in the 39 Vietnamese universities that focus essentially on STEM programs.[64] This clustering across occupations and industries explains much of the gender wage gap; so if automation continues, the gender wage gap risks expanding.[65]

[62] World Bank 2020c.
[63] Bodewig and Badiani-Magnusson 2014.
[64] World Bank 2020c.
[65] World Bank 2018b.

Labor mobility to take advantage of GVC opportunities

95. Labor mobility needs to allow those with new skills to switch occupations, sectors, and places to take advantage of the new opportunities. Better education is central to earning higher income and supports higher quality job movements. And policies can promote labor mobility and help more workers take advantage of better job opportunities that may arise from GVC intensification, promoting migration to better jobs (primarily rural to urban, but also from urban centers with less opportunities to those with more) and between jobs and sectors in urban locations.

96. Active labor market policies directly promote labor mobility but are underdeveloped in Viet Nam. How best to strengthen them?

- Strengthening job brokerage through improved, with improved job search support and career guidance that make good use of better quality, timely, and nationally integrated information on the labor market and job vacancies.[66] The improve services can be achieved through both improved and expanded Employment Service Centers (ESCs) and through the use of private job portals and job search services.[67]
- Using the unemployment insurance fund effectively to support workers in upskilling on the job or transitioning to new employment opportunities.
- Redirecting the focus of active labor market policies beyond the unemployment insurance system to improved job counselling, job search, job matching and training.
- In addition, the unemployment insurance fund should be used effectively to provide better protection for workers to take the time to seek the best possible job match.

97. Other policies indirectly support greater labor mobility, especially access to care and local services. Women shoulder the vast majority of care responsibilities in the home, leading them to choose jobs (and the relevant fields of study) that have less or more flexible hours, or are closer to home, over jobs they are more qualified for or that would pay better. As Viet Nam ages, such responsibilities will only increase. The *ho khau* household registration system has meant that migrants had to trade off access to better work opportunities with access to key local services for themselves and their children. Policies to reduce these barriers include:

- Increasing affordable childcare and strengthening the aged and long-term care system to prevent working age women from dropping out of the labor force to become caregivers or constraining their choice of jobs and hours.

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[66] For example, standardizing the way in which occupational and industry information is collected; consolidating general labor market and job vacancy information and making it easily accessible; developing a nationally centralized database of active job seekers and active vacancies to facilitate job search across space; improving capacity of ESC staff to perform basic statistical analysis so as to undertake granular, local area analysis that could inform jobseekers, employers, and training institutions.

[67] Vietnamese job search firms are mostly owned by Asian multinationals and operate in a cross-border fashion, principally serving the FDI sector with a focus primarily on mid- to upper-tier jobs. The gradual improvement in job quality and an increase higher-skilled and formal occupations suggests that the market for private job brokerage will increase with time. There are hundreds of private sector websites for job placement, but detailed jobseeker and vacancy data collected by private sector recruitment agencies and job search firms are typically not publicly available.

- Strengthening local capacity and financing around the recent *ho khau* reforms. Eliminating the *ho khau* system should stimulate even greater labor mobility, especially rural-urban migration, but monitoring and addressing any implementation issues with the replacement residence system will be vital.

Stronger protection for those who lose jobs or miss out on the new opportunities

98. Safety nets can support those losing jobs as the economy evolves and those otherwise left behind. They can mitigate the impact of increased job loss or churn, ensuring that key benefits like insurance are available regardless of employment type, and be broad and flexible enough to cope with increasing uncertainty. Unlike skill policies designed to help as many people as possible benefit from GVC intensification, social protection policies help those who are disrupted by or left out of the process. Social assistance, social insurance, and active labor market policies can each help those who lose employment or income from the GVC process. Social insurance catches people as they lose jobs. Active labor market policies help them transition back into new employment. Both allow people to search for longer and match with a better job. And social assistance acts as a final resort safety net.

CONCLUSION AND SUMMARY OF POLICY RECOMMENDATIONS

99. Global and regional integration have been key drivers of Viet Nam's past economic success. Whether Viet Nam will be able to meet its future aspiration of becoming a high-income economy by 2045, will in no small measure depend on its ability to continue to transform itself and to usher in the next wave of participation in global value chains, one based on higher value-added manufacturing and services, using improved technology, skills, and innovation. This report has analyzed key constraints and opportunities Viet Nam faces in this regard - both in terms of the current structure of its domestic economy and the global environment in which it operates. It concludes with an optimistic message: Viet Nam's has every potential to continue its successful development journey. But like its past achievements, whether it will rise to this future potential will depend on pursuing meaningful reforms today. The following table offers a summary of key policy options that could constitute steps in this direction.

Table 2. Policy recommendations

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policy package 1: From tariffs reduction to deep (regional) trade integration	**Reduce non-tariff policy barriers to trade:** by (i) *promoting compliance with international and regional standards;* (ii) *streamlining border management; and* (iii) *reducing foreign equity restrictions.*	ST/MT
	Enhance regional connectivity by: (i) reducing policy barriers to trade and investment flows across the region; (ii) strengthening physical and digital connectivity to reduce costs, within Southeast Asia as well as with China and South Asia.	MT
	Shape the regional integration agenda by: working proactively with international partners within ASEAN, RECEP, CPTPP and other settings to deepen commitments around key agendas such as digital trade, harmonization of standards, power trade, and connectivity.	MT
Policy package 2: From a dual economy to integrated domestic value chains	**Continue strengthening the business environment:** the Administrative Procedure Control Agency (APCA) in the Office of Government (OOG) should collaborate with ministries to develop a detailed digitalization program and action plan. This includes eliminating physical document requirements and enhancing the data sharing framework (government interoperability) with unified web-based application forms. Moreover, improve the licensing and inspecting framework by adopting a risk-based approach.	ST/MT

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policy package 2: From a dual economy to integrated domestic value chains	**Connect MNEs and local firms by:** (i) leveraging Investment Promotion Agencies (IPAs) to strengthen the connection between high potential local suppliers and new or existing foreign investors; (ii) organizing "Meet the Buyer" events or suppliers' forums to help potential suppliers to better understand quality, cost, and delivery (QCD) standards as well as technology and skills gaps; (iii) publishing online "live" databases and directories of local suppliers in English to reduce search costs for foreign firms; and (iv) establishing a Supplier Development Program (SDP) to enhance local firms' capabilities and linkages, including both demand-driven horizontal support and sector-specific vertical measures.	ST/MT
	Implement supply chain finance (SCF) mechanisms between FDI and domestic firms to optimize working capital, convert receivables and inventories to cash, and obtain lower-cost financing, thereby smoothing transactions between FDI firms and local suppliers.	MT
Policy package 3: From labor-intensive final assembly to skill- and technology-intensive high-value activities	**Reduce barriers to services trade in backbone services sectors such as telecom, finance, and transportation services by:** (i) addressing restrictive telecom regulations to boost competition; (ii) relax stringent foreign exchange rules in finance to enhance Vietnamese banking sector's access to capital and opportunities for collaboration with foreign banks and investors; (iii) eliminating discriminatory regulations against foreign service providers in transport to lower costs; and (iv) reducing barriers in legal services to foster cooperation between Vietnamese and foreign legal professionals.	ST
	Prevent conflict of interest and ensure fair treatment of State-owned enterprises (SoEs) and private sector by: establishing independent regulatory authorities for key services sectors like telecommunications, postal services, and transportation.	MT
	Rationalize cross-border data flow regulations by: revising regulation requiring data localization and the establishment of a commercial presence, such as representative or branch offices for foreign firms offering online services.	MT
	Implement the comprehensive intellectual policy (IP) framework by: strengthening the Vietnamese enforcement agencies that have encountered difficulties in adapting to new regulations, leading businesses to seek alternative protective strategies, such as contractual clauses and market monitoring.	MT
Policy package 4: From strong basic education to a high-skilled workforce	**Develop the workforce for high technology industries by:** (i) developing curricula and training faculty to enhance industry-aligned education and skills: (ii) providing targeted financial and non-financial incentives (scholarships) for potential students; and (iii) investing in upgrading training and R&D facilities in STEM higher education institutions and research institutes.	ST

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policy package 4: From strong basic education to a high-skilled workforce	**Adopt a market-driven, competency-based approach for tertiary education by:** (i) establishing sector skills councils involving private sector employers and training institutions to ensure that educational offerings meet the evolving needs of employers and prepare workers for emerging jobs and skills; and (ii) implementing a results-oriented and evidence-based approach using data and feedback loops to continuously improve outcomes and ensure alignment with labor market dynamics.	ST/MT
	Revamp TVET programs to develop a broad set of skills for current and future workforce by: (i) expanding certification bootcamps and apprenticeships, co-developing curricula with industry partners to ensure relevance, and focusing on both cognitive, behavioral, and technical skills development; (ii) overhauling training quality and market relevance in vocational education to align with the evolving economic needs. Such an overhaul would include a stronger focus on outcomes rather than outputs, including through results-based financing, and a stronger commitment to quality.	ST/MT
Policy package 5: From carbon-intensive manufacturing to low-carbon and resilient exports	**Move towards cost-reflective electricity tariffs and carbon pricing to support the decarbonization of the economy while mitigating impacts on competitiveness by:** (i) providing forward guidance to market participants on the expected price trajectory to allow for sufficient time for firms to adapt, including through investments in energy-saving and low carbon technologies; and (ii) providing targeted financial support to firms, including through green finance programs, to encourage wider adoption of and investment in low carbon technologies.	ST/MT
	Accelerate investment in power infrastructure by: (i) accelerating project approval processes to enable the rapid rollout of four 500kV backbones listed in PDP8 to increase the power transfer capacity from the south, which benefits from a power surplus, and scale-up installed capacity in the north; (ii) adopting well known technologies, such as high-voltage direct current (HVDC), will help to maximize energy transfer on longer distances, while reducing the physical footprint impact; and (iii) enabling access to long-term financing for the power sector – both domestic and international - will better match the investments' repayment profile with the operational life of the assets.	MT
	Reduce NTMs limiting trade in environmental goods by: streamlining the large number of technical barriers to trade targeting renewable energy products and the management of solid and hazardous waste.	MT
	Develop a coastal resilience investment program for main urban centers, industrial zones, and connecting infrastructure by: (i) mitigating flood-related risks by upgrading critical road and power assets to climate-resilient design standards; (ii) developing financial mechanisms and making them available before, during, and after disasters to secure financial protection of firms and channel investment in resilient infrastructure; and (iii) companies should systematically assess the vulnerability of their trading environments to natural disasters and consider alternative locations when climate-vulnerability is particularly high.	MT

Policy packages	Policy recommendations	Time Frame (ST, MT)
Policies to make GVC-driven growth and job creation more inclusive	**Enhance labor mobility to take advantage of new opportunities by:** (i) providing career guidance and job search support especially for students and workers from vulnerable backgrounds; (ii) using the unemployment insurance fund effectively to support workers in upskilling on the job or transitioning to new employment opportunities; (iii) expanding active labor market policies to include job search and vocational and education training (VET) systems; and (iv) providing VET institutions with increased autonomy and capacity to prepare workers in ways that meet industry demand. Key policies to indirectly promoting labor mobility are: (v) increasing affordable childcare and strengthening the aged and long-term care system; and (vi) strengthening local capacity and financing around the *ho khau* reforms.	ST/MT
	Develop active labor market programs targeted to those losing jobs as the economy evolves by: (i) expanding the Labor Market Programs focus beyond unemployment insurance to include job search and matching services and training for job seekers; (ii) building a labor market Information System to inform training and job matching functions of the public employment services and vocational and educational training (VET) system; and (iii) increase VET provider linkages to employers.	MT
	Ensure skill upgrading benefits all by: (i) reducing human capital gaps across the lifecycle, including a focus on stunting and Early Childhood Education (ECED), secondary school dropout for poorer children, and the affordability and access of tertiary education; and (ii) encouraging more females to go into STEM fields.	MT

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APPENDIX

Appendix 1: Assessing Viet Nam's vulnerability to Global Value Chains

100. Exposure to GVCs presents clear economic benefits, but also leaves open economies such as Viet Nam more exposed to shocks caused by trade tensions and supply-side disruptions. Viet Nam is one of the most open economies in the world, with trade (the sum of its gross imports and exports) representing close to 200 percent of its GDP. Most of this trade takes place within global value chains, where Viet Nam specializes in light manufacturing of textile and electronics products with significant value derived from imported components. While Viet Nam has mostly benefitted from GVC participation (World Bank 2020), this also leaves its export-led growth model exposed to disruptions from suppliers and exporters. Recent trade tensions also create significant risks for Viet Nam, with both China as its main supplier (providing a third of imports) and the United States as its major export destination (29 percent of total exports).

101. Vulnerabilities to GVC participation has received a renewed attention and addressing these risks requires a country-specific assessment. The COVID-19 pandemic has brought in sharp relief the vulnerability of supply chains. Shocks in the supply of critical intermediary inputs can be propagated along the supply chains and – due to specialization – tend to be concentrated in a few countries. While macroeconomic risks caused by the propagation of shocks through GVC are well understood, a proper assessment of country vulnerabilities is still in its infancy (Baldwin et al. 2023).

102. This report identifies vulnerabilities from GVC participation using network analysis and the aggregate GVC fragility framework developed by Korniyenko et al. (2017). The methodology developed for Viet Nam is applied to measure the vulnerability to both imports and exports disruption at the product-level using the 6-digit harmonized nomenclature (around 5,000 products) in 2021.

103. Vulnerabilities are quantified based on several factors: (i) the level of market concentration from current trading partners (ii) the level of diversification potential based on the degree of country centrality (iii) the complexity of the product network (iv) the position of the product in the supply chain. A full description of the indicators is provided below.

Import vulnerability indicators:

1. **Degree of concentration of supplier countries in the import of products to Viet Nam.** Concentration is measured using the conventional Herfindahl-Hirschman Index (HHI), using a threshold of 0.5 which indicates a high concentration. The HHI measures the sum of the squares of market shares for each supplier countries and varies between 0 and 1.

2. **Supply diversification potential of the import product at the global level** based on the outdegree centrality of suppliers. The outdegree centrality measures how dependent the global supply is on a limited number of countries. Products with outdegree centrality above the 90th percentile are considered to have low diversification potential.

3. **Complexity of the product network,** calculated as the clustering coefficient of the product (i.e., the tendency of countries to trade together, increasing vulnerability), multiplied by the length of the network proxied by the diameter of the network (the length of the shortest path between the most distant nodes, indicating the number of trade steps necessary to connect the two furthest countries in a network). A product has a high degree network complexity if the value of this indicator is above the 90th percentile, which indicates that disruptions among one supplier is more likely to affect downstream countries.

4. **Intermediate inputs** based on the BEC classification. Intermediate inputs (i.e. not for final consumption) create more risks as a reduction in their supply also affects the production of export products.

For export vulnerability

1. **Degree of concentration of export destination counties of products from Viet Nam.** Concentration is measured using the conventional Herfindahl-Hirschman Index (HHI), using a threshold of 0.5 which indicates a high concentration.

2. **Export diversification potential of the export product at the global level** based on the indegree centrality of suppliers. The indegree centrality measures how dependent the global market for a product is on a limited number of countries. Products with indegree centrality above the 90th percentile are considered to have low diversification potential.

3. **Complexity of the product network,** calculated as the clustering coefficient of the product (i.e., the tendency of countries to trade together, increasing vulnerability), multiplied by the length of the network proxied by the diameter of the network (the length of the shortest path between the most distant nodes, indicating the number of trade steps necessary to connect the two furthest countries in a network). A product has a high degree network complexity if the value of this indicator is above the 90th percentile, which indicates that disruptions among one supplier is more likely to affect downstream countries.

4. **Large export value (above US$ 1 million)** indicating large export loss in the case of export shock from a single product.

Table A.1: List of most vulnerable import products

#	HS17 code	Product description	Sector	Import value (million USD)	Largest supplier	Share largest supplier	HHI Index	Out-centrality	Com-plexity
1	901380	Optical devices, appliances and instruments; n.e.c in heading no. 9013 (including liquid crystal devices)	Optical instruments	2,427	China	77%	0.64	2.21	1.1
2	850440	Electrical static converters	Machinery/ Electric	1,040	China	80%	0.64	1.96	1.05
3	847130	Automatic data processing machines, portable, weighing not more than 10kg, consisting of at least a central processing unit, a keyboard and a display	Machinery/ Electric	1,028	China	86%	0.75	1.54	1.04
4	950300	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size (scale) models and similar recreation models, working or not; puzzles of all kinds	Miscellaneous	771	China	97%	0.95	4.37	1.25
5	854442	Insulated electric conductor; for a voltage not exceeding 1000 volts, fitted with connectors	Machinery/ Electric	770	China	78%	0.62	1.75	1.04
6	851890	Microphones, headphones, earphones, amplifier equipment; parts of the equipment of heading no. 8518	Machinery/ Electric	607	China	86%	0.74	1.6	1.12
7	830242	Mountings, fittings and similar articles; suitable for furniture of base metal	Metals	412	China	95%	0.9	2.66	1.03
8	940190	Seat; parts	Furniture	390	China	80%	0.84	1.66	1.12
9	850511	Magnets; permanent magnets and articles intended to become permanent magnets after magnetisation, of metal	Machinery/ Electric	342	China	91%	0.84	1.66	1.12
10	850131	Electric motors and generator; DC, of an output not exceeding 750W	Machinery/ Electric	310	China	67%	0.51	1.76	1.06
11	847160	Unites of automatic data processing machines; input or outputs units, whether or not containing storage unit in the same housing	Machinery/ Electric	286	China	79%	0.63	1.49	1.15
12	851829	Loudspeakers. Not mounted in their enclosures	Machinery/ Electric	269	China	83%	0.69	1.59	1.02
13	901910	Mechano-therapy appliances; massage apparatus and psychological aptitude-testing apparatus	Optical Instruments	172	China	93%	0.87	2.59	1.09

#	HS17 code	Product description	Sector	Import value (million USD)	Largest supplier	Share largest supplier	HHI Index	Out-centrality	Com-plexity
14	940599	Lamps and light fittings; parts thereof, of materials other than glass or plastic	Furniture	166	China	98%	0.95	3.21	1.13
15	580632	Fabrics, narrow woven fabrics, n.e.c in heading no. 5806, of man-made fibers (excluding goods of heading no. 5807)	Textiles	163	China	70%	0.52	2.38	1.17
16	442199	Wood; not of bamboo, articles n.e.c in heading no. 4414 to 4420 (excluding clothes hangers)	Wood & Wood Product	103	China	97%	0.95	1.43	1.07
17	871690	Trailers, semi-trailers and other vehicles not mechanically propelled; parts thereof for heading no.8716	Chemicals	58	China	86%	0.74	1.5	1
18	940389	Furniture; of cane; osier; or similar materials (other than bamboo or rattan)	Furniture	45	China	95%	0.9	2.5	1
19	851840	Amplifiers' audio-frequency electric	Machinery/ Electric	41	China	70%	0.5	1.99	1.09
20	482010	Paper and paper board; registers, account books, notebooks, order books, receipt books, letter pads, memorandum pads, diaries and similar articles	Wood & Wood Product	20	China	95%	0.9	2.2	1.09
21	700992	Glass mirrors; framed; excluding rear-view mirrors for vehicles	Stone/Glass	18	China	97%	0.94	4.15	1.02
22	940180	Seats; n.e.c in heading no.9401 (excluding medical, surgical, dental, veterinary or barber furniture)	Furniture	16	China	91%	0.83	1.59	1.06
23	950490	Games, articles for funfair, table or parlour games including pintables, special tables for casino games, automatic bowling alley equipment, n.e.c in heading 9504	Miscellaneous	10	China	78%	0.62	1.7	1.22
24	840592	Lamps and light fittings; parts thereof, of plastic	Furniture	9	China	94%	0.88	2.84	1.05

Source: World Bank staff calculation based on BACI dataset for 2021.

Table A.2: List of most vulnerable export products

#	HS17 code	Product description	Sector	Export valus (million USD)	Largest supplier	Share largest supplier	HHI Index	In-centrality	Com-plexity
1	620462	Trousers, bib and brace overalls, breeches and shorts, women's or girls', of cotton (not knitted or crocheted)	Textiles	886	USA	76%	0.59	0.24	1.62
2	847160	Units of automatic data processing machines; input or output unites, whether or not containing storage units in the same housing	Machinery/ Electrical	862	USA	79%	0.63	0.15	1.15
3	610462	Trousers, bib and brace overalls, breeches and shorts; women's or girls', of cotton, knotted or crocheted	Textiles	850	USA	74%	0.56	0.16	1.36
4	950450	Games; video game consoles and machines, other than those of subheading 9504.30	Miscellaneous	681	USA	74%	0.56	0.09	1.25
5	611120	Garments and clothing accessories; babies', of cotton, knitted or crocheted	Textiles	331	USA	75%	0.57	0.14	1.27
6	940389	Furniture; of cane, osier or similar materials (other than bamboo or rattan)	Furniture	296	USA	73%	0.53	0.13	1
7	610443	Dresses; women's or girls', of synthetic fibres, knitted or crocheted	Textiles	257	USA	78%	0.61	0.12	1.41
8	630260	Kitchen and toilet linen; of terry towelling or similar terry fabrics, of cotton	Textiles	242	Japan	70%	0.52	0.07	1.06
9	847141	Automatic data processing machines; comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined, n.e.c item no. 8471.30	Machinery/ Electrical	233	USA	83%	0.7	0.11	1
10	610469	Trousers, bib and brace overalls, breeches and shorts' women's or girls', of textile material (other than wool or fine animal hair, cotton or synthetic fibres), knitted or crocheted	Textiles	168	USA	84%	0.7	0.1	1.31
11	852692	Radio remote control apparatus	Machinery/ Electrical	141	USA	83%	0.69	0.07	1.16
12	482010	Paper and paperboard; registers, account books, note books, orderbooks, receipt books, letter pads, memorandum pads, diaries and similar articles	Wood/ Wood products	140	USA	87%	0.76	0.09	1.09

#	HS17 code	Product description	Sector	Export valus (million USD)	Largest supplier	Share largest supplier	HHI Index	In-centrality	Com-plexity
13	902710	Instruments and apparatus; gas or smoke analysis apparatus, for physical or chemical analysis	Optical Instruments	127	Rep. of Korea	71%	0.52	0.11	1.14
14	720421	Ferrous waste and scrap; of stainless steel	Metals	99	India	78%	0.63	0.45	1.44
15	903300	Machines and appliances, instruments or apparatus of chapter 90; parts and accessories n.e.c. in chapter 90	Optical Instruments	89	China, Hong Kong SAR	75%	0.58	0.1	1.13
16	700992	Glass mirrors; framed, excluding rear-view mirrors for vehicles	Stone/ Glass	75	USA	76%	0.59	0.08	1.02
17	852349	Optical media; recorded, excluding products of Chapter 37	Machinery/ Electrical	69	Thailand	97%	0.94	0.11	1.24
18	610444	Dresses; women's or girls', of artificial fibres, knitted or crocheted	Textiles	66	USA	77%	0.59	0.09	1.23
19	760200	Aluminium; waste and scrap	Metals	55	Rep. of Korea	78%	0.65	0.33	1.64
20	620920	Garments and clothing accessories; babies', cotton (not knitted or crocheted)	Textiles	49	USA	80%	0.64	0.07	1.07
21	490900	Printed or illustrated postcards; printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings	Wood/ Wood products	43	USA	87%	0.77	0.1	1.14
22	740321	Copper; copper-zinc base alloys (brass) unwrought	Metals	38	China	100%	1	0.27	1.04
23	620111	Coats' men's or boys', overcoats, raincoats, car-coasts, capes, cloaks and similar articles, of wool or fine animal hair, other than those of heading no.6203 (not knitted or crocheted)	Textiles	27	Rep. of Korea	76%	0.59	0.09	1.44
24	950590	Festive, carnival or other entertainment articles including novelty jokes and conjuring tricks; other than Christmas festivity articles	Miscellaneous	26	USA	72%	0.52	0.15	1.15
25	610452	Skits and divided skirts; women's or girls', of cotton, knitted or crocheted	Textiles	18	USA	82%	0.68	0.08	1.04

#	HS17 code	Product description	Sector	Export valus (million USD)	Largest supplier	Share largest supplier	HHI Index	In-centrality	Com-plexity
26	611190	Garments and clothing accessories; babies', of textile materials (other than cotton or synthetic fibres), knitted or crocheted	Textiles	17	USA	75%	0.57	0.18	1.21
27	121299	Vegetable products; fit for human consumption, n.e.c in heading no. 1212, fresh, chilled frozen or dried, whether or not ground	Vegetable Products	17	China	81%	0.66	0.07	1.11
28	51199	Animal products; n.e.c in chapter 5	Animal & Animal Products	14	USA	97%	0.95	0.1	1.38
29	851590	Welding, brazing or soldering machines; parts of the machines of heading no.8515	Machinery/ Electrical	14	Rep. of Korea	77%	0.63	0.07	1.06
30	610439	Jackets; women's or girls', of textile materials (other than wook or fine animal hair, cotton or synthetic fibres), knitted or crocheted	Textiles	11	USA	73%	0.54	0.07	1.53
31	711292	Waste and scrap of precious metal' of platinum, including metal clad with platinum but excluding sweepings containing other precious metals	Stone/Glass	7	Germany	86%	0.76	0.45	1.41
32	260300	Copper ores and concentrates	Mineral Products	5	China	83%	0.71	0.13	1.27
33	910229	Wrist-watches; whether or not incorporating a stop-watch facility, with other than automatic winding	Miscellaneous	3	Singapore	85%	0.73	0.09	1.04
34	30571	Fish; edible offal, shark fins	Animal & Animal Products	3	Japan	76$	0.63	0.23	1.3
35	970600	Antiques; of an age exceeding one hundred years	Miscellaneous	2	USA	93%	0.87	1.12	1.36
36	710812	Metals; gold, non-monetary, unwrought (but not powder)	Stone / Glass	1	Malaysia	90%	0.81	0.47	1.1
37	790200	Zinc; waste and scrap	Metals	1	Rep. of Korea	72%	0.55	0.17	1.16

Source: World Bank staff calculation based on BACI dataset for 2021.

Appendix 2: Long-term growth projections

104. Long-term growth projections are calculated using the long-term growth model based on the standard Solow-Swan growth model with calibrations to match features of the Vietnamese economy. See Loayza and Pennings (2022) for more details.

105. General assumptions for the LTGM are shown in Table A2.1. Further details can be found on the LTGM tool. The version 5.4 has been used. Levels of productivity growth and capital investments needed to achieve high-income are found using a goal-posting approach based on the World Bank's income classification as of FY24 and projections in 2022 USD. For traceability, other drivers of growth are assumed to remain as in the baseline scenario. This implies that all productivity gains are captured by TFP growth. TFP and investment values for comparator countries are taken from WDI, PWT 10, or TED database.

106. The mapping of reforms onto the productivity-investment space is based on a data-informed multi-step approach that aim to capture the magnitude of expected effects rather than precise estimation of impact. The steps include (i) defining indicators for reform policy package (ii) defining 2045 targets based on aspirational countries (iii) measuring productivity growth and investment elasticities (iv) using the resulting estimates to construct expected magnitudes and ordinal ranking. An illustrative comprehensive policy package from all reforms being implemented is shown based on the individual results from each reform policy package. Details of the approach are presented in Table A2.2.

Table A2.1. Baseline parameters

Parameter	Value	Basis
Depreciation rate	0.054	PWT 10 2019
Labor share	0.490	PW 10 2019 (average income group)
Human Capital	0.018	PWT 10 5yr average (2015-19)
TFP growth	0.009	TED 10yr average (2010-22)
LFP male	0.818	WDI and ILO
LFP female	0.742	WDI and ILO
Population growth	0.065	UN (by 2100)
Initial K/Y ratio	2.43	PIM 2019
Initial GDP per capita	4,164	WDI 2022 (current USD)
GNI/GDP	0.93	WDI 2022 (Viet Nam average 2012-19)

Table A2.2 Mapping reforms to productivity growth and investments

Pathway	Measure	Measure description	Outcome Indicator	Viet Nam value	Viet Nam value year	Target	Target level	Increment	TFP growth elasticity (%/%)	I/Y elasticity (%/%)
1. Moving from final assembly to developing high-tech manufacturing and services sectors	1.1	Leverage FDI in high-tech manufacturing and services for technology adoption and skills upgrading in key sectors such as consumer electronics and digital services where value addition is driven by innovation (e.g. computer-aided design, 3D printing, product tracking and workflow automation.	Export unit value index (2015=10)	106.78	2021	China	148	41.22	0.0065	0.02
	1.2	Improve regulatory environment for digital trade in key areas including data governance, telecom regulations, trade facilitation, remote contracts, and intellectual property.	CPIA trade rating (1=low to 6= high)	4	2015	Ordinal	5	1		1.71
	1.3	Expand the export of services such as R&D, logistics, marketing, IT management, and back-office support	Trade in services (% of GDP)	9.4	2022	KOR	15.89	6.49		0.02
2. Transitioning from a dual economy to integrated domestic value chains to boost productivity gains.	2.1	Increase public spending on R&D and education to enhance the participation of domestic firms in GVC by reducing the technology and capabilities (including technical, engineering, and managerial skills) gap with more productive foreign firms and increasing local firm's absorptive capacity	Research and development expenditure (% of GDP)	0.43	2021	China	2.4	1.97	0.06	0.27
	2.3	Accelerate e-government initiatives to promote transparency and reduce corruption through the digitization of public services as firms with GVC linkages still face higher risks of bribery, which can increase transaction costs and reduce export competitiveness	CPIA transparency, accountability, and corruption in the public sector rating (1=low to 6=high)	3	2015	Ordinal	4.5	1.5		3.75

Pathway	Measure	Measure description	Outcome Indicator	Viet Nam value	Viet Nam value year	Target	Target level	Increment	TFP growth elasticity (%/%)	I/Y elasticity (%/%)
3. Reducing non-tariff measures and deepening trade integration to increase market access and diversify imports and exports.	3.1	Lower NTMs within Viet Nam's existing PTAs to reduce trade costs, which is expected to benefit exports in electronics, textiles and tourism.	a/ Cost to export, border compliance (US$) b/ Cost to export, documentary compliance (US$)	329.23	2019	KOR	195.82	-133.41	-0.002	
4. Moving from energy-constrained and brown manufacturing to green exports.	4.1	Fast tracking of priority investment in power infrastructure and revision of the tariff regulation is essential to ensure energy security	Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high)	3.2	2022	Max	5	1.8		
	4.1	Fast tracking of priority investment in power infrastructure and revision of the tariff regulation is essential to ensure energy security	Quality of trade and transport-related infrastructure (1=low to 5=high) Investment in energy with private participation (% of GDP)	0.61	2022	P75HIC	1.26	0.65		
	4.2	Remove restrictions on the export of renewable energy products such as solar cells and heliostats. The trade of these goods is mainly restricted by NTMs, especially targeting renewable energy products and the management of solid and hazardous waste	Electricity production from renewable sources, excluding hydroelectric (% of total)	0.12	2015	KOR	1.5	1.38		
5. From strong basic education to higher worker skills.	5.1	Increase the supply of skilled workers by reducing financial constraints faced by students and expanding the capacity of universities. According to estimates,	Educational attainment, at least Bachelor's or equivalent, population 25+, total (%)	10.25	2019	KOR	2015	28.68	18.43	0,06

Pathway	Measure	Measure description	Outcome Indicator	Viet Nam value	Viet Nam value year	Target	Target level	Incre-ment	TFP growth elasticity (%/%)	I/Y elasticity (%/%)
5. From strong basic education to higher worker skills.	5.1	and estimated 800,000-900,000 new technical jobs would need to be filled by 2030, which would require an additional 430,000 additional graduates annually. High cots of tuitions and financial barriers are creating barriers to pursue quality STEM programs.	(Cumulative) Educational attainment, at least Bachelor's or equivalent, population 25+, total (%) (Cumulative)	10.25	2019	KOR	2015	28.68	18.43	0,06

Notes: All reported elasticities are statistically significant at the 10% level and derived using a cross-country fixed-effect regression with year and income-level dummies. The data comes from WDI and includes all countries except for skills where LIC countries are excluded given a much lower level of tertiary completion of any LIC countries than in Viet Nam. Investment gains for Policy packages 3 and 4 are interpolated based on Policy package 2.

References:

Loayza, Norman V.; Pennings, Steven Michael. (2022) *The Long-Term Growth Model: Fundamentals, Extensions, and Applications*. World Bank Group.

Appendix 3: Estimates of non-tariff related cost reductions that can be attributed to Viet Nam's PTAs

Gravity approach

107. The analysis to estimate the cost reductions associated with non-tariff measures (NTMs) resulting from Viet Nam's existing and forthcoming preferential trade agreements (PTAs) employs a gravity-based top-down methodology (Egger et al. 2015). This approach eschews the detailed NTM data typically utilized in bottom-up assessments. Instead, it deduces NTM cost reductions from the observed variations in trade flows, adjusting for the influence of tariffs within PTAs. This method stands in contrast to alternative strategies that derive trade cost changes from available NTM estimates (Kee et al., 2009; Kee and Nicita, 2022), the interaction of NTM and PTA variables (Cadot and Gourdon, 2016), or the coefficients pertaining to specific NTM-related PTA provisions (Disdier et al., 2015). The identification strategy hinges on the inclusion of an applied tariff rate that reflects the tariff reduction schedules under PTAs, thereby isolating the tariff-related effects of PTAs. It is assumed that the PTA variable, when considered alongside the applied tariff rate, captures all other NTM-related trade cost reductions induced by PTAs, which are the focus of this identification.

108. Specifically, we estimate the following 2017 cross-sectional, standard gravity equation via PPML for each sector:[69]

$$X_{ij}=\exp\left[-\sigma \ln\left(1+t_{ij}\right)+\beta PTA_{ij}+Z_{ij}+\mu_i+\eta_j+\lambda_{ij}+\varepsilon_{ij}\right]$$

109. Here, X_{ij} represents trade flows from origin i to destination j, which includes zero and internal trade, t_{ij} is the applied ad valorem tariff rate, Z_{ij} captures bilateral trade cost variables, μ_i and η_j are importer and exporter fixed effects controlling for origin and destination-specific determinants of trade, as well as multilateral resistance (Anderson and van Wincoop 2003), while ε_{ij} denotes the error term.

110. The main variable of interest is PTA_{ij}, which is an additive count index representing the depth of PTAs for goods sectors, and a dummy taking the value of 1 if PTAs include a services chapter for services sectors, and 0 otherwise. The additive index follows the coding of Hofmann et al. (2017) and includes:

- **WTO+ provisions:** FTA Industrial, FTA Agriculture, Customs, Export Taxes, Sanitary and Phitosanitary Measures (SPS), TBT, STE, AD, CVM, State Aid, Public Procurement, TRIMs, GATS, TRIPs.
- **WTOX provisions:** Competition Policy, IPR, Investment, Movement of Capital

111. The methodology assigns a score to each provision within the range of 0 to 2, based on its level of legal enforceability. With 18 policy areas evaluated, the maximum attainable depth score is 36. In

[69] For a general overview of the gravity model and related estimation issues see e.g. Head and Mayer (2014); Yotov et al. (2016).

instances where multiple agreements are in force for a particular country-pair, it is assumed that the collective set of provisions from all agreements dictates the trade flows for that country-pair.

112. To address the potential endogeneity of PTAs, the analysis adopts approach of Egger et al. (2015, 2011), incorporating the control function λ_{ij}. This function includes Mill's ratios derived from a first-stage Probit regression, which uses two indicator variables to distinguish between deep and shallow PTAs. The instrumental variables selected for this analysis are rooted in historical connections, such as past colonial or dependency relationships, shared colonizers, or previous political unity of country-pairs. Additional instruments include pairwise differences in governance quality, common legal origins, and shared religion. The validity of the instruments is assessed through an exclusion restriction test for each sector, ensuring their joint impact on trade is insignificant. Consequently, the chosen instruments may vary by sector.

113. The vector Z_{ij} encompasses several factors: the logarithm of the distance between countries, the absolute difference in latitude (or time difference for service sectors), the economic size of the country pair, and indicators denoting adjacency, shared language, legal origin, and common colonial ties. An international border dummy variable is also included, along with its interaction with governance quality indicators. For service sectors, following Benz and Jaax (2022), border interactions are added based on indicators for broadband and mobile access prevalence. For the goods sector, the analysis additionally controls for the quality of trade facilitation infrastructure.

Scenario construction

114. To retrieve the ad valorem equivalent reduction in NTM-related trade (t_{ij}^{AVE}) that can be attributed to PTAs the analysis follows Bekkers et al. (2018) and transforms the trade volume effect of PTAs into tariff equivalent iceberg trade costs via:

$$(1-\hat{\sigma})\ln\left(1+t_{ij}^{AVE}\right) = \hat{\beta}PTA_{ij}^{\Delta} \Leftrightarrow t_{ij}^{AVE} = \exp\left[\frac{\hat{\beta}PTA_{ij}^{\Delta}}{(1-\hat{\sigma})}\right] - 1$$

115. PTA_{ij}^{Δ} represents the change in the PTA variable with coefficient β, while σ is the trade elasticity estimated from tariffs (see e.g., Fontagné et al., 2022).[70] In the analysis of goods sectors, the depth index allows to compute trade cost changes linked to the deepening of existing PTAs. It is assumed that, in contrast to tariffs, the majority of reductions in trade costs do not materialize immediately but rather incrementally over a ten-year span. The model approximates the phase-in effects documented by Bergstrand et al. (2015), allowing for 20 percent of the average trade cost change (t_{ij}^{AVE}) to take effect in the initial year, with the residual amount distributed evenly across the subsequent nine years.[71]

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[70] Trade elasticities for services sectors are taken from Egger et al. (2021).

[71] Technically, when transforming t_{ij}^{AVE} into a shock for the CGE model the model ensures that the compounded value over 10 years equals t_{ij}^{AVE}. For this, the model approximates step size x via $(1+(t*s)*x)*(1+x)^{t-1}=1+t_{ij}^{AVE}$, with s the share of shock in first year, and t, the number of total years for policy changes to be implemented. Moreover, if a country exits an agreement, the model assumes that 50 percent of the corresponding trade cost increase materializes instantaneously, with the remainder spread equally over the remaining nine years. This is not relevant in the case of Viet Nam but applies to some changes in PTA-related trade costs that enter the baseline. For example, Brexit-related trade costs are calculated as the difference of the EU effect and the effect of the type of agreement the EU and UK concluded.

116. Thus, the model utilizes information on average phase-in effects estimated for past agreements and does not make specific assumptions regarding the state of implementation of the agreements covered by the analysis. Generally, implementing trade agreements requires sufficient time to 1) build agreement-specific institutions, and 2) adjust institutional capacity of the signatories to the policy areas covered by the agreement.

117. First, the implementation state and progress of trade agreements depends on actively utilizing the corresponding implementation mechanisms. Mostly, trade agreements set forth an institutional infrastructure governing the specific policy areas covered. These institutions monitor, analyze, support, and adjust implementation processes by, inter alia, clarifying interpretation of the agreement text, raising implementation issues, exchanging information on legislative agendas, or agreeing on joint initiatives to reduce trade barriers. These living agreement instruments take the form of joint institutions, committees, working groups, or policy fora. Most of Viet Nam's trade agreements are governed by such an institutional design. For example, the ASEAN – Hong Kong FTA is governed by a Joint Committee (AHKFTA JC) designing and implementing a work program on economic and technical cooperation;[72] the Viet Nam – EU FTA involves technical committees and working groups on issues such as SPS, intellectual property rights and geographic indicators, customs, or investment and trade in services;[73] and the CPTPP recently established a working group on customs administration and trade facilitation.[74] The complex policy issues covered by deep trade agreement necessitate that parties remain active within such institutions to realize the desired reduction in trade frictions.

118. Second, implementing deep trade agreements with behind-the-border policy commitments may require member states to build adequate technical and legal capacity, particularly, with respect to new regulatory issues that arise with technological development (e.g., e-commerce, cross-border data flows). Legislative responsibilities for the broad set of regulatory issues may be located across different regulatory bodies, which requires coordinative efforts within the member states. Additionally, information regarding new market access opportunities under the agreement need to be disseminated to the businesses (e.g., via export promotion agencies) because, particularly, small- and medium-sized enterprises often lack the capacity to monitor regulatory developments.

119. Based on those assumptions, trade cost changes from 2024 onwards reflect the following agreements recently concluded:[75]

- 2014: Chile.
- 2015: Korea.
- 2016: Eurasian Economic Union (EAEU).

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[72] https://asean.org/our-communities/economic-community/integration-with-global-economy/asean-hong-kong-china-economic-relation/

[73] https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/vietnam/eu-vietnam-agreement/committees-and-dialogues_en

[74] https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/cptpp-ptpgp/decision-group-customs-decision-groupe-douanes.aspx?lang=eng

[75] Furthermore, as part of updating the database for the CGE model from base year 2017, remaining trade cost changes of the following older agreements are phased in: Japan (2009), and ASEAN agreements with Australia and New Zealand (2010), India (2010), Korea (2009), Japan (2008).

- 2018: Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).
- 2019: ASEAN - Hong Kong.
- 2020: European Union.
- 2021: United Kingdom.
- 2022: Regional Comprehensive Economic Partnership Agreement (RCEP).

Data

120. The data for gravity estimations are consistent with the database used for the computable general equilibrium (CGE) model, drawing from 2017 trade data provided by the Global Trade Analysis Project (GTAP 11). Information on the content of PTAs is derived from an updated version of the World Bank Horizontal PTA Depth Database (Hofmann et al., 2017).

121. To control for the tariff component of PTAs and estimate trade elasticity σ for goods sectors, the tariff variable is compiled from multiple sources at the Harmonized System (HS) 6-digit level and aggregated using a simple average. The preference hierarchy for sources is as follows: Market Access Map (MacMap) Economic Partnership Agreements, MacMap preferential rates, UNCTAD Trade Analysis and Information System (TRAINS) preferential rates, MacMap-applied Most Favored Nation (MFN) rates, TRAINS-applied MFN rates, and World Trade Organization (WTO) bound rates. This approach prioritizes preferential and MacMap rates to minimize the mixing of tariffs from different methodologies.

122. Additional variables capturing bilateral trade costs are sourced from CEPII, with governance quality information obtained from the World Bank's World Governance Indicators (WGI). Data on the population's access to mobile and broadband internet connections, as well as GDP data are taken from the World Bank's World Development Indicators (WDI).

Summary of results

Table 3: Summary of main gravity coefficients and AVE PTA-induced trade cost reductions

	Coefficients			Example AVEs	
	PTA	PTA med	EU	PTA deep	EU
Goods					
Crops	0.036	0.784	2.071	-31.6%	-48.8%
Animal products	0.017	0.380	1.537	-5.1%	-13.2%
Other extraction					
Meat products	0.035	0.764	2.497	-34.4%	-60.1%
Food and beverages	0.020	0.446	1.187	-30.1%	-47.0%

Textiles	0.031		1.054	-13.8%	-14.2%
Wearing apparel and leather	0.014		1.240	-6.1%	-15.2%
Wood and paper products	0.010		1.285	-3.0%	-11.4%
Petroleum, coal products					
Chemical, rubber, plastic	0.022		1.248	-8.3%	-13.6%
Basic pharmaceutical	0.024		1.369	-20.3%	-32.4%
Nonmetallic minerals	0.021	0.467	1.381	-6.7%	-12.9%
Metals	0.014	0.316	0.951	-6.0%	-11.8%
Electrical equipment and machinery	0.040	0.872	1.595	-9.3%	-11.2%
Motor vehicles and parts	0.049	1.069	2.311	-16.9%	-23.4%
Other transport equipment	0.022	0.475	0.795	-11.3%	-12.5%
Other manufactures			0.701		-17.1%
Services					
Utilities			0.713		-22.1%
Construction	0.368	0.368	0.749	-14.5%	-27.4%
Trade			0.984		-39.2%
Tourist services	0.448	0.448	1.181	-17.2%	-39.2%
Road transport	0.600	0.600	1.242	-17.4%	-32.7%
Water transport	0.439	0.439	0.338	-13.7%	-10.7%
Air transport			0.814		-29.9%
Warehousing and logistics	0.387	0.387	0.849	-11.5%	-23.4%
Communication			0.737		-20.2%
Financial services and insurance			1.189		-31.2%
Business services			1.199		-35.9%
Public administration and services	0.256	0.256	0.985	-9.0%	-30.5%

Notes: a) Coefficients significant at 10% level or less, with standard errors bootstrapped (200 replications). b) PTA med is the PTA coefficient evaluated at the median depth of PTAs with depth score of 22. c) PTA deep is the AVE for a deep PTA with depth score of 33. d) AVEs are in percentage points. Thus, a reduction of e.g., -10% is equivalent to a tariff decrease of 10 percentage points (e.g., from 20% to 10%).

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