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SELECTED ISSUES

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Approved By
Asia and Pacific Department

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BOOSTING PRODUCTIVITY AND MEDIUM-TERM GROWTH IN VIETNAM

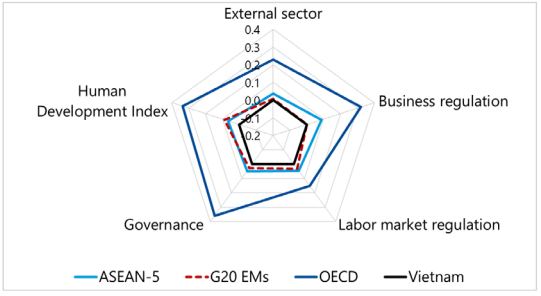
Vietnam's export-led growth model has achieved remarkable growth performance in the past two decades, but new efforts will be needed to sustain strong growth and achieve the desired high-income status by 2045. A comprehensive set of structural reforms and public investment in infrastructure could help boost productivity and medium-term economic growth. This paper analyzes inefficiencies in Vietnam's labor and capital markets that hinder productivity growth and discusses possible reforms to close the structural gaps and improve resource allocation and productive efficiency including from technological advancements including artificial intelligence (AI).

A. Background and Research Agenda

1. Vietnam has achieved remarkable growth successes over the past two decades but its economic conditions are becoming less conducive to support strong growth. Despite the positive contributions of labor and capital accumulation to growth, aggregate productivity has contributed negatively to economic growth in Vietnam on average over the last two decades (IMF, 2024a). With demographic trends projected to reverse in the coming decades, labor factors will also increasingly become a drag on growth.

2. There are notable structural gaps relative to comparator countries that will need to be overcome to achieve the ambitious development agenda. The government's vision is to reach high income status by 2045. Benchmarking Vietnam relative to groups of emerging markets (ASEAN-5, G20 EMs) and advanced economies (OECD) on various structural dimensions reveals gaps in governance, human development, and business regulation, but also on the external sector and labor market regulation. These gaps likely reflect inefficiencies in Vietnam's labor, product, and capital markets (e.g., bureacratic bottlenecks, red tape, labor informality, etc.), which limit Vietnam's economic potential, including through constraining growth of labor and total factor productivity (TFP).[1]

Structural Gaps Between Vietnam And Other Countries[1/]



Sources: UNDP; Fraser Institute; IMF staff calculations replicating structural reform indices in *IMF SDN/2023/007*.
1/ The chart shows Vietnam's gaps relative to the peer group's median outcome of the respective category in 2021. A positive gap indicates a worse outcome relative to the comparator group. Prior to computing gaps, all variables are normalized (0 to 1) for the entire sample of countries (with higher values denoting better outcomes). The chart shows structural gaps in only some areas given data availability.

3. Vietnam is embarking on an ambitious medium-term growth agenda to bridge some of these structural gaps. The government's development target foresees sustained double-digit growth over the next five years. The impetus to productivity and medium-term growth could come

[1] TFP measures how efficiently the economy uses its resources—like workers and machines—to produce goods and services. Inputs in the production process can be combined more efficiently to produce more output depending on e.g. technologies, education and skills, management efficiency, red tape, and the strength of institutions.

from recent plans for large-scale investments and reforms intended to significantly enhance the business environment and attract capital (see 2025 Vietnam Article IV Staff Report), including: (i) a major institutional restructuring aiming to streamline the government, decentralize decision making, and increase efficiency; (ii) further recognizing the private sector as central to economic growth and productivity (Decree 68) and need to support its development; (iii) adopting large public infrastructure projects over the next decade. This paper discusses specific reforms to overcome the challenges to help achieve the authorities' broader goals.

4. This paper analyzes structural inefficiencies that limit productivity growth and presents reform options and their estimated growth dividend over the medium term. Closing structural gaps through a comprehensive set of structural reforms and investment in infrastructure could enable firms to better use resources and expand, with large productivity and growth gains:

- *Labor productivity and labor market policies:* Key barriers to higher labor productivity in Vietnam include skill mismatches and shortage of vocational skills. *Section B* zooms in on skill mismatches and presents labor market policy options based on international experience.
- *Total factor productivity (TFP) and resource misallocation:* TFP among Vietnamese firms has been on a declining trend since 2015. Distortions in capital and credit markets can prevent firms from reaching the frontier of efficient resource allocation. *Section C* uses firm-level data to (i) uncover TFP differences across firms and sectors, and (ii) analyze potential distortions that lead to resource misallocation and estimate potential TFP gains from removing such distortions.
- *Growth dividends from boosting public investment and implementing complementary reforms: Section D* quantifies the potential effects of scaling-up of public investment and the comprehensive reform package on medium-term growth and public debt.
- *Potential long-term growth gains from harnessing AI:* Adopting AI could yield substantial growth gains in the longer term but the payoffs would depend on meeting structural prerequisites. *Section E* examines the macroeconomic implications of AI adoption for Vietnam by simulating its potential adoption path, highlighting the importance of enhancing AI preparedness through structural reforms.

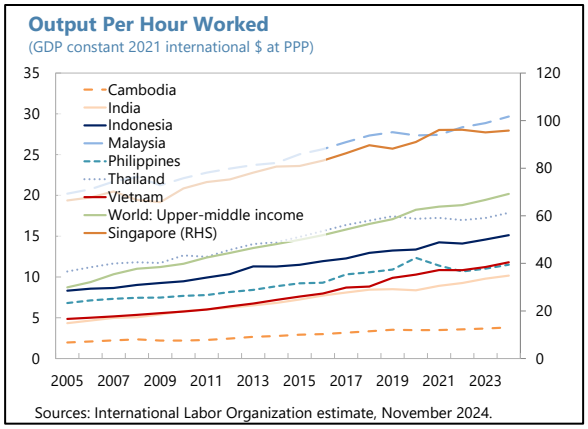
B. Labor Productivity and Labor Market Policies[2]

Stylized Facts on Labor Productivity

5. Labor productivity has grown fast over the past decade, but Vietnam is still converging only gradually to regional peers amid demographic headwinds. Vietnam long

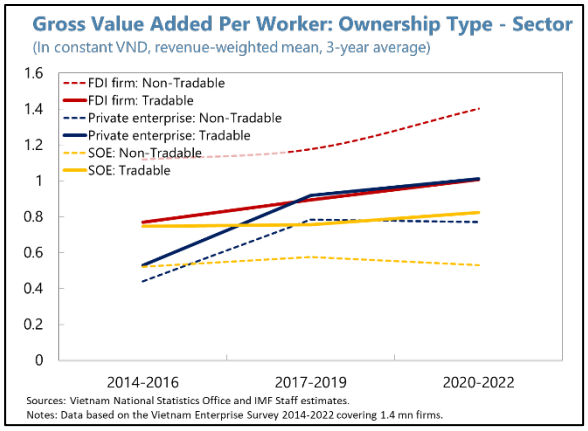
[2] Prepared by Anna Belianska (SPR), Elmer Li and Marina Tavares (RES), Tatjana Schulze (APD), Nguyen Viet Phong and Nguyen Thi Hau (both Vietnam NSO). The authors thank NSO for their generous support in running the analysis on the population survey data. This work also greatly benefited from guidance by Aleksandra Zdzienicka (SPR) and consultations with Andrea Coppola, Harry Moroz, Abla Safir, Nga Thi Nguyen, and Nguyet Thi Anh Tran (all World Bank Group), Vinh Quang Ngo (Asian Development Bank), Giang Thanh Long (Professor at National Economics University, Hanoi), Felix Weidenkaff and Thi Le Van (all ILO). The views expressed are those of the authors.

benefitted from its young and dynamic workforce and low labor costs among peers. But population aging will soon turn the tide. Brain drain and regional competition pose additional challenges, rendering it crucial to invest in the domestic workforce and boost labor productivity that is lagging behind peers. Inefficiencies including skill mismatches, high labor market churning, lack of vocational skills, and high informality limit labor productivity (IMF, 2022a and 2023).



6. To study the barriers to labor productivity growth, we use the labor and firm survey data to provide granular diagnostics on skills and qualification mismatch. The nationwide Labor Force Survey (LFS) 2018-2022 and Vietnam Enterprise Survey (VES) 2014-2022 of the National Statistics Office (NSO) are used to analyze labor productivity across firms and provide evidence of skill and qualification mismatches across occupations, sectors, and geography, including uncovering opportunities and vulnerabilities through AI.

7. Labor productivity has been heterogenous across industries and sectors. Labor productivity, measured by gross real value added per worker at the firm-level in the VES, saw faster growth among firms in the FDI and private sector during 2014-2022. FDI firms, particularly in the less capital-intensive non-tradable sector,[3] led private firms and SOEs on the labor productivity frontier. Structurally, labor productivity was highest in the labor-intensive services sector (Annex Figure 1). Labor productivity fluctuated with the Covid-19 pandemic amid curbs to production and employment, and dipped in the manufacturing sector in 2022. However, these aggregate trends do not control for specific sector characteristics, firm size, and other factors that could influence labor productivity.



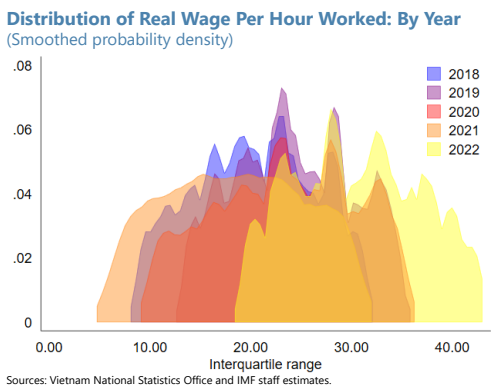
8. Labor productivity growth has been mirrored by a rising real wage per hour worked, offering increasing returns to labor (Figure 1). Since 2018, the real renumeration of labor has risen, with a notable shift in the distribution in 2022. This suggests that workers have been remunerated on average for their higher productivity. At the same time, higher real wages may have also incentivized workers to work more productively.[4] While FDI firms with the highest labor

[3] The tradable sector covers industries that export goods and services, while the non-tradable sector comprises those for domestic consumption (e.g., financial services, retail).

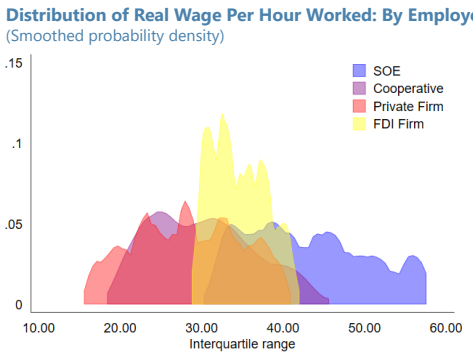
[4] In equilibrium, when firms rent capital and hire labor for production, the wage they are willing to pay equals the marginal product of labor absent any labor markets distortions. In other words, workers should be remunerated for higher labor productivity with higher wages to incentivize them to maximize output with the given technology.

productivity levels tended to offer among the best-paying jobs, SOEs with somewhat lower labor productivity paid the highest real wage per hour in 2022. By qualification, university-educated workers earned an hourly wage 70 percent higher than that of high school graduates, while high school graduates earned only 18 percent more than workers that did not complete primary school.

Figure 1. Real Wage Per Hour Over Time And Across Types of Employer



Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Data from the Vietnam Labor Force Survey 2028-2022 covering 1.5 mn individuals. The x-axis shows the real wage per hour received at an individual's primary job.



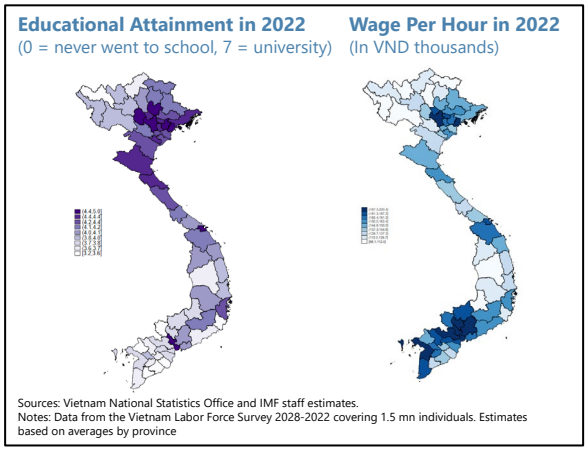
Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Data from the Vietnam Labor Force Survey 2028-2022 covering 1.5 mn individuals. The x-axis shows the real wage per hour received at an individual's primary job.

Qualification and Skill Mismatch

9. Vietnam's labor market faces a dual problem giving rise to structural skill mismatch that hinders labor productivity growth.

- *Shortage of high-skill workers and vocational skills:* Limited data of job vacancies [5] suggests high-skill positions (college, university) are short of suitable job seekers relative to vacancies, while there is an excess of job seekers for low-skill positions (no certificate or intermediate training), implying that qualified workers are either scarce or unwilling to fill these high-skill roles.
- *Low returns to gaining high skill:* Granular analysis of LFS data (see below) yields evidence of qualification mismatch linked to the tradable sector. High-skill workers in the tradable sector are significantly more likely to be overqualified compared to the non-tradable sector, which is associated with a wage gap between sectors.

10. Regional differences suggest geographic mismatch in skills. While average educational attainment is highest in the North of Vietnam, the average wage per hour is relatively higher in the South where industrial parks and FDI firms are relatively more concentrated.

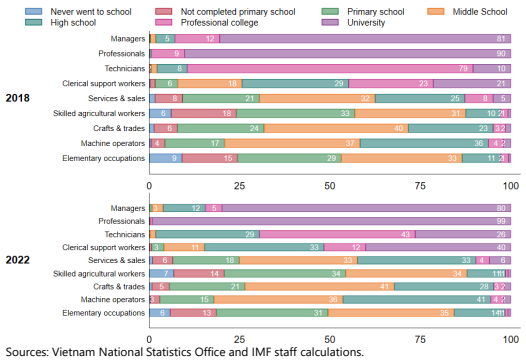


Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Data from the Vietnam Labor Force Survey 2028-2022 covering 1.5 mn individuals. Estimates based on averages by province

[5] The Ministry of Home Affairs (MOHA) produces aggregated data on job vacancies by qualification based on a limited sample of job vacancies from various sources, including job centers (see also MOHA's Labor Market Bulletin).

11. Across occupations, qualification mismatches have decreased in jobs requiring technical skills but workers are overqualified in clerical and elementary jobs. During 2018-22, qualification mismatches decreased in professional and technical skills jobs (e.g., technicians in health, information, science, technology) but increased in clerical support staff jobs (e.g. customer service agents and office support), with a greater share of overqualified workers with a university degree. Moreover, mismatches increased in the simplest elementary occupations (e.g., cleaners, workers in agriculture, mining, and manufacturing), with relatively more overqualified workers with a high school degree.

Educational Qualification By Occupation in 2018 vs. 2022
(In percent)



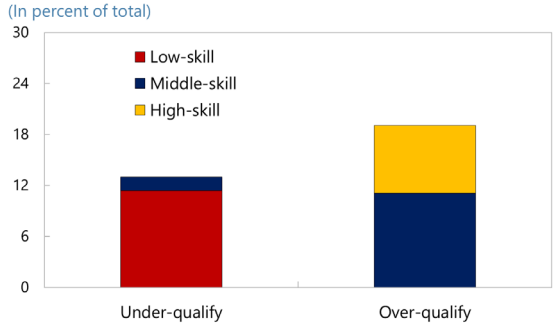
Sources: Vietnam National Statistics Office and IMF staff calculations.
Notes: Data based on the Vietnam Labor Force Survey in 2022 covering 1.5 mn individuals.

Level	Occupation	Education
High	Managers	Professional college
	Professionals	University
	Technicians and associate prof.	
Middle	Clerical support workers	Middle School
	Services and sales workers	High school
	Craft and related trades workers	
	Plant & machine operators, assemblers	
Low	Elementary occupations	Never went to school
	Skilled agri/forestry/ fishery workers	Not completed primary
		Primary school

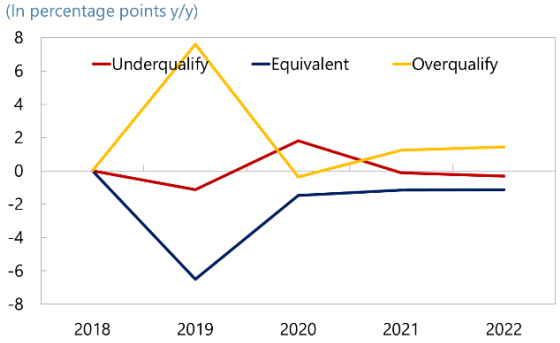
12. To formally measure the presence of skill mismatch in Vietnam, this study uses a vertical mismatch framework to classify workers as under-, over-, or adequately qualified relative to their jobs. Skill match types are categorized based on the alignment between educational attainment and typical occupational requirements (Estevao and Tsounta, 2011). A worker is overqualified when their skill level exceeds that required by their occupation; underqualified when their skill level falls below the occupation's requirement; and equivalently qualified when the worker's skill level matches the skill level of the occupation. However, this qualification-based classification does not account for mismatch in effective skills, i.e. skills acquired relative to skills demanded by employers.

13. Direct evidence of skill mismatch indicates growing overqualification (Figure 2). A significant share of Vietnam's workforce is overqualified for the jobs they occupy. In 2022, 18 percent of workers were in jobs below their qualification levels, with both high- and middle-skill workers contributing to this mismatch. Conversely, only 12 percent were underqualified, and this group was mainly composed of low-skill workers. Within education groups, overqualification was prevalent: 26 percent of high-skill and 24 percent of middle-skill workers were in positions below their training (Annex Figure 1). Over time, the share of overqualified workers has risen, while underqualification has remained limited. This highlights the substantial potential for targeted policies to enhance job matching and quality of training (see below).

Figure 2. Measure of the Degree of Skill Mismatch



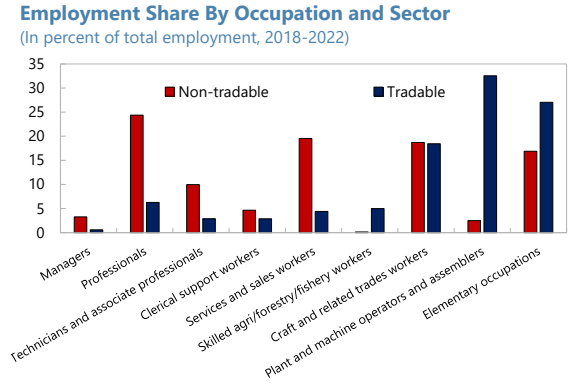
Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Labor Force Survey 2018-2022 covering 1.5 mn individuals.



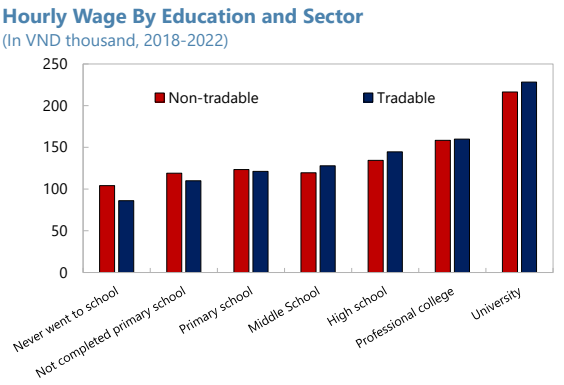
Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Labor Force Survey 2018-2022 covering 1.5 mn individuals.

14. There are skill and wage differences between the tradable and non-tradable sectors in Vietnam's export-led economy (Figure 3). Tradable sectors comprise mainly of low-skill occupations but offer higher wages to skilled workers. In contrast, non-tradable sectors have a larger share of high-skilled occupations but offer lower wages to skilled workers. This is consistent with international evidence of a greater skill premium in tradable relative to non-tradable sectors, the more open an economy is to trade (Burstein and Vogel, 2017).

Figure 3. Labor Market Trends by Education and Sector in Vietnam



Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Labor Force Survey 2018-2022 covering 1.5 mn individuals.



Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Labor Force Survey 2018-2022 covering 1.5 mn individuals.

15. A linear probability model is estimated to study the likelihood of over-qualification across different worker skill groups and sectors. The dependent variable ($Overqualify_{ipt}$) is a binary indicator equal to one if a worker i is over-qualified for their occupation p. The main independent variables include indicators for high-skill and middle-skill workers ($Skill^s_{ipt}$), for employment in the tradable sector ($Tradable_{ipt}$), and their respective interaction terms to capture heterogeneity in mismatch patterns across sectors. Control variables (X_{ipt}) include age, age squared, a female dummy, and province and year fixed effects (for geographic and temporal heterogeneity).

$$Overqualify_{ipvt} = \beta_0 + \sum \beta_1^s Skill^s_{ipvt} + \beta_2 Tradable_{ipvt} + \sum \beta_3^s \left(Skill^s_{ipvt} \times \beta_2 Tradable_{ipvt}\right) + \gamma X_{ipvt} + \delta_p + \delta_t + \epsilon_i$$

16. High-skilled workers in tradable sectors are significantly more likely to experience over-qualification, controlling for worker characteristics (Table 1). High-skilled workers are 21 percentage points (ppts) more likely to be overqualified relative to low-skilled workers, and this likelihood increases by an additional 27 ppts when they are employed in tradable sectors (column (2)). This strong interaction effect suggests that high-skilled individuals face substantially greater mismatch in tradable sectors. Results for middle-skilled workers in tradable sectors are not statistically significant. These findings imply that tradable sectors are less likely to provide sufficient high-skill employment opportunities that match workers' qualifications, especially for high-skill workers.

17. There is a return to higher education in the labor market, but it is closely linked to the degree of skill mismatch (Annex Table 2). Wage returns increase steadily with education: individuals with university degrees earn 43 percent more than those in the baseline group, even after controlling for demographics and fixed effects in wage regressions (column (1)). However, when mismatch variables—capturing both overqualification and underqualification—are included, the returns decline across all education levels (column (2)). For example, the return to a university degree drops to 23 percent. Much of the higher return to university degrees appears to stem from working in positions for which these individuals are overqualified and as discussed below, is related to working in tradable sectors. Being overqualified is associated with a wage premium of 8.8 percent, suggesting that workers with excess skills can still earn more, likely due to their higher productivity. In contrast, underqualification leads to a wage penalty of 16.6 percent.[6]

18. High- and mid-skill workers earn higher returns in tradable sectors, which may contribute to observed patterns of mismatch and overqualification (Annex Table 2). High- and middle-skilled workers benefit significantly more when working in tradable sectors, as shown by the positive interaction terms (columns (3)-(4)). However, high-skilled workers are also more likely to be overqualified in these sectors. This suggests that trade-driven sectoral growth plays a key role in shaping labor market outcomes, contributing to potential mismatch in those sectors and limiting the effective use of available human capital. This could also imply that the productivity in the non-tradable sectors is low affecting workers' returns in these sectors and making the tradable sector a more attractive sector to work in even at the risk of being overqualified.

[6] Annex Table 2 confirms the robustness of classifying professional college as a middle-skill category.

Table 1. Vietnam: Over-Qualification Mismatch Analysis

Dependent	Over-qualify	
	(1)	(2)
High worker skill	0.044***	0.213***
	[0.012]	[0.015]
Middle worker skill		0.241***
		[0.010]
Tradable sector	0.019	0.004
	[0.012]	[0.005]
High worker skill × Tradable	0.246***	0.273***
	[0.039]	[0.044]
Middle worker skill × Tradable		0.037
		[0.024]
Age	-0.010***	-0.007***
	[0.001]	[0.001]
age square	0.000***	0.000***
	[0.000]	[0.000]
Female	-0.038***	-0.037***
	[0.005]	[0.005]
Province FE	X	X
Year FE	X	X
Observations	49,253	49,253
R-squared	0.076	0.137

Sources: Vietnam Labor Force Survey and IMF staff estimates.

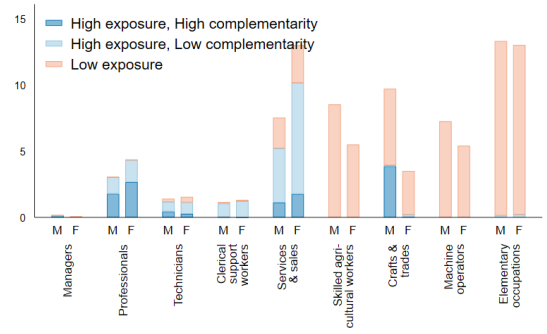
Notes: The dependent variable is a dummy indicator of the match type of a worker. Skill match types are categorized based on the alignment between educational attainment and typical occupational requirements. High-skill workers include those with professional college or university education; High-skill occupations include managers, professionals, or technicians and associate professionals. Middle-skill workers possess middle or high school education; Middle-skill occupations include clerical support, service and sales, craft, or plant and machine operation roles. Low-skill workers have primary education or below; Low-skill occupations include elementary occupations or agriculture, forestry, and fishery work. A worker is overqualified when their skill level exceeds that required by their occupation; underqualified when their skill level falls below the occupation's requirement; and equivalently qualified when the worker's skill level matches the skill level of the occupation.

Opportunities and Risks from AI

19. Leveraging AI in occupations with a high complementarity such as professional occupations could support labor productivity and yield efficiency gains (Figure 4). AI has the potential to significantly boost productivity by augmenting human tasks through AI applications. The IMF (2024b)'s AI occupational exposure index, mapped to the 424 unique occupations in the LFS data, allows to classify the degree of overlap between AI applications and required human abilities in each occupation to identify the share of workers in occupations that could significantly benefit from AI through complementarities in tasks performed. Accordingly, occupations with the highest AI complementarity in Vietnam are concentrated in professional jobs as well as crafts and trade. But successfully adopting AI (see Section E) in such jobs still requires addressing skills barriers as even English language proficiency can pose significant challenges in Vietnam.

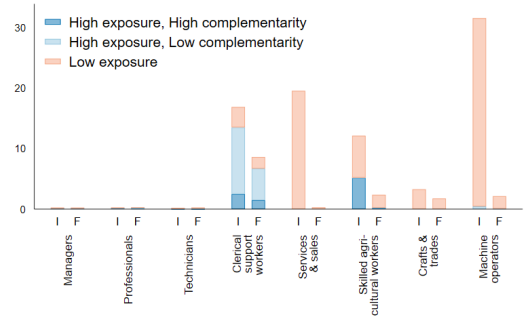
Figure 4. Risk to Displacement Through AI for Women and Informal Workers

Occupational AI Exposure and Complementarity: By Gender
(In percent of employed)



Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: M = Male, F = Female. Data from the Vietnam Labor Force Survey 2022 covering 1.5 mn individuals.

Occupational AI Exposure and Complementarity: By Formality
(In percent of employed)



Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: I = Informal, F = Formal. Data from the Vietnam Labor Force Survey 2022 covering 1.5 mn individuals.

20. But some occupations are more at risk to displacement from AI, calling for policies to upskill and reskill and strengthen social safety nets. Occupations where jobs are most at risk from becoming obsolete because tasks can be performed by AI without human capabilities include services and sales jobs and clerical support workers with low AI complementarity. In such jobs, informal and female workers in Vietnam are relatively more exposed due to their stronger representation in such occupations. AI adoption could therefore pose risks to informal employment serving as a shadow social safety net, which many workers fall back on to supplement livelihoods, thus calling for targeted policies that encourage formalization and skill development (see below) and strengthen social safety nets.

International Experience to Boost Labor Productivity

21. International experience suggests that enhancing labor productivity and addressing skill mismatches requires a comprehensive and well-sequenced strategy. To advance in the GVC, Vietnam must transition from labor-intensive assembly to higher value-added, skill- and technology-driven activities by creating a high-skilled workforce. International lessons (Table 2) highlight the benefits of a policy package focusing on (i) first closing data gaps for skill diagnostics; then progressively (ii) investing in transferable skills and on-the-job training (e.g., IMF, 2022b; Granata *et al.*, 2023; Coppola *et al.*, 2024), (iii) fostering lifelong learning amid population aging, (iv) enhancing collaboration between industry and education providers, and (v) over time, improving the quality and market value of tertiary education.[7]

22. Enhancing labor market data is critical to guide effective skills policies. Regular surveys and big data analytics can improve labor market diagnostics, including in addressing skill mismatches and aligning training programs with labor market needs (ADB, 2021; Granata *et al.*, 2023). Making this data accessible to all shareholders and establishing formal communication channels between them facilitates informed decision-making and efficient resource allocation

[7] Many of these measures have been considered or are being implemented by the authorities, often with the support of developments partners.

(Honorati *et al*., 2024). A forward-looking, data-informed strategy will help Vietnam set targeted skill goals based on successful comparators (e.g., Malaysia, Singapore, South Korea).

23. Career guidance and job-matching services help navigate dynamic labor markets and ease workforce transitions. Programs like South Korea's University Job Plus Center offer valuable career support for students and workers, informing their decisions based on reliable labor market data and personal aptitude assessments. Developing a national skills database (see e.g. Malaysia[8]) can support learners and training institutions with data on skill requirements, funding opportunities, and approved training providers, facilitating more strategic investments in up- and reskilling.

24. Focusing on semiconductors and science-technology-innovation (STI) can enhance transferable skills. Accelerating the development of a semiconductor-ready workforce, chip engineers, and related specialists—with measures underway—can strengthen high-tech and STI and upgrade the overall quality of tertiary education and workforce skills. Integrating transferable skills into STI training will improve workforce adaptability to global developments (Coppola *et al*., 2024).

25. Partnerships between industry and education providers are vital for aligning training with market needs. Tailored training (e.g., South Korea's Job Training Program) can enhance the relevance and effectiveness of education (ADB, 2021). Encouraging firms' participation in public curriculum design and apprenticeships can enhance workforce readiness, drawing on models like Germany's dual vocational training system. Such partnerships can also facilitate a sustainable shared public-private training funding model (e.g. Malaysia's Human Resources Development Fund).

26. Active labor market policies (ALMPs) can incentivize firms to upskill and reskill workers, as well as address labor informality. ALMPs, such as training-related tax incentives, co-financing schemes, and vocational training compensation, can encourage firms to invest in local skill development and facilitate the transition from informal into formal jobs. Tailored vocational training programs can help certify the skills of informal workers, making them more employable in formal firms. Integrating skill training into the social protection system can incentivize vulnerable groups to participate in the formal system (ILO, 2023). Training and hiring local employees can also be part of FDI policies, which would deepen FDI firms' domestic integration (Coppola *et al*., 2024).[9]

27. Lifelong learning accounts can help address population aging. Establishing a culture of continuous skill development is critical to retaining older workers amid demographic shifts. Individual learning accounts (e.g., France, Singapore, and South Korea) can empower workers to choose training based on market needs, support continuous skill development, and contribute to

[8] Upskill Malaysia is a national platform with information on training and skill development programs, as well as on funding for training providers who can submit proposals aligned with upskilling initiatives assisted by ministries.

[9] In South Korea, FDI firms can receive employment and training subsidies depending on investment in high-tech sectors and skills training. The Employment Insurance Training Subsidy provides financial assistance to employers who offer paid education and training leave. In Singapore, the Skills Development Fund supports employer-sponsored training programs and SkillsFuture Career Transition Program provides re-skilling for mid-career workers.

cost-sharing between the government and employers. Subsidies for training courses can be supported by government grants to firms and directly to individuals (e.g., Singapore, Indonesia).[10]

28. Further improving the quality and market value of tertiary education and vocational training can reduce skill mismatches (ADB, 2020; Coppola *et al.*, 2024). The current vocational education and training (TVET) system offers low returns partially due to skill mismatches. Low salaries in public education result in difficulty attracting qualified faculty, particularly in science and technology fields. Aligning TVET programs closely with industry demand, alongside improving educator compensation to attract and retain high-quality instructors, can enhance program quality.[11]

29. A more balanced funding model could make tertiary education more affordable and aligned with market needs (World Bank, 2020). Vietnam's high reliance on tuition fees discourages participation in tertiary education, especially as there is high demand for middle-skilled jobs (World Bank, 2014). Exploring cost-sharing public mechanisms with the private sector and increasing public funding, along with targeted scholarships, could alleviate financial burdens on students and improve accessibility (e.g., South Korea, Germany, Singapore, Taiwan Province of China, Japan[12]).

30. Improving digital skills and English proficiency are critical for Vietnam's structural transition. Expanding training in AI, automation, and technologies, through partnerships with e-learning platforms (e.g., Malaysia and Indonesia[13]) can enhance employability and productivity. Improving English language instruction from early education (e.g., Taiwan Province of China) can enhance employability of the local workforce in FDI firms. Leveraging digital platforms—both for skill delivery and job matching—can further increase the reach and accessibility of training for informal workers.

31. Strengthening infrastructure and domestic supply chains will help address regional gaps in labor productivity and job opportunities. Skilled jobs are concentrated in urban areas and industrial zones where high costs and competition deter talent retention. Accelerating investments in infrastructure and incentives to encourage businesses in underdeveloped areas can encourage high-tech manufacturing outside of major urban hubs, strengthen local supply chains,

[10] See, e.g., Indonesia's Kartu prakerja program and Singapore's SkillsFuture Initiative and Workfare Skills Support. The SkillsFuture Enterprise Credit Program incentivizes firms to co-invest in employee training linked to tertiary education outcomes by helping cover the cost of upskilling.

[11] For example, South Korea's Vocational Training System includes partnerships between educational institutions and industries. Other examples include Germany's dual vocational training system and Singapore's SkillsFuture Initiative.

[12] In South Korea and Singapore, the tertiary education funding model combines government funding, student tuition, and private sector partnerships that co-fund research, internships, and skill-focused training programs. Germany's dual system features high public funding with minimal tuition fees, complemented by extensive private sector involvement through apprenticeships and co-funded vocational training programs. In Japan and Taiwan Province of China, public universities receive substantial government funding and both public and private institutions charge tuition.

[13] Malaysia's Digital Economy Corporation and Indonesia's Digital Talent Scholarship (DTS) provide skill development in AI, digitalization, green economy and ICT fields, in collaboration with technology companies and universities.

support the local economy, and create a level playing field between FDI and domestic firms in attracting talent. Greater access of domestic firms to skilled labor, especially in underdeveloped areas, could support innovation, human capital formation, and enable domestic firms to move up the value chain. Nonetheless, tools to reduce local disparities need to be used with caution to avoid market distortions (World Bank, 2020b; IMF, 2024c).

Table 2. Vietnam: Policy Measures to Up- and Re-skill Workforce

Policy Measure	Description	Country Example(s)
Enhance labor market data and transparency	Continuous data collection (surveys, big data) and public access to labor market data to identify skills gaps and inform policy.	Malaysia (Upskill Malaysia national platform)
Career guidance and job placement support	University-based centers and career services to support student employability.	South Korea (University Job Plus Center)
National platforms for training and funding transparency	Centralized databases listing skills, training programs, funding opportunities, and providers.	Malaysia (Upskill Malaysia)
Improve coordination among stakeholders	Establish communication channels between government, education, and industry to align training with market needs.	South Korea
Conduct diagnostics of skills and labor market needs	Analyze skill mismatches and define future skill goals, informed by successful comparator countries.	OECD countries; ILO/WB-supported assessments
Develop an upskilling strategy aligned with long-term challenges	Design national upskilling frameworks considering aging, green transition; focus on transferable and sector-specific skills.	Singapore (SkillsFuture Initiative)
Foster lifelong learning through industry-education collaboration	Joint curriculum design, internships, and training delivery with industry; embed lifelong learning into education systems.	South Korea (Job Training Program)
Establish public-private training partnerships	Engage firms in co-design and co-financing of training programs; encourage foreign firms to upskill the local workforce.	Germany (Dual Training System); South Korea
Active Labor Market Policies (ALMPs)	Use tax breaks, subsidies, and contracts to incentivize upskilling by firms.	Singapore (SkillsFuture Initiative), Germany, Malaysia (Human Resources Development Fund)
Joint training funding	Share funding between government and employers using levies, grants.	Malaysia (Human Resources Development Fund); South Korea
Individual learning accounts	Grant-based individual learning accounts that allow workers to self-direct training based on labor market demand.	France, Singapore, South Korea
Targeted training subsidies for inclusion	Provide training support to low-income, women, and disabled workers.	Indonesia (Kartu Prakerja); Singapore (Workfare Skills Support)
Promote vocational training with strong industry links	Dual vocational systems combining classroom and company-based training.	Germany
Advance digital skills and green economy training	Partner with e-learning platforms for training in AI, digital transformation, and green technologies.	Malaysia (Digital Economy Corporation partnership with Coursera); Indonesia (Digital Talent Scholarship)
Improve English language proficiency	Early English education and recruitment of bilingual teachers through online platforms.	Taiwan Province of China

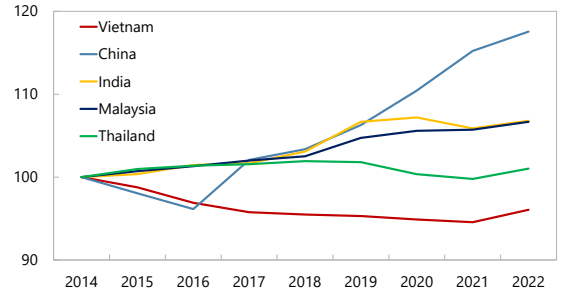
C. Total Factor Productivity and Resource and Credit Misallocation [14]

[14] Prepared by Fei Han, Ryoichi Okuma, Tatjana Schulze, Weining Xin (all APD), Nguyen Viet Phong and Nguyen Thi Hau (both Vietnam NSO). The authors thank NSO for their generous support in running the analysis on the population VES data.

Recent Trends in TFP Growth

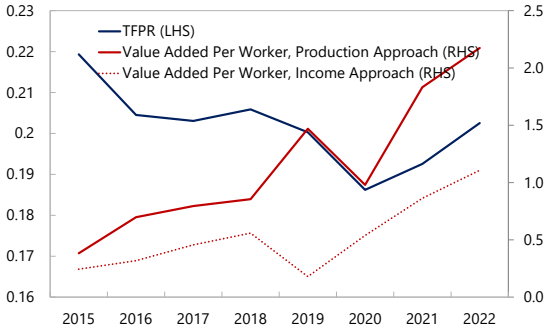
32. TFP has been on a downward trend since 2015 and lagging peers even as labor productivity has been increasing. In contrast to top-down growth accounting methods to estimate aggregate TFP, this paper uses a bottom-up approach by estimating revenue-based total factor productivity (TFPR) at the firm level following Ackerberg, Caves & Frazer (2015) and Diez *et al.* (2021), leveraging two firm-level data sources, i.e., the VES data and the (cross-country) Orbis data. The VES data contains the near universe of 1.4 million Vietnamese firms, while the Orbis data contains a smaller sample of 220,000 firms for Vietnam but allows for cross-country comparison. Estimation results based on the two data sources indicate that (i) aggregate TFPR declined during 2015-22, despite increased labor productivity [15] over the same period, and (ii) TFPR growth generally remained sluggish relative to regional peers. This suggests that capital intensity alone (that helped labor to become more productive) is not sufficient to boost TFP as other inefficiencies in firms' production process (e.g., allocative efficiency, credit market distortions, bureaucratic bottlenecks, administrative processes) can also impact TFP. It also implies that labor productivity, that benefited from the investments in capital, could be even higher if these inefficiencies were overcome.

TFP: Vietnam and neighbor countries in the region
(In logarithm; median across all firms; 2014=100)



Sources: Orbis; Diez *et al.* (2021); and IMF staff calculations.
Note: The firm samples in Orbis cover about 220,000 firms, 10,000 firms, 44,000 firms, 27,000 firms, 310,000 firms for Vietnam, China, India, Malaysia, and Thailand, respecitvely. The size of the firm sample for Vietnam is only a subset of firms in the VES database.

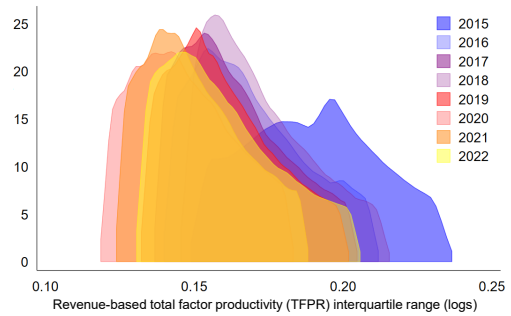
Total Factor Productivity and Labor Productivity
(In log scale, revenue-weighted mean, deflated by sectoral GDP deflator)



Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Estimates based on the Vietnam Enterprise Survey from 2014-2022 covering 1.6 mn firms.

33. Many firms are concentrated at the low end of productivity. The smoothed probability density shows how the mass of firms falls on the spectrum of estimated TFPR values, not controlling for other firm characteristics. The TFPR distribution shifted left from 2017, bottoming out in 2020, and has increased since. Overall, the distribution has not recovered to its 2016-2017 levels. There is a thick left tail of less productive firms (see the left cut-off of the interquartile range). The right tail of more productive firms has flattened out in 2022 relative to previous years.

Distribution of Firms' Total Factor Productivity Over Time
(Smoothed probability density)

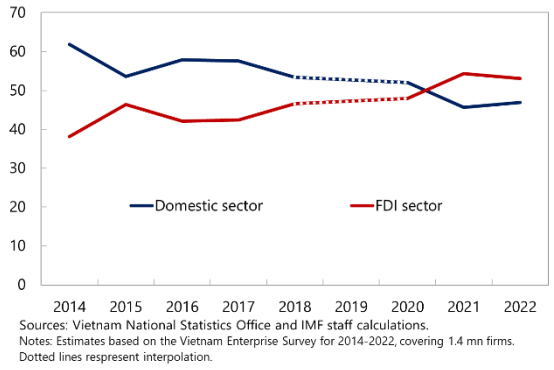


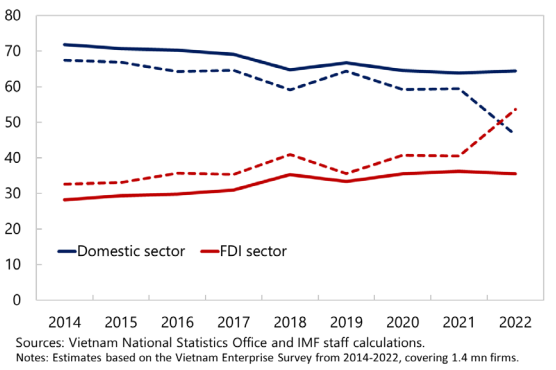
Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Estimates based on the Vietnam Enterprise Survey from 2014-2022 covering 1.4 mn firms.

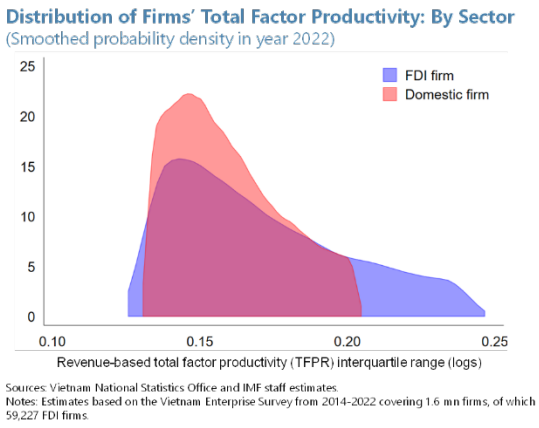
[15] Labor productivity is measured at the firm-level as gross real value added per worker (see Section B).

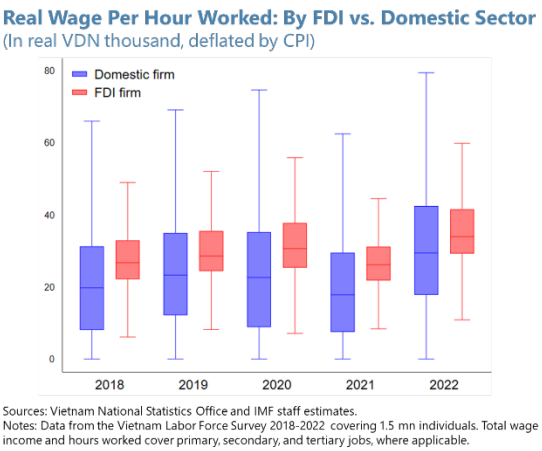
34. Vietnam's FDI sector has captured an increasingly dominant share of economic activity. Aggregate sectoral shares based on the near universe of firms in Vietnam suggest that the FDI sector steadily increased its contribution to economic activity in Vietnam, measured by real value added by firms, over the years and more recently surpassed the domestic sector in its contribution to economic activity of Vietnamese enterprises (Figure 1). This is also reflected in the FDI sector's large share in employment, climbing to almost 40 percent in 2022, and its share in labor income (measured by firms' wage bill) surpassing 50 percent in 2022. Moreover, FDI firms account for over 70 percent in exports.

Figure 5. Firms' Contribution to Economic Activity, TFPR, and Real Wage Per Hour







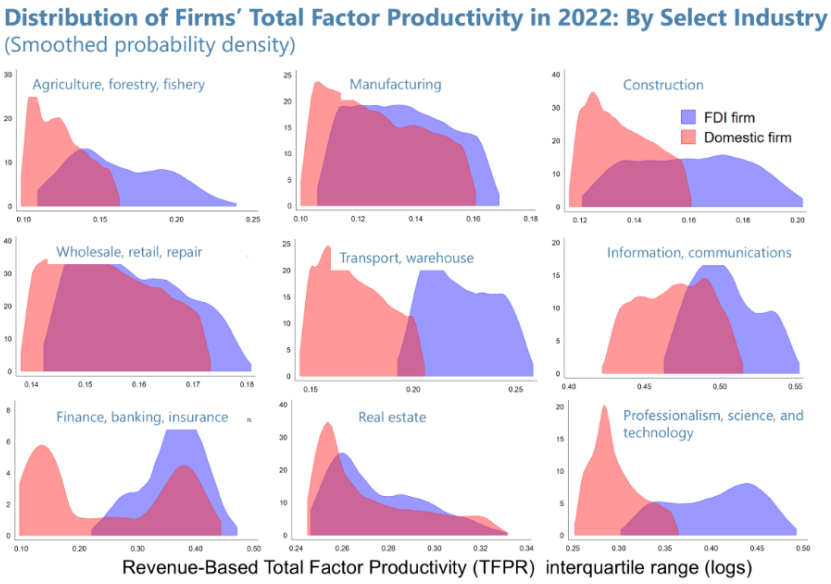


35. FDI firms tend to be more productive than domestic firms on average. Within the unconditional distribution of TFPR in 2022, the mass of domestic firms centered on lower productivity levels, while there was a larger right tail of highly productive FDI firms. Not only were some FDI firms more productive than their domestic peers, they also paid higher real wages for every hour worked, on average. The higher renumeration for labor may enable FDI firms to attract more talent or more productive workers, which may help boost their labor productivity and overall TFP, partly also by incentivizing workers with higher pay to work more productively.

36. FDI firms are also predominantly more productive than domestic firms across most sectors (Figure 6). Zooming into 9 out of 21 of Vietnam's economic sectors with the greater contribution to GDP, the mass of FDI firms in 2022 appears to be relatively more productive in particular in the transport and warehouse, construction, and science and technology sectors. Conversely, productivity levels are more en par in the manufacturing sector where FDI firms are relatively more represented relative to other sectors.

37. Spillovers from highly productive FDI firms to domestic firms remain limited. Relatively higher productivity in the FDI sector has not translated into catch-up productivity growth and higher value-added activities in the domestic sector, leading to gaps in technology adoption, innovation, and business dynamism, as well as skill polarization across sectors and a dual economy. Overcoming this dualism by creating a level-playing field and encouraging local supply chain linkages (e.g., partnerships, training programs, R&D initiatives) between FDI and domestic firms could help harness Vietnam's human capital to its full potential (Javorcik and Spatareanu, 2005). Limited access to credit and relatively higher borrowing costs is one potential obstacle that hinders domestic small and medium-sized enterprises (SMEs) from investing in technology and scaling up—as discussed below.

Figure 6. Distribution of Firms' TFP in 2022: By Select Industry



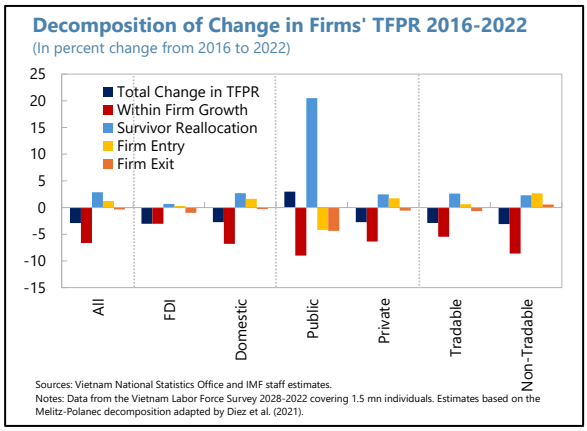
Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Estimates based on the Vietnam Enterprise Survey from 2014-2022 covering 1.4 mn firms, of which 59,227 FDI firms in the interquartile range. TFPR estimation follows Ackerberg, Caves & Frazer (2015).

38. Changes in firms' market structure—both within and between firms—can explain changes in aggregate TFPR. Using the dynamic Olley-Pakes decomposition proposed by Melitz and Polanec (2015), aggregate log TFP (z_t) is decomposed into four components to better understand the drivers of the decline in aggregate TFP, where ω_t denotes a firm's market share:

$$z_t - z_{t-1} = \underbrace{\sum_{f \in I} \omega^I_{f,t-1} \cdot \Delta z_{f,t}}_{\text{Technology}} + \underbrace{\sum_{f \in I} \Delta\omega^I_{f,t} \cdot z_{f,t}}_{\text{Reallocation}} + \underbrace{\omega_{N,t}\left(\bar{z}_{N,t} - \bar{z}_{I,t}\right)}_{\text{Entry}} - \underbrace{\omega_{E,t-1}\left(\bar{z}_{E,t-1} - \bar{z}_{I,t-1}\right)}_{\text{Exit}}$$

- **Technology:** Aggregate TFP rises (declines) due to an improvement (worsening) in incumbent (I) firms' ability to efficiently combine inputs in the production process thanks to their technology.
- **Reallocation:** Aggregate TFP rises (declines) because incumbent (I) high (low) TFP firms got bigger and gained greater market share in the total production of national output, i.e. they account for a larger share in aggregate TFP.
- **Entry:** Aggregate TFP rises (declines) because new (N) entrants are more (less) productive compared to incumbents.
- **Exit:** Aggregate TFP rises (declines) because low (high) TFP firms exit (E) the market.

39. The TFPR decline was driven by a decline in firms' own technology—which fell the most among domestic firms, SOEs, and in the non-tradable sector. Overall, in the full sample of firms, the TFPR decline between 2016-2022 was mainly driven by a deterioration in incumbent firms' own technology. Splitting the full sample into groups of firms, the decline in firms' own technology was the largest among domestic firms, SOEs and among firms in the non-tradable sector. Conversely, firm entry and exit played a minor role in accounting for changes in aggregate TFPR. Moreover, some productive firms that gained greater market share (reallocation), especially among SOEs, helped partly offset the TFPR decline.



Resource and Credit Misallocation

40. While the TFP decomposition provides a good description of the firm-level data, it is silent on the "distance to frontier." The decomposition above—known as the "statistical approach" as described by Baqaee and Farhi (2020)—is a useful tool for analyzing the moments of firm-level data, such as weighted average sectoral productivity; however, it does not capture the gap between actual and potential TFP (IMF, 2024d). Take the example of a highly productive but initially small firm which gradually expanded its market share over time but its growth is constrained by financial market frictions that limited its access to capital. The decomposition above would capture a gain in TFP from reallocation; however, it would not reflect the full potential increase in TFP that could have been realized had the firm been able to access sufficient funding and scale up more rapidly.

41. To better capture the "distance to frontier", resources misallocation and its potential impact on aggregate TFP are measured in a quantitative framework. The methodology of Hsieh and Klenow (2009) and Chen and Irarrazabal (2015) identifies potential distortions in factor and output markets that would prevent the first-best allocation of resources in the economy. Misallocation can be measured by the dispersions in the marginal product of capital and labor,

assuming that in an environment without distortions and with perfectly competitive markets, firms would allocate capital and labor until their marginal products are equalized across firms. Each firm i faces two types of firm-specific distortions: the first one is an output distortion which affects capital and labor proportionately (e.g., size-dependent taxes/subsidies or transportation costs); the second one is a capital distortion which affects the capital and labor input choices (e.g., financial frictions which make borrowing more expensive for some firms). Let τ_i^Y and τ_i^K denote these two distortions, respectively. The revenue productivity (or TFPR), defined as the ratio of revenue to weighted input uses, can be shown to be proportional to the distortions:

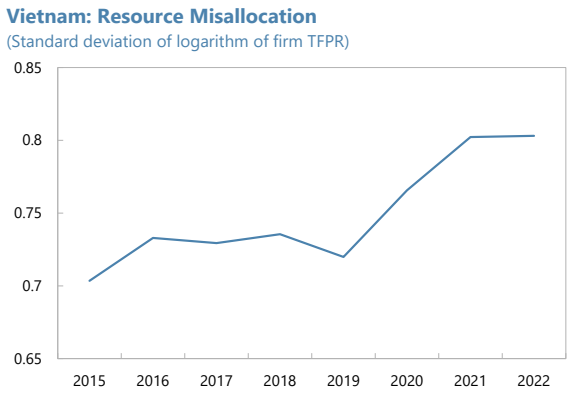
$$TFPR_i = \frac{P_i Y_i}{K_i^{\alpha} L_i^{1-\alpha}} \propto \frac{\left(1+\tau_i^K\right)^{\alpha}}{\left(1-\tau_i^Y\right)}$$

where α is the capital share. In a world without distortions ($\tau^Y = \tau^K = 0$), the revenue productivity would be equalized across all firms. The presence of distortions would create dispersion in the revenue productivity across firms. Hsieh and Klenow (2009) show that the loss of TFPR relative to the first-best scenario where there is no misallocation is given by the dispersion of firm-level TFPR (under certain assumptions):

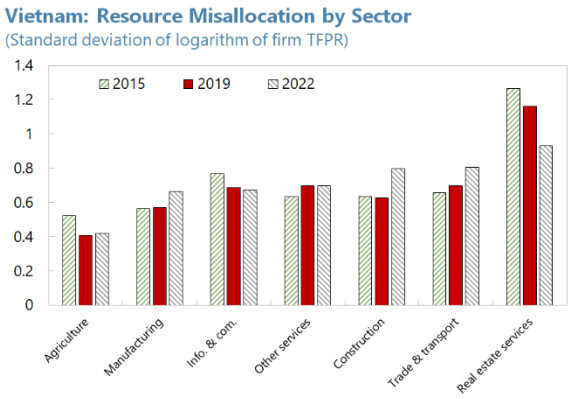
$$\log(TFPR) - \log(TFPR^e) = -\frac{\sigma}{2} var(\log(TFPR_i))$$

42. Misallocation in Vietnam is sizable and has increased over time (Figure 7). The standard deviation of the log revenue productivity (TFPR) increased from 0.7 in 2015 to 0.8 in 2022, calculated using the Orbis data, with more notable increases since COVID suggesting higher misallocations. This level of misallocation in Vietnam is slightly higher than the estimated level of misallocation in some other emerging markets in the literature—for example, about 0.7 for Colombia during 2015-19 (IMF, 2024d) and 0.63 and 0.67 for China and India in 2005, respectively (Hsieh and Klenow, 2009). For comparison, the U.S., which provides a reference for "good allocation of resources," has a standard deviation of 0.49 for the log TFPR in 2005 (Hsieh and Klenow, 2009).

Figure 7. Resource Misallocation



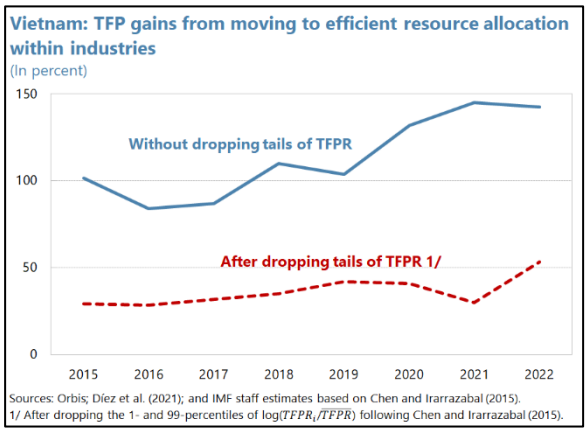
Sources: Orbis; Díez et al. (2021); and IMF staff estimates based on Chen and Irarrazabal (2015).



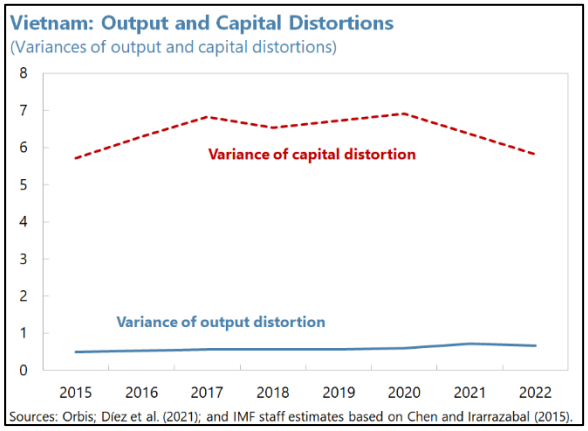
Sources: Orbis; Díez et al. (2021); and IMF staff estimates based on Chen and Irarrazabal (2015).

43. The level of misallocation differs across sectors. Resource allocation has deteriorated in most sectors in Vietnam since COVID, especially in construction, manufacturing, and trade and transportation industries. However, misallocation in manufacturing remains one of the lowest across all sectors. Meanwhile, misallocation remains high in services, especially real estate services.

44. Reducing the misallocation could help achieve larger TFP gains in Vietnam. Following Hsieh and Klenow (2009), with an elasticity of substitution between goods of σ = 3, reducing misallocation in Vietnam to the level observed in the U.S. in 2005 would increase aggregate TFP by $3/2*(0.8^2 - 0.49^2)$ = 61 percent; reducing misallocation to the level observed in China in 2005 would increase Vietnam's TFP by 37 percent. Even reducing the misallocation to its level in 2015 (0.7) could result in over 20 percent higher TFP. Notably, moving to the efficiency frontier by removing all distortions within industries could raise the aggregate TFP in Vietnam by more than 50 percent.



45. The capital distortion that affects input choices (capital vs. labor) has been the dominant distortion behind the resource misallocation in Vietnam. Recall the two sources of dispersion in productivity: the capital distortion τ^K, which affects the capital-labor input choice, and τ^Y, which represents output distortions that firms face. The variance of the capital distortion has been persistently and substantially higher than that of the output distortion, indicating a larger role of the capital distortion in resource misallocation. Understanding the TFP dispersion and misallocation requires a deeper dive into factors that distort the capital-labor choice, such as the lack of access to credit due to collateral constraints or financial market underdevelopment (see, e.g., Galindo and Meléndez Arjona, 2013). In some cases, capital misallocation is found to be related to preferential credit policies that prevent efficient allocation of credit (see, e.g., Chen and Irarrazabal, 2015).

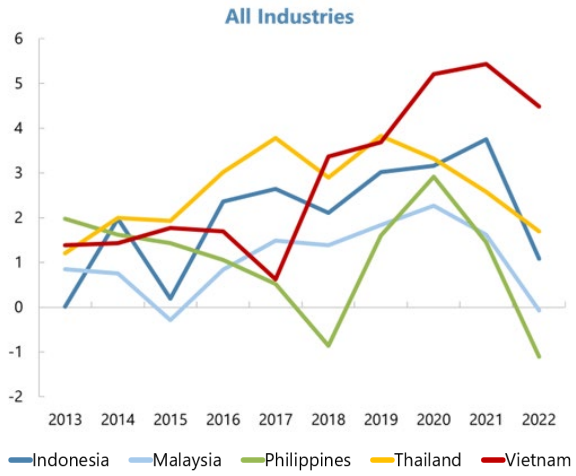


46. The resource misallocation could be driven by market frictions and distortions, including in the credit market. Limited access to credit could prevent productive firms from purchasing capital needed for production and hence constrain their ability to expand production and gain market shares. For example, Meza *et al.* (2019) found that credit misallocation (e.g., more credit flowing to less productive firms) could play an important role in the allocation of resources, and through that adversely impact aggregate productivity. Such credit misallocation can take various forms. For instance, excessive sovereign borrowing may crowd out private sector credit,

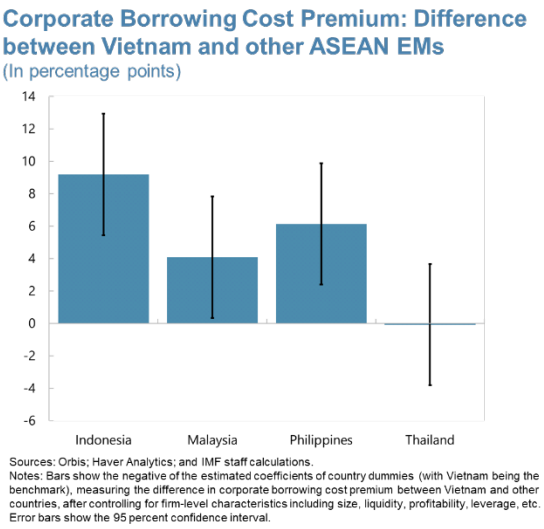
raising borrowing cost premia for the latter. Some sectors or some types of firms may also have easier access to credit than others. For example, staff's previous analysis using listed firms in Vietnam found evidence of credit misallocation between SOEs and non-SOEs (IMF, 2017).

47. Compared to regional peers, Vietnamese firms' borrowing cost premia (over sovereign borrowing cost) seem to be higher than most peer countries, suggesting somewhat larger crowding-out effects. Based on the Orbis data, the borrowing cost premium, defined as the effective borrowing costs minus the 5-year sovereign bond yield, has been higher in Vietnam than most ASEAN peers since COVID (Figure 8). This finding also holds broadly for most sectors. Even after controlling for firm-level characteristics, the firm borrowing cost premium in Vietnam is statistically significantly higher than most ASEAN peers—by as much as 9 percentage points.

Figure 8. Vietnam and ASEAN Peers: Firm Borrowing Cost Premia

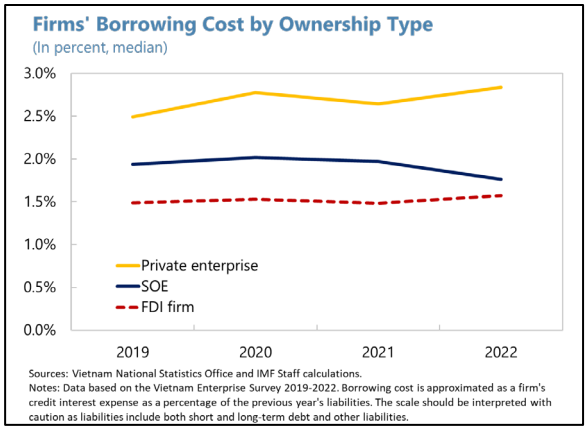


Sources: Orbis; Haver Analytics; and IMF staff calculations.



Sources: Orbis; Haver Analytics; and IMF staff calculations.
Notes: Bars show the negative of the estimated coefficients of country dummies (with Vietnam being the benchmark), measuring the difference in corporate borrowing cost premium between Vietnam and other countries, after controlling for firm-level characteristics including size, liquidity, profitability, leverage, etc. Error bars show the 95 percent confidence interval.

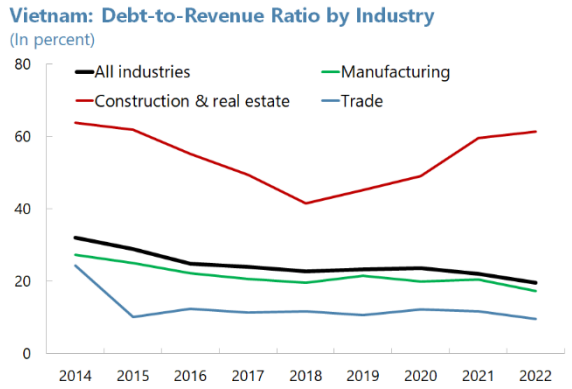
48. Among firms in Vietnam, there seems to be signs of credit misallocation between SOEs and private firms and across sectors. Using the VES data, SOEs' borrowing costs have been significantly lower than that of domestic private firms, especially in 2022—by more than 50 basis points based on the median borrowing costs of the two types of firms. The lower borrowing costs of SOEs could make the less productive ones more competitive, allowing them to gain more market shares—thereby keeping overall productivity relatively low. Le (2022) found that preferential treatment for SOEs, including preferential credit policies, was the main contributor to the capital misallocation in Vietnam. Meanwhile, FDI firms have benefitted from lower borrowing costs, likely reflecting their better access to credit, including external and parent funding from abroad. In particular, FDI firms have generally better access to



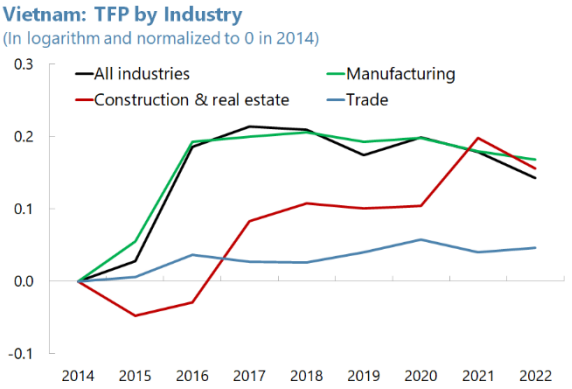
Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Enterprise Survey 2019-2022. Borrowing cost is approximated as a firm's credit interest expense as a percentage of the previous year's liabilities. The scale should be interpreted with caution as liabilities include both short and long-term debt and other liabilities.

capital thanks to current preferential policies of commercial banks and government incentives for firms in the fields of innovation and high technology. There seems to be also signs of credit misallocation across sectors. For example, sectors with lower sectoral TFP growth tend to be more leveraged (e.g., construction and real estate), which may suggest that credit might have been channeled relatively more towards the less productive sectors (Figure 9).[16]

Figure 9. Leverage and TFP by Industry



Sources: Orbis; and IMF staff calculations.

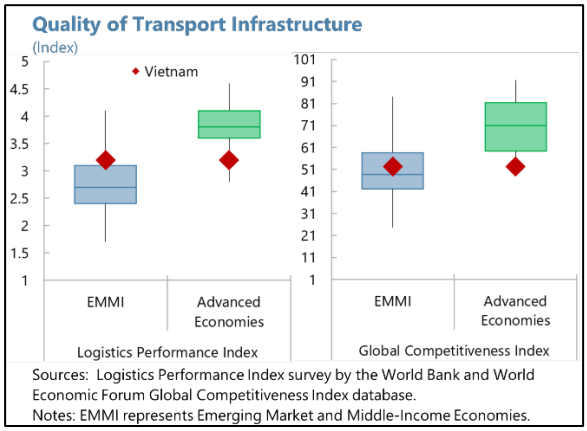


Sources: Orbis; Diez *et al.* (2021); and IMF staff calculations.

D. Leveraging Public Investment and Reforms Towards High Medium-Term Growth[17]

49. The government is planning to significantly accelerate public investment, especially on key infrastructure. Key infrastructure projects include the North-South express railway, the Lao Cai-Hanoi-Hai Phong railway connecting the northern port city to China, the Hanoi and Ho Chi Minh City metros, the Long Thanh international airport, and two nuclear power plants. These projects are estimated to require a total amount of investment of US$185 billion, about 40 percent of 2024 GDP, during 2025-35.

50. Assessing the macroeconomic implications of the large-scale acceleration in



Sources: Logistics Performance Index survey by the World Bank and World Economic Forum Global Competitiveness Index database.
Notes: EMMI represents Emerging Market and Middle-Income Economies.

Major Public Investment Projects during 2025-35

Projects	Timelines	Investment (billions of US$)
North-South express railway	2025-35	67
Lao Cai-Hanoi-Hai Phong railway	2025-30	8
Ho Chi Minh City metro (seven lines)	2025-35	40
Hanoi metro (300km)	2025-35	37
Long Thanh international airport	2025-35	11
Ninh Thuan nuclear power plants	2025-30	22

Sources: Vietnamese authorities and IMF staff estimates.

[16] Although the increased resource misallocation in Vietnam seems to be related to credit misallocation, it does not mean it is the only or most important factor. Many other industry- and firm-specific bottlenecks, e.g., taxes, adverse incentives, labor market rigidities, red tape, or policy uncertainty, may also explain the resource misallocation. Further research will be needed to study the relationship between resource/capital and credit misallocations.

[17] Prepared by Azar Sultanov and Weining Xin.

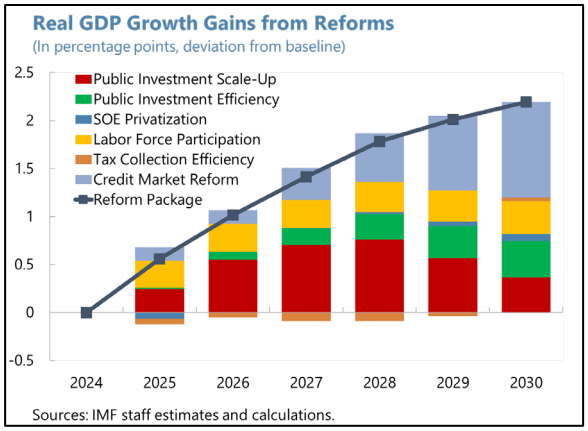
public investment is critical for effective policy planning and gauging its broader economic impact. Based on available information and staff calculation, the planned new investments could have an additional cost to the budget averaging 4 percent of GDP annually. Such efforts raise important challenges. One is to ensure the investment is of high quality and raises economic growth over the medium term. Another crucial issue is how to finance such projects without putting at risk the health of public accounts—how to ensure public debt remains manageable. The macroeconomic impacts are also manifested through various channels, including interest rates, inflation, and inequality. As such, it is critical to plan well to ensure the success of scaling-up public investment, including if supported by other reforms as discussed in previous sections.

51. To assess the macroeconomic implications of public investment scale-up, as well as other structural reforms, the Debt, Investment, Growth and Natural Resources (DIGNAR) model developed by Melina and others (2016) is deployed. The DIGNAR model—one version of the series of Debt, Investment, and Growth (DIG) models—is a dynamic general equilibrium macroeconomic model designed to simulate macroeconomic impacts of public investment scale-up and other reforms (Aligishiev *et al*., 2021; Aligishiev *et al*., 2023). The model is calibrated to capture the main features of the Vietnamese economy, including staff's baseline medium-term projections. The baseline projects an average public investment at around 8 percent of GDP during 2025-30, a cumulative of 7 percent of GDP increase from the 2022-24 average. The model simulates the first scenario in which public investment is accelerated faster than the baseline, reaching 10.6 percent of GDP in 2028 and remaining constant as a share of GDP afterwards. This implies 11.5 percent of GDP higher public investment in total during 2025-30 than the baseline. The actual effects will depend on the rate of implementation and quality of the investment projects.

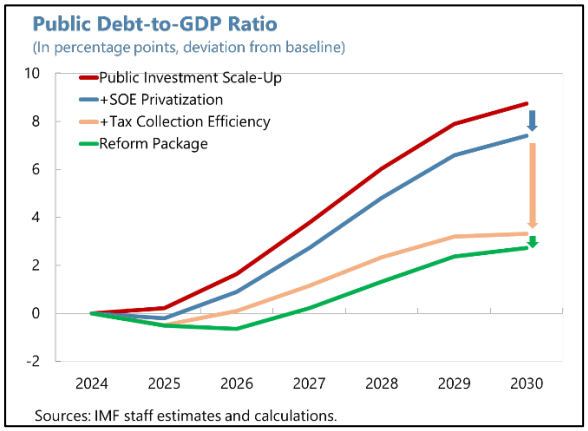
52. In addition to public investment scale-up, impacts of a comprehensive reform package are also assessed. The model simulates additional five scenarios for other structural reforms which could help close Vietnam's structural gaps and align with the government's reform agenda (Text Table 1). These include increasing public investment efficiency to reap the benefits from large infrastructure projects, accelerating SOE privatization and reducing credit market distortions to support private sector development, as well as further raising labor force participation and improving tax collection efficiency.

Text Table 1. Reforms and Scenarios

Reforms	Scenarios
Scale up public investment	Increase by 11.5 percent of GDP in total during 2025-30
Increase public investment efficiency	Increase from 69 to 84 percent (ASEAN-5 average) by 2030
Accelerate SOE privatization	Collect 0.5 percent of GDP annually
Raise labor force participation	Increase by 0.5 percent annually
Improve tax collection efficiency	Increase VAT and PIT C-efficiency to 85 percent and 5 percent (from 70 and 3.5 percent) respectively
Reduce credit market distortions	Reduce credit market distortions to increase private investment to 24 percent of GDP (75th percentile of Asian EMs' distribution)
Sources: IMF staff calculations.	



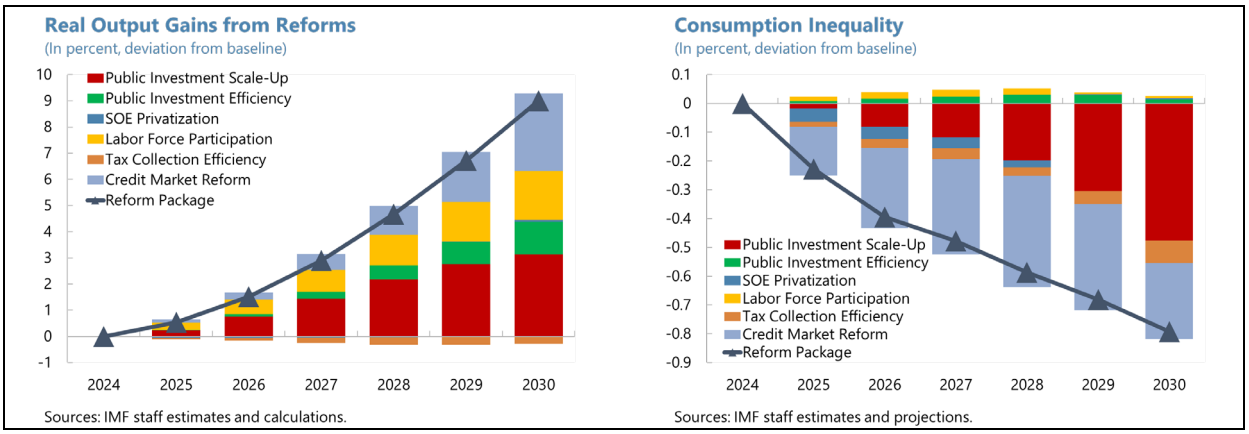
53. The comprehensive reform package boosts medium-term growth significantly. As public investment is accelerated over the next years, the impact of growth is estimated to become larger, increasing from 0.2 percentage points in 2025 to 0.8 percentage points in 2027. Enhancing public investment efficiency would amplify the growth dividend, adding additional boost to growth up to 0.4 percentage points. Increasing labor force participation would also raise growth considerably, by about 0.3 percentage points annually. Improving tax-collection efficiency has an almost negligible adverse effect on growth, while the growth dividend from accelerating SOE privatization is likewise minimal. Credit market reform to address credit distortion and increase private investment has the largest growth dividend over the medium, raising growth by as much as 1 percentage point. Implemented together, the full reform package could raise medium-term growth by more than 2 percentage points.



54. The full reform package also helps contain public debt. If the public investment scale up were financed solely through wider fiscal deficits, public debt would rise by roughly 9 percent of GDP by end-2030. The SOE and tax collection efficiency reforms help diversify the financing mix, reducing reliance on debt financing. While other reforms do not directly reduce funding needs, their growth boost also improves the public debt-to-GDP ratio. Implemented together, the full reform package would markedly strengthen debt dynamics, limiting the increase in public debt to only a modest rise.

55. While boosting output, the comprehensive reform package also reduces inequality. The combined reforms could raise the economy's real output by 9 percent by 2030, implying about 1.5 percent higher output on average annually. Moreover, these reforms could contribute to reducing consumption inequality. Two types of households captured in the model—the poorer and wealthier households—face different dynamics in response to the reforms. For instance, accelerating public investment to address infrastructure gaps would benefit the poorer households more by improving their access to essential services and economic opportunities, thereby generating a larger consumption multiplier relative to the wealthier households. Similarly, credit market reform to address credit distortions would benefit small and medium enterprises (SMEs) more, which could disproportionally benefit the poorer households. Enhancing tax collection efficiency would have a more limited impact on the poorer households than the wealthier as the latter pay higher marginal tax and thus face a relatively larger dampening effect on their consumption while the poorer would benefit from higher targeted social transfers. As a result, the comprehensive reform package could

reduce consumption inequality by about 0.8 percent over the medium term, mainly driven by scaling up public investment, reducing credit distortions, and enhancing tax collection efficiency.



56. Implementation would be the key to maximizing the growth dividends, and there could be scope for further reforms to strengthen the benefits and contain potential risks. The model simulation results are based on growth multipliers which are estimated based on cross-country evidence and do not differentiate among specific projects or measures. The actual growth impacts will hinge on the quality, design, and implementation of each project and reform. International experiences also suggest that, when not carefully planned or effectively implemented, public investment scale-up plans could fail to deliver the anticipated growth dividends and instead, exert significant pressures on public finances. In addition, implementation capacity could pose challenges in light of the many projects planned in the next decade. To maximize the returns, there are benefits of:

- Improving public investment management and governance to ensure that higher spending translates into productive capital. This includes a transparent and criteria-based project-selection gateway, rigorous socio-economic appraisals, robust costing and cost-benefit analysis, and timely in-year monitoring and ex-post evaluations.
- Prioritizing public investment projects with strong positive externalities. For example, these could include transport corridors that integrate lagging regions into national and global value chains, and renewable energy and grid investments that lower carbon intensity and enhance energy supply and security.
- Developing and clearly communicating concrete action plans—backed by robust legal and regulatory frameworks that incentivize private investment (e.g., energy, transportation). This would help strengthen public investment management, create a more predictable business environment, and crowd in private investment.
- Adopting a comprehensive and balanced approach to fund the large investment needs. In addition to enhancing revenue collection efficiency, a credible financing plan supported by strengthened medium-term revenue mobilization and improved debt management would be needed.

- Bolstering risk management, including by strengthening legal and institutional capacity to manage public debt and contingent liabilities from public-private partnerships (PPPs) and state-owned enterprises (SOEs). This includes developing a modern PPP framework—underpinned by standardized contracts, competitive procurement, and appropriate risk-sharing—and improving corporate governance and oversight of SOEs.

E. Harnessing Artificial Intelligence to Boost Long-Term Growth [18]

57. Global AI adoption has been fast-paced and uneven, raising concerns about potential economic divergence. AI could transform productivity, drive innovation, and change the nature of work globally. [19] Historical lessons—for example, industrial revolutions—demonstrate that countries adopting technological innovations early reap substantial long-term productivity and growth gains. However, AI adoption has been uneven to date, primarily due to entrenched structural differences across AEs and EMDEs, and could cause economic divergence (Alonso *et al*., 2018; Benzell *et al*., 2021; Cerutti *et al*., 2025). Economies with high capital intensity, high productivity, a well-educated workforce, and strong technological infrastructure—often AEs—are better positioned to benefit from AI, while many EMDEs do not meet the structural prerequisites for adoption.

58. Timely adoption of AI could help Vietnam sustain high growth, but existing structural gaps may impede early adoption on a large scale. Given increasing headwinds to Vietnam's growth, AI adoption presents an opportunity for Vietnam to transition into more capital- and technology-intensive production and sustain high growth over the medium to long term. However, Vietnam's economic structure may hinder its ability to adopt AI technologies early. Firms still rely on relatively low-cost labor, and the level of skills in the workforce remains low relative to the high skills required to harness AI effectively. Moreover, Vietnam faces significant productivity gaps relative to the global frontier, and overall productivity growth has remained sluggish (Section 3). Hence, heavy investment in AI technologies may not yet be economically profitable for many firms—potentially delaying widespread adoption and risking Vietnam falling behind more prepared economies.

59. This section examines the long-term potential macroeconomic implications of AI adoption for Vietnam through simulating its potential adoption path. It addresses two main questions: (i) how the timing and pace of AI adoption influence Vietnam's economic performance and (ii) whether structural reforms can accelerate AI adoption in Vietnam and what macroeconomic benefits and risks acceleration may entail. It sheds light on key policy actions needed to harness AI's economic potential.

Analytical Framework and Methodology

[18] Prepared by Natasha Che and Weining Xin.

[19] AI represents a wide spectrum of technologies designed to enable machines to perceive, interpret, act, and learn with the intent to emulate human cognitive abilities. Across this spectrum, generative AI (GenAI) includes systems that can create new content, ranging from text to images, by learning from extensive training data. Other AI models, in contrast, are more specialized, focusing on discrete tasks such as pattern identification. Meanwhile, automation is characterized by its focus on optimizing repetitive tasks to boost productivity, rather than producing new content.

60. A country's adoption decision is modelled to depend on its structural fundamentals, global investment funding costs, and government decisions. A small open economy general equilibrium model with overlapping generations and endogenous AI adoption decision is deployed, following the multi-country global model by Benzell *et al*. (2021), which allows for simulating the economic consequences of different AI-technological scenarios. In the model, firms adopt AI when it becomes profitable to substitute labor with capital and technology, which in turn depends on factors such as the cost of capital, productivity levels, and the skill composition of the workforce. Countries with higher productivity, higher capital intensity, and a greater share of high-skilled labor are more likely to adopt AI earlier. As a result, early adopters are usually AEs. In contrast, EMDEs, including Vietnam, would adopt AI more slowly due to structural constrains such as lower productivity, larger reliance on labor but limited high-skilled labor. Additionally, global interest rates—endogenously determined by the demand for capital among early adopters—can influence the timing of adoption in lagging countries. When early adopters raise global capital demand, interest rates rise, increasing borrowing costs for late adopters and potentially delaying their transition. Government policies, such as corporate income tax and labor tax, also affect the decision to automate.

61. The model simulates a baseline scenario with no AI-technological change and three alternative scenarios that incorporate AI-technological change at varying paces. In the baseline, countries continue to rely on traditional production technologies with no AI-technological change. The three AI scenarios—mild, moderate, and accelerated scenario—differ by the speed at which the capital share increases in the frontier production, with a gradual and linear increase in the capital share at a rate *twice, five times, and ten times* of the historical experience of the U.S.[20] These scenarios generate differentiated impacts on global capital demand, interest rates, and countries' growth trajectories, enabling to quantify the impacts of AI adoption for Vietnam while acknowledging the significant uncertainty surrounding the pace of AI-technological breakthroughs.

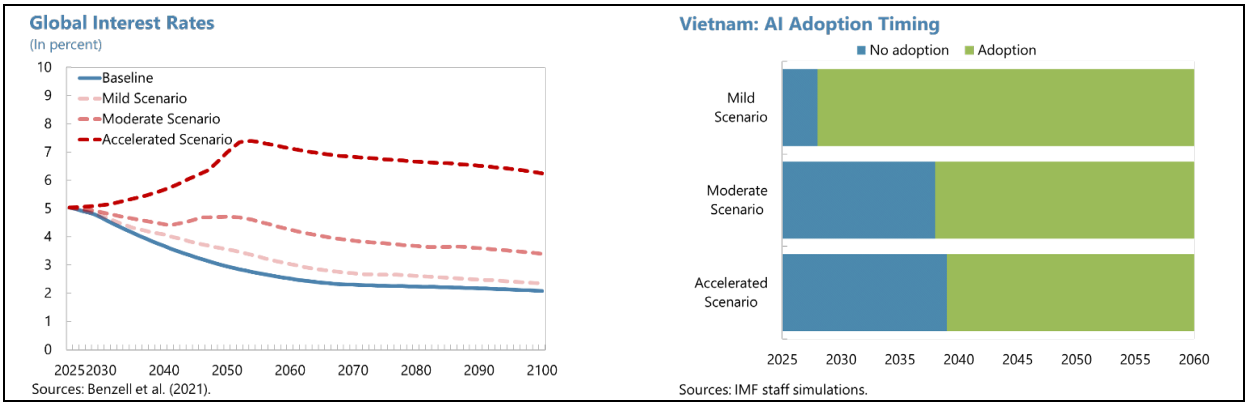
62. A range of methodologies—and the wide dispersion of resulting estimates—underscore the nascent state of our understanding of AI's macroeconomic impacts. Task-based models focus on productivity gains. Within this strand, there is a wide range of estimates, from Acemoglu (2025)'s more cautious estimates (a *total* boost of 0.7 percent to TFP over 10 years) to Aghion and Bunel (2024)'s optimistic views (a median of 0.68 percentage points boost to *annual* TFP growth over 10 years). Neoclassical models capture additional channels—such as changes in production function, capital flows—and estimate the aggregate impact on GDP. Among these, Alonso *et al*. (2022) estimates that GDP *per capita* could be boosted by as much as 40 percent over the long term (i.e., in the new steady state with AI). The analytical framework deployed here aligns more closely with the second strand of literature: it examines AI's impact on GDP and other key macroeconomic variables by allowing AI to reshape the production function—rather than by imposing an exogenous TFP boost—and yields estimates broadly consistent with Alonso *et al*. (2022). Views on whether AI can be transformational for the macroeconomy also remain mixed. A rapidly expanding literature portrays AI as a general-purpose technology capable of lifting TFP and

[20] In the U.S. and in contrast to the baseline's capital share of 37 percent in 2050, the three scenarios correspond to capital shares of 40, 48, and 62 percent in the same year, respectively.

transforming production processes. By contrast, a growing chorus also cautions that diffusion frictions, labor-market dislocation, and governance gaps could tamper aggregate gains and exacerbate inequality. The analysis in this Section positions itself between these poles, recognizing both the sizeable upside potential and the attendant risks including potential negative short-term and distributional impacts.

Simulation Results and Key Findings

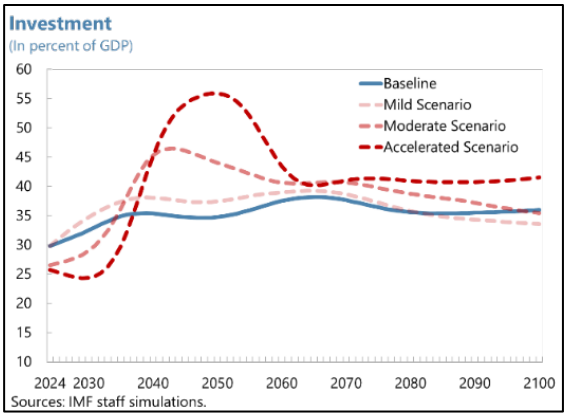
63. Structural constraints, compounded by rising global interest rates, are expected to delay Vietnam's AI adoption. Vietnam's relatively low productivity, high labor intensity, and limited supply of high-skilled labor make early AI adoption less profitable for firms. As early adopters increase their demand for capital, global interest rates rise, in contrast to the gradual decline in the baseline which reflects slower productivity growth, population aging in major economies, and the associated increase in savings. The faster the pace of AI-technological breakthrough, the greater the demand for capital, and thus the faster the rise in global interest rates. Rising interest rates further raise the cost of investment for countries like Vietnam, amplifying the delay. As a result, while AEs such as Japan and Singapore are expected to adopt AI immediately as it becomes available (assumed in 2025), Vietnam's adoption is simulated to be delayed—only occurring around the 2040s under the moderate and accelerated technological breakthrough scenarios (e.g., when the increase in the capital share in production is at a rate five times and ten times of the historical experience).[21]

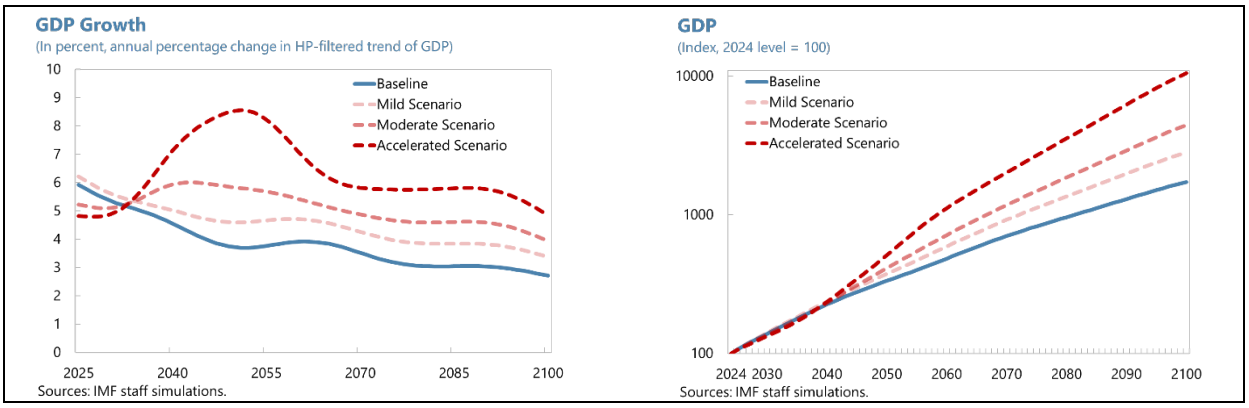


64. Despite initial headwinds from delayed adoption, model simulations suggest that Vietnam would catch up rapidly once AI technology is adopted extensively. During the pre-adoption phase, Vietnam would experience a temporary growth slowdown relative to the baseline—up to 1 percentage point (ppt) lower under the accelerated technological breakthrough scenario—driven by weaker capital accumulation amid tighter global capital markets. However, once AI is adopted extensively, growth accelerates significantly, underpinned by a structural transformation toward more capital-intensive and high-skilled production. This shift supports capital deepening,

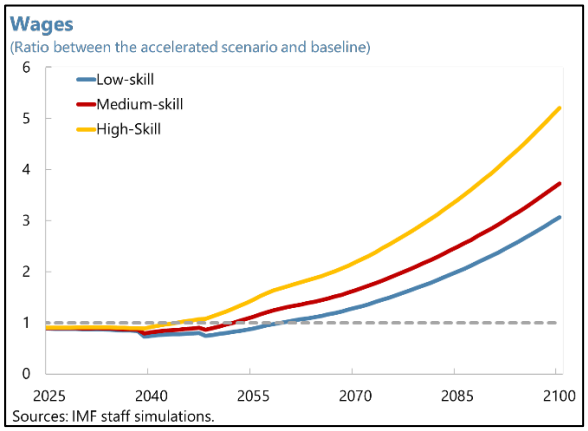
[21] The adoption decision is assumed to be binary at the country level, while in reality, adoption is likely to be a gradual process. The binary adoption decision captures to what extent the new technology changes materially the production process on a macro relevant scale, which does not preclude the fact that, even when a country is shown as "non adopter" in the model, there may be pockets of firms that could already employ AI on a smaller scale.

raises output per worker, and boosts GDP growth. The technological leapfrogging effect—whereby late adopters like Vietnam benefit from directly deploying the more advanced technology in which the capital share has increased to a much higher level—further amplifies Vietnam's catch-up growth gains. Model simulations suggest that the initial growth boost following adoption could be as high as 2 and 5 ppts under the moderate and accelerated technological breakthrough scenarios, respectively. As production transitions permanently to the more capital-intensive technology, the growth boost is sustained, by about 1.5 and 2.8 ppts per year over the long term, respectively. Consequently, Vietnam's GDP could be 50 percent higher than the baseline by mid-century and nearly five times higher by the end of the century, under the accelerated technological breakthrough scenario.





65. Despite the long-term aggregate output gains, AI adoption could exacerbate inequality. High-skilled workers gain disproportionately while low-skilled workers face greater displacement risk (Section B), potentially contributing to a widening wage gap between skill groups. Model simulations suggest that, while high-skilled workers' wages under the accelerated technological change scenario exceed the baseline soon after AI adoption, medium- and especially low-skilled workers would face lower wages for an extended period as the frontier technology requires less medium- and low-skilled labor. Although, over the long run, all skill groups would earn higher wages under the accelerate scenario as aggregate output expands significantly, the wage inequality widens with high-skilled workers receiving a substantially larger share of the gains. These

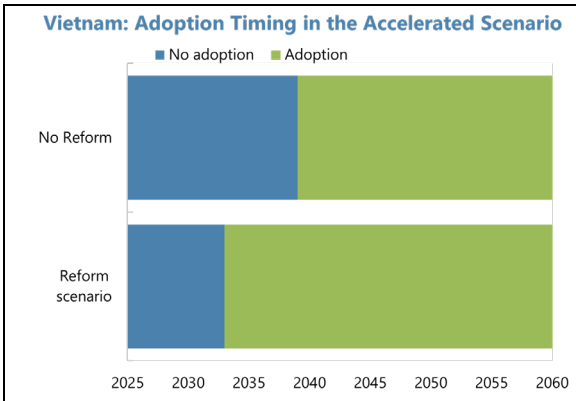


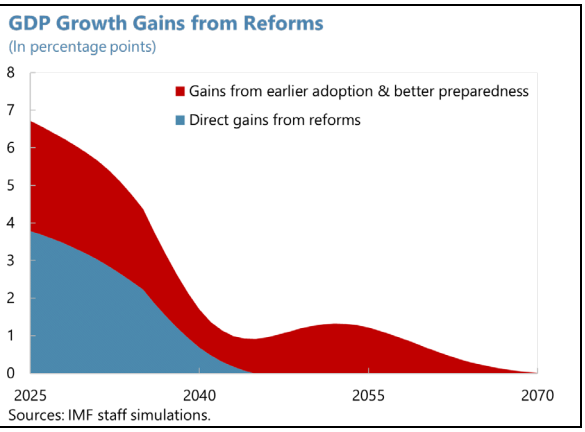
results underscore the need for a comprehensive policy approach that not only facilitates AI adoption but also promote a more equitable distribution of its gains.

66. Other risks also need to be understood better and managed along AI adoption. AI's winner-takes-most dynamics create market concentration—particularly in data-intensive segments—potentially eroding competition, compressing investment by followers, and weakening the pass-through of efficiency gains to consumers (Babina *et al.*, 2024). Pervasive reliance on algorithmic decision-making also introduces new operational and cyber-security vulnerabilities, that large-scale model failures or adversarial attacks could disrupt critical infrastructure (BIS, 2023). Moreover, opaque "black-box" models complicate prudential oversight and may propagate hidden biases into credit allocation and risk pricing, raising financial stability concerns (IMF, 2024). Finally, the intensive energy demand of AI data centers risks undermining climate-mitigation efforts and exposes economies to volatile energy prices. Although these risks lie beyond the scope of this paper, they merit continued study to analyze their macroeconomic and social implications and to inform complementary safeguards, thereby ensuring that AI delivers the maximum growth dividend.

Accelerating Adoption via Structural Reforms

67. Implementing structural reforms to boost productivity and enhance human capital could significantly accelerate Vietnam's AI adoption and magnify the growth dividend. A reform scenario is constructed with three pillars: (i) more efficient capital deployment, with capital-specific productivity rising by 50 percent over a decade; (ii) enhanced human capital, with labor-specific productivity increasing by 50 and 25 percent over a decade for high- and medium-to-low skilled workers, respectively; and (iii) an upgraded skill mix that doubles the share of high-skilled workers within ten years. Together, these reforms raise Vietnam's AI preparedness, enabling adoption in the early 2030s under the accelerated technological change scenario—more than half a decade earlier. Notably, improved AI preparedness not only advances the timing of adoption, but also amplifies the growth dividends. In addition to the direct gains from structural reforms, earlier adoption mitigates the initial growth drag—raising growth by more than 2 ppts on average during 2025-40—and the strengthened fundamentals amplify the growth gains over the long run, with an average growth boost of 0.8 ppts. These results highlight that, even with the great uncertainty around AI development and still nascent understanding of its full impact, taking a proactive approach with necessary comprehensive reforms could enhance the positive effects and better manage risks.





F. Conclusions

68. Implementing a broader set of structural policies, together with improved public infrastructure, could boost productivity and sustain high medium-term growth. Enhancing labor and capital market functioning, fostering physical and human capital accumulation, improving the business environment to allow firms to grow, and enabling positive spillovers from the FDI sector to the domestic economy could help remove some of the inefficiencies and distortions identified and boost productivity. Such reforms could also help prepare the economy to gain from potentially large growth dividend of technological change, including from AI and automation.

69. A comprehensive and well-sequenced strategy could help enhance labor productivity and address skill mismatches. To advance in the GVC, Vietnam must transition from labor-intensive assembly to higher value-added, skill- and technology-driven activities by creating a high-skilled workforce. International lessons highlight the benefits of a policy package focusing on (i) first closing data gaps for skill diagnostics; then progressively (ii) investing in transferable skills and on-the-job training, (iii) fostering lifelong learning amid population aging, (iv) enhancing collaboration between industry and education providers, and (v) over time, improving the quality and market value of tertiary education.

70. TFP growth in Vietnam has been sluggish while misallocation of factors of production seems to have worsened. The decline in Vietnam's aggregate TFP since 2015 was mainly driven by a decline in firms' own technology, while firm entry and exit played a minor role in driving TFP. Policies that encourage business dynamism, including by alleviating barriers that prevent firms from entering, innovating, and becoming formal or facilitating the exit of unproductive firms, could help improve aggregate TFP. Moreover, resource misallocation is estimated to have worsened since the pandemic; removing such misallocation could potentially boost aggregate TFP by more than 50 percent. Policies based on the principles of leveling the playing field, improving access to credit for productive firms/sectors and domestic firms, and removing distortions could help improve resource allocation and raise aggregate TFP growth. This includes incentivizing FDI firms to develop local supply chain programs and strengthen technology transfer, further developing capital markets, and phasing out distortionary credit policies. Publishing aggregate credit allocation data, e.g., corporate

credit by sector and type of firms, on a regular basis could help monitor and assess potential credit misallocation.

71. Better preparation for AI adoption could help sustain Vietnam's high growth in the wake of AI technological breakthrough. The adoption of AI could potentially lead to large growth gains, supported by a structural shift toward capital- and skill-intensive production. Accelerating structural reforms to boost productivity and enhance human capital would not only advance AI adoption but also amplify the long-term growth dividend. Meanwhile, AI adoption may widen wage inequality and put certain types of workers at risk of displacement. Complementary policies can help mitigate these adverse impacts, including (i) up-skilling and re-skilling programs to equip medium- and low-skilled workers with AI-complementary competencies; (ii) strengthened social safety nets; and (iii) active labor market policies to facilitate job matching.

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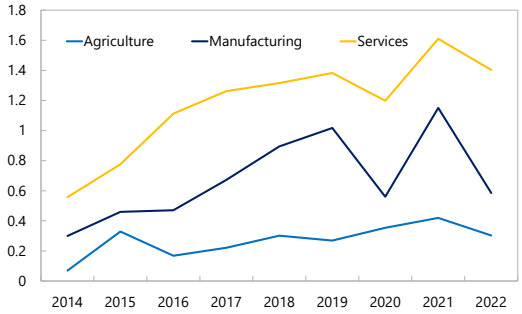
Annex I. Figures and Tables

Annex I. Figure 1. Labor Productivity by Sector

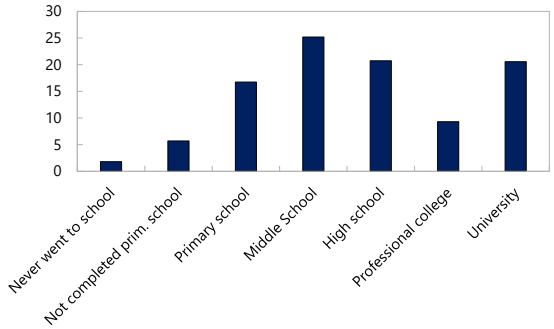
Gross Value Added Per Worker: Sector
(In constant VND, revenue-weighted mean)



Sources: Vietnam National Statistics Office and IMF Staff estimates.
Notes: Data based on the Vietnam Enterprise Survey 2014-2022 covering 1.4 mn firms.

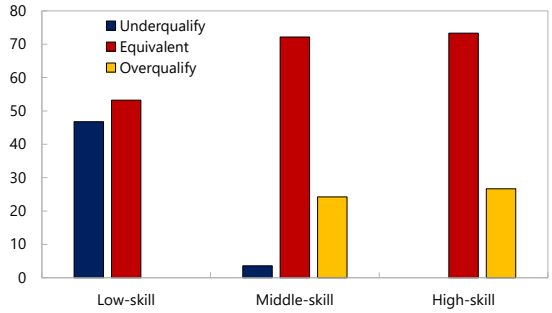
Annex I. Figure 2. Percent Share Education Groups and Within Group Mismatch Types

Vietnam: Average Share of Education Groups
(In percent, 2018-2022)



Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Labor Force Survey 2018-2022 covering 1.5 mn individuals.

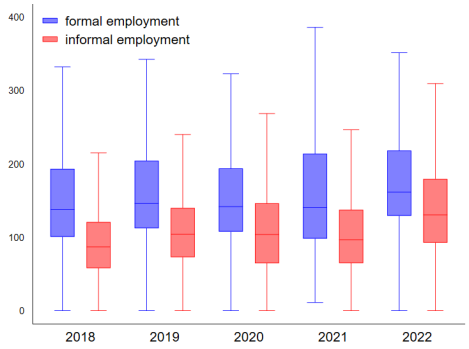
Share of Qualification Mismatch Types Within Skill Groups
(In percent, 2018-2022)



Sources: Vietnam National Statistics Office and IMF Staff calculations.
Notes: Data based on the Vietnam Labor Force Survey 2018-2022 covering 1.5 mn individuals.

Annex I. Figure 3. Returns to Labor in the Informal Sector

Real Wage Per Hour Worked: By Formal vs. Informal Job
(In real VDN, deflated by CPI)



Sources: Vietnam National Statistics Office and IMF staff estimates.
Notes: Data from the Vietnam Labor Force Survey 2028-2022 covering 1.5 mn individuals. Total wage income and hours worked cover primary, secondary, and tertiary jobs, where applicable.

Annex I. Table 1. Robustness of Over-Qualification Mismatch Analysis

Dependent	Over-qualify	
	(1)	(2)
High worker skill	0.011**	0.162***
	[0.005]	[0.004]
Middle worker skill		0.200***
		[0.004]
Tradable sector	0.030***	0.003**
	[0.004]	[0.002]
High worker skill × Tradable	0.091***	0.132***
	[0.011]	[0.010]
Middle worker skill × Tradable		0.059***
		[0.005]
age	-0.008***	-0.006***
	[0.001]	[0.001]
age square	0.000***	0.000***
	[0.000]	[0.000]
female	-0.020***	-0.020***
	[0.003]	[0.003]
Province FE	X	X
Year FE	X	X
Observations	49,253	49,253
R-squared	0.034	0.096

Sources: Vietnam Labor Force Survey and IMF staff estimates.

Notes: The dependent variable is a dummy indicator of the match type of a worker. Skill match types are categorized based on the alignment between educational attainment and typical occupational requirements. High-skill workers include those with professional college or university education; High-skill occupations include managers, professionals, or technicians and associate professionals. Middle-skill workers possess middle or high school education; Middle-skill occupations include clerical support, service and sales, craft, or plant and machine operation roles. Low-skill workers have primary education or below; Low-skill occupations include elementary occupations or agriculture, forestry, and fishery work. A worker is overqualified when their skill level exceeds that required by their occupation; underqualified when their skill level falls below the occupation's requirement; and equivalently qualified when the worker's skill level matches the skill level of the occupation.

Annex I. Table 2. Wage Regression Analysis

Dependent	ln(Wage)			ln(Wage)	
	(1)	(2)		(3)	(4)
Age	0.035***	0.035***	Age	0.038***	0.038***
	[0.001]	[0.001]		[0.002]	[0.002]
Age squared	-0.000***	-0.000***	Age squared	-0.000***	-0.000***
	[0.000]	[0.000]		[0.000]	[0.000]
Female	-0.230***	-0.230***	Female	-0.158***	-0.158***
	[0.006]	[0.006]		[0.005]	[0.005]
Underqualify		-0.166***	Middle skill	0.063***	0.005
		[0.028]		[0.007]	[0.009]
Overqualify		0.088***	High skill	0.209***	0.168***
		[0.028]		[0.011]	[0.013]
Not completed	0.154***	0.161***	Tradable	-0.010*	-0.073***
	[0.017]	[0.017]		[0.006]	[0.010]
Primary	0.199***	0.212***	Mid skill × Tradable		0.100***
	[0.016]	[0.016]			[0.012]
Middle	0.220***	0.110***	High skill × Tradable		0.070***
	[0.016]	[0.031]			[0.014]
High	0.302***	0.191***			
	[0.016]	[0.031]			
College	0.323***	0.126**			
	[0.018]	[0.055]			
University	0.430***	0.232***			
	[0.020]	[0.055]			
Occ, Ind FE	X	X	Occ FE	X	X
Province FE	X	X	Province FE	X	X
Year FE	X	X	Year FE	X	X
Observations	71,826	71,818	Observations	39,877	39,877
R-squared	0.408	0.409	R-squared	0.318	0.319

Sources: Vietnam Labor Force Survey and IMF staff estimates.

Notes: The dependent variable is the real wage per hour worked. Skill match types are categorized based on the alignment between educational attainment and typical occupational requirements. High-skill workers include those with professional college or university education; High-skill occupations include managers, professionals, or technicians and associate professionals. Middle-skill workers possess middle or high school education; Middle-skill occupations include clerical support, service and sales, craft, or plant and machine operation roles. Low-skill workers have primary education or below; Low-skill occupations include elementary occupations or agriculture, forestry, and fishery work. A worker is overqualified when their skill level exceeds that required by their occupation; underqualified when their skill level falls below the occupation's requirement; and equivalently qualified when the worker's skill level matches the skill level of the occupation.

UPGRADING THE FISCAL FRAMEWORK IN VIETNAM[1]

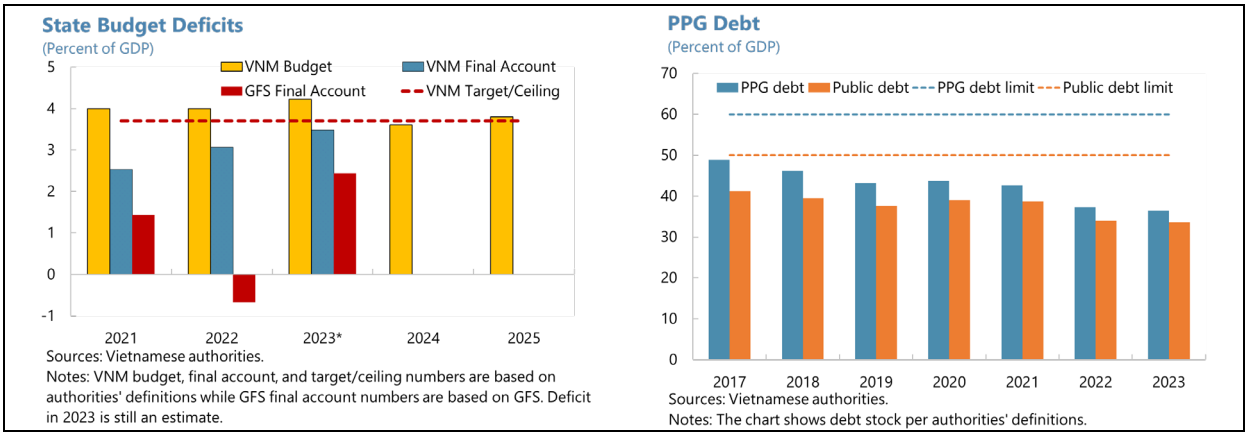
This chapter reviews Vietnam's current fiscal rules and discusses options to upgrade them. Given the heightened uncertainty, the authorities' ambitious infrastructure plan, and other emerging spending pressures, enhancing the medium-term fiscal framework (MTFF) would help better manage these challenges. A more prudent debt ceiling could be considered as part of an enhanced MTFF helping preserve fiscal buffers to respond to shocks while leaving space to address spending needs over the medium term.

A. Current Fiscal Framework

1. Vietnam has established fiscal rules, within a medium-term fiscal framework (MTFF), on revenue, budget balance, and public debt since 2016. The current fiscal rules on revenue and budget balance were set in 2021, and the debt rules were set in the Law on Public Debt Management since 2017.

- ***Revenue floor:*** state budget revenues should not be lower than 16 percent of GDP during 2021-25.
- ***Deficit ceiling:*** state budget deficit should be below 3.7 percent of GDP on average during 2021-25.
- ***Public and public guaranteed (PPG) debt ceiling.*** PPG debt should not exceed 60 percent of GDP, with a warning threshold at 55 percent of GDP, of which public debt should not exceed 50 percent of GDP.

2. The fiscal rules have been broadly complied *ex-post*. The rules are not necessarily strictly binding in the preparation of the budget, which is partly because of the conservative revenue projections in the budget. However, fiscal outturns have complied with the rules. Revenues have consistently exceeded the floor, and budget deficits have been below the ceiling. Given the low deficits and high GDP growth, PPG debt has decreased steadily since 2017, except for 2020 when debt increased marginally, and well below the ceiling.



[1] Prepared by Weining Xin with contributions from Paulo Medas.

3. As the government prepares new medium-term plans, it is timely to review whether the fiscal rules should be updated. The experience suggests some areas for improvement.

- *Consistency of rules and effectiveness in anchoring fiscal policy*. The debt ceiling at 60 percent of GDP would imply an overall deficit ceiling much larger than the actual overall deficit ceiling.[2] The substantial difference between the implied and actual deficit ceiling means that the debt ceiling is not serving its role as a medium-term fiscal anchor—providing guidance on annual budgets—weakening the signaling effect of the debt ceiling.
- *Ability to monitor the abidance to the rules in real time*. The budget has very conservative revenue projections and does not incorporate carryover spending. The data weaknesses also affect the ability to monitor compliance with fiscal rules and design corrective measures. All these weaknesses undermine the usefulness and credibility of the fiscal rules.
- Looking forward, it is also important to review the fiscal rules considering efforts to scale up spending given development needs—including large infrastructure projects, future spending pressures from population aging and climate change, and heightened uncertainty on the economic outlook amid the large external shocks.

B. Calibrating the Debt Rule

4. Debt rules are the most common feature of rule-based fiscal frameworks in Asia (IMF, 2024)**.** Ceilings on public debt are a typical medium-term fiscal anchor as they provide a measure of a country's medium-term fiscal sustainability while providing the flexibility to adjust fiscal policies in response to cyclical fluctuations. Operational rules on budget deficits or spending could be set consistently with the debt anchor to guide the annual budgets.

5. The appropriate level of the debt ceiling should be based on realistic medium-term forecasts. Detailed calibration steps of the debt ceiling are discussed in IMF (2018). Given a ***maximum debt limit***—beyond which a debt distress episode will occur with high probability—stochastic simulations are used to calibrate the ***debt ceiling*** by computing a safety margin so that the debt only exceeds the maximum debt limit with low probability. The calibration is done in three steps. The first step is to identify the maximum debt limit. Second, the distribution of macroeconomic and fiscal shocks is estimated and used to simulate potential debt trajectories over a medium-term horizon. The results of these simulations are summarized in a fan chart. The third step identifies the debt ceiling, which is a sufficiently low starting level for debt (in the first year of the projection horizon) such that there is a safety margin and debt will remain below the maximum debt limit over the medium term with high probability (assumed at 95 percent).

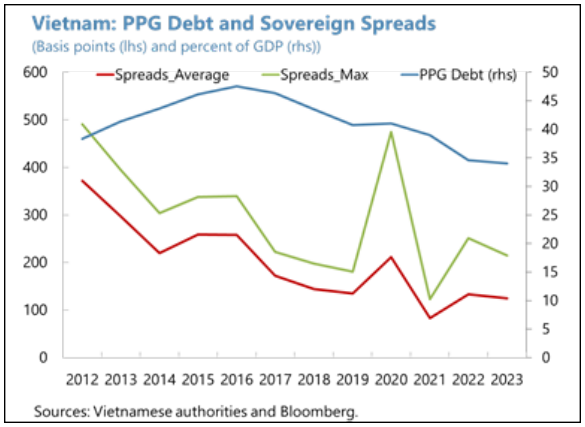
6. This methodology implies two big challenges in estimating the debt ceiling for Vietnam: determining the maximum debt limit and estimating the shocks. These challenges not only imply caveats regarding the estimated debt ceiling, but also underscore the importance of

[2] The authorities' deficit ceiling is specified based their own budget classification under which deficits are often significantly larger than those calculated under the GFS framework. This is mainly because revenue overperformance is incorporated as carryover expenditure.

regularly reviewing the debt ceiling to ensure its appropriateness as economic and institutional conditions evolve.

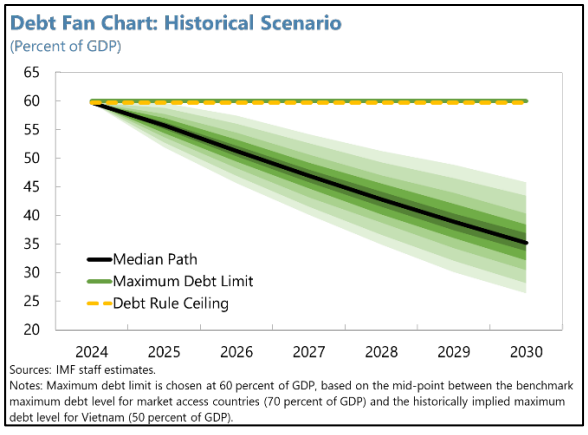
First, identifying the appropriate maximum debt limit is challenging given the structural changes in recent decades. Vietnam became a lower middle-income country in the last decade and is still developing the characteristics and institutions of an emerging economy. Two possible ways to assess the maximum debt limit:

- Assume that the maximum debt limit is 70 percent of GDP, following the benchmark used in the IMF Debt Sustainability Analysis (DSA) framework for market access countries. However, Vietnam's sovereign bond market is underdeveloped and experience in issuing and managing FX-denominated debt and interacting with foreign investors is limited.
- Looking at recent history, public debt has remained always below 50 percent of GDP. Vietnam's maximum debt level reached 47.5 percent of GDP in 2016 when its sovereign spreads also peaked—before Vietnam Social Security (VSS) became a key player in buying government bonds.[3] It is also worth noting that sovereign spreads jumped during the Covid pandemic, suggesting that the government's borrowing costs could increase significantly under global shocks even when public debt is well under control.



- A cautious approach could be to use a level between 50 and 70 percent of GDP as a reference for the maximum debt limit—which could be revised once the sovereign bond market is more developed and there is greater experience in debt management. In this annex we use the mid-point at 60 percent of GDP.

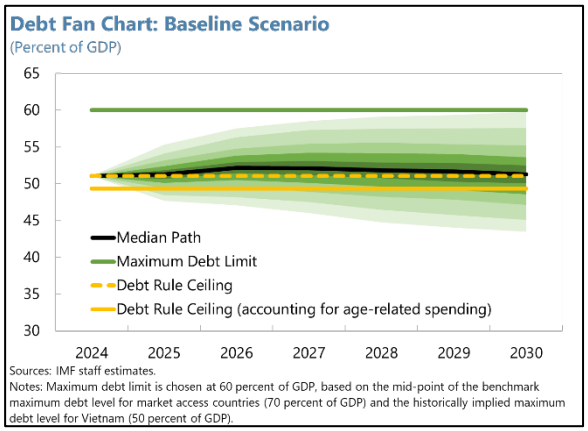
Second, assessing the risks and estimating the shocks are also challenging given the evolving domestic economy and external environment. The past two decades witnessed a period of high growth, low deficits, and low volatility. Estimating macroeconomic and fiscal shocks based on these historical patterns would suggest that the safety margins (or buffers) needed are small with the debt ceiling estimated based on historical pattern is very close to the maximum debt limit, at 60 percent of GDP. However, the domestic economy has seen increasing volatility since the pandemic.



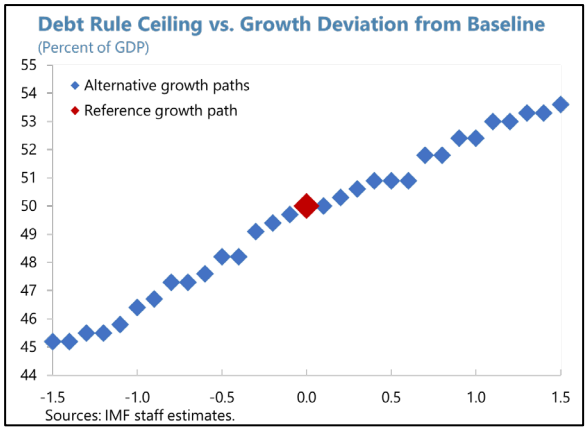
[3] The 2012-13 sovereign spreads mainly reflect the initial stage of sovereign bond market development when investors demand higher yields.

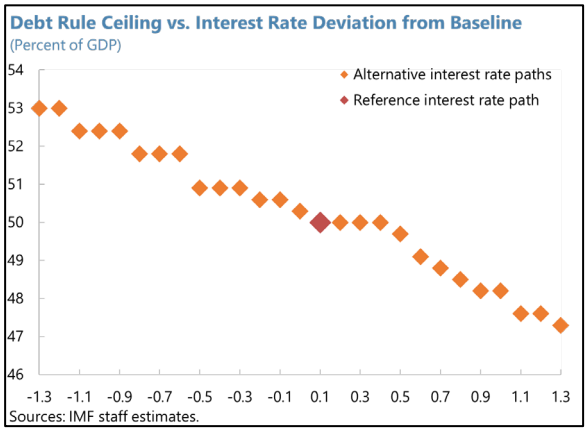
The planned scale-up of public investment is significant by historical standards, which could substantially affect growth and fiscal balances, and may introduce volatility. The external environment is also expected to be more volatile going forward. As a result, macroeconomic and fiscal shocks in the future could be significantly different from the past, in terms of both nature and size. This suggests that larger safety margins could be needed.

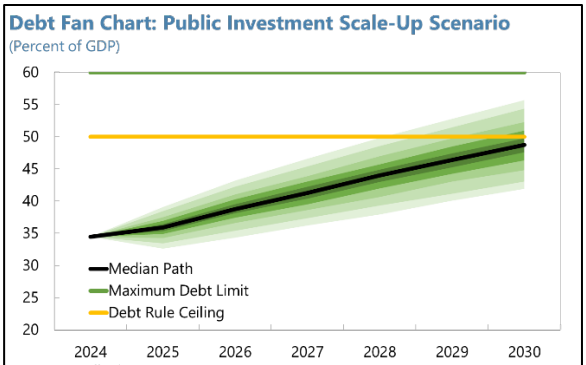
7. Simulations based on the staff's forecasts in the baseline scenario suggest a lower debt ceiling at around 50 percent of GDP with larger safety margins. The large external shocks from global trade policies are expected to weigh on Vietnam's economic growth, in both near and medium term, on top of gradual slowdown in growth due to population aging. Based on staff's medium-term projections, the debt ceiling is calibrated at around 50 percent of GDP. The safety margin widens relative to what is suggested by the historical pattern because the debt dynamics worsens under the medium-term forecasts with lower growth and larger primary deficits.



8. A larger safety margin than suggested by historical performance could also be needed. The safety margin is estimated to be moderate, less than 10 percentage points in the baseline scenario, partly due to the low macroeconomic volatility in the past two decades. However, economic growth has become more volatile since the pandemic. Moreover, as Vietnam develops its sovereign bond market, it will require more market-based government bond yields which could fluctuate over time. Simulations with alternative growth and interest rates paths suggest that a less favorable growth path or higher interest rates (ceteris paribus) would require a lower debt ceiling. Furthermore, fiscal costs from support to SOEs when facing large adverse shocks could be large, given their large presence. These factors would warrant a larger safety margin than historical performance may suggest and emphasize the need to regularly review the debt ceiling calibration and examine its sensitivity to macroeconomic parameters as more data is available.







Sources: IMF staff estimates.
Notes: Maximum debt limit is chosen at 60 percent of GDP, based on the mid-point between the benchmark maximum debt level for market access countries (70 percent of GDP) and the historically implied maximum debt level for Vietnam (50 percent of GDP).

9. A prudent debt ceiling still allows room for scaling up public investment over the medium term. Consider a scenario in which public investment increases faster than in the baseline, with a cumulative 11.5 percent of GDP increase in public investment over 2025-30. The growth boost is estimated at 0.4 percentage points in 2025, rising to 1.1 percentage points by 2030. Moreover, assuming no change in revenue-to-GDP ratio and thus the larger spending is fully reflected in larger primary deficits (about 5 percent of GDP in 2030) and domestic borrowing, effective interest rates on the government's domestic borrowing are expected to increase (by 15 basis points for every 1 percent of GDP increase in primary deficits based on staff estimates). Under such a scenario, the median debt path points to a fast-rising trajectory, as the adverse impacts of larger primary deficits and higher interest rates outweigh the gains from higher growth. However, simulations suggest that the debt is still below the 50 percent of GDP debt ceiling during 2025-30 with a probability of 75 percent, suggesting the government could still temporarily increase public investment significantly until 2030 with a high likelihood of not breaching the prudent debt ceiling.

10. However, further accelerating public investment over the longer run would require complementary reforms to boost growth potential and enhance revenue mobilization to ensure compliance with the debt ceiling. While the 50 percent of GDP debt ceiling allows for a significant increase in public investment until 2030, the median debt level is approaching the debt ceiling by then. Assuming growth is around 5 percent afterwards as in the baseline, this means that primary deficits would need to be reduced to 2.5 percent of GDP—from 5 percent of GDP in the scale-up scenario—to ensure debt remains below the 50 percent of GDP ceiling afterwards. Moreover, interest rates could rise further under a riskier debt profile—particularly with debt level higher and approaching the ceiling—requiring an even lower primary deficit to remain below the debt ceiling. To maintain higher public investment beyond 2030, while ensuring compliance with the 50 percent of GDP debt ceiling, it would require additional measures or reforms, for example to (i) boost growth potential and thereby improve the debt dynamics; (ii) enhance revenue mobilization to reduce reliance on debt financing.

C. Conclusions

11. Setting a more prudent debt ceiling would allow to keep confidence in the medium-term debt sustainability even as investment is scaled up and borrowing rises. Vietnam still has a relatively small and illiquid sovereign bond market and limited experience in issuing and managing FX-denominated debt. This constrains its maximum debt limit to below the standard threshold observed among market-access countries. Elevated external uncertainty in the near term and emerging spending pressures—which will result in larger borrowing in the medium term—requires a fiscal strategy that preserves debt sustainability, including the needed fiscal buffers to respond to

shocks. In this context, the debt ceiling will become a more relevant anchor for fiscal policy moving forward. Setting a credible and prudent debt ceiling, for example, around 50 percent of GDP, would help preserve buffers while still allowing for substantial scale-up of public investment. The debt ceiling should be accompanied with well-designed and clearly-communicated escape clauses that define specific circumstances cases—those outside the government's control—under which temporary deviations from the rules are allowed. This would allow flexibility to respond to large shocks while avoiding changing or suspending rules frequently which can undermine effectiveness and credibility of fiscal policy. As Vietnam strengthens its debt management institution—including developing its sovereign bond market—the debt ceiling could be increased over time.

12. Embedding the debt ceiling in an enhanced MTFF would help respond to shocks and address spending needs while maintaining debt sustainability. Numerical rules can help anchor fiscal policy but need to be accompanied by good fiscal institutions. Establishing a more robust, comprehensive, and medium-term oriented fiscal framework would help enhance fiscal management and improve policy design. Improving the credibility of the budget and the MTFF and their alignment would help inform public policymaking and investors. A medium-term strategy to increase revenue mobilization and improve social safety nets would help conduct countercyclical policies while addressing mounting spending needs. A more comprehensive coverage of the public sector and assessment of risks would help better design policies and manage vulnerabilities. Effective and credible medium-term fiscal plans and fiscal rules need improved dissemination of government statistics and enhanced communication of fiscal information.

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