APO

PRODUCTIVITY
READINESS 2025

Asian Productivity Organization

The Asian Productivity Organization (APO) is an intergovernmental organization that promotes productivity as a key enabler for socioeconomic development and organizational and enterprise growth. It promotes productivity improvement tools, techniques, and methodologies; supports the National Productivity Organizations of its members; conducts research on productivity trends; and disseminates productivity information, analyses, and data. The APO was established in 1961 and comprises 21 members.

APO Members
Bangladesh, Cambodia, Republic of China, Fiji, Hong Kong, India, Indonesia, Islamic Republic of Iran, Japan, Republic of Korea, Lao PDR, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Turkiye, and Vietnam.

APO PRODUCTIVITY READINESS 2025

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FOREWORD

The Asian Productivity Organization (APO) is pleased to present the second edition of its flagship research publication on Productivity Readiness, first launched in 2020.

Productivity remains one of the most critical drivers of long-term economic growth and social well-being, and this report is being released at a time when APO member economies are navigating the intertwined challenges of post-pandemic recovery, climate change, digital transformation, and shifting global dynamics.

APO Productivity Readiness 2025 goes beyond providing more than an economic snapshot. It serves as a strategic guide to understanding the conditions that enable nations to pursue and sustain productivity growth. The report examines not only traditional macroeconomic indicators and productivity determinants but also four key overarching themes that drive those determinants. These themes are motivation, capabilities, market efficiency, and stability.

One of the key contributions of the report is the refined Productivity Readiness Index (PRI), which now incorporates over two decades of data and includes new dimensions such as climate risk and digital integration. The PRI provides member economies with a robust tool for benchmarking progress and identifying areas that warrant policy focus.

The findings are both encouraging and instructive. While many APO members have made real progress, particularly in digital infrastructure and capacity building, some challenges persist. Regulatory barriers, market inefficiencies, governance limitations, and institutional fragility continue to hold back progress in several economies. Overcoming these will require coordinated, bold, and well-targeted policy responses.

I would like to express my sincere appreciation to the research team led by Professor Robert Breunig, Dean Parham, and Trevor Rose for their outstanding work. I also thank the APO Secretariat team and all those who will use the insights from this report to support productivity-focused development in their respective countries.

Looking ahead, the APO remains committed to supporting our members in strengthening institutions, nurturing innovation, and crafting sound,

data-driven, and evidence-based policies for inclusive and sustainable growth. This report is not just a status check; it is an invitation to act.

Let us translate these findings into progress for our economies, our communities, and our shared future.

Dr. Indra Pradana Singawinata
Secretary-General
Asian Productivity Organization
Tokyo, Japan

PREFACE

This report updates our previous study, *APO Productivity Readiness 2020*. That report drew from the economics literature a summary of the key factors determining productivity growth. It developed a framework for the determinants of productivity with respect to a single country. That framework took the perspective that productivity depends crucially on the actions of individuals and firms in an economy and that the role of the government is to ensure that a country is "productivity ready." Governments cannot dictate productivity improvements, but they can endeavor to ensure that the pre-conditions for productivity growth are in place.

The determinants or "building blocks" of productivity growth are many and varied. Being productivity ready involves paying attention to both immediate and underlying determinants of productivity. Immediate determinants are firms' decisions about what to produce, which technologies to adopt, and how much and which types of labor and capital to use. Underlying determinants relate to the broader economic and social environments and are amenable to improvements through government policies.

The Asian Productivity Organization (APO) sought this update of the 2020 study to refresh the framework we developed and, by using numerical measures, to assess APO member economies' progress in improving their productivity readiness in recent years. The APO also sought practical insights into policy actions that member economies could take to improve their productivity readiness. The country summaries we have produced in this report serve this aim. A novel contribution of this report is the inclusion of climate change analysis, in view of the differential exposure of economies to climate change, the expected productivity impacts, and the policy environment with respect to mitigation and adaptation measures.

The study draws heavily on data from the APO Productivity Databook 2022 but also draws on other sources including The Conference Board, the Penn World Tables and the World Bank. The frequent change in variables' definitions, structural breaks in time series, and the disappearance of data from the historical record are challenges when compiling longitudinal data about productivity determinants and their composition. Steps to improve data and ensure that historical data are preserved should remain an important objective for the APO and similar organizations.

This report benefits enormously from the contributions of our collaborators. We thank Ric Curnow, Portia Palmerlee, and Aden Wilmshurst.

We thank Santi Setiawati, Anar Bayarsaikhan, and Jose Elvinia from the APO for support and comments.

Productivity is important. "Productivity isn't everything, but in the long run, it is almost everything," as Paul Krugman said.

Productivity is the long-run determinant of wages and incomes and through these, well-being. Using productivity readiness to track progress on productivity can provide a useful benchmark to economies pursuing this all-important goal.

We hope our examination of economies' performance with respect to productivity and its underlying determinants will lead to improved well-being for the citizens of member economies across the APO.

Robert Breunig
Dean Parham
Trevor Rose
Canberra
30 April 2025

EXECUTIVE SUMMARY

A country's productivity performance is central to its standard of living. More productivity results in higher income per capita, which provides the means to improve economic, social, and environmental wellbeing.

APO member economies exhibit significant differences in average incomes, primarily due to variations in productivity growth over the past 50–70 years. To continue improving their standards of living, APO member economies and lower-income nations need strong and sustained productivity growth.

A key message from this report is that strong and sustained productivity performance depends on many factors. Some are obvious, such as the adoption of new technologies, while others are deeply rooted, such as the quality of institutions and governance. There is no single "silver bullet."

The building blocks of productivity are categorized into the following four areas:

- *Motivation:* Firms need motivation to improve their productivity performance. Stronger competition drives innovation, while unnecessary tax and regulatory burdens can diminish firms' motivation to undertake necessary changes.

- *Capabilities:* Long-term productivity improvements require capabilities in areas such as skills, competencies, and infrastructure.

- *Efficiency of markets:* Resources and capabilities need to be allocated where they can make the most significant productivity contributions. This requires flexibility to respond to changing economic circumstances and the appropriate signals for making productive long-term investment decisions.

- *Stability:* Firms need economic and political stability to make productive long-term investment decisions. This stability stems from sound policy frameworks and institutions.

To promote strong and sustained productivity performance, all four of the above areas need to be firmly in place. They are interdependent. For example, even if well motivated to improve productivity, firms will not realize available opportunities if sufficient workforce skills (capabilities) are not available or if political instability or uncertainty in the environment undermines the confidence needed for long-term productivity-enhancing investments.

Having strength in all four areas is what makes a nation "productivity-ready." Being productivity-ready means firms and industries can make the most of available productivity opportunities, develop new opportunities, and respond quickly when circumstances change. The ability to respond quickly and effectively matters because the nature and timing of productivity opportunities (and adverse changes) cannot be predicted with certainty.

This report measures APO member economies' productivity readiness through the Productivity Readiness Index (PRI). With an additional five years of data, it provides updates on the estimates first published in an earlier APO report (Parham and Breunig 2021). It extends the framework to incorporate data from earlier periods so that changes in productivity readiness can be tracked over more than two decades.

The Context

Based on World Bank Country and Lending Groups, APO member economies fall into three groups, according to their average incomes (GDP per capita):

- High income: Singapore, Hong Kong, the Republic of China (ROC), the Republic of Korea (ROK), and Japan.

- Upper-middle income: Fiji, Indonesia, Islamic Republic of Iran (IR Iran), Malaysia, Mongolia, Thailand, and Turkiye.

- Lower-middle income: Bangladesh, Cambodia, India, Lao PDR, Nepal, Pakistan, Philippines, Sri Lanka, and Vietnam.

Average income status corresponds very closely to productivity performance. (Indeed, productivity performance explains nearly all the variation in average income across all economies of the world.) The high-income APO member economies have experienced strong productivity growth over the last five decades, and have moved toward the world productivity frontier in a process of "catch-up." The upper- and lower-middle-income APO member economies have shown weaker productivity growth, mainly in the 21st century (Figure 1).

FIGURE 1

CATCHUP TO USA's PRODUCTIVITY LEVELS BY APO INCOME GROUPS.

Source: Penn World Tables (Feenstra, Inklaar & Timmer 2023); Authors.
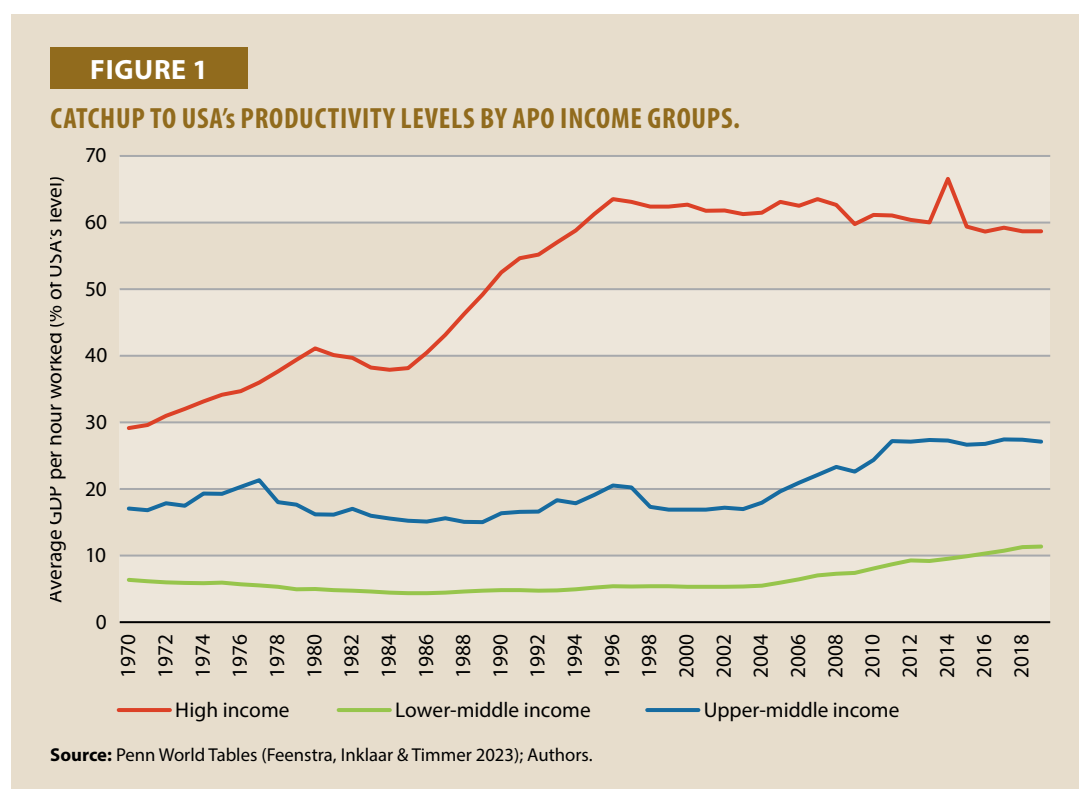
Figure 1 also clearly shows that large gaps in productivity levels remain between income groups. According to most recent estimates, the average productivity level in upper-middle-income economies is 46% of that in high-income economies, while the average in lower-middle-income economies is 19%.

Persistent gaps in productivity levels suggest that the catch-up process, where lower-income and productivity economies move toward high-income and high-productivity economies, does not occur quickly or automatically. The difference lies in productivity readiness. High-income economies are much more developed in their productivity determinants and score significantly higher on the Productivity Readiness Index.

Overall Productivity Readiness

Singapore stands out both within the APO region and globally, with the highest PRI score of 98 in 2022. Hong Kong (88) and Japan (84) also have high scores, while the ROK has a score of 76. Upper-middle-income economies range from 21 to 69, and lower-middle-income economies range from 26 to 50.

FIGURE 2

PRODUCTIVITY READINESS INDEX SCORES OF APO MEMBER ECONOMIES, 2022.

Source: Authors.
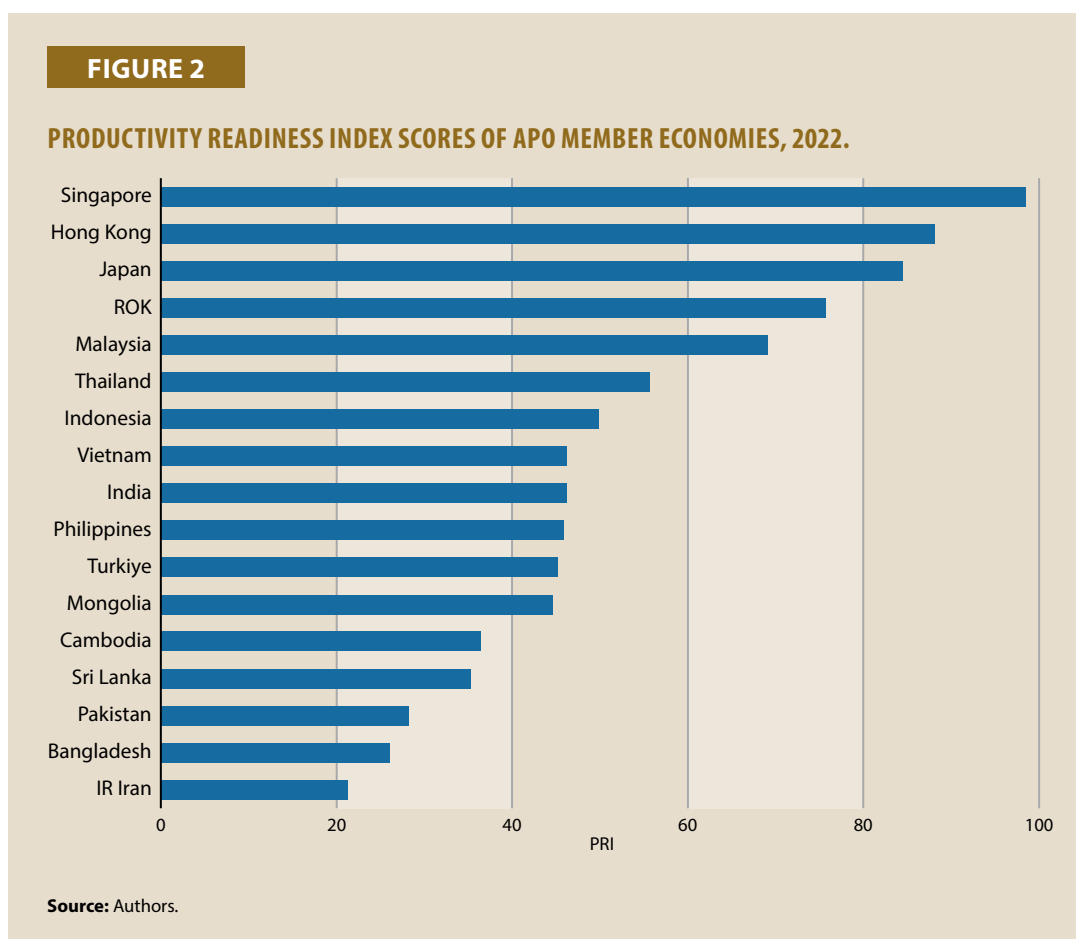
The scores for other economies suggest they still have considerable scope to implement changes that would bring them closer to the productivity readiness of economies with high productivity levels. Improving productivity readiness will help these economies catch up more rapidly with the living standards of Japan and the Asian Tigers.

While APO member economies are not as productivity-ready as OECD economies, they remain more productivity-ready than non-APO, non-OECD economies. This is apparent when considering the overall productivity readiness index, where OECD economies average 77, APO member economies average 53, and the non-APO, non-OECD economies (mostly covering Africa, South America, and Eastern Europe) have an average score of 44. See Table 1.

It is evident when considering overarching themes of motivation, capabilities, efficiency of markets, and stability. The APO lags the OECD in each of these areas by 26 points (stability), 24 points (motivation), and 22 points (capabilities and efficiency of markets).

TABLE 1

AVERAGE VALUES OF THEME INDEXES AND PRI BY APO, OECD, AND OTHER GROUPS, 2022.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Sample size
APO member economies	52	57	45	49	53	17
OECD economies	76	79	67	75	77	38
Other economies not in OECD or APO	43	48	39	40	44	66

Note: Some APO member economies are also in the OECD, so the OECD averages include some APO member economies.

The analysis in the report reveals that each of the four thematic areas is equally important in shaping productivity readiness. This reinforces the point that strength in all areas is necessary to establish the preconditions for strong and sustained productivity performance. Examining the scores on the thematic indexes and the overall productivity readiness index for all APO member economies also indicates that overall productivity readiness requires attention to all four overarching themes.

TABLE 2

VALUES OF THEME INDEXES AND PRI BY APO MEMBER ECONOMIES, 2022.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI
Singapore	98	98	88	94	98
Hong Kong	86	90	81	80	88
Japan	84	87	69	86	84
ROK	77	80	60	75	76
Malaysia	69	76	59	62	69
Thailand	54	66	48	46	56
Average	**52**	**57**	**45**	**49**	**53**
Indonesia	51	50	44	47	50
Vietnam	46	51	40	42	46
India	49	45	36	49	46
Philippines	45	49	42	40	46
Turkiye	47	52	39	36	45
Mongolia	40	50	40	41	45
Cambodia	31	46	35	27	36
Sri Lanka	35	35	27	40	35

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	Motivation	Capabilities	Efficiency of markets	Stability	PRI
Pakistan	29	30	23	28	28
Bangladesh	26	28	20	28	26
IR Iran	20	32	13	18	21

While economies with high scores in overall productivity readiness have high scores in the individual themes, there is significant variation across economies in which themes are ranked highest and lowest. Sri Lanka, for example, ranks high in stability relative to other themes. Turkiye and Cambodia rank much higher in capabilities than in other themes. Overall, APO member economies rank highest in capabilities and motivation and lowest in market efficiency and stability.

Recent Progress in Improving Productivity Readiness

Table 3 shows the changes in productivity readiness since the previous report (Parham and Breunig, 2021). Economies are ordered by the change in the overall PRI. For the 17 economies for which it is possible, given data availability, to calculate the PRI, eleven have improved their productivity readiness in the last five years. Six have experienced decreases in productivity readiness.

Those that have improved are a mix of economies that started at high levels of productivity readiness (e.g., ROK and Singapore) and economies with low levels of initial productivity readiness (e.g., Bangladesh, India, and Pakistan). Improvements in productivity readiness have come from enhancements in all the theme indexes, reinforcing the importance of the interaction among all the theme areas in generating increased productivity readiness. Of particular note are large improvements in "capabilities" for nearly all the economies that have increased their productivity readiness in the last five years. Improvements in "efficiency of markets" and "stability" have also been important for those who have increased their productivity readiness by large amounts (4% or more).

For those economies that have experienced decreases in productivity readiness, decreases in "motivation" and "stability" have been particularly pronounced. In all cases, economies that have experienced decreases in overall productivity readiness have experienced declines in three or all four of the theme areas.

Over a longer time period, from 2000 to 2022, nearly all APO member economies have seen improvements in productivity readiness. Sri Lanka and Turkiye are the two exceptions.

TABLE 3

CHANGE IN VALUES OF THEME INDEXES AND PRI BY APO MEMBER ECONOMIES, 2017−22.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI
India	6.89 (16.6%)	4.48 (11.1%)	4.44 (14.1%)	2.36 (5.3%)	4.79 (11.8%)
Indonesia	5.82 (12.9%)	2.15 (4.5%)	4.45 (11.2%)	4.65 (11.4%)	4.47 (9.9%)
ROK	3.14 (4.3%)	3.50 (4.6%)	1.80 (3.1%)	4.68 (6.6%)	3.34 (4.6%)

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	Motivation	Capabilities	Efficiency of markets	Stability	PRI
Vietnam	2.28 (5.2%)	2.38 (4.9%)	3.04 (8.2%)	1.15 (2.8%)	2.37 (5.4%)
Thailand	0.58 (1.1%)	3.36 (5.3%)	2.38 (5.1%)	2.36 (5.4%)	2.27 (4.2%)
Malaysia	1.65 (2.4%)	1.59 (2.1%)	0.80 (1.4%)	3.52 (6.1%)	1.90 (2.8%)
Pakistan	0.15 (0.5%)	1.61 (5.7%)	−0.24 (−1.0%)	1.71 (6.5%)	0.78 (2.8%)
Bangladesh	0.80 (3.1%)	1.33 (5.1%)	0.34 (1.7%)	0.37 (1.3%)	0.73 (2.9%)
Singapore	0.32 (0.3%)	0.09 (0.1%)	1.43 (1.6%)	0.65 (0.7%)	0.69 (0.7%)
Cambodia	0.35 (1.1%)	1.02 (2.3%)	−0.83 (−2.3%)	1.95 (8.1%)	0.56 (1.6%)
Philippines	0.47 (1.0%)	1.15 (2.4%)	0.55 (1.3%)	−1.91 (−4.7%)	0.12 (0.3%)
Japan	−0.71 (−0.8%)	−0.36 (−0.4%)	0.03 (0.0%)	−0.19 (−0.2%)	−0.31 (−0.4%)
Mongolia	−1.08 (−2.6%)	−1.42 (−2.8%)	−0.31 (−0.7%)	−0.44 (−1.1%)	−0.83 (−1.8%)
IR Iran	−3.06 (−12.9%)	2.87 (10.1%)	−1.82 (−12.4%)	−8.88 (−32.0%)	−2.72 (−11.3%)
Sri Lanka	−5.00 (−11.4%)	−2.18 (−5.7%)	−3.77 (−11.3%)	−2.61 (−5.7%)	−3.58 (−8.6%)
Hong Kong	−5.09 (−5.6%)	−0.31 (−0.3%)	−3.83 (−4.5%)	−7.85 (−8.7%)	−4.40 (−4.7%)
Turkiye	−4.28 (−8.2%)	−5.67 (−9.8%)	−5.84 (−12.7%)	−4.34 (−10.4%)	−5.31 (−10.3%)

Note: Values in table are changes in the level of the index. Percentage changes shown in brackets (). Changes are calculated based on three-year averages.

The report confirms the usefulness of the productivity readiness index as a reliable measure of productivity, whether measured as labor productivity or total factor productivity. Increases in productivity readiness are shown to translate into increases in labor productivity and total factor productivity. The overall productivity readiness index is robust to changes in the set of underlying indicators used, and the index is not overly influenced by any individual indicator.

Specific Strengths and Weaknesses

The report identifies specific strengths and weaknesses of economies in terms of their productivity readiness. Key findings include:

- Regulatory quality, government effectiveness, and the rule of law remain influential in determining productivity readiness and growth.

- Corruption and political instability continue to have significant negative impacts on productivity. Addressing corruption and ensuring institutional stability are important elements for improving the productivity environment.

- Infrastructure and openness to trade and investment continue to have important implications for productivity. The potential for infrastructure improvements to reduce production and trade costs is frequently highlighted in individual country reports.

- High regulatory burdens remain a weakness in many APO member economies.

- Several economies still need to improve their education systems and ensure access to education for all, including those in rural areas.

- Labor market inflexibility continues to be a weakness for nearly every APO country.

The strengths and weaknesses of individual economies at the level of the building blocks of productivity readiness are presented in detail in the appendix of the report. A summary of key strengths and weaknesses is provided in Table 4.

TABLE 4

KEY STRENGTHS AND WEAKNESSES OF APO MEMBER ECONOMIES ON DETAILED ASPECTS OF PRODUCTIVITY READINESS.

Country	Strengths	Weaknesses
Bangladesh	• Foreign investment in RMG sector • High savings rate	• Quality of education system • Institutional weaknesses, corruption control • Business environment dynamism
Cambodia	• Openness to foreign investment	• Poor regulatory quality and low control of corruption • Infrastructure underdevelopment • Quality of education system
ROC	• Highly educated workforce • Highly developed infrastructure and strong institutions • Advanced innovation system	• Restrictions on foreign investment • Inefficiencies in tax system
Fiji	• High-quality institutions • Flexible labor market	• Low regulatory quality • Trade and investment barriers • Skills shortages
Hong Kong	• Highly educated workforce • Highly developed infrastructure and institutions	• Uncertain political environment
India	• Growing digital economy • Improved education system	• Barriers to trade and foreign investment • Skills shortages

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Country	Strengths	Weaknesses
Indonesia	• High savings rate • Social capital • Domestic competition	• Labor market inflexibility • Barriers to trade and foreign investment • Low infrastructure quality
IR Iran	• High savings rate	• Corruption and weak governance • Labor market inflexibility • Trade and foreign investment restrictions
Japan	• Highly educated workforce • Highly developed infrastructure and strong institutions • Technological advancement	• High tax burden • Labor market rigidities • Weak contribution of SMEs to R&D expenditure
ROK	• Highly developed infrastructure and strong institutions • High technological advancement	• High tax burden • Labor market rigidities • Trade barriers
Lao PDR	• Low tax burden • Openness to foreign investment	• Burdensome administrative requirements • Poor regulatory quality • Public-sector capacity • Low access to technology
Malaysia	• Entrepreneurial culture • Quality of education system • Technological advancement	• Administrative requirements • Talent outflow
Mongolia	• Openness to foreign investment • Labor market freedom • Low tax burden	• Infrastructural underdevelopment • Burdensome government regulation and administrative requirements • Limited domestic competition
Nepal	• High educational expenditure • High savings rate	• Weak institutions and political instability • Low human capital • Barriers to trade and foreign investment
Pakistan	• Young population	• Poor regulatory quality, government ineffectiveness, and low control of corruption • Lack of business freedom and labor market rigidities • Weak institutions and political instability

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Country	Strengths	Weaknesses
Philippines	• Workforce skills • Increasingly entrepreneurial culture	• Political instability, control of corruption and rule of law • Burdensome administrative requirements • Underdeveloped infrastructure
Singapore	• Highly educated workforce • Highly developed infrastructure and strong institutions • High technological advancement	• Lack of press freedom and political expression
Sri Lanka	• Relatively good education system • Relatively developed infrastructure	• High regulatory and administrative burden • High barriers to trade and foreign investment
Thailand	• Efficient administrative requirements and business freedom • Financial depth and stability	• High prevalence of informal labor • Skills shortages • Political instability
Turkiye	• Workforce skills • Services trade openness	• Low regulatory quality • Low foreign investment • Political instability and declining quality of governance
Vietnam	• Relative openness to trade • Reasonably developed infrastructure	• Poor regulatory quality and low control of corruption • Inequality between rural and urban communities • Poor technological advancements

Directions for Government Action

All economies could benefit from reviewing their standing on the building blocks of productivity performance. A multifaceted approach, with strength in all areas, is ultimately necessary to lift and sustain productivity growth over the long term. All four areas of motivation, capabilities, efficiency of markets, and stability must be firmly in place.

That said, there is no "one size fits all" approach for economies to adopt. Immediate priorities will vary across economies, depending on where the most significant gaps in indicators and higher-level indexes exist, and on the economic circumstances of individual economies.

The levels of productivity readiness in the different themes serve as a guide to action. Countries should focus on those theme areas where they are underperforming relative to other areas. Given the need for balance across all four areas of motivation, capabilities, efficiency of markets, and stability, aiming for improvement in areas which are underperforming provides a useful guide to action.

Table 4 offers some suggestions for further investigation based on the indicators used in this study to form the indexes of overall productivity and the four overarching themes. Governments can track their performance against publicly available data on these indicators. These indicators are described in detail in Chapter 4 of this report.

While priorities will vary for individual economies, the report suggests that all APO governments should focus on the following to enhance productivity readiness and, consequently, productivity performance:

- The need for greater political and economic stability, improved government effectiveness, and better control of corruption remains a common theme.

- Openness to trade and foreign investment also has strong links to productivity readiness and growth. Removing unnecessary and distorting trade and investment barriers will yield long-term benefits.

- Raising skills and improving human capital have been key elements of productivity improvements in APO member economies that have experienced the strongest economic growth. For economies with lower levels of human capital and weaker education systems, improving education and skills is crucial.

- Eliminating stifling bureaucracy and regulation is an important goal for all APO member economies.

- Governments do not need to force changes in industry mix or structure. They should work to improve the determinants of productivity broadly and allow industry structure to evolve naturally.

- Participation in GVCs remains vital for APO member economies' income and productivity growth. However, risks such as supply chain disruptions, geopolitical tensions, and technological changes require careful management.

- Digitization and artificial intelligence offer crucial opportunities for productivity growth in the APO region. Efforts to remove barriers to adoption should be undertaken.

- As trade in services grows and becomes increasingly important to the productivity of APO member economies, unnecessary and distorting barriers to trade in services (as well as to trade in general) need to be reviewed and reduced.

- Climate change and efforts to prevent further temperature rises and mitigate its effects will impact productivity performance. It is vital to implement measures that reduce effects and costs, including those fostering change and innovation.

Progress in improving productivity readiness has been slow, with some economies even regressing. A commitment to enhancing the building blocks of productivity performance through a comprehensive package of measures and consistent application will lead to improved productivity readiness and sustained productivity growth.

CHAPTER 1
INTRODUCTION

Economic growth and development are fundamental keys to the well-being of a nation's citizens. Gross domestic product (GDP) per capita, despite its shortcomings, remains a useful measure of economic well-being and the capacity of a nation to pursue social and environmental goals. It is highly correlated with health outcomes, life satisfaction, economic and social freedom, and education. GDP per capita is used throughout this report as a proxy for a country's standard of living.

The level of productivity is the main determinant of a country's standard of living over the long term. Figure 1 shows the close relationship for APO member economies between GDP per capita and labor productivity in 2022. The correlation coefficient between the two is over 0.95. It is self-evident that higher productivity is associated with higher average living standards (see Box 1 for an explanation of productivity concepts.

This report focuses on productivity readiness, captured through a Productivity Readiness Index (PRI). The PRI measures the degree to which economies have created an economic environment that encourages productivity. To improve well-being, it is critical that APO members assess and improve their productivity readiness.

FIGURE 1

GDP PER CAPITA AND LABOR PRODUCTIVITY OF APO MEMBER ECONOMIES IN 2022, RELATIVE TO SINGAPORE.
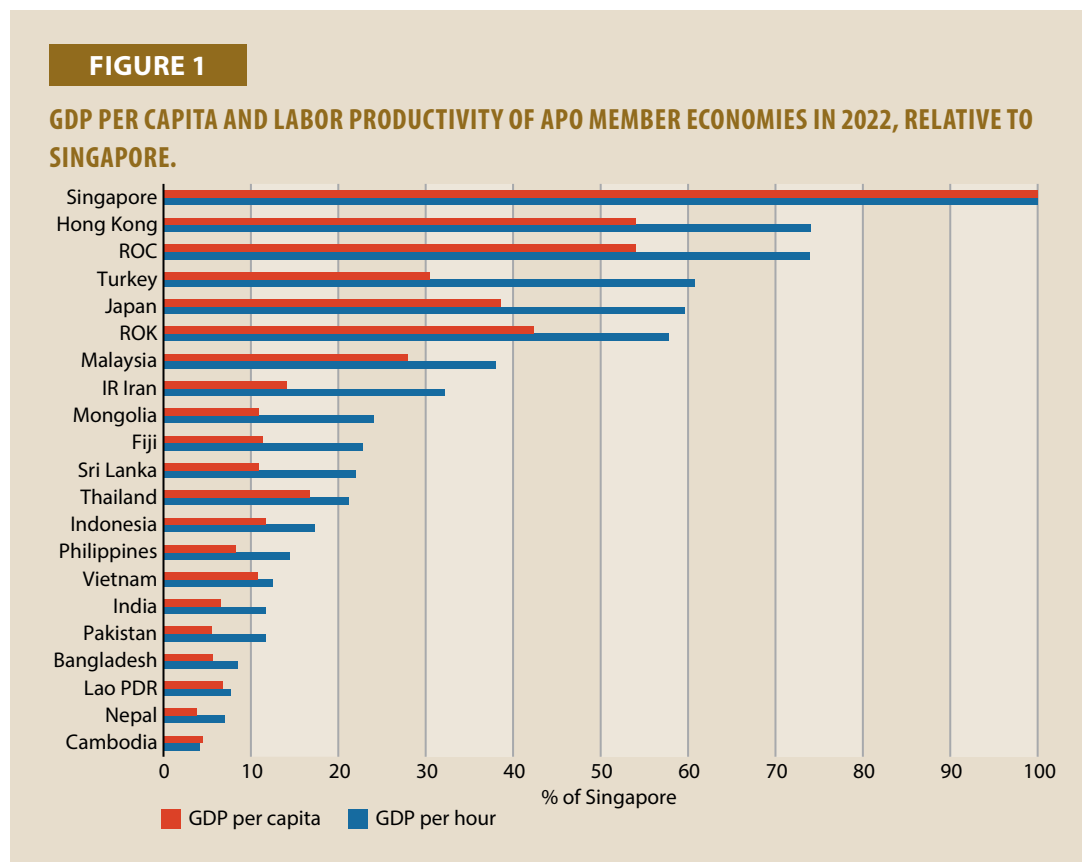
Productivity growth should therefore be a key focus of policymakers' actions to improve living standards in their country. While it is sometimes easy for governments to yield to short-term political pressures, it is a consistent commitment to comprehensive productivity-enhancing policies that will deliver stronger and more sustainable economic improvements over the long term.

The Reserve Bank of Australia (2025) notes that productivity growth contributes to one or more of the following:

- higher wages;

- lower prices;

- higher profits for firms; and

- stronger economic growth.

Tax revenue to governments can also increase. Or, governments may be in a better position to offer tax relief to businesses and households.

This report focuses on what it takes to produce and sustain high productivity growth. The factors that must be in place to bring about durable productivity growth are identified and, as far as possible, measured. Concrete and measurable indicators of the determinants of productivity are put forward. These indicators give policymakers strong signals about what kinds of policies they can adopt to improve productivity, per capita GDP, and thus national standards of living. It provides them with measurable indicators they can track to assess where policy reform may be warranted.

BOX 1

KEY PRODUCTIVITY CONCEPTS.

Productivity, at its simplest, is the ratio of output produced to inputs used. It measures the efficiency of production in generating outputs from inputs. Colloquially, it is "what we get from what we use."

Labor productivity is the ratio of output produced to labor input used. In other words, the rate at which labor generates output. The labor input measure includes all involved, whether they are direct production workers, back-office staff, or managers. It includes the self-employed, business owners, and those employed by others.

Capital productivity is the rate at which output is produced from the capital deployed. Capital covers all assets relevant to production, including buildings, machines, equipment, and land.

Total factor productivity (TFP), also referred to as multifactor productivity, is the rate at which output is produced from a combination of inputs. Typically, labor and capital

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inputs are included in the combined inputs measure. Other inputs can also be included. The measures used in this report also consider labor quality. TFP captures the efficiency and effectiveness with which inputs are combined to generate output.

Labor productivity growth can be attributed to two components: capital deepening plus total factor productivity (TFP) growth. Capital deepening is essentially growth in the capital–labor ratio. It should improve labor productivity (LP) because adding more or better-quality capital makes each hour of work more productive. One example is adding capital to mechanize a process. TFP growth raises LP growth by lifting the efficiency and effectiveness with which labor combines with capital to generate output.

While all productivity measures reflect the efficiency of production, TFP is the most comprehensive measure. It indicates how efficiently and effectively labor, skills, and capital combine to generate output (and income).

Factors that can improve the rate at which output is produced from the inputs used include the application of new technologies and quality management practices.

Study Overview and Methodology

The APO commissioned this study as a follow-up to an earlier report, APO Productivity Readiness 2020, referred to here as Parham and Breunig (2021). This current study employs the methodology of that earlier report. It updates the measurement and analysis of APO member economies' productivity readiness. That is, the extent to which economies have instituted the range of factors that have been shown to be crucial in determining a country's productivity performance. This sheds light on possible areas for further policy attention.

The information base for the current study enhances that used in the previous study. Data series have been updated, wherever possible, by five years to 2022. This enables an examination of the effects of recent developments on economic performance. Some new indicators are introduced, and since they are more likely to be available in the future, their introduction should help improve the comparability of indicators and productivity readiness measures over future years.

Data on economies' productivity readiness and performance are drawn from: the APO, the Conference Board, the Global Entrepreneurship and Development Institute, the Harvard Atlas of Economic Complexity, the Heritage Foundation, the IMD World Competitiveness Centre, the Institute for Taxation and Accounting (Ludwig-Maximilians-Universität München), the International Centre for Tax and Development, the International Labor Organization, the International Monetary Fund, KOF Swiss Economic Institute, the OECD, Penn World Tables, the UN, the World Bank, the World Economic Forum (WEF), the WHO, and the World Values Survey. The 'References and Data Sources' section at the end of chapter 4 provides details on where these data were obtained. Further data, such as official data from specific economies and sector-specific data, are used in the country profiles presented in Appendix.

This report implements the methodology of Parham and Breunig (2021), with some data modifications. A framework of 18 major productivity determinants provides the starting point. A set of 24 indicators is used to score individual economies' performance on aspects of these 18 determinants. The 24 indicators are then aggregated into four high-level indexes, representing the overarching themes that drive and enable the productivity determinants to improve productivity performance.

The overarching themes are:

- motivation (firms must have a driving reason to be more productive);

- capabilities (firms need the means to be more productive);

- efficiency of markets (resources should be able to move flexibly to where they can be used most productively); and

- stability (having a level of certainty allows firms, individuals and governments to make long-term investment decisions).

In a further step, the country scores on the overarching themes are aggregated into the overall PRI. The PRI is a quantitative indicator of a country's ability to develop and take advantage of opportunities to improve productivity.

For each country, a scorecard is provided on individual indicators of productivity determinants, the overarching themes, and the PRI. Possible policy implications for productivity improvement are then drawn.

A key message from this study is that economies need to work on many fronts to be "productivity-ready" to develop and take advantage of productivity opportunities as they arise. Often, these opportunities cannot be predicted with any certainty. Flexibility, general capabilities, and the ability to adapt are needed for long-term productivity performance. A narrow strategy, based on one or two "magic" policies or projects, runs the risk of waste and failure. Thinking about the entire social and economic ecosystems and recognizing the inter-relationships and inter-dependencies between different indicators of productivity readiness are of vital importance.

It is also important to stress that the approach used in this study does not imply that there is a single, uniform mix of policies that is relevant to all economies. Different priorities may well be appropriate for different economies, depending on many factors including stage of development and comparative advantages. The indicator and index scores help to identify areas in which further investigation may be required.

Chapter Outline

The next two chapters provide the context before launching into the Productivity Readiness framework.

- Chapter 2 discusses a series of factors that have affected or will affect productivity performance in APO member economies outside of the productivity determinants that are examined and enumerated in the report. In addition, this chapter includes an assessment of

the impacts of climate change and efforts to prevent further rises in temperature, as well as their effects on economies' productivity performance. It is vital to ensure that measures to reduce effects and costs are in place, including those that foster change and innovation.

- Chapter 3 reviews the long-term productivity performance of APO member economies to establish where challenges to improving performance might lie.

- Chapter 4 outlines the framework of productivity determinants used in the study. The framework is the same as the one used by Parham and Breunig (2021), which originates from a review of the economics literature on factors affecting productivity growth. The chapter also describes the nature and sources of indicators used to measure the extent to which economies possess the productivity determinants. The differences from Parham and Breunig (2021), which have been introduced to future-proof the exercise, are discussed.

- Chapter 5 presents the quantitative analysis of the indicators. Indicator values are combined to produce country scores on indexes for the four overarching themes identified above. These index scores are then combined to generate values for the overall Productivity Readiness Index (PRI). Measures of APO member economies' productivity readiness are highlighted, along with changes over time. International comparisons are made, and the stability of the results is tested.

- Chapter 6 highlights key findings from the quantitative analysis. It suggests areas where economies have had, and can have, greater leverage in achieving strong productivity performance over the long term. Recommendations are made on where governments could focus more policy attention.

- Chapter 7 provides a brief conclusion.

The Appendix provides an assessment for each of the 21 APO members, highlighting the strengths and weaknesses of each in relation to the PRI and its four overarching themes The challenges in improving productivity growth that each country faces have been discussed.

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Parham, D., Breunig, R. (2021). *APO Productivity Readiness 2020*. Asian Productivity Organization.

Reserve Bank of Australia (2025). Productivity Explainers series. Retrieved from https://www.rba.gov.au/education/resources/explainers/productivity.html

CHAPTER 2
BACKGROUND AND FOCUS ISSUES

The measurement of APO member economies' readiness to improve productivity is the centerpiece of this report. However, the measures derived do not take into account certain conditions in the economic environments that economies face. Since these conditions are also relevant to policy development for productivity improvement, they are considered in this chapter. The issues considered are:

- productivity catch-up and convergence;

- industry mix and structural change;

- GVCs and trade;

- engagement with digitization;

- developments in trade in services; and

- climate change impact, adaption and policy.

The impact of COVID-19 is discussed throughout. While the productivity effects of the pandemic were largely short-term, its effect on GVCs could be more long-lasting.

Productivity Catch-up and Convergence

One economic theory suggests poorer economies should be able to grow faster than wealthier economies and thereby move closer to the income levels of wealthier economies over time. That is, economies' average incomes over time should at least start to converge as poorer economies catch up.

Three lines of reasoning support this theory. First, capital is attracted to economies with lower wages, and so the rate of capital deepening (see Box 1 in Chapter 1) should be stronger in poorer economies. Second, economies with lower levels of productivity are not subject to diminishing returns to the same extent as wealthier economies with higher levels of productivity. Third, developing economies should be able to access and emulate the technology and capabilities of wealthier economies without the same research and adaptation costs, to achieve more rapid productivity growth.

Empirical evidence on catch-up and convergence globally is mixed. Partial catch-up is evident in some economies at some times, but not in all economies nor at all times. Instances and occasions of divergence also emerge. See Johnson and Papageorgiou (2020); Kremer, Willis, and You (2021); and Kraay (2023).

This mixed evidence has led to research on the process of convergence. Is it something that happens naturally, almost automatically, or does it require certain preconditions and/or particular actions by governments? The empirical evidence shows large, persistent disparities between economies, which suggests the process of convergence is not automatic.

Preconditions matter. There is scope for government policy to change the economic environment in ways that encourage productivity growth and catch-up. In their recent review of the convergence literature, Johnson and Papageorgiou (2020) concluded that removal of inefficiencies, especially in governance and political institutions, explained most economic achievements in developing economies.

Catching up on average income has a lot to do with catching up on productivity levels. As noted in Chapter 1, average income is highly correlated with labor productivity. While greater labor force participation and longer work hours would also raise average incomes, the gaps between economies on those elements are not nearly as large as the gaps in productivity levels.

Based on World Bank Country and Lending Groups (World Bank, 2025), APO member economies fall into three groups, according to their average incomes (GDP per capita):

- high income: Singapore, Hong Kong, the ROC, the ROK, and Japan;

- upper-middle income: Fiji, Indonesia, Islamic Republic of Iran (IR Iran), Malaysia, Mongolia, Thailand, and Turkiye; and

- lower-middle income: Bangladesh, Cambodia, India, Lao PDR, Nepal, Pakistan, Philippines, Sri Lanka, and Vietnam.

Figure 1 shows the mixed performance of APO member economies in catching up to the USA's level of productivity. The USA is generally considered to be at the international productivity frontier.

The high-income group of APO member economies caught up over 40 percentage points toward the USA's average productivity levels between 1960 and the mid-1990s. From that point, catch-up stalled, at least in part because the USA's productivity growth gathered speed.

FIGURE 1

CATCH-UP TO THE USA's PRODUCTIVITY LEVELS BY APO INCOME GROUPS.

Source: Penn World Tables; Feenstra, Inklaar & Timmer (2023).
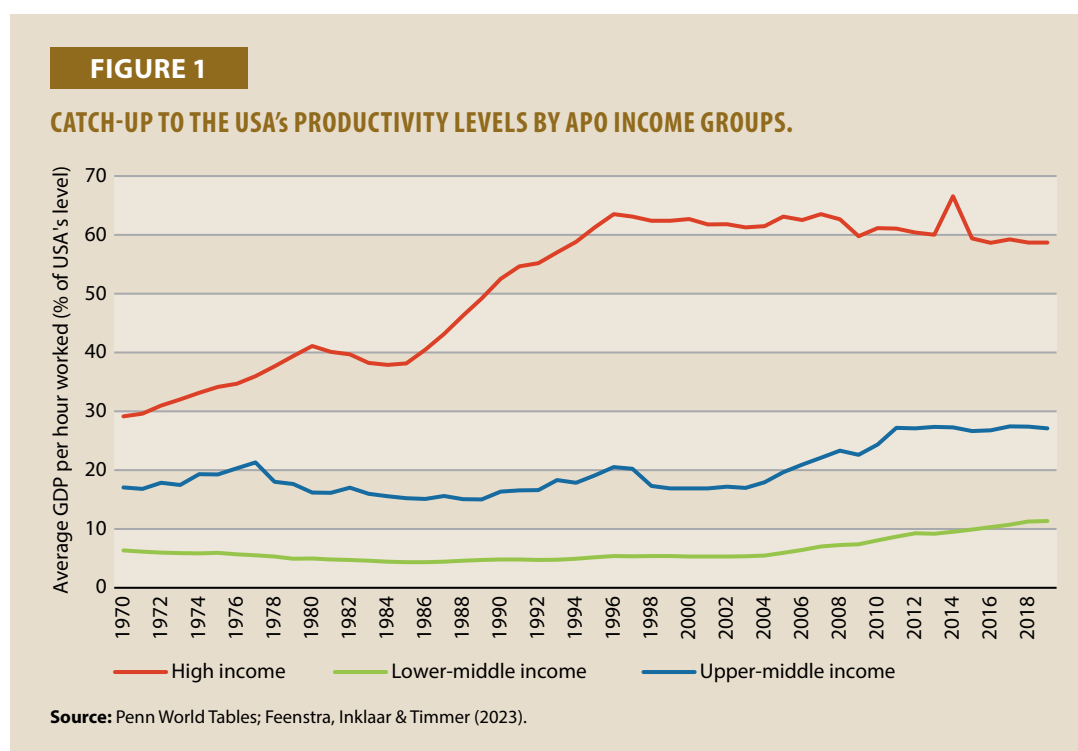
The upper-middle-income group of APO member economies caught up, albeit to a much lesser extent (15 percentage points), by the 2010s through the efforts of Malaysia, Thailand, Indonesia, and Mongolia.

The lower-middle-income group showed an even milder catch-up. In recent years, post-2010, the performance of Cambodia, India, the Philippines, and Vietnam has helped to bring the lower-middle APO member economies closer to the USA.

The differences between higher-, upper-middle-, and lower-middle-income economies are largely related to their stages of development, which are reflected in differences in industry structure and changes in industry structure over time. These aspects are now discussed.

Industry Mix and Structural Change

A country's comparative productivity performance in terms of productivity level and growth is influenced by its stage of economic development and the resources it has available as a foundation for economic activity. Some lower-middle-income economies have a large agriculture sector, which generally has low productivity levels and growth compared to manufacturing and some services sectors. Other higher-income economies have larger advanced manufacturing and services sectors, which can have higher productivity levels and opportunities for growth.

There are several implications. First, differences in productivity performance (levels and growth) between economies can, at least in part, simply reflect different industry structures, which, in turn, reflect different stages of development and different economic environments. A country's weaker productivity performance does not necessarily or fully reflect deficiencies in its productivity pursuits.

Second, productivity growth can be observed at the economy-wide level as economic activity shifts from less productive to more productive industries and sectors. This lifts overall productivity even when output per worker does not increase within firms or within sectors.

Many APO member economies have improved their productivity performance through economic development, as employment has shifted from agriculture to manufacturing and services. This provides some explanation for the evidence of catch-up.

"Industry mix" in general refers to the composition or distribution of different industries within a specific economy or region. It describes what types of industries are present and their relative importance or contribution to employment and output.

Parham and Breunig (2001) showed the wide differences in industry mix among APO member economies, the considerable structural change that has taken place over time, and the effects of industry mix and structural change on productivity performance. The rest of this section provides a data update.

Industry Mix

The industry structures of APO members vary widely, as shown in Figure 2, which orders economies from highest to lowest labor productivity (GDP per hour worked) in 2022. Agriculture is a major sector in Nepal, Cambodia, Pakistan, and the Lao PDR, but it is almost absent in the high-

productivity metropolises of Singapore and Hong Kong. Manufacturing is a relatively large sector in the ROK, Thailand, Malaysia, Japan, and Indonesia. Hong Kong, Japan, and Singapore are predominantly service economies.

FIGURE 2

INDUSTRY STRUCTURES OF APO MEMBER ECONOMIES IN 2022.

Source: Asian Productivity Organization, 2024.
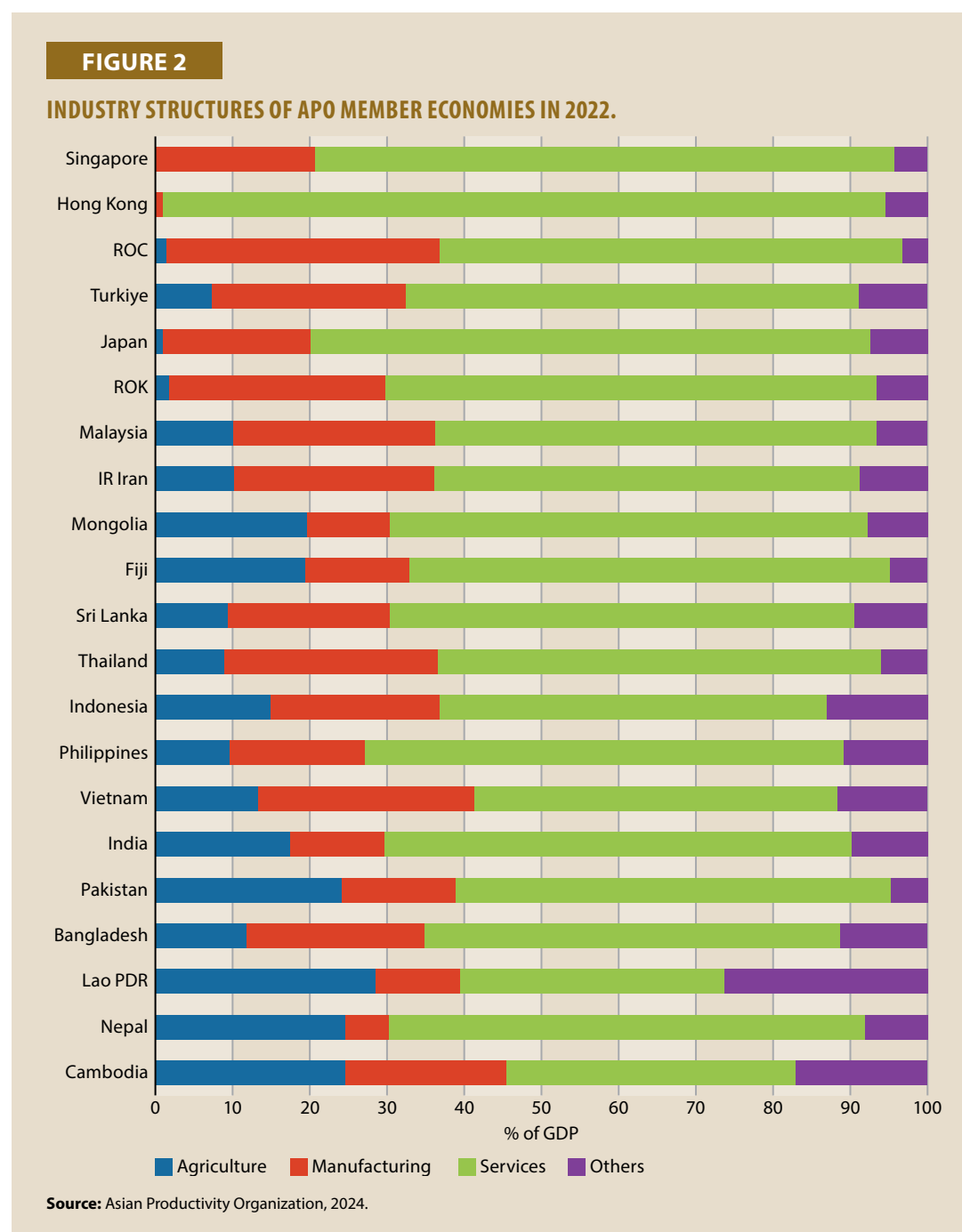
Difference in Productivity Levels

There are significant differences in productivity levels between industry sectors. Figure 3 illustrates that, in nearly all economies, the manufacturing sector has the highest productivity level, followed by services and agriculture. The figure also highlights that productivity levels for a given sector are much higher in high-productivity economies than in lower-productivity economies, which is another manifestation of economic development.

FIGURE 3

OUTPUT PER PERSON EMPLOYED BY SECTOR IN APO MEMBER ECONOMIES, 2022.

Output per person employed ('000 2022 USD, 2017 PPPs)

■ Agriculture   ■ Manufacturing   ■ Services
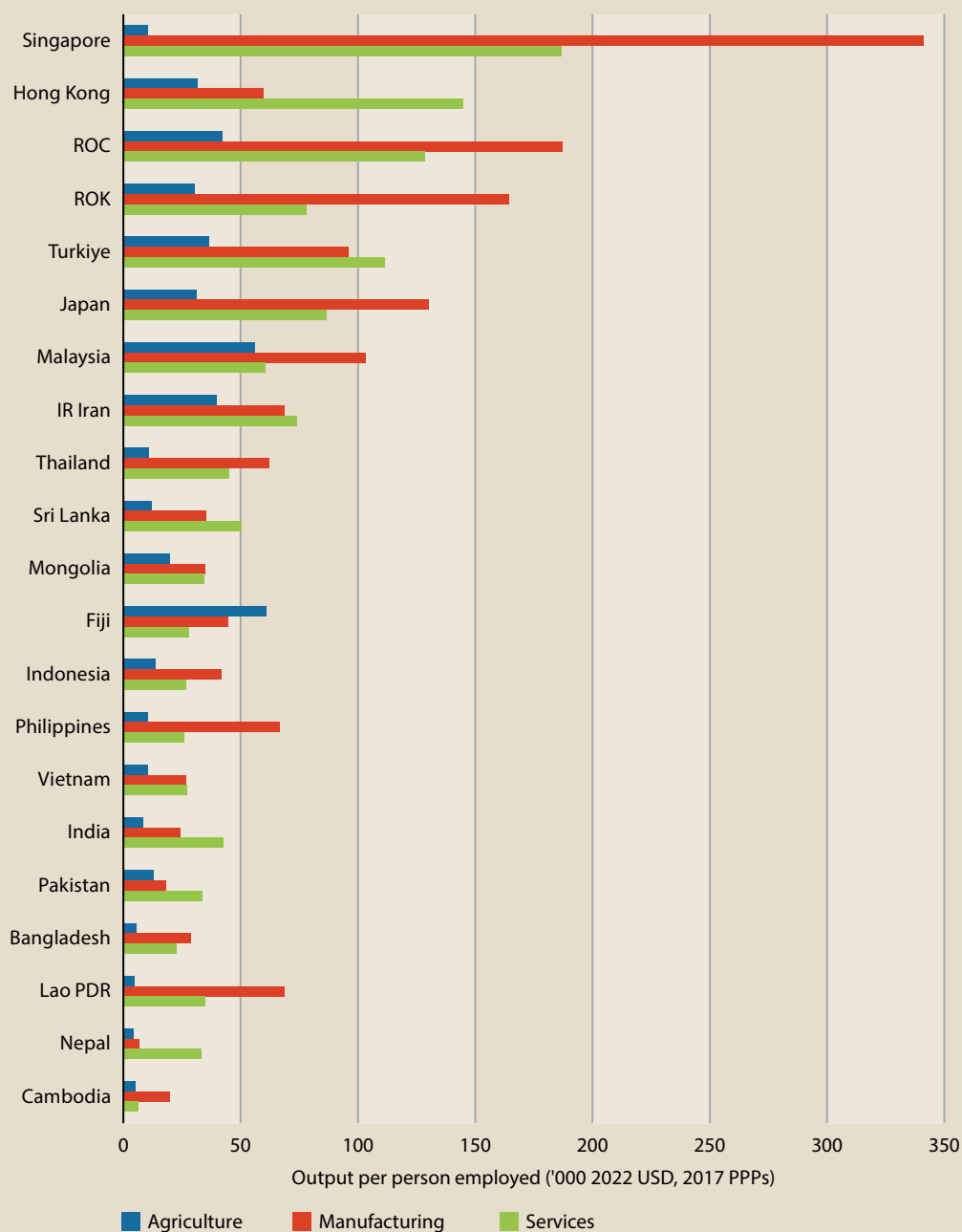
Source: Asian Productivity Organization, 2024.
Note: Countries are ordered by GDP per person.

Structural Change

APO member economies have undergone considerable structural change in recent decades. Figure 4 shows a measure of structural change[1] for each APO country for the 2012–22 period. Countries are ordered from highest to lowest labor productivity.

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[1] The structural change index is calculated as half the sum of the absolute differences in sector shares between 2012 and 2022.

FIGURE 4

STRUCTURAL CHANGE INDEX FOR APO MEMBER ECONOMIES, 2012–22.

Source: Asian Productivity Organization, 2024.
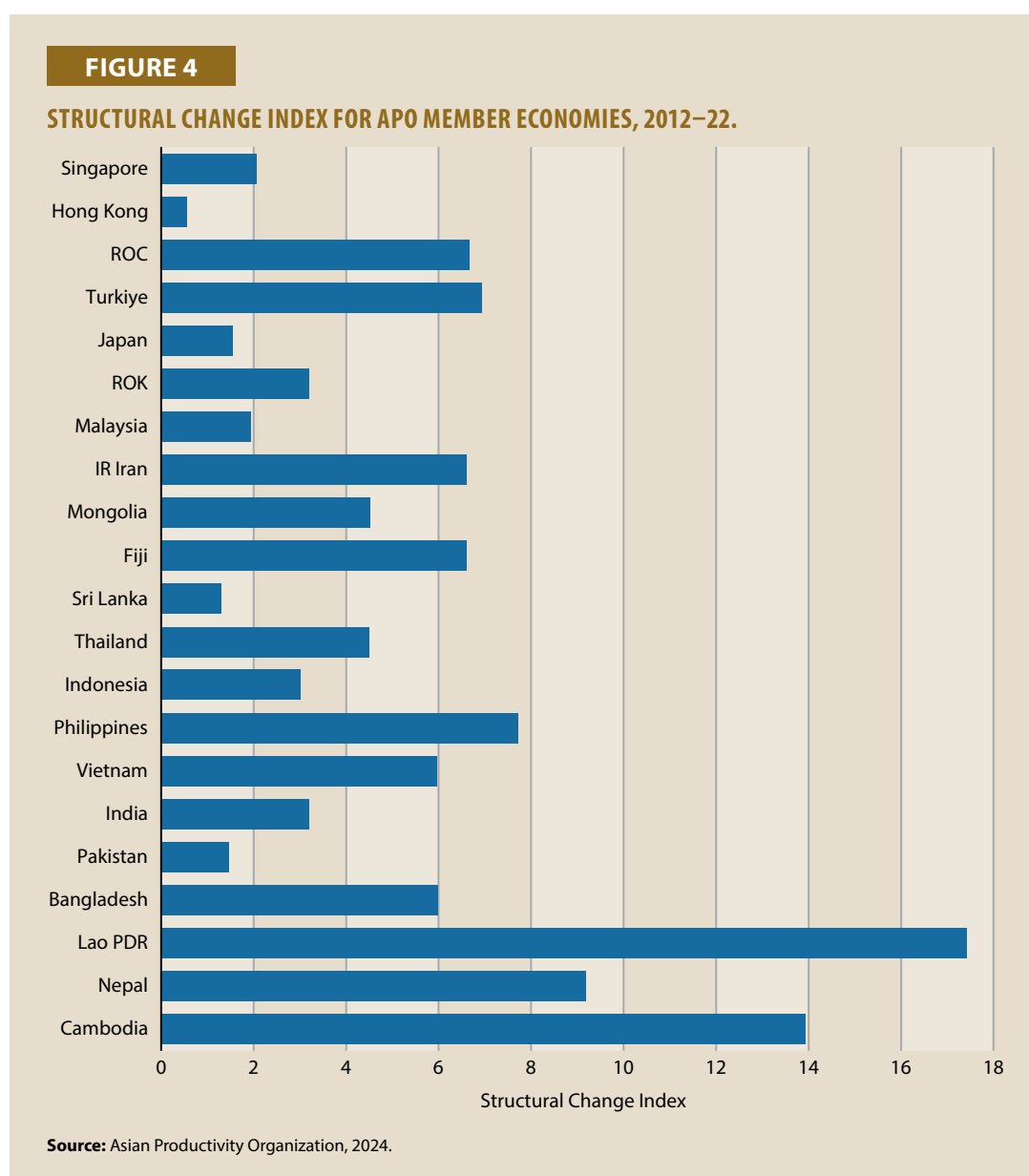
The most significant structural changes have occurred in the economies of Lao PDR, Nepal, and Cambodia, primarily due to declines in the importance of agriculture. Other economies, such as Japan and the Republic of Korea, experienced substantial structural change much earlier, coinciding with their transition away from agriculture as their economic development advanced.

As Parham and Breunig (2001) also observed, structural change occurs within industries. Firms exhibit diverse productivity performance, even within the same industry. The entry and growth of high-productivity firms increase average productivity, as does the exit of low-productivity firms. Promoting entrepreneurship and competition are effective ways to foster these developments.

Industry composition and structural change influence an economy's productivity performance over the long term. Industry composition primarily reflects comparative advantage, which is affected by access to markets, geography, resource endowments, competitiveness, and other factors that will be discussed in subsequent chapters. Changes in industry composition tend to evolve gradually.

Governments tempted to impose changes to industry structure may cause long-term harm if such changes lead to resource misallocation. Conversely, inhibiting structural change could result in missed opportunities for productivity growth over the long term.

Global Value Chains and Trade

GVCs have become a significant feature of international trade. A global value chain refers to the full range of activities required to bring a product or service from its conception to end use, and beyond, when these activities are spread across multiple economies. With improvements in transport, communication, and production technologies, companies have been better able to break down their production processes into discrete stages and source component goods and services from other economies that have scale, technology, wage costs, or other advantages. GVCs are ultimately established to bring productivity gains and cost advantages.

APO member economies have become major participants in GVCs (Table 1).[2] As "Factory Asia," they have provided component products and services to other regions, while intra-regional networks have also developed.

TABLE 1

GVC PARTICIPATION RATES IN ASIAN ECONOMIES, 2018.

Country	GVC participation rate
Singapore	75
Hong Kong	73
Malaysia	64
Philippines	58
ROK	58
Turkiye	56
ROC	55
Thailand	52
Indonesia	50
Mongolia	50
Vietnam	49
Japan	48
PR China	45
IR Iran	43
India	41
Macao	40
Pakistan	40
Fiji	39
Sri Lanka	38
Nepal	37
Lao PDR	32
Bangladesh	31
Cambodia	31

Source: UNCTAD & Eora, 2019.

[2] The GVC participation rate indicates the portion of a country's exports that is part of a multi-stage trade process by adding to the foreign value added used in a country's own exports and the value added supplied to other economies' exports. It was first introduced by Koopman et al (2011). Using input–output tables, it measures the value added of the import content of exports and the value added supplied to other economies' exports as a fraction of all exports.

GVCs provide opportunities for APO member economies to industrialize and improve productivity by specializing in fragments of production. For example, a country can specialize in the production of certain components that suit its comparative advantages, without undertaking the complete design, manufacture, distribution, and marketing processes. GVC participation can also lead to productivity improvements through knowledge spillovers, technology transfer, resource allocation, and increased competition.

Parham & Breunig (2021) contain a detailed discussion of GVCs and their rise in APO member economies. Brief updates are provided here.

Southeast Asia has become one of the most important hubs for, and an essential supplier, stopover, and end user of GVCs (Asian Development Bank, 2023). Southeast Asian nations exhibit diverse GVC participation patterns, with Vietnam and Cambodia leading in backward linkages and Singapore and Brunei excelling in forward linkages (Flach, Gourevich and Semelet, 2022).[3]

Trade in services, and not just goods, has become increasingly important for the development of GVCs. Growth in services trade is discussed below.

Openness to trade in both goods and services is important for the development of GVCs. High tariffs, non-tariff barriers, and restrictive trade policies have limited GVC integration in South Asia (Salgado and Anand, 2023). Barriers to trade in goods and services are considered in the indicators presented in later chapters.

Recent developments could have major implications for the pattern and extent of GVCs in the region. There were major supply chain and trade disruptions with the onset of the COVID-19 pandemic (Arriola et al., 2020). In 2020, Asia experienced a larger decline in GVC activity than the rest of the world (–5.8% compared with –4.8%) (ADB, 2023). The IMF (2022) indicates that GVC activity rebounded to pre-COVID levels quite quickly. However, the effect was not evenly spread across economies, and some economies have experienced persistent negative effects from the pandemic. To the extent that businesses and economies make decisions to reduce ongoing risks by bringing production back onshore or outsourcing to different economies, GVCs could be impacted, and these impacts could vary significantly across economies.

The disruptions to world trade following United States tariff announcements further increase the likelihood of de-globalization and de-coupling of major links between certain economies. The full effects on the size and shape of global networks—and the effects on economies' productivity performance—are uncertain and will depend on how economies respond. New trading relationships between economies, with positive outcomes, could emerge to at least partially offset the negative effects.

Engagement with Digitization

While the digital revolution reached Asia long ago, the digital landscape varies considerably across APO member economies. Some economies are among the world leaders in the sophistication of their development and application of digital technologies. Some economies are even intricately

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[3] "Forward linkages" refer to the connections between a sector of the economy that produces outputs that are used as inputs by other sectors further down (downstream) the production chain. "Backward linkages" refer to the connections between a sector of the economy that relies on inputs from other sectors earlier in the production process (upstream).

involved in the production of digital goods and services. On the other hand, some APO member economies remain basic users of digital goods and services.

Digitization has accelerated in Southeast Asia over the last decade. COVID-19 led to increased digital adoption, with ASEAN adding nearly 70 million new internet users (Pasricha et al., 2024). Digital engagement with e-commerce has contributed to dynamic markets and regional economic growth (OECD, 2021). A digital divide persists between large and small firms, with large firms enjoying much higher rates of digital adoption. Across Southeast Asia, only 16% of SMEs are digitized (Curtis et al., 2022). Adoption of advanced technology has been very limited in agriculture (Alonso & MacDonald, 2024).

Digital goods and services provide crucial opportunities for productivity growth in the APO region. They can affect productivity in at least four ways.

First, they enable productivity gains in production. With advances in technology, such as processing capability and speed, digital goods and services become more powerful. These are quality improvements that are correctly considered part of output growth.

Second, the use of digital goods and services provides "substitution gains." Inputs of digital goods and services can substitute for labor and other inputs in performing production tasks, such as storage and retrieval of information and undertaking routine computations. This raises labor productivity by increasing the ratio of capital to labor (capital deepening). Digitization can also enhance the utilization of other capital, leading to increased capital productivity.

Third, digital platforms offer innovation and transformation gains in products and processes. ICTs are often considered a "general purpose technology" or platform technology, whereby owners of ICTs use them to develop or apply their own innovations in products or processes. Examples include new internet products, such as online sales, and better coordination of ordering, production, and distribution to reduce the need for storage of inventories and improve the certainty of delivery.

Fourth, digital networks facilitate the sale and purchase of goods and services on much broader horizons. Businesses can source needed components both locally and internationally and market their products near and far. Networks enhance the coordination of GVCs. Digitization enhances specialization and increases competitive pressures, which can drive productivity improvements.

APO member economies differ in their abilities to leverage gains from digitization. Figure 5 shows the variation in Network Readiness Index scores for the APO member economies. This index measures how well economies use technology to create positive impacts on society, the environment, and the economy. The wealthier APO member economies score higher.

Figure 6 shows the growth in internet usage for APO member economies from 2001 to 2021 based on data from the World Bank (2024). Lao PDR, Pakistan, and Bangladesh exhibit the lowest rates of growth despite starting from relatively low levels of usage. Low growth rates in some of the wealthier APO member economies reflect high internet usage in the base year.

Importantly, merely investing in more digitization does not maximize productivity gains. Complementary investments, such as in skills, are required, and firms need to be flexible and

FIGURE 5

NETWORK READINESS INDEX SCORES FOR APO MEMBER ECONOMIES AND PR CHINA, 2024.
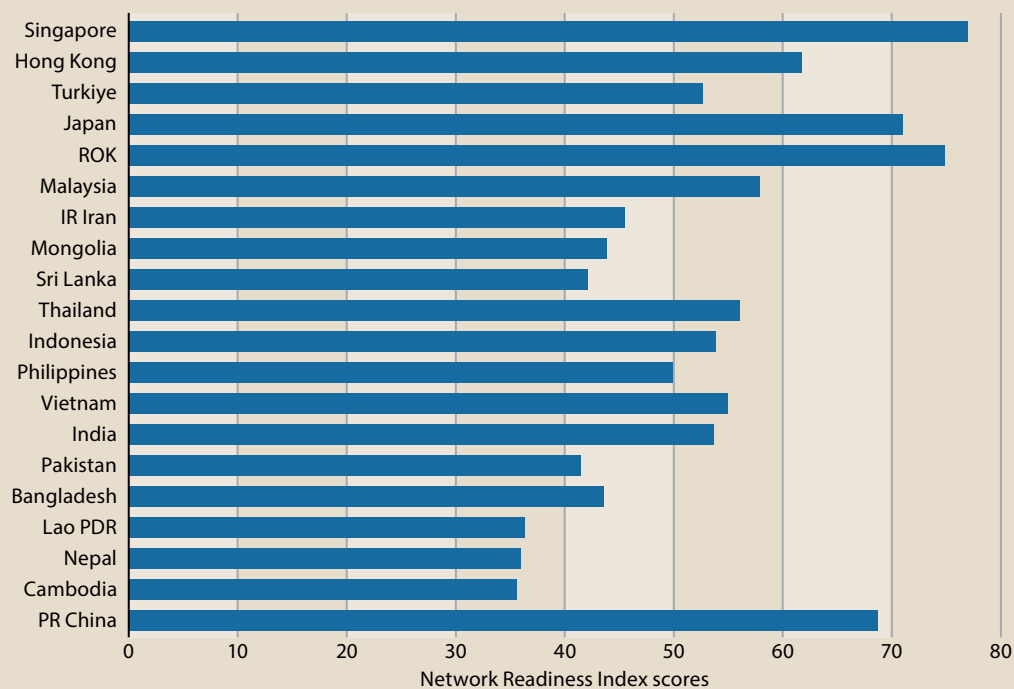
Source: Portulans Institute, 2024.

FIGURE 6

GROWTH IN INTERNET USE PER CAPITA (PP) IN APO MEMBER ECONOMIES AND PR CHINA, 2001–21.
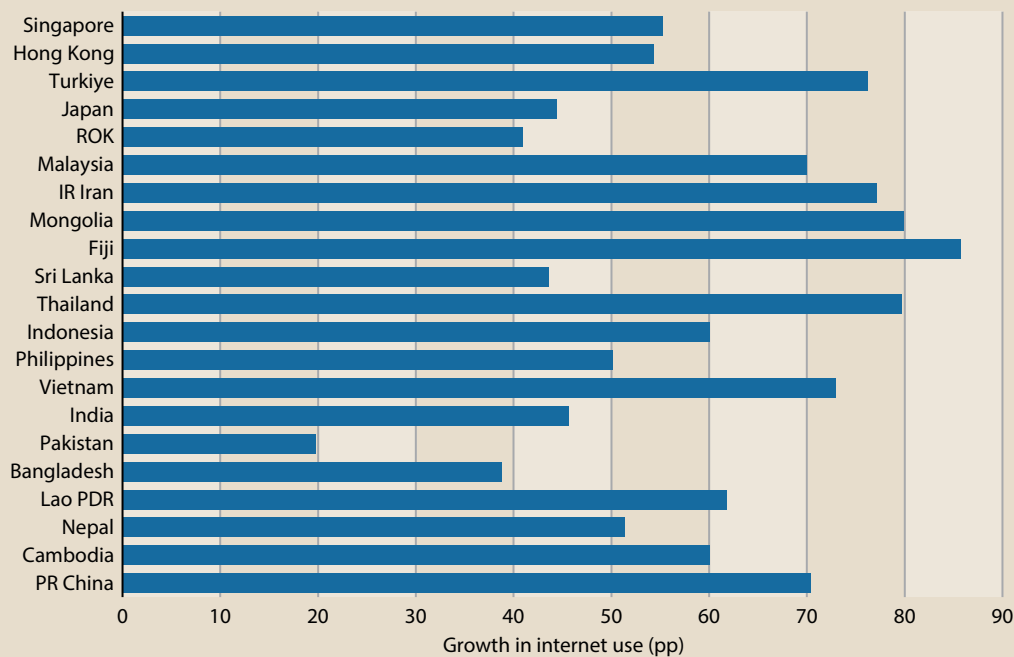
Source: The World Bank, 2024.

innovative in introducing new production processes and business models. Curtis et al. (2022) identify three barriers to digitization and its potential to improve productivity:

- lack of understanding about digital technology;

- shortage in the workforce's digital skills; and

- use of digital tools and services does not equate to possessing the skills to integrate technology into work processes.

The necessity of skills-focused programs and an improved understanding of technology use is critical to fully realize the benefits of digitization. An educated and adaptable workforce is much more likely to reap the productivity advantages of digitization.

Artificial Intelligence

Artificial intelligence (AI) is becoming a prominent aspect of digital engagement, increasingly important to improving worker productivity and transforming the digital landscape. Data on AI adoption are currently difficult to find, given that it has only recently become widely available.[4] In Asia, as in other places around the world, the actual uptake and use of AI are still relatively low.

The adoption of AI and integration with automation, machine learning and robotics is widely considered to offer opportunities for productivity growth. Some claim that AI is already driving growth[5].

The future of work will be increasingly automated and individual competencies in managing that automation will be correspondingly more important. This necessitates a workforce skilled particularly in robotics, AI, automation and technology. Demand for intangible assets and skills like critical thinking, creativity, problem-solving, innovation and emotional intelligence will increase. A focus on such composite capabilities is apparent in the job market (ADB, 2024).

Developments in Trade in Services

Digital services trade in Asia grew significantly between 2005 and 2019, from USD403.4 billion to USD1.4 trillion, with the global share rising from 17% to 24% (Kang et al., 2022). Services trade in the Asia–Pacific region rebounded in 2022, following the COVID-19 pandemic, with exports and imports increasing by 15.2% and 11.9%, respectively (Romao & Bernardo, 2023). Travel services experienced the greatest growth, with exports increasing by 68.7% (Romao & Bernardo, 2023). Services trade remains concentrated in large economies, namely, PR China, India, Singapore, and Japan, accounting for 64% (Romao & Bernardo, 2023) of the trade in services in Asia and the Pacific.

Given its importance, further facilitation of trade in services can be a pathway to productivity improvements. Services trade can provide access to design, finance, marketing, production knowhow, and other resources. It can also enhance competition in domestic markets for services, which in turn can motivate domestic providers to improve performance. A growing number of empirical studies find that liberalizing services trade contributes to improved economic performance

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[4] Gusti et al (2024) survey bank employees in Indonesia about AI use.
[5] "The adoption of AI and Industry 4.0 technologies is driving productivity growth across Asian economies" (ADB, 2024).

in both services and goods-producing industries (Francois and Hoekman, 2010). Liberalization of services trade is associated with higher export volumes and increased productivity in manufacturing firms, particularly high-productivity firms in ICT-dependent sectors.

Services trade in the Asia–Pacific region is more restricted than in other global regions, with an average Services Trade Restrictiveness Index (STRI) score of 0.28 in 2022, compared to the rest of the world's 0.2 (Romao & Bernardo, 2023). Barriers to competition in sectors such as telecommunications account for 54% of STRIs, indicating a need for pro-competitive reforms (OECD, 2021). Data localization and storage requirements negatively impact digital services trade, reducing it by 15% in economies implementing such restrictions (Kang et al., 2022). Computer and telecommunications services are critical enablers of the digital economy (OECD, 2021), and restrictions that hinder digitization can also negatively affect other parts of the economy.

Figure 7 presents a services trade restriction index for those APO member economies with available data. The estimates are simple averages of industry sector values from the World Bank and WTO (2023). Hong Kong has relatively low restrictiveness compared to other economies shown.

While some regulation of services industries is necessary to address market failures and protect national interests, excessive regulation impedes competition, trade, and productivity. This is important not only for a country's services sectors but also for its goods-producing industries, which increasingly rely on inputs from services in production.

Trade in digital services and openness to such trade are key determinants of productivity growth and innovation. Figure 8 provides the Digital Trade Restrictiveness Index, based on data from the European Centre for International Political Economy (ECIPE) (2018). It indicates that there is room for improvement in openness to digital services trade in some economies.

FIGURE 7

SERVICES TRADE RESTRICTIONS INDEX, 2022.

- - - - Average

Source: The World Bank and WTO (2023).

FIGURE 8

DIGITAL TRADE RESTRICTIVENESS INDEX, 2018.

Source: European Centre for International Political Economy (ECIPE), 2018.
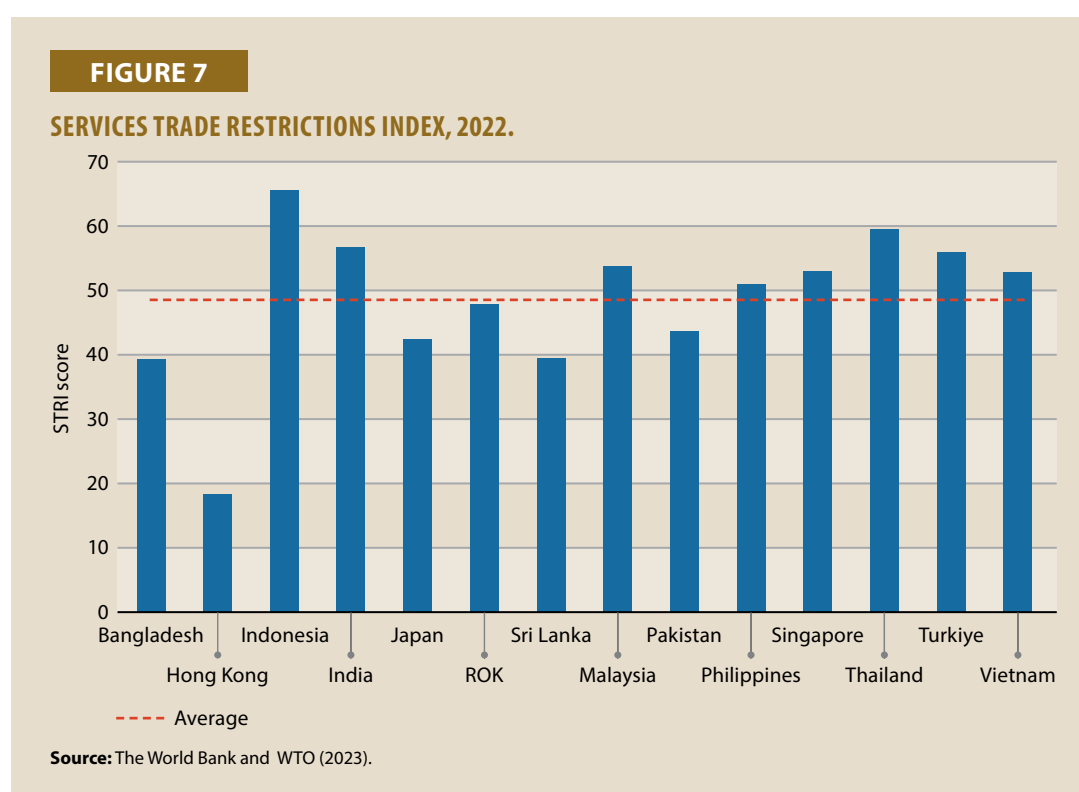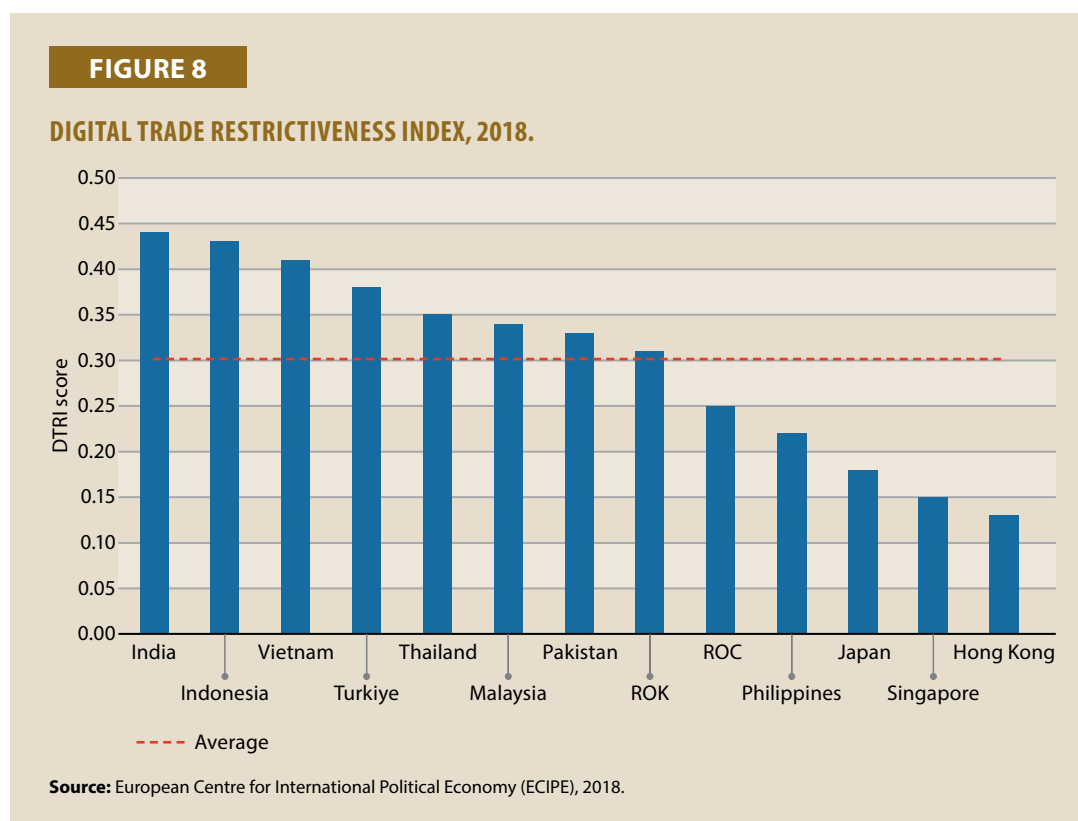
Barriers to trade in services are captured in several of the indicators used in constructing the productivity readiness index, which are presented later in this report. However, the two indexes shown in Figures 7 and 8 are not available for many of the APO member economies and are only available for a short time period, so they are not used in the construction of the productivity readiness index. Other variables that capture trade and investment freedom and the regulatory environment are used and will, at least in part, reflect the restrictiveness of trade in services and digital trade.

Climate-change Impact, Adaptation, and Policy

Climate change is widely regarded as a serious threat to global well-being. It can have several effects on economic production and productivity. These include: (1) direct effects of climate change on production; (2) scale effects on production and emissions of rich economies outsourcing production; (3) costs of mitigation; (4) costs of transition to low CO2 production; and (5) increased risk premia in financial markets in response to climate uncertainty.

Direct effects of climate change are most clearly seen in agriculture, as temperature increases and more frequent extreme climate events make it more difficult to grow the same crops in the same geographical areas; see Fernando (2023). Climate change will bring an increased likelihood of droughts in some areas and floods in monsoon regions. (Shaw et al., 2022). Rice yields could drop by up to 50% by 2100 in Indonesia, the Philippines, Thailand, and Vietnam (Prakash, 2018). The location of some agricultural activities will shift in pursuit of more favorable growing conditions.

Lower yields and more crop failures mean lower output for given inputs, and therefore lower productivity. Fernando et al. (2021) find a 1–2% decrease in agricultural productivity due to warmer temperatures in the 1990–2020 period. Negative effects on GDP of the order of 2–3% can be

expected by 2050 and from 5% to 15% by 2080 under current climate change scenarios. Financial risks related to climate change add between 2% and 5% to these losses (Fernando et al., 2021).

Many APO member economies are exposed to greater risk through their relatively large agricultural sectors. Developing economies in Asia–Pacific are highly exposed to climate risks due to natural hazards, extreme weather, and limited adaptation resources (ADB, 2024). The Philippines, Myanmar, and Thailand ranked among the top 10 economies globally for climate-related loss events between 2000 and 2019. Seven of the 19 Asian cities most exposed to a one-meter sea-level rise are in the Philippines.

More resources will be needed to mitigate the risks of damage that arise from climate change. Adaptation will be required in the following areas:

- infrastructural: flood protection, climate-resilient highways, and power infrastructure;

- institutional: sustainable land-use planning, and zoning plans;

- nature-based: mangrove restoration, urban green spaces, and urban farming;

- technological: smart cities and early warning systems; and

- behavioral: improved awareness and preparedness measures.

Measures to reduce greenhouse gas emissions are additional costs, especially when transitioning from fossil fuels to cleaner and renewable sources of energy generation.

More expensive and potentially less reliable sources of energy will tend to negatively impact productivity. Generally, more resources are required to generate and distribute a given amount of energy as generators transition from fossil fuels to renewable sources. Businesses also incur costs associated with investing in energy conversions, such as transitioning from gas to electricity or from grid supply to self-generation through solar systems. Any decline in reliability could prevent businesses from maintaining their usual rate of output, thereby affecting overall economic performance and operational efficiency.

Industries reliant on fossil fuels will decline, while those based on renewable energy will advance. The manufacture of electric vehicles, for example, is progressing at the expense of traditional vehicles powered by internal combustion engines.

Overall productivity could also be affected by the shift in activity toward mitigating the effects of climate change. If resources are diverted toward activities that do not produce immediate output, such as protective water barriers and levees, productivity may decline during the mitigation phase. Mitigation activities that are relatively low in productivity, because they are labor- or resource-intensive, could reduce the average productivity of the construction industry or other industries they are part of.

Some of the ongoing negative productivity effects could be offset in the long term by responses to the increased costs of doing business, as they spur innovation and new ways of doing things.

The policy response to climate change in Asia has been limited and varies in effectiveness. Regulatory complexity, poor enforcement, and the lack of comparable climate taxonomies across

economies present significant barriers to long-term, sustainable growth (Lim et al., 2024). Most Asian economies lack comprehensive climate disclosure requirements and regulations concerning accurate climate labels. Hong Kong SAR and Malaysia are in the process of mandating disclosures aligned with the Task Force on Climate-Related Financial Disclosures (TCFD) recommendations starting from 2023 (Lim et al., 2024). The number of companies self-reporting carbon emissions in these economies increased from 200 to nearly 1,000 between 2014 and 2022 (Lim et al., 2024).

Inconsistent policies also pose significant challenges. Fossil fuel subsidies in the Asia-Pacific region remain prevalent, totaling USD579.7 billion in 2022 (Lim et al., 2024).

To minimize the productivity effects of climate change, businesses and industries can adopt adaptive strategies that reduce vulnerabilities to extreme weather events, fluctuating temperatures, and resource scarcity. These strategies include investing in climate-resilient infrastructure, such as energy-efficient buildings and renewable energy sources. Developing flexible supply chains and diversifying resource sources can also mitigate the risks associated with climate disruptions. Additionally, companies should consider implementing efficient and sustainable practices that promote water conservation, waste reduction, and eco-friendly operations to limit their environmental footprint. For further information, refer to the Intergovernmental Panel on Climate Change (2023) and the World Economic Forum (2023).

Furthermore, fostering a culture of innovation is essential for developing solutions that address the challenges posed by climate change. Collaboration with scientists, policymakers, and other industries can lead to the development of new technologies and strategies that help businesses adapt effectively. This may include automation or artificial intelligence (AI) systems that enhance efficiency, enable predictive maintenance, and optimize resource utilization. Workforce training programs focused on sustainable practices and green technologies can ensure that employees are equipped with the necessary knowledge and skills to succeed in an evolving climate landscape. Emphasizing climate adaptation, along with proactive policy support, will enable businesses to mitigate the negative impacts of climate change on productivity and sustainability.

Data on Effects of Climate Change and Policies Impacting Climate Change

Data on climate, emissions, and mitigation are difficult to find, especially over multiple years. While the World Economic Forum's Future of Growth Report 2024 (WEF, 2024) includes a set of interesting and useful variables related to important climate indicators, data are only available for a single year. Table 2 presents five of the most significant climate-related indicators from the report. Data are not available for Fiji, Hong Kong, Cambodia, and the ROC.

TABLE 2

CLIMATE AND POLICY INDICATORS, 2023.

Country	Indicators and [APO rank]				
	Biodiversity	Greenhouse gas emissions	Agricultural damage	Renewable energy	Fossil-fuel subsidies
Bangladesh	36.9 [16]	1.6 [1]	0.7 [5]	0.1 [9]	132 [2]
Indonesia	70.6 [9]	7.5 [11]	0.7 [5]	0.1 [9]	643 [9]

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Country	Indicators and [APO rank]				
	Biodiversity	Greenhouse gas emissions	Agricultural damage	Renewable energy	Fossil-fuel subsidies
India	61.9 [13]	2.8 [6]	0.9 [11]	0.3 [7]	246 [5]
IR Iran	89.3 [1]	11.8 [14]	0.9 [11]	0 [14]	1465 [13]
Japan	88.4 [2]	8.8 [12]	0.6 [3]	0.4 [5]	2172 [15]
ROK	82.6 [5]	12.7 [15]	0.7 [5]	0.4 [5]	2302 [16]
Lao PDR	88.2 [3]	9.1 [13]	0.4 [1]	3.1 [1]	272 [7]
Sri Lanka	63.4 [12]	1.9 [2]	0.9 [11]	0 [14]	265 [6]
Mongolia	50 [15]	27.4 [17]	1.2 [17]	0 [14]	1189 [11]
Malaysia	77.9 [6]	13.2 [16]	0.5 [2]	0.2 [8]	2038 [14]
Nepal	76.4 [7]	1.9 [2]	0.7 [5]	0 [14]	46 [1]
Pakistan	86.6 [4]	2.4 [4]	0.9 [11]	0.7 [3]	153 [3]
Philippines	59.7 [14]	2.4 [4]	0.8 [10]	0.1 [9]	166 [4]
Singapore	33.5 [17]	7.3 [10]	1.1 [16]	0.1 [9]	3663 [17]
Thailand	64 [11]	6.5 [8]	0.9 [11]	0.1 [9]	952 [10]
Turkiye	75.2 [8]	7.1 [9]	0.6 [3]	0.5 [4]	1289 [12]
Vietnam	67.6 [10]	5.8 [7]	0.7 [5]	3.1 [1]	620 [8]

Source: World Economic Forum Future of Growth Report 2024.
Notes: Biodiversity: Biodiversity Intactness (0–100)
Greenhouse gas emissions: Annual greenhouse gas emissions (tons of C02 per capita)
Agricultural damage: Agricultural environmental damage (0–1.4); higher is worse
Renewable energy: Investment in renewable energy (% of GDP)
Fossil-fuel subsidies are in USD per capita.

Biodiversity intactness measures the degree to which the country's biodiversity is intact (100%) or degraded (potentially as low as zero). Singapore and Bangladesh have less than 40% of their biodiversity intact. The Philippines and Mongolia also score below 60%. Five economies score above 80%: IR Iran, Japan, Lao PDR, Pakistan, and the ROK. This pattern is intriguing. It suggests that lower levels of development may help preserve biodiversity, possibly because natural resources have not been extensively exploited. Conversely, higher incomes, such as those in the ROK and Japan, enable investments in biodiversity protection.

Agricultural environmental damage is measured from low (0) to high (1.4). Singapore and Mongolia score poorly, with values above 1. India, IR Iran, Sri Lanka, Pakistan, and Thailand have a score of 0.9. Lao PDR and Malaysia are the top performers, with values of 0.4 and 0.5, respectively.

IR Iran, the ROK, Malaysia, and Mongolia have the highest greenhouse gas emissions per person. In the case of IR Iran, this is primarily due to inefficient energy use. Mongolia's high emissions are related to the significant presence of mining and resource extraction in its economy. The ROK and Malaysia have made limited progress in transitioning away from their substantial dependence on fossil fuels within their large manufacturing sectors. Conversely, Bangladesh, Nepal, and Sri Lanka have the lowest greenhouse gas emissions per capita. This reflects their large agricultural sectors are still very reliant on large inputs of low-skilled labor.

Fossil fuel subsidies are notably high and widespread in southeast and east Asia. Countries such as Singapore, the ROK, Japan, and Malaysia lead the region with annual fossil fuel subsidies exceeding USD2,000 per person. Conversely, Nepal, Bangladesh, and Pakistan have the lowest levels of fossil fuel subsidies. Recently, the Philippines and Indonesia have taken steps to reduce their fossil fuel subsidies, which has resulted in them ranking as the fourth and fifth lowest in terms of subsidies, respectively.

Lao PDR and Vietnam lead the way in the percentage of GDP invested in renewable energy. Both countries invest 3.1% of their GDP in renewable energy, according to WEF (2024). IR Iran, Sri Lanka, Mongolia, and Nepal report only negligible investments in renewable energy.

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CHAPTER 3
PRODUCTIVITY TRENDS

This chapter provides an overview of the productivity performance of APO member economies. It also examines the extent to which APO member economies prioritize productivity, rather than input accumulation, as the primary driver of economic growth. Productivity trends in individual APO member economies are detailed in the country studies that form the appendix to this report.

Estimates of productivity are primarily derived from data sourced from the APO Productivity Database 2024. The database provides estimates up to 2022. Unless otherwise specified, the term "the 2020s" refers to the period from 2020 to 2022.

Charts are ordered by country, from highest to lowest labor productivity levels based on APO data in 2022. We use APO data for all comparisons across APO member economies. When comparing APO member economies to non-APO member economies, we use Conference Board data for better comparability and coverage. There are some differences in productivity rankings depending on these two different data sources.

Productivity in the APO Region

Productivity levels in APO member economies are, on average, significantly below the international productivity "frontier." The average level of labor productivity across APO member economies, measured by GDP per hour worked, is approximately 39% of the productivity level of the USA, which is generally regarded as the world's productivity frontier (Figure 1).[1] There is, however, wide variation across APO member economies, as discussed below.

Productivity growth in the APO group of economies has been stronger than in other parts of the world (Figure 2), as might be expected through the process of catch-up (see Chapter 2). The APO has performed well relative to the European Union (EU), OECD, and USA, with an average productivity growth from 2000 to 2022 of just over 3%. The other country groups all averaged less than 2% annual productivity growth.

In the 2000s and 2010s, APO productivity growth was significantly stronger than in the USA, EU, and across OECD economies (Figure 3). While productivity growth slowed in other parts of the world during the second half of the 2010s, it continued at a rapid pace in the APO region (Parham and Breunig, 2021) as shown in Figure 3. Productivity growth during 2010–20 was slightly higher than in 2000–10 in the APO region, whereas productivity growth declined in the second decade of the 21st century in the EU, OECD, and USA (Figure 3).

Figure 3 illustrates a significant slowdown in productivity growth worldwide during the early 2020s. Drawing definitive conclusions about this period is challenging due to the limited timeframe

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[1] 39% is a simple average of the 21 APO member economies considered. For all country groupings (e.g. OECD) simple averages are presented to convey the performance of an "average" country in that group rather than information about the overall output or productivity of the group of economies.

and the impacts of the COVID-19 pandemic on GVCs, digitization adoption, and trade in services (see Chapter 2). The APO region experienced a notable slowdown, further worsened by disruptions in GVCs (refer to Chapter 2). During this period, productivity growth in the APO region was slower than in the EU, yet remained faster than in other regions (Figure 3).

FIGURE 1

LP LEVELS (GDP PER HOUR, USD AT PPP) IN APO MEMBER ECONOMIES, PR CHINA, AND USA, 2021.
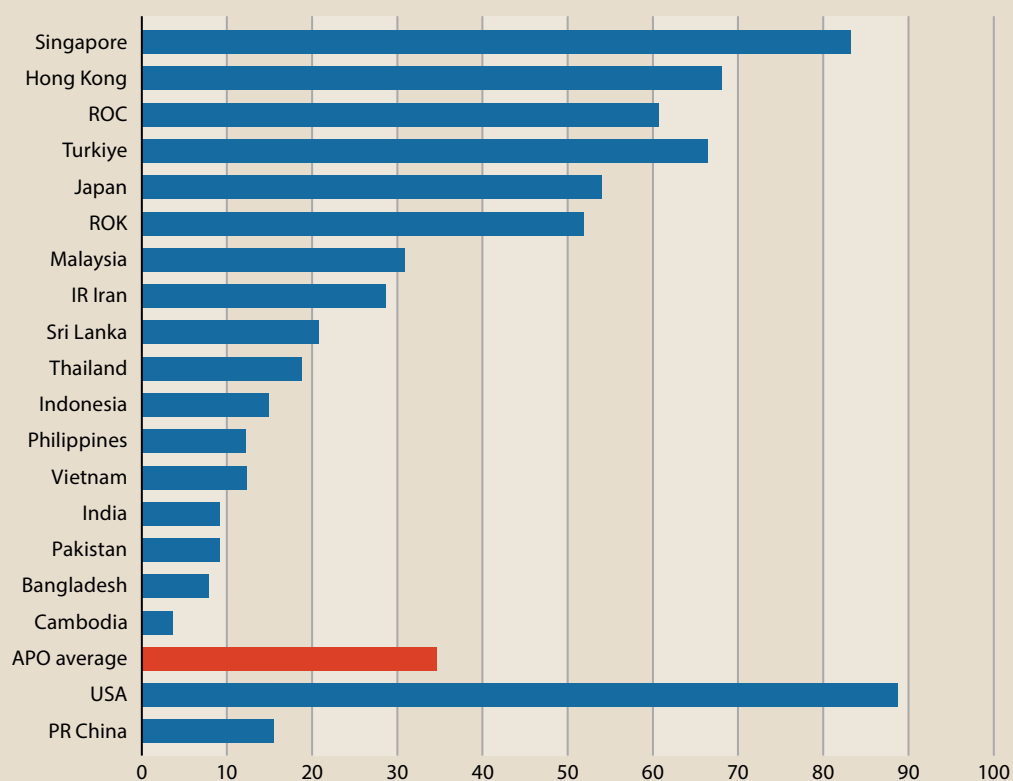
Source: The Conference Board, 2024.

FIGURE 2

LABOR PRODUCTIVITY GROWTH (% PA) IN THE APO, EU, OECD, AND USA, 2000–22.

Source: The Conference Board, 2024.

FIGURE 3

LABOR PRODUCTIVITY GROWTH (% PA) IN THE APO, EU, OECD, AND USA BY DECADE, 2000–22.

Legend: 2000–10 | 2010–20 | 2020–22
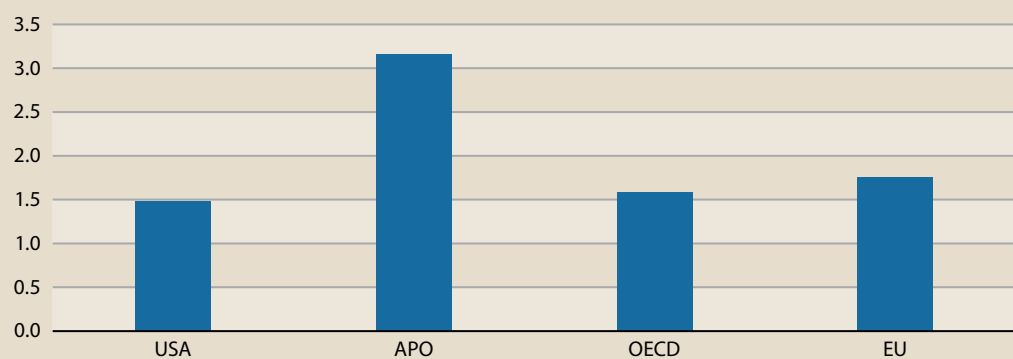
Source: The Conference Board, 2024.
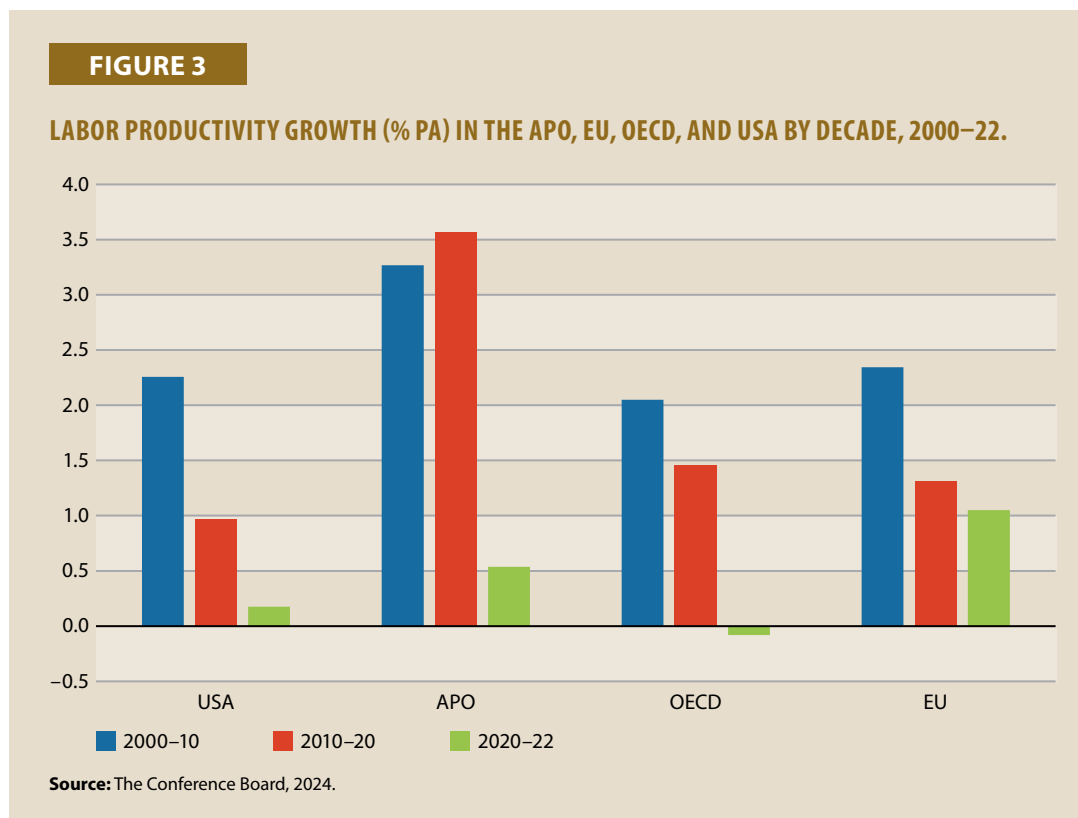
Productivity within APO Group

Labor productivity levels vary widely across APO member economies (Figure 1). Measured in international currency at purchasing power parity, Singapore's productivity level (GDP per hour worked) is just 6% below that of the USA, yet it is more than seven times higher than the five APO member economies with the lowest levels. The high-income APO member economies, namely Singapore, Hong Kong, the ROC, Japan, and the ROK, exhibit the highest levels of labor productivity. Turkiye also has a relatively high productivity level, considering its middle-income status.

Lower labor productivity in the lower-income economies of the APO stems, at least in large part, from production being more labor-intensive than in higher-income economies. An abundance of relatively cheap labor makes it sensible to employ labor-intensive activities and methods. However, as can be seen from the productivity levels of middle-income economies (Figure 1), productivity levels rise as lower-income economies develop and accumulate more capital, skills, and technology.

Labor productivity growth has been strong in almost all economies since 2000 (Figure 4).[2] Vietnam and Indonesia have experienced consistent high productivity growth across all three periods examined in Figure 4. Bangladesh and Mongolia also stand out for their strong productivity growth throughout these periods.

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[2] Note that Figure 4 uses APO data and Figure 3 uses data from the Conference Board. This produces some inconsistencies. The Conference Board data for APO member economies does not include four of the APO member economies shown in Figure 4. The APO says that productivity growth averaged 2.8% in the 2020–22 period whereas the Conference Board data show an increase of only 0.5%. We prefer to use APO data wherever we can in this report but use Conference Board data for comparisons with non-APO member economies for consistency of data source.

FIGURE 4

LABOR PRODUCTIVITY GROWTH (% PA), 2000–10, 2010–20, AND 2020–22.

■ 2020–22 ■ 2010–20 ■ 2000–10

Source: The APO, 2024.
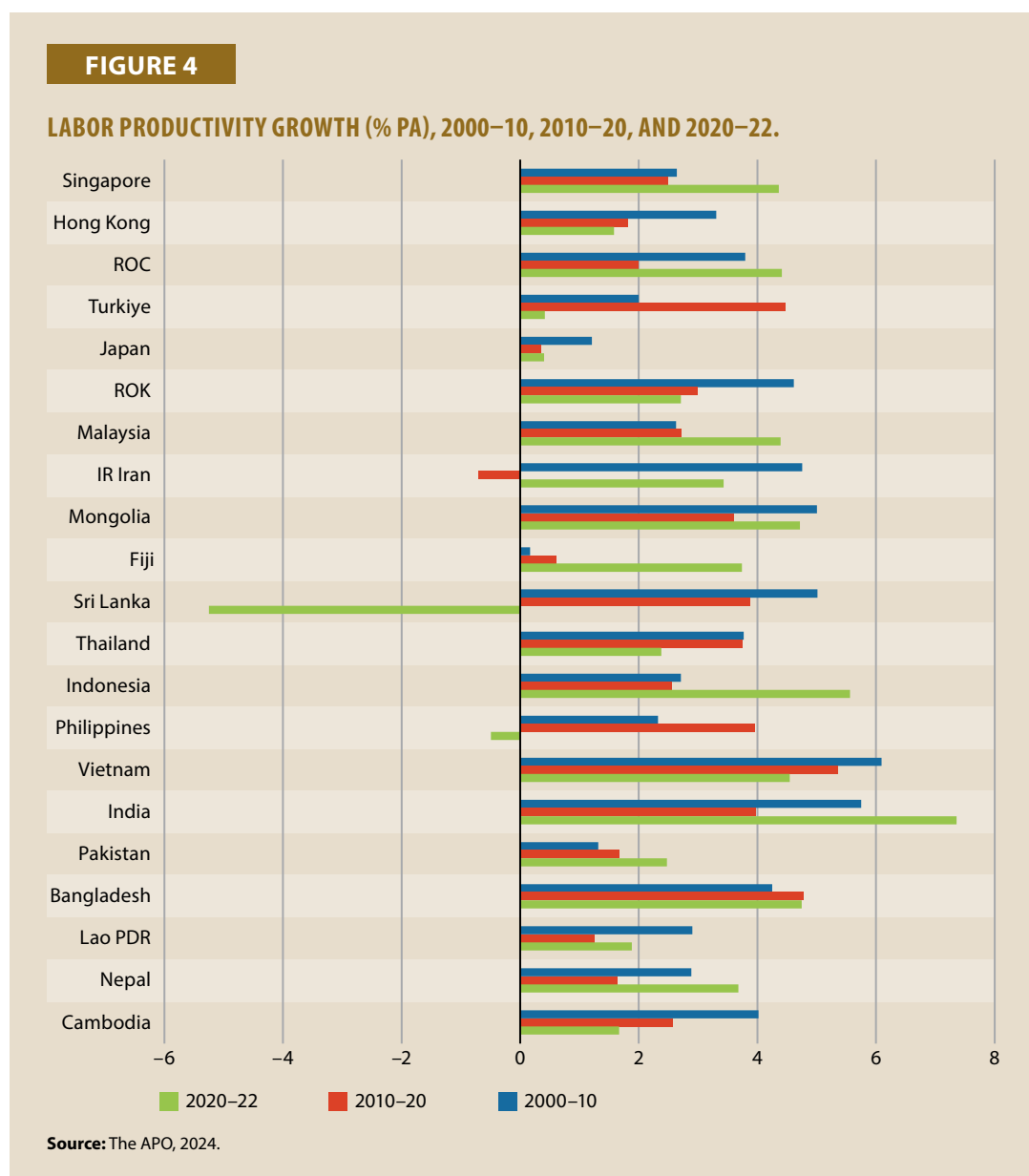
The COVID-19 pandemic caused a slowdown in productivity growth, as illustrated in Figure 3. Nevertheless, some economies still achieved remarkable productivity growth during the 2020–22 period, including Indonesia, India, and Mongolia. On average, productivity growth was slightly better in 2010–20 than in 2000–10, which contrasts with the trend observed in the rest of the world. Beneath this overall performance, there are notable differences in individual country performances. Turkiye, Pakistan, and the Philippines experienced significantly faster productivity growth in 2010–20 compared to 2000–10. Conversely, Hong Kong, the ROC, the ROK, IR Iran, Lao PDR, Nepal, and Cambodia experienced slower productivity growth in 2010–20 than in the previous decade.

Some of the variation in productivity growth across economies can be explained by catch-up effects (see Chapter 2). That is, lower-income and lower-productivity economies are expected to exhibit higher rates of labor productivity growth, whereas higher-income and higher-productivity economies tend to show lower productivity growth.

Figure 5 illustrates the extent to which economies' productivity growth has reflected the catch-up phenomenon. The blue line represents the average rate of catch-up across APO member economies, including Australia and the USA, from 1990 to 2023, based on their productivity levels in 1990. The downward-sloping line indicates that, on average, catch-up is occurring. If all economies had experienced catch-up at this average rate, they would be aligned along the blue line. However, this is not the case. Countries positioned above the line have outperformed catch-up expectations, while those below the line have exhibited less productivity growth than would be expected through catch-up.

Those economies exhibiting productivity growth significantly above what would be expected based on the average convergence are India, Vietnam, the ROK, and the ROC. Turkiye and Thailand are slightly above expectations. Cambodia, Indonesia, the Philippines, Pakistan, Malaysia, IR Iran, and Japan have performed less well than what would be expected based on the average level of convergence. The overall conclusion is that there is convergence among these economies, with some important exceptions.

FIGURE 5

GROWTH IN GDP PER HOUR WORKED VS GDP PER HOUR WORKED IN 1990.

Source: The Conference Board 2024.
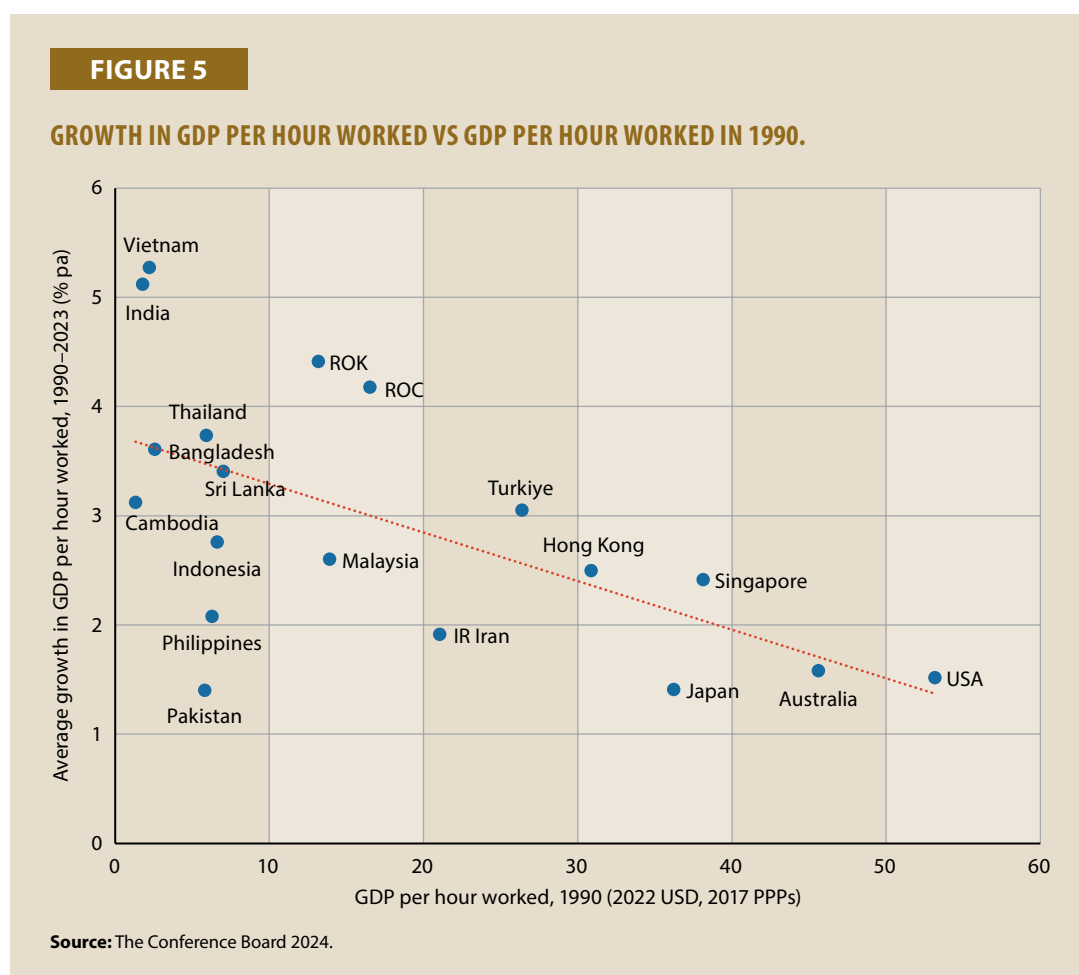
Sources of LP Growth

Labor productivity growth can be decomposed into contributions from capital deepening (essentially, increasing the ratio of capital to labor), upskilling the workforce (labor quality growth), and improvements in the efficiency of production (TFP growth). The rationale behind this

decomposition is that, for example, mechanization (a form of capital deepening) raises the amount of output that labor can produce in a day; higher-skilled labor is more productive, capable of generating more output by operating more complex processes; and improvements in efficiency, such as the introduction of smarter technologies into production, increase the amount of output a workforce can produce in a day.

Figures 6 provides this decomposition for the period 2000–22.[3] Capital deepening is by far the biggest contributor to labor productivity growth across APO member economies since 2000. TFP growth and labor quality improvements make smaller contributions and are more variable across economies. For the most part, the wealthier economies saw larger improvements in TFP growth relative to labor quality (India also experienced this) while for lower-income economies, improvements in labor quality were generally larger than improvements in TFP.

Sri Lanka, Indonesia, and Lao PDR experienced negative TFP contributions to labor productivity from 2000 to 2022 and the same was true for Turkiye in the 2000–20 period.

FIGURE 6

DECOMPOSITION OF AVERAGE ANNUAL LABOR PRODUCTIVITY GROWTH (PP), 2000–22.

Capital deepening Labor quality TFP LP

Source: The APO, 2024; authors' calculations.
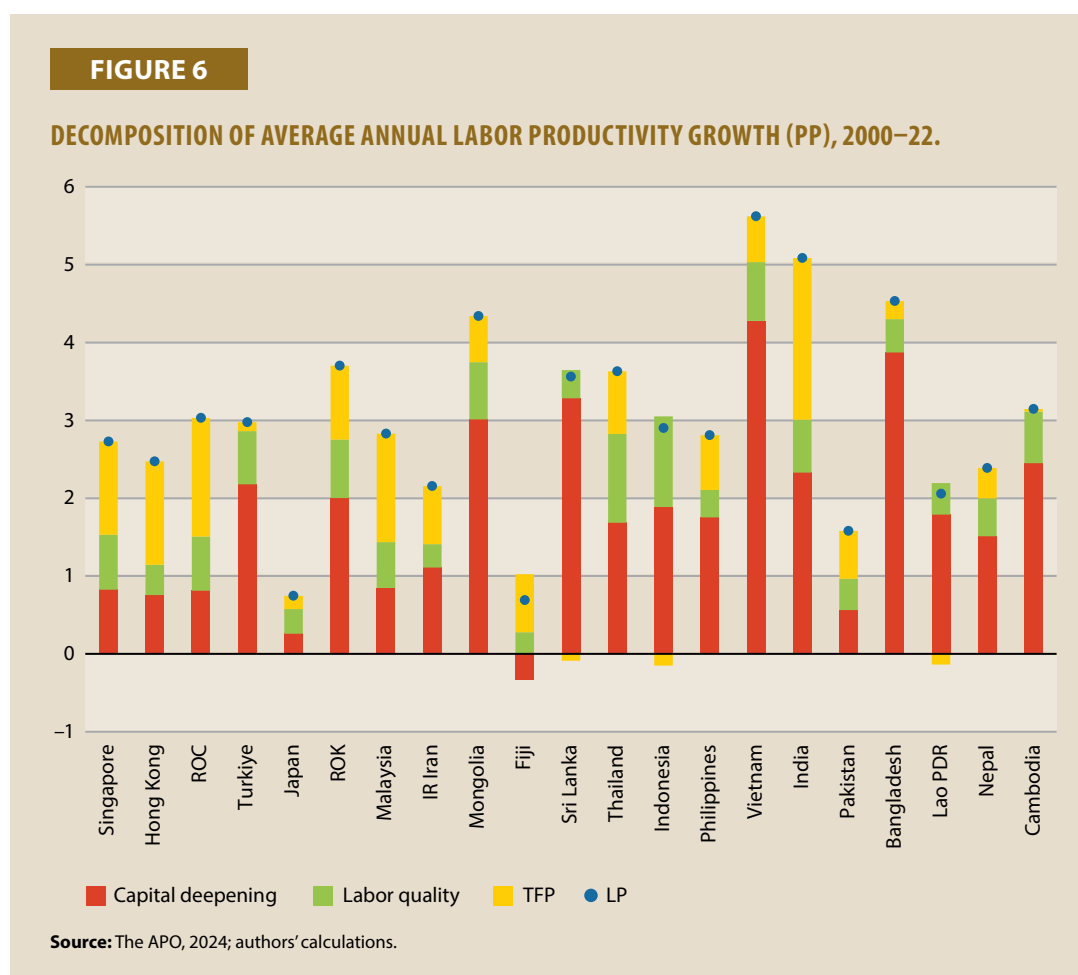
Figures 7 through 9 disaggregate this decomposition further by separately considering the periods 2000–10, 2010–20, and 2020–22. The latter period is strongly affected by the COVID-19 pandemic and is too short a time-frame to draw definitive conclusions; however, it is included for completeness.

[3] Drawing this figure for the 2000–20 period reveals that the results are not much impacted by the COVID period.

FIGURE 7

DECOMPOSITION OF AVERAGE ANNUAL LABOR PRODUCTIVITY GROWTH (PP), 2000–10.

Capital deepening ■ Labor quality ■ TFP ■ LP ●
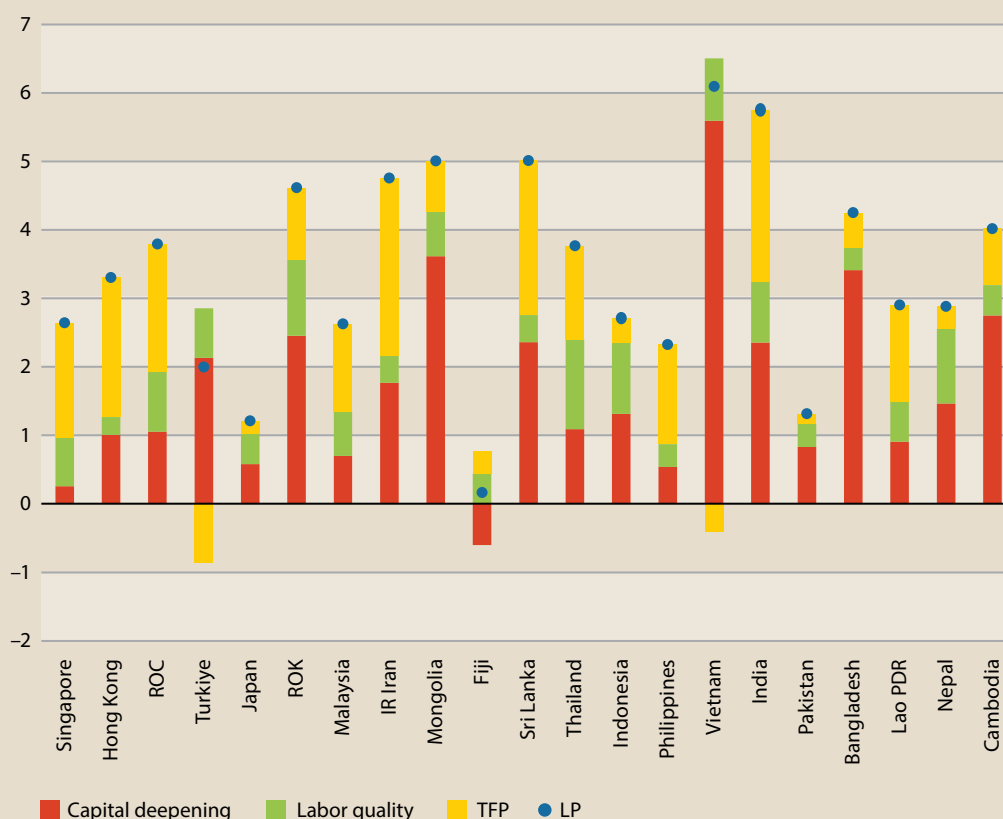
Source: The APO, 2024; author's calculations.

In both the 2000–10 and 2010–20 periods, capital deepening was the main contributor to labor productivity growth. In 2000–10, most economies also saw increases in TFP (with Vietnam and Turkiye being the two exceptions). TFP growth was particularly important in the wealthiest APO member economies (Singapore, Hong Kong, and ROC) as well as in IR Iran, Sri Lanka, and India. Labor quality improvements contributed to productivity but were generally smaller than the impact of capital deepening and TFP.

In the 2010–20 period, TFP growth and increases in labor quality were lower than in 2000–10 and capital deepening contributed a much greater share in raising labor productivity levels. TFP decreased in IR Iran, Sri Lanka, Indonesia, the Philippines, Lao PDR, and Cambodia. Labor quality increases were small in most of the economies, excepting India.

Between 2000 and 2010, TFP improvements were generally more significant than enhancements in labor quality. However, this trend reversed during the 2010–20 period, with labor quality improvements surpassing TFP increases. Notably, the ROC, Malaysia, and Vietnam experienced substantial increases in TFP, which significantly contributed to their labor productivity growth.

Figure 9 provides a decomposition for the COVID-19 period. There is less capital deepening, perhaps due to a decline in investment during the pandemic. It would be unwise to draw strong

FIGURE 8

DECOMPOSITION OF AVERAGE ANNUAL LABOR PRODUCTIVITY GROWTH (PP), 2010–20.

■ Capital deepening ■ Labor quality ■ TFP ● LP
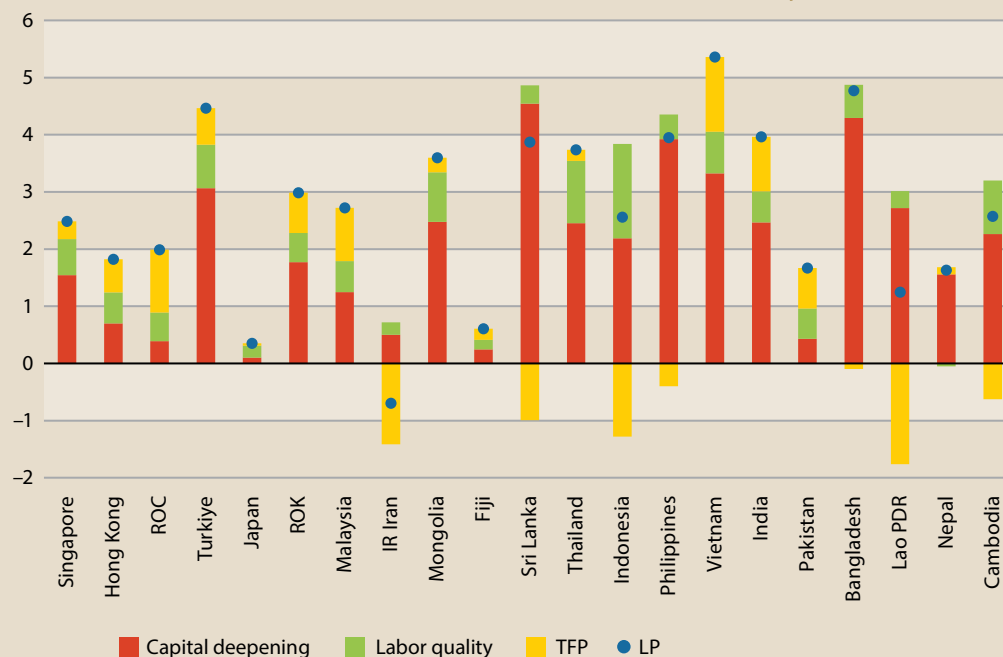
Source: The APO, 2024; authors' calculations.

FIGURE 9

DECOMPOSITION OF AVERAGE ANNUAL LABOR PRODUCTIVITY GROWTH (PP), 2020–22.

■ Capital deepening ■ Labor quality ■ TFP ● LP

Source: The APO, 2024; authors' calculations.

conclusions from three years of data from this rather unusual period. The figure is included for completeness and to match other data in this report, which provides an update to 2022.

TFP Growth

Figure 10 shows average TFP growth in the APO member economies from 2000–22 compared to the EU, OECD, and USA.[4] While TFP growth in the APO region has lagged the USA, it has strongly outperformed the EU and OECD averages.

Figure 11 shows the breakdown of TFP growth in these country groups for three time periods: 2000–10, 2010–20, and 2020–22. The results from Figures 8 and 9, showing that TFP growth slowed in APO member economies in the second decade of the 21st century, can also be seen here. That TFP grew in the APO region on average in 2010–20 is remarkable, as the other country groups and the USA experienced negative TFP growth. Again, it would be premature to draw conclusions from the short, COVID-affected period post-2020.

Figure 12 presents TFP growth across these three time periods for the individual APO member economies. The pattern of higher TFP growth in 2000–10 than in 2010–20 is evident. Turkiye, Vietnam, and Pakistan are the only exceptions. The 2020–22 period looks very different in Figure 11 (which uses data from the Conference Board) and Figure 12 (which uses data from the APO). Different data sources tell a similar story over long time periods, but there are some inconsistencies in shorter time periods that the authors were unable to resolve.

FIGURE 10

TFP GROWTH (% PA) IN THE APO, EU, OECD, AND USA, 2000–22.

Source: The Conference Board, 2024b.
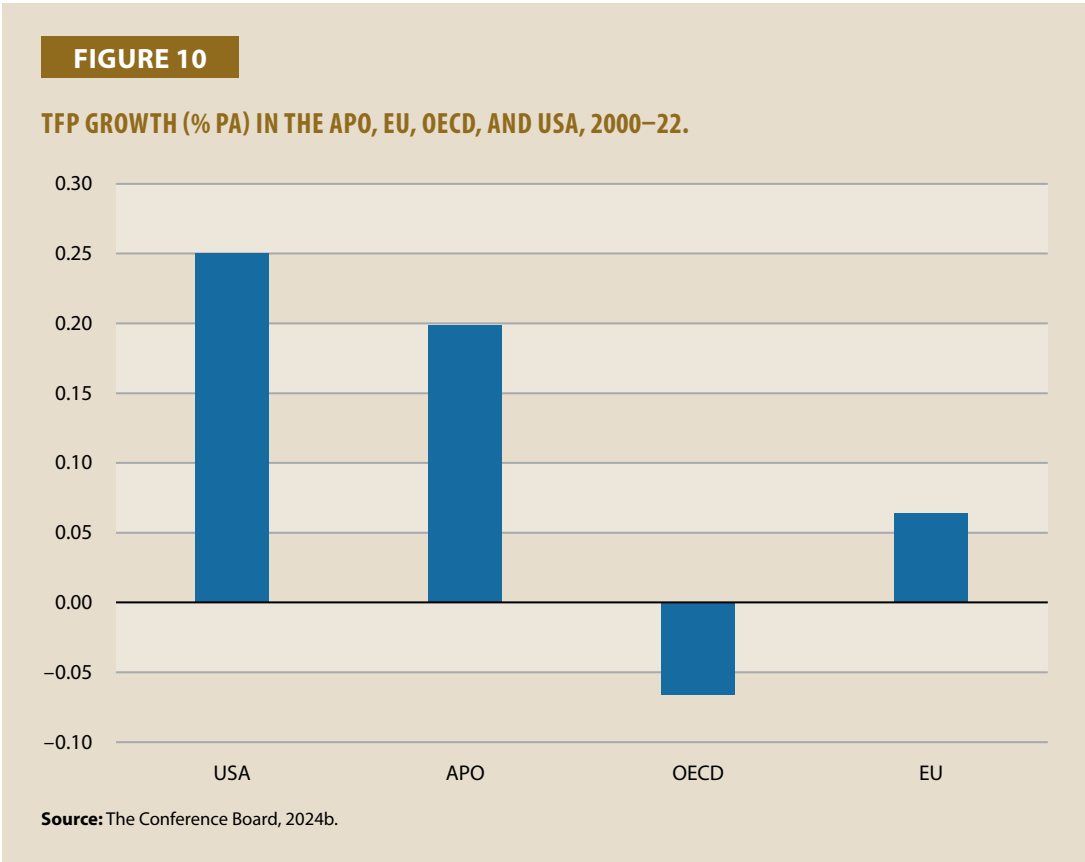
[4] Again, simple averages are presented so these should be interpreted as the performance of an "average" country, not as the TFP performance of a country in that region and not as the TFP performance of the entire region.

FIGURE 11

TFP GROWTH (% PA) IN THE APO, EU, OECD, AND USA BY DECADE, 2000–22.

Legend: ■ 2000–10 ■ 2010–20 ■ 2020–22
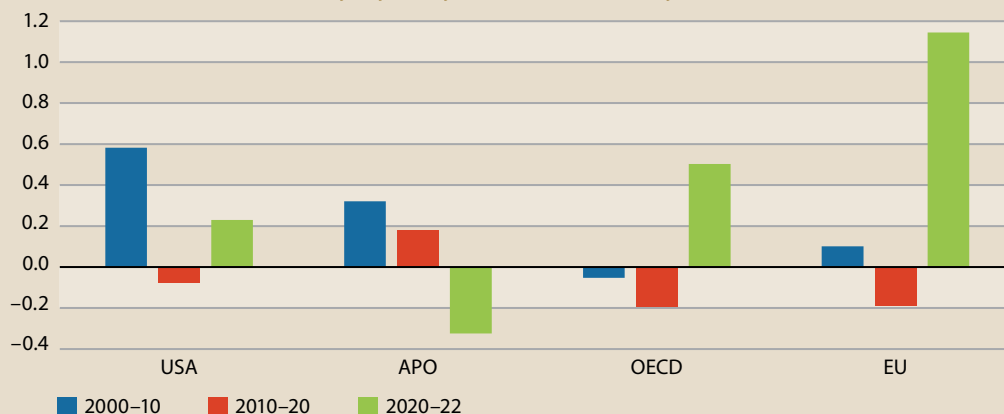
Source: The Conference Board 2024b.

FIGURE 12

TFP GROWTH (% PA), 2000–10, 2010–20, AND 2020–22.

Legend: ■ 2020–22 ■ 2010–20 ■ 2000–10
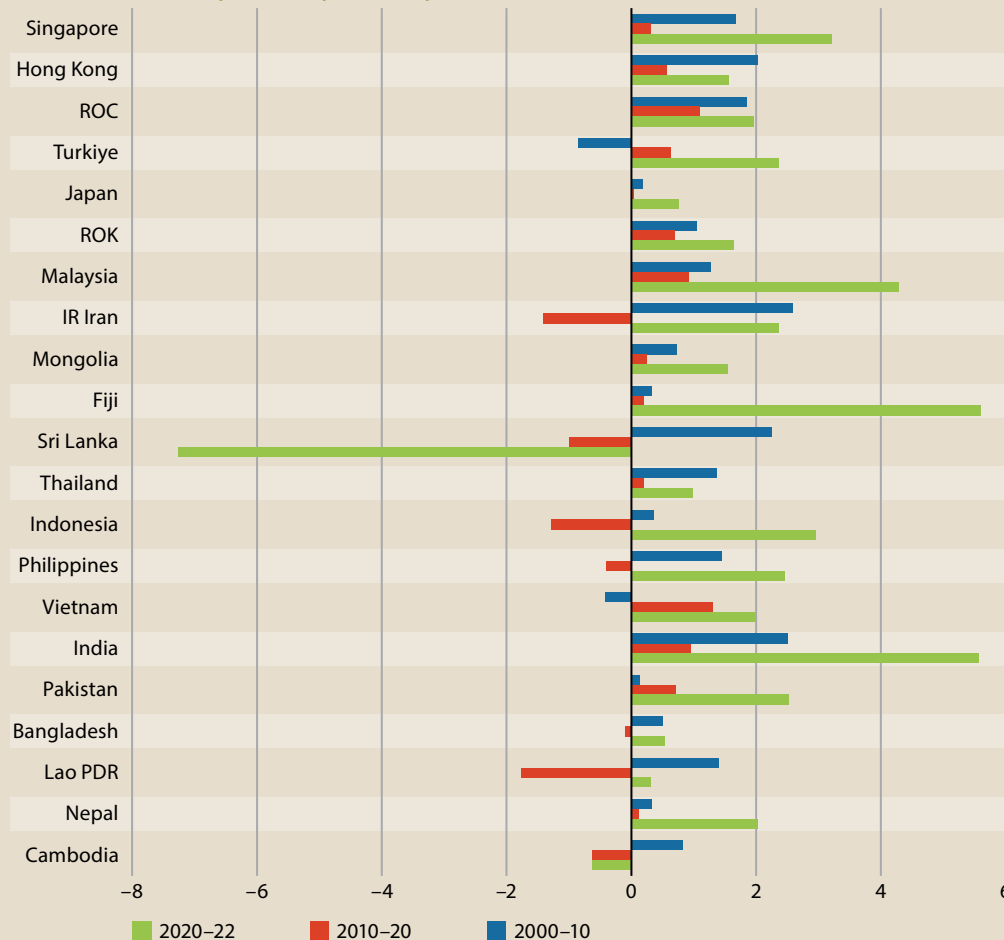
Source: The APO, 2024.

Labor Quality Growth

Figure 13 shows average labor quality growth in APO member economies from 2000–22 compared to the EU, OECD, and USA. Growth in labor quality indicates that average skills in the workforce have improved. There was little variation across country groups, but the USA had slightly smaller improvements in labor quality compared to the other economies.

Figure 14 reveals that, except in the APO, there was less upskilling in the first decade of the 21st century than in the second decade. The changes are relatively small. The pattern of the USA lagging "other" economies is also visible.

Figure 15 looks at individual APO member economies, split by the three time periods: 2000–10, 2010–20 and 2020–22. Labor quality growth was lower in 2010–20 than in 2000–10 in most APO member economies. Bangladesh, Hong Kong, Indonesia, the Philippines, Pakistan, and Cambodia are notable exceptions where labor quality growth was higher in 2010–20 than in 2000–10.

FIGURE 13

LABOR QUALITY GROWTH (% PA) IN THE APO, EU, OECD, AND USA, 2000–22.

Source: The Conference Board, 2024b.

FIGURE 14

LABOR QUALITY GROWTH (% PA) IN THE APO, EU, OECD, AND USA, 2000–22.

Legend: 2000–10, 2010–20, 2020–22

Source: The Conference Board, 2024b.

FIGURE 15

LABOR QUALITY GROWTH (% PA), 2000–10, 2010–20 AND 2020–22.

Source: The APO, 2024.
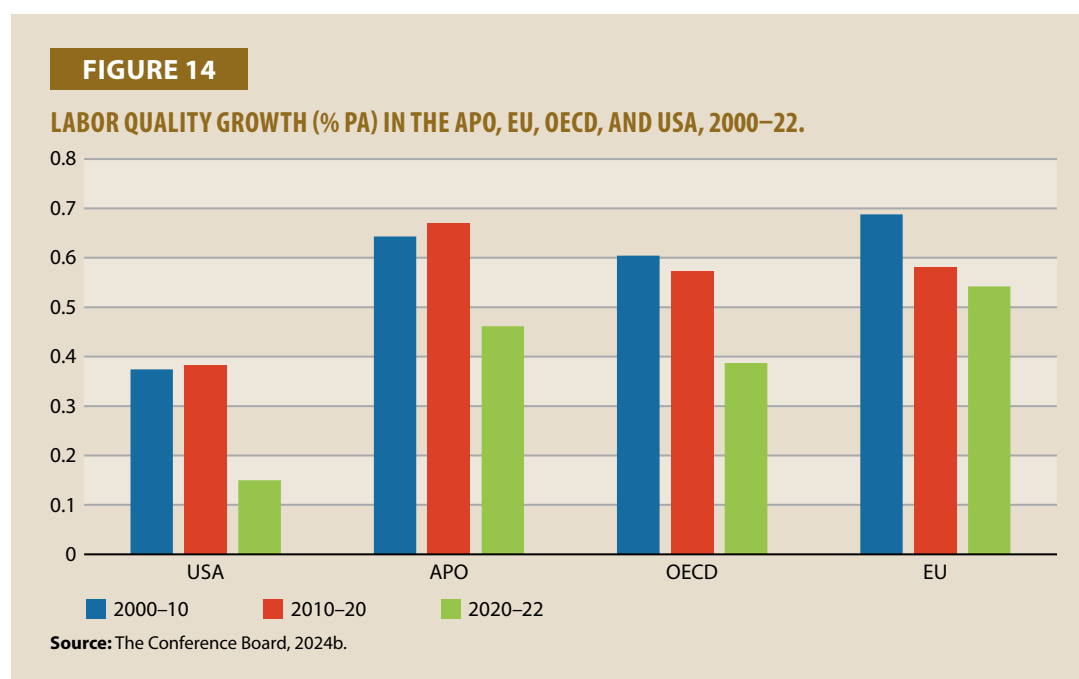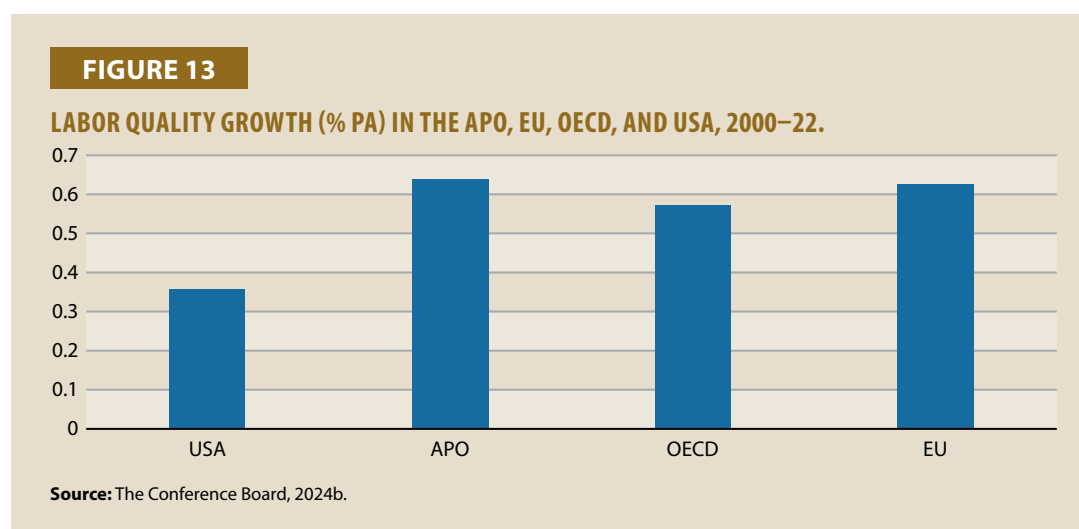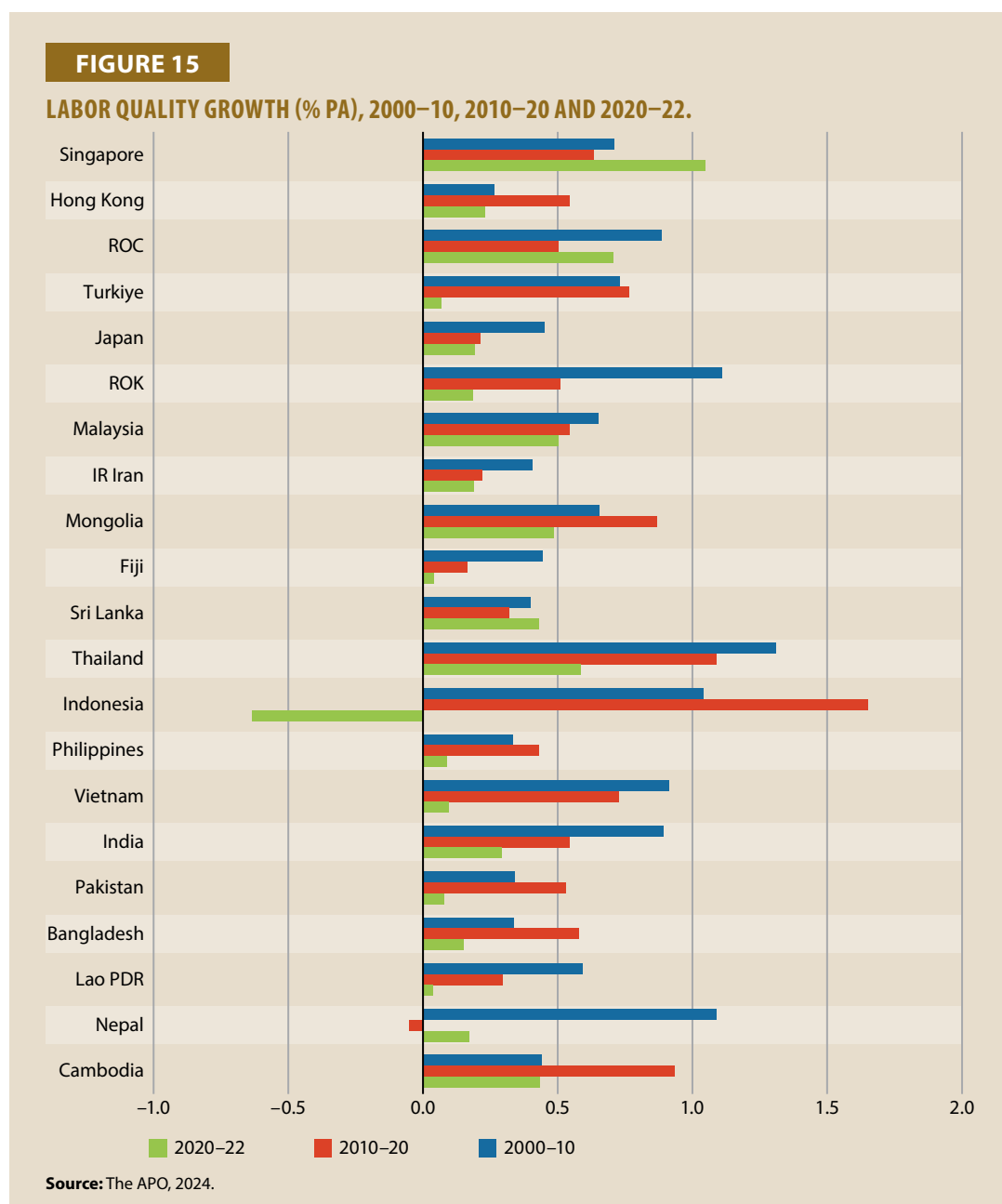
Sources of Long-term Output Growth: Inputs or TFP?

Through the 2000s and 2010s, many APO member economies relied on the accumulation of capital and labor to power output growth (Parham & Breunig, 2021). This may be appropriate for economies at a stage of development where labor and land are abundant and there are large returns to investment in capital (especially infrastructure). However, as economies develop, capital can suffer from diminishing returns, and economies turn to innovation and efficiency gains (i.e., TFP growth) as more important sources of productivity growth.

Figures 16 and 17 show the contributions of input growth and TFP growth to average annual rates of output growth in APO member economies. Figure 16 refers to growth over the period from 1970 to 2000, while Figure 17 refers to growth from 2000 to 2022. Figure 18 provides the same information as Figure 17 but removes the COVID-impacted years of 2020–22. The overall picture from Figures

17 and 18 remains quite similar. Figures 19 and 20 show the contributions of input growth and TFP growth to average annual rates of output for the 2000–10 and 2010–20 periods.

The overall impression from the figures is that output growth has come mainly from input accumulation in APO member economies. Capital growth has been the most important, generally well ahead of growth in hours worked. Capital growth was even more prominent in the 2000s. TFP growth and upskilling made smaller contributions in both periods. On the other hand, there were fewer declines in TFP in the 2000s.

There were important differences across economies, which fall roughly into one of three groups. First, the high-productivity-growth economies toward the left end of the graph had a generally stronger reliance on TFP growth and on growth in skills. The Asian Tiger economies had rapid output growth and relatively strong contributions from TFP and labor quality in the late 20th century. Input accumulation was more important in Singapore, accounting for three-quarters of output growth, whereas TFP and labor quality accounted for around 40% of output growth in Hong Kong, the ROK, and the ROC. Japan had slower output growth, but TFP and labor quality contributed more than 40% to its output growth. Output growth in these economies slowed in the second period, although their reliance on TFP and labor quality was proportionally consistent.

The second group comprises Malaysia, Thailand, and Indonesia. While they also had high output growth, which later slowed, they relied very heavily on input accumulation. This group had very strong capital contributions, which, in the first period, accounted for three-quarters of Malaysia's and Indonesia's output growth and about half of Thailand's.

FIGURE 16

DECOMPOSITION OF AVERAGE ANNUAL OUTPUT GROWTH (PP), 1970–2000.

Legend: Capital, Hours worked, Labor quality, TFP, Output

Source: The APO, 2024; authors' calculations.
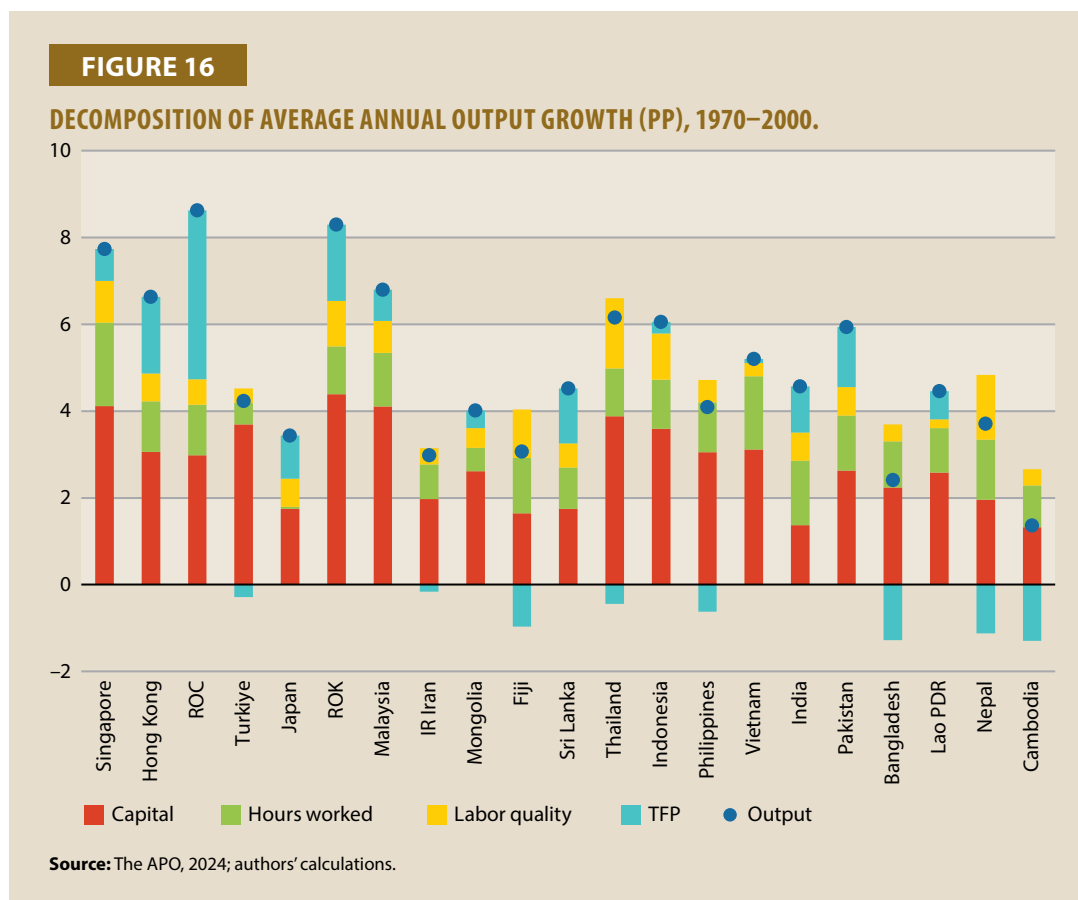
The remaining economies form a third group. Their output growth was weaker than in the other two groups before the turn of the millennium but, in many cases, matched or exceeded it in the 2000s. Capital provided the strongest contribution to growth. Prior to 2000, the contributions of TFP and labor quality were relatively strong in three economies, namely Pakistan, India, and Sri Lanka, but were weak, or even negative, in others.

Figures 19 and 20 demonstrate that output growth was generally stronger during 2000–10 than in the 2010–20 period. While a heavy reliance on input accumulation persisted, productivity growth made a significant and equivalent contribution to output growth. TFP, along with labor quality, contributed strongly in the 2010s in India, Vietnam, the ROC, Turkiye, and Pakistan.

In summary, APO member economies have historically relied heavily on input accumulation as the key source of output growth, though by varying degrees. Accumulation of capital inputs has been more important than accumulation of labor inputs. TFP growth has been variable but more notable in economies with periods of strong output growth. The high-productivity economies (Singapore being a possible exception) have historically relied more than "other" economies on the contributions of TFP and skills growth. While "other" APO member economies continue to rely on capital accumulation, the contribution of TFP growth to their output growth has increased.

FIGURE 17

DECOMPOSITION OF AVERAGE ANNUAL OUTPUT GROWTH (PP), 2000–22.

Capital · Hours worked · Labor quality · TFP · Output

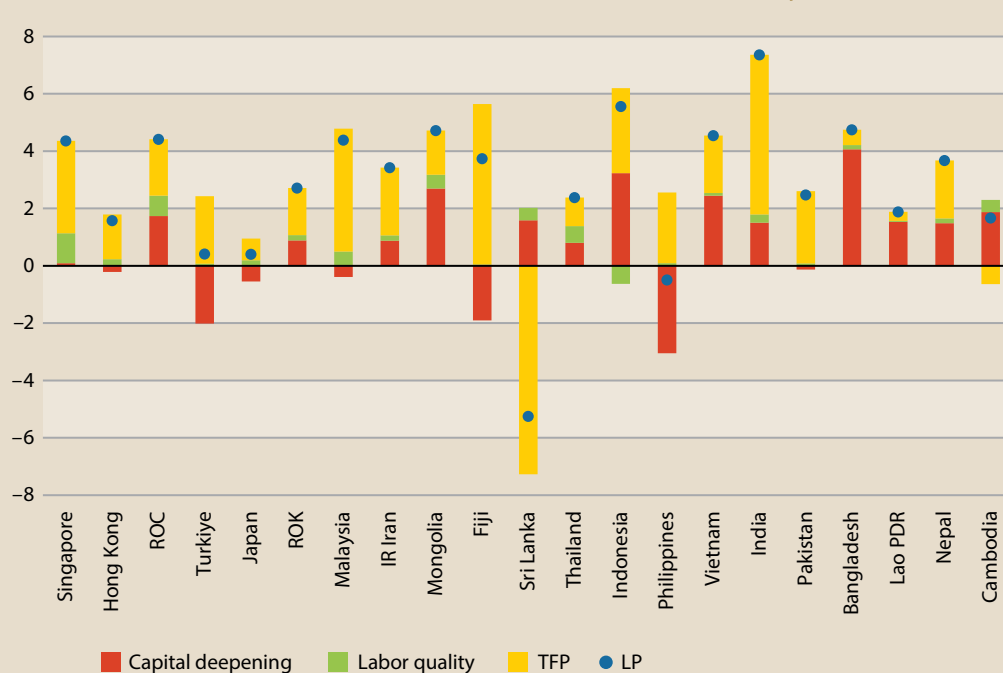**Source:** The APO, 2024; authors' calculations.
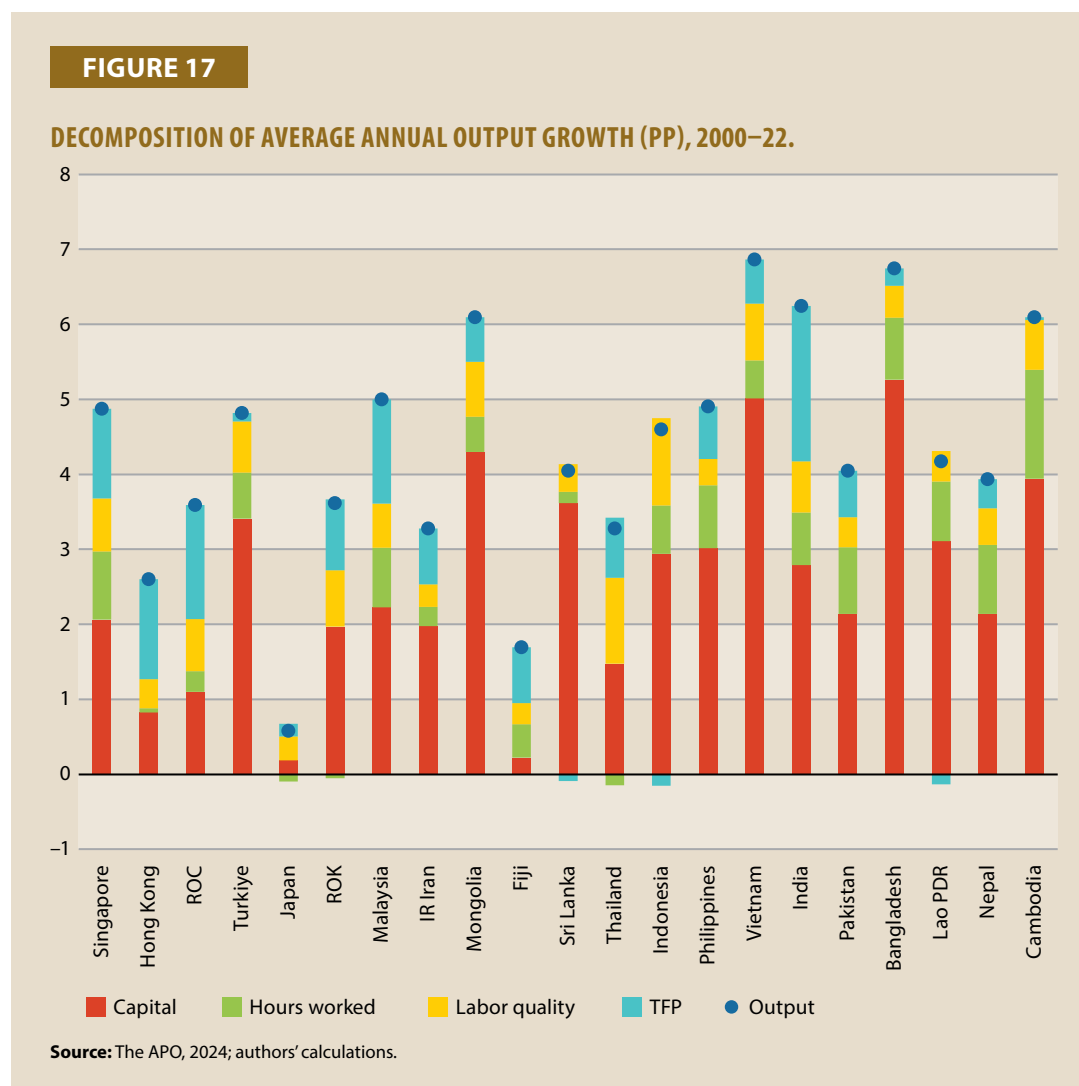
FIGURE 18

DECOMPOSITION OF AVERAGE ANNUAL OUTPUT GROWTH (PP), 2000–20.
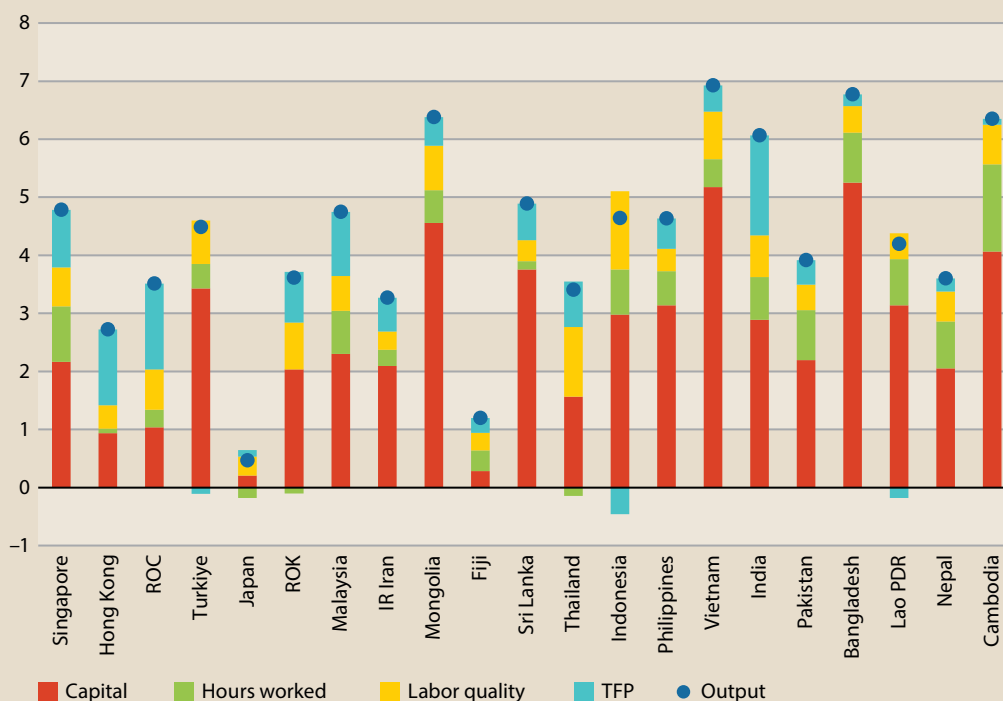

Source: The APO, 2024; authors' calculations.

FIGURE 19

DECOMPOSITION OF AVERAGE ANNUAL OUTPUT GROWTH (PP), 2000–10.
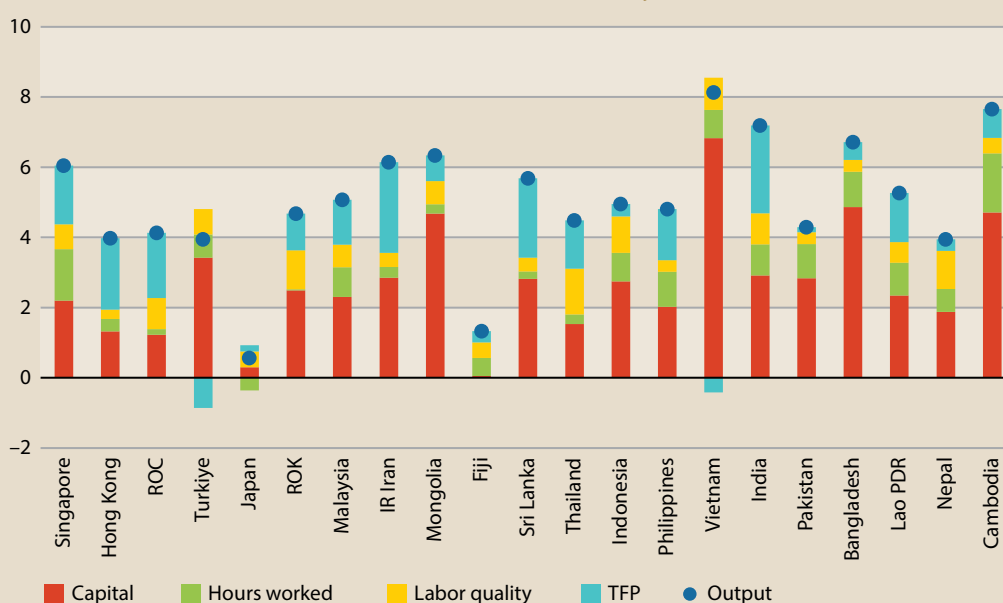
Source: The APO, 2024; authors' calculations.

FIGURE 20

DECOMPOSITION OF AVERAGE ANNUAL OUTPUT GROWTH (PP), 2010–20.

Legend: Capital · Hours worked · Labor quality · TFP · Output
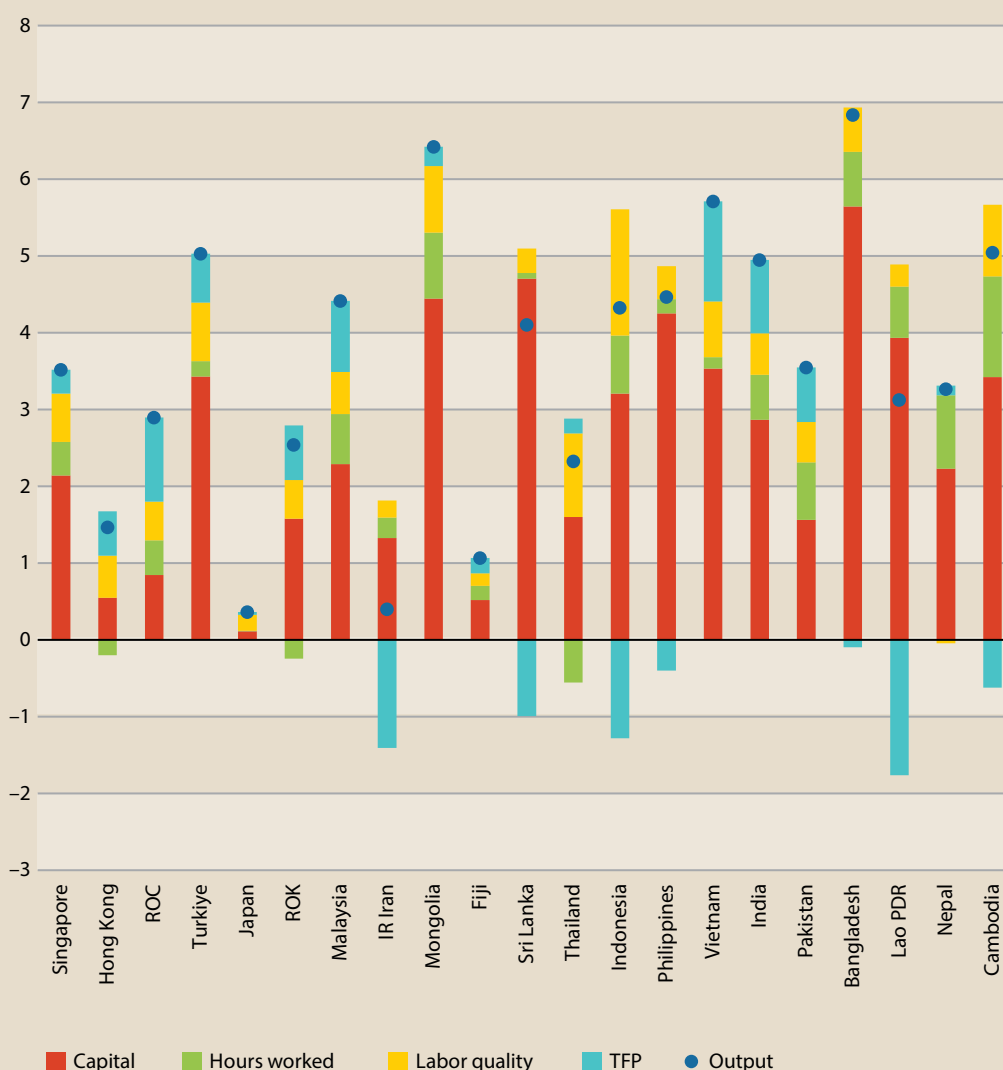
Source: The APO, 2024; authors' calculations.

Capital Productivity Trends

Measures of capital productivity can serve as an indicator of how productively the capital is being employed. In a long-term equilibrium, capital productivity should be stable, i.e., have zero growth. A negative rate of growth in capital productivity might signal poor investment decisions that are not returning commensurate growth in output and income, while a positive rate might signal that opportunities for productive investment are being overlooked.

Growths in capital and capital productivity vary widely across APO member economies. There is no clear pattern to capital productivity growth, with experiences ranging from strongly positive to strongly negative. In only six economies, i.e., Thailand, IR Iran, Cambodia, Malaysia, the ROK, and Singapore, was capital productivity growth in the 2010s less than half a percentage point away from zero growth (Parham & Breunig 2021).

FIGURE 21

GROWTH IN CAPITAL AND CAPITAL PRODUCTIVITY (% PA), 2010–22.

■ Capital   ● Capital productivity
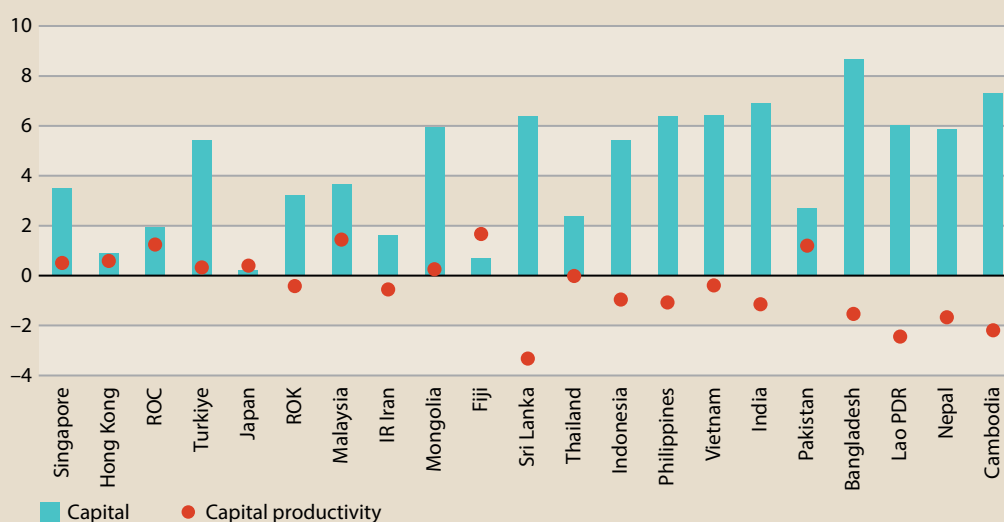
Source: The APO, 2024.

FIGURE 22

GROWTH IN CAPITAL AND CAPITAL PRODUCTIVITY (% PA), 2010–20.

■ Capital   ● Capital productivity
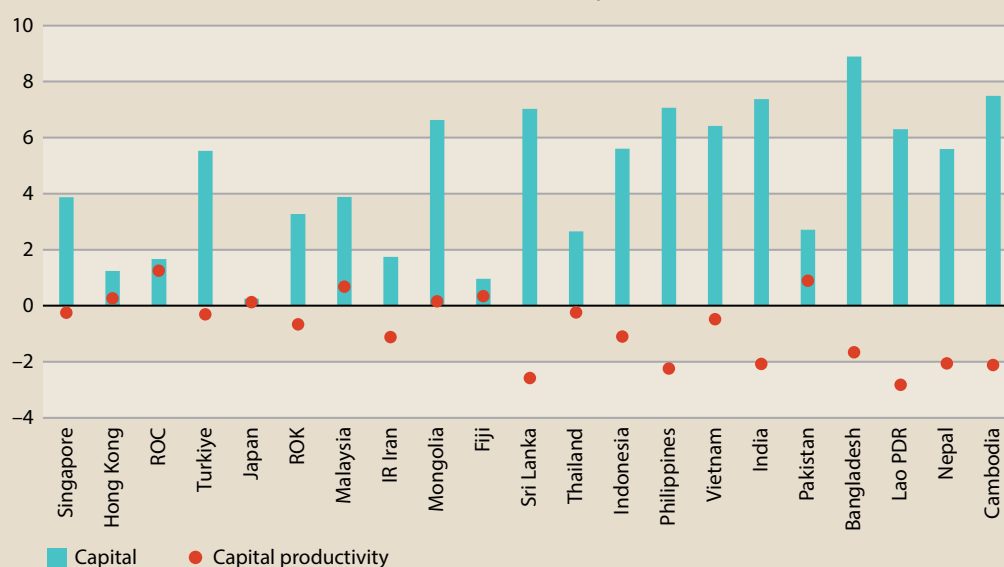
Source: The APO, 2024.

Sector and Industry Productivity

It was shown in Chapter 2 (Figure 3 in that chapter) that the level of labor productivity in nearly all APO member economies is highest in manufacturing, followed by services and agriculture. Moreover, productivity in a given sector is higher in high-income economies than in low-income economies.

Although not shown here, there are important differences in productivity levels within the services sectors of APO member economies. Finance, real estate, and business activities generally have very high productivity, higher than manufacturing. Community, social, and personal services often have very low productivity, as do wholesale, retail, and tourism.

Figure 23 shows the average annual growth in labor productivity by sector for APO member economies. Agriculture has become less productive in Singapore, Hong Kong, and the ROC but more productive everywhere else. Economies differ widely in their sectoral growth experiences. Singapore, Hong Kong, the ROC, Turkiye, the ROK, Malaysia, Fiji, the Philippines, Bangladesh, Lao PDR, and Cambodia recorded the highest labor productivity growth in manufacturing while IR Iran, Mongolia, Indonesia, Vietnam, and India experienced the highest labor productivity growth in agriculture. Labor productivity growth in services was relatively high in Mongolia, Sri Lanka, Vietnam, India, Bangladesh, and Lao PDR but in all of these economies it lagged the labor productivity growth in agriculture or manufacturing. This highlights the need to focus on the services sector's productivity, as discussed elsewhere in this report.

FIGURE 23

GROWTH IN LABOR PRODUCTIVITY (GDP PER PERSON EMPLOYED) BY SECTOR (% PA), 2010–22.

Source: The APO, 2024.
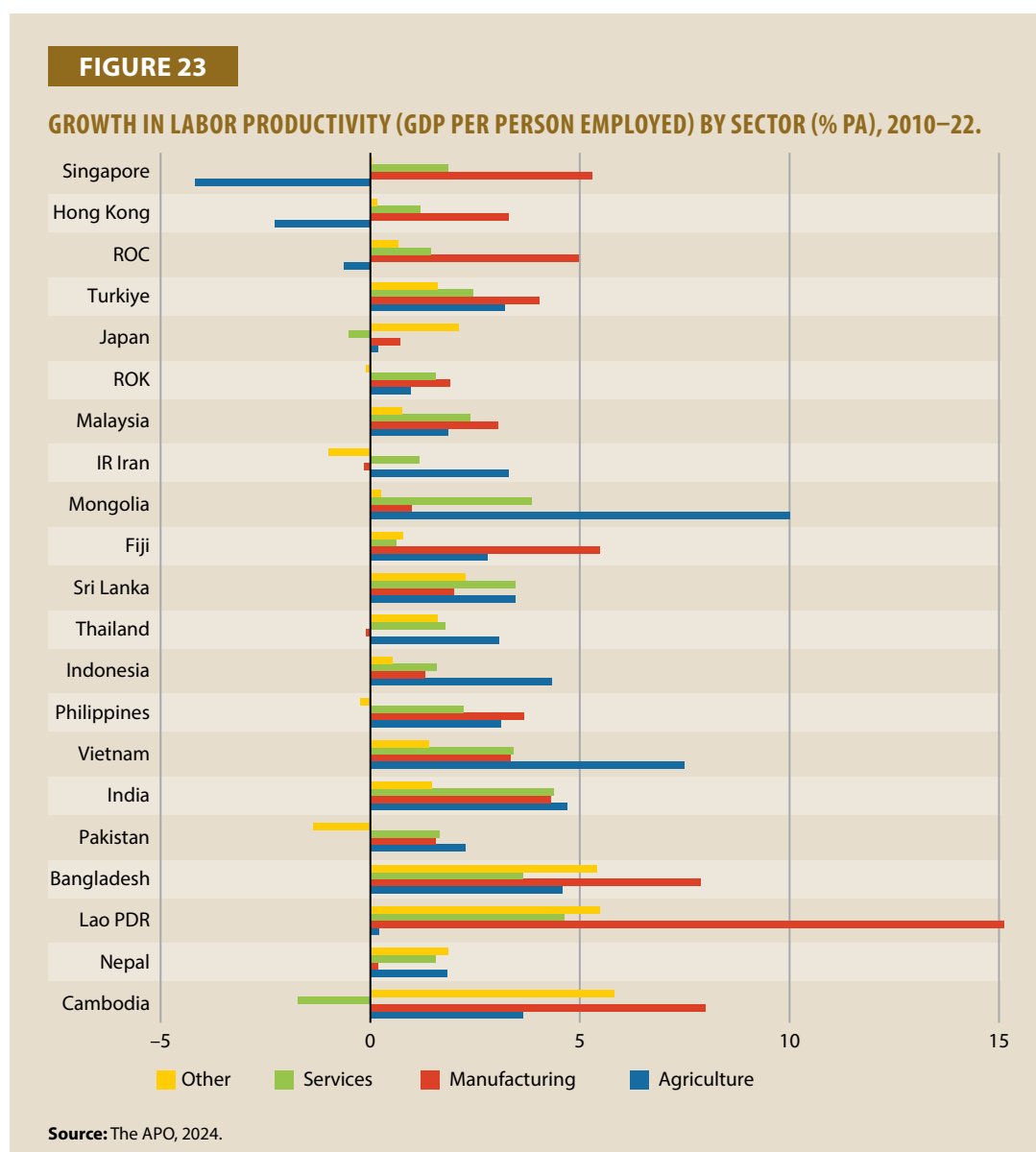
A sector's contribution to economy-wide productivity growth depends on the strength of productivity growth in the sector and on how important the sector is in terms of economy-wide production. A sector can have a large influence on overall productivity growth if it is relatively large or has relatively large productivity growth.

Services have been the main contributor to productivity growth in most APO member economies since 2010 (Figure 24). This is due to the growing importance of the services sector rather than its outstanding labor productivity growth, as can be seen in Figure 23. Both manufacturing and agriculture have made large contributions to labor productivity growth but their impacts vary widely across economies, partly because of the differences in growth shown in Figure 23 and partly due to the varying sizes of these sectors across economies.

FIGURE 24

SECTOR-WISE CONTRIBUTIONS TO LP GROWTH (% PA), 2010–22.

Agriculture Manufacturing Services Other LP growth

Source: The APO, 2024.
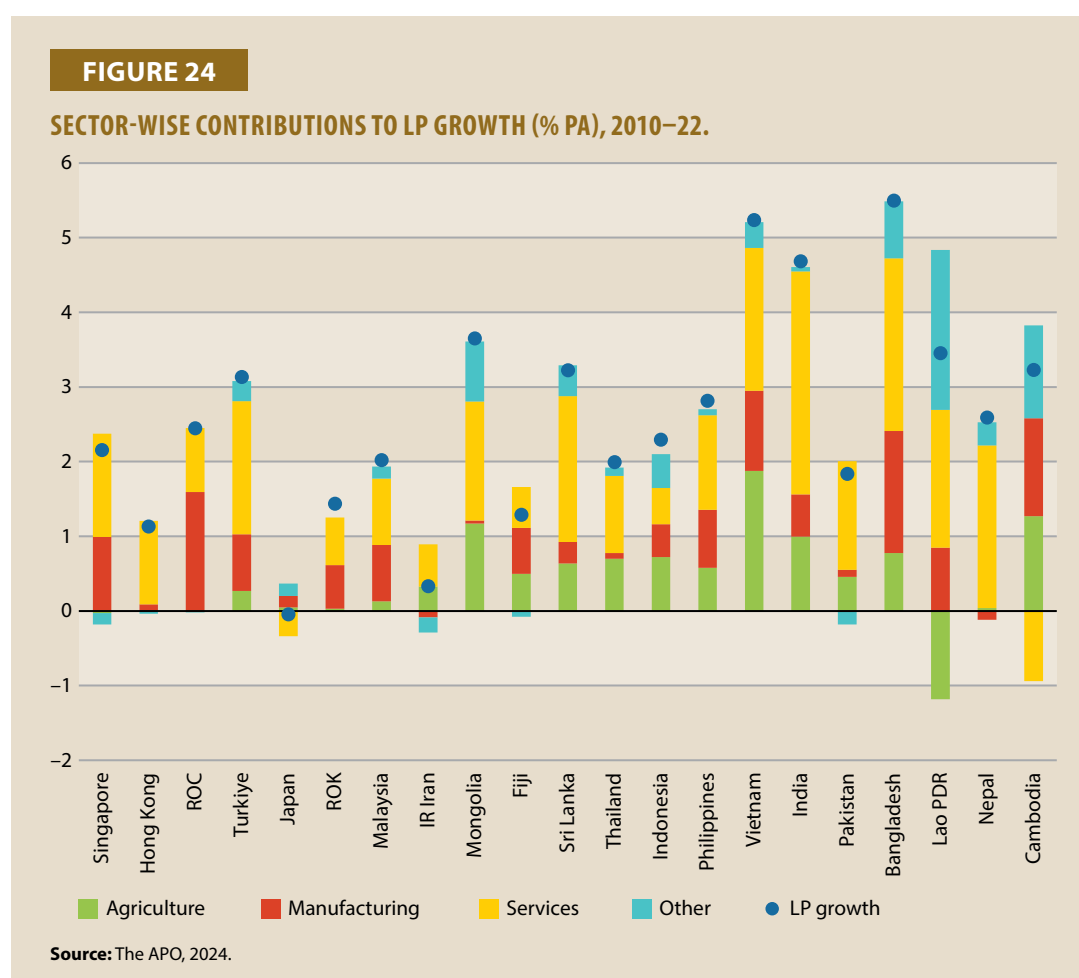
Key Point Summary

- Labor productivity growth has been more rapid in the APO region than in developed economies.

  ◦ The process of catch-up (discussed in Chapter 2) provides at least some of the explanation.

  ◦ Productivity growth slowed in the 2010s in most economies but APO group of economies outperformed most other economies.

- ◦ Productivity growth slowed markedly in the 2020s, but APO member economies continued to outperform the OECD average and that of the USA during the first few years of the 2020s. It is too early to draw strong conclusions about the 2020s.

- Levels of labor productivity vary widely across APO member economies.

  - ◦ At the top is Singapore, where the productivity level is close to the international frontier.

  - ◦ However, Singapore's productivity is more than seven times the levels of lesser-developed economies in APO group.

- Capital deepening is by far the biggest contributor to labor productivity growth across APO member economies since 2000.

- TFP growth and labor quality improvements make smaller contributions and are variable across economies. For the most part, wealthier economies saw larger improvements in TFP growth relative to labor quality while for lower-income economies, improvements in labor quality were generally larger than improvements in TFP.

- In 2010–20, TFP growth and increases in labor quality were lower than in 2000–10 and capital deepening had a larger relative role in raising labor productivity levels.

- Rates of TFP growth have varied widely across APO member economies.

  - ◦ They have generally been stronger in the more advanced economies.

- TFP growth in the APO was higher than in the EU or the OECD, on average. It was, however, lower than that in the USA. This was consistent across the entire 2000–20 period.

- APO member economies have relied on input accumulation, rather than TFP growth, as a source of output growth.

- In most APO member economies, labor quality has made only small contributions to output growth. Labor quality growth is much less varied across economies than the variations in TFP or LP growth.

- APO rates of labor quality growth resemble those in the EU or the OECD.

- Greater capital deepening provided a boost to labor productivity growth in the 2010s in the middle-productivity economies (except for Fiji and IR Iran).

- Capital productivity estimates suggest there may be some undercapitalization in some economies and some misallocation of investment in a few others.

- Sectoral contributions to labor productivity growth vary across APO member economies.

  - ◦ The services sector has been a major contributor in all but two economies, underlying its importance to overall productivity growth.

◦ The services sector has lower growth in labor productivity than the manufacturing or agriculture sectors in all APO member economies, but its size makes it the largest contributor to overall productivity growth.

◦ Manufacturing continues to contribute to productivity growth in those economies with relatively large manufacturing sectors. Growth in labor productivity in manufacturing is high in many economies, including the wealthiest APO member economies.

◦ Similarly, strong contributions from agriculture have come from economies with relatively large agriculture sectors.

These productivity trend findings set the stage for the next chapters: an examination of why some economies achieve better productivity outcomes than others. Chapter 4 introduces the key determinants of productivity performance and Chapter 5 quantifies how APO member economies are doing in those areas.

References

Asian Productivity Organization (2024). APO Productivity Databook 2019. Tokyo: APO; 2019.

OECD (2024). Compendium of Productivity Indicators 2019. Paris: OECD; 2019.

CHAPTER 4
PRODUCTIVITY DETERMINANTS AND DIAGNOSTIC INDICATORS

The central theme of this report is that economies, in order to experience strong and sustained productivity growth, need to be "productivity ready." Being productivity ready requires that a range of determinants of productivity are firmly in place to encourage and allow firms to develop and take advantage of productive opportunities.

This chapter begins by presenting a hierarchy of the determinants of productivity. This provides a framework for understanding what fosters productivity growth, from firm-level decisions to government policies through to immutable characteristics of a country. The framework provides clear directions for productivity reforms, particularly where productivity determinants can be influenced by government policies.

Indicators for various determinants of productivity are then identified. These indicators are used in the next chapter to develop an overarching index of productivity readiness, along with sub-indexes covering different aspects of productivity readiness. For policymakers, these indicators provide an evaluative tool to assess a country's strengths and weaknesses relating to productivity determinants.

Framework for Hierarchy of Productivity Determinants

This report employs the framework of productivity determinants developed in Parham and Breunig (2021). Productivity, whether measured as labor productivity, capital productivity or TFP, improves through the actions of firms and individuals in the economy as well as those of governments in their own operations. Governments cannot legislate or dictate higher productivity. Some determinants of productivity are beyond the control of both governments and firms; some lie outside the control of firms but can be influenced by governments; and others fall directly within the scope of decisions made by firms.

"Fundamental" determinants form the base layer of the framework (Figure 1). Countries have largely immutable characteristics that determine productivity. These include demographic structure, geographic location, climactic zone, distance from markets, and resource endowments. These affect productivity, but cannot be subject to improvements, at least in the short- to medium-term.

"Underlying" determinants are where governments can influence the broader economic and social ecosystem in which firms operate. Examples include the tax system, the absence of corruption, the road network, and the digital infrastructure. Firms cannot control these underlying determinants, yet they are important for creating the preconditions for productivity improvements.

Finally, the factors over which businesses have decision-making control are referred to here as "immediate" determinants of productivity. Many decisions that firms make directly affect

productivity, e.g., how many people to employ; what kind (and size) of capital investments to make; and what processes to use to produce which goods and services.

Various immediate and underlying determinants of productivity are now laid out. This list is not exhaustive but captures many of the key elements that were identified in the extensive literature review of Appendix B in Parham and Breunig (2021). Figure 1 provides a schema of the hierarchy of productivity determinants. Since fundamental determinants are mostly beyond the influence of government policy, they are largely passed over in the discussion that follows.

FIGURE 1

HIERARCHY OF PRODUCTIVITY DETERMINANTS.

Productivity	
Immediate determinants	Measures within the control of producers
Underlying determinants	Measures subject to government influence
Fundamental determinants	Measures largely outside of influence

The immediate and underlying determinants of productivity are many and varied, shown in Figure 2. They are important on their own but also important when taken as a group. Individual determinants of productivity are often more powerful when other determinants are firmly in place. While the productivity determinants are discussed individually below, they are interrelated. Innovation, for example, often occurs due to a combination of research and development (R&D) activities, workforce skills, and the investment environment. Productivity is a result of many things coming together rather than one silver-bullet policy or determinant.

FIGURE 2

FRAMEWORK OF IMMEDIATE AND UNDERLYING DETERMINANTS.

Labor and human capital	Physical capital	Intangible capital	Knowledge	Products and markets	Immediate determinants
Motivation	Capabilities	Efficiency of markets	Stability		Overarching themes
Education system	Innovation system	Economic infrastructure	Business environment	Financial system	Underlying determinants
Health system	Foreign investment	Trade	Demand		
Savings	Institutions	Social capital	Climate change abatement and mitigation		

Immediate Determinants

Productivity, at its simplest, is the ratio of outputs to inputs. Firms decide what to produce, which production technologies to use, and the amount and types of labor and capital inputs to employ. These choices directly affect the output-to-input ratio. In addition, the investments firms make in developing and acquiring skills, fostering innovation, and adding new capital influence their productivity performance over time.

Labor and Human Capital

As an input to the denominator of the productivity ratio, the quantity of labor has an obvious effect on the measurement of productivity. Labor productivity and TFP are improved when more output is produced per unit of labor.

The quality of labor input also matters. Growth in human capital or skills raises productivity in two ways. First, skilled workers are more productive, on average, than low-skilled workers. A skilled worker, for example a crane driver, can generate more output in an hour of work than can a low-skilled manual worker. Second, skilled workers are better able to raise the rate of innovation by developing or implementing new technologies and management practices. Entrepreneurial and technical skills are especially important in promoting innovation. At a national level, more educated workers help developing economies (and economies that do not develop their own technologies) absorb technologies developed in other economies. In this way, they assist the process of catching up to the world frontier (see Chapters 2 and 3 of this report for more on catchup and convergence globally and in APO member economies).

Empirical studies have found that education has a positive effect on long-term growth rates. See Appendix B of Parham and Breunig (2021) for references.

Physical Capital

Physical capital, in the form of assets such as buildings, plants, machinery, and equipment, affects productivity in several ways. First, it has a direct effect on TFP as one of the inputs to the denominator of the productivity ratio. Second, it affects labor productivity directly through capital deepening, i.e., the increase in the capital–labor ratio. Third, new capital can embody technological changes that affect productivity by altering the production process. Fourth, certain types of capital can have an indirect effect on TFP by enabling other innovations.

Information and communications technologies (ICTs) are an important example of capital that has enabling effects on TFP. ICT acts as a platform on which users can develop their own innovations in products and processes. As detailed in Appendix B of Parham and Breunig (2021), innovative use of ICT can improve capacity utilization, enable product customization, and support organizational reengineering, among other things. The importance of ICTs and digitization is discussed in Chapter 2.

Intangible Capital

Since the onset of digital revolution, the importance of investments in intangible assets has gained growing recognition. Intangibles are assets of value that companies rely on to grow in a fast-changing and competitive world. They include R&D and associated intellectual property; designs, software, and databases; and marketing outcomes, brands, and organizational capital, including processes that allow firms to anticipate and adapt to change.

Knowledge

Knowledge encompasses technology. In the long haul, development, adaptation, and implementation of technological advances have been the primary drivers of productivity growth. Some technological advances allow firms to produce new products that have lower input requirements, while other technological advances allow firms to generate existing products in less resource-intensive ways.

Knowledge also includes advances in "soft" technology, i.e., the knowhow based on management techniques, workplace arrangements, and organizational structures. Through these advances, firms can gain more from their inputs, and consequently, become more productive.

Products and Markets

By choosing products and markets, and by developing new ones, firms can influence their productivity performance. Because different productivity levels are associated with different products, a switch from a low-productivity-level product to a higher-productivity-level product will raise the average productivity. Choosing to export can allow firms to benefit from economies of scale in production, leading to productivity improvements. International trade may also increase the returns to innovation, and, in some circumstances, facilitate knowledge transfers between firms in different economies.

Firm dynamics also affect the average level of productivity. For example, productivity can rise when high-productivity firms capture more market share, new entrants become high-productivity firms, and low-productivity firms exit the industry.

The degree of competition in markets is another driver of productivity improvements. It provides incentives for firms to innovate and improve performance in order to maintain or increase their market shares.

Underlying Determinants

The above immediate determinants have direct effect on outputs produced and inputs used, and therefore, on producers' productivity. However, other factors, beyond the production choices of individual firms, also drive and enable producers to be more productive over time. These are the underlying determinants.

Education System

Human capital affects a nation's productivity, as noted earlier, by enhancing individuals' personal productivity and by enabling faster innovation and knowledge absorption. The effectiveness of a country's education and training system is therefore of great underlying importance in supporting long-term productivity growth.

The education system covers early childhood learning, primary and secondary schooling, and tertiary education and training. An effective education system develops basic numeracy and literacy, work and life skills, and a capacity for ongoing learning.

Innovation System

The innovation system is the interrelated network of the government, universities, and private research agencies and their researchers. The development and diffusion of ideas and research successes depend on the innovation system. Success requires collaboration and cross-fertilization of ideas, particularly for large projects and in areas where expertise and specialization have been

developed or are needed. The innovation system provides the research infrastructure that allows firms to undertake research and adapt knowledge to match their circumstances.

Economic Infrastructure

Economic infrastructure, including transport and communications systems, energy generation and water distribution, provides a foundation for businesses that enhances productivity by reducing transaction costs, lowering production and distribution costs, and removing spatial barriers to knowledge diffusion and trade.

Not all infrastructure spending, however, is good spending. Some spending can reflect political rather than economic priorities and some can get wasted and diverted needlessly. Effective selection and management of projects are essential.

Business Environment

The business environment is the set of rules and conditions under which businesses operate. It comprises elements such as the taxation regime, product regulation, and environmental regulation; industrial relations and work rules; and corporate governance requirements and compliance requirements for starting and running a business.

These rules and conditions affect productivity by conditioning the level of inputs required to produce outputs. A country's tax system and regulatory settings can either facilitate or discourage investment. In a positive business environment, high-productivity firms can succeed and grow. While regulations are mostly formulated for good reasons, some are unnecessary, overly stringent, or implemented in ways that impose avoidable negative effects on productivity.

Financial System

Financial market development is positively associated with economic growth, investment, and productivity. Constraints on credit can prevent productive ventures from taking place, and investments in R&D are often the last to be funded. Financial market imperfections can also distort the allocation of finance away from where it can be most productively employed, e.g. by inhibiting startups in an industry, limiting the financing of technology adoption, or discouraging the underwriting of entrepreneurial ventures.

Health System

The quality of the health system helps determine the productivity of individuals by shaping their ability to participate fully in work activities. Good healthcare results in less time off work due to minor ailments; faster recovery from serious illnesses and accidents; and greater emphasis on prevention and early detection.

Foreign Investment

Foreign investment provides funding that complements domestic savings. Foreign direct investment (FDI) can also bring benefits in the form of knowledge spillovers. For example, foreign companies can bring technology and knowhow, and their transfer to businesses in the local economy can lift domestic productivity.

Trade

Trade can enhance productivity through various mechanisms. Exports can lift productivity by raising production to a point where economies of scale are possible. Imports can provide access to embedded

technologies, as in the case of ICTs. Imports also put competitive pressure on domestic firms in the same industry, spurring them to improve productivity. Trade also encourages a reallocation of resources to areas where they can be most productively employed. In this sense, trade is akin to technological advances as it allows economies to consume outside their domestic production possibility frontier. Trade affects consumption in the same way that pushing out the technological frontier does.

Demand

Demand patterns can affect productivity by affecting the scale of production and allocation of resources to produce for different markets. They can entice product development and innovation and induce greater competition between producers.

Savings

Domestic savings provide a pool of funds for investment. Together with foreign investment, domestic savings help determine the cost of capital and the amount of capital accumulation that occurs.

Institutions

Institutions are the laws, customs, or practices that define the formal and informal rules governing economic, political, and social relations. Effective institutions are associated with the definition, protection, and enforcement of property rights; safeguards against corruption and crime; and the defense of the rule of law. The quality of institutions also depends on political stability and effective governance. Strengths and weaknesses in institutions can have a significant impact on the accumulation of physical and human capital over time, and thus to a country's long-term growth and development. Weak institutions raise the risks of inadequate returns on investments.

Social Capital

Social capital, in this context, captures the levels of trust, cooperation, and cohesion in a society. It affects productivity by conditioning the extent to which citizens are prepared to commit to long-term work, invest in education and work hard, and cooperate with others to achieve productive outcomes.

Climate Change Abatement and Mitigation

As discussed in Chapter 2, higher temperatures, environmental degradation, climate variability, loss of biodiversity, loss of arable land and less reliable sources of energy will have an impact on productivity. Government policies to reduce climate change and adapt to and mitigate the effects of climate change can affect productivity. While climate is a fundamental determinant, these abatement and mitigation measures, which are subject to government influence, could in theory be included in the underlying determinants. However, because observations on suitable indicators are not available through time (see the discussion of available data in Chapter 2), this determinant is not pursued further in the modelling of the overall Productivity Readiness Index and the sub-indexes for the four overarching themes of productivity.

Overarching Themes

Four overarching themes emerge from the underlying determinants[1]. They capture the following key requirements for strong and sustained productivity improvement:

- motivation: producers must be motivated, for example, by market pressures, to improve productivity;

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[1] These are developments of the Australian Productivity Commission's (2008) themes of incentives, capabilities and flexibility.

- capabilities: producers must have access to the resources they need to improve productivity;

- efficiency of markets: resources need to be allocated and reallocated to where they can be productivity employed; and

- stability: long-term productivity growth is underpinned by economic, social, and political stability.

These are the core requirements that economies must have in place to generate strong and sustained productivity growth.

Motivation

The business environment shapes motivation to be more productive in important ways. Onerous regulations can impede business startups and expansion. Regulations stipulating that certain processes must be followed can stifle innovation. Licensing and regulation can restrict competition, which could otherwise encourage firms to be more productive. Taxation regimes shape the net rewards that firms gain from taking entrepreneurial risks and making investments aimed at productivity improvement.

Trade and foreign investment policies can also affect motivation by reducing or enhancing competitive pressures. Trade barriers reduce the competitiveness of imported goods and services, while restrictions on foreign investment can limit the competition that domestic producers face.

Capabilities

The capabilities to improve productivity, such as skills and efficient communication, are built through education and health systems, the innovation system, development of infrastructure, and enhancement of social capital. They can be strengthened through on-the-job training and well-functioning labor markets that allocate workers to areas where their skills can be best employed.

Efficiency of markets

The efficiency of markets requires resources to be allocated to areas where they can be used most productively and profitably. Market efficiency is influenced by changes in the business environment, especially in the regulation of product, labor, and capital markets. The development and sophistication of the financial system also matter.

The quality of institutions has a more fundamental influence. As noted above, institutions affect businesses' attitudes toward risk and therefore help determine which productive activities they pursue.

Stability

Institutions provide the foundation on which economic and political stability are built. Social capital and the financial system are also important.

The Need for a Comprehensive Approach

Strength across all four themes is needed for long-term productivity success. Even if producers are motivated to improve productivity, they may be unable or reluctant to do so if the needed capabilities are unavailable or if political instability puts investment at risk. National productivity will not

realize its full potential if markets are distorted and resources are diverted to unproductive ends. Similarly, infrastructure and skills capabilities may be in place, but they will not have maximum effect on productivity if producers are not keenly motivated to improve productivity.

A combination of drivers and enablers is required. Motivation acts as a driver of productivity growth, while the other overarching themes function as enablers.

The framework suggests that a comprehensive, multifaceted policy approach is needed. The four overarching themes are touchstones for governments considering to develop a package of policies to foster strong productivity growth over the long term. Strength across all four areas is what makes a country "productivity ready." The themes are mutually reinforcing, with strength in one theme supporting strength in the other themes.

Key Point Summary

The following three tiers form a hierarchy of productivity determinants:

- immediate determinants that are within the control of businesses;

- underlying determinants that are not within the control of businesses but can be influenced by governments through policy actions; and

- fundamental determinants that are not subject to much influence (and are not discussed further in this report).

Immediate determinants are:

- labor and human capital;

- physical capital;

- intangible capital;

- knowledge; and

- products and markets.

Underlying determinants are:

- the education system;

- the innovation system;

- infrastructure;

- the business environment;

- the financial system;

- the health system;

- foreign investment;

- trade;

- demand;

- savings;

- institutions;

- social capital; and

- climate change abatement and mitigation

Four overarching themes in the underlying productivity determinants need to be in place to ensure long-term productivity success. These are:

- motivation;

- capabilities;

- efficiency of markets; and

- stability.

Governments need to ensure that policy actions address underlying determinants across all four overarching themes to foster strong and sustained productivity performance.

Indicators of Productivity Determinants

The 43 indicators of productivity determinants used by Parham and Breunig (2021) provided the starting point for replicating the analysis conducted in the earlier report. Changes in data availability since that report have necessitated adjustments to the set of indicators used to represent immediate and underlying determinants. In particular, the World Economic Forum (WEF) has made important changes to its range of indicators in transitioning from its annual Global Competitiveness Report to its Future of Growth Report. As a result, 18 of the indicators used in Parham and Breunig (2021) were no longer applicable in this report. The time series of those variables were either discontinued or had important data gaps that rendered them unusable for analysis.

A wide range of other possible data sources was considered for indicators of productivity determinants. In order to be included, indicators needed to meet several criteria. They had to be available for long time periods to allow for tracking of economies' progress over time. They also needed to have clear advantages over prior ways of measuring the determinants. Public availability of data and transparency in how indicators are constructed were pre-requisites for all of the data used. Priority was given to indicators that are likely to remain available for some time in the future.

Maximizing country coverage and ensuring fit with at least one of the four overarching themes were also important criteria for any indicators. This approach is aimed at improving the replicability of this study going forward.

The set of 24 indicators now used in this study, and their sources, are presented in Table 1. The indicators dropped from Parham and Breunig (2021) are included for comparison purposes and are highlighted in red, while a new indicator introduced in this report is highlighted in green. After an extensive search, the only new indicator added was a measure of R&D from the United Nations Sustainable Development Goals (United Nations Department of Economic and Social Affairs, 2024). This variable was judged to provide information very similar to the WEF data on R&D. UN data are used until 2018 and WEF data are used to supplement the dataset where necessary for the period 2018–23.

The criteria for data inclusion resulted in the rejection of many other indicators. The combination of wide country coverage, stable data construction, and coverage of a long time period ruled out many possible indicators.

The IMF Financial Markets measure and the Heritage Foundation's HF Labor Freedom measure, both of which had been used in the previous report, were excluded from the new measures of productivity readiness. This was because they were statistically insignificant in the model of overall productivity readiness and in the models of the four overarching themes. Dropping these two variables improved the explanatory power of the models presented below in Chapter 5. Since the other included indicators capture the quality of regulation and the financial system, there is no loss of information due to the exclusion of these two variables.

Chapter 5 demonstrates that the modelling for overall productivity readiness and the models of the four overarching themes result in indexes and rankings that are very similar to Parham and Breunig (2021), despite the use of a reduced set of indicators. In addition to the advantage noted above, that this new set of indicators will be more dependable going forward, this set also provides longer historical coverage, with most variables available from 2000 (many of the WEF indicators used previously were only available from 2006). This allows (in Chapter 5) examination of changes in productivity readiness and the four overarching themes over a longer time span than was previously possible. Finally, a smaller set of indicators provides a more stable model with less potential for volatility arising from overfitting of the model with too many indicators.

Note that not all indicators have values up to 2022 (the last year of the analysis period). In particular, variables from the IMF Financial Development Index and the five indicators from the KOF Swiss Economic Institute are only available up to 2021. In these cases, the 2021 values are used as estimates for 2022. Given the slow evolution of these values, this imputation seems reasonable.

As a robustness check, we re-estimated all the results for the PRI and the theme indexes from Chapter 5 by dropping each indicator, one at a time, and using the remaining indicators. The results were found to be stable to the exclusion of any one individual indicator, indicating that the results are not particularly sensitive to the set of variables that are used to measure the underlying determinants of productivity and that no single variable is driving the results.

TABLE 1

INDICATORS FOR PRODUCTIVITY READINESS MODELLING AND THEIR RELATIONSHIP TO THE FOUR OVERARCHING THEMES USED IN THIS REPORT AND IN PARHAM AND BREUNIG (2021)

Indicator	Data source	Years available	Contributes to			
			Motivation	Capabilities	Efficiency of markets	Stability
Education system						
Innovation system						
Innovation index	WEF	2006–19, 2023		X		
KOF Informational globalization, de facto	KOF Swiss Economic Institute	1970–21	X	X	X	
Buyer sophistication	WEF	2006–19	X	X	X	
R&D expenditure	UNSDG and WEF	2000–23	X	X		
Economic Infrastructure						
Infrastructure index	WEF	2006–19, 2023		X		
Business environment						
HF Business Freedom	Heritage Foundation	1995–24	X		X	
Intensity of local competition	WEF	2006–19, 2023	X		X	
Extent of market dominance	WEF	2006–19, 2023	X		X	
HF Tax Burden	Heritage Foundation	1995–2024			X	
Regulatory quality	World Bank WGI	1996–2023	X		X	X
Labor market efficiency index	WEF	2006–19		X	X	
HF Labor Freedom	Heritage Foundation	2005–24			X	
Financial system						
Financial market development index	WEF	2006–19, 2023	X		X	
IMF Financial Markets	IMF	1980–2021		X	X	
HF Financial Freedom	Heritage Foundation	1995–2024			X	
IMF Financial Development	IMF	1980–2021	X	X	X	
Health system						
Life expectancy at birth	UNdata	1950–2024		X		

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Indicator	Data source	Years available	Contributes to			
			Motivation	Capabilities	Efficiency of markets	Stability
Foreign investment						
KOF Financial globalization	KOF Swiss Economic Institute	1970–2021		X	X	
KOF Financial globalization, de jure	KOF Swiss Economic Institute	1970–2021		X	X	
FDI stock/GDP – inward	UNCTAD	1980–2023			X	
FDI stock/GDP – outward	UNCTAD	1980–2023			X	
HF Investment Freedom	Heritage Foundation	1995–2024	X	X	X	
Trade						
HF Trade Freedom	Heritage Foundation	1995–2024	X	X	X	
KOF Trade globalization	KOF Swiss Economic Institute	1970–2021	X	X	X	
KOF Trade globalization, de jure	KOF Swiss Economic Institute	1970–2021	X	X	X	
Prevalence of non-tariff barriers	WEF	2006–19			X	
Burden of customs procedures	WEF	2006–19		X	X	
Demand						
Macroeconomic environment index	WEF	2006–19, 2023		X	X	X
HF Monetary Freedom	Heritage Foundation	1995–2024		X	X	
Savings						
Gross savings/GDP	World Bank	1960–2023		X		
Institutions						
Institutions index	WEF	2006–19, 2023		X		
IMF Financial Institutions	IMF	1980–2021		X		

(Continued from the previous page)

Indicator	Data source	Years available	Contributes to			
			Motivation	Capabilities	Efficiency of markets	Stability
Political stability	World Bank WGI	1996–2023				X
Rule of law	World Bank WGI	1996–2023	X			X
Control of corruption	World Bank WGI	1996–2023	X		X	X
Government effectiveness	World Bank WGI	1996–2023	X	X	X	X
Social capital						
Voice and accountability	World Bank WGI	1996–2023				X
Additional variables						
Company spending on R&D	WEF	2006–19, 2023	X	X		
Degree of customer orientation	WEF	2006–17	X		X	
Quality of the education system	WEF	2006–19		X		
Quality of primary education	WEF	2006–19		X		
FDI and technology transfer	WEF	2006–17, 2023		X	X	
Prevalence of foreign ownership	WEF	2006–17		X	X	
University-industry collaboration in R&D	WEF	2006–19		X		

Note: Red shading indicates that these variables are not used for the reasons described in the text. Green shading indicates that this is a new variable included in the PRI 2024.

Data Sources and References

As in Parham and Breunig (2021), data on economies' productivity readiness and performance are drawn from: the APO; the Conference Board; the Global Entrepreneurship and Development Institute; the Harvard Atlas of Economic Complexity; the Heritage Foundation; the IMD World Competitiveness Centre; the Institute for Taxation and Accounting (Ludwig-Maximilians-Universität München); the International Centre for Tax and Development; the International Labor Organization; the International Monetary Fund; KOF Swiss Economic Institute; the OECD; Penn World Tables; the UN; the World Bank; the World Economic Forum (WEF); the WHO; and the World Values Survey. The references below provide details on where these data were obtained. Further data are sourced as required, such as official data from specific economies or further sector-specific data.

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CHAPTER 5
PRODUCTIVITY READINESS INDEXES

In this chapter, the indicators of the underlying determinants of productivity are combined to create an index of productivity preparedness for each of the four overarching themes: motivation, capabilities, efficiency of markets, and stability. These four indexes are then formed into a total Productivity Readiness Index (PRI). The strength of the relationships between PRI scores and productivity is also tested.

The methodology used in Parham and Breunig (2021) is also used here. Consequently, any differences in results (which are minor, as it turns out) are due to differences in data arising from a longer time series and relatively minor modifications to the set of indicators used (see Chapter 4).

Similar to Parham and Breunig (2021), the PRI is developed for 17 out of the 21 APO member economies. Due to data unavailability, the PRI cannot be meaningfully calculated for the Republic of China (ROC), Fiji, Lao PDR, or Nepal.

PRI Methodology

The methodology involves a combination of factor analysis and principal components analysis (Parham and Breunig 2021)[1]. These analyses are conducted using data from 126 economies to identify universal depth in the links between indicators and the higher-level indexes.

The first step is to decide which determinants are relevant to each of the four overarching themes. A determinant can be relevant to more than one theme. The allocation adopted is shown in Table 2 in Chapter 4.

For each overarching theme, factor analysis is applied to the sample of 126 economies to determine a set of weights that can be used to combine the indicators identified to be relevant for that theme. Indexes for each of the four overarching themes are then created from a weighted combination of all the indicators. Factor analysis determines the weights by examining the sample variance of all indicators and taking a combination of indicators that explains the largest fraction of that variability.[2]

Principal components analysis is then used to find the weighted combination of the four theme indexes that explains the most common variation in aggregate across the 126 economies. These weights are used to combine the theme indexes to form the overall PRI for each economy.

Before presenting the PRI results, it is of interest to look at the weights derived for the four different themes in the principal components analysis. They indicate the relative importance of the four themes in determining productivity readiness.

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[1] It mirrors the method used by Kim and Loayza (2019).
[2] In our case, the first factor explains the vast majority of variation among the set of underlying indicators for all of the four overarching themes and we thus create the indicator for the overarching theme using only the first factor from factor analysis.

The weightings (given below) turn out to be very even, suggesting that all four themes are equally important:

- Motivation: 0.5056 (0.5401);

- Capabilities: 0.4983 (0.4994);

- Efficiency of markets: 0.5021 (0.5017); and

- Stability: 0.4939 (0.4948).

The weightings also closely match those found in the Parham and Breunig (2021) exercise (shown in brackets). In this report, the PRI is estimated for the period 2000–22 whereas Parham and Breunig (2021) covered the period 2006–17. It is reassuring that adding more data over a longer period does not change the fundamental relationship between achievement in the four overarching themes and overall productivity readiness. Given that we are using a wide range of indicators drawn from more than half a century of research on the determinants of productivity, the stability of these relationships is unsurprising.

The results are not particularly sensitive to the set of variables used to measure the underlying determinants of productivity. If the model is re-estimated by dropping each indicator in turn and using the remaining indicators, the results remain largely unchanged. This provides the reassurance that the results are not being driven by a small number of indicators. We explore the role of each individual indicator further in Tables 8 and 9.

PRI Results

The PRI results are now presented with a brief discussion of their immediate significance. Broader insights and messages are drawn out in the next chapter, while the performance of individual economies in productivity readiness is covered in the country studies in Appendix.

Figure 1 shows the PRI for each APO member economy for which we are able to calculate it. Figures 2 through 5 show the overarching theme indexes for motivation, capabilities, efficiency of markets, and stability.

The same patterns emerge in the overall PRI index that appear in the individual theme indexes. This is further evidence that productivity readiness depends on a balanced approach that emphasizes the broad productivity settings of the economy and that the four overarching themes work together and are interdependent.

Figure 6 shows the evolution of the PRI index over time during 2000–22 for the high-income, upper-middle income, and lower-middle income economies in the APO.

We use the classification from Chapter 2, according to their average incomes (GDP per capita). APO member economies fall into one of the following three groups:

- high income: Singapore, Hong Kong, the ROC, the ROK, and Japan;

- upper-middle income: Fiji, Indonesia, IR Iran, Malaysia, Mongolia, Thailand, and Turkiye; and

FIGURE 1

PRI FOR APO MEMBER ECONOMIES, 2022.
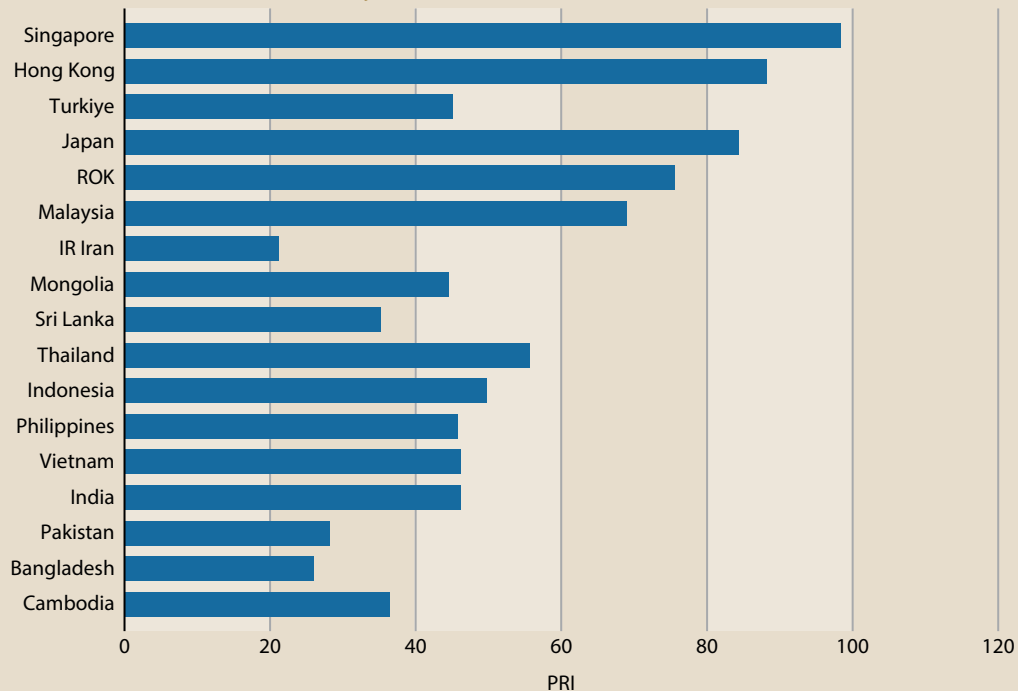
Source: Authors.

FIGURE 2

MOTIVATION INDEX FOR APO MEMBER ECONOMIES, 2022.
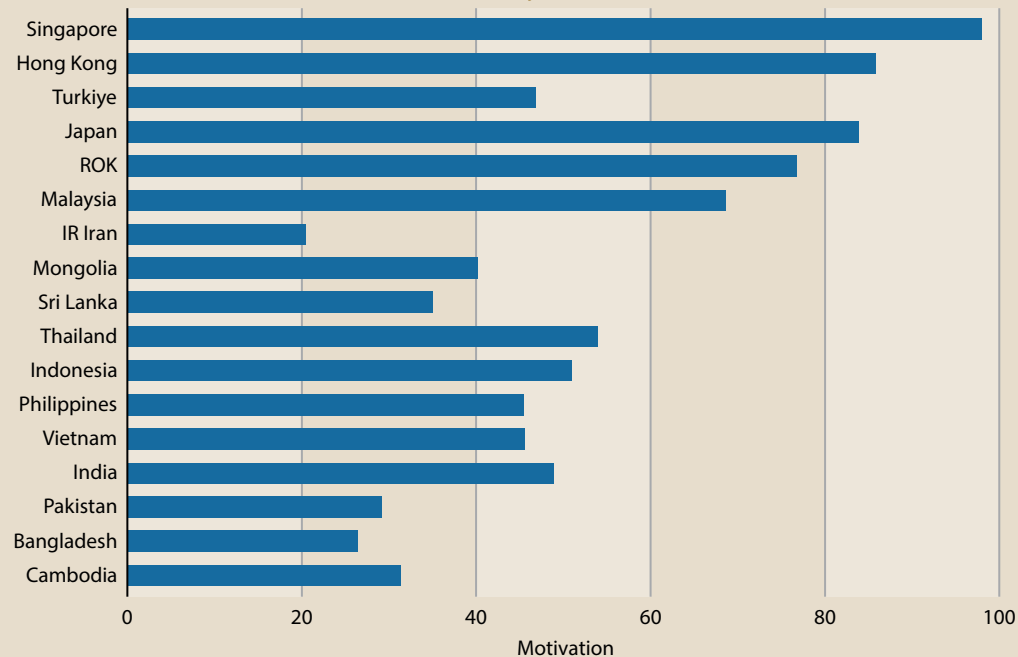
Source: Authors.

FIGURE 3

CAPABILITIES INDEX FOR APO MEMBER ECONOMIES, 2022.
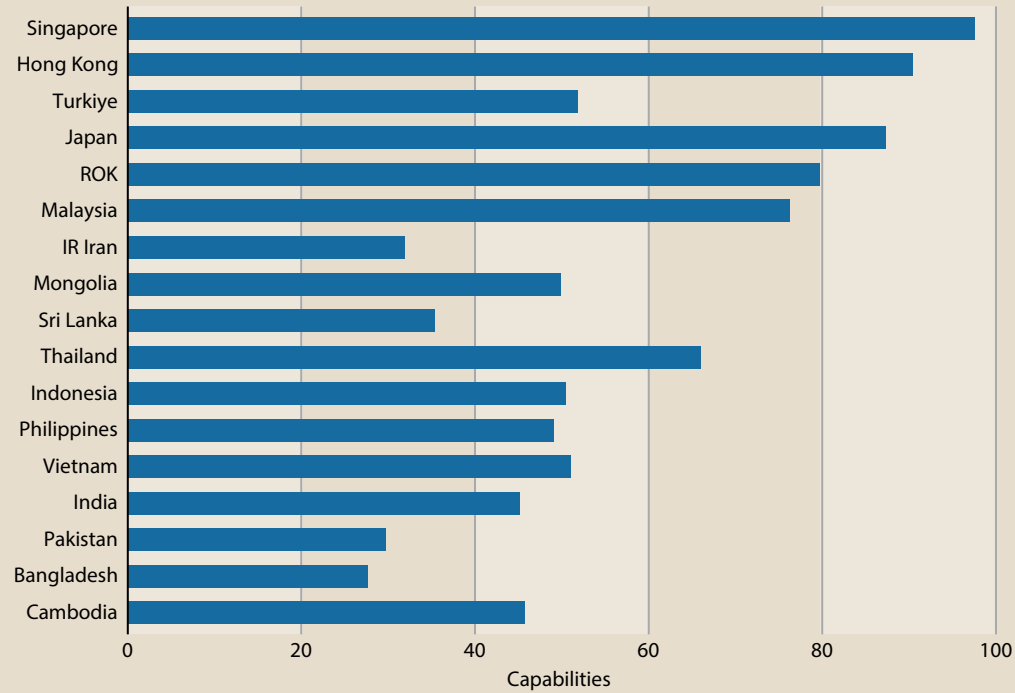
Source: Authors.

FIGURE 4

EFFICIENCY OF MARKETS INDEX FOR APO MEMBER ECONOMIES, 2022.
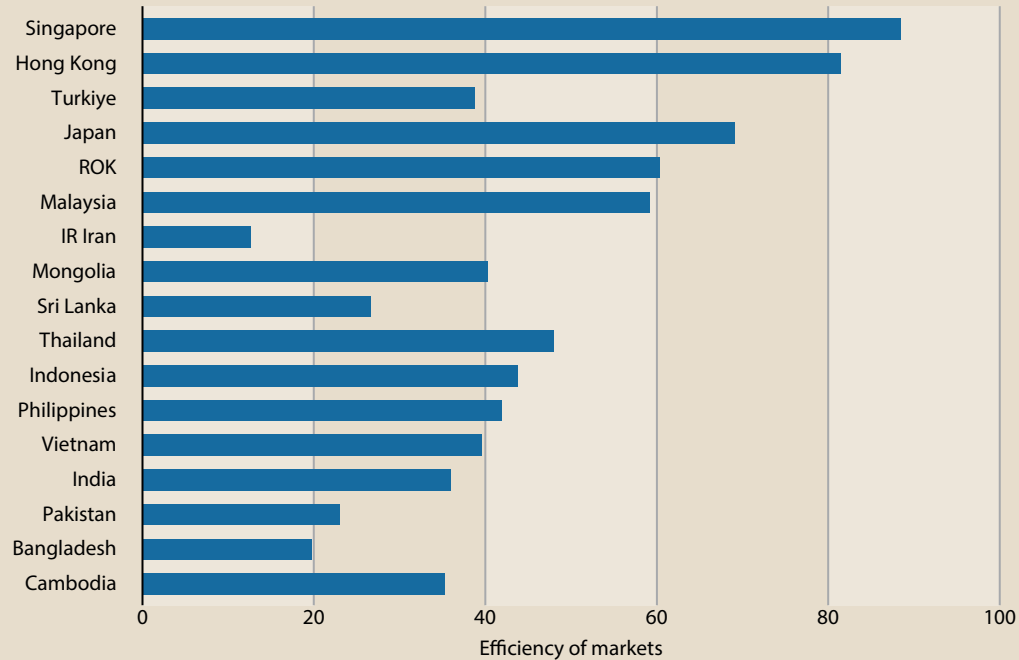
Source: Authors.

FIGURE 5

STABILITY INDEX FOR APO MEMBER ECONOMIES, 2022.
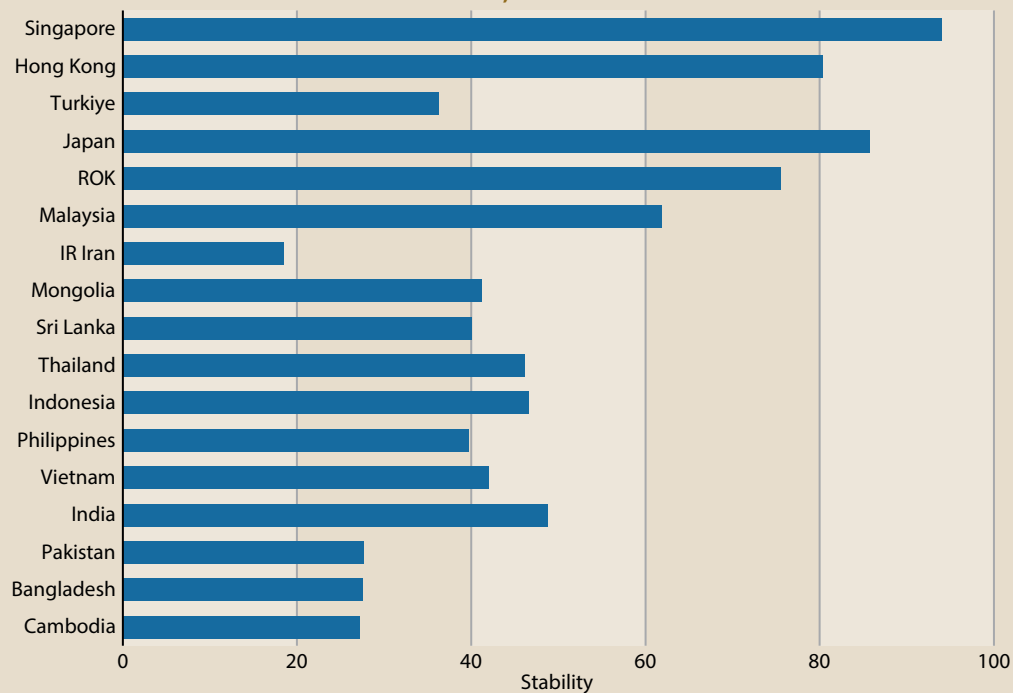
Source: Authors.

FIGURE 6

PRI VALUES FOR GROUPS OF APO MEMBER ECONOMIES, 2000–22.
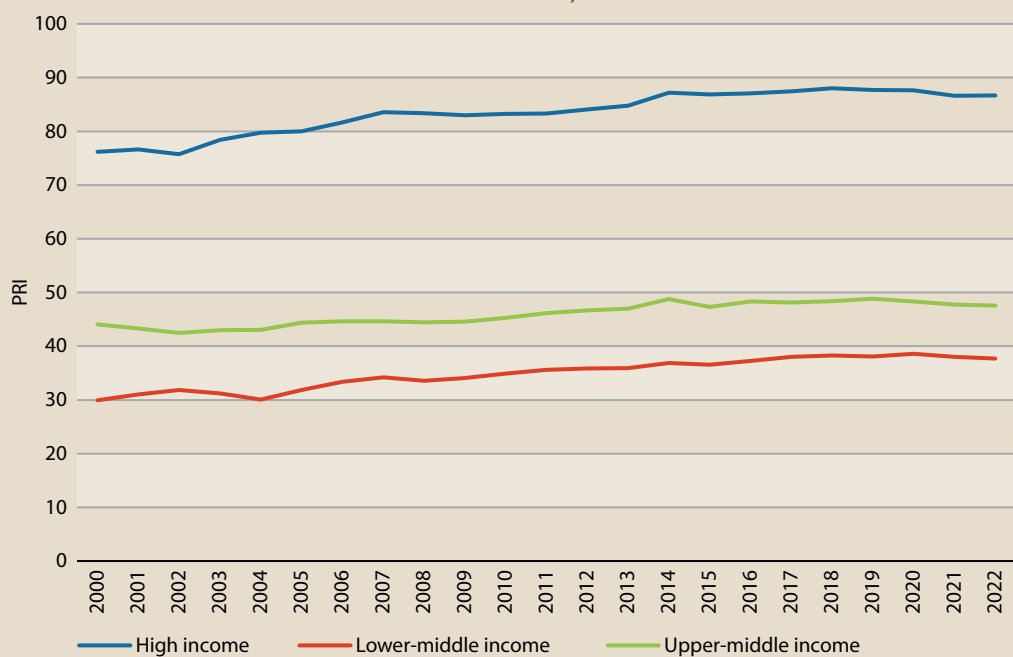
Source: Authors.

- lower-middle income: Bangladesh, Cambodia, India, Lao PDR, Nepal, Pakistan, the Philippines, Sri Lanka, and Vietnam.

High-income economies have higher PRI scores than upper-middle income economies, which in turn have higher PRI scores than lower-middle income economies. This reinforces the usefulness of the PRI for understanding the role of the productivity environment in creating the conditions for economic growth.

For all three economy groupings, the PRI index increased between 2000 and 2015. The increases were larger for the lower-middle-income and high-income economies. Since 2015, the PRI has grown only slightly in lower-middle-income economies. It shows little change for high-income and upper-middle income economies.

The overall pattern since 2000 suggests that there has been some convergence in PRI between the lower-middle-income and upper-middle-income economies, primarily because PRI has improved more quickly for the lower-middle-income economies. However, the higher-income economies have experienced faster growth in PRI since 2000, and both the lower-middle- and upper-middle-income economies have diverged from the higher-income economies rather than converged toward them.

Figure 7 shows the evolution of the PRI over time for the 17 APO member economies for which we are able to calculate the index. PRI values using the methodology and data of this report (labelled "apo2024") are charted in Figure 7 for APO member economies for the period 2000–22. They are compared with the PRI values from Parham and Breunig (labelled "apo2020").

Figure 7 shows that, for those periods with common data coverage, the PRI calculated in Parham and Breunig (2021) is very similar to the one constructed in this report. In what follows, the focus will be on the updated PRI developed in this report.

Looking across all economies, the overall picture is one of increasing levels of productivity readiness over the past two decades. Although starting from very different levels, Indonesia, India, Japan, the ROK, Malaysia, Singapore, and Vietnam have all experienced steady increases in productivity readiness over the period. For the wealthier of these economies, i.e., Japan, the ROK, Singapore, and Malaysia, growth in productivity readiness slowed after 2010 compared to the pre-2010 period. This may reflect the fact that starting from relatively high levels of productivity readiness leaves less scope for large improvements.

Bangladesh and Cambodia saw productivity readiness improvements prior to 2010 but witnessed stagnation afterward. Hong Kong and Turkiye saw productivity readiness improvements before 2010 but have experienced declines in the past decade. The Philippines and Thailand both saw stagnation in the 2000–10 period but have seen increases since 2010. IR Iran, Pakistan, and Sri Lanka have experienced stagnation in productivity readiness, with IR Iran and Sri Lanka witnessing an overall pattern of decline over the 20-year period (Figure 7).

Table 1 shows the average values of the four overarching productivity indexes and the PRI for OECD economies, APO member economies, and all other economies in 2022.[3] Table 2 presents the

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[3] The estimates in Table 1 are very similar to those derived in Parham & Breunig (2021). Note that some APO member economies are also in the OECD so the OECD averages contain some APO member economies.

FIGURE 7

PRI VALUES FOR APO MEMBER ECONOMIES, 2000–22.

APO2024   APO2020

(Continued on next page)

(Continued from the previous page)

Pakistan

Philippines

ROK

Singapore

Sri Lanka

Thailand

Turkiye

Vietnam

APO2024   APO2020
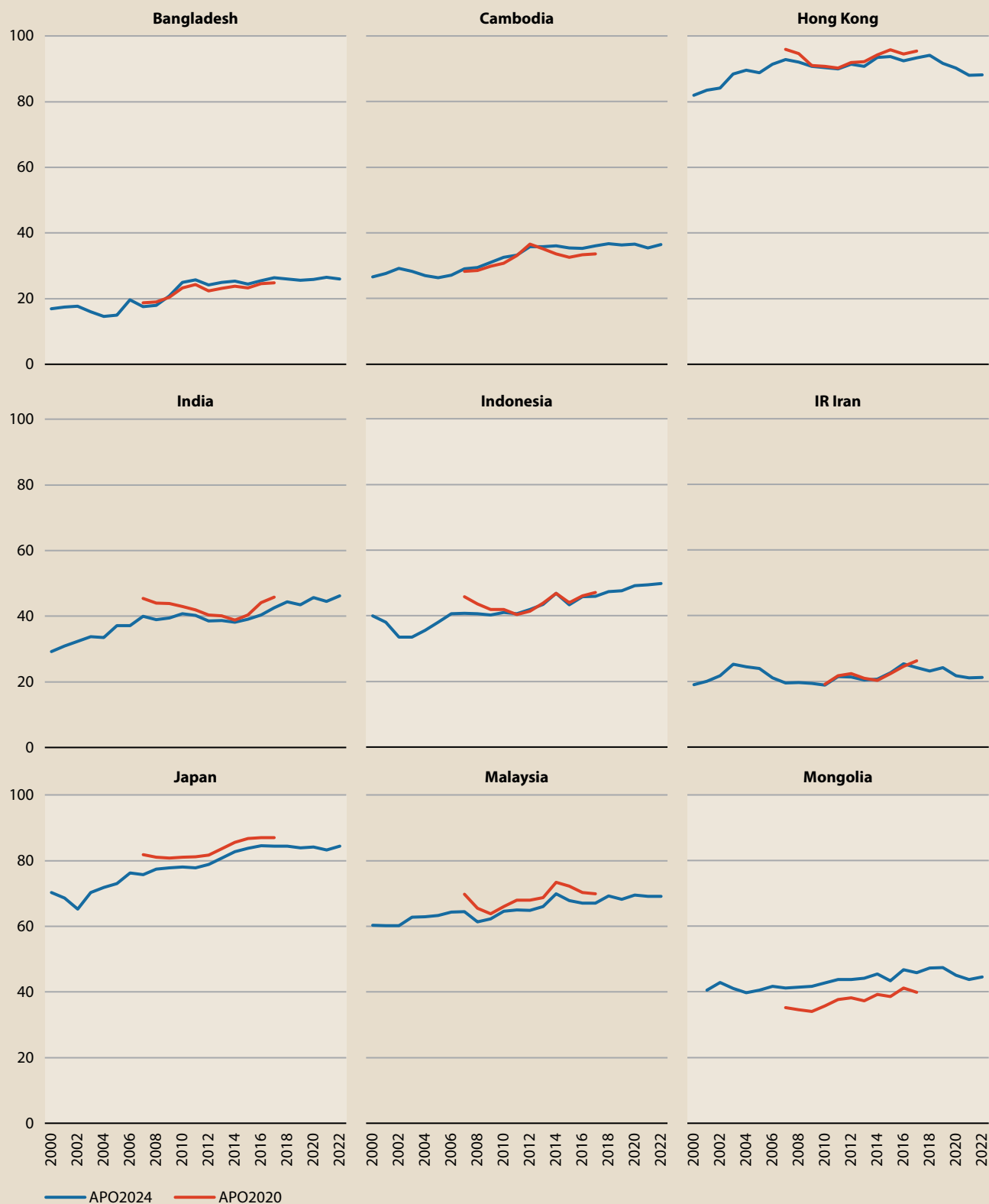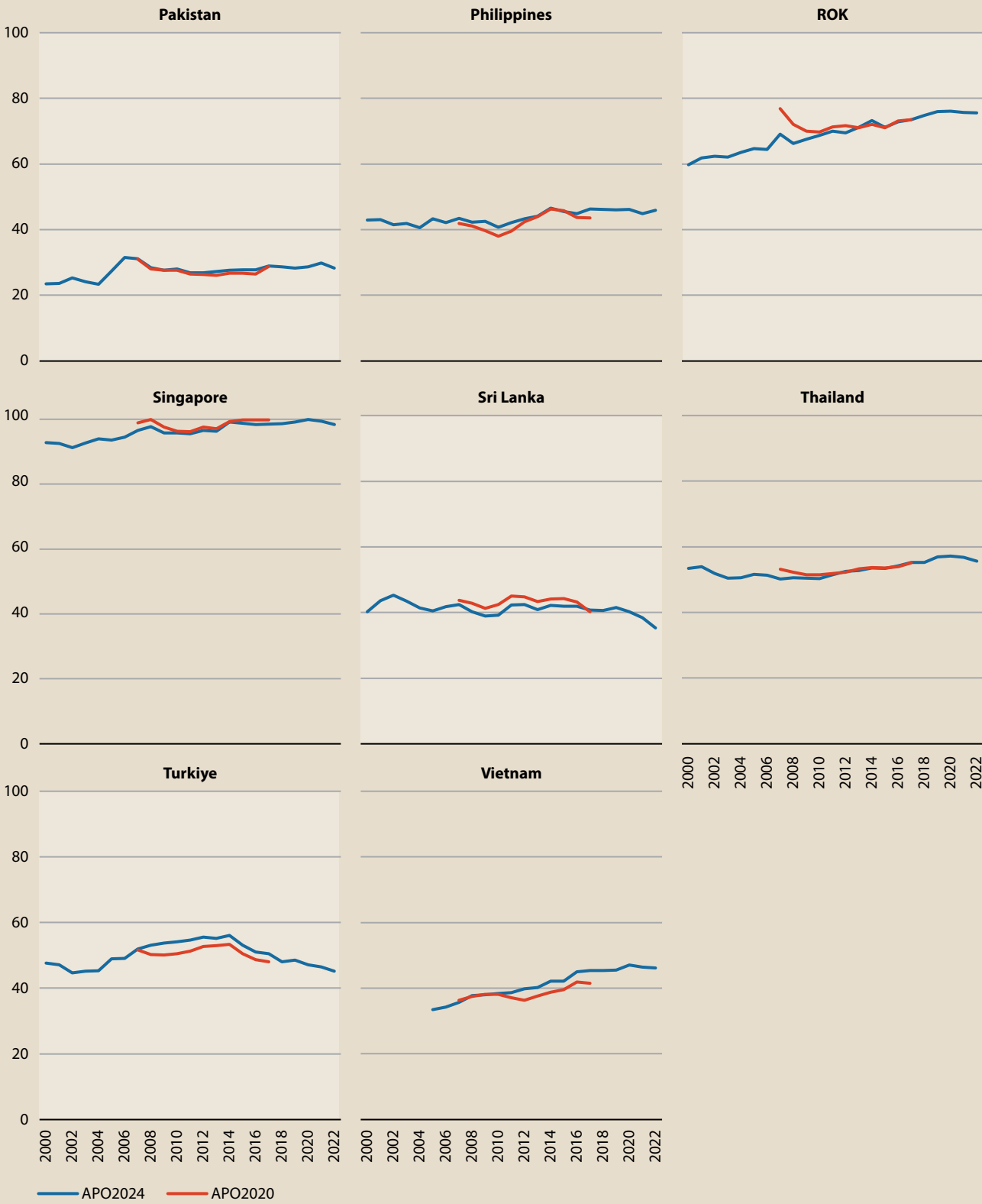
Source: Authors.

values for 2017 based on the data for that year, to match the time period of Parham and Breunig (2021) and to provide an update on that report.[4]

APO member economies perform less well than OECD economies, on average, but better than other non-OECD/non-APO member economies. The gaps in the overall PRI between country groups are reflected in similar gaps in all of the four overarching themes. The average PRI score in the OECD is 24 points higher than in APO member economies. Similar gaps for the theme indexes are apparent: motivation (24); capabilities (22); efficiency of markets (22); and stability (24).

TABLE 1

AVERAGE VALUES OF THEME INDEXES AND PRI BY COUNTRY GROUPS, 2022.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Sample size
APO member economies	52	57	45	49	53	17
OECD economies	76	79	67	75	77	38
Other economies not in OECD or APO	43	48	39	40	44	66

Note: Some APO member economies are also OECD economies, so the OECD averages contain some APO member economies' data as well.

TABLE 2

AVERAGE VALUES OF THEME INDEXES AND PRI BY COUNTRY GROUPS, 2017.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Sample size
APO member economies	53	57	46	50	53	17
OECD economies	78	81	68	76	79	38
Other economies not in OECD or APO	44	48	40	40	45	68

A comparison of Table 1 and Table 2 reveals that the overall PRI and the theme indexes are very stable over time for country groupings. The overall PRI for APO member economies is unchanged at 53. For APO member economies, motivation, efficiency of markets, and stability each declined by one point between 2017 and 2022 while capabilities remained unchanged at 57.

OECD economies have seen some decrease in productivity readiness with the overall PRI, motivation, and capabilities indexes decreasing by 2 points each, and efficiency of markets and stability decreasing by one point each. While APO members did not improve their overall productivity readiness over the period, they also did not show a notable divergence from OECD economies (as their performance in lifting productivity readiness has also been lackluster). The overall lack of improvement in productivity readiness suggests that APO member economies need to work and focus more on the determinants of productivity to ensure that they are productivity ready.

Table 3 shows values of the theme indexes and the PRI for all APO member economies, as well as their rankings by the overall PRI in 2022. Table 4 provides comparable values for 2017.

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[4] Recall a different set of indicators are used to form the new PRI than those used in Parham and Breunig (2021).

TABLE 3

VALUES OF THEME INDEXES AND PRI FOR APO MEMBER ECONOMIES, 2022.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Ranking
Singapore	98	98	88	94	98	1
Hong Kong	86	90	81	80	88	2
Japan	84	87	69	86	84	3
ROK	77	80	60	75	76	4
Malaysia	69	76	59	62	69	5
Thailand	54	66	48	46	56	6
Indonesia	51	50	44	47	50	7 [8]
Vietnam	46	51	40	42	46	8 [11]
India	49	45	36	49	46	9
Philippines	45	49	42	40	46	10
Turkiye	47	52	39	36	45	11 [7]
Mongolia	40	50	40	41	45	12 [13]
Cambodia	31	46	35	27	36	13 [14]
Sri Lanka	35	35	27	40	35	14 [12]
Pakistan	29	30	23	28	28	15
Bangladesh	26	28	20	28	26	16 [17]
IR Iran	20	32	13	18	21	17 [16]

Note: Square brackets show country rankings from Parham and Breunig (2021) using their PRI measure.

TABLE 4

VALUES OF THEME INDEXES AND PRI FOR APO MEMBER ECONOMIES, 2017.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Ranking
Singapore	98	99	88	94	99	1
Hong Kong	92	91	86	89	93	2
Japan	84	88	69	85	84	3
ROK	75	78	59	72	73	4
Malaysia	67	75	59	57	67	5
Thailand	56	65	47	45	55	6
Turkiye	51	58	45	40	51	7
Philippines	46	50	43	39	46	8
Indonesia	46	48	40	42	46	9
Mongolia	41	52	42	42	46	10
Vietnam	45	50	38	42	45	11
India	44	43	33	45	43	12

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	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Ranking
Sri Lanka	43	38	33	44	41	13
Cambodia	31	46	37	24	36	14
Pakistan	31	29	25	28	29	15
Bangladesh	27	27	20	28	26	16
IR Iran	25	27	14	28	24	17

Most APO member economies have not changed their relative rankings (within the set of APO members) from the rankings five years ago (Parham and Breunig, 2021). Indonesia and Vietnam have improved their positions, with Vietnam taking large steps forward from 11th overall rank in 2017 to eighth in 2022. Turkiye slid from seventh to 11th, primarily due to a deterioration in its rating on "stability." This further highlights the importance of institutions and government effectiveness in ensuring productivity readiness.

Sri Lanka fell from 12th to14th, with Mongolia and Cambodia moving up one spot each as a consequence. This is more a reflection of the poor performance of Sri Lanka rather than productivity improvements in other economies. As we will discuss in the country report for Sri Lanka, the balance of payments crisis and sovereign debt default, combined with other poor policy choices, have severely impacted well-being in Sri Lanka. The prospects for productivity have worsened as Sri Lanka has experienced declines across all overarching themes except stability. This is further reflected by Sri Lanka slipping from an upper-middle-income economy to a lower-middle-income economy in the World Bank's classification.

Recent Changes

Table 5 examines the changes in the overall PRI and the theme indexes since the Parham and Breunig (2021) report. Countries are listed in alphabetical order, and three-year averages are used to minimize noise. Tables 1 and 2, using the overall APO average, give the impression that not much change has taken place over time. However, examination of individual economies reveals a diverse range of experiences over the past five years, with some economies experiencing large increases in productivity readiness, some others not witnessing much change, and some experiencing large declines.

Indonesia (11.8%) and India (9.9%) have experienced the largest increases in productivity readiness as measured by the PRI. Vietnam (5.4%), the ROK (4.6%), and Thailand (4.2%) have also seen substantial improvements in PRI. However, some economies have seen decreases in PRI, with particularly large drops seen in IR Iran (11.3%), Turkiye (10.3%), Sri Lanka (8.6%), and Hong Kong (4.7%).

The four overarching theme indexes show a similar degree of divergence in performance. The overall changes in PRI are reflected in the theme indexes as well. Changes to the overall PRI are usually the result of changes in many of the themes, not just one of them. This again reflects the interdependence of the four themes and how they work together to generate overall productivity readiness.

India and Indonesia both experienced large increases across all four overarching themes. The ROK also had similar improvements across all the themes. Thailand experienced substantial increases in all areas except motivation. IR Iran improved in the area of capabilities but experienced large drops in motivation and stability. Turkiye saw substantial falls in all four themes while Hong Kong experienced drops in all areas except capabilities. Cambodia (8.1%), the ROK (6.6%), Malaysia (6.1%), and Pakistan (6.5%) experienced notable increases in stability.

TABLE 5

CHANGES IN VALUES OF THEME INDEXES AND PRI FOR APO MEMBER ECONOMIES, 2017–22.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI
Bangladesh	0.80 (3.1%)	1.33 (5.1%)	0.34 (1.7%)	0.37 (1.3%)	0.73 (2.9%)
Cambodia	0.35 (1.1%)	1.02 (2.3%)	−0.83 (−2.3%)	1.95 (8.1%)	0.56 (1.6%)
Hong Kong	−5.09 (−5.6%)	−0.31 (−0.3%)	−3.83 (−4.5%)	−7.85 (−8.7%)	−4.40 (−4.7%)
India	6.89 (16.6%)	4.48 (11.1%)	4.44 (14.1%)	2.36 (5.3%)	4.79 (11.8%)
Indonesia	5.82 (12.9%)	2.15 (4.5%)	4.45 (11.2%)	4.65 (11.4%)	4.47 (9.9%)
IR Iran	−3.06 (−12.9%)	2.87 (10.1%)	−1.82 (−12.4%)	−8.88 (−32.0%)	−2.72 (−11.3%)
Japan	−0.71 (−0.8%)	−0.36 (−0.4%)	0.03 (0.0%)	−0.19 (−0.2%)	−0.31 (−0.4%)
Malaysia	1.65 (2.4%)	1.59 (2.1%)	0.80 (1.4%)	3.52 (6.1%)	1.90 (2.8%)
Mongolia	−1.08 (−2.6%)	−1.42 (−2.8%)	−0.31 (−0.7%)	−0.44 (−1.1%)	−0.83 (−1.8%)
Pakistan	0.15 (0.5%)	1.61 (5.7%)	−0.24 (−1.0%)	1.71 (6.5%)	0.78 (2.8%)
Philippines	0.47 (1.0%)	1.15 (2.4%)	0.55 (1.3%)	−1.91 (−4.7%)	0.12 (0.3%)
ROK	3.14 (4.3%)	3.50 (4.6%)	1.80 (3.1%)	4.68 (6.6%)	3.34 (4.6%)
Singapore	0.32 (0.3%)	0.09 (0.1%)	1.43 (1.6%)	0.65 (0.7%)	0.69 (0.7%)
Sri Lanka	−5.00 (−11.4%)	−2.18 (−5.7%)	−3.77 (−11.3%)	−2.61 (−5.7%)	−3.58 (−8.6%)
Thailand	0.58 (1.1%)	3.36 (5.3%)	2.38 (5.1%)	2.36 (5.4%)	2.27 (4.2%)
Turkiye	−4.28 (−8.2%)	−5.67 (−9.8%)	−5.84 (−12.7%)	−4.34 (−10.4%)	−5.31 (−10.3%)
Vietnam	2.28 (5.2%)	2.38 (4.9%)	3.04 (8.2%)	1.15 (2.8%)	2.37 (5.4%)

Notes: Values in the table are changes in the level of the indexes. Percentage changes are shown in brackets (). Changes are calculated based on three-year averages for the periods 2015–17 and 2020–22.

Longer-term Changes

Figure 8 shows the changes in the four overarching theme indexes and the PRI in 2020–22 over 2000–02. Three-year averages are taken to reduce short-term volatility and noise.

FIGURE 8

CHANGE IN VALUES OF THEME INDEXES AND PRI FOR APO MEMBER ECONOMIES*, 2002−22.

*Vietnam calculated from 2005–07 to 2020–22 as data are unavailable prior to 2005.
Source: Authors.
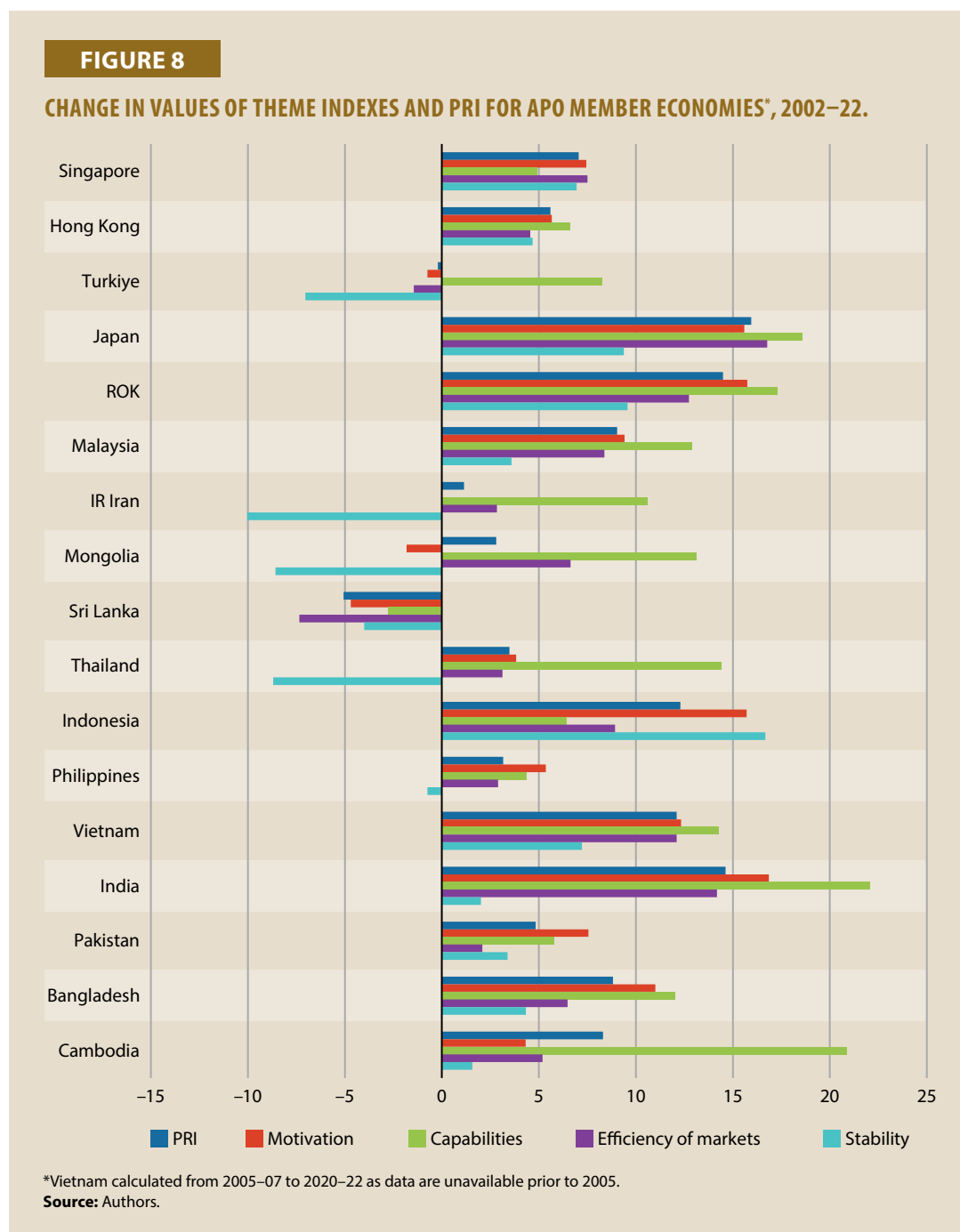
All APO member economies except Sri Lanka and Turkiye have experienced improvements in PRI since 2000, as seen earlier in Figure 7. Changes in productivity readiness and the four overarching themes demonstrate a wide range of country experiences, both positive and negative.

Improvements in capabilities stand out as the biggest changes over time among the four theme indexes. Bangladesh, India, Vietnam, Japan, and the ROK have experienced very large changes in

capabilities, and many other economies have also made substantial improvements in this area. Motivation and efficiency of markets, with a handful of exceptions (Sri Lanka and Turkiye), have also improved for all APO member economies. However, the degree of change varies widely, with some economies experiencing only small improvements and others demonstrating quite large improvements for these two themes.

Stability, except in Indonesia, is clearly the under-performing area for APO member economies. A troubling number of economies (Turkiye, IR Iran, Mongolia, Sri Lanka, and Thailand) have yielded a lower stability score in 2022 than in 2000.

Table 6 looks at the changes in the four overarching theme indexes and PRI for each APO member economy between 2000–02 and 2020–22, dividing the two decades into equal 10-year periods. The "2002–12" column shows the change in index values from the start of the 2000s (using three-year average of scores from 2000 to 2002) to the start of the 2010s (using three-year average of scores from 2010 to 2012). The "2012–22" column shows the change in index values from the start of the 2010s (using three-year average of scores from 2010 to 2012) to the start of the 2020s (using three-year average of scores over 2020 to 2022).

As seen in Figure 8, all APO member economies (except Sri Lanka and Turkiye) have improved productivity readiness over the past two decades. However, Figure 8 hides some variability in country-level performance across this 20-year period. In Table 6, one can observe that country experience in change in productivity readiness is highly variable when examined for the two ten-year periods.

For most economies, increases in productivity readiness were larger in 2002–12 than in 2012–22. This may partly reflect a global weakening of the preconditions for strong productivity growth. Notable exceptions are Indonesia, the Philippines, and Thailand, all of which saw bigger gains in 2012–22 than in 2002–12. Indonesia recorded large improvements across all four overarching themes of motivation, capabilities, efficiency of markets, and stability, with the most significant being a 30% increase in its capabilities score during 2012–22. Thailand and the Philippines also improved on all four themes in 2012–22 relative to 2002–12, with particularly strong gains in capabilities.

Hong Kong experienced a substantial drop in productivity readiness during the second ten-year period but nonetheless experienced net improvement in productivity readiness across the full 20-year period. Turkiye experienced a large increase in productivity readiness in 2002–12 but an even larger decrease in 2012–22, resulting in a small overall decline in productivity readiness across the 20-year period. Sri Lanka experienced declines in productivity readiness in both the 10-year periods and thus across the entire 20 years.

Each of these three economies endured different exceptional circumstances in that decade, with the economic crisis in Sri Lanka being the most severe. Turkiye saw declines in the score for all four overarching themes. Hong Kong saw declines in all but capabilities while Sri Lanka experienced declines in motivation, capabilities, and efficiency of markets.

Changes in theme index scores and overall PRI for country groups (APO, OECD, and other economies) are shown in Table 7. Overall, APO member economies have performed well in the decade to 2022. From Table 5, in chapter 5, we observe that productivity readiness increased by 2.56 from 2012–22 on average across APO member economies. This compares with a slight decrease in average productivity readiness across the OECD economies for the same period.

There is no reason to observe convergence in productivity readiness across groups. This becomes apparent when comparing the performance of APO members to that of "other economies not in the APO or the OECD." Even though these "other" economies started from a lower level of productivity readiness, they performed markedly less well than APO members during the 2012–22 period, improving their score by only 0.71. This suggests that, overall, APO member economies are successfully pursuing policies that enhance productivity.

TABLE 6

CHANGE IN VALUES OF THEME INDEXES AND PRI FOR APO MEMBER ECONOMIES, 2002–12 AND 2012–22.

	Motivation		Capabilities		Efficiency of markets		Stability		PRI	
	2002–12	2012–22	2002–12	2012–22	2002–12	2012–22	2002–12	2012–22	2002–12	2012–22
Bangladesh	9.61 (60.7%)	1.39 (5.5%)	10.84 (71.6%)	1.18 (4.5%)	6.29 (47.5%)	0.19 (1.0%)	2.19 (9.2%)	2.14 (8.2%)	7.60 (43.9%)	1.22 (4.9%)
Cambodia	3.20 (12.0%)	1.12 (3.8%)	15.96 (63.5%)	4.93 (12.0%)	4.77 (15.9%)	0.42 (1.2%)	−1.00 (−4.1%)	2.57 (10.9%)	6.04 (21.7%)	2.26 (6.7%)
Hong Kong	7.63 (9.4%)	−1.96 (−2.2%)	5.53 (6.6%)	1.07 (1.2%)	5.17 (6.7%)	−0.62 (−0.8%)	10.46 (13.5%)	−5.79 (−6.6%)	7.39 (8.9%)	−1.79 (−2.0%)
India	9.07 (28.9%)	7.78 (19.2%)	17.82 (78.1%)	4.27 (10.5%)	9.12 (42.0%)	5.06 (16.4%)	−2.24 (−5.0%)	4.26 (10.0%)	9.02 (29.3%)	5.60 (14.1%)
Indonesia	5.96 (17%)	9.75 (23.7%)	2.44 (5.6%)	4.01 (8.7%)	1.48 (4.2%)	7.45 (20.4%)	6.05 (21.0%)	10.63 (30.6%)	4.02 (10.8%)	8.28 (20.1%)
IR Iran	−1.80 (−8.7%)	1.81 (9.6%)	6.68 (32.2%)	3.90 (14.2%)	2.50 (24.9%)	0.34 (2.7%)	−6.94 (−24.0%)	−3.10 (−14.1%)	0.32 (1.6%)	0.81 (4.0%)
Japan	11.47 (17.0%)	4.12 (5.2%)	11.25 (16.3%)	7.32 (9.1%)	9.90 (19.1%)	6.87 (11.1%)	6.27 (8.4%)	3.10 (3.8%)	10.24 (15.1%)	5.70 (7.3%)
Malaysia	5.77 (9.6%)	3.64 (5.6%)	7.43 (11.8%)	5.46 (7.7%)	3.90 (7.6%)	4.48 (8.1%)	0.38 (0.7%)	3.21 (5.5%)	4.61 (7.7%)	4.42 (6.8%)
Mongolia	−2.33 (−5.6%)	0.52 (1.3%)	12.60 (34.7%)	0.54 (1.1%)	6.06 (17.8%)	0.58 (1.5%)	−11.38 (−22.9%)	2.80 (7.3%)	1.69 (4.1%)	1.11 (2.6%)
Pakistan	7.12 (31.6%)	0.44 (1.5%)	3.73 (15.6%)	2.08 (7.5%)	2.10 (9.6%)	−0.01 (0.0%)	−1.09 (−4.4%)	4.48 (18.8%)	3.13 (13.0%)	1.70 (6.2%)
Philippines	2.90 (7.2%)	2.45 (5.7%)	−1.71 (−3.8%)	6.06 (14.1%)	−1.79 (−4.6%)	4.69 (12.5%)	−0.94 (−2.4%)	0.20 (0.5%)	−0.45 (−1.1%)	3.61 (8.6%)
ROK	8.84 (14.4%)	6.90 (9.9%)	9.38 (14.9%)	7.93 (11.0%)	7.72 (16.1%)	5.02 (9.0%)	4.94 (7.5%)	4.64 (6.6%)	8.12 (13.2%)	6.38 (9.2%)
Singapore	4.42 (4.8%)	3.02 (3.1%)	3.83 (4.1%)	1.11 (1.1%)	2.20 (2.7%)	5.30 (6.3%)	4.17 (4.7%)	2.78 (3.0%)	3.75 (4.1%)	3.31 (3.4%)
Sri Lanka	−1.71 (−3.9%)	−2.99 (−7.2%)	2.26 (5.8%)	−5.05 (−12.2%)	−1.99 (−5.4%)	−5.36 (−15.4%)	−5.30 (−11.3%)	1.29 (3.1%)	−1.73 (−4.0%)	−3.34 (−8.1%)
Thailand	0.25 (0.5%)	3.58 (6.9%)	5.85 (−3.0%)	8.58 (14.6%)	−0.86 (−1.9%)	3.99 (8.9%)	−12.18 (−22.2%)	3.48 (8.2%)	−1.62 (−3.0%)	5.10 (9.9%)
Turkiye	7.60 (15.5%)	−8.34 (−14.8%)	12.55 (17.9%)	−4.27 (−7.6%)	6.40 (15.4%)	−7.85 (−16.3%)	5.33 (12.0%)	−12.38 (−24.9%)	8.30 (17.9%)	−8.51 (−15.5%)
Vietnam*	4.66 (13.8%)	7.67 (20.0%)	8.37 (22.6%)	5.90 (13.0%)	4.86 (17.4%)	7.25 (22.0%)	−1.08 (−3.1%)	8.29 (24.6%)	4.51 (13.1%)	7.60 (19.5%)

Notes: Values in table are changes in the level of the index. Percentage changes are shown in brackets (). Changes are calculated based on three–year averages, e.g., 2002–12 represents the change from 2000–02 to 2010–12, etc.
* Calculated from 2007 to 2012.

CHANGE IN VALUES OF THEME INDEXES AND PRI FOR COUNTRY GROUPS, 2002–12 AND 2012–22.

	Motivation		Capabilities		Efficiency of markets		Stability		PRI	
	2002–12	2012–22	2002–12	2012–22	2002–12	2012–22	2002–12	2012–22	2002–12	2012–22
APO member economies	4.04 (8.7%)	2.41 (4.8%)	7.17 (15.4%)	3.24 (6.0%)	3.16 (7.9%)	2.22 (5.1%)	−0.92 (−1.9%)	1.92 (4.0%)	3.57 (7.6%)	2.56 (5.1%)
OECD economies	4.32 (5.9%)	−1.19 (−1.5%)	5.84 (8.0%)	0.58 (0.7%)	3.71 (5.9%)	0.47 (0.7%)	0.88 (1.1%)	−2.22 (−2.9%)	3.90 (5.3)	−0.54 (−0.7%)
Other economies	6.25 (16.9%)	−0.06 (−0.1%)	9.13 (25.0%)	2.20 (4.8%)	5.20 (15.2%)	0.51 (1.3%)	1.06 (2.7%)	0.05 (0.1%)	5.72 (15.0%)	0.71 (1.6%)

Notes: Values in table are changes in the level of the index. Percentage changes are shown in brackets (). Changes are calculated based on three–year averages, e.g., 2002–12 represents the change from 2000–02 to 2010–12, etc.

Relationship between Productivity and Productivity Readiness

Figures 9 through 12 show the relationship between the four overarching theme indexes and overall levels of labor productivity. We can see a strong positive relationship between higher levels of motivation, capabilities, efficiency of markets, and stability; and labor productivity. Figure 13 shows the relationship between the PRI and labor productivity. Again, we see a strong positive relationship.

Figures 14 through 18 show the same relationship using total factor productivity. The four overarching themes are presented in the first four figures while Figure 18 shows the relationship between the PRI and total factor productivity.

The PRI scores and the scores on the sub-indexes are good indicators of labor productivity and total factor productivity in a country. Each of the four sub-indexes are important predictors of overall productivity levels.

FIGURE 9

LABOR PRODUCTIVITY LEVEL VS MOTIVATION INDEX, 2022.

Source: Authors and the APO, 2024.
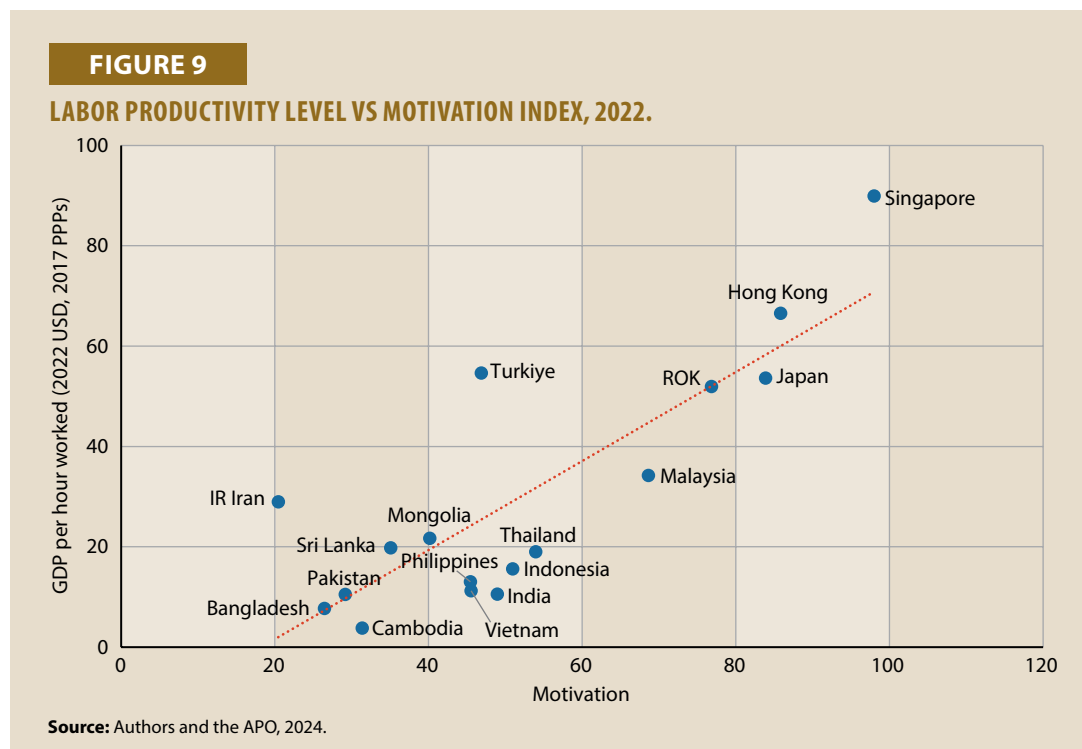
FIGURE 10

LABOR PRODUCTIVITY LEVEL VS CAPABILITIES INDEX, 2022.
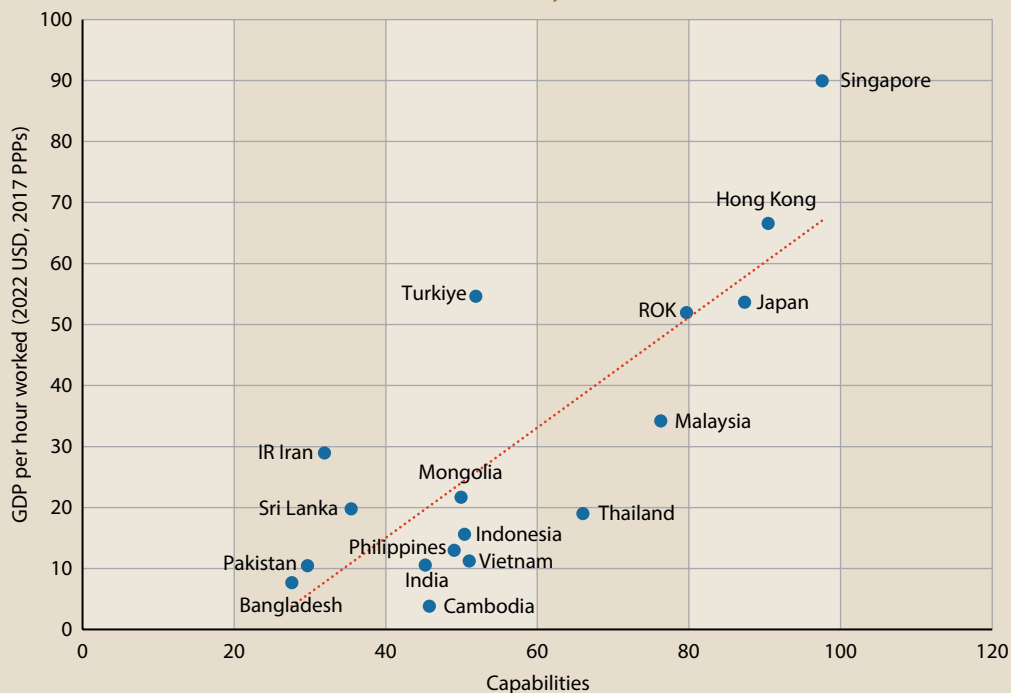
Source: Authors and the APO, 2024.

FIGURE 11

LABOR PRODUCTIVITY LEVEL VS EFFICIENCY OF MARKETS INDEX, 2022.
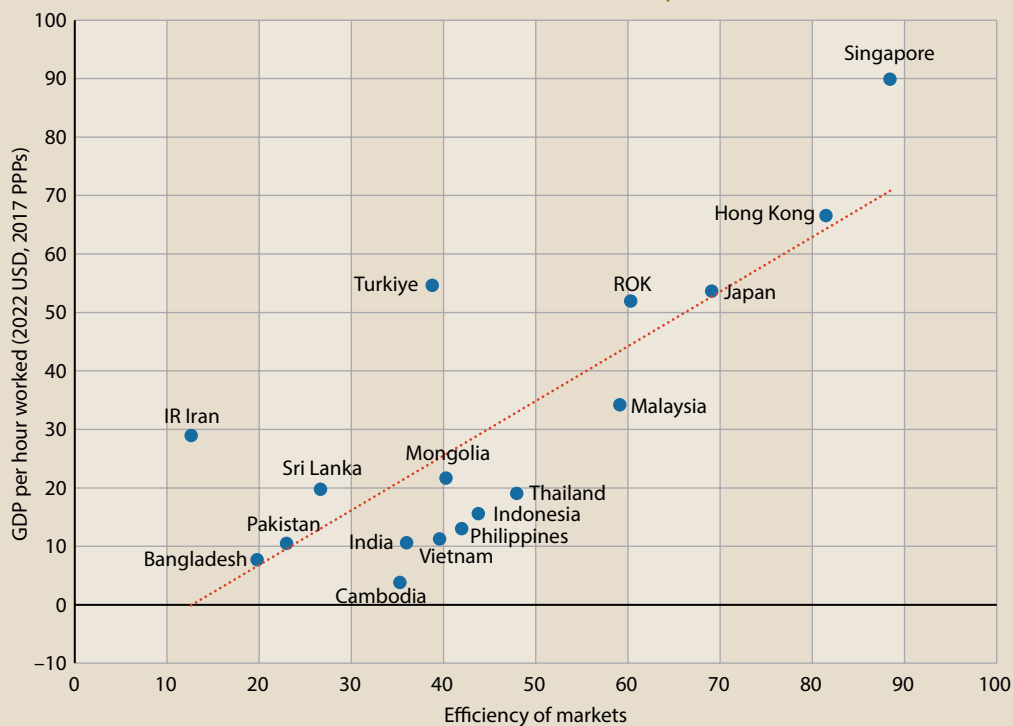
Source: Authors and the APO, 2024.

FIGURE 12

LABOR PRODUCTIVITY LEVEL VS STABILITY INDEX, 2022.
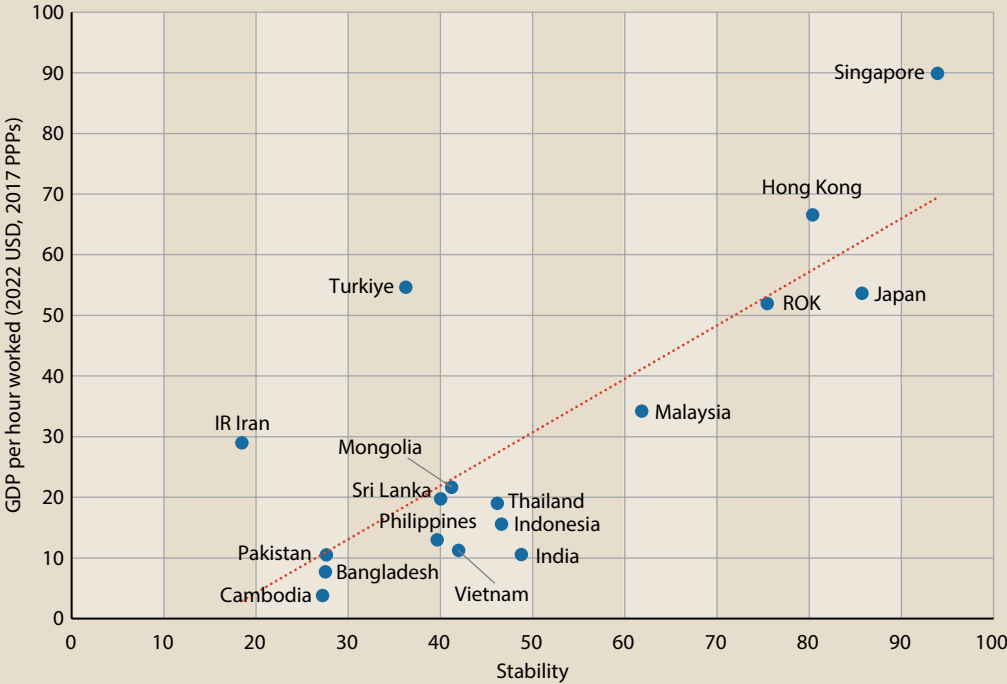
Source: Authors and the APO, 2024.

FIGURE 13

LABOR PRODUCTIVITY LEVEL VS PRI, 2022.
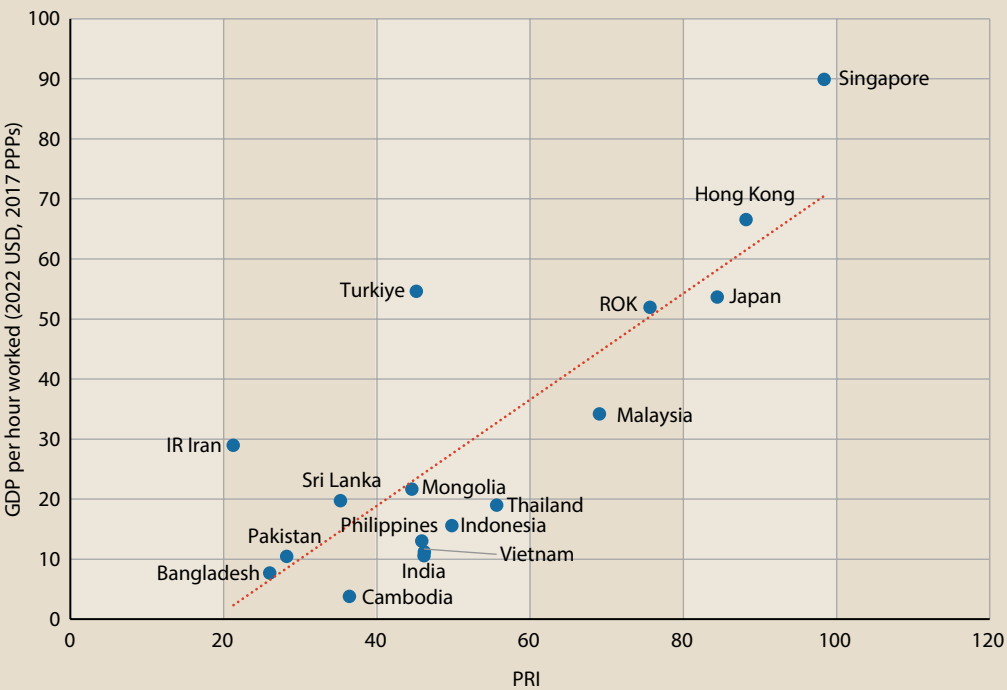
Source: Authors and the APO, 2024.

FIGURE 14

TFP INDEX VS MOTIVATION INDEX, 2022.
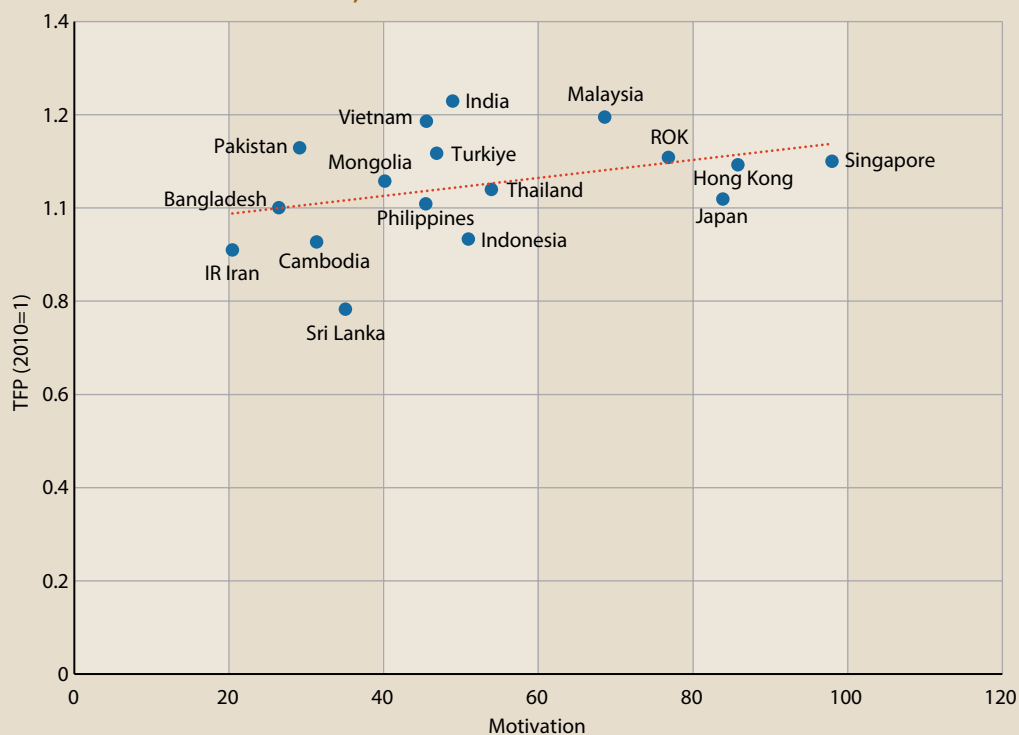
Source: Authors and the APO, 2024.

FIGURE 15

TFP INDEX VS CAPABILITIES INDEX, 2022.
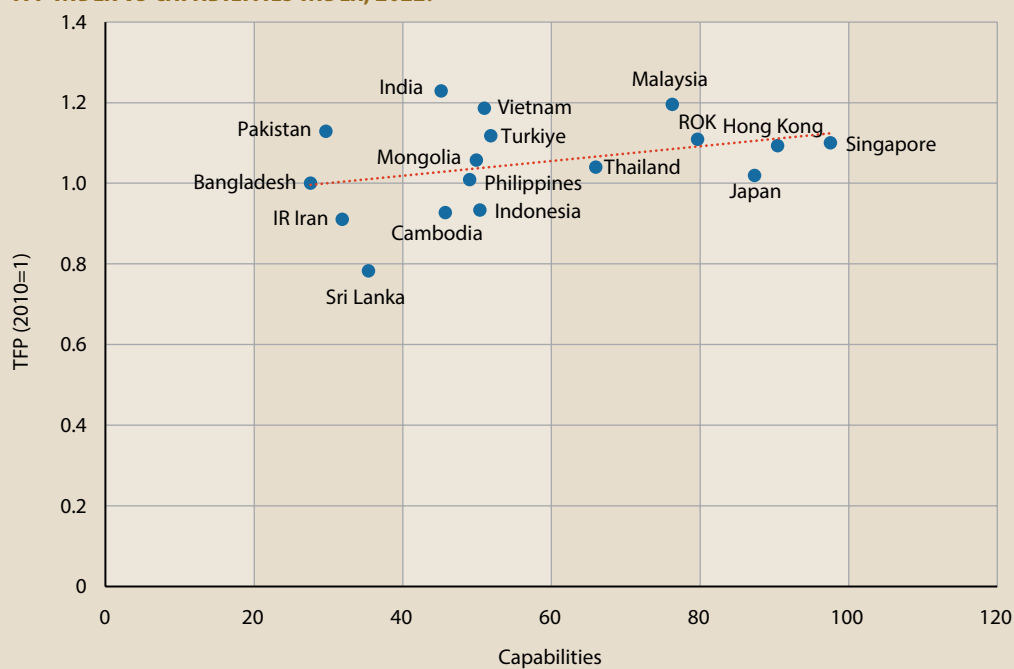
Source: Authors and the APO, 2024.

FIGURE 16

TFP INDEX VS EFFICIENCY OF MARKETS INDEX, 2022.
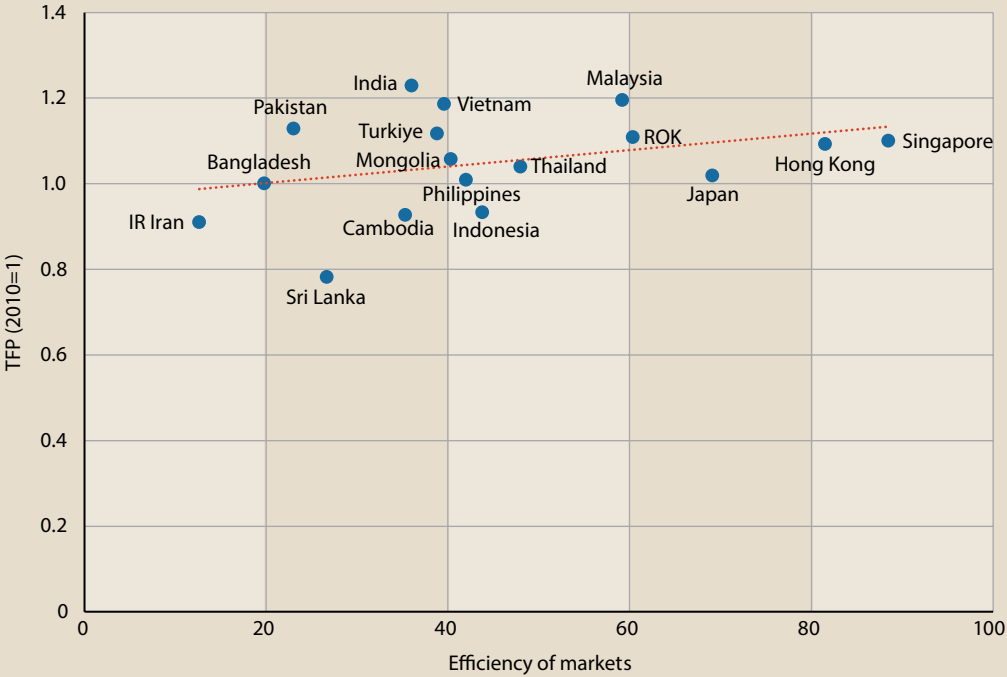
Source: Authors and the APO, 2024.

FIGURE 17

TFP INDEX VS STABILITY INDEX, 2022.
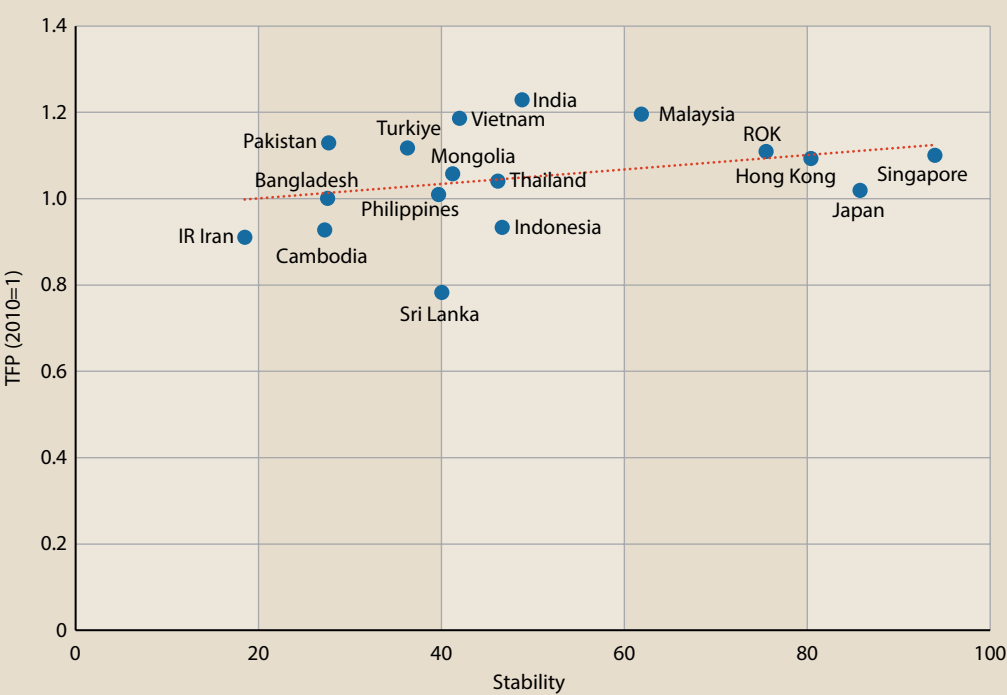
Source: Authors and the APO, 2024.

FIGURE 18

TFP INDEX VS PRI, 2022.
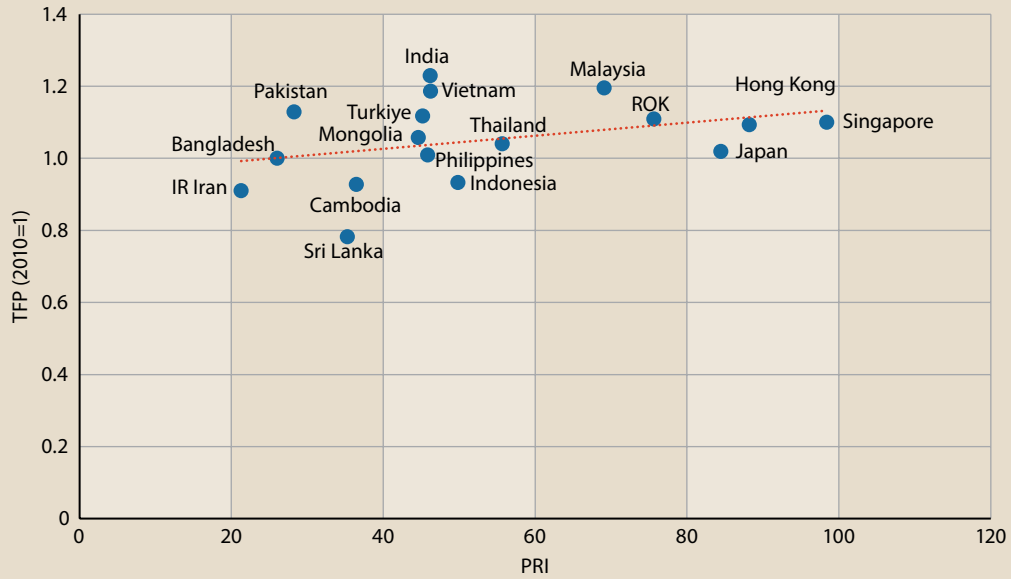
Source: Authors and the APO, 2024.

Effects of Productivity Readiness on Productivity

Regression analysis was also used to test the relationship between PRI scores and productivity performance. Reliance on the Penn World Tables (2023) for productivity data meant that the relationship could be analyzed among 120 economies for the period 2000 to 2019.

The effect of PRI on TFP growth (measured as the change in the log of TFP) was estimated with the equation given below. Country and time-fixed effects were included, and the lagged TFP level was included to capture non-contemporaneous adjustment.

$$\Delta \ln(TFP_{i,t+1}) = \alpha_0 + \beta_1 PRI_{it} + \beta_2 \ln(TFP_{it}) + \lambda_t + \alpha_i + \varepsilon_{it}.$$

Productivity readiness should translate into higher TFP growth as one aspect of productivity readiness is creating an environment for inputs to be combined in a more efficient way.

Productivity readiness should also translate into higher labor productivity, as each unit of labor should be more productive when the environment for productivity is better. The level of labor productivity was estimated as a function of the PRI, with controls for capital productivity and country and time-fixed effects. Note that this equation also implies that improvements in PRI will translate into improvements in labor productivity growth.

$$LP_{i,t+1} = \alpha_0 + \beta_1 PRI_{it} + \beta_2 KP_{it} + \lambda_t + \alpha_i + \varepsilon_{it}.$$

The effect of the overall PRI on the change in TFP produces a coefficient of 0.0041 (0.0025), which is statistically positive at the 10% level in a regression using all economies, the number in parentheses being the standard error. This implies that an improvement of one unit in the PRI score leads to a 0.4% increase in TFP growth, on average.

Using only OECD and APO member economies, the coefficient becomes 0.0032 (0.0031). While not statistically significant, this second number also suggests that improvements in productivity readiness led to higher TFP growth. The standard error is larger because a smaller set of economies is used. Higher-income economies (APO and OECD economies) have a lower productivity growth response to improvements in the PRI. This shows that at higher levels of productivity, further productivity increases become more difficult to achieve.

The PRI level was estimated to have a positive effect on labor productivity (with strong statistical significance). The coefficient on PRI in the regression estimating output per hour was 124 (41)[5], which implies that a one-unit increase in the PRI led to an increase of 1.24 dollars of output per hour worked, or a 3% increase in labor productivity. When output per worker data were used, a similarly strong and statistically significant effect was found. This also shows that a one-unit increase in the PRI led to a 3% increase in labor productivity.

Analysis is conducted to understand the relative size of impacts from the individual underlying indicators on the four overarching theme indexes, the overall measure of PRI, and productivity. Since many of the indicators are denominated in quite different ranges, simple comparison of changes in indicators is difficult. To facilitate comparison, the effect of 1 standard deviation change in the indicator is considered. Standard deviations are estimated using the variation across all 126 economies for all 22 years of data. The results presented in Table 8 show the impact of 1 standard deviation increase on each indicator, holding the other indicators constant, on the four overarching theme indexes. Table 9 shows the impact on the PRI and three measures of productivity. In both tables, results are presented in terms of standard deviations of change.

While these tables give some indication of which determinants have more effect, they are based on one-by-one analysis. This report emphasizes that productivity readiness requires a comprehensive set of determinants to be in place. Small improvements across many measures are likely to produce greater increases in productivity than a large increase in a single measure because of the interrelatedness of the various determinants. Linkages and spillovers across the various determinants are captured in the indexes and regression estimates above but are not well captured when variables are examined one-by-one, holding everything else constant, as in Tables 8 and 9.

Several individual indicators stand out as having very large impacts on productivity readiness and output. Regulatory quality, financial globalization, inward FDI stock/GDP, trade globalization, the rule of law, and government effectiveness all show relatively large impacts on productivity readiness. Each of these measures, when increased by one standard deviation, produce an improvement in PRI of more than 0.1 standard deviation. As shown in Table 8, these indicators improve productivity readiness by working through all four themes of motivation, capabilities, efficiency of markets, and stability. This emphasizes the importance of the comprehensive nature of productivity readiness.

Tax burden and gross savings as a fraction of GDP appear to have the smallest effect on productivity readiness. These findings appear to be intuitively plausible. Tax burden on its own may be less important than the overall efficiency of fiscal policy, which is captured through government effectiveness, regulatory quality, and rule of law. In an environment of trade and financial openness, where FDI is allowed to flow as needed, domestic savings will be less important than other factors.

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[5] The number in parentheses is the standard error of the coefficient estimate.

TABLE 8

IMPACT OF 1 STANDARD DEVIATION INCREASE IN VARIABLES ON OVERARCHING THEME INDEXES (IN TERMS OF STANDARD DEVIATION).

Variable	Motivation	Capabilities	Efficiency of markets	Stability
KOF Informational globalization, de facto	0.0613	0.0721	0.0399	–
HF Business Freedom	0.0241	–	0.0161	–
HF Tax Burden	–	–	0.0114	–
Regulatory quality (World Bank WGI)	0.2629	–	0.3104	0.1265
HF Financial Freedom	–	–	0.0315	–
IMF Financial Development	0.0502	0.1110	0.0376	–
Life expectancy at birth (UN)	–	0.0671	–	–
KOF Financial globalization	–	0.1494	0.1984	–
KOF Financial globalization, de jure	–	0.0860	0.0155	–
FDI stock/GDP – inward (UNCTAD)	–	–	0.0268	–
FDI stock/GDP – outward (UNCTAD)	–	–	0.0331	–
HF Investment Freedom	0.0139	0.0482	0.0420	–
HF Trade Freedom	0.0532	0.0466	0.0584	–
KOF Trade globalization	0.0400	0.0842	0.0290	–
KOF Trade globalization, de jure	0.1406	0.1484	0.1233	–
HF Monetary Freedom	–	0.0233	0.0074	–
Gross savings/GDP (World Bank)	–	0.0048	–	–
IMF Financial Institutions	–	0.1478	–	–
Political stability (World Bank WGI)	–	–	–	0.0421
Rule of law (World Bank WGI)	0.1549	–	–	0.4271
Control of corruption (World Bank WGI)	0.0475	–	0.0267	0.1469
Government effectiveness (World Bank WGI)	0.2322	0.1692	0.1847	0.2215
Voice and accountability (World Bank WGI)	–	–	–	0.0711
R&D expenditure (UNSDG/WEF)	0.0284	0.0276	–	–

TABLE 9

IMPACT OF 1 STANDARD DEVIATION INCREASE ON PRODUCTIVITY READINESS, TFP CHANGE, AND LABOR PRODUCTIVITY (IN TERMS OF STANDARD DEVIATION).

Variable	PRI	Change in TFP	Output per hour	Output per worker
KOF Informational globalization, de facto	0.0593	0.0096	0.0135	0.0065
HF Business Freedom	0.0119	0.0019	0.0027	0.0013
HF Tax Burden	0.0032	0.0005	0.0007	0.0004
Regulatory quality (World Bank WGI)	0.1978	0.0322	0.0450	0.0218

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Variable	PRI	Change in TFP	Output per hour	Output per worker
HF Financial Freedom	0.0089	0.0014	0.0020	0.0010
IMF Financial Development	0.0467	0.0076	0.0106	0.0052
Life expectancy at birth (UN)	0.0250	0.0041	0.0057	0.0028
KOF Financial globalization	0.1005	0.0164	0.0229	0.0111
KOF Financial globalization, de jure	0.0300	0.0049	0.0068	0.0033
FDI stock/GDP – inward (UNCTAD)	0.1040	0.0169	0.0237	0.0115
FDI stock/GDP – outward (UNCTAD)	0.0597	0.0097	0.0136	0.0066
HF Investment Freedom	0.0290	0.0047	0.0066	0.0032
HF Trade Freedom	0.0501	0.0082	0.0114	0.0055
KOF Trade globalization	0.0415	0.0068	0.0095	0.0046
KOF Trade globalization, de jure	0.1212	0.0197	0.0276	0.0134
HF Monetary Freedom	0.0117	0.0019	0.0027	0.0013
Gross savings/GDP (World Bank)	0.0015	0.0002	0.0003	0.0002
IMF Financial Institutions	0.0393	0.0064	0.0089	0.0043
Political stability (World Bank WGI)	0.0111	0.0018	0.0025	0.0012
Rule of law (World Bank WGI)	0.1538	0.0250	0.0350	0.0170
Control of corruption (World Bank WGI)	0.0577	0.0094	0.0131	0.0064
Government effectiveness (World Bank WGI)	0.2202	0.0359	0.0501	0.0243
Voice and accountability (World Bank WGI)	0.0187	0.0031	0.0043	0.0021
R&D expenditure (UNSDG/WEF)	0.0146	0.0024	0.0033	0.0016

Key Point Summary

Indexes for capabilities, efficiency of markets, motivation, and stability are developed and presented using a wide range of data on the underlying determinants of productivity. These four indexes form the overarching themes and are then combined to estimate an overall Productivity Readiness Index (PRI).

All four overarching themes of capabilities, efficiency of markets, motivation, and stability are important contributors to overall productivity readiness. A data-driven approach suggests that all four are of roughly equal importance in determining the PRI.

On average, APO member economies perform less well than OECD economies on both the overall PRI and the theme indexes, but fare better than other non-OECD/non-APO member economies. The average PRI score in the OECD group is 24 points higher than that of APO group, and similar gaps are seen for the theme indexes: Motivation (24); Capabilities (22); Efficiency of Markets (22), and Stability (24). Theme indexes and PRI scores are mostly stable for country groups over long time periods.

In general, APO member economies have experienced growth in productivity readiness over the past two decades, but performance has varied across economies:

- Indonesia, India, Japan, the ROK, Malaysia, Singapore, and Vietnam have all experienced steady increases in productivity readiness over the past two decades.

- For the wealthier economies (Japan, ROK, Singapore, and Malaysia), PRI growth has slowed in the last decade.

- Bangladesh and Cambodia saw PRI improvements in the 2000–10 period but have experienced stagnation since.

- The Philippines and Thailand experienced growth in productivity readiness in the last decade after stagnation in the first decade of the 2000s.

- IR Iran, Pakistan, and Sri Lanka have experienced stagnation or decline in productivity readiness over the 2000–22 period.

Since the report of Parham and Breunig (2021), the overall productivity readiness of APO member economies has remained relatively stable, on average. However, this hides some important differences across economies:

- Indonesia (11.8%) and India (9.9%) have experienced large increases in productivity readiness as measured by the PRI.

- Vietnam (5.4%), the ROK (4.6%), and Thailand (4.2%) have also seen substantial improvements in PRI.

- IR Iran (11.3%), Turkiye (10.3%), Sri Lanka (8.6%), and Hong Kong (4.7%) have experienced large decreases in PRI.

- Other economies have only experienced small changes.

Examination of the theme indexes reveals a similar pattern of stability over time in APO group as a whole but with important member-level variation in performance:

- India, Indonesia, and the ROK have experienced increases across all the four overarching themes.

- Thailand has experienced substantial increases in all areas except Motivation.

- IR Iran has improved in Capabilities but experienced large drops in Motivation and Stability.

- Turkiye has seen substantial falls across all four themes.

- Hong Kong has experienced drops in all themes except Capabilities.

- Cambodia (8.1%), the ROK (6.6%), Malaysia (6.1%), and Pakistan (6.5%) have experienced notable increases in Stability.

Looking at the 2000–22 period, all APO member economies have improved their overall productivity readiness except Sri Lanka and Turkiye. This follows improvement in all four of the theme indexes with Capabilities, Motivation, and Efficiency of Markets contributing to increases in overall productivity readiness in most economies.

Stability remains an underperforming area for several APO member economies. Turkiye, IR Iran, Mongolia, Sri Lanka, and Thailand posted lower Stability scores in 2022 compared with 2000.

Scores for both PRI and theme indexes are shown to be strongly related to levels and growth of labor productivity and TFP. This is evident graphically and in regression analysis across a large sample of APO, OECD, and other economies. Each of the four sub-indexes are important predictors of overall productivity levels. An increase of one unit in the PRI score is associated with a 3% increase in labor productivity.

Among the individual indicators used in the analysis, regulatory quality, financial globalization, inward FDI stock/GDP, trade globalization, the rule of law and government effectiveness all have large impacts on productivity readiness.

These indicators improve productivity readiness by working through all four themes of motivation, capabilities, efficiency of markets, and stability.

This emphasizes the importance of the comprehensive nature of productivity readiness. Throughout the report, it is shown that productivity readiness requires a comprehensive package of determinants to be in place. Small improvements in many measures are likely to produce greater increases in productivity than a large increase in just one measure because of the interrelatedness of the various determinants. It is important to keep in mind the linkages between and spillovers across the various individual determinants.

Finally, it is shown that the results are not particularly sensitive to the set of variables that are used to measure the underlying determinants of productivity.

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CHAPTER 6
CRITICAL INDICATORS OF PRODUCTIVITY READINESS

The PRI framework emphasizes the importance of a broad national productivity environment, with interrelated factors in place, toward forming the foundation for strong and sustained productivity growth. The previous chapter showed that capabilities, efficiency of markets, motivation, and stability contribute roughly equally to overall productivity readiness. Interrelationships between them (and indeed between the underlying determinants) imply that a comprehensive approach that addresses all four themes must be in place (Chapter 4). There is no single "silver bullet" for policy.

Against this background, this chapter highlights several factors that deserve particular attention, given their influence on productivity readiness globally, as shown in the modeling work of Chapter 5. They are key elements in the set of determinants and should receive strong consideration in any policy package.

It may be noted that all tables of APO member economies in this chapter are ordered by PRI ranking, followed by (if applicable) economies for which a PRI could not be estimated, in alphabetical order.

Institutional Quality

While all underlying determinants contribute to productivity, institutional quality appears to play a particularly important role. Indicators of regulatory quality, government effectiveness and rule of law (all indicators of institutional quality and the business environment) are among those with the largest impact on the overall PRI across 126 economies (Tables 8 and 9 in Chapter 5).

Strong institutional quality is a unifying feature of those economies that have maintained a consistently high productivity performance. On the other hand, corruption, lack of rule of law, poor government effectiveness and bureaucratic inefficiency are common characteristics of those economies that perform less well. Some APO member economies have very high levels of productivity readiness (Singapore, Japan, ROK, and Hong Kong) whereas others (Pakistan, IR Iran, and Bangladesh) are at much lower levels.

Middle-income APO member economies such as Malaysia, Thailand, Indonesia, and the Philippines score lower on Efficiency of Markets and Stability. The scores on these two themes are most strongly affected by poor institutions.

The standing of individual APO member economies on institutional quality is discussed in Appendix as part of the member economy summaries.

TABLE 1

INSTITUTIONAL INDICATORS INCLUDED IN THE PRI FOR APO MEMBER ECONOMIES, 2022.

	IMF Financial Institutions (2021)	Political stability	Rule of law	Control of corruption	Government effectiveness
Range	**0–1**	**–2.5 to 2.5**	**–2.5 to 2.5**	**–2.5 to 2.5**	**–2.5 to 2.5**
Singapore	0.76	1.46	1.78	2.09	2.14
Hong Kong	0.79	0.61	1.28	1.61	1.59
Japan	0.88	1.07	1.56	1.54	1.62
ROK	0.85	0.56	1.16	0.75	1.35
Malaysia	0.70	0.14	0.56	0.25	0.99
Thailand	0.71	–0.38	0.07	–0.45	0.13
Indonesia	0.41	–0.44	–0.19	–0.43	0.44
Vietnam	0.41	–0.03	–0.16	–0.29	0.18
India	0.46	–0.57	0.11	–0.32	0.37
Philippines	0.38	–0.71	–0.52	–0.54	0.06
Turkiye	0.42	–1.04	–0.46	–0.47	–0.20
Mongolia	0.49	0.53	–0.19	–0.56	–0.42
Cambodia	0.41	–0.04	–0.87	–1.24	–0.35
Sri Lanka	0.34	–0.79	–0.06	–0.38	–0.39
Pakistan	0.29	–1.90	–0.67	–0.80	–0.62
Bangladesh	0.29	–1.09	–0.60	–1.08	–0.76
IR Iran	0.60	–1.59	–1.02	–1.13	–0.88
Fiji	0.43	0.76	0.32	0.39	0.59
Lao PDR	0.25	0.80	–0.81	–0.97	–0.60
Nepal	0.42	–0.25	–0.45	–0.53	–0.92
ROC	–	0.75	1.26	1.15	1.40

Political stability, rule of law, control of corruption, and government effectiveness are all drawn from the World Bank's World Governance Indicators from 2022.

Table 2 reproduces (from Chapter 5) the values of the PRI and the four theme indexes for all of the economies for which we are able to calculate them. Each of these is heavily impacted by the five institutional indicators shown in Table 1. Both the level of the indexes and the ordering of economies are in line with the institutional indicators.

TABLE 2

VALUES OF THEME INDEXES AND PRI FOR APO MEMBER ECONOMIES, 2022.

	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Ranking
Singapore	98	98	88	94	98	1
Hong Kong	86	90	81	80	88	2

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	Motivation	Capabilities	Efficiency of markets	Stability	PRI	Ranking
Japan	84	87	69	86	84	3
ROK	77	80	60	75	76	4
Malaysia	69	76	59	62	69	5
Thailand	54	66	48	46	56	6
Indonesia	51	50	44	47	50	7
Vietnam	46	51	40	42	46	8
India	49	45	36	49	46	9
Philippines	45	49	42	40	46	10
Turkiye	47	52	39	36	45	11
Mongolia	40	50	40	41	45	12
Cambodia	31	46	35	27	36	13
Sri Lanka	35	35	27	40	35	14
Pakistan	29	30	23	28	28	15
Bangladesh	26	28	20	28	26	16
IR Iran	20	32	13	18	21	17

Openness to Trade and Investment

Trade and foreign investment emerge as important determinants of productivity readiness. The KOF Financial Globalization Indicator; the stock of foreign direct investment (FDI) as a fraction of GDP (from UNCTAD); and the KOF trade globalization *de jure* measure also appear among the indicators with the largest impact on the overall PRI (Tables 8 and 9 of Chapter 5).

Several indicators are captured in the Efficiency of Markets theme. On average, APO member economies score 45 out of 100, compared with 67 out of 100 for OECD economies. Nine of the 17 APO member economies for which the PRI can be calculated have values of 40 or below. These include India, Mongolia, and Cambodia, where productivity performance has improved in recent years.

Table 3 shows how APO member economies perform on various indicators of trade and foreign investment included in the PRI and theme indexes. There is a wide range of performance visible in these trade and investment indicators. Economies with higher scores on the PRI and the Efficiency of Markets theme generally score higher on these indicators, but there is significant heterogeneity.

See Appendix for a discussion of trade and foreign investment in individual economies.

TABLE 3

INDICATORS OF TRADE AND FOREIGN INVESTMENT INCLUDED IN THE PRI, 2022.

	HF Trade Freedom	KOF Trade globalization (2021)	KOF Trade globalization, de jure (2021)	KOF Financial globalization (2021)	KOF Financial globalization, de jure (2021)	FDI stock/ GDP (%) inward	FDI stock/ GDP (%) outward	HF Investment Freedom
Range	**0–100**	**0–100**	**0–100**	**0–100**	**0–100**	**Open**	**Open**	**0–100**
Singapore	95.0	96.07	92.96	91.61	85.51	507.38	341.78	85
Hong Kong	–	77.79	78.10	89.76	81.55	580.97	570.98	–
Japan	75.4	56.08	79.84	78.80	79.01	5.33	46.04	60
ROK	73.0	63.26	63.79	64.56	69.34	16.27	38.69	60
Malaysia	82.2	76.69	76.30	71.84	64.64	49.03	33.88	60
Thailand	71.6	69.79	63.95	65.37	62.49	61.81	36.30	55
Indonesia	78.6	44.41	59.19	51.08	55.68	19.93	7.88	50
Vietnam	78.8	54.42	52.66	59.53	54.71	51.48	3.56	40
India	71.0	46.27	51.21	36.99	37.72	14.74	6.42	40
Philippines	73.8	53.04	52.05	56.62	59.66	27.94	16.64	60
Turkiye	75.6	62.97	70.86	44.78	45.34	18.18	6.25	70
Mongolia	74.4	54.00	43.72	71.53	59.25	166.34	5.29	50
Cambodia	64.8	52.75	46.94	70.68	66.02	150.95	4.81	50
Sri Lanka	47.0	40.26	51.23	39.95	37.97	18.21	2.01	40
Pakistan	65.8	35.10	44.06	33.39	36.71	9.77	0.86	60
Bangladesh	63.8	30.04	34.33	29.79	37.98	4.89	0.09	50
IR Iran	59.2	30.33	35.77	32.17	29.64	15.48	1.06	5
Fiji	55.2	58.39	50.06	45.29	19.60	115.56	2.52	55
Lao PDR	66.8	45.74	60.28	52.36	37.02	82.90	0.62	35
Nepal	57.6	31.08	39.12	26.79	22.62	5.18	–	10
ROC	86.0	–	–	–	–	18.02	60.49	70

HF: Heritage Foundation; KOF: KOF Swiss Economic Institute

Stability and Motivation

Among the four overarching themes, stability and motivation were the two themes where APO member economies lagged OECD economies by the largest margins. OECD economies averaged scores of 75 in stability and 76 in motivation, while APO member economies averaged 49 and 52, respectively.

Only three APO member economies, namely Singapore, Hong Kong, and Japan, scored above the OECD average in stability. These three, along with the ROK, also scored above the OECD average in motivation.

Tables 4 and 5 show the scores on the individual indicators contributing to the "Stability" and "Motivation" indexes. Overall, the economies with the highest scores in these two themes and the overall PRI also score high on the individual indicators, though with notable heterogeneity.

In Table 4, under the indicators for "Stability," Mongolia scores quite well on political stability and voice and accountability despite a relatively low overall ranking. Malaysia scores well on government effectiveness but much less well on political stability. Indonesia and India score well on government effectiveness relative to their overall rankings.

In Table 5, under the indicators for Motivation, Turkiye scores quite well on the trade measures relative to its overall rankings on Motivation and the overall PRI. The converse is visible in Japan which scores relatively poorly on the trade measures despite having a very high ranking overall. Vietnam ranks highly on business freedom, whereas Malaysia scores very high on trade freedom measures.

Efficiency of Markets and Capabilities

For completeness, Tables 6 and 7 present the individual country scores for indicators that feed into the "Efficiency of Markets" and "Capabilities" themes. The overall pattern again shows that higher indicator scores are strongly correlated with the four theme indexes and the overall PRI. However, there is significant heterogeneity across the economies.

TABLE 4

INDICATORS CONTRIBUTING TO STABILITY INDEX, 2022.

	Regulatory quality	Political stability	Rule of law	Control of corruption	Government effectiveness	Voice and accountability
Range	−2.5 to 2.5	−2.5 to 2.5	−2.5 to 2.5	−2.5 to 2.5	−2.5 to 2.5	−2.5 to 2.5
Singapore	2.21	1.46	1.78	2.09	2.14	−0.05
Hong Kong	1.59	0.61	1.28	1.61	1.59	−0.41
Japan	1.44	1.07	1.56	1.54	1.62	1.02
ROK	1.15	0.56	1.16	0.75	1.35	0.87
Malaysia	0.64	0.14	0.56	0.25	0.99	0.00
Thailand	0.17	−0.38	0.07	−0.45	0.13	−0.62
Indonesia	0.21	−0.44	−0.19	−0.43	0.44	0.14
Vietnam	−0.43	−0.03	−0.16	−0.29	0.18	−1.29
India	−0.05	−0.57	0.11	−0.32	0.37	0.05
Philippines	0.06	−0.71	−0.52	−0.54	0.06	−0.06
Turkiye	−0.24	−1.04	−0.46	−0.47	−0.20	−0.93
Mongolia	−0.27	0.53	−0.19	−0.56	−0.42	0.26
Cambodia	−0.71	−0.04	−0.87	−1.24	−0.35	−1.31
Sri Lanka	−0.65	−0.79	−0.06	−0.38	−0.39	−0.19
Pakistan	−0.89	−1.90	−0.67	−0.80	−0.62	−0.86
Bangladesh	−0.93	−1.09	−0.60	−1.08	−0.76	−0.75
IR Iran	−1.59	−1.59	−1.02	−1.13	−0.88	−1.46
Fiji	−0.06	0.76	0.32	0.39	0.59	−0.15
Lao PDR	−0.99	0.80	−0.81	−0.97	−0.60	−1.66
Nepal	−0.65	−0.25	−0.45	−0.53	−0.92	−0.05
ROC	1.41	0.75	1.26	1.15	1.40	1.08
APO average	0.07	−0.10	0.10	−0.07	0.27	−0.30
OECD average	1.17	0.52	1.10	1.10	1.09	1.08

Note: All indicators are from the World Bank's World Governance Indicators.

TABLE 5

INDICATORS CONTRIBUTING TO MOTIVATION INDEX, 2022.

	KOF Informational globalization, de facto (2021)	R&D expenditure (UNSDG)[1]	HF Business Freedom	Regulatory quality	IMF Financial Development (2021)	HF Investment Freedom	HF Trade Freedom	KOF Trade globalization (2021)	KOF trade globalization, de jure (2021)	Rule of law	Control of corruption	Government effectiveness
Range	0–100	Open	0–100	–2.5 to 2.5	0–1	0–100	0–100	0–100	0–100	–2.5 to 2.5	–2.5 to 2.5	–2.5 to 2.5
Singapore	92.74	–	83.1	2.21	0.70	85	95.0	96.07	92.96	1.78	2.09	2.14
Hong Kong	100.00	1.07	–	1.59	0.76	–	–	77.79	78.10	1.28	1.61	1.59
Japan	93.18	3.41	78.3	1.44	0.89	60	75.4	56.08	79.84	1.56	1.54	1.62
ROK	90.23	5.21	84.8	1.15	0.82	60	73.0	63.26	63.79	1.16	0.75	1.35
Malaysia	96.81	–	67.1	0.64	0.73	60	82.2	76.69	76.30	0.56	0.25	0.99
Thailand	85.70	–	63.4	0.17	0.73	55	71.6	69.79	63.95	0.07	–0.45	0.13
Indonesia	83.01	–	66.6	0.21	0.36	50	78.6	44.41	59.19	–0.19	–0.43	0.44
Vietnam	84.15	–	73.6	–0.43	0.38	40	78.8	54.42	52.66	–0.16	–0.29	0.18
India	80.41	–	63.9	–0.05	0.53	40	71.0	46.27	51.21	0.11	–0.32	0.37
Philippines	82.41	–	61.5	0.06	0.38	60	73.8	53.04	52.05	–0.52	–0.54	0.06
Turkiye	75.40	1.32	63.4	–0.24	0.50	70	75.6	62.97	70.86	–0.46	–0.47	–0.20
Mongolia	81.61	0.08	66.5	–0.27	0.31	50	74.4	54.00	43.72	–0.19	–0.56	–0.42
Cambodia	61.20	–	55.2	–0.71	0.21	50	64.8	52.75	46.94	–0.87	–1.24	–0.35
Sri Lanka	76.24	–	58.3	–0.65	0.26	40	47.0	40.26	51.23	–0.06	–0.38	–0.39
Pakistan	67.90	–	49.5	–0.89	0.22	60	65.8	35.10	44.06	–0.67	–0.80	–0.62
Bangladesh	67.01	–	55.6	–0.93	0.24	50	63.8	30.04	34.33	–0.60	–1.08	–0.76
IR Iran	74.09	–	38.9	–1.59	0.52	5	59.2	30.33	35.77	–1.02	–1.13	–0.88
Fiji	78.05	–	58.8	–0.06	0.22	55	55.2	58.39	50.06	0.32	0.39	0.59
Lao PDR	56.68	–	60.5	–0.99	0.17	35	66.8	45.74	60.28	–0.81	–0.97	–0.60
Nepal	64.79	–	60.2	–0.65	0.21	10	57.6	31.08	39.12	–0.45	–0.53	–0.92
ROC	–	–	84.3	1.41	–	70	86.0	–	–	1.26	1.15	1.40
APO average	79.58	2.22	64.7	0.07	0.46	50	70.8	53.92	57.32	0.10	–0.07	0.27
OECD average	85.46	2.21	80.6	1.17	0.60	78	79.8	72.77	84.35	1.10	1.10	1.09

Notes: HF = Heritage Foundation; KOF = KOF Swiss Economic Institute; WEF = World Economic Forum.
Regulatory quality, rule of law, control of corruption, and government effectiveness are all drawn from the World Bank's World Governance Indicators from 2022.

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[1] R&D expenditure (UNSDG) is sparse in this table (only available for 7 out of 21 APO member economies). For the productivity readiness modelling, this UNSDG data is supplemented by equivalent WEF data that is interpolated in 2022.

TABLE 6
INDICATORS CONTRIBUTING TO EFFICIENCY OF MARKETS INDEX, 2022.

Range	Govt effective (−2.5 to 2.5)	Control corruption (−2.5 to 2.5)	HF Monetary Freedom (0–100)	KOF Trade glob, de jure (2021) (0–100)	KOF Trade glob (2021) (0–100)	HF Trade Freedom (0–100)	HF Invest Freedom (0–100)	FDI stock /GDP – out (Open)	FDI stock /GDP – in (Open)	KOF Fin glob, de jure (2021) (0–100)	KOF Fin glob (2021) (0–100)	IMF Fin Dev (2021) (0–1)	HF Fin Freedom (0–100)	Reg quality (−2.5 to 2.5)	HF Tax Burden (0–100)	HF Bus Freedom (0–100)	KOF Inf glob, de facto (2021) (0–100)
Singapore	2.14	2.09	86.5	92.96	96.07	95.0	85	341.78	507.38	85.51	91.61	0.70	80	2.21	90.5	83.1	92.74
Hong Kong	1.59	1.61	–	78.10	77.79	–	–	570.98	580.97	81.55	89.76	0.76	–	1.59	–	–	100.00
Japan	1.62	1.54	87.1	79.84	56.08	75.4	60	46.04	5.33	79.01	78.80	0.89	60	1.44	67.4	78.3	93.18
ROK	1.35	0.75	85.2	63.79	63.26	73.0	60	38.69	16.27	69.34	64.56	0.82	60	1.15	60.4	84.8	90.23
Malaysia	0.99	0.25	83.6	76.30	76.69	82.2	60	33.88	49.03	64.64	71.84	0.73	50	0.64	83.8	67.1	96.81
Thailand	0.13	−0.45	74.2	63.95	69.79	71.6	55	36.30	61.81	62.49	65.37	0.73	60	0.17	81.3	63.4	85.70
Indonesia	0.44	−0.43	80.3	59.19	44.41	78.6	50	7.88	19.93	55.68	51.08	0.36	60	0.21	85.3	66.6	83.01
Vietnam	0.18	−0.29	68.8	52.66	54.42	78.8	40	3.56	51.48	54.71	59.53	0.38	50	−0.43	80.9	73.6	84.15
India	0.37	−0.32	70.0	51.21	46.27	71.0	40	6.42	14.74	37.72	36.99	0.53	40	−0.05	79.5	63.9	80.41
Philippines	0.06	−0.54	69.4	52.05	53.04	73.8	60	16.64	27.94	59.66	56.62	0.38	60	0.06	76.8	61.5	82.41
Turkiye	−0.20	−0.47	61.9	70.86	62.97	75.6	70	6.25	18.18	45.34	44.78	0.50	60	−0.24	74.7	63.4	75.40

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	Govt effective	Control corruption	HF Monetary Freedom	KOF Trade glob, de jure (2021)	KOF Trade glob (2021)	HF Trade Freedom	HF Invest Freedom	FDI stock /GDP – out	FDI stock /GDP – in	KOF Fin glob, de jure (2021)	KOF Fin glob (2021)	IMF Fin Dev (2021)	HF Fin Freedom	Reg quality	HF Tax Burden	HF Bus Freedom	KOF Inf glob, de facto (2021)
Mongolia	-0.42	-0.56	76.0	43.72	54.00	74.4	50	5.29	166.34	59.25	71.53	0.31	50	-0.27	89.2	66.5	81.61
Cambodia	-0.35	-1.24	74.7	46.94	52.75	64.8	50	4.81	150.95	66.02	70.68	0.21	50	-0.71	88.7	55.2	61.20
Sri Lanka	-0.39	-0.38	71.6	51.23	40.26	47.0	40	2.01	18.21	37.97	39.95	0.26	40	-0.65	90.3	58.3	76.24
Pakistan	-0.62	-0.80	65.9	44.06	35.10	65.8	60	0.86	9.77	36.71	33.39	0.22	40	-0.89	78.0	49.5	67.90
Bangladesh	-0.76	-1.08	70.0	34.33	30.04	63.8	50	0.09	4.89	37.98	29.79	0.24	40	-0.93	82.6	55.6	67.01
IR Iran	-0.88	-1.13	42.3	35.77	30.33	59.2	5	1.06	15.48	29.64	32.17	0.52	10	-1.59	80.8	38.9	74.09
Fiji	0.59	0.39	74.9	50.06	58.39	55.2	55	2.52	115.56	19.60	45.29	0.22	50	-0.06	86.8	58.8	78.05
Lao PDR	-0.60	-0.97	71.8	60.28	45.74	66.8	35	0.62	82.90	37.02	52.36	0.17	20	-0.99	87.2	60.5	56.68
Nepal	-0.92	-0.53	70.0	39.12	31.08	57.6	10	–	5.18	22.62	26.79	0.21	30	-0.65	82.6	60.2	64.79
ROC	1.40	1.15	86.1	–	–	86.0	70	60.49	18.02	–	–	–	60	1.41	79.2	84.3	–
APO average	0.27	-0.07	73.5	57.32	53.92	70.8	50	59.31	92.40	52.12	55.64	0.5	49	0.07	81.3	64.7	79.58
OECD average	1.09	1.10	81.4	84.35	72.77	79.8	78	102.01	96.91	76.06	78.17	0.6	70	1.17	66.2	80.6	85.46

Notes: HF = Heritage Foundation; KOF = KOF Swiss Economic Institute; WEF = World Economic Forum.
Regulatory quality, rule of law, control of corruption, and government effectiveness are all drawn from the World Bank's World Governance Indicators from 2022.

TABLE 7
INDICATORS CONTRIBUTING TO CAPABILITIES INDEX, 2022.

	Govt effective	IMF Financial Institutions (2021)	Gross savings /GDP	HF Monetary Freedom	KOF Trade globalization, de jure (2021)	KOF Trade globalization (2021)	HF Trade Freedom	HF Invest Freedom	KOF Financial globalization, de jure (2021)	KOF Financial globalization (2021)	Life expectancy at birth	IMF Financial Development (2021)	R&D exp	KOF Informational globalization, de facto (2021)
Range	−2.5 to 2.5	0–1	Open	0–100	0–100	0–100	0–100	0–100	0–100	0–100	Open	0–1	Open	0–100
Singapore	2.14	0.76	40.31	86.5	92.96	96.07	95.0	85	85.51	91.61	82.92	0.70	–	92.74
Hong Kong	1.59	0.79	25.41	–	78.10	77.79	–	–	81.55	89.76	83.48	0.76	1.07	100.00
Japan	1.62	0.88	28.57	87.1	79.84	56.08	75.4	60	79.01	78.80	84.05	0.89	3.41	93.18
ROK	1.35	0.85	34.52	85.2	63.79	63.26	73.0	60	69.34	64.56	82.73	0.82	5.21	90.23
Malaysia	0.99	0.70	26.58	83.6	76.30	76.69	82.2	60	64.64	71.84	75.44	0.73	–	96.81
Thailand	0.13	0.71	24.65	74.2	63.95	69.79	71.6	55	62.49	65.37	75.29	0.73	–	85.70
Indonesia	0.44	0.41	30.75	80.3	59.19	44.41	78.6	50	55.68	51.08	70.92	0.36	–	83.01
Vietnam	0.18	0.41	32.55	68.8	52.66	54.42	78.8	40	54.71	59.53	74.50	0.38	–	84.15
India	0.37	0.46	31.03	70.0	51.21	46.27	71.0	40	37.72	36.99	71.70	0.53	–	80.41
Philippines	0.06	0.38	20.18	69.4	52.05	53.04	73.8	60	59.66	56.62	69.47	0.38	–	82.41
Turkiye	−0.20	0.42	30.03	61.9	70.86	62.97	75.6	70	45.34	44.78	77.59	0.50	1.32	75.40

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Indicator	Mongolia	Cambodia	Sri Lanka	Pakistan	Bangladesh	IR Iran	Fiji	Lao PDR	Nepal	ROC	APO average	OECD average
Govt effective	-0.42	-0.35	-0.39	-0.62	-0.76	-0.88	0.59	-0.60	-0.92	1.40	0.27	1.09
IMF Financial Institutions (2021)	0.49	0.41	0.34	0.29	0.29	0.60	0.43	0.25	0.42	–	0.51	0.66
Gross savings /GDP	28.90	15.41	33.43	10.72	29.35	44.04	–	–	24.74	43.03	29.17	24.96
HF Monetary Freedom	76.0	74.7	71.6	65.9	70.0	42.3	74.9	71.8	70.0	86.1	73.5	81.4
KOF Trade globalization, de jure (2021)	43.72	46.94	51.23	44.06	34.33	35.77	50.06	60.28	39.12	–	57.32	84.35
KOF Trade globalization (2021)	54.00	52.75	40.26	35.10	30.04	30.33	58.39	45.74	31.08	–	53.92	72.77
HF Trade Freedom	74.4	64.8	47.0	65.8	63.8	59.2	55.2	66.8	57.6	86.0	70.8	79.8
HF Invest Freedom	50	50	40	60	50	5	55	35	10	70	50	78
KOF Financial globalization, de jure (2021)	59.25	66.02	37.97	36.71	37.98	29.64	19.60	37.02	22.62	–	52.12	76.06
KOF Financial globalization (2021)	71.53	70.68	39.95	33.39	29.79	32.17	45.29	52.36	26.79	–	55.64	78.17
Life expectancy at birth	71.50	70.53	77.30	67.42	74.26	76.80	67.15	68.72	70.09	80.16	74.86	80.25
IMF Financial Development (2021)	0.31	0.21	0.26	0.22	0.24	0.52	0.22	0.17	0.21	–	0.46	0.60
R&D exp	0.08	–	–	–	–	–	–	–	–	–	2.22	2.21
KOF Informational globalization, de facto (2021)	81.61	61.20	76.24	67.90	67.01	74.09	78.05	56.68	64.79	–	79.58	85.46

Notes: HF = Heritage Foundation; KOF = KOF Swiss Economic Institute; WEF = World Economic Forum.
Regulatory quality, rule of law, control of corruption, and government effectiveness are all drawn from the World Bank's World Governance Indicators from 2022.

Recommendations on Focus Issues that Emerge from the Analysis

Chapter 2 discussed a variety of background issues that impact productivity and the productivity environment. Drawing upon the analysis in chapters 3 through 5, several insights and recommendations can be drawn with respect to those focus issues.

(1) Productivity catch-up and convergence: Catch up to more developed economies does not happen just in the course of time but requires sound policies and institutional settings to build a strong basis for long-term productivity growth, as discussed in Parham and Breunig (2021). This involves societal effort to develop the underlying determinants that foster productivity and productivity readiness. Once the institutional settings are oriented toward improved productivity, faster catch-up may follow.

(2) Industry mix and structural change: A key message from this report is that, rather than trying to force a change in industry mix or structure, governments should operate in ways that improve the determinants of productivity at large. Industry structure will then take its course.

(3) Global value chains and trade: Global value chains (GVCs) are likely to remain an important contributor to income and productivity growth in APO member economies, notwithstanding the current uncertainties about international trading arrangements. Their existence can be facilitated through lower trade barriers, more-open investment policies, improved education, enhanced infrastructure, and stronger institutions (see the discussion above on openness to trade and investment).

(4) Engagement with digitization: Recent years have seen many mergers in broadband markets (both fixed and mobile). This consolidation may significantly impact overall market competition. Historically, competition has been a key driver of innovation, affordability, and quality-of-service (OECD, 2021, 30). APO member economies should monitor concentration in broadband markets and remain alert to the risk of anti-competitive practices.

From a policy perspective, governments can enable the adoption of digital technologies and AI. Education and building human capital are of utmost importance. Businesses must be flexible and responsive in embracing innovative thinking and developing market opportunities. Unnecessary regulations or a cumbersome bureaucratic environment will act as hurdles to digitization. Realizing the potential of the digital revolution requires not only information and communications infrastructure but also availability of suitable skills. The business environment should have the flexibility to allow for new business models. Finally, good governance structures are essential to ensure access and security for users while promoting efficiency for producers.

(5) Developments in trade in services: An evaluation of current services trade barriers should identify laws and regulations that obstruct competition, raise businesses' costs, and restrict FDIs and imports, including those of digital goods and services vital for innovation. Efforts should be made to identify regulations and regulatory processes that discourage services trade because they are inconsistent with rules and/or enforcement in other economies or regions. This is crucial to enable productive participation in GVCs. Cross-border policy frictions impose additional costs on international businesses, which can face multiple regulatory regimes across jurisdictions that, even if similar in their objectives,

are defined and enforced in distinct ways. (See the discussion of openness to trade and investment and the country indicators presented earlier.)

Cooperation between international firms, governments, and policy analysts could help identify and resolve such policy impediments to services trade and the efficient operation of GVCs, with the aim of reducing costs without undermining policy objectives (Findlay and Hoekman, 2020). By dismantling barriers that undermine long-term productivity agendas while being unessential for achieving other valid policy ambitions, APO member economies can remove important obstacles to growth. Romao and Bernardo (2023) conclude that "Liberalizing services trade through cross-border cooperation and reducing restrictions could lower costs, boost efficiency, and catalyze economic growth."

Practical Steps for Policy Makers

Several practical steps for policy makers stand out from the analysis.

(1) The productivity indicators, the indexes of the four overarching themes, and the PRI can be used to track a country's progress in becoming more productivity ready.

- These can be updated annually using new data and tracked on a scorecard, enabling policy makers to track progress and press national leaders to adopt productivity-enhancing policies.

(2) Consideration of the four overarching themes provide an excellent starting point for policymakers to ask, "What can we do to improve productivity performance in our country?"

- The best-performing economies rank highly across all four themes of motivation, capabilities, efficiency of markets, and stability. An all-encompassing approach is needed.

- Without losing sight of maintaining the overall productivity environment, a policy emphasis can be put on making improvements in the area of the lowest-scoring theme in a given economy.

(3) Focus on improving institutions.

- Government effectiveness, rule of law, lack of corruption, and regulatory quality all play a crucial role in creating the preconditions for sustained and strong productivity growth.

- These indicators contribute substantially to the overarching theme of stability, where the gap between APO member economies and OECD economies was the largest. This further emphasizes the need to focus on these indicators in order to catch up to the world's most productive economies.

- These can be difficult areas to make progress in but the experience of those economies that have improved their institutions provides very strong evidence of the importance of making progress in these areas. Small, sustained improvements can have positive impacts on productivity.

(4) Focus on openness and trade.

- In the global political environment of 2025, trade openness is being challenged and even undermined. Strengthening existing trade networks and expanding into new ones will be important for all economies if they are to succeed in the contemporary milieu.

- The KOF Financial Globalization Indicator, the stock of FDI as a fraction of GDP, and the KOF trade globalization *de jure* measure all provide publicly available data sources to track a country's progress in these areas.

- As discussed in Chapter 2, significant restrictions on trade in services persist in many APO member economies. As services become a larger part of the economic mix, the impact of openness in this area on productivity also grows.

(5) Ensure macroeconomic stability.

- While not a major focus of this report, the experience of economies like Sri Lanka demonstrates the importance of strong macroeconomic management.

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CONCLUSION

An economy needs strong and sustained productivity growth if it is to consistently raise the living standards of its citizens.

A key message from this report is that achieving and sustaining strong national productivity growth requires a solid foundation built on multiple economic, social, and institutional strengths. Strong productivity performance does not come easily, and there is no "silver bullet."

This foundation of strengths makes a country "productivity ready." This means it is ready to be productive in the short term, equipped to develop productive opportunities for the future, and prepared to respond to changes in the economic landscape in ways that help maintain productivity performance.

The report has measured the productivity readiness of economies in the form of the Productivity Readiness Index (PRI). The PRI combines observations on indicators that drive productivity readiness, grouped into four overarching themes.

- **Motivation:** Firms need to be motivated, e.g., by competitive pressures, and not impeded, say, by stifling regulation, to undertake the steps needed to improve their productivity performance.

- **Capabilities:** Firms need access to capabilities, such as skills and transport and communications infrastructure, to enable them to increase productivity.

- **Efficiency of Markets:** Markets for goods and services and inputs of labor and capital need to provide signals for resources to move and be employed where they promote national productivity performance.

- **Stability:** Economic, social, and institutional stability helps create an environment that is conducive to long-term investments in skills development, capital, and infrastructure.

The report identifies 24 indicators to represent the 18 crucial elements of productivity readiness. It provides an update on the PRI measures presented in Parham and Breunig (2021). Changes in data availability since that report required some adaptations to the PRI measurement approach. Comparisons of results for overlapping periods, however, show only minor differences.

The main conclusion is that the productivity readiness of APO member economies has generally improved since the last report, though the progress has been slow. PRI scores have declined in six economies but have increased in eleven economies. Major differences in productivity readiness across APO member economies continue to be there.

Changes since the Previous report

Updating the estimates of productivity readiness reveals the following:

- The average PRI for APO member economies is the same in 2022 (53) as it was in 2017, based on the updated PRI measure developed in this report.

- Almost all APO member economies (except Sri Landa and Turkiye) have increased their PRI since 2000.

- There has also been little change since 2017 in the average scores for the four overarching theme indexes across APO member economies.

- Economies that have improved their overall PRI by more than 2% since 2017 are: India, Indonesia, the ROK, Thailand, and Malaysia.

  ◦ Improvements have come through gains across all the theme indexes, particularly in stability and efficiency of markets.

- Economies that have fallen by more than 2% are: Hong Kong, IR Iran, Sri Lanka, and Turkiye.

  ◦ A common factor was weaker performance across all the theme indexes, with particularly large declines in the stability theme index.

- Of the economies that have experienced reduced PRI, all but Hong Kong also witnessed declines in their PRI ranking within the APO grouping as well.

- Regarding the most influential indicators for productivity readiness as summarized above, on average, performance since 2017 across APO member economies has been mixed. For example, regulatory quality has declined, whereas rule of law has improved. Trade freedom fell slightly, whereas inward FDI stock has increased.

Country Gaps

The PRI scores for APO member economies remain widely dispersed. Countries fall roughly in three groups:

- the high-income economies, which have high PRI scores and high productivity levels;

- the upper-middle income economies, which have lower PRI scores and productivity levels; and

- the lower-middle income economies, which have relatively low PRI scores and productivity levels.

Singapore continues to record the highest PRI score (98). Hong Kong (88) and Japan (84) continue to have high scores, while the ROK and Malaysia maintain scores above 65. Thailand is the only other country with a score exceeding 50.

The scores for other economies suggest that they still have considerable scope to implement changes that would bring them closer to the productivity readiness of economies with high productivity levels. Improving productivity readiness will help these economies catch up more rapidly with the living standards of the Asian Tigers and the USA.

The report shows that, while APO member economies are not as productivity-ready as OECD economies, they remain more productivity-ready than non-APO, non-OECD economies.

Ways Forward for Policy

The report has some important messages. First, a broad perspective on productivity is required. It is national productivity that matters for living standards and not just the productivity of specific industries, firms, or regions. Second, policy action needs to reference all the building blocks of productivity readiness. Since productivity determinants are highly interrelated and interdependent, a package of policy measures, operating on multiple fronts, will most likely be required.

APPENDIX
COUNTRY PROFILES

BANGLADESH

Bangladesh is the eighth-most populous country in the world, with a population of 171 million. The nation underwent a dramatic economic transformation after gaining independence in 1971 and becoming a manufacturing hub. Bangladesh achieved lower-middle-income status in 2015 and is on track to graduate from least developed country status by 2026 (OECD/ UNCTAD, 2023). Bangladesh experienced steady economic growth during the decade preceding COVID-19, but GDP per capita remains low compared with other APO member economies. Its ranking is 18th among APO member economies. Despite signs of convergence in the country's welfare gap, the welfare difference between eastern regions and western regions is still significant (World Bank, 2024).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	171.4	4	1.2	6
GDP (USD billion at PPP)	1,252.2	11	6.5	7
GDP per capita (USD at PPP)	7,306.5	18	5.5	7
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	61.8	7	60.3	7
Employment rate (%)	40.2	13	40.7	14
Age dependency ratio (%)	48.4	12	47.1	14
Old-age dependency ratio (%)	8.4	17	8.9	17

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	4.9	2	4.9	4
TFP (index)	−0.1	15	0.5	18
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	7	18	7.7	18

Bangladesh's labor productivity (LP) remains subdued, ranking 18th among APO member economies in both 2020 and 2022 (Table 2). LP has shown a consistent growth of approximately 5% over the past decade, despite the growth decelerating slightly during the pandemic years (Figure

3). Bangladesh's total factor productivity (TFP) remained relatively stable over the past decade, although experiencing a decrease of 0.03% during the pandemic period (Figure 4). The near-zero TFP growth since 2010 may be accounted for by a flat growth in LP and an offsetting decrease in capital productivity (Figures 3 and 5).

Output growth remained steady over the last decade and reached 7.9% in 2018, but took a significant hit in 2020 due to the pandemic (APO, 2024). During the period 2010–22, capital accumulation's contribution to output growth increased and remained the most important driver of growth (Figure 2). Limited TFP improvements meant that TFP growth slightly hampered output growth. A post-pandemic economic recovery was threatened by the political instability caused by Russia's invasion of Ukraine, high inflation, and a balance of payments (BoP) deficit (IMF, 2023; World Bank, 2024).

Output growth in Bangladesh is driven mainly by the ready-made garment (RMG) sector and fueled by domestic demand. Private consumption accounted for about two-thirds of real GDP growth over the period 2012–19 (WTO, 2019). The OECD notes that Bangladesh's current economic model has reached its limits and needs sectoral restructuring, and that an overdependence on the RMG industry disproportionately affects women who account for 80% of the employment in the industry (OECD, UNCTAD, 2023).

Capital productivity has been declining as a result of inefficiencies in public and private spending. Capital productivity growth remained negative for the period 2010–20 (Figure 5). This negative growth can be attributed to a number of factors including, but not limited to, insufficient levels of public investment, inefficient delivery of investment, misaligned spending, weak management capacity, and workforce-skills gaps.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	−3	1.2	2.4	4.4	4.9	4.9
TFP growth	−2.9	−0.4	−0.3	0.5	−0.1	0.5
Capital productivity growth	−2.1	−1	−2.2	−1.5	−1.7	−0.9
Output growth	−0.5	3.9	4.3	7	7.1	6.7
Combined inputs growth	2.6	4.2	4.6	6.3	7.1	6
Capital growth	1.8	5	6.6	8.5	8.9	7.7
IT capital growth	10.1	18.3	16.8	32.8	14.9	5.7
Hours worked growth	2.5	2.7	1.8	2.5	2.1	1.8
Labor quality growth	1	0.8	0.6	0.8	1.7	0.5
Capital deepening	−0.5	1.1	2.4	3.4	4.3	4.1

FIGURE 1

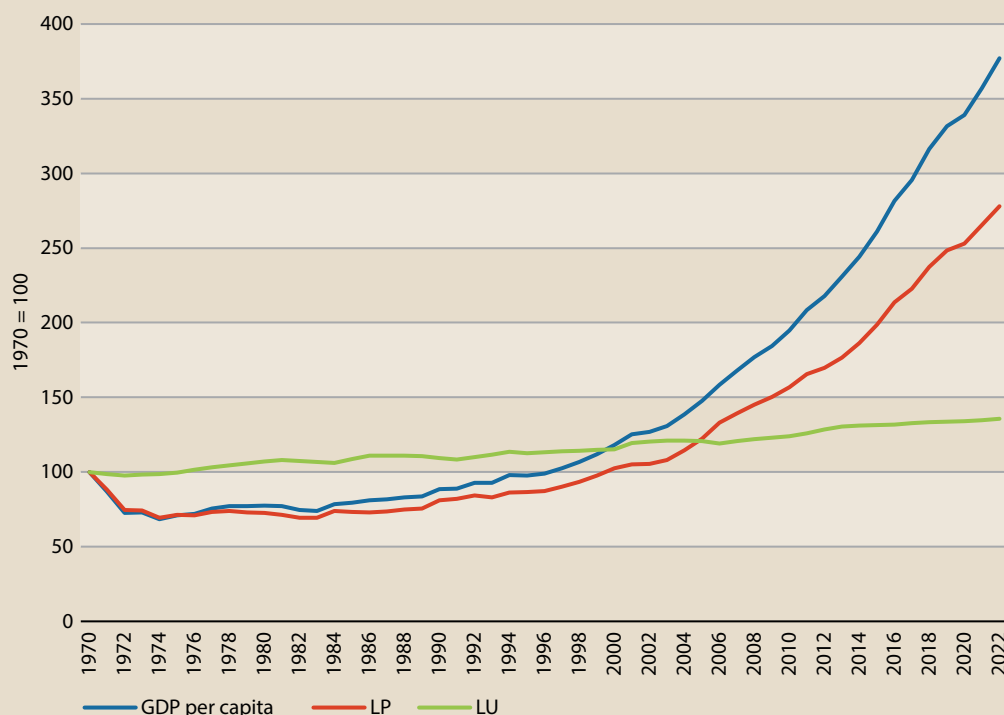**AVERAGE INCOME AND ITS COMPONENTS.**

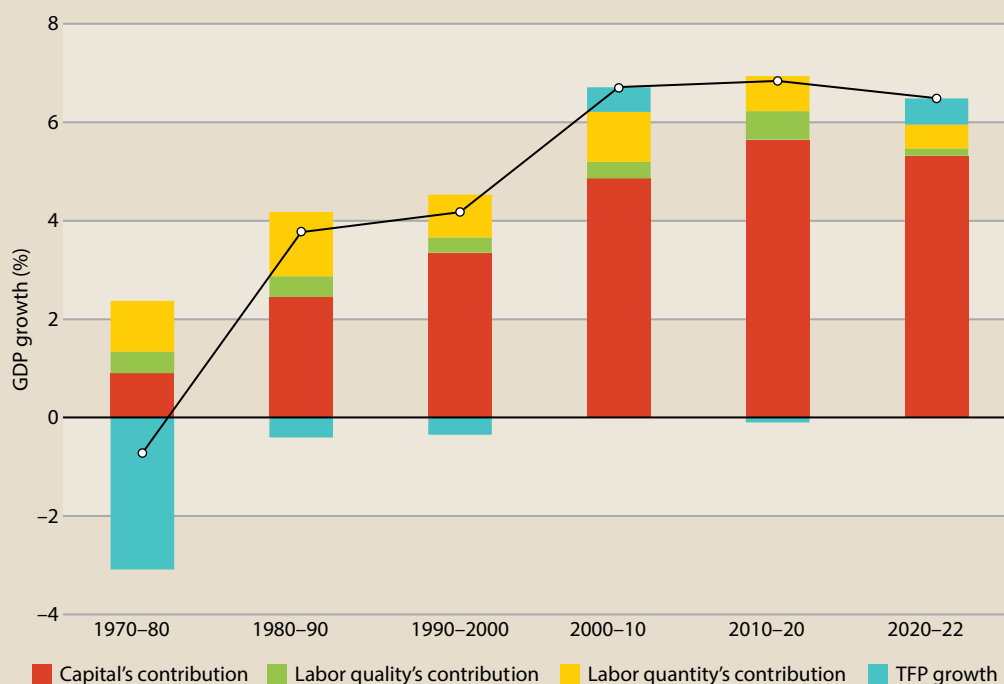
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.
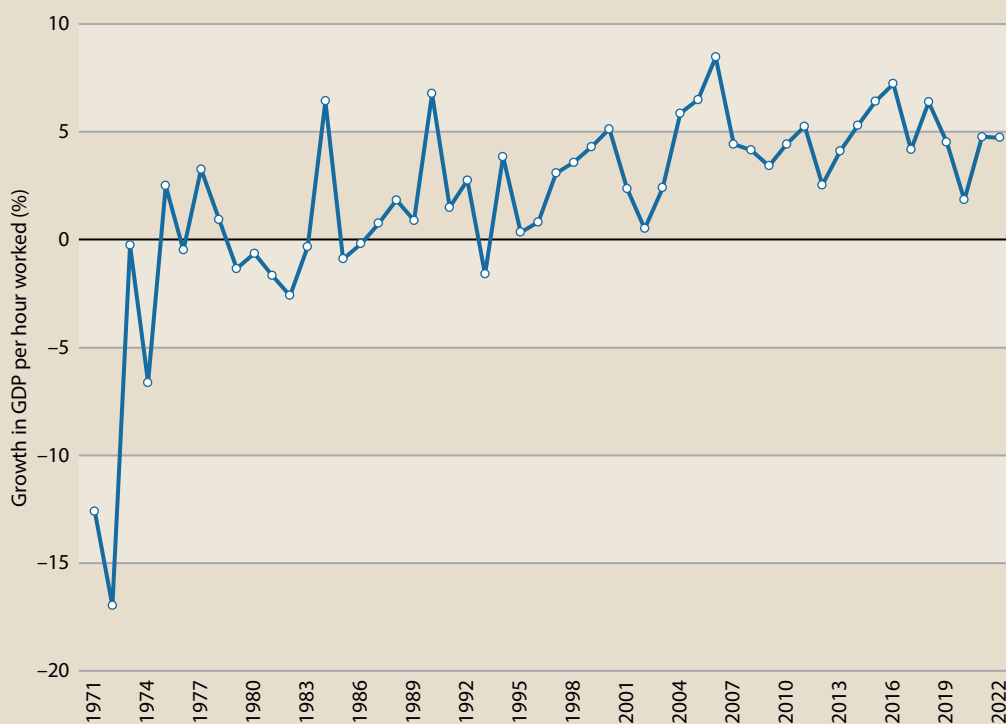
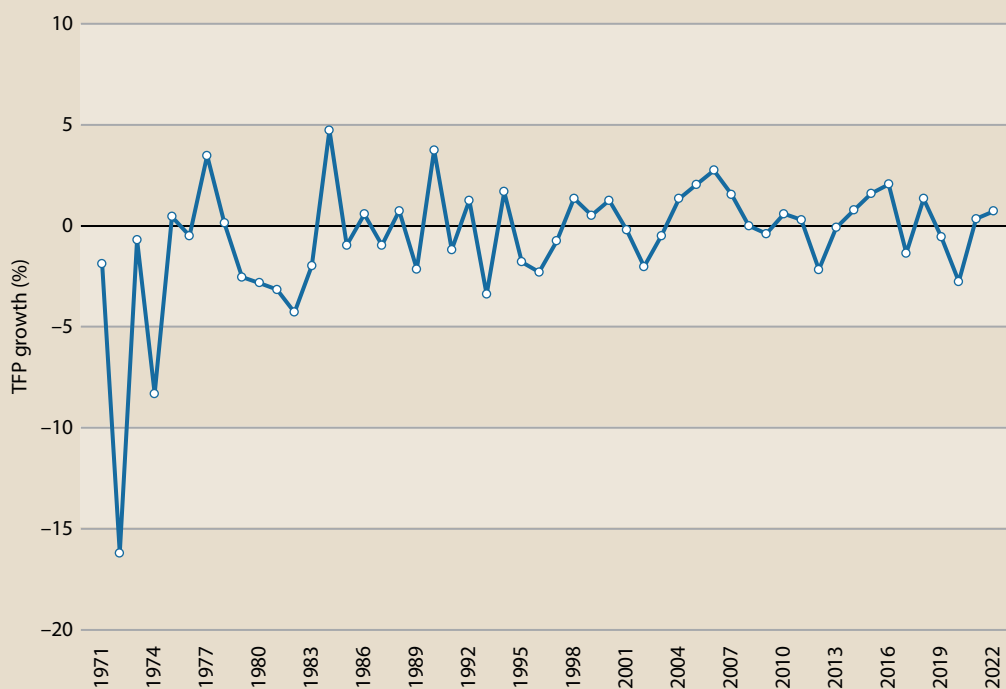

FIGURE 4

TFP GROWTH.

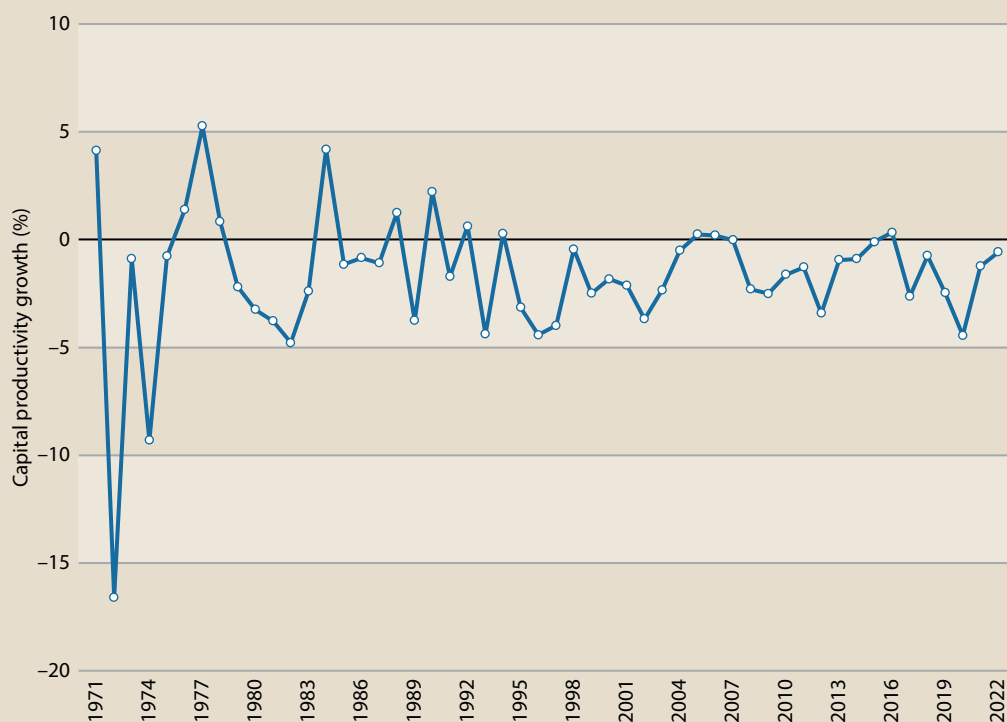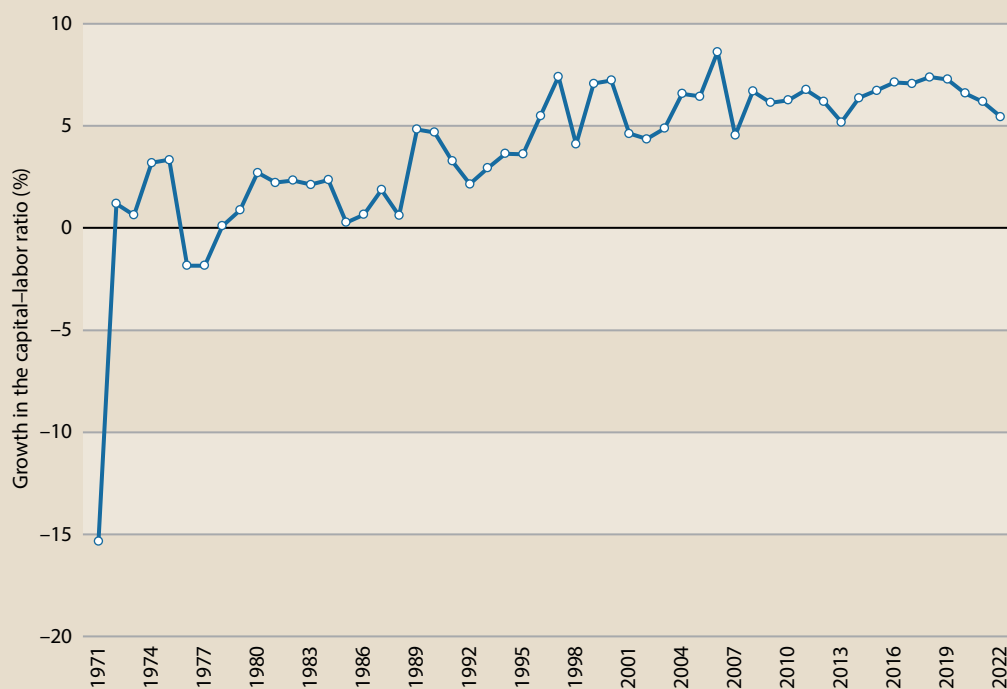**FIGURE 5**

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some of the determinants. This section also draws from the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Many features of the Bangladesh economy discussed above are evident in the indicators of the immediate determinants (Tables 4.0, 4.1, and 4.2). Bangladesh's levels of IT and non-IT capital deepening are high, ranking sixth and first, respectively, out of 21 APO member economies. This bodes well for productivity growth in future. However, Bangladesh still had a relatively low capital-to-GDP ratio of 2.6 in 2022, ranking 19th among APO member economies. Its labor quality contribution to labor productivity growth was equal to 0.2, ranking 11th among APO member economies. The WEF has scored Bangladesh's current workforce and entrepreneurial culture lower than other APO member economies, ranking 18th and 19th, respectively. Clearly, lifting skills and encouraging entrepreneurship and innovation are clear priorities for Bangladesh. Improvements in these areas will allow Bangladesh to reap the rewards of its progress in increasing capital deepening.

Over the past decade, Bangladesh has increased its manufacturing sector with production concentrated in the garment industry (WTO, 2019). It still has a heavy reliance on low wages and inexpensive labor to expand its manufacturing industry. While manufacturing contributes a greater share of GDP than agriculture, it performs only around the APO average, ranking 11th among APO member economies (Table 4.0). Bangladesh's share of GDP derived from imports and exports lags other APO member economies, ranking 18th and 19th, respectively (Table 4.0). This indicated limited global integration and a need for policies to expand and improve trade networks.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability (Table 5). These indices have scores up to 100. They give broad indications of where economies stand on productivity determinants and their overall productivity readiness.

Bangladesh ranks poorly among APO member economies on these overall themes and on many of the indices of underlying determinants (Table 6). Its score is weakest on stability and strongest on motivation. These scores are well behind leading APO member economies like Singapore, which is indicative of the need for policy and institutional reforms.

Underlying Determinants: Specific Strengths and Weaknesses

Bangladesh ranks relatively poorly on nearly all indicators (Table 6). In order to continue to improve its productivity in the long term, it will need to improve the provisioning of education, the strength of its institutions, and the dynamism of its business environment. The WTO highlights the need for greater education and vocational training to address skills mismatches in the labor force and to enhance job prospects for women (WTO, 2019). Initiatives such as the Child Marriage Restraint Act (2017) and Technical and Vocational Education and Training (TVET) Reform (2007) promote better education and job opportunities for women. While a rise in female student enrollments in secondary education reflects some success, there is still room for improvement, as the share of total educated people in the workforce remains low (WTO, 2019).

Bangladesh lags globally in terms of infrastructure, which is necessary for facilitating productivity readiness. Its transport and utility infrastructure both demonstrate room for improvement, ranking 100th and 113th out of 141 WEF countries, respectively, and 20th out of 21 APO member economies. Bangladesh has a high rate of exposure to unsafe drinking water (77.3% of the population), but performs slightly better in terms of electricity access (80% of the population).

Bangladesh's institutions rank poorly globally, reflecting high rates of corruption and very low levels of transparency. Bangladesh ranked 19th out of 21 APO member economies on the WGI "Control of corruption" indicator in 2019 (Table 6). It also ranked 19th on the IMF's Financial Institutions indicator. On property rights and transparency, it performs particularly poorly, ranking 126th and 125th globally, respectively. It may be argued that the existence of an "integrity–governance–corruption nexus" in Bangladesh pervades all sectors of government (Kabir et al., 2021). Kabir (2021) also argues that corruption in Bangladesh is so pervasive "at both micro and macro levels that it threatens to become a way of life." There is minimal intellectual property protection in Bangladesh, which exacerbates the high incidence of corruption. Bangladesh performs best in terms of social capital, though with a below-average score.

The business environment in Bangladesh is hindered by heavy administrative requirements and a lack of support for entrepreneurs and startups. Bangladesh ranks 18th among APO member economies on the Heritage Foundation "Business Freedom" indicator (Table 6). It also performs very poorly on other business environment indicators. R&D expenditures are extremely low, with a score of 10.6 out of 100, reflecting a business environment that fails to foster innovation (WEF, 2024).

Bangladesh has seen improvements in its educational sector, with mean years of schooling in the current workforce increasing to 6.1 in 2019, and expected years of schooling in future workforce reaching 11.2 (WEF, 2024). However, Bangladesh ranks 17th among APO member economies on "quality of education system" and 18th on "quality of primary education" (Table 6). Education levels remain far below the global average and limit the extent of staff training, vocational skills, and digital skills across the population. Low literacy rates and mean years of schooling have hampered Bangladesh's innovation levels and productivity scores.

Bangladesh's RMG sector relies heavily on foreign direct investment (FDI). RMG is one of the most important sectors in the Bangladesh economy, accounting for 84% of exports in 2018 (Hossain & Hosoe, 2020). The sector has benefited from FDI, with the largest share of inflow (20% in 2016) attracted by the textile and RMG sector (Hossain & Hosoe, 2020). However, total FDI remains low in Bangladesh, at only 0.7% of GDP in 2023, and is heavily concentrated in traditional sectors, thereby hindering innovation (OECD, 2023). The multiple exchange rate regime introduced in September 2022 further discouraged foreign exchange inflows and created a financial account deficit (World Bank, 2024). Despite this, Bangladesh's savings rate is high among APO member economies, ranking 10th, due to its high proportion of remittances.

Significant weaknesses and vulnerabilities persist in Bangladesh's financial sector. The indicators reflect this performance, with Bangladesh ranking 18th out of APO member economies in terms of financial system (Table 6). The IMF (2023) notes that "structural weaknesses in supervision, regulation, and governance" persist and weaken the financial system. Bangladesh performs slightly better on the Heritage Foundation "Financial Freedom" indicator, ranking 14th among APO member economies (Table 6). However, it performs very poorly on the KOF "Financial globalization" indicator, ranking 19th among APO member economies.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	2.7	19	2.6	19
Agriculture share of GDP (%)	Asian Productivity Organization	Open	12.4	10	11.5	10
Agriculture share of employment (%)	Asian Productivity Organization	Open	38.1	5	36.9	5
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	21.2	6	22.4	6
Manufacturing share of employment (%)	Asian Productivity Organization	Open	14.8	11	14.9	11
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	7.8	18	7.8	18
Exports/GDP (%)	Asian Productivity Organization	Open	10.4	19	12.9	19
Imports/GDP (%)	Asian Productivity Organization	Open	15.8	18	20.9	19

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	3.8	1	4.1	1
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	6	0.1	9
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.2	11	0.1	14

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	40.7	2019	18	35.4
Entrepreneurial culture	WEF	0–100	43.1	2019	19	27.3
Availability of latest technologies	WEF	1–7	4.1	2017	= 16	2.2
NRI Technology index	Portulans Institute	0–100	43.7	2024	13	27.5
NRI People index	Portulans Institute	0–100	34.1	2024	14	45.2

TABLE 5

VALUES OF OVERARCHING INDICES FOR BANGLADESH.

Index	Value	APO Rank
Motivation	18	16
Capabilities	17	17
Efficiency of markets	16	16
Stability	13	15
Productivity Readiness Index	14	16

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.4	2017	17	2.4
Quality of primary education	WEF	1–7	3.1	2017	= 18	3.1
Future workforce	WEF	0–100	51.5	2019	18	29.9
Education expenditure/ GDP (%)	World Bank	Open	1.8	2021	16	4.1
Innovation capability index	WEF	0–100	30.7	2019	18	49.5
KOF Informational globalization, de facto	KOF Swiss Economic Institute	0–100	67	2021	17	33
Infrastructure index	WEF	0–100	51.1	2019	20	44.3
HF Business Freedom	Heritage Foundation	0–100	50.2	2024	18	36.7
Administrative requirements	WEF	0–100	56.7	2019	17	36.4
Domestic competition	WEF	0–100	45.1	2019	17	29.7
HF Tax Burden	Heritage Foundation	0–100	82.4	2024	8	8.3

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.9	2022	19	3.1
labor market index	WEF	0–100	51.2	2019	18	30
HF labor Freedom	Heritage Foundation	0–100	47.3	2024	19	30
NRI Governance index	Portulans Institute	0–100	45.9	2024	15	41.1
Financial system index	WEF	0–100	52.1	2019	18	39.3
IMF Financial Markets	IMF	0–1	0.2	2021	13	0.7
HF Financial Freedom	Heritage Foundation	0–100	40	2024	= 14	40
Life expectancy at birth (years)	UN data	Open	74.7	2023	11	10.8
Infant mortality (deaths/1000 live births)	WEF	Open	30.7	2017	4	35.1
KOF Financial globalization	KOF Swiss Economic Institute	0–100	29.8	2021	19	61.8
KOF Financial globalization, de jure	KOF Swiss Economic Institute	0–100	38	2021	13	47.5
FDI stock/GDP (%)	UNCTAD	Open	4.9	2022	21	576.1
HF Investment Freedom	Heritage Foundation	0–100	50	2024	= 11	40
Trade openness	WEF	0–100	49	2019	15	39.7
HF Trade Freedom	Heritage Foundation	0–100	62	2024	18	33
Services Trade Restrictions Index	World Bank, WTO	0–100	39.3	2022	13	26.3

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalization	KOF Swiss Economic Institute	0–100	30	2021	20	66
KOF Trade globalization, de jure	KOF Swiss Economic Institute	0–100	34.3	2021	20	58.6
Macroeconomic stability index	WEF	0–100	72.8	2019	14	27.2
HF Monetary Freedom	Heritage Foundation	0–100	69.5	2024	10	12.2
Gross savings/GDP (%)	World Bank	Open	30.2	2023	10	12.5
Institutions index	WEF	0–100	45.9	2019	17	34.5
IMF Financial Institutions	IMF	0–1	0.3	2021	19	0.6
Political stability	World Bank WGI	−2.5 to 2.5	−1.1	2022	19	2.6
Rule of law	World Bank WGI	−2.5 to 2.5	−0.6	2022	17	2.4
Control of corruption	World Bank WGI	−2.5 to 2.5	−1.1	2022	19	3.2
Government effectiveness	World Bank WGI	−2.5 to 2.5	−0.8	2022	19	2.9
Social capital	WEF	0–100	47.2	2019	14	16
Voice and accountability	World Bank WGI	−2.5 to 2.5	−0.8	2022	15	1.8

Future Challenges

Bangladesh faces several challenges in achieving higher output growth and productivity levels. Corruption and lack of transparency in the nation's institutions puts a strain on its financial sector. In 2023, Bangladesh scored 24 out of 100 on the Corruption Perceptions Index (CPI), which was the tenth-lowest score globally (Transparency International, 2024). Emphasis on transparency, political stability, and stronger institutions could create an environment for sustainable growth. This should be one of the top priorities for policymakers in Bangladesh.

Climate change and natural disasters are pressing concerns for Bangladesh's future, with the country's geographical location making it highly exposed to extreme weather. Floods frequently impact energy supplies and strain agricultural and manufacturing sectors (OECD/UNCTAD, 2023). Greater awareness of sustainable business practices and greener energy will be essential for

securing a prosperous future for Bangladesh. Investment in infrastructure to mitigate the effects of climate fluctuations is a pressing need.

Digitalization and technological advancement present significant opportunities for improvement and productivity growth. While progress in digitalization has been made, significant gaps persist, as the share of internet usage in Bangladesh is far behind many of the Southeast Asian economies (OECD/UNCTAD, 2023). Greater investment in technology would allow Bangladesh to make productivity gains, particularly in manufacturing, and support higher TFP growth.

R&D progress has not been substantial enough in Bangladesh to generate sustainable economic growth. As FDI is low, the OECD suggests that the private sector should drive R&D investment to support innovation-led growth (OECD/UNCTAD, 2023). The National Science and Technology Policy (2011) was aimed at improving R&D infrastructure by encouraging the private sector to establish R&D centers toward producing quality products (WTO, 2019). Greater R&D investment would help solve the shortage of skilled labor, dependence on foreign technology, brain drain, and emigration of trained manpower (WTO, 2019).

Other priorities for policy include strengthening financial system stability and improving road and water infrastructure. Strong tax administration and compliance could help mobilize the resources needed for such investments.

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CAMBODIA

Cambodia is a relatively small, lower-middle-income nation bordering the Gulf of Thailand. It has a large rural population and relies heavily on its agricultural sector. Since the defeat of the Khmer Rouge in 1979 by Vietnamese troops, Cambodia has aimed to regenerate economic activity through improvements in agriculture, industry, and distribution. While Cambodia's average income level has experienced dramatic growth over the past two decades, it remains very low compared with its neighboring countries (Table 1). The employment rate in 2022 was 62.3%, with a relatively high rate of employment helping to boost average incomes (Table 1).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	16.1	16	1.1	7
GDP (USD billion at PPP)	94	18	3.5	15
GDP per capita (USD at PPP)	5,845	20	2.4	17
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	60	8	58.8	8
Employment rate (%)	61.8	2	62.3	2
Age dependency ratio (%)	54.4	7	54.3	6
Old-age dependency ratio (%)	9.5	15	10.5	12

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	2.6	11	1.7	16
TFP (index)	−0.6	17	−0.6	20
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	3.7	21	3.8	21

Cambodia's labor productivity (LP) level ranked last among APO member economies (Table 2). However, its rate of LP growth during 2010–20 ranked 11th among APO members (Table 2). TFP growth over the same period has been limited, ranking 17th among APO member economies and was negative from the late 2000s to 2020 (Table 2 and Figure 4). This was largely because the rate of LP growth was offset by the decline in capital productivity (Figure 5). LP growth had picked up in the mid-1980s after the fall of the Khmer Rouge, which had hindered any kind of economic reconstruction (Figure 3). However, the pandemic slowed down labor productivity growth (Figure 3). LP growth was −0.32% and 1.18% in 2020 and 2021, respectively (APO, 2024).

Since the end of the Cambodian–Vietnamese War and the Third Indochina War in 1991, Cambodia has experienced rapid economic growth. Strong output growth over the past few decades (Figure 2) has brought about improvements in living standards and a reduction in poverty levels. Between 1994 and 2020, the poverty rate decreased from 53.2% to 13.5% (Kimkong & Koemhong, 2022). Average incomes more than doubled since 1991 (Figure 1), with capital making the largest contribution to this growth. However, TFP has declined and detracted slightly from output growth (Figure 2).

Output growth has decelerated recently (Figure 2), due to a cooling of the extreme catch-up growth following a cease in conflict (this is a common occurrence). The pandemic also contributed to the output slowdown, with the economy contracting 3.6% during 2020 (AMRO, 2024). A fall in exports and tourism due to COVID-19 travel restrictions impacted economic growth (AMRO, 2024). The rate of capital input growth also declined, along with growth in labor input (Figure 2).

Capital deepening has continued despite decelerating recently and has been a major factor behind LP growth, with the capital–labor ratio maintaining positive growth since the mid-1990s (Figure 5). Cambodia's liberal investment regime and incentives supported a steady inflow of investments during 2011–16, with FDI serving as a vehicle for human capital transfer and contributing to productivity growth (Sokang, 2018). However, investment declined during pandemic years due to losses experienced by many firms (AMRO, 2024). This was expected to recover post the pandemic period and monitored by Cambodian policymakers.

Labor quality growth levels have also been low, at an average annual rate of 0.8% during 2020–22. This may be attributed to the decline in education quality due to remote learning in pandemic years. Virtual learning appears to have lowered returns to education and diminished human capital accumulation (AMRO, 2024).

The COVID-19 pandemic also negatively impacted Cambodia's tourism industry, one of its key sources of GDP growth. Commercial services exports had been rapidly increasing pre-pandemic, growing by more than double to USD17.2 billion during 2011–19, but fell below USD2 billion during the pandemic (WTO, 2022). However, merchandise exports remained on an upward trajectory during COVID-19, increasing from USD6.7 billion in 2011 to USD17.2 billion in 2020 (WTO, 2022).

Growth in IT capital has been rapid over the past few decades (Table 3), though starting from a very low base. In the 2010s, IT contributed approximately one-tenth of a percentage point to annual output growth. Improved digitization would help Cambodia harness its underutilized services industry.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	−5.2	1.1	2.1	4.2	2.6	1.7
TFP growth	−7	2.7	1.4	1	−0.6	−0.6
Capital productivity growth	−7.7	4	2	−1	−2.1	−2.6
Output growth	−5.9	4.4	6.7	8.1	5.2	3.6
Combined inputs growth	1.2	1.8	5.3	6.9	5.7	4.1

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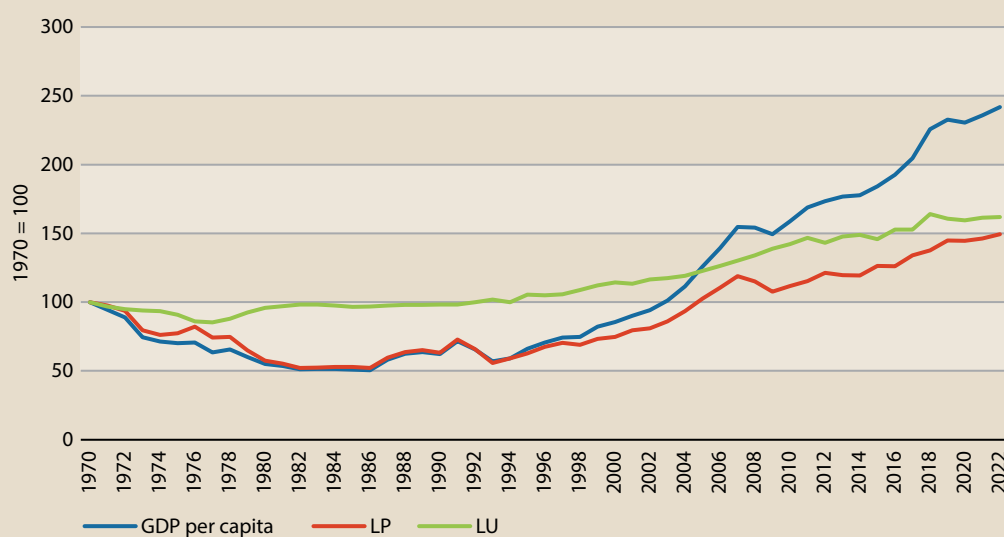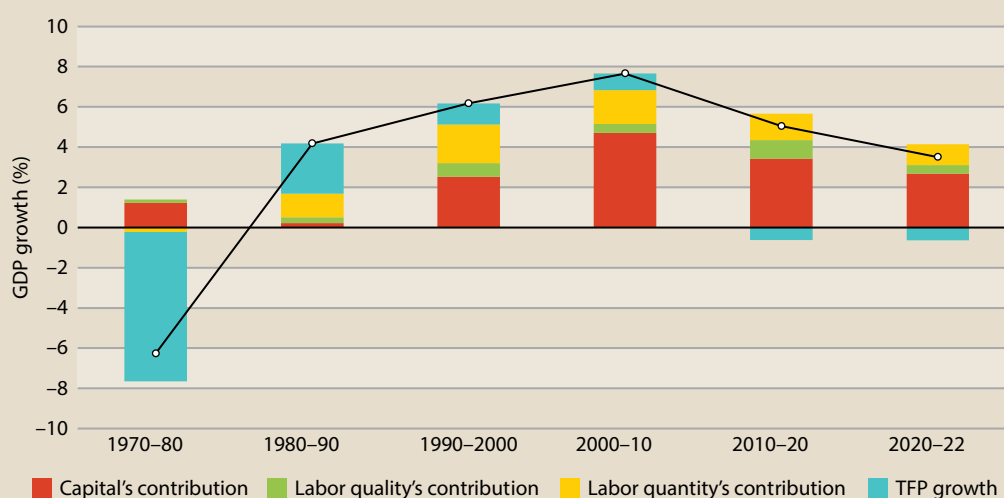| Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Capital growth	1.9	0.4	4.7	9.2	7.5	6.3
IT capital growth	−20.8	−1.2	25.6	17.5	24.8	−0.2
Hours worked growth	−0.7	3.2	4.6	3.7	2.5	1.9
Labor quality growth	0.5	0.8	1.6	0.9	1.9	0.8
Capital deepening	1.7	−1.8	−0.1	2.7	2.1	1.7

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.

FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.
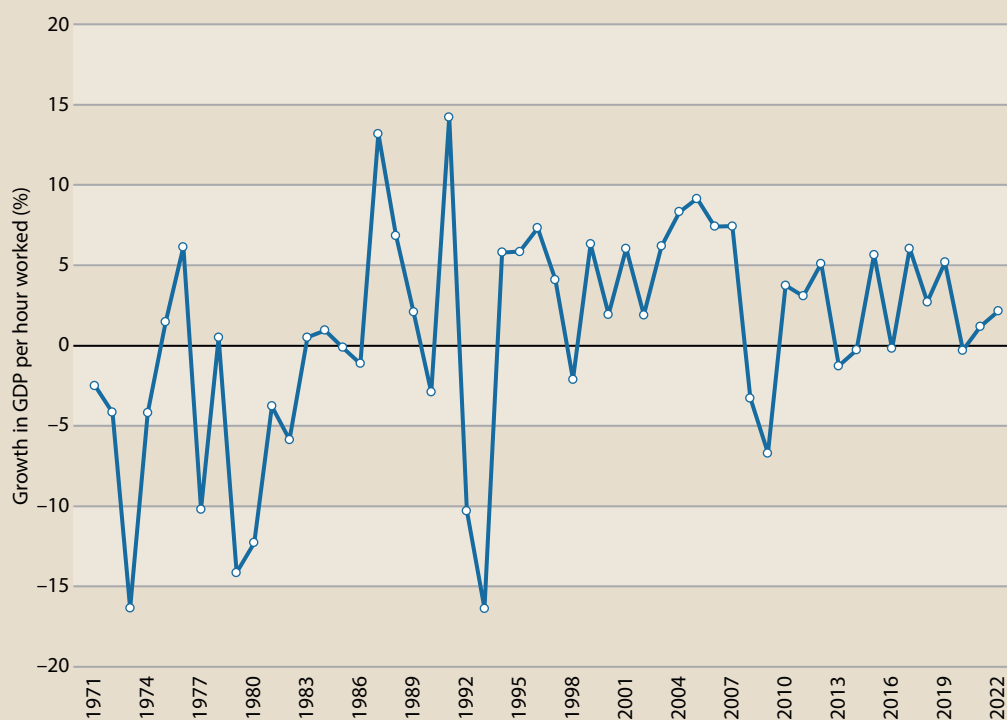
FIGURE 3

LABOR PRODUCTIVITY GROWTH.
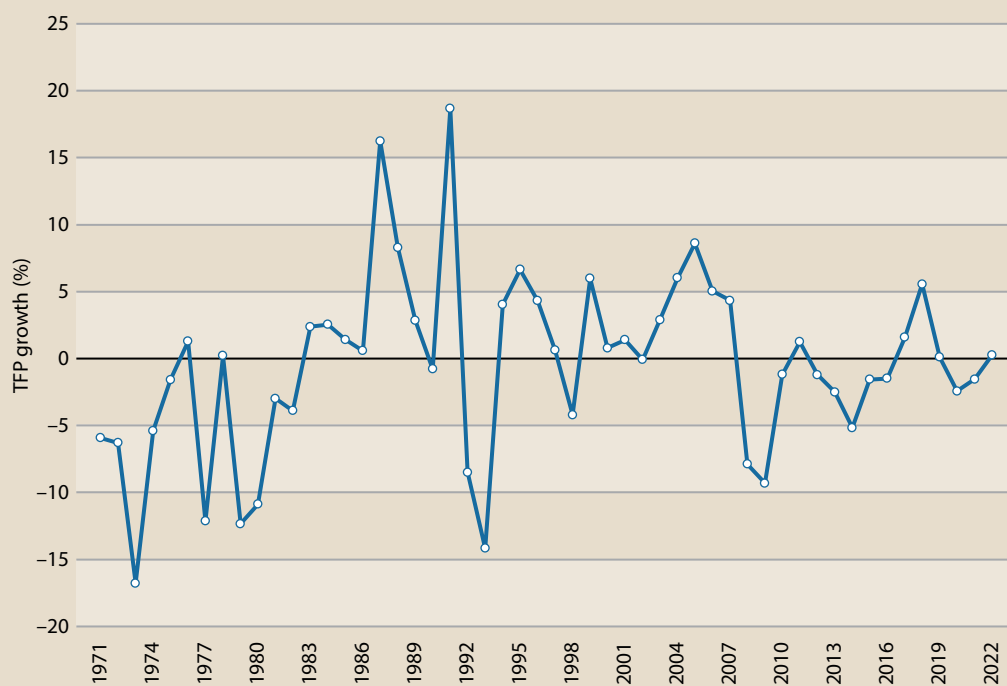

FIGURE 4

TFP GROWTH.
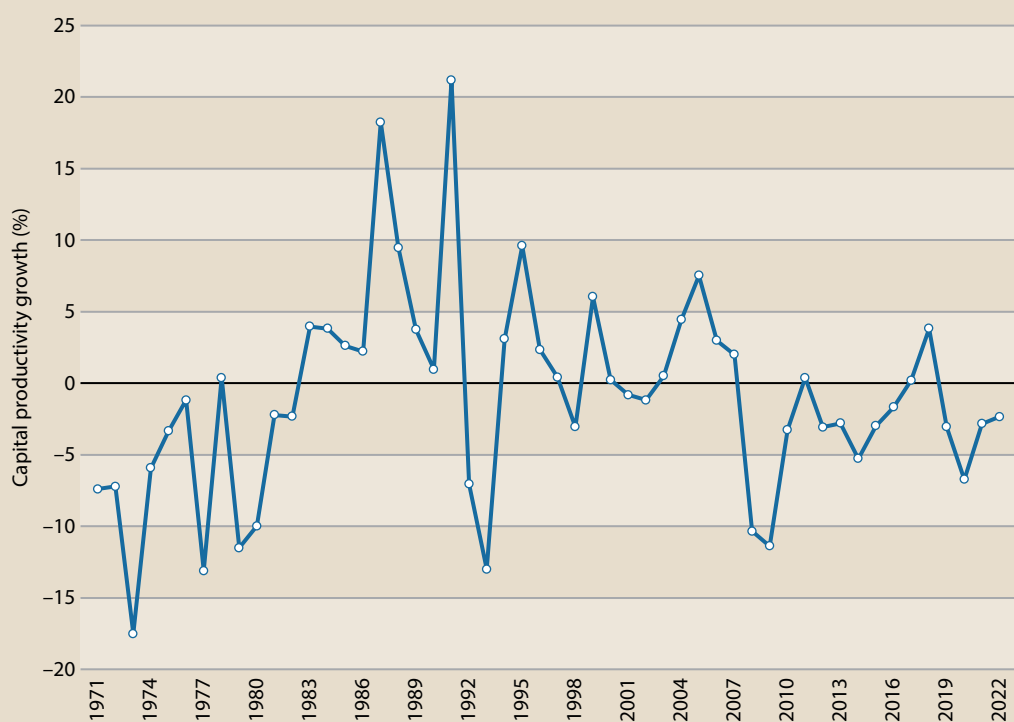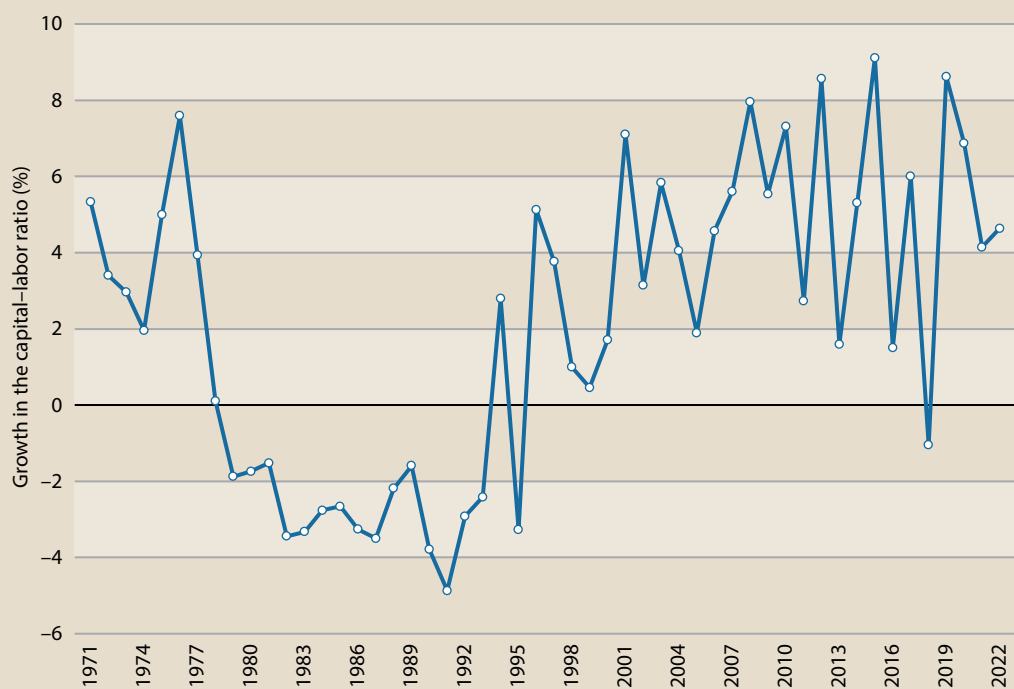
FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Since the defeat of the Khmer Rouge and the conclusion of the civil war, Cambodia has faced challenges in building its capital stock, which, until recently, remained small relative to its GDP. Despite consistent capital accumulation, Cambodia ranks 20th among 21 APO member economies in terms of capital-to-GDP ratio (Table 4.0). The contribution of IT capital has remained minimal. This is consistent with Cambodia's concentration of production in industries that rely on low-skilled labor, such as garment manufacturing.

Cambodia lags far behind more advanced APO member economies in terms of human capital and labor quality. Labor quality growth has slowed over the past decade and contributed negatively to LP growth in 2022 (Table 4.1). Mean years of schooling is extremely low at 4.6 years, and Cambodia performs poorly on all other education indicators (Table 6; WEF, 2024). Cambodia ranks 20th among APO member economies on the WEF's Current Workforce indicator, and 15th on the Entrepreneurial culture indicator (Table 4.2). Improvements in the quality of vocational training are needed to address skill mismatches in the workforce and unlocking Cambodia's productivity potential through human capital.

Cambodia's access to technologies is limited, ranking 18th among APO member economies. It performs best in mobile-broadband subscriptions in terms of ICT adoption indicators (WEF, 2024). This likely reflects its openness to FDI, which averaged 11.8% of GDP in the period 2014–19. It also performs poorly on the NRI People index, which tracks the tertiary enrollment rate and indicators such as adult literacy rate, ICT skills, staff training, and ICT use by the government (Table 4.2). This may be a reflection of its limited education sector.

While the manufacturing sector has grown, agriculture still contributes a relatively large share of GDP and total employment. In 2022, agriculture accounted for 34.6% of total employment, compared with manufacturing, which accounted for 8.7% (Table 4.0). The low cost of labor in Cambodia has allowed it to cement a place in GVCs through growth in garment manufacturing, but this role remains confined to lower value-added activities. There is very little activity in medium- and high-technology manufacturing, which accounted for just 0.3% of total manufacturing in 2022 (Table 4.0).

The value of exports and imports in Cambodia continued to grow over the past decade, with total merchandise and commercial services exports amounting to approximately USD20 billion in 2019 (WTO, 2022). Textiles and clothing represented 46.7% of Cambodia's goods exports in 2020. Over the past decade, Cambodia recorded a surplus in commercial services trade, but this was offset by deficits in merchandise trade. The trade deficit stood at USD2.1 billion in 2020 (WTO, 2022).

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combined the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability (Table 5). These

indices have scores up to 100. They provide broad indications of where economies stand on productivity determinants, along with their overall productivity readiness.

Cambodia has a Productivity Readiness Index value of 26, placing it 13th among APO member economies, with relatively low scores across the motivation, capabilities, and efficiency of markets subindices. Stability should be a particular priority for policymakers, as it received Cambodia's lowest score (16th) among the four overarching themes.

Underlying Determinants: Specific Strengths and Weaknesses

Cambodia has taken steps to liberalize trade and encourage foreign investment, which have supported the rapid pace of its economic development in recent decades. However, more work remains to be done in other important areas, including regulatory and institutional reforms.

Indicators of Cambodia's education and health systems demonstrate a need for substantive improvement to realize human capital gains. Life expectancy at birth is low at 70.7 years, 14.8 years behind the APO leader. While infant mortality has decreased since 2017, it remains high at 23.7 deaths per 1,000 live births (World Bank, 2025). Despite recent improvements, Cambodia remains well behind higher-income APO member economies in terms of quality of primary education, and on all skills measures. It ranks 19th among 21 APO economies on the WEF Future Workforce indicator, with relatively low scores on the quality of education.

Cambodia scores poorly on indicators of institutional development and the regulatory environment, both of which are crucial underlying determinants of long-term economic development and productivity. Cambodia's institutions are ranked 123rd out of 141 WEF economies, with extremely high levels of corruption (scoring 20/100, where 100 indicates no corruption). It also ranks last among 21 APO member economies on the World Bank WGI "Control of corruption" indicator. Political stability, rule of law, government effectiveness, and institutions all score below average, indicating the deficiencies in the country's legal and administrative systems.

Infrastructure is another weak point. Cambodia ranks 18th among APO member economies on the WEF Infrastructure index. Despite the opening of a new airport in Siem Reap in 2023, inefficiencies in air transport services remains a major issue.

Cambodia's business environment performs very poorly, achieving below-average scores on almost all indices. It ranks 16th among APO member economies on "Business freedom," 16th on "Domestic competition" and third on "Tax burden," demonstrating high barriers and hindrances to business. The labor market also faces restrictions, with Cambodia ranking 10th among APO member economies on the WEF Labor Market Index and 18th on the Labor Freedom Index.

Cambodia scores average on "Trade Openness," ranking 14th among APO member economies. It performs relatively better on trade indices such as "Trade Freedom" and "Trade Globalization," ranking 11th and 12th, respectively.

Improving the regulatory and business environment could help Cambodia continue to attract large volumes of FDI. In 2019, Cambodia's stock of FDI represented 127% of its GDP, placing it fourth among APO members, behind Hong Kong, Singapore, and Mongolia.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	2.3	21	2.3	20
Agriculture share of GDP (%)	Asian Productivity Organization	Open	22.5	2	22.1	4
Agriculture share of employment (%)	Asian Productivity Organization	Open	34.5	6	34.6	6
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	16.1	14	18.7	12
Manufacturing share of employment (%)	Asian Productivity Organization	Open	8.2	17	8.7	18
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	0.3	21	0.3	21
Exports/GDP (%)	Asian Productivity Organization	Open	60.6	5	65.6	6
Imports/GDP (%)	Asian Productivity Organization	Open	62	4	59	8

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	2	2	1.9	5
IT capital deepening (pp)	Asian Productivity Organization	Open	0	13	0	17
Labor quality contribution to LP growth	Asian Productivity Organization	Open	−0.1	19	0.4	6

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	37.2	2019	20	38.9
Entrepreneurial culture	WEF	0–100	49.6	2019	15	20.8
Availability of latest technologies	WEF	1–7	4.3	2017	= 13	2
NRI Technology index	Portulans Institute	0–100	28	2024	18	43.2
NRI People index	Portulans Institute	0–100	33.6	2024	15	45.6

TABLE 5

VALUES OF OVERARCHING INDICES FOR CAMBODIA.

Index	Value	APO Rank
Motivation	23	14
Capabilities	38	12
Efficiency of markets	34	13
Stability	12	16
Productivity Readiness Index	26	13

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.5	2017	= 15	2.3
Quality of primary education	WEF	1–7	3	2017	20	3.2
Future workforce	WEF	0–100	48.1	2019	19	33.3
Education expenditure/ GDP (%)	World Bank	Open	1.7	2021	18	4.3
Innovation capability index	WEF	0–100	30.9	2019	17	49.3
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	61.2	2021	19	38.8
Infrastructure index	WEF	0–100	54.9	2019	18	40.5
HF Business Freedom	Heritage Foundation	0–100	54.7	2024	16	32.2
Administrative requirements	WEF	0–100	43.5	2019	19	49.6
Domestic competition	WEF	0–100	46.2	2019	16	28.6
HF Tax Burden	Heritage Foundation	0–100	88.8	2024	= 3	1.9

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.7	2022	17	2.9
Labor market index	WEF	0–100	60.3	2019	10	20.9
HF Labor Freedom	Heritage Foundation	0–100	47.4	2024	18	29.9
NRI Governance index	Portulans Institute	0–100	36.6	2024	18	50.3
Financial system index	WEF	0–100	56.4	2019	15	35
IMF Financial Markets	IMF	0–1	0	2021	19	0.9
HF Financial Freedom	Heritage Foundation	0–100	50	2024	= 9	30
Life expectancy at birth (years)	UN data	Open	70.7	2023	16	14.8
Infant mortality (deaths/1000 live births)	WEF	Open	24.6	2017	6	41.2
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	70.7	2021	6	20.9
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	66	2021	5	19.5
FDI stock/GDP (%)	UNCTAD	Open	150.9	2022	4	430
HF Investment Freedom	Heritage Foundation	0–100	50	2024	= 11	40
Trade openness	WEF	0–100	50.8	2019	14	37.9
HF Trade Freedom	Heritage Foundation	0–100	70.8	2024	= 11	24.2
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	52.7	2021	12	43.3
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	46.9	2021	15	46
Macroeconomic stability index	WEF	0–100	74.9	2019	12	25.1
HF Monetary Freedom	Heritage Foundation	0–100	71.5	2024	8	10.2
Gross savings/ GDP (%)	World Bank	Open	25.8	2023	14	16.9
Institutions index	WEF	0–100	41.9	2019	20	38.5
IMF Financial Institutions	IMF	0–1	0.4	2021	15	0.5
Political stability	World Bank WGI	–2.5 to 2.5	0	2022	11	1.5
Rule of law	World Bank WGI	–2.5 to 2.5	–0.9	2022	20	2.6
Control of corruption	World Bank WGI	–2.5 to 2.5	–1.2	2022	21	3.3
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.4	2022	14	2.5
Social capital	WEF	0–100	43.9	2019	19	19.3
Voice and accountability	World Bank WGI	–2.5 to 2.5	–1.3	2022	19	2.4

Challenges Ahead

Cambodia's vulnerability to climate-related natural disasters, including floods and droughts, presents significant concerns for future stability and prosperity. Climate change is expected to endanger 10% of GDP by 2050 due to more frequent natural disasters and their impact on agriculture and fisheries (OECD, 2024). With 80% of Cambodia's population living in rural regions, and agriculture and fisheries accounting for half of the country's labor force, climate action is essential to mitigate future risks. Higher government fund allocation for climate risk assessment and management is needed, along with improved data collection for risk reduction planning (OECD, 2024).

Education presents another significant productivity challenge, particularly given the diminishing returns to education during the pandemic. The perceived low social status and modest income of

teachers limits Cambodia's ability to recruit academically competent educators (Kimkong & Koemhong, 2022). Improvements are needed in education for the nation to strengthen human capital and achieve productivity gains.

The impact of COVID-19 on the tourism industry underscored Cambodia's need for economic diversification. The services sector accounted for nearly 40% of GDP value added in 2016, followed by agriculture, fisheries, and forestry at 25.7% (WTO, 2017). While growth in services would have revived in 2024 as travel restrictions were eased, sectoral change could support growth. In 2020, Cambodia had experienced a sectoral shift away from tourism toward delivery and logistics, agriculture, and wholesale and retail trade (AMRO, 2024). Continued export diversification would help reduce reliance on large Asian consumers and international tourism.

Trade openness and strong FDI flows are assets that Cambodia needs to leverage to improve productivity performance. Reducing corruption, improving government administration efficiency, strengthening tax administration, and raising skill levels will be key to achieving this.

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REPUBLIC OF CHINA

The Republic of China (ROC) has an advanced, trade-driven economy that has experienced consistent growth since the 1970s. The ROC is considered a high-income economy by the World Bank, with a higher per capita income than all other Asian economies except Japan, the Republic of Korea (ROK), and Singapore. Manufacturing has remained the dominant industry in terms of employment, while also accounting for 20% of GDP in 2022 (APO, 2024). Over the past half-century, the ROC has emerged as one of the most important ICT manufacturers globally, producing over 60% of the world market's personal computers in 2002 and leading in semiconductor production (Wang, 2007).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	23.3	14	-0.6	20
GDP (USD billion at PPP)	1,617.6	6	4.4	11
GDP per capita (USD at PPP)	69,532.1	2	5.2	10
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	29.5	14	29.4	14
Employment rate (%)	50.1	8	50.3	9
Age dependency ratio (%)	40.2	19	42.2	19
Old-age dependency ratio (%)	22.5	3	25	3

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	2	14	4.6	7
TFP (index)	1.1	2	2	12
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	60.9	3	66.5	3

Labor productivity (LP) per worker in the ROC remains third highest among APO member economies, behind only Singapore and Hong Kong. While the ROC is considered one of the Asian Tigers that lead productivity growth, the USA maintains a sizable gap over APO member economies in terms of labor productivity performance. LP growth has slowed in recent decades from average annual growth of 6.9% in the 1980s and 5.9% in the 1990s to only 2% in the 2010s (Table 3). Total

factor productivity (TFP) has been robust despite slowing in recent years, averaging 1.1% annual growth in the 2010s (Table 3). This TFP growth, alongside the ROC's ability to adapt to the positive demand shocks induced by COVID-19, supported long-run output growth and a short-term acceleration in LP (APO, 2024).

The ROC has been experiencing catch-up growth since its transition from an agrarian to a manufacturing-based, trade-oriented economy. Manufacturing's share of GDP has trended upward, accounting for 34.3% of output in 2022, while services have shown a slight decline (WTO, 2023). The ROC's dynamic ICT manufacturing industry, as a global leader in semiconductor manufacturing, is the result of the government's efforts to promote technology transfer and invest in higher education during the early 1970s (Crotty, 2024; Song, 2000). Today, the ROC has a strong competitive advantage as one of the most advanced ICT manufacturing powerhouses. However, output growth has declined significantly in recent decades (Figure 2) due to a slowing catch-up growth.

During 1970–2022, the ROC's average annual catch-up rate to the USA was over 3%, the highest among APO member economies other than the ROK. Growth in average incomes has been strong and consistent over the past half-century, with LP growth being the main contributor (Figure 1). This is demonstrative of the ROC's demographic dividend, a period of high economic growth driven by an increased share of employment due to a population boom. However, an aging population will present future challenges to sustaining both economic and productivity growth.

Capital contribution to output growth has decreased significantly recent decades, particularly in the 2010s (Figure 2). This is consistent with the evidence suggesting diminishing returns to capital investment as GDP convergence occurs (Hsiao & Hsiao, 2004). Contributions from labor input continued to grow over the recent decades, though the pandemic and an aging population have impacted labor contribution levels in recent years. Labor quality and TFP's contributions have also been rising significantly (Figure 2).

Technological catch-up in the ROC occurred rapidly and dramatically, improving manufacturing capabilities and facilitating productivity growth. IT capital growth exploded between 1970-2000 before normalizing to an average annual rate of 3% in the 2010s (Table 3). This can be attributed to cross-border mobility of experts, the return of foreign-educated nationals and the use of alliances to gain knowledge in the ROC (Song, 2000). The role of human mobility in transferring tacit knowledge and innovation-driven growth has been fundamental in the catch-up growth of the ROC into an internationally competitive nation.

TFP improvements also made significant contributions to output growth in the course of the ROC's development. TFP grew by an average of 2.9% a year from 1970 to 2000, stronger than in the other three East Asian Tiger economies of Hong Kong, the ROK, and Singapore. TFP growth averaged 1.0% and 1.1% in the 2000s and 2010s, respectively, making an increasingly important contribution to output growth in recent years (Table 3 and Figure 2).

The COVID-19 pandemic disrupted supply chains, reducing the volume of exports to the USA. However, higher prices offset this decline, with the ROC realizing a net increase in the value of machinery and electronics exports during the period (Crotty, 2024). In recent years, diversification to trading partners such as ASEAN member states, South Asia, New Zealand and Australia, in an

effort to reduce reliance on trade with PR China, has been in focus. The New Southbound Policy (2016) aimed to diversify the ROC's economy and deepen its regional integration through economic collaboration, resource sharing, and human capital exchanges (Crotty, 2024). This diversification has helped strengthen the ROC's economy and build resilience against future macroeconomic shocks.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	7.6	6.9	5.9	3.9	2	4.6
TFP growth	4.7	4.4	3	1.9	1.1	2
Capital productivity growth	2.7	2.4	0.7	1.7	1.3	1.2
Output growth	11.2	9	7	4.3	2.9	4.5
Combined inputs growth	6.1	4.4	3.9	2.3	1.8	2.4
Capital growth	8.3	6.5	6.3	2.6	1.7	3.3
IT capital growth	20.8	21.8	22.9	4.8	3	5
Hours worked growth	3.4	2	1.1	0.4	1	0
Labor quality growth	1.1	0.9	1.1	1.8	1	1.5
Capital deepening	2.1	1.9	2.1	1	0.4	1.7

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
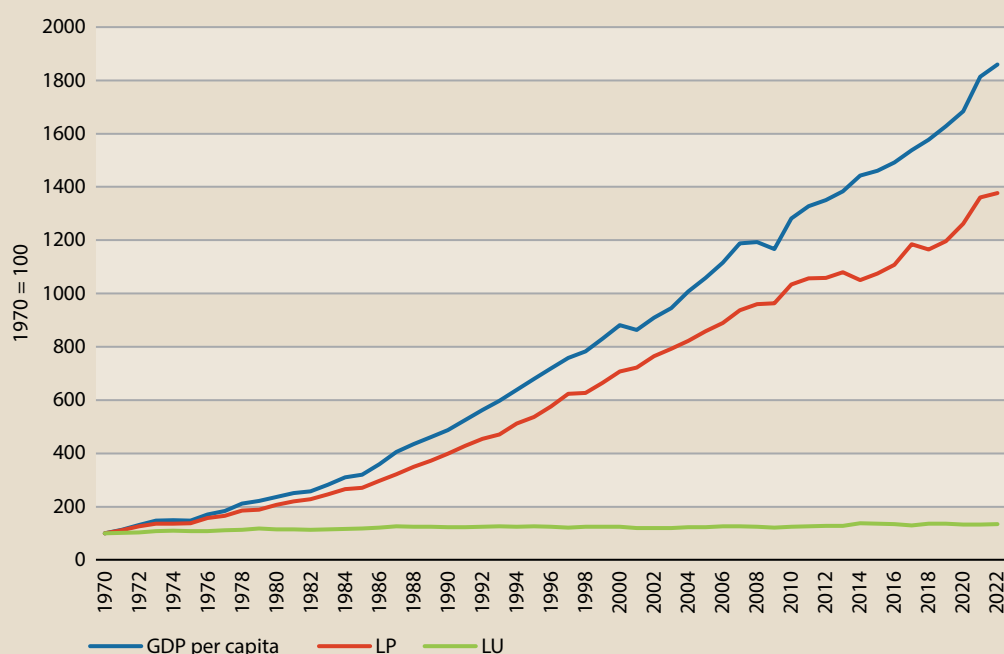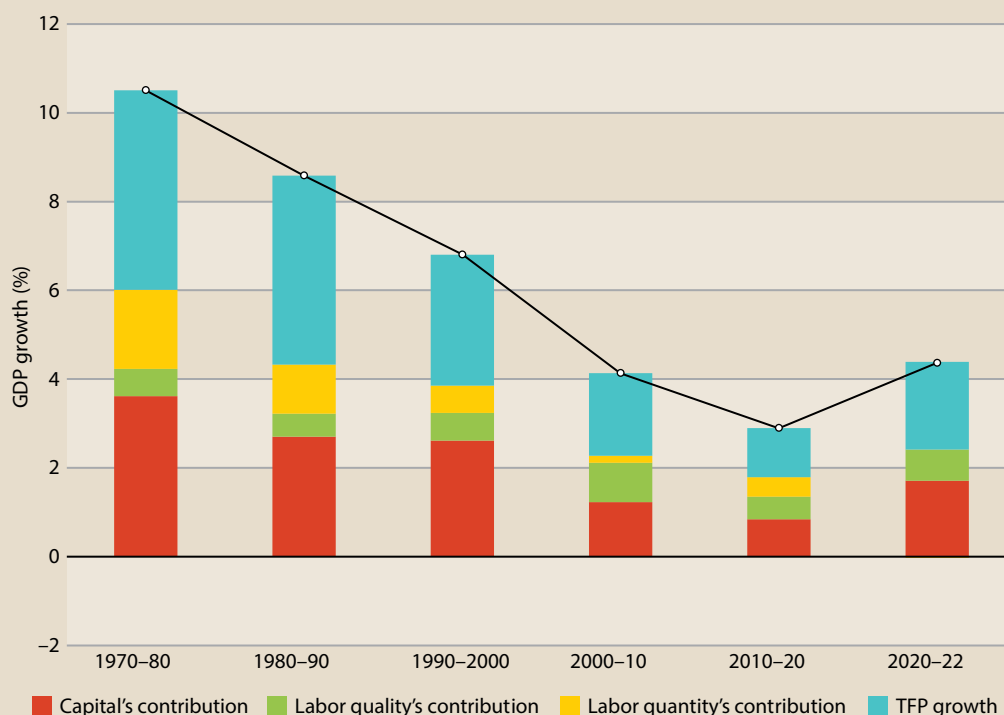
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

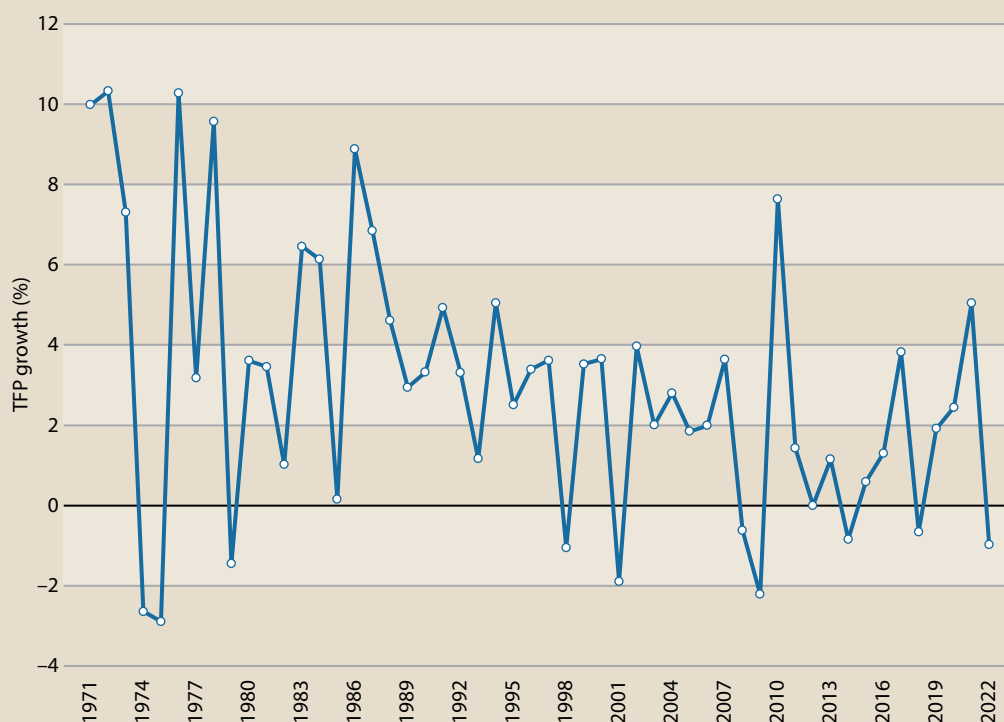**FIGURE 4**

TFP GROWTH.

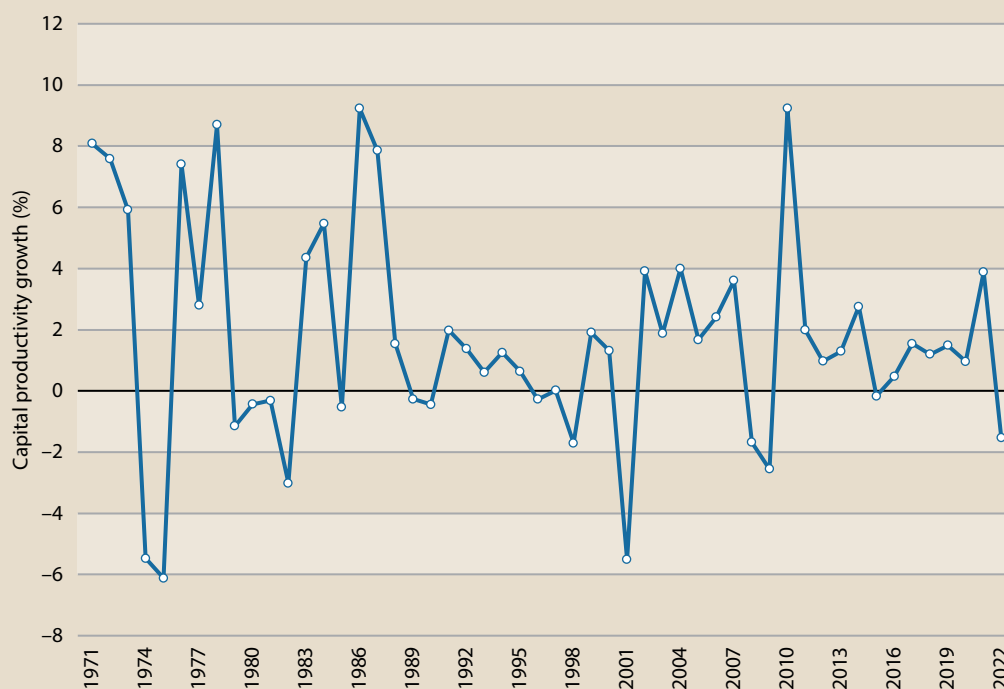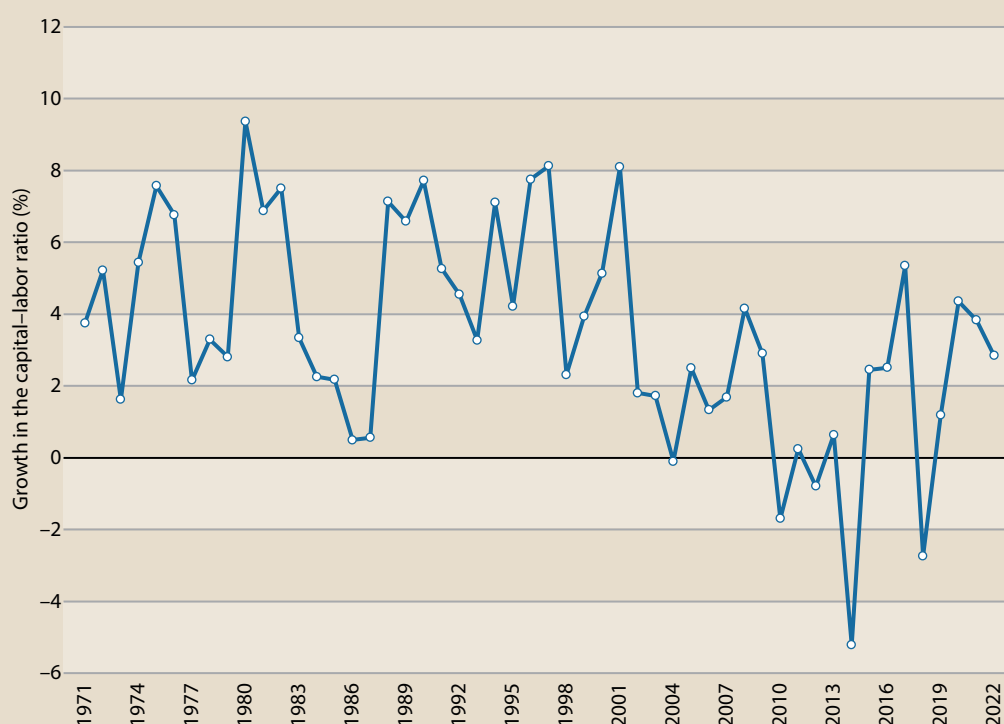**FIGURE 5**

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Values for the indicators of immediate determinants are set out in Tables 4.0, 4.1 and 4.2. The capital–GDP ratio of 7.2 in the ROC was the third highest among APO economies in 2022. Capital accumulation slowed in the 2010s following several decades of strong growth, with a decline in the ratio of capital to hours worked weighing upon the LP growth. Capital deepening (pp) averaged 1.7 between 2020–22, while IT capital deepening (pp) averaged just 0.1 over the same period (Table 4.1). This lack of growth in IT capital compared with hours worked hindered LP growth. In contrast, skills continue to improve. The ROC ranked fifth on the WEF Current Workforce indicator in 2019, a measure of schooling and workforce skills.

Manufacturing represented a significant share of employment (26.4% in 2022) and accounted for 34.3% share of GDP (Table 4.0). The medium- and high-tech share of manufacturing was 74.5% in 2022, highlighting the ROC's leading capabilities in IT manufacturing, particularly in semiconductors. The ROC is also a highly open economy. The combined value of its exports and imports represented almost 130% of GDP in 2022, consistent with its participation in GVCs.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants with the overarching indices for motivation, capabilities, efficiency of markets, and stability. These indices provide broad indications of where countries stand on productivity determinants, along with their overall productivity readiness.

Sufficient data were not available to calculate the indices and the overall Productivity Readiness Index for the ROC.

Underlying Determinants: Specific Strengths and Weaknesses

The ROC has high-quality institutions and infrastructure, as well as effective innovation and education systems. Its regulatory environment is also generally of high quality, though there is still room for improvement in certain areas.

The ROC performs well on forward-looking indicators of workforce skills, e.g., the WEF Future Workforce Indicator, where it ranked second among APO member economies in 2019, just behind Singapore. This reflects the high quality of its education system, given that it also ranked second on the "quality of primary education" (Table 6).

The ROC has an advanced innovation system, ranking first among APO economies on the WEF Innovation Capability Index. The sub-indicators for the Innovation Capability Index reveal that the ROC benefits from extensive collaboration between businesses and research organizations, given its well-developed clusters of firms and specialized institutions. The sub-indicators also show that R&D spending is relatively high, as reflected in the number of patent applications with foreign-based coinventors. The ROC's research institutions are also well regarded. Given the ROC's high-quality education system, its advanced technological manufacturing capacity, and the authorities' commitment to innovation, ICT skills and technologies are on par with the APO's leading economies (Table 4.2).

The ROC ranked fifth on the WEF Infrastructure Index in 2019, which is reflective of an effective transportation and utilities infrastructure. Lower scores on the country's road connectivity and reliability of drinking water bring down its score on the infrastructure index.

The ROC has a well-functioning and effective financial system, reflected in its high scores on the WEF Financial System Index (third among APO member economies); the Financial Freedom Index (second); and Investment Freedom Index (second). The ROC, however, performs poorly in terms of FDI stock-to-GDP ratio, ranking 14th among APO member economies. This reflects room for improvement in restrictions on foreign investments and FDI inflows.

Success in opening the ROC's economy to trade is reflected in parameters such as the WEF Trade Openness indicator, on which the ROC ranks fourth among APO member economies. The ROC also ranks second on Trade Freedom, though tariffs are higher and the tariff regime is more complex than in the best-performing high-income APO economies. However, the ROC has relatively low non-tariff barriers to trade and has relatively efficient border clearance processes, thereby enhancing its competitiveness in GVCs.

Sound macroeconomic policies have proved effective in keeping inflation and debt stable, helping the ROC navigate the global economic crisis triggered by the COVID-19 pandemic. The ROC also

benefits from having an advanced financial system and effective institutions, ranking fourth on the WEF Institutions pillar in 2019. This reflects political stability, low incidences of corruption, and strong protection of property rights and the rule of law. The public sector is, in general, high performing. However, the framework for resolving legal disputes is less efficient than in other high-income APO member economies such as Singapore.

High-quality regulations and a flexible labor market enhance the business environment. However, the time and cost of starting a business are greater than in Singapore and Hong Kong, while the legal framework for insolvency is less effective than in Japan and the ROK. Further, although competition is relatively strong, the ROC's tax and transfer system is perceived to be more distortionary than in Singapore and Hong Kong, the two best performing APO economies on the WEF Domestic Competition indicator.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	7.9	6	7.2	3
Agriculture share of GDP (%)	Asian Productivity Organization	Open	1.6	18	1.4	18
Agriculture share of employment (%)	Asian Productivity Organization	Open	4.8	18	4.6	18
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	32.2	1	34.3	1
Manufacturing share of employment (%)	Asian Productivity Organization	Open	26.4	1	26.4	1
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	71.4	2	74.5	2
Exports/GDP (%)	Asian Productivity Organization	Open	58.1	6	69.9	5
Imports/GDP (%)	Asian Productivity Organization	Open	44.4	9	57.7	9

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	1.5	7	1.7	6
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	7	0.1	11
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.7	3	0.7	2

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	71.6	2019	5	4.5
Entrepreneurial culture	WEF	0–100	60.2	2019	6	10.2
Availability of latest technologies	WEF	1–7	5.6	2017	= 4	0.7
NRI Technology index	Portulans Institute	0–100	NA	2024	NA	NA
NRI People index	Portulans Institute	0–100	NA	2024	NA	NA

TABLE 5

VALUES OF OVERARCHING INDICES FOR ROC.

Index	Value	APO Rank
Motivation	NA	NA
Capabilities	NA	NA
Efficiency of markets	NA	NA
Stability	NA	NA
Productivity Readiness Index	NA	NA

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4.5	2017	5	1.3
Quality of primary education	WEF	1–7	5.4	2017	= 2	0.8
Future workforce	WEF	0–100	80.8	2019	= 2	0.6
Education expenditure/ GDP (%)	World Bank	Open	NA	2021	NA	NA
Innovation capability index	WEF	0–100	80.2	2019	1	0
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	NA	2021	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Infrastructure index	WEF	0–100	86.7	2019	5	8.7
HF Business Freedom	Heritage Foundation	0–100	84.9	2024	3	2
Administrative requirements	WEF	0–100	85.9	2019	5	7.2
Domestic competition	WEF	0–100	67.9	2019	5	6.9
HF Tax Burden	Heritage Foundation	0–100	79.2	2024	13	11.5
Regulatory quality	World Bank WGI	−2.5 to 2.5	1.4	2022	4	0.8
Labor market index	WEF	0–100	72.7	2019	3	8.5
HF Labor Freedom	Heritage Foundation	0–100	69.1	2024	= 2	8.2
NRI Governance index	Portulans Institute	0–100	NA	2024	NA	NA
Financial system index	WEF	0–100	88.4	2019	3	3
IMF Financial Markets	IMF	0–1	NA	2021	NA	NA
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20
Life expectancy at birth (years)	UN data	Open	80.6	2023	5	5
Infant mortality (deaths/1000 live births)	WEF	Open	4.4	2017	16	61.4
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	NA	2021	NA	NA
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	NA	2021	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
FDI stock/GDP (%)	UNCTAD	Open	18	2022	14	563
HF Investment Freedom	Heritage Foundation	0–100	70	2024	= 2	20
Trade openness	WEF	0–100	64.8	2019	4	23.9
HF Trade Freedom	Heritage Foundation	0–100	86.4	2024	2	8.6
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	NA	2021	NA	NA
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	NA	2021	NA	NA
Macroeconomic stability index	WEF	0–100	100	2019	= 1	0
HF Monetary Freedom	Heritage Foundation	0–100	80.1	2024	2	1.6
Gross savings/ GDP (%)	World Bank	Open	38.9	2023	3	3.8
Institutions index	WEF	0–100	68.6	2019	= 4	11.8
IMF Financial Institutions	IMF	0–1	NA	2021	NA	NA
Political stability	World Bank WGI	−2.5 to 2.5	0.8	2022	5	0.7
Rule of law	World Bank WGI	−2.5 to 2.5	1.3	2022	4	0.5
Control of corruption	World Bank WGI	−2.5 to 2.5	1.1	2022	4	0.9
Government effectiveness	World Bank WGI	−2.5 to 2.5	1.4	2022	4	0.7
Social capital	WEF	0–100	57.4	2019	3	5.8
Voice and accountability	World Bank WGI	−2.5 to 2.5	1.1	2022	1	0

Challenges Ahead

Moving forward, continued productivity growth will be crucial in the ROC's economic growth as capital stock accumulation loses its ability to increase output levels in the long run. Innovation-driven growth will be critical in the ROC's ability to move from a catch-up economy to a cutting-edge one. Economic liberalization and an increase in the scale of private firms in the industrial structure will support this shift toward innovation-based growth. However, the ROC's aging population presents issues for output growth, given the large share of growth attributed to labor input growth (APO, 2024). Increasing labor productivity, measured as output per worker, will be critical in maintaining high levels of TFP as the labor participation rate declines.

The ROC economic slowdown, with growth declining to 1.4% in 2023 compared with 2.6% in 2022, as well as negative TFP growth in 2022 at –0.98% raised questions about its future prosperity and strength of national defense (Min-Hua, 2024). The approaching Trump presidency also presented potential challenges, a USA–PR China tensions could increase pressure on the ROC's defense spending, straining the economy, and create uncertainty around tariffs that could disrupt regional exports (Satake, 2024).

Continued diversification of the economy will become essential in coming years. PR China's real estate crisis, slowing household consumption, government debt, and conflict with the USA may make it an unreliable trading partner for the ROC in the future (Min-Hua, 2024). A new growth model that is not reliant on exports to PR China will be required to sustain another 30 years of economic growth like the ROC has recently witnessed. This may be achieved with a focus on the underutilized services sector, continued diversification of trading partners throughout Asia and the Pacific, and ongoing technological advancement.

The impressive investment in skills should also be a continued focus of policymakers.

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FIJI

Fiji is an island nation with a population of around 936,000. The nation is an archipelago of 332 islands, of which only 110 are permanently inhabited. Its economy is heavily reliant on the ocean, with maritime-based tourism and fisheries forming the backbone of output. Agriculture remains a crucial sector in terms of GDP value added. The COVID-19 pandemic severely impacted Fiji's economy, given its reliance on the tourism sector, as pre-COVID-19, tourism accounted for almost 40% of Fiji's GDP and 35% of employment (OECD, 2022). Fiji has a relatively young and largely rural population, with one of the largest and youngest labor forces in the Pacific region. Declining labor productivity is of growing concern for Fiji, and reflective of the significant impact of natural disasters and the pandemic.

TABLE 1
CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	0.9	21	0.5	14
GDP (USD billion at PPP)	13.7	21	6.6	6
GDP per capita (USD at PPP)	14,685.1	11	7	4
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	42.8	12	41.8	12
Employment rate (%)	36	17	37.8	16
Age dependency ratio (%)	53.2	8	52.7	8
Old-age dependency ratio (%)	8.5	16	9	16

Productivity Performance

TABLE 2
QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	0.8	19	4.4	9
TFP (index)	0.4	9	6.4	1
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	19.1	11	20.6	10

Fiji's productivity growth has lagged behind other APO member economies over the past few decades. Fiji has experienced minimal growth in labor productivity (LP), especially during the 2010s. LP fell sharply during the pandemic years (Figure 5), with a 15.3% decline in 2020 and a 6.5% decline in 2021 (APO, 2024). After almost no growth in the 2000s, TFP rebounded strongly

after 2020 (Figure 4), growing at an average annual rate of 6.4% during 2020–22 (Table 3). Fiji went from ranking ninth among APO member economies in the 2010–20 period to first in 2020–22 in terms of TFP (Table 2). This may be due to Fiji being one of the first Pacific nations to reopen its borders after the pandemic to stimulate its tourism-based economy.

Since gaining independence from the UK in 1970, Fiji has experienced volatile output growth, with significant downturns during the 2000s and 2010s (Figure 2). Sugar exports in the post-colonial period helped lift Fiji from a relatively poor status to the middle-income status. GDP per capita has experienced strong, sustained growth over the past half-century, increasing by over 200% due to strong growth in manufacturing and tourism sectors (Figure 1). Fiji has successfully created a flourishing tourism industry that utilizes Fiji's surrounding oceans to attract international visitors and increase output levels. However, it has not achieved the levels of capital or productivity growth seen in larger Asian economies which has propelled them to higher income levels (Table 3).

Fiji has harnessed strong output growth through agricultural industry development, with sugar exports constituting 51% of exports in 2018 and providing employment to over 200,000 people (Akram-Lodhi, 2000; WTO, 2023). However, in recent years, the economy's heavy reliance on agriculture, fisheries, and tourism made it highly vulnerable to natural disasters and the COVID-19 pandemic (Igbal, 2022). Fiji's lack of infrastructure, small size, and archipelagic geography make the impacts of natural disasters like droughts, heavy rainfall, and floods more detrimental to its economy. Fiji experienced three cyclones during the pandemic years, with the economic output dropping by a record at –17% in 2020 (WTO, 2023). The EU's preference scheme in 2017 also negatively impacted the agricultural sector. Combined, these factors have resulted in a drop in sugar exports in recent years (WTO, 2023).

Fiji's economy remains vulnerable to macroeconomic shocks, particularly its tourism sector. COVID-19 travel restrictions wiped out 40% of Fiji's economy, with 100,000 job losses (WTO, 2023). The Fiji government is seeking to develop a new National Sustainable Tourism Framework to replace the Fijian Tourism 2021 Development Plan for ensuring continued growth in the sector to support output growth (WTO, 2023).

A period of strong investment after independence saw capital expand at a rate faster than hours worked in the 1970s (Figure 6). This helped lift LP, which rose by an average of 1.4% a year over the decade (Figure 3). Investment then slowed, declining from 25% of GDP in 1980 to 13% in 1990. There has been little capital deepening since then. Capital growth averaged just 1% annually during 2010–20 and –0.7% during 2020–22 (Table 3). Labor input (in terms of hours worked) grew by 0.5% and 2.9%, respectively, over the corresponding periods (Table 3). IT capital grew by 7.8% during the 2010s, but IT capital constitutes such a small part of capital stock that its contribution to output growth was minimal during the period. Average IT capital deepening during 2020–22 was zero, while non-IT capital deepening during the period was –1.9% (Table 4.1). The rate of capital deepening has also been heavily impacted by natural disasters like cyclones and droughts, which destroyed much of the capital stock.

Capital per hour worked declined during 2010–22, while the capital-to-output ratio fell as manufacturing value added shrank relative to GDP (Figure 5). TFP grew by an average of 0.4% during the 2010s and 6.4% during 2020–22, supporting growth in LP (Figure 4).

This coincided with the pandemic years and major natural disasters, e.g., Cyclone Winston in 2016, and Cyclones Harold and Yasa in 2020. TFP growth accounted for 44% of Fiji's economic output

growth during the period 2000–22 (APO, 2024). Despite this large contribution, TFP levels remain below that in 1970. Labor quality had grown steadily since 1970, but slowed dramatically in recent years, averaging just 0.4% annually in the 2010s (Table 3).

Productivity Overview: Tables and Figures

TABLE 3
PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	1.4	0.1	0.6	0.2	0.8	4.4
TFP growth	−0.6	−1.3	−0.6	0.3	0.4	6.4
Capital productivity growth	−0.4	−0.4	0.4	1.2	0.3	8.3
Output growth	4.9	2.4	2.4	1.4	1.3	7.6
Combined inputs growth	5.6	4	3.2	1.2	0.9	1.4
Capital growth	5.3	2.9	2.1	0.2	1	−0.7
IT capital growth	2.9	19.5	6.6	3.9	7.8	1.6
Hours worked growth	3.5	2.4	1.9	1.2	0.5	2.9
Labor quality growth	2.3	2.3	2.2	1	0.4	0.1
Capital deepening	0.8	0.2	0.1	−0.5	0.2	−1.6

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
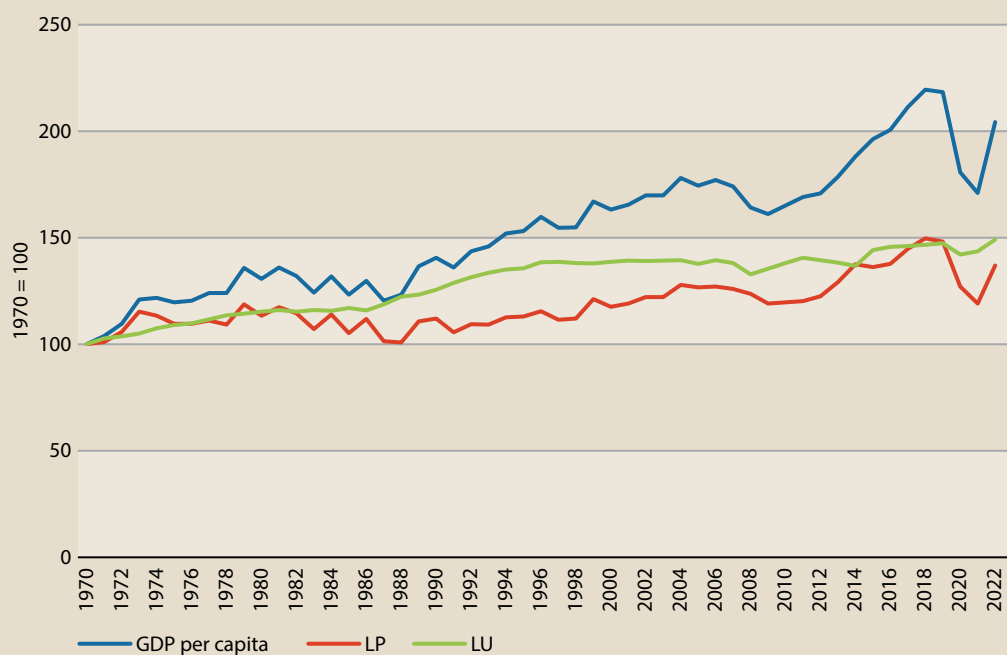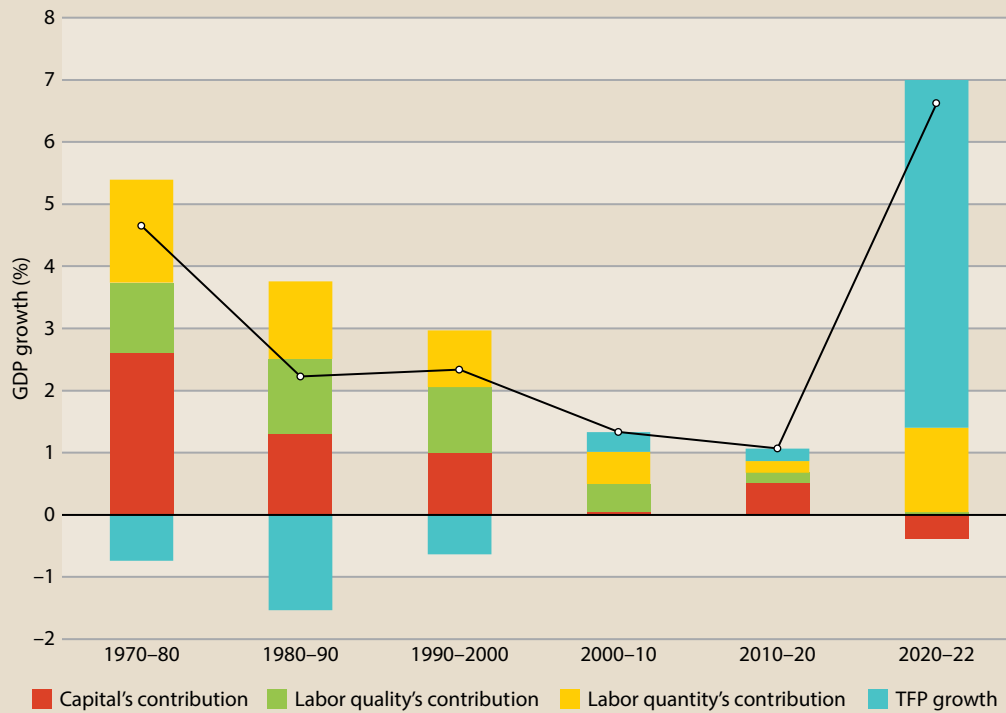
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

Legend:
- ■ Capital's contribution
- ■ Labor quality's contribution
- ■ Labor quantity's contribution
- ■ TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

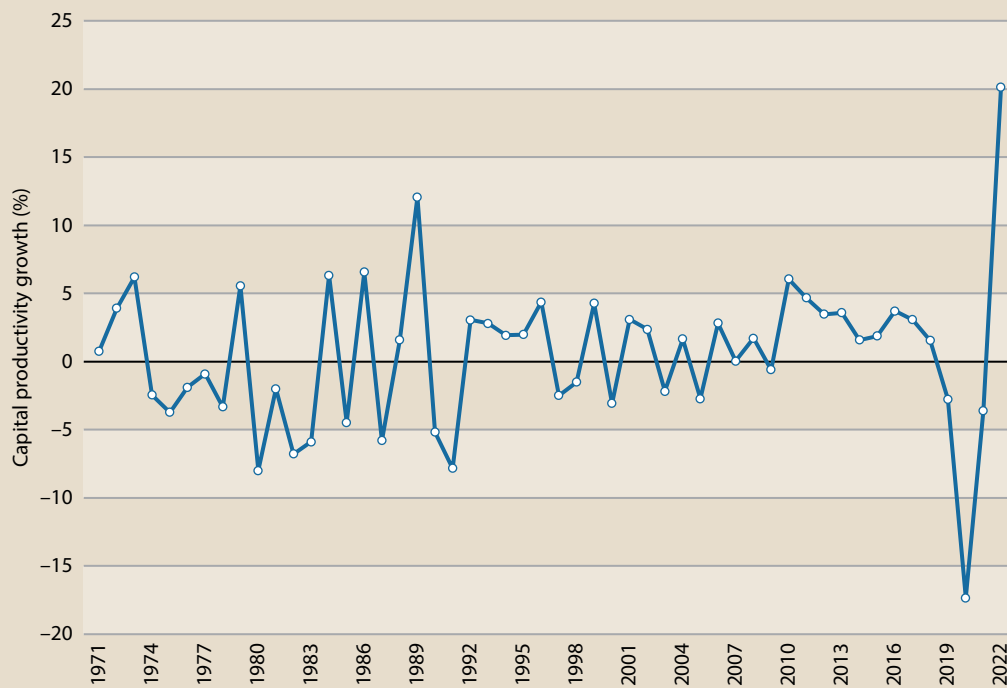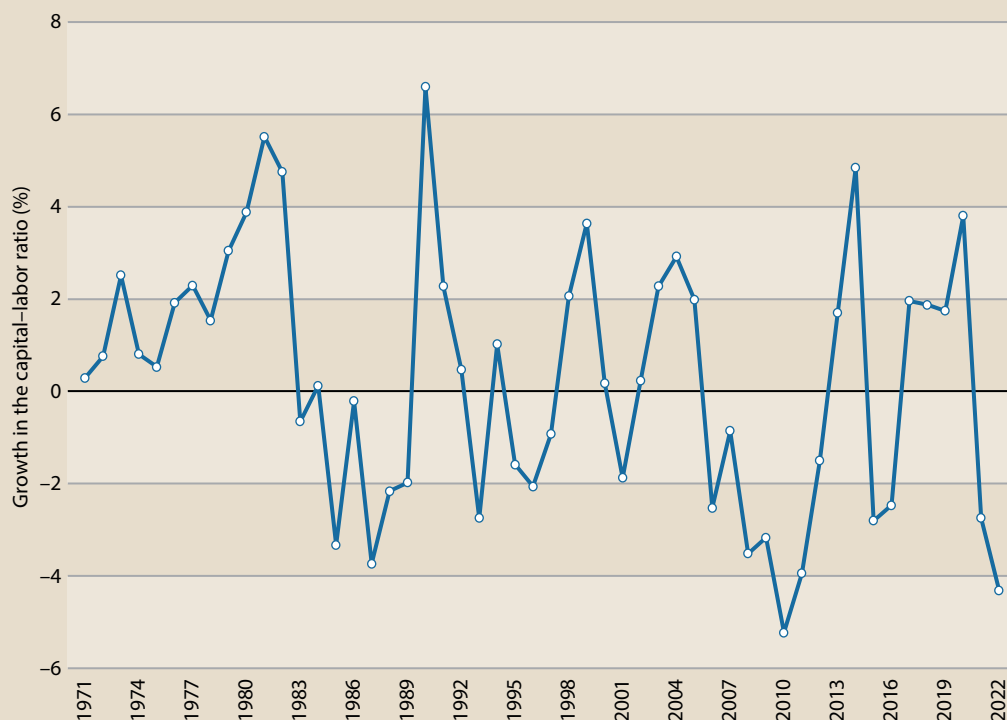

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5.

Immediate Determinants

Fiji's capital-to-output ratio declined in the 2010s as hours worked grew faster than the capital stock. Capital deepening declined at an average rate of –0.5% during the 2000s and increased at a rate of just 0.2% during the 2010s (Table 4.1).

Growth in labor quality was minimal and declining over the last decade. Fiji's large rural population and elevated high-school dropout rates have resulted in a mismatch between industry skill require and education levels. The "skills gap" is reflected in 26% of the firms complaining of an "inadequately educated workforce" (World Bank, 2017). The World Bank has recommended that Fiji should increase spending on schools in remote areas (World Bank, 2017).

Due to Fiji's large rural population and the remoteness of many of its islands, mobile coverage is limited in some areas. However, ICT capital holds great potential to boost Fiji's agricultural productivity and output growth. The implementation of the E-Agriculture Development Strategy in 2016–17, following Lao PDR's adoption of it, aimed to make information available online, pertaining to government policies, value addition to agricultural produce, climate modelling, climate-smart agriculture technologies, and actionable disaster alerts (Sharma et al., 2018). Sharma (2018) also notes that ICT tools have expanded in Fiji over the past decade, with over

1 million mobile phone subscriptions in 2016. This indicates availability and access to technologies are improving in Fiji, and that greater investment in ICT capital could further boost agricultural productivity.

Fiji has seen a sectoral shift away from agricultural production of goods like water and sugar, once among its largest exports, while expanding its tourism industry. The sugar industry remains significantly important for the economy despite declining in recent years, with Fiji exporting 152,924 MT of sugar in 2017. After a contraction during the pandemic years, sugar exports normalized in 2022 with 144,280 MT of sugar exported during that year (WTO, 2023). Non-sugar agricultural exports accounted for 8% of GDP and 3.8% of domestic exports (WTO, 2023). The manufacturing sector has largely remained unchanged in terms of its contribution to GDP since 2016, accounting for 11% of Fiji's GDP in 2021 (WTO, 2023).

As Fiji's largest earner of foreign exchange, tourism accounted for FJD2.1 billion in 2019 (WTO, 2023). Following COVID-19, Fiji was one of the first countries to open international borders. Tourism made a strong recovery with industry earnings rebounding to FJD1449.3 million in 2022 from FJD36 million in 2021.

Underlying Determinants

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; and an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

Sufficient data were not available to calculate the Productivity Readiness Index and associated indices for Fiji. Table 5 is reported with all missing values for this reason.

Underlying Determinants: Specific Strengths and Weaknesses

Fiji's institutions are strong, but would benefit from reforms aimed at removing trade and investment barriers and improving the regulatory environment. Such changes would facilitate more private investment, support competitive markets, and therefore foster productivity growth. Reducing startup business costs would facilitate market entry for small and medium enterprises (SMEs) and address issues of geography and distance from other markets.

While Fiji's institutions are of reasonably high quality, ranking sixth out of APO economies on the WGI Control of Corruption index and seventh on Government Effectiveness, they are not as effective as the highest-performing AP member economies. Fiji also ranks seventh on the World Bank's WGI Rule of Law indicator and fourth on Political Stability (Table 6). However, its financial institutions are not as advanced and effective as those of other economies with comparable incomes, such as Thailand and Malaysia. Government effectiveness is also constrained due to its remote locations and archipelagic geography. Investment in technology could help overcome some of these limitations.

Fiji ranks 11th on the World Bank WGI Regulatory Quality indicator, trailing other countries in its income group in terms of perceptions of regulatory quality. The World Bank suggests Fiji's legal and regulatory framework should be improved to encourage private investment and participation in service delivery (World Bank, 2017). The World Bank (2017) also notes that improved coordination across government agencies would facilitate more effective policy implementation and service delivery. Fiji ranks 12th among 21 APO member economies on The Heritage

Foundation's Business Freedom indicator, which measures the time and cost involved in starting and closing businesses, as well as the ease of obtaining licenses and access to electricity. Fiji's complex land ownership system is one of the factors contributing to regulatory inefficiency, so land reform should be considered to improve efficiency.

Fiji performs strongly, ranking second among APO economies on The Heritage Foundation's Labor Freedom indicator, which tracks the ease and cost of hiring and firing workers, among other labor costs (Table 5). However, Fiji maintains significant tariff and nontariff barriers to trade. This is reflected in its ranking of 16th on The Heritage Foundation's Trade Freedom index among APO member economies. The Melanesian Free Trade Agreement (MFTA) was signed in 2017, expanding the Melanesian Spearhead Group Trade Agreement to include trade in services, labor mobility, investment, and group procurement among Melanesian countries (WTO, 2023). Further liberalization of trade is required to improve Fiji's standing on the Trade Freedom index. Fiji performs similarly (14th among 21 APO member economies) on the KOF Trade Globalization (de jure) index, which tracks taxes and regulations on trade, as well as trade agreements.

Fiji also maintains excessive restriction on investments. It ranks ninth out of APO member economies on The Heritage Foundation's Investment Freedom index. While Fiji's stock of FDI was relatively large at 115.5% of GDP in 2022, it remains smaller than those of the APO's best-performers on this indicator, namely Hong Kong, Singapore, Mongolia, and Cambodia.

Fiji's score on the KOF Informational Globalization (de facto) index is weak relative to other upper-middle-income APO member economies, ranking 12th. The country's poor performance on this indicator, which tracks internet bandwidth, international patents, and high-technology exports, reflects the composition of Fiji's production, which is heavily weighted toward tourism-related services and agriculture. There is limited involvement in high-technology manufacturing.

Provisioning of education and health services is a major challenge, given Fiji's geography. High-school dropout rates are high and present barriers to matching skills with workforce requirements. Health outcomes are also poor compared with other countries in Fiji's income group. Notably, life expectancy at birth was 67.3 years in 2023, with Fiji ranking last among APO member economies on this indicator.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	3.4	17	3	17
Agriculture share of GDP (%)	Asian Productivity Organization	Open	17.6	6	15.5	6
Agriculture share of employment (%)	Asian Productivity Organization	Open	10.4	15	10	15
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	11.9	16	10.7	17
Manufacturing share of employment (%)	Asian Productivity Organization	Open	9.3	16	9.1	17

(Continued from the previous page)

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	8	17	8.5	17
Exports/GDP (%)	Asian Productivity Organization	Open	3.4	17	3	17
Imports/GDP (%)	Asian Productivity Organization	Open	17.6	6	15.5	6

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	–2.3	20	–1.9	19
IT capital deepening (pp)	Asian Productivity Organization	Open	–0.1	20	0	20
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0	16	0	19

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	NA	2019	NA	NA
Entrepreneurial culture	WEF	0–100	NA	2019	NA	NA
Availability of latest technologies	WEF	1–7	NA	2017	NA	NA
NRI Technology index	Portulans Institute	0–100	NA	2024	NA	NA
NRI People index	Portulans Institute	0–100	NA	2024	NA	NA

TABLE 5

VALUES OF OVERARCHING INDICES FOR FIJI.

Index	Value	APO Rank
Motivation	NA	NA
Capabilities	NA	NA
Efficiency of markets	NA	NA
Stability	NA	NA
Productivity Readiness Index	NA	NA

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	NA	2017	NA	NA
Quality of primary education	WEF	1–7	NA	2017	NA	NA
Future workforce	WEF	0–100	NA	2019	NA	NA
Education expenditure/ GDP (%)	World Bank	Open	6	2021	1	0
Innovation capability index	WEF	0–100	NA	2019	NA	NA
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	78.1	2021	12	21.9
Infrastructure index	WEF	0–100	NA	2019	NA	NA
HF Business Freedom	Heritage Foundation	0–100	64.9	2024	12	22
Administrative requirements	WEF	0–100	NA	2019	NA	NA
Domestic competition	WEF	0–100	NA	2019	NA	NA
HF Tax Burden	Heritage Foundation	0–100	89.7	2024	2	1
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.1	2022	11	2.3
Labor market index	WEF	0–100	NA	2019	NA	NA
HF Labor Freedom	Heritage Foundation	0–100	69.1	2024	= 2	8.2
NRI Governance index	Portulans Institute	0–100	NA	2024	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Financial system index	WEF	0–100	NA	2019	NA	NA
IMF Financial Markets	IMF	0–1	0	2021	18	0.9
HF Financial Freedom	Heritage Foundation	0–100	50	2024	= 9	30
Life expectancy at birth (years)	UN data	Open	67.3	2023	21	18.2
Infant mortality (deaths/1000 live births)	WEF	Open	NA	2017	NA	NA
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	45.3	2021	13	46.3
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	19.6	2021	20	65.9
FDI stock/GDP (%)	UNCTAD	Open	115.6	2022	5	465.4
HF Investment Freedom	Heritage Foundation	0–100	55	2024	= 9	35
Trade openness	WEF	0–100	NA	2019	NA	NA
HF Trade Freedom	Heritage Foundation	0–100	64.4	2024	16	30.6
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	58.4	2021	7	37.7
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	50.1	2021	14	42.9
Macroeconomic stability index	WEF	0–100	NA	2019	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
HF Monetary Freedom	Heritage Foundation	0–100	73.8	2024	7	7.9
Gross savings/ GDP (%)	World Bank	Open	NA	2023	NA	NA
Institutions index	WEF	0–100	NA	2019	NA	NA
IMF Financial Institutions	IMF	0–1	0.4	2021	10	0.5
Political stability	World Bank WGI	–2.5 to 2.5	0.8	2022	4	0.7
Rule of law	World Bank WGI	–2.5 to 2.5	0.3	2022	7	1.5
Control of corruption	World Bank WGI	–2.5 to 2.5	0.4	2022	6	1.7
Government effectiveness	World Bank WGI	–2.5 to 2.5	0.6	2022	7	1.6
Social capital	WEF	0–100	NA	2019	NA	NA
Voice and accountability	World Bank WGI	–2.5 to 2.5	–0.1	2022	11	1.2

Challenges Ahead

Climate change poses one of Fiji's greatest future concerns, with damage from natural disasters estimated to cost 6.5% of its GDP annually by 2050 (OECD, 2022). The National Ocean Policy aims to sustainably manage Fiji's oceans and enact protected marine areas, while the Environment and Climate Adaptation Levy (ECAL) seeks to attract investments in sustainable projects (OECD, 2022). However, greater investment in sustainable approaches to energy consumption are needed, not only to minimize environmental degradation, but also to provide more cost-efficient approaches. Fiji still relies heavily on energy-inefficient diesel-powered shipping vessels in its manufacturing sector, while tourism contributes heavily to environmental degradation. Further, as Igbal (2022) highlights, the past few decades have seen a dramatic change in Fiji's climatic conditions, including temperature, rising sea levels, and precipitation changes. These can heavily impact agriculture by damaging crops. The Food and Agriculture Organization (FAO) and Pacific Islands Climate Change Assistance Program (PICCAP) have offered support to Fiji in preparing farmers for upcoming changes in climate (Igbal, 2022). Iqbal recommends that Fiji continue to build on such climate initiatives.

Greater digitalization and AI adoption will also be necessary for Fiji's future. A government program for digitalization began in 2018, with the launch of the bizFiji online portal in 2019. This, for the first time, provided investors with information, application forms, and links to online processes online (WTO, 2023). However, as AI and technology adoption become increasingly crucial for trade and finance facilitation, Fiji will need to prioritize providing digital access nationwide.

Greater political stability and less restrictive land rights are necessary for Fiji to strengthen sectors such as agriculture and the sugar industry, both of which have been heavily impacted by low consumer confidence (Gounder, 2020). Gounder notes that, until major reforms for land use and availability are undertaken, agriculture will remain unattractive to investment both in terms of capital and labor.

As highlighted above, improving skills and human capital is an obvious area where Fiji could act to lift its productivity performance. Fiji should continue to invest in human capital for workforce development, through particular focus on lifting education outcomes. While skills will continue to be eroded by the emigration of highly educated workers, improving high-school completion rates would help reduce the skills gap. Outmigration of educated workers can be a positive factor, as it may induce others to invest in education to access the same opportunities. Outmigration also generates remittances that are often reinvested within Fiji in productive capacity, supporting further growth.

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HONG KONG

Despite its relatively small population, Hong Kong is one of the world's most densely populated areas, with population density equal to 7,000 people per sq km in 2021 (World Bank, 2024). Its 7.3 million residents are almost unilaterally urban-based (close to 100% in 2024). Hong Kong has a relatively high average income, with GDP per capita close to USD70,000, third best among APO member economies (Table 1).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	7.3	18	-0.9	21
GDP (USD billion at PPP)	510.5	15	1.4	20
GDP per capita (USD at PPP)	69,492.9	3	2.4	16
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	N/A	N/A	N/A	N/A
Employment rate (%)	48.3	10	48.7	10
Age dependency ratio (%)	42.1	18	45.7	16
Old-age dependency ratio (%)	26.2	2	30.3	2

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	1.9	15	1.6	17
TFP (index)	0.6	8	1.6	14
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	64.5	2	66.6	2

Hong Kong continues to maintain a high level of productivity, with per-hour labor productivity (LP) averaging USD66.60, second-best among APO member economies (Table 2). Per-worker productivity in Hong Kong reached USD136,000 USD in 2022, the second-highest among APO member economies (APO, 2024), while per-hour labor productivity was third highest at USD63.80 USD (APO, 2024). However, Hong Kong's LP growth declined significantly over the past fifty years, from 5.4% in 1970–90 to 1.4% in 2015–22, and was 13th among APO member economies

(Table 3) (APO, 2024). This is in line with the experience of the other four "Asian Tiger" economies that experienced rapid growth in the 1970s and 1980s as a result of substantially increased exports and rapid industrialization. Since the end of this period, Hong Kong's financial sector realized the highest productivity growth, while labor-intensive sectors (such as retail and restaurants) experienced slower improvements (Song et al., 2023).

Between 2010 and 2022, Hong Kong's GDP grew 1.1% annually on average, largely driven by high-value services industries and efficient capital allocation (APO, 2024). Hong Kong continues to face a high degree of external exposure, with a trade-to-GDP ratio of 383.8% in 2022 (WTO, 2023). Merchandise trade, particularly reexports involving PR China, is critical to Hong Kong's output (WTO, 2023). Hong Kong's external vulnerabilities were demonstrated by the COVID-19 pandemic, which caused a 6.7% decline in GDP alongside rising unemployment (WTO, 2023). Hong Kong's economic recovery included temporary support measures such as tax relief and SME financing guarantees (WTO, 2023).

Hong Kong has established itself as a services-based economy, completing its transition away from a manufacturing focus. The services sector contributed 90% of GDP in 2022, with finance, insurance, trade, and real estate together accounting for half of the total GDP (WTO, 2023). This reliance on services is a limiting factor in the sectoral diversification of Hong Kong's economy into high-productivity manufacturing (APO, 2024). Tourism has also contributed to both GDP and employment (4.5% and 6.6% in 2018, respectively), though it declined due to the impact of pandemic-related travel restrictions. ICT and R&D account for 40% of capital input, signaling an attempt to foster innovation (APO, 2024). Nonetheless, Hong Kong's R&D-to-GDP ratio remains stagnant at 0.8%, well below the OECD average of 2.7%, with R&D investment having so far failed to realize significant productivity gains (Sharif, N. et al., 2021).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	5.5	5.9	2.5	3.4	1.9	1.6
TFP growth	3.2	2.4	0	2.1	0.6	1.6
Capital productivity growth	1.7	0.6	–1.2	1.3	0.3	2.2
Output growth	9.4	7	4.5	4.1	1.5	1.5
Combined inputs growth	6	4.4	4.6	2	0.9	–0.1
Capital growth	7.6	6.4	5.8	2.8	1.2	–0.7
IT capital growth	19	21.2	20.6	9.6	7.7	4.2
Hours worked growth	3.8	1.1	2.1	0.7	–0.3	–0.2
Labor quality growth	0.8	1.6	1.4	0.5	1	0.4
Capital deepening	1.7	2.5	1.8	1	0.7	–0.2

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
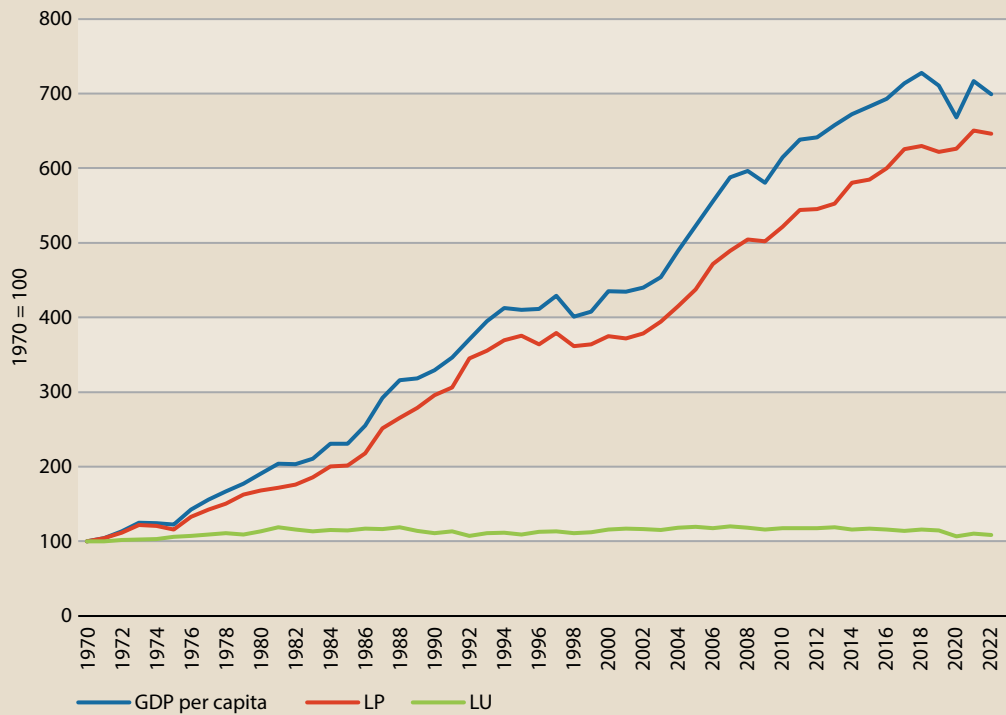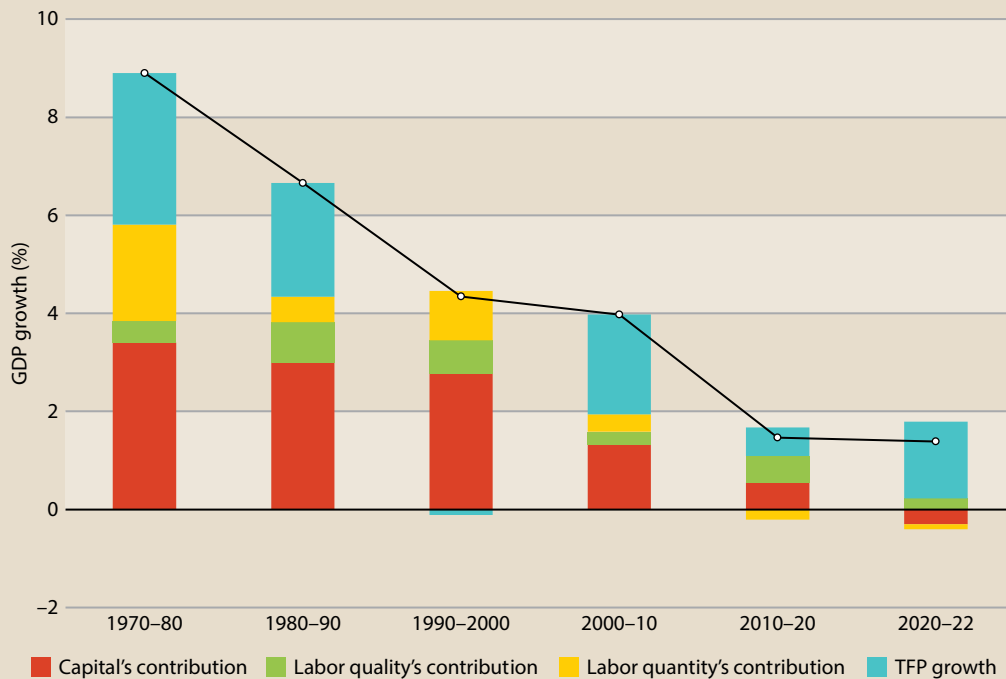
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

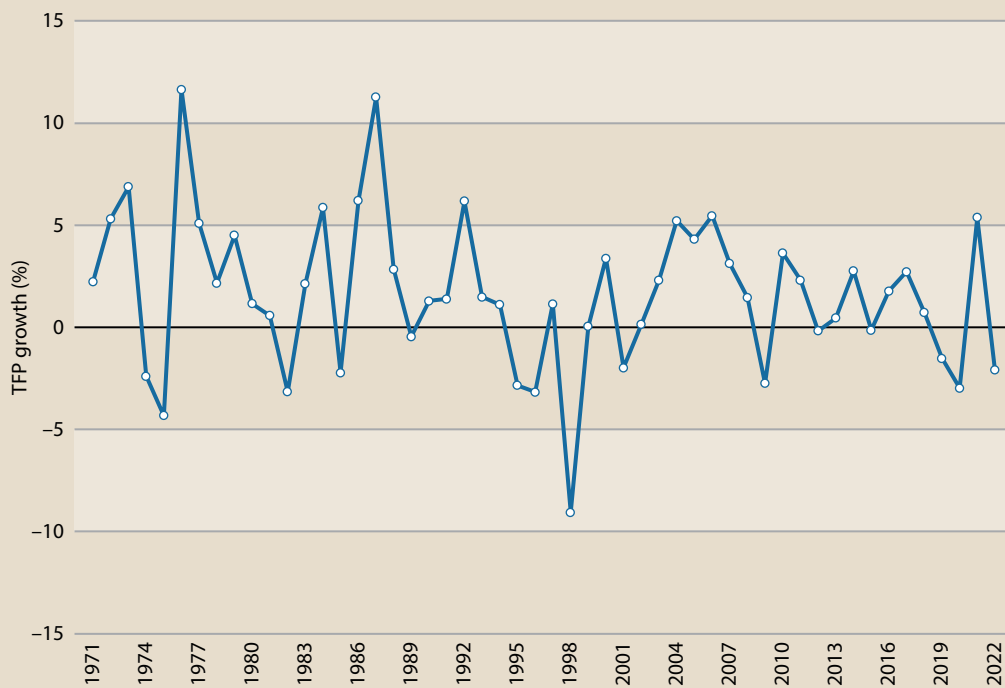**FIGURE 4**

TFP GROWTH.

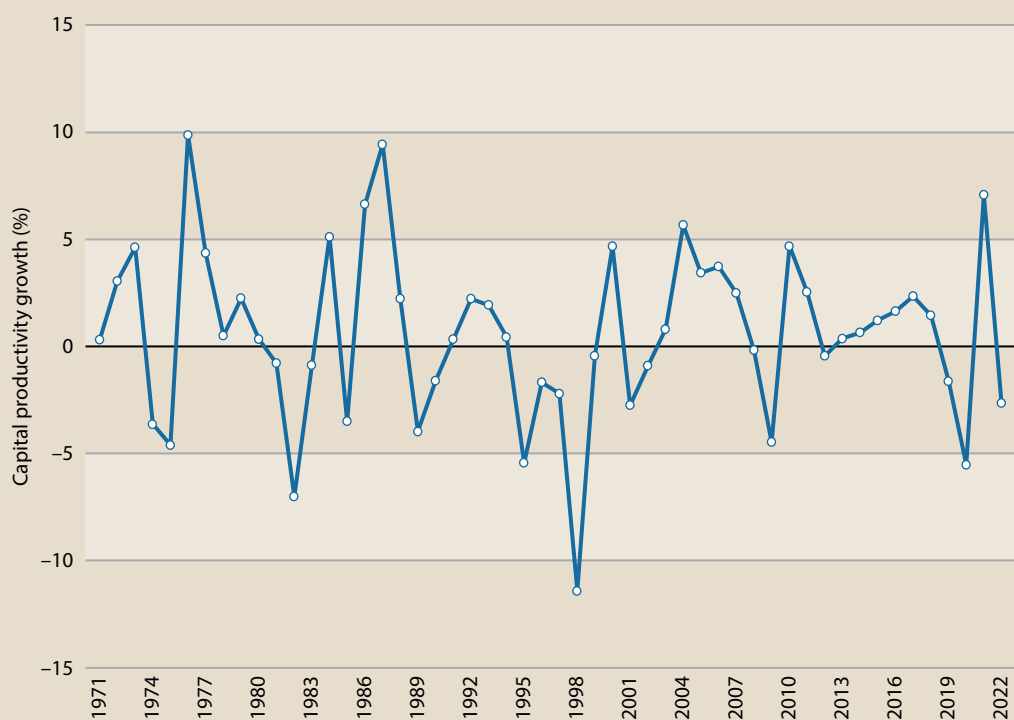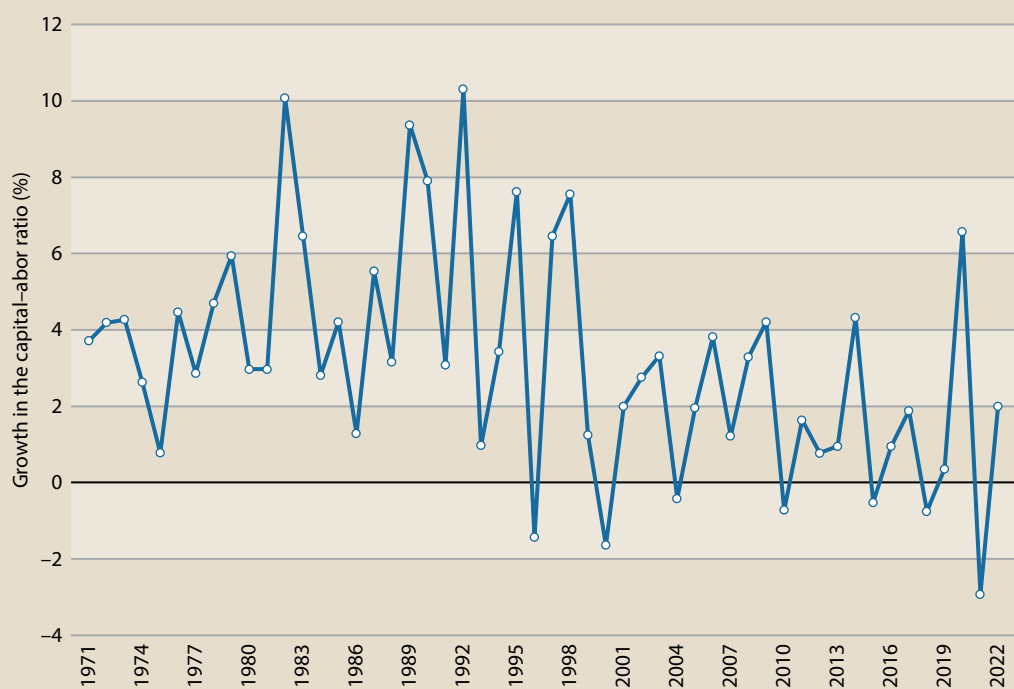**FIGURE 5**

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5.

Immediate Determinants

Hong Kong has maintained a strong capital stock-to-GDP ratio, which peaked at 11.1 in 2020 and remained strong at 10.6 in 2022, ranking it among the top two APO member economies during the period (Table 4.0). Table 4.2 and Table 5 further reflect the strong position of Hong Kong's immediate productivity determinants, with positive rankings among APO member economies. Hong Kong performs well on "current workforce" and "entrepreneurial culture" metrics, ranking second among APO members on both.

Hong Kong continues to be a trade-driven economy, relying heavily on its geographical advantages, particularly its proximity to PR China and its seaports, for both GDP and employment. As seen in Table 4.0, Hong Kong ranked first among APO member economies in terms of exports-to-GDP and imports-to-GDP ratios in 2022.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; and an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

Hong Kong's Productivity Readiness was determined as 86. This ranks it as second best among APO member economies. The ranking is the same as in the previous report of 2021, but there has been a decline in score from 92 earlier (APO, 2022).

Underlying Determinants: Specific Strengths and Weaknesses

Hong Kong performs well on numerous indicators, both globally and relative to its APO peers, ranking highly on most indicators (Table 6).

Hong Kong's education and innovation systems rank highly among APO members, as does its infrastructure, given its developed status. Together, these elements support a flourishing business environment (Sharif et al., 2021). It ranks third on the WEF's "quality of education system" metric and fourth on the WEF's "quality of primary education" measure. It also ranks second on the WEF's "infrastructure index." In health, Hong Kong has the highest life expectancy of all APO member economies and the lowest infant mortality rate (Table 6).

Hong Kong's legal system and common law internationally recognized, making its financial services, professional services, and other industrial and business support services rewarding in the global economy (Qizheng, 2022). Hong Kong ranks first among APO member economies on the financial systems index and second in terms of institutions (Table 6). It also performs very well on political metrics, ranked third for "rule of law," second for "control of corruption," and third for "government effectiveness." However, Hong Kong could seek alternative funding for SMEs and diversify its investment base to improve liquidity and competitiveness (PwC, 2024).

Hong Kong ranks first on the WEF's "macroeconomic stability index." It also performs very well on regulatory effectiveness and competition, ranking second on the World Bank WGI "regulatory quality" index and first among APO member economies for "domestic competition." Each of these metrics contribute to Hong Kong's capacity to facilitate investment and productivity gains, demonstrated by its first rank for FDI stock-to-GDP ratio.

However, Hong Kong faces challenges due to its uncertain political environment. Despite the renowned strength of its institutions, social unrest relating to the influence of PR China poses a major threat to Hong Kong's stability and future productivity (APO, 2022). Further, Hong Kong's working-age population has continued to shrink over recent years as a result of its ageing population. 20.8% of Hong Kong residents were aged over 65 in 2024, compared with only 10.5% aged 0–14, due to a demographic shift that started in 2010 (APO, 2024). Continued issues relating to a diminished labor supply could plague Hong Kong, especially due to its reliance on trade for its continued economic prosperity. This is further evidenced by Hong Kong's old-age-dependency ratio, which, valued at 30.3 in 2022 (an increase from 2020), was the second highest among APO member economies (Table 1).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	11.1	2	10.6	1
Agriculture share of GDP (%)	Asian Productivity Organization	Open	0.1	20	0	20
Agriculture share of employment (%)	Asian Productivity Organization	Open	0.2	21	0.3	21
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	1	21	0.9	21
Manufacturing share of employment (%)	Asian Productivity Organization	Open	2.8	20	2.5	20
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	36.8	9	39.8	8
Exports/GDP (%)	Asian Productivity Organization	Open	176.3	2	193.9	1
Imports/GDP (%)	Asian Productivity Organization	Open	174.4	1	189.9	1

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	0.9	8	–0.2	16
IT capital deepening (pp)	Asian Productivity Organization	Open	0.2	1	0.1	4
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.5	5	0.2	9

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	74.3	2019	2	1.8
Entrepreneurial culture	WEF	0–100	68.3	2019	2	2.1
Availability of latest technologies	WEF	1–7	5.6	2017	= 4	0.7
NRI Technology index	Portulans Institute	0–100	62.3	2024	4	8.9
NRI People index	Portulans Institute	0–100	48.3	2024	8	30.9

TABLE 5

VALUES OF OVERARCHING INDICES FOR HONG KONG.

Index	Value	APO Rank
Motivation	84	2
Capabilities	89	2
Efficiency of markets	90	2
Stability	81	3
Productivity Readiness Index	86	2

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4.7	2017	3	1.1
Quality of primary education	WEF	1–7	5.2	2017	4	1
Future workforce	WEF	0–100	80.8	2019	= 2	0.6
Education expenditure/ GDP (%)	World Bank	Open	4	2021	5	2
Innovation capability index	WEF	0–100	63.4	2019	5	16.8
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	100	2021	1	0

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Infrastructure index	WEF	0–100	94	2019	2	1.4
HF Business Freedom	Heritage Foundation	0–100	NA	2024	NA	NA
Administrative requirements	WEF	0–100	82.5	2019	6	10.6
Domestic competition	WEF	0–100	74.8	2019	1	0
HF Tax Burden	Heritage Foundation	0–100	NA	2024	NA	NA
Regulatory quality	World Bank WGI	–2.5 to 2.5	1.6	2022	2	0.6
Labor market index	WEF	0–100	75.8	2019	2	5.4
HF Labor Freedom	Heritage Foundation	0–100	NA	2024	NA	NA
NRI Governance index	Portulans Institute	0–100	74.4	2024	4	12.5
Financial system index	WEF	0–100	91.4	2019	1	0
IMF Financial Markets	IMF	0–1	0.7	2021	5	0.2
HF Financial Freedom	Heritage Foundation	0–100	NA	2024	NA	NA
Life expectancy at birth (years)	UN data	Open	85.5	2023	1	0
Infant mortality (deaths/1000 live births)	WEF	Open	1.5	2017	20	64.3
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	89.8	2021	2	1.8
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	81.6	2021	2	4
FDI stock/GDP (%)	UNCTAD	Open	581	2022	1	0
HF Investment Freedom	Heritage Foundation	0–100	NA	2024	NA	NA
Trade openness	WEF	0–100	88.4	2019	2	0.3
HF Trade Freedom	Heritage Foundation	0–100	NA	2024	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Services Trade Restrictions Index	World Bank, WTO	0–100	18.3	2022	14	47.3
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	77.8	2021	2	18.3
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	78.1	2021	3	14.9
Macroeconomic stability index	WEF	0–100	100	2019	= 1	0
HF Monetary Freedom	Heritage Foundation	0–100	NA	2024	NA	NA
Gross savings/ GDP (%)	World Bank	Open	23.9	2023	15	18.8
Institutions index	WEF	0–100	77.6	2019	2	2.8
IMF Financial Institutions	IMF	0–1	0.8	2021	3	0.1
Political stability	World Bank WGI	–2.5 to 2.5	0.6	2022	6	0.8
Rule of law	World Bank WGI	–2.5 to 2.5	1.3	2022	3	0.5
Control of corruption	World Bank WGI	–2.5 to 2.5	1.6	2022	2	0.5
Government effectiveness	World Bank WGI	–2.5 to 2.5	1.6	2022	3	0.6
Social capital	WEF	0–100	53.5	2019	8	9.7
Voice and accountability	World Bank WGI	–2.5 to 2.5	–0.4	2022	13	1.5

Challenges Ahead

Hong Kong's economy faces potential volatility due to its exposure to international conditions stemming from trade exposure, as noted earlier. While normally trade exposure is beneficial, Hong Kong's heavy reliance on PR China for much of its trade (PwC, 2024) produces a level of risk that would be mitigated if its trade relations were more diversified. Trade tensions between the USA and PR China are especially pertinent for Hong Kong, given the increasing uncertainty in 2025 (WTO, 2023) (Qizheng, 2025). As a result, Hong Kong is challenged by global political and economic conditions in an increasingly deglobalized world economy.

TFP growth declined sharply in Hong Kong, from 2.7% (1970–90) to 0.5% (2015–22). Sustained structural reforms are needed to boost long term gains (APO, 2024). Broader economic resilience

is further challenged by over-reliance on sectors such as tourism, real estate, and retail (Song et al., 2023). Also, labor-intensive sectors such as restaurants have faced declining labor productivity (Song et al., 2023).

Hong Kong is also challenged administratively. Its economy could benefit from recouping capital by creating alternative funding for SMEs through the Hong Kong stock exchange, enhancing connectivity with the mainland to avoid double taxation, and diversifying its investor base (PwC, 2024). Additional measures could include expediting implementation of the proposed company re-domiciliation regime, directing resources toward the expansion of the Hong Kong tax treaty network, as well as embracing a higher level of digitalization to improve productivity (PwC, 2024). These changes could help Hong Kong create a less trade-dependent and more resilient economy.

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INDIA

India is the most populous nation and democracy in the world, with a population of 1.4 billion in 2023 (World Bank, 2024). Despite having one of the lowest per capita GDP among APO member economies, India has maintained strong per capita GDP growth since 2010, which was the highest among APO members in 2022 (Table 1; APO, 2024). Equally, India has produced strong year-on-year GDP growth levels (7.6% in 2023), and is projected to overtake PR China as the main driver of Asian economic growth in 2034 (APO, 2024). Income distribution in India remains unequal, and with a GINI index of 35, India remains classified as a low-middle-income country (World Bank, 2024). However, India aspires to achieve high-income status by 2047, to coincide with its centenary of independence from British rule (World Bank, 2024). India's economy has shifted from having an agricultural focus to being service-based, but agriculture still remains the predominant employer (Alonso & MacDonald, 2024).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	1,417.2	1	0.7	10
GDP (USD billion at PPP)	12,052.5	1	9.1	1
GDP per capita (USD at PPP)	8,504.6	17	8.8	1
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	65.1	3	64.1	3
Employment rate (%)	37.9	14	37.8	15
Age dependency ratio (%)	48.8	11	47.5	11
Old-age dependency ratio (%)	9.9	14	10.2	13

Productivity Performance

India's productivity growth has fallen in recent years, from 7% in 2010 to 4% in 2023, accompanied by a slowdown in TFP growth (APO, 2024). It had ranked first among APO member economies for labor productivity growth during 2020–22, and second for TFP productivity growth over the same period (Table 2).

Given its substantial population size and composition (25% aged 0–14, and only 6.9% aged 65 and above), India has a large labor force at its disposal (APO, 2024). It has been able to accelerate its economic growth and productivity as its labor inputs were supplemented by this favorable demographic composition. Capital inputs and capital deepening have also played an important role in boosting India's output growth. Sectoral growth decompositions suggest that physical capital has driven growth across most sectors of the Indian economy (Alonso & MacDonald, 2024). Capital growth, IT capital growth, and capital deepening have all led to India's productivity growth (Table 3).

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	4	5	8.9	1
TFP (index)	1	3	5.7	2
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	8.9	17	10.6	16

Sector wise, services and manufacturing have made the most progress in productivity and technological advancement. However, catch-up to the technological frontier has been uneven and yielded limited progress, particularly in the agricultural, trade and construction sectors, resulting in limited productivity gains per-worker (Alonso & MacDonald, 2024).

Over the past two decades, India has diversified its export mix and become the world's largest exporter of generic drugs (Alonso & MacDonald, 2024). Policy actions such as the National Logistics Policy reflect India's intent to reduce trade barriers (World Bank, 2024). However, a return to protectionism, marked by an increase in both tariff and non-tariff barriers, has reduced India's international participation and productivity gains from trade (World Bank, 2024).

GDP growth in India has averaged over 6% since 2000, peaking at 9.7% in 2021 and 7.6% in 2023 (World Bank Group, 2024). Much of this growth has been spurred by public investment in infrastructure and increasing private investment in real estate, both of which improved the business environment (World Bank, 2024). Growth is expected to remain positive in the medium term, reflecting the imperative nature of continuing investment from both the public and private sectors (World Bank, 2024).

India's growth has shifted from being labor-driven to capital- and TFP-driven, particularly in the services sector, over the past two decades (Alonso & MacDonald, 2024). While low initial income nations typically have a lower contribution share of TFP, India has been an exception, with a high contribution share of TFP to its growth (APO, 2024). Despite a contraction in TFP growth and values during 2010–20, partially due to COVID, recovery in the 2020–22 period has been encouraging, with India consistently outperforming its APO peers in both growth and value metrics (Table 2 and Table 3).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	0.8	3.1	3.3	6.4	4	8.9
TFP growth	−0.2	1.8	1.7	2.6	1	5.7
Capital productivity growth	−1.1	0.1	−0.1	0	−2.1	3.5
Output growth	3.2	5.1	5.1	7.9	5.1	9.6

(Continued from the previous page)

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Combined inputs growth	3.2	3.7	3.7	4.7	3.9	2.4
Capital growth	4.3	5.5	5.7	7.5	7.4	4.7
IT capital growth	17.8	23.9	15.7	16	15.8	4.5
Hours worked growth	2.4	2	1.8	1.5	1	0.7
Labor quality growth	0.6	1.1	1	1.5	0.9	0.5
Capital deepening	0.4	0.8	1.2	2.3	2.4	1.4

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
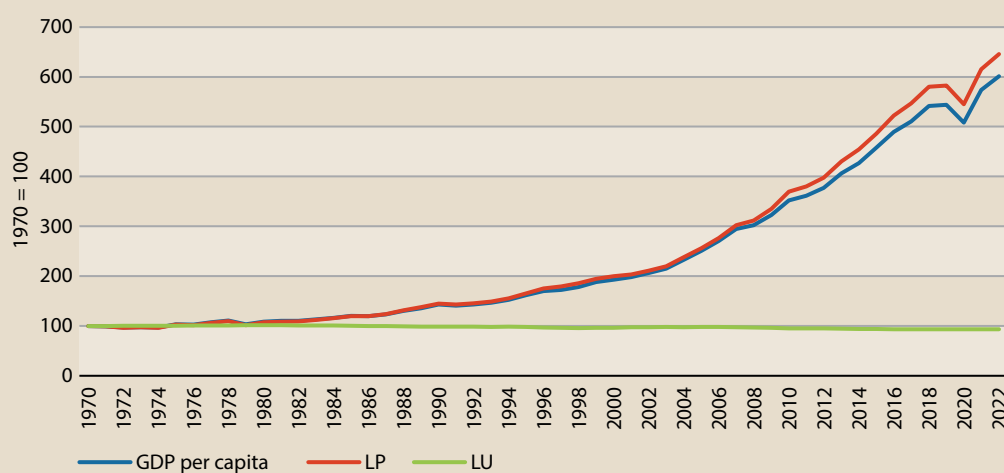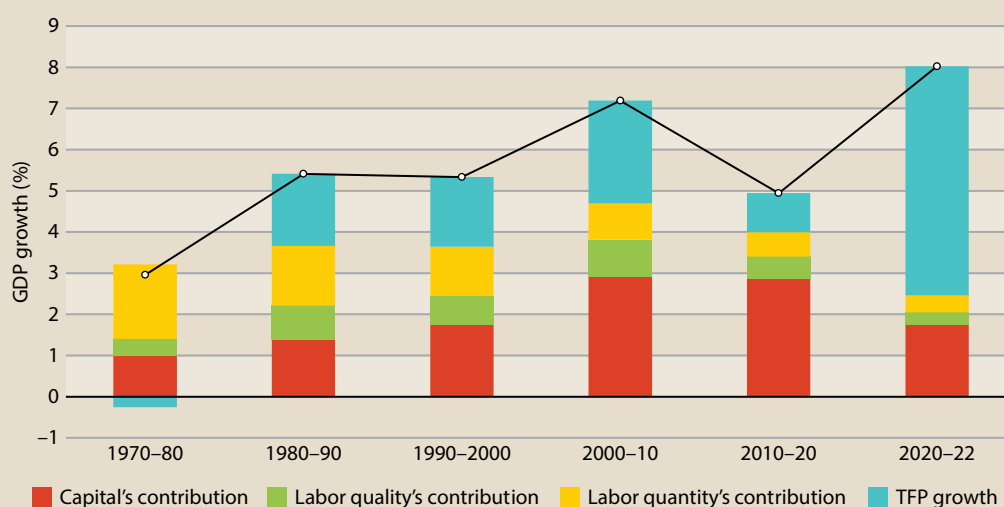
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.
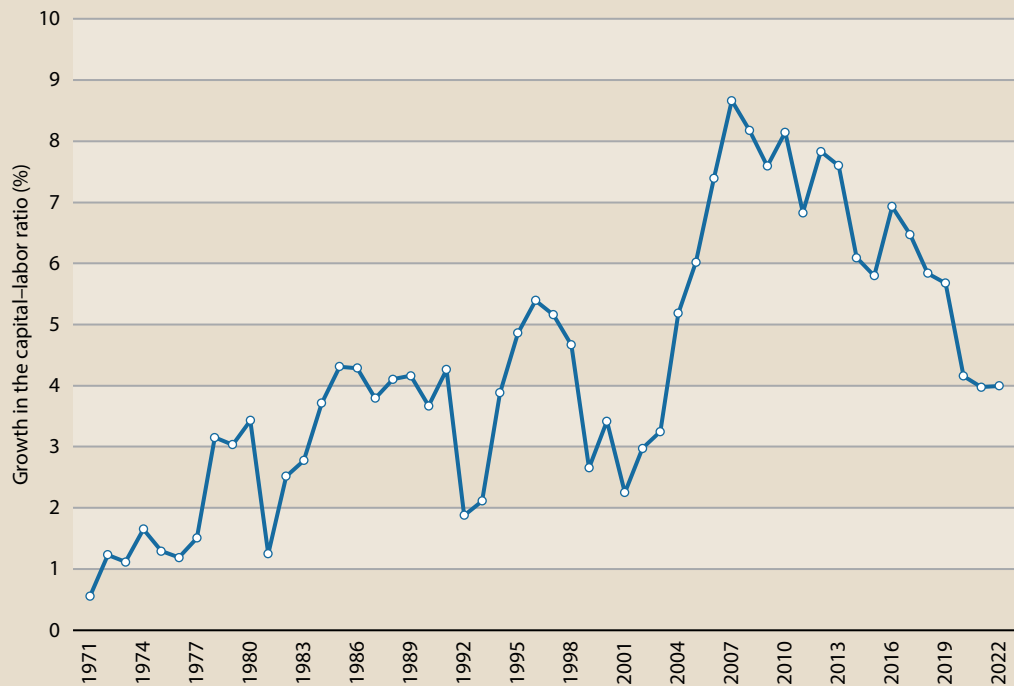
Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5.

Immediate Determinants

Capital deepening in India was relatively high among its APO peers in 2020015022, despite a low capital-to-GDP ratio (Table 4.0 and Table 4.1). Conversely, despite a high growth rate, India's labor productivity was in the bottom third of APO member economies (Table 1), and its workforce contribution to productivity was likewise ranked by the WEF (Table 4.2). Agriculture forms a significant part of employment in India, and is the third highest proportionally among its APO peers (Table 4.0). As a result, among APO member economies, India is still one of the most reliant economies on agricultural sector for GDP growth (Table 4.0).

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; along with an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

India performs below expectations on the market efficiency and capability indices, but reasonably well on motivation and stability indices compared to its APO peers. Given its overall PRI value of 38 and ranking of 9, India has significant room to strengthen its underlying determinants and achieve further productivity gains in the future.

Underlying Determinants: Specific Strengths and Weaknesses

The business environment in India benefits from a large labor force and a growing digital economy but is hindered by regulatory complexity and trade restrictions. India ranked 16th among APO member economies on Trade Openness, scoring just 43.9 in 2019, reflecting significant tariff and non-tariff barriers. Similarly, its Financial Globalization index score of 37 (16th in APO) indicates limited international financial integration. Restrictions on capital flows and regulatory hurdles for foreign investors continue to limit India's ability to attract diverse forms of FDI (Alonso & MacDonald, 2024).

India has made significant strides in education, with expenditure reaching 4.6% of GDP in 2021, ranking third among APO member economies. It performs strongly on the WEF's "quality of education system" and "quality of primary education" metrics, ranking fourth and seventh, respectively. However, challenges persist in workforce skills development. While tertiary education enrollment has increased, skill mismatches and low vocational training participation continue to affect labor market efficiency. Efforts such as the National Education Policy (2020) aim to address these gaps, but further reforms will be needed to align education outcomes with industry demands (Alonso & MacDonald, 2024).

India performs relatively well on competition, ranking seventh for the WEF's "domestic competition" measure. India's financial system also performs relatively well, ranking eighth on the WEF's "financial system index" and seventh on the IMF "financial markets" metric. However, it ranks 14th on the Heritage Foundation's "financial freedom" measure. Progress is also needed on health indicators, as India has the third-highest infant mortality rate among APO member economies and only the 13th highest life expectancy.

Institutionally, India has a mixed performance. While its macroeconomic stability is strong, scoring 90 in 2019 and ranking seventh among APO members, political stability remains a challenge. Further, general government revenue has stagnated at 20% of GDP for the past three decades, constraining resources for development and investments (Govil & Chauhan, 2024). By contrast, expenditure at 30% of GDP created a large fiscal deficit of 9.5% of GDP and a public debt of 82% of GDP in FY2023. Together, these factors have constrained the economic and fiscal spaces (Govil & Chauhan, 2024). Heavy public debt burdens at both state and central levels threaten long-term investments in productivity-enhancing sectors (Govil & Chauhan, 2024). Further, low-income states in India are heavily reliant on central transfers to meet revenue development expenditure because they are already above their implied target for public debt lower than 20% of GDP as per the Fiscal Responsibility and Budget Management Act (FRBM Act). This compounds the uneven income distribution that already hinders India's productivity growth.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	4.6	12	3.7	10
Agriculture share of GDP (%)	Asian Productivity Organization	Open	18.6	5	16.5	5
Agriculture share of employment (%)	Asian Productivity Organization	Open	45.3	3	43.5	3
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	12.5	15	11.6	16
Manufacturing share of employment (%)	Asian Productivity Organization	Open	11.1	14	11.4	14
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	44.4	6	41.6	6
Exports/GDP (%)	Asian Productivity Organization	Open	18.8	14	23.3	15
Imports/GDP (%)	Asian Productivity Organization	Open	19.2	16	26.9	15

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	1.5	6	1.5	9
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	5	0.1	5
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.3	9	0.3	8

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	46.5	2019	15	29.6
Entrepreneurial culture	WEF	0–100	55.5	2019	9	14.9
Availability of latest technologies	WEF	1–7	4.7	2017	= 10	1.6
NRI Technology index	Portulans Institute	0–100	52.6	2024	6	18.6
NRI People index	Portulans Institute	0–100	51.6	2024	5	27.7

TABLE 5

VALUES OF OVERARCHING INDICES FOR INDIA.

Index	Value	APO Rank
Motivation	43	8
Capabilities	37	13
Efficiency of markets	35	12
Stability	40	6
Productivity Readiness Index	38	9

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4.6	2017	4	1.2
Quality of primary education	WEF	1–7	4.5	2017	= 7	1.7
Future workforce	WEF	0–100	54.5	2019	17	26.9
Education expenditure/ GDP (%)	World Bank	Open	4.6	2021	3	1.3
Innovation capability index	WEF	0–100	50.9	2019	7	29.3
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	80.4	2021	11	19.6

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Infrastructure index	WEF	0–100	68.1	2019	9	27.3
HF Business Freedom	Heritage Foundation	0–100	68.3	2024	10	18.6
Administrative requirements	WEF	0–100	64.6	2019	14	28.5
Domestic competition	WEF	0–100	56.9	2019	7	17.9
HF Tax Burden	Heritage Foundation	0–100	73.7	2024	17	17
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.1	2022	10	2.3
Labor market index	WEF	0–100	53.9	2019	14	27.3
HF Labor Freedom	Heritage Foundation	0–100	58.4	2024	7	18.9
NRI Governance index	Portulans Institute	0–100	49.8	2024	13	37.2
Financial system index	WEF	0–100	69.5	2019	8	21.9
IMF Financial Markets	IMF	0–1	0.6	2021	7	0.3
HF Financial Freedom	Heritage Foundation	0–100	40	2024	= 14	40
Life expectancy at birth (years)	UN data	Open	72	2023	13	13.5
Infant mortality (deaths/1000 live births)	WEF	Open	37.9	2017	3	27.9
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	37	2021	16	54.6
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	37.7	2021	15	47.8

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
FDI stock/GDP (%)	UNCTAD	Open	14.7	2022	17	566.2
HF Investment Freedom	Heritage Foundation	0–100	40	2024	= 15	50
Trade openness	WEF	0–100	43.9	2019	16	44.8
HF Trade Freedom	Heritage Foundation	0–100	62.2	2024	17	32.8
Services Trade Restrictions Index	World Bank, WTO	0–100	56.8	2022	3	8.8
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	46.3	2021	13	49.8
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	51.2	2021	13	41.8
Macroeconomic stability index	WEF	0–100	90	2019	= 7	10
HF Monetary Freedom	Heritage Foundation	0–100	69.1	2024	12	12.6
Gross savings/ GDP (%)	World Bank	Open	31.8	2023	8	10.9
Institutions index	WEF	0–100	56.8	2019	8	23.6
IMF Financial Institutions	IMF	0–1	0.5	2021	9	0.4
Political stability	World Bank WGI	–2.5 to 2.5	–0.6	2022	15	2
Rule of law	World Bank WGI	–2.5 to 2.5	0.1	2022	8	1.7
Control of corruption	World Bank WGI	–2.5 to 2.5	–0.3	2022	9	2.4
Government effectiveness	World Bank WGI	–2.5 to 2.5	0.4	2022	9	1.8
Social capital	WEF	0–100	46.8	2019	17	16.4
Voice and accountability	World Bank WGI	–2.5 to 2.5	0.1	2022	6	1

Challenges Ahead

India continues face challenges from an uneven distribution of income and wealth. Regional development is also uneven, with low-income states struggling to improve infrastructure and attract sufficient private investment (Govil & Chauhan, 2024). High-income states have shown

greater growth in per capita income compared to low-income states (Govil & Chauhan, 2024). Likewise, states with higher multidimensional poverty indices (MPIs) struggle to provide adequate skilled labor, limiting private sector investment and reinforcing low productivity levels (Govil & Chauhan, 2024). Disparities in fiscal capacity across states highlight the need for tailored fiscal policies and increased central transfers to ensure equitable development and productivity growth (Govil & Chauhan, 2024).

Despite its large labor force, India is plagued by skills shortages and rigid labor regulations. Labor productivity suffers due to a largely unskilled workforce: only 61% of adults aged 25 and above have completed primary schooling (Alonso & MacDonald, 2024). Also, employment flexibility and efficient resource allocation are hindered by strict labor force regulations, which could be loosened to incentivize an increase in employment (Alonso & MacDonald, 2024). Job creation, particularly in the services sector, has not been sufficient to deliver the number of formal, high-productivity jobs needed to boost growth (Alonso & MacDonald, 2024). Removing trade barriers also remains a key priority for advancing trade integration and boosting productivity (Alonso & MacDonald, 2024).

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INDONESIA

Indonesia is an emerging, upper-middle-income nation in Southeast Asia, situated between the Indian and Pacific Oceans. With a population of 278 million in 2023, Indonesia is the largest economy in Southeast Asia, and has been growing since the Asian Financial Crisis of the late 1990s (World Bank, 2024). After a contraction in 2020 due to the COVID-19 pandemic, Indonesia's GDP growth recovered well, averaging 5% over the past two financial years (OECD, 2024). Indonesia's GDP growth is largely supported by domestic consumption and private investment, which are projected to sustain a growth rate of 5% throughout 2025 (OECD, 2024). Indonesia has also made significant advancements in reducing extreme poverty. While the rate of poverty increased temporarily during the pandemic, it has since receded, partly due to higher labor participation and employment levels, rise in minimum wages, and expansion of social assistance programs (OECD, 2024).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	268.3	2	0.7	12
GDP (USD billion at PPP)	4,027.2	3	4.2	12
GDP per capita (USD at PPP)	1,5010	10	3.6	12
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	43.4	11	42.1	11
Employment rate (%)	49.6	9	50.4	8
Age dependency ratio (%)	48	13	47.2	13
Old-age dependency ratio (%)	9.9	13	10.1	15

Productivity Performance

Indonesia ranked fifth for TFP growth and second for labor productivity (LP) growth in the period 2020–22. Its labor productivity grew around 2.4% annually from 2005 to 2022, largely driven by non-ICT capital deepening (61%) and improvements in labor quality (40%), while TFP contributed negatively (–5%) in the same period (APO, 2024). Since 2010, output per worker has been declining, with stagnant or declining TFP and capital stock (Ikhsan et al., 2021). Informal employment remains widespread, accounting for around 60% of Indonesia's workforce and contributing to lower productivity particularly in the agricultural sector and low-skilled services (OECD, 2024). Although there have been strong labor movements away from agriculture, these movements have been to less-productive services having limited productivity gains (Ikhsan et al., 2021).

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	2.6	12	5.8	2
TFP (index)	−1.3	20	3	5
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	14	13	15.6	13

Growth in Indonesia remains below the 6% threshold needed to escape the middle-income trap (Ikhsan et al., 2021). To achieve this threshold target, TFP growth would need to increase by at least 3% annually (Ikhsan et al., 2021). The contribution of TFP to aggregate output and output per worker growth dropped in the period 2015–19 compared with previous periods (Ikhsan et al., 2021). A sectoral shift toward less productive service sectors like trade and public services can explain the downward productivity trend (Ikhsan et al., 2021).

Indonesia lags behind regional peers in terms of the productivity contribution from large firms. Revenue from large companies (classified as those with at least USD500 million in annual revenues) stands at just 14% of GDP in Indonesia (Ikhsan et al., 2021). Micro, small, and medium enterprises (MSMEs) dominate the firm distribution in Indonesia and account for 97% of employment, while contributing only 57.2% of GDP (Ikhsar et al., 2021). The productivity of these smaller firms remains a priority for improvement in Indonesia, but can be difficult to address due to the nature of the dual economy (Ikhsar et al., 2021).

Indonesia's services sector dominates employment, occupying 46% of the labor force in 2019, but remains less productive than the manufacturing sector, due to low participation in high-value-added industries (Ikhsan et al., 2021). Despite increasing their employment shares, the manufacturing and construction sectors have not driven substantial productivity gains (Ikhsan et al., 2024). Further, although the tourism sector has a strong share in employment and growth (10% and 5% in 2019, respectively), it has room for improvements in infrastructure, internet capacity, and accommodation in tourist hubs to increase the number of destinations and capacity. This would enable Indonesia to better reap the benefits of tourism for its economy (OECD, 2024). Much post-COVID-19 recovery has been aimed at this sector.

Trade-wise, Indonesia is the second-largest exporter of coal, with other major export categories being palm oil, petroleum gas, and copper ore (OEC, 2024). Indonesia's largest imports are mainly petroleum-related items, including refined petroleum, crude petroleum, and petroleum gas (OEC, 2024). However, the trade sector has scope for deeper, more technologically advanced engagements. Exports and imports represented 45% of GDP in 2022, compared with 72% in the Philippines (OECD, 2024). The share of manufactured exports classified as high-tech fell from 12.1% in 2010 to 8.1% in 2019 (OECD, 20240). Equally, Indonesia's participation in global value chains is very low, with relatively few firms engaging in foreign trade.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	4.2	2.8	2.2	2.8	2.6	5.8
TFP growth	1.8	1.2	−1.9	0.4	−1.3	3
Capital productivity growth	1.6	1.6	−1.7	0.6	−1.1	−0.3
Output growth	8.4	6.3	4.4	5.1	4.5	4.3
Combined inputs growth	6.5	5.1	6.5	4.7	5.8	1.2

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Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Capital growth	6.7	4.6	6.2	4.4	5.6	4.5
IT capital growth	27.5	23.8	14.8	14.3	9.9	7
Hours worked growth	4.1	3.4	2.2	2.3	1.8	−1.3
Labor quality growth	1.9	2.5	4.4	2.9	4.3	−1.4
Capital deepening	1.6	0.7	2.4	1.3	2.2	3.1
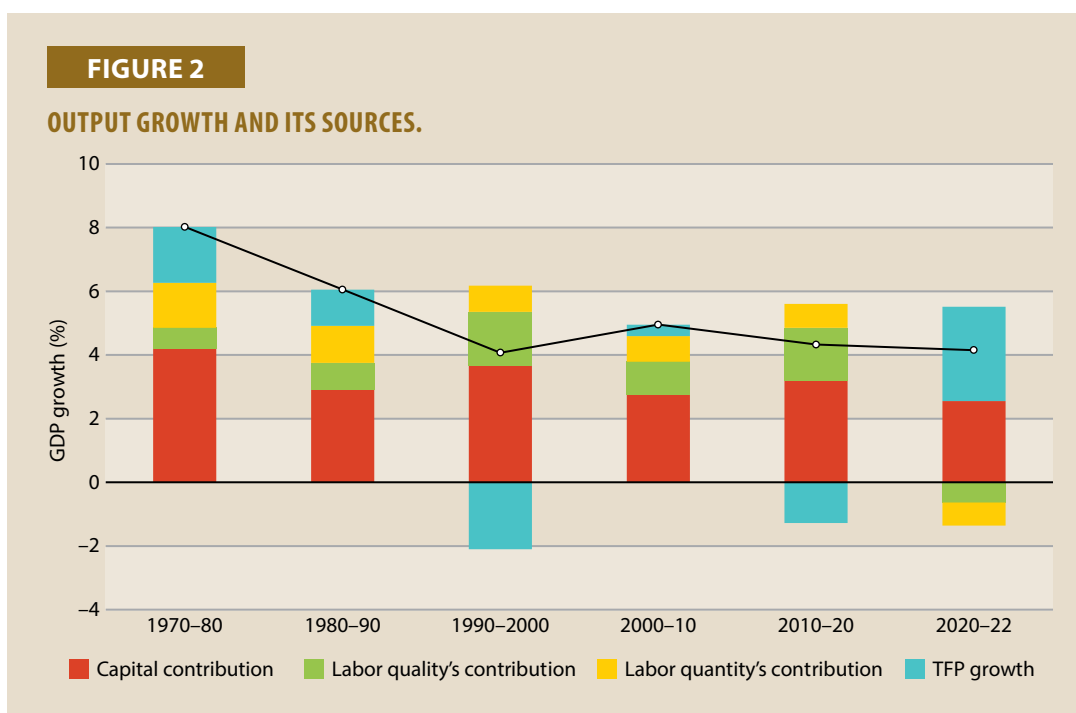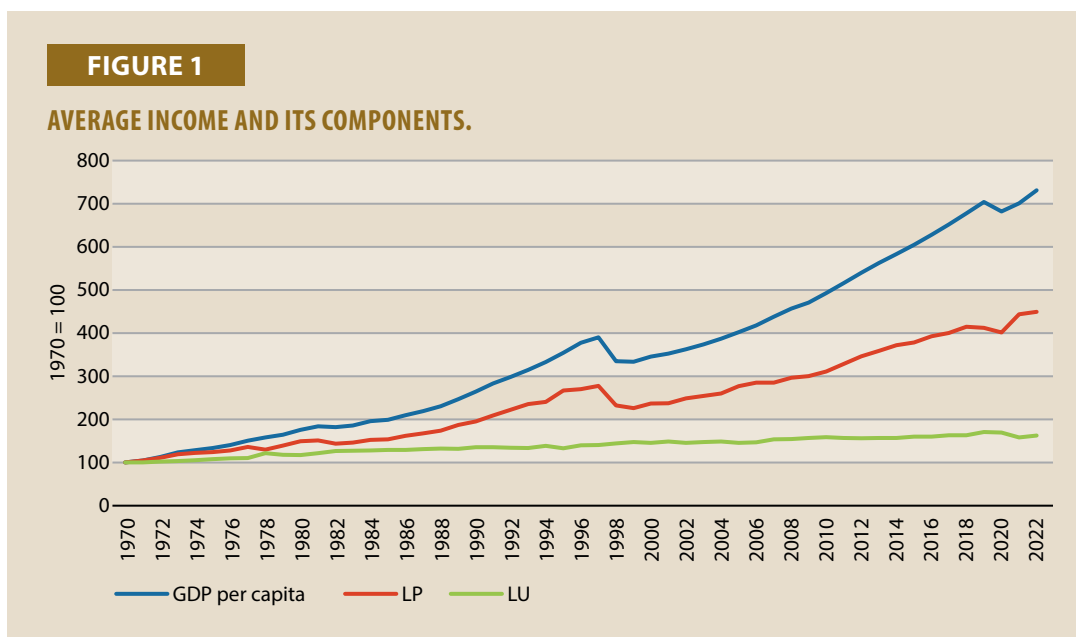
FIGURE 1
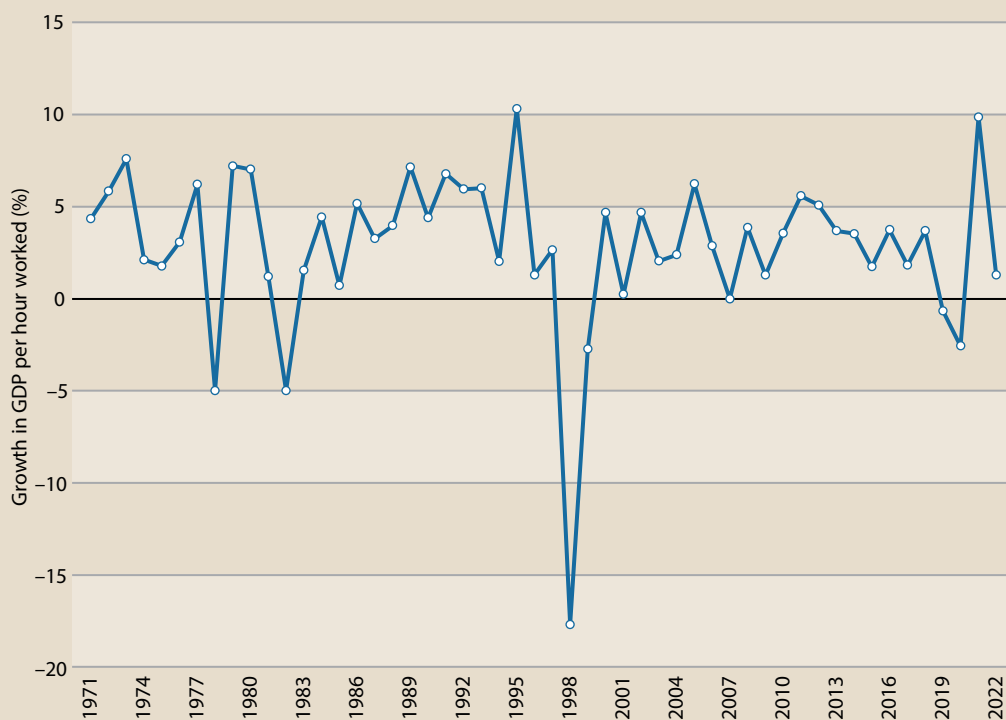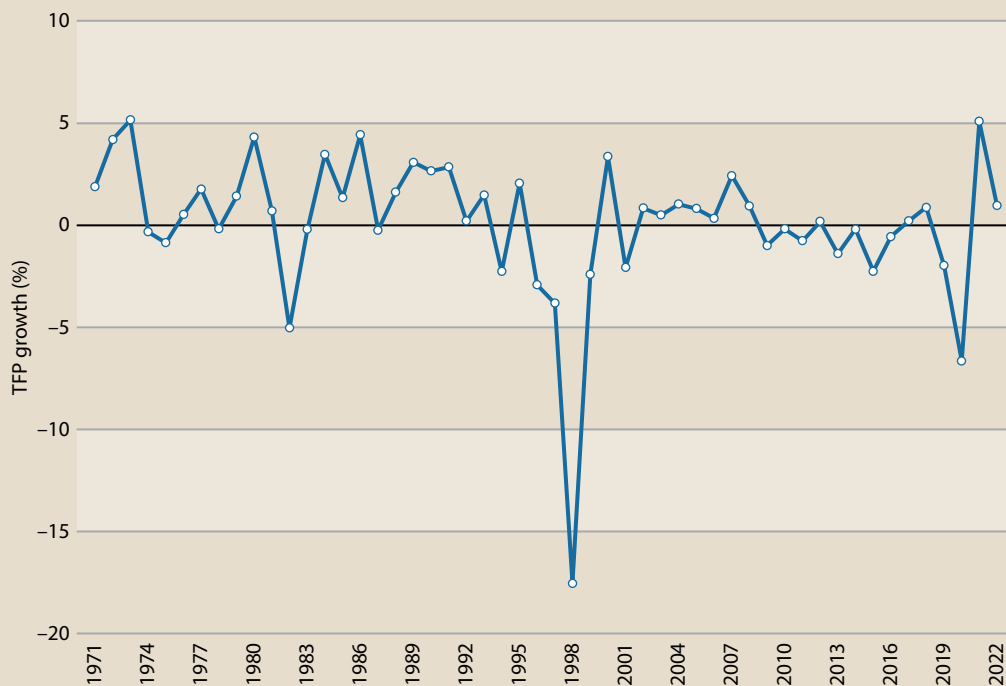
AVERAGE INCOME AND ITS COMPONENTS.

FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.
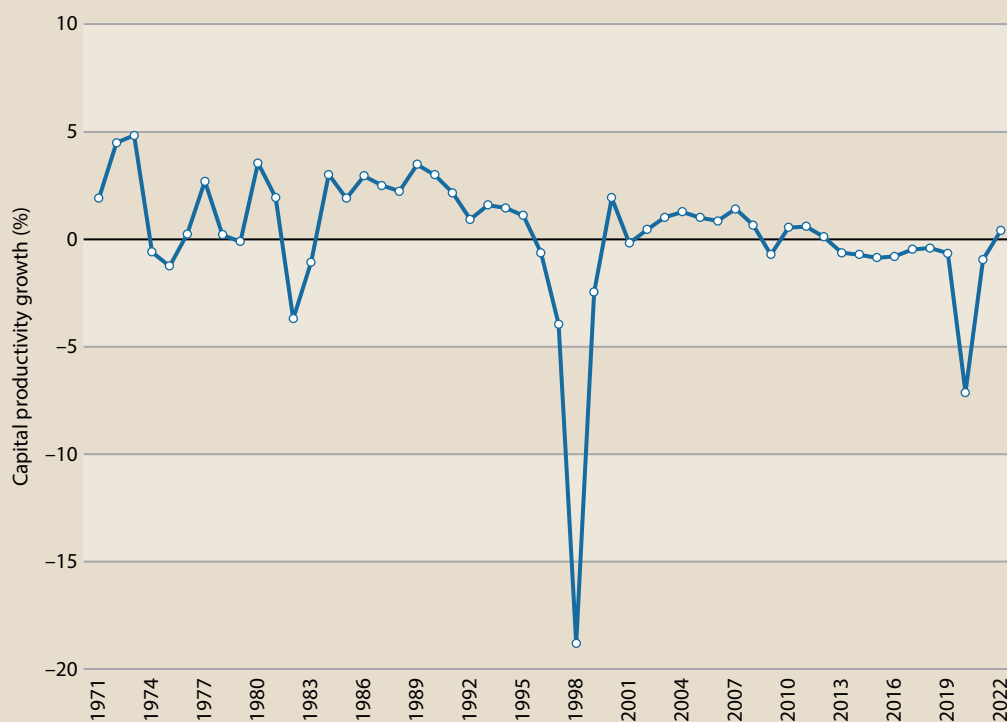
FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.
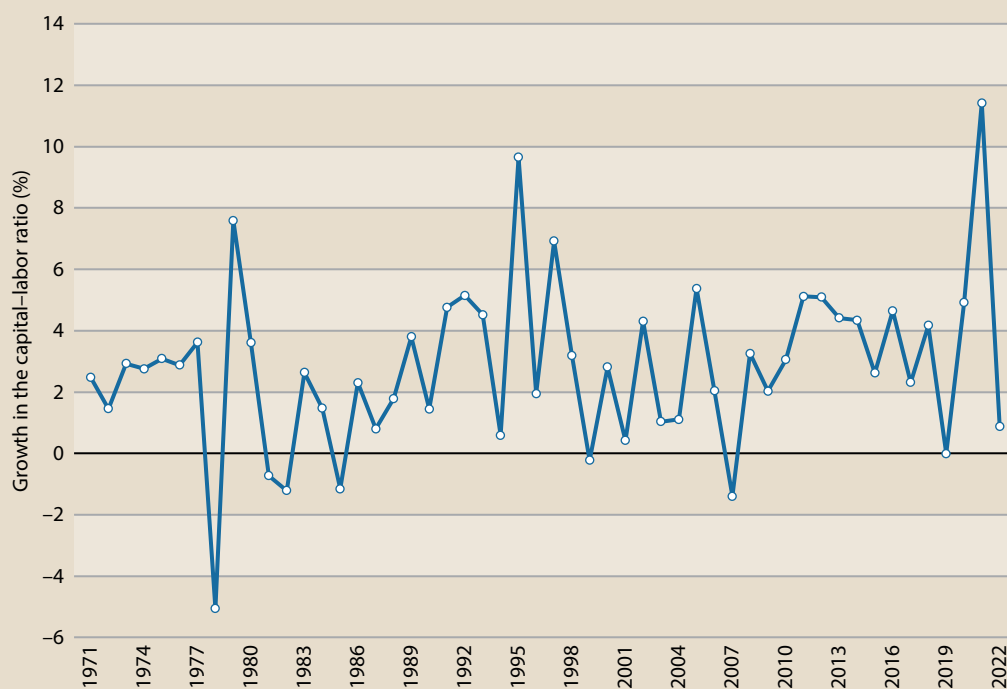
Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5.

Immediate Determinants

Despite a slower IT capital growth rate and lower ranking, Indonesia's capital deepening growth has been significant among its APO peers.

Conversely, Indonesia ranks last among APO peers in terms of labor quality contribution to labor productivity growth. This is despite strong rankings in the WEF's "current workforce" and "entrepreneurial culture" indexes.

Indonesia's exports-to-GDP and imports-to-GDP ratios have both improved since 2020, indicating a recovery from the pandemic and a previous manufacturing slump, along with an improvement in trade openness.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; along with an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

Indonesia performs reasonably well across these four indexes, and ranks within the top ten of its APO peers for each of the indexes. Its overall Productivity Readiness Index value is 42, a slight decrease from the previous iteration of this report (published in 2021). The scores, however, suggest significant room for improvement across all indexes, as Indonesia lags significantly behind the top performers in each category.

Underlying Determinants: Specific Strengths and Weaknesses

Infrastructure quality remains a major constraint for Indonesian productivity growth. Indonesia ranked 11th among APO member economies with an infrastructure index score of 67.7 in 2019. Although transportation and energy access have improved, logistical inefficiencies and inadequate connectivity between islands continue to hinder productivity.

Indonesia's institutions show mixed performance. On the Macroeconomic Stability Index, it scores 90 and ranks seventh among APO peers, which indicates strong fiscal and monetary management. However, "political stability" is a concern, with a WGI score of –0.4 in 2022 placing it on 14th rank among APO member economies (Table 6). Similarly, scores on "control of corruption" and "rule of law" suggest ongoing governance challenges that weigh on investor confidence and business efficiency.

Indonesia's trade openness remains relatively low, leaving scope for expanded and technologically deeper trade engagements. Its score of 59.5 on Trade Openness Index in 2019 and rank of ninth among APO peers, reflects persistent trade barriers (Table 6). Indonesia ranks 15th among APO members on the KOF indicator of Trade Globalization, highlighting the need for further integration into global markets. Similarly, its Financial Globalization Index score of 51.1, ranking it 12th in the APO, indicates limited financial sector openness. Regulatory restrictions on foreign investments

and capital flows continue to constrain financial market efficiency despite improvements in export- and import-to-GDP ratios (Table 4.0; OECD, 2024).

Education and labor market efficiency present additional challenges. Indonesia's Education Expenditure was 3% of GDP in 2021, ranking it 10th among APO member economies and indicating limited public investment in human capital development. While there have been improvements in educational attainment, Indonesia ranks ninth on Future Workforce Preparedness, reflecting skill gaps that hinder productivity. The Labor Market Index score of 57.7 (12th in APO) highlights rigidities in labor regulations, which may discourage investment and formal employment growth, and consequently influence the low contribution of labor quality to productivity, as discussed earlier.

A lack of structural growth in Indonesia means there is room for productivity gains from policies that facilitate labor movement to more productive sectors (Ikhsan et al., 2021). Over the past three decades, the services and manufacturing sectors became the key sources of employment, with the share of labor in agriculture getting halved from 54% in 1986 to only 27% in 2019 (Ikhsan et al., 2021). By contrast, during 1990–2019, employment shares of manufacturing industries and construction increased by five and four percentage points, respectively (Ikhsan et al., 2021). However, workers moving from agriculture to service sectors tend to be employed in less productive activities. For example, a substantial share of labor moving from the agricultural sector is now working in trade, restaurant, and hotel services. By 2019, 46% of Indonesia's labor force was in these sectors, despite their productivity levels being only about half of the manufacturing sector's (Ikhsan et al., 2021). Reform in the services sector could boost manufacturing productivity. For example, easing restrictions on service-sector FDI in Indonesia has been associated with improvements in the productivity of manufacturers (Ikhsan et al., 2021).

Despite these challenges, Indonesia's gross savings rate of 30.4% of GDP, ranked ninth among APO members, reflects a stable macroeconomic foundation that can support long-term investments. To sustain productivity growth, Indonesia must focus on reducing trade and investment restrictions, strengthening institutional quality, and addressing infrastructure constraints.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	5	11	4.3	9
Agriculture share of GDP (%)	Asian Productivity Organization	Open	13.6	7	12.3	8
Agriculture share of employment (%)	Asian Productivity Organization	Open	29	9	28.2	8
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	19.8	9	18.2	13
Manufacturing share of employment (%)	Asian Productivity Organization	Open	13.3	12	13.9	12
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	31	13	29.8	12

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Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Exports/GDP (%)	Asian Productivity Organization	Open	17.2	15	24.4	14
Imports/GDP (%)	Asian Productivity Organization	Open	15.6	20	20.8	20

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	0.5	9	3.2	2
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	9	0.1	8
Labor quality contribution to LP growth	Asian Productivity Organization	Open	–0.2	20	–0.6	21

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	56.3	2019	9	19.8
Entrepreneurial culture	WEF	0–100	60.8	2019	5	9.6
Availability of latest technologies	WEF	1–7	4.8	2017	9	1.5
NRI Technology index	Portulans Institute	0–100	56.1	2024	5	15.1
NRI People index	Portulans Institute	0–100	48.3	2024	9	31

TABLE 5

VALUES OF OVERARCHING INDICES FOR INDONESIA.

Index	Value	APO Rank
Motivation	45	7
Capabilities	43	9
Efficiency of markets	45	7
Stability	38	7
Productivity Readiness Index	42	7

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4.4	2017	= 6	1.4
Quality of primary education	WEF	1–7	4.5	2017	= 7	1.7
Future workforce	WEF	0–100	71.7	2019	9	9.7
Education expenditure/ GDP (%)	World Bank	Open	3	2021	10	2.9
Innovation capability index	WEF	0–100	37.7	2019	12	42.5
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	83	2021	8	17
Infrastructure index	WEF	0–100	67.7	2019	11	27.7
HF Business Freedom	Heritage Foundation	0–100	73.1	2024	6	13.8
Administrative requirements	WEF	0–100	78.4	2019	8	14.7
Domestic competition	WEF	0–100	57	2019	6	17.8
HF Tax Burden	Heritage Foundation	0–100	81.7	2024	9	9
Regulatory quality	World Bank WGI	−2.5 to 2.5	0.2	2022	7	2
Labor market index	WEF	0–100	57.7	2019	12	23.5
HF Labor Freedom	Heritage Foundation	0–100	59.5	2024	6	17.8
NRI Governance index	Portulans Institute	0–100	57.5	2024	10	29.4

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Financial system index	WEF	0–100	64	2019	11	27.4
IMF Financial Markets	IMF	0–1	0.3	2021	12	0.6
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20
Life expectancy at birth (years)	UN data	Open	71.1	2023	15	14.4
Infant mortality (deaths/1000 live births)	WEF	Open	22.8	2017	7	43
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	51.1	2021	12	40.5
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	55.7	2021	10	29.8
FDI stock/GDP (%)	UNCTAD	Open	19.9	2022	11	561
HF Investment Freedom	Heritage Foundation	0–100	50	2024	= 11	40
Trade openness	WEF	0–100	59.5	2019	9	29.2
HF Trade Freedom	Heritage Foundation	0–100	79.6	2024	5	15.4
Services Trade Restrictions Index	World Bank, WTO	0–100	65.6	2022	1	0
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	44.4	2021	15	51.7
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	59.2	2021	9	33.8
Macroeconomic stability index	WEF	0–100	90	2019	= 7	10

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
HF Monetary Freedom	Heritage Foundation	0–100	78.4	2024	4	3.3
Gross savings/ GDP (%)	World Bank	Open	30.4	2023	9	12.3
Institutions index	WEF	0–100	58.1	2019	7	22.3
IMF Financial Institutions	IMF	0–1	0.4	2021	14	0.5
Political stability	World Bank WGI	–2.5 to 2.5	–0.4	2022	14	1.9
Rule of law	World Bank WGI	–2.5 to 2.5	–0.2	2022	13	2
Control of corruption	World Bank WGI	–2.5 to 2.5	–0.4	2022	11	2.5
Government effectiveness	World Bank WGI	–2.5 to 2.5	0.4	2022	8	1.7
Social capital	WEF	0–100	63.2	2019	1	0
Voice and accountability	World Bank WGI	–2.5 to 2.5	0.1	2022	5	0.9

Challenges Ahead

Indonesia has demonstrated its vulnerability to global conditions, particularly geopolitical tensions. Russia's war in Ukraine initially increased energy, food, and fertilizer prices, which reduced Indonesian purchasing power. However, surging prices for commodities such as coal, palm oil, and metals have benefitted the Indonesian economy (OECD, 2024). The unpredictability of these global events could challenge Indonesia in achieving stable and strong productivity growth in both short and long terms.

Productivity growth in Indonesia is hindered by limited innovation readiness, with R&D expenditure at only 0.28% of GDP in 2020, far below ASEAN averages (OECD, 2024). Indonesia also possesses a small research skill base, with 400 research personnel per million inhabitants in 2020. This is in contrast with 7,225 personnel per million in Singapore (OECD, 2024). The R&D funding system has also been compromised by uncompetitive and opaque allocation mechanisms, ineffective management, and being spread too thinly across projects (OECD, 2024). To improve this, a 300% super tax deduction for R&D activities was introduced in 2019, but uptake of the incentive has been limited. Further work on the efficacy of R&D implementation and outcomes is needed over the coming years.

An expanded digital economy could add 11% to Indonesia's GDP over the next two decades. Several policies in recent years have been introduced to deepen digitalization (OECD, 2024). These include the Digital Indonesia Roadmap 2021–24, the Strategic Development Plan 2020–24,

the Making Indonesia 4.0, and the National Artificial Intelligence Strategy 2020–45. However, these efforts are hindered by limited broadband connectivity, with 5G's population coverage being just 16% in 2023, compared with 90% in Thailand (OECD, 2024). Further, overall educational attainment and ICT-related skills remain low. AWS/AlphaBeta estimate that around 75% of Indonesian workers are digitally illiterate (OECD, 2024). This contributes to a skill shortage in areas of digitalization and ICT.

Indonesia also faces challenges regarding climate change. It is highly exposed to rising average temperatures as well as extreme and unpredictable weather (OECD, 2024). Indonesia also relies heavily on coal for both power generation and export revenue. In recent years, Indonesia's net emissions have risen in line with growing energy demand as the economy expands (OECD, 2024). This is not in line with its goal of achieving net-zero greenhouse gas emissions by 2060. Meeting this goal will require substantial medium-term changes, both in terms of emissions reduction and in adaptation measures, to address the already visible impacts of climate change.

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ISLAMIC REPUBLIC OF IRAN

The Islamic Republic of Iran (IR Iran) is situated in West Asia, with a population of approximately 89 million in 2023 (World Bank, 2024). Despite a relatively low average income, with gross national income (GNI) per capita of around USD4,600 per annum in 2023, IR Iran has a relatively high life expectancy, averaging 74.6 years (World Bank, 2024). GDP growth in IR Iran has been rising in recent years, but remains low at 3.4% and is 16th among APO member economies. IR Iran relies mostly on its energy sector, which accounts for 30-45% of its national budget (DFAT, 2019). It is currently subject to a range of international sanctions, and was the most sanctioned country in the world until Russia invaded Ukraine in 2022 (Kandil & Mirzaie, 2021).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	87.2	8	0.7	11
GDP (USD billion at PPP)	1587	7	3.4	16
GDP per capita (USD at PPP)	18,149.3	9	2.7	14
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	24	15	23	15
Employment rate (%)	27.8	21	27.2	21
Age dependency ratio (%)	49.3	10	49.5	9
Old-age dependency ratio (%)	11.7	9	12.6	9

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	−0.5	21	3.5	11
TFP (index)	−1.2	19	2.4	9
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	27	8	29	8

IR Iran ranked ninth among APO member economies for TFP growth and 11th for labor productivity (LP) growth, with growth rates of 2.4% and 3.5%, respectively.

LP growth in IR Iran has stagnated over the last decade. Between 2010 and 2022, it experienced no LP growth, compared with modest gains in previous periods (0.1% in 1970–90 and 2.8% in

1990–2010) (APO, 2024). Larger firms in IR Iran experienced slight productivity growth of 0.3% annually between 2005 and 2011, while small firms faced sharp declines of –2.5% in the same period (Rahmati & Pilehvari, 2017). Heavy reliance on fossil fuels and inefficient technologies has suppressed TFP growth and further constrained IR Iran's productivity (Jafari et al., 2020). Innovation is also muted, with low R&D expenditure levels (approximately 20% of global averages) (Rahmati & Pilehvari, 2017). Jafari et al (2020) noted that human capital and FDI during their study period played no role in TFP in IR Iran. Human capital, usually a key component of TFP growth, remains significantly below the global average in IR Iran, reducing its capacity for innovation and adaptation to advanced technologies (Jafari et al., 2020).

Per capita GDP has fallen in the face of this muted productivity, averaging a growth rate of –0.4% between 2010 and 2022 (APO, 2024). IR Iran's reliance on its energy sector for its budget needs makes it particularly vulnerable to external shocks and sanctions (DFAT, 2019). Since the 1970s, it has faced a wide range of sanctions, which have restricted access to foreign markets and technologies, thereby limiting non-oil growth and productivity gains (Kandil & Mirzaie, 2021). These sanctions have also limited IR Iran's integration into global markets, placing further pressure on its TFP growth potential. Economic diversification will be essential if IR Iran is to generate economic growth in line with its 2025 economic plan (DFAT, 2019).

IR Iran experiences significant variations in productivity across industries. However, the overall trend across all sectors remains negative, with the "radio and television products" sector showing the steepest annual decline in productivity at –8% (Rahmati & Pilehvari, 2017). On average, firm-specific productivity in manufacturing declined at the rate of 2.6% annually, even though large top-decile firms experienced modest productivity growth between 2005 and 2011 (Rahmati & Pilehvari, 2017).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	1.1	0	0.8	4.9	–0.5	3.5
TFP growth	0	0.1	0.2	2.6	–1.2	2.4
Capital productivity growth	0.1	0.9	0.6	2.6	–1.1	2.3
Output growth	3.5	2.7	3.8	6.4	0.6	3.4
Combined inputs growth	3.5	2.6	3.6	3.6	1.8	1
Capital growth	3.3	1.8	3.2	3.7	1.7	1.1
IT capital growth	9.6	15.7	17.6	21.3	5.2	–1.1
Hours worked growth	2.5	2.6	3	1.5	1.1	–0.1
Labor quality growth	1.2	1.1	1.7	1.9	1	0.7
Capital deepening	0.6	–0.4	0.2	1.8	0.5	0.9

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
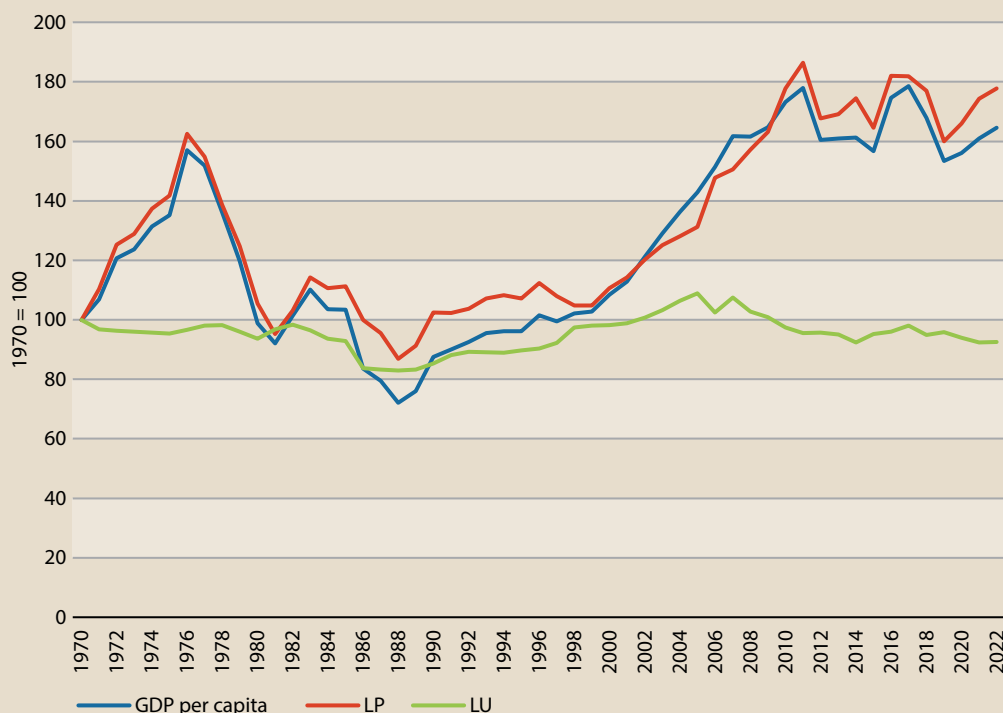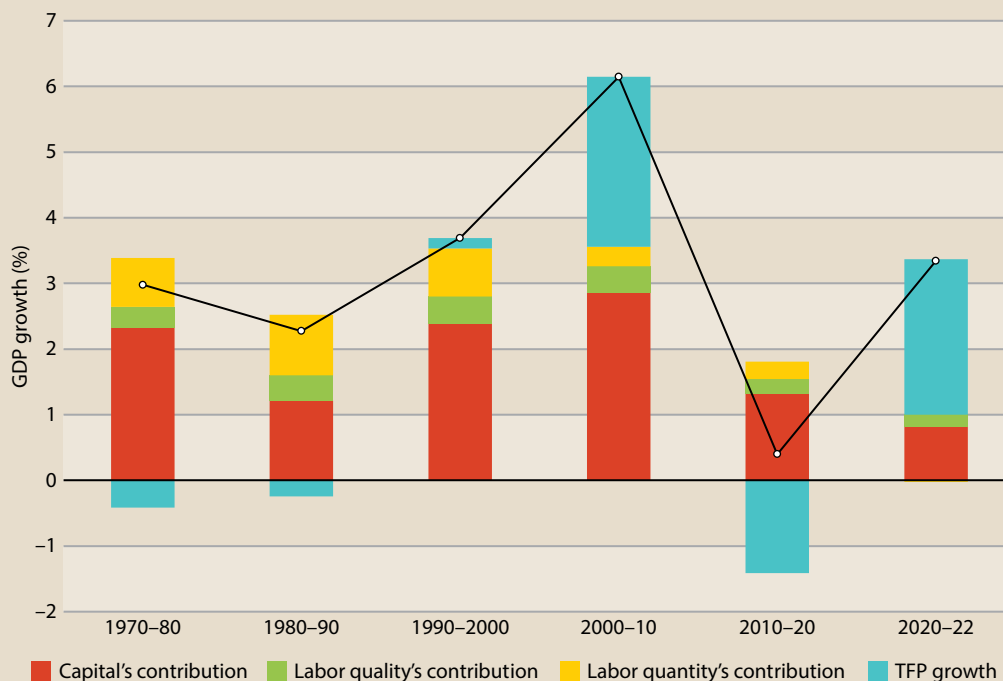
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.
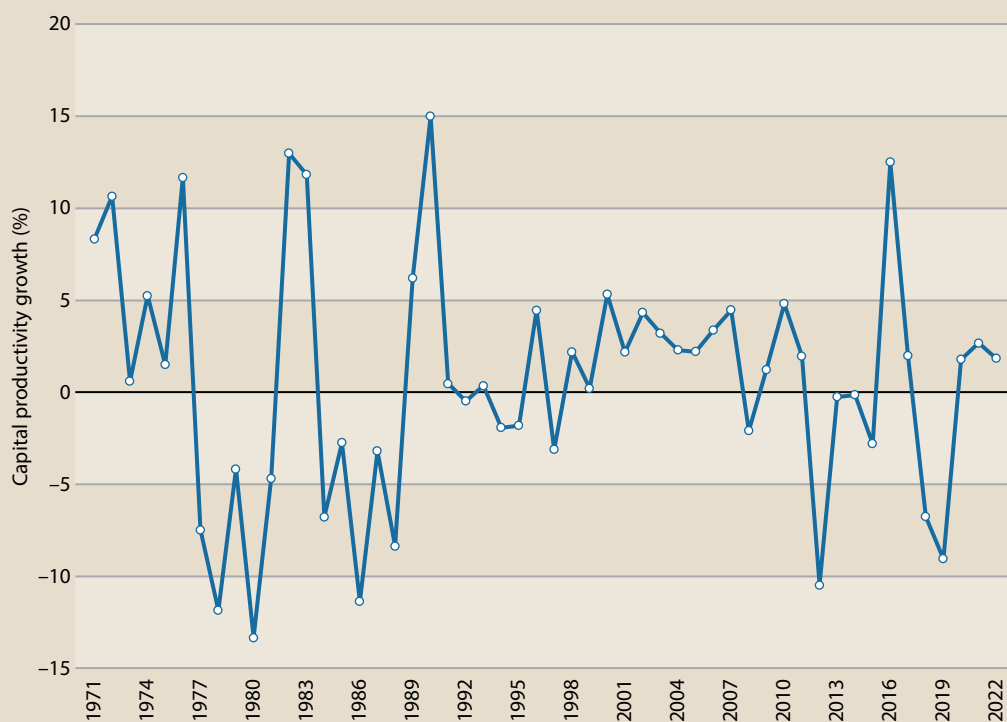
FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.
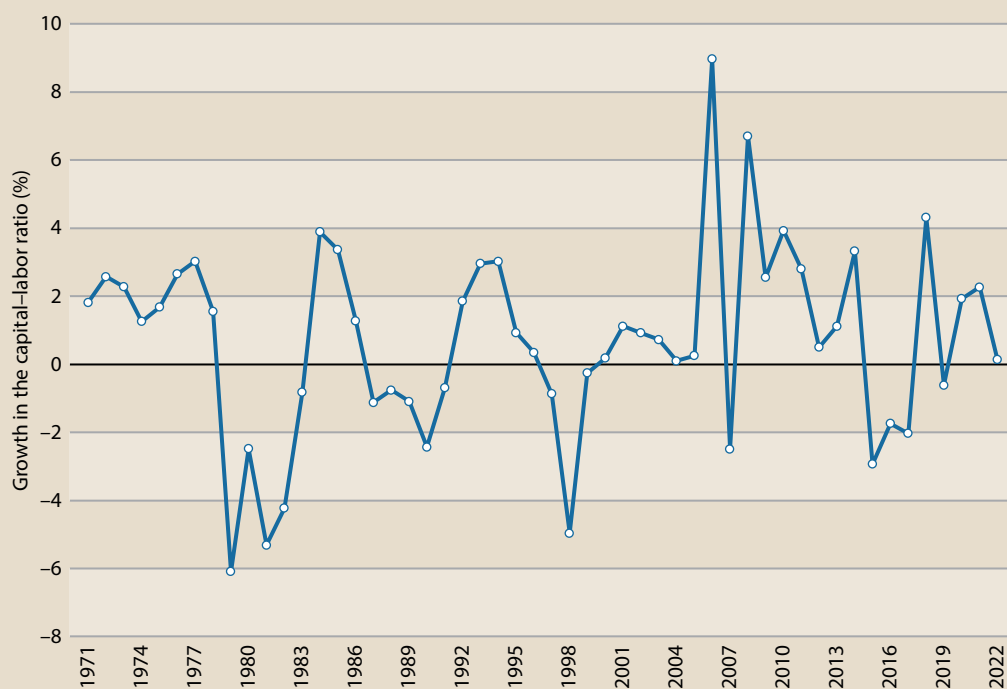
Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5.

Immediate Determinants

IR Iran experienced a declining capital-to-GDP ratio between 2020 and 2022, dropping from first to seventh among APO member economies during the period. Its other productivity indicators remained largely unchanged in ranking over the period, indicating stagnating productivity gains compared with other APO members.

IR Iran's reliance on its energy and resource sectors is demonstrated by its minimal capital deepening, IT capital deepening, and labor quality contributions to growth (all near zero). These factors have sustained growth but constrained productivity gains. This is further reflected in its weak human capital indicators: workforce quality, entrepreneurial culture, and technological availability all score low compared to APO peers.

Trade remains inaccessible for IR Iran due to significant sanctions, reflected in its low imports- and exports-to-GDP ratios, which are among the lowest among APO member economies. Manufacturing still accounts for a significant share of employment in IR Iran, and one of the most important contributors to GDP after the energy and resources sector.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability, as well as an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants, along with their overall productivity readiness.

IR Iran performs poorly compared with its APO peers, with rankings below 15 on all indices as well as on Productivity Readiness Index.

Underlying Determinants: Specific Strengths and Weaknesses

IR Iran faces significant economic and institutional challenges, as reflected in multiple indicators (Table 6). While the country has strengths in certain areas, such as a high gross savings rate (42.7% of GDP, first in the APO) and relatively high life expectancy (77.7 years, sixth in the APO), its economic potential is constrained by trade restrictions, financial system inefficiencies, and weak governance.

IR Iran ranks low in global economic integration, with a Trade Openness Index of 39.8 (19th in the APO) and a KOF Trade Globalization Index score of 30.3 (also 19th in the APO) (Table 6). Similarly, its "Financial Globalization Index" rank of 32.2, 18th in the APO, highlights significant barriers to foreign capital flows. Restrictions on foreign direct investment with FDI stock at 15.5% of GDP (ranking 16th in the APO) and low Investment Freedom score of 5 (raking 20th in the APO) further hinder economic diversification and growth.

IR Iran's institutional framework presents major obstacles to sustainable development. It ranks last in the APO on Regulatory Quality and Rule of Law, and 20th on Control of Corruption. The country suffers from a notable lack of judicial independence and a lack of press freedom, both of which limit the separation of powers and reach of the government (Shahi & Abdoh-Tabrizi,

2020). These weak governance indicators create an unpredictable business environment and discourage investment.

IR Iran's labor market is relatively inefficient, with a Labor Market Index score of 41.3 ranking it 20th in APO, and Labor Freedom score of 48.8, ranking it 16th (Table 6). Educational performance is mixed, with IR Iran ranked 13th in the APO on Future Workforce Preparedness, while Innovation Capability remains relatively low at 10th rank in the APO. These figures indicate the need for structural labor market reforms and greater investment in skills development.

Finally, macroeconomic stability remains a key challenge for IR Iran. It ranks 20th among APO member economies on the Macroeconomic Stability Index, and is constrained in terms of Monetary Freedom and Financial System performance, ranked 20th in the APO on both the indicators (Table 6). High levels of state control and economic sanctions contribute to market inefficiencies, limiting the competitiveness of IR Iran's financial sector (Shahi & Abdoh-Tabrizi, 2020).

TABLE 4.0
IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	12.8	1	5	7
Agriculture share of GDP (%)	Asian Productivity Organization	Open	7.4	15	7.8	15
Agriculture share of employment (%)	Asian Productivity Organization	Open	17.4	14	14.8	14
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	20.3	7	19.9	8
Manufacturing share of employment (%)	Asian Productivity Organization	Open	17.2	5	17.6	4
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	36	11	36.4	10
Exports/GDP (%)	Asian Productivity Organization	Open	16.2	16	22.4	16
Imports/GDP (%)	Asian Productivity Organization	Open	7.4	21	7.6	21

TABLE 4.1
IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	0.1	12	0.9	12
IT capital deepening (pp)	Asian Productivity Organization	Open	0	17	0	18
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.1	14	0.2	11

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	54.3	2019	10	21.8
Entrepreneurial culture	WEF	0–100	39.1	2019	20	31.3
Availability of latest technologies	WEF	1–7	4.1	2017	= 16	2.2
NRI Technology index	Portulans Institute	0–100	45.4	2024	12	25.8
NRI People index	Portulans Institute	0–100	45.8	2024	12	33.5

TABLE 5

VALUES OF OVERARCHING INDICES FOR IR IRAN.

Index	Value	APO Rank
Motivation	11	17
Capabilities	22	15
Efficiency of markets	7	17
Stability	1	17
Productivity Readiness Index	9	17

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.3	2017	18	2.5
Quality of primary education	WEF	1–7	4	2017	11	2.2
Future workforce	WEF	0–100	61.5	2019	13	19.9
Education expenditure/ GDP (%)	World Bank	Open	NA	2021	NA	NA
Innovation capability index	WEF	0–100	38	2019	= 10	42.2
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	74.1	2021	15	25.9

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Infrastructure index	WEF	0–100	64.8	2019	13	30.6
HF Business Freedom	Heritage Foundation	0–100	37.9	2024	20	49
Administrative requirements	WEF	0–100	49.6	2019	18	43.5
Domestic competition	WEF	0–100	43.4	2019	19	31.4
HF Tax Burden	Heritage Foundation	0–100	81.1	2024	= 10	9.6
Regulatory quality	World Bank WGI	–2.5 to 2.5	–1.6	2022	21	3.8
Labor market index	WEF	0–100	41.3	2019	20	39.9
HF Labor Freedom	Heritage Foundation	0–100	48.8	2024	16	28.5
NRI Governance index	Portulans Institute	0–100	52.6	2024	12	34.3
Financial system index	WEF	0–100	47.5	2019	20	43.9
IMF Financial Markets	IMF	0–1	0.4	2021	9	0.4
HF Financial Freedom	Heritage Foundation	0–100	10	2024	20	70
Life expectancy at birth (years)	UN data	Open	77.7	2023	6	7.9
Infant mortality (deaths/1000 live births)	WEF	Open	13.4	2017	11	52.4
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	32.2	2021	18	59.4
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	29.6	2021	18	55.9
FDI stock/GDP (%)	UNCTAD	Open	15.5	2022	16	565.5
HF Investment Freedom	Heritage Foundation	0–100	5	2024	20	85
Trade openness	WEF	0–100	39.8	2019	19	48.9

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
HF Trade Freedom	Heritage Foundation	0–100	55.8	2024	20	39.2
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	30.3	2021	19	65.7
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	35.8	2021	19	57.2
Macroeconomic stability index	WEF	0–100	52.2	2019	20	47.8
HF Monetary Freedom	Heritage Foundation	0–100	38.2	2024	20	43.5
Gross savings/ GDP (%)	World Bank	Open	42.7	2023	1	0
Institutions index	WEF	0–100	42.5	2019	19	37.9
IMF Financial Institutions	IMF	0–1	0.6	2021	7	0.3
Political stability	World Bank WGI	–2.5 to 2.5	–1.6	2022	20	3
Rule of law	World Bank WGI	–2.5 to 2.5	–1	2022	21	2.8
Control of corruption	World Bank WGI	–2.5 to 2.5	–1.1	2022	20	3.2
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.9	2022	20	3
Social capital	WEF	0–100	52.8	2019	10	10.4
Voice and accountability	World Bank WGI	–2.5 to 2.5	–1.5	2022	20	2.5

Challenges Ahead

IR Iran has a long history of violent political protests, which most notably erupted in November of 2019 with an estimated 1,500 deaths. Infrastructure and housing in many districts were damaged, with an increasing sense of radicalization among protestors and a state responding with extreme violence to quell protests (Shahi & Abdoh-Tabrizi, 2020). Coupled with continuing economic challenges, such as inflation, political instability has been consistently exacerbated and felt by the population (Shahi & Abdoh-Tabrizi, 2020). IR Iran's economy is also heavily constrained by cronyism, inefficiencies, and reliance on semi-state cartels like the IRGC's economic complex. International sanctions, especially under the "Maximum Pressure" campaign by the USA, have

further intensified economic hardships, thereby reducing access to resources and modern technologies critical for improving productivity (Shahi & Abdoh-Tabrizi, 2020). Addressing sanctions, cronyism, and inefficiencies in the financial system will be key to fostering sustainable growth in IR Iran (Kandil & Mirzaie, 2021; Shahi & Abdoh-Tabrizi, 2020).

Over 98% of IR Iran's energy use is drawn from fossil fuels (Jafari et al., 2020). Such heavy reliance on fossil fuels reduces TFP due to inefficiency and high pollution levels, while a lack of modern technologies further exacerbates inefficiencies (Jafari et al., 2020). Equally, the limited contributions of renewable energy stunt future productivity gains as the world turns toward renewable and other modern energy technologies, which could otherwise boost IR Iran's TFP (Jafari et al., 2020).

Water mismanagement also threatens IR Iran's economic and human security. Drought and inefficient agricultural practices have negatively impacted the country's water supply, resulting in the loss of around 40% of renewable water resources (DFAT, 2019). Water scarcity and environmental degradation have triggered large-scale migration to urban centers, straining infrastructure and reducing agricultural productivity (Shahi & Abdoh-Tabrizi, 2020). Efficient irrigation and water-use plans are urgently needed to sustain agriculture and mitigate environmental challenges (DFAT, 2019). The government has introduced a water management plan to boost efficiency from 36% to 70% by 2025 through modern irrigation techniques, signaling a positive step in this direction (DFAT, 2019).

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JAPAN

Japan's post-war economic expansion and industrialization saw the island nation of 124.5 million (World Bank, 2024) experience a significant period of rapid growth until the collapse of the Japanese asset price bubble in the early 1990s (Yagi. et al., 2022). Since then, Japan's economic growth rate has been consistently low, averaging approximately 1% annually (Yagi, et al., 2022). The country faces numerous productivity challenges due to its shrinking and aging population, with the highest old-age dependency ratio among APO member economies at 48.8%.

Having achieved very high levels of productivity and output growth before the 1970s, which classified Japan as one of four "Asian Tigers," it is classified as a high-income economy (World Bank, 2024) with GNI per capita (PPP) at USD52,640.0 in 2023 (World Bank, 2024). One of the most notable features of Japan's economic growth story has been the rapid development of its manufacturing sector, home to some of the world's largest and most advanced industrial plants in heavy industries such as automotive and shipbuilding.

TABLE 1
CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	124.9	5	-0.5	19
GDP (USD billion at PPP)	6,208.4	2	1.7	18
GDP per capita (USD at PPP)	49,688.2	5	2.2	18
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	8.2	19	8.1	19
Employment rate (%)	52.4	6	53.6	6
Age dependency ratio (%)	66.3	2	68.4	2
Old-age dependency ratio (%)	46.6	1	48.8	1

Productivity Performance

Since the collapse of the asset price bubble in the 1990s, Japan has performed very poorly in terms of productivity growth, stalling the considerable progress made during its rapid industrialization. For average labor productivity growth during 2010–20, Japan ranked second-last among APO member economies, at 0.4% (Table 2). However, due to historically levels of labor productivity (LP) growth, averaging 5% during 1970–80, Japan still performs relatively well overall, ranked fifth among APO member economies for LP despite the growth stalling in recent decades (Table 3).

Even with strong employment figures, productivity remains constrained due to slow adoption of automation and rigid corporate structures (IMF, 2024). Figure 3 illustrates the considerable decline in LP growth since 1970.

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	0.4	20	0.4	19
TFP (index)	0.1	14	0.8	17
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	53.2	5	53.6	5

While Japan saw a 5.3% wage increase in 2024, the largest in three decades, structural barriers continue to hinder labor productivity (IMF, 2024). Since 2005, non-regular workers have increased from 32% to 37% in 2021, facing lower wages and limited training opportunities that restrict long-term productivity growth (OECD, 2024). Labor market rigidity and an aging workforce further exacerbate these challenges. While wage increases signal progress, productivity gains remain insufficient to support long-term economic growth.

TFP growth has similarly been poor in recent decades, ranking 14th during 2010–20 and 17th during 2020–22 (Table 2). The slowdown in TFP growth, coupled with declining long-run labor productivity, reflects structural inefficiencies that limit Japan's economic potential. Without significant reform, Japan's GDP per hour worked, which is already well below the OECD average, faces further declines (OECD, 2024).

Japan's GDP growth has remained consistently low, averaging under 1% annually since the 1990s (IMF, 2024). The economy grew by 1.9% in 2023, surpassing pre-pandemic levels, but was projected to slow to 1.0% in 2024, driven primarily by domestic demand (OECD, 2024). The slowdown reflects the fading impact of one-off growth drivers such as a post-pandemic surge in tourism, alongside long-term structural constraints such as demographic challenges and global economic uncertainties (IMF, 2024). Over the medium term, growth is expected to stabilize at around 1% annually, with the output gap now closed but productivity constraints limiting the potential for sustained high growth (IMF, 2024). Inflation has remained above 2% since April 2022, shifting from cost-push to demand-driven pressures, further influencing economic conditions (IMF, 2024). Historically, Japan's major economic expansions, such as the Izanami boom (2002–2008) and the post-2012 recovery, failed to lift long-term growth potential, underscoring persistent structural issues (Yagi et al., 2024).

Output growth during 2020–22 was driven primarily by labor quantity growth and TFP gains, while capital contribution dropped considerably, marking a significant shift from recent decades (Figure 2).

Despite a notable rise in women's workforce participation, further reforms are necessary to close gender gaps in leadership and high-productivity industries. Labor shortages have brought more women and seniors into employment, but participation rates in these groups are already high, meaning future gains must come from productivity improvements rather than additional workforce entrants (Bank of Japan, 2025). Policies addressing workstyle reforms, childcare expansion, and SME support could enhance labor market efficiency and foster greater female representation in high-value sectors. However, rigid corporate structures and limited career mobility continue to hinder women's economic advancement (IMF, 2024).

Japan's labor market dualism, i.e., the divide between regular and non-regular workers, has led to chronic underinvestment in human capital, thereby further slowing productivity growth. Labor reallocation across industries remains weak, meaning that even as productivity declines in some sectors, workers are not shifting to more efficient industries (Yagi et al., 2024). Additionally, capital misallocation has limited economic dynamism, with low-productivity firms persisting due to subsidies and inefficient resource allocation. The pace of capital accumulation has slowed, with Japan's stock of tangible fixed assets remaining stagnant since the mid-2000s (Yagi et al., 2024). Growth in the capital–labor ratio has also declined considerably since 1970 (Figure 6).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	5	3.9	2	1.2	0.4	0.4
TFP growth	1.2	1.6	0.2	0.2	0.1	0.8
Capital productivity growth	−1	0	−1.1	−0.1	0.1	1.7
Output growth	5.2	4.6	1.2	0.6	0.4	1.8
Combined inputs growth	3.4	3	1	0.4	0.3	1
Capital growth	5.8	4.6	2.4	0.7	0.3	0
IT capital growth	12.8	19.5	9.4	5	2.9	1.6
Hours worked growth	0.2	0.7	−0.7	−0.6	0	1.4
Labor quality growth	1.6	1.1	0.7	0.8	0.4	0.3
Capital deepening	2.3	1.6	1.3	0.6	0.1	−0.5

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
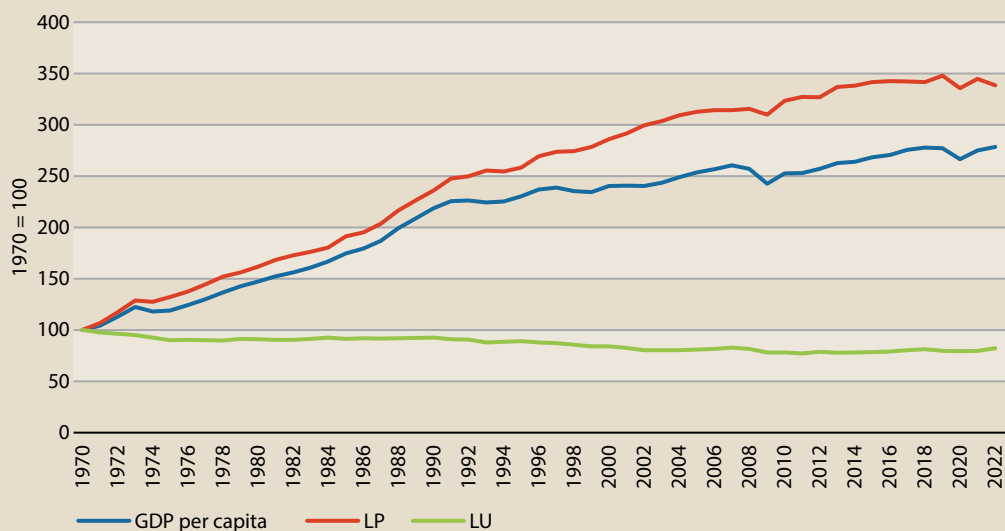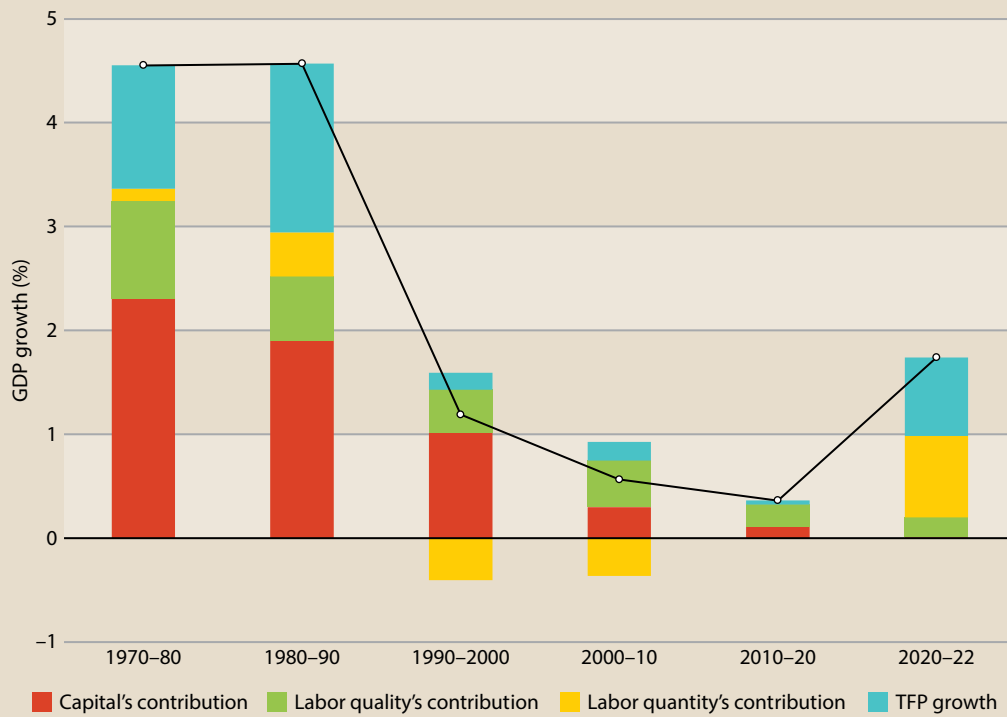
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

- Capital's contribution
- Labor quality's contribution
- Labor quantity's contribution
- TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws from the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

At 19.1%, manufacturing constitutes a somewhat large share of GDP in Japan, and ranks eleventh among APO member economies. Medium- and high-tech share of manufacturing is high at 54.7% (ranked fourth) and reflects Japan's technological strength following its rapid industrialization. Agriculture accounts for just 1% share of Japan's GDP, the third-lowest among APO member economies. Capital deepening is very low, with a negative average growth of –0.5%, ranking Japan 18th. IT capital deepening averaged 0% during the same period, placing Japan 15th. This reflects the considerable challenges Japan has faced since the 1990s in bolstering productivity. Labor quality's contribution to LP growth has been relatively moderate, averaging 0.2 over 2020–22, ranking Japan tenth.

Trade volumes for Japan are not very high, with an export-to-GDP ratio of 21.5% (17th rank), and an import-to-GDP ratio of 25.3% (16th rank). But despite weaknesses in these indicators, Japan continues to perform well on a number of indices, mostly due to its historic progress. It ranks third on the WEF's "current workforce" index and eighth for "entrepreneurial culture." However, its strongest performance is for the WEF's "availability of latest technologies" metric, where it is ranks first among all APO member economies, reflecting Japan's continued strength in high-tech

industries despite subpar productivity growth in recent decades. This strength is also reflected in Japan's performance on network economy indicators that measure technological integration, ranking third on both the "NRI technology index" and the "NRI People Index."

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; and an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants, along with their overall productivity readiness.

Japan performs very well, ranking third for each overarching index, except for stability. It ranks second for stability, an improvement of one place since the last iteration of this report, representing a key strength of the Japanese economy. It also ranks third on the overall Productivity Readiness Index (Table 5), even though its score on PRI has slightly worsened from 87 to 82.

Underlying Determinants: Specific Strengths and Weaknesses

While Japan performs very well on a number of underlying determinants, ranking among the top three APO member economies for many determinants (Table 6), much of this is due to its historic progress. Japan must improve its performance on a number of indicators to return to higher levels of LP and TFP growth. Without targeted policy action to improve capital efficiency, business dynamism, and workforce adaptability, Japan's ability to sustain productivity growth remains at risk.

Japan's institutions perform very well. It ranks third on the WEF Institutions Index, first on the IMF Financial Institutions Index, and second on the World Bank WGI Government Effectiveness measure. Japan remains a strong performer on judicial independence and property rights. But while it performs very well on "voice and accountability," "political stability," and "rule of law," ranked second on each, its performance on "social capital" is very poor (15th rank). This reflects the need for Japan to improve social cohesion, political participation, and trust in institutions.

Like other high-income economies, Japan performs well on health and education indicators. It has the second-highest life expectancy among APO member economies and the second-lowest infant mortality rate, reflecting positive health outcomes. In education, Japan's primary education system is particularly effective, ranked second on the WEF Quality of Primary Education measure. Japan also ranks sixth on "quality of education system" and eighth on "education expenditure as a proportion of GDP." Japan's performance on education underpins its strong capacity for innovation.

Japan's financial system is also very strong. It ranks second on the Heritage Foundation's Financial Freedom index, fourth on the WEF Financial System Index and first on the IMF Financial Markets measure, supported by its particularly high performance on financial institution quality. Japan also has high-quality infrastructure and ranks third on the WEF Infrastructure Index, performing especially well on transport and utility infrastructure.

Japan's labor markets also perform well, ranking fourth on the WEF Labor Market Index and fourth on the Heritage Foundation Labor Freedom measure. Yet, challenges persist. Japan faces significant demographic pressures, with the elderly dependency ratio projected to reach 79% by 2050 (OECD, 2024). To sustain economic growth, boosting labor productivity is crucial. However,

structural barriers hinder human capital development. Despite investments in R&D, complementary investment in human capital is insufficient, limiting the effective adoption of new technologies. Additionally, labor market inefficiencies, such as the persistence of low-productivity firms and underinvestment in workforce training, restrict the reallocation of labor to more productive enterprises. SMEs, which contribute only 6% to R&D expenditure, far below the OECD average of 40%, exemplify the weak link between human capital investment and innovation diffusion (OECD, 2024). Addressing these barriers is essential to strengthening long-term resilience and sustainable economic growth.

The business environment in Japan performs well. Domestic competition is strong, placing Japan in third place on the WEF Domestic Competition metric. Regulatory quality is also strong, for which Japan is ranked third by the World Bank. It also ranks first on the WEF measure of "administrative requirements" and fourth on the Heritage Foundation's measure of "business freedom." But labor market rigidities and a high tax burden, for which Japan is ranked 19th among APO member economies on the HF Tax Burden metric, continue to hamper progress in this area. Japan's product and market structures remain constrained by labor market rigidity, weak competition, and inefficiencies in resource allocation.

Japan performs well on innovation capability, ranked third on the WEF Innovation Capability Index, but challenges remain. Despite being a global leader in technological innovation, Japan lags in digitalization and AI adoption. The country's R&D spending has grown at a sluggish annual rate of 1.2% since 2000, making it the third-weakest performer in the OECD (OECD, 2024). A key issue is that much of Japan's patent activity is focused on incremental innovation (small refinements of existing technologies) rather than new advancements. However, without greater investment in intangible capital, including skills training and digital transformation, productivity growth is likely to remain constrained. The weak contribution of SMEs to R&D, at only 6%, highlights the broader issue of limited startup activity and venture capital availability (OECD, 2024). While the number of new firms has increased since the pandemic, many of them focus on low-productivity sectors, limiting their overall impact on knowledge-driven growth.

Japan ranks high on trade openness, ranking sixth on the Heritage Foundation Trade Freedom measure and third on the WEF Trade Openness Index (Table 6). Export performance has been supported by a weaker yen, particularly in IT-related goods and inbound tourism, which has increased by more than four times since the reopening of borders post-pandemic (Bank of Japan, 2025). However, the services sector, accounting for a majority of GDP, remains relatively unproductive by global standards (Yagi et al., 2024). To improve market efficiency, Japan must address regulatory rigidities, enhance competition, and promote digital transformation in key industries. While Japan's financial markets remain stable, yen's depreciation has increased import costs, potentially offsetting Japan's gains in export competitiveness. The country continues to lead in robotics and advanced manufacturing, with exports expected to rise in IT-related goods. Additionally, inbound tourism has increased more than four times as noted above.

Despite high scores on indicators for financial globalization and investment freedom, Japan performs poorly on its FDI stock-to-GDP ratio, ranking 19th among APO member economies (Table 6). Japan seeks to fix this through fiscal incentives, but this challenge has persisted and Japan's ranking on this metric has not changing since the last iteration of this report.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	6.4	8	6.2	4
Agriculture share of GDP (%)	Asian Productivity Organization	Open	1	19	1	19
Agriculture share of employment (%)	Asian Productivity Organization	Open	3.7	19	3.5	19
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	19.8	8	19.2	11
Manufacturing share of employment (%)	Asian Productivity Organization	Open	15.5	9	15.2	9
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	54.7	4	54.7	4
Exports/GDP (%)	Asian Productivity Organization	Open	15.5	17	21.5	17
Imports/GDP (%)	Asian Productivity Organization	Open	15.8	19	25.3	16

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−1.1	16	−0.5	18
IT capital deepening (pp)	Asian Productivity Organization	Open	0	19	0	15
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.1	12	0.2	10

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	73.5	2019	3	2.6
Entrepreneurial culture	WEF	0–100	56.9	2019	8	13.5
Availability of latest technologies	WEF	1–7	6.3	2017	1	0
NRI Technology index	Portulans Institute	0–100	63.8	2024	3	7.4
NRI People index	Portulans Institute	0–100	69.3	2024	3	10

TABLE 5

VALUES OF OVERARCHING INDICES FOR JAPAN.

Index	Value	APO Rank
Motivation	82	3
Capabilities	85	3
Efficiency of markets	75	3
Stability	88	2
Productivity Readiness Index	82	3

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4.4	2017	= 6	1.4
Quality of primary education	WEF	1–7	5.4	2017	= 2	0.8
Future workforce	WEF	0–100	73	2019	8	8.4
Education expenditure/ GDP (%)	World Bank	Open	3.5	2021	8	2.5
Innovation capability index	WEF	0–100	78.3	2019	3	1.9
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	93.2	2021	3	6.8
Infrastructure index	WEF	0–100	93.2	2019	3	2.2
HF Business Freedom	Heritage Foundation	0–100	77.5	2024	4	9.4
Administrative requirements	WEF	0–100	93.1	2019	1	0
Domestic competition	WEF	0–100	72	2019	3	2.8
HF Tax Burden	Heritage Foundation	0–100	63.3	2024	19	27.4

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	1.4	2022	3	0.8
Labor market index	WEF	0–100	71.5	2019	4	9.7
HF Labor Freedom	Heritage Foundation	0–100	68.6	2024	4	8.7
NRI Governance index	Portulans Institute	0–100	79.4	2024	3	7.6
Financial system index	WEF	0–100	85.9	2019	4	5.5
IMF Financial Markets	IMF	0–1	0.9	2021	1	0
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20
Life expectancy at birth (years)	UN data	Open	84.7	2023	2	0.8
Infant mortality (deaths/1000 live births)	WEF	Open	2	2017	19	63.8
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	78.8	2021	3	12.8
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	79	2021	3	6.5
FDI stock/GDP (%)	UNCTAD	Open	5.3	2022	19	575.6
HF Investment Freedom	Heritage Foundation	0–100	70	2024	= 2	20
Trade openness	WEF	0–100	68.8	2019	3	19.9
HF Trade Freedom	Heritage Foundation	0–100	75.8	2024	6	19.2
Services Trade Restrictions Index	World Bank, WTO	0–100	42.5	2022	11	23.1

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	56.1	2021	8	40
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	79.8	2021	2	13.1
Macroeconomic stability index	WEF	0–100	94.9	2019	6	5.1
HF Monetary Freedom	Heritage Foundation	0–100	81.7	2024	1	0
Gross savings/GDP (%)	World Bank	Open	29.6	2023	11	13.1
Institutions index	WEF	0–100	71.7	2019	3	8.7
IMF Financial Institutions	IMF	0–1	0.9	2021	1	0
Political stability	World Bank WGI	–2.5 to 2.5	1.1	2022	2	0.4
Rule of law	World Bank WGI	–2.5 to 2.5	1.6	2022	2	0.2
Control of corruption	World Bank WGI	–2.5 to 2.5	1.5	2022	3	0.6
Government effectiveness	World Bank WGI	–2.5 to 2.5	1.6	2022	2	0.5
Social capital	WEF	0–100	46.9	2019	= 15	16.3
Voice and accountability	World Bank WGI	–2.5 to 2.5	1	2022	2	0.1

Challenges Ahead

Japan faces several structural challenges that will shape its productivity trajectory in the coming decades, including demographic decline, labor shortages, and weak business dynamism. With the old-age dependency ratio projected to reach 50.3% by 2025 and the population shrinking by –0.5% annually, workforce shortages will remain a critical issue (IMF, 2024). To address this, policymakers must implement labor market reforms, including childcare expansion, improved workstyle flexibility, and strategies to attract foreign workers. The OECD recommends abolishing mandatory retirement ages, expanding social insurance for non-regular workers, and ensuring equal pay for equal work to enhance labor market participation (OECD, 2024). Further investments in automation, immigration policies, and retraining programs will also be essential to mitigate productivity losses due to demographic pressures. However, Japan's fiscal sustainability remains a pressing concern, with public debt-to-GDP ratio reaching 252% in 2023 and projected to rise further (IMF, 2024).

Fiscal consolidation measures will be necessary to maintain economic stability while funding productivity-enhancing initiatives.

While corporate profits have improved and business sentiment remains positive, Japan's capital stock efficiency is weak. Business fixed investment has seen a moderately upward trend, but R&D investments have not translated into substantial productivity gains. Resource misallocation remains a challenge, as financial resources are not being efficiently directed toward high-productivity firms (Yagi et al., 2024). Furthermore, Japan's large public debt-to-GDP ratio (245% in 2022) raises concerns over fiscal sustainability, with future consolidation efforts likely necessary (OECD, 2024). The depreciation of the yen has increased import costs but has also enhanced export competitiveness, potentially supporting physical capital investment in tradable sectors (IMF, 2024). Nonetheless, to improve productivity, investment must be coupled with more efficient capital utilization.

In addition to demographic challenges, Japan must accelerate its digital transformation and shift resources toward high-productivity sectors. Despite its reputation for technological innovation, Japan lags in AI adoption, automation, and digitalization, requiring stronger policy incentives to boost investment in these areas (Yagi et al., 2024). The Vision for a Digital Garden City Nation aims to integrate digital infrastructure into rural and urban development, but further efforts are needed to reduce skills mismatches in digital and high-tech industries (OECD, 2024). Moreover, zombie firms, i.e., inefficient businesses kept afloat by subsidies and bank lending, continue to hinder innovation diffusion and resource allocation (Yagi et al., 2024). The government must gradually phase out these support measures to encourage firm dynamism and productivity growth. Japan's green transformation (GX) initiatives, including investments in carbon pricing and renewable energy, will also play a critical role in achieving net-zero emissions by 2050 (IMF, 2024). However, rising energy costs and carbon transition risks may limit economic gains if not managed effectively. Looking ahead, Japan's economic resilience will depend on its ability to navigate global trade uncertainties, particularly with PR China and the USA, while fostering a more dynamic, innovative, and productive economy.

Japan's business dynamism has shown signs of improvement since the pandemic, with an increase in the number of new firms. However, many of these new businesses are concentrated in low-productivity sectors, limiting their overall macroeconomic impact (Yagi et al., 2024). At the same time, government-backed corporate support measures have slowed the exit of inefficient firms through bankruptcy or other means, thereby restricting innovation diffusion and preventing necessary market restructuring. The persistence of zombie firms kept afloat by subsidies and prolonged bank lending poses a significant risk to future productivity (Yagi et al., 2024). Capital misallocation remains a key challenge, as financial resources are not being redirected toward high-productivity firms that could drive economic growth. Despite Japan's reputation for technological innovation, the country lags in digitalization, automation, and AI adoption, further exacerbating productivity stagnation. Policy incentives are needed to encourage investment in digital transformation and ensure that capital flows to firms capable of driving long-term economic expansion.

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REPUBLIC OF KOREA

The Republic of Korea (ROK) has an advanced economy that has reached the OECD's GDP average, largely by increasing employment and investing in education and capital (OECD, 2024). With a population of over 51 million, the ROK's gross national income (GNI) per capita has grown rapidly from USD280 in 1970 to USD35,490 in 2023, the second-highest in Asia (World Bank, 2024), while its life expectancy has reached 82.7 years. Along with Japan, the ROK is one of only two countries in Asia classified as a high-income country following its rapid growth in previous decades when the ROK was characterized as an Asian Tiger (World Bank, 2024). Targeted industrial policy has facilitated the ROK's exports-led growth. While trade drives the ROK's growth, it also renders the ROK vulnerable to global cycles. At the same time, demographic concerns, characterized by a rapidly aging population, the fourth highest old-age dependency ratio among APO member economies, and the world's lowest fertility rate, challenge its recent economic performance.

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	51.6	11	-0.2	17
GDP (USD billion at PPP)	2810.8	5	3.5	14
GDP per capita (USD at PPP)	54442.5	4	3.8	11
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	18.6	18	18.6	18
Employment rate (%)	53.1	5	55.5	4
Age dependency ratio (%)	38.7	20	40.8	20
Old-age dependency ratio (%)	21.8	4	24.6	4

Productivity Performance

The ROK has the sixth highest labor productivity (LP) per worker among APO member economies. However, LP growth in recent years has been relatively modest, averaging only 2.7% annually during 2020–22 and ranking 12th among APO peers. As demonstrated in Table 3, LP growth has slowed considerably since the 1970s and 1980s, reflecting broader global trends and particularly those of other "Asian Tigers." Over the long term (1970–2022), the ROK's average LP growth has slowed considerably, from 6% during 1970–80 to 2.7% in 2020–22 (Figure 3).

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	3	9	2.7	12
TFP (index)	0.7	6	1.7	13
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	49.3	6	51.9	6

The ROK ranked 13th for TFP growth during 2020–22, at 1.7% per year. While this was an improvement from the 2010–20 period, when growth averaged 0.7% annually, its ranking among APO member economies nonetheless slipped from sixth earlier. This was because many economies in the region saw bolstered TFP growth between these periods, while the ROK's growth fell short of theirs.

Capital productivity growth in the ROK was 0.8% during 2020–22, a positive sign given the negative average growth in capital productivity over the previous three decades. This helped offset some of the decline in capital growth (Table 3).

Like other Asian Tiger economies, rapid industrialization promoted by targeted industrial policy led to high productivity growth in the 1970–90 period, as investment in manufacturing drove a transition from the production of low-value primary goods to high-value technology commodities. Heavy investment in capital and education, particularly in skills and technology, contributed significantly to LP and TFP productivity growth in this period (OECD, 2024; Salahuddin & Yulet, 2021). However, productivity growth slowed in the decades that followed this period, mirroring broader trends across Asian Tiger economies as well as globally (OECD, 2024).

Global value chain-related trade has contributed significantly to the rise in ROK's TFP by promoting specialization in sub-processes for which it has comparative advantage (Urata & Baek, 2019). Regular reevaluation of industrial policy to respond to changes in comparative advantage dynamics, along with an emphasis on distributing resources to the production of high value-added outputs, has also facilitated the ROK's economic catch-up (Salahuddin & Yulet, 2021). However, low competition in domestic sectors has created productivity gaps (OECD, 2024). Consolidating regulations, opening the ROK's economy further to FDI, and reducing protections and interventions in the market could incentivize SME growth and reduce productivity gaps (OECD, 2024).

Despite high growth during the ROK's rapid industrialization period, with output growth reaching 9.6% during 1970–80 and 10.4% in 1980–90, GDP growth only reached 1.4% in 2023. This slowdown reflects slumps in capital and IT capital growth. During the high-growth decades, capital growth reached 10.4% in 1970–80 and 9.2% in 1980–90, while IT capital growth reached 26.8% and 25.2%, respectively, in the two periods. Accordingly, during these decades, capital made a considerable contribution to output growth (Figure 2). Dynamic industrial policies also supported manufacturing investment, a significant driver of productivity growth (Salahuddin and Yulet, 2021).

Over the period 2020–22, TFP growth contributed a greater share of output growth than in the previous two decades, while labor quality's contribution declined (Figure 2). Trade has been a key growth driver for the ROK, but also renders its economy vulnerable to global economic trends (OECD, 2024). Slowed growth since the early 2000s has been linked to trade tensions and broader global economic trends. Declines in labor quality's contribution to output growth (Figure 2), along with considerable drops in capital and IT capital growth, have also contributed to this decline in growth in recent decades.

Crises such as the 1997–98 Asian financial crisis and the 2009 global financial crisis caused downturns in the ROK, but it managed to stabilize their effects. High interest rates and weak wage growth have applied downward pressure on private consumption, though this has been partly offset by the ROK's strong employment levels (OECD, 2024).

In 2022, the ROK's ratio of ICT and R&D capital stock to GDP was the highest in Asia (APO, 2024). Capital deepening contributed substantially to LP growth in the ROK in the lead-up to the 2010s.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	6	7.5	6.1	4.8	3	2.7
TFP growth	1.4	2.2	1.8	1.1	0.7	1.7
Capital productivity growth	−1.2	0.6	−0.7	−0.4	−0.7	0.8
Output growth	9.6	10.4	7.2	4.9	2.5	3.6
Combined inputs growth	7.2	7.3	5.2	3.6	1.8	2
Capital growth	10.4	9.2	8	5.2	3.3	2.9
IT capital growth	26.8	25.2	20.1	7.1	3.2	4.2
Hours worked growth	3.3	2.8	1	0.1	−0.4	0.9
Labor quality growth	0.9	3.1	2.2	2.2	1	0.3
Capital deepening	3.4	2.8	2.9	2.3	1.6	0.8

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
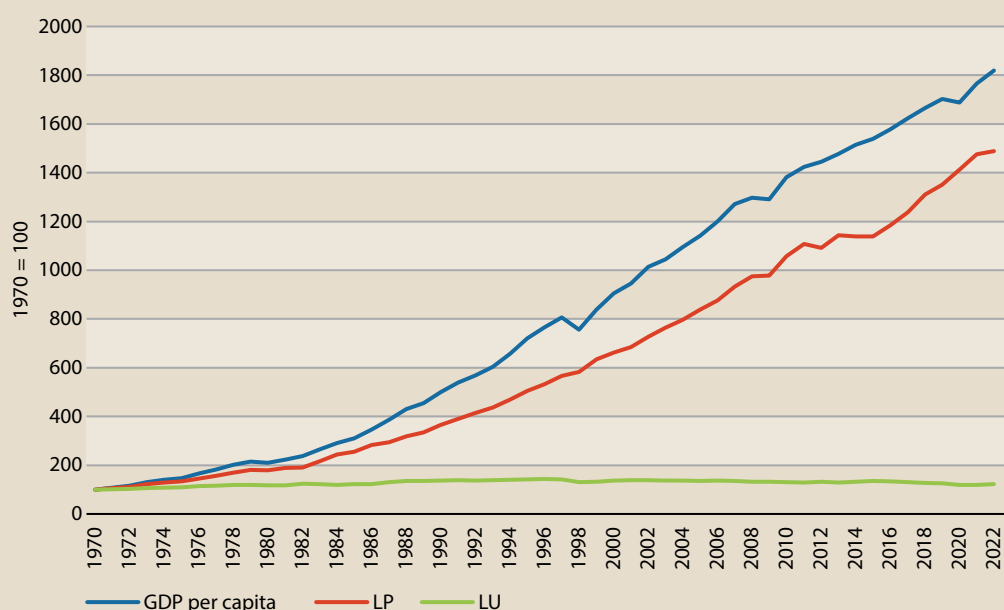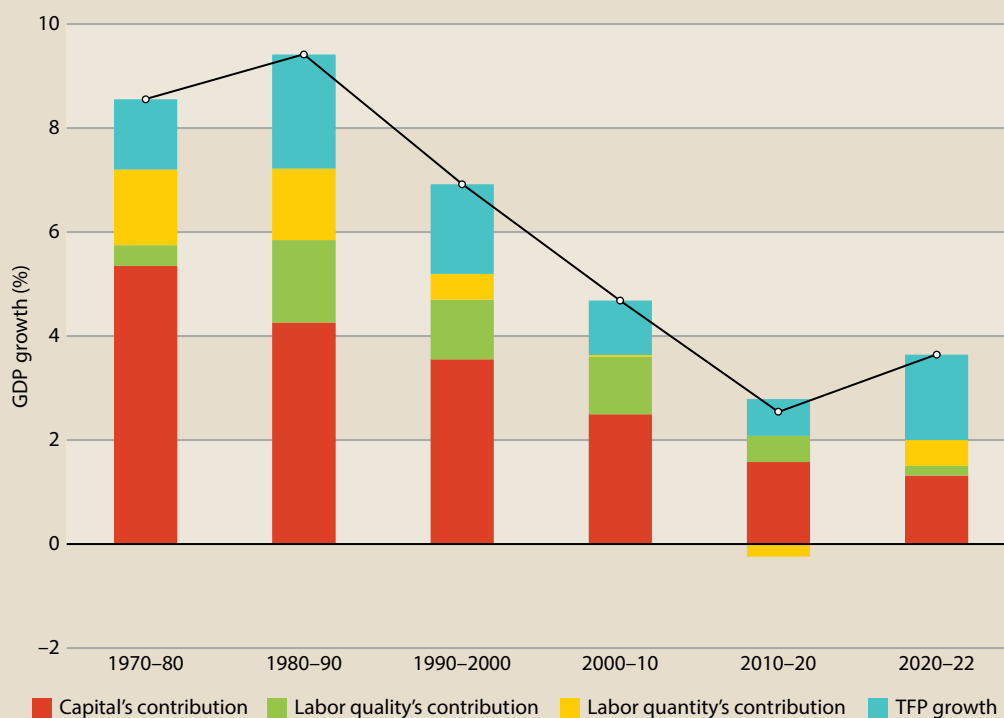
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

The ROK ranks highly for capital-to-GDP ratio, manufacturing's contribution to GDP, and medium- and high-tech's share of manufacturing, ranking third among APO member economies on all three indicators and reflecting its rapid industrialization (Table 4.0). Ranked 17th among APO member economies for agriculture's contribution to GDP, the industrialization has limited the role of agriculture in the ROK's economy.

However, the ROK was placed around the middle among APO member economies for labor quality's contribution to LP growth, capital deepening, and IT capital deepening in 2022. It ranked 10th for the first two parameters, and 11th for the third (Table 4.1).

The ROK ranks first among APO member economies on the NRI People Index and second on the NRI Technology Index, reflecting its strength and potential in the network economy and a highly digitally connected economy (Table 4.2). The ROK remains one of the most technologically advanced countries in the region, ranking third for availability of latest technologies. While it ranks fourth for its current workforce, demonstrating the highly skilled nature of the ROK's

workforce, it comes 10th for entrepreneurial culture, underscoring opportunities for improvement, particularly for small and medium enterprises (OECD, 2024).

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; as well as an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and overall productivity readiness.

On each of the four indices and on the Productivity Readiness Index, the ROK ranks fourth among APO member economies, reflecting a strong level of productivity readiness across the board (Table 5). Since 2020, it has improved on the capabilities index, moving up one place, but weakened on the efficiency of markets index despite retaining its fourth rank.

Underlying Determinants: Specific Strengths and Weaknesses

On a number of determinants, the ROK performs strongly. Ranked second on the WEF's innovation capability index, it remains at the forefront of technological development and innovation in the region.

Prior to the 2024 martial law crisis, the ROK also performed well on governance and public sector effectiveness, ranking sixth on the WEF Institutions Index, third on "voice and accountability," seventh on "political stability," and fifth on "rule of law, government effectiveness, and control of corruption" (Table 6). Political stability and effective institutions have helped foster industrialization, FDI, and growth in the ROK. The ROK also performs well on regulatory quality, where it is placed fifth. Improvements could be made to level the playing field for small and medium enterprises (OECD, 2024).

A key strength of the ROK is macroeconomic stability, where it ranks first among APO member economies. This is despite the challenges it faces on exposure to global trade turbulence. The ROK also has one of the lowest infant mortality rates among APO member economies and the third highest life expectancy, reflecting strong health outcomes (Table 6).

Several other strengths have supported decades of rapid growth and rising incomes in the ROK. It ranks fourth on the WEF's Infrastructure Index, second on the Heritage Foundation's Financial Freedom Index, second on the IMF Financial Institutions Index, and fifth on the investment freedom parameter. All of these indicators support the rapid investment and industrialization processes that have supported the exponential growth experienced by the ROK since the 1970s.

Despite the importance of trade to the ROK's long-term economic growth through its export-led development strategy, it ranks only tenth for trade openness and ninth on the HF Trade Freedom Index (Table 6). Barriers and regulations continue to limit foreign competition (OECD, 2024). Regarding labor markets, the ROK ranks ninth on the WEF's index and tenth on the Heritage Foundation's Labor Freedom Index. While not extremely low, this does demonstrate room for the ROK to improve and align its performance in labor markets with that in areas of macroeconomic stability, public sector performance, and innovation. Labor market dualities, rigid employment protections, and issues in the area of work–life balance continue to pose challenges for the ROK's labor market performance.

While the ROK ranks second among APO member economies for education expenditure as a proportion of GDP, it ranks only 15th for educational quality, underscoring a large gap in resources dedicated toward education and educational outcomes (Table 6).

The ROK also ranks just tenth in the APO for domestic competition, lower than its performance on most other indicators. This reflects continued challenges in the ROK regarding barriers to competition within the domestic economy, which has contributed to productivity gaps, particularly among small and medium enterprises (OECD, 2024). While it ranks second for business freedom, the ROK performs poorly on the Heritage Foundation's Tax Burden Index, implying opportunities to improve its business environment through tax reforms. It also performs relatively poorly on FDI stock as a share of GDP, ranking 15th among APO member economies (Table 6).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	9	3	8.4	2
Agriculture share of GDP (%)	Asian Productivity Organization	Open	1.8	17	1.6	17
Agriculture share of employment (%)	Asian Productivity Organization	Open	5.4	17	5.4	17
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	24.8	3	25.6	3
Manufacturing share of employment (%)	Asian Productivity Organization	Open	16.3	6	16	8
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	62.9	3	65.6	3
Exports/GDP (%)	Asian Productivity Organization	Open	36.4	9	48.3	9
Imports/GDP (%)	Asian Productivity Organization	Open	32.7	12	48.3	10

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	0.4	10	0.9	11
IT capital deepening (pp)	Asian Productivity Organization	Open	0	11	0.1	12
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.2	10	0.2	12

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	71.8	2019	4	4.3
Entrepreneurial culture	WEF	0–100	52.1	2019	10	18.3
Availability of latest technologies	WEF	1–7	5.8	2017	3	0.5
NRI Technology index	Portulans Institute	0–100	66.8	2024	2	4.4
NRI People index	Portulans Institute	0–100	79.3	2024	1	0

TABLE 5

VALUES OF OVERARCHING INDICES FOR ROK.

Index	Value	APO Rank
Motivation	74	4
Capabilities	77	4
Efficiency of markets	64	4
Stability	75	4
Productivity Readiness Index	72	4

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.5	2017	= 15	2.3
Quality of primary education	WEF	1–7	4.6	2017	6	1.6
Future workforce	WEF	0–100	76.2	2019	5	5.2
Education expenditure/ GDP (%)	World Bank	Open	5.4	2021	2	0.6
Innovation capability index	WEF	0–100	79.1	2019	2	1.1
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	90.2	2021	5	9.8

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Infrastructure index	WEF	0–100	92.1	2019	4	3.3
HF Business Freedom	Heritage Foundation	0–100	85	2024	2	1.9
Administrative requirements	WEF	0–100	88.8	2019	2	4.3
Domestic competition	WEF	0–100	53.5	2019	= 10	21.3
HF Tax Burden	Heritage Foundation	0–100	59	2024	20	31.7
Regulatory quality	World Bank WGI	−2.5 to 2.5	1.1	2022	5	1.1
Labor market index	WEF	0–100	62.9	2019	9	18.3
HF Labor Freedom	Heritage Foundation	0–100	57.2	2024	10	20.1
NRI Governance index	Portulans Institute	0–100	80.9	2024	2	6
Financial system index	WEF	0–100	84.4	2019	7	7
IMF Financial Markets	IMF	0–1	0.8	2021	2	0.1
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20
Life expectancy at birth (years)	UN data	Open	84.3	2023	3	1.2
Infant mortality (deaths/1000 live births)	WEF	Open	2.9	2017	17	62.9
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	64.6	2021	8	27.1
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	69.3	2021	4	16.2

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
FDI stock/GDP (%)	UNCTAD	Open	16.3	2022	15	564.7
HF Investment Freedom	Heritage Foundation	0–100	60	2024	= 5	30
Trade openness	WEF	0–100	58.6	2019	10	30.1
HF Trade Freedom	Heritage Foundation	0–100	73.4	2024	9	21.6
Services Trade Restrictions Index	World Bank, WTO	0–100	47.8	2022	9	17.8
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	63.3	2021	5	32.8
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	63.8	2021	7	29.2
Macroeconomic stability index	WEF	0–100	100	2019	= 1	0
HF Monetary Freedom	Heritage Foundation	0–100	77.3	2024	5	4.4
Gross savings/ GDP (%)	World Bank	Open	34.2	2023	5	8.5
Institutions index	WEF	0–100	65.8	2019	6	14.6
IMF Financial Institutions	IMF	0–1	0.9	2021	2	0
Political stability	World Bank WGI	–2.5 to 2.5	0.6	2022	7	0.9
Rule of law	World Bank WGI	–2.5 to 2.5	1.2	2022	5	0.6
Control of corruption	World Bank WGI	–2.5 to 2.5	0.7	2022	5	1.3
Government effectiveness	World Bank WGI	–2.5 to 2.5	1.3	2022	5	0.8
Social capital	WEF	0–100	49.2	2019	12	14
Voice and accountability	World Bank WGI	–2.5 to 2.5	0.9	2022	3	0.2

Challenges Ahead

Demographic issues are central to the ROK's economic challenges. The ROK has the lowest fertility rate in the world, with its population projected to halve over the next 60 years. Increasing old-age dependency ratios will challenge the sustainability of the ROK's public finances and labor supply more broadly (OECD, 2024). While the ROK's debt levels are currently low in comparison to other OECD countries, its rapidly ageing population will apply considerable fiscal pressures (OECD, 2024). Fiscal constraint, policies to incentivize young people to have children, and an immigration program to attract foreign workers will be central to addressing the ROK's demographic challenges and their budgetary consequences.

The ROK's economy is heavily reliant on exports, particularly technology goods, driven by demand from PR China and the USA. While this makes the economy highly exposed to global trade tensions, diversification of trade partners and limiting distortive trade policies can help the ROK to weather these challenges (IMF, 2023). Seoul must resist the urge to provide comparative advantage to domestic industries and lay more focus on building robust global supply chains and reducing investment distortions (IMF, 2023). Reducing unnecessary protections and curbing market power abuse will be crucial for unlocking greater levels of productivity growth (OECD, 2024). Continued growth in AI is expected to support global demand for semiconductors, though the ROK will also remain affected by geopolitical tensions with North Korea (OECD, 2024).

Labor market issues are also key challenges for the ROK. Policies to improve work–life balance should be pursued, along with reducing rigid employment protections. By simultaneously strengthening the ROK's social insurance programs, such policies can incentivize more risk-taking in the labor market and worker mobility, thereby boosting productivity levels (OECD, 2024). It will also be important to support the income levels of SME employees by closing gaps in employment protection and remuneration (OECD, 2024).

Climate change is also central to the future of productivity in the ROK. Most of its emissions come from electricity generation and manufacturing, both of which are closely linked to exports. Policies to bolster renewable energy production, improve energy efficiency, and expand nuclear power must remain central to the policy mix (OECD, 2024). The ROK's emissions trading scheme must continue to be reformed, through measures such as removing restrictions on future-period savings allowances to limit imperfect price discovery (OECD, 2024).

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LAO PDR

Lao PDR is a small landlocked lower-middle-income country in Southeast Asia, with a population of 7,664,993 in 2023 (World Bank, 2024a). Lao PDR has a GDP per capita of USD87,91.8, and is ranked 16th among APO member economies (World Bank, 2024a). Recent growth has been dominated by state-owned enterprises and commodity exports, including mining, hydropower, and transport (OECD, 2024a). With high growth levels, development gains have been made through reductions in poverty rates, along with improved health and education outcomes. But inequality remains high (OECD, 2024a). Post-COVID, while growth has slowed slightly to 2–3%, unsustainably high debt levels, high inflation, and currency depreciation place considerable pressure on households as well as the economy. This is particularly more so given government's revenue constraints and the dominance of the informal economy, which accounts for 90% of employment in Lao PDR (OECD, 2024a) (World Bank, 2021). Macroeconomic instability continues to hamper productivity, growth, and employment (World Bank, 2024). Lao PDR has a high rural population share (ranked fifth among APO member economies), and a high age-dependency ratio (ranked third). However, it has a very low old-age dependency ratio, ranked 19th (Table 1).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	7.5	17	1.4	5
GDP (USD billion at PPP)	66.3	19	4	13
GDP per capita (USD at PPP)	8791.8	16	2.6	15
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	63.7	4	62.4	5
Employment rate (%)	51.3	7	52	7
Age dependency ratio (%)	60.9	3	59.5	3
Old-age dependency ratio (%)	6.9	20	7.3	19

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	1.3	18	1.9	15
TFP (index)	−1.7	21	0.3	19
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	6.7	19	7	19

Lao PDR has very low TFP and labor productivity growth, reflecting considerable economic challenges in the country (Table 2). It was ranked 19th among APO member economies for labor

productivity (LP) and 15th for LP growth for the period 2020–22. Lao PDR struggles to raise tax revenues, making it difficult for it to invest in human capital (OECD, 2024a). Extremely high levels of labor informality also contribute to subpar LP growth in Lao PDR. LP growth peaked in the late 1990s, and has since seen a long-term downward trend (Figure 3).

Its performance on TFP growth is even weaker, ranking 19th with a growth rate of 0.3% over 2020–22, preceded by an even lower base and negative TFP growth during 2010–20 (Table 2). Infrastructure gaps, low agricultural productivity, and dependence on low value-added industries have contributed to this outcome (World Bank, 2021).

Nevertheless, Lao PDR has experienced relatively strong levels of output growth since the 1980s. Average output growth in Lao PDR reached 7.1% over 1990–2000, followed by 5.5% and 3.3% over the subsequent two decades (Table 3). During 2020–22, output growth reached 4%. Structural reforms, which opened the country to FDI and trade, supported this growth. Since then, agriculture's share of GDP has declined considerably while resource sector's value added has risen. In recent years, labor quality and TFP growth have made very little contribution to output growth, while capital continues to contribute significantly (Figure 2).

GDP growth has recovered considerably post-COVID, rising from 0.5% in 2020 to 2.5% in 2021 and 3.7% in 2023 (World Bank, 2024a). Much of Lao PDR's growth has been concentrated in the country's tourism and resource sectors (IMF, 2024). The tourism sector in particular has bolstered growth post-COVID (AMRO, 2023). Over the long term, however, growth and employment have remained concentrated in mining and energy sectors (OECD, 2024a).

Investment in Lao PDR relies heavily on external financial sources and public borrowing (OECD, 2024a). This creates considerable problems for macroeconomic sustainability: while increasing debt levels have supported investment, particularly in the resource sector, government revenue remains low due to its weak tax-raising capacity (OECD, 2024a). Lao PDR's focus on state-owned enterprises and its resource sector has also shifted focus away from human capital investment for fostering manufacturing and services industries.

Since the 1980s, Lao PDR has encouraged FDI by pursuing market-led reforms, including removing price controls, introducing property rights protections, and enabling foreign ownership. While capital growth has been relatively strong, averaging 6.3% over 2010–20 and 4.6% over 2020–22, the benefits have been offset by negative capital productivity growth of –2.8% and –0.6%, respectively, over the same periods (Table 3). Labor quality growth has also been poor, averaging just 0.1% during 2020–22, lower than the average rate across all decades since 1970.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	1.9	1.7	3.9	3	1.3	1.9
TFP growth	0.7	0.4	1.5	1.5	–1.7	0.3
Capital productivity growth	–0.3	–0.6	0.1	1.5	–2.8	–0.6

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Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Output growth	3	4.2	7.1	5.5	3.3	4
Combined inputs growth	2.2	3.8	5.4	3.9	4.8	3.5
Capital growth	3.4	4.9	7	4	6.3	4.6
IT capital growth	1.8	20.9	14.6	9.9	4.3	0.4
Hours worked growth	1.1	2.5	3.1	2.4	1.9	2.1
Labor quality growth	0.3	0.3	0.7	1.5	0.8	0.1
Capital deepening	1	1.2	2	0.9	2.6	1.4
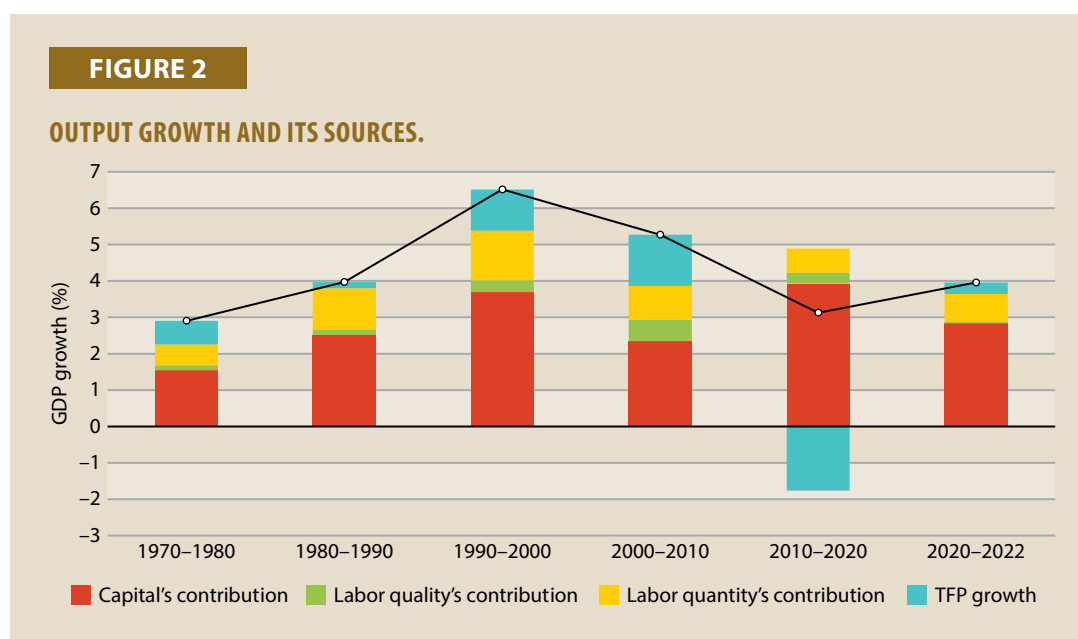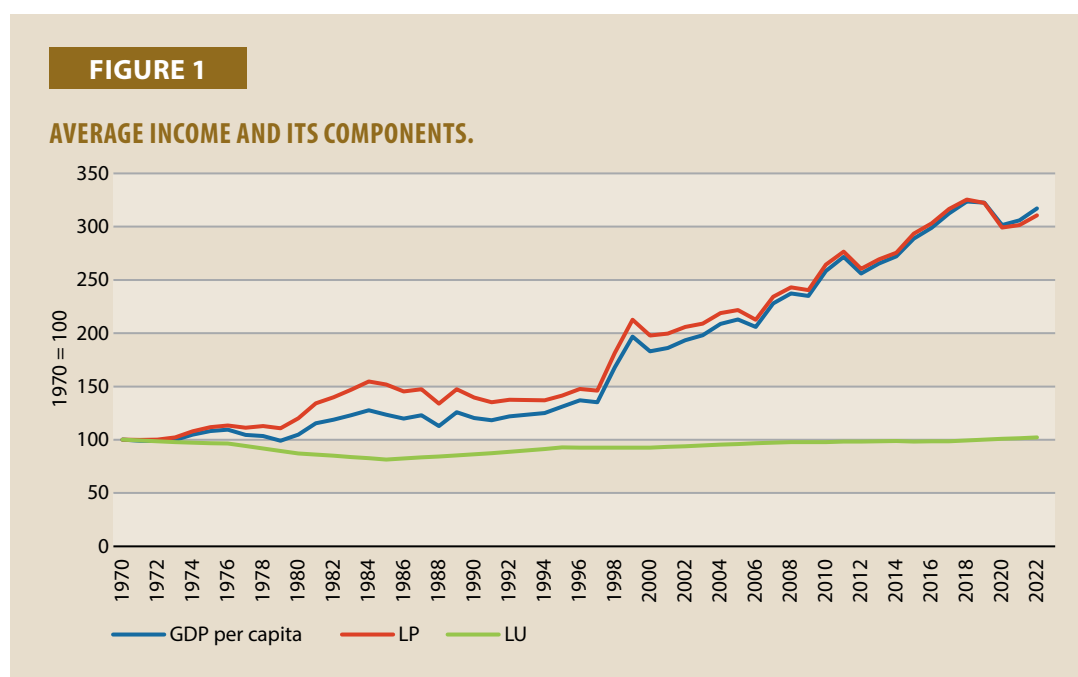
FIGURE 1
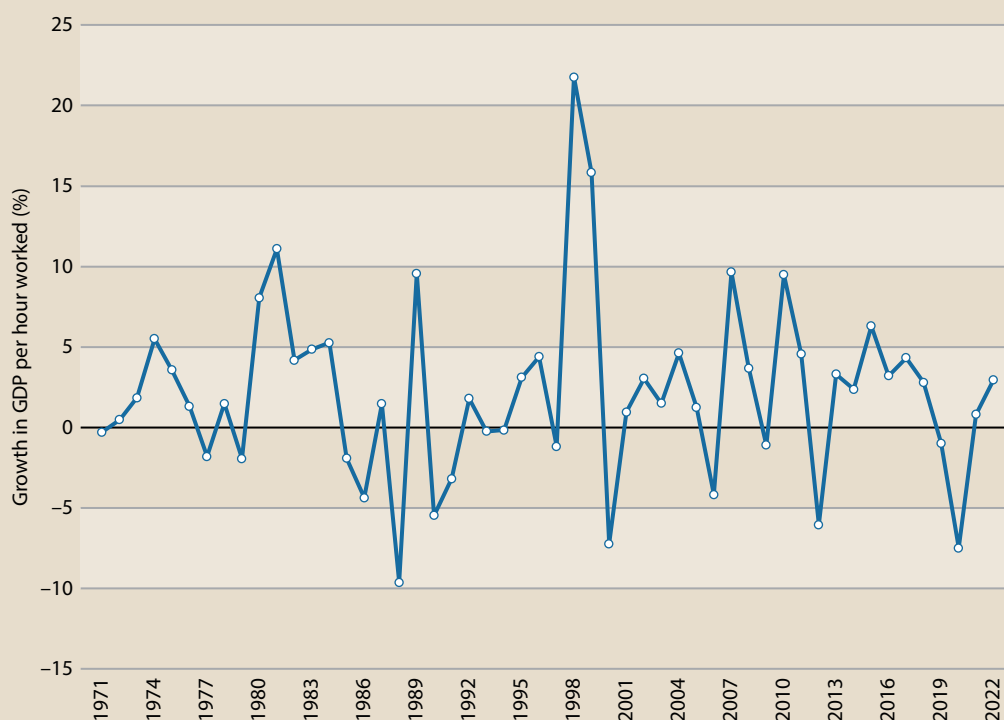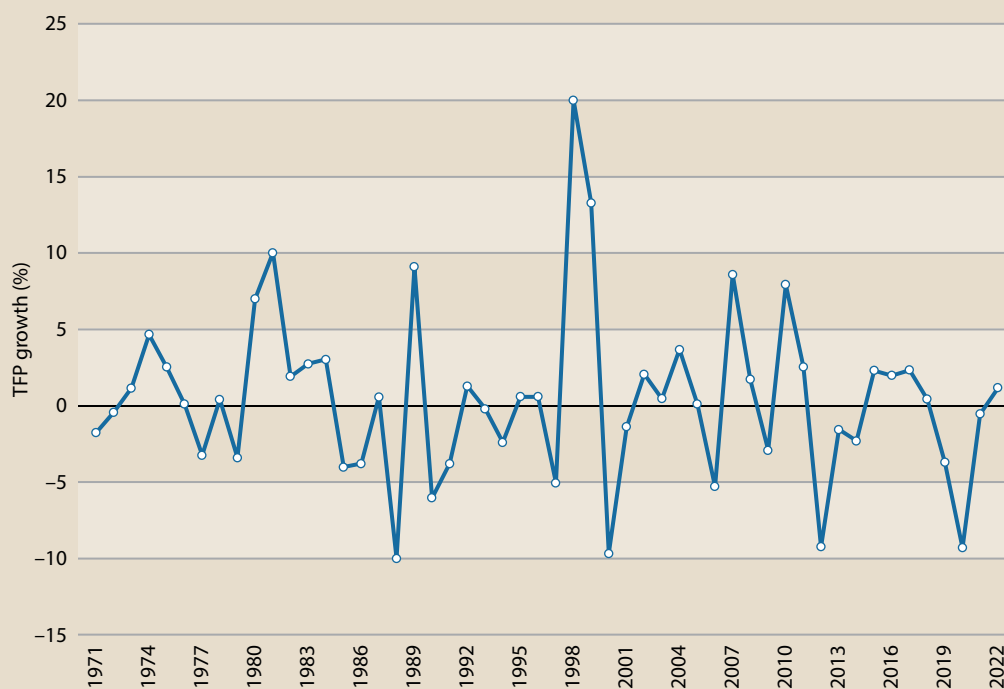
AVERAGE INCOME AND ITS COMPONENTS.

FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Lao PDR has the highest agricultural share of employment (75.9%) among APO member economies, and the third highest agricultural share of GDP (22.4%). At the same time, it is ranked last for manufacturing's share of employment, at only 2.2%, and fourth last for manufacturing's share of GDP, at 8.5% (Table 4.0). It is also ranked second last for medium- and high-tech's share of manufacturing, at only 3.8%. These indicators demonstrate the limited extent of industrialization in Lao PDR.

Lao PDR falls around the middle among APO member economies for exports as a proportion of GDP, and slightly lower for imports as a proportion of GDP (Table 4.0).

Lao PDR performs poorly on labor quality's contribution to LP growth, at 0%. However, it ranks highly for capital deepening, ranking fifth in 2022, though lower at 10th for IT capital deepening (Table 4.1). This shows how, despite low levels of industrialization and capital, some progress has been made in recent years.

On the WEF determinant of availability of latest technologies, Lao PDR is ranked 19th among APO member economies, and 16th on current workforce, entrepreneurial culture, and NRI people indices (Table 4.2). It is ranked 17th for the NRI technology index. It thus performs relatively poorly on workforce quality, network economy, and entrepreneurialism, highlighting challenges for Lao PDR's productivity readiness.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; as well as the overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and overall productivity readiness.

Sufficient data were not available to calculate the PRI and associated indices for Lao PDR.

Underlying Determinants: Specific Strengths and Weaknesses

Underlying determinants in Lao PDR bring forth the considerable challenges it continues to face. Lao PDR's financial system continues to lag behind much of the region, ranking 16th on the WEF Financial System Index and 17th on the IMF Financial Market Index (Table 6).

Lao PDR also continues to struggle with regards to labor markets, ranking 20th for labor freedom and 13th on the WEF Labor Market Index. Lao PDR continues to see extremely high levels of informality, with 90% of its workforce informally employed (OECD, 2024a), contributing to its poor performance on labor market indicators.

Lao PDR performs very poorly on health indicators, ranking 19th, with a life expectancy of 69, which is 16.5 years lower than the highest performing APO member economy (Table 6). It also has

the second highest infant mortality rate in the region. Both indicators demonstrate serious problems in Lao PDR's health system, as well as on broader socioeconomic issues.

Considerable institutional weaknesses continue to hinder Lao PDR's economic progress. It ranks 19th on the World Bank Rule of Law Index, 20th on the WEF Social Capital Index, 20th for regulatory quality and 18th for control of corruption. It also ranks last for voice and accountability, 18th on the IMF Institutions Index, and last on the IMF Financial Institutions metric (Table 6). It continues to lack an effective independent judicial system to combat corruption and have issues in its investment regulatory framework (OECD, 2024) (World Bank, 2021). Its financing system continues to be fragmented and lacking in effective coordination (OECD, 2024a). Public sector challenges and institutional constraints undermine Lao PDR's capacity to generate productivity growth and attract investment. Ineffective and unpredictable institutions and legal frameworks deter investors and prevent opportunities for productivity gains (World Bank, 2021).

Lao PDR performs poorly on the WEF Innovation Capability Index, ranked 20th, as well as on the Infrastructure Index, ranked 14th. Both these determinants highlight serious structural challenges that Lao PDR faces, restricting its capacity to pursue productivity growth and industrialization. Addressing infrastructure gaps could improve connectivity and support growth for Lao PDR (World Bank, 2021). A low ranking on the WEF Administrative Requirement Indicator, 20th among APO member economies, further underscores constraints restricting businesses in Lao PDR (Table 6).

Lao PDR is ranked 15 for macroeconomic stability. Its high debt stock and currency challenges continue to undermine economic stability and dampen growth prospects (World Bank, 2021).

A positive indicator for investment is Lao PDR's third ranking on the Heritage Foundation's Tax Burden Index. However, it continues to see challenges in raising tax revenue, undermining its financing framework and limiting its ability to address inequality, informality, and sustainable development needs (OECD, 2024a). Moreover, revenue leakages remain significant.

On FDI front, Lao PDR does perform well, with its FDI stock at 82.9% of GDP ranking it sixth among APO member economies (Table 6). On trade, among APO member economies, Lao PDR performs above average, ranking eighth on the WEF Trade Openness Index and slightly below average at 14th on the Heritage Foundation's Trade Freedom Index.

Additionally, while ranked close to the median, Lao PDR's performance on educational indices is better than its health, institutional, and regulatory measures (Table 6). It ranks ninth for education system quality and 14th for the quality of its primary education system, despite ranking 15th for educational expenditure as a share of GDP.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	6.1	9	5.2	6
Agriculture share of GDP (%)	Asian Productivity Organization	Open	21	4	22.4	3

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Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Agriculture share of employment (%)	Asian Productivity Organization	Open	74.2	1	76.9	1
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	7.9	18	8.5	18
Manufacturing share of employment (%)	Asian Productivity Organization	Open	2.7	21	2.2	21
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	3.8	20	3.8	20
Exports/GDP (%)	Asian Productivity Organization	Open	30.6	10	33.9	12
Imports/GDP (%)	Asian Productivity Organization	Open	30	14	33.2	14

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	1.7	5	1.5	8
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	10	0	19
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0	17	0	20

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	44.2	2019	16	31.9
Entrepreneurial culture	WEF	0–100	49.4	2019	16	21
Availability of latest technologies	WEF	1–7	3.9	2017	19	2.4
NRI Technology index	Portulans Institute	0–100	30.3	2024	17	40.9
NRI People index	Portulans Institute	0–100	32.1	2024	16	47.2

TABLE 5

VALUES OF OVERARCHING INDICES FOR LAO PDR.

Index	Value	APO Rank
Motivation	NA	NA
Capabilities	NA	NA
Efficiency of markets	NA	NA
Stability	NA	NA
Productivity Readiness Index	NA	NA

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4	2017	9	1.8
Quality of primary education	WEF	1–7	3.5	2017	= 14	2.7
Future workforce	WEF	0–100	58.4	2019	16	23
Education expenditure/ GDP (%)	World Bank	Open	1.9	2021	15	4.1
Innovation capability index	WEF	0–100	28	2019	20	52.2
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	56.7	2021	20	43.3
Infrastructure index	WEF	0–100	59.2	2019	14	36.2
HF Business Freedom	Heritage Foundation	0–100	56.2	2024	15	30.7
Administrative requirements	WEF	0–100	24.2	2019	20	68.9
Domestic competition	WEF	0–100	48.3	2019	14	26.5
HF Tax Burden	Heritage Foundation	0–100	88.8	2024	= 3	1.9

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	−1	2022	20	3.2
Labor market index	WEF	0–100	57	2019	13	24.2
HF Labor Freedom	Heritage Foundation	0–100	42.9	2024	20	34.4
NRI Governance index	Portulans Institute	0–100	28.2	2024	19	58.7
Financial system index	WEF	0–100	55.2	2019	16	36.2
IMF Financial Markets	IMF	0–1	0.1	2021	17	0.8
HF Financial Freedom	Heritage Foundation	0–100	20	2024	19	60
Life expectancy at birth (years)	UN data	Open	69	2023	19	16.5
Infant mortality (deaths/1000 live births)	WEF	Open	50.7	2017	2	15.1
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	52.4	2021	11	39.2
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	37	2021	16	48.5
FDI stock/GDP (%)	UNCTAD	Open	82.9	2022	6	498.1
HF Investment Freedom	Heritage Foundation	0–100	35	2024	17	55
Trade openness	WEF	0–100	60	2019	8	28.7
HF Trade Freedom	Heritage Foundation	0–100	67.6	2024	= 14	27.4
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	45.7	2021	14	50.3
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	60.3	2021	8	32.7
Macroeconomic stability index	WEF	0–100	69.7	2019	15	30.3
HF Monetary Freedom	Heritage Foundation	0–100	59.1	2024	17	22.6
Gross savings/ GDP (%)	World Bank	Open	NA	2023	NA	NA
Institutions index	WEF	0–100	42.8	2019	18	37.6
IMF Financial Institutions	IMF	0–1	0.2	2021	20	0.6
Political stability	World Bank WGI	–2.5 to 2.5	0.8	2022	3	0.7
Rule of law	World Bank WGI	–2.5 to 2.5	–0.8	2022	19	2.6
Control of corruption	World Bank WGI	–2.5 to 2.5	–1	2022	18	3.1
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.6	2022	17	2.7
Social capital	WEF	0–100	40.4	2019	20	22.8
Voice and accountability	World Bank WGI	–2.5 to 2.5	–1.7	2022	21	2.7

Challenges Ahead

Macroeconomic instability is a central challenge in Lao PDR's ability to bolster investment and productivity (World Bank, 2024b). The country is in a debt distress, leading to considerable fiscal risk (World Bank, 2024b). Rising debt, exacerbated by currency depreciation, limits the government's capacity to invest, particularly in human capital, and prevents Lao PDR from progressing toward a more positive environment for private investment (AMRO, 2023).

Lao PDR's public financing framework continues to see challenges. Exacerbated by its highly informal labor force, Lao PDR's tax-raising capacity is considerably constrained. 90% of the workers are informally employed, with 50% of the labor force working in the agriculture sector. This limits household income levels, added value, and tax revenue, leaving Lao PDR with the lowest tax-to-GDP ratio among ASEAN countries (OECD, 2024a). These constraints, combined with

corruption and debt distress, undermine Lao PDR's ability to secure external financial resources for its development model. To build a more sustainable financing system, Lao PDR must improve communication between its public and private sectors, enhance tax-raising capacities, strengthen the judiciary to combat corruption, and reform investment regulatory frameworks (OECD, 2024a). Debt management can be improved by creating a clear legal framework for the management of contingent liabilities (World Bank, 2021). Structural reforms to combat corruption and raise institutional quality are crucial for creating a positive business investment environment in Lao PDR (IMF, 2024).

Lao PDR's pre-COVID development model relied largely on debt-financed public investment in its resource sector, a strategy that is no longer fiscally sustainable (OECD, 2024a). Moving forward, Lao PDR must pursue economic diversification, particularly by investing in human capital to shift from extractive industries toward manufacturing, services, and agri-businesses (OECD, 2024a). Focus on fiscal sustainability and macroeconomics stability will be key to fostering long-term private investment and sustainable growth (OECD, 2024a).

While extreme poverty rates have decreased in Lao PDR, it remains one of the least developed economies in Asia, with high poverty rates. Despite post-COVID growth, much of the concentration remains in resource extraction and tourism industries, meaning that the growth has not translated into job creation for 50% of Lao PDR's workforce engaged in agriculture. This has created a gap between growth and socioeconomic development of low-income self-employed workers in Lao PDR (World Bank, 2021).

Lackluster job creation contributes to considerable emigration of Lao PDR's workforce, given the high inflation levels and currency depreciation (World Bank, 2024; IMF, 2024). Socioeconomic challenges persist, with concentration of poverty among rural and ethno-linguistic minority groups, particularly the subsistence farmers. The situation is set to worsen with the consequences of climate change, exacerbated by lackluster policy responses.

Two-thirds of Lao PDR's population relies on its rural economy, which is particularly susceptible to natural disasters (World Bank, 2021). This vulnerability is exacerbated by the prevalence of monoculture farming and infrastructure gaps (OECD, 2024b). While its landlocked location limits its exposure to some natural disasters, floods and landslides are likely to intensity. Lao PDR is already seeking to shift its focus from reactive to proactive measures in analyzing and managing exposures. Cooperation with civil society actors and improved local-level governance could support policy responses to disasters (OECD, 2024b). However, high debt levels and limited availability of disaster insurance continue to pose serious challenges in this area.

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MALAYSIA

Malaysia is a Southeast Asian country with a population of over 35 million in 2023 (World Bank, 2024a). Thanks to its strong and inclusive growth levels in recent decades, Malaysia is nearing high-income status, with per capita income exceeding those of its Southeast Asian neighbors (OECD, 2024). With a GNI per capita of USD11,710, it is projected to reach the World Bank's high-income threshold by 2028 (World Bank, 2024a; OECD, 2024). Rapid industrialization from the 1980s to 1990s transformed Malaysia from an agriculture dominated economy to one concentrated on services and manufacturing (Rahman and Schmillen, 2020).

Post-COVID, Malaysia's growth has been driven by domestic demand and strong and sustainable macroeconomic frameworks based on prudent fiscal and monetary policies, making it an attractive destination for FDI (IMF, 2024). Exports account for three-quarters of Malaysia's GDP. In the period 2020–22, GDP per capita growth was particularly strong, at 7.5% per annum, ranking Malaysia second among APO member economies.

TABLE 1
CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	32.7	12	0.3	15
GDP (USD billion at PPP)	1,176.7	13	7.6	4
GDP per capita (USD at PPP)	36,039.1	7	7.5	2
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	22.8	17	21.8	17
Employment rate (%)	47.6	11	48.7	11
Age dependency ratio (%)	43.3	16	43	18
Old-age dependency ratio (%)	10	12	10.7	11

Productivity Performance

Malaysia has made considerable productivity gains in recent years. Its labor productivity (LP) growth performance has improved significantly, from 2.8% on average during 2010–20 (ranked 10th among APO member economies), to 4.5% on average during 2020–22 (ranked eighth). It is now ranked seventh for LP among APO member economies. However, skills mismatches and lagging per-worker productivity in the agricultural sector continue to dampen LP in Malaysia (OECD, 2024) (World Bank, 2024b).

TABLE 2
QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	2.8	10	4.5	8
TFP (index)	1	4	4.4	3
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	31.3	7	34.2	7

TFP growth in Malaysia has also been strong. It ranked fourth among APO member economies for TFP growth during 2010–20, before improving to third place in 2020–22. The growth rate increased significantly between these two periods, from an average of 1% to 4.4%. Digitization and Malaysia's emergence as an attractive hub for the electronic industry have supported this strong TFP growth (OECD, 2024). Productivity in micro, small, and medium enterprises (MSMEs) remains low, dampening TFP growth. A gap in digitization between large firms and MSMEs has contributed to this disparity. Expanding digital infrastructure should help close this gap (OECD, 2024).

Many other indicators in Malaysia have remained largely consistent over the last fifty years. While capital and IT capital growth have slowed since the 1970s, labor quality growth continues to be strong and capital productivity growth has also increased considerably. Long-term average capital productivity growth rates have not exceeded 2% since 1970, but it has averaged 5.2% since 2020–22. Gains in technological advancement and FDI have supported this significant improvement.

Output growth has been strong in Malaysia. Average long-term output growth rate has not fallen below 4.6% since 1970. At the same time, output growth averaged 7.9% over 2020–22, Malaysia's best performance since reaching the same level in the 1970s. Unlike before 2020, TFP growth has been the main driver, contributing more than half of output growth during 2020–22, while capital's contribution is at its lowest since 1970 (Figure 2).

Malaysia's economy contracted by 5.5% in 2020, as the global economic downturn caused by COVID-19 triggered a slump in export demand (World Bank, 2024a). However, growth rates of 3.3%, 8.9%, and 3.6% in 2021, 2022, and 2023, respectively, demonstrated how strong growth in domestic consumption offset external economic shocks like the war in Ukraine and supply chain disruptions (World Bank, 2024a; OECD, 2024). In recent years, within-sector productivity growth has been the largest driver of growth, while sectoral transformation was the largest contributor to growth in the 1987–97 period (Rahman and Schmillen, 2020).

Prudent fiscal and monetary policies have fostered macroeconomic stability and made Malaysia an attractive place for FDI (OECD, 2024). FDI has supported the development of Malaysia's electronic production industry, which contributes considerably to Malaysia's GDP.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	4.5	2.5	4	2.7	2.8	4.5
TFP growth	2	0.1	0.2	1.4	1	4.4
Capital productivity growth	1.4	0	−0.5	1.7	0.7	5.2
Output growth	7.9	5.9	7.5	5.3	4.6	7.9
Combined inputs growth	5.7	5.8	7.2	3.9	3.5	3.4
Capital growth	6.4	6	8.1	3.5	3.9	2.5
IT capital growth	18.3	24.5	25.6	18	8.7	3.6
Hours worked growth	3.3	3.4	3.4	2.5	1.7	3.2
Labor quality growth	1.5	2	2.4	2	1.4	1.2
Capital deepening	1.8	1.5	2.9	0.7	1.2	−0.4

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
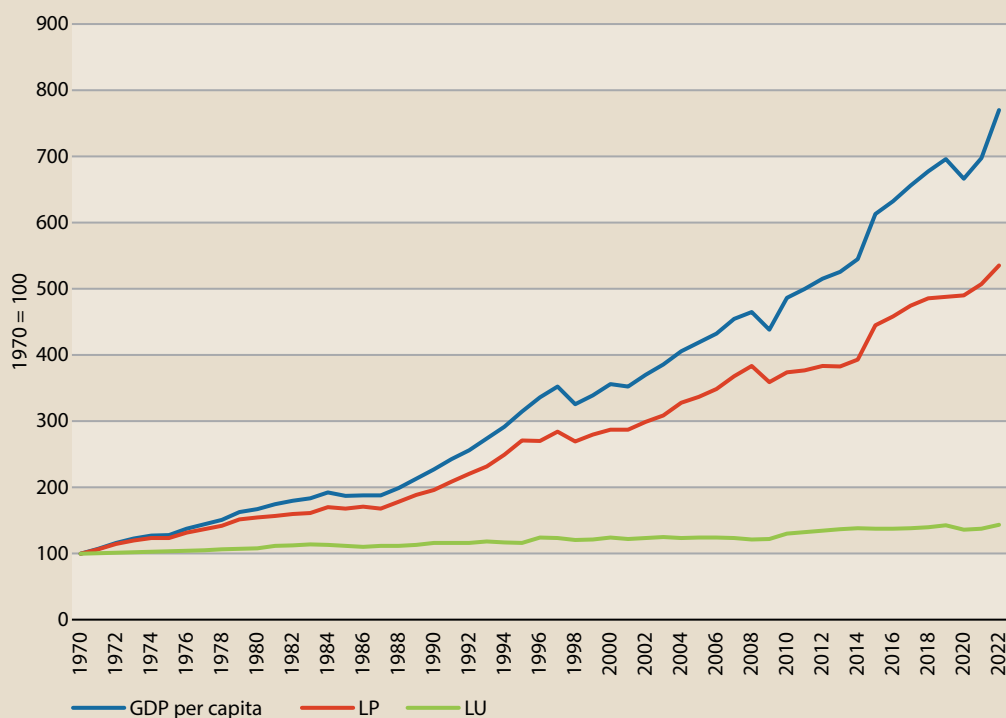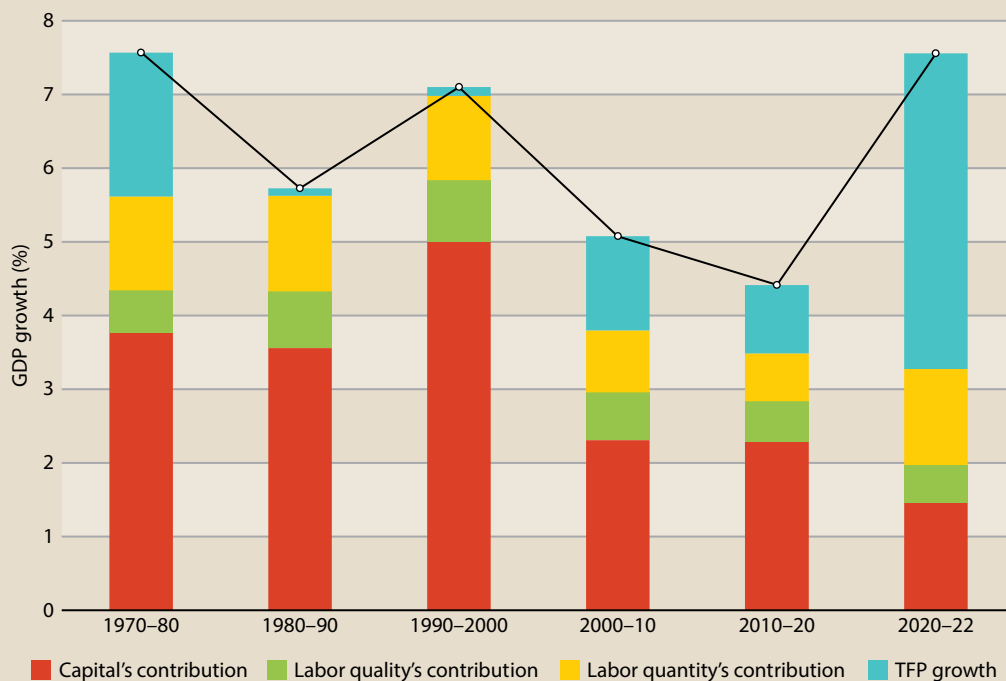
Legend: GDP per capita — LP — LU

FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

Legend: Capital's contribution — Labor quality's contribution — Labor quantity's contribution — TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Ranked fourth for exports as a share of GDP and fifth for imports as a share of GDP among APO member economies, Malaysia has a highly open economy. While ranking 14th for capital-to-GDP ratio, it ranks fifth and sixth for manufacturing's share of GDP and employment, respectively. It also ranks fifth for medium- and high-tech's share of manufacturing. This reflects the centrality of Malaysia's electronic industry to its economy, as it continues to emerge as an alternative hub for companies diversifying global value chains (OECD, 2024). Agriculture's share of GDP remains low at 8.9%, ranking 12th out of APO member economies.

Malaysia ranks poorly on capital deepening and IT capital deepening, at 14th and 16th, respectively, in 2022. However, it performs strongly on other technology indicators. It ranks sixth on the WEF's index for measuring availability of latest technologies and eighth on the NRI Technology Index. Along with its fourth ranking on the NRI People Index, these performances indicate Malaysia's strength in the interconnected network economy. Additionally, its current workforce is ranked sixth, while it ranked sixth in 2022 for labor quality's contribution to labor productivity growth. These determinants show Malaysia's strength in skills and technology. It ranks first for entrepreneurial culture.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; as well as an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and the overall productivity readiness.

On all overarching indices, as well as on the Productivity Readiness Index, Malaysia is ranked fifth, placed just below the ROK on each index. Relative to the previous iteration of the report, Malaysia has slipped by one rank on both capabilities and efficiency of markets. On each overarching index, Malaysia's score has also decreased. However, its overall ranking on the PRI remains the same, at fifth.

Underlying Determinants: Specific Strengths and Weaknesses

Malaysia has a high-quality education system, ranking second on the WEF quality of education metric, fifth on the quality of primary education metric, and fourth for education expenditure as a share of GDP. Education quality contributes to Malaysia's highly skilled workforce and labor productivity. However, opportunities remain to improve educational outcomes for disadvantaged students, particularly given the gaps in learning levels between children from high- and low-income backgrounds (World Bank, 2024c).

On the WEF Innovation Capability Index and the WEF Future Workforce metric, Malaysia ranks sixth and fourth, respectively. Both indicators demonstrate the country's strength in leveraging emerging technologies and driving innovations. Still, opportunities exist to support digitization, particularly among small and medium enterprises, which continue to lag behind large corporations in technology adoption (OECD, 2024). Malaysia could also leverage digital technology to improve productivity in the agricultural sector, which continues to lag its industrial sectors (World Bank, 2024b).

A considerable strength of Malaysia's economy is its strong macroeconomic framework, thanks to its prudent fiscal and monetary policy (IMF, 2024). As a result, it ranks first among APO member economies on the WEF Macroeconomic Stability Index, supporting investment and productivity gains. Malaysia's financial system is highly resilient and has withstood financial risks over recent decades (IMF, 2024). It ranks sixth among APO member economies on the IMF Financial Institutions Index, fifth on the WEF Financial System Index, third on the IMF Financial Markets Index, and ninth on the Heritage Foundation's Financial Freedom metric. These strong showings underscore Malaysia's high achievement on macroeconomic stability and investment fronts.

Malaysia performs relatively well on health indicators, with ninth-highest life expectancy among APO member economies at 76.7 years, though it ranks 15th on infant mortality rate.

Malaysia also performs well on labor market metrics, ranking fifth on the WEF Labor Market Index and eighth on the Heritage Foundation Labor Freedom Index. However, opportunities for labor market reforms exist, particularly in matching tertiary graduates with suitable jobs (OECD, 2024) Malaysia has a highly open economy. It ranks second on the KOF Informational Globalization Index (de facto), fourth on the KOF Financial Globalization metric, seventh for trade openness, third on both the Heritage Foundation Trade Freedom Index and the KOF Trade Globalization Index, and fifth on the WTO and World Bank Services Trade Restrictions Index. Exports are central to Malaysia's economy, but also render it vulnerable to global trade shocks (OECD, 2024).

Malaysia performs well on competition and regulatory metrics, ranking fourth among APO member economies on the WEF Domestic Competition Index and sixth on the World Bank WGI Regulatory Quality metric. Opportunities remain to ease regulatory restrictions, particularly for small and medium-sized firms, to help reduce the productivity gap between them and large firms (OECD, 2024).

Malaysia scores well on governance and institutional effectiveness. It ranks fourth for social capital, sixth for rule of law, seventh for voice and accountability, and seventh for control of corruption. To combat corruption, Malaysia should improve whistleblower protections (OECD, 2024). It is ranked ninth for political stability, fourth on the WEF Institutions Index, and sixth for government effectiveness. Improving protection for state-owned enterprises from political vulnerabilities could help improve their effectiveness (OECD, 2024).

While fiscal policy has supported FDI in Malaysia, particularly on electronics, it only ranks ninth among APO member economies for FDI stock as a share of GDP. It also ranks just 12th for gross savings as a share of GDP. Talent outflow remains a key challenge, limiting Malaysia's ability to attract high-tech FDI (AMRO, 2024).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	3.8	14	3.1	16
Agriculture share of GDP (%)	Asian Productivity Organization	Open	8.2	14	8.9	12

(Continued from the previous page)

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Agriculture share of employment (%)	Asian Productivity Organization	Open	9.9	16	9.5	16
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	22.2	5	23.4	5
Manufacturing share of employment (%)	Asian Productivity Organization	Open	16.3	7	16.4	6
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	44.6	5	44.6	5
Exports/GDP (%)	Asian Productivity Organization	Open	61.6	4	77	4
Imports/GDP (%)	Asian Productivity Organization	Open	55.2	5	69.7	5

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−1	14	−0.4	17
IT capital deepening (pp)	Asian Productivity Organization	Open	0	16	0	14
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.5	6	0.5	4

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	68.6	2019	6	7.5
Entrepreneurial culture	WEF	0–100	70.4	2019	1	0
Availability of latest technologies	WEF	1–7	5.5	2017	6	0.8
NRI Technology index	Portulans Institute	0–100	49.3	2024	8	21.9
NRI People index	Portulans Institute	0–100	54	2024	4	25.3

TABLE 5

VALUES OF OVERARCHING INDICES FOR MALAYSIA.

Index	Value	APO Rank
Motivation	65	5
Capabilities	73	5
Efficiency of markets	63	5
Stability	57	5
Productivity Readiness Index	64	5

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	5.2	2017	2	0.6
Quality of primary education	WEF	1–7	5.1	2017	5	1.1
Future workforce	WEF	0–100	76.5	2019	4	4.9
Education expenditure/ GDP (%)	World Bank	Open	4.3	2021	4	1.7
Innovation capability index	WEF	0–100	55	2019	6	25.2
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	96.8	2021	2	3.2
Infrastructure index	WEF	0–100	78	2019	6	17.4
HF Business Freedom	Heritage Foundation	0–100	70.5	2024	7	16.4
Administrative requirements	WEF	0–100	78.9	2019	7	14.2
Domestic competition	WEF	0–100	68.8	2019	4	6
HF Tax Burden	Heritage Foundation	0–100	83.9	2024	7	6.8

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	0.6	2022	6	1.6
Labor market index	WEF	0–100	70.2	2019	5	11
HF Labor Freedom	Heritage Foundation	0–100	58.2	2024	8	19.1
NRI Governance index	Portulans Institute	0–100	71.4	2024	5	15.5
Financial system index	WEF	0–100	85.3	2019	5	6.1
IMF Financial Markets	IMF	0–1	0.7	2021	3	0.1
HF Financial Freedom	Heritage Foundation	0–100	50	2024	= 9	30
Life expectancy at birth (years)	UN data	Open	76.7	2023	9	8.9
Infant mortality (deaths/1000 live births)	WEF	Open	6	2017	15	59.8
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	71.8	2021	4	19.8
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	64.6	2021	6	20.9
FDI stock/GDP (%)	UNCTAD	Open	49	2022	9	531.9
HF Investment Freedom	Heritage Foundation	0–100	60	2024	= 5	30
Trade openness	WEF	0–100	60.7	2019	7	28
HF Trade Freedom	Heritage Foundation	0–100	83	2024	3	12
Services Trade Restrictions Index	World Bank, WTO	0–100	53.7	2022	5	11.9

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	76.7	2021	3	19.4
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	76.3	2021	4	16.7
Macroeconomic stability index	WEF	0–100	100	2019	= 1	0
HF Monetary Freedom	Heritage Foundation	0–100	79.1	2024	3	2.6
Gross savings/ GDP (%)	World Bank	Open	27	2023	12	15.7
Institutions index	WEF	0–100	68.6	2019	= 4	11.8
IMF Financial Institutions	IMF	0–1	0.7	2021	6	0.2
Political stability	World Bank WGI	–2.5 to 2.5	0.1	2022	9	1.3
Rule of law	World Bank WGI	–2.5 to 2.5	0.6	2022	6	1.2
Control of corruption	World Bank WGI	–2.5 to 2.5	0.2	2022	7	1.8
Government effectiveness	World Bank WGI	–2.5 to 2.5	1	2022	6	1.2
Social capital	WEF	0–100	56.7	2019	4	6.5
Voice and accountability	World Bank WGI	–2.5 to 2.5	0	2022	7	1.1

Challenges Ahead

As exports make up 75% of Malaysia's GDP, its economy is highly vulnerable to global economic and geopolitical shocks. In particular, PR China is Malaysia's largest trading partner, so slowing consumption demand there could dampen Malaysia's export performance. However, trade tensions between PR China and the USA could lead to further diversification of supply chains, which could benefit Malaysia (AMRO, 2024).

Climate change also presents a challenge. The energy sector is the largest contributor to emissions in Malaysia, underscoring the need for a transition to renewables (OECD, 2024). Carbon pricing and electrification should be central to Malaysia's policy mix, which continues to lack clear mitigation strategies. Rising sea levels threaten transport infrastructure as well as palm oil, rubber, and agricultural exports, while flooding is already on the rise (OECD, 2024). Improved insurance protection and risk-financing mechanisms must also be considered in Malaysia's adaptation strategy.

Socioeconomic and macroeconomic challenges continue to weigh on the fiscal policy. Given Malaysia's aging population, new fiscal measures are required to increase revenues (OECD, 2024). Childcare subsidies and parental leaves will help increase women's labor force participation. Also, there is a need to expand early childcare education, particularly for children from disadvantaged backgrounds, who continue to fall behind (World Bank, 2024c). Contingent liabilities could emerge and undermine medium-term budgetary sustainability (IMF, 2024). In today's context, it is also worth thoughtfully leveraging AI, which provides opportunities for lifting LP but also puts 39% of jobs in Malaysia at risk. Malaysia must pursue policies to upskill its workforce to combat the risks it poses and leverage its benefits (IMF, 2024).

While agriculture has continued to lag other sectors on key indicators, digitization offers an opportunity for the sector to boost productivity, employment, and GDP growth. Expanding the use of digital agriculture technologies could improve market efficiency, make production more resilient, and strengthen supply chains to help agriculture narrow the gap with more productive industries (World Bank, 2024b).

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MONGOLIA

Mongolia is a sparsely populated country landlocked between PR China and Russia, with a small population of 3,481,145 in 2023 and a population density of 2.2 people per sq km (World Bank, 2024). It has the second smallest GDP among APO member economies. With a GNI per capita of USD4,870, Mongolia narrowly surpasses the World Bank's benchmark for an upper-middle-income country (World Bank, 2024b). Mining and livestock agriculture are Mongolia's largest contributors to GDP. Post-COVID, growth in Mongolia has been driven by mineral production and exports (World Bank, 2024b), while the traditional agricultural sector has faced considerable challenges due to harsh weather conditions (World Bank, 2024c). While Mongolia has the lowest old-age dependency ratios among all APO member economies, it has one of the highest overall age-dependency ratios, at 58.6%.

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	3.5	20	1.7	3
GDP (USD billion at PPP)	48.6	20	3.2	17
GDP per capita (USD at PPP)	13,990.4	12	1.6	19
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	31.4	13	31.1	13
Employment rate (%)	34.6	18	34	19
Age dependency ratio (%)	56.7	4	58.6	4
Old-age dependency ratio (%)	6.6	21	7.2	21

Productivity Performance

Mongolia ranked ninth for labor productivity (LP) in 2022. It recorded very strong gains in LP over the 2020–22 period, with the third-highest labor productivity growth rate among APO member economies, averaging 4.9%. Capital deepening was a core driver of this growth, reaching 2.5% over the same period. However, growth in the capital–labor ratio declined substantially from its peak in 2010 (Figure 6). Much of recent LP growth has been driven by workers moving between sectors, while LP within firms has decreased (World Bank, 2024). However, Mongolia's LP continues to lag significantly behind comparable economies such as Kazakhstan and Malaysia, by more than over 50% (World Bank, 2024a).

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	3.8	7	4.9	3
TFP (index)	0.3	11	1.6	15
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	19.7	10	21.7	9

Mongolia saw weak TFP growth of 0.3% during 2010–20, ranking 11th. Over the medium term, this ranking fell to 15th place, even though its actual TFP growth rate increased. Despite this, TFP growth was a greater contributor to GDP growth during 2020–22 than in previous decades. A slow uptake of technological advancement continues to undermine productivity growth, particularly among SMEs (World Bank, 2024a). The dominance of state-owned enterprises further hampers productivity growth (World Bank, 2024). To boost productivity, Mongolia should facilitate technology adoption and improved managerial practices among SMEs (World Bank, 2024). Harsh weather conditions also undermine productivity in Mongolia's agricultural sector (World Bank, 2024c).

Mongolia's transition from a socialist economy to a market-oriented economy has facilitated productivity and output growth. Following this transition in the 1990s, long-term TFP and capital productivity growth peaked in 2000 (Figure 4 and figure 5). With the exception of the 1990s, capital growth remained strong, exceeding 6% until 2020. IT capital growth has also been very strong since 1970, exceeding long-term averages of 9% in each decade. However, capital productivity growth has been much weaker, only surpassing 1% in the 1990s.

In recent years, GDP growth has been driven by mineral extraction, coupled with an expansionary fiscal policy (IMF, 2023). Output growth averaged 6.8% over 2010–20 before slowing to 3.3% during 2020–22. Increased mining revenue has supported fiscal revenue, which has bolstered private consumption through expansionary benefit and pensions policies in 2023 (IMF, 2023). In 2023, copper production increased by over 17% while coal exports had doubled 2019 levels (World Bank, 2024). Chinese demand for coking coal is a major contributor to this growth. However, some of this growth was offset by "dzud" (harsh weather conditions) which led to the largest loss of livestock (over 4.9 million) since 2010 (World Bank, 2024c). Fluctuations in Chinese demand, geopolitical tensions and global commodity prices pose additional challenges for Mongolia's exports. Additionally, continued expansionary fiscal policy could lead to rising inflation and external pressures (IMF, 2023).

While market-oriented reforms over recent decades have encouraged FDI, it continues to be dominated by extractive industries (World Bank, 2024c). Nevertheless, trade openness has facilitated labor mobility from state-owned to non-state-owned manufacturing enterprises, which in turn account for 17.4% of productivity growth in manufacturing and 0.81–1.12% of overall productivity growth (Khurelchuluun and Bao, 2024). To attract FDI, Mongolia will need to address corruption, improve its business climate, and strengthen governance and financial institutions.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	4.2	1.7	1.5	5.2	3.8	4.9
TFP growth	0	−0.3	1.8	0.8	0.3	1.6
Capital productivity growth	0	−0.7	1.1	0.3	0.2	0.7
Output growth	6.2	5.4	1	6.6	6.8	3.3
Combined inputs growth	6.3	5.7	−0.8	5.7	6.5	1.6
Capital growth	6.1	6.1	−0.1	6.5	6.6	2.5

(Continued from the previous page)

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
IT capital growth	29.2	16.9	9.6	21.8	9.6	9.3
Hours worked growth	1.9	3.7	−0.5	1.4	2.9	−1.3
Labor quality growth	4.4	1.2	−1.6	3.3	3.1	1.5
Capital deepening	2.5	1.6	0.2	3.3	2.5	2.3

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
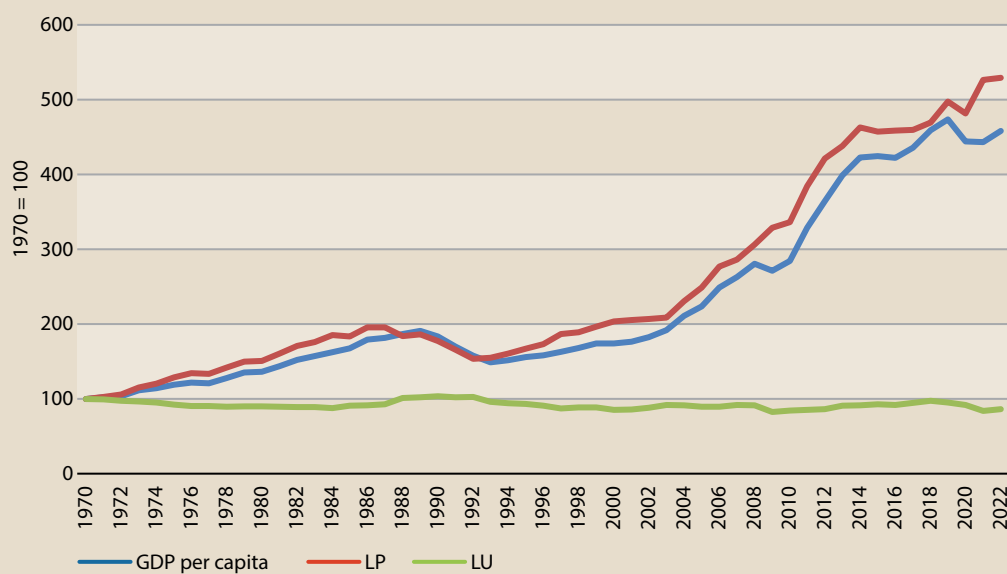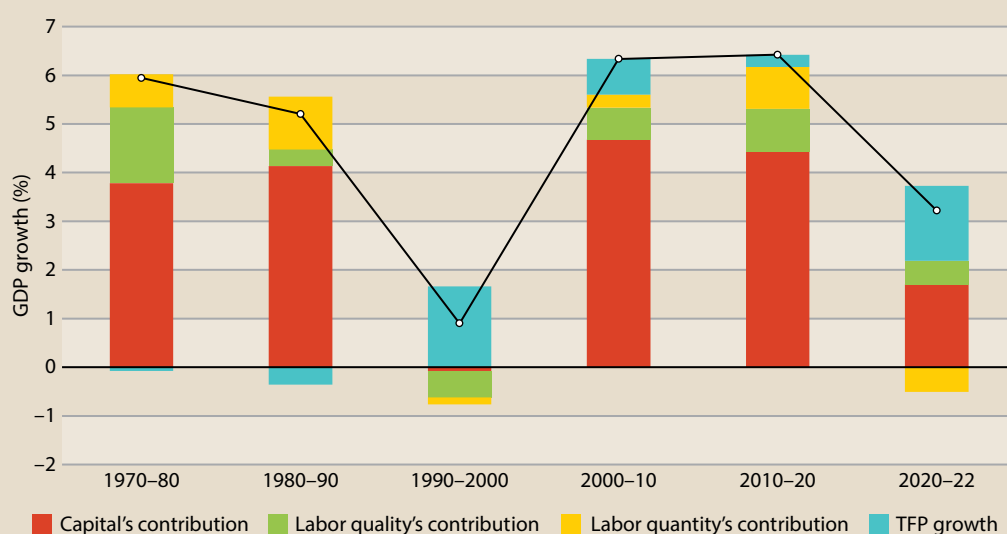
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Mongolia ranks midway among APO member economies for its capital-to-GDP ratio, ranking 11th in 2022. It has a very low manufacturing share of GDP at 7%, ranking 19th among APO member economies. This was a slight decline from 7.7% share in 2020. Medium- and high-tech's share of manufacturing was also very low at 4.3% in 2022, unchanged from its share in 2020. Agriculture as a proportion of GDP was relatively high, ranking seventh.

Mongolia is largely an open economy, ranking eighth among APO member economies for export-to-GDP ratio and fourth for imports as a share of GDP. This illustrates Mongolia's reliance on exports for its GDP, as well as consumers' reliance on imports. Mongolia's reliance on exports and imports has also increased substantially from 2020 to 2022, with exports as a share of GDP growing from 57% to 63.8%, while imports as a share of GDP increasing from 54.5% to 69.9%.

While Mongolia was ranked 15th for capital deepening in 2022, at –1.1 percentage points, it was ranked third for its average capital deepening during 2020–22, at 2.7 percentage points. Thus, while 2022 was a poor year for capital deepening in Mongolia, the medium-term trend remains positive. IT capital deepening has been very robust in recent years, ranking third among APO member economies for the period 2020–22. Labor quality's contribution to labor productivity growth has also been strong, ranking fifth. Together, these indicators, with the exception of the dip in capital deepening in 2022, are positive signals for productivity growth in Mongolia.

Mongolia does not perform well on its entrepreneurial culture, ranking 17th on the WEF's Entrepreneurial Culture Index. Prospects are also not positive on network readiness, with Mongolia ranking 16th on the Portulans Institute's NRI Technology Index and 13th on the NRI People Index. It performs slightly better on the WEF's "current workforce" metric, at 11th rank. It comes 13th on the WEF's "availability of latest technologies" index.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; as well as an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and the overall productivity readiness.

Mongolia is placed around the middle among APO member economies on most of the overarching indices. It ranks 12th on the motivation index and 10th on both the capabilities and stability indices. Its best performance is on market efficiency, where it ranks ninth. Since the last iteration of this report, Mongolia has improved by one rank on capabilities, efficiency of markets, and stability. However, on the overarching Productivity Readiness Index, Mongolia remains in 12th place. Significant improvements are needed to improve its PRI score of 36, which is down from 40 in the previous iteration of this report. To put the score in a perspective, the leader, Singapore, has a score of 98.

Underlying Determinants: Specific Strengths and Weaknesses

Despite strengths in some areas, a number of weaknesses in Mongolia's performance on underlying determinants help explain its midway ranking on overarching indices.

One of Mongolia's strengths lies in FDI. It is ranked third among APO member economies for FDI stock as a share of GDP, at 166.3%. Its foreign investment regime is considered relatively open, particularly in the minerals sector. A number of regulatory policies have been implemented in Mongolia to support FDI.

While Mongolia ranks twelfth on the WEF's measure for primary education quality, it ranks significantly lower on the WEF's measure for overall education system quality, at 20th. On health, Mongolia's life expectancy at birth ranks 14th among APO member economies, while it has the ninth-highest infant mortality rate. This demonstrates the progress that needs to be made in Mongolia's health system.

A number of strong performances on underlying determinants show Mongolia's business environment strengths. It ranks sixth among APO member economies on the Heritage Foundation's "tax burden" metric, fifth on its "labor freedom" index, and ninth on the "financial freedom" network. Mongolia has reduced tax rates over recent decades. However, Mongolia 16th rank on the WEF's "administrative requirements" metric, 13th rank on poor regulatory quality, and 20th rank on the WEF's "domestic competition" index speak of serious problems for Mongolian businesses. Declining firm entry rates, combined with the dominance of state-owned enterprises, continue to stifle innovation, competition, and efficiency (World Bank, 2024a). Mongolia's capacity to leverage innovation and progress are limited, given its ranking of 16th on the WEF's "innovation capability index" and 15th on the WEF's "future workforce" metric.

Mongolia has a largely open trade system, ranking sixth on the WEF's "trade openness" metric, and seventh on the Heritage Foundation's "trade freedom" index. Coal exports have been a significant contributor to growth and fiscal revenue (World Bank, 2024a). However, this also exposes Mongolia to risks from global trade shocks, particularly any downturn in demand for minerals from PR China.

Mongolia's financial system performs very poorly. It ranks 19th among APO member economies on the WEF's "financial system" index and 16th on the IMF's "financial markets" index. One positive sign is its just-above-average performance on the IMF's "financial institutions" metric, where it ranks eighth. Strengthening Mongolia's financial system is important for it to withstand challenges in the external environment (IMF, 2023).

A core issue in Mongolia is the performance of government and public institutions, though it performs relatively well on political stability, ranking eighth on the World Bank WGI metric and fourth on "voice and accountability." It also ranks seventh on the WEF's measure for "social capital." However, apart from these metrics, the performance is poor. Mongolia is ranked 16th on the World Bank WGI "government effectiveness" metric, 16th on the "control of corruption" measure, and 12th for "rule of law." Given the issues in Mongolia's judicial system, its rankings on "control of corruption" and "government effectiveness" have dropped since the last iteration of this report. Bribery continues to be an issue, particularly in government and judicial contexts.

Mongolia is placed near the lower end of rankings among APO member economies for a number of other determinants. Owing to its sparse population and a large rural share, Mongolia ranks 16th on

the WEF's "infrastructure index." It ranks 18th on the WEF's "macroeconomic stability index," partly due to its exposure to global financial conditions and commodity price volatility (IMF, 2023).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	5	10	3.5	11
Agriculture share of GDP (%)	Asian Productivity Organization	Open	12.8	8	12.8	7
Agriculture share of employment (%)	Asian Productivity Organization	Open	23.9	12	25	11
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	7.7	19	7	19
Manufacturing share of employment (%)	Asian Productivity Organization	Open	7.8	18	9.6	15
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	4.3	19	4.3	19
Exports/GDP (%)	Asian Productivity Organization	Open	57	7	63.8	8
Imports/GDP (%)	Asian Productivity Organization	Open	54.6	6	69.9	4

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−1.1	15	2.7	3
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	4	0.2	3
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.5	8	0.5	5

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	52.4	2019	11	23.7
Entrepreneurial culture	WEF	0–100	44.7	2019	= 17	25.7
Availability of latest technologies	WEF	1–7	4.3	2017	= 13	2
NRI Technology index	Portulans Institute	0–100	35.8	2024	16	35.4
NRI People index	Portulans Institute	0–100	35.8	2024	13	43.5

TABLE 5

VALUES OF OVERARCHING INDICES FOR MONGOLIA.

Index	Value	APO Rank
Motivation	33	12
Capabilities	43	10
Efficiency of markets	40	9
Stability	31	10
Productivity Readiness Index	36	12

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	2.8	2017	20	3
Quality of primary education	WEF	1–7	3.8	2017	= 12	2.4
Future workforce	WEF	0–100	60.7	2019	15	20.7
Education expenditure/ GDP (%)	World Bank	Open	3.3	2021	9	2.6
Innovation capability index	WEF	0–100	32.3	2019	16	47.9
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	81.6	2021	10	18.4
Infrastructure index	WEF	0–100	56.6	2019	16	38.8
HF Business Freedom	Heritage Foundation	0–100	68	2024	11	18.9
Administrative requirements	WEF	0–100	61.9	2019	16	31.2
Domestic competition	WEF	0–100	38.3	2019	20	36.5
HF Tax Burden	Heritage Foundation	0–100	84	2024	6	6.7

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.3	2022	13	2.5
Labor market index	WEF	0–100	64	2019	7	17.2
HF Labor Freedom	Heritage Foundation	0–100	67.5	2024	5	9.8
NRI Governance index	Portulans Institute	0–100	59.7	2024	8	27.3
Financial system index	WEF	0–100	50.5	2019	19	40.9
IMF Financial Markets	IMF	0–1	0.1	2021	16	0.7
HF Financial Freedom	Heritage Foundation	0–100	50	2024	= 9	30
Life expectancy at birth (years)	UN data	Open	71.7	2023	14	13.8
Infant mortality (deaths/1000 live births)	WEF	Open	19	2017	9	46.8
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	71.5	2021	5	20.1
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	59.2	2021	9	26.3
FDI stock/GDP (%)	UNCTAD	Open	166.3	2022	3	414.6
HF Investment Freedom	Heritage Foundation	0–100	50	2024	= 11	40
Trade openness	WEF	0–100	61.8	2019	6	26.9
HF Trade Freedom	Heritage Foundation	0–100	74.4	2024	= 7	20.6
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	54	2021	10	42.1
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	43.7	2021	17	49.2
Macroeconomic stability index	WEF	0–100	66.7	2019	18	33.3
HF Monetary Freedom	Heritage Foundation	0–100	67.9	2024	13	13.8
Gross savings/ GDP (%)	World Bank	Open	33.6	2023	6	9.1
Institutions index	WEF	0–100	49.8	2019	= 13	30.6
IMF Financial Institutions	IMF	0–1	0.5	2021	8	0.4
Political stability	World Bank WGI	–2.5 to 2.5	0.5	2022	8	0.9
Rule of law	World Bank WGI	–2.5 to 2.5	–0.2	2022	12	2
Control of corruption	World Bank WGI	–2.5 to 2.5	–0.6	2022	16	2.7
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.4	2022	16	2.6
Social capital	WEF	0–100	55.9	2019	7	7.3
Voice and accountability	World Bank WGI	–2.5 to 2.5	0.3	2022	4	0.8

Challenges Ahead

Mongolia lags behind comparable countries on poverty and inequality (IMF, 2023). Climate challenges are among the largest drivers of poverty in Mongolia (World Bank, 2024a). Its agricultural sector, which accounts for 13% of the GDP, will continue to face significant climate- and weather-related challenges. Extreme weather events diminish livestock quality, undermining productivity and output. Overgrazing and unsustainable land practices also pose challenges for the sustainability of Mongolia's agricultural sector (World Bank, 2024c). Only 9.9% of livestock in Mongolia were insured in 2023, exacerbating risks from climate change (World Bank, 2024c). At the same time, considerable wind and solar opportunities remain untapped in Mongolia.

Diversification is a central challenge for Mongolia, as both mineral extraction and agriculture are vulnerable to future shocks. Global commodity price fluctuations and economic volatility will

continue to affect the stability of demand for Mongolian mineral exports, while climate will weigh heavily on agriculture. For the Mongolian economy to withstand these challenges and realize productivity gains, diversification will be essential. Ulaanbaatar has therefore emphasized diversification as a key priority (World Bank, 2024a). The emergence of AI could support this goal, along with efforts to boost FDI by improving financial market efficiency and supporting fintech growth (World Bank, 2024a).

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NEPAL

With 78.6% of its population living in rural areas, Nepal has the highest rural population share among APO member economies. Located in South Asia, Nepal's GNI per capita of USD5,460 places it at the higher end of lower-middle-income countries (World Bank, 2024a; World Bank, 2025). Nepal's employment rate remains relatively low at 42.5%, while the age-dependency ratio is high, at 53.6%. Remittances remain a central driver of private consumption in Nepal. Nepal's GDP per capita, at USD4,900 PPP, is the lowest among APO member economies. However, its GDP per capita growth rate is ranked ninth, while its population growth rate is the highest in the group.

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	29.7	13	2	1
GDP (USD billion at PPP)	145.4	17	7.2	5
GDP per capita (USD at PPP)	4,900	21	5.4	9
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	79.5	1	78.6	1
Employment rate (%)	41.3	12	42.5	12
Age dependency ratio (%)	56.4	5	53.6	7
Old-age dependency ratio (%)	10.2	11	10.1	14

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	1.7	16	3.7	10
TFP (index)	0.2	13	2.1	11
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	5.9	20	6.4	20

Nepal has shown relatively weak performance on productivity growth in recent years and continues to have very low levels of productivity. It has the second-lowest labor productivity (LP) among APO member economies. But its LP growth rate of 1.7% in the period 2010–20

placed it 16th among APO member economies, while its 3.7% rate during 2020–22 was the 10th highest. LP growth relies on capital deepening, which has remained between 1% and 2% since 1980 (Table 3).

Nepal's TFP performance has been modest. It ranked 13th for TFP growth during 2010–20 and 11th for the period 2020–22. Still, its TFP growth of 2.1% has been a considerable improvement, given that its long-term average GDP growth was negative during 1970–2000 and averaged just 0.3% and 0.2% over 2000–10 and 2010–20, respectively. Industrialization levels remain limited, though legislative efforts have aimed to enhance industrial productivity and technology adoption, prioritize productive industries based on abundant resources and skills, and protect industrial IP rights. However, incoherent policy implementation has undermined the efficacy of such policies in driving TFP growth (Kharel, 2023).

Nepal relies on tourism and agriculture as its main contributors to GDP. Average output growth of 7.5% is a considerable improvement, given that long-term average growth has not exceeded 5% since 1970. Recent GDP gains have been driven by the services sector, particularly due to a 30.7% increase in tourist arrivals in 2023 (World Bank, 2024c). Infrastructure gaps, limited electricity supply, and the degree of business regulations constrain Nepal's productivity and GDP growth (Kharel, 2023). Recent opportunities in employment have also been driven by reconstruction work following the 2015 earthquake (Kharel, 2023).

High output growth in 2020–22 has been driven by large contributions from labor quantity, TFP growth, and capital (which has consistently been a large contributor to output growth since 1980), while labor quality has not played a significant role (Figure 2).

With regard to the performance of capital in Nepal, two competing forces impact Nepal's economic performance. Until 2020, long-term average capital productivity growth had been negative since 1970. However, average capital growth has exceeded 4.9% in every decade since 1980, reaching 7.2% during 2020–22. Since the 1990s, growth in the capital–labor ratio has been strong and consistent, averaging around 3.75% across this entire period.

With one in four Nepalese households having at least one member abroad, Nepal's remittance-to-GDP ratio is among the highest in the world and supports private consumption (World Bank, 2024). Rising remittance levels and lower import levels have also supported GDP growth. This is likely to continue in the near future as a loosened monetary policy supports private investment and consumption.

Agricultural growth has been driven by increased rice paddy production, improved seed availability, favorable weather, and better mechanization. Also, the 6% growth in Nepal's industrial sector has been driven by its hydroelectric industry (World Bank, 2024). Ongoing electrification and growth in construction activities are expected to further support industrial sector's productivity and output (World Bank, 2024). It may be noted that 94% of the agricultural production is consume domestically (World Bank, 2024).

While Nepal's exports are diverse, volumes are very low, and 60% of the volumes go to India (Kharel, 2023), comprising mostly basic commodities. Nepal continues to lack the capacity to diversify and improve the quality of its exports. Indian export restrictions have reduced Nepal's import levels and improved its trade deficit. However, Nepal has failed to capitalize opportunities

in special economic zones and has not actively advertised its industries and exports internationally, which places downward pressure on its trade activity (Kharel, 2023).

Global economic slowdowns continue to pose risks for Nepal, especially through the remittance and tourism channels (World Bank, 2024c).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	−0.8	3.3	2.3	2.9	1.7	3.7
TFP growth	−1.2	−0.7	−1	0.3	0.2	2.1
Capital productivity growth	−1.1	−1.5	−1.1	−0.9	−2.1	0.3
Output growth	2.3	4.8	4.7	4	3.4	7.5
Combined inputs growth	3.6	5.5	5.7	3.6	3.1	5.2
Capital growth	3.5	6.4	5.8	4.9	5.6	7.2
IT capital growth	24.1	12.7	11.9	5.6	10.4	10.5
Hours worked growth	3.2	1.4	2.3	1.1	1.6	3.6
Labor quality growth	0.5	3.6	3.3	1.8	−0.1	0.3
Capital deepening	0.1	1.8	1.3	1.4	1.5	1.4

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
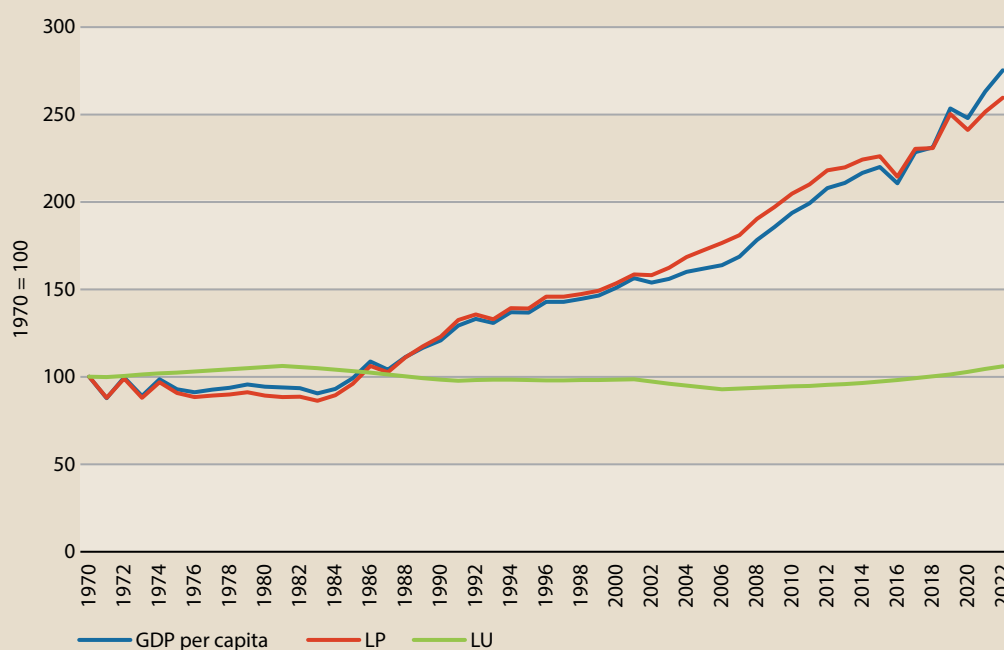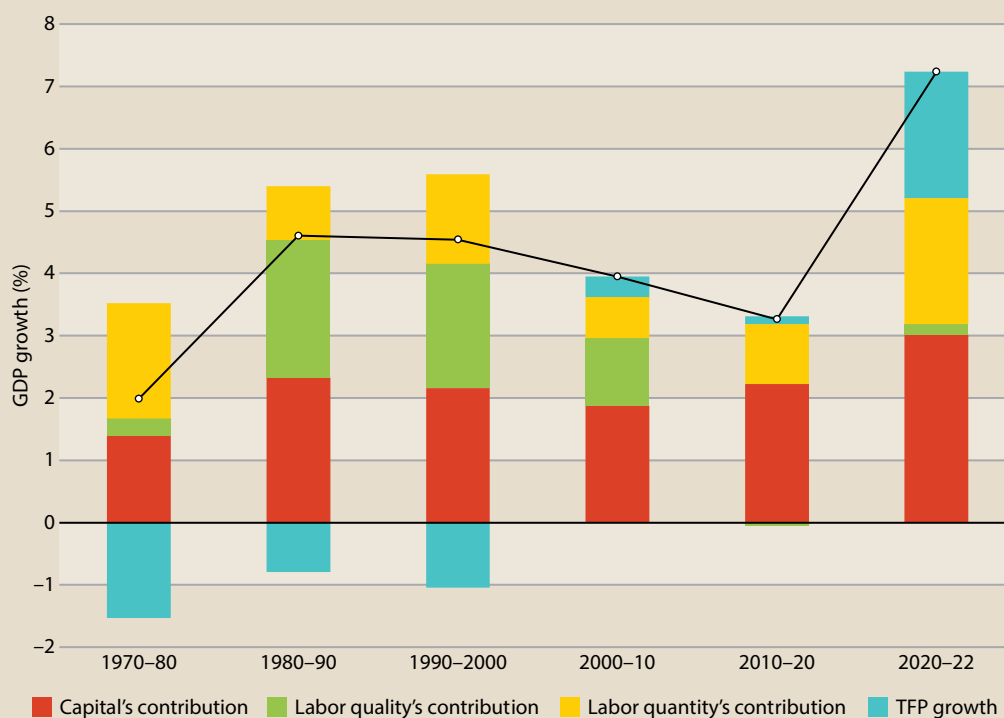
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

■ Capital's contribution ■ Labor quality's contribution ■ Labor quantity's contribution ■ TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants set out in Chapter 4, along with some supplementary indicators that add a more complete picture in certain areas. The section also draws on the quantitative analysis of indicators in Chapter 5, and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Nepal has the highest agricultural share of GDP among APO member economies, accounting for 24.4% of its economy. With 64.5% of Nepal's workforce employed in the agricultural sector, it has the second-highest agriculture's share of employment among APO members. At the same time, manufacturing's share of GDP in Nepal is the second-lowest among APO peers, at only 5.6% in 2022, though having a slight increase over 2020. Nepal has the lowest exports-to-GDP ratio among APO member economies, at only 7%, with 60% of exports to India (Kharel, 2023). Output from agriculture, the largest sector in Nepal, is primarily for household consumption (World Bank, 2024c). Meanwhile, its imports-to-GDP ratio falls in the middle among APO member economies, ranked 10th at 44.3% in 2022, with a significant increase from 35% in 2020. Nepal therefore has a high trade deficit, but this is expected to improve as goods exports, including electricity and services, increase (World Bank, 2024c).

However, Nepal performs strongly on capital deepening, ranking third in 2022 with 1.8 percentage points. It maintains a rounded IT capital deepening of zero percentage points. Labor quality's contribution to labor productivity growth is also low at 0.1, ranked 13th among APO member economies.

Nepal performs poorly on network readiness. It ranks 19th among APO member economies for both the NRI Technology Index and the NRI People Index, reflecting very limited capacity to leverage improvements in network technology. It also ranks dismally on WEF's "availability of latest technologies" indicator, ranking 20th among APO members. Further, it also performs poorly on the WEF's measures of "current workforce" and "entrepreneurial culture."

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; as well as an overall Productivity Readiness Index. These indices provide broad indications of where countries stand on productivity determinants and overall productivity readiness.

Sufficient data were not available to calculate the PRI and associated indices for Nepal.

Underlying Determinants: Specific Strengths and Weaknesses

Nepal continues to see numerous economic challenges that constrain productivity and growth. Issues related to institutional quality, infrastructure, and openness of economy remain significant weaknesses.

Ineffective governance is one of Nepal's most significant weaknesses. It ranks last among APO member economies for government effectiveness, 15th on the World Bank WGI Regulatory Quality Index, and 15th on the WEF Institutions Index. It also ranks 14th for World Bank's WGI metrics on "rule of law" and "control of corruption," as well as 12th for "political stability." Frequent administrative changes, policy discontinuities, and implementation delays deter private investment and hinder productivity gains and growth (World Bank, 2024b). Conflicts and inconsistencies between policies and poor coordination between agencies undermine government effectiveness (Kharel, 2023). Nepal does not perform well on health indicators too, ranking 17th for life expectancy and having the fifth-highest infant mortality rate among APO member economies.

Nepal also sees challenges in its financial system. It ranks last on the IMF Financial Markets Index and 10th on the WEF Financial System Index. A rise in nonperforming loans, among other vulnerabilities, constrains credit growth in the private sector and increases risks (World Bank, 2024b). Poor performances on the WEF Innovation Capability Index (ranked 19th) and the WEF Future Workforce Index (ranked 14th) demonstrate the challenges Nepal's agriculture-oriented economy will continue to face in attempts to drive future productivity gains.

Nepal also performs poorly on infrastructure, ranking 19th on the WEF's "infrastructure index." Infrastructure gaps, along with inadequate electricity supplies, create considerable obstacles for growth (Kharel, 2023). Road quality and transport efficiency are poor, while inadequate air transport infrastructure hampers tourism, a key export sector for Nepal (Kharel, 2023). It is also ranked 18th on the WEF's "domestic competition" metric, which signifies a significant weakness in Nepal's capacity to generate productivity growth.

While Nepal ranks 13th on the WEF's "administrative requirements" metric, tedious procedures for opening and closing businesses hinder the private sector's growth (Kharel, 2023). Nepal ranks poorly on labor market indicators, ranked 19th on the WEF Labor Market Index and 17th on the Heritage Foundation's "labor freedom" metric. Emigration is a considerable issue in Nepal, which continues to rely on remittances to sustain private consumption. Policies to better link graduates

with the industry could help address this issue (Kharel, 2023). High labor costs also undermine Nepal's labor market performance.

Nepal also ranks low on most measures of economy's openness. It ranks 17th on the WEF Trade Openness Index, 18th on the KOF's "trade globalization" measure, and 20th on the KOF's "financial globalization" metric. Nepal has not sufficiently promoted its exports, limiting its capacity to build trade relationships (Kharel, 2023). Its goods exports are largely easy-to-produce commodities, with 60% of its exports going to India (Kharel, 2023). FDI stock levels are also low, with Nepal ranked 20th among APO member economies for FDI stock as a share of GDP, at just 5.2%. Despite reforms in recent years, attracting FDI remains difficult, exacerbated by a lack of clarity from government agencies due to policy conflicts and inconsistencies (Kharel, 2023). Leveraging special economic zones could help support FDI, especially by disseminating market information (Kharel, 2023).

Nepal does perform better than other indicators on education. It ranks 12th on the WEF's "quality of education system" metric and 12th on the WEF's "quality of primary education" index. It also ranks sixth among APO member economies for education expenditure as a share of GDP. However, although enrollment rates are high, there is considerable scope for improving literacy rates. Another relative strength is macroeconomic stability, as Nepal ranks 13th among APO member economies on the WEF Macroeconomic Stability Index. Coupled with a relatively high gross savings-to-GDP ratio, at 32.2%, Nepal ranks seventh among APO member economies on this count. This provides a foundation that Nepal could leverage to drive investments and future productivity gains.

TABLE 4.0
IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	3.8	13	3.5	12
Agriculture share of GDP (%)	Asian Productivity Organization	Open	25.1	1	24.4	1
Agriculture share of employment (%)	Asian Productivity Organization	Open	65.3	2	64.5	2
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	5.1	20	5.6	20
Manufacturing share of employment (%)	Asian Productivity Organization	Open	9.3	15	9.4	16
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	10.5	15	10.5	15
Exports/GDP (%)	Asian Productivity Organization	Open	7	21	7	21
Imports/GDP (%)	Asian Productivity Organization	Open	35	10	44.3	11

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	1.8	3	1.5	10
IT capital deepening (pp)	Asian Productivity Organization	Open	0	12	0	13
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.1	13	0.2	13

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	37.6	2019	19	38.5
Entrepreneurial culture	WEF	0–100	44.7	2019	= 17	25.7
Availability of latest technologies	WEF	1–7	3.8	2017	20	2.5
NRI Technology index	Portulans Institute	0–100	26.6	2024	19	44.6
NRI People index	Portulans Institute	0–100	28.5	2024	19	50.8

TABLE 5

VALUES OF OVERARCHING INDICES FOR NEPAL.

Index	Value	APO Rank
Motivation	NA	NA
Capabilities	NA	NA
Efficiency of markets	NA	NA
Stability	NA	NA
Productivity Readiness Index	NA	NA

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.7	2017	= 12	2.1
Quality of primary education	WEF	1–7	3.8	2017	= 12	2.4

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Future workforce	WEF	0–100	61	2019	14	20.4
Education expenditure/ GDP (%)	World Bank	Open	4	2021	6	2
Innovation capability index	WEF	0–100	29.4	2019	19	50.8
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	64.8	2021	18	35.2
Infrastructure index	WEF	0–100	51.8	2019	19	43.6
HF Business Freedom	Heritage Foundation	0–100	60.5	2024	13	26.4
Administrative requirements	WEF	0–100	66.8	2019	13	26.3
Domestic competition	WEF	0–100	43.7	2019	18	31.1
HF Tax Burden	Heritage Foundation	0–100	84.3	2024	5	6.4
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.7	2022	15	2.9
Labor market index	WEF	0–100	49.1	2019	19	32.1
HF Labor Freedom	Heritage Foundation	0–100	48.2	2024	17	29.1
NRI Governance index	Portulans Institute	0–100	39.2	2024	16	47.7
Financial system index	WEF	0–100	66.4	2019	10	25
IMF Financial Markets	IMF	0–1	0	2021	20	0.9
HF Financial Freedom	Heritage Foundation	0–100	30	2024	= 17	50

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Life expectancy at birth (years)	UN data	Open	70.4	2023	17	15.2
Infant mortality (deaths/1000 live births)	WEF	Open	29.4	2017	5	36.4
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	26.8	2021	20	64.8
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	22.6	2021	19	62.9
FDI stock/GDP (%)	UNCTAD	Open	5.2	2022	20	575.8
HF Investment Freedom	Heritage Foundation	0–100	10	2024	19	80
Trade openness	WEF	0–100	42.3	2019	17	46.4
HF Trade Freedom	Heritage Foundation	0–100	58.2	2024	19	36.8
Services Trade Restrictions Index	World Bank, WTO	0–100	NA	2022	NA	NA
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	31.1	2021	18	65
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	39.1	2021	18	53.8
Macroeconomic stability index	WEF	0–100	73.9	2019	13	26.1
HF Monetary Freedom	Heritage Foundation	0–100	70	2024	9	11.7
Gross savings/ GDP (%)	World Bank	Open	32.2	2023	7	10.5
Institutions index	WEF	0–100	47.9	2019	15	32.5
IMF Financial Institutions	IMF	0–1	0.4	2021	11	0.5

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Political stability	World Bank WGI	−2.5 to 2.5	−0.3	2022	12	1.7
Rule of law	World Bank WGI	−2.5 to 2.5	−0.4	2022	14	2.2
Control of corruption	World Bank WGI	−2.5 to 2.5	−0.5	2022	14	2.6
Government effectiveness	World Bank WGI	−2.5 to 2.5	−0.9	2022	21	3.1
Social capital	WEF	0–100	51.5	2019	11	11.7
Voice and accountability	World Bank WGI	−2.5 to 2.5	0	2022	8	1.1

Challenges Ahead

Political instability continues to undermine Nepal's attractiveness as a destination for FDI (World Bank, 2024c). Frequent administrative changes weaken business certainty, and, in turn, impact investment decisions. Efforts to drive FDI and industrialization via legislative measures have been hampered by poor policy implementation and administrative issues (Kharel, 2023). Greater leveraging of special economic zones could improve information sharing and strengthen trade relationships (Kharel, 2023). Efforts to improve governance in the agricultural sector through the agriculture development strategy framework could help improve agricultural productivity (Kharel, 2023). Natural disasters pose a considerable risk for Nepal, while climate change poses challenges for agriculture.

Nepal is also susceptible to global economic shocks. Downturns in migrant-receiving countries threaten the remittance flows that drive private consumption and poverty reduction in Nepal. By reducing migration costs, investing in education and entrepreneurship among returnees, and bolstering its migration management system, Nepal can maximize the development benefits it receives from remittance channels (World Bank, 2024b).

Emigration is a significant challenge for Nepal. While tourism is a major export, emigration of skilled workers continues to pose problems for the sector (Kharel, 2023). Poverty reduction strategies that rely on remittances fail to address structural issues in Nepal. There continues to be a lack of targeted social assistance programs necessary to reach the poor (World Bank, 2024b). By establishing agencies for priority sectors and improving educational policy and creating linkages between graduates and the industry, Nepal could break the emigration cycle (Kharel, 2023).

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PAKISTAN

With 247 million people, Pakistan is one of the most populous APO member economies, with a population growth rate of 1.5% (World Bank, 2025). Largely an agricultural economy, Pakistan's economy and living standards have been behind its peers for decades, underperforming in key categories such as income per capita, competitiveness, and export performance (IMF, 2024b). The country has the second-lowest employment rate among APO member economies, with a predominantly rural population (APO, 2023). Its poverty level has increased recently due to several macroeconomic shocks, reaching 40.5% in the 2024 financial year (World Bank, 2024). Pakistan has the third-lowest GDP per capita among APO member economies (Table 1).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	210.3	3	1.9	2
GDP (USD billion at PPP)	1,505.1	8	5.3	10
GDP per capita (USD at PPP)	7,157.1	19	3.5	13
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	62.8	6	62.3	6
Employment rate (%)	31.4	20	31.7	20
Age dependency ratio (%)	70.8	1	69	1
Old-age dependency ratio (%)	7.1	19	7.2	20

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	1.7	17	2.5	13
TFP (index)	0.7	5	2.6	6
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	10	16	10.5	17

Labor productivity (LP) growth in Pakistan has been relatively poor in recent years. With an average LP growth rate of 1.7% over 2010–20, it ranked 17th among APO member economies (Table 2). It has seen a slight improvement in recent years, ranked 13th for the 2020–22 period. Long-term LP growth peaked in the late-1980s, but has gradually increased in recent years. Its performance on TFP growth is stronger, ranked fifth among APO member economies for the 2010–20 period, and sixth for the 2020–22 period.

GDP growth in Pakistan has been volatile for the past three years: 6.5% in 2021, 4.8% in 2022, and 0% in 2023 (World Bank, 2024). The slow and volatile growth can be attributed to a number of factors, such as, recurrent fiscal and current account deficits, protectionist trade policies, unproductive agriculture, difficult business environment, heavy state presence in the economy, and a financially unsustainable energy sector. In FY2023, Pakistan was on the verge of an economic crisis, with inflation hitting 38% in May, reserves at critically low levels, and political uncertainty severely stunting investment and confidence levels (World Bank, 2024). In FY2024, Pakistan attempted to mitigate these concerns through a range of IMF-supported policy measures for interventions and stabilization, including the suspension of import and capital controls (World Bank, 2024).

Agriculture remains one of Pakistan's most important sectors, accounting for 24% of GDP and 37.4% of employment (Government of Pakistan, 2024). The sector expanded 6.25% in 2023–24, largely driven by healthy growth in key crops, notably rice (Government of Pakistan, 2024). More broadly, however, structural issues persist in Pakistan's economy. A large portion of the economic activity is uncompetitive, propped up extensive protectionism, subsidies, and tax concessions that have undermined the tax base (IMF, 2024b). Barriers for new entrants in domestic markets has undermined competition, leading to inefficiencies and low productivity (IMF, 2024b). Insufficient investment in social sectors, particularly in health and education, has made it difficult to tackle pervasive poverty and entrenched inequality (IMF, 2024b).

Pakistan's low economic growth is also tied to low capital accumulation and weak total factor productivity (TFP) (IMF, 2024b). The country has failed to reallocate resources efficiently from low-productivity sectors, such as agriculture, to high-productivity ones (IMF, 2024a). A significant share of the workforce remains in low-productivity jobs with high informality, while there is low participation in skilled employment (IMF, 2024a). Education and vocational training investments have been inadequate to equip workers for higher-value industries (IMF, 2024a). LP has grown more slowly than regional peers. Low capital investment, poor educational outcomes, and weak investment in human capital have resulted in limited contribution from labor quality. As a result, Pakistan has been unable to take advantage of the significant demographic expansion, with its population growing from 80 million to over 230 million, during 1980–2022 (IMF, 2024a).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	2	4.5	4.5	1.4	1.7	2.5
TFP growth	0.3	2.2	1.8	0.2	0.7	2.6
Capital productivity growth	0	0.4	0.5	0.1	0.9	2.7
Output growth	4.8	7.1	6.5	4.4	3.6	5.5
Combined inputs growth	4.5	4.7	4.5	4.2	2.9	2.9
Capital growth	4.8	6.7	5.9	4.3	2.7	2.7
IT capital growth	8.9	17.9	7.2	23.4	4.8	9.8

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Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Hours worked growth	2.8	2.5	1.9	3	1.9	2.9
Labor quality growth	1.6	1.1	1.1	1.1	1.3	0.2
Capital deepening	0.8	1.5	2	0.8	0.4	−0.1
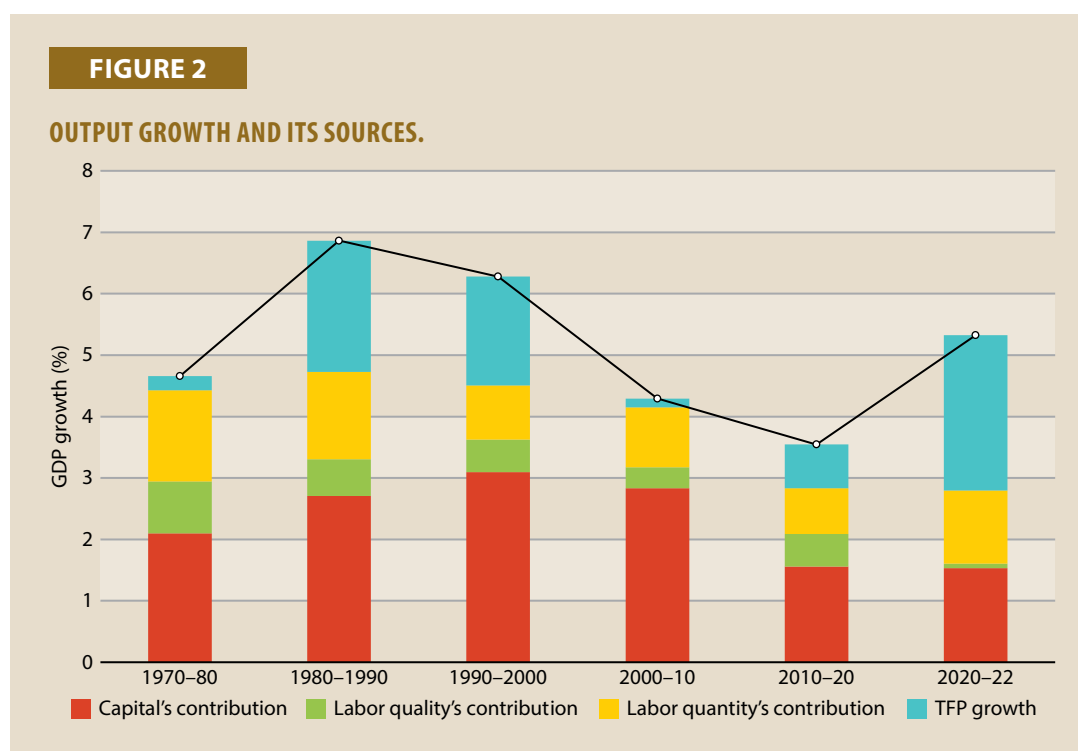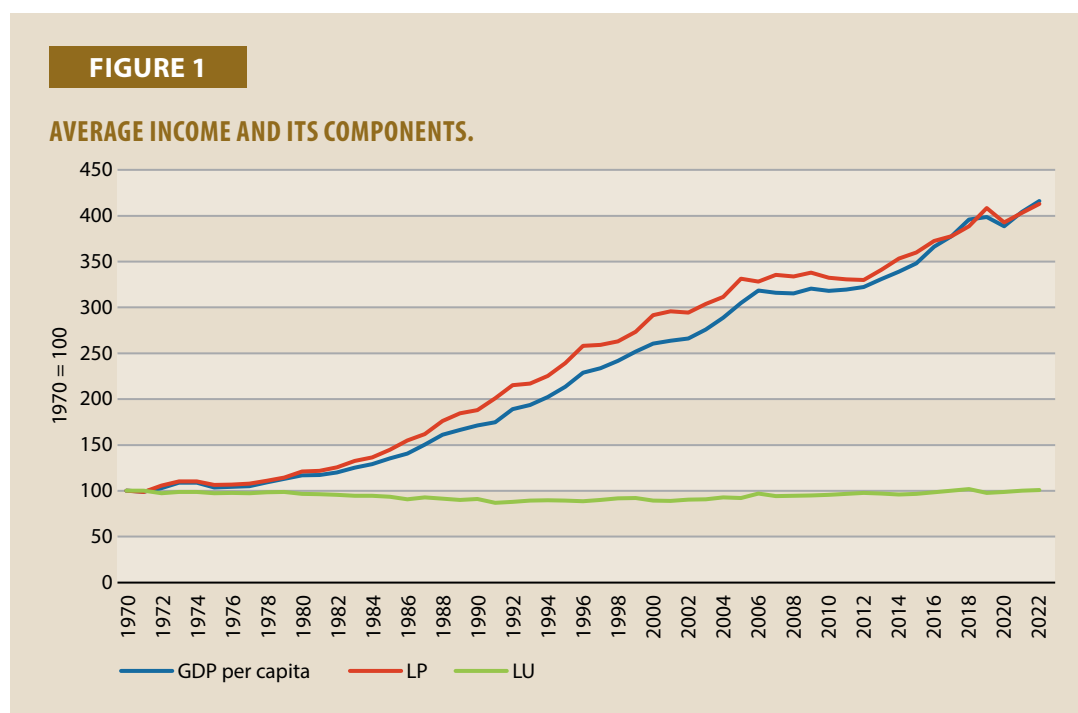
FIGURE 1
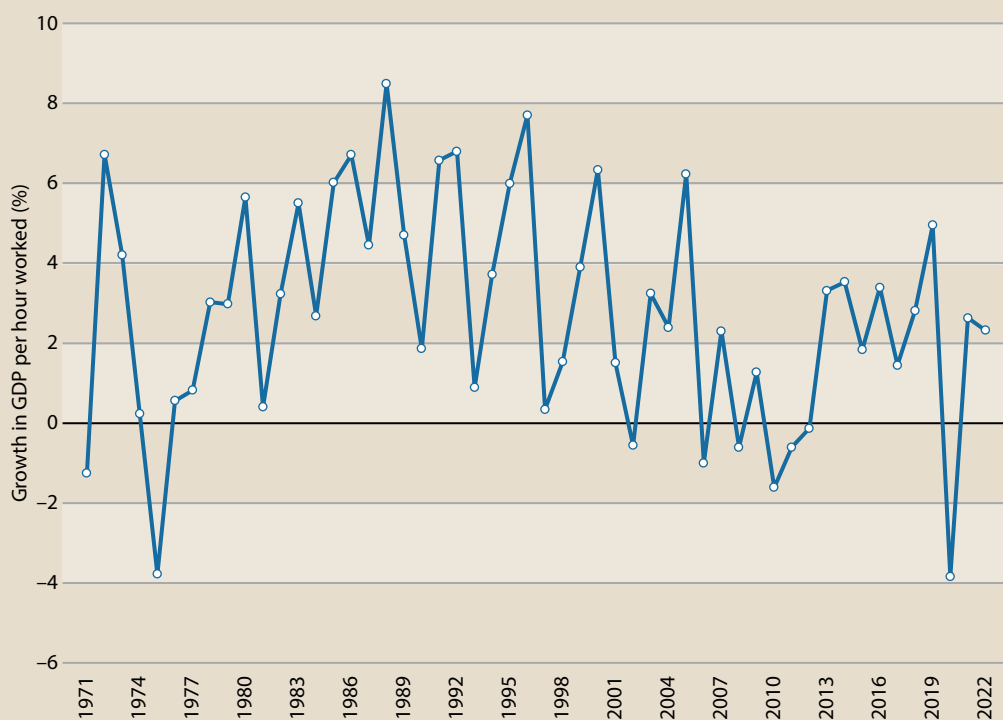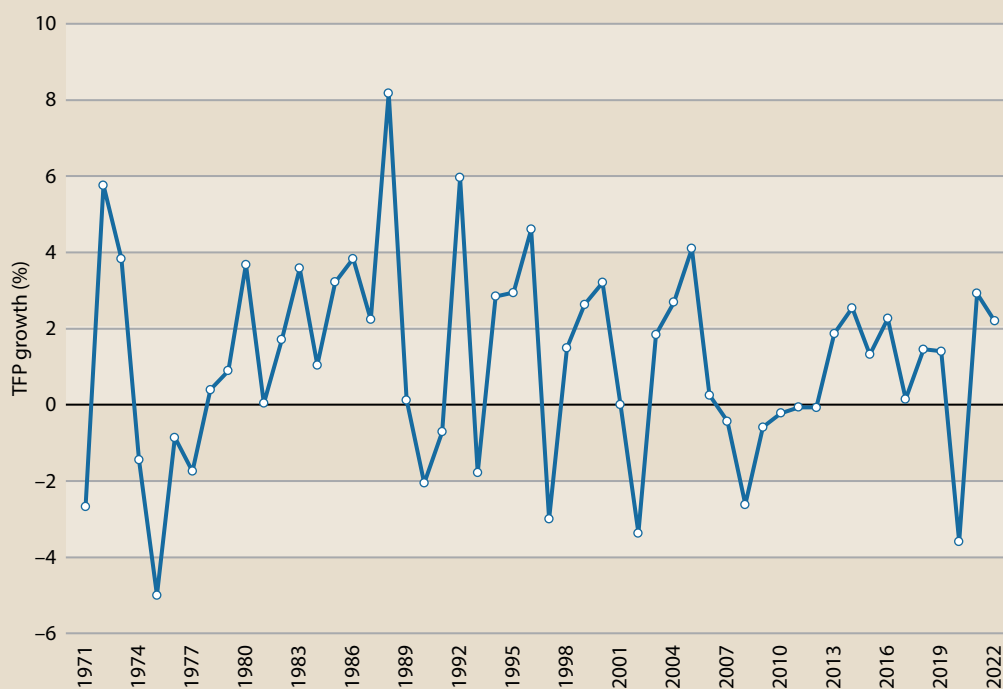
AVERAGE INCOME AND ITS COMPONENTS.

FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate determinants

Pakistan has the lowest capital-to-GDP ratio as well as the second-highest agricultural share of GDP among APO member economies. Exports and imports as a percentage of GDP are also among the lowest, reflecting the relatively closed nature of Pakistan's economy. As discussed earlier, Pakistan depends heavily on its agricultural sector, which is demonstrated by its APO ranking of second for agricultural share of GDP at 22.4% (Table 4.0).

Pakistan once had a relatively high contribution of labor quality to LP growth, but as seen in Table 4.1, this has fallen to among the lowest among APO members. However, IT capital deepening in Pakistan has improved and ranks highly among APO peers. Overall capital deepening remains low in Pakistan with a growth rate of –0.1%.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability; as well as an overall Productivity Readiness Index (PRI). These indices provide broad indications of where countries stand on productivity determinants and the overall productivity readiness.

Pakistan ranks relatively lower among its APO peers across all categories, with no rank higher than 14 (stability). Like other APO member economies, these scores indicate that there is significant scope for Pakistan to improve its productivity readiness.

Underlying Determinants: Specific Strengths and Weaknesses

Pakistan exhibits a mixed economic and institutional landscape, with notable weaknesses in governance and human capital development. Its performance on both "quality of education system" and "educational expenditure as a share of GDP" (1.7% in 2021) are low, suggesting challenges in skill development. Pakistan ranked 10th among APO member economies on "quality of education" in 2017, and 17th on "educational expenditure as a share of GDP" (Table 6). Similarly, innovation capability and infrastructure quality point to gaps in technological advancement and physical connectivity. On "business freedom" and "domestic competition," Pakistan's ranking of 19th and 13th, respectively, reflect a constrained private sector environment, while scores on "low labor market efficiency" and "labor freedom" indicate rigidity in employment regulations.

Pakistan is further constrained by corruption and inefficacies (Table 6). Governance indicators reflect deep institutional weaknesses, with regulatory quality (–0.9 in 2022), rule of law (–0.7 in 2022), and control of corruption (–0.8 in 2022) suggesting poor institutional effectiveness. Political stability (–1.9 in 2022) and voice and accountability (–0.9 in 2022) are also weak, reinforcing governance challenges. Equally, the financial sector remains riddled with inefficiencies, with low scores on the metrices of financial systems, financial markets, and financial institutions reflecting the difficulty in capital access and investment.

Despite efforts toward liberalization, "trade openness" and "trade freedom" scores reflect the slow pace with which Pakistan is opening its economy, with high trade restrictions in services (Table 6). In 2019, Pakistan ranked 18th among APO peers on the WEF's indicator for "trade openness." It is relatively weak on "macroeconomic stability" and also struggles with a low savings rate as a percentage of GDP.

Pakistan also faces challenges on human development issues, with relatively low life expectancy and the highest infant mortality among APO member economies.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	2.5	20	1.9	21
Agriculture share of GDP (%)	Asian Productivity Organization	Open	21.9	3	22.4	2
Agriculture share of employment (%)	Asian Productivity Organization	Open	38.3	4	37.5	4
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	11.4	17	13.8	15
Manufacturing share of employment (%)	Asian Productivity Organization	Open	14.9	10	14.9	10
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	22.9	14	22.9	14
Exports/GDP (%)	Asian Productivity Organization	Open	9.3	20	10.6	20
Imports/GDP (%)	Asian Productivity Organization	Open	17.4	17	22.5	18

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	0.1	11	−0.1	15
IT capital deepening (pp)	Asian Productivity Organization	Open	0.1	8	0.1	6
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0	18	0.1	17

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	43.1	2019	17	33
Entrepreneurial culture	WEF	0–100	51.5	2019	11	18.9
Availability of latest technologies	WEF	1–7	4.7	2017	= 10	1.6
NRI Technology index	Portulans Institute	0–100	49.1	2024	10	22.1
NRI People index	Portulans Institute	0–100	31.9	2024	17	47.4

TABLE 5

VALUES OF OVERARCHING INDICES FOR PAKISTAN.

Index	Value	APO Rank
Motivation	21	15
Capabilities	20	16
Efficiency of markets	20	15
Stability	13	14
Productivity Readiness Index	17	15

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.8	2017	= 10	2
Quality of primary education	WEF	1–7	3.3	2017	17	2.9
Future workforce	WEF	0–100	38.4	2019	20	43
Education expenditure/ GDP (%)	World Bank	Open	1.7	2021	17	4.3
Innovation capability index	WEF	0–100	35.8	2019	14	44.4
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	67.9	2021	16	32.1
Infrastructure index	WEF	0–100	55.6	2019	17	39.8

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
HF Business Freedom	Heritage Foundation	0–100	48.3	2024	19	38.6
Administrative requirements	WEF	0–100	75.1	2019	9	18
Domestic competition	WEF	0–100	49.5	2019	13	25.3
HF Tax Burden	Heritage Foundation	0–100	78.3	2024	14	12.4
Regulatory quality	World Bank WGI	–2.5 to 2.5	–0.9	2022	18	3.1
Labor market index	WEF	0–100	51.3	2019	17	29.9
HF Labor Freedom	Heritage Foundation	0–100	52.2	2024	15	25.1
NRI Governance index	Portulans Institute	0–100	38.2	2024	17	48.8
Financial system index	WEF	0–100	55	2019	17	36.4
IMF Financial Markets	IMF	0–1	0.1	2021	15	0.7
HF Financial Freedom	Heritage Foundation	0–100	40	2024	= 14	40
Life expectancy at birth (years)	UN data	Open	67.6	2023	20	17.9
Infant mortality (deaths/1000 live births)	WEF	Open	65.8	2017	1	0
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	33.4	2021	17	58.2
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	36.7	2021	17	48.8
FDI stock/GDP (%)	UNCTAD	Open	9.8	2022	18	571.2
HF Investment Freedom	Heritage Foundation	0–100	60	2024	= 5	30
Trade openness	WEF	0–100	41.5	2019	18	47.2
HF Trade Freedom	Heritage Foundation	0–100	67.6	2024	= 14	27.4

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Services Trade Restrictions Index	World Bank, WTO	0–100	43.6	2022	10	22
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	35.1	2021	17	61
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	44.1	2021	16	48.9
Macroeconomic stability index	WEF	0–100	68.7	2019	16	31.3
HF Monetary Freedom	Heritage Foundation	0–100	63.8	2024	16	17.9
Gross savings/ GDP (%)	World Bank	Open	13	2023	18	29.6
Institutions index	WEF	0–100	47.7	2019	16	32.7
IMF Financial Institutions	IMF	0–1	0.3	2021	18	0.6
Political stability	World Bank WGI	–2.5 to 2.5	–1.9	2022	21	3.4
Rule of law	World Bank WGI	–2.5 to 2.5	–0.7	2022	18	2.5
Control of corruption	World Bank WGI	–2.5 to 2.5	–0.8	2022	17	2.9
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.6	2022	18	2.8
Social capital	WEF	0–100	46.1	2019	18	17.1
Voice and accountability	World Bank WGI	–2.5 to 2.5	–0.9	2022	16	1.9

Challenges Ahead

Improving the quality of living remains a key challenge for Pakistan, despite moderate improvements in health and education indicators in recent years (IMF, 2024a). Gains from economic growth have not got distributed among the general population, with growth being mostly driven by capital accumulation and increased labor hours (IMF, 2024b). Pakistan also fails to invest in education as much as its peers, further entrenching the disadvantages (IMF, 2024b). A significant share of the workforce remains in low-productivity jobs, marked by high informality and low participation in skilled employment. Investments in education and vocational training have been inadequate to equip workers for higher-value industries (IMF, 2024b).

Pakistan also faces inefficiency challenges that hinder its growth and productivity. Debt servicing consumes 56% of its total revenue, crowding out spending on development and infrastructure. Pakistan's total public debt increased to PKR67.5 trillion in FY2024, raising concerns about fiscal sustainability (KPMG, 2024). Circular debt in the power sector reached 4.5% of GDP, driven by high subsidies and inefficiencies. The government has increased energy tariffs to reduce fiscal pressure, which may lead to inflationary concerns (KPMG, 2024). More broadly, Pakistan ranks 108 on the Ease of Doing Business Index, reflecting regulatory and governance challenges (KPMG, 2024). The government is negotiating a new USD7 billion to USD8 billion IMF program to stabilize financing needs and sustain growth (KPMG, 2024).

Pakistan is already bearing the impact of climate variations, and remains vulnerable to the risks of climate change due to limited investment in adaptation measures (KPMG, 2024). Pakistan faces warming at a rate significantly higher than the global average, placing it at risk of increased climate variability, extreme events, severe and longer droughts, monsoons, floods, and landslides (IMF, 2024a). The IMF estimates that Pakistan sustained close to USD29.3 billion in climate-related economic losses during 1992–2021, along with the 2022 floods that killed 1,700 people and displaced 8 million (IMF, 2024a). Further investment in climate resilience will be key to ensure that Pakistan's opportunities for growth and poverty reduction are maximized.

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THE PHILIPPINES

The Philippines is a lower-middle-income economy, with a relatively large population of 112 million. It has become one of the most densely populated countries in the world, at 382 people per sq km (World Bank, 2025). The rural population is large but shrinking steadily due to creation of city-based jobs in the services sector. Recent growth in business services, enabled by the Philippines' large and mostly English-speaking workforce, has helped raise living standards and significantly reduce poverty. Between 2021 and 2023, the poverty rate declined by nearly three percentage points, from 18.1% to 15.5% (IMF, 2024). Although GDP per capita remains low compared with other APO member economies, it has significantly improved over the past three decades, having more than tripled since 1970. The employment rate remains low, and poverty high, compared with other APO members.

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	112.3	6	1.5	4
GDP (USD billion at PPP)	1,197.7	12	7.6	3
GDP per capita (USD at PPP)	10,664.1	15	6.4	6
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	52.6	9	52	9
Employment rate (%)	36.1	16	40.8	13
Age dependency ratio (%)	55.3	6	54.4	5
Old-age dependency ratio (%)	8.2	18	8.5	18

Productivity Performance

The Philippines ranked 14th among APO member economies in terms of labor productivity (LP) in 2022. LP increased at a modest rate during the 2000s and 2010s, but slowed to an average of 0.5% per year from 2020–22 as the COVID-19 pandemic severely impacted the economy (Table 2). LP growth ranked just 19th out of 21 APO member economies during that period.

At the same time, with rapid GDP growth averaging 7.6% annually, the Philippines was the third-fastest growing APO member economy during 2020–22 (Table 1). While immense capital accumulation had fueled output growth during the 2010s, the main drivers of recent growth have been increased labor quantity and TFP growth in an expanding services sector (Figure 2). The Philippines' economic upswing has made it one of Southeast Asia's best-performing economies despite external shocks like the pandemic (IMF, 2024). Strong performance is expected to continue, with GDP growth estimated at 5.8% in 2024, supporting the nation's goal of achieving the upper-middle-income status by 2028 (IMF, 2024; OECD, 2024a).

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	4.1	4	−0.5	20
TFP (index)	−0.4	16	2.5	7
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	13.1	14	13	14

Structural reforms following the restoration of democracy in 1986 facilitated productivity gains and living standards. Labor market shifts and sectoral changes played a key role in raising average incomes. A rise in services' share of employment from 32.1% in the 1970s to 52.5% in the 2010s reflected a necessary structural shift in employment, previously concentrated in agriculture (Laurente, 2022). Progress has been volatile. Periods of strong growth in GDP per capita have been hindered by external shocks such as the COVID-19 pandemic, which hit the Philippines harder than many of its peers (World Bank, 2022). Most of the gains in per capita GDP over the past thirty years have been supported by faster growth in LP (Figure 3). Improved utilization of labor has also contributed to higher living standards. However, these gains have been modest, with hours per person increasing only marginally (Figure 3).

As the sectoral compositions of GDP and employment have changed over time, so have the drivers of productivity growth. LP gains in the 1990s reflected the movement of workers from lower-productivity industries such as agriculture to higher-productivity service industries such as finance, real estate, and business services. From 2001–21, digitization in financial services, rising manufacturing productivity, and government R&D and Industry 4.0 initiatives have contributed to substantial growth in aggregate LP (Table 3) (Canto, 2024). This was partly offset, however, by a decline in employment in manufacturing relative to other sectors. Manufacturing's share of value added to GDP still remains significant, given the country's reliance on semiconductor exports. However, the services sector remains the key driver of growth and value added in the Philippine economy (IMF, 2024).

Capital deepening intensified during the 2010s with a period of rapid factor accumulation, before beginning to decline again in recent years (Figure 6). Investment as a share of GDP reached a high in 2019 at just over 27% (OECD, 2024a). This is consistent with rapid accumulation of non-IT capital, which grew at an average of 7.1% per year during the period 2010–20 (Table 3). The stock of IT capital expanded at 10.5% per year over the same period. Capital productivity fell in 2009 following the global financial crisis, but has since recovered (Figure 5).

TFP growth accelerated after 2000, but turned negative again in 2015 (Figure 4). An average annual rate of decrease of 0.4% from 2010–20 saw the Philippines rank 16th among APO member economies (Table 2). Although its productivity performance started to improve from the 2000s, its workforce skill levels have risen more consistently for the past 50 years. LP growth has been positive for most of the past half-century, except only during the 1980s (Figure 3). This has occurred despite an ongoing emigration of university-educated workers, a phenomenon which, while boosting remittances from abroad, also diminishes the pool of skilled workers available for the local economy. However, out-migration encourages those who remain in the country to develop skills in pursuit of similar opportunities, thereby positively impacting human capital development.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	2.5	0	1.9	2.4	4.1	–0.5
TFP growth	–0.2	–1.3	0	1.5	–0.4	2.5
Capital productivity growth	–1.3	–1.3	–0.5	1.4	–2.2	4.7
Output growth	6.1	2.8	3.9	4.9	4.7	7.9
Combined inputs growth	6.3	4.2	3.9	3.4	4.9	5.5
Capital growth	7.5	4.2	4.4	3.5	7.1	3.1
IT capital growth	8.8	11.2	12.8	7.6	10.5	5.2
Hours worked growth	3.7	2.8	2.1	2.5	0.6	8.5
Labor quality growth	1.1	1.4	1.3	0.8	1.2	0.2
Capital deepening	2.1	0.8	1.3	0.5	3.8	–3.1

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
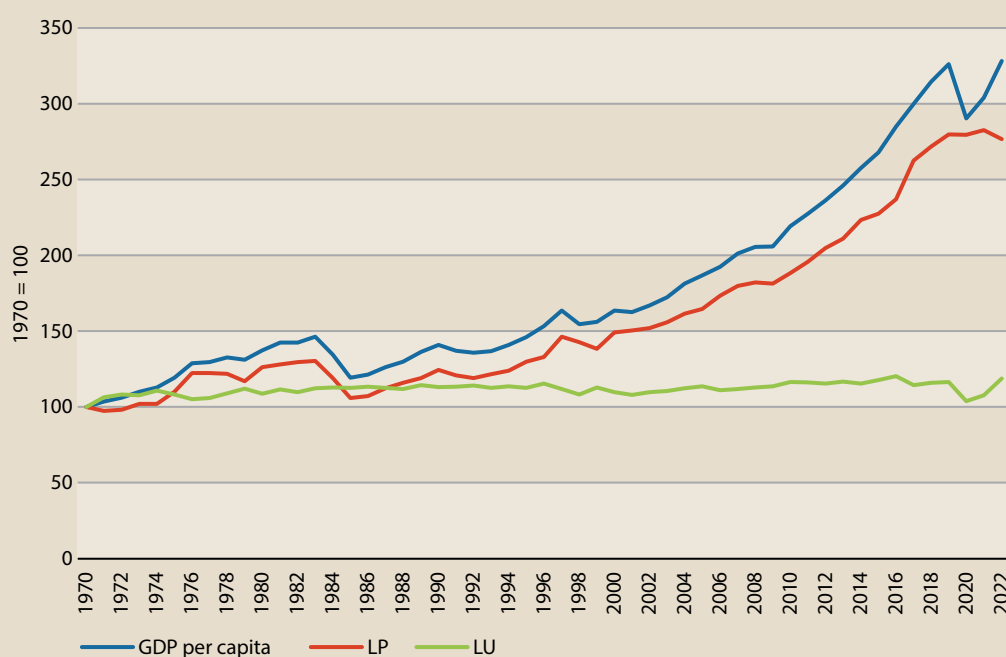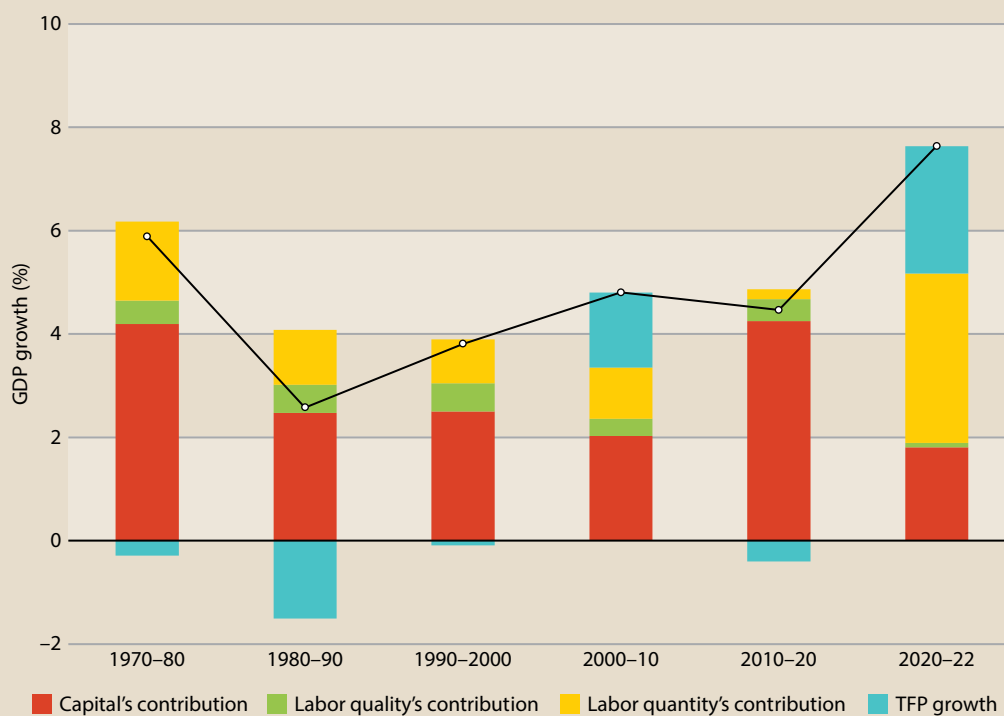
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

Legend: Capital's contribution | Labor quality's contribution | Labor quantity's contribution | TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

The Philippines' capital-to-GDP ratio declined during 2020–22, though it remained ranked 18th among 21 APO economies (Table 4.0). Capital deepening, both in terms of IT and non-IT capital, was negative in 2022, ranking the Philippines last among APO members. Labor quality contributed an average of 0.1 percentage points to LP growth during 2020–22 (Table 4.1).

Workers' skills increased in the period 2010–19, making a solid contribution to LP gains. In 2019, the Philippines ranked seventh among APO member economies on the WEF Current Workforce indicator, which tracks educational attainment and workforce training and skills. However, more recently in 2024, the Philippines ranked 14th among APO peers on the Portulans Institute's NRI Technology Index, highlighting the need for technological advancement to raise workforce productivity.

Medium- and high-technology goods, such as semiconductors, account for a large share of locally produced manufactured outputs as well as imports. This is consistent with the Philippines' participation in cross-border value chains producing ICT goods. The Philippines performs very poorly on the WEF's "ICT capital" indicator, scoring only 2.1% in 2024 (WEF, 2024). Conversely,

it scored highly (80%) on the WEF's "mobile network coverage" indicator, indicating that 80% of the population had mobile network coverage (WEF, 2024). The Philippines also performed above the global average for "digital and technology talent" in 2024, scoring 65.5% on the WEF indicator. This is consistent with the growth in ICT manufacturing and expansion of ICT services brought about by growth in business and process outsourcing.

In 2022, the agricultural sector contributed 9.5% in terms of value added to GDP, while manufacturing accounted for 17.2% of GDP (Table 4.0). Although manufacturing remains an important sector, services have been the primary growth driver in recent years in terms of value added.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, stability, and the overall Productivity Readiness Index (PRI). These indices range up to 100. They provide broad indications of where countries stand on productivity determinants and the overall productivity readiness.

The Philippines' estimated PRI value of 37 places it on 10th rank among 21 APO economies (Table 5). Reasonable scores for the subindices of motivation, capabilities, and efficiency of market place the Philippines within or just outside the top ten APO economies. The country performs worst on the "stability" subindex, ranking 11th.

Underlying Determinants: Specific Strengths and Weaknesses

The Philippines has made progress in opening its economy to trade and lifting educational outcomes. It performs well on indicators of the business environment in comparison to other APO member economies, but could make significant improvements in terms of institutions which support economic growth.

The Philippines performed moderately in 2024 on the WEF indicators of education and talent. On the "availability of talent" indicator, it scored 59.9%, while on "education attainment," it scored 60.3% (WEF, 2024). The education expenditure-to-GDP ratio increased from 2009 when the Philippines ranked 16th on this indicator, to 2021 when it ranked seventh among APO member economies. This improvement reflects an innovation system that is gaining strength.

Summary health indicators have been less positive. The Philippines has a relatively low life expectancy at birth of 69.8 years, ranking 18th among APO member economies (Table 6). Its infant mortality rate is slightly better, ranked eighth among APO members.

The Philippines ranked 15th among APO member economies on the WEF Infrastructure Index in 2019, indicating room for improvement in areas such as road quality, connectivity, transport service efficiency, and electricity. In the 2024 WEF Future of Growth report, the Philippines continued to perform poorly on infrastructure indicators. Access to drinking water, rural electrification gaps, and inadequate transport and housing access were highlighted as key areas of concern (WEF, 2024).

The stock of FDI was valued at 27.98% of GDP in 2022 (Table 6), ranking the Philippines tenth among APO member economies, with many of them attracting significantly greater volumes of foreign investment. However, the Philippines performed very strongly on the WEF Trade

Openness indicator in 2019, ranking fifth among its APO peers, behind just four high-income economies. This reflects the relatively low tariff and nontariff trade barriers and a tariff regime that is less complex than in many other APO member economies. It also ranked seventh among APO members on the Heritage Foundation Trade Freedom indicator in 2024, and eighth on the Services Trade Restrictions Index in 2022, marking an improvement from previous years (Table 6). However, barriers to trade in services are greater in the Philippines than in the best-performing APO member economies in its income group, namely, Bangladesh, Pakistan, and Sri Lanka.

The Philippines' financial system has seen significant improvements in recent years. It ranked ninth among APO member economies in 2019 on the WEF's "financial system" indicator, but ranked second on the Heritage Foundation's "financial freedom" indicator in 2024 (Table 6). In 2019, it had ranked fourth on that indicator. However, Philippines' institutions perform poorly on all indicators (Table 6). It ranks 16th on "financial institutions," "political stability," and "rule of law." It also ranks 15th on "control of corruption" and 12th on "government effectiveness." These unfavorable scores highlight the urgent need for institutional development and stability for improving the Philippines' productivity readiness.

Despite a relatively high-quality regulatory regime, starting a business is more expensive and time consuming in the Philippines than in other APO member economies. This is reflected in its performance on the WEF Administrative Requirements Index, where it ranks 11th among its APO peers (Table 6).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	3.3	18	2.8	18
Agriculture share of GDP (%)	Asian Productivity Organization	Open	10.2	11	9.5	11
Agriculture share of employment (%)	Asian Productivity Organization	Open	23.9	11	22	12
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	17.7	12	17.2	14
Manufacturing share of employment (%)	Asian Productivity Organization	Open	7.5	19	7.3	19
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	34	12	29	13
Exports/GDP (%)	Asian Productivity Organization	Open	25.2	13	28.4	13
Imports/GDP (%)	Asian Productivity Organization	Open	33	11	44	12

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	–4.3	21	–3	21
IT capital deepening (pp)	Asian Productivity Organization	Open	–0.1	21	0	21
Labor quality contribution to LP growth	Asian Productivity Organization	Open	–0.4	21	0.1	16

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	64.9	2019	7	11.2
Entrepreneurial culture	WEF	0–100	64.1	2019	4	6.3
Availability of latest technologies	WEF	1–7	4.6	2017	12	1.7
NRI Technology index	Portulans Institute	0–100	39.5	2024	14	31.7
NRI People index	Portulans Institute	0–100	50.4	2024	7	28.9

TABLE 5

VALUES OF OVERARCHING INDICES FOR THE PHILIPPINES.

Index	Value	APO Rank
Motivation	39	11
Capabilities	42	11
Efficiency of markets	42	8
Stability	29	12
Productivity Readiness Index	37	10

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	4.2	2017	8	1.6
Quality of primary education	WEF	1–7	4.1	2017	10	2.1

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Future workforce	WEF	0–100	62.5	2019	12	18.9
Education expenditure/GDP (%)	World Bank	Open	3.9	2021	7	2.1
Innovation capability index	WEF	0–100	38	2019	= 10	42.2
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	82.4	2021	9	17.6
Infrastructure index	WEF	0–100	57.8	2019	15	37.6
HF Business Freedom	Heritage Foundation	0–100	69.7	2024	9	17.2
Administrative requirements	WEF	0–100	67.4	2019	= 11	25.7
Domestic competition	WEF	0–100	52.1	2019	12	22.7
HF Tax Burden	Heritage Foundation	0–100	78.2	2024	15	12.5
Regulatory quality	World Bank WGI	−2.5 to 2.5	0.1	2022	9	2.2
Labor market index	WEF	0–100	64.9	2019	6	16.3
HF Labor Freedom	Heritage Foundation	0–100	57.8	2024	9	19.5
NRI Governance index	Portulans Institute	0–100	54.2	2024	11	32.7
Financial system index	WEF	0–100	68.3	2019	9	23.1
IMF Financial Markets	IMF	0–1	0.4	2021	10	0.5
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Life expectancy at birth (years)	UN data	Open	69.8	2023	18	15.7
Infant mortality (deaths/1000 live births)	WEF	Open	22.2	2017	8	43.6
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	56.6	2021	10	35
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	59.7	2021	8	25.8
FDI stock/GDP (%)	UNCTAD	Open	27.9	2022	10	553
HF Investment Freedom	Heritage Foundation	0–100	60	2024	= 5	30
Trade openness	WEF	0–100	63.5	2019	5	25.2
HF Trade Freedom	Heritage Foundation	0–100	74.4	2024	= 7	20.6
Services Trade Restrictions Index	World Bank, WTO	0–100	51	2022	8	14.6
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	53	2021	11	43
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	52	2021	11	40.9
Macroeconomic stability index	WEF	0–100	90	2019	= 7	10
HF Monetary Freedom	Heritage Foundation	0–100	65.8	2024	15	15.9
Gross savings/ GDP (%)	World Bank	Open	20.9	2023	17	21.8
Institutions index	WEF	0–100	50	2019	12	30.4
IMF Financial Institutions	IMF	0–1	0.4	2021	16	0.5

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Political stability	World Bank WGI	−2.5 to 2.5	−0.7	2022	16	2.2
Rule of law	World Bank WGI	−2.5 to 2.5	−0.5	2022	16	2.3
Control of corruption	World Bank WGI	−2.5 to 2.5	−0.5	2022	15	2.6
Government effectiveness	World Bank WGI	−2.5 to 2.5	0.1	2022	12	2.1
Social capital	WEF	0–100	56.1	2019	5	7.1
Voice and accountability	World Bank WGI	−2.5 to 2.5	−0.1	2022	10	1.1

Challenges Ahead

The Philippines' TFP growth has not been strong enough in the past few decades to make a substantial contribution to output growth. As noted by the World Bank (2018), sustainable high growth can only be achieved in the Philippines if TFP growth is high and capital accumulation accelerates. The World Bank suggests addressing this challenge through three main policy recommendations: improving market competition through regulatory reforms, improving trade and investment climate policies, and reducing labor market rigidities and costs (World Bank, 2018). Addressing these key issues would help ensure stronger TFP growth and, therefore, facilitate output growth.

The Philippines' population is relatively young, with 29.7% aged below 14 years and only 5.5% aged 65 years or more. This provides potential for a demographic dividend in the near future. In order to benefit from this dividend, the workforce must be flexible enough to absorb more potential workers, savings mechanisms must be in place, and health and education must be accessible (Moroz et al., 2021). Human capital development, particularly technological and AI-based, will be necessary to ensure that the increase in labor supply aligns with the current skills demand. Low educational outcomes for large sections of the population remain a major barrier, with a learning poverty rate of 90% among primary school children. This demonstrates the need for upskilling the workforce to facilitate a digital transition (IMF, 2024).

The Philippines relies heavily on semiconductor exports for its economic growth and performance. Semiconductors are the country's single-largest export industry, with the Philippines ranking ninth globally in chip exports (OECD, 2024b). Maintaining high levels of labor productivity growth will be essential to harness this sector's future growth potential. The OECD (2024b) recommends fostering productivity growth by supporting innovation; addressing operational requirements; and developing human capital. Supporting domestic innovation will involve facilitating access to technological infrastructure, increased public and private R&D investment, and ensuring that government-funded facilities are responsive to the needs of the semiconductor ecosystem. Innovation is particularly essential as Philippine exports face the risk of obsolescence due to rapid global technological advancements that may outpace the domestic innovation landscape (World Bank, 2022).

The Philippine semiconductor industry has several operational requirements such as electricity, freight, infrastructure, and transport. Investment in key infrastructures such as roads and airports, along with greater use of renewable energy sources, will be critical for strengthening logistics and operations. Ensuring that education and vocational training are aligned with changing needs of the industry and facilitating links between industry and academia will be essential for developing human capital.

Productivity gains of MSMEs are limited due to their low levels of AI adoption and automation, financing requirements, and limited GVC integration. This is a pressing issue in the Philippines' future with micro and small enterprises alone comprising 99.2% of companies in 2022 (OECD, 2024a). The World Bank (2022) highlights the difficulties MSMEs face in integrating with GVCs include cost barriers, lack of facilities and access to relevant technologies, and challenges in accessing international markets. This points to a need for addressing financing issues such as ineffective public credit schemes, prioritizing adoption and adaptation of existing new technologies, and developing a roadmap to facilitate greater GVC integration (World Bank 2022).

The Philippines also faces the future challenge of meeting its climate goals, with the government targeting 35% of energy usage to be renewable by 2030 and 50% by 2040 through solar, wind, and geothermal sources (Canto et al., 2024). This is essential as the Philippines faces projected economic losses averaging USD3.2 billion annually over the next five decades due to natural disasters (Canto et al., 2024). The outlook for renewables is positive, with the momentum for green energy increasing and acting as a potential future driver of economic growth. There are also sustainability-related investment opportunities in battery production, electric vehicle adoption, and carbon offset markets (Canto et al., 2024).

While the Philippines has made improvements in its democratic institutions, corruption remains an endemic problem as indicated by the low rankings on various measures of institutional quality listed in this chapter. However, the Philippines benefits from a young, highly educated, English-speaking workforce and good levels of participation in GVCs. It also has relatively low trade barriers. Improving institutions will be key to unlocking more FDI and driving the TFP growth needed for the Philippines to catch up to wealthier economies. It is in well positioned to achieve this if it can improve its institutional quality.

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SINGAPORE

Singapore is an island country and city-state that gained independence from Malaysia in 1965. Since then, Singapore has experienced rapid industrialization, expansion, and growth. Its economy is established on an open market, pro-business regulatory environment with strong institutions, infrastructure, and human capital investment driving continued and steady growth. Singapore had a population of 5.9 million in 2023, growing at an annual rate of 4.9% (World Bank, 2025). One of two high-income nations in Southeast Asia, alongside Brunei, Singapore experienced an almost ten-fold increase in average incomes over the past half century (Figure 1). It has a high life expectancy of 83 years (World Bank, 2025).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	5.6	19	-0.4	18
GDP (USD billion at PPP)	724.8	14	5.8	9
GDP per capita (USD at PPP)	128,586.6	1	6.5	5
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	NA	NA	NA	NA
Employment rate (%)	62.9	1	64.9	1
Age dependency ratio (%)	33.9	21	36.9	21
Old-age dependency ratio (%)	17.6	6	20.7	6

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	2.5	13	4.6	6
TFP (index)	0.3	10	3.4	4
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	82.4	1	89.9	1

Labor productivity (LP) growth has been strong and sustained, despite being relatively volatile over short periods (Figure 3). In the long run, LP growth averaged 3.4% annually during 1970–90 and 3.2% during 1990–2010 (APO, 2024). Short-term LP growth has also sustained in the recent period, at an average rate of 2.1% during 2010–15 and 3.3% in the period 2015–22 (APO, 2024). Total factor productivity (TFP) growth has also remained positive over the past half century (Figure 4). For the period 1990–2010, it was quite high, recording average annual growth of 1.2% but slowed to 0.8% annually during 2010–22 (APO, 2024). TFP growth rebounded strongly post-COVID, making the largest contribution to output growth during 2020–22 (Figure 2).

Since gaining independence, Singapore has utilized FDI to maintain strong and sustained growth, to develop into one of the world's leading financial centers and manufacturing clusters (Thangavelu, 2023). The significant economic progress over the past few decades has been largely driven by the manufacturing, finance, insurance, and wholesale trade sectors (Raihan et. al., 2022). Output growth slowed in the 2010s, with TFP growth and labor, both in terms of quantity and quality, making minimal contributions (Figure 2).

Over the past three decades, Singapore has experienced one of the highest rate of economic expansion in the world, with GDP appreciating 7.6% per year on average from 1970 to 2005 (Thangavelu, 2023). GDP per capita has quadrupled over the past two decades (IMF, 2024). The services sector has expanded to garner a share of 65% of GDP and 80% of employment, while manufacturing and agriculture constitute only a small share (Thangavelu, 2023).

Singapore experienced a contraction in output growth during 2014–20, caused by spillovers from PR China's economic slowdown and worsened by the COVID-19 pandemic. However, the economy rebounded quickly, with output growths of 9.7%, 3.8%, and 1.1% in 2021, 2022, and 2023, respectively (World Bank, 2025). However, the last few years have revealed the volatility and fragility of the Singaporean economy and its vulnerability to the impact of business cycles (Thangavelu, 2023). The slowdown in output growth was attributed largely to a contraction in exports due to weak external demand, but was expected to moderate and recover in the next few years (IMF, 2024).

Capital productivity has been strong since 2000, peaking around 2006 and slowing slightly during the 2010s (Figure 5). Capital deepening occurred in a reverse order, touching a low in the late 2000s, reflecting Singapore's capital accumulation efforts post-independence through foreign investment (Figure 6). From the 2000s onward, Singapore has undergone a sectoral shift toward services and service exports, with capital investment declining due to a shift in governmental policy away from the industrial sector (Thangavelu, 2023).

A shift to higher value-added sectors such as services is necessary to remain competitive economically, but requires greater accumulation of human capital. This has resulted in a "skills gap," wherein the rate of industrialization is greater than accumulation of human capital (Thangavelu, 2023). This can limit the labor quality growth, necessitating greater human capital investment. The balance between labor demand and supply was restored in the second half of 2024 and was expected to remain so for the next year (MAS, 2025).

Regulatory reforms in Singapore since 2021, including the Foreign Interference (Countermeasures) Act of 2021 and the Competition (Block Exemption for Liner Shipping Agreements) Order of

2022, have helped liberalize services trade. Further, government initiatives such as skills programs, R&D spending, and business grants, have yielded productivity gains, with LP growing 4.1% year-on-year in Q3 of 2024 (MAS, 2024).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	3.9	3.1	4	2.8	2.5	4.6
TFP growth	1.2	0.3	0.8	1.8	0.3	3.4
Capital productivity growth	–0.2	–0.3	0.7	2.3	–0.2	4.3
Output growth	9.2	7.4	7.7	6.3	3.6	6
Combined inputs growth	7.8	7.1	6.9	4.5	3.2	2.7
Capital growth	9.4	7.8	7	4	3.9	1.7
IT capital growth	16.6	26	15.8	10.9	14	8.9
Hours worked growth	5.1	4.2	3.7	3.5	1.1	1.5
Labor quality growth	1.2	2.3	3	1.6	1.5	2.5
Capital deepening	2.1	1.8	1.7	0.2	1.5	0

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
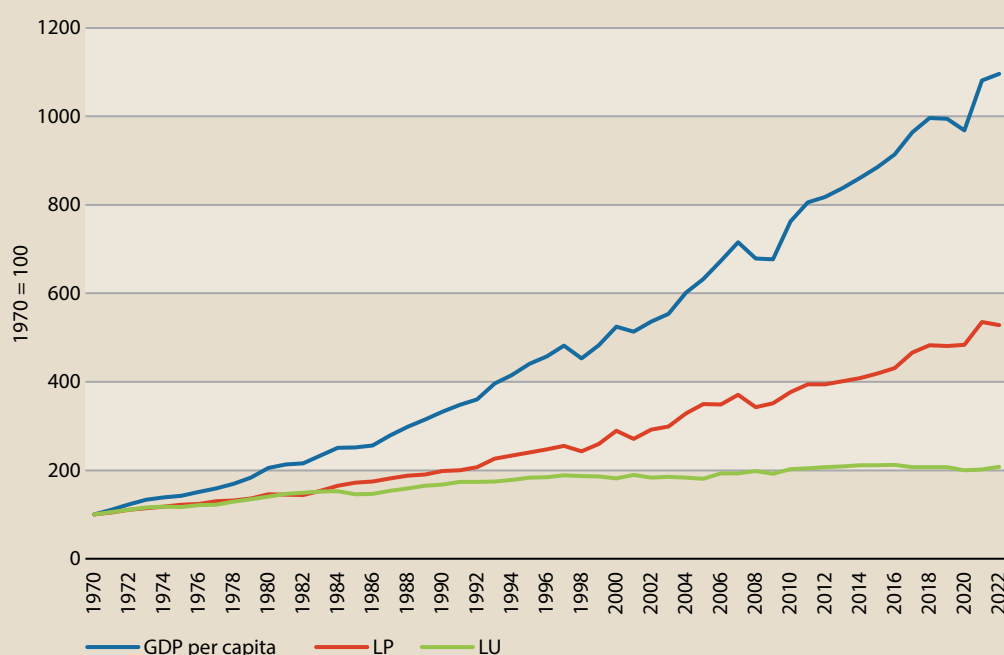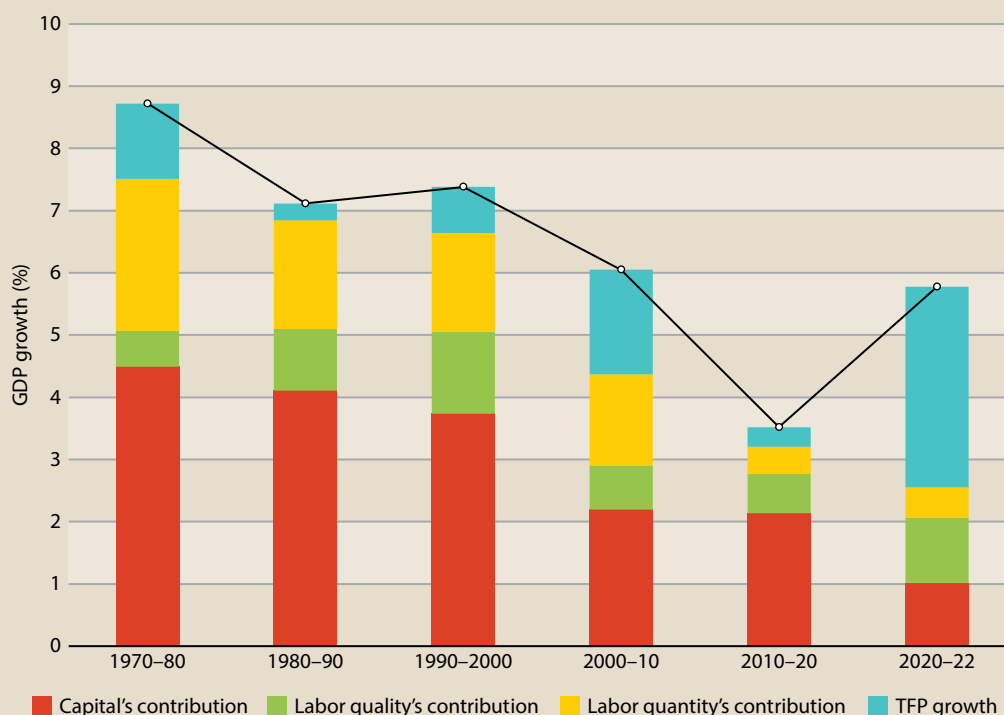
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

Legend: Capital's contribution ■ Labor quality's contribution ■ Labor quantity's contribution ■ TFP growth ■

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

In 2022, Singapore had the fifth highest capital-to-GDP ratio among APO member economies, ranking 17th among APO peers in terms of capital deepening. In terms of IT capital deepening, Singapore performed even better and, with a large IT capital stock, was ranked first among APO peers, (Table 4.0).

The contribution of labor-quality growth to LP growth was moderate during the past decade, before surging to make the highest contribution to LP growth in the APO group. In terms of the average contribution during 2020–22, Singapore ranked first (Table 4.1). Singapore had the highest human capital ranking among APO members in 2019, as measured by the "education and training" indicators of the current workforce by the WEF. It also had the third-highest ranking among APO member economies for the WEF's "entrepreneurial culture" indicator (Table 4.1). Singapore is highly technologically advanced, ranking first in 2024 on the NRI Technology Index and second on the WEF Availability of Latest Technologies Index (Table 4.2).

While services form the largest sector in the Singaporean economy, manufacturing still plays an important role in output terms. Medium- and high-tech manufacturing accounted for 82% of all

manufacturing in 2022, the highest share among APO members (Table 4.0). Singapore also ranked second in both exports-to-GDP and imports-to-GDP ratios, at 185% and 147%, respectively, in 2022 (Table 4.0).

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability. These indices range up to 100. They provide broad indications of where countries stand on productivity determinants and their overall Productivity Readiness Index (PRI).

Singapore scores very highly on all indices, ranking first among APO members across all overarching indices as well as the PRI (Table 5).

Underlying Determinants: Specific Strengths and Weaknesses

Singapore is a highly developed country with the most productive economy in the APO group. Given this, it is unsurprising that Singapore performs well and ranks highly on most underlying determinant indicators (Table 6). However, Singapore is seeking to fuel the next stage of development through productivity gains in the wake of its aging population, geographical constraints of a small city-state with large migrant inflows, and the need to facilitate digital transition. An examination of Singapore's performance in these underlying determinants reveals some areas for improvement.

Singapore has an advanced education system, ranking first among APO member economies on the WEF indicators such as "quality of education system," "quality of primary education," and "future workforce." However, investment in education in terms of educational expenditure-to-GDP ratio falls behind other advanced APO member economies, ranking 14th in 2021 (Table 6). Its innovation capabilities are promising, with Singapore ranking fourth among APO peers on the WEF Innovation Capability Index (Table 6).

Singapore has the most highly developed infrastructure among APO peers, ranking first on the WEF Infrastructure indicator (Table 6). It also ranks first globally for transport infrastructure and fifth for utility infrastructure as per the WEF Global Competitiveness Report (WEF, 2024).

Singapore has a deep and stable financial system, supported by high performing institutions, as reflected in its rankings. Singapore ranked second on the WEF Financial System Index in 2019 (Table 6). It also ranks first among APO member economies on the Heritage Foundation Financial Freedom Index.

Singapore ranks first on all institutional strength indicators (Table 6), excepting the IMF Financial Institutions Index where it ranks fourth among APO member economies. These include the WEF Institutions Index and the World Bank WGI indicators for "political stability," "rule of law," "control of corruption," and "government effectiveness." This is demonstrative of Singapore's strong institutions that foster and facilitate high rates of growth and financial activity. Singapore is also ranked second highest among APO members for "social capital," though it has a lower ranking of nine for "voice and accountability" (Table 6).

For all business environment indicators, Singapore ranks in the top three among APO member economies (Table 6). Notably, it ranks first on the World Bank WGI's "regulatory quality"

indicator, the Heritage Foundation's Business Freedom and Labor Freedom indices, and the World Bank WGI Regulatory Quality Index. The labor market is highly flexible with high levels of incentivization. Labor is also being increasingly pushed to higher value-added activities in both manufacturing and services for Singapore's continued competitiveness (Thangavelu, 2023). Government initiatives such as SkillsFuture have been implemented to equip workers with technological skills to facilitate the AI and digital transition (IMF, 2024). Singapore is well-equipped for this transition, with a large percentage of the workforce well-positioned for future AI integration.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	8.1	5	5.8	5
Agriculture share of GDP (%)	Asian Productivity Organization	Open	0	21	0	21
Agriculture share of employment (%)	Asian Productivity Organization	Open	0.6	20	0.6	20
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	19.6	10	19.7	9
Manufacturing share of employment (%)	Asian Productivity Organization	Open	12.5	13	12.5	13
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	80.7	1	82.3	1
Exports/GDP (%)	Asian Productivity Organization	Open	181.6	1	185.8	2
Imports/GDP (%)	Asian Productivity Organization	Open	150.1	2	147.2	2

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−1.3	17	0.1	14
IT capital deepening (pp)	Asian Productivity Organization	Open	0.2	3	0.5	1
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.6	4	1	1

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	76.1	2019	1	0
Entrepreneurial culture	WEF	0–100	64.2	2019	3	6.2
Availability of latest technologies	WEF	1–7	6.1	2017	2	0.2
NRI Technology index	Portulans Institute	0–100	71.2	2024	1	0
NRI People index	Portulans Institute	0–100	70	2024	2	9.3

TABLE 5

VALUES OF OVERARCHING INDICES FOR SINGAPORE.

Index	Value	APO Rank
Motivation	98	1
Capabilities	97	1
Efficiency of markets	98	1
Stability	99	1
Productivity Readiness Index	98	1

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	5.8	2017	1	0
Quality of primary education	WEF	1–7	6.2	2017	1	0
Future workforce	WEF	0–100	81.4	2019	1	0
Education expenditure/ GDP (%)	World Bank	Open	2.8	2021	14	3.1
Innovation capability index	WEF	0–100	75.2	2019	4	5
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	92.7	2021	4	7.3

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Infrastructure index	WEF	0–100	95.4	2019	1	0
HF Business Freedom	Heritage Foundation	0–100	86.9	2024	1	0
Administrative requirements	WEF	0–100	86.9	2019	= 3	6.2
Domestic competition	WEF	0–100	73.8	2019	2	1
HF Tax Burden	Heritage Foundation	0–100	90.7	2024	1	0
Regulatory quality	World Bank WGI	−2.5 to 2.5	2.2	2022	1	0
Labor market index	WEF	0–100	81.2	2019	1	0
HF Labor Freedom	Heritage Foundation	0–100	77.3	2024	1	0
NRI Governance index	Portulans Institute	0–100	86.9	2024	1	0
Financial system index	WEF	0–100	91.3	2019	2	0.1
IMF Financial Markets	IMF	0–1	0.6	2021	6	0.2
HF Financial Freedom	Heritage Foundation	0–100	80	2024	1	0
Life expectancy at birth (years)	UN data	Open	83.7	2023	4	1.8
Infant mortality (deaths/1000 live births)	WEF	Open	2.1	2017	18	63.7
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	91.6	2021	1	0
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	85.5	2021	1	0
FDI stock/GDP (%)	UNCTAD	Open	507.4	2022	2	73.6
HF Investment Freedom	Heritage Foundation	0–100	90	2024	1	0
Trade openness	WEF	0–100	88.7	2019	1	0
HF Trade Freedom	Heritage Foundation	0–100	95	2024	1	0

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Services Trade Restrictions Index	World Bank, WTO	0–100	53	2022	6	12.6
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	96.1	2021	1	0
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	93	2021	1	0
Macroeconomic stability index	WEF	0–100	99.7	2019	5	0.3
HF Monetary Freedom	Heritage Foundation	0–100	76.3	2024	6	5.4
Gross savings/ GDP (%)	World Bank	Open	40.8	2023	2	1.9
Institutions index	WEF	0–100	80.4	2019	1	0
IMF Financial Institutions	IMF	0–1	0.8	2021	4	0.1
Political stability	World Bank WGI	–2.5 to 2.5	1.5	2022	1	0
Rule of law	World Bank WGI	–2.5 to 2.5	1.8	2022	1	0
Control of corruption	World Bank WGI	–2.5 to 2.5	2.1	2022	1	0
Government effectiveness	World Bank WGI	–2.5 to 2.5	2.1	2022	1	0
Social capital	WEF	0–100	61.8	2019	2	1.4
Voice and accountability	World Bank WGI	–2.5 to 2.5	0	2022	9	1.1

Challenges Ahead

Singapore has maintained robust output and productivity growth over the past few decades. Looking ahead, it must address several key challenges to ensure sustained productivity gains and long-term growth for decades to come.

Geopolitical fragmentation and tensions pose threat to Singapore's output levels, with GDP growth projected to drop to 1–3% in 2025 (MTI, 2024). As the USA and PR China remain key trading partners for Singapore, PR China–USA trade frictions as well as economic slowdowns in these nations are expected to drag Singapore's manufacturing and trade-related sectors down (MAS, 2025). Exports represent a critical aspect of Singapore's economic output with an export-to-GDP ratio of 175% in 2019 (Thangavelu, 2023). A trade-based economy like Singapore's is particularly

vulnerable to geopolitical fragmentation, underscoring the need to strengthen regional trade ties through FTAs and greater liberalization of the services sector (Thangavelu, 2023). Rising global tariffs, supply chain fragmentation, and other global trade-related risks could affect Singapore's ability to maintain sustainable output levels.

Labor market-related challenges also loom large for coming years. Although labor productivity (LP) showed some gains in 2024, it remained uneven across sectors. Singapore's aging workforce and "skill gaps," particularly in technology-intensive industries, pose challenges to sustaining productivity growth. Around 77% of Singapore's workers are in roles that have high potential for AI integration, underscoring the need for equipping them with the skills necessary to harness future productivity opportunities. As the use of AI and technological procedures will begin to dominate the workplaces soon enough, greater human capital investment and relevant technical training must be imparted for Singapore to keep realizing productivity gains. Government initiatives, such as SkillsFuture and the National AI Strategy 2.0, aim to address the workforce skill gaps, but the pace of these retraining initiatives must match that of rapid technological advancements (IMF, 2024).

The sectoral shift toward services presents potential challenges due to the sector's lagging productivity levels. While the services sector has seen liberalization through trade agreements like the Regional Comprehensive Economic Partnership (RCEP), the sector still faces regulatory barriers and requires reform for enhanced competitiveness (OECD, 2023). Better integration with manufacturing and increased R&D investment have been identified to be critical for unlocking the service sector's potential to further increase the productivity levels. The manufacturing sector is heavily reliant on FDI, with 36% of inflows going to the sector. However, rising competition from PR China and India threatens Singapore's ability to continue attracting FDI, particularly in the technology domain.

While Singapore is a highly carbon-efficient economy, its reliance on fossil fuels presents long-term sustainability challenges as economic progress is directly linked to increased energy consumption. Due to its geography as a small, low-lying island, Singapore is vulnerable to the impacts of climate change. Rapid urbanization over recent decades has presented concerns such as the loss of 90% of Singapore's natural forests (Raihan et al., 2022). Singapore has demonstrated efforts to reduce carbon emissions by signing the Kyoto Protocol and Paris Agreements, committing to the goal of net-zero emissions by 2050 and implementing a high carbon tax of USD19 per ton of CO_2 emissions (Raihan et al., 2022; IMF, 2024). The government plans to increase the carbon tax further by 2030. The Energy Efficiency Grant, Resource Efficiency Grant for Emissions, and Investment Allowance for Emissions Reduction also aim to support businesses to reduce emissions in their industrial facilities. However, high implementation costs pose challenges, particularly for SMEs (IMF, 2024). Moving forward, policies must address these cost barriers in reducing carbon emissions to facilitate a green energy transition and sustainable future. Also, infrastructural investments will be required to mitigate the impact of rising sea levels.

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SRI LANKA

Sri Lanka is a lower-middle-income nation in South Asia. It was downgraded from the upper-middle-income status in the World Bank's reclassification in 2020. Average income levels are well below the same income group's average, with Sri Lanka ranking 13th in terms of GDP per capita among APO member economies in 2022 (Table 1). Despite its recent poor performance, average incomes have increased more than sixfold since 1970 (Figure 1). Sri Lanka has a relatively small population and a lower growth rate than many APO member economies. Its large rural population (78.5% of the population in 2020) and large agricultural sector indicate the potential for structural transformation to realize productivity improvements.

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	22.2	15	0.6	13
GDP (USD billion at PPP)	309.8	16	-4.4	21
GDP per capita (USD at PPP)	13966.2	13	-4.7	21
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	78.5	2	78.1	2
Employment rate (%)	36.5	15	36.7	17
Age dependency ratio (%)	49.5	9	49.5	10
Old-age dependency ratio (%)	11.7	10	11.7	10

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	4	6	–4.9	21
TFP (index)	–0.9	18	–6.8	21
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	22	9	19.8	11

Sri Lanka's labor productivity (LP) was ranked 11th within the APO grouping in 2022 (Table 2). LP growth was positive and strong until the late 2010s when it plummeted during the economic crisis (Figure 3). Its total factor productivity (TFP) growth rate slowed dramatically over the last decade, with TFP declining over 2015 (Figure 4). This may be attributed to the fact that much of the post-colonial TFP growth was due to capital accumulation rather than productivity growth. There has been little productivity-related structural change, with labor remaining concentrated in low-productivity activities. Sri Lanka now faces the "middle-income trap" with low levels of technological

advancement and productivity improvements hampering economic growth (Dayaratna-Banda, O. & Pathmakanthan, 2024).

Sri Lanka's TFP performance has been more stable in the long-run than in the short-term. High volatility in growth reflects the impact of changes in policy regimes, the lengthy civil war, and external shocks. The high level of TFP growth during 1990–2010 was largely due to investments in sophisticated garment factories under the Multi-Fibre Agreement.

Sri Lanka's economic growth has been supported by strong reform efforts but hindered by the civil war. Following its independence in 1948 and continuing until 1977, Sri Lanka's economy became more centralized and inward looking (IMF, 1996). From 1977, the government initiated economic liberalization efforts (IMF, 1996) to increase trade exposure and openness, leading to strong GDP growth in the 1980s. However, the outbreak of civil war in 1983 between the Sinhalese ethnic majority in northern Sri Lanka and the Tamil minority in the east resulted in significant economic costs. The war-related additional military expenditure during 1984–96 was estimated at 41.3% of GDP in 1996 (Arunatilake et al., 2000). The cumulative direct costs of war, including damages, reconstruction, and relief programs, were estimated at 61.9% of Sri Lanka's GDP in 1996, amounting to a huge economic strain during the years of conflict (Arunatilake et al., 2000). The ethnic conflict also hurt the tourism sector and negatively impacted employment levels.

Sri Lanka experienced a "peace dividend" in the early 2000s post-conflict when growth increased while poverty diminished (Wijesinha, 2021). The government enacted a public expenditure program and expansionary monetary policy that fueled import-led consumption boosting domestic economic activity (Wijesinha, 2021). However, by 2019, the economy had exhausted the postwar growth momentum and entered a secular growth slowdown. Since 2021, Sri Lanka has experienced a serious growth implosion, exposing structural weaknesses and indicating that Sri Lanka's attempts to lift the economy out of the middle-income trap were not sustainable (Dayaratna-Banda & Pathmakanthan, 2024).

Capital deepening has continued over the past few decades, with the growth in capital–labor ratio peaking in the 2010s (Figure 6). The slowdown in capital deepening since the late 2010s reflects the waning of the post-war peace dividend.

Output growth remained steady until 2020 when it took a significant downturn due to Sri Lanka's economic crisis (Figure 2). Physical capital and TFP growth made substantial contributions to growth in the 1990s, largely driven by trade reforms that attracted FDI and facilitated industrialization efforts (Wijesinha, 2021). Capital accumulation was the key driver of economic growth, particularly in the 2010s under government stimulus. Labor quality and quantity, however, made minimal contributions. TFP growth was strong in the 1990s and 2000s, but turned negative in the 2010s as well as in the period 2020–22 (Figure 2). In the 1990s, TFP growth of 2.4% per year had accounted for nearly half of the output growth (Figure 4). Capital accumulation in recent years has been hampered by the economic crisis facing Sri Lanka, which began in 2019, resulting in shortages of items, lengthy blackouts, and hyperinflation (DFAT, 2024; George et al., 2022). This crisis has made FDI unattractive and limited the country's capacity to absorb any investment either.

Capital productivity has also slowed in recent years, largely due to the economic crisis, political instability, and domination of the market by low-productivity SMEs. There is an overreliance on low-wage garment manufacturing, underscoring the need for a shift toward innovation and

knowledge-based growth for Sri Lanka to achieve meaningful capital productivity gains (OECD/UNCTAD, 2023).

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	2.5	2.6	3	5.2	4	−4.9
TFP growth	0.9	0.7	2.4	2.3	−0.9	−6.8
Capital productivity growth	−0.1	0.6	3	0.8	−2.6	−7.1
Output growth	4.3	4.3	5.4	5.9	4.3	−4.1
Combined inputs growth	3.3	3.6	3.1	3.3	5	2.9
Capital growth	4.4	3.7	2.3	5	7	3.2
IT capital growth	14.9	8.6	9.8	21.9	16.9	11.8
Hours worked growth	1.8	1.7	2.4	0.7	0.3	0.8
Labor quality growth	0.5	1.7	1.2	0.9	1	1.3
Capital deepening	1.2	0.9	0	2.1	4.3	1.5

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
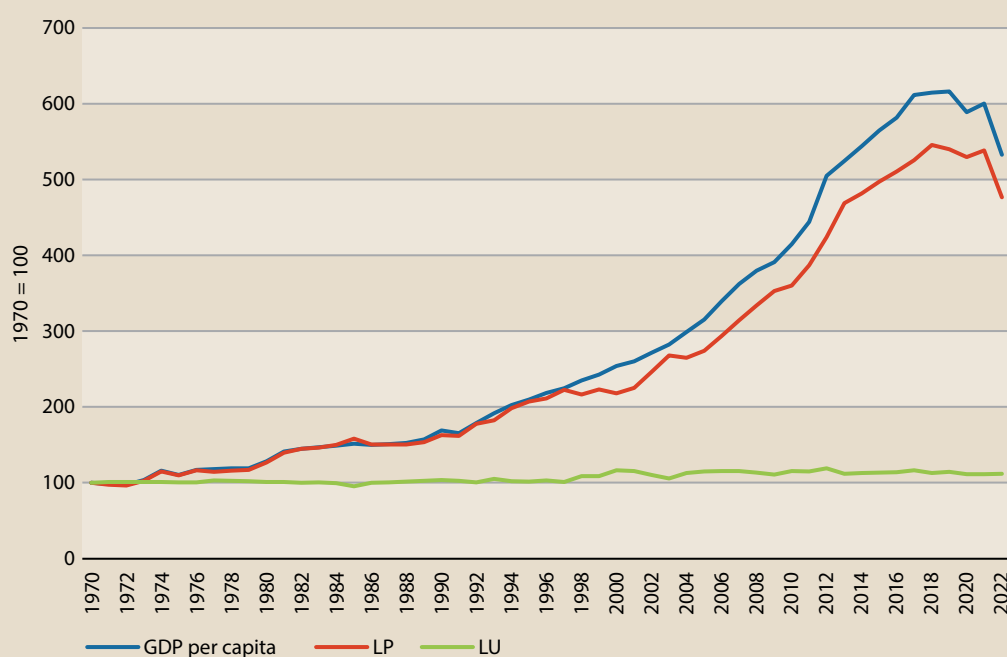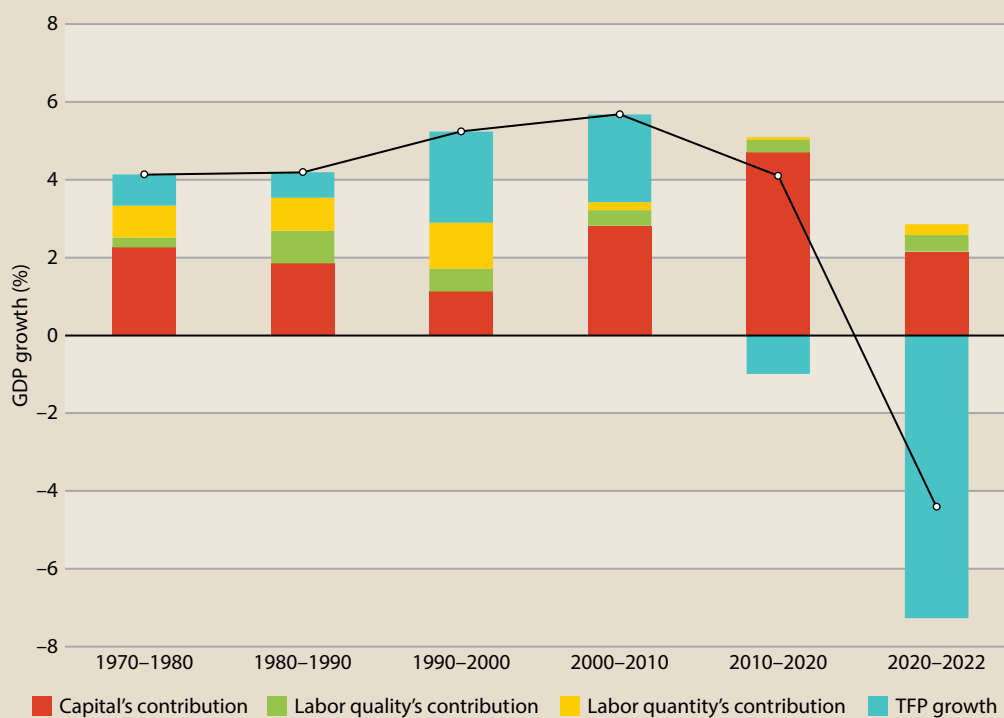
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

| | Capital's contribution | Labor quality's contribution | Labor quantity's contribution | TFP growth |

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Sri Lanka ranked eighth in terms of capital as a proportion of GDP in 2022, and ranked fourth in capital deepening in the same year, among APO member economies (Table 4.1). Much of this capital has, as noted earlier, come from government efforts to enhance the country's infrastructure. In terms of IT capital deepening, Sri Lanka ranked second (Table 4.1).

The working population's skillset in Sri Lanka is above average globally as well as compared to its APO peers (Table 4.2). In 2024, Sri Lanka ranked slightly above the global average in terms of the WEF's "education attainment" and "digital and technology talent" indicators (WEF, 2024). However, it performed poorly on the NRI Technology Index and NRI People Index, ranking 15th and 18th, respectively (Table 4.2).

Agriculture as a share of GDP was equal to 8.7% in 2022, while manufacturing's share was 19.5% (Table 4.0). However, medium- and high-tech manufacturing constituted only 9% of total manufacturing in 2022, indicating a necessary shift toward higher value-added manufacturing for Sri Lanka to make productivity improvements. Imports and exports formed a small portion of Sri Lanka's GDP relative to other APO member economies, ranking 18th and 19th, respectively in 2022.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability. These indices range up to 100. They provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

Sri Lanka's scores across these four indices are under 30, with the lowest score being for "efficiency of markets" (Table 5). Its overall Productivity Readiness Index (PRI) has a score of just 25 and ranks 14th among APO peers. With Singapore scoring 100, there is clearly a lot more that can be done to make Sri Lanka more productivity ready.

Underlying Determinants: Specific Strengths and Weaknesses

Sri Lanka ranks below average in several areas linked to higher productivity performance. While Sri Lanka's education system performs relatively well compared to its APO peers, there is room for improvement in areas of trade and FDI policies. Sri Lanka's human capital, business environment, and institutions have shown mixed performance (Table 6). Addressing these weaknesses will allow for stronger economic growth in future.

Sri Lanka's education system performs best across all indicators (Table 6). It ranked 10th among APO member economies on the WEF's "quality of education system" indicator and seventh on "quality of primary education" in 2017 (Table 6). Sri Lanka's future workforce was also ranked 10th in 2019 among APO member economies by the WEF. However, Sri Lanka's "education expenditure to GDP" ratio in 2021 was ranked 19th among APO peers, indicating a decline in human capital in recent years. This is a reflection of the deepening economic crisis, with many Sri Lankan schools postponing exams or even closing due to shortages of paper and other supplies (George et al., 2022).

Sri Lanka's business environment has performed particularly poorly in recent years, ranking 17th among 21 APO member economies on the Heritage Foundation's "business freedom" indicator in 2024, and 16th on the "tax burden" indicator in the same year (Table 6). It ranked 16th on the World Bank WGI's "regulatory quality" indicator in 2022, signaling high regulatory and administrative burdens on businesses.

Sri Lanka's financial system performs relatively poorly (Table 6), and has worsened on the "financial freedom" indicator since 2019 when it ranked 14th among APO peers. In 2024, it ranked 17th among APO members on the indicator.

Foreign investors have become wary of investing in Sri Lanka due to the prevailing political instability and economic situation. Despite this, the FDI stock to GDP ratio increased from 15.3% in 2019 to 18.2% in 2022, improving Sri Lanka's ranking by one place among APO member economies (Table 6). However, the country still performs poorly on the Heritage Foundation's "investment freedom" indicator, ranking 18th among APO peers in 2024.

Sri Lanka performs poorly on indicators of trade openness, ranking 20th out of 21 APO member economies on the WEF's "trade openness" indicator in 2019. However, in 2024, the Heritage Foundation ranked Sri Lanka 13th on the "trade freedom" indicator. It performs below average in comparison to APO peers on all other indicators of trade openness (Table 6). This is reflective of Sri Lanka's limited trade integration and lack of both trade liberalization and facilitation efforts (Wijesinha, 2021).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	6.5	7	4.5	8
Agriculture share of GDP (%)	Asian Productivity Organization	Open	8.2	13	8.7	13
Agriculture share of employment (%)	Asian Productivity Organization	Open	27.1	10	26.5	10
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	16.2	13	19.5	10
Manufacturing share of employment (%)	Asian Productivity Organization	Open	17.5	4	17.3	5
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	9	16	9	16
Exports/GDP (%)	Asian Productivity Organization	Open	15.3	18	21.3	18
Imports/GDP (%)	Asian Productivity Organization	Open	21.5	15	24.9	17

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	1.8	4	1.6	7
IT capital deepening (pp)	Asian Productivity Organization	Open	0.2	2	0.3	2
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.5	7	0.4	7

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	59.7	2019	8	16.4
Entrepreneurial culture	WEF	0–100	50.8	2019	12	19.6
Availability of latest technologies	WEF	1–7	4.3	2017	= 13	2
NRI Technology index	Portulans Institute	0–100	38.2	2024	15	33
NRI People index	Portulans Institute	0–100	31.5	2024	18	47.8

TABLE 5

VALUES OF OVERARCHING INDICES FOR SRI LANKA.

Index	Value	APO Rank
Motivation	27	13
Capabilities	26	14
Efficiency of markets	24	14
Stability	29	11
Productivity Readiness Index	25	14

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.8	2017	= 10	2
Quality of primary education	WEF	1–7	4.5	2017	= 7	1.7
Future workforce	WEF	0–100	67.8	2019	10	13.6
Education expenditure/ GDP (%)	World Bank	Open	1.5	2021	19	4.5
Innovation capability index	WEF	0–100	34.9	2019	15	45.3
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	76.2	2021	13	23.8
Infrastructure index	WEF	0–100	69.2	2019	8	26.2
HF Business Freedom	Heritage Foundation	0–100	53.4	2024	17	33.5
Administrative requirements	WEF	0–100	69.2	2019	10	23.9
Domestic competition	WEF	0–100	48.1	2019	5	26.7
HF Tax Burden	Heritage Foundation	0–100	77.5	2024	16	13.2

(Continued on next page)

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Regulatory quality	World Bank WGI	−2.5 to 2.5	−0.7	2022	16	2.9
Labor market index	WEF	0–100	51.8	2019	16	29.4
HF Labor Freedom	Heritage Foundation	0–100	55.1	2024	12	22.2
NRI Governance index	Portulans Institute	0–100	46.5	2024	14	40.5
Financial system index	WEF	0–100	56.9	2019	14	34.5
IMF Financial Markets	IMF	0–1	0.2	2021	14	0.7
HF Financial Freedom	Heritage Foundation	0–100	30	2024	= 17	50
Life expectancy at birth (years)	UN data	Open	77.5	2023	7	8
Infant mortality (deaths/1000 live births)	WEF	Open	8.4	2017	14	57.4
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	40	2021	15	51.7
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	38	2021	14	47.5
FDI stock/GDP (%)	UNCTAD	Open	18.2	2022	12	562.8
HF Investment Freedom	Heritage Foundation	0–100	30	2024	18	60
Trade openness	WEF	0–100	38.4	2019	20	50.3
HF Trade Freedom	Heritage Foundation	0–100	69.2	2024	13	25.8
Services Trade Restrictions Index	World Bank, WTO	0–100	39.4	2022	12	26.2

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	40.3	2021	16	55.8
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	51.2	2021	12	41.7
Macroeconomic stability index	WEF	0–100	68	2019	17	32
HF Monetary Freedom	Heritage Foundation	0–100	49.2	2024	18	32.5
Gross savings/ GDP (%)	World Bank	Open	NA	2023	NA	NA
Institutions index	WEF	0–100	51.6	2019	11	28.8
IMF Financial Institutions	IMF	0–1	0.3	2021	17	0.5
Political stability	World Bank WGI	–2.5 to 2.5	–0.8	2022	17	2.2
Rule of law	World Bank WGI	–2.5 to 2.5	–0.1	2022	10	1.8
Control of corruption	World Bank WGI	–2.5 to 2.5	–0.4	2022	10	2.5
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.4	2022	15	2.5
Social capital	WEF	0–100	56	2019	6	7.2
Voice and accountability	World Bank WGI	–2.5 to 2.5	–0.2	2022	12	1.3

Challenges Ahead

Sri Lanka faces several productivity readiness challenges in terms of both its labor market and human capital. The country experienced a demographic dividend for 45 years during 1970–2015. However, it now faces one of the most rapid aging processes in South Asia, with annual population growth dropping from 1.1% in 2021 to –0.7% in 2023 and 7.8% of the population aged 65 years and above (World Bank, 2025). Along with its aging population, Sri Lanka also struggles with a high rate of informal employment, which contributes to inefficiencies and stagnated productivity growth (IMF, 2024).

Structural change in Sri Lanka has contributed to some economic growth post-independence, but has not gone far enough. Employment has shifted to low-productivity manufacturing and services rather than to innovation and knowledge-driven industries, which is not similar to

patterns seen in developed economies (Dayaratna-Banda & Pathmakanthan, 2024). These structural issues imply that Sri Lanka has been experiencing the so-called "middle-income trap," with low rates of technology adoption and low productivity levels preventing sustainable long-term economic growth (Dayaratna-Banda & Pathmakanthan, 2024). The IMF (2024) recommends efforts to enhance digitalization and automation in key industries to enhance efficiency, along with increasing modernization, making R&D investments, and attracting FDI to improve agricultural productivity. Reforms in the services sector, particularly to increase skills in finance, digital technology, and transport, are also recommended to increase productivity (IMF, 2024).

Looking ahead, Sri Lanka faces trade and investment barriers, particularly because limited trade integration and weak participation in global value chains have restricted economic growth (Wijesinha, 2021). Low levels of FDI inflows caused by political instability, high tariffs, and limited infrastructure improvements, have reduced production capabilities and slowed productivity improvements. Trade facilitation efforts have also been largely inconsistent and ineffective, negatively impacting Sri Lanka's competitiveness in global markets (Wijeshinam, 2021). Given the economy's reliance on FDI inflows and its declining tradable sector, Sri Lanka needs not only targeted policy initiatives to attract more FDI, but also investments in domestic R&D and innovation.

Sri Lanka has committed to pursuing a sustainable future, setting a GHG emissions reduction target of 4% for the energy sector by 2030 (OECD, 2021). However, its energy sector faces persistent challenges that will continue if left unaddressed. Grid capacity is reaching its peak and power generation remains vulnerable to adverse weather due to heavy reliance on hydropower (Wijesinha, 2021). The country also does not have an explicit carbon tax or a CO_2 emissions trading system, which significantly hinders its ability to meet energy and sustainability goals.

Sri Lanka is a cautionary example for other countries. It demonstrates the impact of poor economic management on productivity and wellbeing. Its downgrade from upper-middle-income to lower-middle-income status has not only been a psychological setback but also an indicator of decline in real living standards.

Poor fiscal policy, with excessive spending and large tax cuts, contributed to a balance of payments crisis and sovereign debt default. Attempts to artificially fix the exchange rate and overregulation of labor markets exacerbated the problems as automatic stabilizers could not function in ways that might have partially mitigated the crisis.

Sound macroeconomic management, avoiding large and unsustainable debts, and embracing flexible policies will allow the economy to navigate external shocks. Such measure will be crucial for Sri Lanka to achieve sustainable productivity growth and maintain and improve wellbeing.

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THAILAND

Over the past half-century, Thailand has undergone impressive and substantial economic and social development, facilitating its transition from low-income to upper-middle-income status by 2011 (OECD, 2023). The accession discussions with the OECD confirm Thailand's place as one of Southeast Asia's important economies. Economic output growth has facilitated a rapid increase in employment and substantial reduction in poverty rates over the past five decades. Living standards have improved dramatically, with per capita income rising 4.6 times between 1990 and 2021 (World Bank, 2025). Income inequality has also declined, the Gini coefficient dropping from 0.44 in 1990 to 0.38 in 2021 (OECD, 2023). Thailand's GDP per capita was eighth among APO member economies in 2022 (Table 1), while GDP growth rate was ranked ninth, averaging 1.5% annually during the period 2020–22. However, Thailand faces a rapidly aging population, with the fifth-highest old-age dependency ratio among APO peers, and will need to enact policies that facilitate higher levels of productivity.

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	69.2	10	0.2	16
GDP (USD billion at PPP)	1,487.8	9	1.5	19
GDP per capita (USD at PPP)	21,489.3	8	1.4	20

Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	48.6	10	47.1	10
Employment rate (%)	54.9	4	57.1	3
Age dependency ratio (%)	42.7	17	44.4	17
Old-age dependency ratio (%)	19.8	5	22	5

Productivity Performance

In terms of labor productivity (LP), Thailand ranked 12th among APO member economies in 2022. LP growth has been relatively low in recent years at an average annual rate of 3.6% during the 2010s, and 1.9% in the period 2020–22, reducing Thailand's competitiveness (Table 3). Its LP growth ranked 12th among APO members in 2022, compared with tenth rank in 2017 (Table 2). Thailand's total factor productivity (TFP) growth performance has slowed significantly since the 2000s, recording average annual growth rate of just 0.3% in the 2010s and becoming negative after 2016, particularly impacted by the pandemic (Figure 4).

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	3.6	8	1.9	14
TFP (index)	0.3	12	1	16
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	18.3	12	19	12

Thailand's rapid export-led economic growth has generated substantial economic development since 1970. The labors' shift from agriculture to manufacturing and services, economic liberalization, and foreign direct investment (FDI) inflows have all contributed to this rapid development. However, in recent decades, output growth has stalled and income convergence has slowed, with Thailand beginning to lag behind faster-growing economies such as PR China (OECD, 2023). Heavily affected by the pandemic and the Russia–Ukraine war, output growth has been losing momentum (Figure 2). Contributions to output growth from capital accumulation, labor quantity, and TFP growth have all declined significantly, underscoring the need for renewed efforts to raise productivity levels and accelerate growth again (OECD, 2023).

Raising productivity levels will also be important to address the demographic problem that Thailand is facing due to its aging population. The continued implementation of the 20-year Thailand 4.0 strategy will assist in transforming Thailand into a value-based innovation-driven economy to avoid the middle-income trap. The strategy currently emphasizes "investment, sustainably industrial development, resilient infrastructure, digital transformation, green tourism, small- and medium-sized enterprises (SMEs), human capital, and support for the service sector," (World Bank, 2024).

The Thai government has taken steps to attract high-skilled foreign labor through programs such as the SMART Visa program, implemented in 2018 to expedite immigration processes for skilled workers (OECD, 2023). Additionally, a Long-Term Resident (LTR) Visa program was created in 2022 to attract both high-skilled foreign workers and wealthy pensioners (OECD, 2023). Despite these efforts, the OECD (2023) notes that there are significant mismatches between the education provided to students and the skills needed in the labor market, recommending increased vocational training and investment in IT infrastructure.

Over the past half-century, TFP growth has been volatile but yields a fairly flat trendline depicting slightly more than zero growth (Figure 4). Thailand experienced a spike in TFP growth during the 2000s, supported by the increase in capital productivity during this period. Sumner (2018) suggests this growth was due to the Asian Financial Crisis, when only the most capital-efficient firms, concentrated in high-export sectors and exposed to global competition, were able to survive. Thereafter, rising corporate debt and the increasing role of "zombie firms" constrained business investments in both tangible and intangible capital and hence dampened capital productivity growth in the 2010s (IMF, 2019). The COVID-19 pandemic negatively impacted growth, with TFP taking a downturn during pandemic years (Figure 4).

Capital deepening reached a high point during the 1990s, reflective of a high rate of capital accumulation that fueled strong output growth (Figure 6). Capital productivity growth has been

extremely volatile, both in terms of level and trend (Figure 5). Growth was negative during the 1990s, before recovering in the 2000s and falling below zero again in 2015.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	2.7	5.4	4.1	4	3.6	1.9
TFP growth	0.4	0.6	−2.1	1.4	0.3	1
Capital productivity growth	1.3	0.7	−2.8	2.1	−0.2	1.1
Output growth	7.3	8.2	4.9	4.7	2.1	1.6
Combined inputs growth	6.6	7.3	6.8	3.3	2.1	1.1
Capital growth	5.3	7.1	7.8	2.5	2.7	0.9
IT capital growth	15.8	23.2	14.3	15	5.8	2
Hours worked growth	4.7	3.1	0.8	0.7	−1.4	−0.3
Labor quality growth	3.5	4.5	4.8	3.4	2.8	1.7
Capital deepening	0.3	2.1	3.8	1	2.2	0.7

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
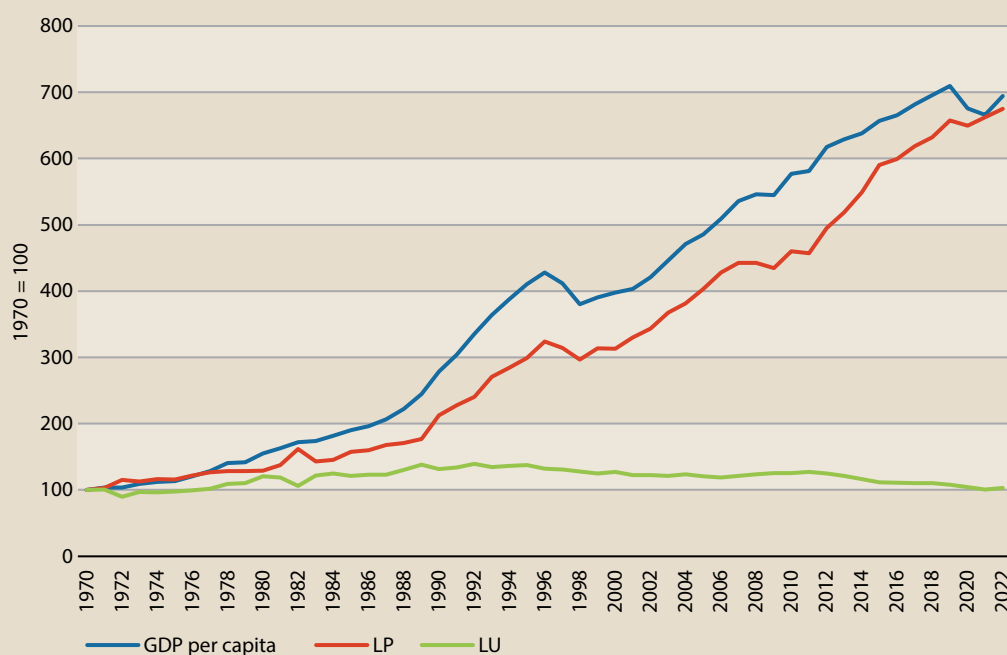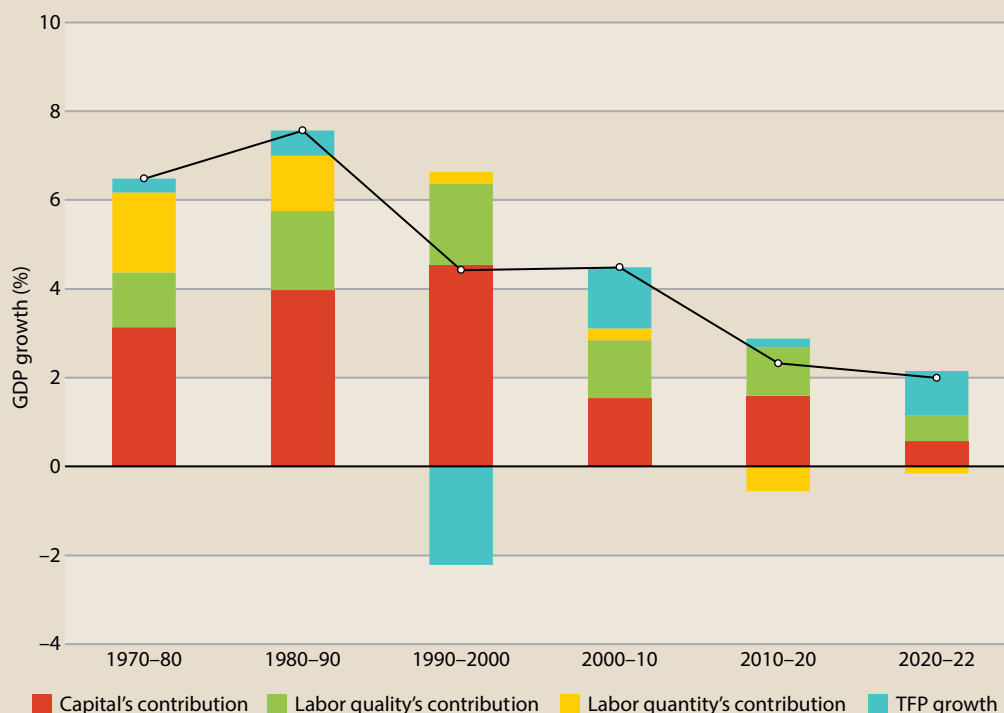
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

■ Capital's contribution   ■ Labor quality's contribution   ■ Labor quantity's contribution   ■ TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.

FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.

Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4, along with some supplementary indicators that provide a more complete picture of some determinants. The section also draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Thailand's level of capital intensity has declined significantly in recent years, from sixth rank in 2010 to 15th in 2022 among APO member economies (Table 4.0). In 2022, it ranked 13th for capital deepening and 14th for IT capital deepening among APO members (Table 4.1). Although Thailand's capital deepening has been steady over the past few decades (Figure 6), it lags behind higher-income APO peers on this measure.

The contribution of labor quality growth to LP growth was high at 2.1 percentage points in 2022, ranking Thailand first among APO peers on this indicator (Table 4.1). Thailand's human capital indicators performed relatively well, with the country ranked 12th and seventh on WEF indicators of "current workforce" and "entrepreneurial culture," respectively (Table 4.2). Skills shortages have become a pressing issue because of Thailand's heavy reliance on its skilled workforce, as reflected in its ranking on "current workforce" measure.

Thailand is technologically advanced, ranking 11th and sixth on the NRI Technology Index and NRI People Index, respectively, in 2024 (Table 4.2). Thailand is an important producer of ICT hardware but a greater adoption of digital and AI technologies is required to maintain a competitive edge both within APO group and globally.

Manufacturing's share of GDP has declined since 2017, reaching 26.7% in 2022, though it was still the second highest among APO member economies (Table 4.0). Of this, medium- and high-tech manufacturing accounted for 41.4%. Agriculture remains an important sector, accounting for 29.8% of employment despite contributing only 8.6% to GDP in 2022 (Table 4.0). This imbalance reflects the suspended structural transformation after the Asian Financial Crisis, which limited labor reallocation from agriculture to manufacturing and services. Exports and imports represent approximately half of GDP each (Table 4.0).

Underlying Determinants: Productivity Readiness
The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability. These indices range up to 100. They provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

Thailand's performance across these four indices is relatively consistent, ranking sixth among APO peers across all indicators, except for "stability" (Table 5). Thailand scores 49 out of 100 on the Productivity Readiness Index (PRI), indicating significant room for improvement to leverage productivity gains.

Underlying Determinants: Specific Strengths and Weaknesses
Thailand has achieved substantial LP growth over the last two decades, though TFP growth has been more moderate. This has been driven by the labor shift from agriculture to manufacturing and services, slower growth in hours worked, economic liberalization, and the inflow of FDI. To achieve continued high productivity growth, Thailand will need to target the underlying productivity determinants.

Thailand's education system performs moderately in comparison to other APO member economies, ranking 12th on indicators of "quality of education system" and 14th on "quality of primary education." The country also ranked 11th in 2021 among APO peers in terms of education expenditure-to-GDP ratio (Table 6). However, Thailand's education system has been yielding poor outcomes, prompting diminishing educational spending by the government (Muthukumara & Pollitt, 2024). Thailand's innovation capabilities and human capital also require improvement, as indicated by its score of 43.9% on the WEF's "innovation capability" indicator (Table 6).

Thailand has a well-performing business environment, scoring well across all indicators (Table 6). It ranks eighth among APO member economies on indicators of "business freedom," "regulatory quality," and "labor market." It also ranked third among APO peers in 2019 on the WEF Administrative Requirements Index. However, informal labor remains the norm in Thailand, with an estimated 54% of employment being informal in 2019 (Moroz et al., 2021). This constrains productivity levels as informal labor is typically concentrated in lower value-added activities.

Thailand has a strong financial system, as evidenced by its strong performance across financial system indicators (Table 6). The country ranked fourth among APO member economies on the IMF indicator for "financial markets" in 2021, and second on the Heritage Foundation's "financial freedom" indicator in 2024. The rankings are indicative of a deep, diversified, and stable financial system that has seen large improvements over the past two decades.

Thailand's health system's performance has worsened since 2018, with life expectancy at birth decreasing and infant mortality rates rising slightly. It now ranks tenth and 13th, respectively, on these indicators among APO peers (Table 6). Addressing these challenges will be crucial as Thailand faces a rapidly aging population that will shrink its available workforce.

Foreign investment in Thailand scores reasonably better compared to many other underlying productivity determinants. In 2024, Thailand ranked ninth among APO peers on the Heritage Foundation's "investment freedom" indicator, which supports creation of skilled jobs, access to overseas markets, and enhanced export performance.

Thailand has a relatively complex tariff system, with high trade tariffs and relative prevalence of non-tariff barriers reducing trade openness of the trade system. Despite this, the trade system has shown promising improvements in recent years. It ranked 13th among APO member economies in 2019 on the WEF's "trade openness" indicator. In 2024, it ranked 10th on the Heritage Foundation's "trade freedom" indicator. The imports-to-GDP ratio rose from 54% in 2017 to 66.6% in 2022, ranking it seventh in APO group on this indicator (Table 4.0). The exports-to-GDP ratio also increased to 64.5% in 2022. These reflect improvements in trade barriers and Thailand trade system.

In terms of institutions, Thailand performs relatively poorly compared with other underlying productivity determinants. Its financial institutions are strongest, ranking fifth among APO peers in 2021 (Table 6). However, it performs poorly against other APO member economies on indicators of "political stability," "rule of law," "control of corruption," "government effectiveness," and "voice and accountability." Stronger implementation and enforcement of regulation are required to improve institutional support for productivity.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	3.5	16	3.2	15
Agriculture share of GDP (%)	Asian Productivity Organization	Open	8.6	12	8.6	14
Agriculture share of employment (%)	Asian Productivity Organization	Open	31.5	8	29.8	7
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	25.2	2	26.7	2
Manufacturing share of employment (%)	Asian Productivity Organization	Open	15.5	8	16.1	7
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	41.4	7	41.4	7
Exports/GDP (%)	Asian Productivity Organization	Open	50.8	8	64.5	7
Imports/GDP (%)	Asian Productivity Organization	Open	45.7	7	66.6	7

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−0.4	13	0.8	13
IT capital deepening (pp)	Asian Productivity Organization	Open	0	14	0.1	7
Labor quality contribution to LP growth	Asian Productivity Organization	Open	2.1	1	0.6	3

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	51.4	2019	12	24.7
Entrepreneurial culture	WEF	0–100	57	2019	7	13.4
Availability of latest technologies	WEF	1–7	4.9	2017	= 7	1.4
NRI Technology index	Portulans Institute	0–100	47.1	2024	11	24.1
NRI People index	Portulans Institute	0–100	50.5	2024	6	28.8

TABLE 5

VALUES OF OVERARCHING INDICES FOR THAILAND.

Index	Value	APO Rank
Motivation	48	6
Capabilities	61	6
Efficiency of markets	50	6
Stability	37	8
Productivity Readiness Index	49	6

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.7	2017	= 12	2.1
Quality of primary education	WEF	1–7	3.5	2017	= 14	2.7

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Future workforce	WEF	0–100	73.2	2019	7	8.2
Education expenditure/ GDP (%)	World Bank	Open	3	2021	11	3
Innovation capability index	WEF	0–100	43.9	2019	9	36.3
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	85.7	2021	6	14.3
Infrastructure index	WEF	0–100	67.8	2019	10	27.6
HF Business Freedom	Heritage Foundation	0–100	70.3	2024	8	16.6
Administrative requirements	WEF	0–100	86.9	2019	= 3	6.2
Domestic competition	WEF	0–100	53.6	2019	9	21.2
HF Tax Burden	Heritage Foundation	0–100	81.1	2024	= 10	9.6
Regulatory quality	World Bank WGI	−2.5 to 2.5	0.2	2022	8	2
Labor market index	WEF	0–100	63.4	2019	8	17.8
HF Labor Freedom	Heritage Foundation	0–100	56.3	2024	11	21
NRI Governance index	Portulans Institute	0–100	71.3	2024	6	15.6
Financial system index	WEF	0–100	85.1	2019	6	6.3
IMF Financial Markets	IMF	0–1	0.7	2021	4	0.1
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Life expectancy at birth (years)	UN data	Open	76.4	2023	10	9.1
Infant mortality (deaths/1000 live births)	WEF	Open	10.5	2017	13	55.3
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	65.4	2021	7	26.2
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	62.5	2021	7	23
FDI stock/GDP (%)	UNCTAD	Open	61.8	2022	7	519.2
HF Investment Freedom	Heritage Foundation	0–100	55	2024	= 9	35
Trade openness	WEF	0–100	53.3	2019	13	35.4
HF Trade Freedom	Heritage Foundation	0–100	72.8	2024	10	22.2
Services Trade Restrictions Index	World Bank, WTO	0–100	59.6	2022	2	6
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	69.8	2021	4	26.3
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	64	2021	6	29
Macroeconomic stability index	WEF	0–100	90	2019	= 7	10
HF Monetary Freedom	Heritage Foundation	0–100	66.7	2024	14	15
Gross savings/ GDP (%)	World Bank	Open	23.8	2023	16	18.9
Institutions index	WEF	0–100	54.8	2019	9	25.6

THAILAND

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
IMF Financial Institutions	IMF	0–1	0.7	2021	5	0.2
Political stability	World Bank WGI	−2.5 to 2.5	−0.4	2022	13	1.8
Rule of law	World Bank WGI	−2.5 to 2.5	0.1	2022	9	1.7
Control of corruption	World Bank WGI	−2.5 to 2.5	−0.5	2022	12	2.5
Government effectiveness	World Bank WGI	−2.5 to 2.5	0.1	2022	11	2
Social capital	WEF	0–100	53.2	2019	9	10
Voice and accountability	World Bank WGI	−2.5 to 2.5	−0.6	2022	14	1.7

Challenges Ahead

Thailand has made substantial development since 1970 through an export-led growth strategy, development of a strong manufacturing sector, openness to foreign investment, and economic liberalization. It has set an ambitious goal of becoming a high-income nation by the year 2037, as part of the Thailand 4.0 strategy, which will require substantial growth in output levels. In recent years, however, economic growth has been slowing, worsened by macroeconomic shocks including the pandemic and the Russia–Ukraine war (OECD, 2023). To realize its economic potential and revive output growth, Thailand will need to address the challenges that threaten its future productivity growth.

Thailand's labor market faces significant future challenges. These include declining labor force participation due to an aging population, labor force gender gap, and high percentage of informal labor. As one of the most rapidly aging populations in Southeast Asia, the working-age share of Thailand's population is projected to decline from 71% in 2020 to 56% in 2060, while the share of the population aged 65 years and above is projected to rise from 13% to 31% over the same period (Moroz et al., 2021). This demographic change is predicted to lower GDP per capita growth by 0.86% over the next decade (Moroz et al., 2021). Thailand also faces a large gender gap in terms of employment, with the participation of women in the labor force being significantly lower than that of men (Moroz et al., 2021). Additionally, the high level of informality prevents over 50% of workers from benefiting from the formal social security system. This underscores a need for stronger social safety nets, particularly as a greater share of the population becomes dependent (OECD, 2023).

To combat these issues, Moroz et al. (2021) for the World Bank recommends several solutions. First and foremost, expanding the labor supply is imperative, and can be achieved through increased female workforce participation. Greater investment in public health services and research would increase labor supply through increased life expectancy and therefore extended working lives.

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Further, liberalized migration policies would improve the labor situation by allowing foreign workers to fill gaps caused by reduced domestic supply. These changes hold the potential to offset any labor shortfall created by Thailand's aging population and consequently lead to stronger economic growth.

Apart from increasing the quantity of available labor, improving labor quality and production efficiency will be essential for addressing the remaining supply gaps. Thailand currently faces human capital challenges, with its education system delivering poor outcomes that increase inefficiencies in the workforce (Muthukumara & Pollitt, 2024). Thailand has also lost its competitive edge in the manufacturing sector, leading to a decrease in its share of global production in recent years (Muthukumara & Pollitt, 2024). To address these productivity challenges, Thailand needs to accelerate digital and technological adoption to remain globally competitive; relax FDI limits and services restrictions to support greater global integration; and consider upskilling and reskilling programs to address educational gaps (Moroz et al., 2021; World Bank, 2020).

Thailand's transition to a green and sustainable future, in line with climate goals established as part of the 2016 Paris Agreement, also presents challenges for its economy. Thailand has pledged to become carbon neutral by 2050 and produce net-zero carbon emissions by 2065 (IMF, 2024). However, it also aims to achieve the high-income status by the year 2037. This presents future challenges as no country has transitioned to high-income status while simultaneously reducing carbon emissions (Muthukumara & Pollitt, 2024). This therefore necessitates greater energy efficiency, particularly in the industry sector, which accounted for 21% of Thailand's GHG emissions in 2018 (Muthukumara & Pollitt, 2024). Adoption of sustainable technologies to reduce emissions is constrained by cost barriers, particularly for SMEs that constitute a large portion of Thailand's economy. The IMF suggests making use of carbon pricing as a policy toll for Thailand to achieve its climate goals in terms of emissions reduction (IMF, 2024).

While facilitating a green transition in Thailand is economically challenging, the adverse impacts of climate change may outweigh any economic gains from increased emissions. Thailand is among the countries that are most vulnerable to the effects of climate change, ranking as the eighth most-impacted country by extreme weather events in the last two decades. Frequent floods, tropical storms, and droughts have been severely impacting its agricultural sector (Muthukumara & Pollitt, 2024; OECD, 2023). An increase in the impacts of climate change threatens to worsen the income inequality that already exists in Thailand. Low-income households, especially in the north and northeastern regions are more vulnerable to climate-change impacts, which could further widen the income gap (Muthukumara & Pollitt, 2024).

Coastal erosion is projected to cause a loss of 2 sq km of land annually, equivalent to 0.04% of GDP. Further, climate models suggest that the Greater Bangkok area could be underwater by 2050, displacing up to 12 million people (Muthukumara & Pollitt, 2024). The drastic impact that climate change and extreme weather conditions are predicted to have on Thailand demonstrate the need to transition toward a Bio-Circular-Green (BCG) economy model, as suggested by the World Bank (2024). The BCG model aims to preserve natural and biological resources by facilitating a services-oriented economy with fewer resource inputs. Also, it integrates the concepts of bio-economy, circular economy, and green economy to create high-value, ecofriendly products (Muthukumara & Pollitt, 2024). With Thailand's natural resources, including forested land, marine environments, accessible water, and mineral resources already severely depleted, the BCG model offers a pathway to mitigate the adverse environmental impacts of industry and production.

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TURKIYE

Turkiye, a nation of 85.3 million, has a relatively high GDP and average income compared with its APO peers. classifying it an upper-middle-income economy. Istanbul, which bridges Europe and Asia, is both its largest city as and its main economic hub. Turkiye has been one of the most rapidly growing OECD economies over the past two decades, having halved its poverty rate and increasing labor market participation by 10 percentage points during this period (OECD, 2023). Despite relatively high average incomes, however, Turkiye's employment rate remains one of the lowest among APO member economies (Table 1).

TABLE 1

CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	85.3	9	1	8
GDP (USD billion at PPP)	3,339.4	4	8.1	2
GDP per capita (USD at PPP)	39,157.8	6	7.4	3
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Rural population proportion (%)	23.8	16	22.9	16
Employment rate (%)	32.3	19	36.2	18
Age dependency ratio (%)	47.7	14	47.4	12
Old-age dependency ratio (%)	14.1	7	14.3	7

Productivity Performance

TABLE 2

QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	4.6	3	0.4	18
TFP (index)	0.7	7	2.4	8
Indicator	**Value (2020)**	**APO rank (2020)**	**Value (2022)**	**APO rank (2022)**
Labor productivity (USD at PPP)	54.2	4	54.6	4

Turkiye has experienced strong output growth and improvement in living standards, supported by significant structural changes and urbanization. Turkiye's exports now account for over 1% of global demand for goods and services, representative of its increased integration into global value chains (OECD, 2023). Structural change has been a key growth driver, with the percentage of workers employed in low-technology manufacturing falling from 60% to 50% over the period 2004–19 (OECD, 2023). Further, Turkiye ranked 11th among APO member economies in 2022 in terms of medium- and high-tech manufacturing as a share of total manufacturing (Table 4.0).

Turkiye's labor productivity (LP) growth rate during the period 2010–22 was 4.6% per annum, the third highest in the APO (Figure 2.0). This impressive performance was largely fueled by labor reallocation toward the services sector and harnessing new opportunities in international markets (OECD, 2023). Financial liberalization efforts for integration with global financial markets began in 1980, though significant economic gains were realized only decades later (Cizre-Sakallioglu & Yeldan, 2002). Although labor productivity has been highly volatile in short terms, the long-term progress has been steady (Figure 3). This performance in terms of labor productivity, as well as Turkiye's increased integration into global value chains, has seen a shift in labor toward more knowledge-driven and technologically advanced sectors (OECD, 2023).

TFP growth has been relatively weak over the past few decades, stagnating at zero in the 1990s, taking a downturn in the 2000s, and then slowly recovering to 2.4% per annum in the period 2020–22 (Table 3). This is reflective of barriers to effective resource allocation (OECD, 2023).

By contrast, output growth has been strong and robust over the past half-century. During 2002–17, experienced a period of growth, interrupted only by the Global Financial Crisis in 2008–09 (Dincer et al., 2022). Capital accumulation has made the largest contribution to output growth, though labor quality has made a sizable contribution in recent years (Figure 2). Rising TFP growth in recent years has also contributed to strong output growth, as opposed to the 1970s and 2000s when TFP detracted from output growth (Figure 2). Labor quality and labor quantity, except for the most recent period, have made very minimal contributions to Turkiye's strong growth.

Capital productivity growth has been extremely volatile period across various periods (Figure 5), and has trended downward over the past few decades. This can be attributed to a shift in employment toward sectors having little or no productivity growth, particularly during the 2000s (Dincer et al., 2022). Capital deepening has continued over the past half-century, with capital consistently growing at a rate faster than labor (Figure 6). Greater technological adoption is required for Turkiye to foster capital productivity growth.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	1.3	2.1	3.3	2.1	4.6	0.4
TFP growth	–2	1.2	0	–0.8	0.7	2.4
Capital productivity growth	–2.7	1.4	–0.4	–1	–0.3	3.5
Output growth	4.1	5.2	3.8	4.2	5.2	8.5
Combined inputs growth	6.1	4	3.7	4.9	4.3	6.2
Capital growth	7	3.8	4.2	5.3	5.5	4.8
IT capital growth	17.4	17.7	16.4	10.6	11.4	7.6
Hours worked growth	2.8	3.1	0.7	2	0.6	8
Labor quality growth	1.2	1.2	1.8	2.2	2.1	0.2
Capital deepening	3	0.5	2.4	1.9	2.8	–1.9

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
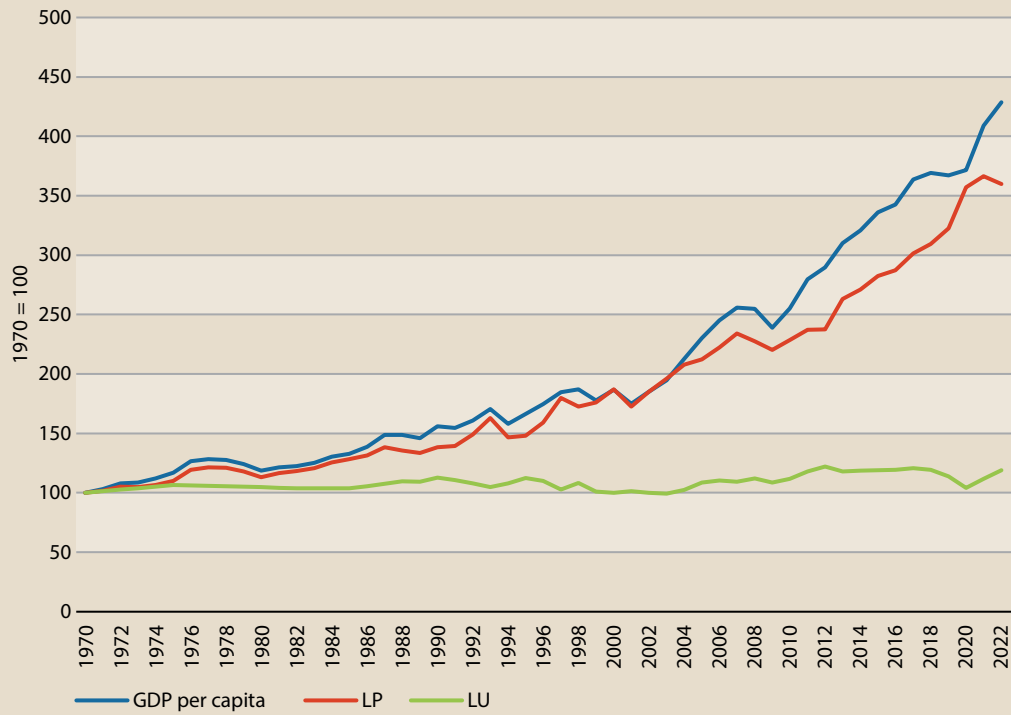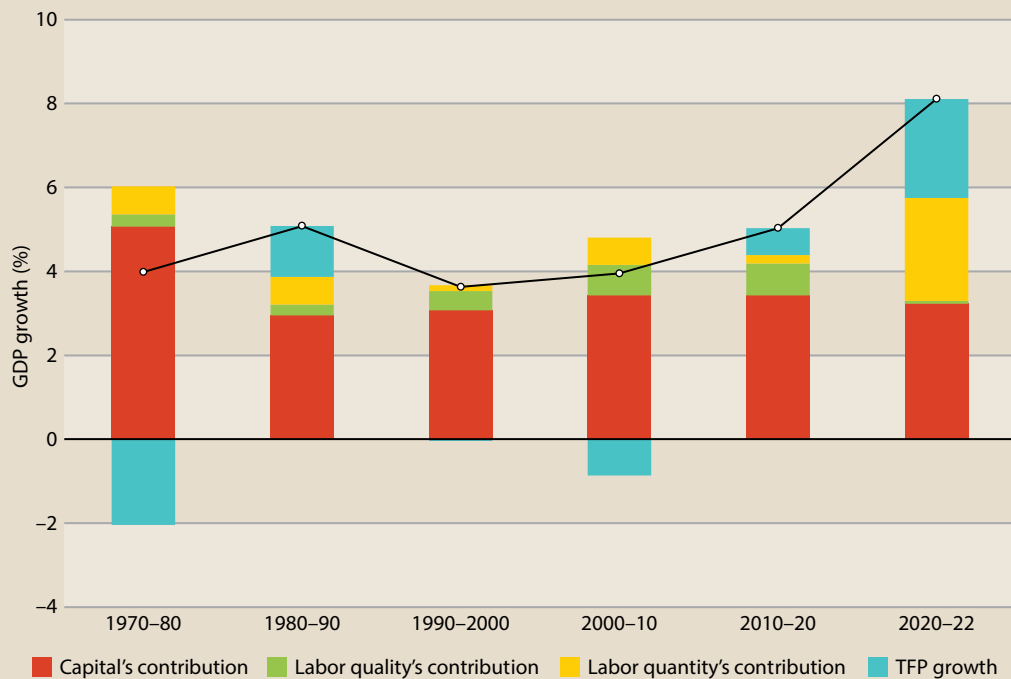
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.
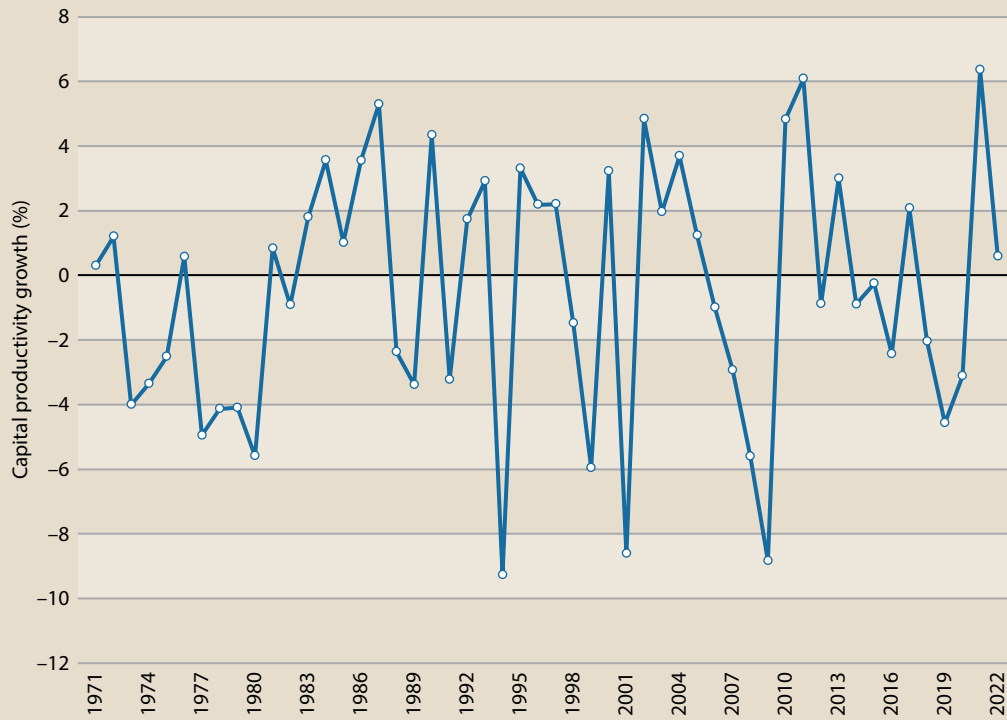
FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.
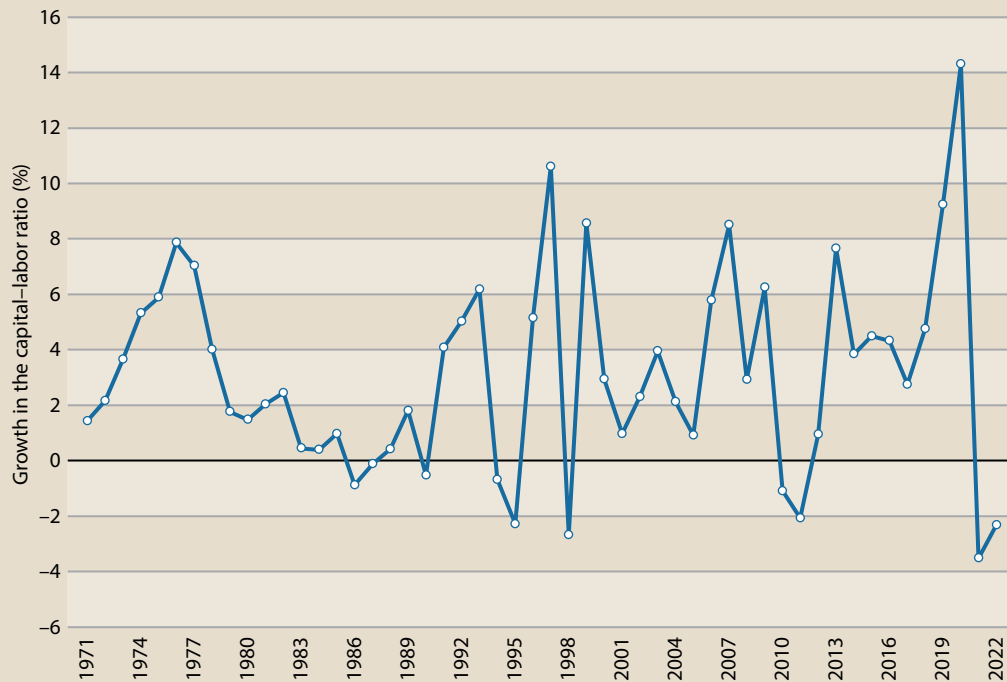
Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4. This section draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Turkiye's capital-to-GDP ratio has declined considerably in recent years, dropping from fourth rank among APO member economies in 2020 to 14th rank in 2022. Its share of employment from manufacturing remains high, ranked third among APO members. Also, it ranks around midway among APO peers for exports (11th rank) and imports (13th rank) as proportions of GDP.

Turkiye performs very poorly on capital deepening. It was ranked 20th with an average capital deepening rate of –2 percentage points during 2020–22, performing only slightly better on IT capital deepening, with 16th ranking. Labor quality's contribution to LP growth has also been low, with Turkiye ranked 18th on the measure for its average performance during 2020–22.

Turkiye ranks more favorably on technology-related measures. It ranks seventh on the WEF's "availability of latest technologies" measure, seventh on the NRI Technology Index, and 11th on the NRI People Index, which measure Turkiye's capacity to leverage advancements in communication and network technologies.

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability (Table 5). These indices range up to 100. They provide broad indications of where countries stand on productivity determinants and their overall productivity readiness.

Turkiye is placed around the middle for most overarching indices (Table 5). It performs better on motivation, for which it is ranked ninth among APO member economies, and capabilities, for which it is ranked seventh. On efficiency of markets, Turkiye is ranked 11th, while for stability, it is ranked 13th. Overall, Turkiye is ranked 11th.

Underlying Determinants: Specific Strengths and Weaknesses

Despite strong rankings on a number of indicators, Turkiye ranks around the middle among APO member economies on most underlying determinants, demonstrating the progress that is still needed to bolster productivity growth.

Turkiye performs well on the WEF's "future workforce" metric, ranked sixth among APO peers and signaling potential opportunities in LP growth. It ranks seventh on the WEF Infrastructure Index and the NRI Governance Index. On trade, Turkiye ranks sixth on the KOF "trade globalization" metric and 11th on the "trade openness" metric. Increased integration into global value chains has facilitated growth in exports, which rose by 12.2% in 2022 (OECD, 2023). It performs particularly well in terms of the openness of its services trade, ranked fourth on the World Bank/WTO's "services trade restrictions index."

Turkiye's financial also system ranks highly among APO member economies. It is ranked second on the Heritage Foundation's "financial freedom" metric and eighth on the IMF's "financial markets" indicator, although its 13th place on the WEF Financial System Index demonstrates that

there is progress to be made in its financial system. Recent changes to its financial environment have led to decreases in systemic risks, particularly among private banks, though state-owned banks remain in a weaker position (IMF, 2024). However, along with a high ranking on "financial freedom," it also performs well on "investment freedom" for which it is ranked second, which is helpful in fostering FDI and broader investments to drive productivity growth. However, inward FDI and equity investment have been declining over recent years (OECD, 2023). The underlying causes for low FDI include structural weaknesses in regulation and the business environment, where Turkiye ranks 18h on the Heritage Foundation's "tax burden" measure and 12th on "regulatory quality" (OECD, 2023; see Table 6). FDI stock-to-GDP ratio remains relatively low at 18.2%, ranking Turkiye 13th among APO member economies.

Problems remain in Turkiye's political system as well as regarding government effectiveness. While it ranks 10th on the WEF Institutions Index, it ranks 13th for "government effectiveness." On measures of quality of political system, Turkiye's performance is weaker. It ranked 18th for "political stability," 15th for "rule of law," and 17th for "voice and accountability." Poor corruption control and declining quality of governance have led to reduced investment, including FDI, thereby undermining opportunities for productivity gains (Dincer et al., 2022).

Turkiye also does not perform well on educational quality. It ranks 19th on the WEF's "quality of education system" metric and 18th on the "quality of primary education" metric. While it performs well on the WEF Innovation Capability Index, ranked eighth, poor education quality poses problems for human capital development. On health, Turkiye performs slightly better, with eighth-highest life expectancy among APO member economies and eighth-lowest infant mortality rate. The health sector has seen productivity gains due to improvements in regulation, competition, and modernization, particularly through digital health integration programs (Dincer et al., 2022)

Turkiye's labor market also ranks lower on underlying determinant measures. It is ranked 15th on the WEF's "labor market" index and 13th for "labor freedom." On "macroeconomic stability," it ranks 19th. Since 2020, high level of uncertainty, with inflation reaching a 20-year high, has deterred investment, with negative consequences for productivity and long-term economic growth (OECD, 2023).

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	8.8	4	3.2	14
Agriculture share of GDP (%)	Asian Productivity Organization	Open	6.7	16	6.5	16
Agriculture share of employment (%)	Asian Productivity Organization	Open	17.6	13	15.8	13
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	19.1	11	22.1	7
Manufacturing share of employment (%)	Asian Productivity Organization	Open	19.1	3	20.1	3

(Continued from the previous page)

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	36.7	10	33.8	11
Exports/GDP (%)	Asian Productivity Organization	Open	29.1	11	38.6	11
Imports/GDP (%)	Asian Productivity Organization	Open	32.2	13	42.6	13

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−1.6	19	−2	20
IT capital deepening (pp)	Asian Productivity Organization	Open	0	18	0	16
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.1	15	0.1	18

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	46.7	2019	14	29.4
Entrepreneurial culture	WEF	0–100	50.2	2019	14	20.2
Availability of latest technologies	WEF	1–7	4.9	2017	= 7	1.4
NRI Technology index	Portulans Institute	0–100	50.3	2024	7	20.9
NRI People index	Portulans Institute	0–100	47.3	2024	11	32

TABLE 5

VALUES OF OVERARCHING INDICES FOR TURKIYE.

Index	Value	APO Rank
Motivation	41	9
Capabilities	45	7
Efficiency of markets	39	11
Stability	24	13
Productivity Readiness Index	36	11

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.2	2017	19	2.6
Quality of primary education	WEF	1–7	3.1	2017	= 18	3.1
Future workforce	WEF	0–100	75	2019	6	6.4
Education expenditure/ GDP (%)	World Bank	Open	2.8	2021	13	3.1
Innovation capability index	WEF	0–100	44.5	2019	8	35.7
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	75.4	2021	14	24.6
Infrastructure index	WEF	0–100	74.3	2019	7	21.1
HF Business Freedom	Heritage Foundation	0–100	59.2	2024	14	27.7
Administrative requirements	WEF	0–100	67.4	2019	= 11	25.7
Domestic competition	WEF	0–100	53.5	2019	= 10	21.3
HF Tax Burden	Heritage Foundation	0–100	72.5	2024	18	18.2
Regulatory quality	World Bank WGI	–2.5 to 2.5	–0.2	2022	12	2.5
Labor market index	WEF	0–100	52.9	2019	15	28.3
HF Labor Freedom	Heritage Foundation	0–100	54.6	2024	= 13	22.7
NRI Governance index	Portulans Institute	0–100	64.3	2024	7	22.7

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Financial system index	WEF	0–100	61.2	2019	13	30.2
IMF Financial Markets	IMF	0–1	0.6	2021	8	0.3
HF Financial Freedom	Heritage Foundation	0–100	60	2024	= 2	20
Life expectancy at birth (years)	UN data	Open	77.2	2023	8	8.4
Infant mortality (deaths/1000 live births)	WEF	Open	11.6	2017	12	54.2
KOF Financial globalisation	KOF Swiss Economic Institute	0–100	44.8	2021	14	46.8
KOF Financial globalisation, de jure	KOF Swiss Economic Institute	0–100	45.3	2021	12	40.2
FDI stock/GDP (%)	UNCTAD	Open	18.2	2022	13	562.8
HF Investment Freedom	Heritage Foundation	0–100	70	2024	= 2	20
Trade openness	WEF	0–100	54.7	2019	11	34
HF Trade Freedom	Heritage Foundation	0–100	70.8	2024	= 11	24.2
Services Trade Restrictions Index	World Bank, WTO	0–100	55.9	2022	4	9.7
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	63	2021	6	33.1
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	70.9	2021	5	22.1
Macroeconomic stability index	WEF	0–100	61.3	2019	19	38.7

(Continued from the previous page)

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
HF Monetary Freedom	Heritage Foundation	0–100	38.5	2024	19	43.2
Gross savings/ GDP (%)	World Bank	Open	26	2023	13	16.7
Institutions index	WEF	0–100	53.9	2019	10	26.5
IMF Financial Institutions	IMF	0–1	0.4	2021	12	0.5
Political stability	World Bank WGI	–2.5 to 2.5	–1	2022	18	2.5
Rule of law	World Bank WGI	–2.5 to 2.5	–0.5	2022	15	2.2
Control of corruption	World Bank WGI	–2.5 to 2.5	–0.5	2022	13	2.6
Government effectiveness	World Bank WGI	–2.5 to 2.5	–0.2	2022	13	2.3
Social capital	WEF	0–100	46.9	2019	= 15	16.3
Voice and accountability	World Bank WGI	–2.5 to 2.5	–0.9	2022	17	2

Challenges Ahead

The OECD (2023) highlights that while Turkiye's greenhouse gas emissions are low in global comparison, the emissions have grown rapidly in recent years. Turkiye lacks an explicit carbon pricing system and coal combustion still accounts for nearly one-third of its electricity generation (OECD, 2023). Shan, et al (2021) confirm a negative and significant relationship between green technology innovation and carbon emissions, underscoring the need for investment in renewable energy technologies and generation.

Turkiye has begun preparing for a green transition, with its first nuclear power plant under construction and expected to meet 10% of the country's electricity needs (OECD, 2023). However, its heavy reliance on coal needs to be addressed. Shan, et al (2021) also highlight that population growth is increasing energy consumption levels, while inefficient energy transmission systems remain a concern that needs to be addressed. By implementing structural reforms in the energy sector, Turkiye can achieve green-inclusive growth in the medium term (IMF, 2024). In particular, Turkiye could leverage opportunities for decarbonization through measures such as an emissions trading scheme (ETS scheme) implemented in the European Union (IMF, 2024). An ETS system would allow Turkiye to avoid charges on exports to the EU, create greater business certainty, and foster investment (IMF, 2024).

Turkiye's population growth had trended upward until 2000, but recent census data shows that both fertility rate and population growth rate are declining (Krzyżanowska, 2024). Rising incomes and

urbanization have encouraged lifestyle changes such as delayed family formations due to increases in the average number of schooling years, and smaller family sizes due to living space constraints in cities. The aging population is expected to strain the social security system as the shares of pensioners and dependent population rise (Krzyźanowska, 2024). Although Turkiye's future workforce scores well among APO member economies (Table 6), continued improvements in workforce skills and technological adoption will be necessary to offset the demographic pressures. Learning outcomes for 15-year-olds are still below the OECD average, and around 40% of youth do not complete high school (OECD, 2023). To address these challenges, investment in human capital through educational expenditure is necessary to address workforce skills gaps and promote labor productivity growth.

The twin economic crises of 2000–01 demonstrated the instability of Turkiye's financial system and its reliance on external capital flows (Yalma et al., 2018). This dependence makes the economy more susceptible to global economic shocks, presenting challenges moving forward. The OECD (2023) highlights how inward FDI has not only slowed in recent years but also remains low in global comparison. Moving forward, Turkiye needs to foster open competition by removing internal and external barriers to competition, and promote innovation through increased support for R&D and digitalization (OECD, 2023). This will assist in promoting technological advancement, support knowledge-driven growth, and raise productivity levels, ultimately helping attract higher levels of inward FDI.

Russia's war with Ukraine will continue to pose challenges for Turkiye. As a net importer, particularly of oil and gas, as well as of other commodities, Turkiye is vulnerable to price shocks caused by the Russia–Ukraine war (OECD, 2023). In 2022, inflation in Turkiye reached a 20-year high, with consumer price inflation reaching 72.3% (OECD, 2023). This not only has considerable socioeconomic consequences by decreasing households' purchasing power, but also undermines macroeconomic stability and Turkiye's capacity to attract investment and drive long-term productivity growth. Continued exposure to commodity price shocks from global events like the Russia–Ukraine war will continue to undermine macroeconomic stability in Turkiye.

Challenges are ahead also for Turkiye's labor market, which continues to face high administrative barriers. Rigid employment structures continue to undermine formal employment, leading to widespread reliance on informal employment (OECD, 2023). Rules around fixed-term contracts, temporary work agency contracts, and severance pay system rigidities apply downward pressure on formal employment. With insufficient protection under the unemployment insurance system, this lack of formal employment opportunities undermines socioeconomic progress and household incomes (OECD, 2023). To address this, Turkiye could shift resources away from its strict severance pay system toward a broader unemployment insurance program, while introducing greater flexibility in the employment system to reduce incentives for labor informality (OECD, 2023). Turkiye also has the lowest women's labor force participation rate in the OECD (OECD, 2023). By expanding the reach of early childhood education policy and reallocating resources provided for wage subsidies toward better-designed hiring subsidies targeted at disadvantaged groups, this issue could be addressed (OECD, 2023).

Finally, the poor performance on institutional quality metrics, such as "government effectiveness" and "rule of law," combined with the results from Chapters 4 and 5 regarding the importance of institutions, suggests that policy improvements in these areas should be a priority to lift productivity performance.

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VIETNAM

Vietnam, with 101 million people and stretching from PR China to the Gulf of Thailand, has experienced remarkable economic growth over the past three decades, recording the highest growth in living standards in its history. The nation transformed from one of Southeast Asia's poorest countries in 1986 to a lower-middle-income nation in 2010. The poverty rate declined from over 70% to below 6% between 1990 and 2019, with more than 45 million people lifted out of poverty (WTO, 2021). Average income is low compared with APO member economies at more advanced stages of development, but is rising quickly, supported by productivity growth. Vietnam's employment rate is high, but it faces challenges of an aging population.

TABLE 1
CONTEXTUAL INDICATORS.

Indicator	Value (2022)	APO rank (2022)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Population (million)	99.5	7	1	9
GDP (USD billion at PPP)	1,377.4	10	6.3	8
GDP per capita (USD at PPP)	13,849	14	5.4	8
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Rural population proportion (%)	63.2	5	62.4	4
Employment rate (%)	55.1	3	54.7	5
Age dependency ratio (%)	45.2	15	46	15
Old-age dependency ratio (%)	12.2	8	13.3	8

Productivity Performance

TABLE 2
QUICK VIEW ON PRODUCTIVITY.

Indicator	Growth, 2010–20 (% pa)	APO rank (growth 2010–20)	Growth, 2020–22 (% pa)	APO rank (growth 2020–22)
Labor productivity (USD at PPP)	5.5	1	4.9	5
TFP (index)	1.3	1	2.1	10
Indicator	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Labor productivity (USD at PPP)	10.3	15	11.2	15

Labor productivity (LP) is low among APO member economies but has grown consistently over the past three decades, with an average annual growth rate of 7% between 1990 and 2019, supported by rapid capital accumulation and labor supply from rural areas (OECD, 2023). In the 2010s, Vietnam recorded average annual growth of almost 6% a year, the best performance among APO members. Capital deepening and strong TFP growth contributed to this performance (Table 3).

An era of market-oriented reforms initiated in 1986 with the Doi Moi (renovation) process extended private-property rights and opened Vietnam's economy to foreign investment and trade. With these changes, Vietnam gradually evolved from a poor, isolated agriculture-based economy to a fast growing, exports-driven producer of manufactured goods and services. In the three decades following the first of the Doi Moi reforms, annual growth in real GDP averaged 6.6%. Since 1992, when a new constitution strengthened property right protections for foreign businesses, annual growth has never dropped below 5%.

From 2014 to 2018, Vietnam's strong GDP growth of 6.6% per annum was driven by export-oriented manufacturing and domestic demand (WTO, 2021). FDI has played a key role in this growth. Approximately 80% of electronics and ICT hardware manufactured in Vietnam are exported, with foreign-owned manufacturing firms dominating the sector (Nguyen, 2022). Output growth slowed dramatically during the pandemic, particularly due to Vietnam's reliance on FDI for its export-driven growth, slowing to average annual rates of 2.9% and 2.6% in 2020 and 2021, respectively (World Bank, 2025). However, growth was projected to accelerate again in 2024 and 2025 as the output gap closes, but sustaining this momentum will require continued success in attract FDI (IMF, 2024).

Vietnam experienced sustained LP growth from the mid-1980s onward. This supported a steady rise in GDP per capita, while growth in labor utilization played a very minimal role (Figure 1). GDP per capita grew at an average annual rate of 6.1% during the 1990s; 6.0% in the 2000s; and 4.7% during the 2010s (World Bank, 2025). While LP declined during the Global Financial Crisis, it accelerated again afterward and expanded at an average rate of 6.1% per year from 2010 to 2021. Labor utilization declined by 10.9% during this period as Vietnam's population grew faster than hours worked. Despite this decline in labor utilization, GDP per capita grew during 2010–21 at an average rate of 7.2% per year.

An increase in capital accumulation in the 1990s contributed to productivity gains as new laws encouraged foreign investment and limited government's ability to nationalize firms. Capital deepening contributed more than half of total LP growth in the 1990s and 2000s. The rate of growth in capital stock continued to outpace growth in the supply of labor through 2021, with capital deepening slowing only slightly compared with previous decades (Figure 6). While IT capital remains a smaller contributor to growth in capital stock relative to non-IT capital, its level has risen more than fourfold since 2000. Average capital productivity growth, however, has steadily declined since the 1990s (Figure 5).

After falling in the 2000s, TFP grew strongly during 2010–19. Its contribution to GDP growth increased from 30.3% in 2013 to 47% in 2019, reflecting structural economic transformation and investment (WTO, 2021). This improvement also reflected two decades of trade reforms and several FTAs that opened Vietnam's economy to competition and encouraged export market growth. FDI played a key role, contributing 20% of GDP in 2019 and being the main driver of productivity improvement (WTO, 2021). However, the WTO notes that sustaining TFP growth will require further investment as the economy nears capacity. While FDI declined from a peak in 2008, trade continued to grow relative to output in the 2010s. In 2019, both exports and imports of goods and services surpassed GDP. Agriculture's share of GDP declined to 15.5% in 2019, while manufacturing's share increased to 18.3%. Yet, continued structural transformation remains important for realizing productivity gains, with the agricultural sector still employing 35% of the workforce (WTO, 2021).

Improvements in workers' skill levels in the past decade have helped offset declines in hours worked, with labor quality's contribution to output growth increasing at an average annual rate of 1.38% between 2011 and 2021, and contribution of hours worked declining at an average rate of –0.16% (APO, 2024). Educational outcomes have also improved alongside living standards, with poverty rates significantly lower than 30 years ago.

Productivity Overview: Tables and Figures

TABLE 3

PRODUCTIVITY AND RELATED GROWTH THROUGH THE DECADES.

Indicator	1970–80	1980–90	1990–2000	2000–10	2010–20	2020–22
Labor productivity growth	0.3	–0.1	5.9	6.4	5.5	4.9
TFP growth	–0.8	–0.9	2.2	–0.4	1.3	2.1
Capital productivity growth	–0.8	–1.4	0.1	–2.9	–0.5	0.1
Output growth	4.5	3.2	8.5	8.5	5.9	6.5
Combined inputs growth	5.4	4.1	6	8.7	4.3	4.3
Capital growth	5.4	4.7	8.5	11.8	6.4	6.4
IT capital growth	14.2	20.3	19.2	27.5	21.6	10.2
Hours worked growth	4.3	3.3	2.5	2.1	0.4	2
Labor quality growth	1	0.4	0.3	2.4	1.7	0.2
Capital deepening	0.4	0.6	3.3	5.5	3.1	2.2

FIGURE 1

AVERAGE INCOME AND ITS COMPONENTS.
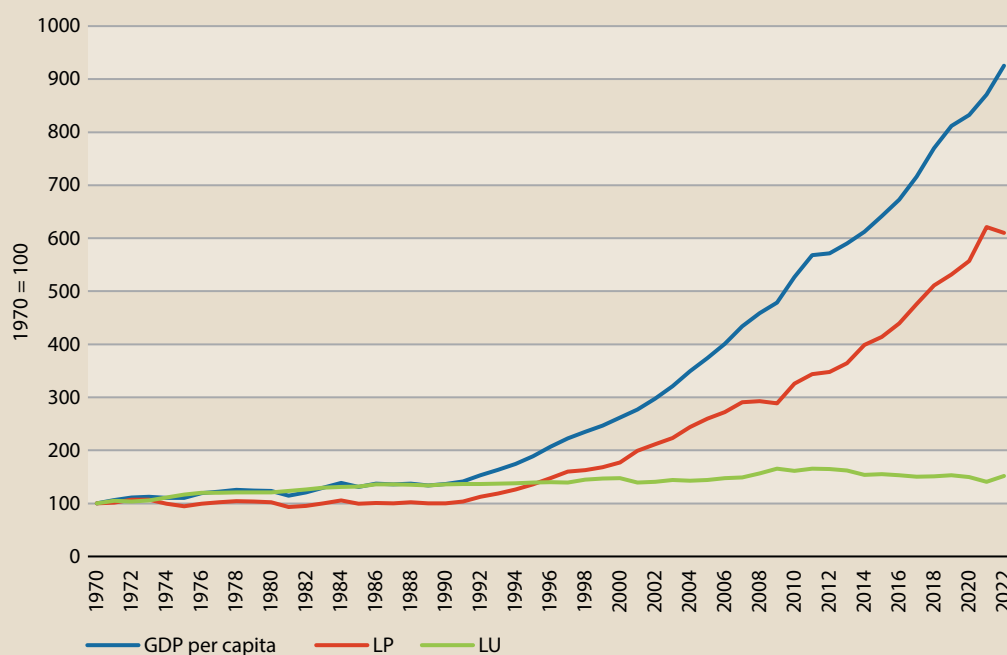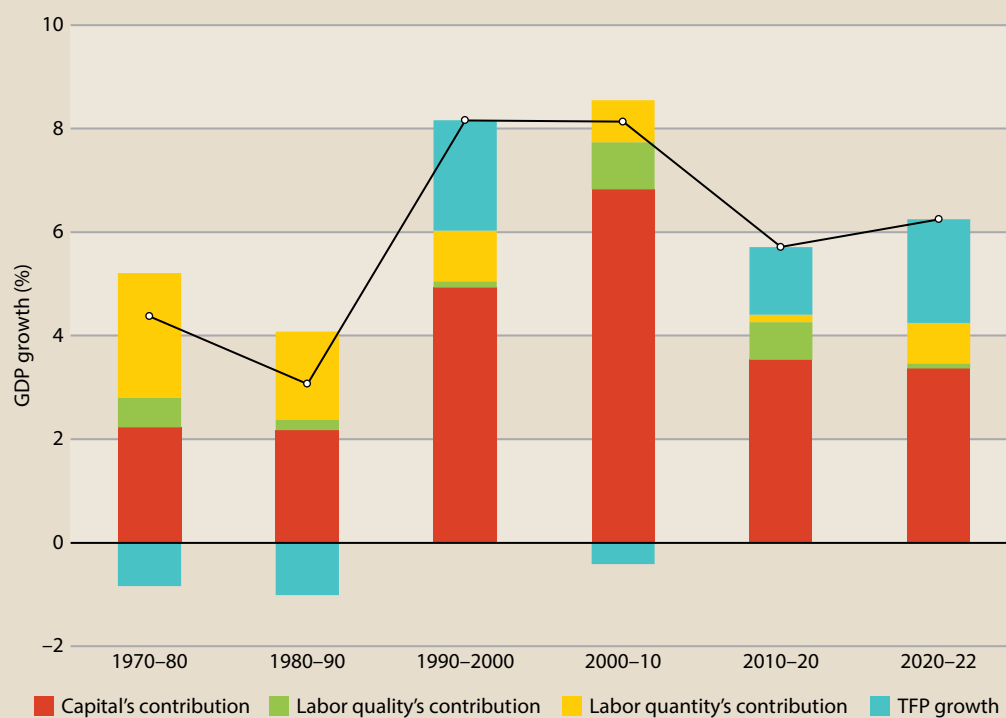
FIGURE 2

OUTPUT GROWTH AND ITS SOURCES.

Capital's contribution   Labor quality's contribution   Labor quantity's contribution   TFP growth

FIGURE 3

LABOR PRODUCTIVITY GROWTH.

FIGURE 4

TFP GROWTH.

FIGURE 5

CAPITAL PRODUCTIVITY GROWTH.
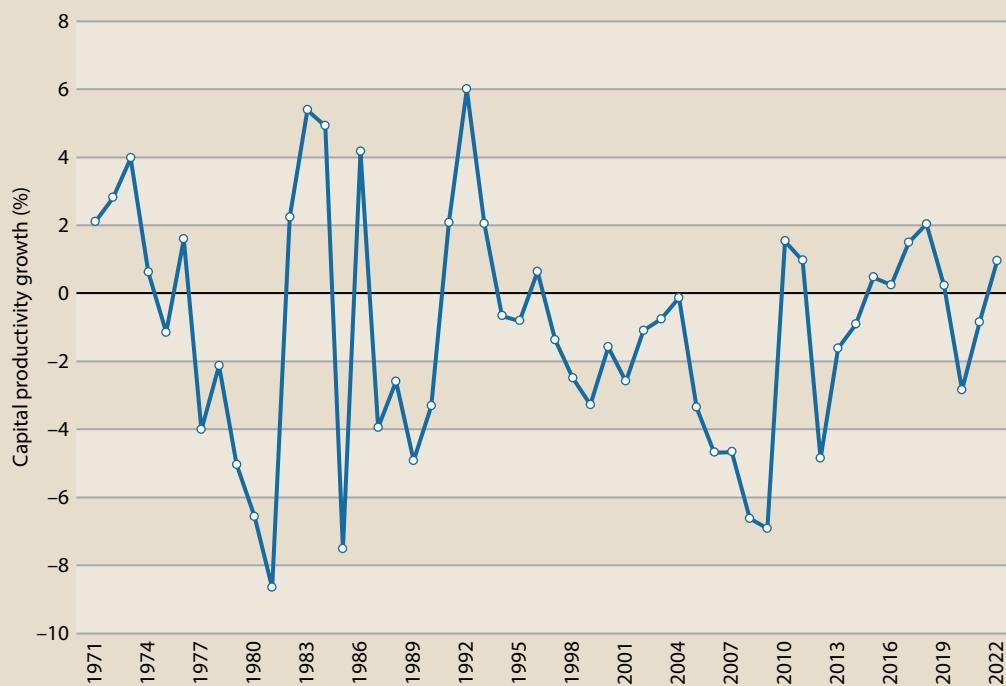
FIGURE 6

GROWTH IN CAPITAL-LABOR RATIO.
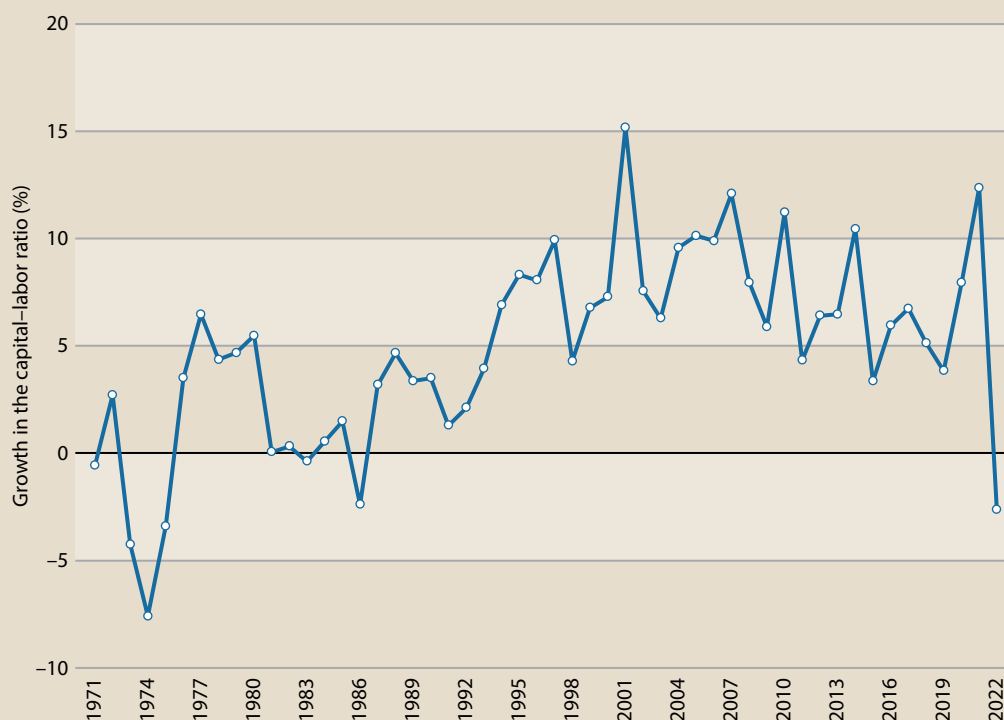
Productivity Determinants

This section reviews diagnostic indicators for the productivity determinants that were set out in Chapter 4. This section draws on the quantitative analysis of indicators in Chapter 5 and, where appropriate, the discussion of selected issues in Chapter 6.

Immediate Determinants

Indicators are available on capital intensity, human capital, knowledge, and products and markets (Table 4). Indicators on intangible capital are not available.

Vietnam's capital-to-GDP ratio declined slightly in the 2010s amidst fast growth in the country's services sector. This occurred despite significant capital deepening, including rapid accumulation of IT capital. However, workers' skills continued to increase from 2010 to 2017. Vietnam ranks 13th among APO member economies for the WEF's "current workforce" indicator, ahead of most countries in its income group. Further improvement in workforce skills and education will be needed to close gaps with the best-performing APO member economies.

Vietnam's production of medium- and high-technology goods has expanded alongside increased ICT investments and improvements in workers' skills. Vietnam performs relatively well on the Portulans Institute's NRI Technology Index (seventh ranking among APO peers), a broad measure covering indicators of internet access, mobile network coverage, creation of digital products, and ICT spending. It also scores relatively well on the NRI People Index, which tracks ICT skills and ICT usage, among broader indicators of educational attainment. However, Vietnam lags most APO member economies on the WEF's indicator for availability of new technologies.

Vietnam's structural transformation in the past decade offers an example of an effective initial phase of industrialization (ILO, 2023). Agriculture's share of employment declined from 73% to 33% during 1993–2020, while industry's share increased from 11% to 31% and that of services from 16% to 36% over the period (ILO, 2023). Trade remains vital to the performance of the economy. Both exports and imports exceed the value of Vietnam's GDP, reflecting the importance of its participation in global value chains (GVCs). Vietnam's trade-to-GDP ratio increased from 165% in 2013 to 210% in 2019, reflecting deeper integration into GVCs and digital trade expansion (WTO, 2021)

Underlying Determinants: Productivity Readiness

The analysis in Chapter 5 combines the indicators of underlying determinants into overarching indices representing motivation, capabilities, efficiency of markets, and stability (Table 5). These indices range up to 100. They give broad indications of where countries stand on productivity determinants and the overall productivity readiness.

Vietnam's estimated Productivity Readiness Index (PRI) value of 38 places it at eighth rank among 17 APO member economies in the database. This is due to the nation's rapidly improving state of domestic capital infrastructure, with sustained infrastructure investments at 10% of GDP over twelve years. This has enhanced infrastructure stocks and readiness, which are crucial for productivity growth. Moreover, Vietnam's prudence in developing analytical and digital skills among its workforce to align with global productivity trends also position it for continued growth. While other APO member economies remain higher ranked, current indicators suggest that Vietnam is set to outperform many of its regional competitors in the future.

Underlying Determinants: Specific Strengths and Weaknesses

Indicators of underlying determinants of productivity reveal the progress Vietnam has made in removing barriers to trade and investment, investing in skills and infrastructure, and strengthening institutions (Table 6). However, there remain some significant barriers to productivity growth. In particular, inefficiencies in state owned enterprises (SOEs), often linked to corruption, continue to weigh on productivity. Additionally, Vietnam's rural population has been slow to develop in comparison to urban population. Measures such as mean income inequality between rural and urban communities (VND25.08 million annually) and poor technological advancements highlight this disparity. This creates productivity drag in rural regions, an aspect of concern as over 66% of Vietnam's population remains rural.

Vietnam's education system has seen improved outcomes in recent years, scoring 63.8% on the WEF's "education attainment" indicator, slightly above the global average (WEF, 2024). However, only 20.9% of the employed population had completed primary education in 2020, and just 15.2% had completed upper secondary education (ILO, 2023). Vietnam ranked 12th among APO peers on life expectancy (74.6 years), and 10th for infant mortality rate (17.3 per 1,000).

Vietnam's socioeconomic development strategy until 2020 had the target, "Economic restructuring toward industrialization and modernization is an indispensable way for Vietnam to quickly get out of backwardness, slow development and become a civilized and modern country." In this respect, Vietnam's economic restructuring focuses on sectoral transformation to ensure modernization, efficiency, and sustainability across key sectors, namely, industry, agriculture, and services. This rapid improvement in economic development, in conjunction with the Doi Moi economic reforms in 1986, have reformed Vietnam into a "socialist oriented market economy." Current FDI inflows remain encouraging while induction into the WTO in 2007 improved.

Vietnam's FDI stock-to-GDP ratio has risen dramatically, placing it at eighth rank among 17 APO member economies. Additionally, Vietnam's KOF Financial Globalization value increased to 64.4 out of 100 in 2024. While this greater openness increases investor confidence and capital inflows, it has also left Vietnam susceptible to shocks in overseas markets. For example, Vietnam's growing trade surplus with the USA, reaching USD102 billion in the first ten months of 2024, has raised concerns about potential tariffs and trade restrictions.

In conclusion, Vietnam has made remarkable progress in improving the business climate with the aim of boosting productivity. Nonetheless, large differences still prevail between provinces, and some procedures remain cumbersome. While rapid urban economic advancements have occurred, the largely rural population is distinctly underutilized, with the Innovation Capability Index score of 36.8 out of 100 ranking Vietnam 13th among 21 APO members. It is recommended that government policy focuses on safeguarding key rural industries such as agriculture through industrial innovation and environmental economic policies.

TABLE 4.0

IMMEDIATE DETERMINANTS (STRUCTURE OF ECONOMY AND TRADE EXPOSURE).

Indicator	Source	Range	Value (2020)	APO rank (2020)	Value (2022)	APO rank (2022)
Capital/GDP ratio	Asian Productivity Organization	Open	3.5	15	3.4	13
Agriculture share of GDP (%)	Asian Productivity Organization	Open	12.6	9	11.9	9
Agriculture share of employment (%)	Asian Productivity Organization	Open	33.1	7	27.5	9
Manufacturing share of GDP (%)	Asian Productivity Organization	Open	23.9	4	24.7	4
Manufacturing share of employment (%)	Asian Productivity Organization	Open	21.1	2	23.3	2
Medium- and high-tech share of manufacturing (%)	UNIDO	Open	39.6	8	38.7	9
Exports/GDP (%)	Asian Productivity Organization	Open	84.2	3	93.8	3
Imports/GDP (%)	Asian Productivity Organization	Open	78.7	3	91.6	3

TABLE 4.1

IMMEDIATE DETERMINANTS (CAPITAL, IT, AND LABOR QUALITY).

Indicator	Source	Range	Value (2022)	APO rank (2022)	Average (2020–22)	APO rank (2020–22)
Capital deepening (pp)	Asian Productivity Organization	Open	−1.4	18	2.4	4
IT capital deepening (pp)	Asian Productivity Organization	Open	0	15	0.1	10
Labor quality contribution to LP growth	Asian Productivity Organization	Open	0.8	2	0.1	15

TABLE 4.2

IMMEDIATE DETERMINANTS (TECHNOLOGY AND SKILLS).

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Current workforce	WEF	0–100	48.3	2019	13	27.8
Entrepreneurial culture	WEF	0–100	50.4	2019	13	20
Availability of latest technologies	WEF	1–7	4	2017	18	2.3
NRI Technology index	Portulans Institute	0–100	49.3	2024	9	21.9
NRI People index	Portulans Institute	0–100	48	2024	10	31.3

TABLE 5

VALUES OF OVERARCHING INDICES FOR VIETNAM.

Index	Value	APO Rank
Motivation	39	10
Capabilities	44	8
Efficiency of markets	40	10
Stability	32	9
Productivity Readiness Index	38	8

TABLE 6

INDICATORS OF UNDERLYING DETERMINANTS.

Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
Quality of education system	WEF	1–7	3.6	2017	14	2.2
Quality of primary education	WEF	1–7	3.4	2017	16	2.8
Future workforce	WEF	0–100	65.6	2019	11	15.8
Education expenditure/ GDP (%)	World Bank	Open	2.9	2021	12	3
Innovation capability index	WEF	0–100	36.8	2019	13	43.4
KOF Informational globalisation, de facto	KOF Swiss Economic Institute	0–100	84.1	2021	7	15.9

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Indicator	Source	Range	Value	Year	APO rank	Points behind APO leader
FDI stock/GDP (%)	UNCTAD	Open	51.5	2022	8	529.5
HF Investment Freedom	Heritage Foundation	0–100	40	2024	= 15	50
Trade openness	WEF	0–100	54.3	2019	12	34.4
HF Trade Freedom	Heritage Foundation	0–100	79.8	2024	4	15.2
Services Trade Restrictions Index	World Bank, WTO	0–100	52.9	2022	7	12.7
KOF Trade globalisation	KOF Swiss Economic Institute	0–100	54.4	2021	9	41.7
KOF Trade globalisation, de jure	KOF Swiss Economic Institute	0–100	52.7	2021	10	40.3
Macroeconomic stability index	WEF	0–100	75	2019	11	25
HF Monetary Freedom	Heritage Foundation	0–100	69.3	2024	11	12.4
Gross savings/ GDP (%)	World Bank	Open	37.1	2023	4	5.6
Institutions index	WEF	0–100	49.8	2019	= 13	30.6
IMF Financial Institutions	IMF	0–1	0.4	2021	13	0.5
Political stability	World Bank WGI	−2.5 to 2.5	0	2022	10	1.5
Rule of law	World Bank WGI	−2.5 to 2.5	−0.2	2022	11	1.9
Control of corruption	World Bank WGI	−2.5 to 2.5	−0.3	2022	8	2.4
Government effectiveness	World Bank WGI	−2.5 to 2.5	0.2	2022	10	2
Social capital	WEF	0–100	48	2019	13	15.2
Voice and accountability	World Bank WGI	−2.5 to 2.5	−1.3	2022	18	2.4

Challenges Ahead

Vietnam is highly vulnerable to the impacts of climate change, with 70% of its population concentrated in coastal areas and low-lying deltas, leaving it exposed to flooding (IMF, 2024; Bangalore et al., 2018). Bangalore (2018) predicts a 13–27% increase in the number of people exposed to floods due to climate change, and highlights the more detrimental impacts for lower socioeconomic groups. Greater investment in flood protection and forward planning is needed to ensure protection of vulnerable groups from the effects of climate change.

Vietnam's authorities currently hold a target of reaching net zero emissions by 2050. However, the country's GHG emissions have increased more rapidly than GDP, making Vietnam one of the largest carbon emitters in terms of emissions-to-GDP ratio (OECD, 2023). Increased carbon emissions in future presents severe concerns, considering Vietnam's risk and exposure to the impacts of climate change. The OECD and IMF recommend adopting a consistent, long-term roadmap to reduce emissions, particularly through the creation of a carbon market and emission trading system in high-emission sectors. Progress in this direction will require the development of a green taxonomy to define carbon credits and compliance mechanisms, along with scaled-up infrastructure for renewable energy production (IMF, 2024).

While Vietnam has experienced export-led growth that relies heavily on FDI, this could present challenges in future due to the lack of integration of FDI firms in the economy. A disconnect between FDI firms and local firms in Vietnam, described as a "dual economy," limits the diffusion of technological knowledge and productivity spillovers (IMF, 2024). To address this issue, the IMF recommends structural reforms such as improving the business environment, reducing red tape and legal uncertainty, and increasing investment in human and physical capital (IMF, 2024).

Although Vietnam has been undergoing a rapid digitalization process, the market remains dominated by SOEs, with three state-owned operators controlling 95% of telecom services and limiting business dynamism (WTO, 2021). Vietnam also began the commercialization of 5G in 2020 (WTO, 2021). Sustaining productivity growth in Vietnam will require enhancing the enabling environment for its digital and AI transition. The OECD (2023) recommends allocating a greater share of resources to technical and vocational IT training, as well as on-the-job advancement of IT skills. There is also a growing need for regulatory development in digital transactions, consumer rights protection, personal data management, and emerging business models adapting to a digital future (Nguyen, 2022).

Vietnam's aging population is expected to present future labor supply challenges. While its demographic dividend is expected to last until around 2040, productivity growth will be necessary to offset losses once the dividend ends. Continuing the sectoral shift of labor from agriculture to industry and services will remain critical in ensuring output growth (Hai, 2019). Supporting innovation, improving technology and production methods, and graduating from low-cost production to technology- and knowledge-based production will be crucial (ILO, 2023). There is also a persistent gender gap in Vietnam's labor force of over 10 percentage points (ILO, 2023). Decreasing this gap by addressing gender discrimination both within the workforce and in hiring processes can help fill gaps in labor supply created by Vietnam's aging population.

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GLOSSARY

Artificial intelligence	capability of computing systems to perform tasks normally associated with human intelligence
Biodiversity	the variety of kinds of life in an area
Business environment	the combination of external conditions that influence how firms operate and make decisions, such as economic policies, legal systems, political stability and market conditions
Capital	the services of assets used in production, such as buildings, land and machinery
Capital deepening	an increase in the amount of capital used per worker (increase in capital—labor ratio)
Capital productivity	the amount of output produced per unit of capital
Catch-up	a process in which low-income and low-productivity economies achieve relatively rapid growth and thereby tend to catch up to the levels of high-income and high-productivity economies
Competition	rivalry between firms to attract customers, gain market share or secure resources
Convergence	the tendency for differences between economies in average incomes and productivity levels to reduce over time
Correlation coefficient	a measure of the extent to which period-to-period changes in two variables follow each other
Digital infrastructure	the underlying digital systems (such as broadband networks) that support connectivity and information exchange across the economy
Digitization	the process of converting information from a physical or analogue format into a digital format
Economies of scale	the cost advantages a firm experiences as it increases production, resulting in a lower cost per unit
Financial market	the marketplace where financial assets such as stocks, bonds, currencies and derivatives are sold
Foreign direct investment (FDI)	an investment made from one country into business operations or assets in another country, typically by acquiring a lasting interest such as a factory, office or stake in a company
Frontier	maximum potential output that an economy, firm or sector can achieve given current technology and resources
Gross domestic product (GDP)	a measure of the output of goods and services produced in an economy and, equally, the amount of income generated

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GDP per capita	a measure of average income in a country – its GDP divided by the total population number
General purpose technology	a technology that has widespread applications, provides platforms for other innovations and can bring fundamental change to economic and social structures
Globalization	greater interconnectedness and interdependence of economies through flows of goods, services, investment, information, technology and people
Global value chain	a network of production and trade links across economies, whereby elements of a production process are supplied by different economies
Greenhouse gas emissions	releases of gases into the atmosphere that trap heat and raise surface temperatures
Human capital	the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value to an organization or country
Immediate determinants	factors within the control of firms that affect productivity of productivity (such as investment in capital or new technology)
Industry mix	the composition or distribution of different industries within a specific economy or region, describing their relative importance or contribution to employment and output
Institutional quality	effectiveness, stability, and integrity of a country's institutions—particularly those that shape the rules, enforcement, and behavior of individuals, firms, and governments.
Investment	the purchase or creation of capital goods with the aim of increasing future production or income (also includes spending on education and research that enhances productivity growth)
Labor productivity	the rate at which output is generated per unit of labor
Noise	short-term, random fluctuations in data that do not reflect meaningful or lasting trends
Productivity	the efficiency of production as captured by the rate at which inputs are transformed into outputs
Productivity readiness	the extent to which a country has developed the factors that generate and sustain long-term productivity growth
Productivity Readiness Index	a measure of a country's productivity readiness
Property rights	the legally enforced rights to own, use, and transfer assets or resources including land, buildings, inventions or intellectual property
Regression analysis	a statistical method used to examine the relationship between one dependent variable and one or more independent variables

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Regulatory framework	the set of laws, institutions, and procedures established by governments to guide and control economic activity
Social capital	the networks, norms, and levels of trust within a society that facilitate cooperation, collective action, and the effective functioning of institutions
Structural change	a long-term shift in the fundamental composition of an economy, typically involving a reallocation of economic activity, resources, and employment across sectors
Tax burden	the total amount of taxes paid by individuals, businesses or an economy, measured as a proportion of income or GDP
Total factor productivity	the rate at which several inputs (including labor and capital) are transformed into outputs
Underlying determinants of productivity	"deeper" factors in the economy (such as the education system) that affect productivity
Universal depth	the consistency and strength of the statistical relationships between individual indicators and broader composite indexes across many economies

ABBREVIATIONS

AI	Artificial intelligence
APO	Asian Productivity Organization
ASEAN	Association of Southeast Asian Nations
GDP	Gross domestic product
EU	European Union
GVC	Global value chain
IMF	International Monetary Fund
ROK	Republic of Korea
LP	Labor productivity
OECD	Organization for Economic Cooperation and Development
PRI	Productivity Readiness Index
ROC	Republic of China
SAR	Special administrative regions (of PR China)
SE Asia	Southeast Asia
SME	Small and medium size enterprise
STRI	Services Trade Restrictive Index
TFP	Total factor productivity
USA	United States of America
WEF	World Economic Forum

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