# APO Productivity Databook 2024

# APO Productivity Databook 2024

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## Country Abbreviation

| APO21 | 21 APO member economies: |
|---|---|
| BAN | Bangladesh |
| CAM | Cambodia |
| ROC | Republic of China (ROC) |
| FIJ | Fiji |
| HKG | Hong Kong |
| IND | India |
| IDN | Indonesia |
| IRN | Islamic Republic of Iran (Iran) |
| JPN | Japan |
| KOR | Republic of Korea (Korea) |
| LAO | Lao PDR |
| MAL | Malaysia |
| MGL | Mongolia |
| NEP | Nepal |
| PAK | Pakistan |
| PHL | the Philippines |
| SIN | Singapore |
| SRI | Sri Lanka |
| THA | Thailand |
| TUR | Turkiye |
| VIE | Vietnam |

| Asia25 | APO21 plus the following four countries: |
|---|---|
| BTN | the Kingdom of Bhutan (Bhutan) |
| BRN | Brunei Darussalam (Brunei) |
| CHN | the People's Republic of China (China) |
| MYA | Myanmar |

| Asia31 | Asia25 plus the following six countries: |
|---|---|
| BHR | the Kingdom of Bahrain (Bahrain) |
| KWT | State of Kuwait (Kuwait) |
| OMN | Sultanate of Oman (Oman) |
| QAT | State of Qatar (Qatar) |
| SAU | Kingdom of Saudi Arabia (Saudi Arabia) |
| UAE | United Arab Emirates (UAE) |

| Reference | the following seven countries: |
|---|---|
| USA | United States of America (US) |
| AUS | Australia |
| NZL | New Zealand |
| GBR | United Kingdom (UK) |
| FRA | France |
| DEU | Germany |
| ITA | Italy |

*Names in brackets are used in the text.

## Abbreviation

| | |
|---|---|
| ADB | Asian Development Bank |
| ANRD | Asia Natural Resources Database |
| APO | Asian Productivity Organization |
| APO-PDB | APO Productivity Database |
| AQALI | Asia QALI Database |
| ASEAN | Association of Southeast Asian Nations: 10 countries of Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. The ASEAN is separated into two groups in Databook, i.e., the ASEAN6 and CLMV. |
| ASEAN6 | Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand |
| B&C | Building and construction |
| CLMV | Cambodia, Lao PDR, Myanmar, and Vietnam |
| CPI | Consumer price index |
| CPTPP | Comprehensive and Progressive Agreement for Trans-Pacific Partnership |
| COE | Compensation of employees |
| EITE | Energy-intensive and trade-exposed |
| EU | European Union |
| EU15 | 15 member economies of the European Union prior to enlargement: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom |
| EU27 | European Union: the EU15 (excluding the UK) plus Bulgaria, Republic of Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, and Slovenia |
| FDI | Foreign direct investment |
| FISIM | Financial intermediation services indirectly measured |
| FTAs | Free trade agreements |
| GCC | Gulf Cooperation Council: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE |
| GDP | Gross domestic product |
| GFCF | Gross fixed capital formation |
| GNI | Gross national income |
| GVC | Global value chains |
| ICP | International Comparisons Program |
| ICT | Information and communication technology |
| IDE | Institute of Developing Economies |
| ILO | International Labour Organization |
| IMF | International Monetary Fund |
| IOT | Input-Output Table |
| IPEF | Indo-Pacific Economic Framework: 14 countries of the United States, Japan, Australia, New Zealand, Republic of Korea, India, Fiji, and seven ASEAN countries (Brunei, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam) |
| IPNs | International production networks |
| IPP | Intellectual property products |
| ISIC | International Standard Industry Classification of All Economic Activities |
| JETRO | Japan External Trade Organization |
| KEO | Keio Economic Observatory, Keio University |
| LDCs | Least developed countries |
| M&E | Machinery and equipment |
| MER | Mineral and energy resources |
| NPISHs | Non-profit institutions serving households |
| OECD | Organisation for Economic Co-operation and Development |
| PPP | Purchasing power parity |
| QALI | Quality-adjusted labor inputs |
| QNA | Quarterly national accounts |
| RCEP | Regional Comprehensive Economic Partnership: 15 countries of ten ASEAN countries, Australia, China, Japan, Republic of Korea, and New Zealand |
| R&D | Research and development |
| SNA | System of National Accounts |
| SUT | Supply and Use Tables |
| TFP | Total factor productivity |
| UN | United Nations |
| UNDESA | United Nations Department of Economic and Social Affairs |
| UNSD | United Nations Statistics Division |
| WHO | World Health Organization |
| WTO | World Trade Organization |

# Foreword

The world is undergoing rapid transformations driven by technological advances, geopolitical shifts, and the lingering effects of the COVID-19 pandemic. In this changing environment, understanding and enhancing national productivity are more critical than ever. The *APO Productivity Databook 2024* represents the dedicated efforts of researchers, economists, and analysts who rigorously compile and analyze productivity data across the Asia-Pacific region.

The Asia-Pacific, with its diverse cultures and dynamic economies, faces unique challenges and opportunities. This databook serves as an essential tool for policymakers, academics, and business leaders as they navigate these complexities. The 2024 edition provides a comprehensive analysis of economic growth and productivity across various stages of development within the Asia-Pacific, covering the period from 1970 to 2022 with projections up to 2035. The data are drawn from the APO Productivity Database 2024, which includes information for 25 Asian economies and the USA for comparative analyses. Additionally, the databook features regional productivity accounts for economic groups such as the APO21, Asia25, East Asia, South Asia, CLMV, ASEAN6, IPEC, and RCEP, providing a wide range of comparisons.

Building on these analyses, this edition emphasizes the APO's ongoing efforts to support member economies as they navigate complex productivity challenges. By integrating insights from practical initiatives and research activities, the APO aims to address the diverse needs of its members. The *APO Productivity Databook 2024* serves as a key resource in this mission, offering detailed analyses that complement the APO's broader strategic goals. This synergy between the databook and APO's vision helps empower member economies to build resilience and achieve sustainable economic growth, ensuring that they are well equipped to face future challenges.

The success of this publication is rooted in the collaboration of many stakeholders. The APO expresses its deep appreciation to the Keio Economic Observatory research team at Keio University, Tokyo, for its continued partnership in researching, analyzing, and compiling this databook. The APO remains committed to working closely with national statistics offices across its members to enhance data quality and accuracy.

We hope that the *APO Productivity Databook 2024* will be a valuable resource for understanding current and future productivity trends, supporting informed decision-making, and contributing to sustainable socioeconomic development across the Asia-Pacific region and beyond.

*Dr. Indra Pradana Singawinata*
*Secretary-General*
*Asian Productivity Organization*
*Tokyo, September 2024*

# 1 Introduction



## 1.1 Databook 2024

Asia is a diverse regional economy where the countries embarked on their modern economic development path at different times and speeds. This seventeenth edition of the *APO Productivity Databook* describes the quality of economic growth and productivity by providing comparable accounts across countries with different accounting systems. This is intended to serve as a useful resource for policymakers and researchers. Productivity gains, which enable an economy to produce more with the same inputs or to achieve the same output with fewer inputs, are crucial for ensuring sustainable economic growth in the long run. Improving national productivity performance is a key public policy objective, which requires reliable monitoring of past performance. This edition covers more than half a century of Asian economic development, from 1970 to 2022. Additionally, this edition includes projections for economic growth and labor productivity improvements up to 2035.

Baseline economic growth and productivity indicators are calculated for 31 Asian economies, representing the 21 Asian Productivity Organization member economies (APO21) and the ten non-member economies in Asia.[1] The APO21 consists of Bangladesh, Cambodia, the Republic of China (ROC), Fiji, Hong Kong, India, Indonesia, the Islamic Republic of Iran (Iran), Japan, the Republic of Korea (Korea), the Lao People's Democratic Republic (Lao PDR), Malaysia, Mongolia, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand, Turkiye, and Vietnam. The ten non-member economies in Asia are the Kingdom of Bhutan (Bhutan), Brunei Darussalam (Brunei), the People's Republic of China (China), Myanmar, and the Gulf Cooperation Council (GCC), consisting of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). In addition, Australia, the European Union (EU), France, Italy, Germany, New Zealand, the United Kingdom (UK), and the United States (US) are included as reference economies.

The analyses in the Databook series rely on the comprehensive productivity accounts for Asian countries, known as the APO Productivity Database (APO-PDB). These accounts are developed through a collaborative research initiative between the APO and the Keio Economic Observatory (KEO) at Keio University, which started in 2007 and has improved with higher accuracy and an expanded measurement framework. The productivity accounts in APO-PDB 2024 are developed for the Asia25 economies, consisting of the APO21 plus Bhutan, Brunei, China, and Myanmar, along with the US as a reference economy. The Asia25 economies account for 91% of Asian GDP (in PPP terms) in 2022.

The Databook provides the sources of economic growth in each economy, that is, the contributions of capital and labor inputs and total factor productivity (TFP) to GDP growth. In addition to the productivity account in each economy, the regional growth accounts are developed in APO-PDB 2024 for eight economy groups: the ASEAN6, the APO21, Asia25, CLMV, East Asia, the IPEF, the RCEP, and South Asia.[2] In developing the regional productivity accounts, consideration is given to the price differentials among economies on outputs and capital and labor inputs. The level comparison of country outputs is based on the 2017 benchmark estimates on the purchasing power parities (PPP), published in 2020 by the International Comparisons Program (World Bank 2020).

The APO-PDB is based on official national accounts. In Asia25, the System of National Accounts 2008 (2008 SNA) by the United Nations (2009) has been introduced in 22 economies, either partially or fully (Section 8.1.1). Since the varying SNA adoptions can result in discrepancies between data definitions and

1: See the Country Abbreviation on page 8 for the list of countries and country groups.
2: ASEAN is a region of great economic disparity and social, political, and cultural diversity. The Databook separates this region into the relatively low-income CLMV (Cambodia, Lao PDR, Myanmar, and Vietnam) and the rest in ASEAN6. IPEF is the Indo-Pacific Economic Framework; RCEP is the Regional Comprehensive Economic Partnership: ASEAN, Australia, China, Japan, the Republic of Korea, and New Zealand.

coverage, data harmonization is necessary for comparative productivity analyses. The APO-PDB reconciles these national account variations based on their specific concepts and definitions. This reconciliation follows the 2008 SNA and provides harmonized estimates for better international comparison. Compared to the APO-PDB 2023 used in the previous edition of the Databook (APO 2023), several countries have made significant revisions to the official national accounts. New benchmark-year national accounts were published in Bhutan,[3] Saudi Arabia,[4] and the US.[5] The APO-PDB 2024 follows the latest estimates and constructs retrospective harmonized estimates back to 1970, using as much auxiliary information as possible.[6]


The aggregate measure of capital services is developed to analyze overall productivity performance (TFP) and productivities of specific factors (capital and labor productivities). To consider the quality changes in capital input, 23 types of assets are defined—11 produced assets (including ICT hardware and software, and R&D capital), seven types of land, inventory, and four types of mineral and energy resources (MER). Since 2020, the KEO has developed the land and MER data as part of the Asia Natural Resources Database (ANRD). Summaries of the ANRD 2024, incorporated into the APO-PDB 2024, are provided in Section 8.2.6. The APO-PDB includes low-income Asian countries. One notable feature of the stock measurement of produced assets is the consideration of damage to productive capital stocks caused by natural disasters (Section 8.2.4.)

KEO began developing a comprehensive labor database in 2013 on the number of workers, average hours worked per worker, and wages per hour worked, cross-classified by gender, educational attainment, age, and employment status. This is the Asia QALI Database (AQALI), which gives the quality-adjusted labor inputs (QALI) for all economies of Asia25 and continues to be refined and updated as countries release

3: The National Statistical Bureau (NSB) of the Royal Government of Bhutan (RGoB) released the 2017 benchmark-year national accounts in September 2023, covering 2017–2022. The revision affects GDP at current market prices, revised upwards by 5.8% in 2017 compared to the previous 2000 benchmark-year accounts. In January 2024, the NSB also published the backward estimates based on the 2017 benchmark-year national accounts back to 2000. In addition, starting in 2023, the KEO initiated a study to develop industry-level productivity accounts, which is a comprehensive revision of the estimates developed at UNDESA (Nomura 2016), with Dr. Pema Dorji and Mr. Yeshi Lhendup from the Department of Macro-Fiscal and Development Finance, Ministry of Finance, RGoB, under the Joint SDG Fund of UNDP Bhutan Office. The Databook 2024 reflects these estimates.

4: Saudi Arabia's General Authority for Statistics (GASTAT) published the 2018 benchmark-year national accounts in March 2023. This account impacts GDP at current market prices, revising it up by 3.7% in 2018 compared to the previous 2010 benchmark-year national accounts. The APO-PDB 2023 reflected only current-price estimates of the 2018 benchmark-year national accounts since 2011. In March 2024, GASTAT published retrospective estimates while revising the real values from fixed Laspeyres to chained Laspeyres ("Chain-Linked Methodology," May 10, 2024). The APO-PDB 2024 revised its historical estimates to reflect these recent revisions.

5: The Bureau of Economic Analysis (BEA), Department of Commerce, the US, published the 2017 benchmark-year national accounts in September 2023. This latest account impacts GDP at current market prices, revising it up by 0.7% in 2017 compared to the previous 2012 benchmark-year national accounts. With this update, the U.S. labor productivity measure in this edition of the Databook was revised upward because the number of workers and total hours worked were revised to be consistent with the BEA estimate, i.e., Table 6.4D. Full-Time and Part-Time Employees by Industry (September 23, 2023) and Table 6.9D. Hours Worked by Full-Time and Part-Time Employees by Industry (September 23, 2023).

6: The Bank of Korea is scheduled to release the 2020 benchmark-year national accounts in June 2024. Cambodia's new benchmark-year national accounts following the 2008 SNA will be published in July 2024. This edition of the Databook does not reflect these benchmark revisions. In addition to the benchmark revisions, the APO-PDB 2024 includes various corrections and revisions. In particular, the composition of the GFCF for India and Fiji was revised significantly by reviewing the consistency with the GFCF in the national accounts and SUT, construction data, and machinery and equipment import data.

their population census and labor statistics. Quality-adjusted is sometimes called composition-adjusted, and it refers to the effect of changes in the composition of the workforce where the different gender-education-age categories are paid different wages (Section 8.3). In APO-PDB, the AQALI results are used to identify the contribution of labor quality changes to the gross measures of TFP. APO-PDB 2024 uses the latest AQALI 2024.[7]

The structure of the Databook is as follows. Chapter 2 presents an overview of the current trends in productivity and economic growth in Asia. To understand the dynamics of the long-term economic growth within Asia, Chapter 3 details the diverse development efforts and achievements through cross-country level comparisons of GDP. Decompositions of GDP, which are defined by three approaches in SNA—production by industry, expenditure on final demand, and income to factor inputs—are valuable in understanding the structure and, in turn, the behavior of an economy. Chapter 4 presents the demand side decomposition, analyzing the sources of countries' expenditure growth.

Chapter 5 analyzes the supply-side decompositions of economic growth and provides the growth of labor productivity (output per worker and output per hour worked), capital productivity, energy productivity, and TFP in each country and region. This edition of the Databook includes estimates for 2022 as the final year. Some tables in Chapter 9 present estimates of the sub-periods reflecting the damage of the COVID-19 pandemic (2019–2020) and the recovery (2020–2022).

The different composition of economic activity among countries is one of the main sources of the vast gaps in cross-country labor productivity at the aggregate level. The comparison of industry structure is presented in Chapter 6.[8] Chapter 7 analyzes the income side of GDP by measuring real income growth and evaluating the improvement or deterioration in the terms of trade. Chapter 8 presents methodological notes on the framework and assumption used in this Databook. Some supplementary tables are provided in Chapter 9. Finally, the Appendix provides the profiles from 1970 to 2022 and our projections through 2035 for APO21 economies and the entire region.

The official national accounts and metadata information used to construct the APO-PDB 2024 have been collected by national experts in APO member economies and researchers at KEO. The contributors are listed in Section 1.2. At KEO, submitted data are examined, and the long-time productivity accounts are constructed using detailed information on labor, production, prices, trades, and taxes collected separately. Readers should consider that international comparisons of economic performance are never a precise science. Instead, they are fraught with measurement and data comparability issues. Given the limits on data availability and quality, some of the adjustments in the Databook are necessarily conjectural, while others are based on widely accepted assumptions. Despite best efforts in harmonizing data, some data uncertainty remains.

This edition effectively reflects the revisions to the official national accounts and other statistical data published through the beginning of May 2024 and the population prospects published by the United Nations (2022). The APO Productivity Databook/Database project is managed by Koji Nomura, under the consultancy of Professor W. Erwin Diewert (University of British Columbia) and Dr. Mun S. Ho (Harvard University), and with coordination by Mr. Towfiqul Islam at APO. Professor Dale W. Jorgenson, who passed away on June 8, 2022, provided invaluable guidance and encouragement as a consultant from the

7: The AQALI reports are provided by Nomura and Akashi (2017) for six South Asian countries and Nomura (2023b) for Vietnam. Section 8.3 and Box 14 provide a brief explanation. Based on this detailed data, the labor input in the Databook is decomposed into hours worked and labor quality (as a default) or college and non-college labor inputs (Box 6).

8: In constructing APO-PDB, we have comprehensively examined the problems of time-series connections of industry data in each Asian country. Nevertheless, there are still many problems with the quality of industry-level data, and we have yet to develop an industry-level productivity account at basic prices in APO-PDB that is fully consistent with the aggregate productivity account.

inception of this project. We want to express our sincere gratitude to him and our vow our intention to continue his tireless quest for better measurements. We would also like to thank Professor Fukunari Kimura [Professor Emeritus of Keio University and current President of the Institute of Developing Economies (IDE), Japan External Trade Organization (JETRO)] for his significant contribution as an author of the Databook 2013–2023. This edition's text, tables, and figures were authored by Koji Nomura and Mun S. Ho with research assistants at KEO: Sho Inaba, Shiori Nakayama, Mansaku Yoshida, Kaoru Takano, and Tomoko Nagashima. The Databook is grateful to Trina Ott for her draft review.

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# 2 Current Trends

This chapter gives an overview of the current trends in productivity and economic growth in Asia. Section 2.1 presents productivity growth trends in the region and its constituent economies from 1970 to 2022, more than half a century of rapid transformation. Following this, the subsequent three sections provide distinct facets of recent economic growth in Asia, incorporating data up to April 2024 where available: the health impact and economic impact of the COVID-19 pandemic in Section 2.2, the post-pandemic inflation trends through early 2024 in Section 2.3, and the Asian countries' dependence on China and India in Section 2.4.

## 2.1 Productivity Trends

Although COVID-19 was lingering and generated multiple waves of infection in many countries, most Asian countries aggressively captured the recovery momentum with rebounding internal and external demand. Particularly in the case of international production networks (IPNs) for machinery, firms located in East Asia quickly overcame negative supply shocks and negative demand shocks. They took advantage of "positive" demand shocks due to the worldwide demand for work-at-home and stay-at-home type products such as personal computers, displays, electric tools, and others (Kimura 2021). While facing multiple unexpected challenges, such as the shortage of semiconductors and turmoil in marine transportation, economic activity in the region was remarkably vigorous.

Table 2.1 provides the average annual growth rates of per-hour labor productivity and total factor productivity (TFP) in Asian regions and their constituent economies for four sub-periods spanning from 1970

**Table 2.1 Productivity Growth, 1970–2022**
——Growth in per-hour GDP at constant prices and total factor productivity

| | Per-hour Labor Productivity Growth | | | | TFP Growth | | | |
|---|---|---|---|---|---|---|---|---|
| | 1970–1990 | 1990–2010 | 2010–2015 | 2015–2022 | 1970–1990 | 1990–2010 | 2010–2015 | 2015–2022 |
| APO21 | 2.5 | 2.4 ↘ | 3.0 ↗ | 2.5 ↘ | 0.8 | 0.6 ↘ | 0.8 ↗ | 0.7 ↘ |
| Asia25 | 2.5 | 3.9 ↗ | 4.9 ↗ | 3.8 ↘ | 0.7 | 1.2 ↗ | 1.1 ↘ | 1.2 ↗ |
| East Asia | 2.7 | 4.3 ↗ | 5.8 ↗ | 4.4 ↘ | 1.0 | 1.4 ↗ | 1.4 ↘ | 1.5 ↗ |
| China | 3.0 | 7.8 ↗ | 7.7 ↘ | 5.6 ↘ | 1.0 | 2.7 ↗ | 1.3 ↘ | 1.7 ↗ |
| Hong Kong | 5.4 | 2.8 ↘ | 2.3 ↘ | 1.4 ↘ | 2.7 | 1.0 ↘ | 1.0 ↗ | 0.5 ↘ |
| Japan | 4.1 | 1.6 ↘ | 1.1 ↘ | −0.2 ↘ | 1.4 | 0.2 ↘ | 0.9 ↗ | −0.4 ↘ |
| Korea | 6.0 | 5.3 ↘ | 1.7 ↘ | 3.8 ↗ | 1.8 | 1.4 ↘ | 0.2 ↘ | 1.4 ↗ |
| Mongolia | 2.9 | 3.2 ↗ | 6.2 ↗ | 2.1 ↘ | −0.2 | 1.2 ↗ | 0.5 ↘ | 0.4 ↘ |
| ROC | 6.9 | 4.8 ↘ | 0.8 ↘ | 3.5 ↗ | 4.4 | 2.4 ↘ | 0.5 ↘ | 1.8 ↗ |
| South Asia | 1.9 | 4.3 ↗ | 4.7 ↗ | 3.7 ↘ | 0.5 | 1.7 ↗ | 1.4 ↘ | 1.3 ↘ |
| Bangladesh | −1.1 | 3.3 ↗ | 4.7 ↗ | 4.8 ↗ | −1.7 | 0.1 ↗ | 0.1→ | 0.0 ↘ |
| Bhutan | 3.3 | 4.4 ↗ | 6.8 ↗ | 3.1 ↘ | 1.6 | 0.2 ↘ | −0.6 ↘ | −1.2 ↘ |
| India | 2.0 | 4.7 ↗ | 5.2 ↗ | 4.0 ↘ | 0.7 | 2.1 ↗ | 1.8 ↘ | 1.6 ↘ |
| Nepal | 1.0 | 2.6 ↗ | 2.0 ↘ | 2.0→ | −1.2 | −0.4 ↗ | 0.8 ↗ | 0.2 ↘ |
| Pakistan | 3.2 | 2.8 ↘ | 1.6 ↘ | 2.0 ↗ | 1.2 | 1.0 ↘ | 1.1 ↗ | 0.9 ↘ |
| Sri Lanka | 2.4 | 4.0 ↗ | 6.5 ↗ | −0.6 ↘ | 0.7 | 2.3 ↗ | 1.1 ↘ | −4.3 ↘ |
| ASEAN | 2.7 | 3.1 ↗ | 4.1 ↗ | 3.0 ↘ | 0.8 | 0.2 ↘ | 0.5 ↗ | 0.3 ↘ |
| Brunei | −2.2 | −1.2 ↗ | −0.9 ↗ | −2.5 ↘ | −0.1 | −1.0 ↘ | −1.0→ | −1.4 ↘ |
| Cambodia | −2.3 | 2.8 ↗ | 2.5 ↘ | 2.4 ↘ | −2.5 | 0.9 ↗ | −1.9 ↘ | 0.3 ↗ |
| Indonesia | 3.4 | 2.3 ↘ | 3.9 ↗ | 2.4 ↘ | 1.4 | −0.9 ↘ | −0.9→ | −0.3 ↗ |
| Lao PDR | 1.7 | 3.2 ↗ | 2.1 ↘ | 0.8 ↘ | 0.4 | 1.3 ↗ | −1.8 ↘ | −1.2 ↗ |
| Malaysia | 3.4 | 3.2 ↘ | 3.5 ↗ | 2.6 ↘ | 1.0 | 0.7 ↘ | 2.5 ↗ | 0.8 ↘ |
| Myanmar | 1.6 | 3.6 ↗ | 4.8 ↗ | 4.3 ↘ | −0.9 | 0.3 ↗ | −0.8 ↘ | 1.2 ↗ |
| Philippines | 1.1 | 2.1 ↗ | 3.8 ↗ | 2.8 ↘ | −0.9 | 0.7 ↗ | 0.4 ↘ | −0.2 ↘ |
| Singapore | 3.4 | 3.2 ↘ | 2.1 ↘ | 3.3 ↗ | 0.7 | 1.2 ↗ | 0.3 ↘ | 1.1 ↗ |
| Thailand | 3.4 | 3.7 ↗ | 4.8 ↗ | 2.6 ↘ | 0.4 | −0.4 ↘ | 0.6 ↗ | 0.2 ↘ |
| Vietnam | 0.0 | 5.9 ↗ | 4.8 ↘ | 5.6 ↗ | −0.9 | 0.9 ↗ | 0.9→ | 1.8 ↗ |
| Other Asia | 1.0 | 2.6 ↗ | 2.0 ↘ | 2.7 ↗ | 0.1 | 0.4 ↗ | 0.2 ↘ | 0.7 ↗ |
| Fiji | 0.6 | 0.3 ↘ | 2.6 ↗ | 0.1 ↘ | −1.1 | −0.2 ↗ | 2.8 ↗ | −0.1 ↘ |
| Iran | 0.1 | 2.8 ↗ | −1.5 ↘ | 1.1 ↗ | −0.3 | 1.4 ↗ | −2.6 ↘ | 0.5 ↗ |
| Turkiye | 1.6 | 2.5 ↗ | 4.2 ↗ | 3.5 ↘ | −0.4 | −0.5→ | 1.6 ↗ | 0.4 ↘ |
| US | 1.5 | 1.9 ↗ | 0.4 ↘ | 1.1 ↗ | 0.7 | 0.7→ | 0.3 ↘ | 0.4 ↗ |

Unit: Percentage (average annual growth rate).
Source: APO Productivity Database 2024. Notes: Arrows indicate changes compared to the preceding period. See Table 9.11 and Table 9.12 for growth rates every five years since 1990.

to 2022. The productivity trends in the recent period (2015–2022), encompassing both pandemic damage and recovery phases, demonstrate notable improvement compared to the preceding period (2010–2015), particularly in the ROC, Korea, and Singapore. These countries adapted to the "positive" demand shocks induced by the pandemic. There was a significant acceleration of their labor productivity growth between 2010–2015 and 2015–2022. Specifically, labor productivity surged in ROC from 0.8% to 3.5%, Korea from 1.7% to 3.8%, and Singapore from 2.1% to 3.3%.

The substantial enhancement in labor productivity following the pandemic demand shocks can be attributed largely to significant improvements in TFP rather than merely higher capital accumulation. TFP growth during the same period experienced substantial expansion, with rates increasing from 0.5% to 1.8% in ROC, from 0.2% to 1.4% in Korea, and from 0.3% to 1.1% in Singapore across these two subperiods. Particularly noteworthy is Singapore's remarkable TFP improvement in 2015–2022, surpassing the experiences of the past half-century.

China also experienced positive effects from the demand shocks induced by the pandemic with its TFP growth rate increasing from 1.3% in 2010–2015 to 1.7% in 2015–2022. However, labor productivity improvement decelerated from 7.7% to 5.6% over the same period. This deceleration partly is attributed to implementing the zero-COVID policy, which officially ended on January 8, 2023. Moreover, the repercussions of China's economic growth slowdown, such as the decline in real estate prices, may not have been exhausted. The combination of China's slowdown and the stagnation of labor productivity improvement in Japan has contributed to a region-wide deceleration in labor productivity growth across East Asia from 5.8% in 2010–2015 to 4.4% in 2015–2022.

The economic repercussions of COVID-19 were notably severe in South Asia, with TFP growth during 2015–2022 at 1.3%, a decline from 1.7% in 1990–2010 and 1.4% in 2010–2015. Labor productivity growth also experienced a slowdown, dropping from 4.7% in 2010–2015 to 3.7% in 2015–2022, with exceptions in Pakistan and Bangladesh. This deceleration was particularly pronounced in Bhutan, where the zero-COVID policy had a more adverse impact (Figure 2.3), and in Sri Lanka, which defaulted in May 2022.[9]

TFP growth for the ASEAN region decelerated from 0.5% in 2010–2015 to 0.3% in 2015–2022, while labor productivity growth slowed from 4.1% to 3.0%. However, among the 10 ASEAN countries, Vietnam had remarkable productivity improvement, in addition to Singapore described above. Vietnam's TFP growth surged from 0.9% to 1.8% over this period, marking a substantial increase compared to its performance over the past half-century. During this period, Vietnam also witnessed an acceleration in labor productivity improvement, climbing from 4.8% to 5.6%. This enhancement of productivity could be largely attributed to the US-China decoupling as Vietnam expanded its exports to the US while strengthening its upstream trade and investment ties with China (Figure 2.10).[10]

9: On July 5, 2022, Sri Lanka's Prime Minister Ranil Wickremesinghe told parliament that the country was bankrupt. The declaration underscored Sri Lanka's dire economic situation, with the government facing foreign exchange shortages and a fiscal crisis. As a result, the Sri Lankan government sought assistance from the IMF. The IMF approved a 48-month extended arrangement under the Extended Fund Facility of approximately USD 3 billion on March 20, 2023, as detailed in IMF Country Report No. 23/116. This approval was critical as it gave Sri Lanka significant financial resources to implement fiscal reforms and improve economic policies.

10: McKinsey Global Institute (Seong et al. 2024) argues that there are two possible interpretations for these changes. First, the US shift to imports from Vietnam is merely a detour in goods flow from China, with limited value added in Vietnam. China and the US remain interconnected, but the supply chain will be longer and more opaque, resulting in greater macroeconomic costs. Second, this shift may be the first step toward Vietnam's emergence as a major global supplier in some commodities, adding substantial value throughout the value chain far beyond final assembly.

Cambodia is another country that has demonstrated remarkable productivity growth. Notably, over half of Cambodia's manufacturing sector comprises textiles, wearing apparel, and leather products (Figure 6.3). Hayakawa (2022) and Kumagai et al. (2023) at IDE-JETRO argued that in these industries, as well as food processing, the US-China decoupling could benefit certain ASEAN countries. Rodrik and Stiglitz (2024) highlight that skill- and capital-biased technological changes in manufacturing undermine the comparative advantage of low-income economies in traditional labor-intensive manufacturing, potentially reducing the effectiveness of the export-oriented industrialization (EOI) model. However, as presented in Table 2.1 and Figure 2.10 in Section 2.4, recent productivity advancements in countries such as Vietnam and Cambodia suggest that the EOI model retains relevance.

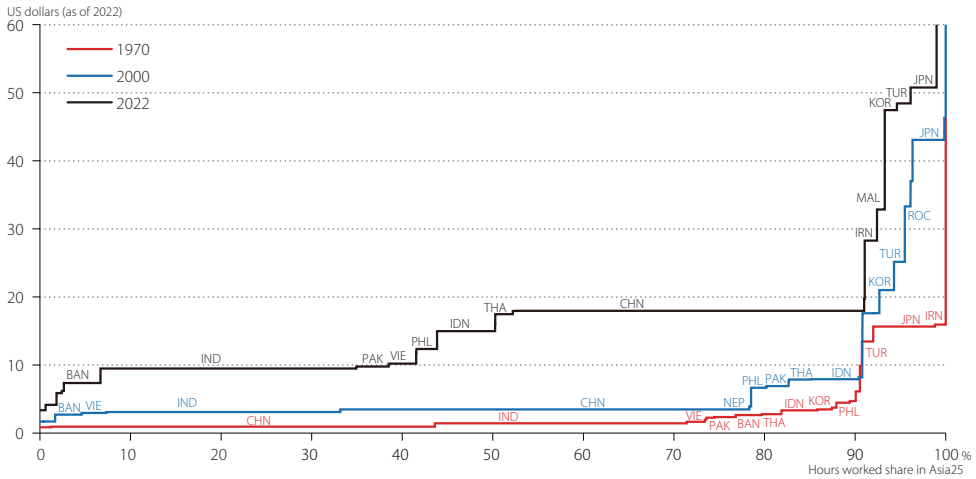


**Figure 2.1 Productivity Distributions and Dynamics in Asia, 1970, 2000, and 2022**
—GDP per hour (using 2017 PPP), the reference year 2022, and country's share of hours worked in Asia25

Unit: US dollar per hour and percentage (share of hours worked). Source: APO Productivity Database 2024.

The potential for improving labor productivity in Asian countries is significant. Figure 2.1 depicts the per-hour labor productivity levels at constant prices on the vertical axis and the share of hours worked on the horizontal axis across Asia25 countries in 2022. The figure also shows how these productivities have improved from 1970 and 2000. The area below each line, which indicates the regional average labor productivity, improved from $3.0 per hour worked in 1970 to $6.6 in 2000 and to $17.4 in 2022, measured in constant 2022 US dollars (Table 9.10). These impressive labor productivity improvements over this half-century came during a period of population growth when the total hours worked in Asia25 rose from 1.7 trillion hours in 1970 to 3.4 trillion in 2000 and 4.0 trillion in 2022. This combination pushed the Asia25 real GDP from $5.2 trillion to $23.3 trillion, and $70.0 trillion in the respective years (Table 9.2).

The 5.6-fold increase in average Asia25 labor productivity over the past half-century is largely due to a marked narrowing of the productivity gap over this period, as indicated by changes in the shape of the productivity distribution in Figure 2.1. The share of Asian hours worked that reached less than $10 per hour constituted 91% of the total hours worked in Asia25 in 1970 and 2000, but this proportion fell to 38% in 2022 when many regions achieved higher productivity levels. Nevertheless, the labor surplus population in Asia25 is estimated to exceed three hundred million by a simple calculation discussed later in Chapter 6 (Figure 6.10). There remains significant potential for catch-up within the Asian region, with regional average labor productivity of $23.3 in East Asia compared to $14.8 in ASEAN and $9.8 in South Asia (Table 9.10). The big spread of productivities in 2022 is quite clear in the top line in Figure 2.1.

## 2.2 Economic and Health Dynamics of COVID-19

While the COVID-19 pandemic was a significant tragedy worldwide, the health impacts of the pandemic varied greatly among countries. The Technical Advisory Group for COVID-19 Mortality Assessment in the World Health Organization (WHO) and the United Nations Department of Economic and Social Affairs (UNDESA) calculated "excess mortality" as the difference between the number of deaths that have occurred and the number that would be expected in the absence of the pandemic, based on data from earlier years, to make a comparison with the confirmed COVID-19 deaths.[11]

Figure 2.2 compares the cumulative confirmed COVID-19 deaths and estimated excess deaths per thousand people as of December 31, 2021, for Asian countries and regions and the reference countries. Countries are sorted based on the estimated excess deaths per thousand. As for the confirmed COVID-19 deaths, the UK is the highest among countries, with 2.6 deaths per thousand, followed by the US (2.4), Italy (2.3), France (1.8), Iran (1.5), and Germany (1.4). On the other hand, the estimated excess deaths per thousand are the highest in Indonesia, with 3.9 deaths per thousand, followed by India (3.4), Iran (3.4), and Italy (3.1). Estimated excess deaths may be higher than confirmed COVID-19 deaths if, for example, COVID-19 deaths are not counted as such but attributed to other causes, or insufficient treatments are provided for patients with other diseases or injuries in overburdened health systems. The countries with estimated excess death rates higher than confirmed rates are represented by full color bars in Figure 2.2. Some countries such as Indonesia, India, Iran, Turkiye, and the Philippines recorded large gaps. This likely reflects the under-reporting of COVID-19 deaths and the overburdened hospitals and healthcare facilities. Strengthening the healthcare systems should be a priority for these countries.

On the other hand, the estimated excess deaths can be less than the confirmed COVID-19 deaths if restricted human mobility reduces the risks of traffic accidents, occupational injuries, or the infection of other diseases. These are represented in white bars in Figure 2.2. In Asia, the number of estimated excess deaths is negative in Bhutan with –0.4 deaths per thousand, Vietnam (–0.4), Sri Lanka (–0.3), and almost zero in China and Japan. These countries have successfully controlled the transmission of the COVID-19 virus, at least in terms of public health.

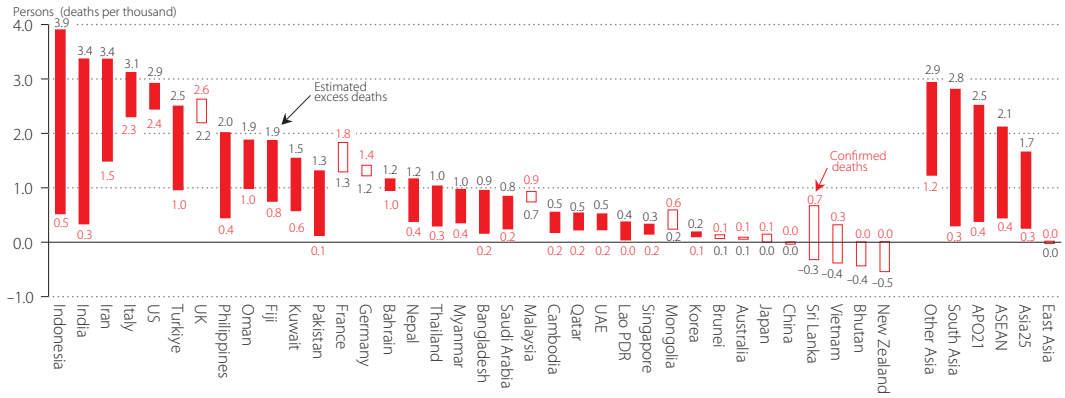


**Figure 2.2 Cumulative Confirmed COVID-19 Deaths and Estimated Excess Deaths**

Unit: Persons (deaths per thousand). Sources: WHO COVID-19 Dashboard (accessed on May 29, 2024) and WHO Estimates of Excess Mortality Associated with COVID-19 (May 19, 2023) for estimates of COVID-19 deaths; World Bank Open Data for population. Notes: Cumulative confirmed deaths and estimated excess deaths as of December 31, 2021. Numbers in black are estimated excess death rates and red for confirmed deaths. The full colored bars are for countries where the estimated rate is higher than the confirmed rate while white bars have higher confirmed rates.

11: Msemburi et al. (2023) at WHO estimates 14.83 million excess deaths worldwide, 2.74 times the 5.42 million confirmed deaths from COVID-19 for 2020 and 2021 reported to WHO.

The economic impact of COVID-19 also varied greatly among countries, during both damage and recovery phases. Figure 2.3 shows how the GDP growth rates changed in relation to the excess death rate. The vertical axis shows the changes in economic growth during the damage phase from 2019 to 2020 and the recovery phase from 2020 to 2022, defined as the differences from the pre-pandemic average from 2015 to 2019, and the horizontal axis gives the estimated excess deaths per thousand in 2020 and 2021. The tail of the arrow gives the growth gap during the damage phase and the tip of the arrow gives the growth gap in the recovery phase. The black arrows show the change for the countries with positive excess death rates and the red arrows for countries with negative excess deaths. In the COVID-19 damage phase (2019–2020), the US and European countries recorded significant excess deaths (from 1.0 to 2.0 deaths per thousand in Italy, the US, and the UK) and worse rates of economic growth deterioration (from negative 5 to 15 percentage points in these countries), located in the fourth quadrant in Figure 2.3.

In contrast, most Asian countries have been relatively successful in containing the outbreak (with slightly positive or rather negative excess deaths due to restraints on movement), except for India, Indonesia, Pakistan, and Turkiye, which recorded negative impacts on economic growth, similar to Western countries. Thus, in the 2020 COVID-19 damage phase, 10 economies of Asia25 are in the third quadrant, depicted in red in Figure 2.3, and six countries are in the fourth quadrant near the y-axis with low excess deaths.

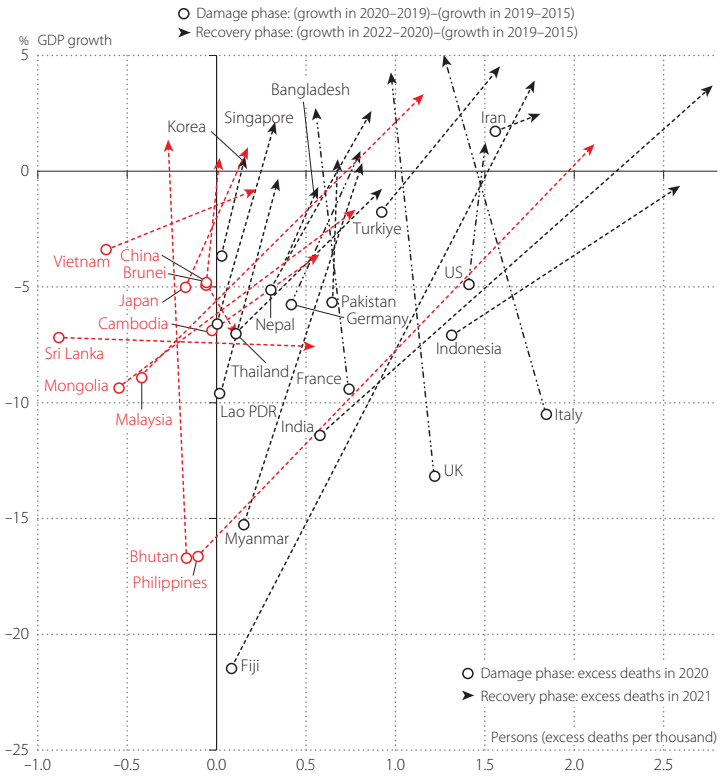


**Figure 2.3 Excess Deaths and Economic Growth in Pandemic Damage and Recovery Phases**

——Flow of excess death and growth in GDP at constant prices

Unit: Excess deaths per thousand and annual growth rates in percentage. Sources: WHO Estimates of Excess Mortality Associated with COVID-19 (May 19, 2023), World Bank Open Data, and official national accounts in each country, including adjustments by APO-PDB. Notes: Excess deaths are measured in 2020 for the damage phase and 2021 for the recovery phase. The economic impacts are the growth rate from 2019 to 2020 for the damage phase and the average annual growth rate between 2020 and 2022 for the recovery phase.

Although COVID-19 was lingering and generated multiple waves of infection in many countries over the 2020–2022 period, many countries captured recovery momentum from rebounding internal and external demand in 2021. The US and European countries saw their excess deaths remain almost the same or decrease slightly in 2021, but they have adapted well as economies, with their growth rates turning positive as an average for 2020–2022. Such countries shifted from the fourth to the first quadrant in Figure 2.3 (from the tail to the tip of the black arrows).

Meanwhile, the economic growth rates of Asian countries also recovered, but oddly enough, the number of excess deaths increased significantly between 2020 and 2021. Hence, many Asian countries shifted

from the third to the first quadrant. This may be partly due to the emergence of mutant variants, which deepened the pandemic in 2021. Still, in some countries, the lack of exercise—due to excessive government-imposed restraint in some countries—may have caused health problems, especially among older people (Tanaka, Son, and Iijima 2023). Looking back at the COVID-19 pandemic experience, in Asian countries moving from the third quadrant to the first quadrant, excessive policies of restraint may have led to unnecessary losses of economic growth and human resources.

## 2.3 Post-Pandemic and War Inflation

Since the onset of the pandemic in early 2020, food prices have consistently risen due to supply chain disruptions and increased transportation costs. One emerging concern in the post-pandemic period has been repercussions of macroeconomic management, particularly in developed countries. The US pursued a large transfer and stimulus program to counter the COVID-19 effects, which arguably contributed significantly to inflation there. Additionally, the outbreak of the Russia-Ukraine War in February 2022 resulted in cost-push inflation, particularly in food and energy, which quickly spread worldwide. For newly developed and developing countries in Asia, inflation posed a significant obstacle during the recovery period and remains a constraint on future sustainable growth as authorities pursue tight monetary policies.

Figure 2.4 presents the monthly prices of final energy consumption for eight industrialized countries from January 2020 to March 2024, with forecasts up to December 2024, based on the updated estimates of the quality-adjusted energy prices by the Multilateral Energy Cost Monitoring program (Nomura and Inaba 2024). The pandemic-induced sharp decline in energy demand reduced energy prices in 2020. Since late 2020, however, high fossil fuel prices have significantly impacted the global economy due to the demand recovery following the pandemic. The Russia-Ukraine War has further exacerbated this situation. Subsequently, energy prices in the U.S. started to decrease early in the second quarter of 2022. In contrast, Germany and the UK experienced ongoing increases, reaching their peaks that were nearly double that of 2015 in the third quarter of 2022. The price hikes have notably raised the real energy cost, particularly in Germany, and have significantly impacted domestic production in energy-intensive industries (Box 1).

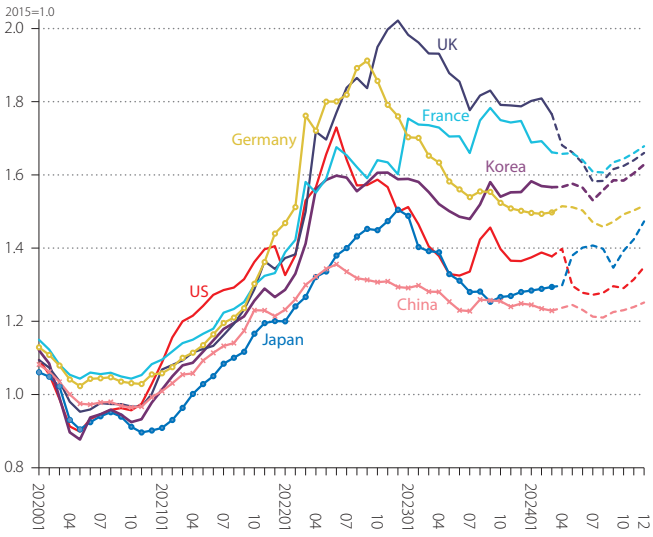


**Figure 2.4 Monthly Energy Prices, January 2020–March 2024**
——Quality-adjusted Price Index for Final Energy Consumption

Unit: Index (average price at local currency unit in 2015=1.0 in each country). Source: Updated estimates of Nomura and Inaba (2024). Notes: The energy prices are defined as the quality-adjusted price of final energy consumption using the Translog index. The prices are seasonally adjusted and include taxes and subsidies. The dotted line represents forecasts for April–December 2024.

In Asian countries such as China, Japan, and Korea, energy prices have remained relatively stable even at the peak of the energy price spike, largely due to explicit subsidies and implicit subsidies, such as large losses recorded by state-owned, or strongly state-regulated, power companies. Especially in emerging and developing Asian countries, raising energy prices to reflect rising fossil fuel costs has been politically difficult. In February 2024, even in many of the major industrial countries compared in Figure 2.4, energy prices are highly stable at 1.2 to 1.8 times 2015 prices. High and stable energy prices and the additional cost burden of low-carbon initiatives could significantly impact the pace of industrialization in Asia.

The Russia-Ukraine War has created substantial changes in trade flows. Figure 2.5 shows the change in nominal value of imports from Russia by Asian countries and some reference countries between 2021 and 2023 (in log scale). The bubble size indicates the exchange rate-based GDP at market prices in 2022. In total for the economies presented in Figure 2.5, nominal imports from Russia increased by 4% during this period, but polarization is evident. The UK and Australia reduced their imports from Russia by 98%, while the US, Germany, and Italy reduced their imports from Russia by more than 80%. In Asia, Japan and Korea halved their imports from Russia. On the other hand, India's imports increased by 7.7 times,[12] Hong Kong by 5.9 times, Sri Lanka by 2.3 times, Malaysia by 2.1 times, and Indonesia by 94%. China, the largest trading partner of Russia, also saw a 62% increase in this period. Asia becomes a "vent for surplus" of Russian exports including energy.

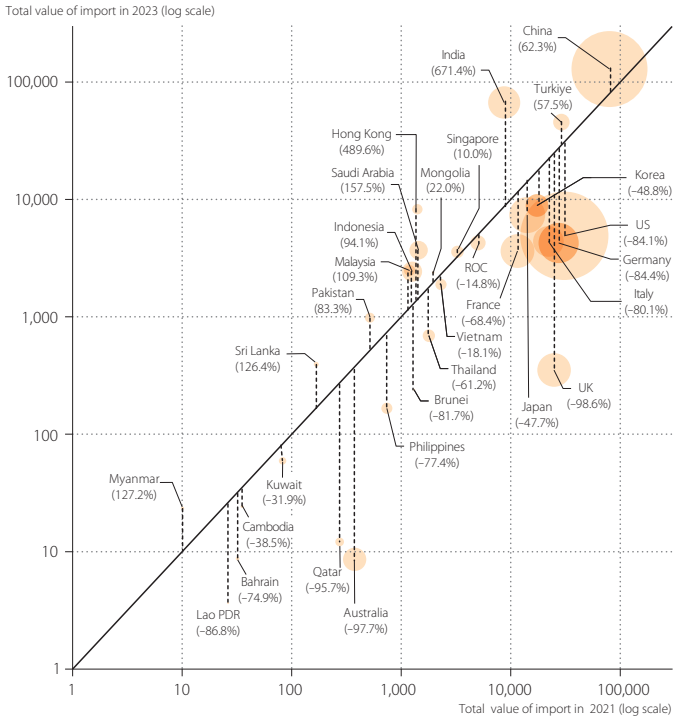


**Figure 2.5 Russia's Trade Partner Shift through the Russia-Ukraine War, 2021–2023**

Unit: Millions of US dollars. Sources: The United Nations Comtrade Database (accessed May 31, 2024), ASEAN Statistics Division, and official trade statistics in Bahrain, Korea, Kuwait, Mongolia, Pakistan, Qatar, ROC, and Saudi Arabia. Note: Both axes are logarithmic scales with base 10. Numbers in parentheses are the total import value growth rate from 2021 to 2023.

Figure 2.6 shows the monthly evolution of wheat and rice import prices in Asia from January 2020 to December 2023. The spike in wheat prices caused by the Russia-Ukraine war is clear, peaking in October 2022. Rice prices are more important for evaluating food prices in Asia, but fortunately, unlike wheat prices, they have remained stable through late 2022. However, while wheat prices fall from late 2022, rice prices start to rise in early 2023 due to the drought caused by El Niño (Bank of Thailand 2023)[13] and a ban on non-basmati white rice exports by India, the world's largest rice exporter, in July 2023 (Bardhan 2024). Both wheat and rice are currently 20–30% higher than pre-pandemic levels.

12: Most of India's fastest-growing imports are crude oil, with HS-27: Mineral fuels, mineral oils and products accounting for 88% of India's import in 2023.

13: Bank of Thailand (2023, Box 2) indicates that, because of El Niño, rainfall in Thailand from June to August in 2023 has been 15% lower than historical levels. This would likely result in crop output declining by 0.9 % in the second half of 2023 and 5.4 % in the first half of 2024 compared to the previous year.

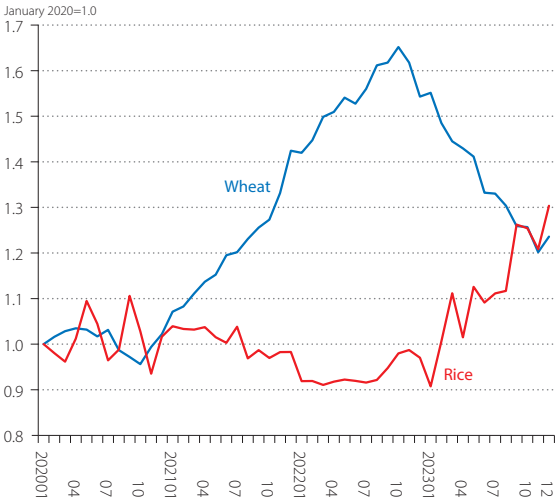


**Figure 2.6 Wheat and Rice Import Prices in Asia, January 2020–December 2023**

Unit: Index (January 2020=1.0). Source: The United Nations Comtrade Database (accessed May 25, 2024). Notes: The import prices are aggregated using the previous-year-weighted Laspeyres index. The wheat price is aggregated from import prices in seven countries: China (the nominal share is 43.6% in 2023), Japan (19.6%), Vietnam (15.8%), Thailand (13.5%), Malaysia (6.0%), Myanmar (1.5%), and Hong Kong (0.0%). The rice price is aggregated from import prices in eight countries: the Philippines (30.6%), China (26.4%), Malaysia (15.2%), Japan (13.9%), Turkiye (9.1%), Hong Kong (4.4%), Thailand (0.2%), and India (0.1%).

The risk of post-pandemic food inflation has not ended. It continues to threaten to exacerbate poverty and impede economic growth in low- and middle-income Asian countries; food is a big share of consumption among the poor with Engel's coefficients ranging from 30% to 50% (Figure 4.5). Although the post-pandemic price hikes have already peaked for energy and food prices, the price level remains high. Asian developing countries must carefully watch the commodity markets and maintain external balance to avoid big shocks to social welfare.

## Box 1 Post-Pandemic Surge of Real Unit Energy Cost

The global drive to achieve carbon neutrality by mid-century by high and middle-income countries is expected to unlock growth opportunities for companies with advantages in green technologies. While this demand-side effect of the energy transition seems to offer promising prospects to some sectors, it is critical to consider the risks on the supply side—higher energy costs for energy-intensive sectors from low-carbon policies may hurt price competitiveness relative to suppliers in countries with low or no carbon prices.

The overall energy cost burden relative to aggregate output (GDP) is measured as the Real Unit Energy Cost (RUEC). It serves as an indicator of economic vulnerability to energy price increases. The RUEC can indicate the country's challenges in implementing ambitious green policies in the energy transition context. Countries with higher nominal energy prices, lower output prices, more energy-intensive industries, and lower energy productivity tend to have higher RUECs. These countries may struggle to manage the high-cost burden associated with the energy transition. The post-pandemic surge in energy prices provided an unexpected lesson in these dynamics.

Nomura and Inaba (2024) developed quarterly energy cost indicators, including RUECs, in their multilateral ECM system covering eight industrialized countries: China, Japan, and Korea in Asia, France, Germany, and Italy in the EU, the UK, and the US. They define the RUEC as the share of national final energy cost in GDP, and Figure 2.7 compares the RUEC of seven countries (excluding Italy, which is in the revision process) from the first quarter of 2015 to the first quarter of 2024 and gives a forecast for the fourth quarter of 2024. In mid-2020, the RUECs were between 5% and 11% for these countries. All countries experienced a sharp increase in RUEC in Q1 2021–Q3 2022, followed by a decline from late 2022 to 2023. The biggest post-pandemic RUEC surge was in Germany. The German RUEC peaked in the third quarter of 2022 at 1.48 times the pre-pandemic average (2015–2019) and then declined through the beginning of 2024.

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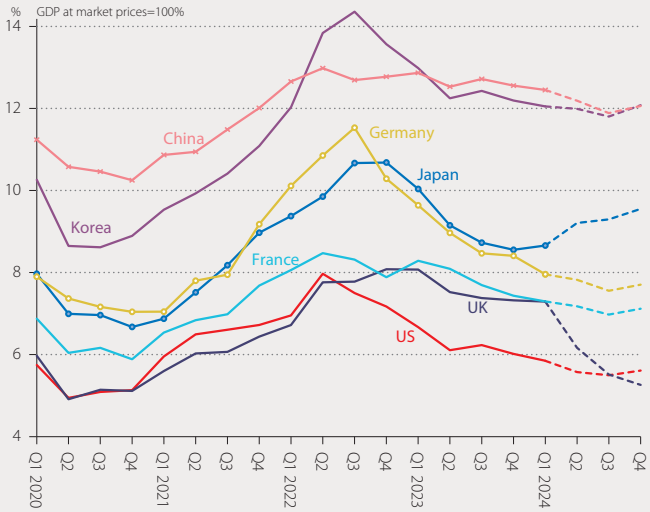



**Figure 2.7 Real Unit Energy Cost in Eight Industrialized Countries, Q1 2020–Q4 2024**

Unit: Percentage (ratio to GDP at current market prices). Source: Updated estimates of Nomura and Inaba (2024). Notes: The dotted line represents forecasts for Q2–Q4 in 2024. The prices are seasonally adjusted and include taxes and subsidies; volumes are seasonally adjusted.

In Germany, this rapid increase in RUEC was accompanied by a 20% reduction in energy-intensive and trade-exposed (EITE) manufacturing output between the fourth quarter of 2021 and the first quarter of 2024. Figure 2.8 shows the monthly change in output of the EITE group between January 2020 and May 2024; the different colors of each bar give the contributions of the five industries to the total EITE output volume change. The iron and steel manufacturing sector did not recover from the pandemic, and output continued to fall. From the mid-2022 peak of RUEC (Figure 2.7), chemical manufacturing, a cornerstone of the German economy, has reduced production significantly. This decline can be attributed to the rapid increase in natural gas prices in Germany resulting from the loss of gas supply from Russia, exacerbated by the economic slowdown in China, a key trading partner. Paper and paper products manufacturing also witnessed substantial declines in production from mid-2022. Output reductions extended to the glass and glass products and cement manufacturing sectors from mid-2023 onwards.

Although the RUEC has gradually declined in Germany from the fourth quarter of 2022 (from 48% above pre-pandemic levels in the fourth quarter of 2022 to 8% above in the first quarter of 2024), the downward trend in German EITE manufacturing output has not diminished. This sustained decline poses a long-term challenge to German economic growth, even though the energy cost surge has eased.

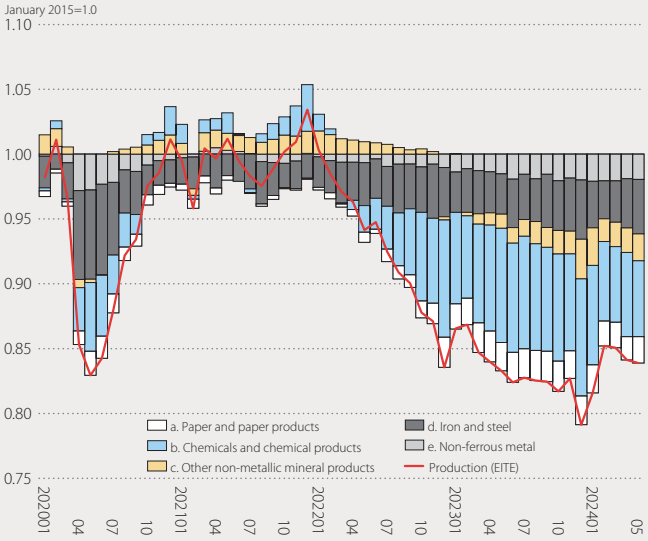



**Figure 2.8 Decline in EITE Manufacturing Output in Germany, January 2020–May 2024**

Unit: Index (January 2015=1.0). Period: January 2020–May 2024. Source: Updated estimates of Nomura and Inaba (2024), based on Statistisches Bundesamt (Destatis) *German National Accounts*, *Cost Structure Survey in Manufacturing, Mining and Quarrying*, and *Indices of Production in Manufacturing*. Note: The industry contribution is based on the Translog index using the previous year's output value share.

## 2.4 China's Slowdown and India's Rise



The world is closely watching the slowdown in China's economic growth and the possibility of the Indian economy becoming the world's largest growth engine.[14] In the second quarter of 2022, China's economic growth temporarily slowed to 0.4% year-on-year, mainly due to the zero-COVID policy that shut down cities such as Shanghai. Excluding this quarter, the Chinese economy generally maintained 4–6% growth from the third quarter of 2021 through the first quarter of 2024. Compared to pre-pandemic levels, the recent growth represents a modest slowdown of about one percentage point yearly. However, while real estate prices in China have declined significantly, with used housing prices falling by more than 10% between mid-2021 and the end of 2023, these declines in housing transaction prices may have been understated by government regulations on sales prices. While the Chinese government has been quick to act,[15] there are concerns that the economic downturn could be prolonged, as it was in Japan in the early 1990s.

The official national accounts indicate that China's growth slowdown is relatively modest. Still, the real estate crisis and the resulting downturn in consumer demand could significantly slow economic growth in Asian countries that are highly dependent on the Chinese economy. Figure 2.9 shows exports to China as a percentage of the GDP of Asian countries over two sub-periods. On average, from 2015 to 2022, eight countries (excluding Hong Kong)—Mongolia, Myanmar, Singapore, the ROC, Vietnam, Korea, Lao PDR, and Malaysia—depended on exports to China for more than 8% of GDP. Compared to the early 2010s, Mongolia and five ASEAN countries, i.e., Myanmar, Vietnam, Lao PDR, Brunei, and Cambodia, significantly increased their export dependence on China since the late 2010s.

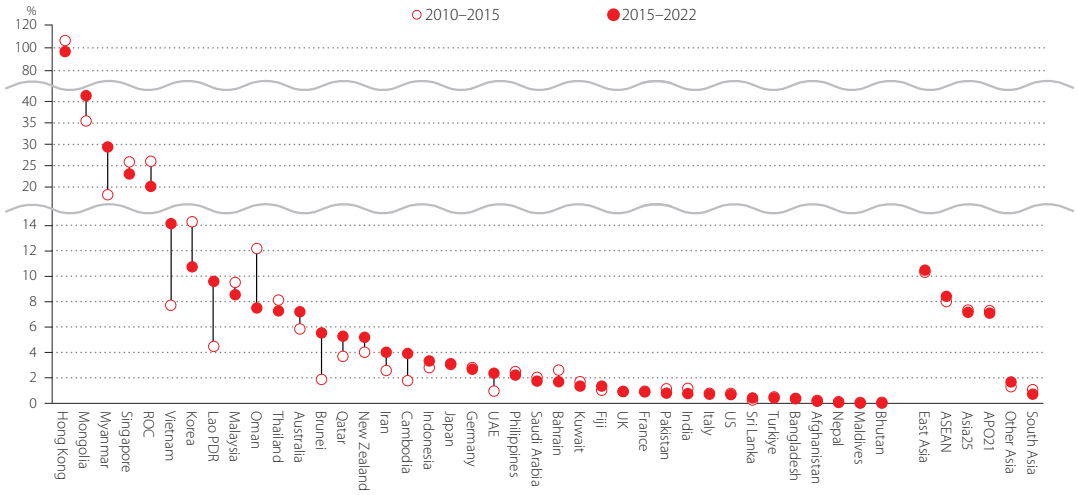



**Figure 2.9 Export Dependence to China, 2010–2022**
——Export to China as a share of GDP at current market prices

Unit: Percentage (GDP at current market prices=1.0 in each country). Sources: Official national accounts in each country (including adjustments by APO-PDB) and the United Nations Comtrade Database (accessed on May 25, 2024). Note: East Asia in the regional block on the right side of this figure shows relations with countries other than China.

14: According to the Bloomberg base case scenario, India's economic growth will accelerate to 9% by the end of the 2020s, while China's will slow to 3.5%, resulting in India overtaking China as the world's largest growth engine by 2028 ("How India Can Take China's Growth Crown," *Bloomberg*, April 8, 2024). Our projection is that this happens later, in 2034 (Figure 3.7b).

15: China appears to be considering an unprecedentedly ambitious attempt to rescue its ailing property market by having local governments buy up millions of unsold homes ("China Considers Government Buying of Unsold Homes to Save Property Market," *Bloomberg*, May 15, 2024).

Figure 2.10 plots on the horizontal axis the long-term and period-averaged trade dependence on China, which is defined as the ratio of the China trade volume to GDP at market prices, for 2010–2015 and 2015–2022 (trade volume is the sum of exports to, and imports from, China). The vertical axis gives the TFP growth rate for the respective periods. In the 2000s, Malaysia and Thailand recorded positive TFP growth rates with over 10% trade dependence on China. However, many countries, including Malaysia and Thailand, (indicated by red lines in Figure 2.10), saw their TFP growth rates decelerating since 2010 while increasing their trade dependence on China. On the other hand, Myanmar, Vietnam, and Cambodia have succeeded in increasing TFP while increasing their trade dependence on China since 2010. The impact of a further slowdown on China's economic growth in Asia will likely be polarizing. While some ASEAN countries could benefit, many other Asian countries could see a decline in productivity.

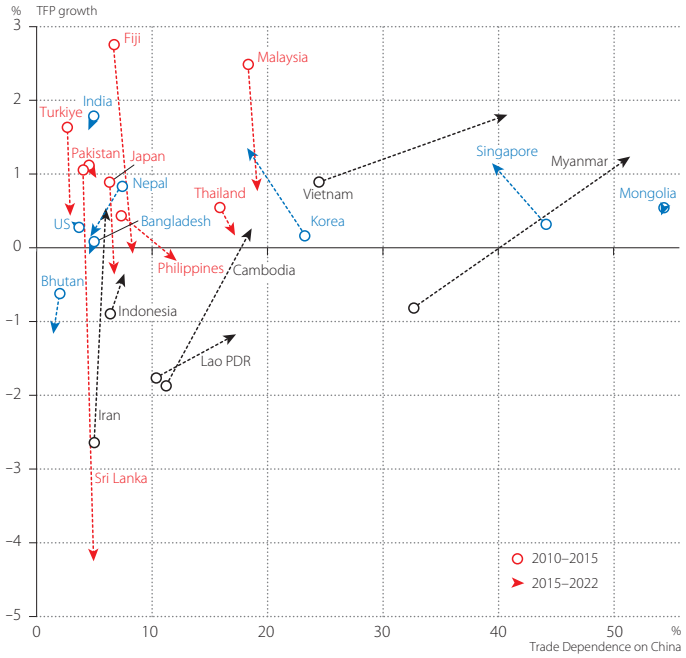



**Figure 2.10 Trade Dependence on China and TFP Growth, 2010–2022**

Unit: Percentage (GDP at current market prices=1.0 in each country). Sources: The United Nations Comtrade Database (accessed May 25, 2024) and APO Productivity Database 2024. Note: Trade dependence is the ratio of exports to and imports from China to GDP at market prices in each country.

Another risk posed by the slowing growth of the Chinese economy is that China is compensating its weak domestic demand by boosting exports, significantly lowering the export prices of its products. This trend, which became more pronounced in mid-2023, has reduced profit margins and decreased export volumes in competing countries. The expansion of China's "New Three" exports—solar cells, lithium-ion batteries, and electric vehicles (EVs)—is attracting particular attention. Figure 2.11 shows China's nominal exports from January 2017 to December 2023. Although the total export value of solar cells has been declining due to falling prices, exports to India (whose customs duties have been raised since April 2022), Germany, the Netherlands, and Spain remain prominent in the recent period (Figure 2.11a).[16]

Lithium-ion batteries are primarily exported from China to Korea, Vietnam, Germany, and the US (Figure 2.11b), while EV exports are expected to grow significantly (Figure 2.11c). From August 2024, US President Joe Biden plans to impose a 100% tariff on Chinese EV imports, a 50% tariff on Chinese solar cells,[17] and a 25% tariff on certain Chinese steel and aluminum imports.[18] The European Commission will impose additional tariffs ranging from 17.4% to 38.1% on imported Chinese EVs starting in July 2024, on top of the standard 10% car duty.[19] The National Development and Reform Commission

16: In 2021–2023, China exported a substantial value of solar cells to the Netherlands (Figure 2.11a). In recent years, the Netherlands has enshrined its climate targets, including its renewable energy goals, into law. By 2022, the Netherlands generated 14% of its electricity from solar farms, a significant increase from just 1% in 2015. (Karolin Schaps (2023) "No Land, No Problem: Netherlands Innovates to Lead EU Solar Drive," *Reuters*, March 2.) Some of these imported solar cells were subsequently re-exported from the Netherlands to Germany, France, Poland, and other EU countries.

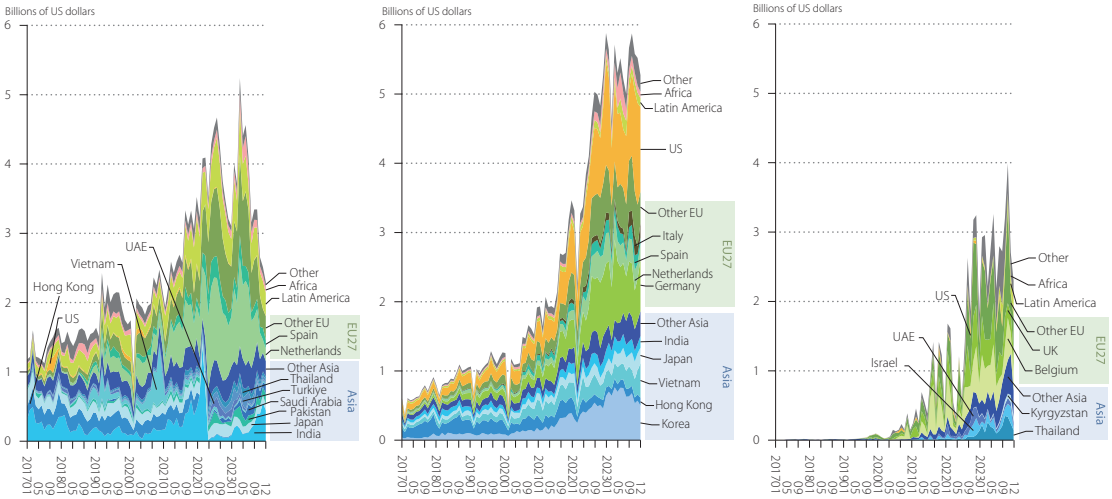



Figure 2.11a: Sollar Cells | Figure 2.11b: Lithium-ion Batteries | Figure 2.11c: EVs

**Figure 2.11 China's "New Three" Export, January 2017–December 2023**

Unit: Billions of US dollars. Source: The United Nations Comtrade Database (accessed May 25, 2024). Note: The corresponding HS codes are 854140, 854142, and 854143 for solar cells, 850760 for lithium-ion batteries, and 870380 for EVs.

(NDRC) of China argues that the competitiveness of its industries is due to technological innovation, not subsidies, in response to claims that China has overcapacity in the clean energy products sector.[20]

While China's growth is slowing, India's economic growth is accelerating remarkably, bolstered by a significant level of public confidence in their national government.[21] India's year-on-year growth rate was as high as 7–9% from the second quarter of 2023 to the first quarter of 2024, outpacing China's economy by about three percentage points annually. India's PPP-based GDP exceeded Japan's in 2009, but compared to China, there is a 4.5-fold gap in exchange-rate-based GDP (Table 9.1) and a 2.6-fold gap in PPP-based GDP (Table 9.2) in 2022.

The current export dependence of Asian countries on India is not very high (except Bhutan's electricity export to India), and the expansion of this indicator since 2015 has been limited, except for Afghanistan, as shown in Figure 2.12. However, the time is approaching when India will become the frontrunner to lead Asian economic growth. According to our projections (Box 12), the contributions of these two countries to Asia31 growth will reverse around 2030 (Figure 3.7b).

India's economic growth acceleration was mainly driven by the increase in labor input due to the demographic dividend (Figure 3.16). Some have pointed out that it is unclear whether the pace of growth can be sustained while generating sufficient domestic employment and productivity growth.[22] If India's healthy growth continues, bolstered by the world's largest population (Box 3) and high political confidence,

17: Solar cells exported from China to the US accounted for 10% of China's total exports in the early 2010s but fell to less than 2% in 2017–2018 under the Donald Trump administration. In addition, the Uyghur Forced Labor Prevention Act (UFLPA), signed into law on December 23, 2021, reinforces the U.S. policy of banning imports of goods made by forced labor (U.S. Customs and Border Protection Operational Guidance for Importers, June 13, 2022). Solar cell export from China to the US is not significant at present, at least as a direct bilateral transaction, as seen in Figure 2.11a.

18: The details are provided in The White House (2024) "FACT SHEET: President Biden Takes Action to Protect American Workers and Businesses from China's Unfair Trade Practices," May 14 and David Shepardson and David Lawder (2024) "US Says Tariff Increases on Chinese EVs, Batteries and Chips to Start Aug. 1," *Reuters*, May 23.

19: Philip Blenkinsop (2024) "EU Hits Chinese EVs with Tariffs, Drawing Rebuke from Beijing," *Reuters*, June 13.

20: "China's Factory Glut Alarms the World But There's No Quick Fix," *Bloomberg*, May 9, 2024.

21: According to Gallup investigation, 82% of Indians expressed confidence in their government in 2023 ("5 Things to Know About the World's Biggest Election" *GALLUP*, May 16, 2024.

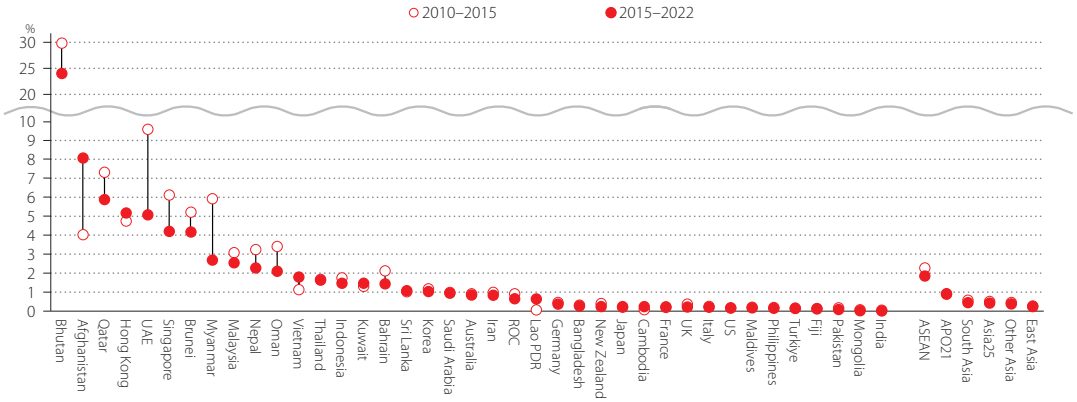



**Figure 2.12 Export Dependence to India, 2010–2022**
——Export to India as a share of GDP at current market prices

Unit: Percentage (GDP at current market prices=1.0 in each country). Sources: Official national accounts in each country, including adjustments by APO-PDB and the United Nations Comtrade Database (accessed on May 25, 2024). Note: South Asia in the regional block on the right side of this figure shows relations with countries other than India.

Asian regional economic growth in 2025–2030 is expected to be 4.4%, roughly on a par with the 2010s (4.6%), despite the slowdown in China's economic growth (Figure 7.9). The substantial potential for productivity improvement in Asian economies positions the region to continue playing a pivotal role in driving global economic growth.

## Box 2 Forging Economic Alliances: IPEF and RCEP

East Asia, including Northeast Asia and Southeast Asia, is the region where the development of international production networks (IPNs) in the machinery industry has been the most advanced globally. East Asia has continued to form mega-free trade agreements (FTAs) despite rising geopolitical tensions and the sudden COVID-19 pandemic.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) was signed by 11 countries (Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam) in March 2018 and went into effect with six signatories in December 2018. The last ratifying country, Brunei, joined in July 2023, at which point the agreement went into effect for all initial negotiation members. In the same month, the UK formally signed the accession agreement to CPTPP, which marked the geographical extension of CPTPP from regional to global. CPTPP is a high-quality FTA with high-level liberalization commitments and advanced international rulemaking. Therefore, this may work as a coalition of middle powers supporting a rules-based trading regime.[23]

The Regional Comprehensive Economic Partnership (RCEP) agreement has been built up with the ASEAN economic integration at the core. ASEAN plus six countries negotiated over the agreement, but at the last

22: For example, see Josh Felman (2024) "Is India Really the Next China?" *Foreign Policy*, April 8.
23: Whether a country can join CPTPP is regarded as a test of whether the country can commit and implement necessary policy reform. Up to now, China, the ROC, Ecuador, Costa Rica, Uruguay, and Ukraine have submitted formal requests for accession. In the accession process to CPTPP, "aspirant economies must: (a) demonstrate the means by which they will comply with all of the existing rules contained in the CPTPP, and (b) undertake to deliver the highest standard of market access offers on goods, services, investment, financial services, government procurement, state-owned enterprises and temporary entry for business persons," (Annex to CPTPP/COM/2019/D002, Jan. 19, 2019) and all existing members' approvals are needed for the decision on whether to commence the accession process by the TPP Commission and whether to support the TPP Commission's approval.

moment, India walked away, and thus, 15 countries (10 ASEAN Member States, Australia, China, Korea, Japan, and New Zealand) signed in November 2020.[24] ASEAN took the initiative for the design and implementation of the agreement. Although the level of liberalization and the rule-making aspects of RCEP fall short of CPTPP, it covers the entire East Asian international production networks. It includes the commitment of annual ministerial meetings, a joint committee, four committees, and a secretariat, which enhances communication among member countries for reducing policy risks and supporting a rules-based trading regime.

A recent salient move is the negotiation over the Indo-Pacific Economic Framework (IPEF). The US starting point is akin to its strategy against China by promoting "friend-shoring." However, it is challenging for the US to force ASEAN Member States and others to choose sides and isolate China. Thus, the focus of the negotiation shifts to what can be done in the agreement and how it can contribute to the region. Trade liberalization or market access, typically at the core of an FTA to attract participating countries' interests, is not included in the negotiation because of US domestic politics. Thus, IPEF cannot be called an FTA in the GATT/WTO definition. In September 2022, the negotiation over IPEF formally began with 14 countries, including the US, Japan, Australia, New Zealand, Korea, India, Fiji, and seven ASEAN countries (Brunei, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam).[25] The three ASEAN countries not participating in the IPEF (Myanmar, Lao PDR, and Cambodia) were the ones that greatly increased their dependence on exports to China in the 2010s (Figure 2.9).

IPEF and RCEP are sometimes regarded as international forums led by the US and China, respectively, and could deepen the US-China confrontation. However, this is unlikely the case because members are largely overlapped. IPEF has the US, India, and Fiji, while RCEP has China, Cambodia, Lao PDR, and Myanmar. These are differences, and the other members belong to both groupings. This fact may enable two initiatives to complement rather than deepen the confrontation. Figure 2.13 depicts labor productivity distributions across countries in IPEF and RCEP in which the presence of the US and China mostly explains the differences between the two regions. The overlapping countries are casting votes to make the two initiatives reduce policy risks and maintain a rules-based trading regime.

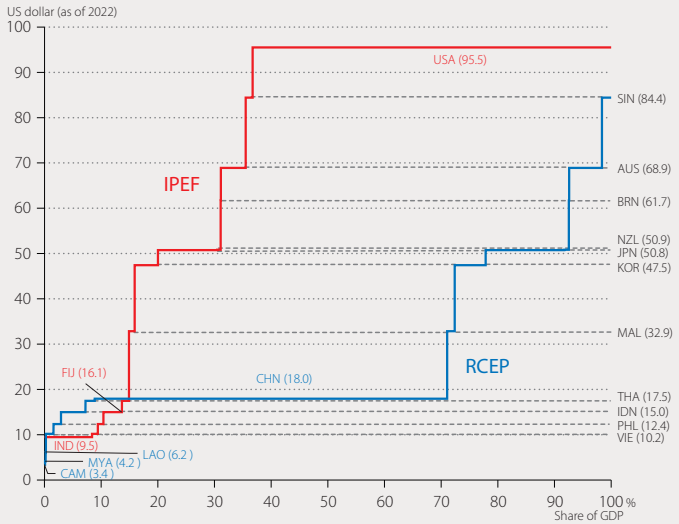



**Figure 2.13 Productivity Distributions of Countries Participating in IPEF and RCEP in 2022**
——GDP per hour (using 2017 PPP), reference year 2022, and GDP share (using exchange rate)

Unit: US dollar per hour and percentage (share of market-price GDP at current prices). Sources: Official national accounts and APO Productivity Database 2024. Notes: Numbers in parentheses are the per-hour labor productivity level in 2022. Overlapped countries are blacklined.

24: The agreement went into effect for Indonesia in January 2023 and for the Philippines in June 2023. As of January 2024, Myanmar is the only remaining country for ratification. Candidates for accession include Hong Kong, Bangladesh, and Sri Lanka.

25: Four pillars are posed for the negotiations: (i) fair and resilient trade, (ii) supply chain resilience, (iii) infrastructure, clean energy, and decarbonization, and (iv) tax and anti-corruption. The 14th and most recent entry into the IPEF was Fiji in May 2023, as the first Pacific Island nation to join.

# 3 Economic Landscape

## Highlights

- The economic scale of Asia31 was 37.7 trillion US dollars in 2022 in terms of exchange-rate-based GDP, which is 46% greater than the US (Table 9.1). Japan was the largest economy in Asia until 2008 and was overtaken by China the following year. (Figure 3.3).
- Asia is even more dominant in terms of PPP adjusted GDP. Asia31 is 47% of the world economy (Figure 3.2) and 3.0 times that of the US in 2022 (Figure 3.5). China has overtaken Japan as the largest Asian economy since 1999 and exceeded the US since 2016. In 2009, India surpassed Japan, replacing it as the second-largest economy in Asia, while ASEAN matched Japan (Table 9.2).
- The growth rate of the Asia31 economy was 4.0% per year on average from 2015 to 2022 (Figure 3.6 and Table 9.3). Growth in China and India accounted for 2.0 percentage points and 0.7 percentage points of this regional growth, respectively (Figure 3.7). In our projections from 2022 to 2035, China's contribution is expected to fall to 1.1 percentage points, and India's to expand to 1.2 percentage points. India will overtake China as Asia's largest economic growth driver in 2034.
- Japan was the highest among Asian countries in per capita GDP at market prices until Singapore overtook it in 1991. In this measure, the ROC and Korea overtook Japan in 2009 and 2018, respectively (Figure 3.10).
- The average per capita GDP of Asia31 was $17,600 at current market prices in 2022, which is only 23% of the US level (Table 9.6). Chinese per capita GDP rose to $22,000 in the same year. The ASEAN6, South Asia, and CLMV regional averages were $17,700, $8,250, and $9,900, respectively (Figure 3.11). A huge per capita GDP gap between most Asian countries and the US is mostly explained by the inferior performance of labor productivity (Figure 3.14).

From the mid-1980s, the story of the world economy was dominated by Asia, where its rapid growth radically transformed its share of world output. Figure 3.1 compares the growth rates of Asia with the EU and US over the observation period 1970–2022 and our projection period 2022–2035 (shown with dotted lines). Unsurprisingly, the center of gravity in the global economy is gradually shifting towards Asia. In 2022, Asia contributed 48% (44% for Asia25) of world output, compared with 15% for the US and 14% for the EU27, as shown in Figure 3.2. According to our projection and the rest of the world, the Asian share in world output will continue to rise, reaching 53% (48% for Asia25) by 2035.[26] In contrast, the US and the EU27 output shares will decrease to 14% and 12%, respectively.

To better understand the dynamics of long-term economic growth within the region, this chapter details the diverse development efforts and achievements through cross-country level comparisons of GDP and other related performance indicators. To facilitate international level comparisons, harmonized GDP for each country is expressed in its equivalent, in a common currency unit, customarily the US dollar, using two sets of conversion rates between the individual national currencies. The choices for conversion rates are the exchange rate and purchasing power parity (PPP); the PPP is the adjustment for differences in price levels between different countries made by the International Comparisons Program (ICP) (World Bank 2020). This adjusts for how one US$, converted at market exchange rates, buy different number of the same, say, apples in different countries.

26: Our projections of economic growth for Asia25 are provided in Box 12. Where available, these reflect economic growth until the first quarter of 2024.

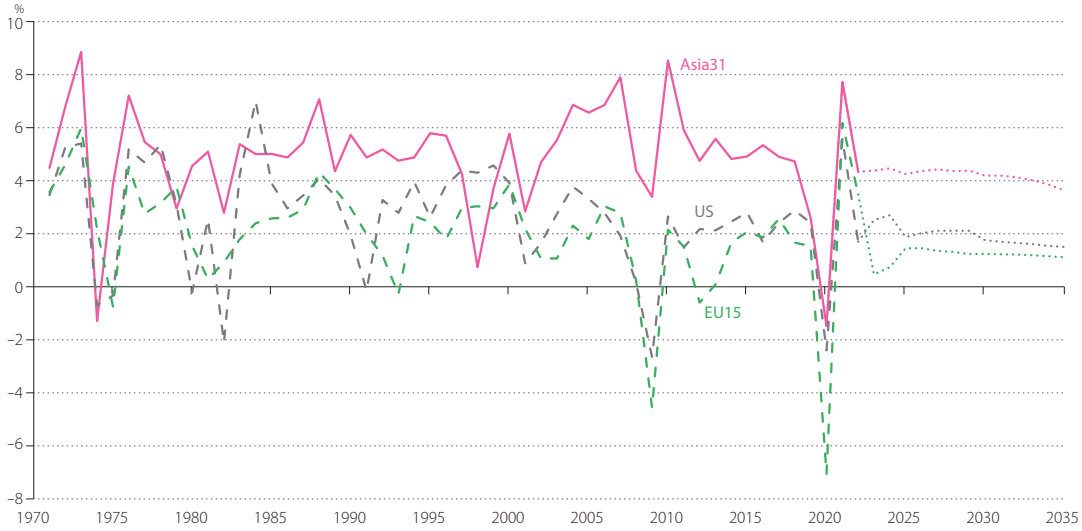



**Figure 3.1 GDP Growth of Asia, the EU, and the US, 1970–2035**
——Growth in GDP at constant prices from 1970 to 2022 and our projection to 2035

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Note: Our projections are drawn with dotted lines.

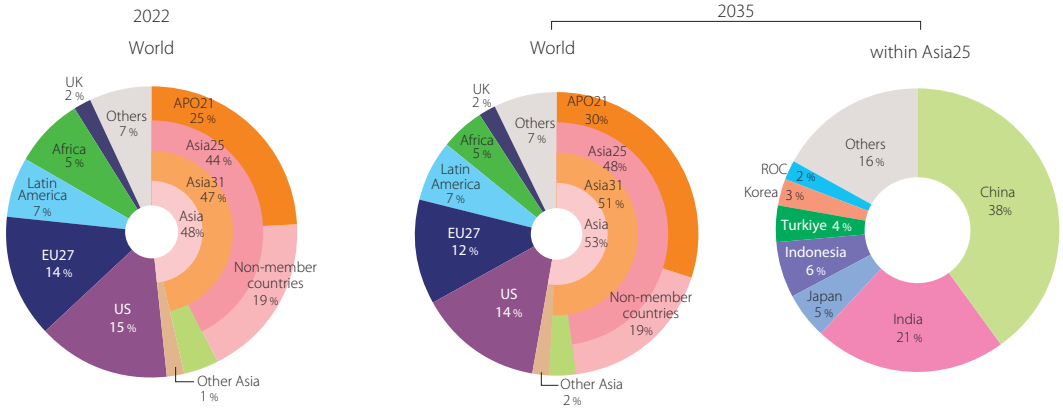


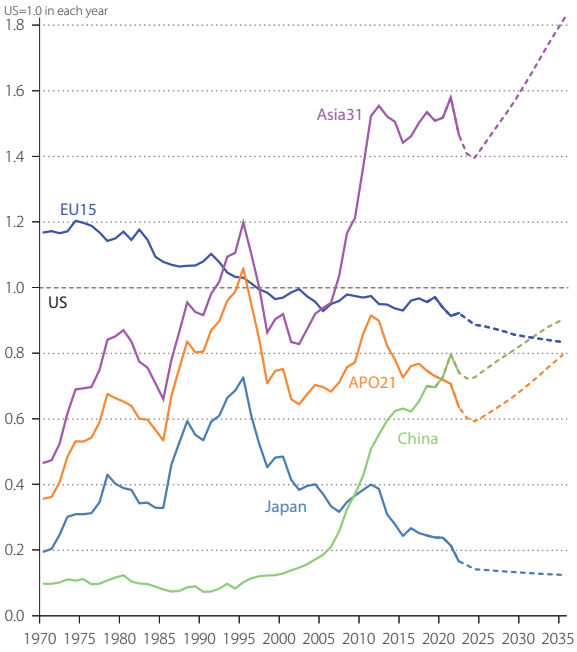

**Figure 3.2 Asia in World GDP in 2022 and Projection for 2035**
——Share of GDP using the 2017 PPP

Unit: Percentage. Sources: Our estimates for the Asia25 economies projections (Box 12) and IMF (2024) for the rest of the world.

## 3.1 Economic Growth

Figure 3.3 presents the time-series level comparison of Japan, China, and the EU15, based on GDP at current market prices using exchange rates relative to the US.[27] The chart covers the entire observation period 1970–2022 and our projection period 2022–2035 (as shown with dotted lines). A snapshot comparison of all Asian countries is provided in Table 9.1. By this measure, Asia31 was 46% and 59% greater than the US and the EU15, respectively, in 2022. Japan was the largest economy in Asia until 2008. In the

27: The exchange rates used in this Databook are adjusted, called the Analysis of Main Aggregate (UNSD database) rates in the UN Statistics Division's National Accounts Main Aggregate Database. The AMA rates coincide with the IMF rates (which are mostly the annual average of market or official exchange rates) except for some periods in countries with official fixed exchange rates and high inflation, when there could be a serious disparity between real GDP growth and growth converted to US dollars based on IMF rates. In such cases, the AMA adjusts the IMF-based rates by multiplying the growth rate of the GDP deflator relative to the US.




following year, China overtook Japan's position to become the second-largest economy in the world, next to the US.[28] The turn in Japan's fortunes came in the early 1990s. After that, Japan's stagnation and vibrant growth in developing Asia rapidly eroded Japan's prominence in the regional economy.

**Figure 3.3 GDP of Asia and the EU relative to the US, using Market Exchange Rates, 1970–2035**

——Index of GDP at current market prices from 1970 to 2022 and our projection to 2035, using exchange rate

Unit: Index (the US=1.0). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Notes: Our projections are drawn with dotted lines. The exchange rate in 2024 is set as the average of the January–May period and is assumed to remain unchanged after 2025.

Comparisons based on exchange rates, however, appear arbitrary as movements in exchange rates can be volatile and subject to substantial short-term fluctuations of speculative capital flows and government intervention. Furthermore, comparisons based on exchange rates typically underestimate the size of a developing economy and, in turn, the perceived welfare of its residents. The scale of economy ranking changes dramatically in Asia when international price differences are considered.[29]

Figure 3.4 presents the price level index (PLI) for GDP. This is measured as the ratio of the PPP for GDP to the market exchange rate (footnote 27), where the PPP is based on the 2017 round of the ICP (World Bank 2020).[30] The figure gives the PLI for 2017 (marked with circles) and 2022 (vertical bars). In the context of conversion rates, this figure shows how much the exchange rates have failed to reflect country price differentials relative to the US. Except for Australia, market exchange rates systematically underrepresent the relative price differentials in 2022 for all the countries. Thus, the exchange-rate-based GDP considerably underestimates the economic scales in real terms for most countries. While the PPP is not perfect and subject to criticism, it allows for a consideration of international price differences and a better measurement of relative sizes.

After correcting international price differentials, we see that Asia31 has expanded rapidly. Figure 3.5 presents the level comparisons of real GDP for Asian regions, using PPP as conversion rates, while Table 9.2 presents cross-country comparisons. Based on GDP using constant PPP, the weight of the world economy is even more tilted toward Asia in Figure 3.5 than that using exchange rates in Figure 3.3. This reflects that nearly all Asian countries have larger relative sizes after international price differentials have been properly considered. The size of Asia31 was 3.0 times that of the US in 2022 (compared to 1.5 times

28: The productivity account for China was considerably revised in APO-PDB 2023, based on our study with Professor W. Erwin Diewert (University of British Columbia). See Section 8.4 for a brief explanation of this revision.
29: This is because exchange rates embody the trade sector bias (i.e., it is more influenced by the prices of traded than non-traded goods and services) and thus do not necessarily correct the price differentials among countries. As developing economies tend to have relatively lower wages and, in turn, lower prices for non-traded goods and services, a unit of the local currency has greater purchasing power in the local economy than reflected in its exchange rate.
30: Revisions to cross-country level comparisons may be large, especially compared to revisions in cross-country growth comparisons. Section 8.5 discusses the revisions of the PPPs in ICP 2017 from ICP 2011, which has been used in the Databook 2014–2019.

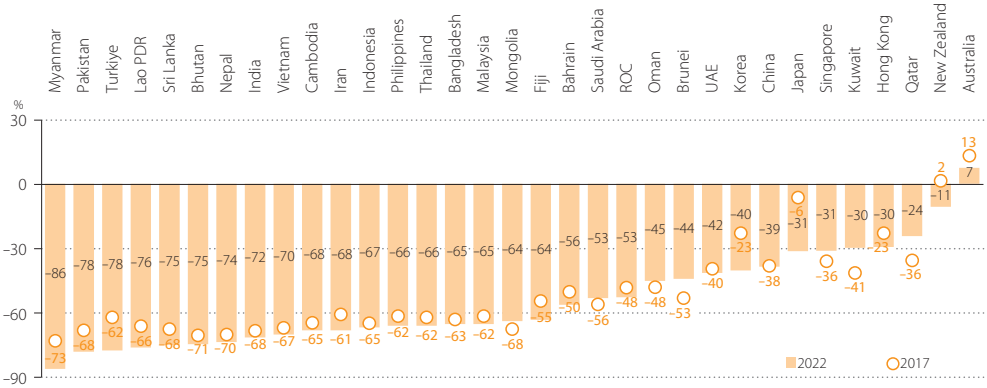



**Figure 3.4 Price Level Index for GDP in 2017 and 2022**
——Price Level Index (PLI) for GDP in 2017 and 2022

Unit: Percentage. Sources: World Bank (2020) for PPP and United Nations Statistics Division (UNSD) for the AMA rates. Notes: The PLI is the ratio of PPP for GDP to the exchange rate. The reference country is the US. The revisions in different ICP rounds are provided in Figure 8.16.

using exchange rates) and overtook the US in 1975 (compared to 2007). Figure 3.5 also shows the rapid expansion of the relative size of the South Asian economy, 79% of which was accounted for by India in 2022. The size of the South Asian economy is expected to approach the EU15 by the early 2030s. ASEAN also showed strength in its catch-up effort.

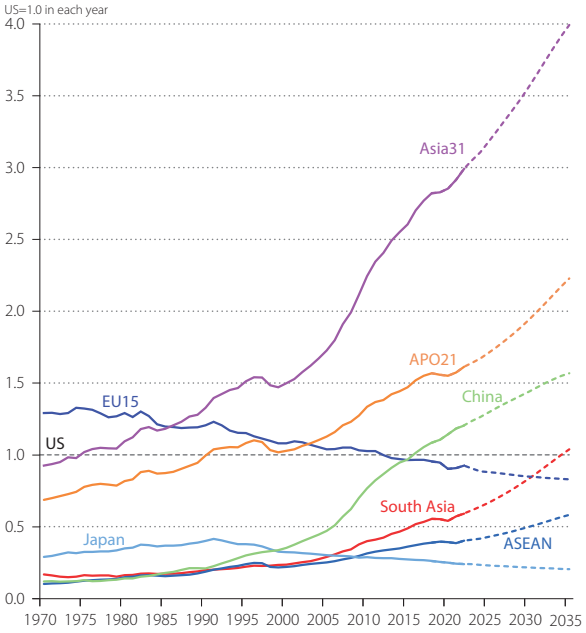



**Figure 3.5 GDP of Asia and the EU relative to the US, 1970–2035**
——Index of GDP at current market prices from 1970 to 2022 and our projection to 2035, using the 2017 PPP

Unit: Index (the US=1.0). Sources: Official national accounts in each country (including adjustments in APO-PDB) and our projections (Box 12). Note: Our projections are drawn with dotted lines.

Figure 3.6 shows regional comparisons of real GDP growth,[31] while Table 9.3 provides the numbers. Since the mid-1990s, the growth rates within Asia have been more pronounced in the CLMV and South Asia. The higher growth of these regions is projected to persist into the late 2020s.

However, by the early 2030s, Asia's growth engine is expected to shift to South Asia, which will overtake East Asia in 2033 (Figure 3.7a), according to our projections. Of Asia's growth rate (averaging 4.0% per year) between 2015 and 2022, China accounted for 2.0 percentage points and India for 0.7 percentage points, but the gap is rapidly closing. India is projected to overtake China as Asia's largest economic growth driver in 2034 (Figure 3.7b). ASEAN's contribution to Asia's economic growth will hold steady

31: Historical GCC estimates were revised in this edition of the Databook to reflect revisions to the constant-price estimates in Saudi Arabia's 2018 benchmark-year national accounts published in March 2024 (footnote 4).

at about 0.8 percentage points. Within ASEAN, however, Vietnam's contribution is expected to rise (Figure 3.7c).

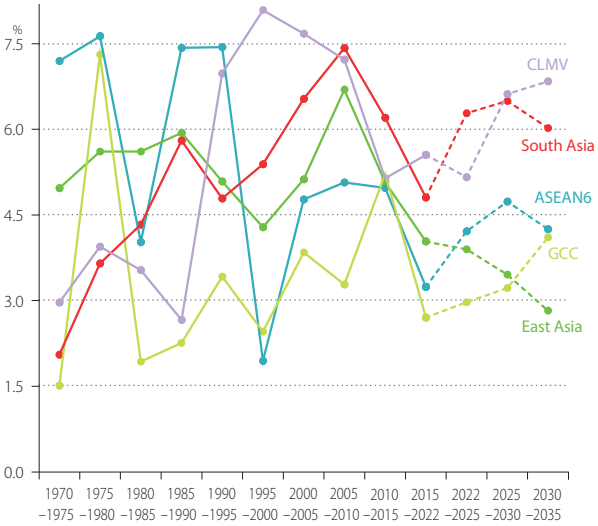



**Figure 3.6 GDP Growth by Region, 1970–2035**

—GDP growth from 1970 to 2022 and our projection to 2035, using the 2017 PPP

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Note: Our projections are drawn with dotted lines.

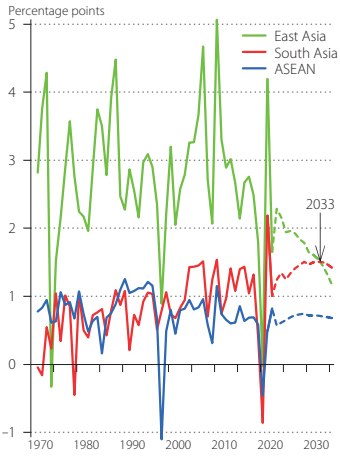



Figure 3.7a Sub-Regions

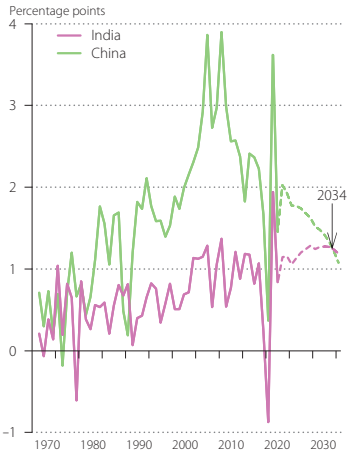



Figure 3.7b China and India

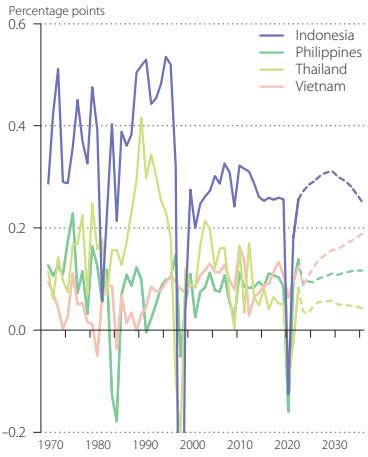



Figure 3.7c ASEAN Countries

**Figure 3.7 Country Contributions to Asian Economic Growth, 1970–2035**

Unit: Percentage point (average annual contributions to the Asia31 growth). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Note: The average annual GDP growth rate in Asia31 is 4.9% in 1970–1990, 5.2% in 1990–2010, 5.2% in 2010–2015, and 4.0% in 2015–2022 (Table 9.3), and 4.2% in our projection period 2022–2035.

## 3.2 Per Capita GDP

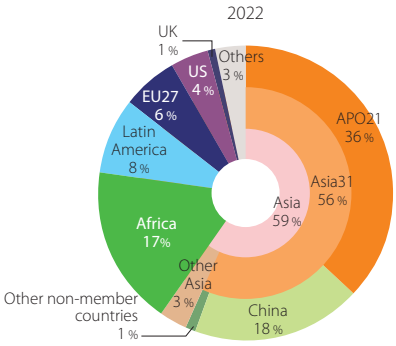



Figure 3.8 presents the share of the current world population, illustrating that Asia is the most populous region in the world. In 2022, Asia accounted for 59% of the world's population (56% for Asia31). There are, however, significant differences among the Asian economies, as shown in Table 9.4. The population was more than 100 million in seven countries in 2022, but less than

**Figure 3.8 Asia in World Population in 2022**

Unit: Percentage. Source: United Nations (2022). Note: See Box 3 for the future projection of populations.

10 million in 12 economies of Asia31. Performance comparisons based on the whole-economy GDP just discussed in Section 3.1 do not consider the population, which can exaggerate the well-being of countries with large populations. Based on per capita GDP, which adjusts for the differences in population, China and India, two rising giants in the Asian economy, remain substantially less well-off than the US. Conversely, the Asian Tigers (Hong Kong, Korea, Singapore, and the ROC) are close to, or exceed, US levels.



## Box 3 Global and Asian Population Trends

The world's population is estimated at 7.9 billion in 2022, of which Asian countries account for 59%, according to the United Nations (2022). China and India each account for 17.8% of the world's population.[32] It has been observed that falling fertility rates and rising living standards go hand in hand, although the direction of causality is less certain. The evolution of the demographic structure means that there are important societal dynamics that are not captured by the overall population size or growth. As economic behavior, aspirations, and needs vary at different stages of life, changes in a country's age structure can significantly impact its economic growth via supply-side and demand-side impacts.

The growth rate of the world's population has slowed from its peak of around 2.0% in the 1970s to today's 0.9% per year. With falling fertility rates, the UN projects that the world's population growth rate will decelerate to 0.79% per year by 2050 and further to 0.14% by 2100. Even so, the world population will increase by one-fifth from today's 7.9 billion to 9.7 billion in 2050 and an additional

**Table 3.1 Distribution of the World Population, 1970–2100**

Unit: Millions of persons. Source: United Nations (2022).

| | 1970 | 2021 | 2050 | 2100 | 2021–2050 | (%) | 2050–2100 | (%) |
|---|---|---|---|---|---|---|---|---|
| China | 812 | 1,426 | 1,317 | 771 | −109 | −6 | −546 | −82 |
| India | 551 | 1,403 | 1,668 | 1,533 | 266 | 15 | −135 | −20 |
| EU27 | 383 | 445 | 424 | 349 | −21 | −1 | −75 | −11 |
| US | 199 | 336 | 375 | 394 | 39 | 2 | 19 | 3 |
| Indonesia | 114 | 273 | 317 | 297 | 44 | 2 | −20 | −3 |
| Pakistan | 58 | 229 | 366 | 487 | 136 | 8 | 121 | 18 |
| Bangladesh | 67 | 168 | 204 | 177 | 35 | 2 | −27 | −4 |
| Japan | 105 | 125 | 104 | 74 | −21 | −1 | −30 | −5 |
| Philippines | 37 | 113 | 157 | 180 | 44 | 2 | 23 | 3 |
| Vietnam | 41 | 97 | 107 | 91 | 10 | 1 | −16 | −2 |
| Iran | 28 | 88 | 99 | 80 | 11 | 1 | −19 | −3 |
| Turkiye | 35 | 84 | 96 | 83 | 11 | 1 | −13 | −2 |
| Germany | 78 | 83 | 79 | 69 | −4 | 0 | −10 | −2 |
| Thailand | 35 | 72 | 68 | 45 | −3 | 0 | −23 | −3 |
| UK | 56 | 67 | 72 | 71 | 4 | 0 | −1 | 0 |
| France | 50 | 65 | 66 | 61 | 1 | 0 | −5 | −1 |
| Italy | 53 | 59 | 52 | 37 | −7 | 0 | −15 | −2 |
| Myanmar | 27 | 54 | 60 | 53 | 6 | 0 | −7 | −1 |
| Korea | 32 | 52 | 46 | 24 | −6 | 0 | −22 | −3 |
| Afghanistan | 11 | 40 | 73 | 111 | 34 | 2 | 37 | 6 |
| Saudi Arabia | 6 | 36 | 48 | 50 | 12 | 1 | 2 | 0 |
| Malaysia | 10 | 33 | 41 | 40 | 8 | 0 | −1 | 0 |
| Nepal | 12 | 30 | 37 | 34 | 8 | 0 | −3 | −1 |
| Australia | 12 | 26 | 32 | 38 | 6 | 0 | 6 | 1 |
| ROC | 15 | 24 | 23 | 15 | −1 | 0 | −7 | −1 |
| Sri Lanka | 12 | 22 | 22 | 15 | 0 | 0 | −7 | −1 |
| Cambodia | 7 | 16 | 20 | 19 | 4 | 0 | −1 | 0 |
| UAE | 0 | 9 | 11 | 14 | 2 | 0 | 3 | 0 |
| Hong Kong | 4 | 8 | 7 | 5 | −1 | 0 | −2 | 0 |
| Lao PDR | 3 | 7 | 10 | 10 | 2 | 0 | 0 | 0 |
| Singapore | 2 | 6 | 6 | 5 | 0 | 0 | −1 | 0 |
| New Zealand | 3 | 5 | 6 | 6 | 1 | 0 | 0 | 0 |
| Oman | 1 | 4 | 6 | 8 | 2 | 0 | 2 | 0 |
| Kuwait | 1 | 4 | 5 | 5 | 1 | 0 | 0 | 0 |
| Mongolia | 1 | 3 | 5 | 5 | 1 | 0 | 1 | 0 |
| Qatar | 0 | 3 | 3 | 4 | 1 | 0 | 1 | 0 |
| Bahrain | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 |
| Fiji | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Bhutan | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Maldives | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Brunei | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (region) | | | | | | | | |
| World | 3,658 | 7,877 | 9,687 | 10,355 | 1,811 | 100 | 668 | 100 |
| Africa | 361 | 1,377 | 2,466 | 3,917 | 1,088 | 60 | 1,451 | 217 |
| Asia | 2,120 | 4,681 | 5,290 | 4,685 | 609 | 34 | −605 | −91 |
| APO21 | 1,171 | 2,854 | 3,404 | 3,221 | 549 | 30 | −183 | −27 |
| Asia25 | 2,010 | 4,335 | 4,782 | 4,045 | 447 | 25 | −736 | −110 |
| Asia31 | 2,018 | 4,393 | 4,858 | 4,129 | 465 | 26 | −729 | −109 |
| East Asia | 969 | 1,637 | 1,501 | 895 | −136 | −8 | −606 | −91 |
| South Asia | 701 | 1,853 | 2,298 | 2,246 | 445 | 25 | −51 | −8 |
| ASEAN | 269 | 655 | 766 | 721 | 111 | 6 | −46 | −7 |
| ASEAN6 | 198 | 497 | 590 | 568 | 93 | 5 | −23 | −3 |
| CLMV | 78 | 175 | 197 | 173 | 22 | 1 | −24 | −4 |
| GCC | 8 | 58 | 76 | 84 | 18 | 1 | 7 | 1 |
| Europe | 655 | 746 | 704 | 587 | −42 | −2 | −117 | −17 |
| Latin America and the Caribbean | 283 | 654 | 749 | 649 | 95 | 5 | −100 | −15 |
| Northern America | 220 | 375 | 421 | 448 | 46 | 3 | 27 | 4 |
| Oceania | 19 | 44 | 58 | 69 | 13 | 1 | 11 | 2 |
| More developed regions | 310 | 1,087 | 1,914 | 3,016 | 827 | 46 | 1,103 | 165 |
| Less developed regions | 2,353 | 5,514 | 6,506 | 6,186 | 993 | 55 | −321 | −48 |
| Least developed countries | 1,832 | 5,143 | 7,073 | 8,409 | 1,930 | 107 | 1,337 | 200 |

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6.9% to 10.4 billion by 2100. These estimates are based on the medium-fertility variant. Still, with only a slight variation in fertility, particularly in the more populous countries, the total could be higher (10.5 billion by 2050 and 14.8 billion in 2100) or lower (8.9 billion in 2050 and 7.0 billion in 2100). The bottom block of Table 3.1 presents this shift in the world population distribution, with the share from the more developed regions gradually declining from 16% in 2020 to 13% in 2050 and 11% in 2100, compared with 32% in 1950. Conversely, the share of the least developed countries is depicted as rising from today's 14% to a projected 20% in 2050 and 29% in 2100, up from 8% in 1950.

According to the UN projection, Asia's share will decline from 59% today to 55% in 2050 and 45% in 2100, while Africa's share will rise from 17% to 26% and 38%, respectively. Table 3.1 also shows the 2022 population size of individual Asian countries compared with the 1970 level and the 2050 projection. This chart shows that China's population is expected to stabilize around the current level until 2050 and falling rapidly after that. China has socially engineered the change with its one-child policy, which has made its current population 300–400 million lower than it most likely would have been. In 2023, India overtook China as the most populous country in the world, although uncertainties remain regarding the accuracy of population data (footnote 32).

Figure 3.9 shows per capita GDP at current prices, using exchange rates as conversion rates, among Japan and the Asian Tigers relative to the US. A snapshot comparison is also presented in Table 9.5. It is worth noting that snapshot comparisons can appear arbitrary due to the volatile nature of exchange rates—the comparisons in Table 9.5 change considerably when PPPs are used.[33] Figure 3.10 and Table 9.6 give the per capita GDP at constant market prices using PPP and show the much less volatile relative GDPs, and that Japan was the highest among Asian countries until Singapore overtook it in 1991.[34]

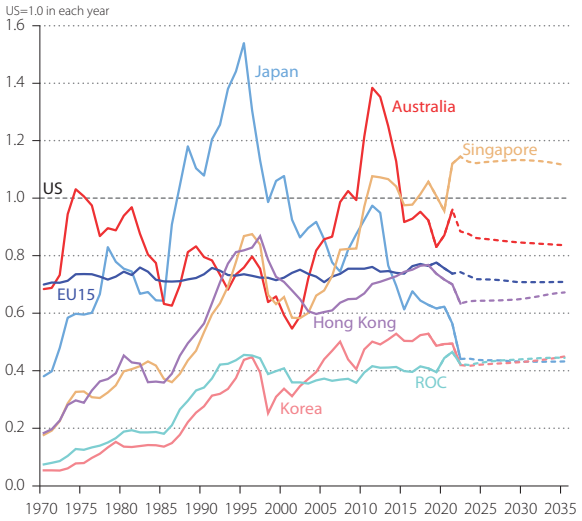


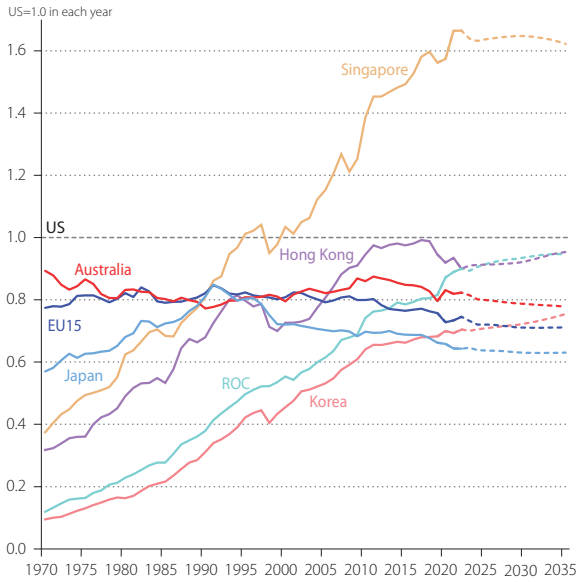

**Figure 3.9 Per Capita GDP using Exchange Rate of Japan and Asian Tigers, 1970–2035**
——Index of GDP at current market prices per person from 1970 to 2022 and our projection to 2035, using exchange rate

Unit: Index (the US=1.0). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Note: Our projections are drawn with dotted lines (exchange rates are assumed unchanged after 2022).

32: According to the United Nations Population Fund (2023), India's population by mid-2023 is estimated to be 1.4286 billion, overtaking China's 1.4257 billion. However, some have pointed out that the population estimates for both countries are greatly overestimated. The article in *The Business Standard* ("China and India have fewer people than the UN thinks," May 24, 2023) suggests that India's population will peak below 1.5 billion, rather than the 1.7 billion projected by the United Nations.

33: Japan suffered from a further excessive yen appreciation in the mid-1990s, which appeared to increase per capita GDP (Figure 3.9) but resulted in a loss of competitiveness and significant stagnation (Hamada and Nomura 2023).

34: From the ICP 2005 round to the ICP 2011 round, Singapore's GDP level has been changed to expand by 16% (right chart in Figure 8.16). The revisions on the PPP and national accounts indicate that the uncertainty around the catch-up year should be around five years wide.




Compared to Figure 3.9, Figure 3.10 clearly highlights the dramatic development in ROC and Korea, which overtook Japan in 2009 and 2018, respectively. In other words, the current per capita production levels in these two countries are also strongly characterized as being achieved against a background of cheap exchange rates. According to the PLI (Figure 3.4), the exchange rate is undervalued by 40% in Korea and 53% in ROC in 2022.

**Figure 3.10 Per Capita GDP of Japan and Asian Tigers, 1970–2035**
——Index of GDP at current market prices per person from 1970 to 2022 and our projection to 2035, using the 2017 PPP

Unit: Index (the US=1.0). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Note: Our projections are drawn with dotted lines.

The relative performance of China and India, the two most populous countries in the world (India has 1.42 billion and China has 1.41 billion in 2022), is diminished in this per capita measure due to their population. Their per capita GDP is 28% and 11% of the US in 2022, respectively, as shown in Figure 3.11. The income gap between the US and most Asian countries is still sizable (the levels achieved by Asia31 and CLMV were 23% and 13% of the US, respectively),[35] indicating significant room for catch-up.[36]

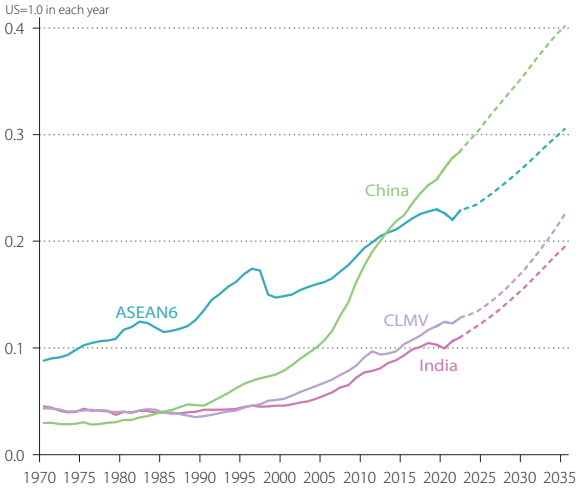



**Figure 3.11 Per Capita GDP of China, India, and ASEAN, 1970–2035**
——Index of GDP at current market prices per person from 1970 to 2022 and our projection to 2035, using the 2017 PPP

Unit: Index (the US=1.0). Sources: Official national accounts in each country (including adjustments by APO-PDB) and our projections (Box 12). Note: Our projections are drawn with dotted lines.

Table 9.6 also presents individual figures for resource-rich economies. At first glance, figures in 1970, and to a lesser extent, those in 1990, suggest that these economies had remarkably higher per capita GDP than

35: The informal economy is large in developing countries, and the official GDP may not fully reflect its size. For example, Roubaud and Nghiem (2022) point to a significant underestimation of household business in Vietnam, arguing for a possible underestimation of about 20%, although the extent of its inclusion in the official GDP is unclear.

36: Per capita GDP may have underestimated welfare in some economies. For example, in the ROC, Hong Kong, and Japan, GNI is consistently higher than GDP, although the fluctuations are within +6%. The Philippines is the exception where the divergence between GNI and GDP has been increasing and has become significant for the past two decades, and GNI was more than 10% higher than GDP in the 2010s, although it has declined rapidly in recent years. (Figure 7.1). The number of Overseas Filipino Workers (OFWs) or Filipino workers who worked abroad during the period of April to September 2022 was estimated at 1.96 million, 80.8% of whom worked in other Asian countries (23.0% in Saudi Arabia and 13.7% in UAE), according to the Philippine Statistics Authority's "2022 Overseas Filipino Workers (Final Results)," on October 11, 2023.

Japan and the US. However, the measurement of GDP as an indicator of production is misleading for these countries, as it erroneously includes proceeds from liquidating a mineral and energy resources (MER) stock as part of the income flow. In other words, GDP over-evaluates net income in resource-exporting countries because it does not account for the depletion of their MER assets. To give a rough indication of the extent of distortion, Figure 3.12 provides comparisons of per capita GDP excluding mining sector production in 2022.[37] The non-mining GDP per person in GCC economies, such as Bahrain, Saudi Arabia, and Kuwait, is almost identical to Japan's, although the total GDP per capita is much larger. In Mongolia and Iran, the mining industry's share of GDP is around 25%, similar to the lower end of the range seen in GCC (Figure 7.5). In other resource-rich countries in Asia, the mining share is less than 10%.

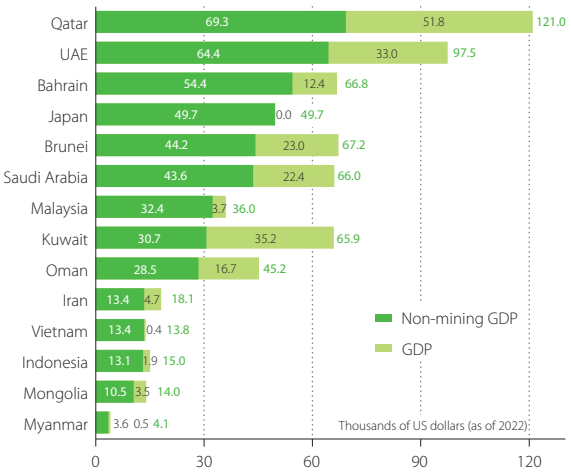



**Figure 3.12 Per Capita Non-Mining GDP of Resource-Rich Countries in 2022**
——GDP per person (using the 2017 PPP), the reference year 2022

Unit: Thousands of US dollars (as of 2022). Sources: Official national accounts in each country, including adjustments by APO-PDB. Note: The change in mining-sector GDP share from 2000 to 2022 is provided in Figure 7.5.

Catching up with the per capita GDP level of advanced economies is a long-term process that could take several decades. Empirical evidence suggests a negative correlation between the per capita GDP level and the speed of catching up, with some exceptions. That is, poorer countries tend to grow faster to catch up. With the possibility of adopting successful practices and technologies from the more advanced economies, less advanced economies are poised to experience faster growth in per capita GDP, enabling themselves to catch up to average income levels. However, as

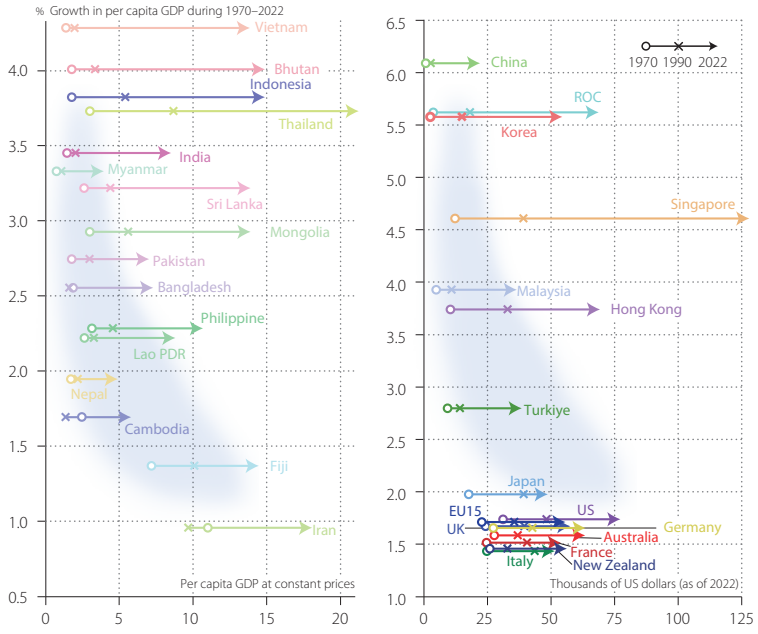



**Figure 3.13 Initial Per Capita GDP Level and Growth, 1970–2022**
——Growth in GDP at constant prices (using the 2017 PPP), the reference year 2022

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country, including adjustments by APO-PDB. Note: The level of GDP per capita is based on 1970 as the initial point of the arrow, 1990 as the middle point marked with an X, and 2022 as the end point of the arrow.

37: The productivity account in the previous edition of the Databook (APO 2023) is the first to consider the impacts of MER assets. See Box 10 for the impact of this revision in some resource-rich countries.

their income levels approach the more advanced countries, their economic growth rates are expected to decline. Figure 3.13 plots countries' initial per capita GDP levels against their respective average annual growth rates over the last half-century, from 1970 to 2022. The left chart shows the relation for the poorer countries with less than $20,000 per capita GDP, while the right chart shows the middle and high-income countries. The general negative relationship between growth rates and initial income is quite clear.

Table 3.2 summarizes Figure 3.13 by grouping countries with four initial per capita income levels in 1970. The speed of catch-up with the US is defined as the difference in the average annual growth rate of per capita real GDP between each country and the US. It shows that many Asian countries have closed the per capita real GDP gap with the US over the last four decades, although some are more successful than others. One can see that the initial economic level does not fully explain the catch-up process. If it did, the table would have been populated diagonally from top left to bottom right. Hong Kong and Singapore, for example, has high initial incomes but grew very fast, while Cambodia has low initial income and grew slowly.

**Table 3.2 Country Groups Based on Initial Economic Level and Catching-Up Pace, 1970–2022**
——Level and growth of per capita GDP at constant prices (using the 2017 PPP)

| Per capita GDP level in 1970, relative to the US | Average annual rate of catch-up to the US during 1970–2022 | | | | | |
|---|---|---|---|---|---|---|
| | (A6) <–1% | (A5) –1% ≤–< 0% | (A4) 0% ≤–< 1% | (A3) 1% ≤–< 2% | (A2) 2% ≤–< 3% | (A1) 3% ≤ |
| (B1) 60% ≤ | Brunei, Kuwait, Qatar, Saudi Arabia, UAE | Australia, Bahrain, EU15, France, Germany, Italy, New Zealand, UK | | | | |
| (B2) 20% ≤–< 60% | | Fiji, Iran | Japan | Oman, Turkiye | Hong Kong, Singapore | |
| (B3) 10% ≤–< 20% | | | Philippines | | Malaysia | ROC |
| (B4) 0% ≤–< 10% | | Cambodia | Bangladesh, Lao PDR, Nepal | India, Mongolia, Myanmar, Pakistan, Sri Lanka, Thailand | Bhutan, Indonesia, Vietnam | China, Korea |

Sources: Official national accounts in each country, including adjustments by APO-PDB. Notes: The annual catch-up rates are based on the difference in per capita GDP growth at constant prices between each country and the US during 1970–2022. Table 6.1 provides another country grouping.

## 3.3 Sources of Per Capita GDP Gap

To further understand the diverse performance of the Asian group, per capita GDP can be broken into two components: labor productivity (defined as real GDP per worker) and the employment rate (defined as the ratio of workers to the population). This section discusses these two components of per capita GDP performance as a gap relative to the US in 2022.[38] Figure 3.14 shows the percentage point differences in the per capita GDP gap decomposed into the contributions by the labor productivity gap and the employment rate gap. Most Asian countries display a huge per capita GDP gap with the US, and their inferior labor productivity performance is the main source of this gap. In the Asian region, CLMV, with its

38: The gap in a country x's per capita GDP relative to the US is decomposed into the sum of the gaps in labor productivity and employment rate with respect to the US, as in:

$$\underbrace{\ln\left(GDP_x^t / POP_x^t\right) - \ln\left(GDP_{US}^t / POP_{US}^t\right)}_{\text{Gap of per capita GDP}} = \underbrace{\ln\left(GDP_x^t / EMP_x^t\right) - \ln\left(GDP_{US}^t / EMP_{US}^t\right)}_{\text{Gap of labor productivity}} + \underbrace{\ln\left(EMP_x^t / POP_x^t\right) - \ln\left(EMP_{US}^t / POP_{US}^t\right)}_{\text{Gap of employment rate}}$$

where $POP_x^t$ is population of country $x$ in period $t$ and $EMP_x^t$ is the number of employed workers.

younger population structure, and East Asia have higher employment rates than the U.S., which has a modest but positive effect on reducing the gap.

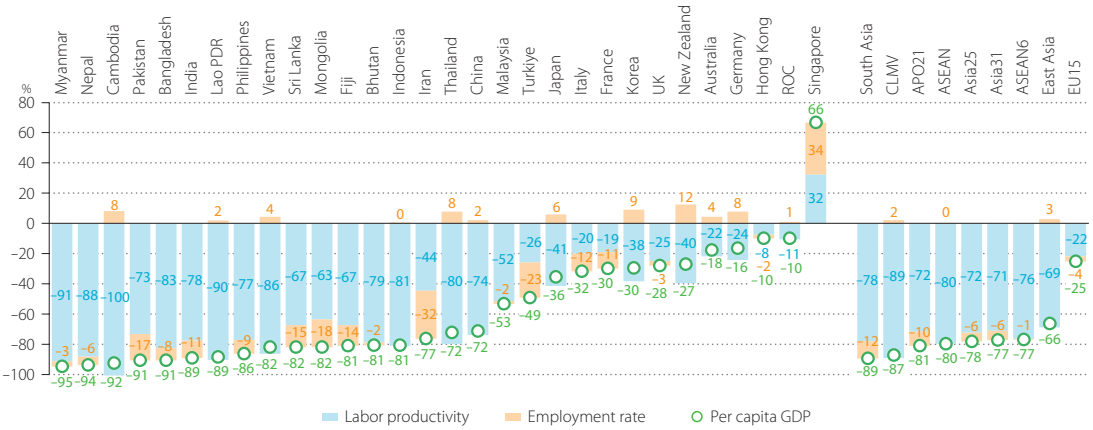



**Figure 3.14 Sources of Per Capita GDP Gap in 2022**
——Differentials in per capita GDP at constant prices (using the 2017 PPP) relative to the US

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB.

## Box 4 Demographic Dividend in Asian Countries

The population's age structure is of interest from both supply and demand perspectives for economic growth. Figure 3.15 shows the demographic make-up of countries in 2022 (the population proportions of the 0-14 and 65-and-over age groups, which together make up the dependent population)—ranking the countries by the share of the 65 and over population automatically filters the rich economies to the top tier. These economies have a relatively low percentage of the young-age group compared to less-developed countries. This suggests that demographic transition tends to run parallel with economic progress, although the direction of causation is uncertain. As countries move from high to low mortality and fertility rates, the demographic transition produces a "boom" generation larger than those immediately before and after. As this boom generation gradually works through a nation's age structure, it produces a "demographic dividend" of economic growth as people reach their prime working years.

According to the UN projections (United Nations 2022),[39] Figure 3.16 and Figure 3.17 track changes in the working population (aged 15-64) to the dependent population

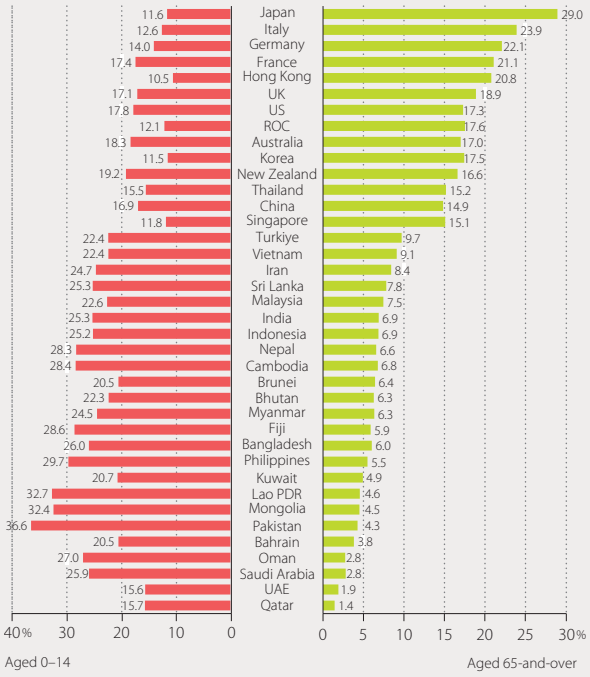



**Figure 3.15 Proportion of the Dependent Population in 2022**

Unit: Percentage. Sources: Population census and official national accounts in each country.

(aged 0-14 and 65-and-over) by country and country group, respectively. The higher the ratio, the more favorable its demography for economic growth. Japan could have capitalized on the demographic dividend in the 1960s when its GDP growth was over 10% per year for ten years. Similarly, China, Hong Kong, Korea, Singapore, and Thailand were poised for such a demographic dividend in the 2000s and 2010s. Considering population projections, some ASEAN countries, such as Myanmar and Indonesia, will have to wait for such an opportunity until the 2020s and 2030s, and South Asian countries (except Sri Lanka) until the late 2030s and 2040s.

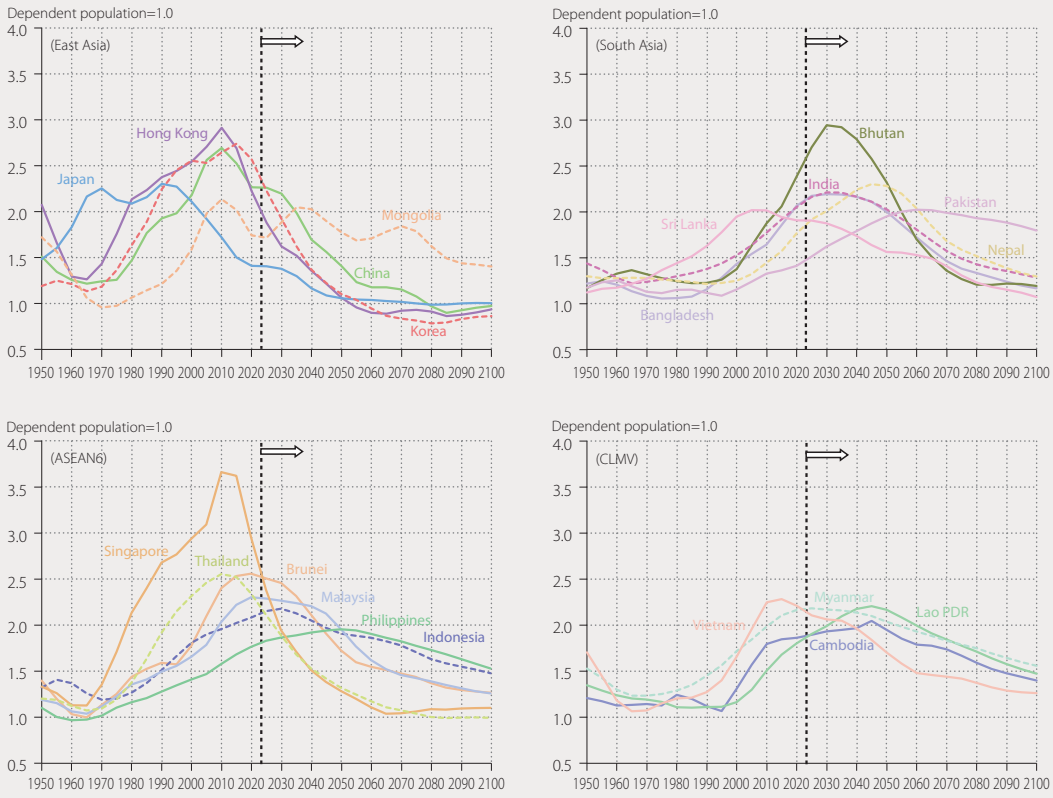



**Figure 3.16 Demographic Dividend by Country, 1950–2100**

Unit: Index (dependent population (aged 0-14 and 65-and-over) = 1.0). Source: United Nations (2022).

The realization of this dividend is not guaranteed. Favorable demography can produce a wealth creation cycle only if combined with appropriate health, labor, financial, human capital, and growth-enhancing economic policies. These complementary factors cannot be taken for granted but must be cultivated to earn the demographic dividend. As the analysis of the Databook shows, the contribution of labor to economic growth has been smaller than capital and TFP for most countries (Figure 5.14). This means that aging in countries is not as significant a negative effect if robust growth rates of capital and TFP are maintained. Nevertheless, understanding the demographic shift and its implications is relevant for economic projections, providing valuable

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39: The revisions to the UN population projections for 2022 in Asian countries from the previous 2019 estimates are discussed in Figures 3.18 and 3.19 in the previous edition of the Databook (APO 2023).

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foresight for economic policymaking. In our projection of economic growth to 2035 (Box 12), the changes in demographic structure play an important role in forecasting not only hours worked for the entire economy but also qualitative changes in labor inputs.

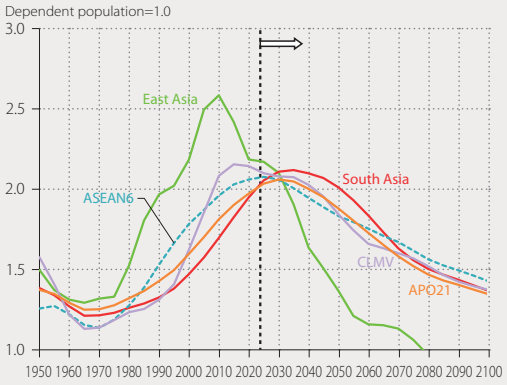



**Figure 3.17 Demographic Dividend by Country Group, 1950–2100**

Unit: Index (dependent population (aged 0-14 and 65-and-over) = 1.0). Source: United Nations (2022).

Figure 3.18 gives the two components of per capita GDP growth between 2010 and 2022: labor productivity growth and the change in the employment rate.[40] About two-thirds of the countries increased the employment rate in this period. In most countries, however, labor productivity improvement as a share of per capita GDP growth has exceeded employment expansion. Thus, increasing labor productivity is the key to closing this output gap. The change in female employment plays an important role. Figure 3.19 shows the expansion of the female employment rate from 1970 to 2022. In many countries, such as the South Asian countries (except India) and the Asian Tigers, the expansion of the female employment rate has been significant over this half-century.

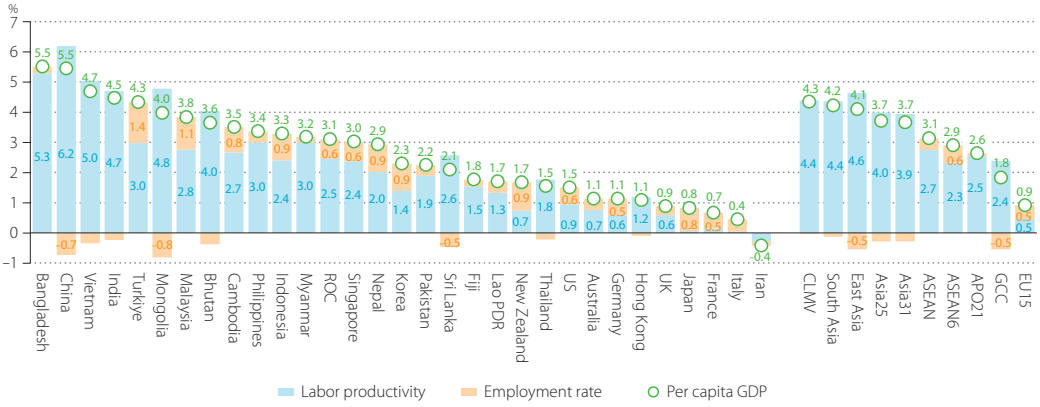



**Figure 3.18 Sources of Per Capita GDP Growth, 2010–2022**
——Growth in per capita GDP at constant prices (using the 2017 PPP)

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country, including adjustments by APO-PDB.

40: Country $x$'s per capita GDP is decomposed into the product of its labor productivity and employment rate, as in:
$\underbrace{\ln\left(GDP_x^t / POP_x^t\right)}_{\text{Per capita GDP}} = \underbrace{\ln\left(GDP_x^t / EMP_x^t\right)}_{\text{Labor productivity}} + \underbrace{\ln\left(EMP_x^t / POP_x^t\right)}_{\text{Employment rate}}$ where $POP_x^t$ is population of country $x$ in period $t$ and $EMP_x^t$ is the number of employed workers.

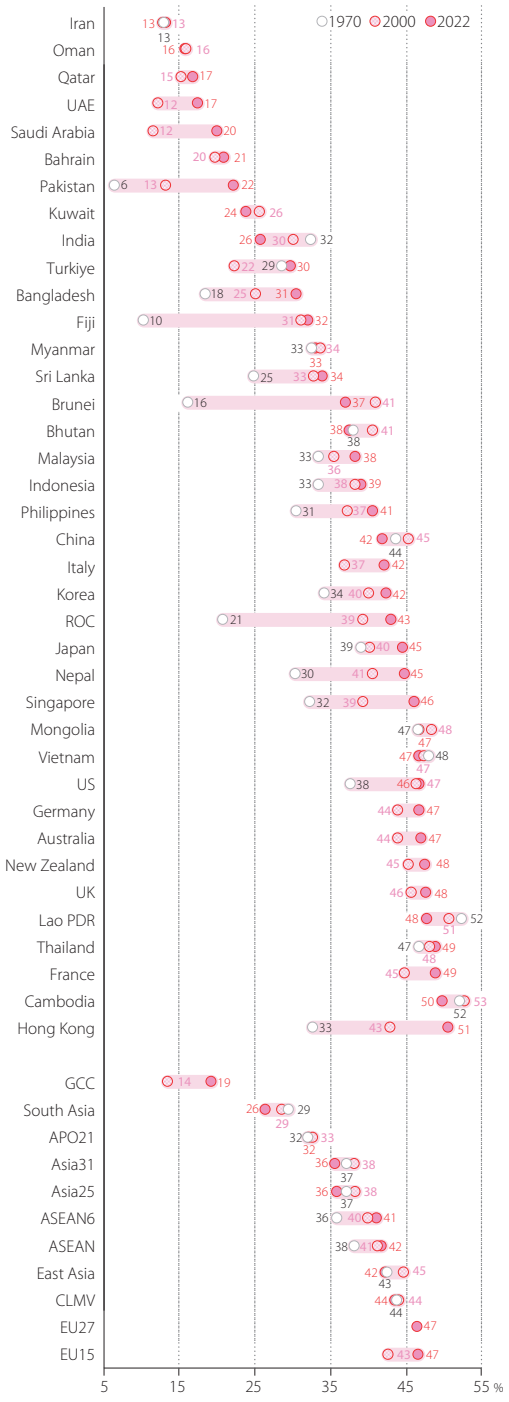



**Figure 3.19 Female Employment Share in 1970, 2000, and 2022**

——Ratio of female workers to total employment

Unit: Percentage. Sources: Population census and labor force survey in each country (including adjustments by APO-PDB), ILOSTAT database for GCC countries, Australia, EU 15, France, Germany, Italy, New Zealand, and the UK; The EU Labor Force Survey (Eurostat) for the EU 27.

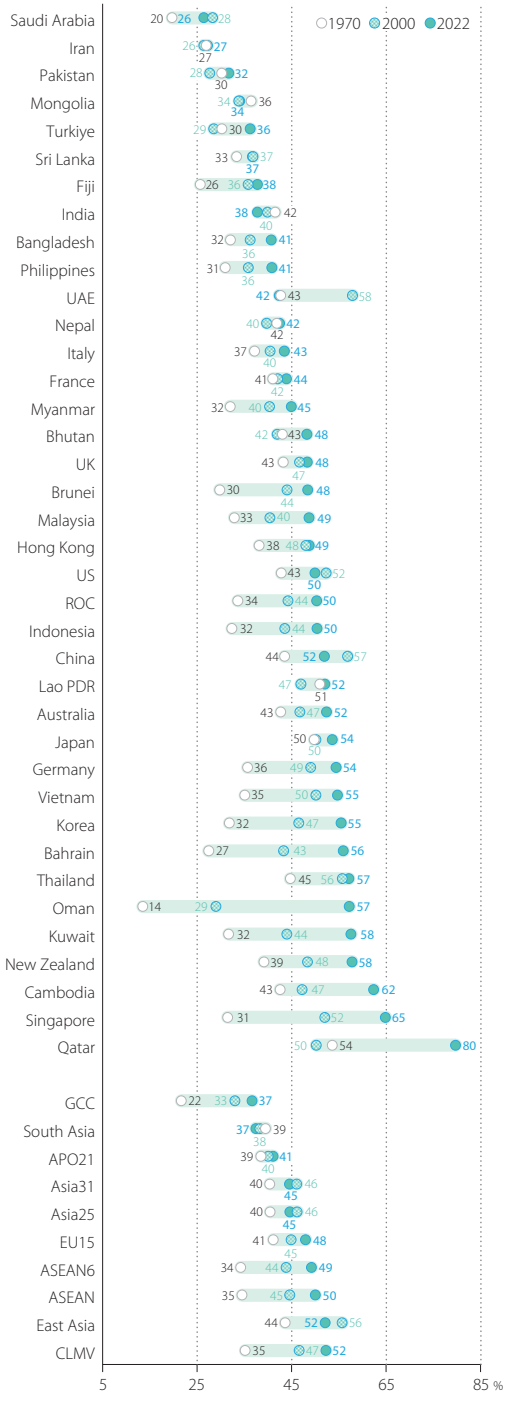



**Figure 3.20 Employment Rate in 1970, 2000, and 2022**

——Ratio of employment to the total population

Unit: Percentage. Sources: Employment and population data by national statistical offices in each country, including adjustments by APO-PDB.

Asian countries still have significant growth potential, as shown in Figure 3.19. Especially in the Muslim countries of Iran, Pakistan, and Turkiye, the female employment rate is significantly less than in the US, at 13%, 22%, and 30% in 2022, respectively, further reinforcing these countries' poor economic performances (Figure 3.14). These low shares of female employment rates is the major reason for their low overall employment rates shown in Figure 3.20.

Figure 3.20 shows cross-country comparisons of employment rates in 1970, 2000, and 2022 based on the labor statistics of each country. Employment consists of employees, own-account workers, and contributing family workers. The fastest catch-up countries in Group–A1 (Table 3.2), i.e., China, Korea, and the ROC, have the largest surge in employment rates over the past five decades. Some of the countries in Group–A2, such as Singapore and Malaysia, also experienced significant improvements in employment rates. Generally, countries that have not succeeded in closing the gap typically showed limited employment rate growth over the period.

# 4 Demand Side Contribution to Growth



## Highlights

- In 2022, Asia31 invested 34% of its GDP, well above the 22% of the US and the 23% of EU15. East Asia has the highest investment ratio (37%) among the Asian regions (Figure 4.1), driven by China's 42% (Figure 4.2). Reflecting the investment boom, the household consumption ratio of Asia31 has dropped to 50% of GDP in 2022 from 56% in 2000 (Table 9.7).
- Investment in ICT (information and communication technology) and R&D (research and development) capital are becoming more significant in some Asian countries. In Asia25, the ICT and R&D investment shares are 9.2% and 4.9% in 2022, respectively, compared to 19% and 17% in the US (Figure 4.8).
- Net export shares in GDP are remarkably high in Singapore and the ROC, at 38.5% and 12.2% in 2022, respectively. In contrast, it peaked at 8.3% in 2007 in China and 12.2% in 2005 in Hong Kong. Since then, they have dropped 3.1% and 3.9% in 2022, respectively (Figure 4.10).
- The expansion of household consumption is the main engine of demand-side economic growth, contributing 50% of the regional growth of Asia31 from 2010 to 2022. Investment is another engine, contributing 37% of the Asia31 growth (Figure 4.3).

GDP is defined and measured in SNA using three approaches: production by industry, expenditure on final demand, and income to factor inputs.[41] Demand-side decompositions of GDP are vital in understanding the quality of economic growth. This chapter derives some characteristics of economic growth in Asian countries from an analysis of the expenditure side of GDP.

## *4.1 Final Demands*

Figure 4.1 shows comparisons of final demand shares of nominal GDP among country groups, covering 1) household consumption, including consumption of non-profit institutions serving households (NPISHs), 2) government consumption, 3) investment or, in national accounts terminology, gross fixed capital formation (GFCF) plus changes in inventories, and 4) net exports (exports minus imports). Country groups display distinctive features in their final demand composition, reflecting their development stage and industrial structure.[42]

In economies undergoing rapid transformation, however, the share of household consumption is more volatile and mainly trends downward. Figure 4.1 gives the GDP shares for 1970, 2000, and 2022 and Table 9.7 provides the numbers. Within Asia, all regions except the Gulf Cooperation Council (GCC) display a decline in household consumption ratios. South Asia maintains the highest share, although it dropped from 77% in 1970 to 64% in 2022. There is also a sharp fall in consumption in CLMV, from 68%

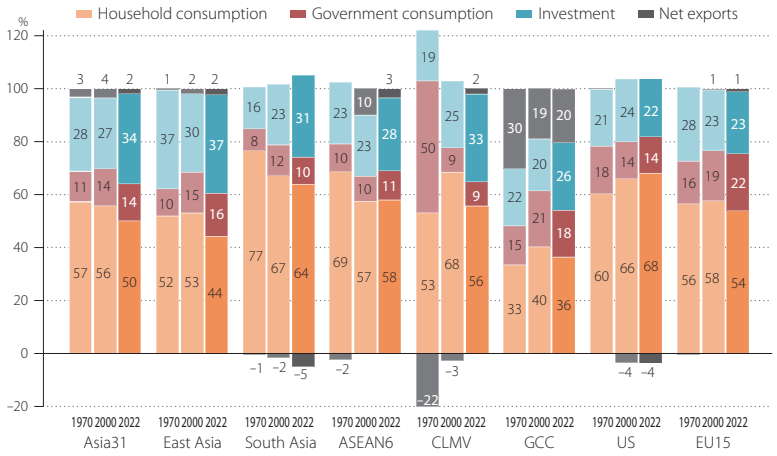
41: In theory, the three approaches to measuring GDP are accounting identities. They should yield the same result, but in practice, they differ due to factors like measurement error and the estimates of the informal sector. Based on the APO-PDB Metadata Survey 2024 for APO member economies (Section 8.1.1), Japan is an exceptional country that determines GDP from its expenditure-side measurement (the expenditure-side estimate is based on the commodity flow data, in which the data on production/shipment in detail product classification are used as the controlled totals). In other countries, GDP is estimated from the production side (value-added in industries). Some countries define an additional item, "statistical discrepancy," as the difference in the estimates between production-based GDP and the sum of final expenditures. In the Databook, the statistical discrepancy is mainly attributed to household consumption. Readers should keep in mind that this treatment can have some impact on the share of final demand.

42: Compared to the previous edition of the Databook (APO 2023), the estimates in this edition reflect the benchmark revisions in Bhutan (footnote 3), Saudi Arabia (footnote 4), and the US (footnote 5).

in 2000 to 56% in 2022. In contrast, the US household consumption share has been climbing.[43] Overall, Asian countries invest significantly more than the US and the EU15 as a share of GDP. In 2022, investment accounted for 22% and 23% of final demand in the US and the EU15, compared with 34% for Asia31. East Asia has the highest investment ratio (37% in 2022) among the Asian regions in the entire period of our observation. Compared to other components of final demand, the contribution of net exports to the Asian economy has always been more volatile.

**Figure 4.1 Final Demand Shares by Region in 1970, 2000, and 2022**
——Shares of final demands to GDP at current market prices

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB. Notes: Final demand shares in the country groups are computed using the PPPs for GDP. Household consumption includes the consumption of NPISHs. The investment consists of GFCF plus changes in inventories.




While there are some characteristics of regional averages, there are also significant variations among countries. Figure 4.2 shows the cross-country comparisons of investment share in domestic final demand in 2000, 2010, and 2022. Countries are listed in descending order of GDP per capita, as shown in the reference chart at the left of Figure 4.2. In the top group, in terms of GDP per capita, investment expansion is remarkable in some GCC countries and Brunei. However, a decline in the investment share since 2000 is evident in Singapore and Hong Kong, partly because of the impact of the COVID-19 pandemic. On the other hand, least developed Asian countries, such as Bangladesh, Cambodia, Lao PDR, Myanmar, Mongolia, and Nepal, have steadily increased their investment share. However, investment share remains stagnant, especially in Fiji, the Philippines, and Pakistan, where the current per capita GDP is below $15,000.

43: It is worth noting that the GDP share of government consumption in the EU15 was higher than the average of Asia31 by 7.4 percentage points in 2022 (Table 9.7). Regarding welfare measurement, actual individual consumption, as opposed to household consumption, is preferred because the former considers expenditures by NPISHs and the government on individual consumption goods and services (such as education and health) in addition to household consumption.

While the main driver of economic growth from the demand side is the expansion of household consumption, the impact of investment growth is also evident in Asian countries. Figure 4.3 shows the average annual economic growth decomposition by final demand from 2010 to 2022.[44] Of the 4.5% average annual economic growth rate in Asia31 during this period, 2.2 percentage points came from household consumption, but investment was close at 1.7 percentage points.

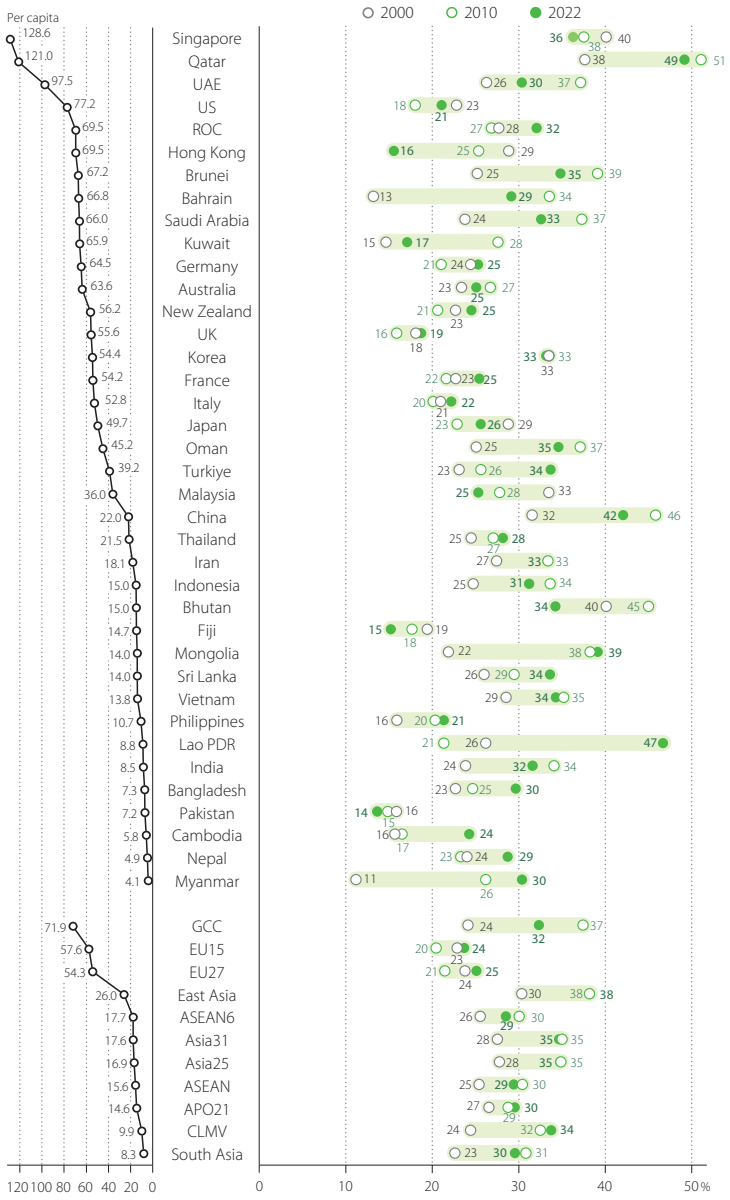



**Figure 4.2 Investment Share by Country in 2000, 2010, and 2022**

——Share of investment to domestic final demand at current market prices

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB. Notes: The investment includes GFCF plus changes in inventories. The domestic final demand is the sum of investment and household and government consumption. The reference chart at the left shows per capita GDP at market prices in 2022, using the 2017 PPP (thousands of US dollars).

44: The Translog quantity index is adopted for calculating the growth in real GDP. Using this index, we can decompose the growth in real GDP into the contributions by the four components of final demands:

$$\underbrace{\ln\left(GDP^{t} / GDP^{t-1}\right)}_{\text{Real GDP growth}} = \underbrace{\sum_i (1/2)\left(s_i^{t} + s_i^{t-1}\right) \ln\left(Q_i^{t} / Q_i^{t-1}\right)}_{\text{Contribution of final demand } i}$$

where $Q_i^t$ is quantity of final demand $i$ in period $t$ and $s_i^t$ is expenditure share of final demand $i$ in period $t$. Thus, the real GDP growth may diverge from the official estimates or those presented in Table 9.3.

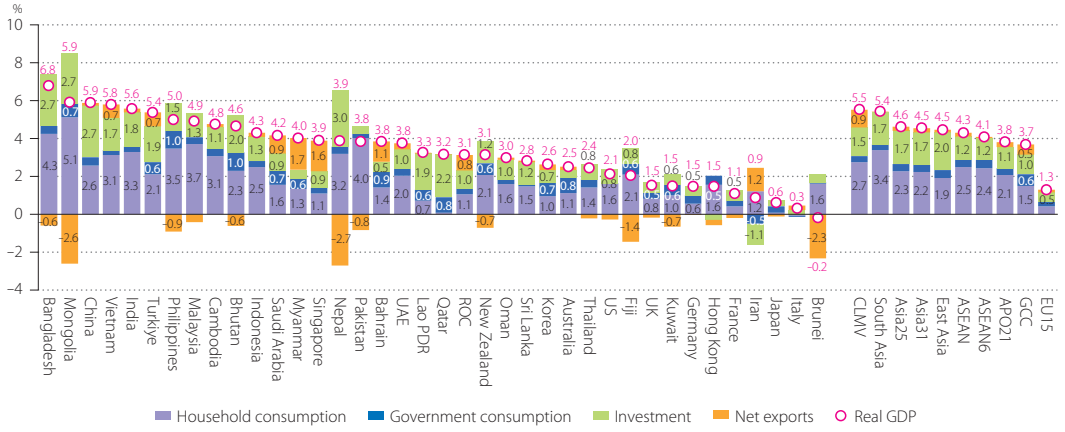



**Figure 4.3 Final Demand Contributions to Economic Growth, 2010–2022**
——Growth in GDP at constant prices and final demand contributions

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country, including adjustments by APO-PDB.

## *4.2 Demand Compositions*

This section describes the characteristics of the factors that influence final demand and their composition in Asia. The difference in demographic structure partly explains the differences in the consumption rate. Figure 4.4 shows that countries with a high proportion of the dependent population (aged 0-14 and 65 or over) tend to have a high household consumption share in their domestic final demand. This is reflected by a higher propensity to consume by individuals in the dependent population and the savings-consumption choices of their households. Asian countries with consumption shares exceeding 65% in 2015 are the low-income countries with a dependent population ratio of 35% or more, such as Bangladesh, Cambodia, Nepal, Pakistan, and the Philippines. This figure also shows the change from 2015 to 2022. Among these five countries, except Nepal and the Philippines, the declining trend in the dependent population in recent years has affected the declining consumption share. However, in high-income countries such as Singapore,


**Figure 4.4 Dependent Population Ratio and Consumption Share in 2015 and 2022**
——Dependent population ratio to total population and consumption share in domestic final demand

Unit: Percentage. Sources: Population data by the national statistical office in each country, World Bank (2023), official national accounts in each country, and AQALI 2024. Note: The dependent population is people aged 0-14 and over 65.

the ROC, Korea, and Japan, the increase in the dependent population, mainly because of aging, has not increased the consumption share but rather decreased it.

The decomposition of household consumption reveals a tremendous diversity of consumption patterns among individual countries, partly reflecting their income levels and partially the distinctive characteristics of their society. Figure 4.5 gives the commodity-group composition of consumption and illustrates the cross-country version of Engel's Law, which states that basic necessities will account for a high proportion of household consumption for lower incomes, and that proportion falls with rising incomes. More specifically, countries where food and non-alcoholic beverages account for a large proportion of consumption typically have low income, as shown in the reference chart at the left of Figure 4.5. The other end of the spectrum is rich Asian countries, namely, the Asian Tigers and Japan. Besides food and non-alcoholic beverages, housing/utilities and transportation are the other large spending categories. In rich economies, these two categories account for larger shares in household consumption than food and non-alcoholic beverages. Idiosyncratic spending, such as education in Cambodia, Korea, Mongolia, the Philippines, Singapore, and Vietnam (accounting for 4–6% of household consumption) and health in the US (accounting for 21%), are not reflected in other countries.

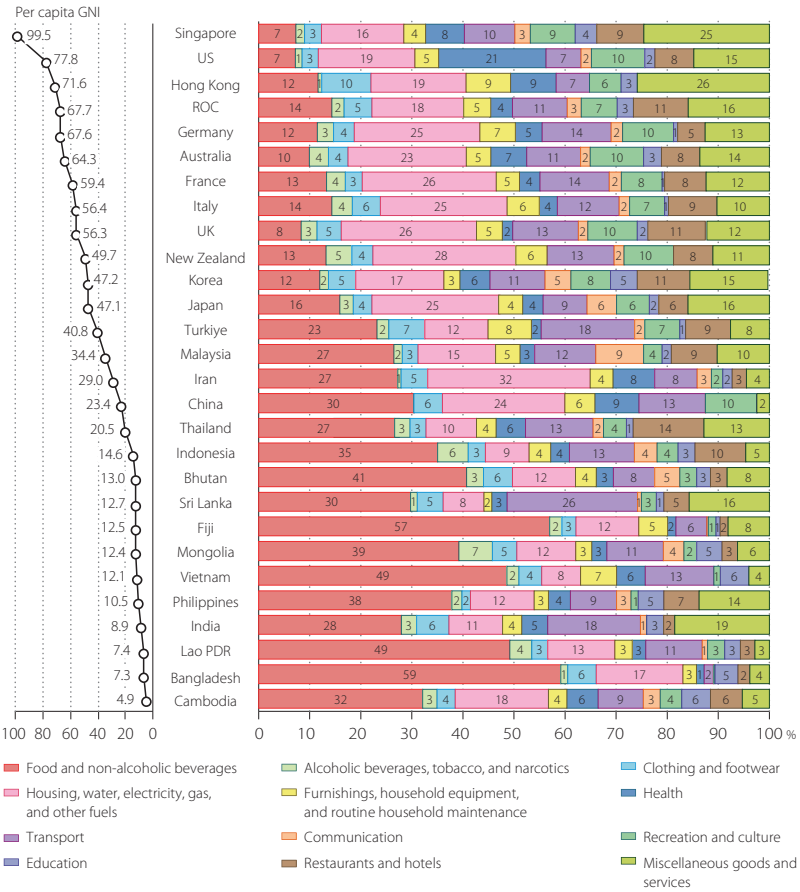



**Figure 4.5 Household Consumption by Purpose in 2022**

——Share of household consumption at current market prices by purpose

Unit: Percentage. Sources: Official national accounts in each country. Notes: For data on Hong Kong, transportation includes communication; recreation and culture include hotels; miscellaneous goods and services include restaurants. For data on China, food and non-alcoholic beverages include alcoholic beverages, tobacco, and narcotics; transportation includes communication; recreation and culture include education. For data in Vietnam, transportation includes communication. The observation periods for Fiji, the Lao PDR, and Vietnam are 2009, 2005, and 2016, respectively. The reference chart at the left shows per capita GNI in 2022, using the 2017 PPP for household consumption, the reference year 2022 (thousands of US dollars).

The role of foreign direct investment (FDI) in domestic investment differs considerably among Asian countries. Figure 4.6 shows the FDI inflows as a percentage of GFCF in 2015 and 2022, plus 2019, the year of slowdown in China due in part to US-China trade tensions, and the year just before COVID-19 impacted the world economy. Especially in developing countries, FDI contributes to local human resource development and technology transfer. In 2022, the FDI inflows were over 10% of GFCF in 11 countries of Asia31. They were outstanding in the two global cities, Hong Kong (204% of GFCF) and Singapore (137%),[45] as well as in Cambodia (54%) and Mongolia (49%). On the other hand, Japan (2.9%), Nepal (0.6%), Kuwait (3.4%), Iran (1.3%), Bhutan (0.8%), and Qatar (0.1%) saw very low FDI inflows in 2022.

FDI is unlikely to experience rapid capital outflows of liquid investments in the short-term during crisis periods. In May 2022, Sri Lanka defaulted on loans for the first time since its independence in 1948,[46] and its FDI inflow was as low as 2–3% of GFCF during this period, suggesting an increased reliance on indirect investment and a failure to increase direct investment.[47]

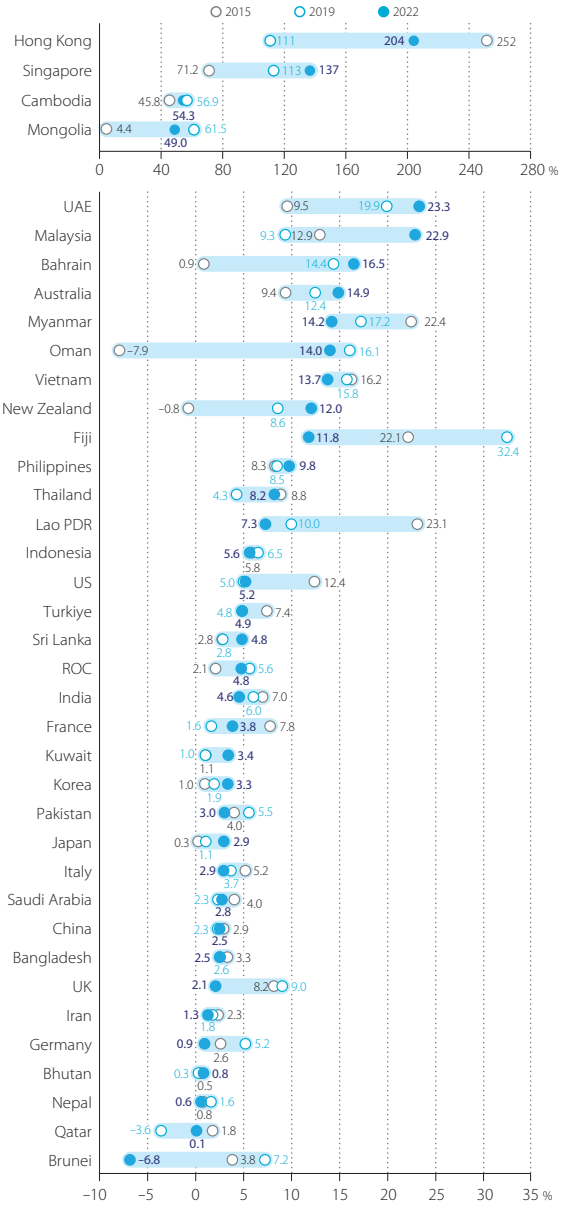



**Figure 4.6 FDI Inflows in 2015, 2019, and 2022**

——FDI inflows as a percentage of GFCF at current prices

Unit: Percentage. Sources: United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2023*, and APO Productivity Database 2024.

45: Since FDI includes equity acquisitions, this ratio can exceed 100%. Some of this may pass through Hong Kong and ultimately become real investments in other regions.

46: See "Sri Lanka Becomes a First Asia-Pacific Country in Decades to Default on Foreign Debt," *Financial Times*, May 19, 2022. On July 5, Prime Minister Ranil Wickremesinghe told Parliament that Sri Lanka was bankrupt. The IMF approved a 48-month extended arrangement under the Extended Fund Facility of about USD 3 billion to support Sri Lanka's economic policies and reforms on March 20, 2023 (IMF Country Report No. 23/116).

47: According to the Central Bank of Sri Lanka's Annual Report (April 20, 2023), the increase in FDI in 2022 is mainly due to the increase in equity investments by some major companies listed in the Colombo Stock Exchange (CSE). They were unable to take their dividends abroad because of the foreign exchange shortage in 2022, choosing to invest their profit.

It is an important policy target for low-income countries to create a business-enabling environment, just as it is important for middle-income countries to improve various business environments. Based on the EIU's (Economist Intelligence Unit, *The Economist*) ranking (covering 82 countries worldwide),[48] Singapore and Hong Kong are in the top 10% of the covered countries. Figure 4.7 plots the business environment score and the FDI inflow ratio (as the average in 2015–2022) in the countries presented in Figure 4.6, excluding the countries where the FDI inflow ratio is over 20%. In Iran, Pakistan, Bangladesh, and Sri Lanka, improving the business environment is necessary for attracting FDI. Although Japan is one of the countries with the lowest FDI ratio, as shown in Figure 4.6, this cannot be explained by a poor business environment, suggesting the presence of other factors such as regulations and complex administrative procedures.

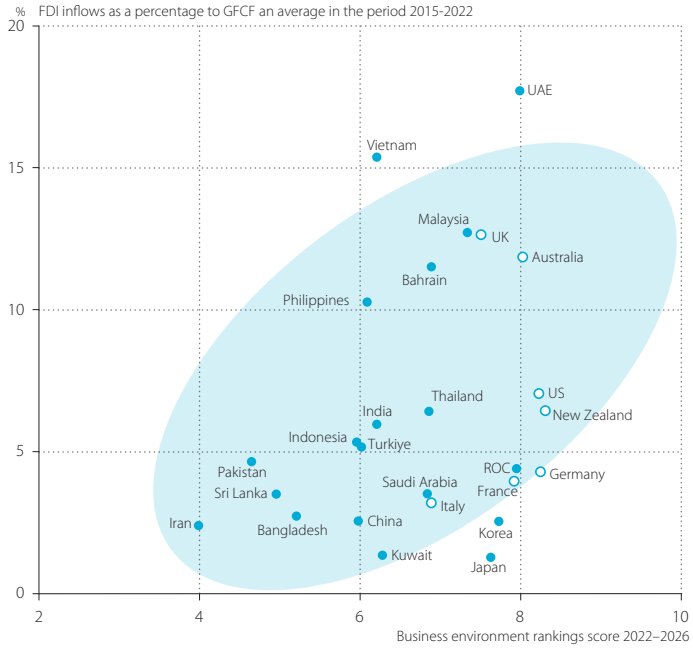



**Figure 4.7 Business Environment and FDI Inflow Ratio, 2015–2022**

——FDI inflows as a percentage of GFCF at current prices and business environment score

Unit: Percentage for the vertical axis and score for the horizontal axis. Sources: United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2023*, The Economist, The Economist Intelligence Unit 2021, 2022, and 2023, and APO Productivity Database 2024. Note: The evaluation period is 2022–2026 for Australia, China, Germany, Indonesia, Iran, Japan, Korea, Kuwait, Turkiye, Saudi Arabia, Singapore, Sri Lanka, and the UK.

Investment consist of distinct items ranging from structures to ICT equipment to R&D. Figure 4.8 shows the nominal GFCF share of five types of assets for the Asia25 economies and regions in 2022.[49] Countries are listed in ascending order of the GFCF share in GDP, as shown in the reference chart at the bottom of the figure. For most Asian countries, particularly those with GFCF greater than 30% of GDP, investment is still construction-based (i.e., dwellings, non-residential buildings, and other structures). However, the expansion of ICT capital and R&D is becoming more significant in some countries like Singapore with a share (40% of the GFCF), that surpasses that of the richest countries (in current prices). The next highest shares are the US (36%), Japan (28%), Korea (25%), Hong Kong (25%), ROC (23%), Malaysia (20%), and Thailand (19%).[50]

48: The EIU's business rankings model examines 10 separate criteria or categories, covering the political environment, the macroeconomic environment, market opportunities, policy towards free enterprise and competition, policy towards foreign investment, foreign trade and exchange controls, taxes, financing, the labor market, and infrastructure. Each category contains several indicators that the EIU assesses for the previous five years and the next five years. The number of indicators in each category varies from 5 (foreign trade and exchange regimes) to 16 (infrastructure), and there are 91 indicators in total. Each of the 91 indicators is scored on a scale from 1 (very bad for business) to 5 (very good for business). Bhutan, Brunei, Cambodia, Fiji, Lao PDR, Mongolia, Myanmar, Oman, and Nepal are not covered in EIU.

49: The investment data by type of asset includes our estimates for countries where data is unavailable in their official national accounts (Section 8.2). Although our GFCF estimates are constructed based on 11 classifications of produced assets (Table 8.3), they are aggregated into five groups of assets for this figure. ICT capital is defined as ICT hardware, communications equipment, and computer software.

50: Box 7 discusses the ICT (hardware and software) and R&D capital stocks and their implications. See Section 8.1.4 for the revision history of the estimates on ICT software investment in APO-PDB.

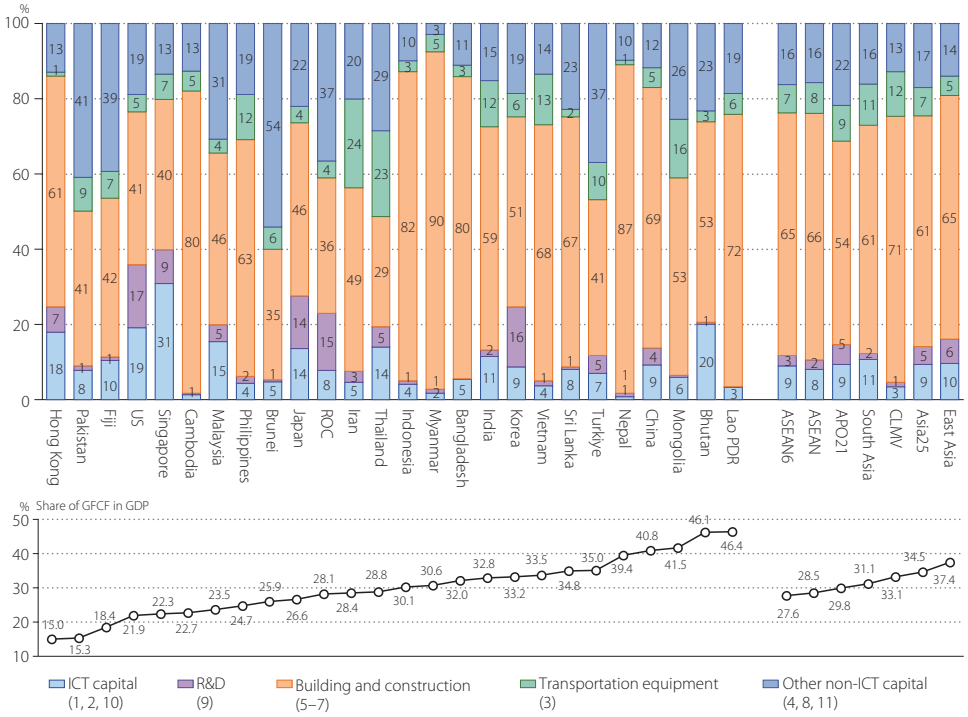



**Figure 4.8 Investment Share by Type of Produced Asset in 2022**
——Share of GFCF at current prices by type of produced assets

Unit: Percentage. Sources: Official national accounts in each country (including adjustments by APO-PDB) and APO Productivity Database 2024. Note: Numbers in parentheses of the assets correspond to the code of produced assets, defined in Table 8.3.

## Box 5 Task-wise International Division of Labor in Asia

In the past, the international division of labor was typically industry-wise, that is, production activities of one industry were mostly completed within a country's territory, and final products were traded. Each country tended to specialize in specific industries, depending on its technological level and factor endowments. A developing country typically imports manufactured goods and exports primary products. At the next level of development, it imported machinery and exported garments. The trade pattern in broad commodity classes was mostly one-way; an industry's products were traded from one country to another, but not in both directions.

In the late 1980s, the international division of labor moved to a task-wise model rather than industry-wise. A representative industry for this type of division of labor is machinery. A machine typically consists of many parts and components, and its production involves many tasks. Task-wise international division of labor was initiated in the operation of export processing zones and was gradually extended to more sophisticated "production networks." This has given rise to the term "global value chains." Figure 4.9 presents each Asian country's export/import shares occupied by machinery and transport equipment in 1990–1999, 2000–2009, and 2010–2022. A striking contrast is observed here between countries that participate in the task-wise international division of labor and those that do not. Japan and Korea are located way above the 45-degree line, which means their machinery export shares are much larger than the import shares. However, note that import shares are high, ranging from 20% to 35%. Malaysia, Thailand, and China are close to the 45-degree line, around 40% to 70%. These countries are actively exporting and importing these products at the same time. Hong Kong also shows high export/import shares, though some of their trade may be entrepot, adding only logistics services.

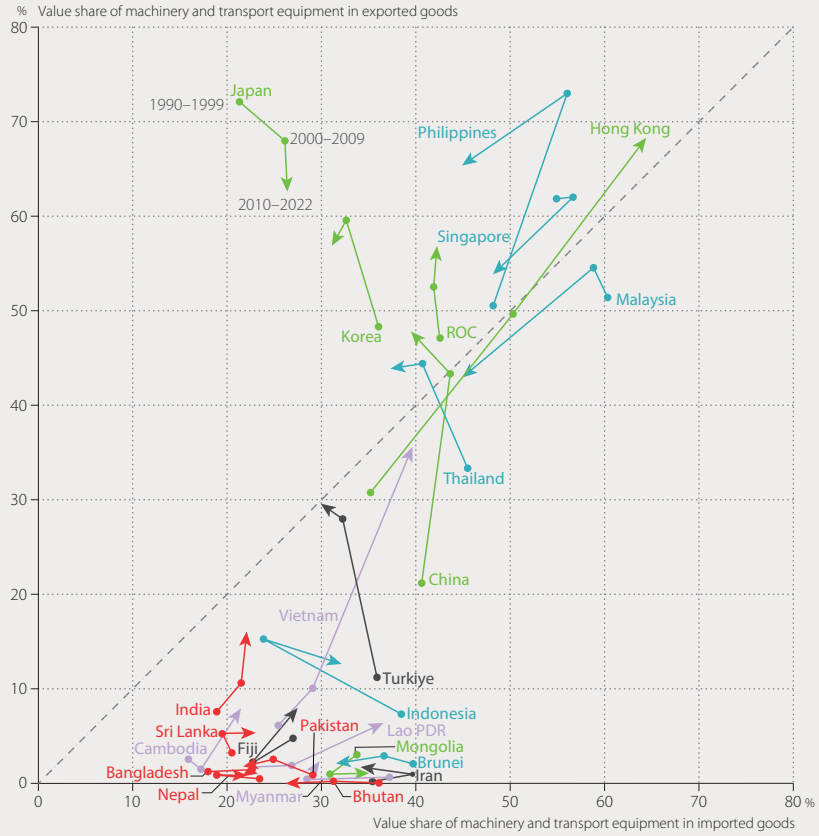



**Figure 4.9 Export and Import Shares of Machinery, 1990–2022**
——Average value share at current prices in 1990–1999, 2000–2009, and 2010–2022

Unit: Percentage. Source: APO Productivity Database 2024. Notes: The three points of the arrowed lines indicate the average shares in 1990–1999, 2000–2009, and 2010–2022, as described in Japan's estimates. The arrows are colored by region: East Asia-green, South Asia-red, ASEAN6-blue, CLMV-purple, and Other Asia-black.

This two-way trade in machinery is a type of intra-industry trade (IIT) but is different from IIT typically observed in trade between developed countries; the latter is based on horizontal product differentiation like a trade of different brands of similar cars. What we observe in Asia is the task-wise international division of labor with which a large portion of trade is occupied by the back-and-forth trade of parts and components at different levels of processing. This type of trade is observed only in limited developing countries: most of the countries in Northeast and Southeast Asia, some Eastern European countries, Mexico, and Costa Rica. Particularly in Asia, many countries are involved in it, and production networks are developed, giving rise to the phrase "Factory Asia" (ADB 2014).

For these Asian countries, export/import shares seemed to decline slightly in the 2010s. Even in the 2010s, parts and components trade grew steadily in these countries, but trade in final products expanded faster (Obashi and Kimura 2018). This means that, as these countries got richer and added to their appeal as a market, the proportion of "network trade" out of total trade declined. Other developing countries worldwide are still in the industry-wise division of labor in their trade patterns. South Asian countries (except Bhutan) are well below the 45-degree line in Figure 4.9, around 20% in import shares. Although India showed some upward movement in the 2010s, these countries do not participate in international production networks in machinery. Indonesia and Vietnam are also struggling with entering such networks.

Some Asian countries experienced drastic changes in the international division of labor (Box 5). Figure 4.10 plots the long-term trend of net export share in GDP from 1970 to 2022. Net exports, previously a significant drag on Singapore and Korea in the 1970s, have improved their position rapidly. The shares of net exports in Singapore and ROC are remarkably high, at 38.5% and 12.2% in 2022, respectively. In contrast, shares of net exports peaked at 8.3% in 2007 in China and 12.2% in 2005 in Hong Kong. Since then, they have declined to 3.1% and 3.9% in 2022, respectively, much lower than the levels in Germany as the reference country, as shown in the right chart. Germany has maintained a long-term net export ratio of over 5% since the mid-2000s, which is exceptional for a large economy, though it has been rapidly declining in recent years. Japan's trade balance turned negative, amounting to –0.6% in 2011, deepening to –2.6% in 2014, due to the shutdown of its nuclear power plants resulting from the Great East Japan Earthquake in March 2011.

Figure 4.11 presents the gross export and import shares in GDP in 2022 to show the composition of net exports. In 2022, the export share for Singapore was 186% and 194% for Hong Kong, reflecting their

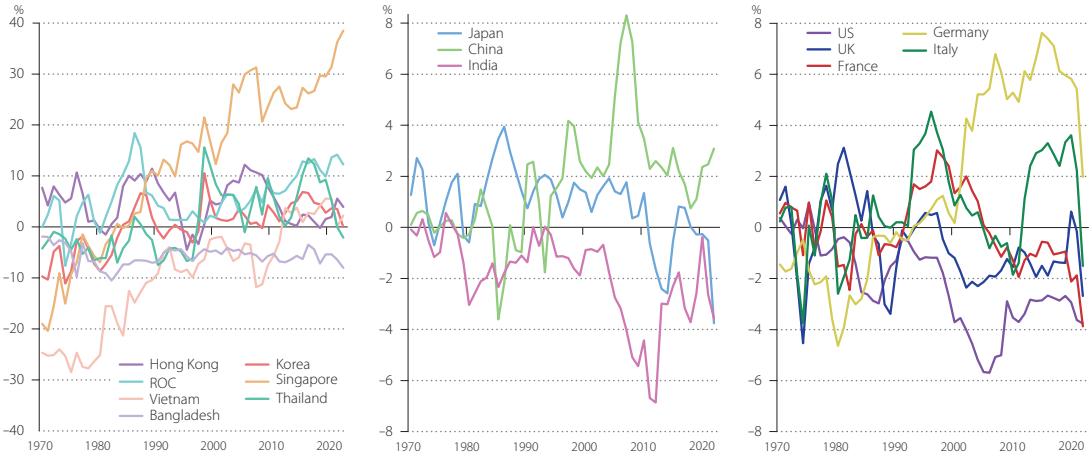



**Figure 4.10 Net Export Shares in GDP of Asian Tigers, China, and Japan, 1970–2022**
——Shares of net exports to GDP at current market prices

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB.

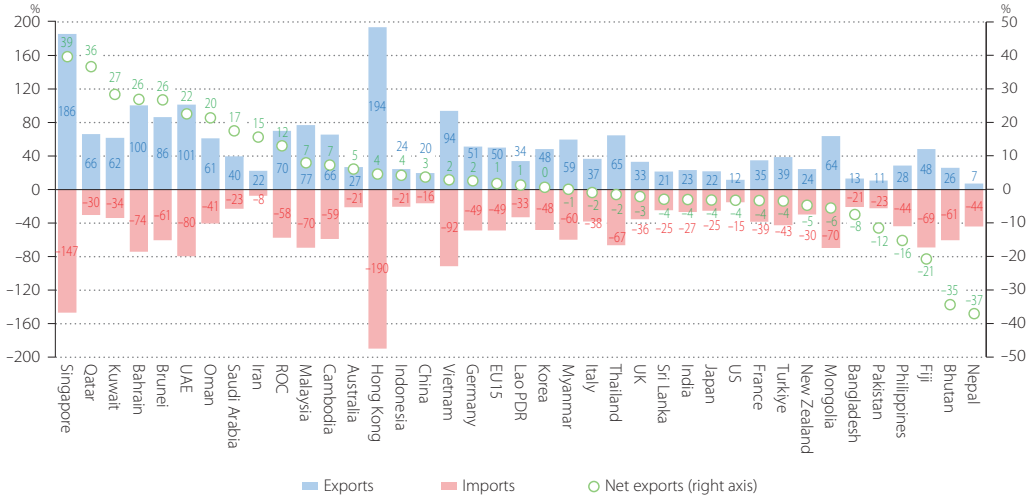



**Figure 4.11 Export and Import Share in GDP in 2022**
——Share of exports and imports to GDP at current market prices

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB.

entrepôt function for the region. This explains why the total values of exports and imports are exceptionally high relative to the GDP size in these economies.[51] About two-thirds of countries in Asia realized a trade surplus in 2022. However, Nepal and Bhutan, whose currencies are tied to the Indian rupee, suffered serious trade deficits of 37% and 35% in 2022, respectively. The impact of the COVID-19 pandemic on tourism has been particularly significant in Fiji, with a deterioration of net exports to –21%.[52]



51: The 2008 SNA requires that the trade values be recorded to reflect a change in ownership of goods rather than accounting for goods moved for processing without incurring actual transactions. Singapore and Hong Kong have already introduced the 2008 SNA. However, the revisions from the 1993 SNA on the export and import data could have been minor.

52: The tourism-dependent economy of Fiji has been hit by the border closure against COVID-19 and the tropical storms that hit the Pacific Island nation, with debt rising sharply from 2019 onwards ("World Bank Warns Fiji to Cut Debt Urgently or Risk Stalling Pandemic Recovery," *Reuters*, April 18, 2023). The country's GDP growth rate fell to –18.7% in 2019–2020 and –5.0 % in 2020–2021. However, there was a significant rebound in 2021–2022, with a growth rate of 18.2%, indicating an almost complete recovery from the pandemic.

# 5 Productivity Growth

## Highlights

- Regarding labor productivity, defined as GDP at constant basic prices per hour worked, the US has maintained a sizeable gap of more than 30%, even against the highest Asian performers (Figure 5.3 and Table 9.10). The exception is Singapore, the Asian leader in this measure, where the gap with the US has narrowed to 12% by 2022 (Figure 5.2).
- From 2015 to 2022, labor productivity of Asia25 grew by 3.8% per year on average, down from 4.9% during 2010–2015. China experienced a significant slowdown in labor productivity growth to 5.6% from 7.7% over these periods. The main drivers of the rapid productivity growth over 2005–2002 in Asia25 were China, Vietnam, Bangladesh, and India (Figure 5.5 and Table 9.11).
- Regarding TFP growth, Asia25 was severely affected by the COVID-19 pandemic in 2020 but recovered, achieving a 1.2% average rate for 2015–2022. This rate is lower than the 1.9% growth in 2005–2010 but similar to the 1.1% in 2010–2015. However, the recovery in ASEAN6 has been slower, with zero TFP growth during 2015–2022. TFP growth in South Asia over 2015–2022 was 1.3%, just 0.2 percentage points below the 2010–2015 rate (Figure 5.11).
- The growth of Asia25 over 2000–2022 was predominantly due to the contribution of capital input, representing 59% (54% for non-ICT capital and 5% for ICT). TFP growth was also significant, contributing 25% in this period (Figure 5.14).
- Capital deepening is the key mechanism of Asia25's labor productivity growth of 4.4% in 2000–2022, accounting for 48% (43% for non-ICT capital and 5% for ICT). The contributions of labor quality and TFP are 21% and 30%, respectively, in Asia25. In ASEAN, where regional TFP growth for 2000–2022 was a moderate 0.7%, 61% of the 3.3% average annual growth in labor productivity was supported by improved labor quality (Figure 5.24).

Labor productivity is measured in several ways, depending on the definitions of output and labor input measures, for example, the number of workers versus hours worked. Section 5.1 presents the labor productivity measure in terms of GDP per worker.[53] As workers in high-performing Asian countries tend to work longer hours on average than in the US (Figure 8.10), the worker-based labor productivity gaps in this instance cast the Asian countries in a particularly favorable light. Section 5.2 focuses on alternative measure of labor productivity, namely GDP per hour worked.

The sources of economic growth in each economy are decomposed into the contributions of capital and labor inputs and total factor productivity (TFP) based on the Jorgensonian growth accounting framework.[54] In Sections 5.3 and beyond, capital input is included as another key factor of production,[55] and TFP estimates are presented for the Asia25 economies and the US. Finally, Section 5.7 offers the estimates of energy productivity, becoming an important policy target for pursuing sustainable growth in

53: GDP is valued at basic prices in this chapter, as opposed to GDP at market prices used in the previous chapters. GDP at basic prices is defined as GDP at market prices minus net indirect taxes on products. As most Asian countries do not provide official estimates for GDP at basic prices in their national accounts, they are calculated based on available tax data. See Section 8.1.7 for the methods employed for our calculations.

54: The growth accounting approach is based on the microeconomic production theory and the nominal accounting balance of input and output of production. See Jorgenson (2009), Jorgenson, Ho, and Stiroh (2005), and OECD (2001) for a presentation of definitions, theoretical foundations, and several practical issues in measuring productivity.

55: Section 8.2 discusses the measurement of capital stock, i.e., produced assets, land, inventory, and mineral and energy resources (MER), and capital services. The MER asset has been considered as capital input since the APO-PDB 2023 (Box 10).

Asian countries. The details of long-term estimates of growth accounting for the APO21 economies and region are provided in the profiles in the Appendix.

## 5.1 Per-Worker Labor Productivity

Cross-country comparisons of per-worker labor productivity levels in 2022, measured as GDP per worker in US dollars in 2022, are presented in Figure 5.1. On this measure, Singapore is the leading economy with $186,200, which is 25% higher than the US ($149,100).[56] Hong Kong and the ROC follow, with more than $100,000 per-worker labor productivity. Turkiye, Korea, and Japan are in the next tier with over $80,000, at 36–41% below the US. Malaysia and Iran follow, with about $60,000. It is worth noting that Iran has the lowest employment rate in Asia25 (Figure 3.20), bringing about higher performance in labor productivity. After this group of leaders, many Asian countries follow with labor productivity levels at less than 25% of the US. This pulls down the average Asia25 performance to 24% of the US, 20% for ASEAN6, and 12% for CLMV. For the two most populous countries, the productivity of China and India were 25% and 14% of the US level, respectively, in 2022.

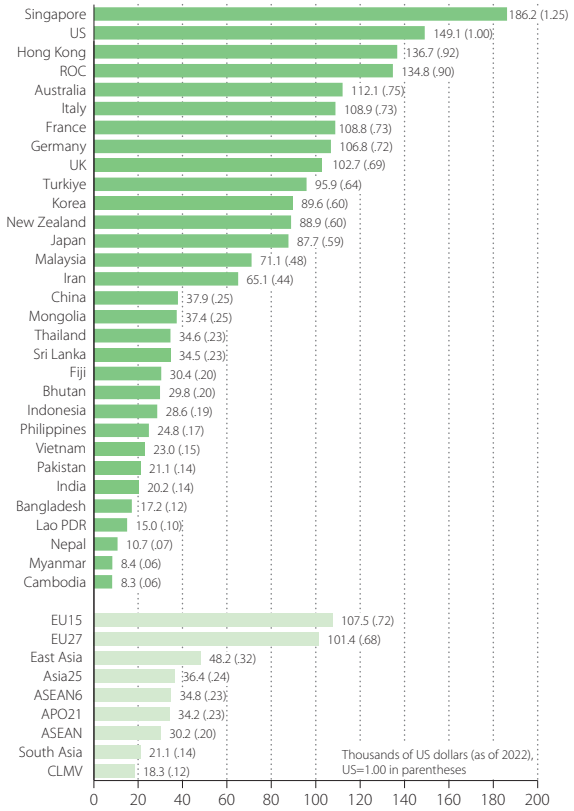



**Figure 5.1 Per-Worker Labor Productivity Level in 2022**

——GDP at constant basic prices per worker, using the 2017 PPP, the reference year 2022

Unit: Thousands of US dollars. Sources: Official national accounts in each country and APO Productivity Database 2024. Notes: The number in parenthesis is the ratio to the US level. See Table 9.8 for the time-series comparison from 1970.

## 5.2 Per-Hour Labor Productivity

The labor productivity gaps with the US, on a per-worker basis, in Figure 5.1 are most likely conservative estimates because workers in high-performing Asian countries tend to work longer hours than those in the US, on average. To adjust for this difference, total hours worked are constructed in the AQALI database for the Asia25 economies, although the quality of the estimates may vary considerably across countries.[57] Figure 5.2 shows how the productivity gap with the US in 2022 varies depending on which measure of labor productivity is used.[58] The productivity gap with the US widens for all Asian countries when the differences in working hours are considered (marked in light green). The choice of labor productivity measure makes a significant difference for the previously high-performing countries relative to the

56: Cross-country level productivity comparisons are notoriously difficult to make and subject to much data uncertainty. Therefore, estimates should be taken to indicate broad groupings rather than precise ranking.

US, such as Singapore (from 25% higher on a worker basis to 12% lower on an hourly basis) and Hong Kong (from 8% lower to 33% lower). On the other hand, European countries tend to work fewer hours per capita than the US, and the labor productivity gap between the EU15 and the US narrows from 28% on a worker basis to 26% on an hourly basis (marked in dark green).

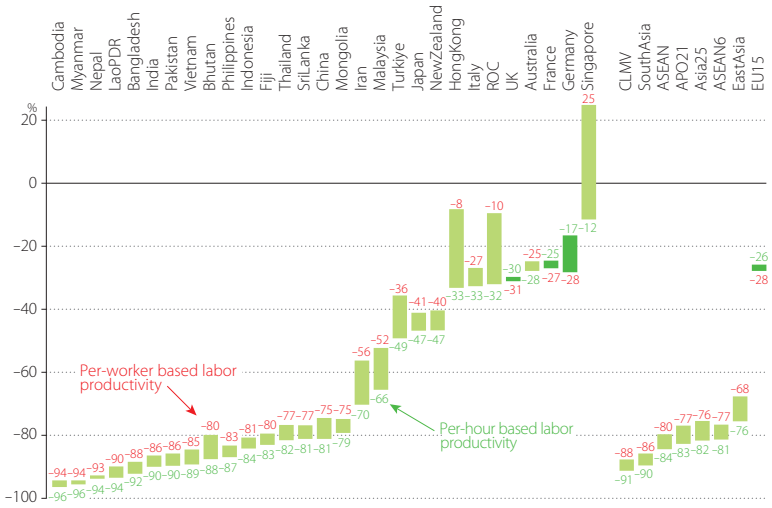



**Figure 5.2 Per-Worker versus Per-Hour Labor Productivity Gap in 2022**
——Differentials of basic-price GDP at constant prices per worker and hour (using the 2017 PPP) relative to the US

Unit: Percentage. Sources: Official national accounts in each country and APO Productivity Database 2024. Note: Light green is used for countries where the per-hour labor productivity gap is lower than the per-worker gap, dark green for the reverse.

Based on GDP at constant basic prices per hour worked, US labor productivity has sustained a sizeable, if diminishing, gap over the Asian high performers for a half-century, as presented in Figure 5.3 (and Table 9.10). The gap between the US and the Asian leader, Singapore, has been narrowing slowly. Hong Kong and the ROC have improved six and 14 times in this period and overtook Japan in 2007 and 2010, respectively, and narrowed the gap significantly. Turkiye and Korea were at the same level in the 2000s. While such ROC type acceleration has not been seen in Korea, Japan's stagnation from the mid-2010s is a remarkable change from earlier trends. If Korea can maintain its current pace, its labor productivity could catch up with stagnating Japan within three years.

The average growth rates of hourly labor productivity performances for the Asia25 economies and regions are compared in Figure 5.4 and Table 9.11. In Asia25 as a region, labor productivity growth accelerated to 4.2% per year in 2010–2022 (despite including the temporary stagnation due to the pandemic), compared to the past two-decade averages of 3.9% for 1990–2010 and 2.5% for 1970–1990. Figure 5.5 focuses on more recent productivity performances. As a region, labor productivity growth in the most recent period, 2015–2022, was strong at 3.8% per year, though it is below the highest record of the regional productivity growth of 5.7% in 2005–2010, which was accelerated by the extremely high performance of China (10.9%). The main drivers of the recent Asia productivity performances in 2015–2022 are China (5.6%), Vietnam (5.6%), Bangladesh (4.8%), Myanmar (4.3%), and India (4.0%).

57: Chapter 19 in the SNA 2008 recommends developing the estimate of total actual hours worked as a standardized measure of labor input (United Nations 2009). In the Asian countries studied, only Japan published the data on total hours worked as part of the official national accounts, but not for the whole period studied in this report. Section 8.3.1 explain our estimation procedures for total hours worked. The validity of the per-hour labor productivity measure depends on the accuracy of this estimate. The Databook considers this as a benchmark indicator of labor productivity while continuing to improve its measurements in AQALI.

58: The labor productivity gap for country x is the country x's labor productivity divided by the US's labor productivity in Figure 5.2.

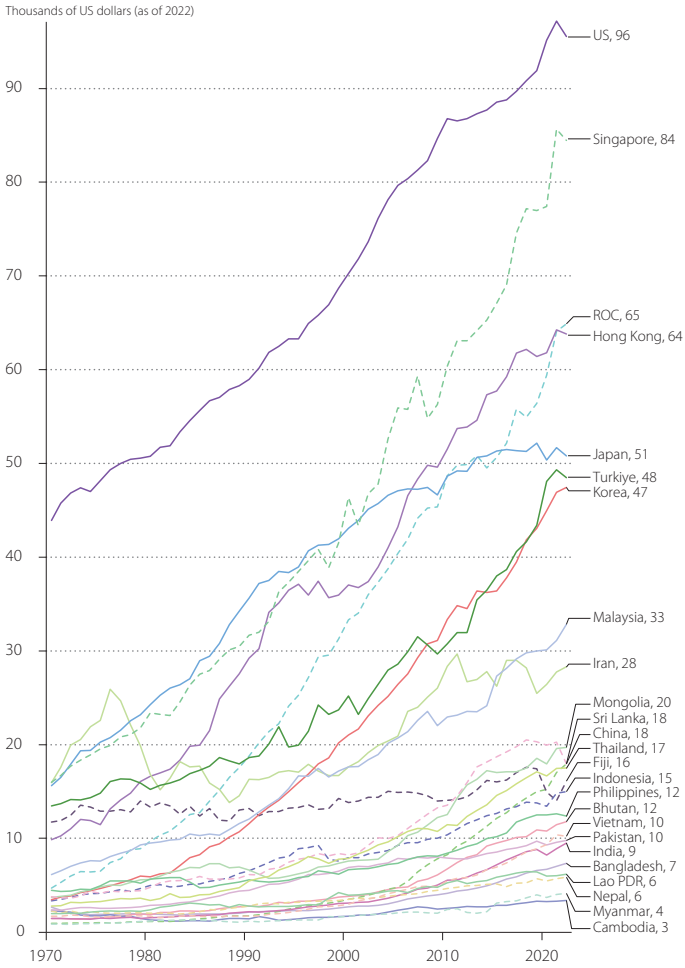



**Figure 5.3 Per-Hour Labor Productivity Level in the Long Run, 1970–2022**

—GDP at constant basic prices per hour, using the 2017 PPP, the reference year 2022

Unit: Thousands of US dollars. Sources: Official national accounts in each country and APO Productivity Database 2024. Note: See Table 9.10 for the numbers of this figure.

One can identify where countries are today regarding their hourly productivity performance against the backdrop of Japan's historical experience. Figure 5.6 traces the long-term path of Japan's per-hour labor productivity for 1885–2022 along the green line, expressed relative to Japan's 2022 level (set equal to 1.0).[59] A structural break was observed during World War II when output collapsed. Each country's hourly productivity level relative to Japan in 2022 is mapped against this Japan growth path (marked with circles). Here, the corresponding year can be located when Japan's hourly productivity level was the closest to the current level of each country in question. Most Asian countries are clustered around Japan's level between the late 1950s and the early 1970s. Myanmar and Cambodia, with the lowest hourly productivity in 2022, see levels corresponding to Japan in the early 1930s. Even if they manage Japan's long-term productivity growth of 2.7% on average per year, it will take them about a century to catch up with the Asian leaders' current position.

59: While one should keep in mind that level comparisons of productivity among countries and over periods are subject to a great degree of data uncertainty, they should provide a rough sketch of the productivity divergence in Asia.

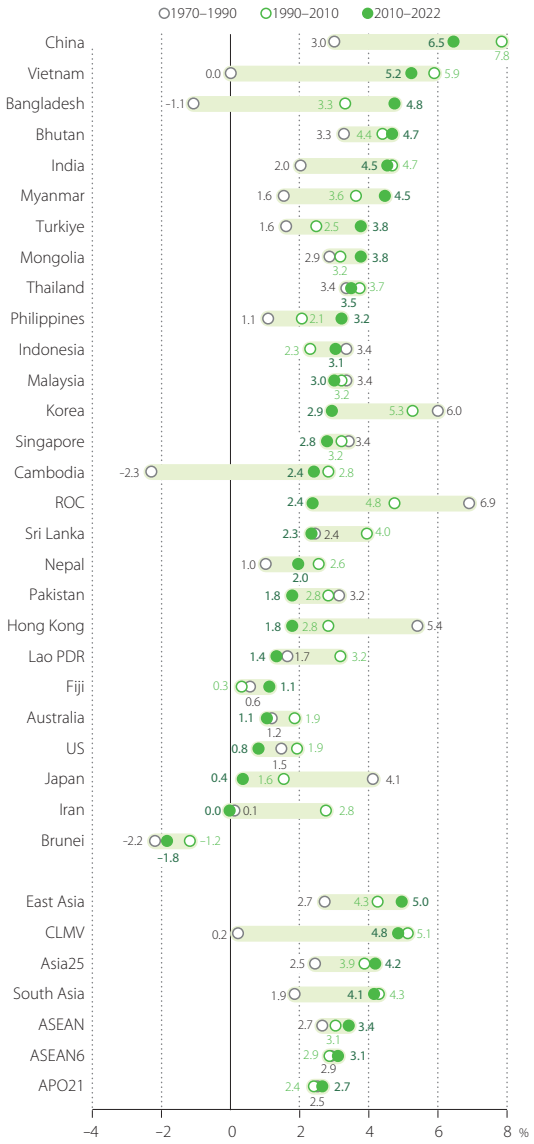



**Figure 5.4 Labor Productivity Growth Averaged over Long Periods, 1970–2022**

——Growth in per-hour GDP at constant prices in 2010–2022, 1990–2010, and 1970–1990

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country and APO Productivity Database 2024.


**Figure 5.5 Labor Productivity Growth in the Recent Periods, 2005–2022**

——Growth in per-hour GDP at constant prices in 2015–2022, 2010–2015, and 2005–2010

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country and APO Productivity Database 2024. Note: See Table 9.11 for growth for 2019–2020 and 2020–2022, which isolate the impact of the COVID-19 pandemic.

The productivity leaders are the Asian Tigers, of which Singapore, Hong Kong, and the ROC have already surpassed Japan. Figure 5.7 compares the time taken by each country to raise its labor productivity from 30% to 70% of Japan's level today (unit of measurement on the y-axis of Figure 5.6). What Japan had achieved in the 20 years from 1970 to 1990, Hong Kong, the ROC, and Korea managed to accomplish in 19, 14, and 19 years, respectively (Figure 5.7). Although the speed of catch-up for latecomers is increasing somewhat, most Asian countries will take a long time to catch up to the leaders, currently clustered near Japan's 1960–1970 levels, as noted in Figure 5.6.

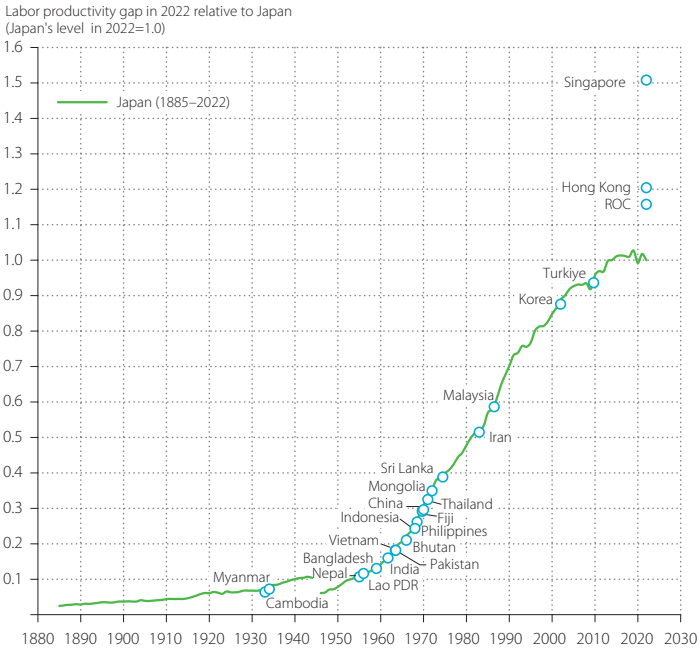



**Figure 5.6 Historical Labor Productivity Trend of Japan and Current Level of Asia in 2022**
——Japan's per-hour GDP at constant prices from 1885 to 2022 and for Asian countries, using the 2017 PPP

Unit: Index. Sources: Japan's historical GDP is based on Ohkawa, Takamatsu, and Yamamoto (1974) during 1885–1954 and the JSNA by the Economic and Social Research Institute, Cabinet Office of Japan, from 1955 to 2022 (including adjustments by APO-PDB). Hours worked data for Japan is based on the KEO Database, Keio University, from 1955 to 2022. During 1885–1954, the average hours worked per person were assumed to be constant. The labor productivity level of Asian countries in 2022 is based on APO Productivity Database 2024.

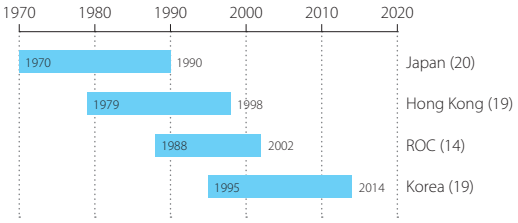



**Figure 5.7 Time Taken to Improve Labor Productivity by Japan and Asian Tigers**

Unit: Years. Source: See Figure 5.6. Note: The numbers in parentheses after the country name are the years each country took to raise its labor productivity from 30% to 70% of the current Japanese level.

## Box 6 College Worker's Contribution to Economic Growth

The labor input measure in the Databook takes into account how different gender-education-age categories of workers are paid different wage rates reflecting their relative productivity. The term "labor quality" refers to the effect of changes in the composition of the work force; a higher proportion of highly paid college educated workers gives a higher quality index. See Section 8.3 for details. We may decompose the growth in labor input into the effects of changes in hours worked and labor quality based on the AQALI database developed at KEO. This database also allows total labor input to be decomposed into college and non-college-educated labor. Figure 5.8 shows the long-term trends of the share of college-graduate workers in total hours worked in Asian countries. While it may be surprising that college labor is still expanding even in the US, there is even more rapid change in Asia. Korea increased its college share at an accelerated pace since the late 1990s and now accounts for more than 50% of total hours worked. Among the East Asian countries, Mongolia's high percentage

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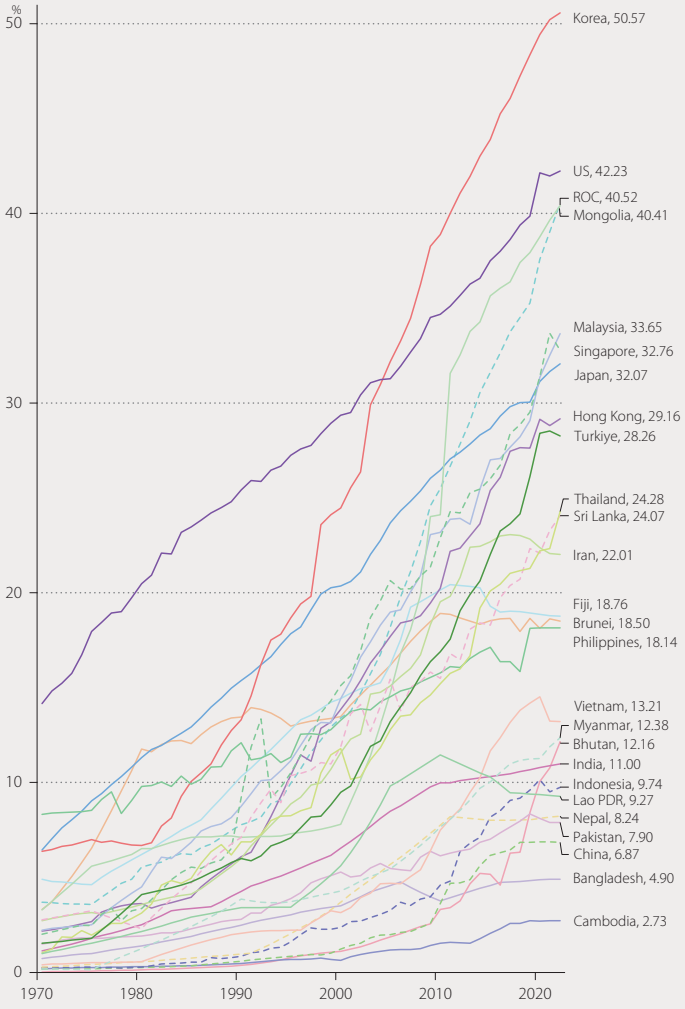


of college workers, with a modest per capita GDP (PPP) of $14,000 (Table 9.6), is distinctive. Mongolia had many students studying in Russia before 1991, when it became a market economy, and the female employment share was also high (Figure 3.19). Since the beginning of the 2000s, the number of college workers has expanded rapidly. While the country's recent economic growth has relied heavily on expansion in mining (coal and copper) and agriculture (Chapter 6), the higher quality of this labor force indicates the country's growth potential in other more productive sectors.

Figure 5.9 shows the contributions of the college and non-college labor input to economic growth in 2000–2022. The countries are listed in descending order of economic growth rate in this period (see Figure 5.13 for the complete growth accounting, including capital input and TFP). The US, Japan, Korea, ROC, and

**Figure 5.8 College Worker Share, 1970–2022**
——Share of college labor in total hours worked

Unit: Percentage. Source: AQALI 2024.

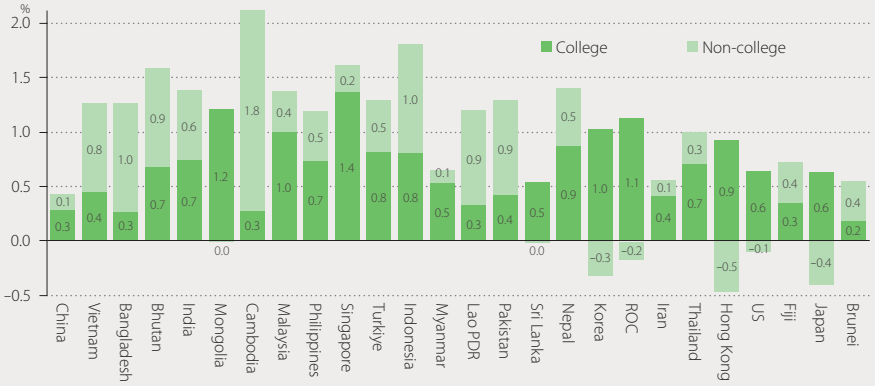


**Figure 5.9 College and Non-college Labor Contributions to Economic Growth, 2000–2022**
——Contributions of college and non-college labor to economic growth

Unit: Percentage (average annual contributions). Sources: AQALI 2024 and APO Productivity Database 2024.

Hong Kong recorded economic growth due to the expansion of college labor, while non-college labor declined. On the other hand, in the CLMV (except Myanmar), Bangladesh, and Pakistan, economic growth is dominated by the expansion of non-college labor. Within a single country, or even across countries, there can be many differences in the quality of college labor. Despite these limitations as an indicator, it would be useful to understand how improving labor quality contributes to economic growth and define specific policy goals.



## 5.3 Total Factor Productivity

Labor productivity in the previous sections is only a one-factor or partial-factor productivity measure and does not provide a full perspective of production efficiency. Observation of low labor productivity could suggest production inefficiency, but it could also reflect different capital intensities in the chosen production method under the relative capital-labor price faced by the economy concerned. Observing labor productivity alone makes it difficult to distinguish which is the case. In populous Asian economies, which are relatively plentiful in low-skilled labor, production lines may be deliberately organized to utilize this abundant, and hence relatively cheap, resource. It follows that the chosen production method is most likely (low-skilled) labor-intensive and with little capital, manifested in low labor productivity and high capital productivity. Therefore, economists analyze total factor productivity (TFP), GDP per unit of the combined input bundle, to determine the overall efficiency of a country's production.

Measuring capital input is a key factor for determining TFP. Capital services are defined as the flow of services from productive capital stock, as recommended in the 2008 SNA and OECD (2009).[60] The required basis for estimating capital services is the appropriate capital stock measure. The SNA recommends constructing the national balance sheet accounts in official national accounts. However, this is not a common practice in the national accounts of many Asian countries.[61] Even where estimates of net capital stocks are available for the entire economy, assumptions and methodologies can differ considerably among countries. In response to this challenge, harmonized estimates for capital stocks and services have been constructed and compiled within the APO-PDB based on common methodology and assumptions (Box 14). In this methodology, changes in the capital quality are incorporated into the measurement of capital services in two ways: changes in the composition are captured by explicitly differentiating assets into 23 types, and appropriate harmonized prices are used for ICT capital to reflect the rapid quality change embodied in ICT-related assets (Section 8.2).[62]

The APO-PDB 2024 constructs growth accounts for the Asia25 countries that decompose the sources of economic growth into growth in ICT and non-ICT capital services, hours worked, labor quality, and TFP.[63] In addition, the regional growth accounts are developed for six country groups—Asia25, APO21, East Asia, South Asia, CLMV, and ASEAN6.[64] Cross-country comparisons of TFP growth for Asia25

60: See Chapter 20 on capital services and the national accounts of the 2008 SNA (United Nations 2009). The second edition of the *OECD Capital Manual* (OECD 2009) provides a comprehensive framework for constructing prices and quantities of capital services. In APO-PDB 2024, the Translog index aggregates 23 types of capital inputs (11 types of produced assets, seven types of land, inventory stock, and four types of MER in Table 8.3).

61: Based on our metadata survey, half of APO member economies do not develop balance sheet accounts within the official national accounts; these countries are Bangladesh, the ROC, Indonesia, the Lao PDR, Mongolia, Nepal, Sri Lanka, and Vietnam (but the National Wealth Survey is available in the ROC for some selected years).

62: ICT capital is a composite asset of ICT hardware (computers, electric computing equipment, copying machines, and other office machinery), communications equipment, and computer software.

and the US are shown in Figure 5.10 for 2010–2022, compared with the earlier two-decade averages for 1970–1990 and 1990–2010. Figure 5.11 shows five-year average TFP growth since 2005, focusing on

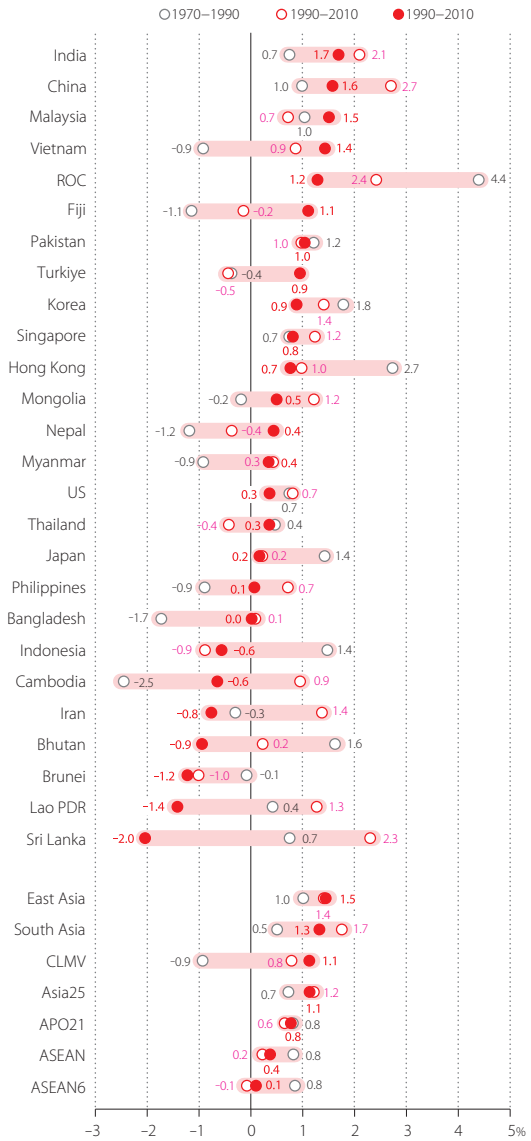


**Figure 5.10 TFP Growth Averaged over Long Periods, 1970–2022**

——Growth in total factor productivity in 2010–2022, 1990–2010, and 1970–1990

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

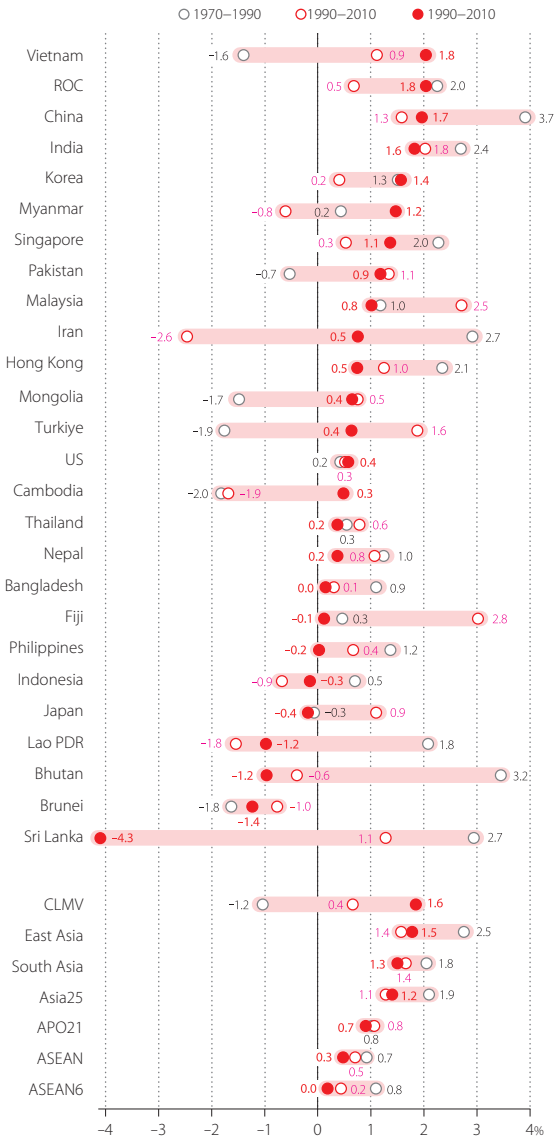


**Figure 5.11 TFP Growth in the Recent Periods, 2005–2022**

——Growth in total factor productivity in 2015–2022, 2010–2015, and 2005–2010

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024. Note: See Table 9.12 for growth for 2019–2020 and 2020–2022, which isolate the impact of the COVID-19 pandemic.

63: In measuring TFP, income generated from domestic production should be separated into labor and capital compensations. The national accounts readily provide the estimates of compensation of employees as a component of value added in many countries; compensation for the self-employed is not separately estimated but is combined with returns to capital in mixed income. The assumption on wages for self-employed and contributing family workers in APO-PDB 2024 is presented in Section 8.3.3. See Box 15 for the sensitivity of our assumptions on labor income to the TFP results.

64: See Section 8.5 on the PPPs for output and capital and labor inputs to develop the regional productivity accounts in APO-PDB.

more recent years. To understand the damage to TFP caused by the COVID-19 pandemic and its recovery, Table 9.12 also provides the 2015–2019, 2019–2020, and 2020–2022 estimates.[65]

Asia25 has accelerated its TFP growth rate from 0.7% per year on average in 1970–1990 to 1.2% in 1990–2010. It decelerated to an average of 1.1% per year in 2010–2022, as shown in Figure 5.10. This slight slowdown in the recent period includes the significant damage of the pandemic and its offset by the recovery in 2022. As shown in Table 9.12, due to the impact of the pandemic, TFP in Asia25 fell by –4.0% from 2019 to 2020 but recovered by 3.4% in 2022. The slowdown in TFP growth due to the pandemic can be considered temporary for the Asian region.

Figure 5.12 compares the half-century trends of the TFP index in our observation period for the Asia25 economies. There is a wide range in TFP growth in the long run. While the TFP of the ROC more than quadrupled (4.5 times) and those in China and Hong Kong more than doubled (2.5 times and 2.3 times, respectively) in the past half a century, Singapore's was smaller (1.6 times), and its improvement was sustained only from the mid-2000s. Over the past half-century, TFP has not improved in eight Asian countries; the progress has been less than 10% in three countries. While these assessments vary greatly depending on the correspondence between the initial period of this figure (i.e., 1970) and the start of economic growth with productivity gains, a sustained improvement trend can be observed since the 2010s for Vietnam and Turkiye.

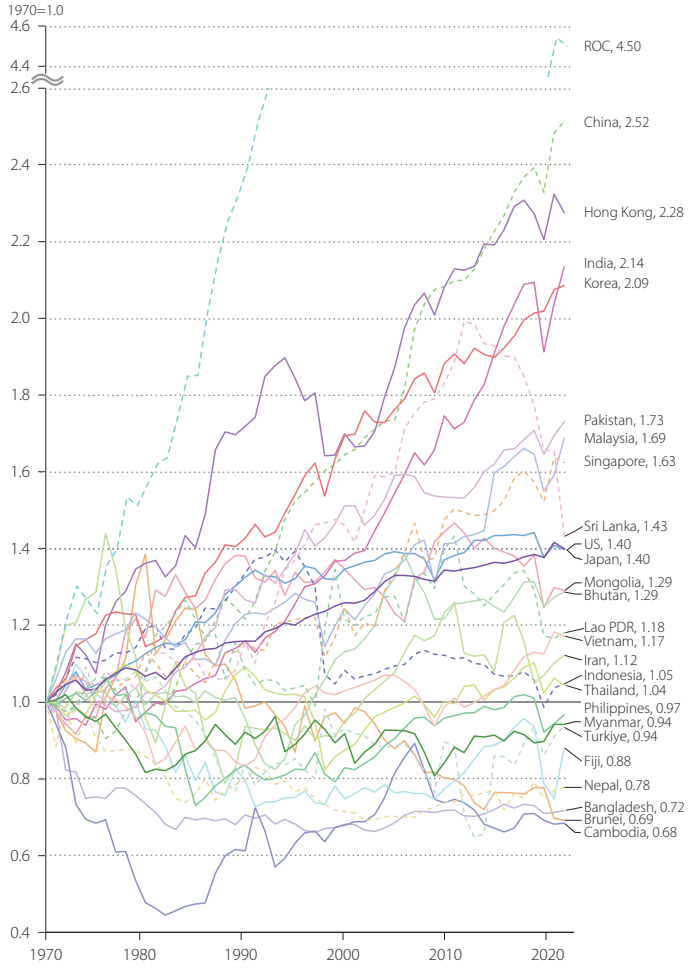


**Figure 5.12 Half-Century TFP Changes by Country, 1970–2022**

Unit: Index (1970=1.0). Source: APO Productivity Database 2024. Note: The vertical axis is cut off in the middle since only the ROC has an exceptionally high TFP growth rate.

65: China's productivity account in APO-PDB has been revised in the past few years. See Section 8.4 for the abstract of the revision. Compared to the past estimates in the *APO Productivity Databook 2020* (October 2020), China's TFP growth in this edition is revised downwards from 1.4% to 1.0% for 1970–1990 and from 4.0% to 2.7% for 1990–2010.

## 5.4 Sources of Economic Growth

For Asian countries to formulate appropriate macroeconomic policies, it is necessary to identify the drivers of economic growth. Suppose growth has been driven by capital accumulation rather than by assimilating existing technology from developed countries (measured as TFP growth). In that case, the growth model may be expensive for many less-affluent countries to emulate. Figure 5.13 and Figure 5.14 present the sources of economic growth by country and region, averaged from 2000 to 2022. Figure 5.13 gives the absolute contributions, e.g., the 5.1% GDP growth for Asia25 consists of 0.3 (ICT capital) + 2.8 (non-ICT capital) + 0.4 (hours worked) + 0.4 (labor quality) + 1.3 (TFP growth). Figure 5.14 gives a percent share of each factor's contribution, adding to 100% (note that TFP can be negative). These show that 59% of Asia25's economic growth was achieved by capital accumulation (54% for non-ICT and 5% for ICT capital), well above the 25% contribution from TFP growth, indicating a major role of capital accumulation in their economic growth. Much of the technology propagation was not realized cost-free but through the accumulation of capital that embodied existing technology.

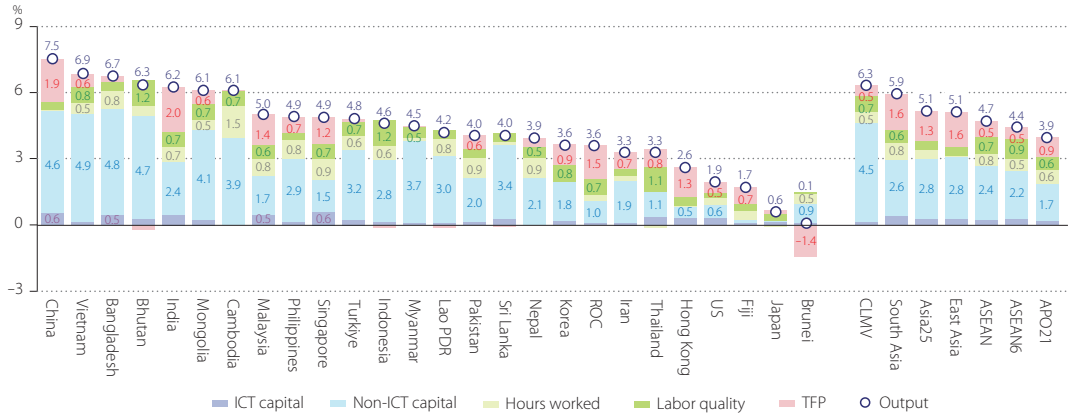


**Figure 5.13 Sources of Economic Growth, 2000–2022**
——GDP growth and contributions of capital, labor, and TFP

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

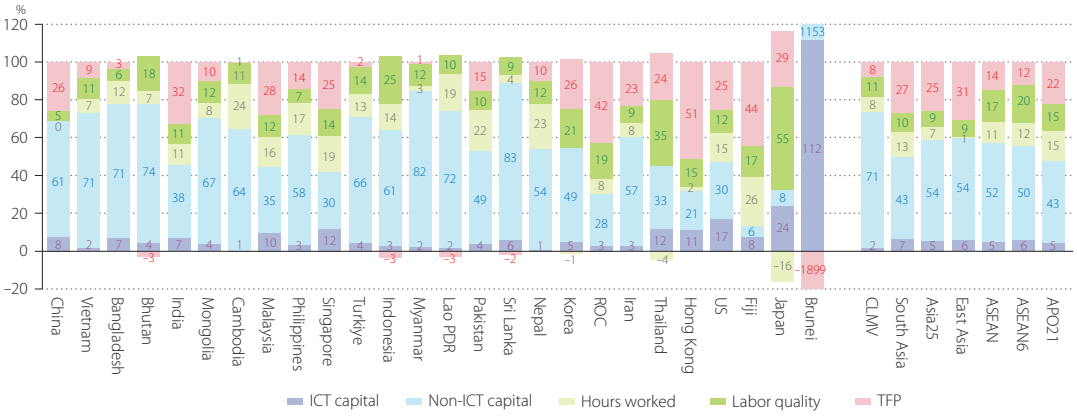


**Figure 5.14 Contribution Shares of Economic Growth, 2000–2022**
——Contribution shares of capital, labor, and TFP

Unit: Percentage (average annual contribution shares). Source: APO Productivity Database 2024.

This high contribution of capital to growth is also true in various regions and countries in Asia. In these two charts, countries are ordered based on their economic growth rates in this period. Figure 5.13 shows that in high-growth countries, which tend to have lower initial per capita income, the contributions of TFP and labor quality improvement to economic growth are not necessarily substantial. The exception is India with a low initial income and a high TFP contribution of 32%. The contribution shares shown in Figure 5.14 show that TFP and labor quality improvement typically play a larger role in higher-income countries,[66] indicating a greater role for capital accumulation, especially in economic development's early and middle stages.

In Asia, TFP growth in Hong Kong and the ROC over the past 20 years has been quite significant, explaining 51% and 42% of their economic growth, respectively, as shown in Figure 5.14. Figure 5.15 in Box 7 shows that the ROC has an R&D stock estimated at three times the ICT capital stock in 2022, the third-largest share in Asia after Korea and Japan. Conversely, ICT capital stock in Hong Kong was nearly twice as large as R&D stock in 2022. Although the direct effects of increased capital input due to R&D and ICT capital stock expansion are already considered in growth accounting in Figure 5.14, the high TFP growth rate may reflect the external effects of such R&D and ICT capital.

## Box 7 Rise of ICT and R&D Capital in Asia

The Databook presents the decomposition of capital stock, including ICT (hardware and software) and R&D capital. Figure 5.15 shows these stocks relative to GDP in 2022. R&D capital has been regarded as the basis of scientific knowledge and a crucial input for innovation. As shown in Figure 5.15, the ratio of R&D capital to GDP is particularly high in Korea, Japan, Singapore, and the US, followed by the ROC. Perhaps it is unsurprising that poorer Asian countries have extremely low ratios of R&D capital to GDP. An extensive gap exists between economies that have reached the high-income level and those that have not. Our conventional understanding is that innovation capability, backed by R&D capital in a well-organized massive national innovation system, is essential for stepping from upper-middle-income to fully developed economies.

However, our ICT capital data may suggest a different view. The ICT capital here consists of ICT software and hardware, such as computers, communications equipment, TVs, radios, and cellular phones. The stock of this ICT capital relative to GDP is much larger than that of R&D capital in most developing countries, and the gap between developed and developing countries is much smaller. Thailand and Malaysia have ICT shares comparable to those of developed countries. Although we are not sure why Thailand has much larger ICT hardware than ICT software, fully developed and newly developed economies tend to have large ICT software stocks (software embedded in hardware is counted as hardware, and the breakdown between the two may not be very meaningful due to different business practices by country).

Developing countries conduct very little cutting-edge innovation at the technological frontier but proactively deploy new technologies even though such activities are not counted as R&D investment. In the past two decades, business innovation has shifted its weight from gradual innovation with large-scale R&D investment to "disruptive innovation" (Bower and Christensen 1995). The latter is characterized by multiple trials and errors—many failures with a few extremely successful cases now referred to as "unicorns" in the mainstream media. Although it may not be properly calculated in GDP, the proliferation of new services, including social media, e-commerce, matching, service outsourcing, e-payment, fintech, and e-government, is astounding. New technologies also rejuvenate old industries such as agriculture, manufacturing, transportation, and tourism. These suggest that heavy and slow R&D, and perhaps manufacturing-centric development, may not be the only way to step up to fully developed economies from now on.

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66: Box 6 and Appendix (APO21 economy profiles) provide another view on labor input, focusing on college and non-college labor inputs.

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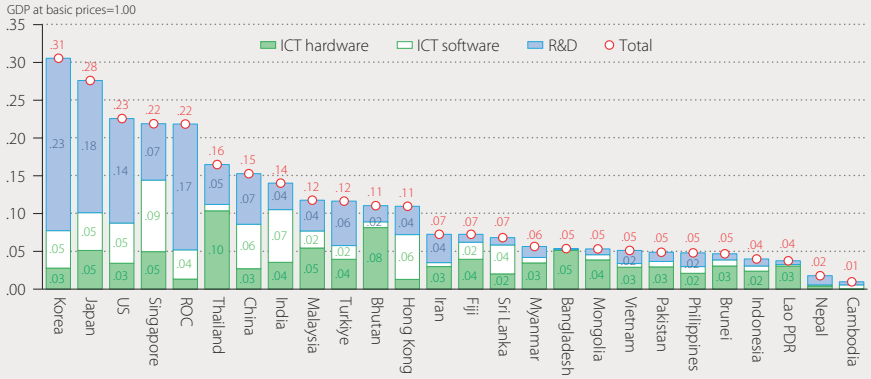


**Figure 5.15 ICT and R&D Capital Stock relative to GDP in 2022**
——Ratios of the end-of-year capital stocks of ICT and R&D to the basic-price GDP at current prices

Unit: Percentage. Source: APO Productivity Database 2024.

Tracking the size and growth of ICT capital has become a standard practice in productivity research following attempts to establish the driving force behind productivity resurgence in developed economies (Jorgenson, Ho, and Stiroh 2005). This started in the US in the 1990s. Unlike technological advancements in the past, which were largely confined to manufacturing, ICT permeates the economy and bring about significant production gains in, for example, wholesale and retail, banking and finance, and transportation and telecommunications (service sectors that have traditionally struggled with slow productivity growth). Given the share of the service sector in the economy (Table 9.15), the potential and implications of ICT for economic development and productivity gains could be immense. A frequent question of policymakers and researchers is how best to capitalize on the productivity potential opened by the digital transformation. As with non-ICT capital, it involves a process of accumulation and assimilation. ICT capability becomes a factor that determines an economy's long-term growth prospects.[67]

Japan and the Asian Tigers have led Asian countries in ICT capital contribution to economic growth. Japan's shift in capital allocation took off in earnest in the mid-1990s, with the ICT capital contribution to total capital input growth rising from a low of 20% in the early 1990s to a high of over 40% in the late 1990s, as shown in the left chart of Figure 5.16.[68] This was when Japan's overall investment growth

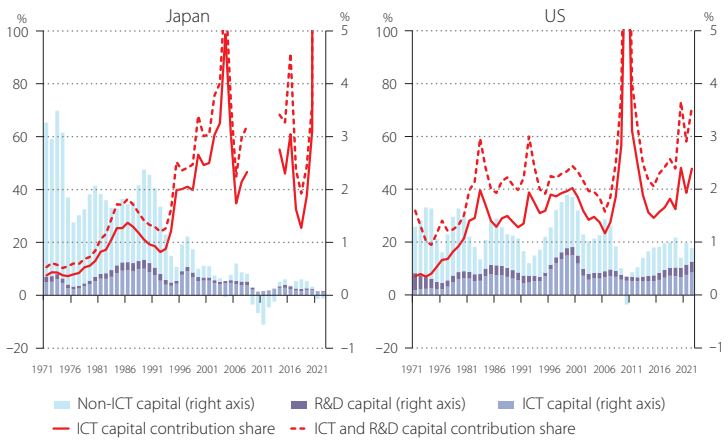


**Figure 5.16 ICT and R&D Capital Contribution Share in Japan and the US, 1970–2022**
——ICT and R&D capital contribution share in capital input growth

Unit: Percentage. Source: APO Productivity Database 2024.

slowed significantly after the bubble collapse of the early 1990s. After years of excesses, Japan shifted from non-ICT to ICT capital as a profitable investment. The US turned toward ICT capital much earlier than any Asian economy and over a longer period, as shown in the right chart of Figure 5.16. Since the early 1980s, ICT capital has accounted for over 25% of US capital input growth, reaching over 40% in the late 1990s. Over the past quarter-century, ICT capital has accounted for about 40% of capital growth in Japan and the U.S. However, the contribution share has fluctuated widely because of the changes in total capital growth. The R&D capital has accounted for about 10% of capital input growth in Japan and the US, although it is smaller than the impact of ICT capital.

A similar allocation shift to ICT and R&D capital is also found in the Asian Tigers, as shown in the left chart of Figure 5.17.[69] In the Asian Tigers, the contribution share of ICT and R&D capital to total capital input peaked at about 40% at the turn of the millennium, from a share of 20% or below before the mid-1990s. Since the early 2010s in Hong Kong and the mid-2010s in Singapore, it has accounted for about 40% of capital input, a level approaching that of Japan and the US. In contrast, ROC's ICT and R&D capital contribution share has declined since the early 2010s, indicating that its growing dependence is not necessarily essential for economic growth. China was focused on construction investment (Figure 4.8) and was a late-comer in terms of deepening ICT and R&D capital, with a surge in its contributions only taking off around 2000 and peaking at 18% in the early 2000s, as shown in the right chart of Figure 5.17.

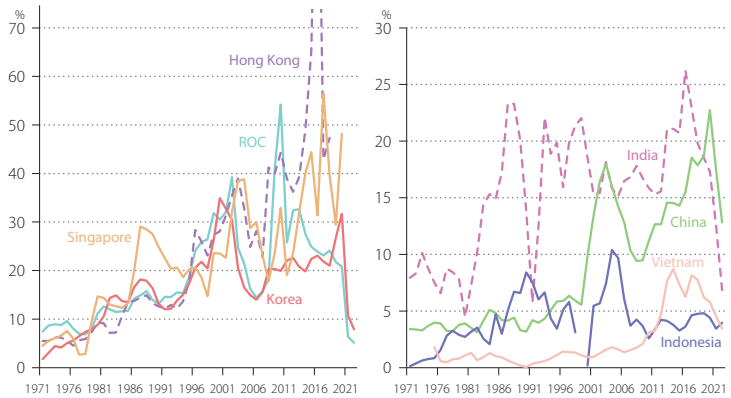


**Figure 5.17 ICT and R&D Capital Contribution Share in Selected Countries, 1970–2022**

——ICT and R&D capital contribution share in capital input growth

Unit: Percentage. Source: APO Productivity Database 2024.

67: The 2008 SNA (United Nations 2009) formally acknowledges the ICT sector's importance to the modern economy and has made it more identifiable and separable in industry classification and asset type.

68: The break in the contribution share for Japan in the left chart of Figure 5.16 from the late 2000s to the early 2010s is due to the negative growth of total capital input, although IT capital input is expanding.

69: Readers should bear in mind that the quality of the data on investment for ICT capital (ICT hardware, communications equipment, and computer software) varies considerably among countries, despite our best efforts in harmonizing data (Sections 8.1.4 and 8.2.1).

## Box 8 Growing Impact of ICT Productivity via Capital Effect

The slowdown of TFP growth in most of the world after the Global Financial Crisis in 2008 has generated tense discussions among policymakers and researchers. This is a sharp change from the optimistic views in the 2000s when much of the world saw rapid TFP growth in ICT-producing sectors and strong growth in ICT-using sectors, contributing substantially to good aggregate TFP growth (i.e., the TFP component of GDP growth). Ho, Nomura, and Samuels (2023) discuss the slowdown, documenting the industry sources of aggregate TFP growth deceleration in the two major economies, the U.S. and Japan.

Figure 5.18 shows the contribution of TFP growth in the computer industry to aggregate TFP growth for each country (the horizontal lines represent the average contribution during various sub-periods). Although TFP growth rates are volatile from year to year, the general trend in the contribution is remarkably similar in both countries, starting from a very low effect in the 1960s (around 0.1 in Figure 5.18 scale when the industry was small) and rising to a common peak of 0.54 in 1980. It fluctuated around 0.2 until the early 1990s and then trended up until 2000. It decreased from 2000 in both countries. TFP growth in the computer industry decelerated after 2004 in both countries, and the value-added share of this sector in GDP also fell; both factors contributed to the sharply lower aggregate TFP growth in the US and Japan from 2005 to 2019. This lower TFP contribution of the computer industry is a significant source of the slowdown in GDP growth.

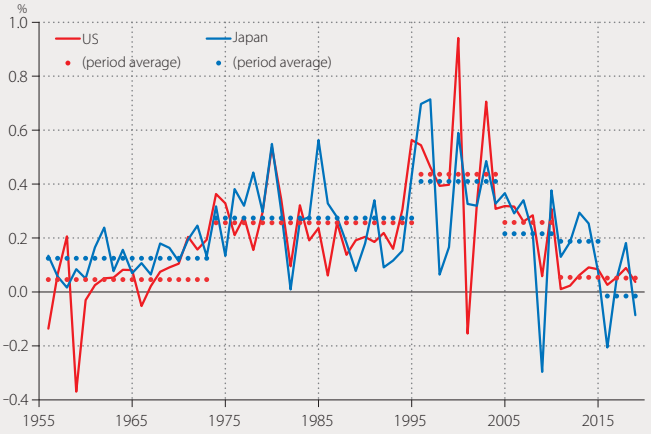


**Figure 5.18 Standard TFP Contribution of Computer Industry to Aggregate TFP Growth**

Unit: Percentage. Source: Ho, Nomura, and Samuels (2023).

Ho, Nomura, and Samuels (2023) called the contribution in Figure 5.18 the "standard effect." They also measured the "cost-of-capital (CC) effect" of TFP growth from the ICT-producing sector. TFP growth in the computer products industry leads to lower prices of capital assets, which lowers the user cost of capital and, in turn, lowers total production costs and industry output prices. This fosters price competitiveness by reducing the aggregate GDP price. They found that this cost-of-capital effect has been an increasingly important source of decline in aggregate prices relative to the "standard effect" on aggregate TFP in the US and Japan during the post-2008 slow-growth period. A large CC effect allows easier capital accumulation and higher output per capita.

Figure 5.19 clearly shows the changing relative magnitudes of the CC effect versus the standard effect. For the US, the ratio generally rose from 1955 to 2019, with an accelerated change after 1980. It started at 0.1 around 1960, rose to 0.2 around 1980, reached 0.4 in 2000, and peaked at 0.8 in 2017. The CC effect was less than a fifth of the standard effect before 1980 but rose to 80% by the end of the 2010s. For Japan, the ratio fell from 1974 to 1988, rose rapidly to 2002, flattened until 2011, and rose again. The CC effect in Japan was 0.2 of the standard effect in 1960, rose to 0.5 in 1974, dropped to 0.2 in 1985, rose to 0.4 in 2000, and peaked at 0.6 in 2017.

In both countries, we see an increasing role for the CC effect of TFP change in the computer industry; it has dramatically lowered the cost of total capital input, given the huge investment in ICT capital in both countries. The sizable increase in the ratio after 2010 is due mostly to the sharp decline in the standard effect noted in Figure 5.18. While the CC effect fell after 2010, the change is much more modest than the standard effect, especially in Japan. This smaller fall in the CC effect contributed to the significant increase in the ratio in Figure 5.19. The rising importance of the cost-of-capital effect counterbalances the standard effect slowdown by making capital input cheaper and allowing a higher rate of capital accumulation and a higher output per worker.

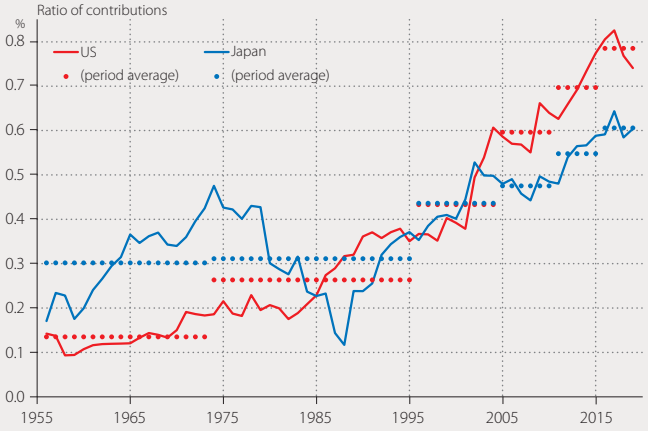


**Figure 5.19 Relative Magnitude of Cost-of-capital Effect of Computer Industry**

Unit: Percentage. Source: Ho, Nomura, and Samuels (2023). Note: Relative magnitude is the ratio of the cost-of-capital effect to the standard effect.


Bangladesh
Bhutan
Brunei
Cambodia
China
ROC
Fiji
Hong Kong
India
Indonesia
Iran
Japan
Korea
Lao PDR
Malaysia
Mongolia
Myanmar
Nepal
Pakistan
Philippines
%
1970–1975
1975–1980
1980–1985
1985–1990
1990–1995
1995–2000
2000–2005
2005–2010
2010–2015
2015–2022
ICT capital
Non ICT capital
Hours worked
Labor quality
TFP
Output


**Figure 5.20 Sources of Economic Growth by Country and Region, 1970–2022**
——GDP growth and contributions of labor, capital, and TFP

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

## 5.5 Capital Productivity

Labor productivity has received attention because it is closely related to GDP per capita (Section 3.3). Based on the growth accounting framework, average hourly labor productivity growth can be decomposed into three factors. The first is qualitative improvements that make labor more highly skilled, measured in terms of quality-adjusted labor input per hour worked (Section 5.4). The second is capital deepening, which evaluates how labor can use more capital, measured as capital input per hour worked. The third is TFP, which measures how efficiently all inputs are used. In other words, labor productivity growth depends on improvements in labor quality and how well capital and technology are used.

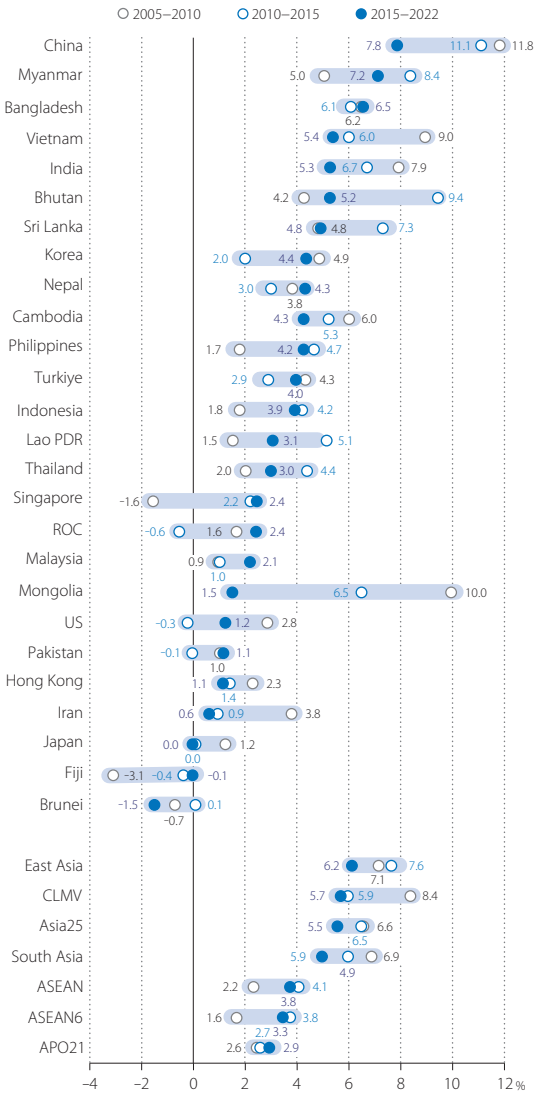


**Figure 5.21 Capital Deepening, 2005–2022**
——Growth in capital input per hour worked in 2015–2022, 2010–2015, and 2005–2010

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

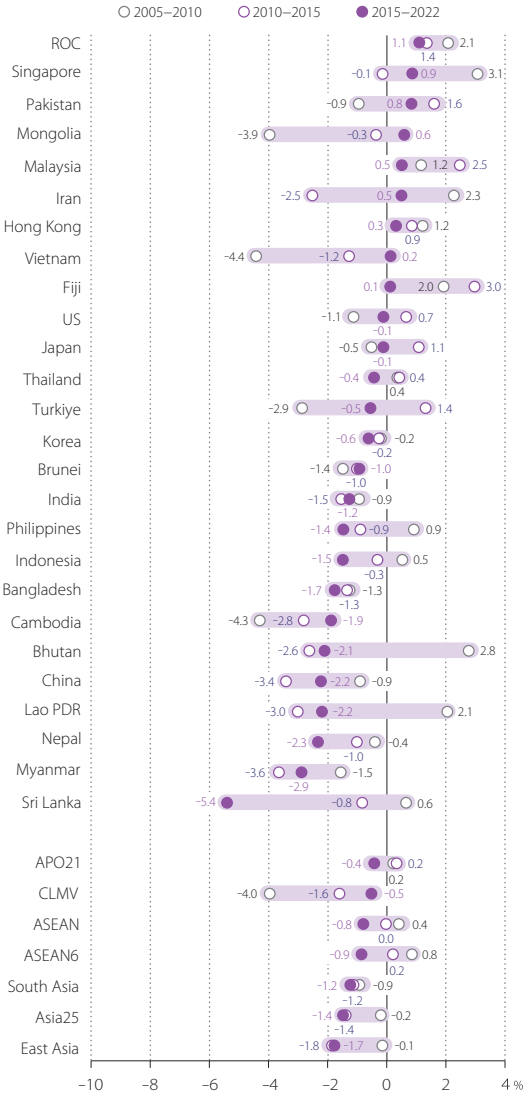


**Figure 5.22 Capital Productivity Growth, 2005–2022**
——Growth in GDP per capital input in 2015–2022, 2010–2015, and 2005–2010

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

Capital deepening has been underway in almost all countries for nearly all periods, except for a few natural-resource-rich countries, such as Brunei, as shown in Figure 5.21. For Asia25 as a group, the speed of capital deepening has been stable at 6% to 7% per year since 2005. That is, the very high investment rate in Asia has resulted in a rapid growth of capital available per worker. This experience suggests that capital deepening is an accompanying process of economic growth. In 2015–2022, China, Myanmar, Bangladesh, Vietnam, India, and Bhutan started from low initial stocks of capital and occupied the top spots for capital deepening.

While labor productivity steadily improved for all countries (with a few exceptions), as shown in Figure 5.4, the growth rate of capital productivity (as the other measure of partial productivity) remained negative for many countries regardless of the observation periods, as shown in Figure 5.22. On average, in 2015–2022, although labor productivity improved by 5.6% in China and 4.0% in India (Figure 5.5) and the rates of capital deepening were outstanding at 7.8% and 5.3%, respectively (Figure 5.21), their capital productivity experienced the sharpest decline of 2.2% and 1.2%, respectively. The decrease in capital productivity is necessary to increase labor productivity through capital deepening as long as it does not worsen TFP.

## 5.6 Sources of Labor Productivity Growth

Capital deepening should raise labor productivity, all other things being equal. Figure 5.23 shows the contributions to per-hour labor productivity growth (in percentage points), and Figure 5.24 gives their contribution shares during 2000–2022 (adding up to 100%). According to these figures, capital deepening remains the prime engine of labor productivity growth, explaining 52% (46% for non-ICT and 5% for ICT capital) in East Asia. The contribution of improvement in labor quality is more moderate at 17% in East Asia than the 31% TFP contribution. The same is true in South Asia, where the contribution of labor quality to labor productivity growth is significant (24%) but below that of TFP growth (35%). However, labor quality change is more important in the ASEAN; with the average 0.7% growth of regional TFP, labor quality was the prime engine contributing 61% of the regional improvement in labor productivity.

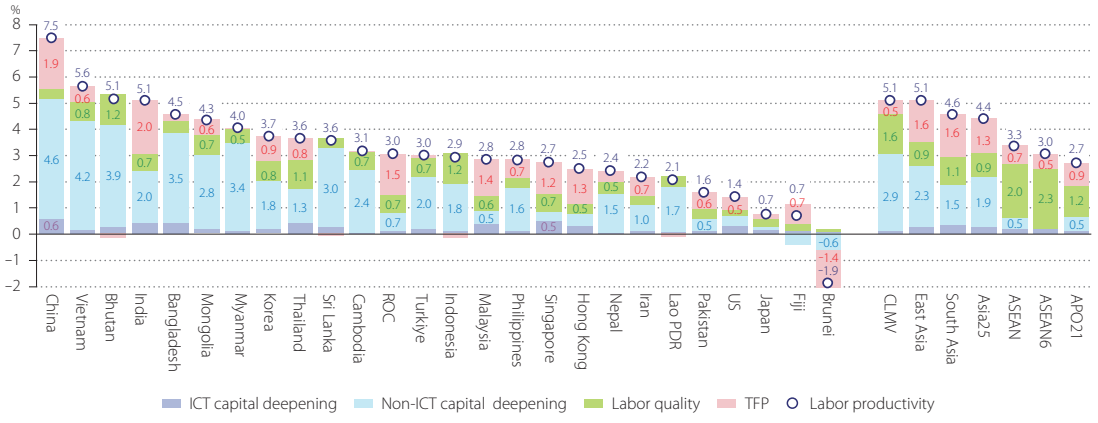


**Figure 5.23 Sources of Labor Productivity Growth, 2000–2022**
——Decompositions of the growth GDP per hour to ICT and non-ICT capital deepening, labor quality, and TFP

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

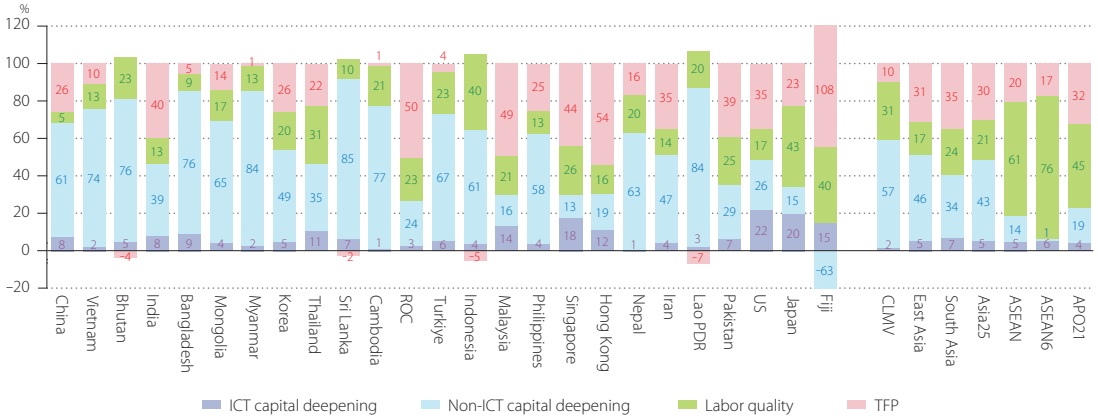


**Figure 5.24 Contribution Shares of Labor Productivity Growth, 2000–2022**
——Contribution shares of ICT and non-ICT capital deepening, labor quality, and TFP

Unit: Percentage. Source: APO Productivity Database 2024. Note: The countries with negative growth in labor productivity are excluded.

## 5.7 Energy Productivity

Given the current concerns over energy security and climate change we now discuss the relationship between output and energy inputs. In Asia31, to produce 48% of the world output in 2021, 47% of world energy was consumed, and 56% of world CO2 was emitted (Figure 5.25), compared to 14%, 10%, and 8%, respectively, for the EU27.[70] This implies that Asia has lower energy productivity (output per unit energy consumed) and higher carbon intensity of energy at the aggregate level compared to the EU27. It is imperative to improve energy productivity and carbon intensity in the growing economies of Asia to reduce CO2 emissions in the world in the long run.

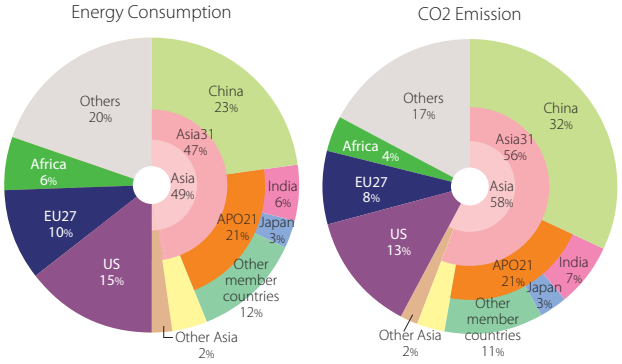


**Figure 5.25 Asia in World Energy Consumption and CO2 Emission in 2021**

Unit: Percentage. Sources: IEA (2023a and 2023b).

There is considerable diversity in energy productivity among countries in Asia. Figure 5.26 compares energy productivity trends of Japan, China, Asia31, and the EU15 from 1970 to 2021, relative to the US. While considering that such comparisons at the aggregate level are only rough indicators, given the different

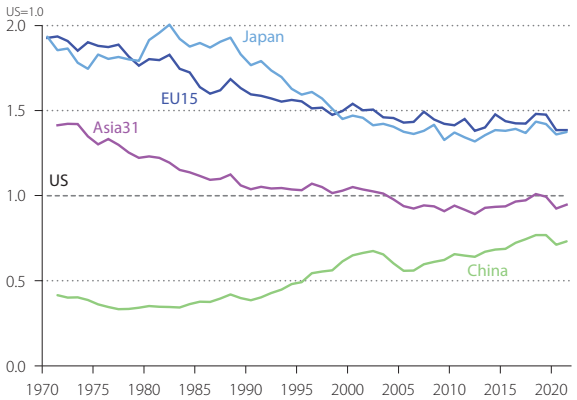


**Figure 5.26 Energy Productivity of Japan, China, Asia31, and the EU, 1970–2021**
——Index of GDP at constant prices (using the 2017 PPP) per final energy consumption relative to the US

Unit: Index. Sources: Official national accounts in each country (including adjustments by APO-PDB) and IEA (2023b).

industrial structures and climates by country, Japan's energy productivity level is almost equivalent to the EU15 from the mid-1990s. By this measure, the Japan-EU level is about 40% higher than that of the US. Chinese energy productivity was less than 40% of that of the US in the 1970s and the 1980s. However, China has succeeded in improving energy productivity since the 1990s with its rapid growth, closing the gap with the US to 27% in 2021, partly due to the rising share of services and falling manufacturing share.

The energy productivity measure reflects not only the difference in energy efficiencies of industries and households but also the difference in the industry and production structure of the economy. Thus, energy productivity at the aggregate level is highly dependent on the development stage of the economy and industrial structure (Box 9). Figure 5.27 places countries on the two partial productivity indicators of labor and energy in 2021. Less-developed countries with lower labor productivity (such as the Philippines, Sri Lanka, and Bangladesh) tend to have higher energy productivity (bottom-right corner of Figure 5.27). One of the effective strategies to improve labor productivity in such countries is to expand the manufacturing sector and capital accumulation. This frequently is accompanied by a deterioration in energy productivity. That is, a movement from the bottom-right towards the top-left of the figure. In the next stage of economic growth, well-developed countries will be able to pay more attention to improving energy productivity by abolishing implicit or explicit subsidies on energy prices, especially electricity prices, and levying heavier taxes on energy consumption (towards the top-right). The C-shape dynamic between labor and energy productivities in Figure 5.27 corresponds to the so-called Environmental Kuznets curve as an inversed U-shape relationship between environmental quality (at the y-axis) and economic development (at the x-axis).

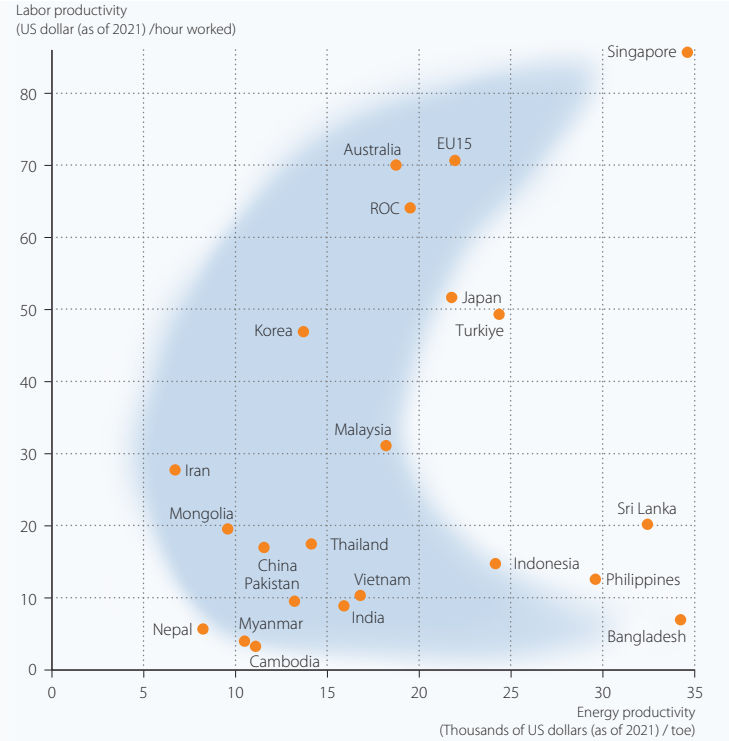


**Figure 5.27 Labor Productivity and Energy Productivity in 2021**
——Per-hour labor productivity level and energy productivity level

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country (including adjustments by APO-PDB), IEA (2023b), and APO Productivity Database 2024.

70: Due to the time lag in obtaining energy and CO2 emissions data, the final observation year is 2021 only in Section 5.7.

## Box 9 Structural Changes Behind Energy Productivity Improvement

In Japan, energy productivity improvement (EPI) at the aggregate level has been sustained in the postwar economy. However, this gross EPI measure reflects the effects of several structural changes. Figure 5.28 illuminates the sources of the gross EPI (measured as the real GDP per unit primary energy consumption) provided in Nomura (2023a, Chapter 2). The gross EPI is depicted by the line, which is decomposed into the true EPI under the control of two structural changes, i.e., energy quality changes (conversion and sophistication effects) and changes in industrial structure. The energy conversion effect is defined as the ratio of final energy consumption to primary energy consumption,[71] and the energy sophistication effect is defined as the ratio of quality-adjusted energy input to final energy consumption. Quality adjustment takes into account the different prices of one Joule of energy from coal, oil, gas and electricity. One Joule of electricity is more versatile and has a higher price. Although the direct impact of the progress in electrification is a lower energy conversion effect, it also increases the energy sophistication index.

Japan's high-growth period (1955–1973) is characterized by a marked improvement in energy quality, resulting in an overestimation of gross EPI (1.3% per year) by 1.3 percentage points because of the energy conversion effect (mainly due to the improvement of energy conversion efficiency) and by 0.5 percentage points because of the energy sophistication effect. However, this period also saw a rapid expansion of energy-intensive trade-exposed industries, and the industry structure effect caused gross EPI to be underestimated by 2.0 percentage points. The heavy industrialization that led to high economic growth has made it difficult to see true improvement in the gross measure of energy productivity. During this period, while the energy quality effect and the structural change effect offset each other, the true EPI averaged 1.4% per year, slightly higher than the gross EPI (1.3%).

In the post-oil crisis period (1973–1990), the impact of changes in industrial structure turned from negative to positive. Because of the industrial structure change and energy sophistication effect, the gross EPI (2.7% per year) is overestimated by 1.1 and 0.5 percentage points per annum, respectively, and the true EPI is revised downward significantly to 1.3% per annum. The industrial structural change of a relative shrinkage of heavy industry greatly inflated the gross EPI in the period that included the oil crises.

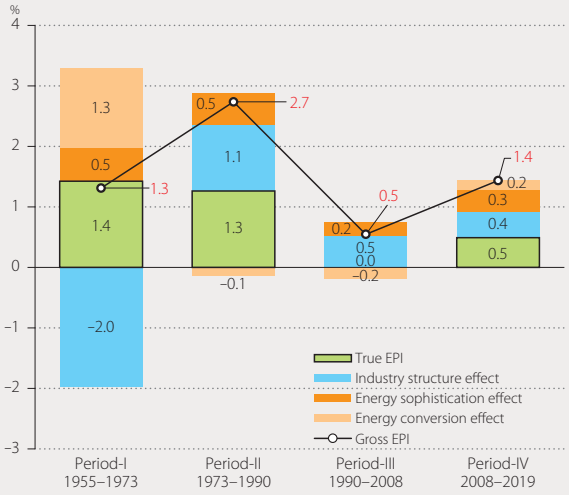


**Figure 5.28 Decomposition of Energy Productivity Improvement in Japan, 1955–2019**
——Contributions of structural changes and true EPI

Unit: Percentage (average annual growth rates). Source: Nomura (2023a, Chapter 2). Note: The gross energy productivity is the real basic-price GDP per primary energy consumption.

In 1990–2008, true EPI almost disappeared, and energy productivity in the Japanese economy stagnated noticeably. The gross annual EPI rate of 0.5% is only bulked up by industrial structure factors. The Act on Rationalizing Energy Use was established in 1979. Since then, it has been revised on a large scale several times, especially during 2000–2008, when the most aggressive promotion of energy efficiency and conservation was made to tackle the problem of climate change. While there are micro-evaluations that suggest policy support

in the form of subsidies for energy conservation was effective, at the aggregate level, the true EPI slowed down significantly since the 1973–1990 period of oil price shocks.

In the recent period 2008–2019, the gross EPI seems to have recovered to 1.4% per year. Still, it overstates true EPI by 0.4 percentage points because of changes in industry structure, 0.3 percentage points because of the energy sophistication factor, and 0.2 percentage points because of the energy conversion factor. The true EPI is evaluated as 0.5% per annum, close to one-third of the gross EPI.[72] These Japanese experiences illustrate the dangers of assessing policy based only on the gross EPI at the aggregate level.

Figure 5.29 decomposes the sources of CO2 emission growth (from fuel combustion) in the Asian countries during 2000–2021, based on the so-called Kaya identity. This identity decomposes the change in CO2 emissions into three components: changes in real GDP, the carbon intensity of energy, and the energy intensity of GDP (the inverse of energy productivity). In all countries with increasing CO2 emissions, output expansion is the most significant factor in explaining the growth of CO2 emissions. In this period, energy productivity has improved in these countries, except for Iran. However, these improvements are not enough to offset an expansion of energy consumption.[73]

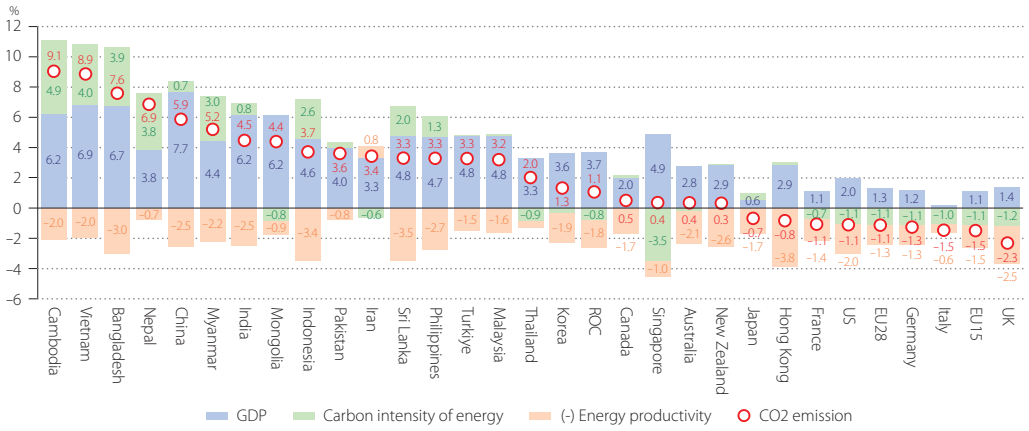


**Figure 5.29 Sources of CO2 Emission Growth, 2000–2021**

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country (including adjustments by APO-PDB) and IEA (2023a and 2023b).

While the developed countries and a few rich Asian countries have a falling carbon intensity of energy, in many Asian economies, the carbon intensity of energy has increased. This is mainly due to an expansion of coal consumption. Japan achieved some improvement in energy efficiency from 2000 to 2021, but the carbon intensity of energy increased due to a low operation rate of nuclear power plants after the Fukushima Daiichi nuclear disaster in March 2011. Singapore realized a significant improvement (decrease) in

71: The "final consumption" in economic statistics excludes all intermediate inputs to the production process and thus does not include energy consumption by industry. However, in energy statistics, "final consumption" refers to total domestic consumption, excluding consumption by the energy conversion sector and a net increase in inventories.

72: While analyzing the sources of this recovery in true EPI (0.5% per year), the chemical industry contributed the most to the economy-wide EPI, and there are considerable changes in the product components within this industry. Controlling changes in the composition of chemical products has the effect of shrinking the economy-wide EPI by 0.2 percentage points.

73: Only countries with declining CO2 emissions have energy productivity growth outpaced output growth (Figure 5.29). However, these aggregate EPIs may be causing so-called carbon leakages (increases in production and emissions in other countries).

the carbon intensity of energy by the shift from oil to LNG in electricity power generation.[74] This helped offset the increases in CO2 emissions accompanied by strong economic growth, regardless of a modest energy productivity improvement. In this period, the decoupling of GDP and CO2 emission changes is apparent in a few developed countries, especially in the EU15 and the US. However, this may be largely due to the shift of energy-consuming manufacturing activities to Asian countries, where more energy was required, and more CO2 was emitted to produce the same output. There is still a need for an international institutional design that can effectively curb global emissions.

## 5.8 Comparison with OECD Countries

This section compares the performances of Asian countries with those of OECD countries published in the OECD Productivity Database (OECD 2024) to give readers a wider perspective of the results. For this comparison, the growth accounting for Asian countries is re-estimated based on the OECD-compliant methodology in this section, and only this section of the Databook. There are two main differences between them. First, land, inventory, and mineral and energy resources are not considered capital input in the OECD-compliant methodology.[75] This adjustment would expand the speed of capital accumulation and thus constrain the rate of TFP growth compared to the results in the other sections of the Databook. Second, the change in labor quality is not considered. Labor input is measured by hours worked, and the calculated TFP growth rate includes the effect of labor quality improvements.[76] Figure 5.30 provides the revision on the two-decade average TFP growth by country from 2000 to 2022, resulting from these two methodological changes. Based on the OECD-compliant methodology, the TFP growth of most Asian countries is increasing by 0–1 percentage point per year.

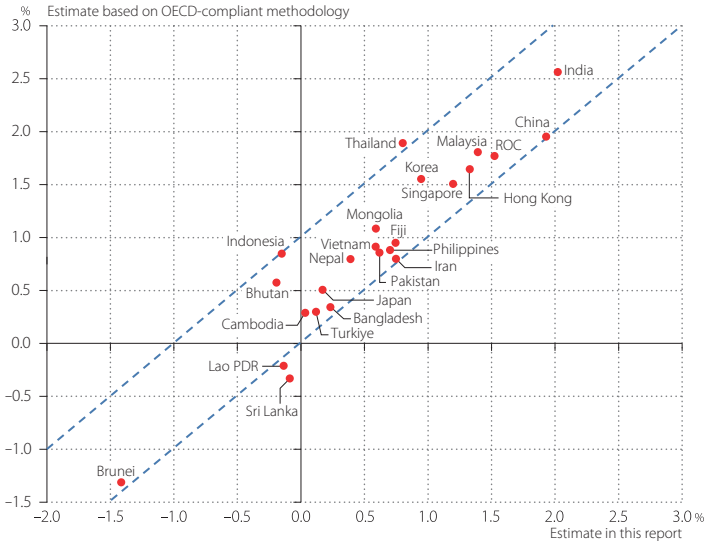


**Figure 5.30 Comparison of TFP Estimates Based on Different Methodology, 2000–2022**

Unit: Percentage (average annual growth rate). Sources: APO Productivity Database 2024 and OECD (2024). Note: See footnote 76 for differences between the OECD-compliant methodology and the methodology of this report.

Figure 5.31 compares the sources of growth accounting between Asian countries (based on the OECD-compliant methodology) and OECD countries (OECD 2024) for 2000–2022. Using the common method, we see that Asian countries enjoy higher TFP growth rates than OECD countries. Though growing at a more subdued pace, the contribution made by TFP in the slower-growing, mature economies should not be underestimated.

74: In Singapore, the share of natural gas in electricity generation reached 94% in 2021 from 18% in 2000, compared to the decrease in oil in power generation from 80% in 2000 to 1.0% in 2021 (IEA 2023b). Singapore receives natural gas via pipelines from neighboring Malaysia and Indonesia and imports LNG from Australia, the United States, Qatar, and Angola, among other countries (US EIA, August 2021).

75: Due to this methodological change, the rate of return of capital is re-estimated endogenously (Section 8.2.7).

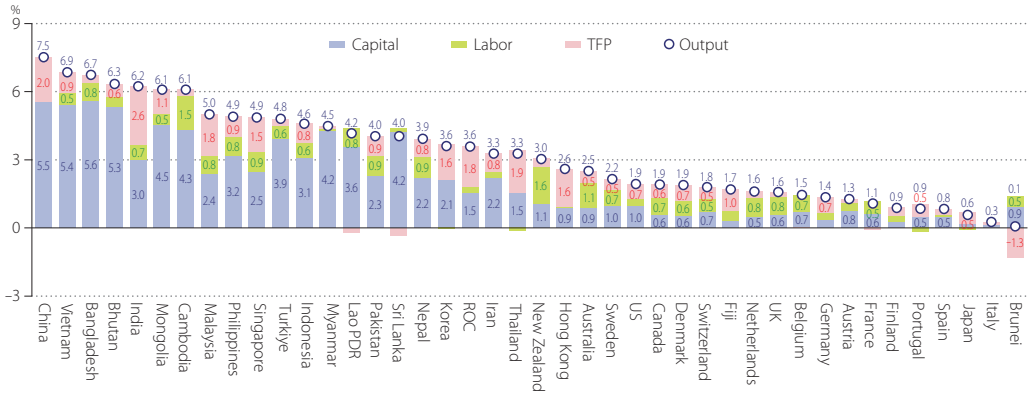


**Figure 5.31 Comparison of Sources of Economic Growth with OECD Countries, 2000–2022**
——GDP growth and contributions of capital, labor (hours worked), and TFP (based on the OECD-compliant methodology)

Unit: Percentage (average annual growth rate). Sources: APO Productivity Database 2024 for the Asia25 economies and the US. The OECD.Stat (Dataset: Multi-Factor Productivity) and OECD (2024) for OECD countries (except Japan, Korea, Turkiye, and the US). Notes: The impacts of labor quality changes are included in TFP; land stock is not included in capital inputs.

Figure 5.32 plots the per capita GDP level in 2022 and the TFP contribution share in each country from 2000 to 2022 for the Asia25 economies (dark dots) and compares this with the share for OECD countries (white circles). On the right side of Figure 5.32, there is a wide range of share contributions among the OECD countries and a wide range among middle-income Asian countries. There are no significant differences in the roles of TFP contribution to economic growth between them.

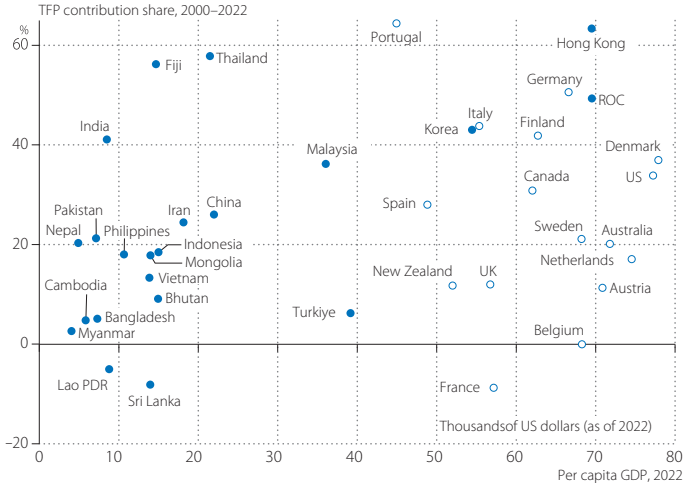


**Figure 5.32 Comparison of TFP Contribution Share with OECD Countries, 2000–2022**
——Contribution share of TFP in economic growth (based on the OECD-compliant methodology)

Unit: Percentage (contribution share) for the vertical axis and thousands of US dollars for the horizontal axis. Sources: APO Productivity Database 2024 for the Asia25 economies and the US. The OECD.Stat (Dataset: Multi-Factor Productivity) and OECD (2024) for OECD countries (except Japan, Korea, Turkiye, and the US). Notes: The impacts of labor quality changes are included in TFP; land stock is not included in capital inputs.

76: The multi-factor productivity in the OECD Productivity Database (OECD 2024), referred to as TFP in this report, defines total input as the weighted average of the growth rates of total hours worked and capital services. Although our methodology is changed to be comparable with them in Figure 5.31 and Figure 5.32, readers should keep in mind that two additional differences in assumptions remain. First, capital services of residential buildings are included in our estimates of capital input to be consistent with output that includes the imputed cost of owner-occupied housing. Second, the compensation of capital is defined in our estimates as the residual of the value added and the compensation of labor (compensations for employees, self-employed persons, and contributing family workers). In contrast, the OECD defines it as the imputed value of capital services based on the assumptions of an ex-ante rate of returns on capital. Thus, although both apply the same Translog index, the weights to aggregate labor and capital can differ. Other than these, our methodology and assumptions in measuring capital services are designed to be largely consistent with the OECD methodology, and the impact of the differences in assumptions on the volume estimates of capital services is judged to be limited.

# 6 Industry Perspective

## Highlights

- While Asian countries are diversifying and moving away from agriculture, forestry, and fishing, this sector continues to dominate employment, accounting for 30% of total employment in 2022 in Asia25 (Figure 6.6), down from 63% in 1980. Its share in total value added decreased more moderately, from 17% to 9% over the same period (Figure 6.1 and Figure 6.9).
- Manufacturing is a significant sector, accounting for over 20% of total value added in 12 Asia25 countries in 2022 (Figure 6.1 and Table 9.15). It is particularly prominent at 35% in ROC, 28% in Korea, 27% in Vietnam, 27% in Thailand, and 26% in China. Manufacturing is dominated by machinery and equipment in most Asian economies, while Bangladesh and Cambodia concentrate on light manufacturing, such as textiles and the food industry (Figure 6.3 and Figure 6.15).
- In labor productivity growth by region, the manufacturing sector's contribution is significant at 29% in East Asia in 2010–2022 but remains somewhat moderate in CLMV at 24% and South Asia at 14% (Figure 6.18). In South Asia, 63% of the labor productivity growth is explained by improvement in the service sector, compared to 37% in East Asia and 33% in CLMV (Figure 6.19).

Industry decomposition gives insight into the sources of a country's economic dynamics, which, in turn, determines its overall performance and characteristics, its strengths, and its vulnerabilities. A broad industry base reflects diversification and sophistication in the economy and is more resilient in weathering economic shocks. Relying on a narrow industry base leaves an economy more vulnerable to shocks and susceptible to volatility in commodity prices. The different composition of economic activities among countries is one of the main sources of the huge gap in average labor productivity observed at the aggregate level in Chapter 5. By analyzing the industry structure of the Asian economies, one can trace the path of economic development and identify countries' respective stages based on their industry characteristics. [77]

## *6.1 Industrial Structure*

Table 3.2 introduces country groupings according to stages of development from the point of view of long-run economic growth from 1970 (as measured by per capita GDP relative to the US). Table 6.1 regroups countries based on the same set of criteria as in Table 3.2 but applies it to 2022 income levels and focuses on a more recent catch-up to the US from 2010.

77: Constructing the industry origins of labor productivity growth requires collecting data from different sources. Data inconsistency issues arising from the fragmentation of national statistical frameworks present enormous hurdles to researchers in this field. The industry data in this chapter is mainly based on official national accounts. Where back data is unavailable, series are spliced together using different benchmarks and growth rates. Data inconsistencies in terms of concepts, coverage, and data sources have yet to be fully treated, although levels of breakdown are deliberately chosen to minimize the potential impact of these inconsistencies. APO-PDB examines the problems of time-series industry data connections in each country, but issues remain. Readers should bear these caveats in mind in interpreting the results.

**Table 6.1 Country Groups Based on Current Economic Level and Catching-Up Pace, 2010–2022**
——Level and average annual growth rate of per capita GDP at constant market prices, using the 2017 PPP

| Per capita GDP level in 2022, relative to the US | Average annual rate of catch-up to the US during 2010–2022 | | | | | |
|---|---|---|---|---|---|---|
| | (C6) <–1% | (C5) –1% ≤–< 0% | (C4) 0% ≤–< 1% | (C3) 1% ≤–< 2% | (C2) 2% ≤–< 3% | (C1) 3% ≤ |
| (D1) 100% ≤ | Qatar | | | Singapore, UAE | | |
| (D2) 70% ≤ - <100% | Brunei, Kuwait | Australia, EU15, Germany, Hong Kong, UK | Bahrain, New Zealand, Saudi Arabia | ROC | | |
| (D3) 40% ≤ - < 70% | Oman | EU27, France, Japan | Korea | | Malaysia, Turkiye | |
| (D4) 20% ≤ - < 40% | Iran | | Sri Lanka, Thailand | | | China |
| (D5) 10% ≤ - < 20% | | | Fiji, Lao PDR | Indonesia, Philippines | Bhutan, India, Mongolia | Vietnam |
| (D6) < 10% | | | Pakistan | Myanmar, Nepal | Cambodia | Bangladesh |

Sources: Official national accounts in each country, including adjustments by APO-PDB. Notes: The annual catch-up rates in the column are based on the estimates for 2010–2022. Another country grouping is provided in Table 3.2.

Countries at the lower rungs of the development ladder tend to have greater agriculture, forestry, and fishing sector as a share of value added.[78] Based on the measures using the one-digit industry classification, this primary industry dominates in six countries: Nepal, Pakistan, Cambodia, Lao PDR, Myanmar, and Fiji. Figure 6.1 shows the industry composition of the Asian economies and regions in 2022, with the reference chart on GDP per capita (using the 2017 PPP) at the left of Figure 6.1.[79] In the figure, the countries are listed in descending order of GDP per capita. There is an obvious negative correlation between the share of the primary industry and income per capita.[80] The outliers are rich New Zealand with a 6% agriculture share and poor Bangladesh with only 12%. The changes in industry shares of value added are presented in Table 9.15.

Adopting technologies from advanced economies is important to foster productivity growth in less-developed countries. In this view of assimilation, manufacturing is a key sector in driving countries to leap forward in economic development. It accounts for more than 20% of the total value added in 12 of the

78: In Chapter 5, GDP is adjusted to be valued at basic prices for all countries (if the official estimates are unavailable, they are the estimates in APO-PDB). However, the definition of GDP by industry differs among countries in this chapter due to data availability. The industry-level GDP is valued at factor cost for Fiji and Pakistan; at basic prices for Cambodia, Hong Kong, India, Korea, the Lao PDR, Mongolia, Nepal, Singapore, and Vietnam; at producers' prices for Bangladesh, Iran, the ROC, and the Philippines; and at market prices for Indonesia, Japan, Malaysia, Sri Lanka, Thailand, and Turkiye. See Section 8.1.7 for the details.

79: The nine industries are 1–agriculture, forestry, and fishing; 2–mining; 3–manufacturing; 4–electricity, gas, and water supply; 5–construction; 6–wholesale and retail trade, hotels, and restaurants; 7–transport, storage, and communications; 8–finance, real estate, and business activities; and 9–community, social, and personal services. Cambodia, Iran, and Nepal use the International Standard Industry Classification of All Economic Activities (ISIC) Rev.3. Other Asian economies have already switched to the ISIC Rev.4. See Appendix 10 in the *APO Productivity Databook 2018* (September 2018) for the concordances between the industry classification used in Databook and the ISIC Rev.3 and Rev.4.

80: The regional averages as industry share of value added are based on a country's industrial GDP, using the PPPs for GDP for the whole economy without consideration of the differences in relative prices of industry GDP among countries.

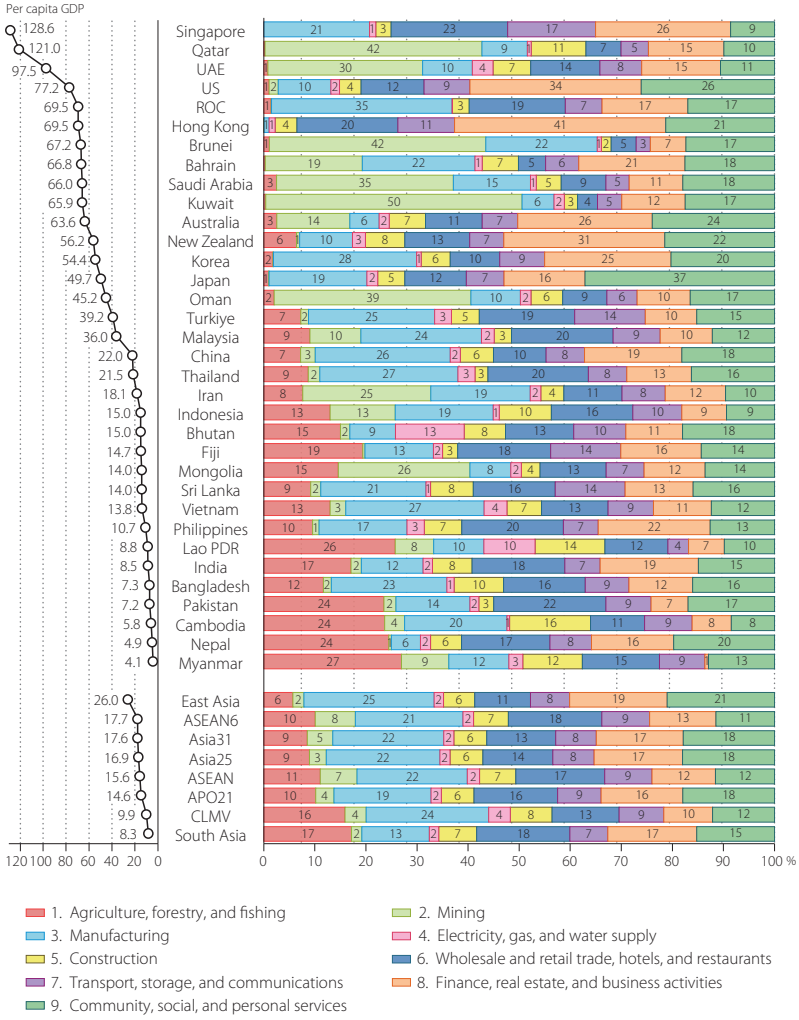


**Figure 6.1 Industry Value-added Share in 2022**
——Industry share of GDP at current prices

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB. Note: The reference chart at the left shows per capita GDP, using the 2017 PPP for GDP, the reference year 2022 (thousands of US dollars).

Asian countries compared in Figure 6.1. Figure 6.2 relates estimates of TFP growth during 2010–2022 to the shares of manufacturing in 2022. A positive correlation between them in past decades is no longer clear in the 2010s. Still, it is apparent for the group of high-income countries, such as Japan and the Asian Tigers, and the group of middle-income countries. Thailand is an exception in the middle group, with slow growth in TFP despite its high manufacturing ratio in this period. India has a low manufacturing share but is benefitting from a movement out of agriculture and thus enjoyed high TFP growth.

Figure 6.3 shows the breakdown of the industry GDP shares in the manufacturing group, comprising nine sub-industries, for 17 selected Asian countries, for which data are available, and the US in 2022.[81] Countries are sorted based on the size of the share of industry 3.8–machinery and equipment manufacturing. The dominance of machinery and equipment manufacturing is apparent in Asian Tigers and Japan. At the other end are countries dominated by light manufacturing, e.g., 3.1–food products, beverages, and tobacco products sector in Mongolia, the Philippines, and Fiji; 3.2–textiles, wearing apparel, and

81: Manufacturing consists of nine sub-industries: 3.1–food products, beverages, and tobacco products; 3.2–textiles, wearing apparel, and leather products; 3.3–wood and wood products; 3.4–paper, paper products, printing, and publishing; 3.5–coke, refined petroleum products, chemicals, rubber, and plastic products; 3.6–other non-metallic mineral products; 3.7–basic metals; 3.8–machinery and equipment; and 3.9–other manufacturing.

leather products in Cambodia and Bangladesh. The industry 3.5–coke, refined petroleum products, chemicals, rubber, and plastic products is important for Kuwait, Iran, Malaysia, Thailand, and the US.

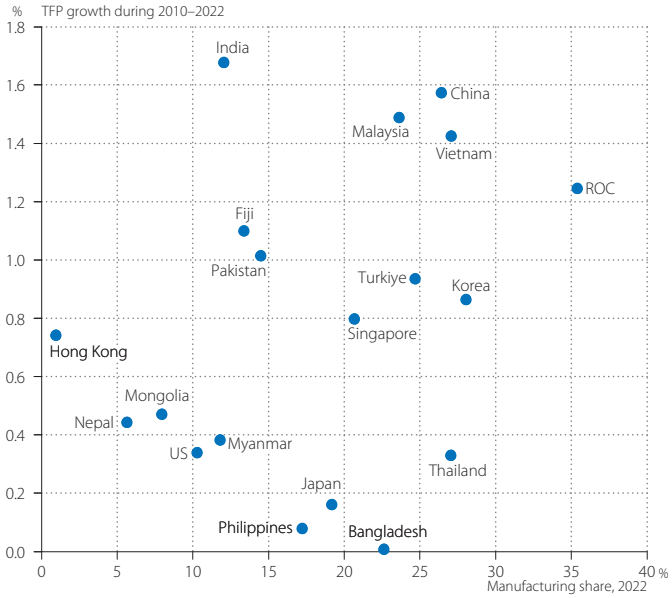


**Figure 6.2 Manufacturing GDP Share and TFP Growth, 2010–2022**
——GDP share of manufacturing in 2022 and TFP growth

Unit: Percentage (average annual growth rate for the vertical axis and current-price share for the horizontal axis). Sources: Official national accounts in each country (including adjustments by APO-PDB) and APO Productivity Database 2024. Note: Countries with negative TFP growth in this period are excluded.

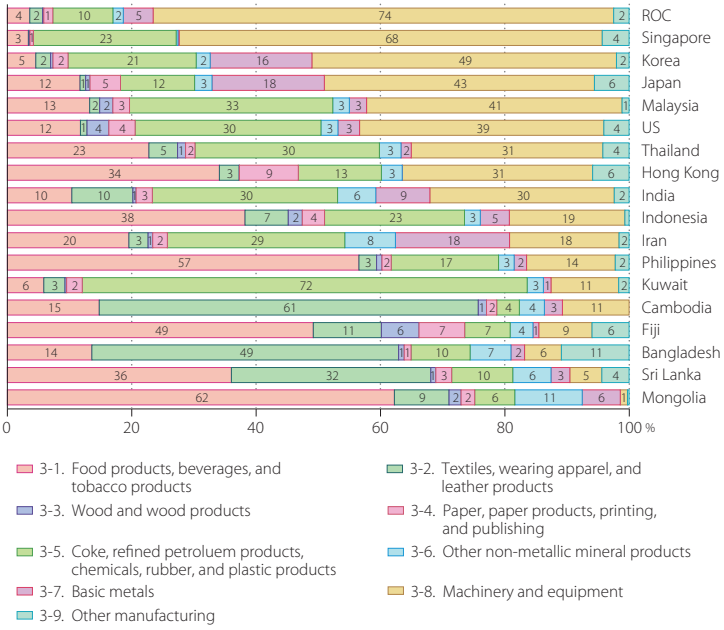


**Figure 6.3 Industry Shares of Value Added in Manufacturing in 2022**
——Shares of sub-industry GDP at current prices in manufacturing

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB.

Figure 6.4 shows how the share of the agriculture, forestry, and fishing industry in total value added dropped over time in the poorer Asian economies, those with per capita GDP lower than 40% of the US in 2022. This could reflect the decline in agricultural output and/or the relatively rapid expansion in other sectors. Particularly in the lower-income countries in Group-D6, where per capita GDP is lower than 10% of the US level in 2022 (Table 6.1), the declining trend is evident, as shown in the right chart of Figure 6.4. There is a tendency for the agricultural GDP share to level off at around 10%, such as in the 2000s in Group-D5 (in the center chart) and in the 2010s in Group-D4 (in the left chart).

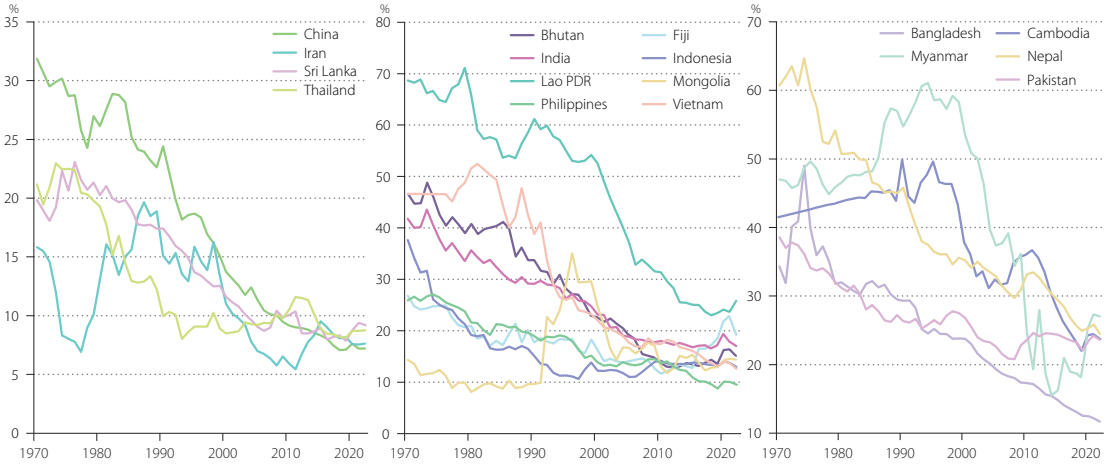


**Figure 6.4 Value-added Share of Agriculture, Forestry, and Fishing, 1970–2022**
——Share of agriculture, forestry, and fishing sector in GDP at current prices

Unit: Percentage. Sources: Population census and labor force survey in each country, including adjustments by APO-PDB. Note: Countries are grouped according to the per capita income levels in 2022 relative to the US, as defined in Table 6.1.

## Box 10 Mineral and Energy Resources as Capital

Ignoring the depletion of mineral and energy resources (MER) leads to overestimating net income in resource-rich countries. This also impacts measured TFP growth. The previous edition of the Databook (APO 2023) starts to consider MER as capital inputs. The data has been developed at KEO since 2020 within the Asia Natural Resources Database (ANRD). Abstracts of the ANRD 2024 are provided in Section 8.2.6.

Figure 6.5 depicts the impact of considering MER assets on measured TFP for Brunei, Mongolia, and Indonesia, with reference charts in the bottom row presenting the MER capital share in the total capital stock. Estimates of MER stocks in the ANRD are adjusted in relation to realized production rather than simple reserves. While the accuracy of the production measurement needs to be understood within the margin of error, two trends can be identified in terms of the impact on TFP. One is that the original high TFP growth rates seen in Brunei in the 1970s and Mongolia since the late 2000s are explained by the expansion of economically available MER stocks (mainly oil for Brunei and coal for Mongolia); when MER capital is included, the TFP growth rates are more moderate.

On the other hand, the continuous downward trends in TFP observed in Brunei and Indonesia since the 1980s can be explained significantly by declining MER stocks. As a result, the TFP path is revised upwards. These two trends show that MER considerations are essential for meaningful TFP estimates in resource-rich countries.

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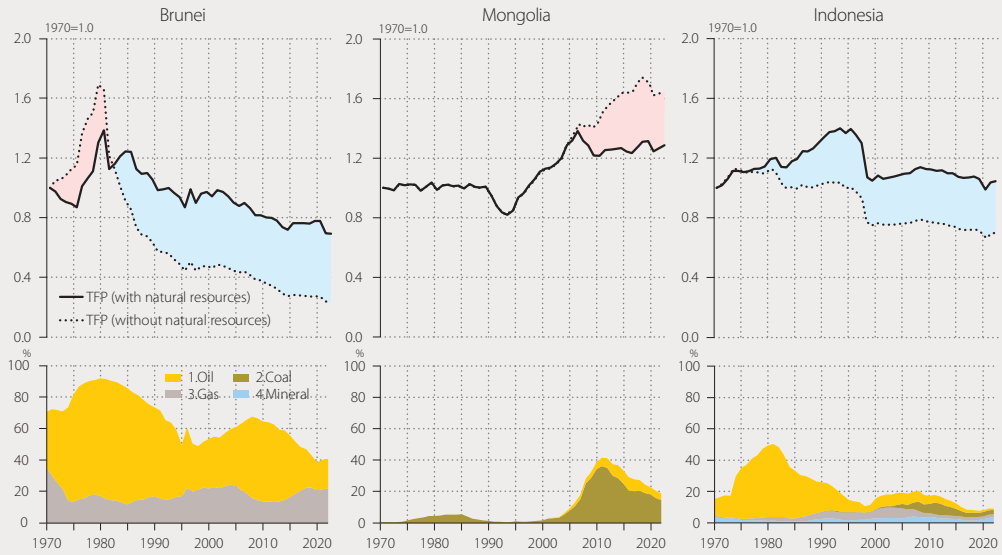



**Figure 6.5 Impacts of Mineral and Energy Resources on TFP in Selected Countries, 1970–2022**

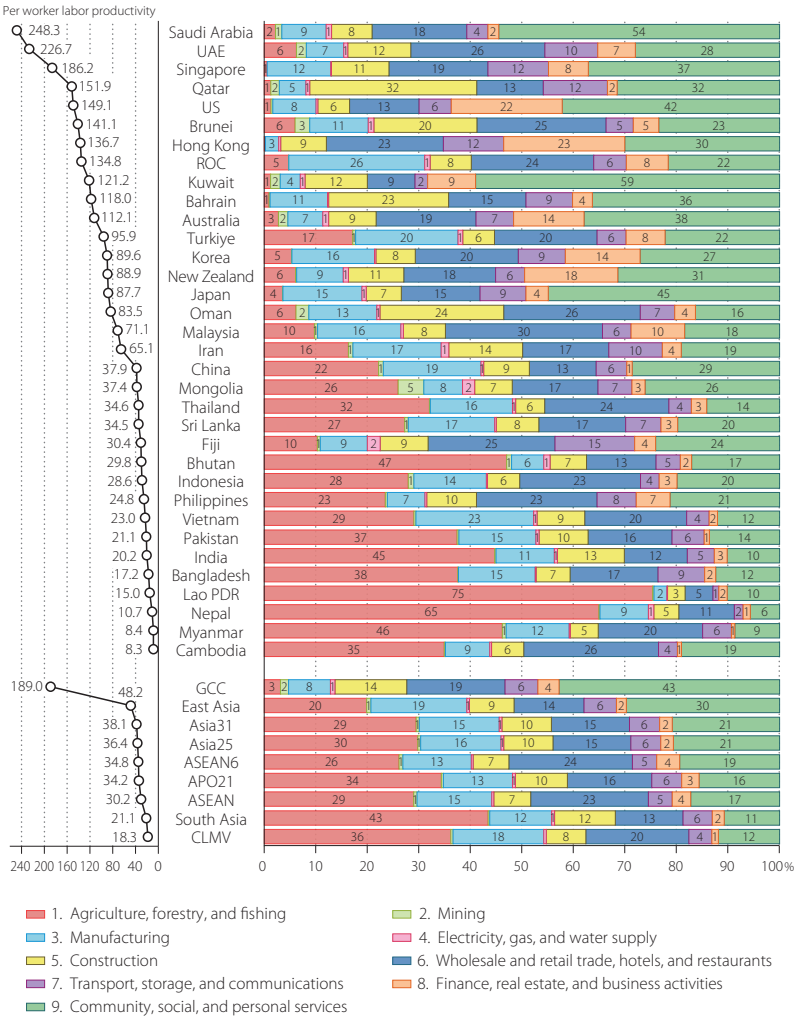
——TFP indices with and without consideration of MER capital

Unit: Index (TFP in 1970=1.0) in the top row and percentage for reference charts in the bottom row. Sources: APO Productivity Database 2024 and ANRD 2024. Note: The reference charts show the stock share of MER in total nominal net capital stocks (including MER).

## 6.2 Employment Allocation

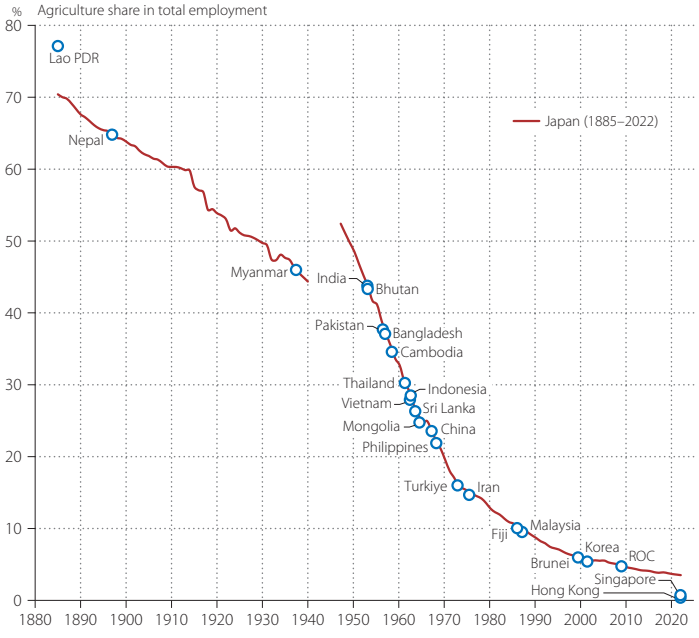
Despite the relative decline in the share of agriculture, forestry, and fishing in total value added, employment in the sector still accounts for 30% of total employment for Asia in 2022. Figure 6.6 shows industry shares in total employment by country and region, ranking them by per-worker labor productivity in 2022, which is presented in the reference at the left.

Figure 6.7 traces the historical trajectory of Japan's employment share of agriculture from 1885 to 2022. The share for each country in 2022 is mapped against this history (as circles). Large shares of agriculture, forestry, and fishing employment—over 30% in eight countries—correspond to Japan's level at the end of the 1950s and the onset of high economic growth. This may indicate room for improving labor productivity and per capita income if more productive industries are developed and jobs are created following Japanese history.




## Figure 6.6 Industry Shares of Employment in 2022

Unit: Percentage. Sources: Population census and labor force survey in each country, including adjustments by APO-PDB. Note: The reference chart at the left shows per-worker labor productivity using the 2017 PPP and the reference year 2022 (thousands of US dollars).




## Figure 6.7 Historical Agriculture Employment Share in Japan and Current Level of Asia in 2022

——Share of the number of employment in agriculture, forestry, and fishing for Japan from 1885 to 2022 and for Asian countries

Unit: Percentage. Sources: Population census and labor force survey in each country, including adjustments by APO-PDB. The historical data sources of Japan are Ohkawa, Takamatsu, and Yamamoto (1974) during 1885–1954 and population censuses since 1920.

Figure 6.8 gives the trend of agriculture employment share over time for the same three groups of countries as in Figure 6.4, i.e., D4, D5, and D6. These trends suggest that the relative decline in the share of agriculture, forestry, and fishing in total value added has been accompanied by a downward trend in its share in total employment.[82] This trend is unmistakable in most of the countries plotted in Figure 6.8.[83] Between 1970 and 2022, the employment share in this sector dropped from 82% to 23% in China and from 77% to 30% in Thailand.

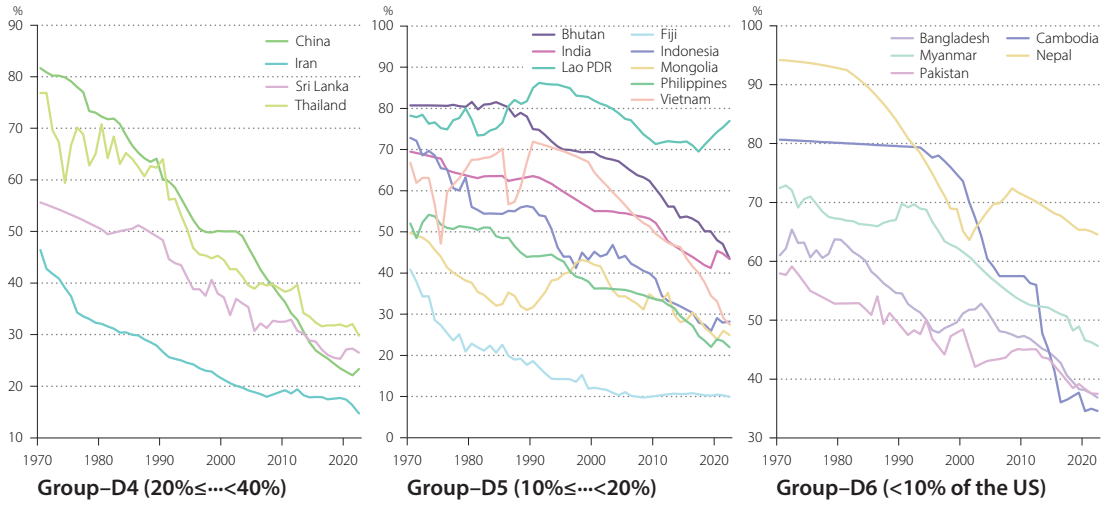



**Figure 6.8 Employment Share in Agriculture, Forestry, and Fishing, 1970–2022**
——Share of number of employment in agriculture, forestry, and fishing

Unit: Percentage. Sources: Population census and labor force survey in each country, including adjustments by APO-PDB. Note: Countries are grouped according to the per capita income levels relative to the US, as defined in Table 6.1.

Comparisons of the value-added and employment shares reveal some interesting facts. Agriculture, forestry, and fishing is the only industry sector that consistently has a disproportionately higher employment share than justified by its share in value added across all economies in Asia, except Fiji. This suggests that agriculture is still highly labor-intensive and/or there may be a high level of underemployment in the sector, implying that the labor productivity level is low compared to other industries.[84] Thus, countries with a sizeable agriculture sector often have low per capita GDP. In these cases, shifting out of agriculture will help boost economy-wide labor productivity.

The US is an exception, where the agricultural value-added and employment shares are similar at 1%, as shown in Figure 6.9, suggesting that labor productivity in this sector is higher than that achieved in Asian countries.[85] The reverse is true for the finance, real estate, and business activities industry, which often

82: Nepal's employment-by-industry figures are constructed by interpolating benchmark data from its labor force survey and population census. Figure 6.8 indicates that its share of agriculture has increased since 2001. This reflects the employment share of agriculture at 61% in the population census of 2001 and its share of 70% in the labor force survey of 2008.

83: However, the decline in a share does not always reflect an actual fall in employment for the agriculture sector; rather, it could reflect total work rising faster than employment in agriculture. Countries experiencing a consistent fall in actual employment in the agriculture sector are, for example, the ROC, Hong Kong, Japan, and Korea. In contrast, employment has risen in Bangladesh, India, Iran, Nepal, and Pakistan. Other countries such as Cambodia, Indonesia, Malaysia, Singapore, Thailand, and Vietnam have yet to establish a trend in employment growth. However, China has seen employment in agriculture falling since the turn of the millennium.

84: Gollin, Parente, and Rogerson (2004) and Caselli (2005) demonstrate the negative correlation between the employment share of agriculture and GDP per worker. They show that the agriculture sector was relatively large in less well-off countries, and agricultural labor productivity was lower than in other sectors.

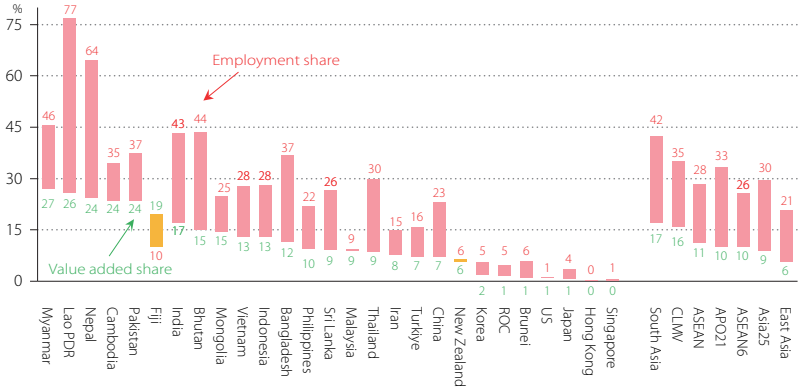



**Figure 6.9 Value Added and Employment Share of Agriculture, Forestry, and Fishing in 2022**
——Industry share of GDP at current prices and the number of employment

Unit: Percentage. Sources: Official national accounts, population census, and labor force survey in each country, including adjustments by APO-PDB.

generate a much greater value-added share than its employment share suggests. In 2022, the sector accounted for 34% of total value added generated by 22% of US employment versus 17% and 2% in Asia25, respectively (Figure 6.1 and Figure 6.6).

When the number of underemployed workers (known as "labor surplus") in each country is estimated, based on the simple assumption that fair employment share is equivalent to the value-added share of agriculture, forestry, and fishing in the status of zero labor surplus,[86] the labor surplus population in Asia25 exceeds three hundred million in 2022. Figure 6.10 presents the country contributions and regional totals (right chart) of the estimated labor surplus. It suggests a more than one hundred million labor surplus in India and China in 2022. While the slowdown of China's economic growth is notable (Section 2.4), the huge labor surplus suggests that China may follow a different growth trajectory than Japan and South Korea.

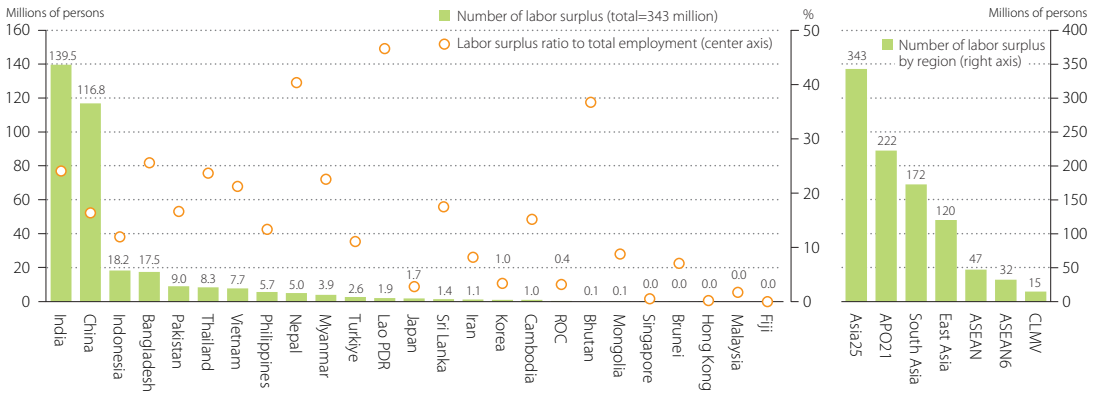



**Figure 6.10 Labor Surplus in 2022**
——Number and ratio of labor surplus

Unit: Millions of persons in the marginal axis and percentage in the center axis. Sources: Our estimates are based on APO Productivity Database 2024.

85: Jorgenson, Nomura, and Samuels (2016) indicates agriculture, forestry, and fishery sector is one of the industries which realized a consistently high TFP growth in the US (1.0% on average per year in 1970–2012), compared to its stagnation in Japan's agriculture (–0.1%), reflecting differences in the scale of individual production units, as well as massive public investments (including R&D) in new agricultural technology in the US.
86: In this calculation, the mining sector is excluded in employment and value-added totals.

It is the manufacturing sector that largely absorbs workers who have been displaced from the agriculture sector, especially in the initial stages of economic development. Figure 6.11 traces the trajectory of the relationship between the growth of manufacturing GDP and the growth of manufacturing employment for Asian countries and the US over the past five decades. Each point represents the average annual growth rate in each decade, and an arrow illustrates the growth rate in the most recent decade, 2010–2022. If manufacturing GDP and employment grow at the same rate, a dot will be on a 45-degree line through the origin, running from the lower left to upper right quadrants. Despite positive gains in manufacturing GDP in Japan, the overall growth in manufacturing employment was negative or slightly positive.

In Korea and the ROC, manufacturing output expansion could increase employment in the 1970s and 1980s (Figure 6.11a). However, since the 1990s, manufacturing has not been an employment-absorbing sector, regardless of the sound expansion of production in this sector. Thailand's and Singapore's experiences are closer to the 45-degree line through the origin, implying well-balanced output growth and employment in the manufacturing sector. The job-creation role of manufacturing has remained in these countries, but it is diminishing rapidly (Figure 6.11c).

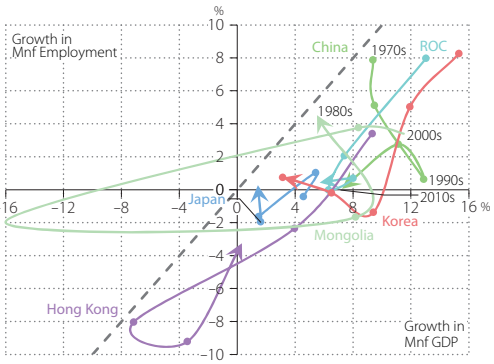



Figure 6.11a: East Asia

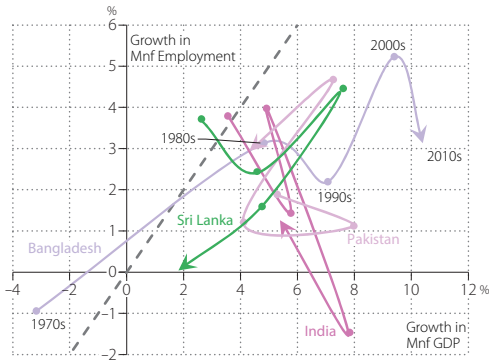



Figure 6.11b: South Asia

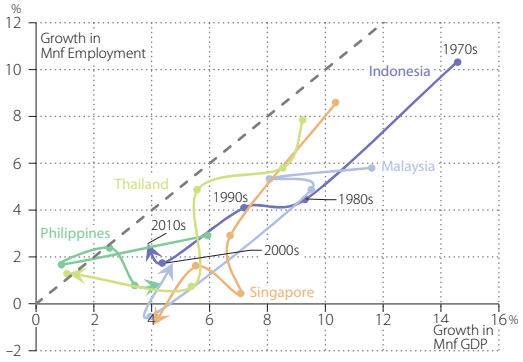



Figure 6.11c: ASEAN6

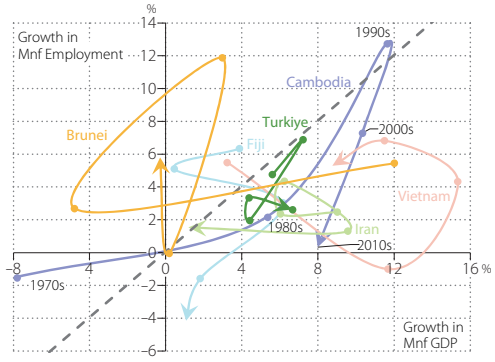



Figure 6.11d: CLMV and Other Asian

**Figure 6.11 Job Creation in Manufacturing, 1970–2022**
——Growth in manufacturing GDP at constant prices and manufacturing employment

Unit: Percentage (average annual growth rate). Sources: Population census, labor force survey, and official national accounts in each country, including adjustments by APO-PDB. Notes: Each dot represents the average annual growth rate in manufacturing (Mnf) in the 1970s, 1980s, 1990s, 2000s, and 2010s (2010–2022). The arrows indicate the rate in the 2010s.

## 6.3 Industry Origins of Economic Growth

The industry origins of economic growth by country and region for 2010–2022 are shown in Figure 6.12. China and India have been the two main drivers among the Asian economies, accounting for 2.0 percentage points and 0.7 percentage points of Asia31's growth rate (averaging 4.0% per year) during 2015–2022, respectively, as shown in Figure 3.7. However, the industry composition's origins of economic growth in China and India are quite different. China's economic growth has been fueled by manufacturing sector expansion, whereas India's economic growth has been led by service sector expansion. Development started shifting towards manufacturing in India only in recent years.

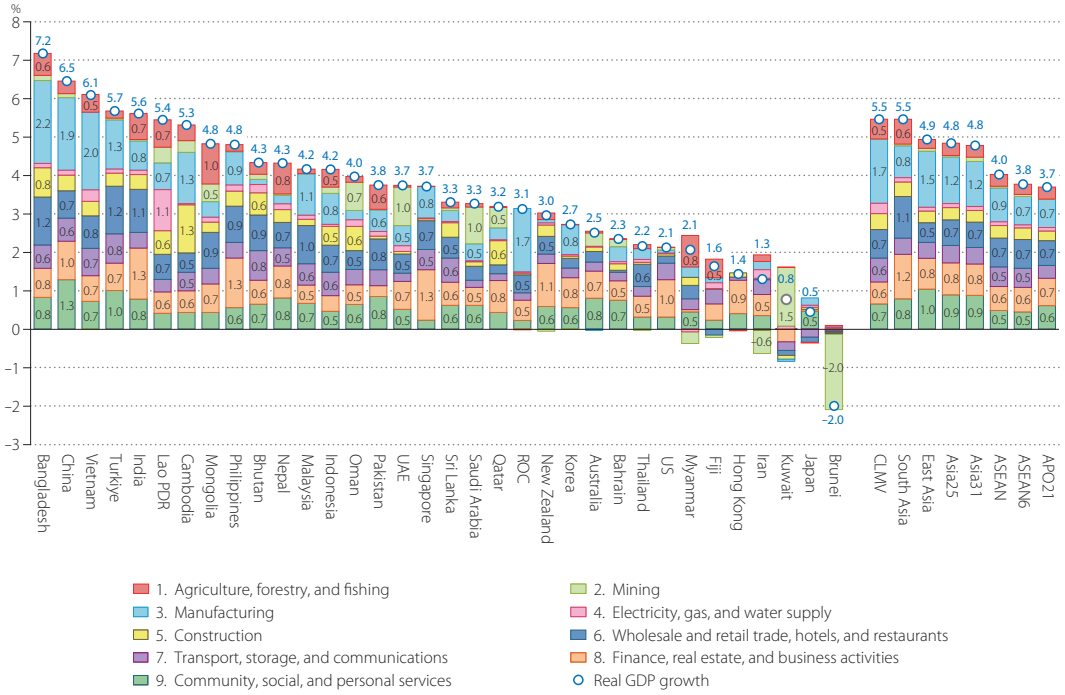



**Figure 6.12 Industry Origins of Economic Growth, 2010–2022**

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country, including adjustments by APO-PDB.

Figure 6.13 contrasts industry contributions to economic growth among regions for the recent decade of 2010–2022, compared with the past two-decade averages for 1970–1990 and 1990–2010.[87] For half a century of Factory Asia, the contribution of manufacturing to Asian economic growth has been significant: on average, from 1990 to 2010, 29% of Asia25's economic growth came from manufacturing expansion, well above 18% in the more mature US economy. From 2010 to 2022, the contribution from manufacturing growth shrank to 25% even in Asia 25, with economic growth driven by the personal services sector on the back of income growth. In the US, the manufacturing sector's contribution declined significantly to 4% over the same period, while the financial and other business activities sector increased significantly. In Asia, the contribution of manufacturing was particularly pronounced in the CLMV during the 2010s, while it did not increase as much in South Asia and declined in ASEAN6.

87: Asian averages are calculated using the Translog index to aggregate each country's industry GDP growth rates based on the two-period average of each country's shares of industry GDP to the gross regional products as weights.

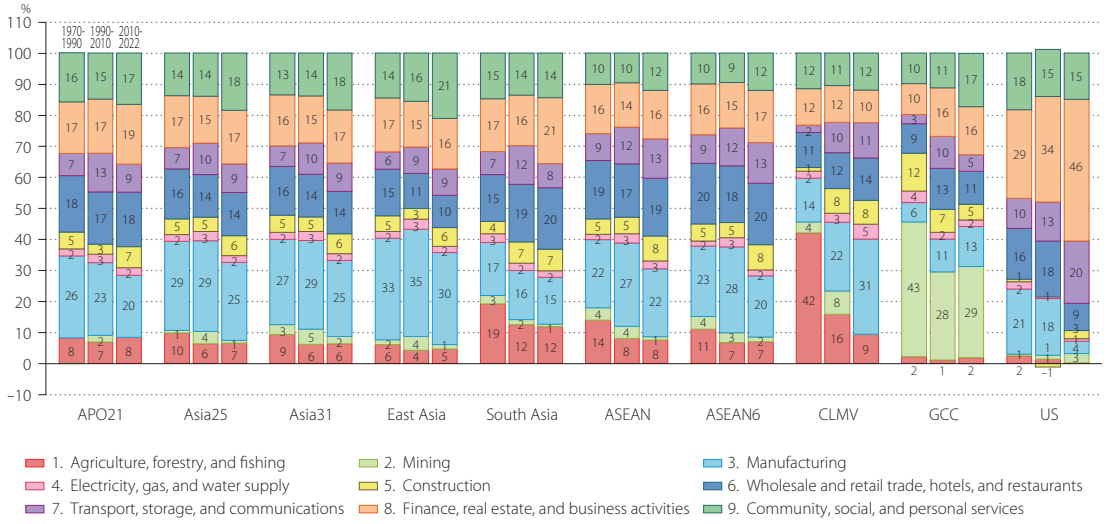



**Figure 6.13 Industry Origins of Regional Economic Growth, 1970–2022**
——Contribution shares of industry GDP growth by region in 1970–1990, 1990–2010, and 2010–2022

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB.

There are considerable differences in experience among countries in manufacturing sector contribution to economic growth. Figure 6.14 shows the experience of each country in 2000–2010 (circles) and 2010–2022 (dark dots), sorted by the contribution of manufacturing to economic growth.[88] The left chart gives the absolute percentage point contributions, and the right chart gives the contribution shares. Comparing the two periods, the role of manufacturing has declined in many countries, partly due to the impact of the pandemic. The relative decline is particularly

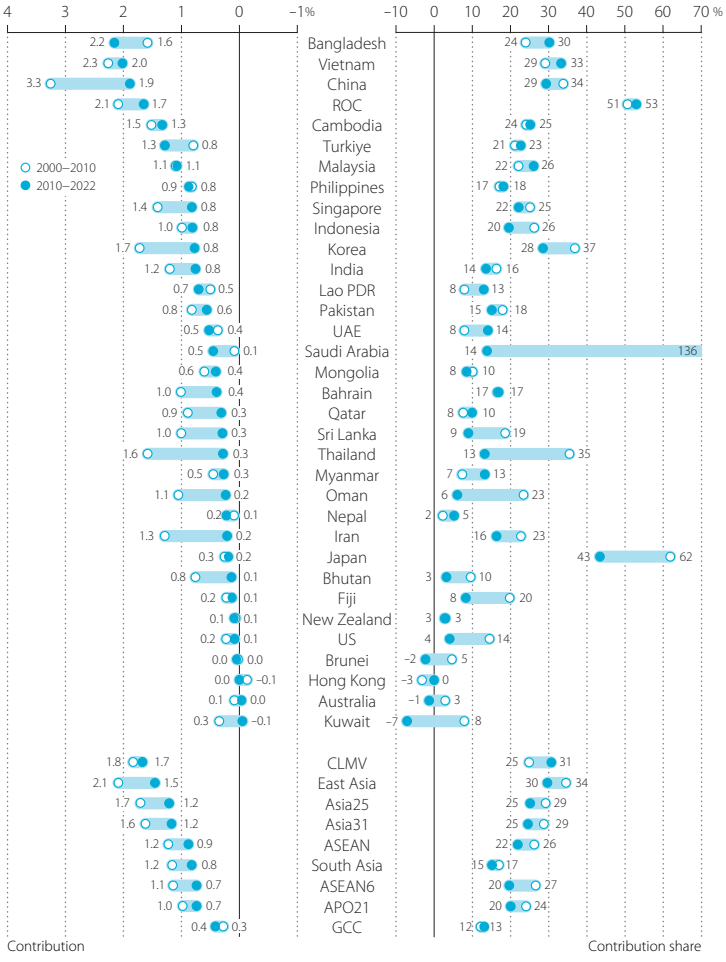



**Figure 6.14 Contribution of Manufacturing to Economic Growth, 2000–2022**
——Contributions in left chart and contribution shares in right chart in 2000–2010 and 2010–2022

Unit: Percentage point (average annual contributions) and percentage (contribution shares). Sources: Official national accounts in each country, including adjustments by APO-PDB.

pronounced in Japan and Thailand. The ROC had a 50% contribution from manufacturing to economic growth in both periods.

Figure 6.15 illustrates the sub-industry origins of the average annual growth in manufacturing GDP for some selected Asian countries from 2010 to 2022.[89] The expansion of ROC's manufacturing sector is characterized by a considerable concentration in 3.8–machinery and equipment sector. Bangladesh and Vietnam expanded their high manufacturing shares from 2000–2010 to 2010–2022, driving high economic growth, as shown in Figure 6.14. In Bangladesh, more than half of the annual growth rate of over 10% in this period depended on expanding 3.2–textiles, wearing apparel, and leather products. The expansion of the manufacturing sector, skewed by the growth of the textile sector, is also seen in Cambodia.

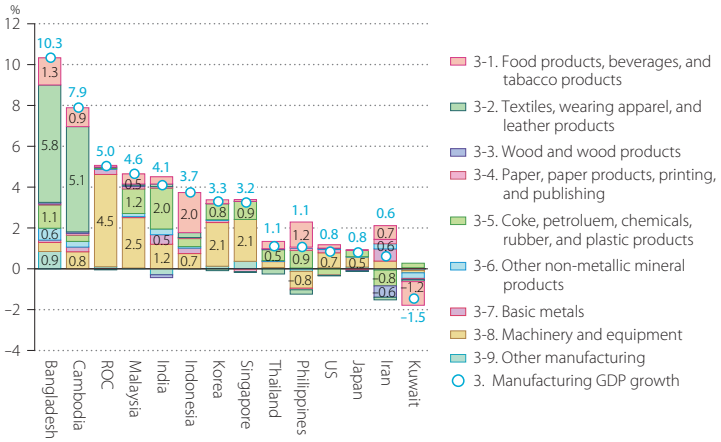



**Figure 6.15 Industry Origins of Output Growth in Manufacturing, 2010–2022**
——Sub-industry contributions in the manufacturing GDP growth

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country, including adjustments by APO-PDB.

Over the past two decades, the importance of the services sector in Asian economic growth has expanded. While some countries, such as Fiji, have been severely damaged by the pandemic, many Asian countries have experienced a notable impact of the services sector on economic growth, as shown in Figure 6.16. The story behind India's growth has been one of services growth. Modern ICT has allowed India to take an unusual path in its economic development, bypassing a stage when manufacturing steers growth. Recently, however, the country has been focusing on developing the manufacturing sector under the "Make In India" initiative launched in 2014.[90] From 2010 to 2022, India's manufacturing expansion was led by 3.5–coke, refined petroleum products, chemicals, rubber, and plastic products, and 3.8–machinery and equipment, as shown in Figure 6.15. To further improve per capita GDP and capitalize on the demographic dividend (Box 4), expansion of labor-intensive manufacturing may be required in India for greater job creation.

88: The Translog quantity index is adopted for calculating the growth in real GDP. Using this index, the growth in real GDP into the products of contributions by industries can be decomposed:
$\underbrace{\ln\left(GDP^{t}/GDP^{t-1}\right)}_{\text{Real GDP growth}} = \underbrace{\Sigma_j (1/2)\left(s_j^{t}+s_j^{t-1}\right)\ln\left(Q_j^{t}/Q_j^{t-1}\right)}_{\text{Contribution of an industry } j}$ where $Q_j^t$ is real GDP of an industry $j$ in period $t$ and $s_j^t$ is the nominal GDP share of an industry $j$ in period $t$.

89: Translog quantity index is adopted for calculating the growth in real GDP of manufacturing in the same manner as footnote 88.

90: The "Make in India" initiative launched by Prime Minister Narendra Modi in 2014 is based on four pillars (new processes, new infrastructure, new sectors, and new mindset), which have been identified to give a boost to entrepreneurship in India, not only in manufacturing but also other sectors. See PMINDIA for the details (accessed on May 25, 2024). Vikram Khanna evaluates that the prospects for the nation's manufacturing sector look bright, despite obstacles ("'Make in India' is finally poised for take-off," *The Straits Times*, July 5, 2023)

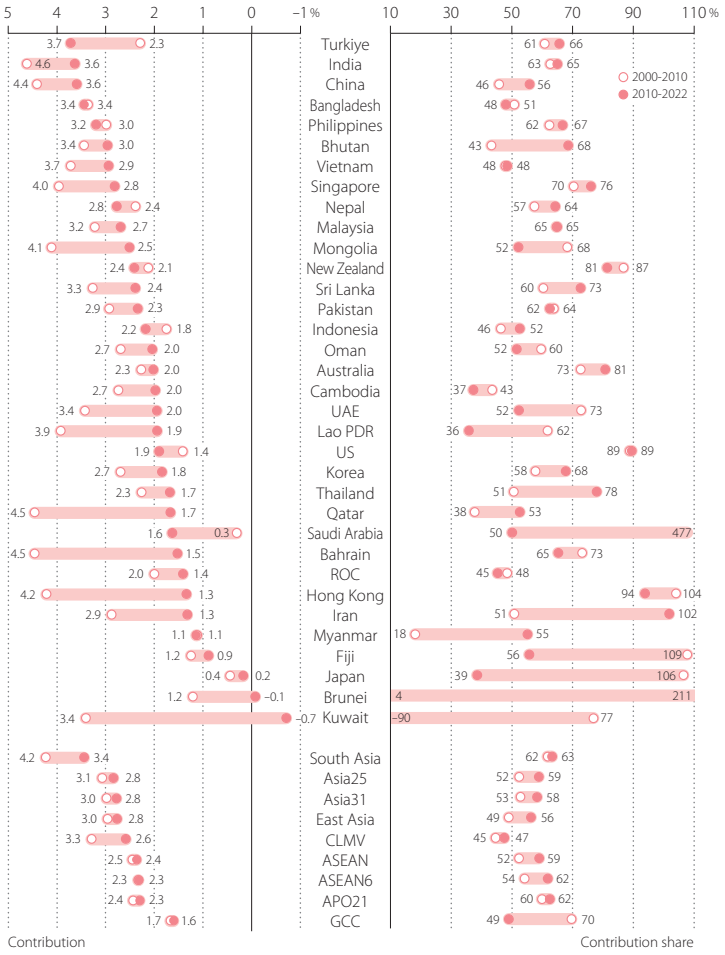



**Figure 6.16 Contribution of Service Sector to Economic Growth, 2000–2022**
——Contributions and contribution shares in 2000–2010 and 2010–2022

Unit: Percentage point (average annual contributions) and percentage (contribution shares). Sources: Official national accounts in each country, including adjustments by APO-PDB.

## 6.4 Industry Origins of Labor Productivity Growth

This section analyzes the industry sources of labor productivity growth in Asia.[91] Figure 6.17 shows the industry origins of average labor productivity growth per year from 2010 to 2022.[92] Positive labor productivity growth was achieved across all sectors for Asia25 as a whole. The findings highlight that service industries no longer hamper an economy's productivity performance but are as capable as manufacturing in achieving productivity growth. There are no significant differences between manufacturing and non-manufacturing sectors in Asia25, i.e., manufacturing (at 4.4% on average per year), agriculture, forestry,

91: The data presented in this chapter are subject to greater uncertainty than those in previous chapters, and the quality across countries is also more varied. Employment data in less developed countries often need higher frequency and industry details. The industry classification of employment data does not necessarily correspond to those of industrial output data. Consequently, the quality of labor productivity estimates at the industry level must be improved. Furthermore, estimates of the manufacturing sector should be of better quality than those of the service sector, as many countries have occasional manufacturing censuses but do not have a similar census covering the service sector.

92: Not all Asian countries are included, as employment by industry is unavailable for some countries. Labor productivity growth in Table 9.17 is defined simply as per-worker GDP at constant prices by industry ($v_j$). The industry decomposition of labor productivity growth for the whole economy ($v$) in Figure 6.17 (industry contribution in Table 9.17) is based on the equation $v = \sum_j \overline{w}_j v_j^*$ where the weight is the two-period average of value-added shares. In this decomposition, the number of workers as a denominator of labor productivity ($v_j^*$) is adjusted, weighting the reciprocal of the ratio of real per-worker GDP by industry to its industry average. Thus, the industry contribution ($\overline{w}_j v_j^*$) is emphasized more in sectors in which the per-worker GDP is higher than the industry average, in comparison with the impact ($\overline{w}_j v_j$) of using the non-adjusted measure of labor productivity.

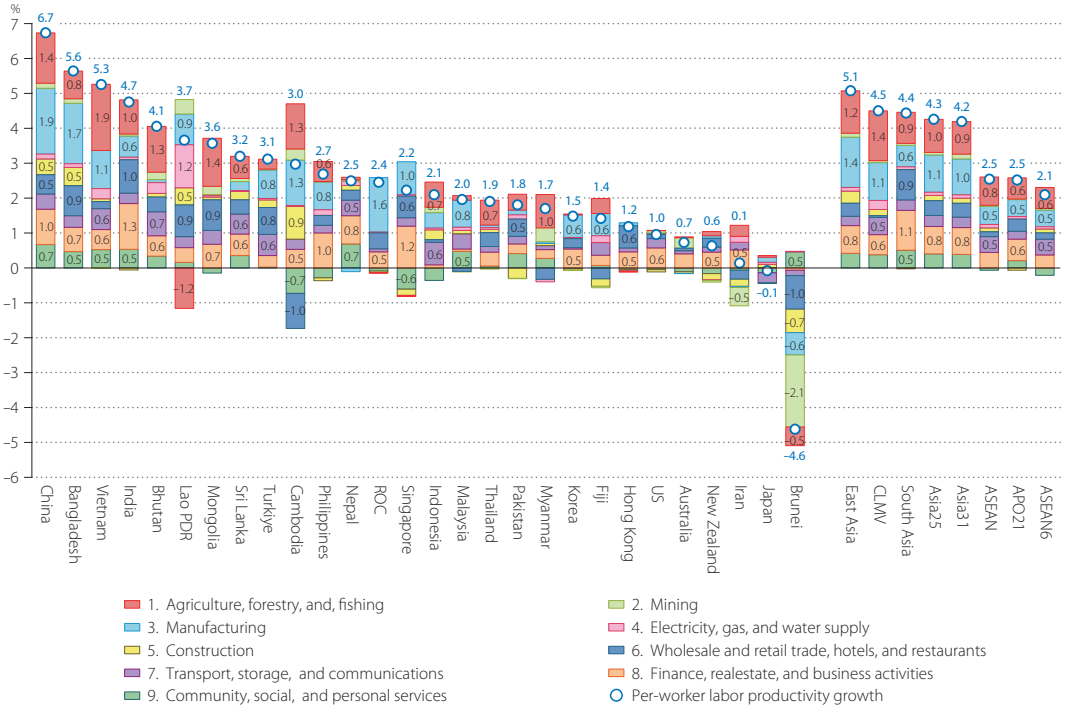



**Figure 6.17 Industry Origins of Labor Productivity Growth, 2010–2022**
——Growth in per-worker GDP at constant prices and industry contributions

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

and fishing (6.1%), construction (3.1%), electricity (3.2%), and transport, storage, and communications (3.3%) all have sizable growth in labor productivity, as provided in Table 9.17. Note that the sector contribution given in Figure 6.17 is the growth rate of productivity for that sector multiplied by its value-added weight (footnote 92).

Figure 6.18 shows the contribution of manufacturing to aggregate labor productivity growth in each country. The manufacturing

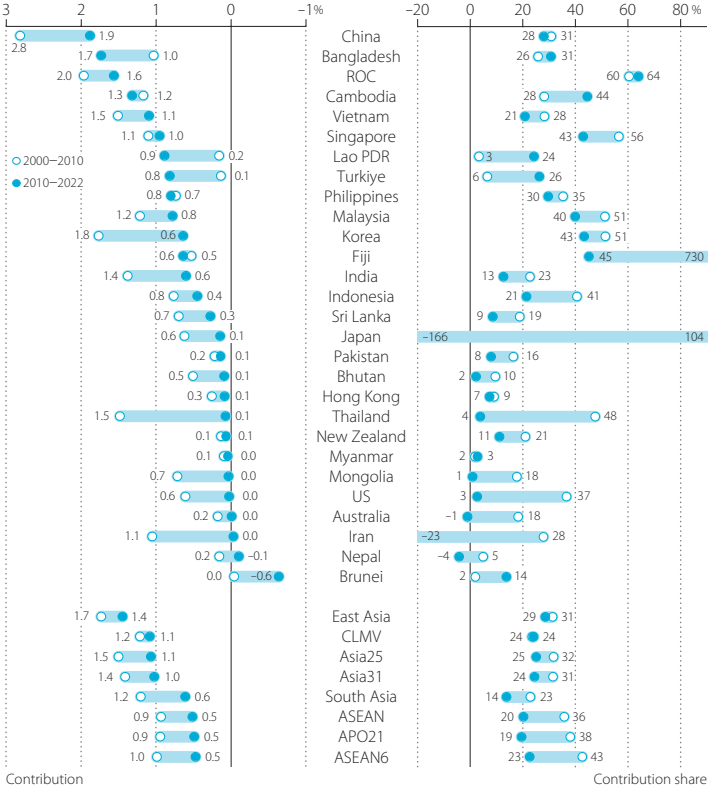



**Figure 6.18 Contribution of Manufacturing to Labor Productivity Growth, 2000–2022**
——Contributions of manufacturing to per-worker labor productivity growth in 2000–2010 and 2010–2022

Unit: Percentage point (average annual contributions) and percentage (contribution shares). Source: APO Productivity Database 2024.

sector had been the driving force behind labor productivity growth in the past, but the left chart shows that in many Asian countries, the manufacturing contribution has declined. Its contribution to aggregate labor productivity growth in Malaysia fell to 40% in 2010–2022 from 51% in 2000–2010 and to 43% in Korea from 51%. On the other hand, it still significantly contributes in the ROC, accounting for 64% of labor productivity improvements in the whole economy. In CLMV and South Asia, manufacturing contributed moderately to their progress in regional labor productivity at 24% and 14%, respectively, in 2010–2022.

The service sector traditionally had difficulty raising productivity, but recent ICT advances are changing this. This sector has many ICT-intensive users and can capture the productivity gains from ICT (Box 7 and Box 8). We observe the growing importance of these services in explaining productivity growth in recent decades. In Asia, the contribution from services matches that of manufacturing (Figure 6.17). Among the four industries in the service sector, three are potentially ICT-employing industries: wholesale and retail trade, hotels, and restaurants; transport, storage, and communications; and finance, real estate, and business activities.

Figure 6.19 presents the contribution of services to labor productivity growth by country in 2000–2010 and 2010–2022 (left chart for absolute contributions, right chart for contribution shares). Services contributed at least one-third or more to aggregate labor productivity growth in most Asian countries. By region, the contribution of services to labor productivity growth remains significant in South Asia, at 63%, although it is down from 72% in the 2000s. It differs significantly from the 33% share in CLMV, 38% in ASEAN6, and 37% in East Asia.

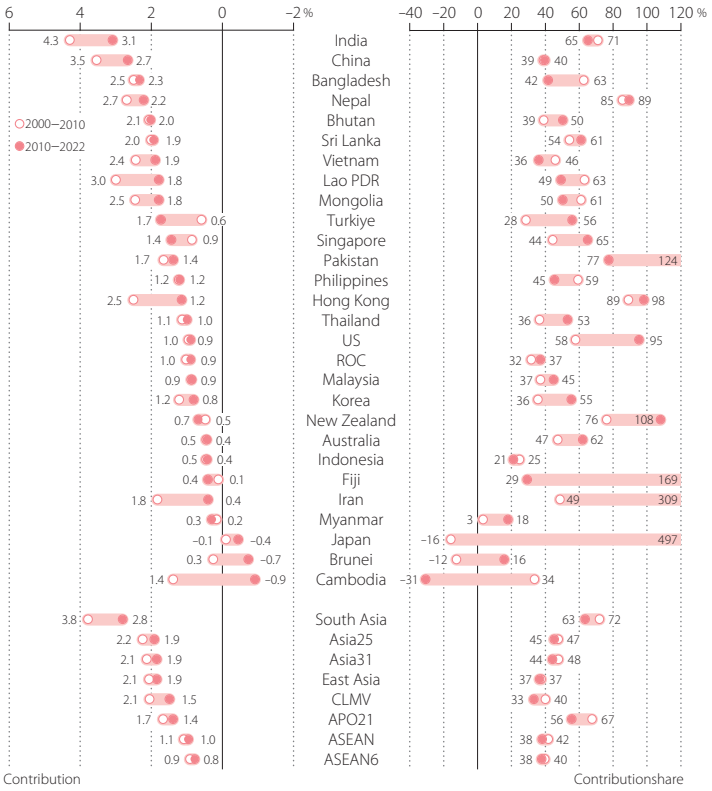



**Figure 6.19 Contribution of Service Sector to Labor Productivity Growth, 2000–2022**

——Contributions of the service sector to per-worker labor productivity growth in 2000–2010 and 2010–2022

Unit: Percentage point (average annual contributions) and percentage (contribution shares). Source: APO Productivity Database 2024.

## Box 11 Premature Deindustrialization in Asia

Deindustrialization, or the shrinkage of the manufacturing sector, has been a major concern in advanced economies for reasons discussed in Rodrik (2016), which calls it "premature deindustrialization." Rodrik claims that many developing economies in recent periods are starting to lose their share of the manufacturing sector without experiencing full industrialization. Premature deindustrialization may harm economic development because manufacturing is a dynamic sector, typically at the center of sustained economic growth and technological progress (Figure 6.2). The industry also has created massive jobs for relatively poor populations (Figure 6.11). Additionally, it generates labor flows from rural to urban areas, from informal to formal sectors, and nurtures human capital. Early servicification of the economy without a mature manufacturing sector may jeopardize a smooth transition from developing to developed status.

Rodrik points out that premature deindustrialization is serious, particularly in Latin America and Sub-Saharan Africa. How about in Asia? Figure 6.20 plots GDP shares of the manufacturing sector in Asian economies, placing the peak of each country's inverse U shape at the center. The US and Japan graphs are typical images of the rise and fall, with peaks above 30% in 1946 and 1970, respectively. The peaks in manufacturing GDP are reached faster than in manufacturing employment shares, which are 1970 in the US and 1973 in Japan. China, the ROC, and Korea manufacturing reached their peaks above 30% in 1997, 1986, and 2011, respectively, and remain high. Malaysia, Singapore, and Thailand show a similar pattern, with peaks in 2000, 2004, and 2010, respectively.

The Philippines peaked in 1973 and recently held at around 20%. Indonesia is just above 20%. Although these are respectable figures, more room for industrialization may be possible. Cambodia, India, and Pakistan are struggling below 20%. These countries still need to be fully industrialized, requiring further effort to promote the manufacturing sector.

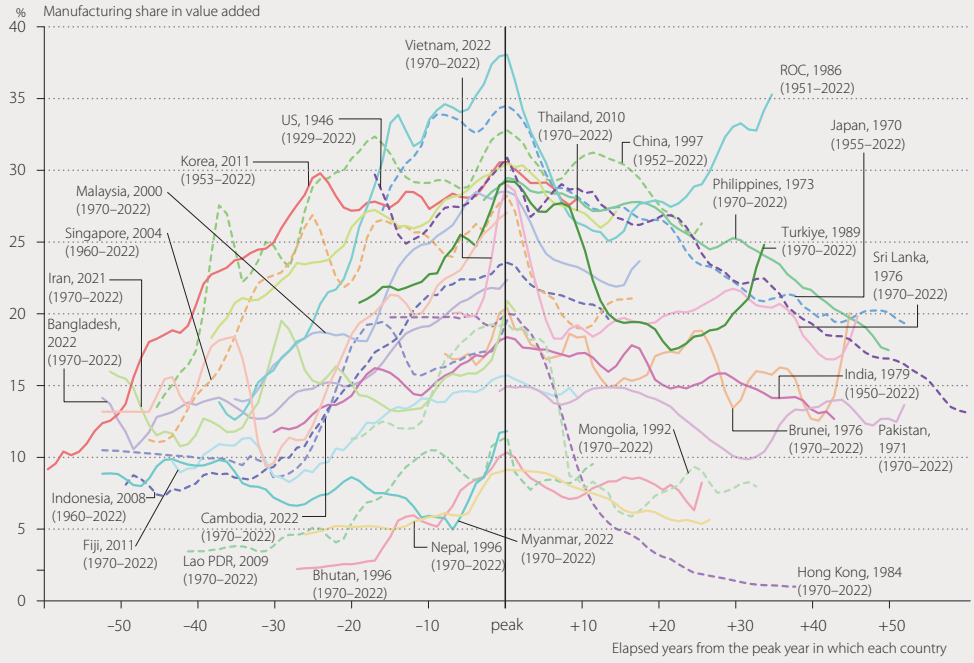



**Figure 6.20 Country Peaks in Manufacturing GDP Share, 1970–2022**

Unit: Percentage. Sources: Official national accounts in each country (including adjustments by APO-PDB) and APO Productivity Database 2024. Note: The lines present the trends based on the three-year moving averages.

On the other hand, the IMF (2018, Chapter 3) suggests that service sectors can drive economy-wide productivity growth, and the decline in manufacturing jobs has contributed little to the rise in labor income inequality in advanced economies. Figure 6.21 graphs the manufacturing share of GDP (five-year moving average) versus per capita GDP over time. It indicates that low- and middle-income Asian countries, with low and stagnated shares of manufacturing GDP, seemingly improved their per capita income level. However, it is uncertain if these countries will continue to grow fast by skipping the intermediate stage of mature industrialization.

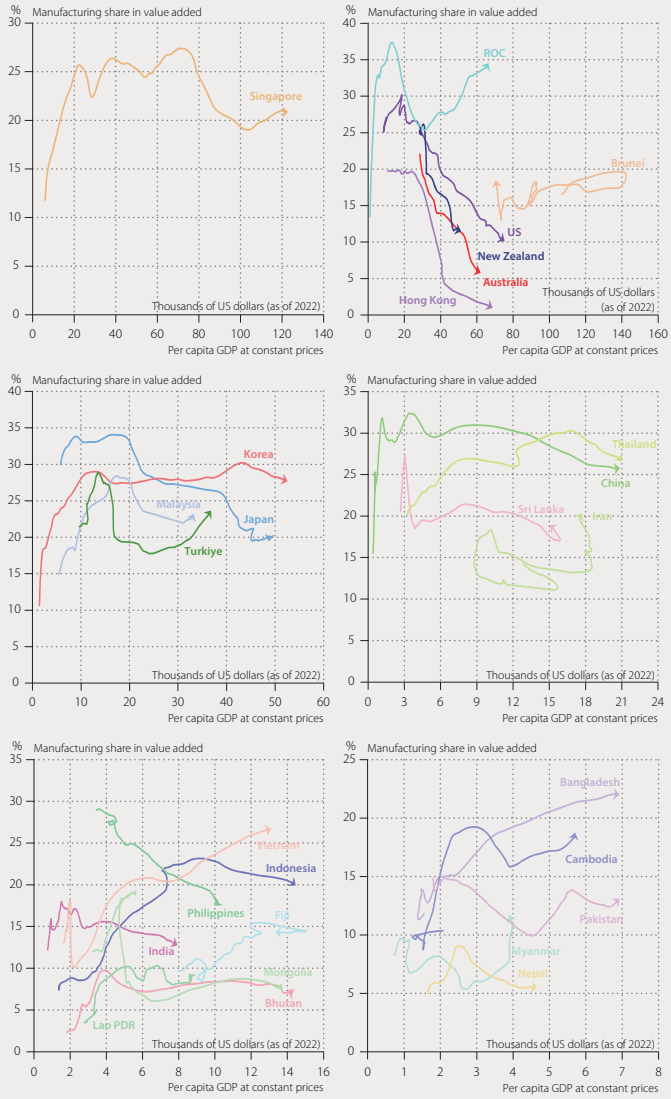



**Figure 6.21 Manufacturing GDP Share and Per Capita GDP, 1970–2022**

——Five-year moving averages of share of manufacturing GDP and per capita GDP

Unit: Percentage. Sources: Official national accounts in each country (including adjustments by APO-PDB) and APO Productivity Database 2024.

# 7 Real Income Growth

## Highlights

- Real GDP could systematically underestimate (or overestimate) growth in real income if the terms of trade improve (or deteriorate) in some resource-rich countries, where the trading gain has made it possible to sustain a rise in purchasing power with little real GDP growth in countries (Figure 7.3 and Table 9.18). The positive trade benefit effects experienced by rich oil countries in the 2000s turned negative in the 2010s, but price spikes after the pandemic and the Russian-Ukrainian war have turned positive in many GCC countries in 2010–2022 (Figure 7.2).
- Net primary income from abroad as a percentage of GDP has risen strongly in the Philippines, from 0.8% in 1990 to its peak of 11.8% in 2013. In Bangladesh, it increased from 1.9% to its peak of 7.5% in 2012 (Figure 7.1).
- Five resource-rich countries in Asia31 have enjoyed a trading gain of over 1.0% per annum from 2000 to 2022. Among them, Mongolia and Bahrain managed to raise labor productivity. In contrast, export-oriented, high-productivity-growth Asian countries, such as the Asian Tigers and Japan, have been facing a deteriorating trading gain position as a price of success (Figure 7.4).

Constant-price GDP captures production volume, not real income. An improvement in the "terms of trade," defined as the relative price of a country's exports to imports, explicitly raises real income and, in turn, welfare (Diewert and Morrison 1986; Kohli 2004). In many ways, a favorable change in terms of trade is analogous to technological progress, making it possible to get more for less. For a given trade balance position, a country can either import more in exchange for what it exports or export less to get what it imports.

## *7.1 Real Income and Terms of Trade*

By focusing on production, the real GDP concept does not capture the beneficial effect of the improvement in the terms of trade. In contrast, real income focuses on an economy's consumption possibilities and, in turn, captures the impact of a change in the relative price of exports to imports. Real income growth attributed to changes in the terms of trade can be significant when there are large fluctuations in import and export prices, and the economy is highly exposed to international trade, as is the case with many Asian economies, as shown in Figure 4.11.

The distinction between real income and real GDP lies in the differences between the corresponding deflators. Real GDP is calculated from a GDP deflator aggregating prices of household consumption, government consumption, investment, exports, and imports. In contrast, real income is calculated from the prices of domestic expenditure, consisting of household consumption, government consumption, and investment. Therefore, real income can be understood as the domestic expenditure that can be purchased with the current income flow.[93] As such, real income captures the purchasing power of the income flow.

93: This definition of real income is the same as in Kohli (2004 and 2006). An alternative definition is a nominal GDP deflated by the price of household consumption.

Furthermore, the Databook adopts the concept of gross national income (GNI) instead of GDP in real income calculation to consider net income transfer from abroad. Applying the method proposed by Diewert and Morrison (1986), the annual growth rate of real income can be fully attributed to three components: annual growth rate of real GDP, real income growth attributed to a change in prices of exports and imports (referred to as the trading gain), and the effect of net income transfer.[94]

Figure 7.1 plots the time series of net primary income from abroad as a percentage of GDP for some selected countries. The role of net primary income from abroad has been shifting from negative to positive in Hong Kong, with the transition in the mid-1990s leading up to the handover of Hong Kong from British rule to China in 1997. Since then, net primary income from abroad has been positive. Net primary income from abroad has risen strongly in the Philippines, rising from 0.8% in 1990 to its peak of 11.8% in 2013, providing a significant long-term contribution to the purchasing power of Filipinos, with remittances from many overseas workers.[95] A similar but moderate trend can be found in Bangladesh. Singapore's net primary income from abroad displayed larger fluctuations in the 1980s and the 2000s, and the negative range has been rapidly increasing since the beginning of the 2010s.

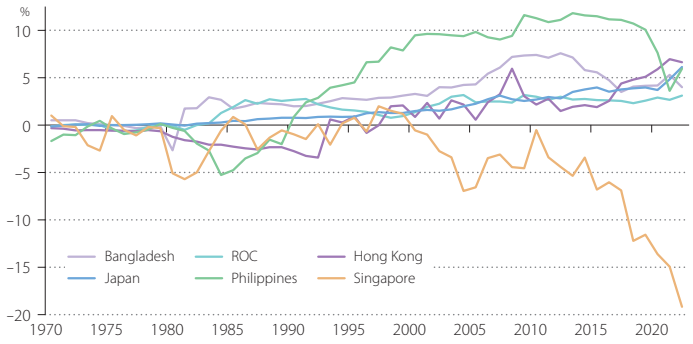



**Figure 7.1 Effect of Net Income Transfer on GDP, 1970–2022**
——Share of net income transfer in GDP at current market prices

Unit: Percentage. Sources: Official national accounts in each country, including adjustments by APO-PDB.

The crude oil price changes in the recent decade have greatly impacted trading gains in Asian countries. Figure 7.2 compares the trading gain effects between 2000–2010 and 2010–2022. The positive trade benefit effects experienced by rich oil countries in the 2000s turned negative in the 2010s, but price spikes after the pandemic and the Russian-Ukrainian war (Section 2.3) have turned positive in many resource-rich countries in 2010–2022. In contrast, the trading gain effects in resource-importing countries turned negative.

Over a long period, the trading gain effect is slight on average. But over a shorter period, it could be very significant. Figure 7.3 plots real income growth against real GDP growth to show this effect (numbers are provided in Table 9.18). Combining the trading gain effect and net primary income from abroad, real income growth for most countries fell within the margin of ±25% of real GDP growth in the long run. In

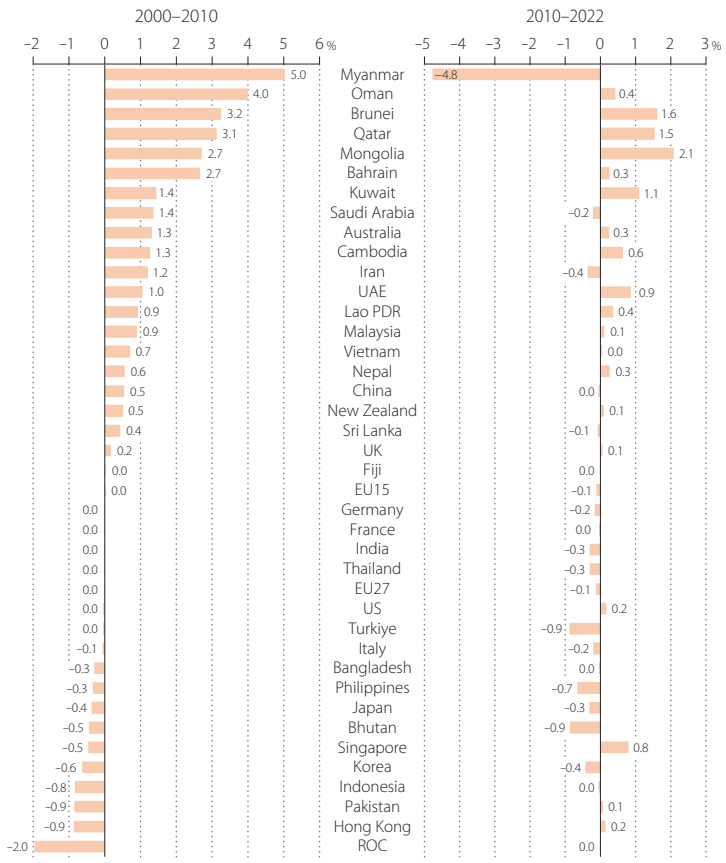
94: Real income growth can be decomposed into two components as follows:

$$\underbrace{\ln\left(\frac{GNI^t}{GNI^{t-1}}\right)-\ln\left(\frac{P_D^t}{P_D^{t-1}}\right)}_{\text{Real income growth}}=\underbrace{\ln\left(\frac{GNI^t/GDP^t}{GNI^{t-1}/GDP^{t-1}}\right)}_{\text{Income transfer effect}}+\underbrace{\ln\left(GDP^t/GDP^{t-1}\right)-(1/2)\sum_i\left(s_i^t+s_i^{t-1}\right)\ln\left(P_i^t/P_i^{t-1}\right)}_{\text{Real GDP growth}}+$$

$$\underbrace{(1/2)\left(s_X^t+s_X^{t-1}\right)\left(\ln\left(P_X^t/P_X^{t-1}\right)-\ln\left(P_D^t/P_D^{t-1}\right)\right)-(1/2)\left(s_M^t+s_M^{t-1}\right)\left(\ln\left(P_M^t/P_M^{t-1}\right)-\ln\left(P_D^t/P_D^{t-1}\right)\right)}_{\text{Real income growth attributed to changes in the terms of trade (=trading gain)}}$$

where $P_i^t$ is price of final demand $i$ in period $t$ and $s_i^t$ is expenditure share of final demand $i$ in period $t$. $D$ is domestic expenditure, $X$ is export, and $M$ is import. Note that the real GDP growth based on this formulation may differ from that used in other chapters, since the implicit Translog quantity index is adopted for calculating it.

95: In the 2018 benchmark revision of the Philippines System of National Accounts (PSNA) published as of April 2020, the net primary income from abroad was revised downward considerably. The pre-revision ratio in PSNA, incorporated for the first time in the *APO Productivity Databook 2020* (October 2020), was three times larger than the revised estimate in this edition.




larger economies, such as the US, the EU15, China, and India, real income growth was almost equivalent to GDP growth from 2000 to 2022. Brunei, Oman, and Qatar are outliers in this period with real income growth more than 25% different from GDP growth.

**Figure 7.2 Trading Gain Effect, 2000–2022**

——Contributions to real income growth in 2000–2010 and 2010–2022

Unit: Percentage point (average annual contributions). Sources: Official national accounts in each country, including adjustments by APO-PDB.

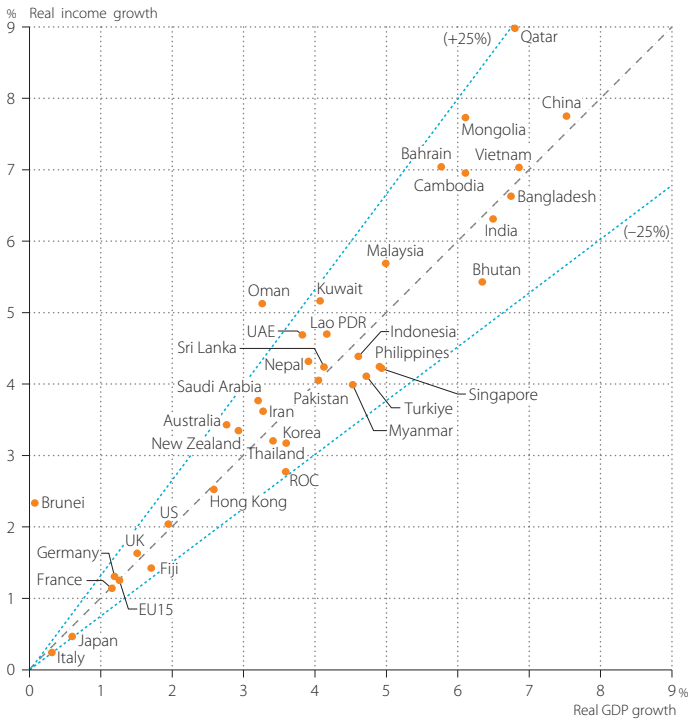
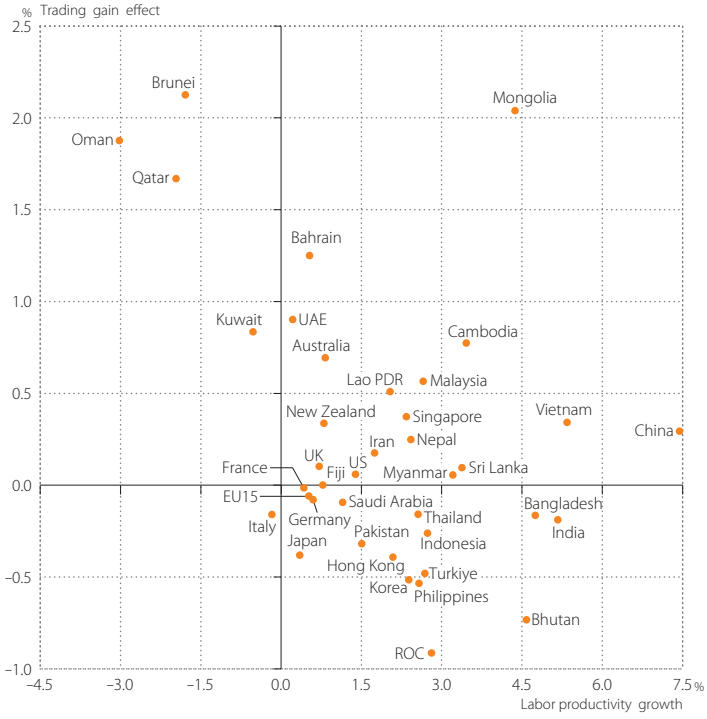



**Figure 7.3 Real Income and GDP Growth, 2000–2022**

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country, including adjustments by APO-PDB.

## 7.2 Trading Gain and Productivity Growth

When the trading gain is highly favorable, it can breed complacency, with productivity performances suffering. Resource-rich economies are susceptible to this pitfall because they can reap extremely positive trading gains when commodity prices turn in their favor over a sustained period. However, just as commodity prices can rise, so can they fall. This is when real income growth could suffer if fundamentals for real GDP growth are weak. Figure 7.4 plots the trading gain effect against labor productivity growth from 2000 to 2022. For most countries with little natural resources, the trading gain effect is less than 0.5% per year, plus or minus, over this period. In general, a resource-rich country can suffer from "Dutch disease," a phenomenon where a country's currency is pushed up by the commodity boom, making other parts of its economy less competitive and potentially increasing its dependence on mineral and energy resources.[96]




This is how resource abundance can easily lead to resource dependence. Five resource-rich Asian countries enjoyed trade gains of over 1.0% per year from 2000 to 2022. Mongolia and Bahrain realized both trading gain and labor productivity growth. In contrast, export-oriented and highly productive Asian countries such as the Asian Tigers and Japan have been facing a deteriorating trading gain position as a price of their success.

**Figure 7.4 Trading Gain Effect and Labor Productivity Growth, 2000–2022**

Unit: Percentage (average annual growth rate). Sources: Official national accounts in each country (including adjustments by APO-PDB) and APO Productivity Database 2024. Note: Labor productivity is defined on an hourly basis.

Figure 7.5 illustrates trading gain effects and changes in the value-added share of the mining sector from 2000 to 2022 in some selected countries. It indicates that large trade-gainers typically have dominant mining sectors, such as petroleum and natural gas (countries in the top-right of Figure 7.5). These countries gain from the positive terms-of-trade effects if resource prices continually rise. However, this makes traditional manufacturing uncompetitive. Then, the story of the Dutch disease may appear. Richness in mineral and energy resources may become a curse if they do not have competitive industries other than mining.

A way to counteract Dutch disease is having broad-based, robust, productivity growth and industry diversification. Figure 7.5 shows that the GCC countries (except Kuwait and UAE) actively reduced their

96: The term originated from The Economist in 1977 ("The Dutch Disease," *The Economist*, November 26, 1977) to describe the overall decline of manufacturing and the subsequent economic crisis in the 1960s in the Netherlands after the discovery of the large natural gas field in the North Sea in 1959.

mining sector share over time, which could reflect the intention of developing industries other than mining. However, Figure 7.4 shows that labor productivity growth rates in these countries remained low or even negative. Even if they wanted to start industrialization, their high income and strong local currency would not allow them to easily develop a manufacturing sector or an internationally competitive service industry. Another concern is their heavy dependence on skilled and unskilled foreign workers.

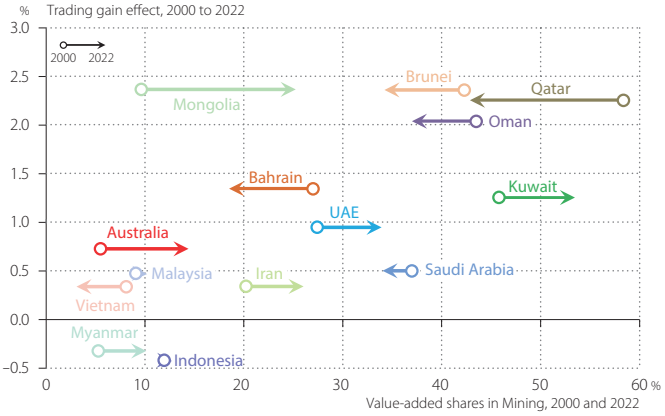



**Figure 7.5 Trading Gain Effect and Value-added Share in Mining Sector, 2000–2022**

Unit: Percentage (average annual growth rate).
Sources: Official national accounts in each country (including adjustments by APO-PDB) and APO Productivity Database 2024.

On the other side of the coin are the resource/energy-importing economies. Most of these suffered negative trading gain effects, losing a part of their economic growth due to resource price hikes, particularly in the 2000s (Table 9.18). However, this has strengthened their competitiveness in manufacturing and other productive activities for the future. Figure 7.4 also shows that many Asian countries have achieved high labor productivity growth while accepting a deteriorating trading gain over the long run. These countries are typically resource importers whose voracious commodity demand pushes their import prices up. Meanwhile, export prices tend to fall because of their achievement in productivity improvement, resulting in unfavorable movements in the terms of trade. This is particularly true in countries where economic growth depends on export promotion. In such instances, a negative trading gain is a partial side-effect of productivity success. Although the trading gain effect partly negates their real GDP growth, they are better positioned than before their development took off without productivity improvements.

## Box 12 Navigating the Economic Horizon: Projections to 2035

The growth accounting in the Databook evaluates the quality of economic growth in each country and region in Asia. A similar framework can be applied to forecast economic growth based on future population structure and technology scenarios. This Box presents our mid-term projections of economic growth and labor productivity for the Asia25 economies through 2035. Our projections reflect the actual economic growth of 2023 and the first quarter of 2024, where available.

Our population projection depends on United Nations (2022), in which the annual projections are provided by gender and age, as presented in Box 3. This is divided into estimates in different educational attainment categories based on the projections developed in the Wittgenstein Centre Human Capital Data version 2.0 (Lutz, Butz, and KC 2017; Lutz et al. 2018) for each gender and age class.[97] The employment rate in each population

97: The Wittgenstein Centre Human Capital Data (version 2.0) was accessed on July 1, 2023. This website presents a set of scenarios for future population and human capital trends in 201 countries by 2100.

class by gender, age, and education is developed in AQALI 2024 (Section 8.3.2). The employment rates in 2022 are assumed to be constant for the future in each population class. Using these populations and the employment rates, employment by gender, age, and education is estimated for 2022–2035.

The employment rate in each class is divided into different categories of employment status, i.e., own-account workers, contributing family workers, and employees, based on the current composition in 2015–2022, provided in the AQALI. Based on the past trends in each country, the projected employee share is assumed to gradually change by 0–3% per year until 2035. Based on these scenarios, the projections of employment rates cross-classified by gender, age, education, and employment status are developed through 2035 in each country. The estimated average growth rates of total employment per year are presented in Figure 7.6 for 2022–2025, 2025–2030, and 2030–2035.

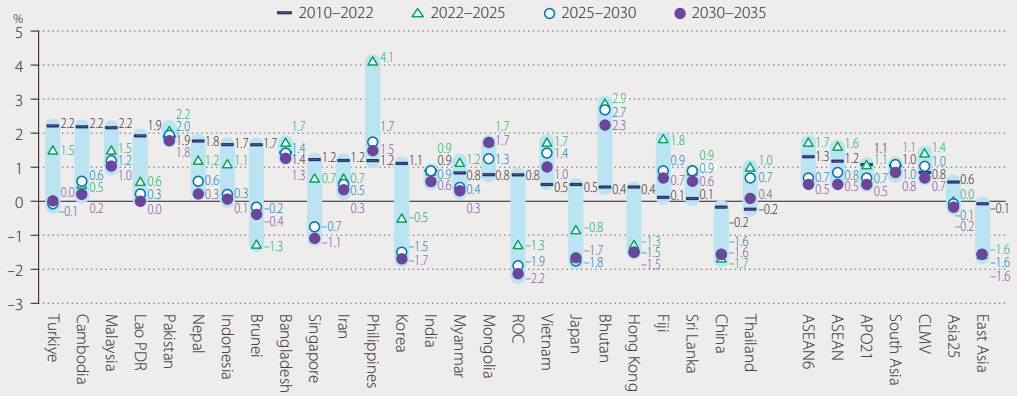



**Figure 7.6 Projection of Change in Total Employment, 2022–2035**

Unit: Percentage (average annual growth rates). Sources: The estimates are based on the United Nations (2022), Lutz et al. (2018), and AQALI 2024.

In response to this future employment scenario, hours worked and labor quality are projected through 2035. For each country, the average hours worked per worker are benchmarked at the elementary level of employment estimated for 2015–2022 in AQALI 2024. Based on past trends, average hours worked are assumed to decrease slightly until 2035. The relative wage structure cross-classified by gender, age, education, and status is also provided for 2015–2022 in AQALI 2024. Based on these projections, labor quality changes are estimated through 2035.

Figure 7.7 presents the estimates of average annual growth rates of labor quality in each country. In some countries such as Bhutan, Indonesia, Mongolia, Singapore, and Thailand, the quality growth is expected to fall considerably in the late 2020s and the early 2030s compared to 2010–2022, when labor quality growth was exceptionally high, mainly reflecting the changes in employment status and educational attainment. In Asia25, labor quality changes are projected to slightly increase in the late 2020s and the early 2030s compared to 2010–2022. This indicates that the deteriorations in ASEAN6 are expected to be offset by the improvements in South Asia and East Asia.

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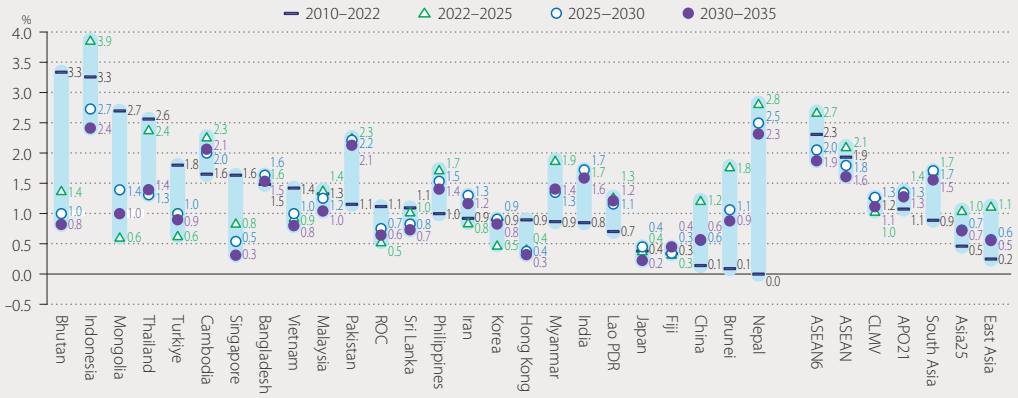


**Figure 7.7 Projection of Labor Quality Change, 2022–2035**

Unit: Percentage (average annual growth rates). Source: The estimates are based on AQALI 2024.

There is significant uncertainty in future capital accumulation. As a baseline scenario in our projection, GFCF shares in Asian countries are assumed to follow the long-term trend of Japan. The dotted line in Figure 7.8 presents the past GFCF share since 1885, and the line shows the ten-year moving average. The current level of GFCF share in each Asian country is plotted using the year in which its per-hour labor productivity is equal to the historical Japan share (see Figure 5.6). Based on these historical trends, the future GFCF rate is assumed for each country. Each year's investment is estimated by GDP and determines the beginning-of-the-period capital stock level for the next year, which provides capital services to be used in next year's production.

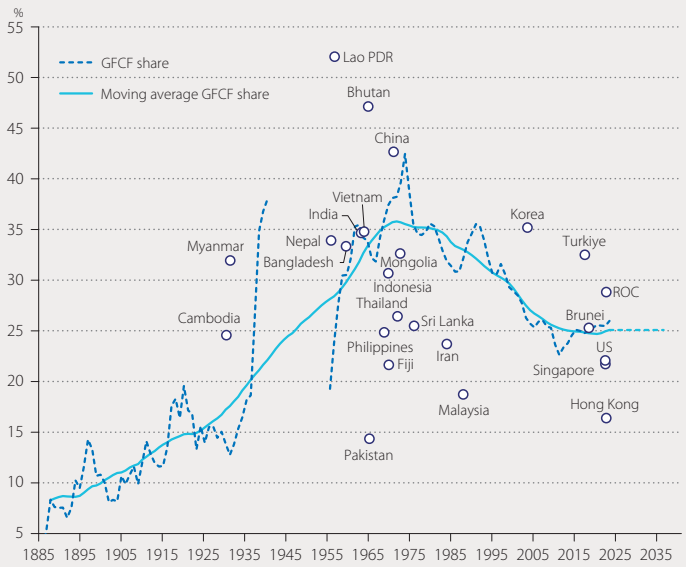


**Figure 7.8 Historical GFCF Share of Japan and Current Level of Asia in 2022**

——Share of GFCF in GDP at market prices for Japan from 1885 to 2022 and for Asian countries in 2022

Unit: Percentage (current-price share). Source: APO Productivity Database 2024.

Another uncertain source of economic growth is TFP. As a baseline scenario, the TFP growth in 2010–2022 estimated in APO-PDB 2024 is used to provide benchmark estimates. In some countries, however, past achievements reflect events that will not be repeated. In these cases, benchmark projections of TFP growth are set in the following manner. In each Asian country, the future change in TFP is assumed to follow the long-term trend of a leading country in each region. From the first quarter of 2023 to the first quarter of 2024, the actual GDP growth is observed in the quarterly national accounts (QNA) in some Asian countries. The TFP growth rates in 2023–2024 are adjusted, making the economic growth projection equivalent to the GDP estimates in the available QNA. The benchmark estimate of labor share is provided in APO-PDB 2024 (see Section 8.3.3 and Box 15). The recent estimates are assumed to hold for the 2022–2035 projection period.

Combining the labor, capital, and TFP projections we get the baseline estimates of economic growth that are presented in Figure 7.9. In Asia25, the recent economic growth in 2010–2022 (4.6% per year on average) is projected to decrease slightly to 4.5% during 2022–2025. This includes a further recovery from the COVID-19 pandemic. Furthermore, growth is projected to fall to 4.4% in 2025–2030. The projected regional growth of South Asia (6.5%) in the late 2020s, which Bangladesh and India lead, is much higher than that projected for East Asia (3.5%). In addition, CLMV will be a strong driver of the Asian economy in the late 2020s, with a projected growth rate of 6.6%, the highest in the region. At this stage, there is a strong sense of uncertainty about Myanmar's recovery, but the driving force behind CLMV is the Vietnamese economy, which is expected to grow at a high rate of 7.4% in the late 2020s and the early 2030s.

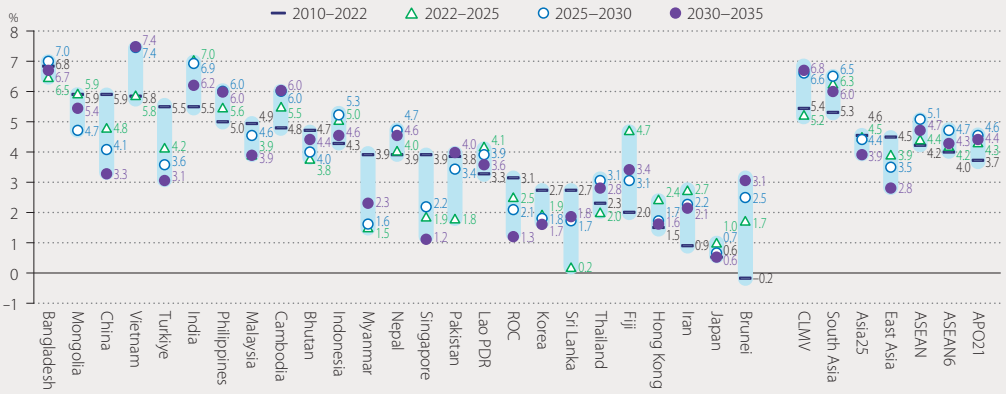


**Figure 7.9 Projection of Economic Growth, 2022–2035**

Unit: Percentage (average annual growth rates). Sources: The estimates are based on APO Productivity Database 2024 and AQALI 2024.

Regarding per-hour labor productivity growth, the current rate of improvement in Asia25 (4.2% per year in 2010–2022) is projected to recover to 4.5% in 2022–2025, as shown in Figure 7.10. Thereafter, the improvement is projected to be maintained at 4.6% in 2025–2030 and 4.3% in 2030–2035. The driving forces in labor productivity improvement in Asia in the late 2020s will be ASEAN and South Asia, but the regional gap in productivity growth rates is expected to be smaller than that of economic growth rates (Figure 7.9). Labor productivity growth is likely to accelerate in the late 2020s and early 2030s, not only in low-income countries such as Cambodia, Lao PDR, Nepal, the Philippines, and India but also in high-income countries such as Japan and the ROC, compared to 2010–2022.

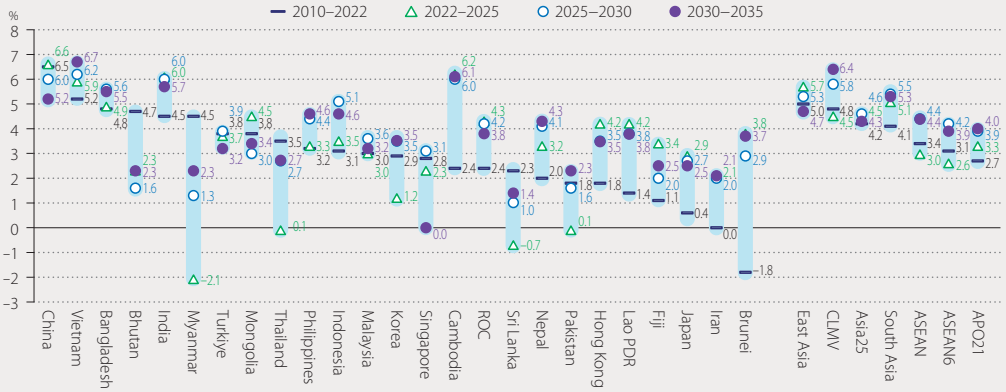


**Figure 7.10 Projection of Per-Hour Labor Productivity Growth, 2022–2035**

Unit: Percentage (average annual growth rates). Sources: The estimates are based on APO Productivity Database 2024 and AQALI 2024.

# 8 Methodology Notes

This chapter provides some technical notes on compiling the APO Productivity Database 2024. Section 8.1 describes the measurement of output and the components of GDP, and then Sections 8.2 and 8.3 outline the measurement of capital and labor, respectively.

## 8.1 Measurement of Output

### 8.1.1 SNA Compilation

Understanding data comparability is essential for constructing an international database and requires continuous effort and expert knowledge. Cross-country data inconsistency can arise from variations in one or more of the three aspects of a statistic: definition, coverage, and methodology. The international definitions and guidelines work to standardize countries' measurement efforts. However, country data can deviate from the international best practice and vary in omissions and coverage achieved. Countries can also change their estimation methodology and assumptions in benchmark and annual revisions. This may account for part of the differences observed in the data and interfere with comparisons of the underlying economic performance.


Between February and May of 2024, we conducted the APO-PDB Metadata Survey 2024 on the national accounts and other statistical data required for international productivity comparisons among the APO member economies.[98] Since most of the economic performance indicators in this report are GDP-related, the survey was designed to discern different GDP compilation practices. The 2008 SNA is used as the standard. Since there are differences between the 2008 SNA and its predecessors (1993 SNA and 1968 SNA) in some concepts and coverage, it is important to know in which year the data series definitions and classification started to shift. This allows the identification of breaks in the time series.

Figure 8.1 presents the current situation in compilations and data availability of the backward estimates based on the 1968 SNA, the 1993 SNA, and the 2008 SNA (including plans for introducing the 2008 SNA), based on the APO-PDB Metadata Survey 2024 and our further investigations at KEO. For example, this chart indicates that Japan started to publish national accounts based on the 1968 SNA in 1978 (at present, backward estimates based on the 1968 SNA are available from 1955), national accounts based on the 1993 SNA in 2000 (backward estimates based on the 1993 SNA are available from 1980 to 2014), and national accounts based on the 2008 SNA in 2016 (backward estimates based on the 2008 SNA are available from 1994 to present).

Countries differ in their introduction year, implementation extent, and availability of backward estimates, as Figure 8.1 suggests. In Asia25, 21 economies are currently 2008 SNA compliant (partially or fully) and are described in Figure 8.1. The starting year of the official 2008 or 1993 SNA compliant time series varies greatly across countries, reflecting the differences in the availability of backward estimates. Countries may have adopted the 2008/1993 SNA as the framework for their national accounts, but the extent of compliance in terms of coverage may also vary. The APO-PDB tries to reconcile the national account

98: The list of national experts in metadata surveys is provided in Section 1.2.

variations to provide harmonized estimates for international comparison. See the following sections for details of the adjustments.

The Databook incorporates some significant revisions to the national accounts. Recent developments for upgrading their national accounts based on the 2008 SNA have resulted in revised series for Nepal as of April 2021, Oman as of November 2021, Vietnam as of August 2022, Saudi Arabia in March 2023, and Bhutan in September 2023. In Asia25, 21 economies are 2008 SNA-compliant, and others are 1993 SNA-compliant, although it should be noted that the extent of compliance in terms of coverage may vary. The different statuses of SNA adoptions among economies explain the huge variations of data definitions and scope in national accounts, calling for data harmonization to conduct comparative productivity analyses better.

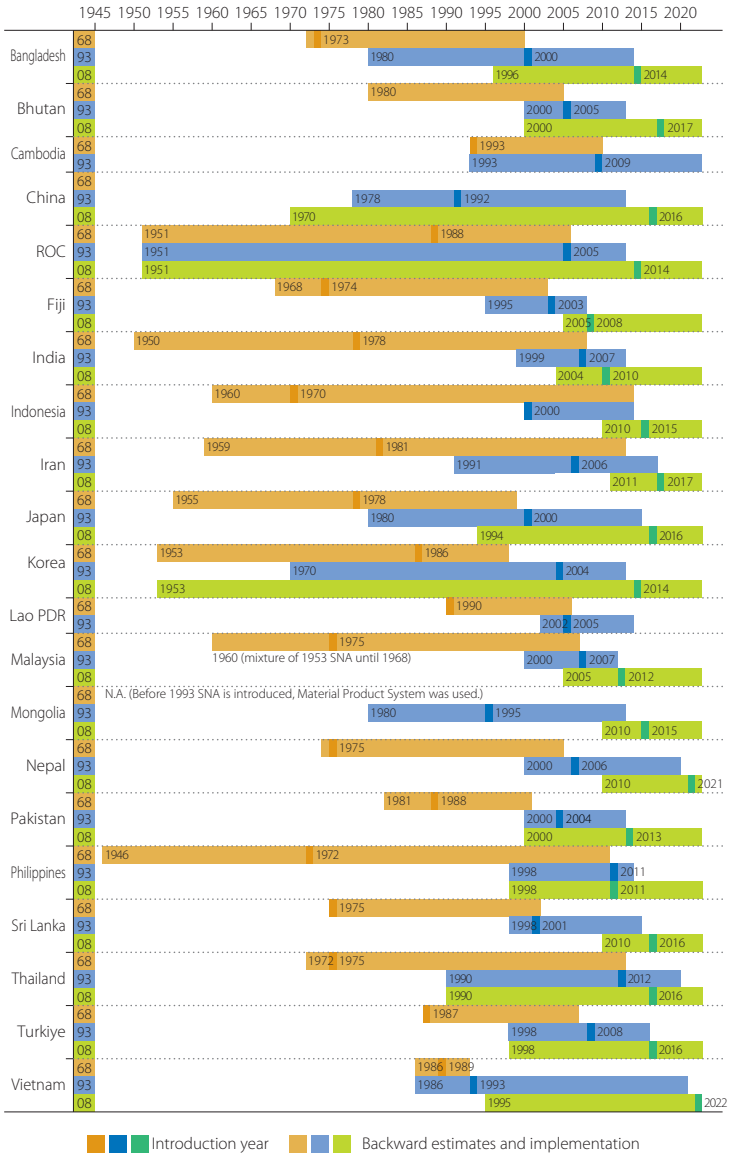


**Figure 8.1 Implementation of the 1968, 1993, and 2008 SNA**

Sources: APO-PDB Metadata Survey 2024 and our investigation at KEO.

The Databook largely follows the concepts and definitions of the 2008 SNA and tries to reconcile the national accounts variations, particularly on the difference in the treatment of financial intermediation services indirectly measured (FISIM), military weapons systems, R&D, and software investment.[99] To develop long-time series data, it is necessary to use the past estimates based on the 1968 and 1993 SNA, with exceptions in the ROC, Korea, and Singapore, which already published the backward estimates based on the 2008 SNA from the 1950s or the 1960s. In addition, adjustments are necessary to harmonize

99: The introductions of the 2008 SNA are usually conducted with benchmark revisions. Thus, in some countries, there are large revisions in data due to the use of newly available surveys (e.g., a new survey on services) or new benchmark data (e.g., a new development of the supply and use table), with smaller changes due to the revisions from the 1993 SNA. The information required to reconcile the different benchmark-year series is collected through our questionnaire to the national experts in our metadata survey or based on our investigations at KEO.

the long-term GDP estimates at current prices. Procedures for these adjustments in APO-PDB 2024 are explained below.

### 8.1.2 FISIM Consumption

FISIM is an indirect measure of the value of financial intermediation services provided. It represents a significant part of the output of the finance sector. The 1993 SNA (United Nations 1993) recommended that FISIM be allocated to users (to individual industries and final demands). This contrasts with the 1968 SNA, where the imputed banking services were allocated exclusively to the business sector. The common practice in the 1968 SNA was to create a notional industry that buys the entire service as an intermediate expense and generates an equivalent negative value added. As such, the imputed banking services have no impact on GDP. Therefore, if fully implemented, the 1993/2008 SNA recommendation will impact industry GDP and the overall GDP for the total economy (by the part of FISIM allocated to final demands).

Among the 21 APO member economies, Cambodia and the Lao PDR do not allocate FISIM to final demands in their official national accounts because they do not follow the 1993/2008 SNA recommendation. Thus, the official GDP estimates in these countries are less than others. In addition, in some countries whose national accounts follow the 1993/2008 SNA's recommendation on FISIM, the available data does not cover the entire period of our observations.

To harmonize the GDP concept among countries and over periods, final demands of FISIM are estimated for those countries with missing data in APO-PDB, using available estimates of value added in Imputed Bank Service Charge (IBSC) or financial intermediation (in instances where IBSC data is not available). The ratios of value added of IBSC or financial intermediation on FISIM allocated to final demand are assumed to be identical to the average ratios observed in the countries in which data is available. Figure 8.2 describes the countries, years, and methods to adjust FISIM in the official national accounts. As illustrated, in instances where both value-added data are unavailable, the trend of the FISIM share on GDP is applied to extrapolate past estimates (the impacts on GDP are minor).

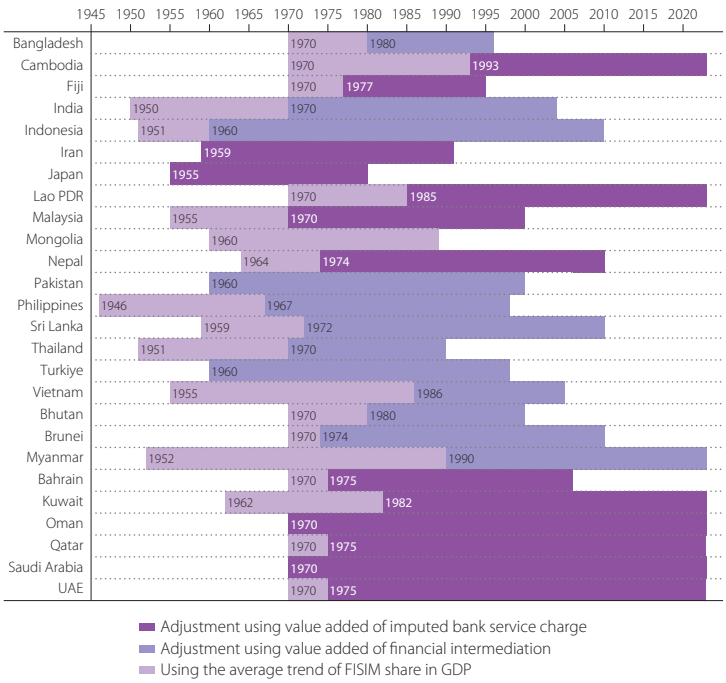


**Figure 8.2 Adjustment of FISIM**

Sources: APO-PDB Metadata Survey 2024 and our investigation at KEO.

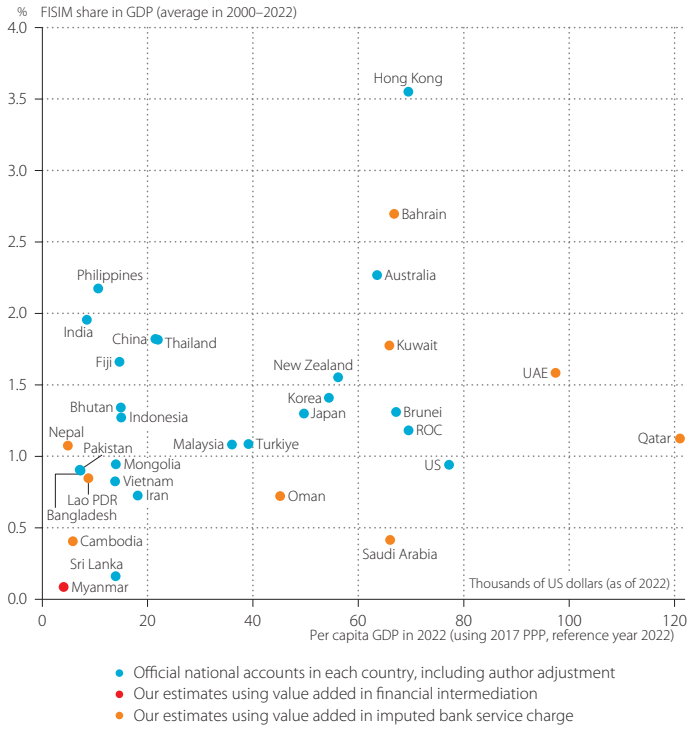


Figure 8.3 plots per capita GDP levels in 2022 and the FISIM share in GDP as an average in 2000–2022 (different colors are used to distinguish the original estimates in the official national accounts from our estimates). In countries where GDP at current prices is adjusted, APO-PDB adjustments for FISIM increase GDP by 0.8–1.1% for Nepal, the Lao PDR, and Oman and less than 0.4% for other countries.

**Figure 8.3 FISIM Share in GDP, 2000–2022**
——Average share of FISIM production in GDP

Unit: Percentage (current-price share). Sources: Official national accounts in each country and APO Productivity Database 2024.

### 8.1.3 Government Consumption

Definitions of government output can differ among countries and across periods for a given country. For example, as of February 2012, Thailand officially switched to the 1993 SNA, and its national accounts became compatible with the 1993 framework for the first time. In this series, government consumption includes the consumption of fixed capital (CFC) owned by the government since 1990, as described in Figure 8.1. To construct the long time-series data in the Databook, the past data based on the 1968 SNA has been adjusted to be consistent with the new series. In APO-PDB, government capital stock and its CFC for 1970–1989 are estimated, and the past government consumption and GDP at current prices are adjusted accordingly. A similar adjustment on the CFC of the assets owned by the government was conducted for Bangladesh (from 1970 to 1995), Malaysia (1970–1999), Mongolia (1970–2004), and Vietnam (1970–2009).

Another harmonization is conducted for prices of government consumption, consisting primarily of non-market products. In APO-PDB, the quality of the official price index for government consumption has been examined in each country, compared to our cost-index estimate for government consumption based on our measures of the quality-adjusted price indices of capital and labor inputs with zero TFP growth. In the retrospective estimation back to 1970, government consumption price indices were found to show unrealistic trends in the official national accounts in many Asian countries. The official estimates for these periods are adjusted using our cost index estimates. This revision may yield modest impacts on the real GDP growth rates as one of the differences between the official estimates and the APO-PDB.

### 8.1.4 Software Investment

The 2008 SNA recommends the capitalization of intellectual property products (IPP), which changes not only GDP but also capital input. One IPP capitalized in the Databook is computer software, including pre-packaged, custom, and own-account software. Among the Asia25 economies, 16 have capitalized all

three types of software in the most recent national accounts. Another three countries exclude own-account software in their capitalization, and in two countries (Indonesia and Sri Lanka), only custom software is capitalized (others still do not capitalize software in their national accounts). In addition, the official estimates of software investment availability vary considerably among countries and over periods. Figure 8.4 presents the availability of the official estimates in the national accounts and the benchmark Supply and Use Tables (SUT) and Input-Output Tables (IOT) based on the APO-PDB Metadata Survey 2024 and our investigation at KEO.

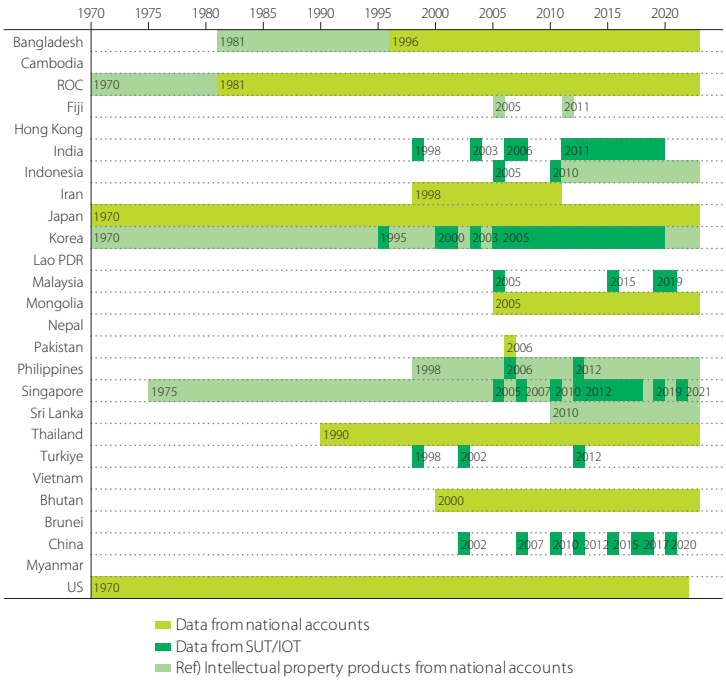


**Figure 8.4 Availability of Software Investment Estimates**

Sources: APO-PDB Metadata Survey 2024 and our investigation at KEO.

The Databook tries to include all software as assets for better harmonization, even in the countries and the periods in which the official estimates were unavailable. The new estimates for software investment were developed at KEO and have been incorporated since APO-PDB 2021. In the revised data set, the labor cost of the domestically produced software is estimated based on the number of workers in software development, which is defined as the sum of 25 (Information and communications technology professionals) and 35 (Information and communications technicians) based on the International Standard Classification of Occupations 2008 (ISCO-08), and the corresponding average wages in the ILO Modeled Estimates (ILOEST database, ILO 2024). Based on this gross measure of labor cost, we deduct the portion of hours worked that is not used for software development. The share excluded is assumed to be equal to shares in countries where we have such data. In addition, by assuming the non-labor cost-shares (based on the experiences in other countries in which the cost compositions in the software industry are available in their SUT/IOT), the total domestic output is estimated. Second, the value of imported software is assumed to be the same as the import of "computer services" recorded in the Balance of Payment in WTO Stats (accessed April 17, 2024). The sum of the domestically produced and imported software values is used to extrapolate the official estimates of software investment (Figure 8.4) or to estimate software investment in the countries that do not have official estimates.

### *8.1.5 R&D Investment*

In the countries that still do not follow the 2008 SNA, R&D expenditures are not allocated to GFCF (they are allocated to intermediate uses). In some cases, even when R&D investments are included in the GFCF, the R&D expenditures are not disclosed separately, hindering the proper measurement of capital stock and service volumes. To harmonize the GDP and capital input concepts among countries, the R&D investment is estimated for those countries in the APO-PDB.

The preferred approach is to collect data on R&D expenditures based on official surveys in each country and then estimate the R&D investment. Figure 8.5 describes the countries, years, and methods to estimate R&D investment and add it to GFCF in the official national accounts. For the periods when the data on R&D expenditures are unavailable, the trend of R&D investment shares on GFCF or GDP is applied to extrapolate them as crude estimates, referring to the experience of other countries. The share tends to be smaller for countries and periods for which R&D expenditure data are unavailable, and this should be noted when making time-series comparisons.

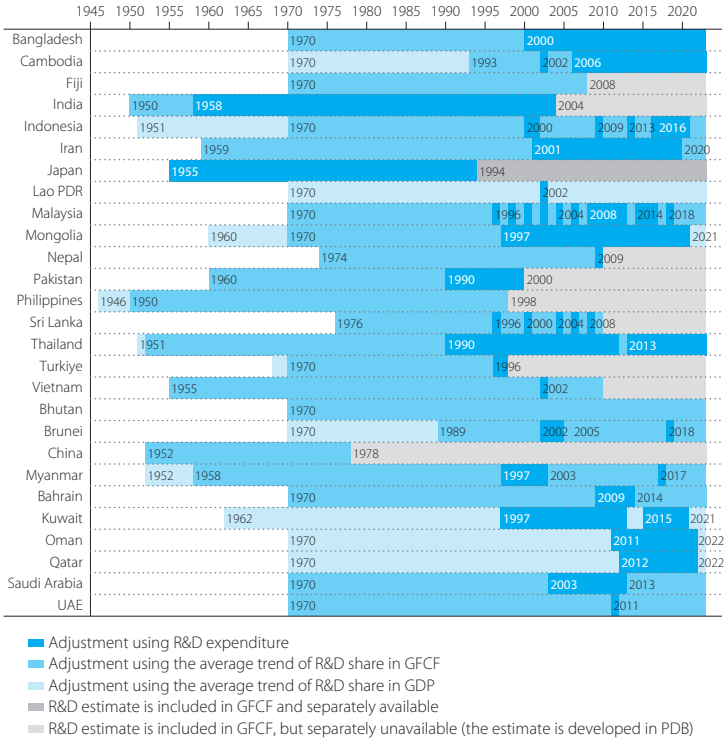


**Figure 8.5 Methods for Estimating R&D Invest**

Source: APO Productivity Database 2024.

### 8.1.6 Net Acquisitions of Valuables

Valuables are incorporated as the third type of produced non-financial assets, after fixed assets and inventory, in the 1993 SNA. They are defined as "goods of considerable value that are not used primarily for purposes of production or consumption but are held as stores of value over time" in para. 10.7 (United Nations 1993).[100] Based on the APO-PDB Metadata Survey 2024 and our investigations at KEO, net acquisitions (acquisitions less disposals) of valuables are recorded as final demand in 11 countries in Asia: Bhutan, India, Iran, Korea, Malaysia, Mongolia, Pakistan, Philippines, ROC, Sri Lanka, and Vietnam. For example, the SNA in India has included this since 1999. However, the estimates of net acquisitions of valuables are not separately published (they are included with changes in inventories) in Korea, Malaysia, and ROC. Japan's latest system of national accounts still does not have them in final demand. The decision in APO-PDB 2024 is to harmonize the data by excluding net acquisitions of valuables from GDP as much as possible.

### 8.1.7 Basic-Price GDP

GDP can be valued using different price concepts: factor cost, basic prices, and market prices. If the price concept is not standardized across countries, it will interfere with international comparisons. All the countries covered in this Databook officially report GDP at market prices (or at purchasers' prices), but this is not true for GDP at factor cost and GDP at basic prices. The international comparisons in Chapters 3 and 4 are based on GDP at market prices. However, by valuing output and input at the prices that

100: They are held under the expectation that their prices will not deteriorate and will rise in the long run. Valuables consist of precious stones and metals, artwork (e.g., paintings and sculptures), and other valuables (e.g., jewelry) made from stones and metals.

producers actually receive and pay, the basic-price GDP is a more appropriate measure of output for international comparisons of TFP and industry performance, as it is a measure from the producers' perspective. Hence, Chapter 5 on productivity performance is based on basic-price GDP, including our estimates when not officially available.

These concepts of GDP differ in treating indirect tax and subsidies (and import duties). Table 8.1 shows the classification of indirect taxes and subsidies, split as far as possible in APO-PDB 2024 (there are significant challenges to the accuracy of the estimates).[101] The difference between basic-price and market-price GDP is "T2. Taxes on products" minus "S2. Subsidies on products." Since the basic-price GDP is available for some Asian economies, such as Hong Kong, India, Korea, Mongolia, Nepal, Singapore, and Sri Lanka, a basic-price GDP calculation must be constructed for all other countries. To obtain the basic-price GDP, T2 is subtracted from the market-price GDP, available for all the countries studied, and S2 is added. The main data sources for estimating T2 and T3 are tax data in national accounts, the IMF's Government Finance Statistics, the SUT/IOT in each country, and other national data. Table 8.2 lists the SUT/IOT used in APO-PDB 2024.

**Table 8.1 Classification of Indirect Taxes and Subsidies**

| Indirect taxes (T) | | Subsidies (S) | |
|---|---|---|---|
| T1 | Indirect taxes on production and imports | S1 | Subsidies |
| T2 | Indirect taxes on products | S2 | Subsidies on products |
| T2a | Taxes and duties on imports | S2a | Subsidies on imports |
| T2b | Other taxes on products | S2b | Other subsidies on products |
| T3 | Other indirect taxes on production | S3 | Other subsidies on production |
| T3a | Taxes on payroll or workforce | S3a | Subsidies on payroll or workforce |
| T3b | Recurrent taxes on land, buildings or other structures | S3b | Subsidies to reduce pollution |
| T3c | Taxes on the use of fixed assets | | |
| T3d | Other taxes on production | | |

Source: APO Productivity Database 2024. Notes: As details of these classifications are rarely published in the official SNA, the APO-PDB has approximated them as estimates based on available data and information. The types of T3 and S3 are defined based on para. 7.94 and 7.106, respectively, in the 2008 SNA. In particular, T3b and T3c are further subdivided, corresponding to the APO-PDB asset classification (Table 8.3), and the asset-specific effective property tax rates are used in measuring the user cost of capital in Section 8.2.7.

Readers should bear in mind these caveats when interpreting the results in Chapter 6, since the definition of GDP by industry differs among countries due to data availability. GDP is valued at factor cost for Fiji and Pakistan; basic prices for Bangladesh, Cambodia, Hong Kong, India, Korea, the Lao PDR, Mongolia, Nepal, Singapore, and Vietnam; producers' prices for Iran, the ROC, and the Philippines; and market prices for Indonesia, Japan, Malaysia, Sri Lanka, Thailand, and Turkiye. (GDP at basic prices is GDP at factor cost plus production taxes less production subsidies.) In this sense, the industry data provided in the Databook series should be treated as a work in progress, as it is difficult to give a range of uncertainty for the data. These issues will be examined in greater detail in future issues of the Databook.

101: The split estimates of indirect taxes and subsidies has been incorporated since the APO-PDB 2023 to calculate property tax rates in the user cost of capital formula (Section 8.2.7).

## Table 8.2 SUT/IOTs in Asia

| | SUT / IOT |
|---|---|
| Bangladesh | 1976/77, 1981/82, 1986/87, 1992/93, 1993/94, 2000, 2005/06, 2010/11, 2010–2017* |
| Cambodia | Estimate(2003**), Benchmark (2005*), Annual (2010–2017*) |
| ROC | Benchmark (1981, 1986, 1991, 1996, 2001, 2004, 2006, 2011, 2016), Extended (1984, 1989, 1994, 1999, 2004), Annual (2006–2021) |
| Fiji | 1972, 1981, 2002, 2005, 2008, 2011 |
| India | 1993/94, 1998/99, 2003/04, 2006/07, 2007/08, 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, 2016/17, 2017/18, 2018/19, 2019/20 |
| Indonesia | 1971, 1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2016 |
| Iran | 1962, 1973, 1974, 1986, 1988, 1991, 1999, 2001, 2004, 2011 |
| Japan | 1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005, 2011, 2015 |
| Korea | Benchmark (1960, 1963, 1966, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015), Updated (1973, 1978, 1983, 1986-1988, 1993, 1998, 2003, 2006–2019) |
| Lao PDR | Benchmark (2012), Annual (2010–2017*) |
| Malaysia | 1978, 1983, 1987, 1991, 2000, 2005, 2010, 2015, 2019, 2020 |
| Mongolia | Benchmark (1963, 1966, 1970, 1977, 1983, 1987, 1997, 2000, 2005, 2010), Annual (2010–2019) |
| Nepal | 2004, 2010 |
| Pakistan | 1975/76, 1984/85, 1989/90, 1999/2000 |
| Philippines | 1961, 1965, 1969, 1974, 1979, 1985, 1988, 1994, 2000, 2006, 2012 |
| Singapore | Benchmark (1973, 1978, 1983, 1988, 2000, 2005, 2007, 2010, 2015), Annual (2012–2014, 2016–2017, 2019, 2021) |
| Sri Lanka | 2006, 2010, 2015 |
| Thailand | 1975, 1980, 1985, 1990, 1995, 1998, 2000, 2005, 2010, 2015 |
| Turkiye | 1973, 1979, 1985, 1990, 1996, 1998, 2002, 2012 |
| Vietnam | 1989, 1996, 2000, 2007, 2012 |
| China | Benchmark (1987, 1992, 1997, 2002, 2007, 2012, 2017), Updated (2000, 2005, 2010, 2015, 2018, 2020) |
| Bhutan | 2007, 2014, 2017 |
| Brunei | Benchmark (2005, 2010), Annual (2010–2017*) |

Sources: Estimates by the national statistics office in each country. *ADB (2018) *Economic Indicators for Southeastern Asia and the Pacific: Input-Output Tables*, Manila: Asian Development Bank. ** Kobayashi, Shintaro, Hajime Tanji, Katsuhiro Saito, Wenfeng Huang, and Minoru Tada (2012) "Industrial Structure of Cambodia and the Role of Agriculture and Fishery in its Development," *Japan Agricultural Research Quarterly*, 43(4).
Note: These SUT/IOT are collected and used in the development of APO Productivity Database 2024, which newly reflects the SUT/IOT of Bhutan for 2014 and 2017, the ROC for 2022, China for 2018, India for 2016/2017, 2017/2018, 2018/2019, and 2019/2020, and Singapore for 2021.

## Box 13 Recording Subsidies in the SNA during the Pandemic Period

To mitigate the economic damage caused by the COVID-19 pandemic, many governments provided wage subsidies to help businesses retain employees or direct assistance to households who had lost their jobs or were forced to take unpaid leave. In the national accounts, the latter is recognized as transfers to households, while the former should be recorded as "subsidies on payroll or workforce" (S3a in Table 8.1), which is defined as "subsidies payable on the total wage or salary bill, or total workforce, or on the employment of particular types of persons such as physically disabled persons or persons who have been unemployed for long periods. The subsidies may also be intended to cover some or all of the costs of training schemes organized or financed by enterprises" in para. 7.106a in the 2008 SNA.

There appears to be variation not only in national support systems but also in how subsidies are recorded in the national accounts of different countries. Although the official estimate of S3a is published for only a few Asian countries, the approximate impact can be gauged by the increase in total "subsidies" (S1 in Table 8.1). Figure 8.6 compares the changes in subsidy rates across countries from the pre-pandemic period (the difference between the subsidy in 2019 and the subsidy in 2020-2022 divided by the market-price GDP at current prices in 2019). For example, the US subsidy rate rose from 0.3% in 2019 to 3.1% in 2020 and 2.2 in 2021, and decreased to 0.6 in 2022. In the US NIPA, this expansion in subsidy originates from S3a, meaning that the gap between factor-cost GDP and basic-price GDP expanded in this period.

Similarly, the UK, Germany, and Australia had significant expansions of S1 rates, while Turkiye, Japan, and China saw little change during the pandemic. In the Japanese system of national accounts, however, subsidies

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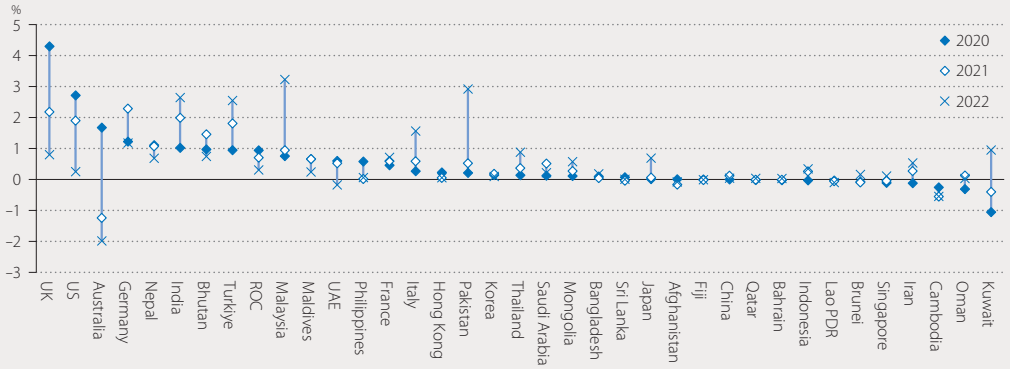



**Figure 8.6 Changes in Subsidy Rates during COVID-19 Pandemic Period, 2020–2022**
——Subsidy rate is the ratio of subsidies to market-price GDP at current prices: Differences from 2019

Unit: Percentage points (market-price GDP at current price in 2019=1.0). Sources: Official national accounts in each country, including adjustments by APO-PDB.

defined as S3a in other countries are treated as current transfers to firms. This treatment may yield no bias against the basic-price GDP but a bias to underestimate factor-cost GDP. In constructing our productivity accounts, the estimates of S3a are deducted from labor income (either COE or self-employed income). However, in countries where S3a is not accounted for, such as Japan, there is a bias toward overestimating the labor share. The details of subsidy schemes during the pandemic are complex, and the APO-PDB 2024 does not reconcile the different treatments. Assessing productivity trends requires a longer-term perspective, including measurements after transient subsidies have ended.

## 8.2 Measurement of Capital Input

### 8.2.1 GFCF by Type of Assets

Quality changes in the aggregate measure of capital input can originate from two sources: the composition changes in capital stock by type of asset and the quality improvement in each asset type. To consider the asset composition change, APO-PDB 2024 classifies 23 types of assets: 11 produced assets, seven types of land, inventory, and four types of mineral and energy resources (MER). The produced assets consist of three types of building and construction (B&C), five types of machinery, equipment, and other produced assets (M&E), and three types of IPP. Table 8.3 presents the asset classification in APO-PDB 2024.

Detailed investment data is not always available in the official national accounts.[102] For countries where detailed investment data is unavailable from national accounts, 11 types of investment are estimated based on the benchmark and annual SUT/IOT and our estimates on the production data for B&C and the product flow of domestic production and export/import of assets for M&E. For IPP, see Sections 8.1.4

102: The availability of GFCF data in the national accounts or benchmark SUT/IOT by country is provided in Figure 8.7 in the previous edition of the Databook (APO 2023). The SUT/IOT used in APO-PDB 2024 is listed in Table 8.2. In APO-PDB 2024, the GFCF composition ratios for India and Fiji were substantially revised by reviewing SUT GFCF, construction data, and M&E import data.

and 8.1.5. In particular, where the division for three types of B&C (the asset codes 5–7 in Table 8.3) is difficult for the countries without detailed construction data, they are still crude estimates based on other countries' experiences. Readers are cautioned about data uncertainty and should expect that the decomposition of contributions of capital services into ICT and non-ICT capital may be revised for some countries when more reliable data becomes available.

**Table 8.3 Asset Classification**

| asset code | group | asset code | group |
|---|---|---|---|
| 1. ICT hardware | M&E | 13. Land for industrial use | Land |
| 2. Communications equipment | M&E | 14. Land for commercial use | Land |
| 3. Transportation equipment | M&E | 15. Land for residential use | Land |
| 4. Other machinery and equipment and weapon systems | M&E | 16. Land for other economic use | Land |
| 5. Dwellings | B&C | 17. Land for forest use | Land |
| 6. Non-residential buildings | B&C | 18. Land for inland water use | Land |
| 7. Other structures | B&C | 19. Inventories | Inventory |
| 8. Cultivated biological resources | M&E | 20. Oil | MER |
| 9. Research and development (R&D) | IPP | 21. Coal | MER |
| 10. Computer software | IPP | 22. Gas | MER |
| 11. Other intellectual property products | IPP | 23. Mineral | MER |
| 12. Land for agricultural use | Land | | |

Sources: APO Productivity Database 2024 and ANRD 2024.

### 8.2.2 Produced Assets

About half of APO member economies publish capital stock estimates in their national accounts systems. Even where official estimates are available, users must be mindful of differences in methodologies and assumptions used to estimate capital stock and its consumption, and a large diversity in the treatment of quality adjustment in price statistics among countries. In APO-PDB 2024, a harmonized framework is applied in estimating capital stock and capital services, covering the Asia25 economies and the US as a reference country. The asset-specific geometric approach is used to measure net capital stock. The standard parameters on geometric depreciation rates are assumed in Table 8.4 by the country groups (D1–D6) defined in Table 6.1.

**Table 8.4 Depreciation Rates of Produced Assets**

| asset code | $\delta$ | | | | | |
|---|---|---|---|---|---|---|
| | D1 | D2 | D3 | D4 | D5 | D6 |
| 1. ICT hardware | 0.294 | 0.294 | 0.294 | 0.294 | 0.294 | 0.294 |
| 2. Communications equipment | 0.246 | 0.246 | 0.246 | 0.246 | 0.246 | 0.246 |
| 3. Transportation equipment | 0.219 | 0.219 | 0.162 | 0.138 | 0.138 | 0.138 |
| 4. Other machinery and equipment and weapon systems | 0.178 | 0.178 | 0.138 | 0.117 | 0.117 | 0.117 |
| 5. Dwellings | 0.049 | 0.049 | 0.041 | 0.037 | 0.033 | 0.033 |
| 6. Non-residential buildings | 0.084 | 0.084 | 0.062 | 0.056 | 0.050 | 0.045 |
| 7. Other structures | 0.026 | 0.026 | 0.019 | 0.018 | 0.017 | 0.016 |
| 8. Cultivated biological resources | 0.215 | 0.215 | 0.202 | 0.161 | 0.145 | 0.131 |
| 9. Research and development (R&D) | 0.190 | 0.190 | 0.180 | 0.162 | 0.162 | 0.162 |
| 10. Computer software | 0.330 | 0.330 | 0.330 | 0.330 | 0.330 | 0.330 |
| 11. Other intellectual property products | 0.270 | 0.270 | 0.270 | 0.270 | 0.270 | 0.270 |

Source: APO Productivity Database 2024. Note: For the country groups (D1–D6), see Table 6.1.

It is well known that prices of constant-quality ICT capital have been falling rapidly. For cross-country comparisons, it has been noted that there is a great disparity in the treatment of quality adjustment in price statistics among countries. Cross-country comparisons will be significantly biased if some countries adjust their deflators for quality change while others do not. Price harmonization is sometimes used to control for methodological differences in the compilation of price indexes, assuming that individual countries' price data fails to capture quality improvements. If the relative price of ICT to non-ICT capital in the countries compared is set equal to the relative price in the reference country, the harmonized price is formulated as $\Delta \ln \tilde{P}_{IT}^{X} = \Delta \ln P_{nIT}^{X} + (\Delta \ln P_{IT}^{ref} - \Delta \ln P_{nIT}^{ref})$, where the superscript $X$ denotes the country included in the comparisons, $P_{IT}$ is the price of ICT capital, and $P_{nIT}$ is the price of non-ICT capital. The price of ICT capital in the country $X$, $\tilde{P}_{IT}^{X}$, is computed by the observed prices $P_{IT}^{ref}$ and $P_{nIT}^{ref}$ in the reference country and $P_{nIT}^{X}$ in $X$. OECD (2024) applies price harmonization to capital services, with the US as a reference country, since the possible error due to using a harmonized price index would be smaller than the bias arising from comparing capital services based on national deflators.

In APO-PDB, the same price harmonization method is applied to adjust the quality improvement for ICT hardware and communications equipment in countries where the appropriate quality-adjusted price data is not available, using Japan's prices, which the Bank of Japan has developed since the 1980s, as a reference country. A similar procedure was applied in cases where the prices for some assets of B&C and M&E were unavailable to estimate missing data based on the relative price of these assets to total GFCF.

### 8.2.3 Inventory

Inventory stock has been incorporated as a capital input in our productivity account beginning with the APO-PDB 2021. The official estimates of the inventory changes recorded in the national accounts are used to estimate the inventory stock. When the official estimates of the price index for inventory changes fluctuate unrealistically, they are replaced by our estimates of the aggregate price index of products consisting of domestically produced goods (by agriculture, mining, and manufacturing sectors) and imported goods. Estimated inventory stocks tend to be extremely high compared to their GDP from countries where inventory changes are used as a balancing item in the compilation of national accounts. In such cases, inventory stock at the current price is limited to no more than 8% of nominal GDP in APO-PDB 2024.

### 8.2.4 Stock Loss from Disasters

Natural disasters can significantly impact economic growth, especially in developing economies. Capital stock losses due to natural disasters have been considered in the net capital stock estimates since APO-PDB 2021. This improves the underestimated TFP estimates.[103]

The stock losses in APO-PDB are estimated based on the total estimated damages developed in the Emergency Events Database (EM-DAT) by the Centre for Research on the Epidemiology of Disasters (CRED), Université Catholique de Louvain, Belgium. The data on the total damages estimated in the EM-DAT is incorporated through two adjustment processes. First, the total value of the damage is divided into damage to gross capital stock and damage to GDP, based on our assumptions in the most detailed levels of types of disaster. Second, the gross capital stock is converted to net capital stock to be compared with our capital stock estimates. Table 8.5 presents the estimated value of damages on the net capital stock of produced assets at a constant price as of 2022 (in parentheses) and the damage ratios to total stock at current prices in the year the disaster occurred during 1970–2022. The top 60 disasters in Asia are sorted by the magnitude of damage ratio to capital stock.

Although the Great East Japan Earthquake in 2011 has the largest damage value of the capital stock (about 100 billion US dollars), the damage ratio on the total stock is limited to 0.55% due to the large size of the aggregate capital stock and ranked 50th in Table 8.5. Five disasters have a damage ratio of over 3% of capital stock, primarily in developing countries. In particular, Cyclone Nargis during early May 2008 was the worst natural disaster in Myanmar's recorded history, causing devastating damage to 6% of its capital stock.

103: The revision of TFP growth from the year before the disaster to the disaster year is provided in Figure 84 in *APO Productivity Databook 2022* (October 2022). In the case of Myanmar's Cyclone Nargis in 2008, the TFP estimate was revised from a negative 9.3% to 5.2%. In other cases, negative TFPs are modified to be close to zero or slightly positive.

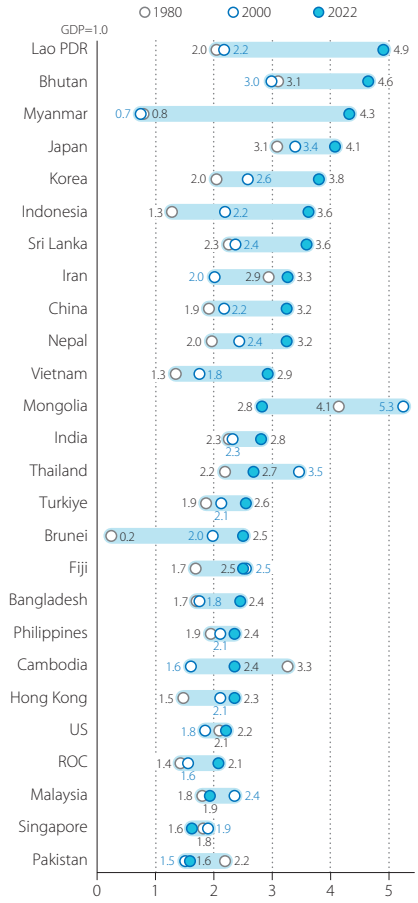
## Table 8.5 Capital Stock Damages by Natural Disasters, 1970–2022

——Damage ratios on net capital stock at current prices and damages of capital stock at constant prices

| | Year | Type | Damage to NCS | | | Year | Type | Damage to NCS | | | Year | Type | Damage to NCS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Myanmar | 2008 | S | 5.92 | (3.42) | 21 Bangladesh | 1974 | F | 1.55 | (0.61) | 41 China | 1998 | F | 0.73 | (43.11) |
| 2 Nepal | 2015 | E | 3.87 | (3.01) | 22 Myanmar | 2004 | E | 1.54 | (0.64) | 42 Myanmar | 1988 | 0 | 0.72 | (0.06) |
| 3 Fiji | 2016 | S | 3.86 | (0.37) | 23 Cambodia | 2011 | F | 1.46 | (0.41) | 43 Nepal | 1987 | F | 0.71 | (0.12) |
| 4 Lao PDR | 1993 | S | 3.31 | (0.55) | 24 Pakistan | 2005 | E | 1.21 | (4.83) | 44 China | 1976 | E | 0.70 | (8.49) |
| 5 Bangladesh | 1988 | F | 3.00 | (2.24) | 25 Bangladesh | 2004 | F | 1.19 | (2.80) | 45 Fiji | 2012 | F | 0.62 | (0.06) |
| 6 Pakistan | 1973 | F | 2.93 | (1.74) | 26 Philippines | 1972 | F | 1.17 | (0.87) | 46 Myanmar | 1992 | F | 0.60 | (0.05) |
| 7 Bangladesh | 1998 | F | 2.86 | (4.17) | 27 Cambodia | 2013 | F | 1.15 | (0.36) | 47 Philippines | 1976 | E | 0.59 | (0.58) |
| 8 Nepal | 1980 | E | 2.82 | (0.31) | 28 Philippines | 2013 | S | 1.15 | (6.61) | 48 India | 1993 | F | 0.58 | (10.75) |
| 9 Fiji | 1972 | S | 2.49 | (0.09) | 29 Fiji | 1983 | S | 1.10 | (0.07) | 49 China | 1996 | F | 0.58 | (28.85) |
| 10 Thailand | 2011 | F | 2.16 | (23.78) | 30 Sri Lanka | 1978 | S | 1.08 | (0.49) | 50 Japan | 2011 | E | 0.55 | (109.05) |
| 11 Turkiye | 1999 | E | 2.07 | (35.49) | 31 Nepal | 1993 | F | 1.06 | (0.25) | 51 Pakistan | 1992 | F | 0.54 | (1.08) |
| 12 Bangladesh | 1991 | S | 2.06 | (1.85) | 32 Pakistan | 1976 | F | 1.04 | (0.67) | 52 Vietnam | 1997 | S | 0.53 | (0.58) |
| 13 Fiji | 1993 | S | 2.04 | (0.17) | 33 Myanmar | 1989 | 0 | 1.01 | (0.08) | 53 Sri Lanka | 1992 | F | 0.51 | (0.48) |
| 14 Cambodia | 1991 | F | 1.85 | (0.13) | 34 Vietnam | 1996 | S | 0.92 | (0.91) | 54 Vietnam | 1994 | F | 0.50 | (0.38) |
| 15 Fiji | 1985 | S | 1.68 | (0.10) | 35 Iran | 1990 | E | 0.91 | (26.14) | 55 Mongolia | 2000 | S | 0.48 | (0.10) |
| 16 Pakistan | 2010 | F | 1.66 | (8.44) | 36 Bangladesh | 2007 | S | 0.86 | (2.58) | 56 ROC | 1977 | S | 0.48 | (0.51) |
| 17 ROC | 1999 | E | 1.64 | (12.46) | 37 Fiji | 1986 | S | 0.80 | (0.05) | 57 Thailand | 1978 | F | 0.47 | (0.83) |
| 18 Bangladesh | 1987 | F | 1.61 | (1.14) | 38 Myanmar | 1991 | F | 0.79 | (0.07) | 58 Japan | 1995 | E | 0.47 | (81.83) |
| 19 Sri Lanka | 2004 | E | 1.57 | (2.06) | 39 Myanmar | 1984 | 0 | 0.78 | (0.05) | 59 Lao PDR | 1992 | F | 0.43 | (0.07) |
| 20 Cambodia | 2000 | F | 1.57 | (0.16) | 40 Bangladesh | 1995 | S | 0.77 | (0.90) | 60 Fiji | 2009 | F | 0.42 | (0.04) |

Unit: Percentage (ratio at the beginning-of-period net capital stock: NCS) and billions of US dollars (as of 2022 in parentheses. Sources: EM-DAT, CRED, Université Catholique de Louvain, Belgium and APO Productivity Database 2024. Note: S, E, F, and O represent the types of disasters as storms, earthquakes, floods, and others, respectively.

Figure 8.7 presents the estimated capital-output ratio (capital stock coefficient) that is defined by the ratio of the beginning-of-period net capital stock (all types of produced assets owned by private and public institutions) to the basic-price GDP at current prices. Note that this measure excludes land and MER. Bhutan has a high capital-output ratio among the Asia25 economies, at 4.6 in 2022, reflecting the industry structure highly skewed in electricity generation (hydropower). Compared to the 2000 level in each country, all Asian countries, except Fiji, Mongolia, Malaysia, Singapore, and Thailand, have an increasing trend in capital-output ratio.




## Figure 8.7 Capital-Output Ratio (Produced Assets), 1980–2022

——Ratio of the beginning-of-period net capital stock to basic-price GDP at current prices in 1980, 2000, and 2022

Unit: Percentage. Source: APO Productivity Database 2024. Note: Capital stock consists of produced assets and inventory here (excluding land and MER).

## Box 14 Revision History of Measurement Framework

Since its first publication in 2008, the APO Productivity Database (APO-PDB) has undergone these changes: a) an annual update and review of the accuracy of the estimates, b) an update of retrospective estimates following the publication of the latest benchmark estimates, and c) revisions to the measurement framework. Table 8.6 summarizes the history of revisions to the measurement framework (c) in APO-PDB, including expanding the scope of capital inputs and revising labor inputs. The revisions in measuring capital and labor inputs have improved the accuracy of the TFP estimate, which is calculated as the residual.

**Table 8.6 Extensions of Capital and Labor Measurement Framework in APO-PDB**

| | Capital Input | | | | | | | Labor Input | |
|---|---|---|---|---|---|---|---|---|---|
| | B&C | M&E | IPP | INV | Land | MER | Disaster | H | L |
| APO-PDB 2008 | ○ (3) | ○ (5) | ○ (3) | | ←Asia Natural Resource Database (ANRD) | | | ○ | |
| APO-PDB 2009 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | ←Asia QALI Database |
| APO-PDB 2010 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | |
| APO-PDB 2011 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | |
| APO-PDB 2012 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | |
| APO-PDB 2013 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | ↓ |
| APO-PDB 2014 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | ↓ |
| APO-PDB 2015 | ○ (3) | ○ (5) | ○ (3) | | | | | ○ | ↓ |
| APO-PDB 2016 | ○ (3) | ○ (5) | ○ (3) | | ↓ | | | ○ | ↓ |
| APO-PDB 2017 | ○ (3) | ○ (5) | ○ (3) | | ↓ | | | ○ | ↓ |
| APO-PDB 2018 | ○ (3) | ○ (5) | ○ (3) | ↓ | ↓ | | | ○ | ○ |
| APO-PDB 2019 | ○ (3) | ○ (5) | ○ (3) | ○ (1) | ○ (4) | | | ○ | ○ |
| APO-PDB 2020 | ○ (3) | ○ (5) | ○ (3) | ○ (1) | ○ (4) | ↓ | ↓ | ○ | ○ |
| APO-PDB 2021 | ○ (3) | ○ (5) | ○ (3) | ○ (1) | ○ (4) | ↓ | ○ | ○ | ○ |
| APO-PDB 2022 | ○ (3) | ○ (5) | ○ (3) | ○ (1) | ○ (4) | ↓ | ○ | ○ | ○ |
| APO-PDB 2023 | ○ (3) | ○ (5) | ○ (3) | ○ (1) | ○ (7) | ○ (4) | ○ | ○ | ○ |
| APO-PDB 2024 | ○ (3) | ○ (5) | ○ (3) | ○ (1) | ○ (7) | ○ (4) | ○ | ○ | ○ |

Source: APO-PDB 2008–2024.

The first major revision was the labor input measurement. This requires tremendous work and research to collect primary data and fill in the missing values, as discussed in Section 8.3. The project to develop the Asia QALI Database (AQALI) started in 2013 at KEO, and after five years of intensive work, the first estimates for 23 Asian countries and the US as a reference country were developed and incorporated into the APO-PDB 2018. The AQALI included the estimates for Bhutan in 2019 and Turkey in 2020, now covering 25 countries.

The second major revision was the land stock measurement. The project to build a database on land area and prices began in 2016 at KEO (Section 8.2.5) and has been incorporated from the APO-PDB 2019 onwards, together with the inventory stock (Section 8.2.3). This change has led to an overall upward revision of TFP growth. In addition, the development of MER stocks started in 2020 (Section 8.2.6) at KEO and has been included since the APO-PDB 2023. The MER stock and land stock were redefined as the Asian Natural Resource Database (ANRD), which is being made to improve its accuracy. In addition, the impact of some major disasters on produced assets is significant, especially in developing countries, and has been considered in capital stock estimates since the APO-PDB 2021 (Section 8.2.4).

The latest APO-PDB 2024 reflects the aggregated estimates of the most recent AQALI 2024 and ANRD 2024 estimates and is available on the APO website.[104]

104: The detailed estimates of AQALI and ANRD database are not publicly available at present. The productivity accounts involving the details of these two data are called the Augmented Productivity Database (APDB). The APDB is being improved and used for research purposes, including measurements by Diewert, Nomura, and Shimizu (2024).

### 8.2.5 Land

Land is an important factor of production not only in the agriculture sector but also in the manufacturing and service sectors. It occupies a large share of nominal capital stock in densely populated countries. Despite its importance, the land was not considered a capital input until APO-PDB 2018 due to data availability. In Asia, only Japan and Korea publish estimates of land stocks in their national balance sheets within their system of national accounts.

Land stock data has been developed at KEO since 2016, and these estimates were incorporated beginning with APO-PDB 2019. Land stock is defined as a natural resource in ANRD, together with MER (Section 8.2.6). The ANRD 2024 used in this edition covers the Asia25 economies. Table 8.7 defines the types of land use. In APO-PDB 2024, four land types for economic use (ANRD code: L1100, L1211, L1212, and L1213) and three other land types (L1220, L2000, and L3000) are treated as non-produced assets (APO-PDB asset code: 12–18).[105]

**Table 8.7 Land Classification**

| Land classification in ANRD | | APO-PDB asset code |
|---|---|---|
| L0000 | Total land | |
| L1000 | Land for economical use | |
| L1100 | Land for agricultural use | 12 |
| L1200 | Land for non-agricultural use | |
| L1210 | Land for building use | |
| L1211 | Land for industrial use | 13 |
| L1212 | Land for commercial use | 14 |
| L1213 | Land for residential use | 15 |
| L1220 | Land for other use | 16 |
| L2000 | Land for forest use | 17 |
| L3000 | Land for inland water use | 18 |

Source: ANRD 2024. Note: Table 8.3 provides the whole list of the APO-PDB asset codes.

The land stock data consists of the current and constant prices estimated by seven land-use types. The data on the land area (m2) is available in FAOSTAT for agricultural use (asset code 12) and in national data resources for non-agricultural use (code 13-15). For countries in which the data on the national land area for residential use (code 15) is not available, they are estimated based on multiple approaches using available information and our estimates, e.g., the number of households, average area per unit of household, population/household density in rural and urban areas, stock estimates of dwellings (Section 8.2.2), per capita GDP, and so on. Suppose land for industrial use (code 13) is unavailable from national surveys like the manufacturing census. In that case, it is estimated based on our estimates of the productivity of industry-use land and the manufacturing GDP. Similarly, land for commercial use (code 14) is calculated based on our estimates of the productivity of commercial-use land and the service-sector GDP if it is not available in national data resources.

For countries where the land stocks at current prices are not available, samples of land price data are collected to estimate the current-price land stocks. The land price data are available mainly in urban areas.[106] With our assumptions on the price gaps between urban and rural areas in each country, these survey prices of urban land areas are discounted to estimate the national level averages. On the land prices for agricultural use, the national level average price is calculated in each country based on our estimates of the discounted present value of future rents, which are based on our estimates of mixed income in the agriculture sector and the rate of return (Section 8.3.3).

Although further efforts to improve the estimates are required, Figure 8.8 presents our current estimates of the ratios of total capital stock to basic-price GDP and the land shares of total capital stocks (right axis) as of the beginning of 2022. When including land stocks, the country order of capital-output ratios is

105: The APO-PDB 2022 covered four economic land types and the APO-PDB 2023 and later were revised to cover the entire country land by adding three other land types (Table 8.6). However, this revision has a limited impact on the productivity account since the unit values of land for other uses are much smaller.

106: They are collected from market data and survey results such as *The World Land Value Survey* (Japan Association of Real Estate Appraisers: JAREA), *Report on Survey of Urban Land Prices in the Developing World* (International Housing Coalition: IHC), and *Survey on Business Conditions of Japanese Companies in Asia and Oceania* (Japan External Trade Organization: JETRO).

considerably revised from Figure 8.7, based only on produced assets. In ROC, Singapore, and Hong Kong, the estimated land shares exceed 70% of total capital stock, almost twice the 38% in Japan and 42% in the US. In general, the growth rate of the land stock is about zero or much smaller than the growth rate of productive assets. Considering land stock in the measurement of capital inputs would reduce the estimate of the growth of capital and thus eliminate the bias of underestimating TFP growth rates in many Asian countries.

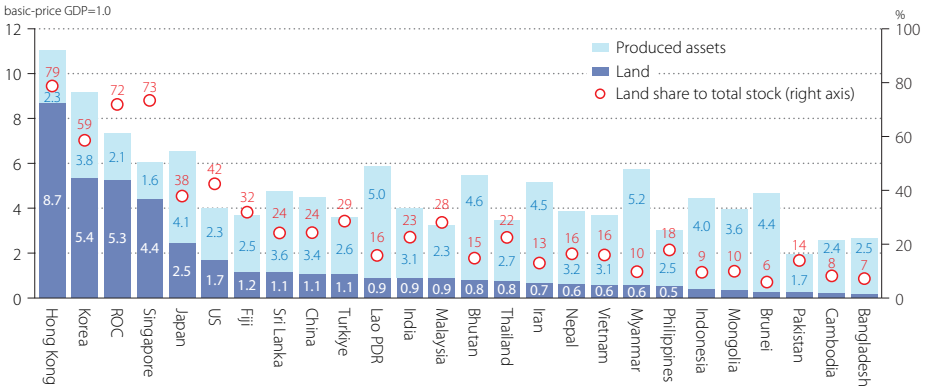



**Figure 8.8 Capital-Output Ratio (Produced Assets and Land) in 2022**
——Ratio of the beginning-of-period net capital stock to basic-price GDP at current prices

Unit: Percentage. Sources: ANRD 2024 and APO Productivity Database 2024.

### 8.2.6 Mineral and Energy Resources

**Table 8.8 Classification of MER**

| MER classification in ANRD | | APO-PDB asset code |
|---|---|---|
| ME100 | Energy resources | |
| ME101 | Oil | 20 |
| ME102 | Coal | 21 |
| ME103 | Gas | 22 |
| ME200 | Mineral resources | 23 |
| ME201 | Bauxite | |
| ME202 | Copper | |
| ME203 | Gold | |
| ME204 | Iron ore | |
| ME205 | Lead | |
| ME206 | Nickel | |
| ME207 | Phosphate rock | |
| ME208 | Silver | |
| ME209 | Tin | |
| ME210 | Zinc | |

Source: ANRD 2024.
Note: Table 8.3 provides the APO-PDB asset code.

For resource-rich countries, the mining industry accounts for a large share of GDP (Figure 3.12). However, the APO-PDB has not considered the depletion of mineral and energy resources (MER) assets. In 2020, KEO began to develop data on MER stocks for the Asia25 economies over a long period since 1970. The latest MER data within the ANRD 2024 is now included in the APO for the first time in APO-PDB 2024.[107] Table 8.8 defines the classification of MER. In this edition, three types of energy resources (ANRD code: ME101, ME102, and ME103) and one type of mineral resource (ME200), which are defined as an aggregate of 10 types of mineral resources (ME201–ME210), are treated as non-produced assets (APO-PDB asset code: 20–23).

Reserves data sometimes fluctuate widely. The ANRD adjusts reserves to match production and sets an upper limit on the number of years of availability.[108] Figure 8.9 compares the ratio

107: The MER consists of "mineral and energy reserves located on or below the earth's surface that are economically exploitable, given current technology and relative prices" in para 10.179 in the 2008 SNA (United Nations 2009).
108: The main data on reserves and production rely on *International Energy Statistics* by the US Energy Information Administration for energy resources, *Mineral Commodity Summaries 2024* by the US Geological Survey, and *World Mineral Statistics 1995–99* by British Geological Survey for mineral resources, as well as national data sources. Resource rents are from the World Bank (2021).

of MER stock to nominal GDP in the Asia25 economies and shows that two countries have MER stocks equal to or exceeding GDP in 2022, with a further five countries exceeding 40%, as the left chart shows.[109] As can be seen in the right chart of Figure 8.9, in nine economies the share of GDP is less than 0.1% and the impact on net income and growth accounting is negligible. The effect on TFP estimates in countries with large MER stocks is discussed in Box 10.

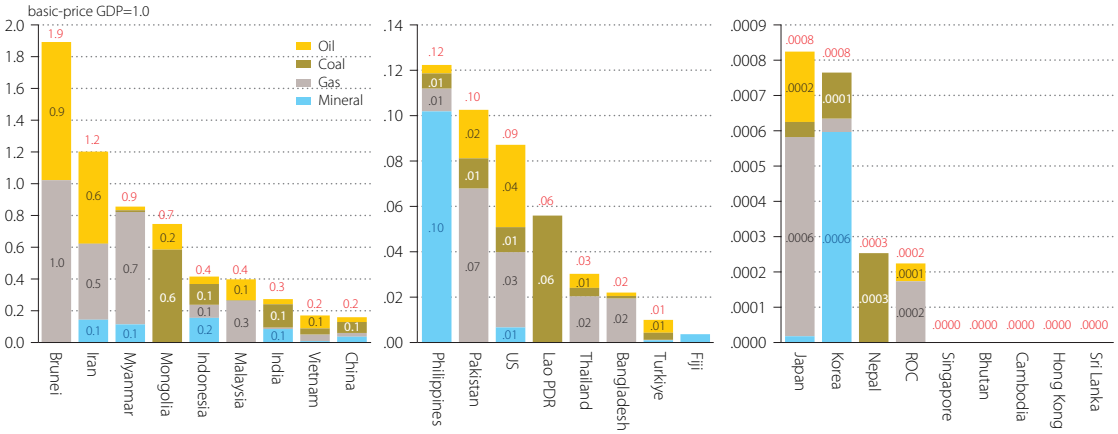



**Figure 8.9 MER Capital-Output Ratio in 2022**

——Ratio of the beginning-of-period net capital stock of MER to basic-price GDP at current prices

Unit: Percentage. Sources: ANRD 2024 and APO Productivity Database 2024.

### 8.2.7 Capital Services

In production analysis, capital service provides an appropriate concept of capital inputs as recommended in the 2008 SNA. The fundamental assumption in measuring capital services is proportionality between the (productive) capital stock and capital services in each type of asset. Thus, capital services' growth rates can differ from capital stock only at aggregated levels. For aggregating different kinds of capital, the user cost of capital by type of asset is required. This section outlines the methodology of the user cost of capital estimation and presents the estimated results of the endogenous rate of return for Asian countries in APO-PDB.

The user cost of capital of a new asset with a type of asset denoted as k (Table 8.3) of the period $t$, $u_t^k$, is defined as $q_{t-1}^k \{r_t + \tau_t^k + (1 + \pi_t^k)\ \delta_t^k - \pi_t^k\}$, where $r_t$, $\tau_t^k$, $\delta_t^k$, and $q_t^k$ are the expected nominal rate of return, effective property tax rate, cross-section depreciation rate, asset price change, respectively. The asset-specific inflation rate $\pi_t^k$ is defined as $(q_t^k / q_{t-1}^k - 1)$. The effective property tax rates by type of asset have been considered since the APO-PDB 2023. Our estimates on "T3b. Recurrent taxes on land, buildings or other structures" and "T3c. Taxes on the use of fixed assets" in Table 8.1 are further subdivided, corresponding to the asset classification in Table 8.3.

The APO-PDB follows the ex-post approach that Jorgenson and Griliches (1967) originated. Assuming constant returns to scale and competitive markets, capital compensation ($V_t$) can be derived from the summation of capital service cost $V_t^k$ over all $k$ asset types. $V_t^k$ is defined as the product of the user cost of capital and the productive capital stock, $S_t^k$ (i.e., $V_t = \Sigma_k V_t^k = \Sigma_k u_t^k S_t^k$). Based on this identity and the $n$-equations of user cost of capital, the $n$+1 variables of $u_t^k$ and $r_t$ are simultaneously determined, using the observed capital compensation $V_t$ as the total sum of $V_t^k$ that is not observable in each asset.

109: In Myanmar, jade stocks (discussed in Section 8.4) are not covered in the ANRD 2024.

**Table 8.9 Average Ex-Post Real Rate of Return in Asia, 1970–2022**

| | 1970–1974 | 1975–1979 | 1980–1984 | 1985–1989 | 1990–1994 | 1995–1999 | 2000–2004 | 2005–2009 | 2010–2014 | 2015–2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| Bangladesh | 20.0 | 14.9 | 12.2 | 19.1 | 21.3 | 19.1 | 19.8 | 19.6 | 19.6 | 21.4 |
| Bhutan | 8.5 | 13.6 | 4.5 | 7.5 | 2.8 | 6.0 | 9.8 | 6.3 | 3.3 | 3.5 |
| Brunei | 2.7 | 15.5 | 14.0 | 5.5 | 5.2 | 7.3 | 14.4 | 15.0 | 8.8 | 5.2 |
| Cambodia | 21.5 | 19.1 | 6.5 | –21.2 | –16.8 | 22.1 | 22.1 | 20.5 | 23.8 | 13.8 |
| China | 9.2 | 7.7 | 5.5 | 0.4 | 3.6 | 9.7 | 13.9 | 9.5 | 6.5 | 7.1 |
| ROC | 2.2 | 2.0 | 0.9 | 6.6 | 1.8 | 2.0 | 3.5 | 4.0 | 5.7 | 4.0 |
| Fiji | 13.3 | 13.4 | 8.7 | 9.5 | 17.1 | 10.3 | 9.0 | 9.4 | 8.6 | 11.0 |
| Hong Kong | 10.6 | 11.0 | 0.4 | 8.4 | 1.0 | 3.2 | 7.5 | 7.3 | 3.8 | 3.8 |
| India | 0.5 | 4.6 | –0.9 | –0.2 | 0.1 | 1.8 | 7.1 | 5.4 | 1.8 | 4.4 |
| Indonesia | 18.1 | 12.4 | 13.0 | 13.3 | 13.0 | 5.6 | 9.5 | 9.9 | 8.7 | 8.1 |
| Iran | 11.9 | 3.8 | –5.5 | –7.6 | –6.5 | –6.4 | 3.7 | 1.9 | –2.7 | –5.2 |
| Japan | –2.2 | –3.3 | 1.1 | 3.6 | 0.4 | 0.8 | 1.8 | 2.7 | 1.8 | 2.8 |
| Korea | 9.7 | 5.2 | 2.8 | 9.3 | 1.9 | 0.0 | 4.1 | 4.5 | 3.3 | 4.2 |
| Lao PDR | –3.3 | –15.9 | –26.6 | –21.5 | 0.5 | –16.6 | 0.8 | 11.7 | 14.0 | 10.7 |
| Malaysia | 15.0 | 15.4 | 7.0 | 7.2 | 9.7 | 11.5 | 13.8 | 14.7 | 12.7 | 13.2 |
| Mongolia | 10.0 | 9.4 | 8.3 | 12.9 | –45.3 | –7.1 | 8.1 | 6.8 | 3.0 | 8.3 |
| Myanmar | 29.6 | 35.5 | 29.5 | 12.8 | 6.1 | 4.7 | 5.4 | 6.1 | 22.7 | 1.2 |
| Nepal | 14.3 | 12.6 | 7.3 | 5.5 | 4.1 | 4.7 | 7.5 | 5.8 | 2.0 | 4.1 |
| Pakistan | 10.5 | 8.1 | 8.1 | 14.0 | 13.4 | 21.0 | 29.5 | 21.8 | 22.0 | 20.4 |
| Philippines | 9.6 | 11.5 | 6.6 | 7.0 | 6.9 | 10.4 | 17.3 | 14.7 | 17.5 | 16.8 |
| Singapore | 5.8 | 7.7 | 5.3 | 6.1 | 4.5 | 3.3 | 4.5 | 6.8 | 3.3 | 4.2 |
| Sri Lanka | 17.8 | 18.3 | 3.3 | 4.7 | 2.5 | 4.7 | 6.4 | 6.3 | 15.8 | 10.6 |
| Thailand | 14.4 | 11.8 | 9.4 | 14.5 | 12.1 | 7.2 | 10.2 | 10.7 | 11.0 | 11.8 |
| Turkiye | 33.9 | 12.9 | 0.2 | –3.3 | –17.5 | –20.9 | 0.0 | 16.6 | 15.1 | 7.6 |
| Vietnam | 13.4 | 10.9 | –14.6 | –59.4 | –2.8 | 21.2 | 20.4 | 8.4 | 8.3 | 10.8 |
| US | 4.4 | 1.9 | –0.1 | 3.9 | 3.4 | 6.6 | 6.2 | 4.6 | 6.2 | 6.3 |

Unit: Percentage. Source: APO Productivity Database 2024.

The estimated results of the ex-post real rate of return for the Asia25 economies and the US are presented in Table 8.9 as the five-year averages in the entire observation period 1970–2022. After considering the capital input of MER (Section 8.2.6) and the effective rate of property tax, the nominal rate of return has been revised significantly downwards compared to the previous estimates in the APO-PDB 2022, bringing the nominal rate of return closer to a more reasonable estimate. In 2015–2022, the real rate of return ranged from 2.8–4.2% in Hong Kong, Japan, Korea, and Singapore to over 15% in Bangladesh, the Philippines, and Pakistan, reflecting the difference in country risk. Aggregate capital services measured in APO-PDB are based on these ex-post estimates of rates of return. The difference between the ex-ante and ex-post approaches may cause a modest difference in the growth measure of capital services, regardless of the substantial differences in the rates of return and capital compensations.

## *8.3 Measurement of Labor Input*

### *8.3.1 Hours Worked*

The volume of labor can be measured in three units: number of persons in employment, number of filled jobs, and hours worked. Given the variations in working patterns and employment legislation over time and across countries, hours worked, if accurately measured, offers the most time-consistent and somewhat internationally comparable unit measuring the volume of each type of labor. This is the primary underlying reason for the importance of choosing hours actually worked in productivity analysis. Due to the difficulty in accurately estimating the average hours actually worked, it is not always available or comparable across countries. The variety of data sources, definitions, and methodologies available in estimating these labor market variables often leads to a fragmentation of labor market statistics of an individual country concerned, dubious data quality, and incomparability across countries. Here is an attempt to outline some of these intricate measurement issues.

Data on labor volume comes from two main statistical surveys of establishments and households, with respective strengths and weaknesses. Establishment surveys are surveys of firms with stratified sample

frames by the size of establishments. The concentration of total employment in a relatively small number of establishments means that this sampling strategy is cost-effective in delivering high-precision labor market estimates with a small sampling error. Questionnaires are designed to be close to the concepts used in company administration. This has both strengths and weaknesses.

On the other hand, changes in legislation and regulation could be a source of instability to the definitions and the data collected. Furthermore, data companies do not collect for administrative purposes, and data, such as unpaid hours and worker characteristics, are unavailable. This greatly limits the variety of labor market data collected through establishments.[110] Information on hours is from data on paid hours rather than hours actually worked. Certain categories of employment, most notably the self-employed, are not covered. Sometimes, small firms, informal employment (which can be more than 50% in developing countries), or the public sector are also excluded. Because of these limitations, labor market data from establishment surveys often require adjustments for omissions and definition modifications during the compilation process.

In contrast, household-based labor force surveys (LFS) fully cover the economy. However, they sometimes incorporate age or geographic exclusions and may have imperfect coverage of the armed forces and other institutional households. Nonetheless, they provide valuable data on certain employment groups, such as the self-employed and unpaid family workers and the number of multiple job workers. Employment status in LFS is independently determined and is not subject to the criteria used in company records. Most countries follow the International Labour Organization (ILO) definitions. As LFSs are surveyed from the socio-economic perspective, they also provide rich data on worker characteristics relevant to productivity analysis.[111]

The common practice of statistical offices has been combining information from the establishment and household surveys in the national accounts, with a view of using the most reliable aspects of each survey. This seems to be the most promising avenue forward in improving the quality and consistency of data on labor input. However, statistical offices could still differ greatly in their methodologies, especially in estimating the annual average hours worked per job/person, depending on their starting points, namely LFS data or enterprise data. All these must be considered in international comparisons of productivity.

Figure 8.10 presents a cross-country comparison of average annual hours worked per worker for 2010–2022, relative to the level of the US, based on AQALI 2024. It indicates that workers in Asian countries work much longer than those in the US and EU. In many countries sampled, the difference in annual hours worked per person relative to the US is more than 10% of the US level.[112] Prolonged working hours are observed regardless of their stage of development, spanning low-income countries such as Bangladesh and Cambodia to high-income countries such as Singapore and Korea. Workers in Japan are likely to work much shorter hours than those in other Asian countries. However, compared with the EU15, hours worked by workers in Japan are still about 14 percentage points greater. Figure 8.11 presents the growth in hours worked for the Asia25 economies in 2015–2022, compared with those in 2010–2015 and 2005–2010. Singapore experienced a continuous significant slowdown in hours-worked growth over these subperiods. The change in growth rates varies widely by country and over periods.

110: Employment is measured based on jobs rather than persons employed, as persons holding multiple jobs with different establishments cannot be identified and will be counted more than once.

111: The major weakness of the LFS, however, is data precision. By relying on the respondents' recollection, their response also depends on perception. Response errors could, therefore, arise from confusion of concepts and imprecise recollection of the respondents concerning work patterns and pay during the reference week. Another source of error originates from the proxy response, which relies on the proxy's perception and knowledge of another household member. A high level of proxy responses could, therefore, reduce the reliability of the data collected.

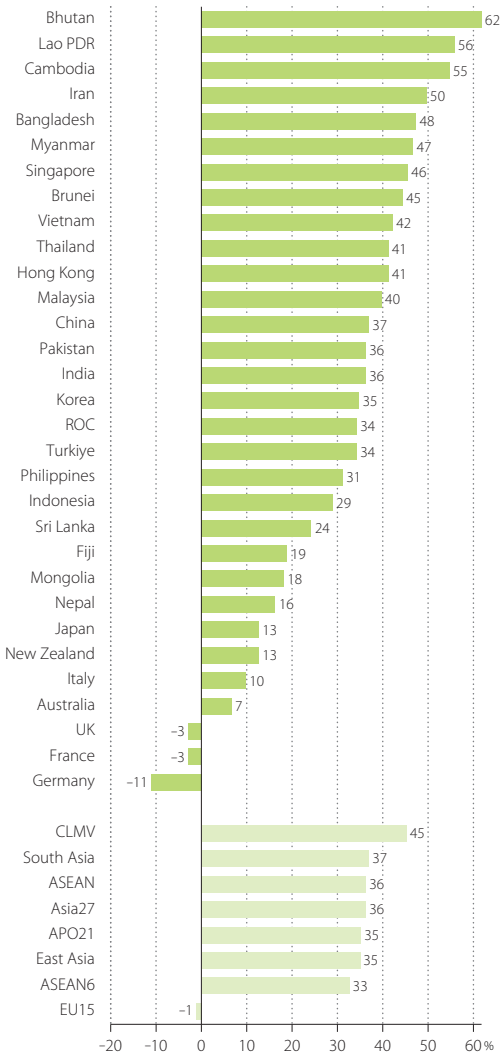



**Figure 8.10 Hours Worked Per Worker relative to the US, 2010–2022**

——Hours worked per worker on average, percent difference from reference county US

Unit: Percentage (relative to the US). Sources: Official national accounts and labor force survey in each country (including adjustments in APO-PDB) for Asian countries and OECD Stat for the EU15, France, Germany, Italy, New Zealand, and the UK.

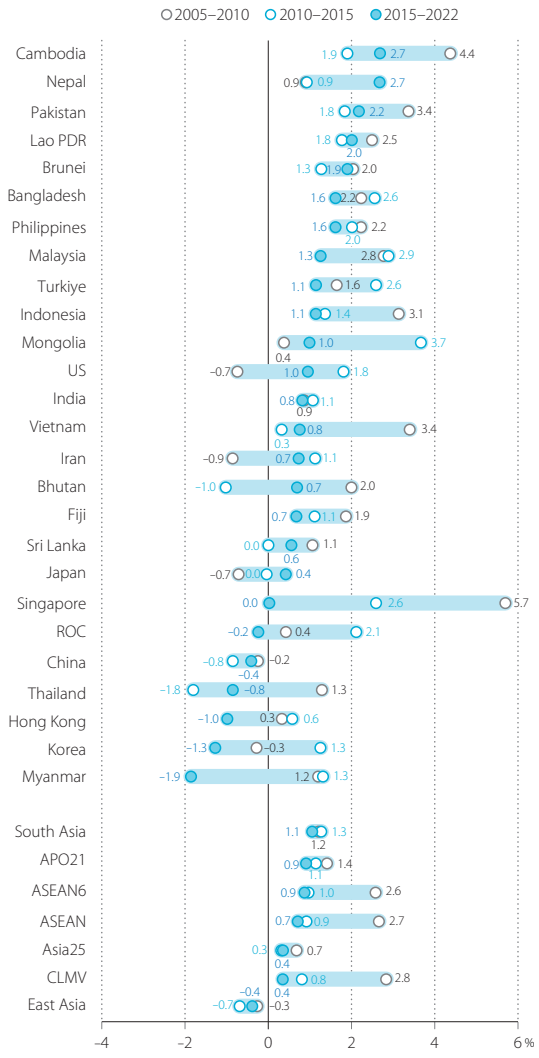



**Figure 8.11 Hours Worked Growth in the Recent Periods, 2005–2022**

——Growth in hours worked in 2015–2022, 2010–2015, and 2005–2010

Unit: Percentage (average annual growth rate). Source: AQALI 2024.

112: Shorter hours worked in Nepal are due to frequent general strikes called "Banda," mainly by some political parties. According to the Nepal Human Rights Commission, Banda was called 821 times in various regions in 2009, and economic activities were closed during Banda.

### 8.3.2 Quality-adjusted Labor Input

In productivity analysis, labor inputs at the aggregate level are expected to be quality-adjusted to reflect workforce heterogeneity, as recommended in the SNA 2008 (United Nations 2009).[113] Adjusting total hours worked for quality would require information on worker characteristics to differentiate the workforce into different types. Hours are then weighed by their marginal productivities, which are approximated by data on total compensation. In the stage of high economic growth, labor quality growth can be a significant factor, as well as the increase in hours worked, improvement in the educational attainment of workers, and a shift from the self-employed (e.g., in agriculture or informal service sectors) to employees (in manufacturing or formal service sectors).

Deriving a quality-adjusted labor input (QALI) measure is a data-demanding exercise. Even if LFS provides the required information, researchers often run into the consistency issues discussed in Section 8.3.1 and sample size problems as they break down the workforce into fine categories. Covering the Asia25 economies, data on employment and wage/incomes have been collected by type of labor categories since 2013 at KEO, based mainly on LFS and Population Census. The developed data is called the Asia QALI Database (AQALI), consisting of the number of workers, hours worked per worker, and hourly wages, cross-classified by gender, educational attainment, age, and employment status. AQALI 2024 estimates total hours worked, labor qualities, and QALI in APO-PDB 2024.[114]

Figure 8.12 compares the average schooling years observed in terms of workers from 1970 to 2022 as an intuitive indicator of labor quality based on the AQALI 2024. Although there is a significant range in 2022, the average years have increased since 1970 in almost all economies. In this measure, three

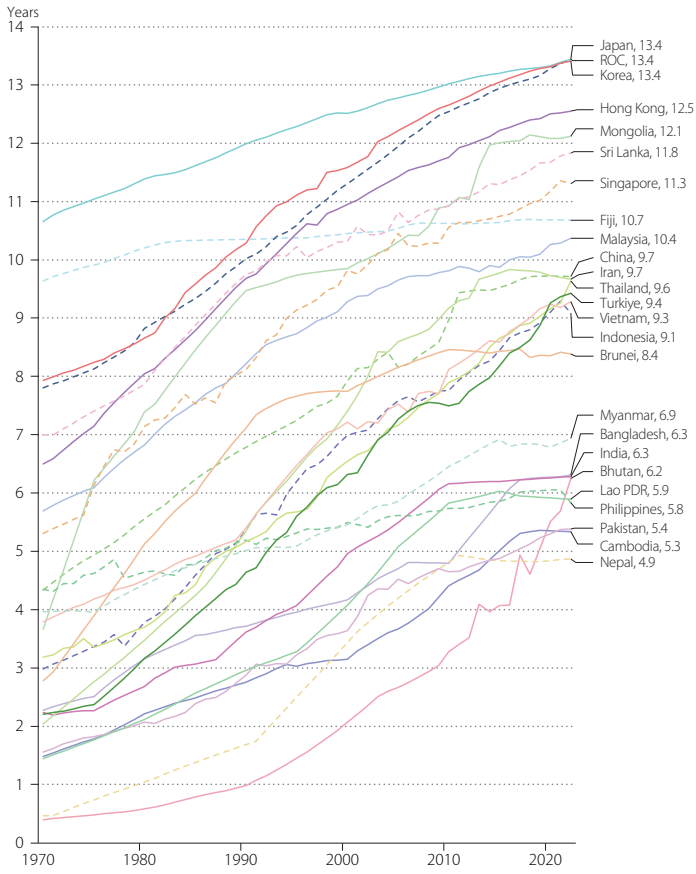



**Figure 8.12 Average Schooling Years of Workers, 1970–2022**

Unit: Years. Source: AQALI 2024.

113: The SNA 2008 (United Nations 2009, Chapter 19) discusses three standardized measures of labor inputs, evaluating "examples in increasing order of being difficult to measure are full-time equivalents, total actual hours worked, and quality-adjusted labor inputs based on models" (para. 19.42).

114: Data on hours worked by self-employed and contributing family workers by type of labor category in AQALI is also used to estimate labor income within mixed income in APO-PDB (Section 8.3.3). The reports on AQALI are provided by Nomura and Akashi (2017) for South Asian countries and Nomura (2023b) for Vietnam. The main labor statistics used in AQALI 2023 are presented in Table 8.9 in the previous edition of the Databook (APO 2023). An updated list used in AQALI 2024 is available upon request.

country groups are observed: i) countries with over 11 schooling years on average, ii) countries with 8–11 years, and iii) countries with less than seven years in 2022. The first group mainly consists of East Asian countries; Japan, Korea, and the ROC are the leading countries (13.4 years), followed by Hong Kong, Mongolia, Sri Lanka, and Singapore. The second group is ASEAN6, China, Fiji, Turkiye, and Vietnam. The third group is South Asian countries and CLMV, except Vietnam. This chart shows that improving its average educational background takes a long time.

### 8.3.3 Labor Share

The labor share, defined as the ratio of labor compensation of total employment to GDP at basic prices, is one of the key factors in determining TFP growth. The estimates on COE (compensation of employees) are not fully available in the official national accounts for all Asian countries. Figure 8.13 summarizes the availability of the COE estimates in the official national accounts and the input-output tables in each country (Table 8.2). The national accounts in Bangladesh, Bhutan, Indonesia, the Lao PDR, Myanmar, Pakistan, and Vietnam do not fully publish the COE estimates. In addition, in some countries like Cambodia and Iran, the estimates are not fully available for the entire period of our observation of 1970–2022. In such cases, the COE is estimated or extrapolated by the estimates based on AQALI.

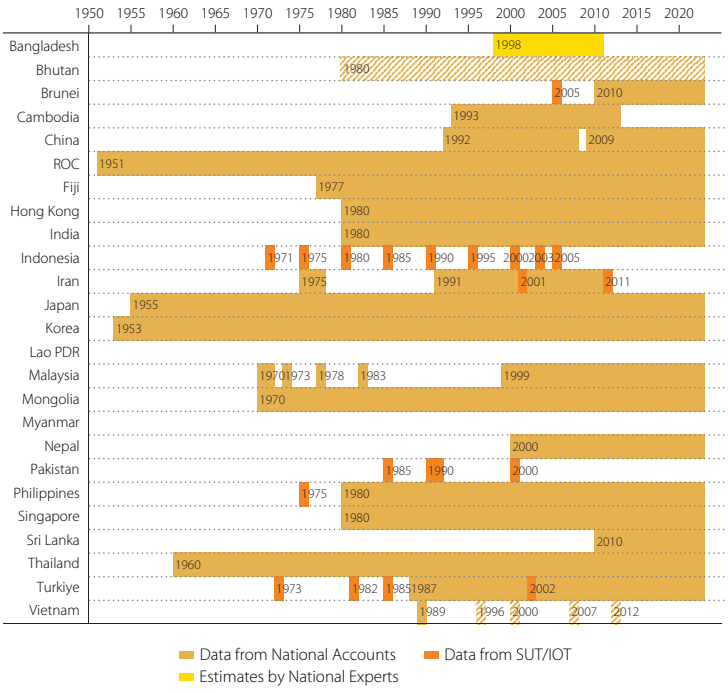



**Figure 8.13 Availability of COE Estimates**

Sources: Official national accounts and SUT/IOT in each country. Note: Hatched areas show the periods in which only the data mingled with operating surplus or mixed income is available.

The compensation for the self-employed and contributing family workers is not separately estimated in the national accounts but is combined with returns to capital in mixed income. This edition of the Databook follows the revised estimates in AQALI 2024 (Section 8.3.2), in which the different methodologies are applied in agriculture and non-agriculture industries. In the agriculture industry, the capital income is measured based on our estimates of the returns to the capital of land for agriculture use (asset code 12 in Table 8.7) and of other fixed assets.[115] Labor income in agriculture is measured as a residual of the basic-price GDP minus our estimates of the returns to capital. In non-agriculture industries, the wage differential ratio (WDR) in hourly wages of non-employees to employees in each elementary group of labor category is assumed in each country. Time-invariant WDR is assumed with a range of 0.2–0.5 by country. [116]

115: Since capital stock is not measured at the industry level in APO-PDB, the capital stock shares are estimated based on the agricultural industry's value-added share if the industry's official estimates are unavailable.
116: The WDR is set at 0.5 for Japan, 0.3 for the Asian Tigers, 0.5 for CLMV (except Myanmar), Iran, and Turkiye, and 0.2 for other countries.

## Box 15 Labor Share and Its Sensitivity to TFP Estimates

TFP computations based on the growth accounting framework depend on data that is often difficult to observe. One challenge arises from calculating compensation for self-employed individuals and unpaid family workers. Moreover, certain Asian countries do not include estimates for the Compensation of Employees (COE) in their official national accounts. In the Asia QALI Database (AQALI), labor income for total employment is estimated to be consistent with finely classified labor inputs and wages based on the assumptions described in Section 8.3.3. A reassessment of this assumption in the future would directly impact TFP estimates by revising labor shares. It would indirectly affect estimates of the ex-post rate of return, consequently influencing the aggregate measure of capital services.

The right chart of Figure 8.14 presents the employee income share (the ratio of COE to the basic-price GDP at current prices) in 2022, based on the official national accounts and AQALI 2024 in the Asia25 economies and the US. Among Asian countries, there are substantial variations in the COE share from 20% to 56%. As illustrated in the left chart, these differences do not necessarily correlate with gaps in the share of employees in total employment. For instance, while Brunei and Turkiye exhibit high employee shares of 96% and 75%, respectively, their corresponding COE shares in 2022 are only 25% and 26%. The COE share depends on various factors, such as industry structure and the size of the informal sector, and their estimates are not always precise.

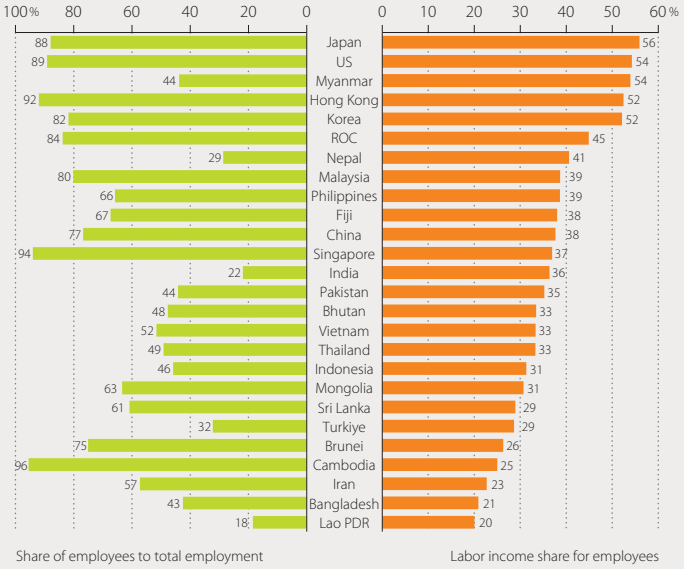



**Figure 8.14 Employee Labor Income Share in 2022**

Unit: Percentage. Sources: Official national accounts in each country (including adjustments by APO-PDB) and AQALI 2024.

Figure 8.15 illustrates the sensitivity of TFP-growth estimates from 2010 to 2022 by changing the labor income share. In general, the growth rate of capital input is higher than that of labor input, and therefore, the higher income shares of labor result in higher estimates of TFP growth. In other words, labor productivity (Figure 5.5) is improved much faster over a given period than capital productivity (Figure 5.22), the growth of which frequently tends to be negative. The TFP estimate reflects more labor productivity improvement when the labor share increases. In the case of India, one of the countries with the strongest performance in this period, the average TFP growth rate for 2010–2022 is 1.7%. But, if the labor share in its current estimates were overestimated by 10%, the true TFP growth rate would be revised to 1.2 %. Given the larger informal economy in Asian countries and the difficulty of capturing income from such sectors, it is appropriate to capture TFP growth rates with an error margin of about that in Figure 8.15.

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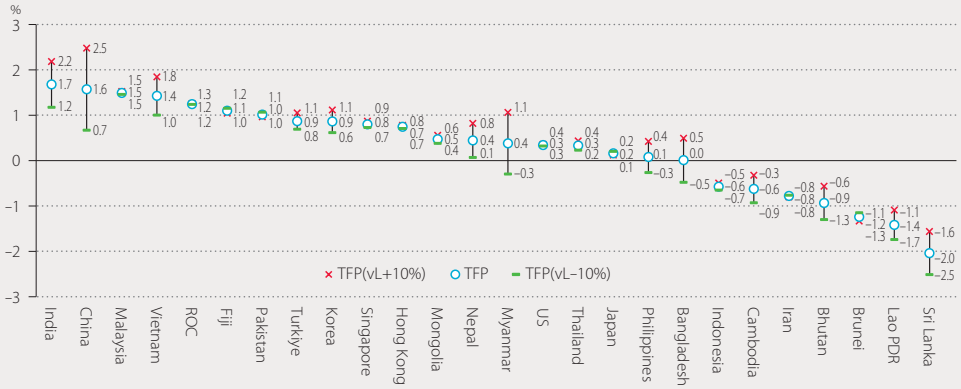


**Figure 8.15 Sensitivity of TFP Estimates to Changes in Labor Share, 2010–2022**
——Growth in total factor productivity

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

## 8.4 Data on Non-Member Economies

For China, multiple data sources have been used; GDP for the whole economy, industry GDP, final demands, employment, and income data are taken from *China Statistical Yearbook* (and *China National Income 1952–1995* for our backward estimates before 1969); time-series data of GFCF by type of asset during 1952–2022 at current and constant prices are estimated at KEO based on *Statistics on Investment in Fixed Assets of China 1950–2000, China Statistical Yearbook, 1987, 1992, 1997, 2002, 2007, 2012, 2015, 2017–2018, and 2020 Input–Output Tables of China, Manufacturing Census in China*, and the import data from *China Customs Statistics*.

The productivity account for China was considerably revised in the APO-PDB 2022 based on our intensive study with Professor W. Erwin Diewert (University of British Columbia). Our revision work on the Chinese growth accounting focused mainly on imputed rent, the labor share, quality-adjusted labor input, the price index on government consumption, and land stock prices. In particular, some imputed rents for free housing and owner-occupied housing (including land) were added to household consumption and GDP in the Chinese official national accounts (Diewert, Nomura, and Shimizu 2024). Our adjustments led us to significantly revise China's TFP growth rate downwards (footnote 65).

The industry-level productivity account for Bhutan was developed for the period 1990–2014 at the UNDESA project led by Koji Nomura and Hamid Rashid (UNDESA), with support from the National Statistics Bureau, Ministry of Labour and Human Resources, and the Gross National Happiness Commission of Royal Government of Bhutan (Nomura 2016). The productivity accounts have been undergoing a comprehensive revision process beginning in June 2023 (footnote 3), and APO-PDB 2024 reflects the latest estimates for 1990–2022. The aggregate productivity account in APO-PDB is retrospectively estimated until 1970.

The industry-level productivity account for Myanmar was developed for 1990–2014 by Nomura and Shirane (2016) to correct the significant overestimation of GDP in Myanmar's official national accounts

(MMSNA) from the late 1990s to the late 2000s and to consider jade production, which is underrepresented in the official accounts. The Databook includes these updated results based on the MMSNA and the estimates by the ILO.[117]

The data sources for the EU15, the EU27, France, Germany, Italy, and the UK are the OECD.Stat (accessed February 01, 2024), OECD (2024), and Eurostat (accessed February 01, 2024). The data sources for the US, Australia, and New Zealand are the US Bureau of Economic Analysis (accessed March 29, 2024), the Australian Bureau of Statistics (accessed February 15, 2024), and the Stats NZ Tauranga Aotearoa (accessed January 25, 2024), respectively.

The exchange rates used in the Databook series are adjusted, called the Analysis of Main Aggregate (UNSD database) rates, in the UNSD National Accounts Main Aggregate Database. The AMA rates coincide with IMF rates except for some periods in countries with official fixed exchange rates and high inflation when there could be a serious disparity between real GDP growth and growth converted to US dollars based on IMF rates. In such cases, the AMA adjusts the IMF-based rates by multiplying the growth rate of the GDP deflator relative to the US.

The IMF's Government Finance Statistics (GFS) supplements the tax data of member economies. GFS data, together with national accounts for each country, play a key role in adjusting GDP at market prices to GDP at basic prices (Section 8.1.7). From its tax revenue data, "taxes on goods & services" and "taxes on international trade & transactions" are used for calculating T2. Indirect taxes on products (Table 8.1). From its expenditure data, "subsidies" are used for S2. Subsidies on products. Finally, the energy consumption and CO2 emissions data in Section 5.7 are based on IEA (2023a and 2023b).

## 8.5 PPP for Output and Inputs

Purchasing power parities (PPPs) are indispensable inputs into economic research and policy analysis involving cross-country comparisons of macroeconomic aggregates. They affect a double conversion of macroeconomic measures, estimated in national currencies and price levels, into comparable cross-country volume measures. These are expressed in a common currency and at a uniform price level. PPPs are price relatives that show the ratio of the prices in national currencies of single or composite goods and services in different countries. They are compiled within the International Comparisons Program (ICP), which the World Bank manages. Comparisons are made from the expenditure side of GDP. To this end, the ICP compiles PPPs by conducting worldwide surveys at regular intervals (currently, every six years) to collect comparable price and expenditure data for the entire range of final goods and services that make up the final expenditures on GDP.

The Databook mainly provides the cross-country comparison of economic volumes. To obtain comparable volume measures, the Databook uses the *constant PPP approach*, which relies not on a time series of PPPs but one of the benchmark estimates. This edition of the Databook uses the benchmark estimates by the ICP 2017 round published in April 2020 (World Bank 2020).[118] This approach creates a national series for volumes at the prices of a common reference year, i.e., 2022, and deflates these by the PPP for a fixed year, i.e., 2017.

117: Some data updates seem to have been delayed due to the military coup of February 2021. Our estimates are updated based on quarterly national accounts in 2020–2022 and the *ILO Modelled Estimates* (2024) for employment data in 2020–2022.
118: The ICP2021 is scheduled to be released in 2024, but as of this writing, it has not yet been released.

To understand the limitations of the measurement accuracy of level comparisons, it would be important to understand the history of ICP revisions. The left chart of Figure 8.16 shows the revision of PPPs in Asian countries at the ICP 2017 round compared to the ICP 2011 round, which has provided the benchmark estimate for the past Databook series from 2014 to 2019. The revision of the ICP 2011 round from the ICP 2005 round is presented in the right chart. The 2017 benchmark PPP for 17 Asian economies is more than 5% higher than suggested by their extrapolated equivalents from the 2011 benchmark. The upward revision of PPP reduces the relative sizes of these economies in cross-country level comparison. Compared to the revision on the ICP 2011 round from the 2005 round (in the right chart of Figure 8.16), the upward revisions by the ICP 2017 round have a property to partly offset the past downward revisions on PPP by the 2011 round. The cross-country level comparison requires additional revisions to be compared to the cross-country growth comparison. The readers should bear in mind these circumstances.

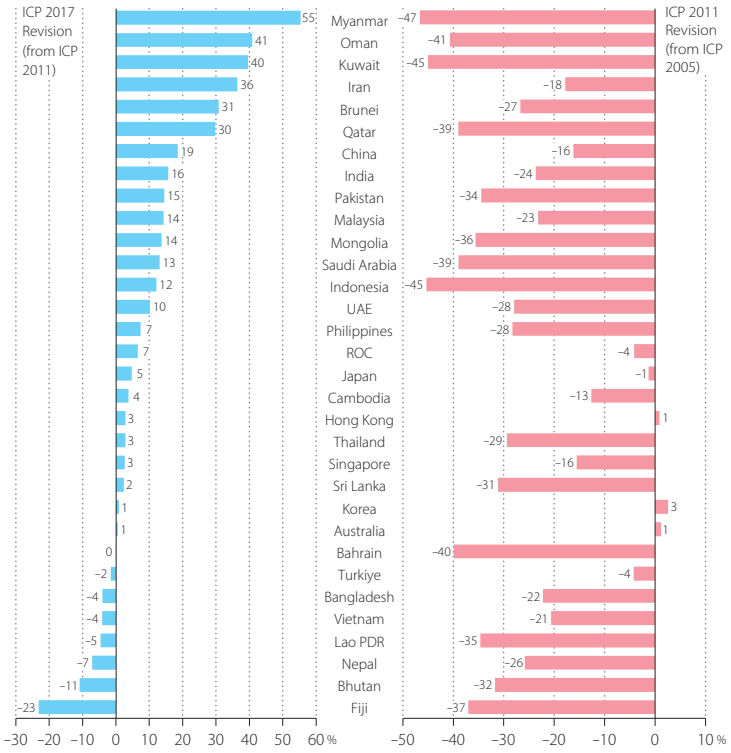


**Figure 8.16 Revisions of PPP for GDP in the ICP 2005, 2011, and 2017 Rounds**
——Ratios of the 2017 PPP to the 2011 PPP (left chart) and the 2011 PPP to the 2005 PPP (right chart)

Unit: Percentage. Sources: World Bank (2008, 2014, and 2020). Note: In comparing the 2017 PPP to the 2011 PPP, the 2011 PPP is extrapolated for 2017, and in comparing the 2011 PPP to the 2005 PPP, the 2005 PPP is extrapolated for 2011.

In this Databook, the country aggregations of capital and labor inputs are based on the estimates of PPP for capital and labor inputs, respectively, which are the updates of the estimates developed in Nomura (2018). In most Asian countries, the PPP for output underestimates the PPP for capital input, indicating the capital prices are higher than the output prices, and overestimates the PPP for labor inputs, indicating the labor prices are lower than the output prices. The PPP estimates for labor and capital inputs have been updated in line with the publication of Databook 2024, based on updates to the AQALI, ANRD, and APO-PDB.

# 9 Supplementary Tables

## Table 9.1 GDP using Exchange Rate, 1970–2022

——GDP at current market prices, using the annual average exchange rate

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan | 209 | 100.0 | Japan | 1,111 | 100.0 | Japan | 3,185 | 100.0 | Japan | 4,968 | 100.0 | China | 6,404 | 100.0 | China | 19,067 | 100.0 |
| China | 104 | 49.9 | China | 351 | 31.6 | China | 434 | 13.6 | China | 1,317 | 26.5 | Japan | 5,759 | 89.9 | Japan | 4,256 | 22.3 |
| India | 64 | 30.4 | India | 190 | 17.1 | India | 335 | 10.5 | Korea | 576 | 11.6 | India | 1,678 | 26.2 | India | 3,415 | 17.9 |
| Turkiye | 24 | 11.7 | Saudi Arabia | 165 | 14.9 | Korea | 283 | 8.9 | India | 483 | 9.7 | Korea | 1,144 | 17.9 | Korea | 1,674 | 8.8 |
| Iran | 11 | 5.4 | Iran | 98 | 8.8 | Turkiye | 204 | 6.4 | ROC | 331 | 6.7 | Turkiye | 777 | 12.1 | Indonesia | 1,326 | 7.0 |
| Pakistan | 10 | 4.9 | Turkiye | 92 | 8.3 | ROC | 166 | 5.2 | Turkiye | 274 | 5.5 | Indonesia | 756 | 11.8 | Saudi Arabia | 1,124 | 5.9 |
| Indonesia | 10 | 4.7 | Indonesia | 80 | 7.2 | Indonesia | 127 | 4.0 | Saudi Arabia | 191 | 3.9 | Saudi Arabia | 533 | 8.3 | Turkiye | 907 | 4.8 |
| Bangladesh | 9.9 | 4.7 | Korea | 65 | 5.9 | Saudi Arabia | 119 | 3.7 | Hong Kong | 172 | 3.5 | Iran | 516 | 8.1 | ROC | 761 | 4.0 |
| Korea | 9.0 | 4.3 | UAE | 44 | 4.0 | Iran | 95 | 3.0 | Indonesia | 168 | 3.4 | ROC | 444 | 6.9 | UAE | 523 | 2.7 |
| Thailand | 7.3 | 3.5 | ROC | 42 | 3.8 | Thailand | 89 | 2.8 | Thailand | 127 | 2.6 | Thailand | 342 | 5.3 | Thailand | 502 | 2.6 |
| Philippines | 6.8 | 3.2 | Thailand | 33 | 3.0 | Hong Kong | 77 | 2.4 | Iran | 113 | 2.3 | UAE | 298 | 4.7 | Iran | 501 | 2.6 |
| ROC | 5.8 | 2.8 | Philippines | 33 | 3.0 | UAE | 51 | 1.6 | UAE | 106 | 2.1 | Malaysia | 255 | 4.0 | Singapore | 498 | 2.6 |
| Saudi Arabia | 5.4 | 2.6 | Kuwait | 30 | 2.7 | Pakistan | 49 | 1.6 | Singapore | 96 | 1.9 | Singapore | 240 | 3.7 | Bangladesh | 433 | 2.3 |
| Malaysia | 3.9 | 1.9 | Hong Kong | 29 | 2.6 | Philippines | 47 | 1.5 | Pakistan | 96 | 1.9 | Hong Kong | 229 | 3.6 | Vietnam | 410 | 2.1 |
| Hong Kong | 3.8 | 1.8 | Malaysia | 25 | 2.2 | Malaysia | 45 | 1.4 | Malaysia | 95 | 1.9 | Philippines | 208 | 3.3 | Malaysia | 407 | 2.1 |
| Kuwait | 3.0 | 1.4 | Pakistan | 24 | 2.2 | Singapore | 39 | 1.2 | Philippines | 84 | 1.7 | Pakistan | 194 | 3.0 | Philippines | 404 | 2.1 |
| Sri Lanka | 2.8 | 1.4 | Bangladesh | 19 | 1.7 | Bangladesh | 31 | 1.0 | Bangladesh | 52 | 1.0 | Vietnam | 147 | 2.3 | Hong Kong | 360 | 1.9 |
| Myanmar | 2.7 | 1.3 | Singapore | 12 | 1.1 | Kuwait | 19 | 0.6 | Kuwait | 38 | 0.8 | Qatar | 128 | 2.0 | Pakistan | 325 | 1.7 |
| Singapore | 1.9 | 0.9 | Qatar | 7.9 | 0.7 | Oman | 13 | 0.4 | Vietnam | 37 | 0.7 | Bangladesh | 126 | 2.0 | Qatar | 245 | 1.3 |
| Nepal | 1.2 | 0.6 | Oman | 7.2 | 0.6 | Sri Lanka | 9.4 | 0.3 | Oman | 22 | 0.5 | Kuwait | 118 | 1.8 | Kuwait | 179 | 0.9 |
| Vietnam | 1.2 | 0.6 | Brunei | 6.2 | 0.6 | Qatar | 7.5 | 0.2 | Sri Lanka | 19 | 0.4 | Oman | 66 | 1.0 | Oman | 114 | 0.6 |
| UAE | 1.1 | 0.5 | Myanmar | 5.9 | 0.5 | Vietnam | 6.6 | 0.2 | Qatar | 18 | 0.4 | Sri Lanka | 58 | 0.9 | Sri Lanka | 77 | 0.4 |
| Cambodia | 0.8 | 0.4 | Sri Lanka | 4.9 | 0.4 | Myanmar | 6.1 | 0.2 | Bahrain | 8.4 | 0.2 | Myanmar | 37 | 0.6 | Bahrain | 44 | 0.2 |
| Qatar | 0.5 | 0.3 | Bahrain | 3.5 | 0.3 | Bahrain | 4.5 | 0.1 | Myanmar | 7.8 | 0.2 | Bahrain | 26 | 0.4 | Nepal | 38 | 0.2 |
| Bahrain | 0.4 | 0.2 | Nepal | 2.5 | 0.2 | Nepal | 4.3 | 0.1 | Brunei | 6.6 | 0.1 | Nepal | 19 | 0.3 | Myanmar | 30 | 0.2 |
| Oman | 0.3 | 0.1 | Fiji | 1.2 | 0.1 | Brunei | 3.9 | 0.1 | Nepal | 6.5 | 0.1 | Brunei | 14 | 0.2 | Cambodia | 30 | 0.2 |
| Brunei | 0.2 | 0.1 | Vietnam | 1.0 | 0.1 | Cambodia | 1.8 | 0.1 | Cambodia | 3.7 | 0.1 | Cambodia | 11 | 0.2 | Mongolia | 17 | 0.1 |
| Fiji | 0.2 | 0.1 | Cambodia | 0.7 | 0.1 | Mongolia | 1.6 | 0.0 | Lao PDR | 1.8 | 0.0 | Lao PDR | 7.4 | 0.1 | Brunei | 17 | 0.1 |
| Lao PDR | 0.1 | 0.1 | Mongolia | 0.5 | 0.0 | Fiji | 1.4 | 0.0 | Fiji | 1.7 | 0.0 | Mongolia | 7.2 | 0.1 | Lao PDR | 16 | 0.1 |
| Mongolia | 0.1 | 0.1 | Lao PDR | 0.3 | 0.0 | Lao PDR | 0.9 | 0.0 | Mongolia | 1.4 | 0.0 | Fiji | 3.1 | 0.0 | Fiji | 5.0 | 0.0 |
| Bhutan | 0.1 | 0.0 | Bhutan | 0.1 | 0.0 | Bhutan | 0.3 | 0.0 | Bhutan | 0.5 | 0.0 | Bhutan | 1.6 | 0.0 | Bhutan | 2.9 | 0.0 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 383 | 183.4 | APO21 | 1,865 | 167.9 | APO21 | 4,800 | 150.7 | APO21 | 7,705 | 155.1 | APO21 | 12,921 | 201.8 | APO21 | 16,361 | 85.8 |
| Asia25 | 490 | 234.7 | Asia25 | 2,228 | 200.6 | Asia25 | 5,244 | 164.7 | Asia25 | 9,037 | 181.9 | Asia25 | 19,377 | 302.6 | Asia25 | 35,478 | 186.1 |
| Asia31 | 501 | 239.8 | Asia31 | 2,486 | 223.8 | Asia31 | 5,459 | 171.4 | Asia31 | 9,421 | 189.6 | Asia31 | 20,545 | 320.8 | Asia31 | 37,707 | 197.8 |
| East Asia | 332 | 158.8 | East Asia | 1,599 | 144.0 | East Asia | 4,147 | 130.2 | East Asia | 7,365 | 148.2 | East Asia | 13,987 | 218.4 | East Asia | 26,135 | 137.1 |
| South Asia | 88 | 42.0 | South Asia | 241 | 21.7 | South Asia | 430 | 13.5 | South Asia | 657 | 13.2 | South Asia | 2,075 | 32.4 | South Asia | 4,290 | 22.5 |
| ASEAN | 35 | 16.7 | ASEAN | 197 | 17.7 | ASEAN | 366 | 11.5 | ASEAN | 626 | 12.6 | ASEAN | 2,018 | 31.5 | ASEAN | 3,640 | 19.1 |
| ASEAN6 | 30 | 14.4 | ASEAN6 | 189 | 17.0 | ASEAN6 | 351 | 11.0 | ASEAN6 | 576 | 11.6 | ASEAN6 | 1,815 | 28.3 | ASEAN6 | 3,155 | 16.5 |
| CLMV | 4.8 | 2.3 | CLMV | 8.0 | 0.7 | CLMV | 15 | 0.5 | CLMV | 50 | 1.0 | CLMV | 203 | 3.2 | CLMV | 485 | 2.5 |
| GCC | 11 | 5.1 | GCC | 258 | 23.2 | GCC | 214 | 6.7 | GCC | 385 | 7.7 | GCC | 1,168 | 18.2 | GCC | 2,230 | 11.7 |
| IPEF | 1,438 | 688.6 | IPEF | 4,612 | 415.2 | IPEF | 10,495 | 329.5 | IPEF | 17,358 | 349.4 | IPEF | 27,043 | 422.3 | IPEF | 40,682 | 213.4 |
| RCEP | 409 | 195.7 | RCEP | 1,921 | 173.0 | RCEP | 4,638 | 145.6 | RCEP | 7,952 | 160.1 | RCEP | 16,773 | 261.9 | RCEP | 30,660 | 160.8 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 45 | 21.7 | Australia | 173 | 15.6 | Australia | 324 | 10.2 | Australia | 410 | 8.3 | Australia | 1,301 | 20.3 | Australia | 1,778 | 9.3 |
| France | 192 | 91.8 | France | 534 | 48.1 | France | 1,027 | 32.3 | France | 1,588 | 32.0 | France | 2,334 | 36.4 | France | 3,763 | 19.7 |
| Germany | 313 | 150.0 | Germany | 810 | 72.9 | Germany | 1,538 | 48.3 | Germany | 2,234 | 45.0 | Germany | 3,180 | 49.7 | Germany | 5,309 | 27.8 |
| Italy | 195 | 93.6 | Italy | 553 | 49.8 | Italy | 1,056 | 33.2 | Italy | 1,540 | 31.0 | Italy | 2,082 | 32.5 | Italy | 3,108 | 16.3 |
| New Zealand | 6.6 | 3.2 | New Zealand | 23 | 2.1 | New Zealand | 45 | 1.4 | New Zealand | 54 | 1.1 | New Zealand | 147 | 2.3 | New Zealand | 246 | 1.3 |
| UK | 202 | 96.9 | UK | 487 | 43.8 | UK | 977 | 30.7 | UK | 1,561 | 31.4 | UK | 2,290 | 35.8 | UK | 3,708 | 19.4 |
| US | 1,073 | 514.0 | US | 2,857 | 257.2 | US | 5,963 | 187.2 | US | 10,251 | 206.3 | US | 15,049 | 235.0 | US | 25,744 | 135.0 |
| EU15 | 1,253 | 600.2 | EU15 | 3,344 | 301.0 | EU15 | 6,436 | 202.1 | EU15 | 9,933 | 199.9 | EU15 | 14,589 | 227.8 | EU15 | 23,746 | 124.5 |
| | | | | | | | | | EU27 | 9,475 | 190.7 | EU27 | 14,510 | 226.6 | EU27 | 24,454 | 128.3 |

Unit: Billions of US dollars.
Sources: Official national accounts in each country, including adjustments by APO-PDB.
Note: See Section 8.1 for the adjustments to harmonize GDP coverage across countries.

## Table 9.2 GDP using PPP, 1970–2022

——GDP at constant market prices, using the 2017 PPP, the reference year 2022

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan | 1,867 | 100.0 | Japan | 3,073 | 100.0 | Japan | 4,823 | 100.0 | China | 5,929 | 100.0 | China | 15,323 | 100.0 | China | 31,040 | 100.0 |
| India | 788 | 42.2 | China | 1,233 | 40.1 | China | 2,526 | 52.4 | Japan | 5,442 | 91.8 | India | 6,175 | 40.3 | India | 12,052 | 38.8 |
| China | 770 | 41.2 | India | 1,072 | 34.9 | India | 1,761 | 36.5 | India | 2,888 | 48.7 | Japan | 5,769 | 37.7 | Japan | 6,208 | 20.0 |
| Saudi Arabia | 510 | 27.3 | Saudi Arabia | 735 | 23.9 | Saudi Arabia | 978 | 20.3 | Indonesia | 1,464 | 24.7 | Indonesia | 2,403 | 15.7 | Indonesia | 4,027 | 13.0 |
| Turkiye | 325 | 17.4 | Indonesia | 531 | 17.3 | Indonesia | 974 | 20.2 | Korea | 1,274 | 21.5 | Korea | 2,049 | 13.4 | Turkiye | 3,339 | 10.8 |
| Iran | 314 | 16.8 | Turkiye | 484 | 15.8 | Turkiye | 805 | 16.7 | Saudi Arabia | 1,183 | 20.0 | Turkiye | 1,717 | 11.2 | Korea | 2,811 | 9.1 |
| Indonesia | 238 | 12.8 | Iran | 423 | 13.8 | Korea | 641 | 13.3 | Turkiye | 1,157 | 19.5 | Saudi Arabia | 1,467 | 9.6 | Saudi Arabia | 2,404 | 7.7 |
| Bangladesh | 138 | 7.4 | Korea | 239 | 7.8 | Iran | 531 | 11.0 | Iran | 768 | 13.0 | Iran | 1,420 | 9.3 | ROC | 1,618 | 5.2 |
| Philippines | 119 | 6.4 | Thailand | 215 | 7.0 | Thailand | 471 | 9.8 | Thailand | 746 | 12.6 | Thailand | 1,177 | 7.7 | Iran | 1,582 | 5.1 |
| Kuwait | 117 | 6.3 | UAE | 215 | 7.0 | ROC | 372 | 7.7 | ROC | 734 | 12.4 | ROC | 1,110 | 7.2 | Pakistan | 1,505 | 4.8 |
| Thailand | 106 | 5.7 | Philippines | 215 | 7.0 | Pakistan | 330 | 6.8 | Pakistan | 618 | 10.4 | Pakistan | 949 | 6.2 | Thailand | 1,488 | 4.8 |
| Pakistan | 104 | 5.6 | Pakistan | 166 | 5.4 | Philippines | 278 | 5.8 | Philippines | 407 | 6.9 | Vietnam | 687 | 4.5 | Vietnam | 1,377 | 4.4 |
| Korea | 96 | 5.2 | ROC | 158 | 5.1 | UAE | 227 | 4.7 | Malaysia | 392 | 6.6 | Philippines | 658 | 4.3 | Bangladesh | 1,252 | 4.0 |
| Vietnam | 64 | 3.4 | Bangladesh | 128 | 4.2 | Malaysia | 193 | 4.0 | UAE | 380 | 6.4 | Malaysia | 651 | 4.2 | Philippines | 1,198 | 3.9 |
| UAE | 57 | 3.1 | Malaysia | 109 | 3.5 | Bangladesh | 187 | 3.9 | Vietnam | 304 | 5.1 | UAE | 560 | 3.7 | Malaysia | 1,177 | 3.8 |
| ROC | 55 | 3.0 | Vietnam | 99 | 3.2 | Hong Kong | 187 | 3.9 | Hong Kong | 288 | 4.9 | Bangladesh | 555 | 3.6 | UAE | 896 | 2.9 |
| Malaysia | 51 | 2.7 | Hong Kong | 96 | 3.1 | Vietnam | 135 | 2.8 | Bangladesh | 284 | 4.8 | Singapore | 454 | 3.0 | Singapore | 725 | 2.3 |
| Hong Kong | 39 | 2.1 | Kuwait | 94 | 3.1 | Singapore | 119 | 2.5 | Singapore | 248 | 4.2 | Hong Kong | 429 | 2.8 | Hong Kong | 511 | 1.6 |
| Sri Lanka | 33 | 1.8 | Singapore | 58 | 1.9 | Sri Lanka | 75 | 1.6 | Sri Lanka | 127 | 2.1 | Sri Lanka | 225 | 1.5 | Qatar | 324 | 1.0 |
| Qatar | 29 | 1.6 | Sri Lanka | 50 | 1.6 | Kuwait | 69 | 1.4 | Kuwait | 105 | 1.8 | Qatar | 221 | 1.4 | Sri Lanka | 310 | 1.0 |
| Singapore | 24 | 1.3 | Qatar | 38 | 1.2 | Oman | 67 | 1.4 | Oman | 100 | 1.7 | Kuwait | 213 | 1.4 | Kuwait | 255 | 0.8 |
| Nepal | 20 | 1.1 | Myanmar | 34 | 1.1 | Myanmar | 44 | 0.9 | Myanmar | 82 | 1.4 | Oman | 145 | 0.9 | Myanmar | 220 | 0.7 |
| Myanmar | 20 | 1.1 | Oman | 32 | 1.0 | Nepal | 39 | 0.8 | Qatar | 72 | 1.2 | Myanmar | 137 | 0.9 | Oman | 209 | 0.7 |
| Cambodia | 16 | 0.9 | Brunei | 30 | 1.0 | Qatar | 37 | 0.8 | Nepal | 61 | 1.0 | Nepal | 91 | 0.6 | Nepal | 145 | 0.5 |
| Brunei | 13 | 0.7 | Nepal | 25 | 0.8 | Brunei | 22 | 0.4 | Brunei | 29 | 0.5 | Bahrain | 65 | 0.4 | Bahrain | 102 | 0.3 |
| Bahrain | 7.9 | 0.4 | Bahrain | 16 | 0.5 | Bahrain | 17 | 0.4 | Bahrain | 29 | 0.5 | Cambodia | 53 | 0.3 | Cambodia | 94 | 0.3 |
| Lao PDR | 6.9 | 0.4 | Lao PDR | 9.3 | 0.3 | Lao PDR | 14 | 0.3 | Lao PDR | 26 | 0.4 | Lao PDR | 45 | 0.3 | Lao PDR | 66 | 0.2 |
| Oman | 5.8 | 0.3 | Cambodia | 8.8 | 0.3 | Cambodia | 13 | 0.3 | Cambodia | 25 | 0.4 | Brunei | 31 | 0.2 | Mongolia | 49 | 0.2 |
| Mongolia | 3.8 | 0.2 | Mongolia | 6.9 | 0.2 | Mongolia | 12 | 0.2 | Mongolia | 13 | 0.2 | Mongolia | 24 | 0.2 | Brunei | 30 | 0.1 |
| Fiji | 3.7 | 0.2 | Fiji | 6.0 | 0.2 | Fiji | 7.4 | 0.2 | Fiji | 9.4 | 0.2 | Fiji | 11 | 0.1 | Fiji | 14 | 0.0 |
| Bhutan | 0.6 | 0.0 | Bhutan | 1.0 | 0.0 | Bhutan | 1.9 | 0.0 | Bhutan | 2.8 | 0.0 | Bhutan | 6.5 | 0.0 | Bhutan | 11 | 0.0 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 4,414 | 236.5 | APO21 | 7,172 | 233.4 | APO21 | 11,965 | 248.1 | APO21 | 17,276 | 291.4 | APO21 | 26,651 | 173.9 | APO21 | 39,811 | 128.3 |
| Asia25 | 5,217 | 279.5 | Asia25 | 8,471 | 275.6 | Asia25 | 14,559 | 301.9 | Asia25 | 23,319 | 393.3 | Asia25 | 42,149 | 275.1 | Asia25 | 70,001 | 225.5 |
| Asia31 | 5,945 | 318.5 | Asia31 | 9,601 | 312.4 | Asia31 | 15,953 | 330.8 | Asia31 | 25,189 | 424.9 | Asia31 | 44,819 | 292.5 | Asia31 | 73,768 | 237.7 |
| East Asia | 2,831 | 151.7 | East Asia | 4,805 | 156.4 | East Asia | 8,561 | 177.5 | East Asia | 13,680 | 230.7 | East Asia | 24,705 | 161.2 | East Asia | 40,988 | 132.1 |
| South Asia | 1,084 | 58.1 | South Asia | 1,442 | 46.9 | South Asia | 2,394 | 49.6 | South Asia | 3,982 | 67.2 | South Asia | 8,001 | 52.2 | South Asia | 14,517 | 46.8 |
| ASEAN | 659 | 35.3 | ASEAN | 1,310 | 42.6 | ASEAN | 2,260 | 46.9 | ASEAN | 3,722 | 62.8 | ASEAN | 6,295 | 41.1 | ASEAN | 9,784 | 31.5 |
| ASEAN6 | 552 | 29.6 | ASEAN6 | 1,159 | 37.7 | ASEAN6 | 2,055 | 42.6 | ASEAN6 | 3,285 | 55.4 | ASEAN6 | 5,373 | 35.1 | ASEAN6 | 8,137 | 26.2 |
| CLMV | 107 | 5.7 | CLMV | 151 | 4.9 | CLMV | 206 | 4.3 | CLMV | 437 | 7.4 | CLMV | 922 | 6.0 | CLMV | 1,647 | 5.3 |
| GCC | 727 | 39.0 | GCC | 1,130 | 36.8 | GCC | 1,394 | 28.9 | GCC | 1,870 | 31.5 | GCC | 2,670 | 17.4 | GCC | 3,766 | 12.1 |
| IPEF | 10,212 | 547.0 | IPEF | 14,980 | 487.4 | IPEF | 22,174 | 459.7 | IPEF | 31,048 | 523.7 | IPEF | 41,450 | 270.5 | IPEF | 56,921 | 183.4 |
| RCEP | 3,819 | 204.6 | RCEP | 6,418 | 208.8 | RCEP | 10,994 | 227.9 | RCEP | 17,415 | 293.7 | RCEP | 30,851 | 201.3 | RCEP | 50,487 | 162.7 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 353 | 18.9 | Australia | 472 | 15.4 | Australia | 634 | 13.2 | Australia | 901 | 15.2 | Australia | 1,223 | 8.0 | Australia | 1,605 | 5.2 |
| France | 1,276 | 68.3 | France | 1,547 | 50.3 | France | 2,036 | 42.2 | France | 2,707 | 45.7 | France | 3,142 | 20.5 | France | 3,603 | 11.6 |
| Germany | 1,281 | 68.6 | Germany | 1,831 | 59.6 | Germany | 2,343 | 48.6 | Germany | 2,875 | 48.5 | Germany | 3,256 | 21.3 | Germany | 3,618 | 11.7 |
| Italy | 2,118 | 113.5 | Italy | 2,793 | 90.9 | Italy | 3,389 | 70.3 | Italy | 4,154 | 70.1 | Italy | 4,527 | 29.5 | Italy | 5,305 | 17.1 |
| New Zealand | 1,348 | 72.2 | New Zealand | 1,966 | 64.0 | New Zealand | 2,473 | 51.3 | New Zealand | 2,900 | 48.9 | New Zealand | 2,992 | 19.5 | New Zealand | 2,997 | 9.7 |
| UK | 1,348 | 72.2 | UK | 1,966 | 64.0 | UK | 2,473 | 51.3 | UK | 2,900 | 48.9 | UK | 2,992 | 19.5 | UK | 2,997 | 9.7 |
| US | 6,414 | 343.6 | US | 8,768 | 285.3 | US | 12,010 | 249.0 | US | 16,799 | 283.3 | US | 19,972 | 130.3 | US | 25,309 | 81.5 |
| EU15 | 8,283 | 443.7 | EU15 | 11,332 | 368.7 | EU15 | 14,479 | 300.2 | EU15 | 18,164 | 306.4 | EU15 | 20,505 | 133.8 | EU15 | 23,006 | 74.1 |
| | | | | | | | | | EU27 | 17,952 | 302.8 | EU27 | 20,496 | 133.8 | EU27 | 23,455 | 75.6 |

Unit: Billions of US dollars.
Sources: Official national accounts in each country, including adjustments by APO-PDB.
Note: See Section 8.1 for the adjustments to harmonize GDP coverage across countries.

## Table 9.3 GDP Growth, 1990–2022

——Growth in GDP at constant prices

| 1990–1995 | | 1995–2000 | | 2000–2005 | | 2005–2010 | | 2010–2015 | | 2015–2022 | | 2019–2020 | | 2020–2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| China | 9.7 | Qatar | 9.8 | Kuwait | 12.7 | Qatar | 13.4 | Mongolia | 9.8 | Bangladesh | 6.4 | Vietnam | 3.6 | Saudi Arabia | 10.1 |
| Malaysia | 9.2 | Lao PDR | 9.2 | Cambodia | 9.2 | China | 10.7 | Bangladesh | 7.3 | Vietnam | 6.3 | Bangladesh | 3.3 | India | 9.1 |
| Thailand | 8.7 | Myanmar | 8.1 | Qatar | 9.0 | Bhutan | 9.1 | China | 6.9 | China | 5.2 | ROC | 3.1 | Bahrain | 8.2 |
| Singapore | 8.6 | Vietnam | 8.0 | Vietnam | 8.3 | India | 8.2 | Turkiye | 6.8 | Cambodia | 5.1 | Iran | 2.6 | Turkiye | 8.1 |
| Korea | 8.3 | Cambodia | 7.6 | China | 8.3 | Vietnam | 7.9 | India | 6.5 | India | 4.9 | Turkiye | 1.8 | Philippines | 7.6 |
| Vietnam | 8.3 | China | 7.4 | Bahrain | 8.0 | Bahrain | 7.8 | Sri Lanka | 6.5 | Nepal | 4.6 | China | 0.9 | Malaysia | 7.6 |
| ROC | 7.6 | UAE | 6.6 | Bhutan | 7.7 | Singapore | 7.2 | Qatar | 6.4 | Turkiye | 4.6 | Cambodia | 0.2 | UAE | 7.5 |
| Indonesia | 7.5 | Singapore | 6.2 | Iran | 7.1 | Bangladesh | 7.2 | Malaysia | 6.4 | Philippines | 4.4 | Nepal | −0.5 | Oman | 7.4 |
| Kuwait | 6.9 | ROC | 6.0 | India | 7.0 | Sri Lanka | 6.5 | Myanmar | 6.1 | Pakistan | 4.1 | Korea | −0.8 | Nepal | 7.2 |
| Pakistan | 6.6 | Pakistan | 6.0 | Mongolia | 6.3 | Mongolia | 6.4 | Bhutan | 5.8 | Malaysia | 3.9 | Pakistan | −0.9 | Bhutan | 7.2 |
| Hong Kong | 5.9 | Bhutan | 5.9 | Bangladesh | 6.2 | Cambodia | 6.1 | Philippines | 5.8 | Bahrain | 3.9 | Indonesia | −2.3 | Fiji | 6.6 |
| Sri Lanka | 5.6 | India | 5.4 | Myanmar | 5.6 | Lao PDR | 6.0 | UAE | 5.5 | Bhutan | 3.8 | Brunei | −2.6 | Bangladesh | 6.5 |
| Bahrain | 5.3 | Korea | 5.4 | Malaysia | 5.3 | Indonesia | 5.4 | Saudi Arabia | 5.3 | Indonesia | 3.6 | Qatar | −2.8 | China | 6.3 |
| Nepal | 5.0 | Bahrain | 5.0 | Thailand | 5.2 | Iran | 5.2 | Indonesia | 5.3 | Singapore | 3.3 | Singapore | −2.9 | Vietnam | 6.3 |
| Oman | 4.9 | Malaysia | 5.0 | Korea | 5.1 | Philippines | 4.9 | Vietnam | 5.1 | ROC | 3.3 | Bahrain | −3.7 | Singapore | 5.8 |
| Cambodia | 4.7 | Sri Lanka | 4.9 | Pakistan | 5.1 | Malaysia | 4.8 | Singapore | 4.7 | Saudi Arabia | 3.3 | Saudi Arabia | −3.8 | Pakistan | 5.3 |
| India | 4.5 | Bangladesh | 4.5 | Singapore | 4.9 | Myanmar | 4.7 | Oman | 4.4 | Mongolia | 3.1 | Sri Lanka | −4.0 | Myanmar | 4.8 |
| Myanmar | 4.2 | Philippines | 4.5 | Sri Lanka | 4.9 | Korea | 4.4 | Cambodia | 4.4 | Lao PDR | 2.8 | Japan | −4.3 | ROC | 4.4 |
| Lao PDR | 3.9 | Turkiye | 4.1 | UAE | 4.8 | Nepal | 4.3 | Lao PDR | 3.9 | UAE | 2.8 | Oman | −4.4 | Indonesia | 4.2 |
| Bangladesh | 3.9 | Iran | 4.1 | Turkiye | 4.8 | ROC | 4.2 | Fiji | 3.7 | Korea | 2.6 | Mongolia | −4.5 | Lao PDR | 4.0 |
| Qatar | 3.8 | Nepal | 4.1 | Philippines | 4.7 | Thailand | 3.9 | Bahrain | 3.7 | Myanmar | 2.4 | Malaysia | −4.6 | Korea | 3.5 |
| UAE | 3.7 | Brunei | 3.8 | Lao PDR | 4.5 | Hong Kong | 3.8 | Kuwait | 3.6 | Oman | 2.1 | Thailand | −4.7 | Kuwait | 3.5 |
| Iran | 3.3 | Mongolia | 3.6 | Indonesia | 4.5 | Oman | 3.6 | Pakistan | 3.4 | Iran | 1.8 | Lao PDR | −5.3 | Cambodia | 3.5 |
| Philippines | 3.2 | Oman | 3.2 | Hong Kong | 4.1 | Pakistan | 3.4 | Thailand | 3.2 | Thailand | 1.1 | India | −5.8 | Iran | 3.4 |
| Turkiye | 3.2 | Hong Kong | 2.8 | ROC | 4.1 | Turkiye | 3.1 | Nepal | 2.9 | Qatar | 0.9 | UAE | −6.1 | Mongolia | 3.2 |
| Saudi Arabia | 2.9 | Fiji | 2.0 | Oman | 3.7 | UAE | 2.9 | ROC | 2.9 | Fiji | 0.8 | Hong Kong | −6.6 | Qatar | 2.9 |
| Fiji | 2.6 | Kuwait | 1.7 | Nepal | 3.5 | Saudi Arabia | 2.3 | Hong Kong | 2.9 | Hong Kong | 0.5 | Philippines | −10.2 | Japan | 1.7 |
| Brunei | 2.4 | Japan | 1.1 | Saudi Arabia | 2.0 | Kuwait | 1.5 | Korea | 2.7 | Japan | 0.3 | Kuwait | −10.5 | Thailand | 1.5 |
| Bhutan | 2.3 | Saudi Arabia | 0.9 | Fiji | 2.0 | Fiji | 0.7 | Japan | 1.1 | Kuwait | 0.0 | Myanmar | −10.7 | Hong Kong | 1.4 |
| Japan | 1.3 | Indonesia | 0.7 | Japan | 1.2 | Japan | 0.0 | Brunei | 0.3 | Sri Lanka | 0.0 | Bhutan | −10.9 | Sri Lanka | −4.4 |
| Mongolia | −1.8 | Thailand | 0.5 | Brunei | 0.9 | Brunei | −0.1 | Iran | −0.4 | Brunei | −0.5 | Fiji | −18.7 | Brunei | −5.1 |
| (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | |
| APO21 | 4.2 | APO21 | 3.2 | APO21 | 4.3 | APO21 | 4.3 | APO21 | 4.2 | APO21 | 3.4 | APO21 | −2.8 | APO21 | 5.6 |
| Asia25 | 5.3 | Asia25 | 4.2 | Asia25 | 5.4 | Asia25 | 6.4 | Asia25 | 5.2 | Asia25 | 4.1 | Asia25 | −1.3 | Asia25 | 5.9 |
| Asia31 | 5.1 | Asia31 | 4.0 | Asia31 | 5.3 | Asia31 | 6.2 | Asia31 | 5.2 | Asia31 | 4.0 | Asia31 | −1.5 | Asia31 | 6.0 |
| East Asia | 5.1 | East Asia | 4.3 | East Asia | 5.1 | East Asia | 6.7 | East Asia | 5.1 | East Asia | 4.0 | East Asia | −0.1 | East Asia | 5.3 |
| South Asia | 4.8 | South Asia | 5.4 | South Asia | 6.5 | South Asia | 7.4 | South Asia | 6.2 | South Asia | 4.8 | South Asia | −4.5 | South Asia | 8.2 |
| ASEAN | 7.4 | ASEAN | 2.6 | ASEAN | 5.1 | ASEAN | 5.4 | ASEAN | 5.0 | ASEAN | 3.6 | ASEAN | −3.3 | ASEAN | 4.9 |
| ASEAN6 | 7.4 | ASEAN6 | 1.9 | ASEAN6 | 4.8 | ASEAN6 | 5.1 | ASEAN6 | 5.0 | ASEAN6 | 3.2 | ASEAN6 | −4.2 | ASEAN6 | 4.7 |
| CLMV | 7.0 | CLMV | 8.1 | CLMV | 7.7 | CLMV | 7.2 | CLMV | 5.1 | CLMV | 5.6 | CLMV | 1.1 | CLMV | 5.8 |
| GCC | 3.4 | GCC | 2.5 | GCC | 3.8 | GCC | 3.3 | GCC | 5.2 | GCC | 2.7 | GCC | −4.7 | GCC | 8.4 |
| IPEF | 3.2 | IPEF | 3.5 | IPEF | 3.2 | IPEF | 2.6 | IPEF | 3.2 | IPEF | 2.7 | IPEF | −3.2 | IPEF | 4.7 |
| RCEP | 5.4 | RCEP | 3.8 | RCEP | 5.1 | RCEP | 6.3 | RCEP | 5.1 | RCEP | 4.0 | RCEP | −0.7 | RCEP | 5.2 |
| (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | |
| Australia | 3.2 | Australia | 3.8 | Australia | 3.4 | Australia | 2.7 | Australia | 2.8 | Australia | 2.3 | Australia | 2.1 | Australia | 3.6 |
| France | 1.2 | France | 2.9 | France | 1.7 | France | 0.8 | France | 1.0 | France | 1.2 | France | −7.8 | France | 4.5 |
| Germany | 2.1 | Germany | 2.0 | Germany | 0.6 | Germany | 1.1 | Germany | 1.8 | Germany | 1.3 | Germany | −3.9 | Germany | 2.7 |
| Italy | 1.2 | Italy | 2.0 | Italy | 0.9 | Italy | −0.3 | Italy | −0.7 | Italy | 1.0 | Italy | −9.4 | Italy | 6.1 |
| New Zealand | 3.1 | New Zealand | 3.0 | New Zealand | 3.9 | New Zealand | 1.4 | New Zealand | 3.0 | New Zealand | 3.1 | New Zealand | 0.1 | New Zealand | 3.6 |
| UK | 2.3 | UK | 3.4 | UK | 2.6 | UK | 0.4 | UK | 1.6 | UK | 1.4 | UK | −11.0 | UK | 6.4 |
| US | 2.5 | US | 4.2 | US | 2.5 | US | 1.0 | US | 2.2 | US | 2.0 | US | −2.4 | US | 3.6 |
| EU15 | 1.6 | EU15 | 2.9 | EU15 | 1.7 | EU15 | 0.7 | EU15 | 1.0 | EU15 | 1.5 | EU15 | −7.1 | EU15 | 4.8 |
| | | EU27 | 2.8 | EU27 | 1.7 | EU27 | 1.0 | EU27 | 1.0 | EU27 | 1.7 | EU27 | −5.8 | EU27 | 4.6 |

Unit: Percentage (average annual growth rate).
Sources: Official national accounts in each country, including adjustments by APO-PDB.
Note: See Section 8.1 for the adjustments to harmonize GDP coverage across countries.

## Table 9.4 Population, 1970–2022

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| China | 830 | 40.2 | China | 987 | 39.1 | China | 1,143 | 37.5 | China | 1,267 | 35.9 | China | 1,341 | 33.8 | India | 1,417 | 32.2 |
| India | 558 | 27.0 | India | 697 | 27.6 | India | 870 | 28.6 | India | 1,060 | 30.0 | India | 1,241 | 31.3 | China | 1,412 | 32.0 |
| Indonesia | 116 | 5.6 | Indonesia | 147 | 5.8 | Indonesia | 179 | 5.9 | Indonesia | 206 | 5.8 | Indonesia | 238 | 6.0 | Indonesia | 268 | 6.1 |
| Japan | 105 | 5.1 | Japan | 117 | 4.6 | Japan | 124 | 4.1 | Pakistan | 138 | 3.9 | Pakistan | 174 | 4.4 | Pakistan | 210 | 4.8 |
| Bangladesh | 71 | 3.4 | Bangladesh | 85 | 3.4 | Pakistan | 112 | 3.7 | Japan | 127 | 3.6 | Bangladesh | 147 | 3.7 | Bangladesh | 171 | 3.9 |
| Pakistan | 61 | 2.9 | Pakistan | 83 | 3.3 | Bangladesh | 109 | 3.6 | Bangladesh | 124 | 3.5 | Japan | 128 | 3.2 | Japan | 125 | 2.8 |
| Vietnam | 43 | 2.1 | Vietnam | 54 | 2.1 | Vietnam | 66 | 2.2 | Vietnam | 78 | 2.2 | Philippines | 92 | 2.3 | Philippines | 112 | 2.5 |
| Philippines | 37 | 1.8 | Philippines | 48 | 1.9 | Philippines | 61 | 2.0 | Philippines | 77 | 2.2 | Vietnam | 87 | 2.2 | Vietnam | 99 | 2.3 |
| Turkiye | 36 | 1.7 | Thailand | 45 | 1.8 | Turkiye | 56 | 1.9 | Turkiye | 68 | 1.9 | Iran | 74 | 1.9 | Iran | 87 | 2.0 |
| Thailand | 34 | 1.7 | Turkiye | 45 | 1.8 | Iran | 55 | 1.8 | Iran | 64 | 1.8 | Turkiye | 74 | 1.9 | Turkiye | 85 | 1.9 |
| Korea | 32 | 1.6 | Iran | 39 | 1.5 | Thailand | 55 | 1.8 | Thailand | 61 | 1.7 | Thailand | 66 | 1.7 | Thailand | 69 | 1.6 |
| Iran | 28 | 1.4 | Korea | 38 | 1.5 | Korea | 43 | 1.4 | Korea | 47 | 1.3 | Korea | 50 | 1.2 | Myanmar | 54 | 1.2 |
| Myanmar | 27 | 1.3 | Myanmar | 33 | 1.3 | Myanmar | 40 | 1.3 | Myanmar | 46 | 1.3 | Myanmar | 49 | 1.2 | Korea | 52 | 1.2 |
| ROC | 15 | 0.7 | ROC | 18 | 0.7 | ROC | 20 | 0.7 | Malaysia | 23 | 0.7 | Saudi Arabia | 29 | 0.7 | Saudi Arabia | 36 | 0.8 |
| Sri Lanka | 13 | 0.6 | Sri Lanka | 15 | 0.6 | Malaysia | 18 | 0.6 | Nepal | 23 | 0.6 | Malaysia | 29 | 0.7 | Malaysia | 33 | 0.7 |
| Nepal | 11 | 0.5 | Nepal | 15 | 0.6 | Nepal | 18 | 0.6 | ROC | 22 | 0.6 | Nepal | 26 | 0.7 | Nepal | 30 | 0.7 |
| Malaysia | 11 | 0.5 | Malaysia | 14 | 0.5 | Sri Lanka | 17 | 0.6 | Saudi Arabia | 22 | 0.6 | ROC | 23 | 0.6 | ROC | 23 | 0.5 |
| Cambodia | 6.8 | 0.3 | Saudi Arabia | 10 | 0.4 | Saudi Arabia | 16 | 0.5 | Sri Lanka | 19 | 0.5 | Sri Lanka | 21 | 0.5 | Sri Lanka | 22 | 0.5 |
| Saudi Arabia | 6.1 | 0.3 | Cambodia | 6.6 | 0.3 | Cambodia | 8.8 | 0.3 | Cambodia | 12 | 0.3 | Cambodia | 14 | 0.3 | Cambodia | 16 | 0.4 |
| Hong Kong | 4.0 | 0.2 | Hong Kong | 5.1 | 0.2 | Hong Kong | 5.7 | 0.2 | Hong Kong | 6.7 | 0.2 | UAE | 8.3 | 0.2 | UAE | 9.2 | 0.2 |
| Lao PDR | 2.5 | 0.1 | Lao PDR | 3.2 | 0.1 | Lao PDR | 4.1 | 0.1 | Lao PDR | 5.2 | 0.1 | Hong Kong | 7.0 | 0.2 | Lao PDR | 7.5 | 0.2 |
| Singapore | 2.1 | 0.1 | Singapore | 2.4 | 0.1 | Singapore | 3.0 | 0.1 | Singapore | 4.0 | 0.1 | Lao PDR | 6.3 | 0.2 | Hong Kong | 7.3 | 0.2 |
| Mongolia | 1.2 | 0.1 | Mongolia | 1.7 | 0.1 | Kuwait | 2.1 | 0.1 | UAE | 3.0 | 0.1 | Singapore | 5.1 | 0.1 | Singapore | 5.6 | 0.1 |
| Kuwait | 0.7 | 0.0 | Kuwait | 1.4 | 0.1 | Mongolia | 2.1 | 0.1 | Oman | 2.4 | 0.1 | Kuwait | 2.9 | 0.1 | Oman | 4.6 | 0.1 |
| Oman | 0.7 | 0.0 | Oman | 1.1 | 0.0 | UAE | 1.8 | 0.1 | Mongolia | 2.4 | 0.1 | Oman | 2.8 | 0.1 | Kuwait | 3.9 | 0.1 |
| Fiji | 0.5 | 0.0 | UAE | 1.0 | 0.0 | Oman | 1.6 | 0.1 | Kuwait | 1.9 | 0.1 | Mongolia | 2.8 | 0.1 | Mongolia | 3.5 | 0.1 |
| Bhutan | 0.3 | 0.0 | Fiji | 0.6 | 0.0 | Fiji | 0.7 | 0.0 | Fiji | 0.8 | 0.0 | Qatar | 1.7 | 0.0 | Qatar | 2.7 | 0.1 |
| UAE | 0.2 | 0.0 | Bhutan | 0.4 | 0.0 | Bhutan | 0.6 | 0.0 | Bahrain | 0.6 | 0.0 | Bahrain | 1.2 | 0.0 | Bahrain | 1.5 | 0.0 |
| Bahrain | 0.2 | 0.0 | Bahrain | 0.3 | 0.0 | Bahrain | 0.5 | 0.0 | Qatar | 0.6 | 0.0 | Fiji | 0.9 | 0.0 | Fiji | 0.9 | 0.0 |
| Brunei | 0.1 | 0.0 | Qatar | 0.2 | 0.0 | Qatar | 0.4 | 0.0 | Bhutan | 0.6 | 0.0 | Bhutan | 0.7 | 0.0 | Bhutan | 0.8 | 0.0 |
| Qatar | 0.1 | 0.0 | Brunei | 0.2 | 0.0 | Brunei | 0.3 | 0.0 | Brunei | 0.3 | 0.0 | Brunei | 0.4 | 0.0 | Brunei | 0.4 | 0.0 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 1,187 | 57.5 | APO21 | 1,478 | 58.5 | APO21 | 1,828 | 60.0 | APO21 | 2,167 | 61.4 | APO21 | 2,505 | 63.1 | APO21 | 2,846 | 64.6 |
| Asia25 | 2,055 | 99.6 | Asia25 | 2,512 | 99.4 | Asia25 | 3,023 | 99.3 | Asia25 | 3,501 | 99.1 | Asia25 | 3,923 | 98.8 | Asia25 | 4,350 | 98.7 |
| Asia31 | 2,063 | 100.0 | Asia31 | 2,526 | 100.0 | Asia31 | 3,046 | 100.0 | Asia31 | 3,531 | 100.0 | Asia31 | 3,969 | 100.0 | Asia31 | 4,408 | 100.0 |
| East Asia | 987 | 47.8 | East Asia | 1,167 | 46.2 | East Asia | 1,338 | 43.9 | East Asia | 1,473 | 41.7 | East Asia | 1,551 | 39.1 | East Asia | 1,622 | 36.8 |
| South Asia | 713 | 34.6 | South Asia | 895 | 35.4 | South Asia | 1,127 | 37.0 | South Asia | 1,364 | 38.6 | South Asia | 1,609 | 40.5 | South Asia | 1,851 | 42.0 |
| ASEAN | 280 | 13.5 | ASEAN | 354 | 14.0 | ASEAN | 435 | 14.3 | ASEAN | 512 | 14.5 | ASEAN | 586 | 14.8 | ASEAN | 666 | 15.1 |
| ASEAN6 | 200 | 9.7 | ASEAN6 | 257 | 10.2 | ASEAN6 | 316 | 10.4 | ASEAN6 | 371 | 10.5 | ASEAN6 | 430 | 10.8 | ASEAN6 | 489 | 11.1 |
| CLMV | 79 | 3.8 | CLMV | 97 | 3.8 | CLMV | 119 | 3.9 | CLMV | 140 | 4.0 | CLMV | 157 | 3.9 | CLMV | 177 | 4.0 |
| GCC | 8.1 | 0.4 | GCC | 14 | 0.6 | GCC | 22 | 0.7 | GCC | 30 | 0.9 | GCC | 46 | 1.2 | GCC | 58 | 1.3 |
| IPEF | 79 | 3.8 | IPEF | 97 | 3.8 | IPEF | 119 | 3.9 | IPEF | 140 | 4.0 | IPEF | 157 | 3.9 | IPEF | 177 | 4.0 |
| RCEP | 200 | 9.7 | RCEP | 257 | 10.2 | RCEP | 316 | 10.4 | RCEP | 371 | 10.5 | RCEP | 430 | 10.8 | RCEP | 489 | 11.1 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 13 | 0.6 | Australia | 15 | 0.6 | Australia | 17 | 0.6 | Australia | 19 | 0.5 | Australia | 22 | 0.6 | Australia | 26 | 0.6 |
| France | 52 | 2.5 | France | 55 | 2.2 | France | 58 | 1.9 | France | 61 | 1.7 | France | 65 | 1.6 | France | 68 | 1.6 |
| Germany | 78 | 3.8 | Germany | 78 | 3.1 | Germany | 79 | 2.6 | Germany | 81 | 2.3 | Germany | 80 | 2.0 | Germany | 84 | 1.9 |
| Italy | 54 | 2.6 | Italy | 56 | 2.2 | Italy | 57 | 1.9 | Italy | 57 | 1.6 | Italy | 60 | 1.5 | Italy | 59 | 1.3 |
| New Zealand | 2.8 | 0.1 | New Zealand | 3.2 | 0.1 | New Zealand | 3.3 | 0.1 | New Zealand | 3.7 | 0.1 | New Zealand | 4.2 | 0.1 | New Zealand | 4.9 | 0.1 |
| UK | 56 | 2.7 | UK | 56 | 2.2 | UK | 57 | 1.9 | UK | 59 | 1.7 | UK | 63 | 1.6 | UK | 68 | 1.5 |
| US | 205 | 9.9 | US | 227 | 9.0 | US | 250 | 8.2 | US | 282 | 8.0 | US | 309 | 7.8 | US | 333 | 7.6 |
| EU15 | 342 | 16.6 | EU15 | 357 | 14.1 | EU15 | 366 | 12.0 | EU15 | 378 | 10.7 | EU15 | 397 | 10.0 | EU15 | 414 | 9.4 |
| | | | EU27 | 405 | 16.0 | EU27 | 418 | 13.7 | EU27 | 428 | 12.1 | EU27 | 441 | 11.1 | EU27 | 447 | 10.1 |

Unit: Millions of persons.
Sources: Population census and other official data in each country, including interpolations in APO-PDB.

## Table 9.5 Per Capita GDP using Exchange Rate, 1970–2022

——GDP at current market prices per person, using the annual average exchange rate

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan | 2.00 | 100.0 | Japan | 9.49 | 100.0 | Japan | 25.8 | 100.0 | Japan | 39.1 | 100.0 | Singapore | 47.2 | 100.0 | Singapore | 88.4 | 100.0 |
| Hong Kong | 0.96 | 48.3 | Hong Kong | 5.70 | 60.1 | Hong Kong | 13.5 | 52.3 | Hong Kong | 25.8 | 65.8 | Japan | 45.0 | 95.2 | Hong Kong | 49.0 | 55.4 |
| Singapore | 0.93 | 46.4 | Singapore | 5.00 | 52.7 | Singapore | 12.8 | 49.5 | Singapore | 23.9 | 60.9 | Hong Kong | 32.6 | 68.9 | Japan | 34.1 | 38.5 |
| Turkiye | 0.68 | 34.3 | Iran | 2.51 | 26.5 | ROC | 8.16 | 31.7 | ROC | 14.8 | 37.9 | Korea | 23.1 | 48.9 | ROC | 32.7 | 37.0 |
| Fiji | 0.43 | 21.4 | ROC | 2.37 | 24.9 | Korea | 6.61 | 25.7 | Korea | 12.3 | 31.3 | ROC | 19.2 | 40.6 | Korea | 32.4 | 36.7 |
| Iran | 0.40 | 19.9 | Turkiye | 2.07 | 21.8 | Turkiye | 3.62 | 14.0 | Turkiye | 4.05 | 10.3 | Turkiye | 10.5 | 22.3 | China | 13.5 | 15.3 |
| ROC | 0.39 | 19.7 | Fiji | 1.92 | 20.2 | Malaysia | 2.50 | 9.7 | Malaysia | 4.04 | 10.3 | Malaysia | 8.92 | 18.9 | Malaysia | 12.5 | 14.1 |
| Malaysia | 0.36 | 17.9 | Malaysia | 1.78 | 18.7 | Fiji | 1.85 | 7.2 | Fiji | 2.09 | 5.3 | Iran | 6.94 | 14.7 | Turkiye | 10.6 | 12.0 |
| Korea | 0.28 | 14.0 | Korea | 1.72 | 18.1 | Iran | 1.72 | 6.7 | Thailand | 2.09 | 5.3 | Thailand | 5.18 | 11.0 | Thailand | 7.25 | 8.2 |
| Bhutan | 0.23 | 11.4 | Thailand | 0.74 | 7.8 | Thailand | 1.63 | 6.3 | Iran | 1.75 | 4.5 | China | 4.78 | 10.1 | Iran | 5.74 | 6.5 |
| Sri Lanka | 0.23 | 11.4 | Philippines | 0.69 | 7.2 | Philippines | 0.77 | 3.0 | Philippines | 1.09 | 2.8 | Fiji | 3.47 | 7.3 | Fiji | 5.36 | 6.1 |
| Thailand | 0.21 | 10.6 | Indonesia | 0.54 | 5.7 | Mongolia | 0.76 | 3.0 | China | 1.04 | 2.7 | Indonesia | 3.18 | 6.7 | Mongolia | 5.03 | 5.7 |
| Philippines | 0.18 | 9.3 | China | 0.36 | 3.7 | Indonesia | 0.71 | 2.8 | Sri Lanka | 1.01 | 2.6 | Sri Lanka | 2.80 | 5.9 | Indonesia | 4.94 | 5.6 |
| Pakistan | 0.17 | 8.4 | Bhutan | 0.34 | 3.6 | Bhutan | 0.56 | 2.2 | Indonesia | 0.82 | 2.1 | Mongolia | 2.61 | 5.5 | Vietnam | 4.12 | 4.7 |
| Bangladesh | 0.14 | 7.0 | Sri Lanka | 0.33 | 3.5 | Sri Lanka | 0.55 | 2.2 | Bhutan | 0.76 | 1.9 | Bhutan | 2.35 | 5.0 | Bhutan | 3.77 | 4.3 |
| China | 0.13 | 6.3 | Pakistan | 0.29 | 3.1 | Pakistan | 0.44 | 1.7 | Pakistan | 0.69 | 1.8 | Philippines | 2.26 | 4.8 | Philippines | 3.60 | 4.1 |
| Cambodia | 0.12 | 5.9 | Mongolia | 0.28 | 3.0 | India | 0.39 | 1.5 | Mongolia | 0.60 | 1.5 | Vietnam | 1.69 | 3.6 | Sri Lanka | 3.46 | 3.9 |
| India | 0.11 | 5.7 | India | 0.27 | 2.9 | China | 0.38 | 1.5 | Vietnam | 0.47 | 1.2 | India | 1.35 | 2.9 | Bangladesh | 2.53 | 2.9 |
| Nepal | 0.11 | 5.5 | Bangladesh | 0.22 | 2.3 | Bangladesh | 0.29 | 1.1 | India | 0.46 | 1.2 | Lao PDR | 1.18 | 2.5 | India | 2.41 | 2.7 |
| Myanmar | 0.10 | 4.9 | Myanmar | 0.18 | 1.9 | Nepal | 0.24 | 0.9 | Bangladesh | 0.42 | 1.1 | Pakistan | 1.12 | 2.4 | Lao PDR | 2.07 | 2.3 |
| Mongolia | 0.09 | 4.7 | Nepal | 0.17 | 1.8 | Lao PDR | 0.22 | 0.8 | Lao PDR | 0.35 | 0.9 | Bangladesh | 0.86 | 1.8 | Cambodia | 1.85 | 2.1 |
| Indonesia | 0.09 | 4.3 | Cambodia | 0.11 | 1.2 | Cambodia | 0.20 | 0.8 | Cambodia | 0.31 | 0.8 | Cambodia | 0.82 | 1.7 | Pakistan | 1.55 | 1.7 |
| Lao PDR | 0.05 | 2.4 | Lao PDR | 0.10 | 1.1 | Myanmar | 0.15 | 0.6 | Nepal | 0.29 | 0.7 | Myanmar | 0.75 | 1.6 | Nepal | 1.28 | 1.4 |
| Vietnam | 0.03 | 1.4 | Vietnam | 0.02 | 0.2 | Vietnam | 0.10 | 0.4 | Myanmar | 0.17 | 0.4 | Nepal | 0.70 | 1.5 | Myanmar | 0.56 | 0.6 |
| | | | | | | | | | | | | | | | | | |
| Bahrain | 1.88 | 94.4 | Bahrain | 10.3 | 108.5 | Bahrain | 9.25 | 35.9 | Bahrain | 13.2 | 33.7 | Bahrain | 20.8 | 44.1 | Bahrain | 29.1 | 33.0 |
| Kuwait | 4.00 | 200.6 | Kuwait | 21.8 | 229.9 | Kuwait | 9.10 | 35.3 | Kuwait | 20.6 | 52.7 | Kuwait | 40.7 | 86.1 | Kuwait | 46.3 | 52.3 |
| Oman | 0.45 | 22.6 | Oman | 6.61 | 69.6 | Oman | 8.22 | 31.9 | Oman | 9.36 | 23.9 | Oman | 23.7 | 50.2 | Oman | 24.7 | 27.9 |
| Qatar | 4.97 | 249.1 | Qatar | 35.4 | 373.3 | Qatar | 17.8 | 69.2 | Qatar | 29.5 | 75.5 | Qatar | 75.3 | 159.3 | Qatar | 91.6 | 103.6 |
| Saudi Arabia | 0.88 | 44.2 | Saudi Arabia | 16.2 | 171.2 | Saudi Arabia | 7.40 | 28.7 | Saudi Arabia | 8.88 | 22.7 | Saudi Arabia | 18.1 | 38.4 | Saudi Arabia | 30.9 | 34.9 |
| UAE | 4.28 | 214.6 | UAE | 42.3 | 445.4 | UAE | 28.9 | 112.3 | UAE | 35.3 | 90.2 | UAE | 36.0 | 76.3 | UAE | 56.9 | 64.3 |
| Brunei | 1.72 | 86.4 | Brunei | 33.0 | 347.7 | Brunei | 15.4 | 59.9 | Brunei | 20.5 | 52.3 | Brunei | 35.4 | 75.0 | Brunei | 37.5 | 42.4 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 0.32 | 16.2 | APO21 | 1.26 | 13.3 | APO21 | 2.63 | 10.2 | APO21 | 3.56 | 9.1 | APO21 | 5.16 | 10.9 | APO21 | 5.75 | 6.5 |
| Asia25 | 0.24 | 12.0 | Asia25 | 0.89 | 9.4 | Asia25 | 1.74 | 6.8 | Asia25 | 2.60 | 6.6 | Asia25 | 4.97 | 10.5 | Asia25 | 8.23 | 9.3 |
| Asia31 | 0.24 | 12.2 | Asia31 | 0.99 | 10.4 | Asia31 | 1.80 | 7.0 | Asia31 | 2.68 | 6.9 | Asia31 | 5.21 | 11.0 | Asia31 | 8.63 | 9.8 |
| East Asia | 0.34 | 16.8 | East Asia | 1.37 | 14.4 | East Asia | 3.10 | 12.0 | East Asia | 5.00 | 12.8 | East Asia | 9.02 | 19.1 | East Asia | 16.1 | 18.2 |
| South Asia | 0.12 | 6.2 | South Asia | 0.27 | 2.8 | South Asia | 0.38 | 1.5 | South Asia | 0.48 | 1.2 | South Asia | 1.29 | 2.7 | South Asia | 2.32 | 2.6 |
| ASEAN | 0.12 | 6.2 | ASEAN | 0.56 | 5.9 | ASEAN | 0.84 | 3.3 | ASEAN | 1.22 | 3.1 | ASEAN | 3.44 | 7.3 | ASEAN | 5.47 | 6.2 |
| ASEAN6 | 0.15 | 7.5 | ASEAN6 | 0.74 | 7.8 | ASEAN6 | 1.11 | 4.3 | ASEAN6 | 1.55 | 4.0 | ASEAN6 | 4.22 | 8.9 | ASEAN6 | 6.46 | 7.3 |
| CLMV | 0.06 | 3.0 | CLMV | 0.08 | 0.9 | CLMV | 0.13 | 0.5 | CLMV | 0.36 | 0.9 | CLMV | 1.30 | 2.7 | CLMV | 2.74 | 3.1 |
| GCC | 1.32 | 65.9 | GCC | 18.1 | 190.8 | GCC | 9.56 | 37.1 | GCC | 12.8 | 32.7 | GCC | 25.2 | 53.4 | GCC | 38.2 | 43.3 |
| IPEF | 1.24 | 62.2 | IPEF | 3.27 | 34.5 | IPEF | 6.21 | 24.1 | IPEF | 8.73 | 22.3 | IPEF | 11.9 | 25.2 | IPEF | 16.0 | 18.1 |
| RCEP | 0.32 | 16.2 | RCEP | 1.27 | 13.4 | RCEP | 2.63 | 10.2 | RCEP | 4.03 | 10.3 | RCEP | 7.87 | 16.7 | RCEP | 13.4 | 15.2 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 3.58 | 179.4 | Australia | 11.8 | 124.4 | Australia | 19.0 | 73.7 | Australia | 21.6 | 55.1 | Australia | 59.1 | 125.0 | Australia | 68.3 | 77.3 |
| France | 3.69 | 184.9 | France | 9.68 | 102.0 | France | 17.6 | 68.4 | France | 26.1 | 66.6 | France | 35.9 | 76.0 | France | 55.0 | 62.2 |
| Germany | 4.03 | 202.0 | Germany | 10.3 | 109.0 | Germany | 19.4 | 75.2 | Germany | 27.4 | 70.1 | Germany | 39.6 | 83.9 | Germany | 63.4 | 71.6 |
| Italy | 3.63 | 182.0 | Italy | 9.80 | 103.3 | Italy | 18.6 | 72.3 | Italy | 27.1 | 69.1 | Italy | 34.8 | 73.7 | Italy | 52.7 | 59.6 |
| New Zealand | 2.35 | 117.8 | New Zealand | 7.40 | 78.0 | New Zealand | 13.8 | 53.5 | New Zealand | 14.6 | 37.4 | New Zealand | 35.1 | 74.4 | New Zealand | 50.2 | 56.7 |
| UK | 3.64 | 182.3 | UK | 8.64 | 91.1 | UK | 17.1 | 66.3 | UK | 26.5 | 67.7 | UK | 36.5 | 77.2 | UK | 54.7 | 61.9 |
| US | 5.23 | 262.3 | US | 12.6 | 132.5 | US | 23.9 | 92.7 | US | 36.3 | 92.8 | US | 48.7 | 103.0 | US | 77.2 | 87.4 |
| EU15 | 3.66 | 183.6 | EU15 | 9.36 | 98.6 | EU15 | 17.6 | 68.2 | EU15 | 26.3 | 67.2 | EU15 | 36.7 | 77.7 | EU15 | 57.4 | 64.9 |
| | | | | | | | | | EU27 | 22.1 | 56.5 | EU27 | 32.9 | 69.7 | EU27 | 54.7 | 61.9 |

Unit: Thousands of US dollars.
Sources: Official national accounts in each country, including adjustments by APO-PDB.
Note: See Section 8.1 for the adjustments to harmonize GDP coverage across countries.

## Table 9.6 Per Capita GDP, 1970–2022

——GDP at constant market prices per person, using the 2017 PPP, the reference year 2022

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Japan | 17.8 | 100.0 | Japan | 26.3 | 100.0 | Japan | 39.0 | 100.0 | Singapore | 61.6 | 100.0 | Singapore | 89.5 | 100.0 | Singapore | 128.6 | 100.0 |
| Singapore | 11.7 | 65.8 | Singapore | 24.1 | 91.8 | Singapore | 38.9 | 99.7 | Hong Kong | 43.2 | 70.2 | Hong Kong | 61.1 | 68.2 | ROC | 69.5 | 54.1 |
| Iran | 11.0 | 61.8 | Hong Kong | 18.9 | 72.1 | Hong Kong | 32.7 | 83.8 | Japan | 42.9 | 69.6 | ROC | 47.9 | 53.6 | Hong Kong | 69.5 | 54.0 |
| Hong Kong | 9.94 | 55.7 | Iran | 10.9 | 41.5 | ROC | 18.2 | 46.7 | ROC | 33.0 | 53.5 | Japan | 45.1 | 50.4 | Korea | 54.4 | 42.3 |
| Turkiye | 9.13 | 51.2 | Turkiye | 10.8 | 41.2 | Korea | 15.0 | 38.3 | Korea | 27.1 | 44.0 | Korea | 41.4 | 46.2 | Japan | 49.7 | 38.6 |
| Fiji | 7.19 | 40.3 | Fiji | 9.40 | 35.8 | Turkiye | 14.3 | 36.5 | Turkiye | 17.1 | 27.7 | Turkiye | 23.3 | 26.0 | Turkiye | 39.2 | 30.5 |
| Malaysia | 4.68 | 26.2 | ROC | 8.82 | 33.6 | Malaysia | 10.6 | 27.3 | Malaysia | 16.7 | 27.1 | Malaysia | 22.8 | 25.4 | Malaysia | 36.0 | 28.0 |
| ROC | 3.74 | 21.0 | Malaysia | 7.82 | 29.8 | Fiji | 10.1 | 25.9 | Thailand | 12.3 | 20.0 | Iran | 19.1 | 21.4 | China | 22.0 | 17.1 |
| Philippines | 3.25 | 18.2 | Korea | 6.27 | 23.9 | Iran | 9.64 | 24.7 | Iran | 12.0 | 19.4 | Thailand | 17.9 | 20.0 | Thailand | 21.5 | 16.7 |
| Thailand | 3.09 | 17.3 | Thailand | 4.80 | 18.3 | Thailand | 8.63 | 22.1 | Fiji | 11.7 | 19.1 | Fiji | 11.9 | 13.3 | Iran | 18.1 | 14.1 |
| Mongolia | 3.05 | 17.1 | Philippines | 4.47 | 17.0 | Mongolia | 5.61 | 14.4 | Indonesia | 7.10 | 11.5 | China | 11.4 | 12.8 | Indonesia | 15.0 | 11.7 |
| Korea | 2.99 | 16.8 | Mongolia | 4.16 | 15.8 | Indonesia | 5.43 | 13.9 | Sri Lanka | 6.67 | 10.8 | Sri Lanka | 10.9 | 12.2 | Bhutan | 15.0 | 11.6 |
| Lao PDR | 2.77 | 15.5 | Indonesia | 3.60 | 13.7 | Philippines | 4.58 | 11.7 | Philippines | 5.32 | 8.6 | Indonesia | 10.1 | 11.3 | Fiji | 14.7 | 11.4 |
| Sri Lanka | 2.62 | 14.7 | Sri Lanka | 3.36 | 12.8 | Sri Lanka | 4.43 | 11.4 | Mongolia | 5.32 | 8.6 | Bhutan | 9.66 | 10.8 | Mongolia | 14.0 | 10.9 |
| Cambodia | 2.42 | 13.6 | Lao PDR | 2.90 | 11.1 | Bhutan | 3.36 | 8.6 | Lao PDR | 5.08 | 8.2 | Mongolia | 8.68 | 9.7 | Sri Lanka | 14.0 | 10.9 |
| Indonesia | 2.05 | 11.5 | Bhutan | 2.32 | 8.8 | Lao PDR | 3.33 | 8.5 | Bhutan | 4.75 | 7.7 | Vietnam | 7.89 | 8.8 | Vietnam | 13.8 | 10.8 |
| Bangladesh | 1.94 | 10.9 | Pakistan | 2.01 | 7.7 | Pakistan | 2.94 | 7.5 | China | 4.68 | 7.6 | Lao PDR | 7.17 | 8.0 | Philippines | 10.7 | 8.3 |
| Bhutan | 1.86 | 10.4 | Vietnam | 1.84 | 7.0 | China | 2.21 | 5.7 | Pakistan | 4.48 | 7.3 | Philippines | 7.12 | 8.0 | Lao PDR | 8.79 | 6.8 |
| Nepal | 1.78 | 10.0 | Nepal | 1.68 | 6.4 | Nepal | 2.15 | 5.5 | Vietnam | 3.92 | 6.4 | Pakistan | 5.47 | 6.1 | India | 8.50 | 6.6 |
| Pakistan | 1.72 | 9.6 | India | 1.54 | 5.9 | Vietnam | 2.04 | 5.2 | India | 2.73 | 4.4 | India | 4.98 | 5.6 | Bangladesh | 7.31 | 5.7 |
| Vietnam | 1.50 | 8.4 | Bangladesh | 1.50 | 5.7 | India | 2.02 | 5.2 | Nepal | 2.69 | 4.4 | Cambodia | 3.84 | 4.3 | Pakistan | 7.16 | 5.6 |
| India | 1.41 | 7.9 | Cambodia | 1.33 | 5.1 | Bangladesh | 1.71 | 4.4 | Bangladesh | 2.29 | 3.7 | Bangladesh | 3.77 | 4.2 | Cambodia | 5.84 | 4.5 |
| China | 0.93 | 5.2 | China | 1.25 | 4.8 | Cambodia | 1.50 | 3.8 | Cambodia | 2.07 | 3.4 | Nepal | 3.45 | 3.9 | Nepal | 4.90 | 3.8 |
| Myanmar | 0.72 | 4.0 | Myanmar | 1.02 | 3.9 | Myanmar | 1.10 | 2.8 | Myanmar | 1.80 | 2.9 | Myanmar | 2.78 | 3.1 | Myanmar | 4.07 | 3.2 |
| Bahrain | 37.7 | 211.5 | Bahrain | 48.0 | 182.9 | Bahrain | 35.5 | 91.1 | Bahrain | 46.0 | 74.8 | Bahrain | 52.4 | 58.5 | Bahrain | 66.8 | 52.0 |
| Kuwait | 158.5 | 888.5 | Kuwait | 69.2 | 263.8 | Kuwait | 32.8 | 84.1 | Kuwait | 56.5 | 91.8 | Kuwait | 73.4 | 82.0 | Kuwait | 65.9 | 51.2 |
| Oman | 8.53 | 47.8 | Oman | 29.3 | 111.7 | Oman | 41.1 | 105.3 | Oman | 41.7 | 67.7 | Oman | 52.1 | 58.3 | Oman | 45.2 | 35.1 |
| Qatar | 269.2 | 1509.6 | Qatar | 168.5 | 642.0 | Qatar | 86.9 | 222.7 | Qatar | 117.3 | 190.6 | Qatar | 130.2 | 145.6 | Qatar | 121.0 | 94.1 |
| Saudi Arabia | 83.5 | 468.0 | Saudi Arabia | 72.2 | 275.1 | Saudi Arabia | 61.1 | 156.5 | Saudi Arabia | 54.9 | 89.2 | Saudi Arabia | 49.9 | 55.8 | Saudi Arabia | 66.0 | 51.4 |
| UAE | 229.9 | 1289.0 | UAE | 206.6 | 787.0 | UAE | 127.9 | 327.7 | UAE | 126.9 | 206.1 | UAE | 67.7 | 75.7 | UAE | 97.5 | 75.8 |
| Brunei | 98.8 | 554.0 | Brunei | 161.9 | 616.7 | Brunei | 85.4 | 218.7 | Brunei | 90.6 | 147.2 | Brunei | 79.0 | 88.3 | Brunei | 67.2 | 52.2 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 3.72 | 20.9 | APO21 | 4.85 | 18.5 | APO21 | 6.54 | 16.8 | APO21 | 7.97 | 12.9 | APO21 | 10.64 | 11.9 | APO21 | 14.6 | 11.4 |
| Asia25 | 2.55 | 14.3 | Asia25 | 3.39 | 12.9 | Asia25 | 4.83 | 12.4 | Asia25 | 6.70 | 10.9 | Asia25 | 10.82 | 12.1 | Asia25 | 16.9 | 13.1 |
| Asia31 | 2.90 | 16.2 | Asia31 | 3.82 | 14.5 | Asia31 | 5.26 | 13.5 | Asia31 | 7.17 | 11.7 | Asia31 | 11.4 | 12.7 | Asia31 | 17.6 | 13.7 |
| East Asia | 2.87 | 16.1 | East Asia | 4.12 | 15.7 | East Asia | 6.40 | 16.4 | East Asia | 9.29 | 15.1 | East Asia | 15.9 | 17.8 | East Asia | 26.0 | 20.2 |
| South Asia | 1.52 | 8.5 | South Asia | 1.61 | 6.1 | South Asia | 2.12 | 5.4 | South Asia | 2.92 | 4.7 | South Asia | 4.97 | 5.6 | South Asia | 8.25 | 6.4 |
| ASEAN | 2.36 | 13.2 | ASEAN | 3.70 | 14.1 | ASEAN | 5.19 | 13.3 | ASEAN | 7.28 | 11.8 | ASEAN | 10.7 | 12.0 | ASEAN | 15.6 | 12.1 |
| ASEAN6 | 2.76 | 15.5 | ASEAN6 | 4.51 | 17.2 | ASEAN6 | 6.50 | 16.7 | ASEAN6 | 8.85 | 14.4 | ASEAN6 | 12.5 | 14.0 | ASEAN6 | 17.7 | 13.8 |
| CLMV | 1.35 | 7.6 | CLMV | 1.56 | 5.9 | CLMV | 1.73 | 4.4 | CLMV | 3.12 | 5.1 | CLMV | 5.89 | 6.6 | CLMV | 9.9 | 7.7 |
| GCC | 89.8 | 503.7 | GCC | 79.5 | 302.7 | GCC | 62.2 | 159.4 | GCC | 62.2 | 101.0 | GCC | 57.7 | 64.5 | GCC | 71.9 | 55.9 |
| IPEF | 8.82 | 49.4 | IPEF | 10.6 | 40.5 | IPEF | 13.1 | 33.6 | IPEF | 15.6 | 25.4 | IPEF | 18.2 | 20.4 | IPEF | 23.1 | 17.9 |
| RCEP | 3.03 | 17.0 | RCEP | 4.24 | 16.1 | RCEP | 6.23 | 16.0 | RCEP | 8.81 | 14.3 | RCEP | 14.5 | 16.2 | RCEP | 22.9 | 17.8 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 27.9 | 156.7 | Australia | 32.1 | 122.3 | Australia | 37.2 | 95.3 | Australia | 47.3 | 76.9 | Australia | 55.5 | 62.0 | Australia | 63.6 | 49.4 |
| France | 24.7 | 138.2 | France | 33.2 | 126.4 | France | 40.2 | 103.1 | France | 47.2 | 76.7 | France | 50.1 | 56.0 | France | 54.2 | 42.1 |
| Germany | 27.3 | 152.8 | Germany | 35.7 | 135.9 | Germany | 42.7 | 109.4 | Germany | 51.0 | 82.8 | Germany | 56.4 | 63.0 | Germany | 64.5 | 50.2 |
| Italy | 25.0 | 140.4 | Italy | 34.8 | 132.7 | Italy | 43.6 | 111.7 | Italy | 50.9 | 82.7 | Italy | 50.0 | 55.9 | Italy | 52.8 | 41.0 |
| New Zealand | 26.3 | 147.5 | New Zealand | 29.0 | 110.4 | New Zealand | 32.8 | 84.0 | New Zealand | 39.4 | 64.0 | New Zealand | 46.0 | 51.4 | New Zealand | 56.2 | 43.7 |
| UK | 22.9 | 128.6 | UK | 27.5 | 104.6 | UK | 35.6 | 91.1 | UK | 46.0 | 74.6 | UK | 50.1 | 56.0 | UK | 55.6 | 43.3 |
| US | 31.3 | 175.4 | US | 38.6 | 147.0 | US | 48.1 | 123.3 | US | 59.5 | 96.7 | US | 64.6 | 72.2 | US | 77.2 | 60.1 |
| EU15 | 24.2 | 135.7 | EU15 | 31.7 | 120.8 | EU15 | 39.5 | 101.3 | EU15 | 48.1 | 78.1 | EU15 | 51.6 | 57.7 | EU15 | 57.6 | 44.8 |
| | | | | | | | | | EU27 | 41.9 | 68.0 | EU27 | 46.5 | 52.0 | EU27 | 54.3 | 42.2 |

Unit: Thousands of US dollars.
Sources: Official national accounts in each country, including adjustments by APO-PDB.
Note: See Section 8.1 for the adjustments to harmonize GDP coverage across countries.

## Table 9.7 Final Demand Shares in GDP, 1970–2022

——Shares of final demands to GDP at current prices

| | 1970 | | | | 1990 | | | | 2000 | | | | 2010 | | | | 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Household consumption | Government consumption | Investment | Net exports | Household consumption | Government consumption | Investment | Net exports | Household consumption | Government consumption | Investment | Net exports | Household consumption | Government consumption | Investment | Net exports | Household consumption | Government consumption | Investment | Net exports |
| Bahrain | 67.8 | 14.8 | 21.3 | −3.9 | 62.1 | 23.4 | 12.8 | 1.8 | 48.9 | 17.3 | 10.1 | 23.8 | 41.2 | 12.9 | 27.3 | 18.6 | 38.2 | 14.3 | 21.6 | 25.9 |
| Bangladesh | 90.9 | 1.3 | 9.7 | −1.9 | 84.7 | 4.6 | 17.5 | −6.8 | 75.9 | 5.0 | 23.8 | −4.6 | 74.1 | 5.1 | 26.0 | −5.2 | 70.3 | 5.7 | 32.0 | −8.0 |
| Bhutan | 75.8 | 28.2 | 24.5 | −28.5 | 52.8 | 27.5 | 22.9 | −3.3 | 46.8 | 24.0 | 47.5 | −18.4 | 49.3 | 21.1 | 57.7 | −28.2 | 67.4 | 21.1 | 46.1 | −34.6 |
| Brunei | 22.2 | 8.3 | 14.2 | 55.3 | 39.1 | 21.8 | 19.7 | 19.5 | 30.4 | 25.5 | 18.9 | 25.3 | 14.7 | 22.2 | 23.7 | 39.4 | 28.2 | 20.1 | 25.9 | 25.8 |
| Cambodia | 69.0 | 22.5 | 10.2 | −1.8 | 96.0 | 5.7 | 6.6 | −8.3 | 89.1 | 5.2 | 17.6 | −11.9 | 81.7 | 6.3 | 17.4 | −5.4 | 63.4 | 7.3 | 22.7 | 6.6 |
| China | 60.2 | 9.9 | 29.8 | 0.1 | 54.1 | 12.4 | 31.0 | 2.5 | 51.4 | 15.5 | 30.9 | 2.2 | 38.4 | 13.9 | 44.3 | 3.5 | 41.1 | 15.1 | 40.8 | 3.1 |
| ROC | 55.9 | 17.7 | 26.4 | 0.0 | 52.3 | 18.0 | 25.5 | 4.2 | 55.2 | 15.7 | 27.2 | 1.8 | 53.2 | 15.1 | 25.1 | 6.6 | 45.7 | 13.9 | 28.1 | 12.2 |
| Fiji | 66.9 | 14.0 | 22.3 | −3.1 | 73.5 | 17.1 | 14.0 | −4.7 | 67.4 | 17.3 | 20.4 | −5.1 | 72.6 | 15.0 | 18.8 | −6.4 | 82.2 | 20.5 | 18.4 | −21.1 |
| Hong Kong | 66.2 | 5.7 | 20.4 | 7.7 | 57.5 | 6.8 | 27.2 | 8.5 | 58.6 | 9.4 | 27.6 | 4.4 | 61.4 | 8.9 | 23.9 | 5.9 | 66.8 | 14.3 | 15.0 | 3.9 |
| India | 74.0 | 9.4 | 16.7 | −0.1 | 62.4 | 11.8 | 27.2 | −1.4 | 64.0 | 12.8 | 24.1 | −0.9 | 57.2 | 11.6 | 35.6 | −4.4 | 60.1 | 10.7 | 32.8 | −3.6 |
| Indonesia | 73.0 | 8.2 | 21.1 | −2.2 | 61.8 | 7.9 | 27.7 | 2.5 | 61.1 | 6.4 | 22.2 | 10.3 | 56.1 | 9.0 | 33.0 | 1.9 | 58.7 | 7.6 | 30.1 | 3.6 |
| Iran | 54.3 | 17.6 | 28.7 | −0.6 | 55.9 | 11.7 | 40.5 | −8.1 | 51.9 | 15.0 | 25.3 | 7.8 | 44.6 | 18.8 | 31.8 | 4.8 | 45.7 | 11.0 | 28.4 | 14.8 |
| Japan | 46.8 | 10.5 | 41.5 | 1.3 | 49.9 | 13.4 | 36.0 | 0.7 | 53.7 | 16.5 | 28.4 | 1.4 | 56.9 | 19.2 | 22.6 | 1.3 | 55.6 | 21.6 | 26.6 | −3.8 |
| Korea | 73.5 | 9.9 | 26.3 | −9.7 | 50.2 | 11.0 | 39.6 | −0.8 | 54.4 | 10.9 | 32.9 | 1.8 | 50.4 | 14.2 | 32.6 | 2.8 | 48.0 | 18.8 | 33.2 | 0.0 |
| Kuwait | 39.8 | 13.2 | 12.3 | 34.7 | 59.6 | 37.4 | 15.7 | −12.7 | 42.2 | 21.1 | 10.9 | 25.9 | 30.0 | 16.7 | 17.8 | 35.4 | 38.6 | 21.5 | 12.4 | 27.4 |
| Lao PDR | 79.4 | 35.0 | 21.5 | −35.8 | 78.5 | 7.2 | 27.4 | −13.2 | 77.5 | 6.7 | 29.9 | −14.1 | 72.8 | 10.7 | 22.7 | −6.2 | 39.6 | 13.3 | 46.4 | 0.7 |
| Malaysia | 57.4 | 18.2 | 20.2 | 4.2 | 52.6 | 13.4 | 31.9 | 2.0 | 43.8 | 10.0 | 27.1 | 19.0 | 48.1 | 12.6 | 23.4 | 15.9 | 57.6 | 11.7 | 23.5 | 7.2 |
| Mongolia | 77.8 | 24.1 | 32.6 | −34.6 | 64.8 | 20.4 | 31.4 | −16.7 | 72.4 | 14.4 | 24.3 | −11.1 | 55.2 | 12.7 | 42.1 | −10.0 | 50.9 | 13.7 | 41.5 | −6.1 |
| Myanmar | 90.7 | 8.1 | 10.1 | −8.9 | 90.8 | 7.6 | 7.9 | −6.3 | 84.8 | 3.6 | 11.2 | 0.4 | 42.6 | 4.7 | 16.8 | 36.0 | 59.4 | 10.6 | 30.6 | −0.5 |
| Nepal | 90.9 | 5.4 | 6.4 | −2.7 | 83.1 | 6.2 | 20.4 | −9.7 | 75.9 | 6.4 | 26.0 | −8.2 | 85.6 | 8.6 | 28.6 | −22.7 | 89.0 | 8.8 | 39.4 | −37.2 |
| Oman | 25.0 | 11.2 | 16.8 | 47.0 | 43.2 | 23.7 | 20.8 | 12.4 | 37.7 | 18.6 | 18.9 | 24.7 | 33.2 | 16.2 | 29.1 | 21.5 | 34.5 | 17.5 | 27.5 | 20.5 |
| Pakistan | 76.6 | 10.3 | 15.8 | −2.7 | 71.6 | 14.1 | 19.2 | −4.9 | 76.1 | 9.9 | 16.2 | −2.2 | 79.9 | 10.9 | 15.9 | −6.7 | 86.2 | 10.5 | 15.3 | −12.0 |
| Philippines | 66.2 | 10.1 | 24.6 | −0.8 | 70.1 | 10.6 | 26.3 | −7.0 | 71.7 | 11.1 | 15.7 | 1.5 | 70.2 | 9.7 | 20.4 | −0.4 | 75.9 | 15.0 | 24.7 | −15.6 |
| Qatar | 21.7 | 20.3 | 23.4 | 34.6 | 28.1 | 32.2 | 18.7 | 20.9 | 15.6 | 19.3 | 21.1 | 44.0 | 16.8 | 13.7 | 31.8 | 37.7 | 20.3 | 12.4 | 31.7 | 35.6 |
| Saudi Arabia | 32.6 | 15.8 | 22.4 | 29.2 | 46.6 | 28.8 | 15.7 | 8.9 | 36.5 | 25.6 | 19.4 | 18.5 | 32.4 | 20.0 | 31.2 | 16.4 | 35.6 | 20.5 | 27.2 | 16.7 |
| Singapore | 69.0 | 11.8 | 38.2 | −19.0 | 44.8 | 9.5 | 35.7 | 10.1 | 42.0 | 10.5 | 35.2 | 12.3 | 36.3 | 9.7 | 27.7 | 26.3 | 29.7 | 9.4 | 22.3 | 38.5 |
| Sri Lanka | 79.4 | 6.3 | 16.9 | −2.5 | 81.0 | 7.0 | 18.7 | −6.7 | 73.0 | 7.5 | 28.3 | −8.9 | 67.0 | 8.5 | 31.6 | −7.1 | 61.6 | 7.1 | 34.8 | −3.5 |
| Thailand | 67.0 | 11.9 | 25.3 | −4.2 | 55.8 | 10.0 | 41.7 | −7.4 | 55.6 | 13.5 | 22.5 | 8.4 | 53.0 | 15.8 | 25.5 | 5.7 | 55.8 | 17.5 | 28.8 | −2.1 |
| Turkiye | 76.9 | 7.9 | 15.6 | −0.4 | 68.7 | 9.3 | 23.2 | −1.2 | 66.9 | 11.9 | 23.7 | −2.6 | 62.7 | 14.9 | 26.8 | −4.3 | 57.3 | 11.7 | 35.0 | −4.0 |
| UAE | 30.1 | 6.3 | 32.6 | 30.9 | 49.6 | 9.9 | 25.9 | 14.7 | 55.7 | 9.3 | 23.2 | 11.9 | 40.5 | 9.8 | 29.7 | 20.1 | 43.4 | 11.2 | 23.8 | 21.6 |
| Vietnam | 38.8 | 64.2 | 21.7 | −24.7 | 80.1 | 14.8 | 14.3 | −9.1 | 61.5 | 11.4 | 29.2 | −2.1 | 58.1 | 10.4 | 37.2 | −5.6 | 55.3 | 9.0 | 33.5 | 2.2 |
| (region) | | | | | | | | | | | | | | | | | | | | |
| APO21 | 60.5 | 11.2 | 28.9 | −0.6 | 57.0 | 11.9 | 31.8 | −0.7 | 58.8 | 13.0 | 26.0 | 2.3 | 57.1 | 13.8 | 28.7 | 0.4 | 58.1 | 13.0 | 29.8 | −0.9 |
| Asia25 | 60.6 | 11.0 | 29.0 | −0.5 | 56.6 | 12.0 | 31.6 | −0.2 | 57.0 | 13.6 | 27.2 | 2.3 | 50.2 | 13.8 | 34.3 | 1.7 | 50.8 | 13.9 | 34.5 | 0.8 |
| Asia31 | 57.3 | 11.4 | 28.1 | 3.2 | 55.8 | 13.2 | 30.4 | 0.6 | 55.7 | 14.2 | 26.6 | 3.5 | 49.2 | 14.0 | 34.0 | 2.8 | 50.0 | 14.1 | 34.0 | 1.9 |
| East Asia | 51.8 | 10.4 | 37.2 | 0.6 | 51.4 | 13.0 | 34.1 | 1.4 | 53.0 | 15.4 | 29.8 | 1.8 | 44.8 | 15.1 | 37.0 | 3.1 | 44.2 | 16.2 | 37.4 | 2.2 |
| South Asia | 76.6 | 8.3 | 15.7 | −0.7 | 66.3 | 11.4 | 24.9 | −2.6 | 67.2 | 11.5 | 23.0 | −1.7 | 61.7 | 11.0 | 32.4 | −5.1 | 63.8 | 10.2 | 31.1 | −5.1 |
| ASEAN | 66.4 | 16.1 | 22.7 | −5.3 | 61.6 | 9.7 | 30.1 | −1.4 | 58.7 | 9.5 | 23.3 | 8.6 | 54.8 | 10.9 | 28.8 | 5.6 | 57.5 | 10.8 | 28.5 | 3.2 |
| ASEAN6 | 68.7 | 10.5 | 23.4 | −2.5 | 59.7 | 9.4 | 31.6 | −0.7 | 57.4 | 9.5 | 23.0 | 10.1 | 54.3 | 11.1 | 28.2 | 6.4 | 57.9 | 11.1 | 27.6 | 3.4 |
| CLMV | 53.1 | 49.8 | 19.2 | −22.1 | 82.5 | 12.6 | 13.7 | −8.8 | 68.4 | 9.3 | 25.2 | −2.9 | 57.8 | 9.3 | 32.3 | 0.6 | 55.6 | 9.2 | 33.1 | 2.1 |
| GCC | 33.4 | 14.8 | 21.6 | 30.2 | 47.3 | 25.9 | 17.7 | 9.2 | 40.2 | 21.3 | 19.6 | 19.0 | 32.8 | 16.7 | 29.7 | 20.8 | 36.3 | 17.7 | 25.8 | 20.3 |
| IPEF | 59.1 | 15.6 | 25.2 | 0.1 | 59.8 | 14.4 | 26.6 | −0.8 | 62.0 | 13.9 | 24.9 | −0.7 | 61.7 | 15.4 | 24.2 | −1.3 | 61.8 | 14.0 | 26.3 | −2.1 |
| RCEP | 54.5 | 11.7 | 34.2 | −0.4 | 53.8 | 12.6 | 33.0 | 0.6 | 54.3 | 14.4 | 28.2 | 3.2 | 46.7 | 14.5 | 35.4 | 3.4 | 46.8 | 15.4 | 35.6 | 2.2 |
| (reference) | | | | | | | | | | | | | | | | | | | | |
| Australia | 54.3 | 13.9 | 32.1 | −0.3 | 57.3 | 18.6 | 24.2 | −0.1 | 58.0 | 18.5 | 23.4 | 0.1 | 53.8 | 18.7 | 26.5 | 1.0 | 49.5 | 21.3 | 23.7 | 5.4 |
| France | 54.3 | 17.0 | 28.1 | 0.5 | 55.2 | 21.2 | 24.3 | −0.8 | 53.9 | 22.3 | 22.4 | 1.3 | 55.4 | 24.0 | 21.9 | −1.3 | 53.4 | 24.0 | 26.4 | −3.9 |
| Germany | 52.9 | 16.3 | 32.3 | −1.5 | 56.2 | 19.2 | 24.8 | −0.2 | 56.4 | 19.1 | 24.4 | 0.2 | 55.2 | 19.6 | 19.9 | 5.3 | 51.2 | 22.0 | 24.8 | 2.0 |
| Italy | 58.7 | 15.0 | 26.0 | 0.2 | 57.7 | 19.6 | 22.5 | 0.2 | 60.6 | 17.8 | 20.8 | 0.9 | 60.8 | 20.6 | 20.5 | −1.9 | 59.7 | 19.2 | 22.6 | −1.5 |
| New Zealand | 64.2 | 14.9 | 23.8 | −2.9 | 60.2 | 18.4 | 20.5 | 0.9 | 57.9 | 17.1 | 22.0 | 3.0 | 57.8 | 19.7 | 20.2 | 2.3 | 58.4 | 21.0 | 25.9 | −5.3 |
| UK | 56.9 | 17.7 | 24.3 | 1.1 | 59.7 | 18.6 | 23.4 | −1.6 | 66.2 | 16.7 | 18.3 | −1.2 | 63.9 | 21.5 | 16.2 | −1.6 | 62.7 | 20.8 | 19.2 | −2.7 |
| US | 60.3 | 18.0 | 21.4 | 0.4 | 63.9 | 15.9 | 21.5 | −1.3 | 66.0 | 14.0 | 23.7 | −3.7 | 68.2 | 16.7 | 18.7 | −3.5 | 68.0 | 13.9 | 21.9 | −3.8 |
| EU15 | 56.5 | 16.0 | 28.0 | −0.5 | 56.6 | 19.4 | 24.6 | −0.7 | 57.6 | 19.1 | 22.8 | 0.5 | 56.9 | 21.7 | 20.2 | 1.2 | 53.9 | 21.5 | 23.4 | 1.1 |
| EU27 | | | | | | | | | 55.9 | 19.7 | 23.6 | 0.8 | 55.7 | 21.6 | 21.1 | 1.6 | 52.2 | 21.4 | 24.7 | 1.8 |

Unit: Percentage.

Sources: Official national accounts in each country, including adjustments by APO-PDB.

Notes: Final demand shares in country groups are computed using the PPP for GDP. Household consumption includes the consumption of NPISHs. The investment consists of GFCF plus changes in inventories.

## Table 9.8 Per-Worker Labor Productivity Level, 1970–2022

——GDP at constant basic prices per worker, using the 2017 PPP, the reference year 2022

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iran | 40.1 | 100.0 | Japan | 52.1 | 100.0 | Japan | 74.4 | 100.0 | Singapore | 111.2 | 100.0 | Singapore | 140.0 | 100.0 | Singapore | 186.2 | 100.0 |
| Japan | 35.4 | 88.3 | Singapore | 49.7 | 95.4 | Singapore | 71.8 | 96.5 | Hong Kong | 86.3 | 77.6 | Hong Kong | 118.6 | 84.7 | Hong Kong | 136.7 | 73.4 |
| Singapore | 35.0 | 87.4 | Iran | 42.3 | 81.2 | Hong Kong | 66.6 | 89.5 | Japan | 81.2 | 73.1 | ROC | 100.4 | 71.8 | ROC | 134.8 | 72.4 |
| Turkiye | 26.8 | 66.8 | Hong Kong | 41.1 | 78.9 | ROC | 41.9 | 56.3 | ROC | 72.6 | 65.3 | Japan | 87.3 | 62.4 | Turkiye | 95.9 | 51.5 |
| Hong Kong | 25.0 | 62.3 | Turkiye | 30.7 | 58.9 | Iran | 41.5 | 55.8 | Turkiye | 53.1 | 47.7 | Korea | 75.0 | 53.6 | Korea | 89.6 | 48.1 |
| Fiji | 21.9 | 54.8 | Fiji | 25.1 | 48.2 | Turkiye | 39.2 | 52.7 | Korea | 53.0 | 47.7 | Iran | 67.4 | 48.2 | Japan | 87.7 | 47.1 |
| Malaysia | 13.7 | 34.1 | ROC | 22.4 | 43.0 | Korea | 31.0 | 41.7 | Iran | 44.3 | 39.8 | Turkiye | 67.1 | 47.9 | Malaysia | 71.1 | 38.2 |
| ROC | 10.8 | 27.0 | Malaysia | 21.2 | 40.7 | Malaysia | 27.0 | 36.2 | Malaysia | 39.6 | 35.6 | Malaysia | 51.1 | 36.5 | Iran | 65.1 | 35.0 |
| Philippines | 10.0 | 24.9 | Korea | 15.9 | 30.5 | Fiji | 23.8 | 32.0 | Fiji | 25.6 | 23.1 | Thailand | 27.0 | 19.3 | China | 37.9 | 20.4 |
| Korea | 9.4 | 23.4 | Philippines | 12.2 | 23.3 | Thailand | 14.0 | 18.8 | Thailand | 19.7 | 17.7 | Fiji | 25.3 | 18.1 | Mongolia | 37.4 | 20.1 |
| Mongolia | 7.6 | 19.0 | Mongolia | 11.5 | 22.0 | Mongolia | 13.5 | 18.1 | Sri Lanka | 16.4 | 14.8 | Sri Lanka | 25.3 | 18.1 | Thailand | 34.6 | 18.6 |
| Sri Lanka | 7.1 | 17.8 | Sri Lanka | 9.4 | 17.9 | Indonesia | 12.4 | 16.6 | Indonesia | 15.7 | 14.1 | Indonesia | 21.5 | 15.3 | Sri Lanka | 34.5 | 18.5 |
| Thailand | 6.8 | 17.0 | Indonesia | 9.3 | 17.8 | Sri Lanka | 12.1 | 16.3 | Pakistan | 15.1 | 13.6 | Mongolia | 21.1 | 15.1 | Fiji | 30.4 | 16.4 |
| Indonesia | 6.1 | 15.2 | Thailand | 9.2 | 17.6 | Philippines | 11.9 | 16.0 | Mongolia | 14.3 | 12.8 | Bhutan | 18.4 | 13.2 | Bhutan | 29.8 | 16.0 |
| Bangladesh | 5.8 | 14.4 | Pakistan | 6.4 | 12.2 | Pakistan | 9.8 | 13.2 | Philippines | 14.1 | 12.7 | China | 18.0 | 12.9 | Indonesia | 28.6 | 15.4 |
| Pakistan | 5.3 | 13.3 | Lao PDR | 5.8 | 11.1 | Bhutan | 7.9 | 10.7 | Bhutan | 10.9 | 9.8 | Philippines | 17.3 | 12.4 | Philippines | 24.8 | 13.3 |
| Cambodia | 5.0 | 12.6 | Bhutan | 5.4 | 10.3 | Lao PDR | 6.7 | 9.1 | Lao PDR | 9.6 | 8.6 | Pakistan | 16.8 | 12.0 | Vietnam | 23.0 | 12.4 |
| Lao PDR | 4.8 | 12.0 | Bangladesh | 4.2 | 8.1 | Nepal | 5.0 | 6.7 | China | 7.4 | 6.6 | Lao PDR | 12.8 | 9.1 | Pakistan | 21.1 | 11.3 |
| Bhutan | 4.2 | 10.4 | Vietnam | 4.0 | 7.6 | Bangladesh | 5.0 | 6.7 | Vietnam | 7.1 | 6.4 | Vietnam | 12.6 | 9.0 | India | 20.2 | 10.8 |
| Nepal | 3.9 | 9.8 | Nepal | 3.5 | 6.7 | India | 4.5 | 6.1 | India | 6.5 | 5.8 | India | 11.6 | 8.3 | Bangladesh | 17.2 | 9.2 |
| Vietnam | 3.9 | 9.7 | India | 3.2 | 6.1 | Vietnam | 3.9 | 5.2 | Nepal | 6.3 | 5.6 | Bangladesh | 9.1 | 6.5 | Lao PDR | 15.0 | 8.1 |
| India | 3.0 | 7.5 | Cambodia | 2.8 | 5.4 | China | 3.5 | 4.7 | Bangladesh | 6.0 | 5.4 | Nepal | 8.4 | 6.0 | Nepal | 10.7 | 5.7 |
| Myanmar | 2.1 | 5.2 | Myanmar | 2.8 | 5.4 | Cambodia | 3.1 | 4.2 | Myanmar | 4.1 | 3.7 | Cambodia | 6.0 | 4.3 | Myanmar | 8.4 | 4.5 |
| China | 1.9 | 4.8 | China | 2.3 | 4.4 | Myanmar | 2.8 | 3.8 | Cambodia | 3.9 | 3.5 | Myanmar | 5.9 | 4.2 | Cambodia | 8.3 | 4.5 |
| Bahrain | 135.7 | 338.6 | Bahrain | 123.2 | 236.4 | Bahrain | 84.7 | 113.7 | Bahrain | 105.0 | 94.4 | Bahrain | 90.8 | 64.9 | Bahrain | 118.0 | 63.4 |
| Kuwait | 530.1 | 1322.6 | Kuwait | 206.3 | 395.9 | Kuwait | 81.0 | 108.8 | Kuwait | 136.0 | 122.3 | Kuwait | 135.5 | 96.8 | Kuwait | 121.2 | 65.1 |
| Oman | 123.2 | 307.4 | Oman | 175.9 | 337.4 | Oman | 188.2 | 252.8 | Oman | 162.3 | 146.0 | Oman | 111.9 | 79.9 | Oman | 83.5 | 44.9 |
| Qatar | 502.4 | 1253.5 | Qatar | 314.4 | 603.2 | Qatar | 169.4 | 227.6 | Qatar | 233.8 | 210.2 | Qatar | 174.2 | 124.5 | Qatar | 151.9 | 81.6 |
| Saudi Arabia | 420.2 | 1048.4 | Saudi Arabia | 250.7 | 480.9 | Saudi Arabia | 203.0 | 272.7 | Saudi Arabia | 192.8 | 173.4 | Saudi Arabia | 149.5 | 106.8 | Saudi Arabia | 248.3 | 133.4 |
| UAE | 530.4 | 1323.4 | UAE | 383.4 | 735.5 | UAE | 245.2 | 329.5 | UAE | 216.1 | 194.3 | UAE | 163.7 | 116.9 | UAE | 226.7 | 121.8 |
| Brunei | 337.3 | 841.6 | Brunei | 469.1 | 900.0 | Brunei | 217.6 | 292.4 | Brunei | 209.1 | 188.1 | Brunei | 171.6 | 122.6 | Brunei | 141.1 | 75.8 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 9.5 | 23.7 | APO21 | 11.7 | 22.4 | APO21 | 15.8 | 21.2 | APO21 | 19.4 | 17.4 | APO21 | 25.3 | 18.1 | APO21 | 34.2 | 18.4 |
| Asia25 | 6.2 | 15.4 | Asia25 | 7.5 | 14.4 | Asia25 | 10.1 | 13.5 | Asia25 | 14.1 | 12.7 | Asia25 | 22.6 | 16.1 | Asia25 | 36.4 | 19.6 |
| Asia31 | 7.0 | 17.5 | Asia31 | 8.5 | 16.3 | Asia31 | 11.0 | 14.8 | Asia31 | 15.1 | 13.6 | Asia31 | 23.8 | 17.0 | Asia31 | 38.1 | 20.5 |
| East Asia | 6.5 | 16.3 | East Asia | 8.3 | 15.9 | East Asia | 11.2 | 15.0 | East Asia | 16.1 | 14.5 | East Asia | 27.6 | 19.7 | East Asia | 48.2 | 25.9 |
| South Asia | 3.6 | 9.1 | South Asia | 3.8 | 7.2 | South Asia | 5.3 | 7.1 | South Asia | 7.6 | 6.8 | South Asia | 12.6 | 9.0 | South Asia | 21.1 | 11.3 |
| ASEAN | 6.7 | 16.7 | ASEAN | 9.2 | 17.7 | ASEAN | 11.6 | 15.5 | ASEAN | 15.7 | 14.1 | ASEAN | 21.6 | 15.4 | ASEAN | 30.2 | 16.2 |
| ASEAN6 | 7.9 | 19.7 | ASEAN6 | 11.3 | 21.6 | ASEAN6 | 14.5 | 19.4 | ASEAN6 | 19.4 | 17.4 | ASEAN6 | 26.1 | 18.6 | ASEAN6 | 34.8 | 18.7 |
| CLMV | 3.7 | 9.2 | CLMV | 3.8 | 7.3 | CLMV | 3.9 | 5.2 | CLMV | 6.4 | 5.8 | CLMV | 10.8 | 7.7 | CLMV | 18.3 | 9.8 |
| GCC | 402.8 | 1005.2 | GCC | 248.5 | 476.8 | GCC | 181.8 | 244.3 | GCC | 182.1 | 163.8 | GCC | 142.0 | 101.5 | GCC | 189.0 | 101.5 |
| IPEF | 21.0 | 52.5 | IPEF | 23.9 | 45.9 | IPEF | 28.8 | 38.8 | IPEF | 34.6 | 31.1 | IPEF | 41.0 | 29.3 | IPEF | 51.0 | 27.4 |
| RCEP | 7.2 | 17.9 | RCEP | 8.9 | 17.1 | RCEP | 11.5 | 15.4 | RCEP | 16.1 | 14.5 | RCEP | 26.0 | 18.6 | RCEP | 42.9 | 23.0 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 60.4 | 150.8 | Australia | 69.3 | 133.0 | Australia | 74.6 | 100.2 | Australia | 93.5 | 84.1 | Australia | 102.5 | 73.2 | Australia | 112.1 | 60.2 |
| France | 53.0 | 132.2 | France | 71.3 | 136.8 | France | 87.4 | 117.5 | France | 99.0 | 89.1 | France | 107.0 | 76.4 | France | 108.8 | 58.4 |
| Germany | 68.8 | 171.7 | Germany | 89.4 | 171.6 | Germany | 100.1 | 134.5 | Germany | 93.6 | 84.2 | Germany | 99.4 | 71.0 | Germany | 106.8 | 57.4 |
| Italy | 60.5 | 150.9 | Italy | 82.3 | 157.8 | Italy | 97.8 | 131.4 | Italy | 113.0 | 101.6 | Italy | 108.3 | 77.4 | Italy | 108.9 | 58.5 |
| New Zealand | 61.5 | 153.4 | New Zealand | 62.8 | 120.6 | New Zealand | 64.4 | 86.5 | New Zealand | 74.5 | 67.0 | New Zealand | 81.4 | 58.1 | New Zealand | 88.9 | 47.7 |
| UK | 47.3 | 118.0 | UK | 55.2 | 105.9 | UK | 67.5 | 90.7 | UK | 87.8 | 79.0 | UK | 95.8 | 68.5 | UK | 102.7 | 55.2 |
| US | 70.4 | 175.7 | US | 78.5 | 150.6 | US | 90.9 | 122.1 | US | 109.8 | 98.7 | US | 133.3 | 95.2 | US | 149.1 | 80.1 |
| EU15 | 52.7 | 131.5 | EU15 | 68.1 | 130.7 | EU15 | 81.4 | 109.4 | EU15 | 95.9 | 86.3 | EU15 | 101.8 | 72.7 | EU15 | 107.5 | 57.7 |
| | | | | | | | | | EU27 | 85.6 | 77.0 | EU27 | 93.6 | 66.9 | EU27 | 101.4 | 54.5 |

Unit: Thousands of US dollars (as of 2022).
Source: APO Productivity Database 2024.

## Table 9.9 Per-Worker Labor Productivity Growth, 1990–2022

——Growth in GDP at constant prices per worker, using the 2017 PPP

| 1990–1995 | | 1995–2000 | | 2000–2005 | | 2005–2010 | | 2010–2015 | | 2015–2022 | | 2019–2020 | | 2020–2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kuwait | 10.6 | Lao PDR | 6.7 | China | 7.6 | China | 10.3 | Mongolia | 7.7 | Saudi Arabia | 7.1 | Turkiye | 6.4 | Saudi Arabia | 15.2 |
| China | 8.7 | Oman | 6.4 | Cambodia | 7.0 | India | 7.1 | Sri Lanka | 7.0 | China | 6.0 | Vietnam | 5.5 | China | 7.4 |
| Malaysia | 6.6 | China | 6.2 | Kuwait | 6.4 | Bhutan | 6.5 | China | 6.5 | Vietnam | 5.9 | Iran | 4.1 | Bahrain | 7.4 |
| Thailand | 6.5 | Vietnam | 6.1 | Vietnam | 5.9 | Vietnam | 5.5 | Bangladesh | 5.8 | Bangladesh | 4.9 | ROC | 3.1 | India | 7.4 |
| Indonesia | 6.4 | Myanmar | 5.6 | India | 4.6 | Sri Lanka | 5.3 | India | 5.3 | India | 4.1 | Brunei | 2.3 | Bhutan | 6.5 |
| Korea | 5.9 | ROC | 5.1 | Turkiye | 4.2 | Mongolia | 5.1 | Myanmar | 4.8 | Bhutan | 3.9 | Bangladesh | 2.0 | UAE | 6.2 |
| Vietnam | 5.9 | Korea | 4.8 | Bhutan | 4.0 | Iran | 5.1 | Bhutan | 4.2 | Cambodia | 3.2 | Cambodia | 1.7 | Malaysia | 6.2 |
| ROC | 5.9 | Qatar | 4.7 | Thailand | 3.8 | Bangladesh | 4.6 | Philippines | 4.1 | ROC | 3.0 | China | 1.4 | Vietnam | 5.7 |
| Pakistan | 4.8 | Cambodia | 4.5 | Malaysia | 3.7 | Nepal | 3.6 | Vietnam | 3.8 | Singapore | 2.8 | Bahrain | 0.7 | Bangladesh | 4.7 |
| Hong Kong | 4.6 | Singapore | 4.2 | Bangladesh | 3.6 | Myanmar | 3.5 | UAE | 3.7 | Mongolia | 2.7 | Korea | 0.0 | ROC | 4.7 |
| Singapore | 4.5 | Turkiye | 4.2 | Indonesia | 3.6 | Lao PDR | 3.5 | Turkiye | 3.5 | Malaysia | 2.6 | Hong Kong | −1.3 | Singapore | 4.6 |
| Sri Lanka | 4.4 | India | 4.2 | Korea | 3.5 | Korea | 3.4 | Indonesia | 3.5 | Bahrain | 2.6 | Singapore | −1.3 | Nepal | 3.9 |
| Bhutan | 3.3 | Pakistan | 3.8 | Myanmar | 3.5 | Hong Kong | 3.1 | Fiji | 3.5 | Turkiye | 2.6 | Indonesia | −1.8 | Fiji | 3.7 |
| India | 3.1 | Philippines | 3.1 | Sri Lanka | 3.4 | ROC | 3.1 | Thailand | 3.4 | Pakistan | 2.2 | Sri Lanka | −1.8 | Iran | 3.6 |
| Bahrain | 2.9 | Bhutan | 3.0 | ROC | 3.4 | Philippines | 2.7 | Malaysia | 2.9 | Philippines | 2.2 | Bhutan | −1.9 | Myanmar | 3.5 |
| Nepal | 2.6 | Bangladesh | 2.8 | Iran | 3.3 | Indonesia | 2.7 | Lao PDR | 2.1 | Nepal | 2.0 | Kuwait | −2.3 | Pakistan | 3.0 |
| Myanmar | 2.0 | Mongolia | 2.5 | Singapore | 3.3 | Thailand | 2.5 | Nepal | 2.0 | UAE | 2.0 | Saudi Arabia | −2.6 | Qatar | 2.9 |
| Turkiye | 1.8 | Nepal | 1.9 | Hong Kong | 3.2 | Cambodia | 1.9 | Cambodia | 2.0 | Myanmar | 1.7 | Philippines | −2.7 | Indonesia | 2.6 |
| Qatar | 1.7 | Sri Lanka | 1.6 | Mongolia | 2.7 | Malaysia | 1.3 | Singapore | 1.8 | Indonesia | 1.6 | Pakistan | −2.9 | Mongolia | 2.5 |
| Bangladesh | 1.0 | Bahrain | 1.4 | Pakistan | 2.4 | Singapore | 1.3 | ROC | 1.6 | Korea | 1.6 | Nepal | −3.6 | Kuwait | 2.3 |
| Iran | 0.8 | Japan | 1.2 | Lao PDR | 2.3 | Turkiye | 0.4 | Bahrain | 1.6 | Thailand | 1.2 | Japan | −3.6 | Cambodia | 1.9 |
| Saudi Arabia | 0.7 | Malaysia | 1.1 | Nepal | 2.2 | Japan | 0.1 | Pakistan | 1.4 | Hong Kong | 1.1 | Oman | −3.7 | Lao PDR | 1.9 |
| Japan | 0.6 | UAE | 1.1 | Fiji | 2.0 | Bahrain | −0.2 | Korea | 1.4 | Lao PDR | 0.8 | Qatar | −3.8 | Hong Kong | 1.9 |
| Fiji | 0.5 | Fiji | 1.0 | Philippines | 1.4 | Pakistan | −0.3 | Hong Kong | 1.2 | Iran | 0.7 | UAE | −4.4 | Korea | 1.6 |
| Lao PDR | 0.3 | Brunei | 0.6 | Japan | 1.4 | Brunei | −2.2 | Japan | 0.7 | Fiji | 0.1 | Malaysia | −4.4 | Turkiye | 1.3 |
| Philippines | 0.3 | Hong Kong | 0.6 | Oman | 1.1 | Fiji | −2.2 | Saudi Arabia | 0.3 | Qatar | −0.4 | Mongolia | −5.9 | Japan | 1.1 |
| Cambodia | 0.0 | Iran | 0.5 | Qatar | 0.2 | Saudi Arabia | −2.6 | Kuwait | −0.6 | Japan | −0.4 | India | −7.1 | Philippines | 0.0 |
| Mongolia | −1.4 | Thailand | 0.3 | Brunei | −1.8 | UAE | −3.2 | Brunei | −0.9 | Sri Lanka | −0.6 | Thailand | −7.3 | Thailand | −0.2 |
| Brunei | −1.4 | Kuwait | −0.2 | UAE | −2.3 | Qatar | −6.1 | Iran | −1.7 | Oman | −0.7 | Lao PDR | −7.5 | Oman | −1.5 |
| UAE | −3.6 | Indonesia | −1.6 | Saudi Arabia | −2.5 | Kuwait | −6.4 | Qatar | −2.2 | Kuwait | −1.2 | Myanmar | −10.0 | Brunei | −4.9 |
| Oman | −9.3 | Saudi Arabia | −1.7 | Bahrain | −2.7 | Oman | −8.6 | Oman | −4.9 | Brunei | −2.2 | Fiji | −15.2 | Sri Lanka | −5.3 |
| (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | |
| APO21 | 2.4 | APO21 | 1.7 | APO21 | 2.5 | APO21 | 2.8 | APO21 | 2.9 | APO21 | 2.3 | APO21 | −3.0 | APO21 | 3.9 |
| Asia25 | 3.8 | Asia25 | 2.9 | Asia25 | 4.1 | Asia25 | 5.4 | Asia25 | 4.3 | Asia25 | 3.8 | Asia25 | −1.2 | Asia25 | 5.3 |
| Asia31 | 3.7 | Asia31 | 2.7 | Asia31 | 3.9 | Asia31 | 5.1 | Asia31 | 4.3 | Asia31 | 3.7 | Asia31 | −1.3 | Asia31 | 5.5 |
| East Asia | 4.0 | East Asia | 3.3 | East Asia | 4.4 | East Asia | 6.3 | East Asia | 4.7 | East Asia | 4.6 | East Asia | 0.5 | East Asia | 6.2 |
| South Asia | 3.2 | South Asia | 4.0 | South Asia | 4.2 | South Asia | 6.0 | South Asia | 4.9 | South Asia | 3.8 | South Asia | −5.8 | South Asia | 6.4 |
| ASEAN | 5.4 | ASEAN | 0.7 | ASEAN | 3.4 | ASEAN | 3.0 | ASEAN | 3.5 | ASEAN | 2.3 | ASEAN | −2.1 | ASEAN | 2.8 |
| ASEAN6 | 5.7 | ASEAN6 | 0.2 | ASEAN6 | 3.3 | ASEAN6 | 2.6 | ASEAN6 | 3.5 | ASEAN6 | 1.7 | ASEAN6 | −2.9 | ASEAN6 | 2.1 |
| CLMV | 4.4 | CLMV | 5.8 | CLMV | 5.4 | CLMV | 5.0 | CLMV | 3.7 | CLMV | 4.9 | CLMV | 2.5 | CLMV | 4.9 |
| GCC | 0.3 | GCC | −0.2 | GCC | −1.5 | GCC | −3.5 | GCC | 0.3 | GCC | 3.9 | GCC | −2.9 | GCC | 9.4 |
| IPEF | 1.6 | IPEF | 2.1 | IPEF | 1.7 | IPEF | 1.6 | IPEF | 2.0 | IPEF | 1.7 | IPEF | −2.4 | IPEF | 3.0 |
| RCEP | 4.1 | RCEP | 2.6 | RCEP | 4.2 | RCEP | 5.5 | RCEP | 4.4 | RCEP | 4.0 | RCEP | 0.1 | RCEP | 5.2 |
| (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | |
| Australia | 2.4 | Australia | 2.2 | Australia | 1.3 | Australia | 0.6 | Australia | 1.5 | Australia | 0.2 | Australia | 3.7 | Australia | −0.1 |
| France | 1.2 | France | 1.3 | France | 1.1 | France | 0.4 | France | 0.6 | France | −0.2 | France | −7.8 | France | 1.8 |
| Germany | −2.4 | Germany | 1.0 | Germany | 0.9 | Germany | 0.3 | Germany | 0.8 | Germany | 0.5 | Germany | −3.1 | Germany | 2.0 |
| Italy | 1.9 | Italy | 1.0 | Italy | −0.3 | Italy | −0.5 | Italy | −0.4 | Italy | 0.4 | Italy | −7.2 | Italy | 4.8 |
| New Zealand | 1.2 | New Zealand | 1.7 | New Zealand | 1.0 | New Zealand | 0.8 | New Zealand | 1.1 | New Zealand | 0.5 | New Zealand | −1.2 | New Zealand | 1.7 |
| UK | 3.1 | UK | 2.2 | UK | 1.6 | UK | 0.2 | UK | 0.3 | UK | 0.8 | UK | −10.1 | UK | 6.0 |
| US | 1.5 | US | 2.3 | US | 2.3 | US | 1.6 | US | 0.7 | US | 1.1 | US | 3.3 | US | 0.3 |
| EU15 | 1.9 | EU15 | 1.4 | EU15 | 0.9 | EU15 | 0.3 | EU15 | 0.6 | EU15 | 0.4 | EU15 | −5.7 | EU15 | 3.2 |
| | | EU27 | 1.8 | EU27 | 1.2 | EU27 | 0.6 | EU27 | 0.7 | EU27 | 0.6 | EU27 | −4.4 | EU27 | 2.9 |

Unit: Percentage (average annual growth rate).
Source: APO Productivity Database 2024.

## Table 9.10 Per-Hour Labor Productivity Level, 1970–2022

——GDP at constant basic prices per hour, using the 2017 PPP, the reference year 2022

| 1970 | | (%) | 1980 | | (%) | 1990 | | (%) | 2000 | | (%) | 2010 | | (%) | 2022 | | (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Singapore | 16.0 | 100.0 | Japan | 24.3 | 100.0 | Japan | 35.6 | 100.0 | Singapore | 46.3 | 100.0 | Singapore | 60.4 | 100.0 | Singapore | 84.4 | 100.0 |
| Iran | 15.9 | 99.6 | Singapore | 23.4 | 96.4 | Singapore | 31.7 | 88.9 | Japan | 43.1 | 93.0 | Hong Kong | 51.5 | 85.4 | ROC | 64.9 | 76.8 |
| Japan | 15.7 | 97.8 | Iran | 16.8 | 69.2 | Hong Kong | 29.2 | 82.1 | Hong Kong | 37.0 | 79.9 | ROC | 48.7 | 80.7 | Hong Kong | 63.8 | 75.5 |
| Turkiye | 13.5 | 84.1 | Hong Kong | 16.6 | 68.4 | ROC | 18.8 | 52.8 | ROC | 33.3 | 71.9 | Japan | 48.6 | 80.6 | Japan | 50.8 | 60.1 |
| Fiji | 11.8 | 73.5 | Turkiye | 15.2 | 62.7 | Turkiye | 18.6 | 52.3 | Turkiye | 25.2 | 54.3 | Korea | 33.3 | 55.3 | Turkiye | 48.5 | 57.4 |
| Hong Kong | 9.9 | 61.7 | Fiji | 13.3 | 55.0 | Iran | 16.3 | 45.8 | Korea | 21.0 | 45.4 | Turkiye | 30.7 | 50.9 | Korea | 47.5 | 56.2 |
| Malaysia | 6.1 | 38.4 | ROC | 9.7 | 39.9 | Fiji | 13.2 | 37.0 | Malaysia | 17.6 | 38.1 | Iran | 28.3 | 46.9 | Malaysia | 32.9 | 38.9 |
| ROC | 4.7 | 29.4 | Malaysia | 9.5 | 39.1 | Malaysia | 12.0 | 33.8 | Iran | 17.6 | 38.0 | Malaysia | 22.9 | 38.0 | Iran | 28.3 | 33.5 |
| Philippines | 4.5 | 27.9 | Korea | 5.9 | 24.3 | Korea | 11.6 | 32.5 | Fiji | 13.8 | 29.9 | Fiji | 14.1 | 23.3 | Mongolia | 19.7 | 23.3 |
| Sri Lanka | 3.8 | 23.5 | Philippines | 5.6 | 23.3 | Mongolia | 6.6 | 18.5 | Sri Lanka | 8.2 | 17.7 | Sri Lanka | 13.5 | 22.4 | China | 18.0 | 21.3 |
| Mongolia | 3.7 | 23.3 | Mongolia | 5.6 | 23.1 | Indonesia | 6.5 | 18.3 | Indonesia | 7.9 | 17.1 | Mongolia | 12.5 | 20.7 | Sri Lanka | 17.9 | 21.3 |
| Korea | 3.5 | 21.8 | Indonesia | 5.0 | 20.6 | Sri Lanka | 6.1 | 17.2 | Thailand | 7.9 | 17.0 | Thailand | 11.5 | 19.0 | Thailand | 17.5 | 20.7 |
| Indonesia | 3.3 | 20.9 | Sri Lanka | 4.8 | 19.7 | Philippines | 5.6 | 15.6 | Mongolia | 7.6 | 16.4 | Indonesia | 10.4 | 17.2 | Fiji | 16.1 | 19.1 |
| Thailand | 2.8 | 17.4 | Thailand | 3.4 | 14.0 | Thailand | 5.4 | 15.3 | Pakistan | 6.9 | 14.9 | Philippines | 8.4 | 13.9 | Indonesia | 15.0 | 17.8 |
| Bangladesh | 2.6 | 16.5 | Pakistan | 2.9 | 11.8 | Pakistan | 4.5 | 12.5 | Philippines | 6.7 | 14.4 | China | 8.3 | 13.7 | Philippines | 12.4 | 14.6 |
| Pakistan | 2.4 | 14.8 | Lao PDR | 2.4 | 9.8 | Nepal | 2.8 | 7.8 | Lao PDR | 3.9 | 8.5 | Pakistan | 7.9 | 13.1 | Bhutan | 11.8 | 14.0 |
| Nepal | 2.3 | 14.2 | Nepal | 2.0 | 8.3 | Bhutan | 2.8 | 7.8 | Bhutan | 3.8 | 8.2 | Bhutan | 6.7 | 11.2 | Vietnam | 10.2 | 12.1 |
| Cambodia | 2.3 | 14.1 | Bangladesh | 1.9 | 7.9 | Lao PDR | 2.8 | 7.8 | Nepal | 3.5 | 7.5 | India | 5.5 | 9.1 | Pakistan | 9.8 | 11.6 |
| Lao PDR | 2.0 | 12.4 | Bhutan | 1.9 | 7.7 | India | 2.2 | 6.1 | China | 3.5 | 7.5 | Vietnam | 5.5 | 9.0 | India | 9.5 | 11.2 |
| Vietnam | 1.7 | 10.5 | Vietnam | 1.7 | 7.0 | Bangladesh | 2.1 | 6.0 | India | 3.1 | 6.7 | Lao PDR | 5.3 | 8.7 | Bangladesh | 7.4 | 8.7 |
| India | 1.4 | 9.0 | India | 1.5 | 6.3 | China | 1.7 | 4.8 | Vietnam | 3.0 | 6.4 | Nepal | 4.6 | 7.7 | Lao PDR | 6.2 | 7.3 |
| Bhutan | 1.4 | 9.0 | Cambodia | 1.3 | 5.3 | Vietnam | 1.7 | 4.7 | Bangladesh | 2.7 | 5.9 | Bangladesh | 4.2 | 6.9 | Nepal | 5.9 | 7.0 |
| China | 0.9 | 5.9 | Myanmar | 1.2 | 4.8 | Cambodia | 1.4 | 4.0 | Myanmar | 1.7 | 3.7 | Cambodia | 2.5 | 4.2 | Myanmar | 4.2 | 4.9 |
| Myanmar | 0.9 | 5.4 | China | 1.1 | 4.7 | Myanmar | 1.2 | 3.3 | Cambodia | 1.7 | 3.7 | Myanmar | 2.4 | 4.0 | Cambodia | 3.4 | 4.0 |
| Brunei | 149.9 | 936.8 | Brunei | 208.9 | 860.7 | Brunei | 97.1 | 272.7 | Brunei | 93.6 | 202.0 | Brunei | 76.8 | 127.2 | Brunei | 61.7 | 73.1 |
| (region) | | | (region) | | | (region) | | | (region) | | | (region) | | | (region) | | |
| APO21 | 4.4 | 27.8 | APO21 | 5.5 | 22.6 | APO21 | 7.4 | 20.7 | APO21 | 9.1 | 19.6 | APO21 | 11.9 | 19.8 | APO21 | 16.4 | 19.5 |
| Asia25 | 3.0 | 18.4 | Asia25 | 3.6 | 14.9 | Asia25 | 4.8 | 13.5 | Asia25 | 6.6 | 14.3 | Asia25 | 10.5 | 17.4 | Asia25 | 17.4 | 20.6 |
| East Asia | 3.1 | 19.7 | East Asia | 4.0 | 16.6 | East Asia | 5.4 | 15.3 | East Asia | 7.6 | 16.5 | East Asia | 12.8 | 21.2 | East Asia | 23.3 | 27.5 |
| South Asia | 1.7 | 10.9 | South Asia | 1.8 | 7.4 | South Asia | 2.5 | 7.1 | South Asia | 3.6 | 7.8 | South Asia | 6.0 | 9.9 | South Asia | 9.8 | 11.7 |
| ASEAN | 3.1 | 19.5 | ASEAN | 4.2 | 17.4 | ASEAN | 5.3 | 15.0 | ASEAN | 7.1 | 15.3 | ASEAN | 9.8 | 16.3 | ASEAN | 14.8 | 17.6 |
| ASEAN6 | 3.8 | 24.0 | ASEAN6 | 5.3 | 21.9 | ASEAN6 | 6.9 | 19.3 | ASEAN6 | 9.1 | 19.6 | ASEAN6 | 12.2 | 20.2 | ASEAN6 | 17.7 | 21.0 |
| CLMV | 1.6 | 9.8 | CLMV | 1.6 | 6.7 | CLMV | 1.6 | 4.6 | CLMV | 2.7 | 5.8 | CLMV | 4.6 | 7.6 | CLMV | 8.2 | 9.7 |
| IPEF | 10.4 | 65.1 | IPEF | 11.9 | 49.1 | IPEF | 14.3 | 40.2 | IPEF | 17.2 | 37.1 | IPEF | 20.3 | 33.6 | IPEF | 25.8 | 30.6 |
| RCEP | 3.5 | 21.6 | RCEP | 4.3 | 17.7 | RCEP | 5.5 | 15.5 | RCEP | 7.6 | 16.3 | RCEP | 12.0 | 20.0 | RCEP | 20.9 | 24.7 |
| (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | | (reference) | | |
| Australia | 32.9 | 205.6 | Australia | 38.1 | 157.2 | Australia | 41.9 | 117.8 | Australia | 52.9 | 114.1 | Australia | 60.7 | 100.6 | Australia | 68.9 | 81.6 |
| France | 26.6 | 166.1 | France | 39.5 | 162.7 | France | 53.2 | 149.3 | France | 63.6 | 137.1 | France | 69.5 | 115.1 | France | 72.0 | 85.3 |
| | | | | | | | | | Germany | 63.9 | 137.8 | Germany | 69.7 | 115.5 | Germany | 79.7 | 94.4 |
| | | | | | | | | | Italy | 61.1 | 131.8 | Italy | 61.0 | 101.0 | Italy | 64.3 | 76.1 |
| | | | | | | New Zealand | 35.6 | 99.9 | New Zealand | 40.6 | 87.6 | New Zealand | 46.4 | 76.8 | New Zealand | 50.9 | 60.2 |
| UK | 26.6 | 166.4 | UK | 34.1 | 140.4 | UK | 41.7 | 117.2 | UK | 56.4 | 121.6 | UK | 63.6 | 105.3 | UK | 67.1 | 79.4 |
| US | 43.9 | 274.5 | US | 50.8 | 209.2 | US | 59.0 | 165.6 | US | 70.3 | 151.6 | US | 86.7 | 143.7 | US | 95.5 | 113.1 |
| | | | | | | | | | EU15 | 59.5 | 128.3 | EU15 | 64.9 | 107.5 | EU15 | 70.8 | 83.9 |

Unit: US dollar.
Source: APO Productivity Database 2024.

## Table 9.11 Per-Hour Labor Productivity Growth, 1990–2022

——Growth in GDP at constant basic prices per hour, using the 2017 PPP

| 1990–1995 | | 1995–2000 | | 2000–2005 | | 2005–2010 | | 2010–2015 | | 2015–2019 | | 2019–2020 | | 2020–2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| China | 8.7 | Lao PDR | 6.7 | Vietnam | 7.6 | China | 10.9 | China | 7.7 | Myanmar | 6.3 | Turkiye | 10.2 | China | 8.4 |
| Malaysia | 6.5 | Korea | 5.6 | China | 6.4 | Bhutan | 7.1 | Bhutan | 6.8 | Vietnam | 6.3 | Brunei | 8.2 | India | 7.4 |
| Korea | 6.4 | Myanmar | 5.5 | Cambodia | 6.3 | India | 7.0 | Sri Lanka | 6.5 | Bangladesh | 5.6 | ROC | 5.2 | Myanmar | 5.6 |
| Thailand | 6.2 | ROC | 5.5 | Thailand | 5.2 | Iran | 6.1 | Mongolia | 6.2 | China | 5.2 | Vietnam | 4.7 | Indonesia | 5.6 |
| Indonesia | 6.2 | Vietnam | 5.4 | Sri Lanka | 4.6 | Mongolia | 6.0 | India | 5.2 | Philippines | 5.2 | Korea | 4.3 | Bangladesh | 4.7 |
| Vietnam | 6.1 | China | 5.3 | Korea | 4.6 | Sri Lanka | 5.4 | Thailand | 4.8 | India | 5.2 | Iran | 3.7 | Mongolia | 4.7 |
| ROC | 5.9 | Turkiye | 4.7 | India | 4.5 | Bangladesh | 5.0 | Vietnam | 4.8 | Korea | 4.2 | Bangladesh | 1.8 | Bhutan | 4.6 |
| Pakistan | 4.8 | India | 4.1 | Bhutan | 4.3 | Korea | 4.7 | Myanmar | 4.8 | Thailand | 4.0 | China | 1.5 | Vietnam | 4.5 |
| Sri Lanka | 4.8 | Mongolia | 4.0 | Mongolia | 4.0 | Vietnam | 4.5 | Bangladesh | 4.7 | Bhutan | 3.5 | Hong Kong | 0.7 | ROC | 4.4 |
| Hong Kong | 4.8 | Pakistan | 4.0 | ROC | 3.8 | ROC | 3.7 | Turkiye | 4.2 | Singapore | 3.4 | Singapore | 0.5 | Malaysia | 4.4 |
| Singapore | 3.9 | Singapore | 3.7 | Singapore | 3.8 | Lao PDR | 3.5 | Indonesia | 3.9 | Cambodia | 3.4 | Malaysia | 0.4 | Singapore | 4.4 |
| Bhutan | 3.4 | Cambodia | 3.5 | Bangladesh | 3.5 | Hong Kong | 3.5 | Philippines | 3.8 | Turkiye | 3.3 | Philippines | –0.1 | Fiji | 3.7 |
| India | 3.1 | Bangladesh | 3.4 | Myanmar | 3.5 | Myanmar | 3.5 | Malaysia | 3.5 | Pakistan | 3.1 | Cambodia | –0.3 | Nepal | 3.7 |
| Nepal | 2.5 | Bhutan | 2.9 | Iran | 3.4 | Nepal | 3.4 | Fiji | 2.6 | ROC | 2.7 | Bhutan | –1.2 | Iran | 3.4 |
| Myanmar | 2.0 | Philippines | 2.8 | Malaysia | 3.2 | Philippines | 2.7 | Cambodia | 2.5 | Nepal | 2.5 | Sri Lanka | –1.9 | Korea | 2.7 |
| Japan | 1.8 | Japan | 2.0 | Indonesia | 3.1 | Thailand | 2.4 | Hong Kong | 2.3 | Lao PDR | 2.4 | Thailand | –2.5 | Pakistan | 2.5 |
| Bangladesh | 1.4 | Nepal | 2.0 | Hong Kong | 3.1 | Indonesia | 2.3 | Singapore | 2.1 | Malaysia | 2.3 | Indonesia | –2.6 | Thailand | 2.4 |
| Turkiye | 1.4 | Thailand | 1.2 | Pakistan | 2.6 | Malaysia | 2.0 | Lao PDR | 2.1 | Indonesia | 2.1 | Mongolia | –3.2 | Lao PDR | 1.9 |
| Iran | 0.9 | Malaysia | 1.2 | Turkiye | 2.5 | Cambodia | 1.7 | Nepal | 2.0 | Fiji | 2.1 | Japan | –3.5 | Cambodia | 1.7 |
| Philippines | 0.8 | Sri Lanka | 1.0 | Nepal | 2.3 | Singapore | 1.5 | Korea | 1.7 | Mongolia | 2.1 | Nepal | –3.7 | Hong Kong | 1.6 |
| Lao PDR | 0.3 | Fiji | 0.8 | Lao PDR | 2.3 | Turkiye | 1.5 | Pakistan | 1.6 | Sri Lanka | 2.1 | Pakistan | –3.8 | Turkiye | 0.4 |
| Fiji | 0.2 | Brunei | 0.6 | Philippines | 2.0 | Japan | 0.7 | Japan | 1.1 | Hong Kong | 1.5 | Myanmar | –6.7 | Japan | 0.4 |
| Cambodia | –0.2 | Iran | 0.6 | Japan | 1.8 | Pakistan | 0.1 | ROC | 0.8 | Japan | 0.4 | India | –7.1 | Philippines | –0.5 |
| Mongolia | –1.2 | Hong Kong | 0.0 | Fiji | 1.5 | Fiji | –1.2 | Brunei | –0.9 | Iran | –0.7 | Lao PDR | –7.5 | Sri Lanka | –5.3 |
| Brunei | –1.4 | Indonesia | –2.4 | Brunei | –1.8 | Brunei | –2.2 | Iran | –1.5 | Brunei | –2.5 | Fiji | –15.3 | Brunei | –7.8 |
| (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | |
| APO21 | 2.5 | APO21 | 1.7 | APO21 | 2.6 | APO21 | 2.8 | APO21 | 3.0 | APO21 | 2.9 | APO21 | –2.8 | APO21 | 4.2 |
| Asia25 | 3.9 | Asia25 | 2.5 | Asia25 | 3.6 | Asia25 | 5.7 | Asia25 | 4.9 | Asia25 | 3.9 | Asia25 | –1.0 | Asia25 | 5.9 |
| East Asia | 4.2 | East Asia | 2.6 | East Asia | 3.4 | East Asia | 7.0 | East Asia | 5.8 | East Asia | 4.0 | East Asia | 0.7 | East Asia | 7.0 |
| South Asia | 3.2 | South Asia | 4.0 | South Asia | 4.1 | South Asia | 5.9 | South Asia | 4.7 | South Asia | 4.9 | South Asia | –6.0 | South Asia | 6.3 |
| ASEAN | 5.3 | ASEAN | 0.4 | ASEAN | 3.8 | ASEAN | 2.7 | ASEAN | 4.1 | ASEAN | 3.5 | ASEAN | –1.2 | ASEAN | 4.0 |
| ASEAN6 | 5.6 | ASEAN6 | 0.1 | ASEAN6 | 3.4 | ASEAN6 | 2.4 | ASEAN6 | 4.0 | ASEAN6 | 2.8 | ASEAN6 | –1.8 | ASEAN6 | 3.9 |
| CLMV | 4.5 | CLMV | 5.3 | CLMV | 6.3 | CLMV | 4.4 | CLMV | 4.3 | CLMV | 6.1 | CLMV | 2.6 | CLMV | 4.7 |
| IPEF | 1.6 | IPEF | 2.0 | IPEF | 1.8 | IPEF | 1.5 | IPEF | 2.2 | IPEF | 2.2 | IPEF | –2.2 | IPEF | 3.4 |
| RCEP | 4.2 | RCEP | 2.0 | RCEP | 3.4 | RCEP | 5.9 | RCEP | 5.4 | RCEP | 3.8 | RCEP | 0.5 | RCEP | 6.2 |
| (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | |
| Australia | 2.3 | Australia | 2.4 | Australia | 1.8 | Australia | 0.9 | Australia | 1.7 | Australia | –0.2 | Australia | 6.0 | Australia | –0.5 |
| France | 1.7 | France | 1.8 | France | 1.4 | France | 0.3 | France | 0.8 | France | 0.8 | France | 0.1 | France | –2.0 |
| | | Germany | 1.9 | Germany | 1.4 | Germany | 0.4 | Germany | 1.1 | Germany | 1.2 | Germany | 0.8 | Germany | 1.2 |
| | | Italy | 1.1 | Italy | 0.1 | Italy | –0.1 | Italy | 0.2 | Italy | 0.2 | Italy | 3.1 | Italy | 0.1 |
| New Zealand | 0.9 | New Zealand | 1.8 | New Zealand | 1.2 | New Zealand | 1.4 | New Zealand | 1.1 | New Zealand | –0.1 | New Zealand | 1.3 | New Zealand | 1.4 |
| UK | 3.5 | UK | 2.5 | UK | 1.8 | UK | 0.7 | UK | 0.0 | UK | 0.7 | UK | 1.8 | UK | 0.2 |
| US | 1.4 | US | 2.1 | US | 2.5 | US | 1.7 | US | 0.4 | US | 0.9 | US | 3.5 | US | 0.2 |
| | | | | EU15 | 1.1 | EU15 | 0.6 | EU15 | 0.8 | EU15 | 0.6 | EU15 | 1.9 | EU15 | 0.2 |

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

## Table 9.12 TFP Growth, 1990–2022

——Growth in total factor productivity

| 1990–1995 | | 1995–2000 | | 2000–2005 | | 2005–2010 | | 2010–2015 | | 2015–2019 | | 2019–2020 | | 2020–2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| China | 4.5 | Mongolia | 3.7 | Cambodia | 3.7 | China | 3.7 | Fiji | 2.8 | India | 2.3 | ROC | 2.4 | Fiji | 5.6 |
| Vietnam | 3.4 | Lao PDR | 3.2 | Mongolia | 3.2 | Bhutan | 3.2 | Malaysia | 2.5 | Vietnam | 2.2 | Iran | 2.0 | India | 5.5 |
| Sri Lanka | 3.4 | ROC | 2.6 | Iran | 2.5 | Sri Lanka | 2.7 | India | 1.8 | Myanmar | 2.1 | Turkiye | 0.4 | Malaysia | 4.3 |
| ROC | 3.3 | Korea | 1.9 | India | 2.4 | Iran | 2.7 | Turkiye | 1.6 | China | 1.8 | Korea | 0.2 | Myanmar | 4.2 |
| Pakistan | 1.8 | Pakistan | 1.7 | Thailand | 2.4 | India | 2.4 | China | 1.3 | Thailand | 1.7 | Brunei | 0.0 | China | 3.8 |
| India | 1.6 | Myanmar | 1.7 | Hong Kong | 1.9 | Hong Kong | 2.1 | Pakistan | 1.1 | ROC | 1.6 | Vietnam | −0.3 | Singapore | 3.2 |
| Korea | 1.5 | India | 1.7 | Sri Lanka | 1.8 | Singapore | 2.0 | Sri Lanka | 1.1 | Korea | 1.5 | Cambodia | −2.5 | Indonesia | 3.0 |
| Hong Kong | 1.4 | Brunei | 1.6 | Philippines | 1.7 | ROC | 2.0 | Hong Kong | 1.0 | Cambodia | 1.4 | China | −2.8 | Pakistan | 2.5 |
| Singapore | 0.9 | China | 1.5 | ROC | 1.7 | Lao PDR | 1.8 | Japan | 0.9 | Fiji | 1.4 | Bangladesh | −2.8 | Philippines | 2.5 |
| Malaysia | 0.9 | Cambodia | 1.4 | Malaysia | 1.6 | Korea | 1.3 | Vietnam | 0.9 | Pakistan | 1.3 | Hong Kong | −3.0 | Turkiye | 2.4 |
| Indonesia | 0.8 | Sri Lanka | 1.3 | Singapore | 1.3 | Philippines | 1.2 | Nepal | 0.8 | Mongolia | 1.3 | Singapore | −3.3 | Iran | 2.4 |
| Cambodia | 0.7 | Iran | 1.1 | China | 1.1 | Nepal | 1.0 | Thailand | 0.6 | Singapore | 1.2 | Pakistan | −3.7 | Nepal | 2.0 |
| Myanmar | 0.4 | Vietnam | 0.8 | Pakistan | 1.0 | Malaysia | 1.0 | Mongolia | 0.5 | Hong Kong | 0.9 | Japan | −4.6 | Vietnam | 2.0 |
| Japan | −0.1 | Turkiye | 0.6 | Lao PDR | 1.0 | Bangladesh | 0.9 | ROC | 0.5 | Philippines | 0.8 | Mongolia | −5.1 | ROC | 2.0 |
| Philippines | −0.3 | Singapore | 0.5 | Korea | 0.8 | Indonesia | 0.5 | Philippines | 0.4 | Malaysia | 0.7 | Nepal | −5.9 | Bhutan | 1.7 |
| Mongolia | −0.4 | Japan | 0.4 | Vietnam | 0.8 | Thailand | 0.3 | Singapore | 0.3 | Nepal | 0.7 | Malaysia | −6.0 | Korea | 1.6 |
| Bhutan | −0.6 | Bhutan | 0.1 | Japan | 0.7 | Fiji | 0.3 | Korea | 0.2 | Brunei | 0.4 | Sri Lanka | −6.7 | Hong Kong | 1.6 |
| Nepal | −0.7 | Philippines | 0.1 | Fiji | 0.4 | Myanmar | 0.2 | Bangladesh | 0.1 | Bangladesh | 0.4 | Indonesia | −6.9 | Mongolia | 1.5 |
| Turkiye | −0.7 | Bangladesh | 0.0 | Indonesia | 0.2 | Japan | −0.3 | Bhutan | −0.6 | Lao PDR | 0.2 | Thailand | −7.5 | Thailand | 1.0 |
| Bangladesh | −0.7 | Fiji | −0.1 | Turkiye | 0.2 | Pakistan | −0.7 | Myanmar | −0.8 | Japan | 0.2 | Myanmar | −8.2 | Japan | 0.8 |
| Iran | −0.8 | Malaysia | −0.6 | Bangladesh | 0.1 | Vietnam | −1.6 | Indonesia | −0.9 | Bhutan | −0.3 | India | −9.1 | Bangladesh | 0.5 |
| Lao PDR | −0.9 | Nepal | −1.4 | Nepal | −0.4 | Mongolia | −1.7 | Brunei | −1.0 | Indonesia | −0.4 | Philippines | −9.2 | Lao PDR | 0.3 |
| Fiji | −1.2 | Hong Kong | −1.6 | Myanmar | −1.0 | Brunei | −1.8 | Lao PDR | −1.8 | Turkiye | −0.5 | Lao PDR | −9.8 | Cambodia | −0.6 |
| Thailand | −1.3 | Thailand | −3.1 | Brunei | −1.4 | Turkiye | −1.9 | Cambodia | −1.9 | Iran | −0.7 | Bhutan | −10.4 | Brunei | −5.8 |
| Brunei | −2.5 | Indonesia | −5.1 | Bhutan | −1.8 | Cambodia | −2.0 | Iran | −2.6 | Sri Lanka | −2.1 | Fiji | −17.4 | Sri Lanka | −7.3 |
| (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | | (region) | |
| APO21 | 0.5 | APO21 | 0.1 | APO21 | 1.2 | APO21 | 0.8 | APO21 | 0.8 | APO21 | 1.0 | APO21 | −4.9 | APO21 | 2.9 |
| Asia25 | 1.3 | Asia25 | 0.5 | Asia25 | 1.2 | Asia25 | 1.9 | Asia25 | 1.1 | Asia25 | 1.3 | Asia25 | −4.0 | Asia25 | 3.4 |
| East Asia | 1.4 | East Asia | 0.8 | East Asia | 0.9 | East Asia | 2.5 | East Asia | 1.4 | East Asia | 1.6 | East Asia | −2.7 | East Asia | 3.5 |
| South Asia | 1.6 | South Asia | 1.6 | South Asia | 2.0 | South Asia | 1.8 | South Asia | 1.4 | South Asia | 2.0 | South Asia | −7.8 | South Asia | 4.5 |
| ASEAN | 0.9 | ASEAN | −2.2 | ASEAN | 1.5 | ASEAN | 0.7 | ASEAN | 0.5 | ASEAN | 0.8 | ASEAN | −5.7 | ASEAN | 2.3 |
| ASEAN6 | 0.4 | ASEAN6 | −2.9 | ASEAN6 | 1.3 | ASEAN6 | 0.8 | ASEAN6 | 0.2 | ASEAN6 | 0.4 | ASEAN6 | −6.4 | ASEAN6 | 2.3 |
| CLMV | 2.4 | CLMV | 1.2 | CLMV | 0.7 | CLMV | −1.2 | CLMV | 0.4 | CLMV | 2.2 | CLMV | −1.8 | CLMV | 2.2 |
| (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | | (reference) | |
| US | 0.7 | US | 0.9 | US | 1.1 | US | 0.2 | US | 0.3 | US | 0.4 | US | −0.6 | US | 0.8 |

Unit: Percentage (average annual growth rate). Source: APO Productivity Database 2024.

## Table 9.13 Output Growth and Contributions of Labor, Capital, and TFP, 1970–2022

| | | Output | Labor | | | | Capital | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Hours Worked | | Labor Quality | | ICT | | Non–ICT | | | |
| Bangladesh | 1970–1975 | −5.2 | 0.6 | (−12) | 0.0 | (−1) | 0.0 | (0) | −0.1 | (3) | −5.7 | (109) |
| | 1975–1980 | 3.8 | 1.5 | (38) | 0.8 | (22) | 0.1 | (2) | 1.9 | (51) | −0.5 | (−13) |
| | 1980–1985 | 2.9 | 1.3 | (45) | 0.4 | (14) | 0.1 | (2) | 2.3 | (79) | −1.2 | (−40) |
| | 1985–1990 | 4.6 | 1.3 | (28) | 0.4 | (9) | 0.1 | (2) | 2.4 | (53) | 0.4 | (8) |
| | 1990–1995 | 3.9 | 1.2 | (31) | 0.5 | (13) | 0.1 | (2) | 2.8 | (71) | −0.7 | (−18) |
| | 1995–2000 | 4.5 | 0.5 | (12) | 0.1 | (3) | 0.2 | (4) | 3.7 | (82) | 0.0 | (0) |
| | 2000–2005 | 6.2 | 1.2 | (19) | 0.4 | (6) | 0.5 | (8) | 4.1 | (66) | 0.1 | (2) |
| | 2005–2010 | 7.2 | 0.9 | (12) | 0.3 | (4) | 0.7 | (10) | 4.5 | (62) | 0.9 | (12) |
| | 2010–2015 | 7.3 | 0.9 | (13) | 0.8 | (11) | 0.5 | (7) | 5.0 | (69) | 0.1 | (1) |
| | 2015–2022 | 6.4 | 0.5 | (8) | 0.3 | (5) | 0.3 | (5) | 5.4 | (84) | 0.0 | (−1) |
| | 1970–2022 | 4.2 | 1.0 | (23) | 0.4 | (10) | 0.2 | (6) | 3.3 | (77) | −0.6 | (−15) |
| Brunei | 1970–1975 | 5.2 | 0.6 | (11) | 0.3 | (5) | 0.0 | (0) | 7.1 | (138) | −2.8 | (−54) |
| | 1975–1980 | 12.0 | 0.7 | (6) | 0.3 | (2) | 0.2 | (1) | 1.4 | (12) | 9.3 | (78) |
| | 1980–1985 | −4.1 | 0.4 | (−10) | 0.2 | (−6) | 0.0 | (−1) | −2.5 | (63) | −2.2 | (54) |
| | 1985–1990 | −2.8 | 0.9 | (−33) | 0.4 | (−15) | 0.2 | (−6) | 0.4 | (−13) | −4.7 | (167) |
| | 1990–1995 | 2.4 | 0.7 | (31) | 0.2 | (10) | 0.3 | (11) | 3.7 | (152) | −2.5 | (−103) |
| | 1995–2000 | 3.8 | 0.6 | (16) | 0.1 | (1) | 0.1 | (3) | 1.4 | (37) | 1.6 | (43) |
| | 2000–2005 | 0.9 | 0.5 | (60) | 0.1 | (15) | 0.1 | (7) | 1.6 | (183) | −1.4 | (−165) |
| | 2005–2010 | −0.1 | 0.5 | (−377) | 0.2 | (−186) | 0.1 | (−118) | 0.9 | (−725) | −1.8 | (1506) |
| | 2010–2015 | 0.3 | 0.3 | (80) | 0.0 | (−5) | 0.1 | (33) | 1.0 | (280) | −1.0 | (−288) |
| | 2015–2022 | −0.5 | 0.5 | (−99) | 0.0 | (−9) | 0.0 | (−7) | 0.3 | (−47) | −1.4 | (261) |
| | 1970–2022 | 1.6 | 0.6 | (36) | 0.2 | (11) | 0.1 | (7) | 1.5 | (90) | −0.7 | (−44) |
| China | 1970–1975 | 4.2 | 1.6 | (39) | 0.4 | (10) | 0.0 | (1) | 2.9 | (69) | −0.8 | (−19) |
| | 1975–1980 | 5.2 | 1.6 | (31) | 0.3 | (5) | 0.0 | (1) | 2.5 | (48) | 0.8 | (15) |
| | 1980–1985 | 8.0 | 1.9 | (24) | 0.5 | (7) | 0.1 | (1) | 2.7 | (34) | 2.8 | (35) |
| | 1985–1990 | 6.3 | 1.3 | (21) | 0.4 | (7) | 0.1 | (1) | 3.3 | (53) | 1.1 | (18) |
| | 1990–1995 | 9.7 | 0.5 | (5) | 1.0 | (10) | 0.2 | (2) | 3.5 | (36) | 4.5 | (47) |
| | 1995–2000 | 7.4 | 0.9 | (13) | 0.4 | (6) | 0.2 | (3) | 4.3 | (58) | 1.5 | (21) |
| | 2000–2005 | 8.3 | 0.9 | (11) | 0.8 | (9) | 0.7 | (9) | 4.9 | (59) | 1.1 | (13) |
| | 2005–2010 | 10.7 | −0.1 | (−1) | 0.9 | (8) | 0.5 | (4) | 5.8 | (54) | 3.7 | (34) |
| | 2010–2015 | 6.9 | −0.4 | (−6) | 0.7 | (10) | 0.5 | (7) | 4.8 | (69) | 1.3 | (20) |
| | 2015–2022 | 5.2 | −0.2 | (−3) | −0.4 | (−7) | 0.6 | (11) | 3.4 | (66) | 1.7 | (33) |
| | 1970–2022 | 7.1 | 0.8 | (11) | 0.5 | (7) | 0.3 | (4) | 3.8 | (53) | 1.8 | (25) |
| Fiji | 1970–1975 | 5.6 | 1.8 | (32) | 0.9 | (16) | 0.0 | (0) | 2.5 | (45) | 0.4 | (8) |
| | 1975–1980 | 3.7 | 1.5 | (41) | 1.4 | (37) | 0.0 | (1) | 2.7 | (73) | −1.9 | (−52) |
| | 1980–1985 | 0.7 | 1.2 | (172) | 1.0 | (146) | 0.1 | (9) | 1.5 | (215) | −3.1 | (−442) |
| | 1985–1990 | 3.7 | 1.3 | (34) | 1.4 | (36) | 0.2 | (5) | 0.9 | (23) | 0.0 | (1) |
| | 1990–1995 | 2.6 | 1.1 | (43) | 1.4 | (53) | 0.1 | (3) | 1.2 | (44) | −1.2 | (−44) |
| | 1995–2000 | 2.0 | 0.7 | (34) | 0.7 | (34) | 0.0 | (1) | 0.7 | (36) | −0.1 | (−5) |
| | 2000–2005 | 2.0 | 0.2 | (12) | 0.5 | (27) | 0.1 | (4) | 0.7 | (38) | 0.4 | (20) |
| | 2005–2010 | 0.7 | 0.8 | (114) | 0.4 | (51) | 0.1 | (11) | −0.8 | (−112) | 0.3 | (36) |
| | 2010–2015 | 3.7 | 0.5 | (13) | 0.1 | (2) | 0.2 | (5) | 0.2 | (5) | 2.8 | (75) |
| | 2015–2022 | 0.8 | 0.3 | (41) | 0.2 | (27) | 0.2 | (21) | 0.2 | (24) | −0.1 | (−13) |
| | 1970–2022 | 2.5 | 0.9 | (37) | 0.8 | (31) | 0.1 | (4) | 1.0 | (38) | −0.2 | (−10) |
| India | 1970–1975 | 2.8 | 1.8 | (64) | 0.3 | (11) | 0.1 | (2) | 0.8 | (27) | −0.1 | (−4) |
| | 1975–1980 | 3.1 | 1.8 | (59) | 0.5 | (17) | 0.1 | (2) | 1.1 | (36) | −0.4 | (−14) |
| | 1980–1985 | 5.0 | 1.5 | (30) | 0.8 | (15) | 0.1 | (2) | 1.1 | (23) | 1.5 | (29) |
| | 1985–1990 | 5.8 | 1.4 | (24) | 0.9 | (15) | 0.2 | (4) | 1.3 | (22) | 2.0 | (34) |
| | 1990–1995 | 5.0 | 1.3 | (26) | 0.4 | (9) | 0.2 | (5) | 1.4 | (27) | 1.6 | (32) |
| | 1995–2000 | 5.7 | 1.1 | (19) | 1.0 | (17) | 0.3 | (6) | 1.6 | (28) | 1.7 | (30) |
| | 2000–2005 | 6.5 | 1.3 | (19) | 0.6 | (9) | 0.3 | (5) | 2.0 | (30) | 2.4 | (37) |
| | 2005–2010 | 7.8 | 0.5 | (6) | 1.2 | (15) | 0.5 | (7) | 3.2 | (40) | 2.4 | (31) |
| | 2010–2015 | 6.3 | 0.6 | (10) | 0.7 | (12) | 0.5 | (8) | 2.6 | (41) | 1.8 | (28) |
| | 2015–2022 | 4.9 | 0.5 | (10) | 0.3 | (7) | 0.4 | (9) | 2.0 | (42) | 1.6 | (33) |
| | 1970–2022 | 5.3 | 1.2 | (22) | 0.7 | (13) | 0.3 | (5) | 1.7 | (32) | 1.5 | (28) |
| Iran | 1970–1975 | 9.2 | 0.6 | (7) | 0.6 | (6) | 0.1 | (1) | 2.9 | (32) | 5.0 | (55) |
| | 1975–1980 | −3.2 | 0.9 | (−27) | 0.1 | (−3) | 0.0 | (0) | 1.7 | (−51) | −5.9 | (181) |
| | 1980–1985 | 3.5 | 0.9 | (26) | 0.1 | (4) | 0.1 | (2) | 1.1 | (33) | 1.3 | (36) |
| | 1985–1990 | 1.1 | 0.9 | (89) | 0.7 | (63) | 0.0 | (4) | 1.2 | (112) | −1.8 | (−168) |
| | 1990–1995 | 3.3 | 0.6 | (19) | 0.5 | (15) | 0.1 | (4) | 2.9 | (87) | −0.8 | (−25) |
| | 1995–2000 | 4.1 | 0.8 | (21) | 0.3 | (8) | 0.1 | (2) | 1.7 | (42) | 1.1 | (28) |
| | 2000–2005 | 7.1 | 0.8 | (11) | 0.4 | (6) | 0.2 | (3) | 3.1 | (45) | 2.5 | (35) |
| | 2005–2010 | 5.2 | −0.2 | (−3) | 0.4 | (7) | 0.1 | (3) | 2.2 | (43) | 2.7 | (51) |
| | 2010–2015 | −0.4 | 0.3 | (−67) | 0.3 | (−84) | 0.1 | (−20) | 1.5 | (−371) | −2.6 | (641) |
| | 2015–2022 | 1.8 | 0.2 | (10) | 0.1 | (7) | 0.0 | (0) | 1.0 | (54) | 0.5 | (30) |
| | 1970–2022 | 3.1 | 0.6 | (18) | 0.3 | (11) | 0.1 | (2) | 1.9 | (61) | 0.2 | (7) |
| Bhutan | 1970–1975 | 3.4 | 1.2 | (34) | 0.1 | (2) | 0.0 | (0) | 3.0 | (89) | −0.9 | (−25) |
| | 1975–1980 | 7.6 | 1.1 | (14) | 0.0 | (−1) | 0.0 | (0) | 2.6 | (34) | 3.9 | (52) |
| | 1980–1985 | 6.0 | 1.0 | (16) | 0.2 | (4) | 0.0 | (0) | 3.5 | (58) | 1.3 | (22) |
| | 1985–1990 | 7.4 | 1.0 | (14) | 1.0 | (14) | 0.0 | (0) | 3.2 | (44) | 2.1 | (28) |
| | 1990–1995 | 2.3 | −0.4 | (−18) | 0.6 | (25) | 0.2 | (9) | 2.5 | (111) | −0.6 | (−28) |
| | 1995–2000 | 5.9 | 1.2 | (20) | 0.5 | (9) | 0.8 | (13) | 3.3 | (56) | 0.1 | (2) |
| | 2000–2005 | 7.7 | 1.3 | (17) | 1.0 | (13) | 0.0 | (1) | 7.2 | (94) | −1.8 | (−23) |
| | 2005–2010 | 9.1 | 0.7 | (7) | 1.1 | (12) | 0.4 | (4) | 3.8 | (42) | 3.2 | (35) |
| | 2010–2015 | 5.8 | −0.4 | (−6) | 1.3 | (23) | 0.1 | (3) | 5.3 | (91) | −0.6 | (−10) |
| | 2015–2022 | 3.8 | 0.2 | (6) | 1.3 | (33) | 0.5 | (13) | 3.0 | (80) | −1.2 | (−31) |
| | 1970–2022 | 5.8 | 0.7 | (11) | 0.7 | (12) | 0.2 | (4) | 3.7 | (64) | 0.5 | (8) |
| Cambodia | 1970–1975 | −5.5 | −0.1 | (2) | 0.1 | (−2) | −0.5 | (8) | 2.6 | (−48) | −7.6 | (139) |
| | 1975–1980 | −7.1 | −0.3 | (5) | 0.2 | (−3) | −0.1 | (1) | 0.4 | (−5) | −7.2 | (102) |
| | 1980–1985 | 1.3 | 1.1 | (84) | 0.2 | (16) | 0.0 | (−1) | 0.1 | (11) | −0.1 | (−11) |
| | 1985–1990 | 7.0 | 1.2 | (17) | 0.4 | (5) | 0.0 | (0) | 0.3 | (4) | 5.1 | (73) |
| | 1990–1995 | 4.7 | 1.9 | (40) | 0.6 | (12) | 0.0 | (0) | 1.5 | (33) | 0.7 | (14) |
| | 1995–2000 | 7.6 | 2.0 | (26) | 0.8 | (10) | 0.0 | (0) | 3.4 | (45) | 1.4 | (19) |
| | 2000–2005 | 9.2 | 1.4 | (15) | 0.5 | (5) | 0.0 | (0) | 3.6 | (39) | 3.7 | (40) |
| | 2005–2010 | 6.1 | 1.9 | (32) | 0.4 | (6) | 0.0 | (0) | 5.7 | (94) | −2.0 | (−33) |
| | 2010–2015 | 4.4 | 0.9 | (21) | 1.7 | (39) | 0.1 | (1) | 3.6 | (82) | −1.9 | (−43) |
| | 2015–2022 | 5.1 | 1.5 | (30) | 0.2 | (5) | 0.0 | (1) | 3.0 | (60) | 0.3 | (5) |
| | 1970–2022 | 3.4 | 1.2 | (35) | 0.5 | (15) | 0.0 | (−1) | 2.5 | (73) | −0.7 | (−22) |
| ROC | 1970–1975 | 9.8 | 1.8 | (19) | 0.1 | (1) | 0.3 | (3) | 3.4 | (35) | 4.2 | (43) |
| | 1975–1980 | 11.2 | 1.7 | (16) | 1.1 | (10) | 0.2 | (2) | 3.4 | (30) | 4.8 | (43) |
| | 1980–1985 | 7.6 | 1.2 | (16) | 0.2 | (3) | 0.3 | (4) | 2.5 | (33) | 3.4 | (44) |
| | 1985–1990 | 9.6 | 1.0 | (10) | 0.8 | (8) | 0.3 | (3) | 2.3 | (25) | 5.2 | (54) |
| | 1990–1995 | 7.6 | 1.0 | (13) | 0.6 | (8) | 0.3 | (3) | 2.4 | (32) | 3.3 | (44) |
| | 1995–2000 | 6.0 | 0.3 | (4) | 0.6 | (10) | 0.6 | (9) | 2.0 | (33) | 2.6 | (43) |
| | 2000–2005 | 4.1 | 0.1 | (3) | 0.9 | (21) | 0.2 | (6) | 1.2 | (29) | 1.7 | (42) |
| | 2005–2010 | 4.2 | 0.2 | (5) | 0.9 | (22) | 0.0 | (1) | 1.0 | (24) | 2.0 | (48) |
| | 2010–2015 | 2.9 | 1.0 | (36) | 0.6 | (21) | 0.1 | (2) | 0.7 | (25) | 0.5 | (16) |
| | 2015–2022 | 3.3 | −0.1 | (−3) | 0.5 | (15) | 0.1 | (2) | 1.1 | (32) | 1.8 | (55) |
| | 1970–2022 | 6.5 | 0.8 | (12) | 0.6 | (10) | 0.2 | (3) | 2.0 | (30) | 2.9 | (45) |
| Hong Kong | 1970–1975 | 6.5 | 2.0 | (30) | 0.1 | (2) | 0.2 | (3) | 2.8 | (43) | 1.4 | (22) |
| | 1975–1980 | 11.3 | 2.0 | (18) | 0.7 | (7) | 0.2 | (2) | 3.6 | (32) | 4.7 | (42) |
| | 1980–1985 | 5.4 | 0.9 | (16) | 0.6 | (11) | 0.3 | (5) | 3.0 | (57) | 0.6 | (11) |
| | 1985–1990 | 8.0 | 0.2 | (2) | 1.0 | (13) | 0.3 | (4) | 2.3 | (29) | 4.1 | (51) |
| | 1990–1995 | 5.9 | 0.6 | (10) | 0.9 | (15) | 0.4 | (7) | 2.7 | (45) | 1.4 | (24) |
| | 1995–2000 | 2.8 | 1.5 | (53) | 0.5 | (16) | 0.6 | (22) | 1.9 | (68) | −1.6 | (−59) |
| | 2000–2005 | 4.1 | 0.5 | (13) | 0.3 | (6) | 0.4 | (9) | 1.0 | (24) | 1.9 | (47) |
| | 2005–2010 | 3.8 | 0.2 | (5) | 0.3 | (7) | 0.3 | (9) | 0.9 | (24) | 2.1 | (55) |
| | 2010–2015 | 2.9 | 0.3 | (11) | 0.6 | (21) | 0.3 | (12) | 0.5 | (19) | 1.0 | (36) |
| | 2015–2022 | 0.5 | −0.6 | (−122) | 0.4 | (90) | 0.2 | (36) | −0.1 | (−23) | 0.5 | (119) |
| | 1970–2022 | 4.9 | 0.7 | (14) | 0.5 | (11) | 0.3 | (6) | 1.8 | (36) | 1.6 | (32) |
| Indonesia | 1970–1975 | 8.3 | 1.4 | (18) | 0.8 | (9) | 0.0 | (0) | 4.1 | (49) | 2.0 | (24) |
| | 1975–1980 | 7.8 | 1.4 | (18) | 0.5 | (7) | 0.1 | (1) | 4.2 | (54) | 1.5 | (20) |
| | 1980–1985 | 4.7 | 1.4 | (30) | 0.5 | (10) | 0.1 | (2) | 2.7 | (58) | 0.0 | (0) |
| | 1985–1990 | 7.5 | 0.9 | (12) | 1.2 | (16) | 0.2 | (2) | 2.9 | (38) | 2.3 | (30) |
| | 1990–1995 | 7.5 | 0.5 | (7) | 2.4 | (32) | 0.2 | (3) | 3.5 | (47) | 0.8 | (11) |
| | 1995–2000 | 0.7 | 1.1 | (176) | 1.0 | (148) | 0.1 | (19) | 3.5 | (535) | −5.1 | (−777) |
| | 2000–2005 | 4.5 | 0.5 | (12) | 1.4 | (32) | 0.2 | (4) | 2.1 | (47) | 0.2 | (5) |
| | 2005–2010 | 5.4 | 1.1 | (20) | 0.6 | (12) | 0.1 | (2) | 3.1 | (57) | 0.5 | (9) |
| | 2010–2015 | 5.3 | 0.5 | (10) | 2.1 | (41) | 0.1 | (2) | 3.4 | (64) | −0.9 | (−17) |
| | 2015–2022 | 3.6 | 0.5 | (14) | 0.6 | (18) | 0.1 | (3) | 2.7 | (75) | −0.3 | (−10) |
| | 1970–2022 | 5.4 | 0.9 | (17) | 1.1 | (20) | 0.1 | (2) | 3.2 | (59) | 0.1 | (2) |
| Japan | 1970–1975 | 4.4 | −0.4 | (−10) | 1.0 | (23) | 0.2 | (5) | 2.7 | (61) | 0.9 | (20) |
| | 1975–1980 | 4.7 | 0.7 | (14) | 0.8 | (18) | 0.2 | (4) | 1.5 | (32) | 1.5 | (32) |
| | 1980–1985 | 4.3 | 0.5 | (11) | 0.6 | (15) | 0.4 | (9) | 1.4 | (33) | 1.4 | (33) |
| | 1985–1990 | 4.9 | 0.4 | (8) | 0.6 | (12) | 0.5 | (10) | 1.6 | (32) | 1.8 | (37) |
| | 1990–1995 | 1.3 | −0.2 | (−18) | 0.4 | (32) | 0.2 | (19) | 1.0 | (73) | −0.1 | (−4) |
| | 1995–2000 | 1.0 | −0.6 | (−54) | 0.4 | (40) | 0.3 | (33) | 0.5 | (44) | 0.4 | (37) |
| | 2000–2005 | 1.2 | −0.3 | (−28) | 0.5 | (40) | 0.2 | (20) | 0.1 | (12) | 0.7 | (56) |
| | 2005–2010 | 0.0 | −0.4 | (829) | 0.4 | (−880) | 0.1 | (−310) | 0.1 | (−156) | −0.3 | (617) |
| | 2010–2015 | 1.0 | 0.0 | (−2) | 0.2 | (18) | 0.1 | (11) | −0.1 | (−12) | 0.9 | (85) |
| | 2015–2022 | 0.3 | 0.2 | (88) | 0.2 | (82) | 0.1 | (32) | 0.1 | (32) | −0.4 | (−134) |
| | 1970–2022 | 2.2 | 0.0 | (−1) | 0.5 | (23) | 0.2 | (11) | 0.8 | (38) | 0.6 | (29) |

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| | | Output | Labor | | | | Capital | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Hours Worked | | Labor Quality | | ICT | | Non–ICT | | | |
| Korea | 1970–1975 | 9.4 | 1.6 | (17) | 0.2 | (3) | 0.1 | (1) | 4.2 | (45) | 3.3 | (35) |
| | 1975–1980 | 7.7 | 1.3 | (17) | 0.6 | (7) | 0.4 | (5) | 6.0 | (78) | −0.6 | (−7) |
| | 1980–1985 | 8.9 | 1.1 | (13) | 1.7 | (20) | 0.4 | (4) | 3.5 | (39) | 2.2 | (24) |
| | 1985–1990 | 9.9 | 1.6 | (16) | 1.4 | (14) | 0.5 | (5) | 4.1 | (41) | 2.2 | (22) |
| | 1990–1995 | 8.3 | 1.0 | (12) | 1.6 | (19) | 0.4 | (5) | 3.7 | (45) | 1.5 | (19) |
| | 1995–2000 | 5.6 | 0.0 | (0) | 0.7 | (12) | 0.6 | (10) | 2.4 | (43) | 1.9 | (34) |
| | 2000–2005 | 5.0 | 0.2 | (4) | 1.2 | (25) | 0.4 | (8) | 2.3 | (47) | 0.8 | (16) |
| | 2005–2010 | 4.4 | −0.1 | (−3) | 1.0 | (23) | 0.2 | (4) | 2.1 | (47) | 1.3 | (30) |
| | 2010–2015 | 3.0 | 0.6 | (21) | 0.6 | (19) | 0.1 | (2) | 1.5 | (52) | 0.2 | (6) |
| | 2015–2022 | 2.5 | −0.7 | (−26) | 0.4 | (15) | 0.1 | (5) | 1.3 | (53) | 1.4 | (54) |
| | 1970–2022 | 6.3 | 0.6 | (10) | 0.9 | (15) | 0.3 | (5) | 3.1 | (48) | 1.4 | (22) |
| Malaysia | 1970–1975 | 7.4 | 1.3 | (17) | 0.4 | (5) | 0.0 | (1) | 3.3 | (45) | 2.4 | (32) |
| | 1975–1980 | 7.7 | 1.3 | (16) | 0.8 | (10) | 0.1 | (1) | 4.1 | (53) | 1.5 | (20) |
| | 1980–1985 | 5.0 | 1.3 | (25) | 0.8 | (17) | 0.1 | (2) | 4.6 | (92) | −1.8 | (−36) |
| | 1985–1990 | 6.5 | 1.3 | (21) | 0.7 | (11) | 0.2 | (3) | 2.3 | (35) | 2.0 | (31) |
| | 1990–1995 | 9.2 | 1.0 | (11) | 1.1 | (12) | 0.4 | (4) | 5.8 | (63) | 0.9 | (10) |
| | 1995–2000 | 5.0 | 1.3 | (26) | 0.6 | (11) | 0.5 | (10) | 3.3 | (66) | −0.6 | (−13) |
| | 2000–2005 | 5.3 | 0.7 | (13) | 0.8 | (16) | 0.8 | (15) | 1.4 | (26) | 1.6 | (30) |
| | 2005–2010 | 4.8 | 1.0 | (20) | 0.5 | (10) | 0.5 | (11) | 1.9 | (39) | 1.0 | (20) |
| | 2010–2015 | 6.4 | 1.1 | (17) | 0.4 | (7) | 0.4 | (7) | 1.9 | (30) | 2.5 | (39) |
| | 2015–2022 | 3.9 | 0.5 | (13) | 0.6 | (16) | 0.2 | (6) | 1.8 | (45) | 0.8 | (20) |
| | 1970–2022 | 6.0 | 1.1 | (17) | 0.7 | (11) | 0.3 | (5) | 3.0 | (49) | 1.0 | (17) |
| Myanmar | 1970–1975 | 3.8 | 1.1 | (29) | −0.1 | (−3) | 0.0 | (0) | 2.1 | (55) | 0.7 | (18) |
| | 1975–1980 | 7.2 | 1.3 | (19) | 0.6 | (8) | 0.1 | (2) | 4.8 | (67) | 0.3 | (5) |
| | 1980–1985 | 4.8 | 1.3 | (26) | 0.5 | (11) | 0.1 | (2) | 5.0 | (104) | −2.0 | (−42) |
| | 1985–1990 | 0.4 | 1.4 | (311) | 0.7 | (164) | 0.0 | (8) | 0.9 | (205) | −2.6 | (−588) |
| | 1990–1995 | 4.2 | 1.5 | (36) | 0.3 | (7) | 0.1 | (1) | 2.0 | (46) | 0.4 | (10) |
| | 1995–2000 | 8.1 | 1.7 | (21) | 0.5 | (7) | 0.2 | (3) | 3.9 | (48) | 1.7 | (21) |
| | 2000–2005 | 5.6 | 1.1 | (20) | 0.6 | (11) | 0.1 | (2) | 4.7 | (84) | −1.0 | (−17) |
| | 2005–2010 | 4.7 | 0.6 | (13) | 0.7 | (15) | 0.1 | (2) | 3.1 | (65) | 0.2 | (5) |
| | 2010–2015 | 6.1 | 0.5 | (9) | 0.6 | (10) | 0.2 | (3) | 5.6 | (92) | −0.8 | (−13) |
| | 2015–2022 | 2.4 | −1.2 | (−50) | 0.3 | (12) | 0.0 | (1) | 2.1 | (86) | 1.2 | (51) |
| | 1970–2022 | 4.7 | 0.9 | (18) | 0.5 | (10) | 0.1 | (2) | 3.4 | (72) | −0.1 | (−3) |
| Pakistan | 1970–1975 | 3.7 | 1.2 | (34) | 0.7 | (20) | 0.0 | (1) | 1.7 | (46) | 0.0 | (0) |
| | 1975–1980 | 5.7 | 1.7 | (31) | 1.0 | (17) | 0.0 | (0) | 2.5 | (44) | 0.5 | (8) |
| | 1980–1985 | 6.0 | 1.4 | (24) | 0.1 | (2) | 0.0 | (1) | 2.4 | (41) | 1.9 | (32) |
| | 1985–1990 | 7.8 | 1.4 | (18) | 1.1 | (14) | 0.1 | (1) | 2.9 | (37) | 2.4 | (31) |
| | 1990–1995 | 6.6 | 0.9 | (14) | 0.8 | (12) | 0.1 | (1) | 3.0 | (46) | 1.8 | (27) |
| | 1995–2000 | 6.0 | 0.9 | (15) | 0.3 | (5) | 0.0 | (0) | 3.1 | (51) | 1.7 | (29) |
| | 2000–2005 | 5.1 | 0.8 | (17) | 0.5 | (11) | 0.2 | (3) | 2.6 | (50) | 1.0 | (20) |
| | 2005–2010 | 3.4 | 1.1 | (32) | 0.1 | (4) | 0.3 | (8) | 2.7 | (78) | −0.7 | (−21) |
| | 2010–2015 | 3.4 | 0.7 | (19) | 0.5 | (16) | 0.0 | (1) | 1.1 | (32) | 1.1 | (32) |
| | 2015–2022 | 4.1 | 0.9 | (23) | 0.4 | (10) | 0.1 | (3) | 1.7 | (42) | 0.9 | (23) |
| | 1970–2022 | 5.1 | 1.1 | (22) | 0.5 | (11) | 0.1 | (2) | 2.3 | (46) | 1.1 | (21) |
| Singapore | 1970–1975 | 8.8 | 2.6 | (29) | 0.5 | (6) | 0.3 | (3) | 4.9 | (55) | 0.6 | (6) |
| | 1975–1980 | 8.6 | 2.3 | (27) | 0.6 | (7) | 0.3 | (3) | 3.5 | (41) | 1.9 | (22) |
| | 1980–1985 | 6.5 | 1.4 | (21) | 1.3 | (20) | 0.6 | (9) | 4.3 | (66) | −1.0 | (−16) |
| | 1985–1990 | 7.7 | 2.1 | (28) | 0.7 | (9) | 0.8 | (10) | 2.5 | (33) | 1.6 | (20) |
| | 1990–1995 | 8.6 | 2.1 | (24) | 1.7 | (19) | 0.7 | (8) | 3.2 | (38) | 0.9 | (11) |
| | 1995–2000 | 6.2 | 1.1 | (18) | 1.0 | (16) | 0.6 | (9) | 3.0 | (48) | 0.5 | (9) |
| | 2000–2005 | 4.9 | 0.5 | (10) | 1.0 | (21) | 0.5 | (10) | 1.5 | (31) | 1.3 | (27) |
| | 2005–2010 | 7.2 | 2.4 | (33) | 0.4 | (6) | 0.4 | (6) | 1.9 | (26) | 2.0 | (28) |
| | 2010–2015 | 4.7 | 1.1 | (24) | 0.6 | (12) | 0.8 | (17) | 1.9 | (41) | 0.3 | (7) |
| | 2015–2022 | 3.3 | 0.0 | (−1) | 0.8 | (24) | 0.6 | (17) | 0.8 | (25) | 1.1 | (35) |
| | 1970–2022 | 6.5 | 1.5 | (23) | 0.9 | (13) | 0.6 | (9) | 2.7 | (41) | 0.9 | (14) |
| Thailand | 1970–1975 | 5.5 | 0.9 | (17) | 1.4 | (26) | 0.1 | (1) | 2.8 | (51) | 0.3 | (6) |
| | 1975–1980 | 7.4 | 2.7 | (36) | 1.1 | (14) | 0.2 | (3) | 3.2 | (43) | 0.3 | (4) |
| | 1980–1985 | 5.3 | 1.0 | (19) | 1.8 | (35) | 0.3 | (6) | 3.2 | (60) | −1.0 | (−20) |
| | 1985–1990 | 9.8 | 1.5 | (15) | 1.7 | (18) | 0.4 | (4) | 4.1 | (41) | 2.2 | (22) |
| | 1990–1995 | 8.1 | 0.7 | (9) | 1.8 | (22) | 0.7 | (9) | 6.2 | (77) | −1.3 | (−17) |
| | 1995–2000 | 0.7 | −0.2 | (−22) | 1.9 | (251) | 0.1 | (11) | 2.0 | (271) | −3.1 | (−411) |
| | 2000–2005 | 5.3 | 0.1 | (1) | 1.8 | (34) | 0.4 | (7) | 0.6 | (12) | 2.4 | (45) |
| | 2005–2010 | 3.7 | 0.5 | (13) | 0.8 | (22) | 0.7 | (19) | 1.4 | (37) | 0.3 | (9) |
| | 2010–2015 | 3.0 | −0.7 | (−24) | 1.6 | (53) | 0.5 | (18) | 1.0 | (35) | 0.6 | (19) |
| | 2015–2022 | 1.8 | −0.3 | (−18) | 0.6 | (34) | 0.1 | (3) | 1.3 | (72) | 0.2 | (9) |
| | 1970–2022 | 4.9 | 0.6 | (12) | 1.4 | (29) | 0.3 | (7) | 2.5 | (51) | 0.1 | (2) |
| Lao PDR | 1970–1975 | 4.1 | 1.0 | (24) | 0.1 | (3) | 0.0 | (0) | 1.8 | (44) | 1.2 | (29) |
| | 1975–1980 | 1.7 | 0.1 | (8) | 0.2 | (9) | 0.0 | (1) | 1.3 | (76) | 0.1 | (6) |
| | 1980–1985 | 5.8 | 0.5 | (9) | 0.2 | (3) | 0.1 | (1) | 2.4 | (42) | 2.6 | (45) |
| | 1985–1990 | 2.2 | 1.7 | (80) | 0.1 | (6) | 0.1 | (2) | 2.5 | (116) | −2.3 | (−105) |
| | 1990–1995 | 3.9 | 1.6 | (42) | 0.1 | (4) | 0.2 | (4) | 2.9 | (74) | −0.9 | (−24) |
| | 1995–2000 | 9.2 | 1.1 | (12) | 0.5 | (5) | 0.1 | (1) | 4.2 | (46) | 3.2 | (35) |
| | 2000–2005 | 4.5 | 0.9 | (20) | 0.4 | (9) | 0.1 | (3) | 2.1 | (47) | 1.0 | (21) |
| | 2005–2010 | 6.0 | 0.9 | (16) | 0.8 | (13) | 0.1 | (2) | 2.3 | (39) | 1.8 | (31) |
| | 2010–2015 | 3.9 | 0.6 | (17) | 0.6 | (15) | 0.1 | (2) | 4.3 | (111) | −1.8 | (−45) |
| | 2015–2022 | 2.8 | 0.7 | (25) | 0.0 | (0) | 0.0 | (1) | 3.3 | (115) | −1.2 | (−41) |
| | 1970–2022 | 4.3 | 0.9 | (21) | 0.3 | (7) | 0.1 | (2) | 2.7 | (63) | 0.3 | (7) |
| Mongolia | 1970–1975 | 6.5 | 0.5 | (8) | 2.4 | (37) | 0.1 | (1) | 2.9 | (45) | 0.5 | (8) |
| | 1975–1980 | 5.4 | 0.8 | (15) | 0.7 | (13) | 0.1 | (2) | 4.4 | (82) | −0.7 | (−13) |
| | 1980–1985 | 6.6 | 0.8 | (12) | 0.4 | (6) | 0.2 | (2) | 5.1 | (77) | 0.1 | (2) |
| | 1985–1990 | 3.8 | 1.4 | (36) | 0.3 | (7) | 0.1 | (2) | 2.9 | (77) | −0.8 | (−22) |
| | 1990–1995 | −1.8 | −0.2 | (12) | −1.2 | (68) | 0.0 | (−2) | 0.0 | (1) | −0.4 | (21) |
| | 1995–2000 | 3.6 | −0.1 | (−2) | 0.1 | (3) | 0.1 | (3) | −0.3 | (−8) | 3.7 | (104) |
| | 2000–2005 | 6.3 | 0.5 | (8) | 1.0 | (16) | 0.3 | (5) | 1.3 | (21) | 3.2 | (50) |
| | 2005–2010 | 6.4 | 0.0 | (0) | 0.3 | (5) | 0.4 | (6) | 7.4 | (115) | −1.7 | (−26) |
| | 2010–2015 | 9.8 | 1.1 | (11) | 1.0 | (10) | 0.0 | (0) | 7.2 | (73) | 0.5 | (5) |
| | 2015–2022 | 3.1 | 0.3 | (10) | 0.6 | (21) | 0.2 | (6) | 1.5 | (48) | 0.4 | (14) |
| | 1970–2022 | 4.9 | 0.5 | (10) | 0.6 | (12) | 0.1 | (3) | 3.2 | (65) | 0.5 | (10) |
| Nepal | 1970–1975 | 1.0 | 1.8 | (175) | 0.3 | (26) | 0.1 | (6) | 0.9 | (88) | −2.0 | (−195) |
| | 1975–1980 | 3.0 | 1.9 | (64) | 0.3 | (10) | 0.1 | (2) | 1.8 | (60) | −1.1 | (−36) |
| | 1980–1985 | 3.2 | 1.1 | (33) | 2.3 | (72) | 0.1 | (2) | 2.2 | (69) | −2.5 | (−76) |
| | 1985–1990 | 6.0 | 0.7 | (11) | 2.1 | (35) | 0.0 | (1) | 2.3 | (39) | 0.9 | (14) |
| | 1990–1995 | 5.0 | 1.5 | (30) | 1.9 | (38) | 0.0 | (0) | 2.2 | (44) | −0.7 | (−13) |
| | 1995–2000 | 4.1 | 1.3 | (33) | 2.1 | (52) | 0.1 | (1) | 2.0 | (49) | −1.4 | (−35) |
| | 2000–2005 | 3.5 | 0.8 | (22) | 1.4 | (39) | 0.0 | (1) | 1.7 | (47) | −0.4 | (−10) |
| | 2005–2010 | 4.3 | 0.5 | (12) | 0.8 | (18) | 0.0 | (0) | 2.0 | (47) | 1.0 | (24) |
| | 2010–2015 | 2.9 | 0.6 | (19) | −0.1 | (−2) | 0.0 | (0) | 1.6 | (53) | 0.8 | (29) |
| | 2015–2022 | 4.6 | 1.5 | (33) | 0.0 | (0) | 0.0 | (1) | 2.9 | (62) | 0.2 | (3) |
| | 1970–2022 | 3.8 | 1.2 | (31) | 1.1 | (28) | 0.0 | (1) | 2.0 | (53) | −0.5 | (−13) |
| Philippines | 1970–1975 | 6.2 | 1.9 | (31) | 0.2 | (3) | 0.2 | (2) | 3.5 | (56) | 0.5 | (8) |
| | 1975–1980 | 5.5 | 1.1 | (20) | 0.7 | (13) | 0.1 | (2) | 4.7 | (84) | −1.1 | (−20) |
| | 1980–1985 | −0.5 | 1.2 | (−238) | 0.4 | (−83) | 0.2 | (−50) | 3.5 | (−710) | −5.7 | (1181) |
| | 1985–1990 | 5.6 | 1.0 | (17) | 0.7 | (12) | 0.1 | (1) | 1.2 | (21) | 2.7 | (49) |
| | 1990–1995 | 3.2 | 1.0 | (31) | 0.1 | (4) | 0.1 | (3) | 2.2 | (70) | −0.3 | (−9) |
| | 1995–2000 | 4.5 | 0.7 | (16) | 1.0 | (22) | 0.3 | (8) | 2.3 | (52) | 0.1 | (2) |
| | 2000–2005 | 4.7 | 1.1 | (23) | 0.2 | (3) | 0.2 | (5) | 1.5 | (32) | 1.7 | (37) |
| | 2005–2010 | 4.9 | 0.9 | (19) | 0.5 | (10) | 0.1 | (2) | 2.2 | (45) | 1.2 | (24) |
| | 2010–2015 | 5.8 | 0.8 | (13) | 0.4 | (7) | 0.1 | (2) | 4.0 | (70) | 0.4 | (7) |
| | 2015–2022 | 4.4 | 0.7 | (15) | 0.3 | (7) | 0.1 | (3) | 3.5 | (78) | −0.2 | (−4) |
| | 1970–2022 | 4.4 | 1.0 | (23) | 0.4 | (10) | 0.2 | (4) | 2.9 | (65) | −0.1 | (−1) |
| Sri Lanka | 1970–1975 | 3.5 | 0.8 | (22) | 0.3 | (8) | 0.0 | (1) | 1.9 | (54) | 0.5 | (15) |
| | 1975–1980 | 4.8 | 0.9 | (19) | 0.2 | (5) | 0.0 | (1) | 2.6 | (54) | 1.1 | (22) |
| | 1980–1985 | 4.7 | 0.1 | (3) | 1.1 | (24) | 0.1 | (2) | 2.8 | (59) | 0.6 | (12) |
| | 1985–1990 | 3.6 | 1.6 | (43) | 0.5 | (15) | 0.0 | (0) | 0.8 | (23) | 0.7 | (20) |
| | 1990–1995 | 5.6 | 0.4 | (7) | 1.0 | (18) | 0.0 | (1) | 0.7 | (13) | 3.4 | (61) |
| | 1995–2000 | 4.9 | 2.0 | (40) | 0.1 | (3) | 0.1 | (2) | 1.4 | (29) | 1.3 | (26) |
| | 2000–2005 | 4.9 | 0.0 | (1) | 1.0 | (20) | 0.2 | (4) | 1.8 | (38) | 1.8 | (37) |
| | 2005–2010 | 6.5 | 0.4 | (6) | −0.2 | (−3) | 0.2 | (3) | 3.4 | (52) | 2.7 | (41) |
| | 2010–2015 | 6.5 | 0.0 | (0) | 0.3 | (4) | 0.2 | (3) | 4.9 | (76) | 1.1 | (16) |
| | 2015–2022 | 0.0 | 0.2 | (−705) | 0.4 | (−1484) | 0.4 | (−1503) | 3.3 | (−13104) | −4.3 | (16897) |
| | 1970–2022 | 4.3 | 0.6 | (14) | 0.5 | (11) | 0.1 | (3) | 2.4 | (56) | 0.7 | (16) |
| Turkiye | 1970–1975 | 5.6 | 0.9 | (16) | 0.2 | (4) | 0.1 | (2) | 5.4 | (97) | −1.0 | (−19) |
| | 1975–1980 | 2.3 | 0.4 | (18) | 0.4 | (15) | 0.1 | (3) | 4.5 | (193) | −3.0 | (−130) |
| | 1980–1985 | 4.7 | 0.5 | (10) | 0.1 | (3) | 0.1 | (2) | 2.7 | (56) | 1.4 | (29) |
| | 1985–1990 | 5.4 | 0.8 | (16) | 0.4 | (7) | 0.2 | (3) | 2.9 | (54) | 1.1 | (19) |
| | 1990–1995 | 3.2 | 0.4 | (13) | 0.4 | (11) | 0.1 | (2) | 3.0 | (95) | −0.7 | (−22) |
| | 1995–2000 | 4.1 | −0.2 | (−4) | 0.6 | (14) | 0.3 | (7) | 2.8 | (68) | 0.6 | (15) |
| | 2000–2005 | 4.8 | 0.7 | (16) | 1.0 | (20) | 0.1 | (3) | 2.7 | (57) | 0.2 | (4) |
| | 2005–2010 | 3.1 | 0.6 | (18) | 0.5 | (16) | 0.3 | (9) | 3.7 | (119) | −1.9 | (−62) |
| | 2010–2015 | 6.8 | 0.9 | (13) | 0.7 | (11) | 0.3 | (4) | 3.2 | (47) | 1.6 | (24) |
| | 2015–2022 | 4.6 | 0.3 | (7) | 0.6 | (12) | 0.2 | (4) | 3.1 | (68) | 0.4 | (9) |
| | 1970–2022 | 4.5 | 0.5 | (12) | 0.5 | (11) | 0.2 | (4) | 3.4 | (76) | −0.1 | (−3) |

| | | Output | Labor | | | | Capital | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Hours Worked | | Labor Quality | | ICT | | Non–ICT | | | |
| Vietnam | 1970–1975 | 4.3 | 3.1 | (71) | 0.4 | (10) | 0.0 | (0) | 1.1 | (26) | –0.3 | (–8) |
| | 1975–1980 | 4.4 | 1.7 | (39) | 0.7 | (16) | 0.0 | (0) | 3.3 | (74) | –1.3 | (–30) |
| | 1980–1985 | 3.0 | 1.9 | (62) | 0.3 | (10) | 0.0 | (1) | 1.8 | (61) | –1.0 | (–34) |
| | 1985–1990 | 3.1 | 1.5 | (49) | 0.1 | (3) | 0.0 | (0) | 2.5 | (80) | –1.0 | (–32) |
| | 1990–1995 | 8.3 | 1.0 | (12) | 0.1 | (1) | 0.0 | (0) | 3.8 | (46) | 3.4 | (41) |
| | 1995–2000 | 8.0 | 1.0 | (12) | 0.1 | (2) | 0.1 | (1) | 6.0 | (75) | 0.8 | (11) |
| | 2000–2005 | 8.3 | 0.3 | (3) | 1.1 | (13) | 0.1 | (1) | 6.1 | (73) | 0.8 | (9) |
| | 2005–2010 | 7.9 | 1.3 | (17) | 0.7 | (9) | 0.1 | (1) | 7.3 | (92) | –1.6 | (–20) |
| | 2010–2015 | 5.1 | 0.1 | (3) | 0.4 | (8) | 0.2 | (4) | 3.5 | (69) | 0.9 | (17) |
| | 2015–2022 | 6.3 | 0.3 | (5) | 0.8 | (13) | 0.2 | (2) | 3.2 | (51) | 1.8 | (29) |
| | 1970–2022 | 5.9 | 1.2 | (20) | 0.5 | (8) | 0.1 | (1) | 3.8 | (65) | 0.3 | (5) |
| APO21 | 1970–1975 | 4.9 | 1.2 | (25) | 0.3 | (6) | 0.1 | (3) | 2.7 | (54) | 0.6 | (13) |
| | 1975–1980 | 4.4 | 1.5 | (33) | 0.4 | (9) | 0.1 | (3) | 2.2 | (51) | 0.2 | (4) |
| | 1980–1985 | 4.6 | 1.2 | (26) | 0.5 | (11) | 0.2 | (5) | 1.9 | (41) | 0.8 | (17) |
| | 1985–1990 | 5.8 | 1.1 | (20) | 0.7 | (11) | 0.3 | (6) | 2.0 | (35) | 1.6 | (28) |
| | 1990–1995 | 4.2 | 0.9 | (21) | 0.5 | (13) | 0.2 | (5) | 2.1 | (49) | 0.5 | (12) |
| | 1995–2000 | 3.2 | 0.8 | (23) | 0.5 | (17) | 0.3 | (9) | 1.6 | (49) | 0.1 | (2) |
| | 2000–2005 | 4.3 | 0.8 | (19) | 0.6 | (15) | 0.2 | (5) | 1.4 | (32) | 1.2 | (28) |
| | 2005–2010 | 4.2 | 0.7 | (16) | 0.7 | (15) | 0.2 | (4) | 1.9 | (45) | 0.8 | (19) |
| | 2010–2015 | 4.1 | 0.5 | (13) | 0.8 | (18) | 0.2 | (5) | 1.8 | (44) | 0.8 | (20) |
| | 2015–2022 | 3.4 | 0.5 | (13) | 0.4 | (10) | 0.2 | (5) | 1.7 | (51) | 0.7 | (20) |
| | 1970–2022 | 4.3 | 0.9 | (21) | 0.5 | (12) | 0.2 | (5) | 1.9 | (45) | 0.7 | (17) |
| East Asia | 1970–1975 | 4.7 | 1.4 | (29) | 0.4 | (9) | 0.2 | (4) | 2.8 | (60) | –0.1 | (–1) |
| | 1975–1980 | 5.3 | 1.6 | (30) | 0.3 | (6) | 0.1 | (3) | 2.0 | (38) | 1.2 | (23) |
| | 1980–1985 | 5.7 | 1.8 | (32) | 0.5 | (9) | 0.3 | (5) | 1.9 | (33) | 1.2 | (21) |
| | 1985–1990 | 5.9 | 1.3 | (22) | 0.5 | (8) | 0.3 | (6) | 2.2 | (38) | 1.6 | (27) |
| | 1990–1995 | 5.1 | 0.5 | (9) | 1.0 | (19) | 0.2 | (4) | 2.0 | (39) | 1.4 | (28) |
| | 1995–2000 | 4.3 | 0.9 | (21) | 0.4 | (9) | 0.3 | (7) | 1.9 | (44) | 0.8 | (19) |
| | 2000–2005 | 5.1 | 0.8 | (17) | 0.8 | (15) | 0.3 | (6) | 2.3 | (45) | 0.9 | (18) |
| | 2005–2010 | 6.7 | –0.1 | (–2) | 0.9 | (13) | 0.2 | (3) | 3.2 | (48) | 2.5 | (37) |
| | 2010–2015 | 5.1 | –0.3 | (–7) | 0.7 | (13) | 0.3 | (5) | 3.1 | (62) | 1.4 | (27) |
| | 2015–2022 | 4.0 | –0.2 | (–4) | –0.3 | (–7) | 0.4 | (9) | 2.6 | (64) | 1.5 | (38) |
| | 1970–2022 | 5.1 | 0.7 | (14) | 0.5 | (9) | 0.3 | (5) | 2.4 | (47) | 1.3 | (24) |
| ASEAN | 1970–1975 | 6.6 | 1.5 | (23) | 0.5 | (8) | 0.1 | (1) | 3.4 | (52) | 1.1 | (16) |
| | 1975–1980 | 7.0 | 1.5 | (22) | 0.4 | (6) | 0.1 | (2) | 3.8 | (55) | 1.1 | (16) |
| | 1980–1985 | 3.8 | 1.3 | (34) | 0.5 | (13) | 0.2 | (5) | 3.1 | (80) | –1.2 | (–32) |
| | 1985–1990 | 7.0 | 1.1 | (16) | 0.7 | (10) | 0.2 | (3) | 2.8 | (39) | 2.2 | (31) |
| | 1990–1995 | 7.3 | 0.8 | (11) | 1.0 | (14) | 0.3 | (5) | 4.3 | (59) | 0.9 | (12) |
| | 1995–2000 | 2.6 | 0.9 | (33) | 0.8 | (29) | 0.2 | (7) | 3.0 | (114) | –2.2 | (–83) |
| | 2000–2005 | 5.1 | 0.5 | (10) | 1.1 | (20) | 0.3 | (6) | 1.8 | (35) | 1.5 | (28) |
| | 2005–2010 | 5.3 | 1.0 | (19) | 0.6 | (12) | 0.3 | (5) | 2.8 | (52) | 0.7 | (12) |
| | 2010–2015 | 5.0 | 0.4 | (7) | 1.1 | (22) | 0.3 | (6) | 2.8 | (55) | 0.5 | (10) |
| | 2015–2022 | 3.7 | 0.3 | (8) | 0.6 | (15) | 0.2 | (4) | 2.4 | (65) | 0.3 | (8) |
| | 1970–2022 | 5.3 | 0.9 | (17) | 0.7 | (14) | 0.2 | (4) | 3.0 | (57) | 0.5 | (9) |
| CLMV | 1970–1975 | 3.0 | 2.0 | (66) | 0.4 | (13) | 0.0 | (–2) | 1.5 | (49) | –0.8 | (–27) |
| | 1975–1980 | 3.9 | 1.4 | (34) | 0.7 | (18) | 0.0 | (0) | 3.0 | (77) | –1.2 | (–30) |
| | 1980–1985 | 3.5 | 1.6 | (45) | 0.4 | (11) | 0.0 | (1) | 2.1 | (59) | –0.6 | (–16) |
| | 1985–1990 | 2.7 | 1.5 | (55) | 0.3 | (9) | 0.0 | (1) | 2.1 | (80) | –1.2 | (–45) |
| | 1990–1995 | 7.0 | 1.2 | (17) | 0.1 | (2) | 0.0 | (0) | 3.2 | (46) | 2.4 | (34) |
| | 1995–2000 | 8.1 | 1.2 | (15) | 0.2 | (3) | 0.1 | (1) | 5.4 | (66) | 1.2 | (15) |
| | 2000–2005 | 7.7 | 0.6 | (7) | 0.9 | (12) | 0.1 | (1) | 5.4 | (71) | 0.7 | (9) |
| | 2005–2010 | 7.2 | 1.2 | (16) | 0.7 | (10) | 0.1 | (1) | 6.5 | (89) | –1.2 | (–17) |
| | 2010–2015 | 5.1 | 0.3 | (6) | 0.5 | (9) | 0.2 | (3) | 3.7 | (73) | 0.4 | (8) |
| | 2015–2022 | 5.6 | 0.2 | (3) | 0.6 | (11) | 0.1 | (2) | 3.0 | (54) | 1.6 | (29) |
| | 1970–2022 | 5.4 | 1.1 | (20) | 0.5 | (9) | 0.1 | (1) | 3.6 | (66) | 0.2 | (4) |

| | | Output | Labor | | | | Capital | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Hours Worked | | Labor Quality | | ICT | | Non–ICT | | | |
| US | 1970–1975 | 2.6 | 0.5 | (19) | 0.1 | (3) | 0.1 | (4) | 1.3 | (49) | 0.6 | (24) |
| | 1975–1980 | 3.6 | 1.6 | (44) | 0.1 | (2) | 0.2 | (6) | 1.1 | (30) | 0.7 | (18) |
| | 1980–1985 | 3.1 | 0.8 | (25) | 0.2 | (6) | 0.3 | (10) | 0.7 | (23) | 1.1 | (36) |
| | 1985–1990 | 3.2 | 1.2 | (39) | 0.2 | (7) | 0.3 | (11) | 0.9 | (28) | 0.5 | (16) |
| | 1990–1995 | 2.5 | 0.7 | (26) | 0.3 | (13) | 0.3 | (11) | 0.6 | (22) | 0.7 | (28) |
| | 1995–2000 | 4.2 | 1.3 | (30) | 0.3 | (7) | 0.7 | (15) | 1.0 | (24) | 0.9 | (22) |
| | 2000–2005 | 2.5 | 0.0 | (–1) | 0.2 | (8) | 0.4 | (15) | 0.8 | (33) | 1.1 | (44) |
| | 2005–2010 | 1.0 | –0.4 | (–44) | 0.3 | (33) | 0.3 | (33) | 0.5 | (56) | 0.2 | (22) |
| | 2010–2015 | 2.2 | 1.0 | (46) | 0.2 | (10) | 0.3 | (12) | 0.4 | (19) | 0.3 | (14) |
| | 2015–2022 | 2.0 | 0.5 | (26) | 0.2 | (10) | 0.4 | (17) | 0.6 | (29) | 0.4 | (18) |
| | 1970–2022 | 2.7 | 0.7 | (26) | 0.2 | (8) | 0.3 | (12) | 0.8 | (29) | 0.6 | (24) |
| Asia25 | 1970–1975 | 4.8 | 1.3 | (28) | 0.3 | (7) | 0.1 | (3) | 2.7 | (56) | 0.3 | (6) |
| | 1975–1980 | 4.5 | 1.5 | (33) | 0.3 | (8) | 0.1 | (2) | 2.3 | (50) | 0.3 | (7) |
| | 1980–1985 | 5.1 | 1.5 | (30) | 0.6 | (11) | 0.2 | (4) | 2.0 | (40) | 0.8 | (15) |
| | 1985–1990 | 5.8 | 1.2 | (21) | 0.5 | (9) | 0.3 | (5) | 2.3 | (39) | 1.5 | (26) |
| | 1990–1995 | 5.3 | 0.7 | (14) | 0.8 | (15) | 0.2 | (4) | 2.3 | (44) | 1.3 | (24) |
| | 1995–2000 | 4.2 | 0.9 | (20) | 0.5 | (12) | 0.3 | (6) | 2.1 | (51) | 0.5 | (11) |
| | 2000–2005 | 5.4 | 0.9 | (16) | 0.7 | (14) | 0.3 | (5) | 2.3 | (43) | 1.2 | (23) |
| | 2005–2010 | 6.4 | 0.3 | (5) | 0.7 | (11) | 0.2 | (4) | 3.2 | (51) | 1.9 | (29) |
| | 2010–2015 | 5.2 | 0.2 | (3) | 0.6 | (12) | 0.3 | (5) | 3.1 | (59) | 1.1 | (20) |
| | 2015–2022 | 4.1 | 0.2 | (4) | –0.1 | (–1) | 0.3 | (8) | 2.5 | (61) | 1.2 | (28) |
| | 1970–2022 | 5.0 | 0.8 | (17) | 0.5 | (10) | 0.2 | (5) | 2.5 | (49) | 1.0 | (20) |
| South Asia | 1970–1975 | 2.0 | 1.6 | (78) | 0.3 | (15) | 0.0 | (2) | 1.0 | (47) | –0.9 | (–43) |
| | 1975–1980 | 3.5 | 1.8 | (51) | 0.6 | (16) | 0.1 | (2) | 1.4 | (40) | –0.3 | (–9) |
| | 1980–1985 | 4.9 | 1.5 | (30) | 0.7 | (14) | 0.1 | (2) | 1.4 | (29) | 1.2 | (25) |
| | 1985–1990 | 5.9 | 1.4 | (23) | 0.9 | (15) | 0.2 | (3) | 1.5 | (26) | 1.9 | (33) |
| | 1990–1995 | 5.1 | 1.3 | (24) | 0.5 | (10) | 0.2 | (4) | 1.6 | (32) | 1.6 | (30) |
| | 1995–2000 | 5.6 | 1.0 | (18) | 0.8 | (14) | 0.3 | (5) | 1.9 | (34) | 1.6 | (29) |
| | 2000–2005 | 6.2 | 1.2 | (19) | 0.6 | (9) | 0.3 | (4) | 2.2 | (35) | 2.0 | (32) |
| | 2005–2010 | 7.2 | 0.6 | (9) | 0.9 | (13) | 0.5 | (7) | 3.3 | (46) | 1.8 | (25) |
| | 2010–2015 | 6.0 | 0.7 | (12) | 0.7 | (12) | 0.4 | (7) | 2.7 | (45) | 1.4 | (24) |
| | 2015–2022 | 4.8 | 0.6 | (13) | 0.3 | (7) | 0.4 | (8) | 2.2 | (46) | 1.3 | (27) |
| | 1970–2022 | 5.1 | 1.1 | (22) | 0.6 | (12) | 0.2 | (5) | 1.9 | (38) | 1.2 | (23) |
| ASEAN6 | 1970–1975 | 7.2 | 1.4 | (19) | 0.7 | (10) | 0.1 | (1) | 3.7 | (51) | 1.4 | (19) |
| | 1975–1980 | 7.4 | 1.7 | (22) | 0.5 | (7) | 0.1 | (2) | 3.9 | (53) | 1.2 | (16) |
| | 1980–1985 | 3.9 | 1.3 | (33) | 0.7 | (18) | 0.2 | (5) | 3.2 | (82) | –1.4 | (–37) |
| | 1985–1990 | 7.5 | 1.1 | (15) | 1.0 | (14) | 0.2 | (3) | 2.8 | (38) | 2.3 | (31) |
| | 1990–1995 | 7.3 | 0.7 | (9) | 1.5 | (21) | 0.4 | (5) | 4.4 | (60) | 0.4 | (5) |
| | 1995–2000 | 2.0 | 0.8 | (38) | 1.1 | (53) | 0.2 | (10) | 2.9 | (143) | –2.9 | (–144) |
| | 2000–2005 | 4.8 | 0.5 | (11) | 1.2 | (24) | 0.3 | (7) | 1.5 | (32) | 1.3 | (26) |
| | 2005–2010 | 5.0 | 1.0 | (19) | 0.6 | (12) | 0.3 | (6) | 2.3 | (46) | 0.8 | (17) |
| | 2010–2015 | 4.9 | 0.4 | (8) | 1.4 | (29) | 0.3 | (7) | 2.6 | (53) | 0.2 | (4) |
| | 2015–2022 | 3.4 | 0.3 | (10) | 0.6 | (17) | 0.2 | (5) | 2.3 | (69) | 0.0 | (0) |
| | 1970–2022 | 5.3 | 0.9 | (17) | 0.9 | (17) | 0.2 | (4) | 2.9 | (56) | 0.3 | (6) |

Unit: Percentage (average annual growth rate) and percentage points (contributions written in parentheses).
Source: APO Productivity Database 2024.

## Table 9.14 Role of TFP and Capital Deepening in Labor Productivity Growth, 1970–2022

| | | Labor Productivity | Labor Quality | | Capital deepening | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ICT | | Non–ICT | | | |
| Bangladesh | 1970–1975 | −6.8 | 0.0 | (0) | 0.0 | (0) | −1.1 | (16) | −5.7 | (84) |
| | 1975–1980 | 0.3 | 0.8 | (239) | 0.0 | (14) | −0.1 | (−17) | −0.5 | (−137) |
| | 1980–1985 | 0.2 | 0.4 | (221) | 0.1 | (29) | 0.9 | (469) | −1.2 | (−620) |
| | 1985–1990 | 2.0 | 0.4 | (21) | 0.1 | (4) | 1.1 | (56) | 0.4 | (18) |
| | 1990–1995 | 1.4 | 0.5 | (37) | 0.1 | (5) | 1.5 | (110) | −0.7 | (−52) |
| | 1995–2000 | 3.4 | 0.1 | (4) | 0.2 | (4) | 3.1 | (92) | 0.0 | (0) |
| | 2000–2005 | 3.5 | 0.4 | (11) | 0.4 | (12) | 2.6 | (73) | 0.1 | (3) |
| | 2005–2010 | 5.0 | 0.3 | (6) | 0.6 | (13) | 3.2 | (64) | 0.9 | (18) |
| | 2010–2015 | 4.7 | 0.8 | (17) | 0.4 | (9) | 3.4 | (73) | 0.1 | (2) |
| | 2015–2022 | 4.8 | 0.3 | (6) | 0.3 | (5) | 4.3 | (89) | 0.0 | (−1) |
| | 1970–2022 | 2.0 | 0.4 | (21) | 0.2 | (11) | 2.0 | (101) | −0.6 | (−33) |
| Brunei | 1970–1975 | 1.1 | 0.3 | (26) | 0.0 | (−4) | 3.6 | (340) | −2.8 | (−262) |
| | 1975–1980 | 5.6 | 0.3 | (5) | 0.1 | (2) | −4.2 | (−75) | 9.3 | (167) |
| | 1980–1985 | −7.1 | 0.2 | (−3) | 0.0 | (0) | −5.2 | (73) | −2.2 | (31) |
| | 1985–1990 | −8.2 | 0.4 | (−5) | 0.1 | (−1) | −4.0 | (49) | −4.7 | (57) |
| | 1990–1995 | −1.4 | 0.2 | (−16) | 0.2 | (−15) | 0.7 | (−47) | −2.5 | (178) |
| | 1995–2000 | 0.6 | 0.1 | (8) | 0.0 | (7) | −1.1 | (−167) | 1.6 | (252) |
| | 2000–2005 | −1.8 | 0.1 | (−7) | 0.0 | (−1) | −0.5 | (28) | −1.4 | (80) |
| | 2005–2010 | −2.2 | 0.2 | (−10) | 0.1 | (−5) | −0.7 | (32) | −1.8 | (84) |
| | 2010–2015 | −0.9 | 0.0 | (2) | 0.1 | (−10) | 0.0 | (4) | −1.0 | (104) |
| | 2015–2022 | −2.5 | 0.0 | (−2) | 0.0 | (0) | −1.1 | (44) | −1.4 | (58) |
| | 1970–2022 | −1.7 | 0.2 | (−11) | 0.1 | (−4) | −1.2 | (73) | −0.7 | (42) |
| China | 1970–1975 | 1.4 | 0.4 | (31) | 0.0 | (1) | 1.7 | (125) | −0.8 | (−57) |
| | 1975–1980 | 2.4 | 0.3 | (11) | 0.0 | (1) | 1.3 | (55) | 0.8 | (33) |
| | 1980–1985 | 4.5 | 0.5 | (12) | 0.0 | (1) | 1.1 | (25) | 2.8 | (62) |
| | 1985–1990 | 3.9 | 0.4 | (11) | 0.1 | (2) | 2.2 | (57) | 1.1 | (29) |
| | 1990–1995 | 8.7 | 1.0 | (11) | 0.1 | (2) | 3.1 | (35) | 4.5 | (52) |
| | 1995–2000 | 5.3 | 0.4 | (8) | 0.2 | (4) | 3.2 | (60) | 1.5 | (29) |
| | 2000–2005 | 6.4 | 0.8 | (12) | 0.7 | (11) | 3.8 | (61) | 1.1 | (17) |
| | 2005–2010 | 10.9 | 0.9 | (8) | 0.5 | (4) | 5.9 | (54) | 3.7 | (33) |
| | 2010–2015 | 7.7 | 0.7 | (9) | 0.5 | (7) | 5.2 | (67) | 1.3 | (18) |
| | 2015–2022 | 5.6 | −0.4 | (−7) | 0.6 | (10) | 3.6 | (65) | 1.7 | (31) |
| | 1970–2022 | 5.7 | 0.5 | (8) | 0.3 | (5) | 3.1 | (55) | 1.8 | (31) |
| Fiji | 1970–1975 | 1.8 | 0.9 | (49) | 0.0 | (−2) | 0.6 | (31) | 0.4 | (23) |
| | 1975–1980 | 0.7 | 1.4 | (200) | 0.0 | (2) | 1.2 | (179) | −1.9 | (−282) |
| | 1980–1985 | −1.5 | 1.0 | (−69) | 0.1 | (−4) | 0.5 | (−36) | −3.1 | (209) |
| | 1985–1990 | 1.2 | 1.4 | (110) | 0.2 | (14) | −0.3 | (−28) | 0.0 | (4) |
| | 1990–1995 | 0.2 | 1.4 | (839) | 0.1 | (34) | −0.1 | (−80) | −1.2 | (−692) |
| | 1995–2000 | 0.8 | 0.7 | (85) | 0.0 | (1) | 0.2 | (26) | −0.1 | (−13) |
| | 2000–2005 | 1.5 | 0.5 | (35) | 0.1 | (4) | 0.5 | (35) | 0.4 | (26) |
| | 2005–2010 | −1.2 | 0.4 | (−31) | 0.0 | (−3) | −1.8 | (156) | 0.3 | (−22) |
| | 2010–2015 | 2.6 | 0.1 | (2) | 0.2 | (6) | −0.4 | (−15) | 2.8 | (107) |
| | 2015–2022 | 0.1 | 0.2 | (240) | 0.1 | (163) | −0.2 | (−190) | −0.1 | (−113) |
| | 1970–2022 | 0.6 | 0.8 | (127) | 0.1 | (11) | 0.0 | (2) | −0.2 | (−40) |
| India | 1970–1975 | 0.5 | 0.3 | (65) | 0.0 | (10) | 0.2 | (45) | −0.1 | (−21) |
| | 1975–1980 | 0.7 | 0.5 | (76) | 0.1 | (8) | 0.5 | (78) | −0.4 | (−62) |
| | 1980–1985 | 3.0 | 0.8 | (26) | 0.1 | (4) | 0.6 | (21) | 1.5 | (49) |
| | 1985–1990 | 3.9 | 0.9 | (23) | 0.2 | (6) | 0.8 | (21) | 2.0 | (51) |
| | 1990–1995 | 3.1 | 0.4 | (14) | 0.2 | (7) | 0.8 | (27) | 1.6 | (52) |
| | 1995–2000 | 4.1 | 1.0 | (23) | 0.3 | (7) | 1.1 | (27) | 1.7 | (42) |
| | 2000–2005 | 4.5 | 0.6 | (13) | 0.3 | (6) | 1.3 | (28) | 2.4 | (54) |
| | 2005–2010 | 7.0 | 1.2 | (17) | 0.5 | (7) | 2.8 | (40) | 2.4 | (35) |
| | 2010–2015 | 5.2 | 0.7 | (14) | 0.5 | (9) | 2.2 | (42) | 1.8 | (34) |
| | 2015–2022 | 4.0 | 0.3 | (8) | 0.4 | (10) | 1.7 | (43) | 1.6 | (40) |
| | 1970–2022 | 3.6 | 0.7 | (18) | 0.3 | (7) | 1.2 | (34) | 1.5 | (40) |
| Iran | 1970–1975 | 7.0 | 0.6 | (8) | 0.0 | (1) | 1.3 | (19) | 5.0 | (72) |
| | 1975–1980 | −5.9 | 0.1 | (−1) | 0.0 | (0) | −0.1 | (2) | −5.9 | (99) |
| | 1980–1985 | 1.1 | 0.1 | (12) | 0.0 | (4) | −0.4 | (−35) | 1.3 | (119) |
| | 1985–1990 | −1.6 | 0.7 | (−40) | 0.0 | (−2) | −0.6 | (35) | −1.8 | (107) |
| | 1990–1995 | 0.9 | 0.5 | (56) | 0.1 | (13) | 1.1 | (121) | −0.8 | (−89) |
| | 1995–2000 | 0.6 | 0.3 | (54) | 0.1 | (8) | −0.9 | (−147) | 1.1 | (185) |
| | 2000–2005 | 3.4 | 0.4 | (13) | 0.2 | (5) | 0.3 | (9) | 2.5 | (73) |
| | 2005–2010 | 6.1 | 0.4 | (6) | 0.1 | (2) | 2.9 | (48) | 2.7 | (44) |
| | 2010–2015 | −1.5 | 0.3 | (−22) | 0.1 | (−5) | 0.7 | (−44) | −2.6 | (171) |
| | 2015–2022 | 1.1 | 0.1 | (11) | 0.0 | (0) | 0.4 | (40) | 0.5 | (49) |
| | 1970–2022 | 1.1 | 0.3 | (31) | 0.1 | (6) | 0.5 | (43) | 0.2 | (20) |
| Bhutan | 1970–1975 | 0.5 | 0.1 | (15) | 0.0 | (1) | 1.3 | (257) | −0.9 | (−172) |
| | 1975–1980 | 4.7 | 0.0 | (−1) | 0.0 | (0) | 0.8 | (17) | 3.9 | (84) |
| | 1980–1985 | 3.3 | 0.2 | (6) | 0.0 | (0) | 1.8 | (55) | 1.3 | (39) |
| | 1985–1990 | 4.7 | 1.0 | (22) | 0.0 | (0) | 1.5 | (33) | 2.1 | (45) |
| | 1990–1995 | 3.4 | 0.6 | (17) | 0.2 | (6) | 3.2 | (95) | −0.6 | (−19) |
| | 1995–2000 | 2.9 | 0.5 | (18) | 0.7 | (24) | 1.6 | (53) | 0.1 | (5) |
| | 2000–2005 | 4.3 | 1.0 | (23) | −0.1 | (−1) | 5.2 | (120) | −1.8 | (−42) |
| | 2005–2010 | 7.1 | 1.1 | (15) | 0.3 | (5) | 2.5 | (35) | 3.2 | (45) |
| | 2010–2015 | 6.8 | 1.3 | (19) | 0.2 | (3) | 5.9 | (87) | −0.6 | (−9) |
| | 2015–2022 | 3.1 | 1.3 | (40) | 0.5 | (14) | 2.6 | (83) | −1.2 | (−38) |
| | 1970–2022 | 4.0 | 0.7 | (18) | 0.2 | (5) | 2.6 | (65) | 0.5 | (12) |
| Cambodia | 1970–1975 | −5.1 | 0.1 | (−2) | −0.5 | (9) | 2.8 | (−55) | −7.6 | (148) |
| | 1975–1980 | −6.0 | 0.2 | (−3) | −0.1 | (1) | 1.1 | (−18) | −7.2 | (121) |
| | 1980–1985 | −1.7 | 0.2 | (−13) | 0.0 | (1) | −1.7 | (104) | −0.1 | (9) |
| | 1985–1990 | 3.6 | 0.4 | (10) | 0.0 | (0) | −1.9 | (−51) | 5.1 | (142) |
| | 1990–1995 | −0.2 | 0.6 | (−373) | 0.0 | (−9) | −1.4 | (912) | 0.7 | (−430) |
| | 1995–2000 | 3.5 | 0.8 | (22) | 0.0 | (1) | 1.3 | (36) | 1.4 | (41) |
| | 2000–2005 | 6.3 | 0.5 | (8) | 0.0 | (0) | 2.1 | (34) | 3.7 | (58) |
| | 2005–2010 | 1.7 | 0.4 | (22) | 0.0 | (1) | 3.3 | (193) | −2.0 | (−116) |
| | 2010–2015 | 2.5 | 1.7 | (69) | 0.1 | (2) | 2.6 | (105) | −1.9 | (−76) |
| | 2015–2022 | 2.4 | 0.2 | (10) | 0.0 | (1) | 1.9 | (78) | 0.3 | (11) |
| | 1970–2022 | 0.8 | 0.5 | (64) | 0.0 | (−5) | 1.0 | (135) | −0.7 | (−95) |
| ROC | 1970–1975 | 6.4 | 0.1 | (2) | 0.2 | (3) | 1.9 | (29) | 4.2 | (65) |
| | 1975–1980 | 8.1 | 1.1 | (14) | 0.2 | (2) | 2.0 | (24) | 4.8 | (60) |
| | 1980–1985 | 5.4 | 0.2 | (4) | 0.3 | (5) | 1.6 | (30) | 3.4 | (62) |
| | 1985–1990 | 7.8 | 0.8 | (10) | 0.2 | (3) | 1.6 | (20) | 5.2 | (66) |
| | 1990–1995 | 5.9 | 0.6 | (11) | 0.2 | (4) | 1.7 | (29) | 3.3 | (56) |
| | 1995–2000 | 5.5 | 0.6 | (11) | 0.6 | (10) | 1.8 | (32) | 2.6 | (47) |
| | 2000–2005 | 3.8 | 0.9 | (22) | 0.2 | (6) | 1.1 | (28) | 1.7 | (44) |
| | 2005–2010 | 3.7 | 0.9 | (24) | 0.0 | (1) | 0.8 | (21) | 2.0 | (54) |
| | 2010–2015 | 0.8 | 0.6 | (78) | 0.0 | (2) | −0.3 | (−39) | 0.5 | (59) |
| | 2015–2022 | 3.5 | 0.5 | (14) | 0.1 | (2) | 1.2 | (33) | 1.8 | (51) |
| | 1970–2022 | 5.0 | 0.6 | (12) | 0.2 | (4) | 1.3 | (26) | 2.9 | (57) |
| Hong Kong | 1970–1975 | 2.9 | 0.1 | (4) | 0.1 | (4) | 1.2 | (42) | 1.4 | (49) |
| | 1975–1980 | 7.4 | 0.7 | (10) | 0.2 | (3) | 1.8 | (24) | 4.7 | (64) |
| | 1980–1985 | 3.6 | 0.6 | (16) | 0.3 | (7) | 2.2 | (61) | 0.6 | (16) |
| | 1985–1990 | 7.7 | 1.0 | (14) | 0.3 | (4) | 2.2 | (29) | 4.1 | (53) |
| | 1990–1995 | 4.8 | 0.9 | (19) | 0.4 | (8) | 2.1 | (44) | 1.4 | (30) |
| | 1995–2000 | 0.0 | 0.5 | (−1043) | 0.5 | (−1197) | 0.6 | (−1410) | −1.6 | (3750) |
| | 2000–2005 | 3.1 | 0.3 | (9) | 0.3 | (11) | 0.6 | (18) | 1.9 | (63) |
| | 2005–2010 | 3.5 | 0.3 | (7) | 0.3 | (9) | 0.8 | (23) | 2.1 | (60) |
| | 2010–2015 | 2.3 | 0.6 | (27) | 0.3 | (14) | 0.3 | (14) | 1.0 | (45) |
| | 2015–2022 | 1.4 | 0.4 | (28) | 0.2 | (14) | 0.3 | (20) | 0.5 | (37) |
| | 1970–2022 | 3.6 | 0.5 | (15) | 0.3 | (8) | 1.2 | (33) | 1.6 | (44) |
| Indonesia | 1970–1975 | 4.3 | 0.8 | (18) | 0.0 | (0) | 1.6 | (36) | 2.0 | (45) |
| | 1975–1980 | 3.7 | 0.5 | (15) | 0.1 | (3) | 1.5 | (41) | 1.5 | (42) |
| | 1980–1985 | 0.6 | 0.5 | (78) | 0.1 | (10) | 0.1 | (9) | 0.0 | (2) |
| | 1985–1990 | 4.8 | 1.2 | (25) | 0.2 | (3) | 1.1 | (24) | 2.3 | (47) |
| | 1990–1995 | 6.2 | 2.4 | (39) | 0.2 | (3) | 2.8 | (44) | 0.8 | (14) |
| | 1995–2000 | −2.4 | 1.0 | (−41) | 0.1 | (−4) | 1.6 | (−70) | −5.1 | (214) |
| | 2000–2005 | 3.1 | 1.4 | (46) | 0.2 | (5) | 1.3 | (42) | 0.2 | (7) |
| | 2005–2010 | 2.3 | 0.6 | (28) | 0.1 | (4) | 1.1 | (47) | 0.5 | (22) |
| | 2010–2015 | 3.9 | 2.1 | (55) | 0.1 | (3) | 2.6 | (65) | −0.9 | (−23) |
| | 2015–2022 | 2.4 | 0.6 | (26) | 0.1 | (3) | 2.1 | (85) | −0.3 | (−14) |
| | 1970–2022 | 2.9 | 1.1 | (38) | 0.1 | (4) | 1.6 | (55) | 0.1 | (3) |
| Japan | 1970–1975 | 5.1 | 1.0 | (20) | 0.2 | (5) | 3.0 | (58) | 0.9 | (17) |
| | 1975–1980 | 3.6 | 0.8 | (23) | 0.2 | (4) | 1.1 | (31) | 1.5 | (41) |
| | 1980–1985 | 3.5 | 0.6 | (18) | 0.4 | (10) | 1.1 | (31) | 1.4 | (41) |
| | 1985–1990 | 4.2 | 0.6 | (14) | 0.5 | (11) | 1.3 | (31) | 1.8 | (44) |
| | 1990–1995 | 1.8 | 0.4 | (24) | 0.3 | (15) | 1.2 | (65) | −0.1 | (−3) |
| | 1995–2000 | 2.0 | 0.4 | (20) | 0.4 | (19) | 0.8 | (42) | 0.4 | (19) |
| | 2000–2005 | 1.8 | 0.5 | (27) | 0.3 | (15) | 0.4 | (21) | 0.7 | (38) |
| | 2005–2010 | 0.7 | 0.4 | (64) | 0.2 | (27) | 0.4 | (54) | −0.3 | (−45) |
| | 2010–2015 | 1.1 | 0.2 | (17) | 0.1 | (11) | −0.1 | (−10) | 0.9 | (82) |
| | 2015–2022 | −0.2 | 0.2 | (−143) | 0.1 | (−45) | −0.1 | (55) | −0.4 | (234) |
| | 1970–2022 | 2.3 | 0.5 | (23) | 0.2 | (11) | 0.9 | (38) | 0.6 | (28) |

| | | Labor Productivity | Labor Quality | | Capital deepening | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ICT | | Non–ICT | | | |
| Korea | 1970–1975 | 5.8 | 0.2 | (4) | 0.1 | (2) | 2.2 | (38) | 3.3 | (56) |
| | 1975–1980 | 4.7 | 0.6 | (12) | 0.3 | (7) | 4.4 | (93) | −0.6 | (−12) |
| | 1980–1985 | 6.7 | 1.7 | (26) | 0.3 | (5) | 2.5 | (37) | 2.2 | (32) |
| | 1985–1990 | 6.7 | 1.4 | (21) | 0.5 | (7) | 2.6 | (39) | 2.2 | (33) |
| | 1990–1995 | 6.4 | 1.6 | (25) | 0.3 | (5) | 2.9 | (46) | 1.5 | (24) |
| | 1995–2000 | 5.6 | 0.7 | (12) | 0.6 | (10) | 2.4 | (43) | 1.9 | (34) |
| | 2000–2005 | 4.6 | 1.2 | (27) | 0.4 | (9) | 2.2 | (47) | 0.8 | (17) |
| | 2005–2010 | 4.7 | 1.0 | (21) | 0.2 | (4) | 2.2 | (47) | 1.3 | (28) |
| | 2010–2015 | 1.7 | 0.6 | (33) | 0.0 | (2) | 1.0 | (55) | 0.2 | (10) |
| | 2015–2022 | 3.8 | 0.4 | (10) | 0.2 | (4) | 1.9 | (50) | 1.4 | (36) |
| | 1970–2022 | 5.0 | 0.9 | (18) | 0.3 | (6) | 2.4 | (48) | 1.4 | (28) |
| Malaysia | 1970–1975 | 4.2 | 0.4 | (9) | 0.0 | (1) | 1.4 | (34) | 2.4 | (57) |
| | 1975–1980 | 4.5 | 0.8 | (17) | 0.1 | (2) | 2.1 | (47) | 1.5 | (34) |
| | 1980–1985 | 1.7 | 0.8 | (50) | 0.1 | (5) | 2.6 | (152) | −1.8 | (−107) |
| | 1985–1990 | 3.1 | 0.7 | (23) | 0.2 | (5) | 0.2 | (8) | 2.0 | (65) |
| | 1990–1995 | 6.5 | 1.1 | (17) | 0.4 | (5) | 4.1 | (64) | 0.9 | (14) |
| | 1995–2000 | 1.2 | 0.6 | (49) | 0.4 | (33) | 0.8 | (73) | −0.6 | (−56) |
| | 2000–2005 | 3.2 | 0.8 | (26) | 0.7 | (22) | 0.1 | (2) | 1.6 | (50) |
| | 2005–2010 | 2.0 | 0.5 | (23) | 0.4 | (21) | 0.2 | (9) | 1.0 | (47) |
| | 2010–2015 | 3.5 | 0.4 | (12) | 0.3 | (9) | 0.3 | (8) | 2.5 | (71) |
| | 2015–2022 | 2.6 | 0.6 | (23) | 0.2 | (7) | 1.1 | (40) | 0.8 | (30) |
| | 1970–2022 | 3.2 | 0.7 | (21) | 0.3 | (8) | 1.3 | (40) | 1.0 | (31) |
| Myanmar | 1970–1975 | 1.6 | −0.1 | (−8) | 0.0 | (1) | 1.0 | (64) | 0.7 | (43) |
| | 1975–1980 | 4.4 | 0.6 | (13) | 0.1 | (3) | 3.4 | (76) | 0.3 | (8) |
| | 1980–1985 | 2.1 | 0.5 | (24) | 0.1 | (4) | 3.6 | (168) | −2.0 | (−96) |
| | 1985–1990 | −1.9 | 0.7 | (−37) | 0.0 | (−1) | −0.1 | (4) | −2.6 | (135) |
| | 1990–1995 | 2.0 | 0.3 | (14) | 0.1 | (3) | 1.2 | (62) | 0.4 | (21) |
| | 1995–2000 | 5.5 | 0.5 | (10) | 0.2 | (3) | 3.1 | (56) | 1.7 | (31) |
| | 2000–2005 | 3.5 | 0.6 | (18) | 0.1 | (3) | 3.7 | (107) | −1.0 | (−28) |
| | 2005–2010 | 3.5 | 0.7 | (20) | 0.1 | (3) | 2.5 | (71) | 0.2 | (6) |
| | 2010–2015 | 4.8 | 0.6 | (12) | 0.2 | (3) | 4.8 | (102) | −0.8 | (−17) |
| | 2015–2022 | 4.3 | 0.3 | (7) | 0.1 | (1) | 2.7 | (63) | 1.2 | (29) |
| | 1970–2022 | 3.0 | 0.5 | (15) | 0.1 | (3) | 2.6 | (86) | −0.1 | (−4) |
| Pakistan | 1970–1975 | 1.2 | 0.7 | (59) | 0.0 | (2) | 0.5 | (39) | 0.0 | (1) |
| | 1975–1980 | 2.6 | 1.0 | (37) | 0.0 | (0) | 1.2 | (45) | 0.5 | (17) |
| | 1980–1985 | 3.6 | 0.1 | (4) | 0.0 | (1) | 1.5 | (42) | 1.9 | (53) |
| | 1985–1990 | 5.2 | 1.1 | (20) | 0.1 | (1) | 1.7 | (33) | 2.4 | (45) |
| | 1990–1995 | 4.8 | 0.8 | (16) | 0.0 | (1) | 2.2 | (46) | 1.8 | (37) |
| | 1995–2000 | 4.0 | 0.3 | (8) | 0.0 | (0) | 1.9 | (48) | 1.7 | (44) |
| | 2000–2005 | 2.6 | 0.5 | (21) | 0.1 | (5) | 0.9 | (34) | 1.0 | (40) |
| | 2005–2010 | 0.1 | 0.1 | (192) | 0.2 | (308) | 0.4 | (638) | −0.7 | (−1037) |
| | 2010–2015 | 1.6 | 0.5 | (34) | 0.0 | (0) | −0.1 | (−3) | 1.1 | (70) |
| | 2015–2022 | 2.0 | 0.4 | (20) | 0.1 | (5) | 0.5 | (27) | 0.9 | (48) |
| | 1970–2022 | 2.7 | 0.5 | (20) | 0.1 | (2) | 1.1 | (39) | 1.1 | (39) |
| Singapore | 1970–1975 | 4.0 | 0.5 | (13) | 0.2 | (5) | 2.7 | (68) | 0.6 | (14) |
| | 1975–1980 | 3.6 | 0.6 | (18) | 0.2 | (5) | 0.9 | (25) | 1.9 | (52) |
| | 1980–1985 | 3.2 | 1.3 | (40) | 0.5 | (17) | 2.4 | (75) | −1.0 | (−32) |
| | 1985–1990 | 2.8 | 0.7 | (24) | 0.6 | (21) | 0.0 | (−1) | 1.6 | (56) |
| | 1990–1995 | 3.9 | 1.7 | (43) | 0.5 | (12) | 0.8 | (21) | 0.9 | (24) |
| | 1995–2000 | 3.7 | 1.0 | (26) | 0.5 | (13) | 1.7 | (46) | 0.5 | (15) |
| | 2000–2005 | 3.8 | 1.0 | (27) | 0.5 | (12) | 1.0 | (26) | 1.3 | (35) |
| | 2005–2010 | 1.5 | 0.4 | (26) | 0.2 | (12) | −1.1 | (−72) | 2.0 | (134) |
| | 2010–2015 | 2.1 | 0.6 | (26) | 0.7 | (32) | 0.6 | (28) | 0.3 | (15) |
| | 2015–2022 | 3.3 | 0.8 | (24) | 0.6 | (17) | 0.8 | (23) | 1.1 | (35) |
| | 1970–2022 | 3.2 | 0.9 | (27) | 0.4 | (14) | 1.0 | (30) | 0.9 | (29) |
| Thailand | 1970–1975 | 3.1 | 1.4 | (46) | 0.0 | (2) | 1.3 | (42) | 0.3 | (11) |
| | 1975–1980 | 0.9 | 1.1 | (117) | 0.1 | (15) | −0.6 | (−64) | 0.3 | (32) |
| | 1980–1985 | 3.1 | 1.8 | (59) | 0.3 | (9) | 2.0 | (65) | −1.0 | (−33) |
| | 1985–1990 | 6.3 | 1.7 | (27) | 0.3 | (5) | 2.1 | (33) | 2.2 | (34) |
| | 1990–1995 | 6.2 | 1.8 | (29) | 0.7 | (11) | 5.2 | (82) | −1.3 | (−22) |
| | 1995–2000 | 1.2 | 1.9 | (163) | 0.1 | (9) | 2.3 | (195) | −3.1 | (−267) |
| | 2000–2005 | 5.2 | 1.8 | (35) | 0.4 | (7) | 0.6 | (11) | 2.4 | (46) |
| | 2005–2010 | 2.4 | 0.8 | (33) | 0.6 | (27) | 0.6 | (26) | 0.3 | (14) |
| | 2010–2015 | 4.8 | 1.6 | (33) | 0.6 | (13) | 2.0 | (42) | 0.6 | (12) |
| | 2015–2022 | 2.6 | 0.6 | (23) | 0.1 | (4) | 1.7 | (67) | 0.2 | (6) |
| | 1970–2022 | 3.5 | 1.4 | (40) | 0.3 | (9) | 1.7 | (49) | 0.1 | (2) |

| | | Labor Productivity | Labor Quality | | Capital deepening | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ICT | | Non–ICT | | | |
| Lao PDR | 1970–1975 | 2.2 | 0.1 | (6) | 0.0 | (−1) | 0.9 | (41) | 1.2 | (54) |
| | 1975–1980 | 1.4 | 0.2 | (11) | 0.0 | (1) | 1.2 | (81) | 0.1 | (7) |
| | 1980–1985 | 4.7 | 0.2 | (4) | 0.1 | (1) | 1.9 | (39) | 2.6 | (55) |
| | 1985–1990 | −1.7 | 0.1 | (−8) | 0.0 | (−2) | 0.4 | (−25) | −2.3 | (134) |
| | 1990–1995 | 0.3 | 0.1 | (54) | 0.1 | (48) | 0.9 | (347) | −0.9 | (−349) |
| | 1995–2000 | 6.7 | 0.5 | (7) | 0.1 | (1) | 2.9 | (44) | 3.2 | (47) |
| | 2000–2005 | 2.3 | 0.4 | (18) | 0.1 | (4) | 0.8 | (36) | 1.0 | (42) |
| | 2005–2010 | 3.5 | 0.8 | (22) | 0.1 | (3) | 0.8 | (23) | 1.8 | (52) |
| | 2010–2015 | 2.1 | 0.6 | (28) | 0.1 | (3) | 3.2 | (153) | −1.8 | (−84) |
| | 2015–2022 | 0.8 | 0.0 | (1) | 0.0 | (−1) | 2.0 | (243) | −1.2 | (−144) |
| | 1970–2022 | 2.2 | 0.3 | (13) | 0.1 | (2) | 1.5 | (70) | 0.3 | (15) |
| Mongolia | 1970–1975 | 5.1 | 2.4 | (48) | 0.1 | (1) | 2.0 | (40) | 0.5 | (11) |
| | 1975–1980 | 3.1 | 0.7 | (22) | 0.1 | (4) | 3.0 | (97) | −0.7 | (−22) |
| | 1980–1985 | 4.0 | 0.4 | (10) | 0.1 | (4) | 3.3 | (83) | 0.1 | (3) |
| | 1985–1990 | −0.7 | 0.3 | (−39) | 0.0 | (−4) | −0.2 | (24) | −0.8 | (119) |
| | 1990–1995 | −1.2 | −1.2 | (102) | 0.0 | (−3) | 0.4 | (−30) | −0.4 | (32) |
| | 1995–2000 | 4.0 | 0.1 | (3) | 0.1 | (3) | 0.0 | (1) | 3.7 | (93) |
| | 2000–2005 | 4.0 | 1.0 | (25) | 0.2 | (6) | −0.4 | (−10) | 3.2 | (79) |
| | 2005–2010 | 6.0 | 0.3 | (5) | 0.3 | (6) | 7.0 | (117) | −1.7 | (−28) |
| | 2010–2015 | 6.2 | 1.0 | (17) | 0.0 | (0) | 4.6 | (75) | 0.5 | (8) |
| | 2015–2022 | 2.1 | 0.6 | (31) | 0.2 | (9) | 0.8 | (39) | 0.4 | (21) |
| | 1970–2022 | 3.2 | 0.6 | (18) | 0.1 | (4) | 2.0 | (63) | 0.5 | (15) |
| Nepal | 1970–1975 | −2.0 | 0.3 | (−13) | 0.1 | (−3) | −0.3 | (15) | −2.0 | (101) |
| | 1975–1980 | −0.3 | 0.3 | (−97) | 0.0 | (−15) | 0.4 | (−144) | −1.1 | (356) |
| | 1980–1985 | 1.5 | 2.3 | (159) | 0.0 | (3) | 1.5 | (106) | −2.5 | (−168) |
| | 1985–1990 | 4.9 | 2.1 | (42) | 0.0 | (1) | 1.9 | (39) | 0.9 | (17) |
| | 1990–1995 | 2.5 | 1.9 | (77) | 0.0 | (1) | 1.2 | (49) | −0.7 | (−27) |
| | 1995–2000 | 2.0 | 2.1 | (106) | 0.0 | (2) | 1.3 | (64) | −1.4 | (−73) |
| | 2000–2005 | 2.3 | 1.4 | (60) | 0.0 | (2) | 1.3 | (54) | −0.4 | (−16) |
| | 2005–2010 | 3.4 | 0.8 | (23) | 0.0 | (0) | 1.6 | (48) | 1.0 | (30) |
| | 2010–2015 | 2.0 | −0.1 | (−3) | 0.0 | (0) | 1.2 | (60) | 0.8 | (43) |
| | 2015–2022 | 2.0 | 0.0 | (1) | 0.0 | (1) | 1.8 | (90) | 0.2 | (8) |
| | 1970–2022 | 1.8 | 1.1 | (58) | 0.0 | (2) | 1.2 | (66) | −0.5 | (−26) |
| Philippines | 1970–1975 | 1.9 | 0.2 | (9) | 0.1 | (4) | 1.2 | (60) | 0.5 | (27) |
| | 1975–1980 | 2.8 | 0.7 | (27) | 0.1 | (2) | 3.0 | (110) | −1.1 | (−40) |
| | 1980–1985 | −3.5 | 0.4 | (−12) | 0.2 | (−6) | 1.6 | (−46) | −5.7 | (163) |
| | 1985–1990 | 3.2 | 0.7 | (21) | 0.0 | (1) | −0.2 | (−7) | 2.7 | (85) |
| | 1990–1995 | 0.8 | 0.1 | (15) | 0.1 | (9) | 0.9 | (110) | −0.3 | (−34) |
| | 1995–2000 | 2.8 | 1.0 | (35) | 0.3 | (11) | 1.4 | (51) | 0.1 | (4) |
| | 2000–2005 | 2.0 | 0.2 | (8) | 0.2 | (8) | −0.1 | (−5) | 1.7 | (89) |
| | 2005–2010 | 2.7 | 0.5 | (19) | 0.1 | (2) | 0.9 | (35) | 1.2 | (43) |
| | 2010–2015 | 3.8 | 0.4 | (11) | 0.1 | (3) | 2.8 | (74) | 0.4 | (11) |
| | 2015–2022 | 2.8 | 0.3 | (12) | 0.1 | (4) | 2.5 | (90) | −0.2 | (−6) |
| | 1970–2022 | 2.0 | 0.4 | (23) | 0.1 | (6) | 1.5 | (74) | −0.1 | (−3) |
| Sri Lanka | 1970–1975 | 1.8 | 0.3 | (16) | 0.0 | (1) | 1.0 | (54) | 0.5 | (29) |
| | 1975–1980 | 2.9 | 0.2 | (8) | 0.0 | (1) | 1.6 | (55) | 1.1 | (36) |
| | 1980–1985 | 4.4 | 1.1 | (25) | 0.1 | (2) | 2.7 | (60) | 0.6 | (13) |
| | 1985–1990 | 0.6 | 0.5 | (97) | 0.0 | (−6) | −0.7 | (−121) | 0.7 | (130) |
| | 1990–1995 | 4.8 | 1.0 | (21) | 0.0 | (1) | 0.3 | (7) | 3.4 | (71) |
| | 1995–2000 | 1.0 | 0.1 | (14) | 0.1 | (6) | −0.4 | (−42) | 1.3 | (122) |
| | 2000–2005 | 4.6 | 1.0 | (21) | 0.2 | (5) | 1.6 | (35) | 1.8 | (40) |
| | 2005–2010 | 5.4 | −0.2 | (−3) | 0.2 | (3) | 2.7 | (50) | 2.7 | (50) |
| | 2010–2015 | 6.5 | 0.3 | (4) | 0.2 | (3) | 4.9 | (76) | 1.1 | (16) |
| | 2015–2022 | −0.6 | 0.4 | (−64) | 0.4 | (−62) | 2.9 | (−499) | −4.3 | (725) |
| | 1970–2022 | 3.0 | 0.5 | (16) | 0.1 | (4) | 1.7 | (57) | 0.7 | (23) |
| Turkiye | 1970–1975 | 1.9 | 0.2 | (12) | 0.1 | (5) | 2.6 | (139) | −1.0 | (−55) |
| | 1975–1980 | 0.6 | 0.4 | (63) | 0.0 | (9) | 3.2 | (564) | −3.0 | (−535) |
| | 1980–1985 | 2.5 | 0.1 | (5) | 0.1 | (4) | 0.9 | (36) | 1.4 | (55) |
| | 1985–1990 | 1.5 | 0.4 | (25) | 0.1 | (9) | 0.0 | (−2) | 1.1 | (68) |
| | 1990–1995 | 1.4 | 0.4 | (26) | 0.1 | (5) | 1.6 | (120) | −0.7 | (−51) |
| | 1995–2000 | 4.7 | 0.6 | (12) | 0.3 | (6) | 3.2 | (69) | 0.6 | (13) |
| | 2000–2005 | 2.5 | 1.0 | (38) | 0.1 | (3) | 1.3 | (50) | 0.2 | (8) |
| | 2005–2010 | 1.5 | 0.5 | (34) | 0.2 | (17) | 2.7 | (181) | −1.9 | (−132) |
| | 2010–2015 | 4.2 | 0.7 | (18) | 0.2 | (6) | 1.6 | (38) | 1.6 | (39) |
| | 2015–2022 | 3.5 | 0.6 | (17) | 0.1 | (4) | 2.3 | (67) | 0.4 | (12) |
| | 1970–2022 | 2.5 | 0.5 | (20) | 0.1 | (6) | 2.0 | (79) | −0.1 | (−5) |

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| | | Labor Productivity | Labor Quality | | Capital deepening | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ICT | | Non–ICT | | | |
| Vietnam | 1970–1975 | −1.1 | 0.4 | (−39) | 0.0 | (1) | −1.2 | (108) | −0.3 | (30) |
| | 1975–1980 | 1.4 | 0.7 | (50) | 0.0 | (1) | 2.0 | (141) | −1.3 | (−93) |
| | 1980–1985 | −0.5 | 0.3 | (−60) | 0.0 | (−3) | 0.2 | (−35) | −1.0 | (198) |
| | 1985–1990 | 0.2 | 0.1 | (44) | 0.0 | (2) | 1.1 | (554) | −1.0 | (−500) |
| | 1990–1995 | 6.1 | 0.1 | (2) | 0.0 | (0) | 2.5 | (41) | 3.4 | (56) |
| | 1995–2000 | 5.4 | 0.1 | (2) | 0.0 | (1) | 4.3 | (81) | 0.8 | (16) |
| | 2000–2005 | 7.6 | 1.1 | (14) | 0.1 | (1) | 5.7 | (75) | 0.8 | (10) |
| | 2005–2010 | 4.5 | 0.7 | (16) | 0.1 | (2) | 5.3 | (117) | −1.6 | (−35) |
| | 2010–2015 | 4.8 | 0.4 | (8) | 0.2 | (4) | 3.3 | (69) | 0.9 | (19) |
| | 2015–2022 | 5.6 | 0.8 | (14) | 0.1 | (3) | 2.8 | (51) | 1.8 | (33) |
| | 1970–2022 | 3.5 | 0.5 | (14) | 0.1 | (2) | 2.6 | (75) | 0.3 | (9) |
| APO21 | 1970–1975 | 2.6 | 0.5 | (20) | 0.1 | (4) | 1.3 | (51) | 0.6 | (24) |
| | 1975–1980 | 1.7 | 0.8 | (46) | 0.1 | (5) | 0.7 | (39) | 0.2 | (10) |
| | 1980–1985 | 2.3 | 0.9 | (38) | 0.2 | (9) | 0.5 | (20) | 0.8 | (32) |
| | 1985–1990 | 3.6 | 1.3 | (35) | 0.3 | (7) | 0.4 | (13) | 1.6 | (45) |
| | 1990–1995 | 2.5 | 1.1 | (43) | 0.2 | (6) | 0.8 | (30) | 0.5 | (20) |
| | 1995–2000 | 1.7 | 1.1 | (62) | 0.2 | (13) | 0.4 | (22) | 0.1 | (3) |
| | 2000–2005 | 2.6 | 1.3 | (52) | 0.1 | (5) | −0.1 | (−3) | 1.2 | (47) |
| | 2005–2010 | 2.8 | 1.4 | (49) | 0.1 | (4) | 0.5 | (18) | 0.8 | (29) |
| | 2010–2015 | 3.0 | 1.6 | (52) | 0.1 | (4) | 0.5 | (16) | 0.8 | (28) |
| | 2015–2022 | 2.5 | 0.7 | (29) | 0.1 | (5) | 0.9 | (38) | 0.7 | (28) |
| | 1970–2022 | 2.5 | 1.0 | (42) | 0.1 | (6) | 0.6 | (24) | 0.7 | (29) |
| East Asia | 1970–1975 | 2.3 | 0.7 | (31) | 0.1 | (6) | 1.5 | (65) | −0.1 | (−2) |
| | 1975–1980 | 2.6 | 0.6 | (22) | 0.1 | (4) | 0.7 | (27) | 1.2 | (47) |
| | 1980–1985 | 2.5 | 0.9 | (37) | 0.2 | (9) | 0.2 | (7) | 1.2 | (47) |
| | 1985–1990 | 3.6 | 0.8 | (24) | 0.3 | (8) | 0.9 | (25) | 1.6 | (44) |
| | 1990–1995 | 4.2 | 1.8 | (43) | 0.1 | (3) | 0.8 | (19) | 1.4 | (34) |
| | 1995–2000 | 2.6 | 0.8 | (30) | 0.2 | (9) | 0.8 | (30) | 0.8 | (31) |
| | 2000–2005 | 3.4 | 1.5 | (45) | 0.2 | (5) | 0.8 | (22) | 0.9 | (27) |
| | 2005–2010 | 7.0 | 1.8 | (26) | 0.2 | (3) | 2.5 | (36) | 2.5 | (36) |
| | 2010–2015 | 5.8 | 1.4 | (24) | 0.2 | (4) | 2.8 | (49) | 1.4 | (23) |
| | 2015–2022 | 4.4 | −0.6 | (−13) | 0.4 | (9) | 3.0 | (69) | 1.5 | (35) |
| | 1970–2022 | 3.8 | 0.9 | (24) | 0.2 | (6) | 1.5 | (38) | 1.3 | (33) |
| ASEAN | 1970–1975 | 2.9 | 1.2 | (42) | 0.0 | (1) | 0.6 | (20) | 1.1 | (36) |
| | 1975–1980 | 3.1 | 1.0 | (33) | 0.1 | (2) | 0.9 | (28) | 1.1 | (37) |
| | 1980–1985 | 0.5 | 1.3 | (240) | 0.1 | (25) | 0.3 | (59) | −1.2 | (−224) |
| | 1985–1990 | 4.1 | 1.8 | (43) | 0.2 | (4) | 0.0 | (0) | 2.2 | (54) |
| | 1990–1995 | 5.3 | 2.5 | (47) | 0.3 | (5) | 1.7 | (32) | 0.9 | (17) |
| | 1995–2000 | 0.4 | 2.0 | (439) | 0.1 | (24) | 0.6 | (131) | −2.2 | (−494) |
| | 2000–2005 | 3.8 | 2.7 | (71) | 0.2 | (5) | −0.5 | (−14) | 1.5 | (38) |
| | 2005–2010 | 2.7 | 1.7 | (63) | 0.2 | (7) | 0.1 | (5) | 0.7 | (25) |
| | 2010–2015 | 4.1 | 2.8 | (69) | 0.2 | (5) | 0.6 | (14) | 0.5 | (12) |
| | 2015–2022 | 3.0 | 1.3 | (44) | 0.1 | (4) | 1.3 | (43) | 0.3 | (10) |
| | 1970–2022 | 3.0 | 1.8 | (60) | 0.1 | (5) | 0.6 | (19) | 0.5 | (16) |
| CLMV | 1970–1975 | −0.8 | 0.7 | (−98) | −0.1 | (8) | −0.6 | (83) | −0.8 | (107) |
| | 1975–1980 | 1.4 | 1.3 | (93) | 0.0 | (1) | 1.3 | (89) | −1.2 | (−83) |
| | 1980–1985 | 0.4 | 0.8 | (212) | 0.0 | (10) | 0.1 | (36) | −0.6 | (−158) |
| | 1985–1990 | −0.2 | 0.5 | (−315) | 0.0 | (−9) | 0.6 | (−373) | −1.2 | (796) |
| | 1990–1995 | 4.5 | 0.3 | (6) | 0.0 | (1) | 1.8 | (40) | 2.4 | (53) |
| | 1995–2000 | 5.3 | 0.5 | (10) | 0.1 | (1) | 3.5 | (66) | 1.2 | (23) |
| | 2000–2005 | 6.3 | 2.2 | (34) | 0.1 | (1) | 3.4 | (54) | 0.7 | (11) |
| | 2005–2010 | 4.4 | 1.8 | (40) | 0.1 | (2) | 3.8 | (86) | −1.2 | (−28) |
| | 2010–2015 | 4.3 | 1.1 | (26) | 0.2 | (3) | 2.6 | (60) | 0.4 | (10) |
| | 2015–2022 | 5.2 | 1.3 | (25) | 0.1 | (2) | 2.2 | (41) | 1.6 | (31) |
| | 1970–2022 | 3.2 | 1.1 | (33) | 0.1 | (2) | 1.9 | (59) | 0.2 | (6) |

| | | Labor Productivity | Labor Quality | | Capital deepening | | | | TFP | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ICT | | Non–ICT | | | |
| US | 1970–1975 | 1.8 | 0.1 | (4) | 0.1 | (6) | 1.0 | (55) | 0.6 | (35) |
| | 1975–1980 | 1.1 | 0.1 | (6) | 0.2 | (18) | 0.1 | (12) | 0.7 | (64) |
| | 1980–1985 | 1.8 | 0.2 | (11) | 0.3 | (16) | 0.2 | (13) | 1.1 | (61) |
| | 1985–1990 | 1.2 | 0.2 | (19) | 0.3 | (24) | 0.1 | (13) | 0.5 | (44) |
| | 1990–1995 | 1.4 | 0.3 | (22) | 0.2 | (16) | 0.2 | (11) | 0.7 | (50) |
| | 1995–2000 | 2.1 | 0.3 | (15) | 0.6 | (27) | 0.3 | (13) | 0.9 | (45) |
| | 2000–2005 | 2.5 | 0.2 | (8) | 0.4 | (15) | 0.8 | (32) | 1.1 | (44) |
| | 2005–2010 | 1.7 | 0.3 | (19) | 0.3 | (20) | 0.8 | (49) | 0.2 | (12) |
| | 2010–2015 | 0.4 | 0.2 | (54) | 0.2 | (47) | −0.3 | (−76) | 0.3 | (75) |
| | 2015–2022 | 1.1 | 0.2 | (19) | 0.3 | (29) | 0.2 | (19) | 0.4 | (33) |
| | 1970–2022 | 1.5 | 0.2 | (14) | 0.3 | (19) | 0.3 | (23) | 0.6 | (43) |
| Asia25 | 1970–1975 | 2.3 | 0.7 | (29) | 0.1 | (4) | 1.2 | (54) | 0.3 | (12) |
| | 1975–1980 | 1.8 | 0.6 | (36) | 0.1 | (4) | 0.7 | (42) | 0.3 | (18) |
| | 1980–1985 | 2.3 | 1.1 | (47) | 0.2 | (7) | 0.3 | (12) | 0.8 | (34) |
| | 1985–1990 | 3.5 | 1.0 | (30) | 0.2 | (6) | 0.7 | (20) | 1.5 | (44) |
| | 1990–1995 | 3.9 | 1.5 | (39) | 0.1 | (3) | 1.0 | (25) | 1.3 | (33) |
| | 1995–2000 | 2.5 | 1.0 | (41) | 0.2 | (8) | 0.8 | (32) | 0.5 | (18) |
| | 2000–2005 | 3.6 | 1.5 | (43) | 0.2 | (5) | 0.6 | (17) | 1.2 | (35) |
| | 2005–2010 | 5.7 | 1.5 | (26) | 0.2 | (3) | 2.1 | (38) | 1.9 | (33) |
| | 2010–2015 | 4.9 | 1.3 | (26) | 0.2 | (5) | 2.3 | (47) | 1.1 | (22) |
| | 2015–2022 | 3.8 | −0.1 | (−3) | 0.3 | (8) | 2.4 | (64) | 1.2 | (31) |
| | 1970–2022 | 3.4 | 1.0 | (28) | 0.2 | (5) | 1.3 | (37) | 1.0 | (29) |
| South Asia | 1970–1975 | −0.3 | 0.5 | (−172) | 0.0 | (−14) | 0.1 | (−46) | −0.9 | (332) |
| | 1975–1980 | 1.0 | 0.8 | (85) | 0.0 | (4) | 0.4 | (43) | −0.3 | (−32) |
| | 1980–1985 | 2.8 | 1.0 | (36) | 0.1 | (3) | 0.5 | (18) | 1.2 | (43) |
| | 1985–1990 | 3.9 | 1.2 | (32) | 0.2 | (4) | 0.6 | (14) | 1.9 | (49) |
| | 1990–1995 | 3.2 | 0.8 | (24) | 0.2 | (5) | 0.7 | (23) | 1.6 | (48) |
| | 1995–2000 | 4.0 | 1.3 | (33) | 0.2 | (5) | 0.8 | (21) | 1.6 | (41) |
| | 2000–2005 | 4.1 | 1.0 | (25) | 0.2 | (5) | 0.9 | (23) | 2.0 | (48) |
| | 2005–2010 | 5.9 | 1.7 | (29) | 0.4 | (7) | 2.0 | (33) | 1.8 | (30) |
| | 2010–2015 | 4.7 | 1.3 | (27) | 0.4 | (8) | 1.7 | (35) | 1.4 | (30) |
| | 2015–2022 | 3.7 | 0.6 | (16) | 0.3 | (8) | 1.6 | (42) | 1.3 | (34) |
| | 1970–2022 | 3.3 | 1.0 | (30) | 0.2 | (6) | 1.0 | (29) | 1.2 | (35) |
| ASEAN6 | 1970–1975 | 3.6 | 1.7 | (47) | 0.0 | (1) | 0.5 | (14) | 1.4 | (38) |
| | 1975–1980 | 3.0 | 1.4 | (46) | 0.1 | (3) | 0.3 | (11) | 1.2 | (40) |
| | 1980–1985 | 0.5 | 1.8 | (339) | 0.1 | (27) | 0.0 | (3) | −1.4 | (−270) |
| | 1985–1990 | 4.6 | 2.8 | (60) | 0.2 | (4) | −0.6 | (−14) | 2.3 | (50) |
| | 1990–1995 | 5.6 | 3.8 | (69) | 0.3 | (5) | 1.1 | (19) | 0.4 | (7) |
| | 1995–2000 | 0.1 | 2.7 | (4259) | 0.1 | (156) | 0.1 | (175) | −2.9 | (−4490) |
| | 2000–2005 | 3.4 | 3.0 | (87) | 0.2 | (6) | −1.0 | (−30) | 1.3 | (37) |
| | 2005–2010 | 2.4 | 1.6 | (67) | 0.2 | (9) | −0.2 | (−10) | 0.8 | (35) |
| | 2010–2015 | 4.0 | 3.7 | (92) | 0.2 | (5) | −0.1 | (−3) | 0.2 | (6) |
| | 2015–2022 | 2.5 | 1.3 | (53) | 0.1 | (4) | 1.1 | (43) | 0.0 | (−1) |
| | 1970–2022 | 2.9 | 2.3 | (80) | 0.1 | (5) | 0.1 | (5) | 0.3 | (10) |

Unit: Percentage (average annual growth rate) and percentage points (contributions written in parentheses).
Source: APO Productivity Database 2024.

## Table 9.15 Industry Value-added Share, 1980–2022

——Shares of industry GDP at current prices by Industry

| | 1980 | | | | 1990 | | | | 2000 | | | | 2010 | | | | 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agriculture | Manufacturing | Service | Others | Agriculture | Manufacturing | Service | Others | Agriculture | Manufacturing | Service | Others | Agriculture | Manufacturing | Service | Others | Agriculture | Manufacturing | Service | Others |
| Bahrain | 0.7 | 10.9 | 45.6 | 42.8 | 0.7 | 11.1 | 58.0 | 30.2 | 0.6 | 11.4 | 55.1 | 32.9 | 0.3 | 14.6 | 54.2 | 30.8 | 0.3 | 22.0 | 50.1 | 27.6 |
| Bangladesh | 32.0 | 13.8 | 37.3 | 6.3 | 29.3 | 12.7 | 40.7 | 7.6 | 23.8 | 14.7 | 44.7 | 8.6 | 17.3 | 19.0 | 44.4 | 9.5 | 11.7 | 22.6 | 53.1 | 12.6 |
| Bhutan | 40.7 | 2.7 | 48.3 | 8.3 | 33.6 | 7.5 | 44.2 | 14.6 | 22.7 | 8.0 | 44.4 | 24.9 | 13.7 | 8.7 | 43.5 | 34.1 | 15.0 | 8.9 | 52.6 | 23.4 |
| Brunei | 0.2 | 19.4 | 9.3 | 71.1 | 0.9 | 13.8 | 35.8 | 49.5 | 1.0 | 18.3 | 34.3 | 46.4 | 0.7 | 14.6 | 31.9 | 52.7 | 1.1 | 21.8 | 32.0 | 45.1 |
| Cambodia | 43.8 | 10.0 | 40.7 | 5.5 | 49.9 | 8.6 | 37.5 | 4.0 | 37.8 | 16.9 | 39.1 | 6.2 | 36.0 | 15.6 | 40.7 | 7.6 | 23.7 | 20.0 | 36.0 | 20.3 |
| China | 26.1 | 32.5 | 31.9 | 9.5 | 24.4 | 28.2 | 38.2 | 9.2 | 13.7 | 29.9 | 44.3 | 12.1 | 9.1 | 30.6 | 46.5 | 13.8 | 7.2 | 26.4 | 55.0 | 11.3 |
| ROC | 7.8 | 34.4 | 46.2 | 11.6 | 4.2 | 32.3 | 55.0 | 8.4 | 2.1 | 25.8 | 66.3 | 5.8 | 1.6 | 29.1 | 64.5 | 4.8 | 1.4 | 35.4 | 59.8 | 3.4 |
| Fiji | 21.0 | 10.8 | 58.7 | 9.5 | 17.7 | 10.5 | 63.8 | 8.1 | 16.3 | 13.3 | 62.6 | 7.9 | 11.7 | 15.3 | 67.1 | 5.9 | 19.4 | 13.4 | 62.0 | 5.2 |
| Hong Kong | 0.8 | 20.5 | 70.5 | 8.2 | 0.2 | 14.9 | 77.3 | 7.6 | 0.1 | 4.8 | 87.3 | 7.8 | 0.1 | 1.8 | 93.0 | 5.2 | 0.1 | 1.0 | 93.5 | 5.5 |
| India | 35.6 | 17.8 | 38.5 | 8.1 | 29.1 | 17.2 | 43.5 | 10.1 | 23.1 | 15.3 | 50.8 | 10.8 | 18.0 | 14.9 | 54.4 | 12.7 | 17.1 | 12.1 | 59.2 | 11.6 |
| Indonesia | 19.2 | 10.8 | 46.0 | 24.1 | 15.1 | 16.7 | 54.9 | 13.4 | 12.2 | 21.2 | 51.9 | 14.7 | 14.2 | 22.4 | 42.4 | 21.1 | 13.0 | 19.2 | 43.7 | 24.2 |
| Iran | 13.1 | 12.3 | 49.5 | 25.2 | 15.1 | 18.5 | 49.0 | 17.4 | 11.0 | 14.6 | 47.8 | 26.7 | 5.9 | 13.4 | 46.3 | 34.4 | 7.6 | 19.5 | 41.3 | 31.7 |
| Japan | 3.5 | 27.4 | 57.7 | 11.4 | 2.4 | 26.5 | 59.4 | 11.6 | 1.5 | 22.2 | 67.1 | 9.1 | 1.2 | 20.7 | 71.6 | 6.5 | 1.0 | 19.2 | 72.4 | 7.5 |
| Korea | 16.0 | 24.7 | 48.0 | 11.3 | 8.4 | 27.7 | 51.4 | 12.5 | 4.3 | 29.3 | 57.2 | 9.2 | 2.4 | 30.2 | 60.1 | 7.3 | 1.8 | 28.0 | 63.5 | 6.7 |
| Kuwait | 0.3 | 5.6 | 27.1 | 67.0 | 1.6 | 11.2 | 49.1 | 38.1 | 0.6 | 6.5 | 44.2 | 48.7 | 0.4 | 5.3 | 41.4 | 52.9 | 0.4 | 6.3 | 38.5 | 54.8 |
| Lao PDR | 65.9 | 3.7 | 23.0 | 7.4 | 61.2 | 5.1 | 24.3 | 9.4 | 52.5 | 10.7 | 24.6 | 12.2 | 31.4 | 9.8 | 40.4 | 18.4 | 25.8 | 9.8 | 33.2 | 31.2 |
| Malaysia | 22.7 | 19.0 | 42.0 | 16.3 | 15.5 | 22.9 | 45.2 | 16.4 | 8.6 | 29.2 | 46.5 | 15.7 | 10.2 | 23.7 | 48.9 | 17.2 | 9.0 | 23.6 | 51.5 | 15.9 |
| Mongolia | 8.1 | 16.6 | 56.7 | 18.7 | 9.6 | 19.4 | 50.6 | 20.3 | 24.7 | 7.4 | 52.6 | 15.3 | 13.1 | 7.6 | 50.0 | 29.4 | 14.6 | 8.0 | 45.9 | 31.6 |
| Myanmar | 46.5 | 9.5 | 40.8 | 3.1 | 54.7 | 7.7 | 35.1 | 2.5 | 53.4 | 8.4 | 31.2 | 7.0 | 24.7 | 5.4 | 19.6 | 50.3 | 27.0 | 11.8 | 37.6 | 23.6 |
| Nepal | 50.7 | 5.1 | 39.4 | 4.8 | 45.8 | 5.9 | 41.9 | 6.4 | 35.2 | 8.9 | 47.4 | 8.5 | 33.2 | 6.2 | 51.5 | 9.2 | 24.5 | 5.7 | 61.3 | 8.6 |
| Oman | 2.5 | 0.6 | 28.2 | 68.7 | 2.9 | 2.9 | 40.5 | 53.6 | 2.2 | 5.6 | 39.4 | 52.7 | 1.4 | 10.4 | 35.9 | 52.4 | 2.0 | 9.7 | 41.5 | 46.8 |
| Pakistan | 31.2 | 14.5 | 45.6 | 8.7 | 26.3 | 14.1 | 50.9 | 8.7 | 26.8 | 9.6 | 55.0 | 8.5 | 23.6 | 13.5 | 54.6 | 8.2 | 23.5 | 14.5 | 55.0 | 7.0 |
| Philippines | 21.7 | 28.3 | 36.0 | 13.9 | 19.0 | 27.5 | 43.0 | 10.5 | 13.9 | 25.3 | 51.1 | 9.7 | 13.7 | 21.9 | 53.9 | 10.4 | 9.5 | 17.2 | 61.2 | 12.0 |
| Qatar | 0.5 | 3.3 | 23.5 | 72.7 | 0.8 | 13.0 | 42.8 | 43.5 | 0.4 | 5.4 | 29.5 | 64.7 | 0.1 | 8.9 | 32.4 | 58.6 | 0.2 | 8.9 | 36.9 | 53.9 |
| Saudi Arabia | 1.0 | 4.0 | 27.5 | 67.5 | 5.7 | 8.4 | 44.9 | 40.9 | 5.0 | 9.4 | 40.8 | 44.8 | 2.6 | 10.9 | 38.9 | 47.6 | 2.5 | 15.1 | 41.8 | 40.6 |
| Singapore | 1.6 | 27.5 | 62.2 | 8.7 | 0.3 | 25.6 | 67.3 | 6.8 | 0.1 | 27.7 | 65.1 | 7.1 | 0.0 | 22.0 | 71.8 | 6.2 | 0.0 | 20.7 | 75.1 | 4.2 |
| Sri Lanka | 20.3 | 21.3 | 47.9 | 10.5 | 17.4 | 19.9 | 53.6 | 9.0 | 11.6 | 20.3 | 59.9 | 8.2 | 10.1 | 20.5 | 59.0 | 10.4 | 9.2 | 20.6 | 59.0 | 11.2 |
| Thailand | 19.3 | 23.3 | 50.6 | 6.7 | 10.0 | 27.1 | 53.1 | 9.8 | 8.5 | 28.4 | 54.8 | 8.3 | 10.5 | 30.9 | 49.6 | 9.0 | 8.7 | 27.1 | 56.1 | 8.1 |
| Turkiye | 21.1 | 22.2 | 48.2 | 8.5 | 13.9 | 28.1 | 47.8 | 10.2 | 11.2 | 20.9 | 58.9 | 9.0 | 10.2 | 17.1 | 62.0 | 10.7 | 7.2 | 24.7 | 57.8 | 10.3 |
| UAE | 0.5 | 3.9 | 32.5 | 63.1 | 1.1 | 7.4 | 43.4 | 48.1 | 2.1 | 12.5 | 47.3 | 38.1 | 0.7 | 8.5 | 47.6 | 43.2 | 0.8 | 9.7 | 47.7 | 41.7 |
| Vietnam | 51.4 | 12.5 | 32.5 | 3.5 | 38.7 | 7.9 | 43.3 | 10.1 | 21.9 | 17.3 | 44.6 | 16.2 | 17.3 | 19.2 | 45.9 | 17.6 | 13.0 | 27.1 | 45.6 | 14.3 |
| (region) | | | | | | | | | | | | | | | | | | | | |
| APO21 | 15.2 | 22.3 | 50.3 | 12.2 | 11.8 | 23.2 | 53.7 | 11.3 | 10.1 | 20.7 | 58.4 | 10.7 | 9.9 | 19.8 | 58.4 | 11.9 | 10.2 | 19.0 | 58.8 | 12.0 |
| Asia25 | 16.9 | 23.7 | 47.4 | 12.0 | 14.1 | 24.0 | 50.9 | 11.0 | 11.2 | 23.1 | 54.6 | 11.1 | 9.7 | 23.9 | 53.6 | 12.8 | 8.9 | 22.2 | 57.1 | 11.8 |
| Asia31 | 15.0 | 21.5 | 45.3 | 18.2 | 13.3 | 22.7 | 50.4 | 13.6 | 10.6 | 22.1 | 53.7 | 13.5 | 9.2 | 23.2 | 52.9 | 14.7 | 8.5 | 21.7 | 56.3 | 13.4 |
| East Asia | 10.1 | 28.7 | 50.4 | 10.9 | 9.4 | 27.1 | 52.7 | 10.8 | 7.2 | 26.1 | 56.4 | 10.3 | 6.4 | 27.8 | 54.6 | 11.2 | 5.7 | 25.5 | 58.7 | 10.2 |
| South Asia | 34.5 | 16.9 | 40.5 | 8.1 | 28.7 | 16.3 | 45.4 | 9.6 | 23.5 | 14.5 | 51.8 | 10.2 | 18.5 | 15.0 | 54.5 | 11.9 | 17.2 | 13.2 | 58.3 | 11.3 |
| ASEAN | 22.2 | 17.5 | 43.4 | 17.0 | 16.2 | 20.3 | 51.4 | 12.0 | 12.5 | 23.5 | 51.3 | 12.7 | 12.8 | 23.2 | 47.6 | 16.4 | 11.0 | 21.6 | 50.7 | 16.7 |
| ASEAN6 | 18.8 | 18.3 | 44.4 | 18.5 | 13.6 | 21.5 | 52.5 | 12.4 | 10.3 | 24.5 | 52.6 | 12.6 | 11.6 | 24.4 | 48.6 | 15.5 | 10.1 | 21.1 | 52.1 | 16.8 |
| CLMV | 50.7 | 11.1 | 34.3 | 3.8 | 44.2 | 7.7 | 40.0 | 8.1 | 30.5 | 15.3 | 40.6 | 13.7 | 20.1 | 16.5 | 41.4 | 22.0 | 15.9 | 24.0 | 43.6 | 16.5 |
| GCC | 0.8 | 4.1 | 28.6 | 66.5 | 4.4 | 8.3 | 44.9 | 42.4 | 3.7 | 9.5 | 42.1 | 44.6 | 1.7 | 9.8 | 40.6 | 47.8 | 1.7 | 12.7 | 42.8 | 42.8 |
| IPEF | 6.8 | 21.8 | 60.3 | 11.1 | 5.6 | 20.0 | 64.6 | 9.8 | 4.6 | 17.9 | 68.5 | 8.9 | 5.3 | 16.3 | 68.7 | 9.7 | 6.0 | 14.3 | 69.3 | 10.4 |
| RCEP | 12.6 | 25.4 | 49.2 | 12.7 | 10.9 | 24.8 | 52.8 | 11.5 | 8.6 | 25.1 | 55.2 | 11.2 | 7.7 | 26.4 | 53.0 | 12.8 | 6.8 | 24.0 | 57.2 | 12.0 |
| (reference) | | | | | | | | | | | | | | | | | | | | |
| US | 2.2 | 21.0 | 66.9 | 9.9 | 1.6 | 17.7 | 72.7 | 8.0 | 1.0 | 15.1 | 76.6 | 7.3 | 1.1 | 12.3 | 79.1 | 7.6 | 1.1 | 10.3 | 80.9 | 7.7 |
| Australia | 5.8 | 18.4 | 57.3 | 18.4 | 3.4 | 13.6 | 66.5 | 16.4 | 3.8 | 12.0 | 70.3 | 13.9 | 2.5 | 7.9 | 69.1 | 20.5 | 2.5 | 5.7 | 68.3 | 23.4 |
| New Zealand | 10.1 | 25.1 | 54.9 | 9.8 | 6.4 | 19.2 | 65.0 | 9.4 | 8.3 | 16.6 | 66.4 | 8.7 | 7.1 | 11.8 | 69.9 | 11.2 | 6.4 | 10.4 | 72.4 | 10.9 |

Unit: Percentage.

Sources: Official national accounts in each country, including adjustments by APO-PDB.

Notes: Services are defined as the total of industries 6–9. Others are defined as the total of industries 2, 4, and 5 of nine industries, which consist of 1–agriculture; 2–mining; 3–manufacturing; 4–electricity, gas, and water supply; 5–construction; 6–wholesale and retail trade, hotels, and restaurants; 7–transport, storage, and communications; 8–finance, real estate, and business activities; and 9–community, social, and personal services. See the Online Appendix for the concordance with the ISIC, Revisions 3 and 4.

## Table 9.16 Industry Origins of Economic Growth, 2010–2022

——Contributions to economic growth by industry

| | 1. Agriculture | | 2. Mining | | 3. Manufacturing | | 4. Electricity, gas, and water supply | | 5. Construction | | 6. Wholesale and retail trade, hotels, and restaurants | | 7. Transport, storage, and communications | | 8. Finance, real estate, and business activities | | 9. Community, social, and personal services | | Total economy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bahrain | 2.7 | (0.0) | 0.7 | (0.2) | 2.4 | (0.4) | 3.5 | (0.1) | 2.4 | (0.2) | 0.9 | (0.0) | 3.4 | (0.2) | 2.3 | (0.5) | 4.1 | (0.7) | 2.3 |
| Bangladesh | 3.9 | (0.6) | 8.1 | (0.1) | 10.4 | (2.2) | 8.2 | (0.1) | 9.3 | (0.8) | 7.8 | (1.2) | 6.5 | (0.6) | 6.1 | (0.8) | 5.2 | (0.8) | 7.2 |
| Bhutan | 2.2 | (0.3) | 4.4 | (0.1) | 1.1 | (0.1) | 1.6 | (0.2) | 3.2 | (0.6) | 9.7 | (0.9) | 7.1 | (0.8) | 6.0 | (0.6) | 4.2 | (0.7) | 4.3 |
| Brunei | 1.4 | (0.0) | −4.5 | (−2.0) | 1.3 | (0.0) | 1.5 | (0.0) | −0.4 | (−0.0) | −0.3 | (−0.0) | −0.3 | (−0.0) | 0.3 | (0.0) | −0.1 | (−0.1) | −2.0 |
| Cambodia | 1.3 | (0.4) | 18.0 | (0.3) | 7.8 | (1.3) | 5.7 | (0.0) | 12.0 | (1.3) | 3.2 | (0.5) | 5.7 | (0.5) | 6.7 | (0.6) | 4.6 | (0.4) | 5.3 |
| China | 4.1 | (0.3) | 3.5 | (0.1) | 6.7 | (1.9) | 5.4 | (0.1) | 6.2 | (0.4) | 6.6 | (0.7) | 8.7 | (0.6) | 5.6 | (1.0) | 7.8 | (1.3) | 6.5 |
| ROC | −1.1 | (−0.0) | −1.2 | (−0.0) | 5.2 | (1.7) | 2.1 | (0.0) | 1.4 | (0.0) | 2.5 | (0.5) | 3.0 | (0.2) | 2.9 | (0.5) | 1.2 | (0.2) | 3.1 |
| Fiji | 3.0 | (0.5) | −8.3 | (−0.1) | 0.8 | (0.1) | 7.7 | (0.1) | 0.9 | (0.0) | −1.3 | (−0.2) | 2.8 | (0.4) | 2.5 | (0.4) | 1.7 | (0.2) | 1.6 |
| Hong Kong | −2.2 | (−0.0) | −2.2 | (−0.0) | −0.1 | (−0.0) | −1.4 | (−0.0) | 3.0 | (0.1) | −0.5 | (−0.0) | 0.6 | (0.1) | 2.2 | (0.9) | 2.2 | (0.4) | 1.4 |
| India | 3.9 | (0.7) | 1.6 | (0.0) | 5.4 | (0.8) | 5.9 | (0.1) | 5.2 | (0.4) | 6.2 | (1.1) | 5.5 | (0.4) | 7.6 | (1.3) | 5.4 | (0.8) | 5.6 |
| Indonesia | 3.4 | (0.5) | 1.5 | (0.2) | 3.8 | (0.8) | 4.4 | (0.1) | 4.9 | (0.5) | 4.3 | (0.7) | 7.2 | (0.6) | 4.4 | (0.4) | 4.7 | (0.5) | 4.2 |
| Iran | 2.2 | (0.2) | −2.0 | (−0.6) | 1.0 | (0.2) | 4.4 | (0.2) | −0.4 | (−0.0) | 0.4 | (0.0) | 4.8 | (0.4) | 3.7 | (0.5) | 2.7 | (0.4) | 1.3 |
| Japan | −1.6 | (−0.0) | −3.5 | (−0.0) | 1.0 | (0.2) | 2.3 | (0.1) | 1.0 | (0.0) | −1.1 | (−0.1) | −2.8 | (−0.2) | 0.3 | (0.0) | 1.3 | (0.5) | 0.5 |
| Korea | 0.5 | (0.0) | −3.1 | (−0.0) | 2.7 | (0.8) | 1.7 | (0.0) | 1.1 | (0.1) | 2.4 | (0.3) | 3.0 | (0.2) | 3.3 | (0.8) | 3.0 | (0.6) | 2.7 |
| Kuwait | 0.2 | (0.0) | 2.9 | (1.5) | −0.4 | (−0.1) | 4.5 | (0.1) | −3.3 | (−0.1) | −2.8 | (−0.1) | −3.6 | (−0.2) | −2.2 | (−0.3) | 0.5 | (0.0) | 0.8 |
| Lao PDR | 2.7 | (0.7) | 2.4 | (0.4) | 8.4 | (0.7) | 16.7 | (1.1) | 8.7 | (0.6) | 3.6 | (0.7) | 8.1 | (0.3) | 7.9 | (0.6) | 4.0 | (0.4) | 5.4 |
| Malaysia | 1.2 | (0.1) | −0.1 | (−0.0) | 4.7 | (1.1) | 3.7 | (0.1) | 3.9 | (0.2) | 5.4 | (1.0) | 6.3 | (0.6) | 4.3 | (0.5) | 5.1 | (0.7) | 4.2 |
| Mongolia | 7.6 | (1.0) | 3.3 | (0.5) | 5.0 | (0.4) | 5.5 | (0.1) | 6.3 | (0.3) | 6.1 | (0.9) | 4.8 | (0.4) | 5.7 | (0.7) | 3.0 | (0.4) | 4.8 |
| Myanmar | 3.4 | (0.8) | −8.1 | (−0.3) | 5.3 | (0.3) | 0.7 | (−0.1) | 4.3 | (0.2) | 3.4 | (0.3) | 4.5 | (0.3) | 21.6 | (0.1) | 6.7 | (0.5) | 2.1 |
| Nepal | 2.9 | (0.8) | 5.7 | (0.0) | 3.9 | (0.2) | 8.4 | (0.1) | 5.2 | (0.3) | 3.8 | (0.7) | 5.7 | (0.5) | 5.5 | (0.8) | 5.1 | (0.8) | 4.3 |
| Oman | 8.3 | (0.1) | 2.0 | (0.7) | 2.4 | (0.2) | 11.0 | (0.2) | 8.7 | (0.6) | 6.0 | (0.5) | 7.4 | (0.4) | 5.2 | (0.5) | 4.0 | (0.6) | 4.0 |
| Pakistan | 2.7 | (0.6) | 0.6 | (0.0) | 4.3 | (0.6) | 5.5 | (0.1) | 2.7 | (0.1) | 4.0 | (0.8) | 3.8 | (0.4) | 3.7 | (0.3) | 5.2 | (0.8) | 3.8 |
| Philippines | 1.4 | (0.2) | 1.1 | (0.0) | 4.3 | (0.9) | 4.9 | (0.2) | 6.3 | (0.4) | 4.9 | (0.9) | 5.8 | (0.4) | 6.5 | (1.3) | 4.7 | (0.6) | 4.8 |
| Qatar | 9.6 | (0.0) | 0.7 | (0.5) | 3.3 | (0.3) | 6.9 | (0.0) | 8.5 | (0.6) | 3.9 | (0.2) | 4.3 | (0.2) | 6.2 | (0.8) | 4.4 | (0.4) | 3.2 |
| Saudi Arabia | 3.4 | (0.1) | 2.3 | (1.0) | 3.9 | (0.5) | 1.9 | (0.0) | 2.7 | (0.1) | 4.0 | (0.4) | 3.7 | (0.2) | 4.3 | (0.5) | 3.5 | (0.6) | 3.3 |
| Singapore | 2.1 | (0.0) | 0.0 | ( ) | 4.0 | (0.8) | 1.2 | (0.0) | 0.8 | (0.1) | 3.5 | (0.7) | 4.3 | (0.5) | 4.3 | (1.3) | 2.2 | (0.2) | 3.7 |
| Sri Lanka | 1.6 | (0.1) | 2.5 | (0.1) | 1.7 | (0.3) | 1.7 | (0.0) | 4.3 | (0.4) | 3.5 | (0.5) | 4.7 | (0.6) | 5.4 | (0.6) | 3.4 | (0.6) | 3.3 |
| Thailand | 1.0 | (0.1) | −2.0 | (−0.0) | 1.0 | (0.3) | 2.4 | (0.1) | 2.1 | (0.1) | 3.1 | (0.6) | 3.3 | (0.3) | 4.8 | (0.5) | 2.0 | (0.3) | 2.2 |
| Turkiye | 2.4 | (0.2) | 3.9 | (0.0) | 6.4 | (1.3) | 4.1 | (0.1) | 3.5 | (0.3) | 7.5 | (1.2) | 6.3 | (0.8) | 5.1 | (0.7) | 5.7 | (1.0) | 5.7 |
| UAE | 4.8 | (0.0) | 2.9 | (1.0) | 5.7 | (0.5) | 4.1 | (0.2) | 0.8 | (0.1) | 3.3 | (0.5) | 2.7 | (0.2) | 4.6 | (0.7) | 5.2 | (0.5) | 3.7 |
| Vietnam | 3.0 | (0.5) | −1.4 | (−0.0) | 8.5 | (2.0) | 8.5 | (0.3) | 6.2 | (0.4) | 6.6 | (0.8) | 7.5 | (0.7) | 5.5 | (0.7) | 6.3 | (0.7) | 6.1 |
| (region) | | | | | | | | | | | | | | | | | | | |
| APO21 | 3.1 | (0.3) | 0.2 | (0.0) | 3.8 | (0.7) | 4.1 | (0.1) | 3.9 | (0.2) | 4.0 | (0.7) | 4.0 | (0.3) | 4.4 | (0.7) | 3.3 | (0.6) | 3.7 |
| Asia25 | 3.5 | (0.3) | 1.5 | (0.0) | 5.3 | (1.2) | 4.7 | (0.1) | 4.9 | (0.3) | 4.8 | (0.7) | 5.8 | (0.4) | 5.0 | (0.8) | 5.0 | (0.9) | 4.8 |
| Asia31 | 3.5 | (0.3) | 2.3 | (0.1) | 5.3 | (1.2) | 4.7 | (0.1) | 4.8 | (0.3) | 4.8 | (0.7) | 5.7 | (0.4) | 4.9 | (0.8) | 5.0 | (0.9) | 4.8 |
| East Asia | 3.8 | (0.2) | 3.4 | (0.1) | 5.5 | (1.5) | 4.6 | (0.1) | 5.0 | (0.3) | 4.3 | (0.5) | 6.0 | (0.4) | 4.4 | (0.8) | 5.1 | (1.0) | 4.9 |
| South Asia | 3.7 | (0.6) | 2.0 | (0.0) | 5.7 | (0.8) | 5.9 | (0.1) | 5.4 | (0.4) | 6.0 | (1.1) | 5.3 | (0.4) | 7.2 | (1.2) | 5.3 | (0.8) | 5.5 |
| ASEAN | 2.6 | (0.3) | 0.5 | (0.0) | 4.0 | (0.9) | 4.6 | (0.1) | 4.8 | (0.3) | 4.4 | (0.7) | 6.0 | (0.5) | 4.9 | (0.6) | 4.1 | (0.5) | 4.0 |
| ASEAN6 | 2.5 | (0.3) | 0.8 | (0.1) | 3.3 | (0.7) | 3.6 | (0.1) | 4.6 | (0.3) | 4.2 | (0.7) | 5.9 | (0.5) | 4.8 | (0.6) | 3.8 | (0.5) | 3.8 |
| CLMV | 3.0 | (0.5) | −2.1 | (−0.0) | 8.2 | (1.7) | 8.3 | (0.3) | 6.3 | (0.4) | 5.9 | (0.7) | 7.1 | (0.6) | 5.7 | (0.6) | 6.1 | (0.7) | 5.5 |
| GCC | 3.8 | (0.1) | 2.2 | (0.9) | 3.9 | (0.4) | 3.8 | (0.1) | 2.8 | (0.2) | 3.5 | (0.3) | 3.1 | (0.2) | 3.9 | (0.5) | 3.6 | (0.5) | 3.2 |
| IPEF | 3.0 | (0.2) | 1.6 | (0.1) | 2.4 | (0.4) | 2.8 | (0.1) | 3.0 | (0.2) | 3.0 | (0.4) | 4.3 | (0.3) | 3.5 | (0.8) | 2.0 | (0.5) | 2.9 |
| RCEP | 3.4 | (0.2) | 2.3 | (0.1) | 5.2 | (1.3) | 4.5 | (0.1) | 4.9 | (0.3) | 4.5 | (0.6) | 6.0 | (0.4) | 4.5 | (0.8) | 5.1 | (1.0) | 4.8 |
| (reference) | | | | | | | | | | | | | | | | | | | |
| US | 0.4 | (0.0) | 1.2 | (0.1) | 1.2 | (0.1) | 1.1 | (0.0) | 1.4 | (0.1) | 1.6 | (0.2) | 5.2 | (0.4) | 3.0 | (1.0) | 1.2 | (0.3) | 2.1 |
| Australia | 1.5 | (0.0) | 4.1 | (0.4) | 3.3 | (0.0) | 0.6 | (0.0) | 1.5 | (0.1) | 2.5 | (0.3) | 3.2 | (0.2) | 2.6 | (0.7) | 3.3 | (0.8) | 2.5 |
| New Zealand | 2.6 | (0.2) | −4.7 | (−0.1) | 2.7 | (0.1) | 1.6 | (0.0) | 4.6 | (0.3) | 3.7 | (0.5) | 3.3 | (0.2) | 3.7 | (1.1) | 2.7 | (0.6) | 3.0 |

Unit: Percentage (average annual growth rate) and percentage points (contributions written in parentheses).
Source: APO Productivity Database 2024.

## Table 9.17 Industry Origins of Labor Productivity Growth, 2010–2022

——Contributions to labor productivity by industry

| | 1. Agriculture | | 2. Mining | | 3. Manufacturing | | 4. Electricity, gas, and water supply | | 5. Construction | | 6. Wholesale and retail trade, hotels, and restaurants | | 7. Transport, storage, and communications | | 8. Finance, real estate, and business activities | | 9. Community, social, and personal services | | Total economy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bahrain | 1.4 | (0.0) | −0.4 | (0.2) | 1.6 | (0.3) | 1.1 | (0.1) | 0.7 | (−0.2) | −0.4 | (−0.1) | 1.2 | (0.0) | 0.1 | (0.4) | 2.3 | (0.1) | 0.8 |
| Bangladesh | 5.2 | (0.8) | 8.3 | (0.1) | 7.4 | (1.7) | 7.5 | (0.1) | 5.2 | (0.5) | 5.4 | (0.9) | 3.2 | (0.3) | 3.1 | (0.7) | 2.2 | (0.5) | 5.6 |
| Brunei | −7.6 | (−0.5) | −2.6 | (−2.1) | −4.6 | (−0.6) | 3.4 | (0.0) | −1.6 | (−0.7) | −3.8 | (−1.0) | −3.0 | (−0.2) | −1.6 | (−0.1) | 1.7 | (0.5) | −4.6 |
| Cambodia | 4.4 | (1.3) | 17.3 | (0.3) | 7.5 | (1.3) | −0.2 | (−0.0) | 4.4 | (0.9) | −3.6 | (−1.0) | 0.9 | (0.3) | 2.4 | (0.5) | −3.0 | (−0.7) | 3.0 |
| China | 9.0 | (1.4) | 6.7 | (0.1) | 6.7 | (1.9) | 6.7 | (0.1) | 6.7 | (0.5) | 5.2 | (0.5) | 5.2 | (0.4) | 5.2 | (1.0) | 5.2 | (0.7) | 6.7 |
| ROC | −0.3 | (−0.0) | 1.2 | (0.0) | 4.8 | (1.6) | 1.4 | (0.0) | 0.3 | (0.0) | 2.4 | (0.4) | 1.4 | (0.1) | 2.1 | (0.5) | −0.3 | (−0.1) | 2.4 |
| Fiji | 2.2 | (0.4) | −5.9 | (−0.0) | 5.1 | (0.6) | 9.4 | (0.2) | −2.2 | (−0.2) | −2.4 | (−0.3) | 1.3 | (0.4) | −0.7 | (0.3) | 1.0 | (0.1) | 1.4 |
| Hong Kong | −2.5 | (−0.0) | 0.0 | ( ) | 3.1 | (0.1) | −2.1 | (−0.0) | 1.2 | (0.0) | 1.9 | (0.6) | 0.8 | (0.1) | 0.1 | (0.5) | 0.5 | (0.0) | 1.2 |
| India | 5.2 | (1.0) | 6.5 | (0.1) | 4.1 | (0.6) | −1.0 | (0.1) | 1.6 | (−0.1) | 4.3 | (1.0) | 3.3 | (0.3) | 6.4 | (1.3) | 2.9 | (0.5) | 4.7 |
| Indonesia | 6.2 | (0.7) | 0.0 | (0.2) | 1.3 | (0.4) | 2.1 | (0.0) | 1.5 | (0.3) | 1.5 | (0.1) | 8.2 | (0.6) | −7.5 | (0.1) | 0.3 | (−0.4) | 2.1 |
| Iran | 2.0 | (0.3) | −5.8 | (−0.5) | −0.5 | (−0.0) | 0.0 | (0.2) | −1.7 | (−0.2) | −1.2 | (−0.3) | 3.2 | (0.2) | 4.0 | (0.5) | 0.5 | (−0.1) | 0.1 |
| Japan | −1.7 | (−0.0) | −2.8 | (−0.0) | 0.7 | (0.1) | 2.2 | (0.1) | 1.6 | (0.1) | −0.3 | (0.0) | −3.8 | (−0.3) | −0.7 | (−0.0) | −0.1 | (−0.1) | −0.1 |
| Korea | 2.6 | (0.0) | 4.1 | (0.0) | 1.9 | (0.6) | 1.6 | (0.0) | −0.3 | (−0.0) | 2.5 | (0.3) | 0.6 | (0.0) | 1.6 | (0.5) | 0.7 | (0.0) | 1.5 |
| Kuwait | 1.4 | (0.0) | 1.1 | (1.7) | −1.5 | (−0.1) | 1.8 | (0.1) | −4.9 | (−0.3) | −2.6 | (−0.1) | −3.3 | (−0.2) | −3.6 | (−0.4) | −3.2 | (−2.1) | −1.4 |
| Malaysia | 2.2 | (0.1) | −3.4 | (0.0) | 3.0 | (0.8) | 2.3 | (0.1) | 3.2 | (0.1) | 1.3 | (−0.1) | 4.1 | (0.4) | 0.0 | (0.1) | 4.2 | (0.5) | 2.0 |
| Mongolia | 9.8 | (1.4) | −1.4 | (0.2) | 0.4 | (0.0) | 2.5 | (0.0) | 2.5 | (0.1) | 5.9 | (0.9) | 5.2 | (0.4) | 1.8 | (0.7) | 0.6 | (−0.2) | 3.6 |
| Nepal | 1.7 | (0.1) | 3.8 | (0.0) | 0.0 | (−0.1) | 6.0 | (0.1) | 0.5 | (0.1) | −0.1 | (0.3) | 4.2 | (0.5) | 0.7 | (0.8) | 2.4 | (0.7) | 2.5 |
| Oman | 7.2 | (−0.2) | −9.5 | (0.5) | −5.3 | (−0.6) | −12.3 | (0.1) | 6.3 | (−0.3) | −1.9 | (−1.0) | −9.3 | (−0.2) | −0.4 | (0.1) | −0.2 | (−0.6) | −2.2 |
| Pakistan | 2.2 | (0.4) | −11.3 | (−0.0) | 1.4 | (0.1) | 5.5 | (0.1) | −2.1 | (−0.3) | 2.0 | (0.5) | 0.4 | (0.2) | 5.1 | (0.3) | 1.6 | (0.4) | 1.8 |
| Philippines | 4.8 | (0.6) | 1.4 | (0.0) | 3.5 | (0.8) | 5.1 | (0.2) | −0.2 | (−0.1) | 2.2 | (0.3) | 3.6 | (0.2) | 1.5 | (1.0) | 0.6 | (−0.3) | 2.7 |
| Qatar | 4.9 | (−0.1) | 8.6 | (0.7) | 3.0 | (0.2) | −4.2 | (−0.1) | 6.4 | (−0.3) | −1.5 | (−0.5) | −6.6 | (−0.8) | 7.2 | (0.8) | −2.8 | (−1.5) | −1.5 |
| Saudi Arabia | 8.3 | (0.1) | 3.7 | (1.0) | 3.5 | (0.4) | 3.9 | (0.0) | 7.9 | (0.4) | 6.1 | (0.7) | 5.7 | (0.3) | 12.0 | (0.6) | 1.1 | (−0.6) | 2.9 |
| Singapore | −6.5 | (−0.0) | 0.0 | ( ) | 5.0 | (1.0) | 15.0 | (0.0) | −1.1 | (−0.2) | 2.9 | (0.6) | 1.5 | (0.2) | 2.7 | (1.2) | −0.3 | (−0.6) | 2.2 |
| Sri Lanka | 6.0 | (0.6) | 5.4 | (0.1) | 1.7 | (0.3) | −1.4 | (−0.0) | 1.2 | (0.2) | 2.7 | (0.4) | 4.0 | (0.6) | 5.9 | (0.6) | 2.2 | (0.4) | 3.2 |
| Thailand | 3.9 | (0.7) | −3.1 | (−0.0) | −0.3 | (0.1) | 0.7 | (0.1) | 2.8 | (0.1) | 2.3 | (0.4) | 0.8 | (0.2) | −0.5 | (0.4) | 0.2 | (0.0) | 1.9 |
| Turkiye | 2.6 | (0.3) | 0.1 | (0.0) | 3.8 | (0.8) | −2.5 | (−0.0) | 1.7 | (0.2) | 5.1 | (0.8) | 3.1 | (0.6) | 0.4 | (0.3) | 0.7 | (0.0) | 3.1 |
| UAE | −7.9 | (−0.3) | 2.6 | (1.0) | 5.2 | (0.5) | 3.2 | (0.1) | −0.2 | (−0.1) | 0.0 | (−0.2) | 0.0 | (0.0) | 3.2 | (0.6) | 6.1 | (0.8) | 2.3 |
| Vietnam | 5.3 | (1.9) | 0.9 | (0.0) | 3.2 | (1.1) | 5.7 | (0.3) | 2.4 | (0.1) | 3.0 | (0.2) | 4.7 | (0.6) | −2.3 | (0.6) | 4.5 | (0.5) | 5.3 |
| (region) | | | | | | | | | | | | | | | | | | | |
| APO21 | 4.6 | (0.6) | 1.5 | (0.0) | 2.0 | (0.5) | 0.3 | (0.1) | 0.7 | (−0.1) | 2.1 | (0.3) | 2.1 | (0.2) | 1.5 | (0.6) | 0.6 | (0.2) | 2.5 |
| Asia25 | 6.1 | (1.0) | 3.9 | (0.1) | 4.4 | (1.1) | 3.2 | (0.1) | 3.1 | (0.1) | 3.0 | (0.4) | 3.3 | (0.3) | 2.7 | (0.8) | 2.4 | (0.4) | 4.3 |
| Asia31 | 6.1 | (0.9) | 4.7 | (0.1) | 4.3 | (1.0) | 3.2 | (0.1) | 3.1 | (0.1) | 3.0 | (0.4) | 3.2 | (0.3) | 2.7 | (0.8) | 2.3 | (0.4) | 4.2 |
| East Asia | 8.6 | (1.2) | 6.6 | (0.1) | 5.5 | (1.4) | 5.6 | (0.1) | 5.5 | (0.3) | 3.3 | (0.4) | 2.9 | (0.3) | 3.4 | (0.8) | 2.7 | (0.4) | 5.1 |
| South Asia | 4.8 | (0.9) | 5.7 | (0.1) | 4.0 | (0.6) | 0.6 | (0.1) | 1.7 | (0.0) | 4.0 | (0.9) | 2.9 | (0.3) | 6.0 | (1.1) | 2.6 | (0.5) | 4.4 |
| ASEAN | 4.8 | (0.8) | −0.6 | (−0.0) | 1.3 | (0.5) | 2.9 | (0.1) | 1.5 | (0.1) | 1.6 | (0.1) | 4.8 | (0.5) | −1.1 | (0.4) | 0.7 | (−0.1) | 2.5 |
| ASEAN6 | 5.3 | (0.6) | −0.6 | (0.1) | 1.3 | (0.5) | 2.3 | (0.1) | 1.5 | (0.1) | 1.7 | (0.2) | 5.2 | (0.5) | −2.3 | (0.4) | 0.2 | (−0.2) | 2.1 |
| CLMV | 4.0 | (1.4) | −1.9 | (0.1) | 4.1 | (1.1) | 5.8 | (0.3) | 2.3 | (0.2) | 1.9 | (0.1) | 4.0 | (0.5) | 6.1 | (0.6) | 3.6 | (0.4) | 4.5 |
| GCC | 2.4 | (0.0) | 2.6 | (1.0) | 2.4 | (0.3) | 3.1 | (0.0) | 3.1 | (0.1) | 2.7 | (0.2) | 0.4 | (0.0) | 5.1 | (0.5) | 1.2 | (−0.5) | 1.7 |
| IPEF | 4.8 | (0.5) | 3.5 | (0.1) | 0.8 | (0.2) | −0.9 | (0.0) | −0.1 | (−0.1) | 1.2 | (0.2) | 2.4 | (0.2) | 1.0 | (0.7) | 0.1 | (0.1) | 1.8 |
| RCEP | 7.4 | (1.1) | 4.5 | (0.1) | 4.6 | (1.2) | 5.1 | (0.1) | 4.5 | (0.3) | 2.7 | (0.3) | 3.4 | (0.3) | 1.6 | (0.7) | 2.4 | (0.3) | 4.5 |
| (reference) | | | | | | | | | | | | | | | | | | | |
| US | 1.4 | (0.0) | 2.7 | (0.1) | 0.0 | (0.0) | 1.2 | (0.0) | −0.7 | (−0.1) | 1.1 | (0.1) | 2.4 | (0.3) | 1.0 | (0.6) | 0.3 | (−0.1) | 1.0 |
| Australia | −0.6 | (−0.0) | 2.0 | (0.3) | −0.2 | (−0.0) | −0.2 | (−0.0) | −0.3 | (−0.0) | 1.5 | (0.1) | 1.2 | (0.1) | 0.3 | (0.4) | 0.8 | (−0.1) | 0.7 |
| New Zealand | 2.5 | (0.1) | −3.9 | (−0.0) | 0.6 | (0.1) | −4.4 | (−0.0) | −0.5 | (−0.2) | 2.6 | (0.2) | 1.6 | (0.1) | −0.2 | (0.5) | 0.3 | (−0.2) | 0.6 |

Unit: Percentage (average annual growth rate) and percentage points (contributions written in parentheses).
Source: APO Productivity Database 2024.

## Table 9.18 Real Income and Terms of Trade, 2000–2022

——Growth in real income, real GDP, trading gain, and net primary income transfer from abroad

| 2000–2005 | | | | |
|---|---|---|---|---|
| | Real income | Real GDP | Trading gain | Net primary income from abroad |
| Mongolia | 10.6 | 6.3 | 4.5 | −0.2 |
| Iran | 9.5 | 7.1 | 2.7 | −0.3 |
| China | 9.3 | 8.3 | 0.9 | 0.1 |
| Cambodia | 8.9 | 9.3 | −0.2 | −0.1 |
| Vietnam | 8.8 | 8.3 | 0.5 | −0.1 |
| Myanmar | 8.4 | 5.6 | 2.8 | 0.0 |
| Bhutan | 7.7 | 7.7 | 0.2 | −0.3 |
| Malaysia | 7.2 | 5.3 | 1.2 | 0.8 |
| India | 6.7 | 7.0 | −0.3 | 0.1 |
| Bangladesh | 6.3 | 6.2 | −0.1 | 0.2 |
| Sri Lanka | 5.6 | 4.9 | 0.6 | 0.1 |
| Lao PDR | 5.5 | 4.5 | 0.7 | 0.3 |
| Pakistan | 4.9 | 5.1 | −0.7 | 0.4 |
| Thailand | 4.7 | 5.2 | 0.0 | −0.5 |
| Korea | 4.5 | 5.1 | −0.7 | 0.0 |
| Turkiye | 4.4 | 4.7 | 0.2 | −0.6 |
| Philippines | 4.0 | 4.7 | −0.8 | 0.1 |
| Singapore | 3.9 | 5.1 | 0.0 | −1.2 |
| Indonesia | 3.9 | 4.5 | −1.0 | 0.4 |
| Hong Kong | 3.0 | 4.1 | −1.0 | −0.1 |
| ROC | 2.7 | 4.1 | −1.6 | 0.2 |
| Nepal | 2.5 | 2.5 | 0.0 | 0.0 |
| Fiji | 1.4 | 2.0 | 0.0 | −0.6 |
| Japan | 1.0 | 1.2 | −0.3 | 0.2 |
| | | | | |
| Bahrain | 9.9 | 8.4 | 1.5 | 0.0 |
| Kuwait | 12.0 | 12.8 | 0.3 | −1.2 |
| Oman | 8.2 | 3.7 | 4.3 | 0.2 |
| Qatar | 12.0 | 9.1 | 5.2 | −2.3 |
| Saudi Arabia | 3.8 | 1.7 | 2.1 | −0.1 |
| UAE | 6.5 | 4.9 | 1.6 | −0.1 |
| Brunei | 6.0 | 0.9 | 5.1 | 0.0 |
| (reference) | | | | |
| Australia | 4.3 | 3.3 | 1.2 | −0.2 |
| France | 1.6 | 1.7 | 0.0 | 0.0 |
| Germany | 1.0 | 0.6 | 0.1 | 0.3 |
| Italy | 1.0 | 0.9 | 0.0 | 0.1 |
| New Zealand | 4.3 | 3.9 | 0.6 | −0.2 |
| UK | 3.0 | 2.6 | 0.3 | 0.2 |
| US | 2.5 | 2.5 | 0.0 | 0.0 |
| EU15 | 1.9 | 1.7 | 0.1 | 0.1 |

| 2005–2010 | | | | |
|---|---|---|---|---|
| | Real income | Real GDP | Trading gain | Net primary income from abroad |
| Myanmar | 11.9 | 4.7 | 7.3 | 0.0 |
| China | 10.9 | 10.7 | 0.2 | 0.1 |
| Cambodia | 8.9 | 6.2 | 2.7 | 0.0 |
| Vietnam | 8.5 | 7.9 | 0.9 | −0.3 |
| India | 8.4 | 8.2 | 0.3 | −0.1 |
| Singapore | 7.5 | 7.3 | −1.0 | 1.3 |
| Bangladesh | 7.3 | 7.2 | −0.5 | 0.6 |
| Bhutan | 7.1 | 9.1 | −1.1 | −0.9 |
| Sri Lanka | 6.7 | 6.5 | 0.2 | 0.0 |
| Lao PDR | 6.4 | 6.0 | 1.2 | −0.8 |
| Mongolia | 5.8 | 6.3 | 0.9 | −1.4 |
| Malaysia | 5.7 | 4.9 | 0.6 | 0.3 |
| Nepal | 5.5 | 4.3 | 1.1 | 0.1 |
| Philippines | 5.2 | 4.9 | 0.1 | 0.3 |
| Indonesia | 5.2 | 5.5 | −0.7 | 0.4 |
| Iran | 5.1 | 5.3 | −0.3 | 0.2 |
| Korea | 3.9 | 4.4 | −0.6 | 0.2 |
| Thailand | 3.9 | 3.9 | 0.0 | 0.1 |
| Hong Kong | 3.3 | 3.8 | −0.8 | 0.3 |
| Pakistan | 2.8 | 3.4 | −1.0 | 0.3 |
| Turkiye | 2.7 | 3.1 | −0.3 | −0.1 |
| ROC | 1.9 | 4.2 | −2.3 | 0.1 |
| Fiji | 0.4 | 0.6 | 0.0 | −0.2 |
| Japan | −0.4 | 0.0 | −0.4 | 0.1 |
| | | | | |
| Bahrain | 10.2 | 7.7 | 3.8 | −1.4 |
| Kuwait | 3.4 | 1.4 | 2.5 | −0.5 |
| Oman | 6.6 | 3.5 | 3.6 | −0.5 |
| Qatar | 14.8 | 13.3 | 1.0 | 0.6 |
| Saudi Arabia | 3.2 | 2.4 | 0.6 | 0.2 |
| UAE | 3.1 | 2.9 | 0.5 | −0.3 |
| Brunei | 1.1 | −0.1 | 1.3 | −0.1 |
| (reference) | | | | |
| Australia | 4.2 | 2.8 | 1.4 | 0.0 |
| France | 1.0 | 0.8 | 0.0 | 0.1 |
| Germany | 1.3 | 1.1 | −0.1 | 0.2 |
| Italy | −0.5 | −0.3 | −0.1 | −0.1 |
| New Zealand | 2.2 | 1.4 | 0.4 | 0.3 |
| UK | 0.3 | 0.4 | 0.1 | −0.2 |
| US | 1.1 | 1.0 | −0.1 | 0.2 |
| EU15 | 0.7 | 0.7 | 0.0 | 0.0 |
| EU27 | 0.8 | 0.9 | −0.1 | −0.1 |

| 2010–2015 | | | | |
|---|---|---|---|---|
| | Real income | Real GDP | Trading gain | Net primary income from abroad |
| Mongolia | 10.7 | 9.9 | 0.8 | −0.1 |
| China | 7.1 | 6.8 | 0.2 | 0.0 |
| Sri Lanka | 7.0 | 6.7 | 0.6 | −0.3 |
| Myanmar | 7.0 | 6.1 | 1.0 | −0.1 |
| Lao PDR | 6.9 | 3.9 | 2.6 | 0.4 |
| Bangladesh | 6.8 | 7.3 | −0.1 | −0.3 |
| Turkiye | 6.6 | 6.9 | −0.3 | 0.0 |
| Malaysia | 6.4 | 6.4 | −0.1 | 0.1 |
| India | 6.2 | 6.5 | −0.3 | 0.0 |
| Cambodia | 5.8 | 4.3 | 1.8 | −0.3 |
| Philippines | 5.5 | 5.8 | −0.3 | 0.0 |
| Vietnam | 5.3 | 5.1 | 0.6 | −0.4 |
| Indonesia | 4.9 | 5.3 | −0.3 | −0.1 |
| Bhutan | 4.6 | 5.8 | −0.9 | −0.3 |
| Thailand | 3.6 | 3.2 | 0.6 | −0.2 |
| Pakistan | 3.6 | 3.4 | −0.2 | 0.4 |
| Nepal | 3.6 | 2.9 | 0.5 | 0.2 |
| ROC | 3.4 | 2.9 | 0.6 | −0.1 |
| Fiji | 3.1 | 3.7 | 0.0 | −0.6 |
| Korea | 3.0 | 2.7 | 0.3 | 0.0 |
| Hong Kong | 2.9 | 2.9 | 0.1 | −0.1 |
| Singapore | 2.4 | 4.6 | −0.9 | −1.3 |
| Japan | 1.2 | 1.1 | −0.1 | 0.2 |
| Iran | −3.5 | −0.5 | −3.0 | 0.0 |
| | | | | |
| Bahrain | 3.1 | 3.7 | −1.3 | 0.8 |
| Kuwait | −1.3 | 3.6 | −5.4 | 0.5 |
| Oman | 2.8 | 4.4 | −2.1 | 0.5 |
| Qatar | 5.3 | 6.4 | −2.8 | 1.7 |
| Saudi Arabia | 2.4 | 5.3 | −3.1 | 0.2 |
| UAE | 3.8 | 5.3 | −1.6 | 0.1 |
| Brunei | 0.4 | 0.3 | −1.1 | 1.1 |
| (reference) | | | | |
| Australia | 1.7 | 2.8 | −1.4 | 0.3 |
| France | 1.1 | 1.0 | 0.2 | 0.0 |
| Germany | 1.9 | 1.8 | 0.1 | 0.1 |
| Italy | −0.7 | −0.7 | 0.1 | −0.1 |
| New Zealand | 3.7 | 3.1 | 0.2 | 0.3 |
| UK | 1.6 | 1.6 | 0.4 | −0.4 |
| US | 2.4 | 2.2 | 0.2 | 0.0 |
| EU15 | 1.0 | 0.9 | 0.1 | −0.1 |
| EU27 | 1.3 | 1.1 | 0.1 | 0.1 |

| 2015–2022 | | | | |
|---|---|---|---|---|
| | Real income | Real GDP | Trading gain | Net primary income from abroad |
| Bangladesh | 6.3 | 6.4 | 0.0 | −0.2 |
| Vietnam | 6.0 | 6.3 | −0.3 | 0.0 |
| Cambodia | 5.0 | 5.1 | −0.1 | 0.0 |
| Mongolia | 4.9 | 3.1 | 3.0 | −1.2 |
| China | 4.9 | 5.2 | −0.2 | −0.1 |
| Pakistan | 4.7 | 4.1 | 0.3 | 0.3 |
| India | 4.6 | 4.9 | −0.3 | 0.0 |
| Nepal | 4.5 | 4.6 | 0.1 | −0.1 |
| Malaysia | 4.1 | 3.9 | 0.3 | −0.1 |
| Indonesia | 3.8 | 3.6 | 0.1 | 0.1 |
| Iran | 3.4 | 1.9 | 1.5 | 0.1 |
| Singapore | 3.4 | 3.4 | 2.0 | −2.0 |
| Bhutan | 3.2 | 3.8 | −0.9 | 0.3 |
| Turkiye | 3.1 | 4.3 | −1.3 | 0.1 |
| ROC | 2.9 | 3.3 | −0.5 | 0.1 |
| Philippines | 2.8 | 4.4 | −0.9 | −0.7 |
| Korea | 1.8 | 2.6 | −0.9 | 0.2 |
| Lao PDR | 1.4 | 2.8 | −1.2 | −0.2 |
| Hong Kong | 1.3 | 0.5 | 0.2 | 0.7 |
| Thailand | 1.3 | 1.9 | −0.9 | 0.3 |
| Fiji | 0.9 | 0.8 | 0.0 | 0.1 |
| Japan | 0.1 | 0.3 | −0.5 | 0.3 |
| Sri Lanka | −0.5 | 0.1 | −0.5 | 0.0 |
| Myanmar | −7.0 | 2.5 | −8.9 | −0.6 |
| | | | | |
| Bahrain | 5.5 | 4.0 | 1.4 | 0.2 |
| Kuwait | 6.1 | 0.1 | 5.7 | 0.3 |
| Oman | 3.6 | 2.0 | 2.3 | −0.7 |
| Qatar | 5.3 | 0.9 | 4.7 | −0.2 |
| Saudi Arabia | 5.1 | 3.4 | 1.9 | −0.1 |
| UAE | 5.2 | 2.6 | 2.6 | −0.1 |
| Brunei | 2.0 | −0.5 | 3.6 | −1.0 |
| (reference) | | | | |
| Australia | 3.5 | 2.3 | 1.5 | −0.3 |
| France | 0.9 | 1.2 | −0.2 | −0.1 |
| Germany | 1.1 | 1.3 | −0.4 | 0.2 |
| Italy | 0.8 | 1.0 | −0.4 | 0.2 |
| New Zealand | 3.2 | 3.1 | 0.0 | 0.1 |
| UK | 1.7 | 1.4 | −0.2 | 0.4 |
| US | 2.2 | 2.1 | 0.2 | −0.1 |
| EU15 | 1.4 | 1.6 | −0.3 | 0.1 |
| EU27 | 1.2 | 1.5 | −0.3 | 0.0 |

| 2021–2022 | | | | |
|---|---|---|---|---|
| | Real income | Real GDP | Trading gain | Net primary income from abroad |
| Fiji | 19.2 | 18.6 | −0.1 | 0.7 |
| Malaysia | 10.0 | 10.0 | 0.6 | −0.6 |
| Philippines | 9.4 | 9.3 | −2.1 | 2.2 |
| Vietnam | 7.7 | 7.0 | 0.5 | 0.3 |
| Nepal | 5.7 | 5.9 | −0.3 | 0.0 |
| Iran | 5.6 | 3.5 | 2.0 | 0.1 |
| Bangladesh | 5.5 | 6.8 | 0.0 | −1.2 |
| Indonesia | 5.3 | 4.9 | 0.4 | 0.0 |
| Cambodia | 5.0 | 3.6 | 1.4 | 0.0 |
| Singapore | 5.0 | 4.7 | 5.4 | −5.1 |
| Myanmar | 4.0 | 5.5 | −2.8 | 1.3 |
| Bhutan | 4.0 | 8.1 | −4.7 | 0.6 |
| India | 3.9 | 5.4 | −1.3 | −0.2 |
| China | 3.5 | 3.6 | 0.3 | −0.4 |
| Pakistan | 2.8 | 4.8 | −1.8 | −0.2 |
| Thailand | 1.8 | 4.7 | −3.5 | 0.6 |
| Mongolia | 1.7 | 4.9 | −4.6 | 1.5 |
| ROC | 1.7 | 1.9 | −0.7 | 0.4 |
| Turkiye | −0.1 | 4.2 | −4.7 | 0.4 |
| Korea | −0.4 | 2.8 | −3.6 | 0.3 |
| Japan | −0.5 | 0.8 | −2.6 | 1.2 |
| Lao PDR | −0.7 | 5.0 | −5.3 | −0.5 |
| Hong Kong | −3.7 | −3.2 | −0.2 | −0.3 |
| Sri Lanka | −14.7 | −11.7 | −2.7 | −0.3 |
| | | | | |
| Bahrain | 15.2 | 3.8 | 9.2 | 2.1 |
| Kuwait | 42.5 | 8.2 | 34.1 | 0.4 |
| Oman | 20.9 | 9.0 | 12.8 | −0.8 |
| Qatar | 23.1 | 4.1 | 21.5 | −2.5 |
| Saudi Arabia | 20.6 | 13.6 | 7.0 | 0.0 |
| UAE | 23.5 | 8.2 | 15.1 | 0.2 |
| Brunei | 11.7 | −1.1 | 15.7 | −2.9 |
| (reference) | | | | |
| Australia | 2.6 | 3.0 | 0.0 | −0.4 |
| France | 0.7 | 2.5 | −1.4 | −0.4 |
| Germany | −0.3 | 1.8 | −2.1 | 0.0 |
| Italy | 0.3 | 3.7 | −3.1 | −0.4 |
| New Zealand | 1.2 | 2.9 | −1.6 | −0.1 |
| UK | 3.7 | 4.6 | −0.8 | 0.0 |
| US | 2.0 | 1.8 | 0.3 | −0.1 |
| EU15 | 1.3 | 3.5 | −1.7 | −0.5 |
| EU27 | 0.9 | 1.9 | −2.0 | 1.0 |

Unit: Percentage (average annual growth rate).
Sources: Official national accounts in each country, including adjustments by APO-PDB.

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# Appendix APO21 Economy Profiles

# Bangladesh

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 1,252 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 433 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 7.3 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 2.5 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 17.2 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 7.4 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 15.0 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 34.3 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 88.2 | g-CO2 per US dollar (as of 2022) | |

| | | | |
|---|---|---|---|
| Number of employment in 2022 | 69,743 | Thousands persons | |
| Employment rate in 2022 | 40.7 | % | |
| Female employment share in 2022 | 30.5 | % | |
| Average schooling years of workers in 2022 | 6.3 | Years | |
| Investment share in 2022 | 32.0 | % | |
| ICT investment share in GFCF in 2022 | 5.4 | % | |
| Agriculture share in GDP in 2022 | 11.7 | % | |
| Manufacturing share in GDP in 2022 | 22.6 | % | |
| Agriculture share in employment in 2022 | 36.9 | % | |

| (%: average annual growth rate) | 1970 –80 | 1980 –90 | 1990 –2000 | 2000 –10 | 2010 –22 | 2015 –22 | 2019 –20 | 2020 –21 | 2021 –22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | –0.7 | 3.8 | 4.2 | 6.7 | 6.8 | 6.4 | 3.3 | 6.2 | 6.8 | 6.5 | 7.0 | 6.7 | 6.7 |
| Labor input growth | 3.5 | 3.5 | 2.4 | 3.3 | 3.5 | 2.6 | 1.9 | 1.9 | 2.7 | 3.2 | 3.0 | 2.7 | 2.9 |
| Labor quality growth | 1.0 | 0.8 | 0.6 | 0.8 | 1.5 | 1.0 | 0.4 | 0.5 | 0.6 | 1.6 | 1.6 | 1.5 | 1.6 |
| Hours worked growth | 2.5 | 2.7 | 1.8 | 2.5 | 2.0 | 1.6 | 1.5 | 1.4 | 2.1 | 1.6 | 1.4 | 1.2 | 1.3 |
| College labor input growth | 11.5 | 11.5 | 7.2 | 2.7 | 6.6 | 3.8 | 3.0 | 3.0 | 2.0 | 4.8 | 4.4 | 4.0 | 4.3 |
| Non-college labor input growth | 3.2 | 2.9 | 1.8 | 3.3 | 3.0 | 2.4 | 1.7 | 1.6 | 2.8 | 2.8 | 2.7 | 2.4 | 2.6 |
| ICT capital input growth | 8.2 | 16.4 | 15.2 | 27.7 | 12.3 | 9.7 | 3.1 | 5.8 | 5.3 | 6.8 | 9.2 | 13.8 | 10.4 |
| Non-ICT capital input growth | 1.6 | 4.7 | 6.2 | 7.5 | 8.1 | 8.1 | 8.1 | 7.5 | 7.4 | 8.0 | 8.1 | 7.7 | 7.9 |
| Per-worker labor productivity growth | –3.2 | 1.7 | 1.9 | 4.1 | 5.3 | 4.9 | 2.0 | 4.8 | 4.6 | 4.9 | 5.5 | 5.4 | 5.3 |
| Per-hour labor productivity growth | –3.2 | 1.1 | 2.4 | 4.3 | 4.8 | 4.8 | 1.8 | 4.8 | 4.7 | 4.9 | 5.6 | 5.5 | 5.4 |
| Capital productivity growth | –1.7 | –4.8 | –6.3 | –8.1 | –8.3 | –8.1 | –7.8 | –7.4 | –7.3 | –1.4 | –1.1 | –1.3 | –1.3 |
| TFP growth | –3.1 | –0.4 | –0.4 | 0.5 | 0.0 | 0.0 | –2.8 | 0.3 | 0.7 | –0.1 | 0.3 | 0.2 | 0.2 |

## Production

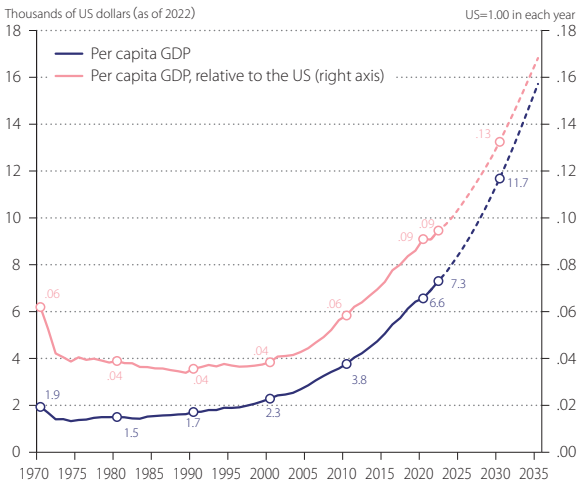


**Figure 1** Per Capita GDP

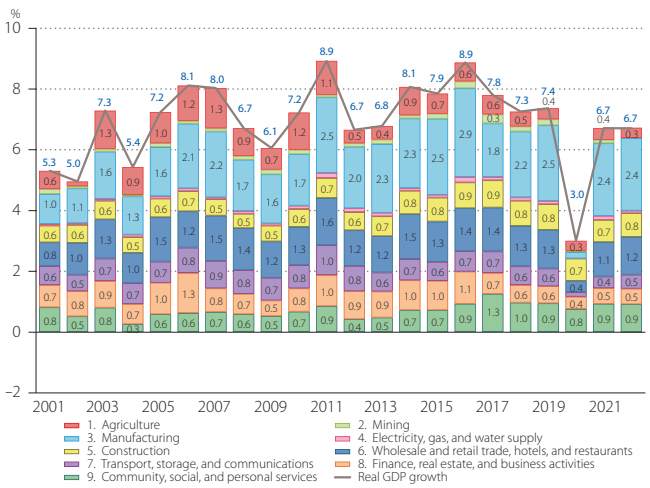


**Figure 2** Industry Origins of Economic Growth

## Labor

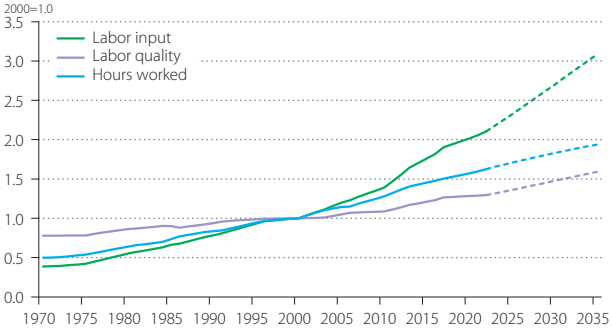


**Figure 3** Labor Inputs

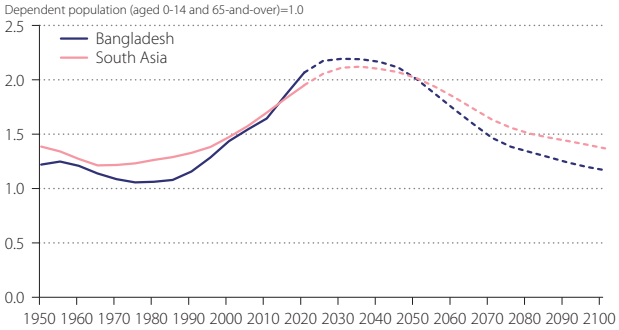


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

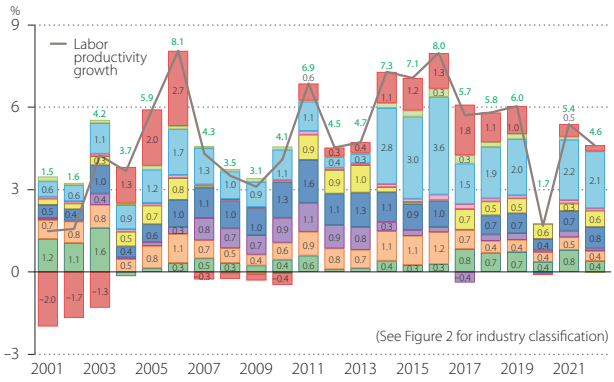


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

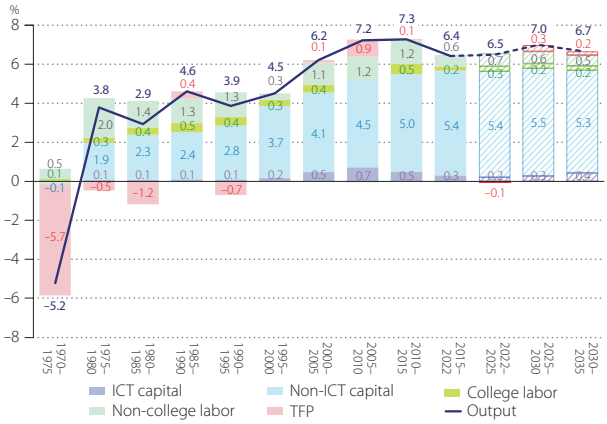


**Figure 9** Decomposition of Economic Growth

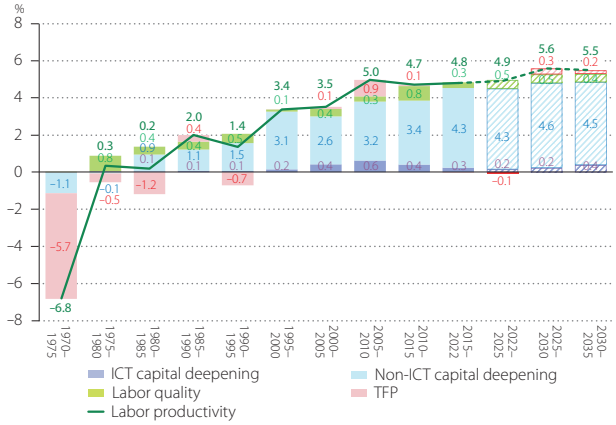


**Figure 10** Decomposition of Labor Productivity Growth

# Cambodia

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 94 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 10,031 | Thousands persons |
| (exchange rate based) | 30 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 62.3 | % |
| Per capita GDP in 2022 | 5.8 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 49.8 | % |
| (exchange rate based) | 1.8 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 5.3 | Years |
| Per-worker labor productivity level in 2022 | 8.3 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 22.7 | % |
| Per-hour labor productivity level in 2022 | 3.4 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 1.2 | % |
| Capital stock per hour worked in 2022 | 7.0 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 23.7 | % |
| Energy productivity levels in 2021 | 11.1 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 20.0 | % |
| Carbon intensity of GDP in 2021 | 163.0 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 34.6 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | –6.3 | 4.2 | 6.2 | 7.7 | 4.8 | 5.1 | 0.2 | 3.5 | 3.6 | 5.5 | 6.0 | 6.0 | 5.9 |
| Labor input growth | –0.2 | 4.0 | 6.1 | 4.6 | 4.0 | 3.1 | –1.1 | 4.0 | 1.3 | 1.5 | 2.0 | 2.0 | 1.9 |
| Labor quality growth | 0.4 | 0.8 | 1.6 | 0.9 | 1.6 | 0.4 | –1.6 | 1.7 | –0.2 | 2.2 | 2.0 | 2.1 | 2.1 |
| Hours worked growth | –0.7 | 3.2 | 4.5 | 3.6 | 2.4 | 2.7 | 0.5 | 2.3 | 1.4 | –0.7 | 0.0 | –0.1 | –0.2 |
| College labor input growth | 3.9 | 7.6 | 8.0 | 14.0 | 7.2 | 7.2 | 0.3 | 3.8 | 1.4 | 2.1 | 3.3 | 4.1 | 3.3 |
| Non–college labor input growth | –0.3 | 3.9 | 6.0 | 4.1 | 3.8 | 2.8 | –1.2 | 4.0 | 1.2 | 1.4 | 1.8 | 1.8 | 1.7 |
| ICT capital input growth | –23.4 | –1.4 | 22.6 | 16.0 | 16.4 | 7.9 | –1.4 | –4.6 | 4.0 | 14.1 | 9.7 | 13.3 | 12.1 |
| Non–ICT capital input growth | 2.4 | 0.4 | 4.5 | 8.8 | 7.0 | 6.9 | 7.2 | 6.4 | 6.0 | 6.2 | 6.9 | 7.2 | 6.9 |
| Per-worker labor productivity growth | –5.7 | 0.9 | 2.3 | 4.4 | 2.7 | 3.2 | 1.7 | 1.7 | 2.2 | 5.3 | 5.4 | 5.8 | 5.5 |
| Per–hour labor productivity growth | –5.6 | 1.0 | 1.7 | 4.0 | 2.4 | 2.4 | –0.3 | 1.2 | 2.1 | 6.2 | 6.0 | 6.1 | 6.1 |
| Capital productivity growth | –0.1 | 0.0 | –4.1 | –8.7 | –7.0 | –6.9 | –7.1 | –6.3 | –5.9 | –0.8 | –1.0 | –1.3 | –1.0 |
| TFP growth | –7.4 | 2.5 | 1.0 | 0.8 | –0.6 | 0.3 | –2.5 | –1.5 | 0.3 | 1.9 | 1.8 | 1.7 | 1.8 |

## Production

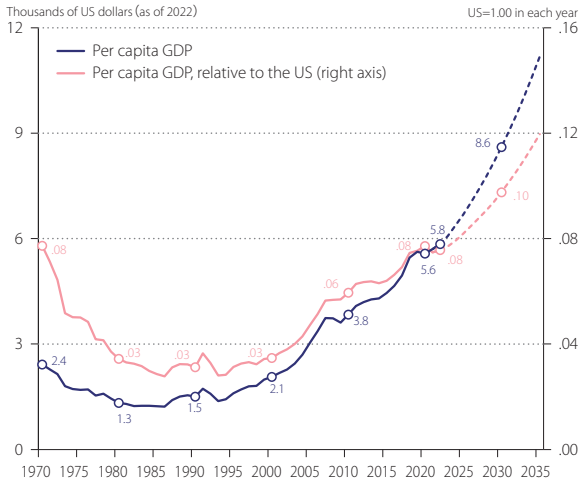


**Figure 1** Per Capita GDP

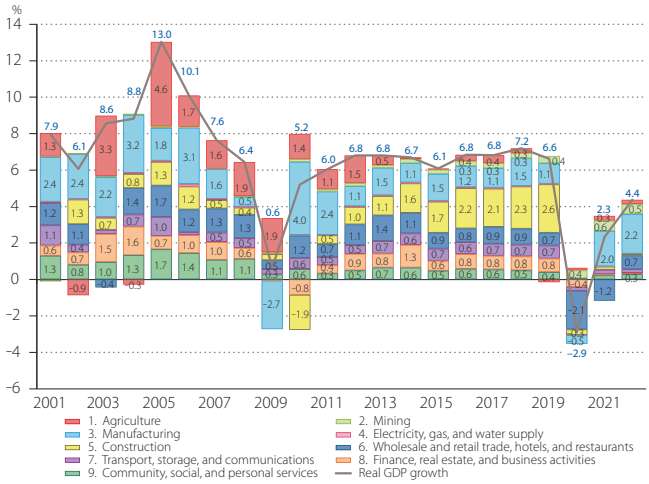


**Figure 2** Industry Origins of Economic Growth

## Labor

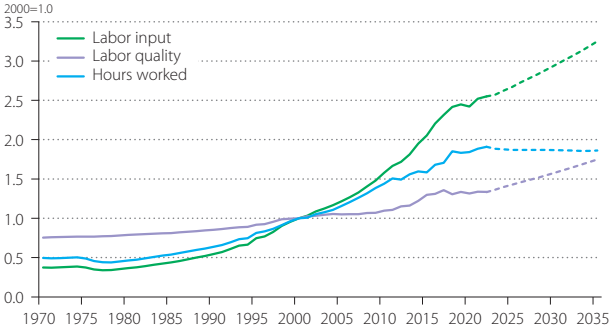


**Figure 3** Labor Inputs

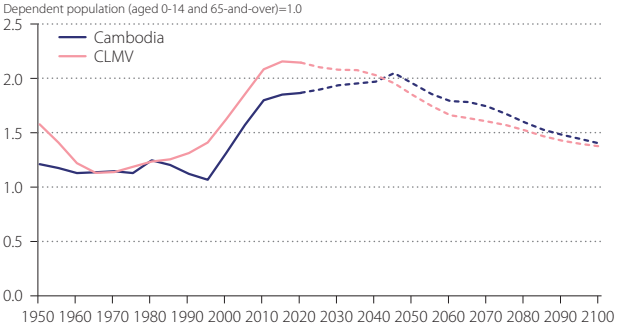


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

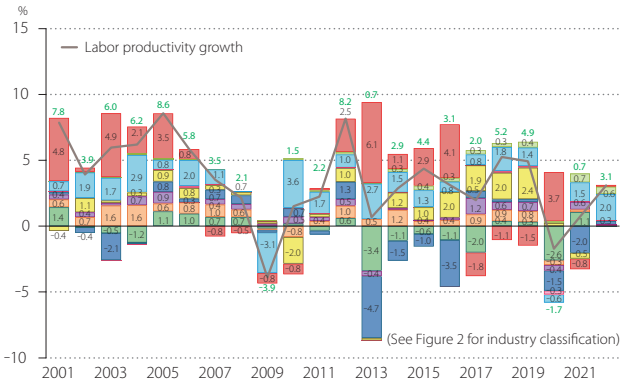


**Figure 7** Industry Origins of Labor Productivity Growth

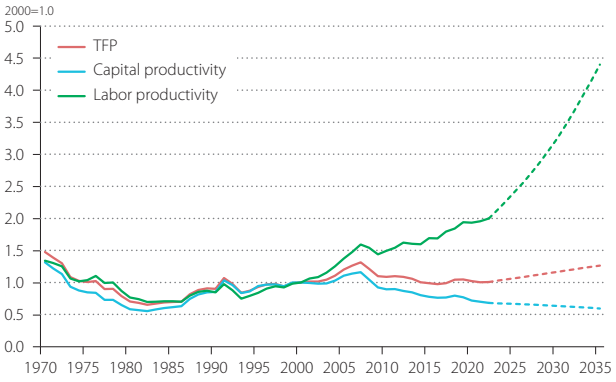


**Figure 8** Productivity Indicators

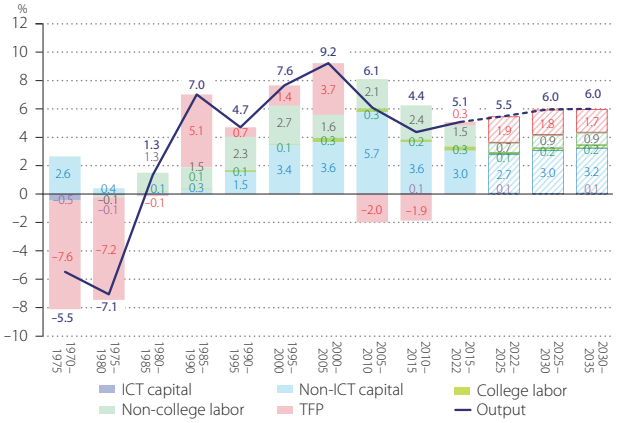


**Figure 9** Decomposition of Economic Growth

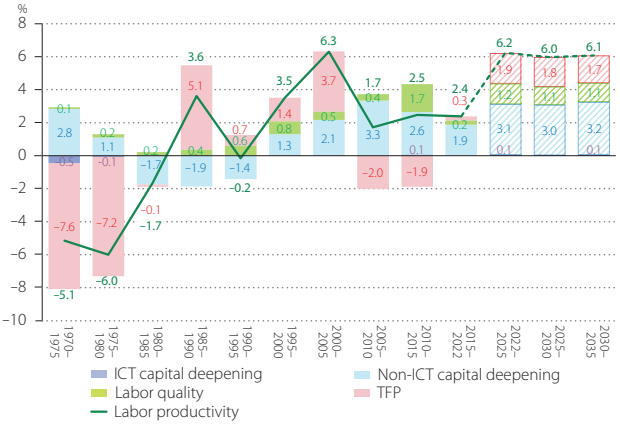


**Figure 10** Decomposition of Labor Productivity Growth

# ROC

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 1,618 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 761 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 69.5 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 32.7 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 134.8 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 64.9 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 116.6 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 19.5 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 180.3 | g-CO2 per US dollar (as of 2022) | |

| | | |
|---|---|---|
| Number of employment in 2022 | 11,708 | Thousands persons |
| Employment rate in 2022 | 50.3 | % |
| Female employment share in 2022 | 43.1 | % |
| Average schooling years of workers in 2022 | 13.4 | Years |
| Investment share in 2022 | 28.1 | % |
| ICT investment share in GFCF in 2022 | 7.8 | % |
| Agriculture share in GDP in 2022 | 1.4 | % |
| Manufacturing share in GDP in 2022 | 35.4 | % |
| Agriculture share in employment in 2022 | 4.6 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 10.5 | 8.6 | 6.8 | 4.1 | 3.1 | 3.3 | 3.1 | 6.6 | 2.1 | 2.5 | 2.1 | 1.3 | 1.9 |
| Labor input growth | 4.4 | 2.9 | 2.2 | 2.1 | 1.9 | 0.8 | –0.8 | 0.5 | 2.4 | –1.3 | –1.4 | –1.8 | –1.5 |
| Labor quality growth | 1.1 | 0.9 | 1.1 | 1.7 | 1.1 | 1.0 | 1.3 | 1.4 | 1.6 | 0.5 | 0.7 | 0.6 | 0.7 |
| Hours worked growth | 3.3 | 2.0 | 1.1 | 0.3 | 0.7 | –0.2 | –2.1 | –0.9 | 0.8 | –1.8 | –2.2 | –2.5 | –2.2 |
| College labor input growth | 12.9 | 12.4 | 11.5 | 8.3 | 5.0 | 3.5 | 4.0 | 3.0 | 5.5 | 0.6 | –0.2 | –0.8 | –0.3 |
| Non–college labor input growth | 3.5 | 1.4 | 0.1 | –0.5 | –0.5 | –1.6 | –4.9 | –1.8 | –0.6 | –3.3 | –2.9 | –3.3 | –3.1 |
| ICT capital input growth | 18.6 | 19.6 | 20.5 | 4.6 | 3.3 | 3.6 | 4.2 | 4.8 | 4.9 | 9.0 | 6.1 | 8.8 | 7.8 |
| Non–ICT capital input growth | 7.6 | 5.8 | 5.4 | 2.4 | 1.9 | 2.1 | 2.1 | 2.7 | 3.6 | 1.7 | 1.4 | 0.9 | 1.3 |
| Per-worker labor productivity growth | 7.3 | 6.3 | 5.5 | 3.2 | 2.5 | 3.0 | 3.1 | 7.1 | 2.3 | 4.2 | 4.0 | 3.5 | 3.8 |
| Per–hour labor productivity growth | 7.2 | 6.6 | 5.7 | 3.8 | 2.4 | 3.5 | 5.2 | 7.6 | 1.3 | 4.3 | 4.2 | 3.8 | 4.1 |
| Capital productivity growth | –7.8 | –6.2 | –6.0 | –2.5 | –1.9 | –2.1 | –2.1 | –2.8 | –3.6 | 0.5 | 0.5 | 0.0 | 0.3 |
| TFP growth | 4.5 | 4.3 | 2.9 | 1.9 | 1.2 | 1.8 | 2.4 | 4.9 | –1.0 | 2.1 | 1.9 | 1.5 | 1.8 |

## Production

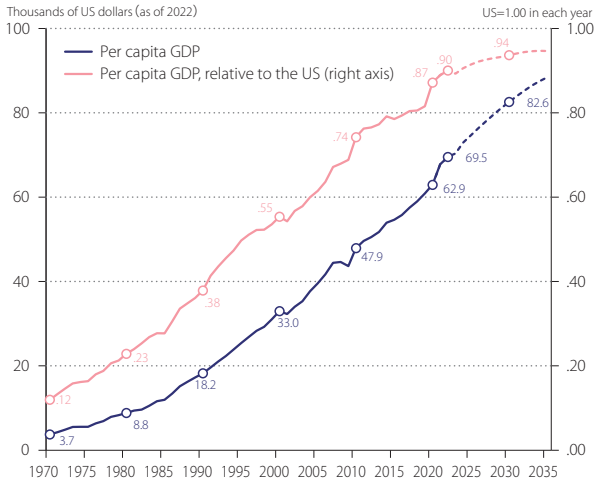


**Figure 1** Per Capita GDP

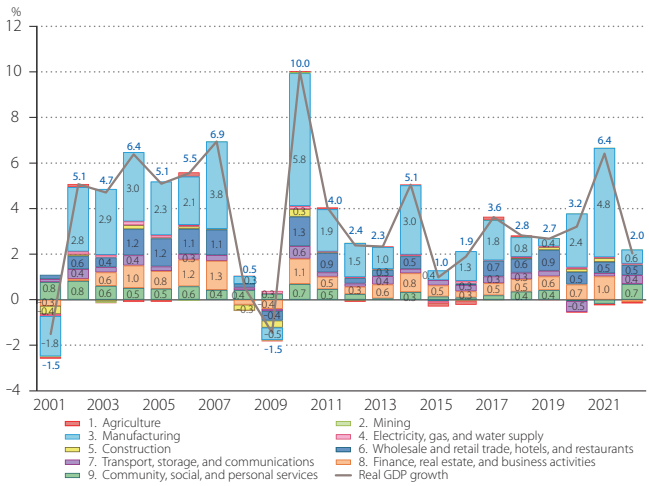


**Figure 2** Industry Origins of Economic Growth

## Labor

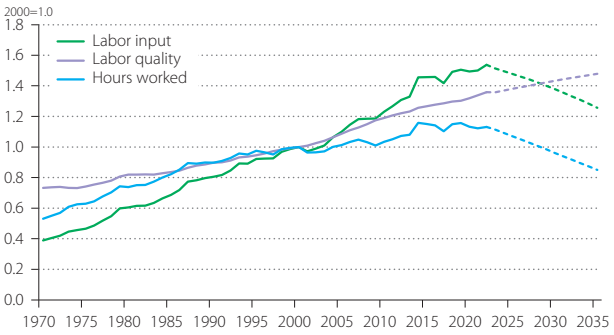


Figure 3 Labor Inputs

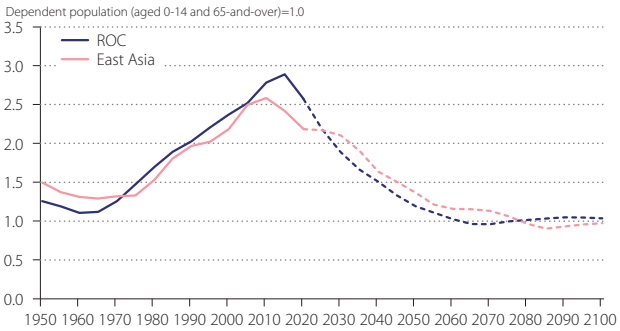


Figure 4 Demographic Dividend

## Productivity


Figure 5 Per-Worker Labor Productivity Level


Figure 6 Per-Hour Labor Productivity Level

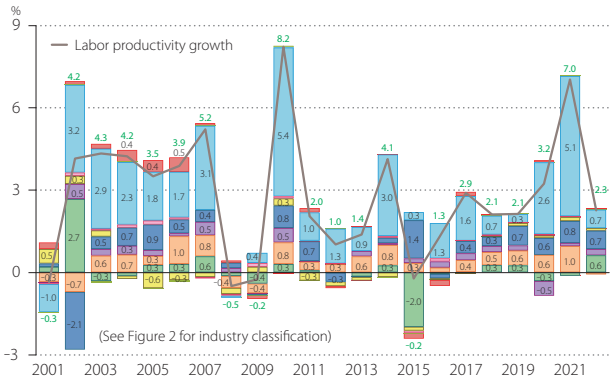


Figure 7 Industry Origins of Labor Productivity Growth

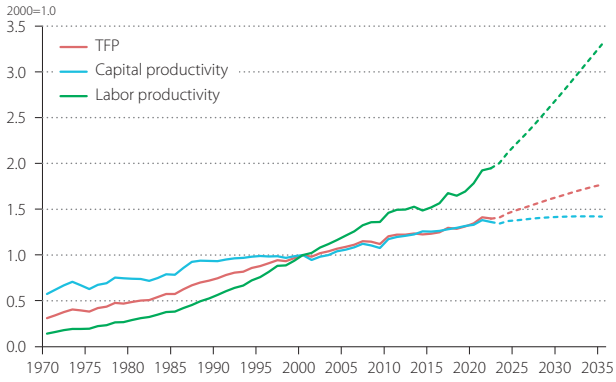


Figure 8 Productivity Indicators

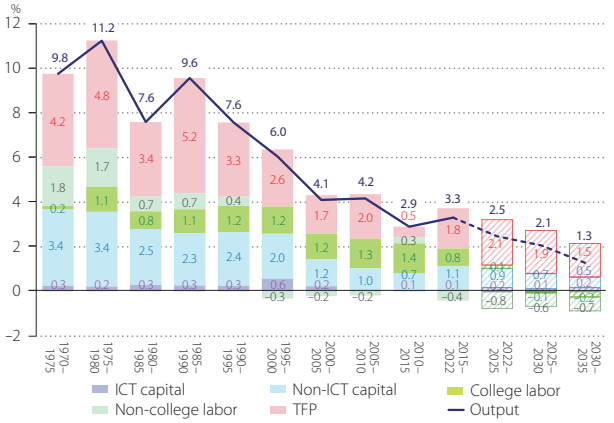


Figure 9 Decomposition of Economic Growth

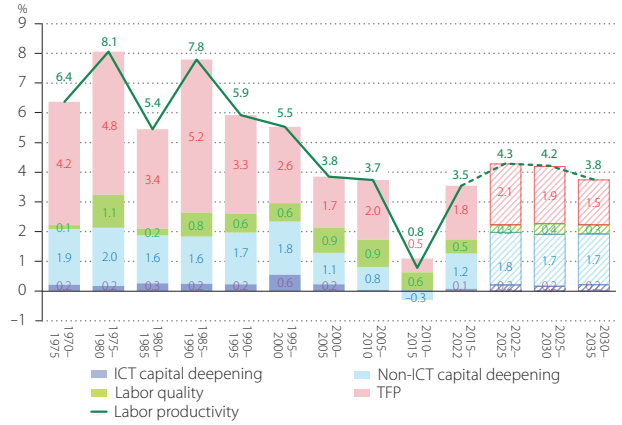


Figure 10 Decomposition of Labor Productivity Growth

App.

# Fiji

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 14 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 351 | Thousands persons |
| (exchange rate based) | 5 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 37.8 | % |
| Per capita GDP in 2022 | 14.7 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 32.1 | % |
| (exchange rate based) | 5.4 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 12.3 | Years |
| Per-worker labor productivity level in 2022 | 30.4 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 18.4 | % |
| Per-hour labor productivity level in 2022 | 16.1 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 10.4 | % |
| Capital stock per hour worked in 2022 | 35.5 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 19.4 | % |
| Energy productivity levels in 2021 | n.a. | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 13.4 | % |
| Carbon intensity of GDP in 2021 | 185.7 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 10.0 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 4.7 | 2.2 | 2.3 | 1.3 | 2.0 | 0.8 | –18.7 | –5.0 | 18.2 | 4.7 | 3.1 | 3.4 | 3.6 |
| Labor input growth | 5.7 | 4.6 | 4.0 | 2.1 | 1.2 | 1.1 | –3.2 | 1.5 | 4.4 | 1.6 | 1.5 | 1.3 | 1.4 |
| Labor quality growth | 2.3 | 2.3 | 2.1 | 1.0 | 0.3 | 0.5 | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 |
| Hours worked growth | 3.4 | 2.4 | 1.8 | 1.2 | 0.9 | 0.7 | –3.4 | 1.5 | 4.3 | 1.3 | 1.2 | 0.8 | 1.1 |
| College labor input growth | 6.4 | 7.9 | 5.1 | 4.1 | 0.4 | 0.6 | –3.6 | 1.3 | 4.2 | 2.1 | 1.7 | 2.1 | 2.0 |
| Non–college labor input growth | 5.5 | 3.5 | 3.4 | 0.9 | 1.6 | 1.4 | –3.1 | 1.7 | 4.5 | 1.4 | 1.4 | 0.8 | 1.2 |
| ICT capital input growth | 2.6 | 16.4 | 5.5 | 3.7 | 6.4 | 5.6 | 2.7 | 0.6 | 2.5 | 7.6 | 6.6 | 10.3 | 8.2 |
| Non–ICT capital input growth | 5.2 | 2.5 | 2.0 | 0.0 | 0.4 | 0.3 | 0.2 | –1.5 | –0.3 | 0.8 | 1.3 | 1.3 | 1.2 |
| Per-worker labor productivity growth | 1.3 | –0.5 | 0.8 | –0.1 | 1.5 | 0.1 | –15.2 | –6.5 | 13.9 | 3.7 | 2.2 | 2.7 | 2.7 |
| Per–hour labor productivity growth | 1.3 | –0.1 | 0.5 | 0.2 | 1.1 | 0.1 | –15.3 | –6.5 | 13.9 | 3.4 | 2.0 | 2.5 | 2.5 |
| Capital productivity growth | –5.1 | –2.8 | –2.0 | –0.1 | –0.6 | –0.6 | –0.6 | 1.3 | 0.3 | 3.4 | 1.6 | 1.5 | 2.0 |
| TFP growth | –0.7 | –1.5 | –0.6 | 0.3 | 1.1 | –0.1 | –17.4 | –5.0 | 16.2 | 3.3 | 1.6 | 1.8 | 2.1 |

## Production

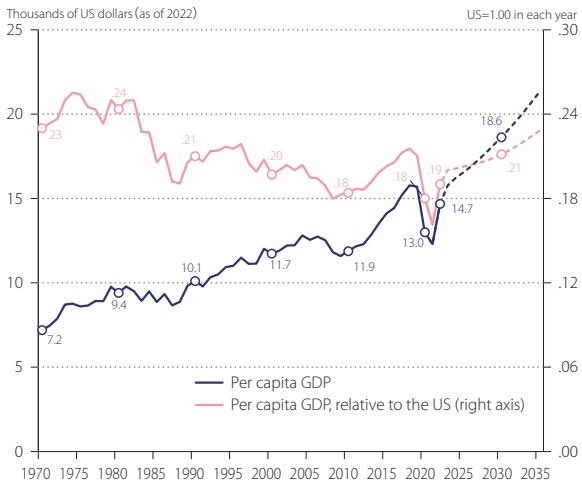


Figure 1 Per Capita GDP

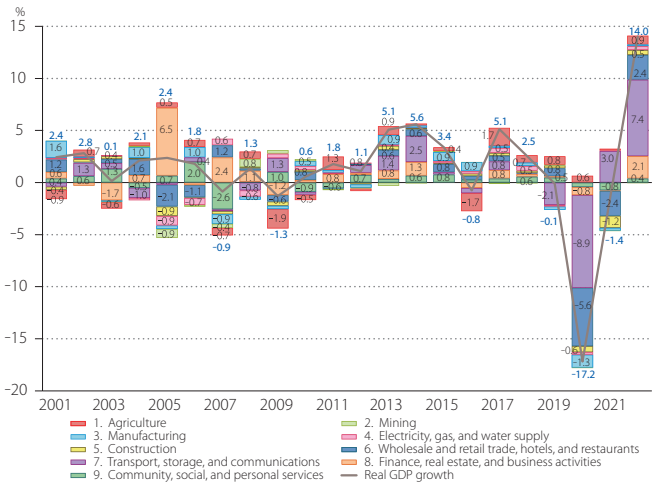


Figure 2 Industry Origins of Economic Growth

## Labor

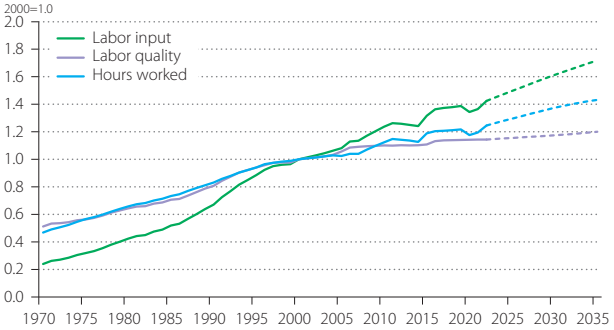


**Figure 3** Labor Inputs

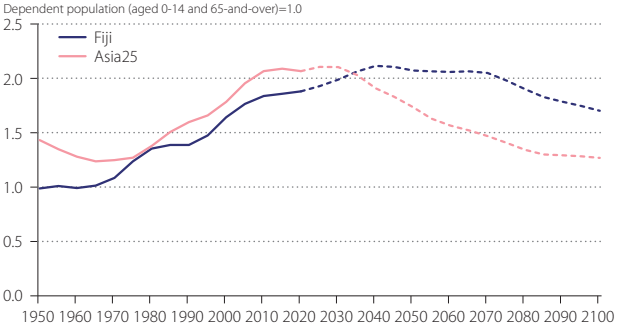


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

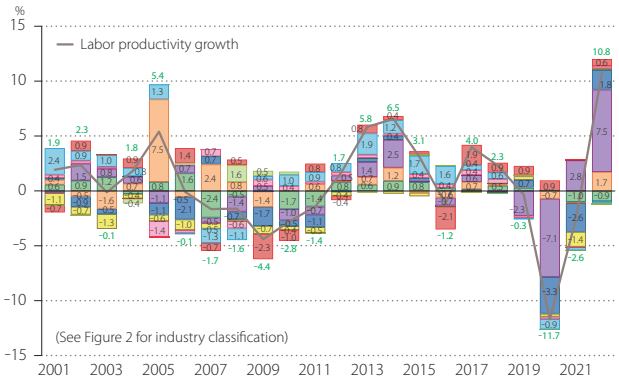


**Figure 7** Industry Origins of Labor Productivity Growth

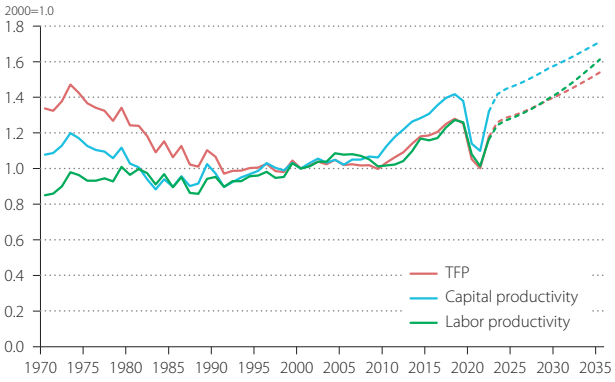


**Figure 8** Productivity Indicators

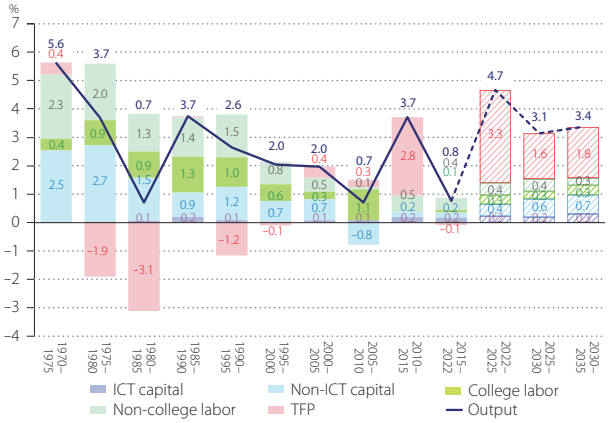


**Figure 9** Decomposition of Economic Growth

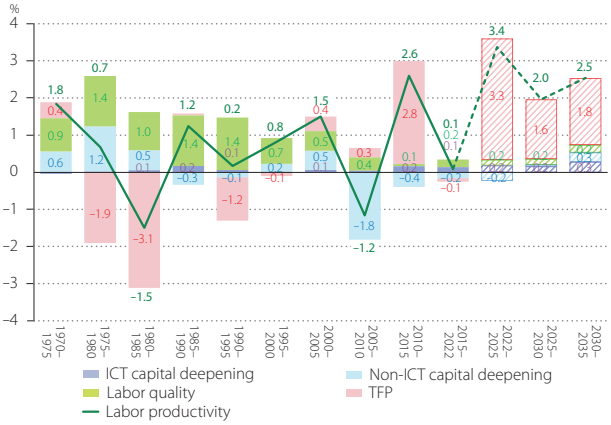


**Figure 10** Decomposition of Labor Productivity Growth

# Hong Kong

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 511 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 3,579 | Thousands persons |
| (exchange rate based) | 360 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 48.7 | % |
| Per capita GDP in 2022 | 69.5 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 50.6 | % |
| (exchange rate based) | 49.0 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 12.5 | Years |
| Per-worker labor productivity level in 2022 | 136.7 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 15.0 | % |
| Per-hour labor productivity level in 2022 | 63.8 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 17.9 | % |
| Capital stock per hour worked in 2022 | 170.8 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 0.1 | % |
| Energy productivity levels in 2021 | 66.2 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 1.0 | % |
| Carbon intensity of GDP in 2021 | 67.8 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 0.3 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 8.9 | 6.7 | 4.3 | 4.0 | 1.5 | 0.5 | –6.6 | 6.1 | –3.4 | 2.4 | 1.7 | 1.6 | 1.8 |
| Labor input growth | 4.5 | 2.6 | 3.3 | 1.2 | 0.6 | –0.3 | –5.6 | 2.1 | –1.7 | –1.4 | –1.5 | –1.5 | –1.5 |
| Labor quality growth | 0.8 | 1.6 | 1.3 | 0.5 | 0.9 | 0.7 | 1.6 | –0.1 | 1.0 | 0.4 | 0.4 | 0.3 | 0.4 |
| Hours worked growth | 3.7 | 1.0 | 2.0 | 0.7 | –0.3 | –1.0 | –7.2 | 2.3 | –2.6 | –1.8 | –1.8 | –1.8 | –1.8 |
| College labor input growth | 9.7 | 11.4 | 10.8 | 6.0 | 4.0 | 2.1 | –1.2 | 1.4 | 0.1 | –0.3 | –0.5 | –0.7 | –0.6 |
| Non–college labor input growth | 4.1 | 1.5 | 1.5 | –1.0 | –1.8 | –2.1 | –9.0 | 2.7 | –3.2 | –2.3 | –2.3 | –2.4 | –2.3 |
| ICT capital input growth | 17.1 | 19.1 | 18.5 | 9.2 | 6.8 | 4.9 | 2.7 | 3.7 | 4.6 | 7.8 | 5.4 | 8.9 | 7.3 |
| Non–ICT capital input growth | 7.0 | 5.8 | 4.8 | 2.2 | 0.4 | –0.3 | –1.2 | –1.1 | –1.1 | –0.3 | 0.0 | –0.1 | –0.1 |
| Per-worker labor productivity growth | 5.0 | 4.8 | 2.6 | 3.2 | 1.2 | 1.1 | –1.3 | 6.3 | –2.6 | 3.8 | 3.2 | 3.1 | 3.3 |
| Per–hour labor productivity growth | 5.2 | 5.7 | 2.4 | 3.3 | 1.8 | 1.4 | 0.7 | 3.9 | –0.7 | 4.2 | 3.5 | 3.5 | 3.7 |
| Capital productivity growth | –7.2 | –6.1 | –5.6 | –2.7 | –0.9 | –0.1 | 0.8 | 0.8 | 0.6 | 2.1 | 1.3 | 1.1 | 1.4 |
| TFP growth | 3.1 | 2.3 | –0.1 | 2.0 | 0.7 | 0.5 | –3.0 | 5.2 | –2.1 | 3.0 | 2.4 | 2.2 | 2.5 |

## Production

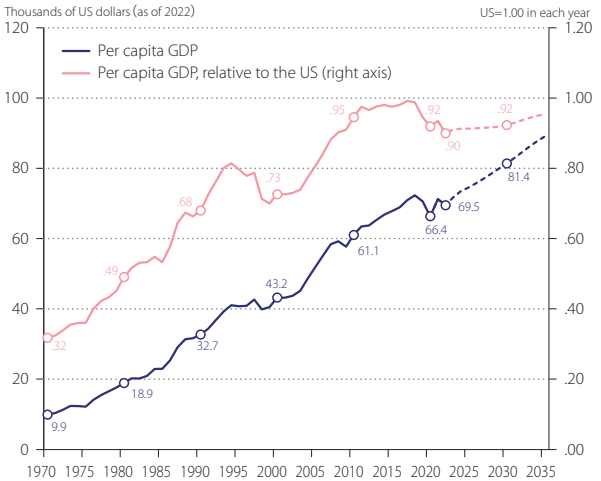


**Figure 1** Per Capita GDP

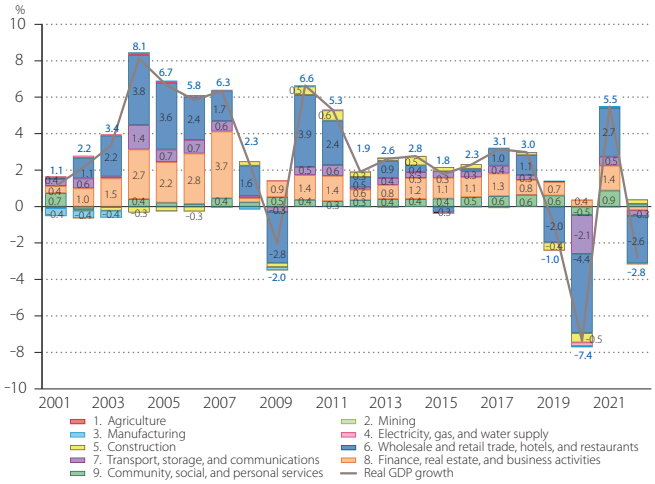


**Figure 2** Industry Origins of Economic Growth

## Labor

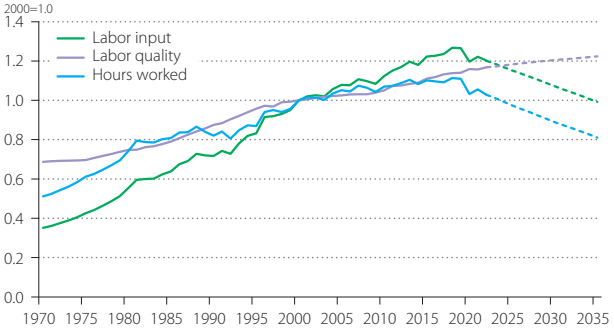


**Figure 3** Labor Inputs

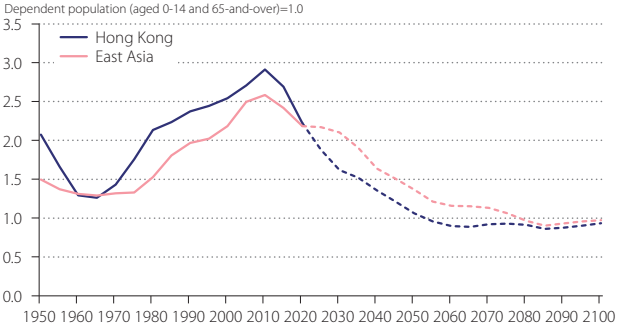


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

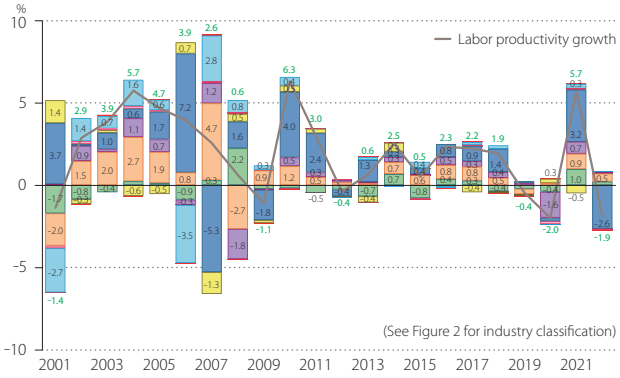


**Figure 7** Industry Origins of Labor Productivity Growth

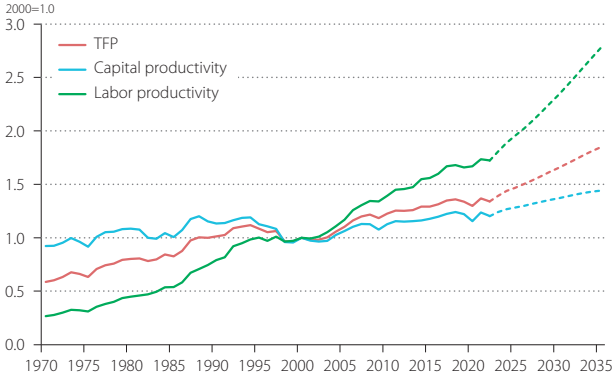


**Figure 8** Productivity Indicators

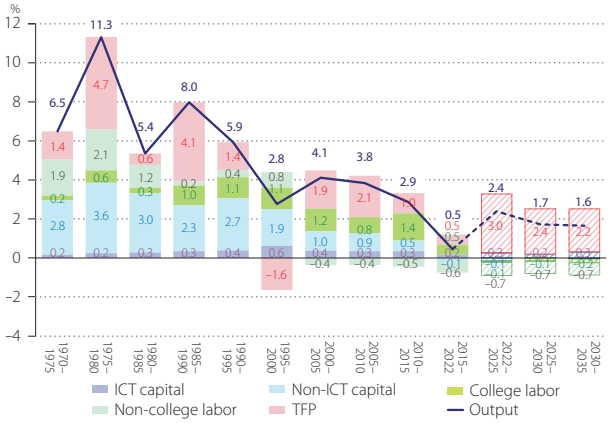


**Figure 9** Decomposition of Economic Growth

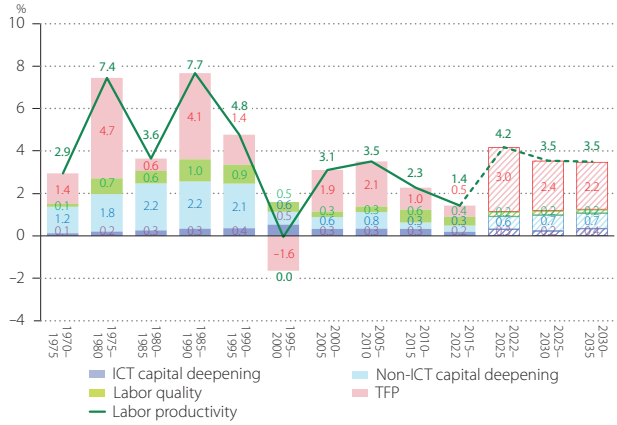


**Figure 10** Decomposition of Labor Productivity Growth

# India

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 12,052 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 3,415 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 8.5 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 2.4 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 20.2 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 9.5 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 26.6 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 15.9 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 226.3 | g-CO2 per US dollar (as of 2022) | |

| | | |
|---|---|---|
| Number of employment in 2022 | 535,628 | Thousands persons |
| Employment rate in 2022 | 37.8 | % |
| Female employment share in 2022 | 25.8 | % |
| Average schooling years of workers in 2022 | 6.3 | Years |
| Investment share in 2022 | 32.8 | % |
| ICT investment share in GFCF in 2022 | 11.4 | % |
| Agriculture share in GDP in 2022 | 17.1 | % |
| Manufacturing share in GDP in 2022 | 12.1 | % |
| Agriculture share in employment in 2022 | 43.5 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 3.1 | 5.0 | 4.9 | 7.6 | 5.6 | 4.9 | –5.8 | 12.9 | 5.4 | 7.0 | 6.9 | 6.2 | 6.6 |
| Labor input growth | 2.9 | 3.1 | 2.8 | 3.0 | 1.8 | 1.4 | 1.4 | 1.2 | 1.1 | 2.7 | 2.6 | 2.1 | 2.4 |
| Labor quality growth | 0.6 | 1.1 | 1.0 | 1.5 | 0.8 | 0.5 | 0.5 | 0.5 | 0.5 | 1.7 | 1.7 | 1.6 | 1.7 |
| Hours worked growth | 2.4 | 2.0 | 1.7 | 1.4 | 0.9 | 0.8 | 0.9 | 0.7 | 0.6 | 1.0 | 0.8 | 0.5 | 0.8 |
| College labor input growth | 11.9 | 8.2 | 5.9 | 6.3 | 2.6 | 2.2 | 2.4 | 2.1 | 1.9 | 3.5 | 3.5 | 3.0 | 3.3 |
| Non–college labor input growth | 2.2 | 2.2 | 2.0 | 1.7 | 1.4 | 1.0 | 1.0 | 0.8 | 0.7 | 2.3 | 2.1 | 1.6 | 1.9 |
| ICT capital input growth | 16.3 | 21.2 | 14.5 | 14.7 | 12.9 | 10.6 | 6.9 | 5.5 | 3.2 | 7.3 | 9.4 | 13.8 | 10.6 |
| Non–ICT capital input growth | 4.0 | 4.9 | 5.0 | 6.8 | 6.2 | 5.6 | 4.9 | 4.7 | 4.9 | 4.6 | 5.4 | 5.4 | 5.2 |
| Per-worker labor productivity growth | 0.5 | 3.5 | 3.6 | 5.9 | 4.6 | 4.1 | –7.1 | 8.2 | 6.6 | 6.0 | 6.0 | 5.7 | 5.9 |
| Per–hour labor productivity growth | 0.6 | 3.5 | 3.6 | 5.8 | 4.5 | 4.0 | –7.1 | 8.2 | 6.5 | 6.0 | 6.0 | 5.7 | 5.9 |
| Capital productivity growth | –4.2 | –5.4 | –5.5 | –7.3 | –6.7 | –6.0 | –5.2 | –4.7 | –4.7 | 2.1 | 1.0 | –0.1 | 0.8 |
| TFP growth | –0.3 | 1.7 | 1.7 | 2.4 | 1.7 | 1.6 | –9.1 | 6.3 | 4.6 | 3.4 | 3.0 | 2.5 | 2.9 |

## Production

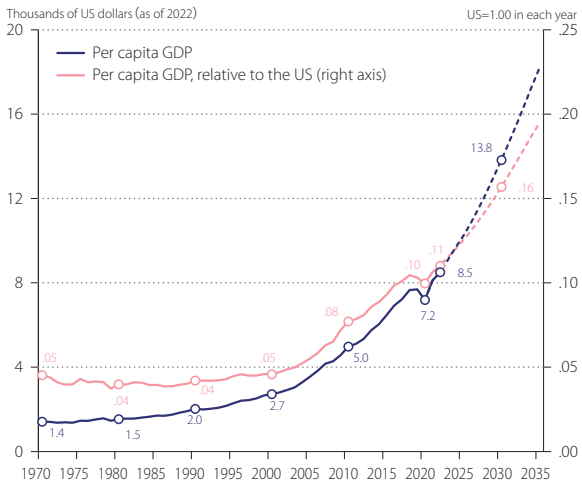


**Figure 1** Per Capita GDP

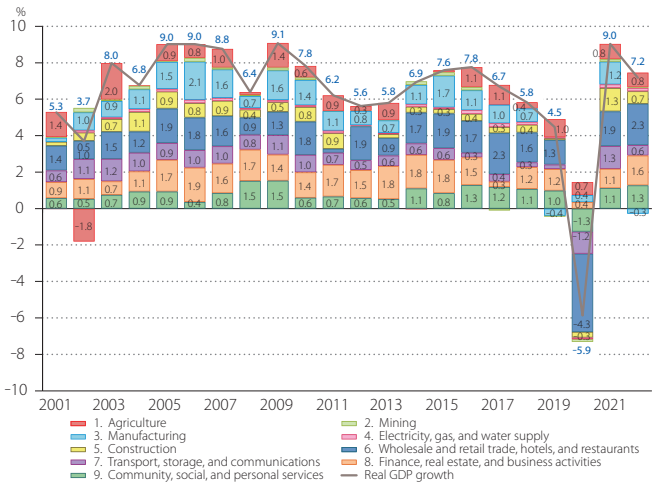


**Figure 2** Industry Origins of Economic Growth

## Labor

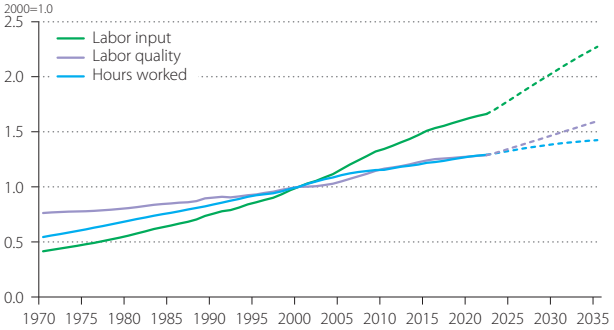


**Figure 3** Labor Inputs

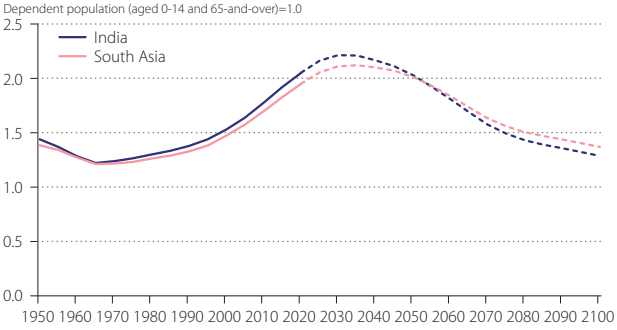


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

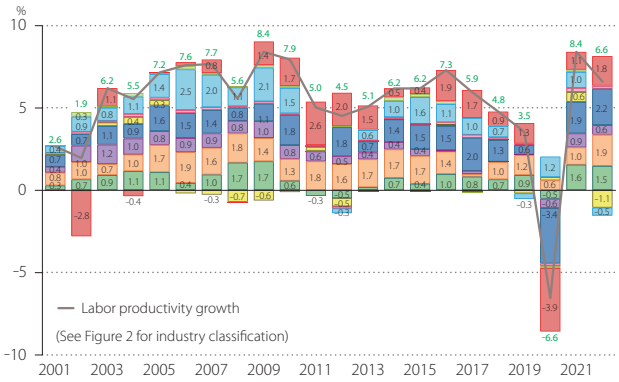


**Figure 7** Industry Origins of Labor Productivity Growth

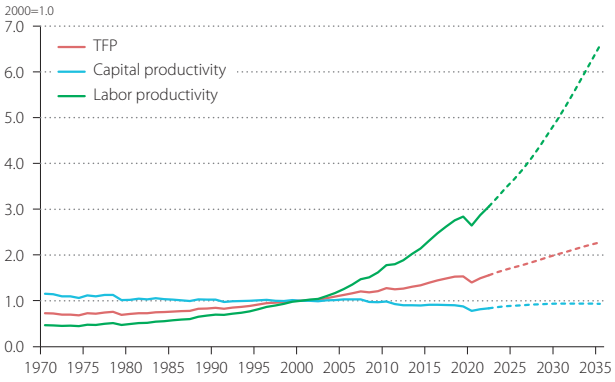


**Figure 8** Productivity Indicators

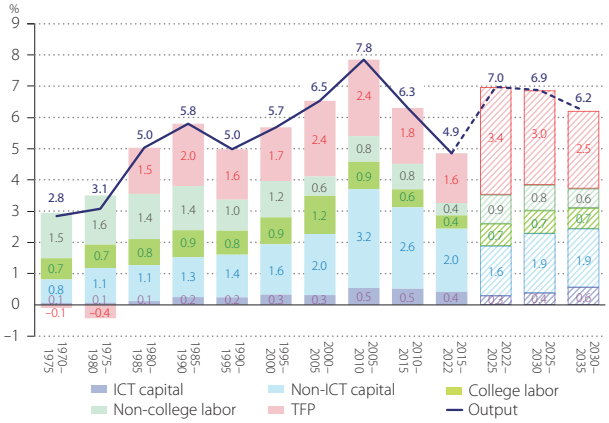


**Figure 9** Decomposition of Economic Growth

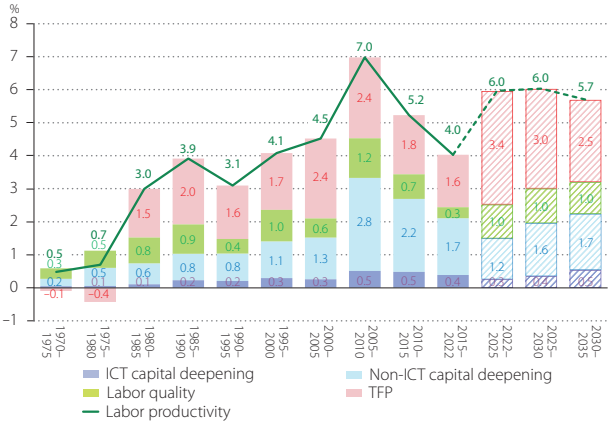


**Figure 10** Decomposition of Labor Productivity Growth

App.

# Indonesia

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 4,027 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 1,326 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 15.0 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 4.9 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 28.6 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 15.0 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 62.5 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 24.2 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 151.0 | g-CO2 per US dollar (as of 2022) | |

| | | | |
|---|---|---|---|
| Number of employment in 2022 | 135,208 | Thousands persons | |
| Employment rate in 2022 | 50.4 | % | |
| Female employment share in 2022 | 39.2 | % | |
| Average schooling years of workers in 2022 | 9.1 | Years | |
| Investment share in 2022 | 30.1 | % | |
| ICT investment share in GFCF in 2022 | 4.0 | % | |
| Agriculture share in GDP in 2022 | 13.0 | % | |
| Manufacturing share in GDP in 2022 | 19.2 | % | |
| Agriculture share in employment in 2022 | 28.2 | % | |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 8.0 | 6.1 | 4.1 | 5.0 | 4.3 | 3.6 | –2.3 | 3.4 | 4.9 | 5.0 | 5.3 | 4.6 | 5.0 |
| Labor input growth | 5.9 | 5.8 | 6.4 | 5.0 | 4.5 | 2.6 | 4.0 | –8.8 | 3.1 | 5.4 | 2.9 | 2.4 | 3.3 |
| Labor quality growth | 1.9 | 2.4 | 4.3 | 2.8 | 3.3 | 1.4 | 3.7 | –2.3 | –0.6 | 3.9 | 2.7 | 2.4 | 2.9 |
| Hours worked growth | 4.0 | 3.4 | 2.1 | 2.2 | 1.2 | 1.1 | 0.3 | –6.5 | 3.6 | 1.5 | 0.2 | –0.1 | 0.4 |
| College labor input growth | 23.0 | 11.5 | 21.2 | 11.9 | 9.1 | 4.4 | 7.5 | –16.1 | 5.6 | 5.8 | 3.5 | 3.6 | 4.1 |
| Non–college labor input growth | 5.6 | 5.6 | 5.2 | 3.8 | 2.9 | 1.8 | 2.6 | –5.8 | 2.1 | 5.2 | 2.6 | 1.8 | 2.9 |
| ICT capital input growth | 23.3 | 21.1 | 13.4 | 13.2 | 9.0 | 7.5 | 6.3 | 5.9 | 7.6 | 10.6 | 8.7 | 12.0 | 10.4 |
| Non–ICT capital input growth | 6.4 | 4.3 | 5.8 | 4.2 | 5.2 | 5.0 | 5.1 | 4.3 | 4.4 | 3.7 | 4.0 | 4.1 | 4.0 |
| Per-worker labor productivity growth | 4.2 | 2.8 | 2.4 | 3.1 | 2.4 | 1.6 | –1.8 | 3.9 | 1.4 | 4.8 | 5.0 | 4.5 | 4.7 |
| Per–hour labor productivity growth | 4.0 | 2.7 | 1.9 | 2.7 | 3.1 | 2.4 | –2.6 | 9.9 | 1.3 | 3.5 | 5.1 | 4.6 | 4.6 |
| Capital productivity growth | –6.4 | –4.4 | –5.9 | –4.3 | –5.2 | –5.0 | –5.1 | –4.3 | –4.5 | 1.2 | 1.1 | 0.3 | 0.8 |
| TFP growth | 1.8 | 1.1 | –2.1 | 0.4 | –0.6 | –0.3 | –6.9 | 5.0 | 1.0 | 0.5 | 1.7 | 1.2 | 1.2 |

## Production

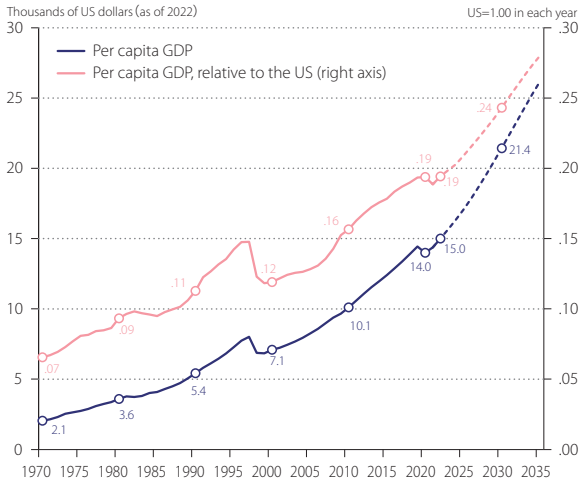


Figure 1 Per Capita GDP

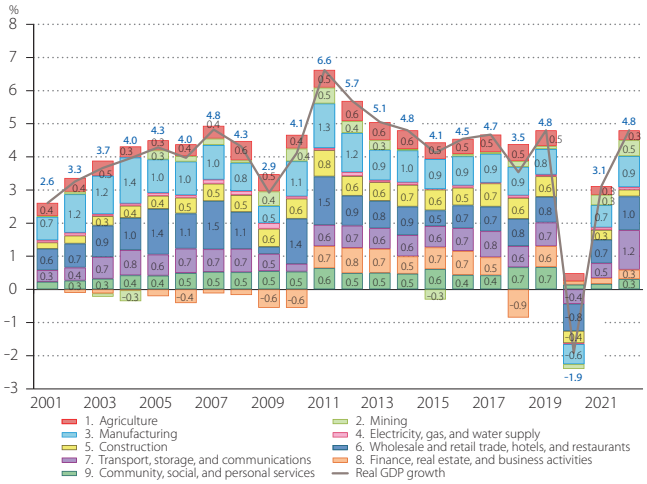


Figure 2 Industry Origins of Economic Growth

## Labor

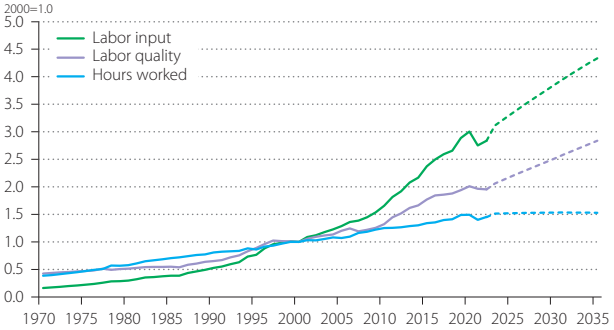


**Figure 3** Labor Inputs

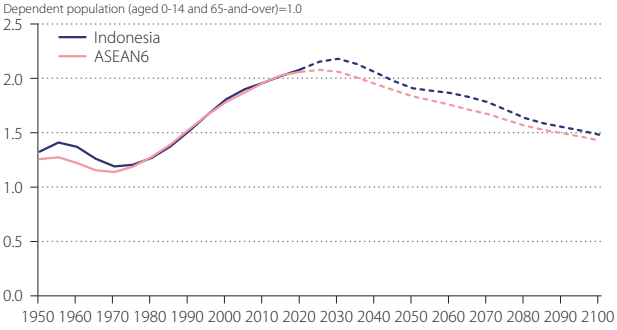


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

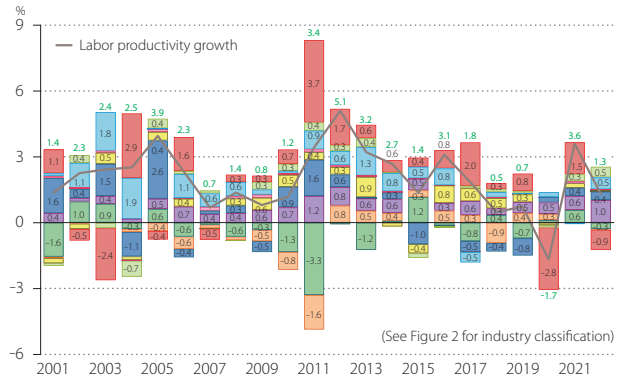


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

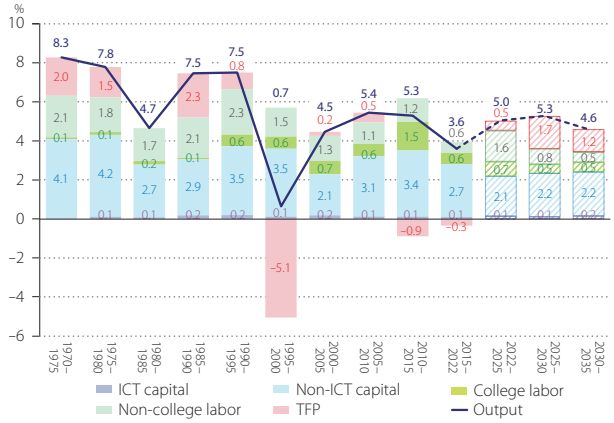


**Figure 9** Decomposition of Economic Growth

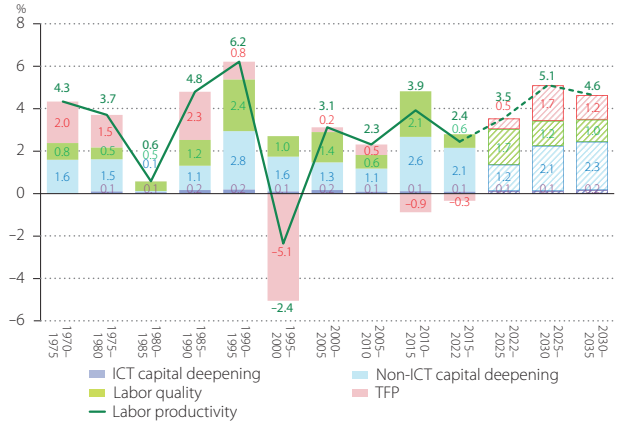


**Figure 10** Decomposition of Labor Productivity Growth

App.

# Iran

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 1,582 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 501 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 18.1 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 5.7 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 65.1 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 28.3 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 91.3 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 6.7 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 428.1 | g-CO2 per US dollar (as of 2022) | |

| | | | |
|---|---|---|---|
| Number of employment in 2022 | 23,748 | Thousands persons | |
| Employment rate in 2022 | 27.2 | % | |
| Female employment share in 2022 | 13.3 | % | |
| Average schooling years of workers in 2022 | 9.7 | Years | |
| Investment share in 2022 | 28.4 | % | |
| ICT investment share in GFCF in 2022 | 4.5 | % | |
| Agriculture share in GDP in 2022 | 7.6 | % | |
| Manufacturing share in GDP in 2022 | 19.5 | % | |
| Agriculture share in employment in 2022 | 14.8 | % | |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 3.0 | 2.3 | 3.7 | 6.1 | 0.9 | 1.8 | 2.6 | 3.8 | 2.9 | 2.7 | 2.2 | 2.1 | 2.3 |
| Labor input growth | 3.6 | 3.7 | 4.6 | 3.3 | 1.8 | 1.2 | –0.1 | 0.0 | 1.3 | 1.5 | 1.5 | 1.2 | 1.4 |
| Labor quality growth | 1.2 | 1.1 | 1.7 | 1.9 | 0.9 | 0.4 | 1.0 | 1.1 | 0.3 | 0.8 | 1.3 | 1.2 | 1.1 |
| Hours worked growth | 2.5 | 2.6 | 2.9 | 1.4 | 0.9 | 0.7 | –1.1 | –1.1 | 0.9 | 0.7 | 0.2 | 0.0 | 0.3 |
| College labor input growth | 4.7 | 7.3 | 10.1 | 6.5 | 2.6 | 1.0 | –1.4 | –1.1 | 1.2 | 2.7 | 2.2 | 1.8 | 2.1 |
| Non–college labor input growth | 3.4 | 2.9 | 2.6 | 1.1 | 1.0 | 1.4 | 1.5 | 1.3 | 1.4 | 0.2 | 0.7 | 0.3 | 0.5 |
| ICT capital input growth | 8.5 | 14.4 | 16.1 | 19.0 | 3.8 | 0.5 | –1.7 | –1.2 | –1.1 | 3.3 | 4.8 | 9.0 | 6.1 |
| Non–ICT capital input growth | 3.2 | 1.7 | 3.0 | 3.4 | 1.6 | 1.3 | 0.8 | 1.2 | 1.1 | 0.2 | 0.5 | 0.5 | 0.4 |
| Per-worker labor productivity growth | 0.5 | –0.2 | 0.6 | 4.2 | –0.3 | 0.7 | 4.1 | 5.3 | 1.9 | 2.2 | 1.8 | 1.9 | 1.9 |
| Per–hour labor productivity growth | 0.5 | –0.3 | 0.8 | 4.8 | 0.0 | 1.1 | 3.7 | 4.9 | 2.0 | 2.1 | 2.0 | 2.1 | 2.1 |
| Capital productivity growth | –3.2 | –1.8 | –3.1 | –3.5 | –1.6 | –1.3 | –0.8 | –1.1 | –1.1 | 2.5 | 1.7 | 1.5 | 1.8 |
| TFP growth | –0.4 | –0.2 | 0.2 | 2.6 | –0.8 | 0.5 | 2.0 | 3.0 | 1.8 | 2.1 | 1.4 | 1.4 | 1.6 |

## Production

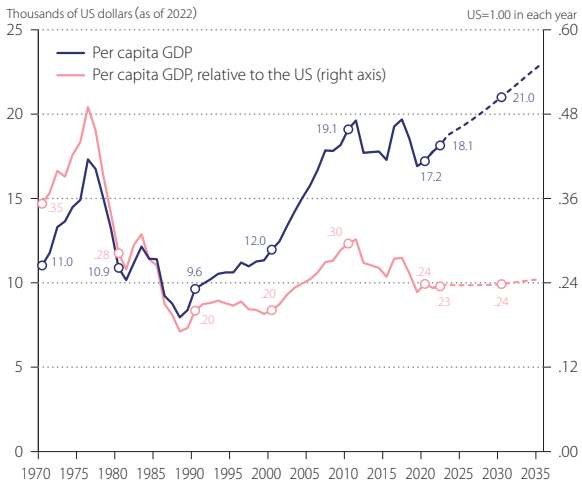


Figure 1 Per Capita GDP

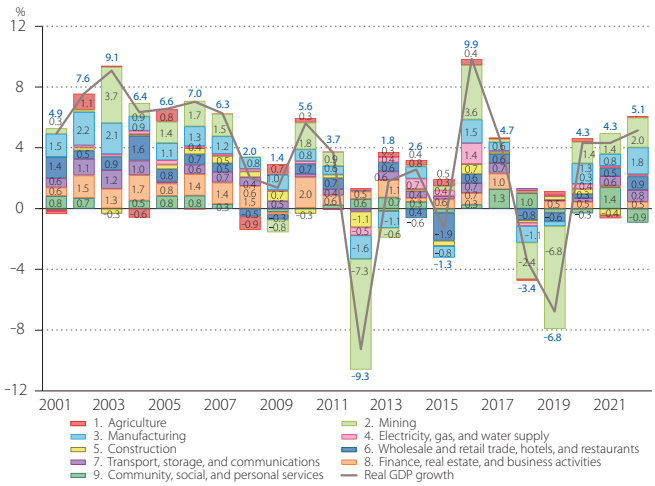


Figure 2 Industry Origins of Economic Growth

## Labor

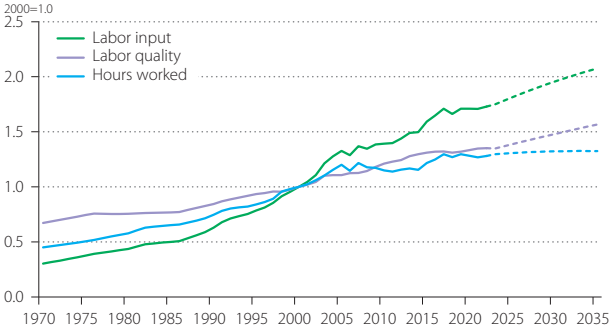


**Figure 3** Labor Inputs

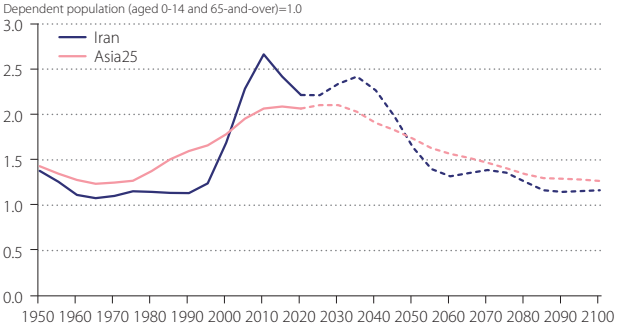


**Figure 4** Demographic Dividend

## Productivity

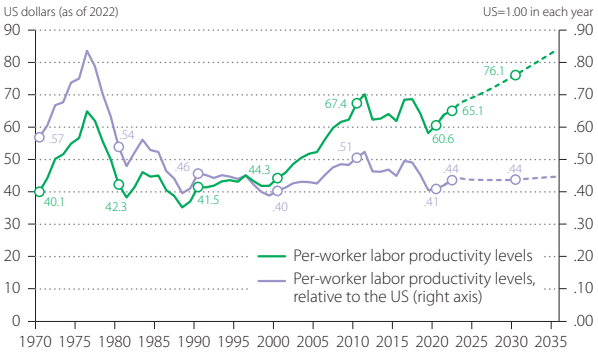


**Figure 5** Per-Worker Labor Productivity Level

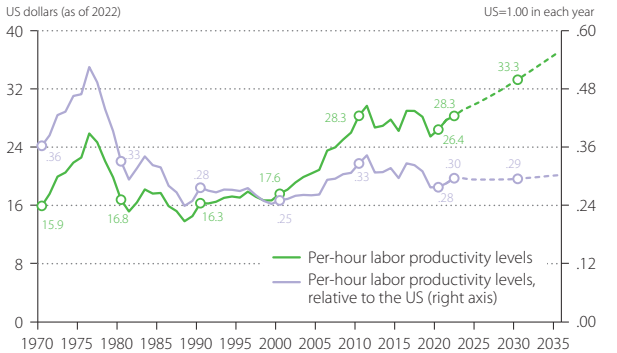


**Figure 6** Per-Hour Labor Productivity Level

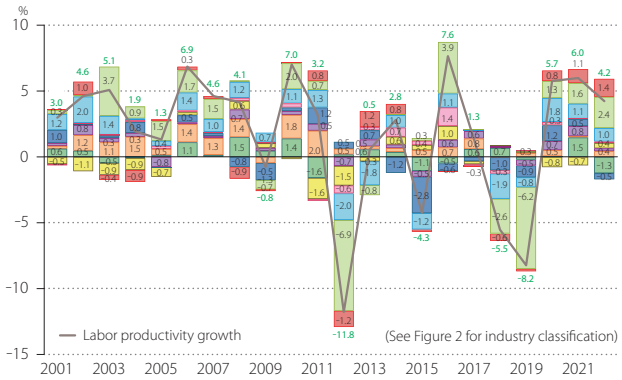


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

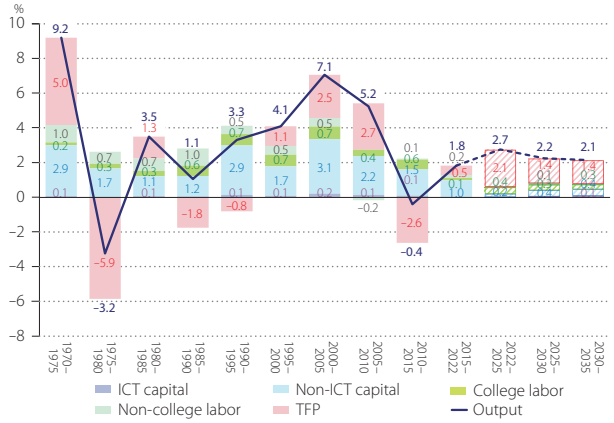


**Figure 9** Decomposition of Economic Growth

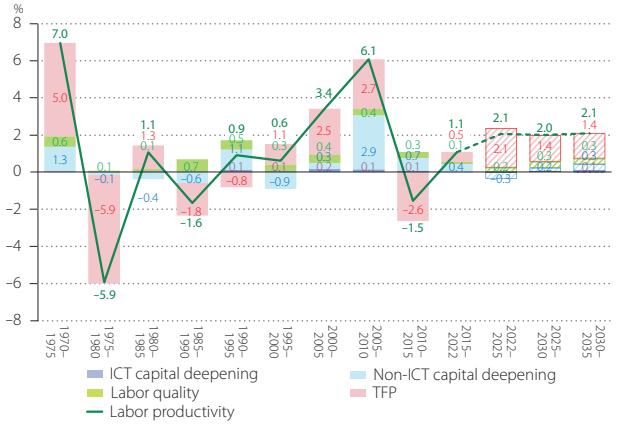


**Figure 10** Decomposition of Labor Productivity Growth

# Japan

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 6,208 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 4,256 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 49.7 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 34.1 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 87.7 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 50.8 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 160.3 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 21.8 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 171.5 | g-CO2 per US dollar (as of 2022) | |

| | | |
|---|---|---|
| Number of employment in 2022 | 66,964 | Thousands persons |
| Employment rate in 2022 | 53.6 | % |
| Female employment share in 2022 | 44.7 | % |
| Average schooling years of workers in 2022 | 13.4 | Years |
| Investment share in 2022 | 26.6 | % |
| ICT investment share in GFCF in 2022 | 13.5 | % |
| Agriculture share in GDP in 2022 | 1.0 | % |
| Manufacturing share in GDP in 2022 | 19.2 | % |
| Agriculture share in employment in 2022 | 3.5 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 5.0 | 4.5 | 1.2 | 0.6 | 0.6 | 0.3 | –4.3 | 2.6 | 0.9 | 1.0 | 0.7 | 0.6 | 0.7 |
| Labor input growth | 1.8 | 1.8 | 0.0 | 0.2 | 0.6 | 0.8 | 0.4 | 0.4 | 2.9 | –1.6 | –1.5 | –1.7 | –1.6 |
| Labor quality growth | 1.6 | 1.1 | 0.7 | 0.8 | 0.4 | 0.4 | 1.2 | 0.4 | 0.2 | 0.4 | 0.4 | 0.2 | 0.3 |
| Hours worked growth | 0.2 | 0.7 | –0.7 | –0.6 | 0.2 | 0.4 | –0.7 | 0.0 | 2.7 | –1.9 | –2.0 | –1.9 | –1.9 |
| College labor input growth | 7.7 | 6.1 | 3.6 | 3.1 | 2.8 | 3.4 | 4.1 | 4.4 | 7.9 | 0.2 | 0.3 | –0.1 | 0.1 |
| Non–college labor input growth | 0.7 | 0.5 | –1.4 | –1.4 | –1.0 | –1.0 | –2.2 | –2.4 | –0.7 | –3.0 | –3.2 | –3.4 | –3.2 |
| ICT capital input growth | 12.0 | 17.8 | 8.9 | 4.8 | 2.6 | 2.3 | 2.7 | 1.8 | 1.5 | 5.5 | 4.2 | 7.6 | 5.8 |
| Non–ICT capital input growth | 5.3 | 3.7 | 1.8 | 0.3 | 0.0 | 0.2 | 0.2 | –0.2 | –0.1 | –0.2 | –0.1 | –0.3 | –0.2 |
| Per-worker labor productivity growth | 3.9 | 3.6 | 0.9 | 0.7 | 0.0 | –0.4 | –3.6 | 2.9 | –0.6 | 2.6 | 2.5 | 2.3 | 2.4 |
| Per–hour labor productivity growth | 4.4 | 3.8 | 1.9 | 1.2 | 0.4 | –0.2 | –3.5 | 2.5 | –1.7 | 2.9 | 2.7 | 2.5 | 2.7 |
| Capital productivity growth | –5.6 | –4.5 | –2.3 | –0.7 | –0.2 | –0.4 | –0.4 | 0.0 | 0.0 | 0.7 | 0.5 | 0.2 | 0.4 |
| TFP growth | 1.2 | 1.6 | 0.2 | 0.2 | 0.2 | –0.4 | –4.6 | 2.3 | –0.8 | 1.7 | 1.5 | 1.4 | 1.5 |

## Production

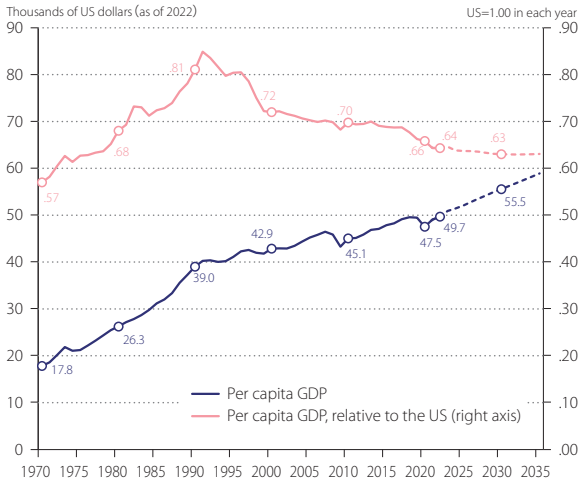


Figure 1 Per Capita GDP

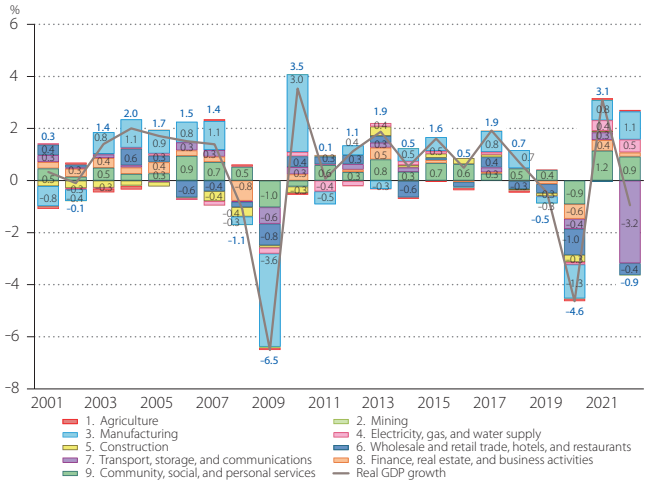


Figure 2 Industry Origins of Economic Growth

## Labor

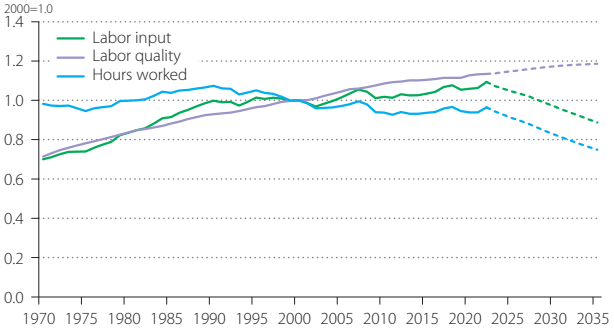


**Figure 3** Labor Inputs

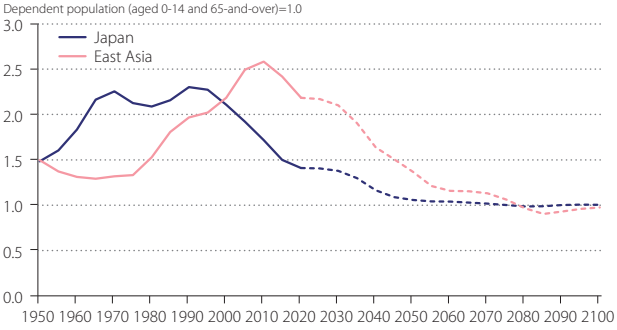


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

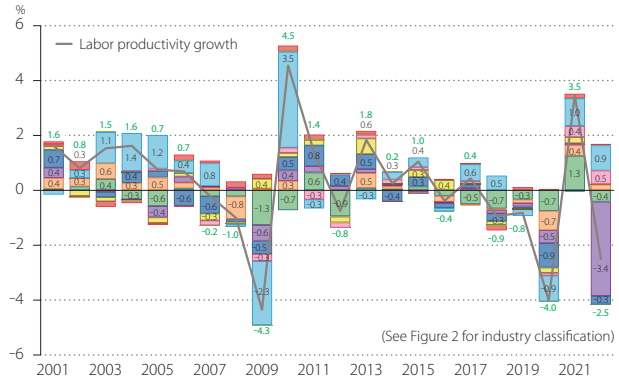


**Figure 7** Industry Origins of Labor Productivity Growth

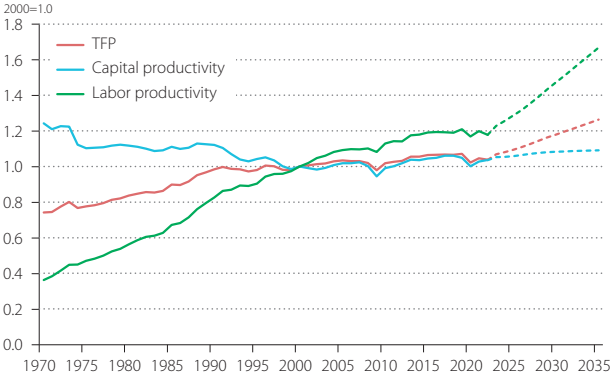


**Figure 8** Productivity Indicators

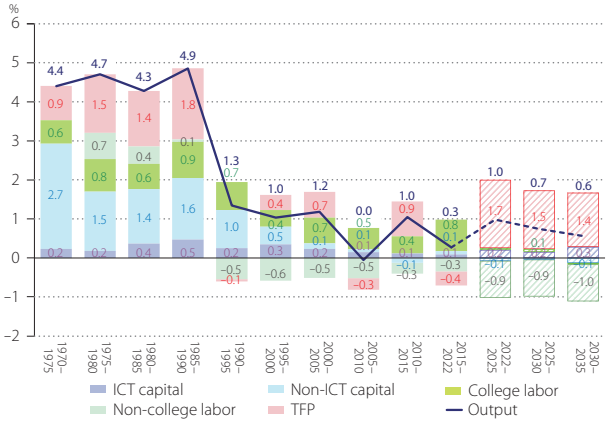


**Figure 9** Decomposition of Economic Growth

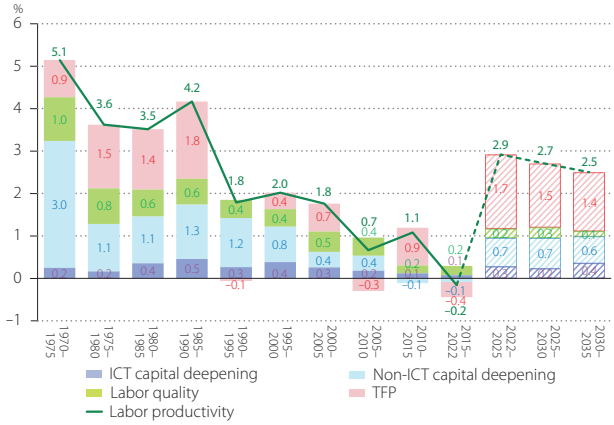


**Figure 10** Decomposition of Labor Productivity Growth

# Korea

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 2,811 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 1,674 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 54.4 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 32.4 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 89.6 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 47.5 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 188.1 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 13.7 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 224.2 | g-CO2 per US dollar (as of 2022) | |

| | | |
|---|---|---|
| Number of employment in 2022 | 28,647 | Thousands persons |
| Employment rate in 2022 | 55.5 | % |
| Female employment share in 2022 | 42.5 | % |
| Average schooling years of workers in 2022 | 13.4 | Years |
| Investment share in 2022 | 33.2 | % |
| ICT investment share in GFCF in 2022 | 8.7 | % |
| Agriculture share in GDP in 2022 | 1.8 | % |
| Manufacturing share in GDP in 2022 | 28.0 | % |
| Agriculture share in employment in 2022 | 5.4 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 9.1 | 9.9 | 6.9 | 4.8 | 2.6 | 2.6 | –0.8 | 4.3 | 2.8 | 1.9 | 1.8 | 1.7 | 1.8 |
| Labor input growth | 4.1 | 5.7 | 3.1 | 2.2 | 0.7 | –0.6 | –4.5 | 0.4 | 2.2 | 1.2 | –0.8 | –1.0 | –0.4 |
| Labor quality growth | 0.9 | 3.1 | 2.1 | 2.2 | 0.9 | 0.7 | 0.7 | 0.4 | 0.3 | 0.5 | 0.9 | 0.8 | 0.8 |
| Hours worked growth | 3.3 | 2.7 | 0.9 | 0.1 | –0.2 | –1.3 | –5.2 | 0.0 | 1.9 | 0.8 | –1.7 | –1.8 | –1.2 |
| College labor input growth | 3.6 | 10.9 | 7.2 | 5.6 | 2.4 | 1.1 | –2.3 | 1.6 | 2.7 | 2.4 | 0.3 | –0.2 | 0.6 |
| Non–college labor input growth | 4.3 | 4.1 | 1.0 | –0.9 | –2.1 | –3.5 | –8.6 | –2.1 | 1.3 | –1.2 | –3.5 | –3.6 | –3.0 |
| ICT capital input growth | 23.3 | 22.4 | 18.3 | 6.8 | 3.3 | 4.1 | 5.7 | 4.8 | 3.4 | 6.9 | 5.3 | 8.8 | 7.0 |
| Non–ICT capital input growth | 9.6 | 8.2 | 7.0 | 4.9 | 3.1 | 3.0 | 2.6 | 2.8 | 2.7 | 1.9 | 1.4 | 0.9 | 1.3 |
| Per-worker labor productivity growth | 5.3 | 6.7 | 5.4 | 3.5 | 1.5 | 1.6 | 0.0 | 2.9 | 0.3 | 3.5 | 3.3 | 3.4 | 3.4 |
| Per–hour labor productivity growth | 5.3 | 6.7 | 6.0 | 4.6 | 2.9 | 3.8 | 4.3 | 4.3 | 1.2 | 1.2 | 3.5 | 3.5 | 3.0 |
| Capital productivity growth | –9.8 | –8.7 | –7.6 | –5.0 | –3.1 | –3.1 | –2.9 | –2.9 | –2.8 | –0.2 | 0.2 | 0.3 | 0.1 |
| TFP growth | 1.4 | 2.2 | 1.7 | 1.0 | 0.9 | 1.4 | 0.2 | 2.7 | 0.6 | 0.2 | 1.4 | 1.6 | 1.2 |

## Production

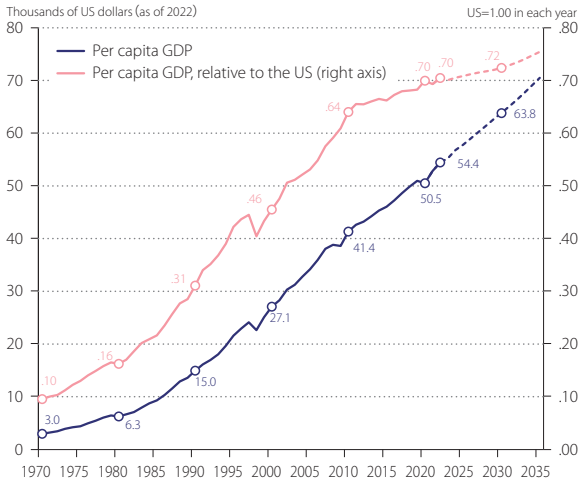


**Figure 1** Per Capita GDP

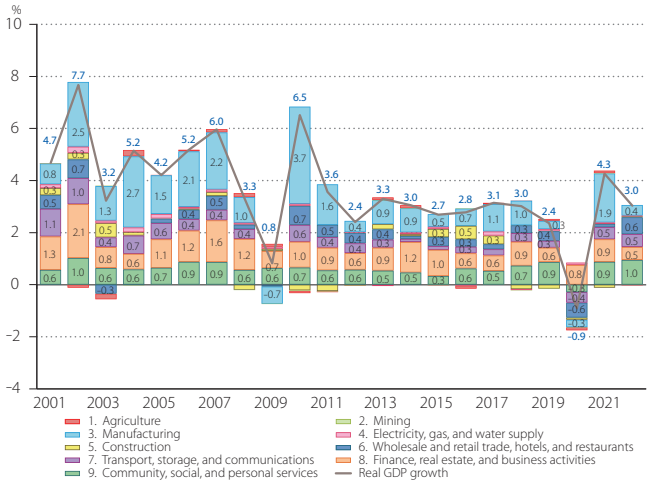


**Figure 2** Industry Origins of Economic Growth

## Labor

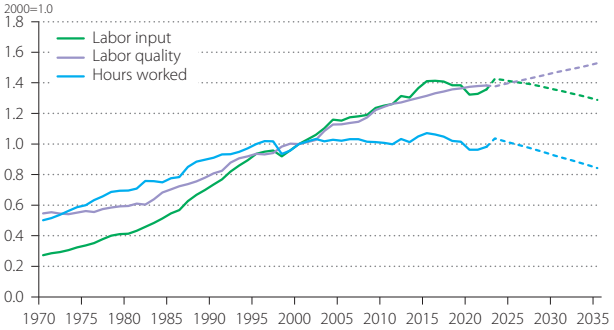


**Figure 3** Labor Inputs

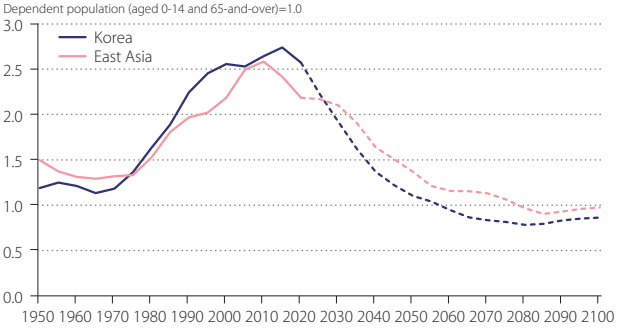


**Figure 4** Demographic Dividend

## Productivity

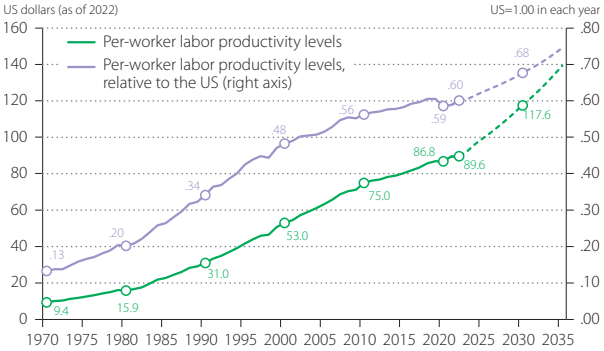


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

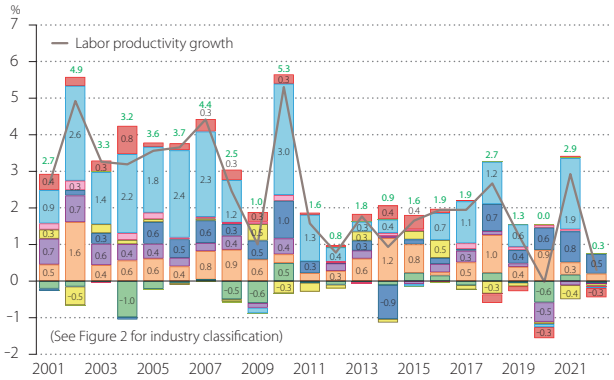


**Figure 7** Industry Origins of Labor Productivity Growth

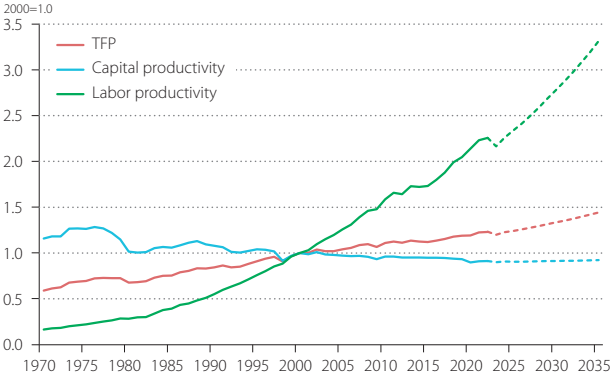


**Figure 8** Productivity Indicators

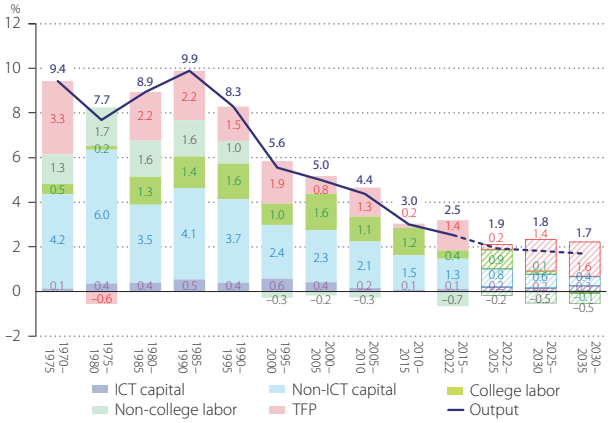


**Figure 9** Decomposition of Economic Growth

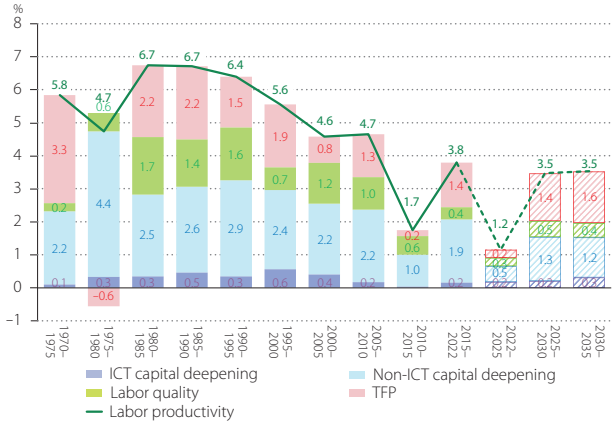


**Figure 10** Decomposition of Labor Productivity Growth

# Lao PDR

## Key Indicators

| | | |
|---|---|---|
| GDP in 2022 | 66 | Billions of US dollars (as of 2022) |
| (exchange rate based) | 16 | Billions of US dollars (as of 2022) |
| Per capita GDP in 2022 | 8.8 | Thousands of US dollars (as of 2022) |
| (exchange rate based) | 2.1 | Thousands of US dollars (as of 2022) |
| Per-worker labor productivity level in 2022 | 15.0 | Thousands of US dollars per worker (as of 2022) |
| Per-hour labor productivity level in 2022 | 6.2 | US dollars per hour worked (as of 2022) |
| Capital stock per hour worked in 2022 | 18.9 | US dollars (as of 2022) |
| Energy productivity levels in 2021 | n.a. | Thousands of US dollars per toe (as of 2022) |
| Carbon intensity of GDP in 2021 | n.a. | g-CO2 per US dollar (as of 2022) |

| | | |
|---|---|---|
| Number of employment in 2022 | 3,921 | Thousands persons |
| Employment rate in 2022 | 52.0 | % |
| Female employment share in 2022 | 47.9 | % |
| Average schooling years of workers in 2022 | 5.9 | Years |
| Investment share in 2022 | 46.4 | % |
| ICT investment share in GFCF in 2022 | 3.2 | % |
| Agriculture share in GDP in 2022 | 25.8 | % |
| Manufacturing share in GDP in 2022 | 9.8 | % |
| Agriculture share in employment in 2022 | 76.9 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 2.9 | 4.0 | 6.5 | 5.3 | 3.3 | 2.8 | –5.3 | 2.9 | 5.0 | 4.1 | 3.9 | 3.6 | 3.8 |
| Labor input growth | 1.3 | 2.8 | 3.7 | 3.9 | 2.6 | 2.0 | 2.3 | 2.2 | 2.1 | 1.2 | 1.2 | 1.0 | 1.1 |
| Labor quality growth | 0.3 | 0.3 | 0.7 | 1.5 | 0.7 | 0.0 | 0.1 | 0.1 | 0.1 | 1.3 | 1.1 | 1.2 | 1.2 |
| Hours worked growth | 1.1 | 2.5 | 3.0 | 2.4 | 1.9 | 2.0 | 2.2 | 2.1 | 2.0 | –0.1 | 0.1 | –0.2 | –0.1 |
| College labor input growth | 8.8 | 7.4 | 8.6 | 8.7 | 1.4 | 1.1 | 2.2 | 2.2 | 2.1 | 4.2 | 4.3 | 4.0 | 4.2 |
| Non–college labor input growth | 1.2 | 2.6 | 3.2 | 3.0 | 2.9 | 2.3 | 2.3 | 2.2 | 2.1 | 0.4 | 0.3 | –0.1 | 0.1 |
| ICT capital input growth | 0.7 | 18.3 | 12.9 | 9.4 | 3.1 | 1.4 | –5.3 | –6.0 | 6.4 | 17.2 | 9.0 | 11.0 | 11.6 |
| Non–ICT capital input growth | 3.3 | 4.7 | 6.6 | 3.8 | 5.9 | 5.1 | 5.9 | 4.4 | 4.8 | 4.3 | 4.2 | 4.3 | 4.3 |
| Per-worker labor productivity growth | 1.8 | 1.5 | 3.5 | 2.9 | 1.3 | 0.8 | –7.5 | 0.8 | 2.9 | 4.0 | 3.6 | 3.6 | 3.7 |
| Per–hour labor productivity growth | 1.8 | 1.5 | 3.5 | 2.9 | 1.4 | 0.8 | –7.5 | 0.8 | 3.0 | 4.2 | 3.8 | 3.8 | 3.9 |
| Capital productivity growth | –3.3 | –4.7 | –6.7 | –3.8 | –5.8 | –5.0 | –5.7 | –4.2 | –4.8 | –0.5 | –0.4 | –0.8 | –0.6 |
| TFP growth | 0.7 | 0.2 | 1.1 | 1.4 | –1.4 | –1.2 | –9.8 | –0.5 | 1.2 | 0.7 | 0.7 | 0.4 | 0.6 |

## Production

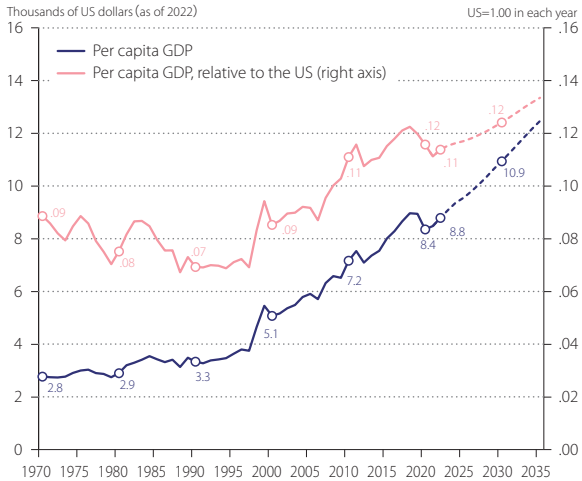


**Figure 1** Per Capita GDP

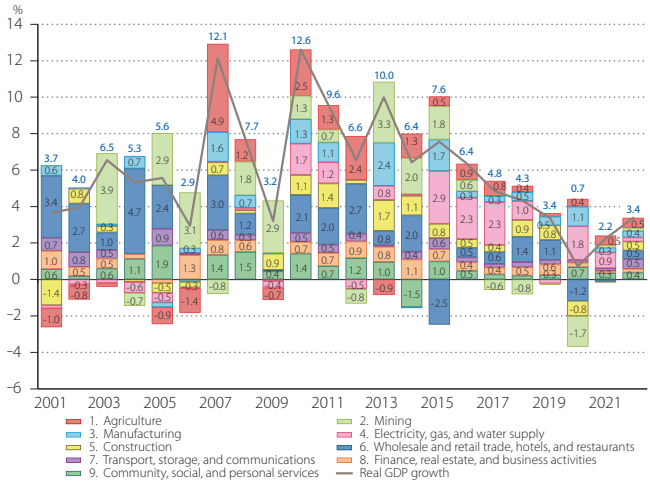


**Figure 2** Industry Origins of Economic Growth

## Labor

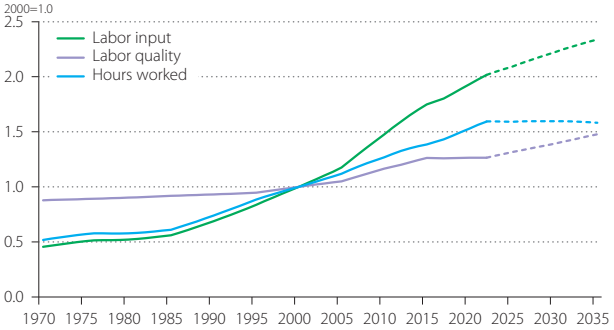


**Figure 3** Labor Inputs

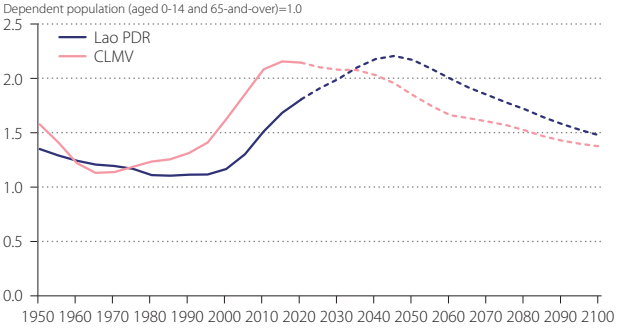


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

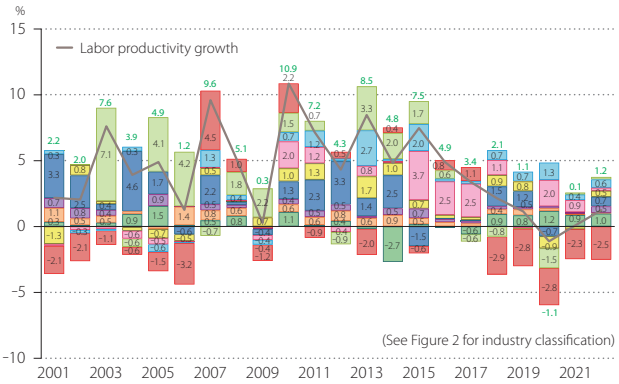


**Figure 7** Industry Origins of Labor Productivity Growth

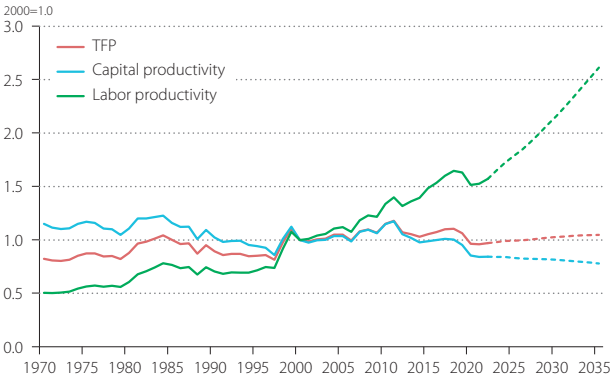


**Figure 8** Productivity Indicators

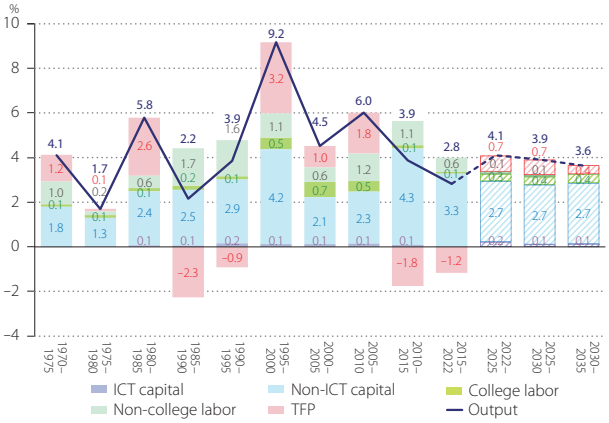


**Figure 9** Decomposition of Economic Growth

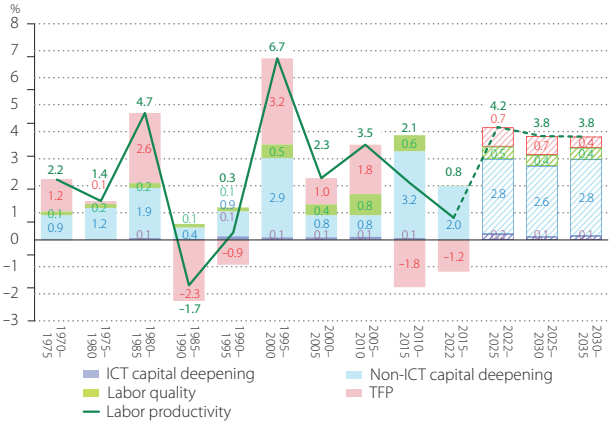


**Figure 10** Decomposition of Labor Productivity Growth

# Malaysia

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 1,177 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 15,899 | Thousands persons |
| (exchange rate based) | 407 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 48.7 | % |
| Per capita GDP in 2022 | 36.0 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 38.3 | % |
| (exchange rate based) | 12.5 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 11.9 | Years |
| Per-worker labor productivity level in 2022 | 71.1 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 23.5 | % |
| Per-hour labor productivity level in 2022 | 32.9 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 15.3 | % |
| Capital stock per hour worked in 2022 | 77.6 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 9.0 | % |
| Energy productivity levels in 2021 | 18.2 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 23.6 | % |
| Carbon intensity of GDP in 2021 | 221.2 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 9.5 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 7.6 | 5.7 | 7.1 | 5.1 | 4.9 | 3.9 | –4.6 | 4.9 | 10.2 | 3.9 | 4.6 | 3.9 | 4.2 |
| Labor input growth | 4.7 | 5.3 | 5.6 | 4.4 | 3.3 | 2.7 | 0.0 | 2.7 | 6.0 | 2.3 | 2.2 | 1.8 | 2.1 |
| Labor quality growth | 1.5 | 2.0 | 2.4 | 1.9 | 1.3 | 1.5 | 5.0 | 1.2 | 1.3 | 1.4 | 1.2 | 1.0 | 1.2 |
| Hours worked growth | 3.2 | 3.3 | 3.3 | 2.4 | 1.9 | 1.3 | –5.0 | 1.6 | 4.7 | 0.9 | 1.0 | 0.8 | 0.9 |
| College labor input growth | 8.5 | 11.5 | 8.7 | 7.8 | 5.2 | 4.6 | 3.8 | 5.7 | 8.2 | 3.6 | 3.2 | 2.7 | 3.1 |
| Non–college labor input growth | 4.2 | 4.0 | 4.4 | 2.2 | 1.4 | 0.9 | –3.8 | –0.4 | 3.6 | 0.8 | 0.8 | 0.4 | 0.7 |
| ICT capital input growth | 16.7 | 21.9 | 22.7 | 16.5 | 7.5 | 5.5 | 2.8 | 2.8 | 4.3 | 7.7 | 7.5 | 11.3 | 9.0 |
| Non–ICT capital input growth | 6.1 | 5.6 | 7.3 | 2.6 | 3.3 | 3.2 | 2.4 | 1.9 | 3.0 | 1.1 | 1.5 | 1.3 | 1.3 |
| Per-worker labor productivity growth | 4.4 | 2.4 | 3.8 | 2.5 | 2.8 | 2.6 | –4.4 | 4.6 | 7.7 | 2.8 | 3.3 | 2.9 | 3.1 |
| Per–hour labor productivity growth | 4.3 | 2.4 | 3.8 | 2.6 | 3.0 | 2.6 | 0.4 | 3.4 | 5.4 | 3.0 | 3.6 | 3.2 | 3.3 |
| Capital productivity growth | –6.1 | –5.8 | –7.7 | –3.4 | –3.5 | –3.3 | –2.4 | –1.9 | –3.0 | 2.4 | 2.7 | 1.9 | 2.3 |
| TFP growth | 2.0 | 0.1 | 0.1 | 1.3 | 1.5 | 0.8 | –6.0 | 2.7 | 5.9 | 2.1 | 2.5 | 2.0 | 2.2 |

## Production

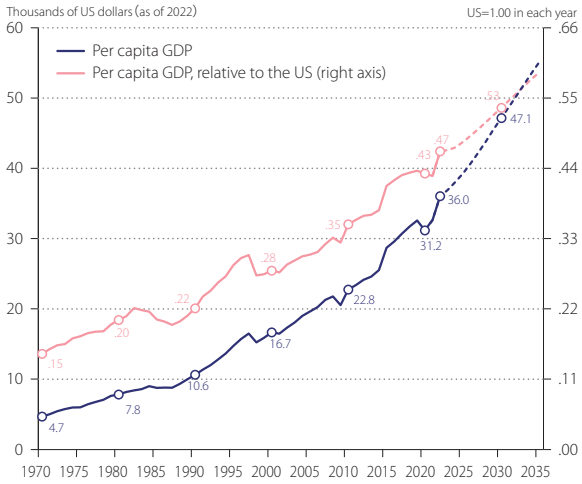


**Figure 1** Per Capita GDP

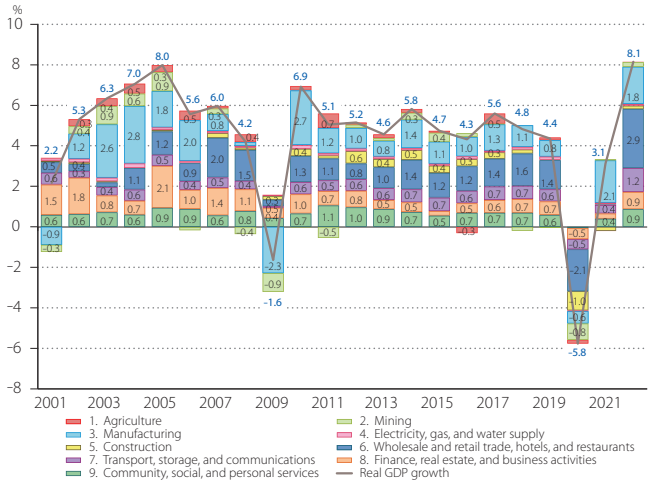


**Figure 2** Industry Origins of Economic Growth

## Labor

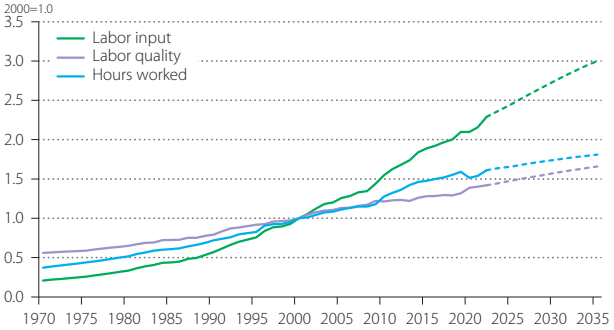


**Figure 3** Labor Inputs

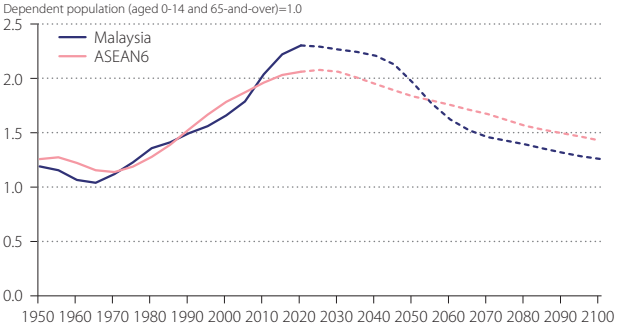


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

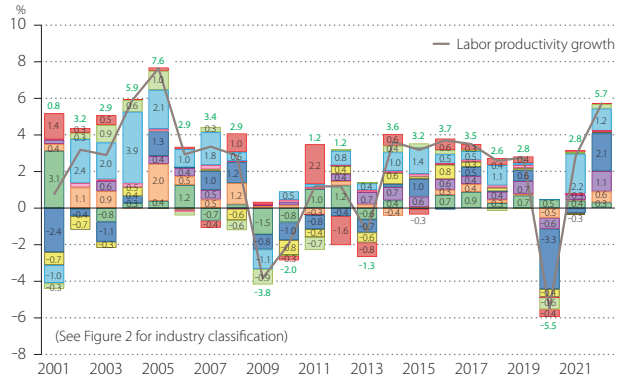


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

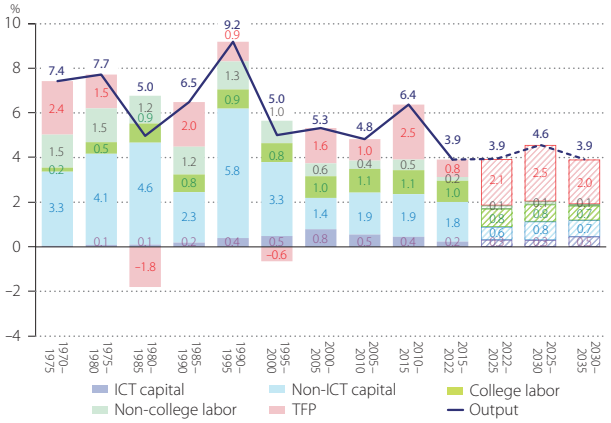


**Figure 9** Decomposition of Economic Growth

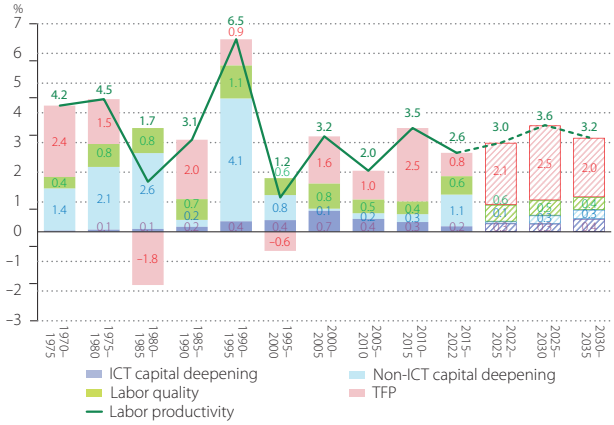


**Figure 10** Decomposition of Labor Productivity Growth

# Mongolia

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 49 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 1,180 | Thousands persons |
| (exchange rate based) | 17 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 34.0 | % |
| Per capita GDP in 2022 | 14.0 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 46.8 | % |
| (exchange rate based) | 5.0 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 12.1 | Years |
| Per-worker labor productivity level in 2022 | 37.4 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 41.5 | % |
| Per-hour labor productivity level in 2022 | 19.7 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 5.9 | % |
| Capital stock per hour worked in 2022 | 55.3 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 14.6 | % |
| Energy productivity levels in 2021 | 9.6 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 8.0 | % |
| Carbon intensity of GDP in 2021 | 536.5 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 25.0 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 5.9 | 5.2 | 0.9 | 6.3 | 5.9 | 3.1 | –4.5 | 1.6 | 4.8 | 5.9 | 4.7 | 5.4 | 5.3 |
| Labor input growth | 6.1 | 4.7 | –2.3 | 4.5 | 4.8 | 3.0 | –3.2 | –5.7 | 5.7 | 2.0 | 3.1 | 3.1 | 2.8 |
| Labor quality growth | 4.3 | 1.1 | –1.8 | 3.2 | 2.7 | 2.0 | –2.0 | 1.6 | 1.5 | 0.6 | 1.4 | 1.0 | 1.1 |
| Hours worked growth | 1.8 | 3.6 | –0.5 | 1.3 | 2.1 | 1.0 | –1.2 | –7.2 | 4.3 | 1.4 | 1.7 | 2.0 | 1.8 |
| College labor input growth | 20.8 | 14.8 | 1.8 | 11.8 | 9.4 | 4.1 | –16.4 | –3.4 | 14.7 | 2.9 | 3.5 | 3.7 | 3.4 |
| Non–college labor input growth | 3.5 | 2.4 | –3.4 | 1.2 | –1.2 | 1.4 | 15.2 | –8.9 | –7.8 | 0.7 | 2.4 | 1.9 | 1.8 |
| ICT capital input growth | 25.2 | 15.3 | 9.1 | 19.2 | 8.7 | 13.1 | 11.5 | 7.9 | 9.9 | 12.2 | 8.7 | 12.2 | 10.9 |
| Non–ICT capital input growth | 5.8 | 5.8 | –0.2 | 5.9 | 5.6 | 2.2 | 2.3 | 2.1 | 2.5 | 2.0 | 2.4 | 2.8 | 2.5 |
| Per-worker labor productivity growth | 4.1 | 1.6 | 0.6 | 3.9 | 4.8 | 2.7 | –5.9 | 4.9 | 0.1 | 5.2 | 3.5 | 3.8 | 4.0 |
| Per–hour labor productivity growth | 4.1 | 1.6 | 1.4 | 5.0 | 3.8 | 2.1 | –3.2 | 8.9 | 0.6 | 4.5 | 3.0 | 3.4 | 3.5 |
| Capital productivity growth | –5.9 | –5.9 | 0.1 | –6.1 | –5.6 | –2.4 | –2.5 | –2.3 | –2.7 | 3.6 | 2.2 | 2.4 | 2.6 |
| TFP growth | –0.1 | –0.4 | 1.7 | 0.7 | 0.5 | 0.4 | –5.1 | 1.9 | 1.2 | 3.7 | 2.0 | 2.4 | 2.5 |

## Production

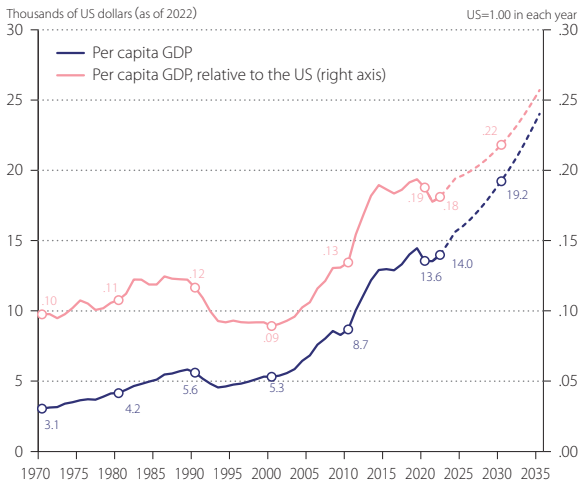


**Figure 1** Per Capita GDP

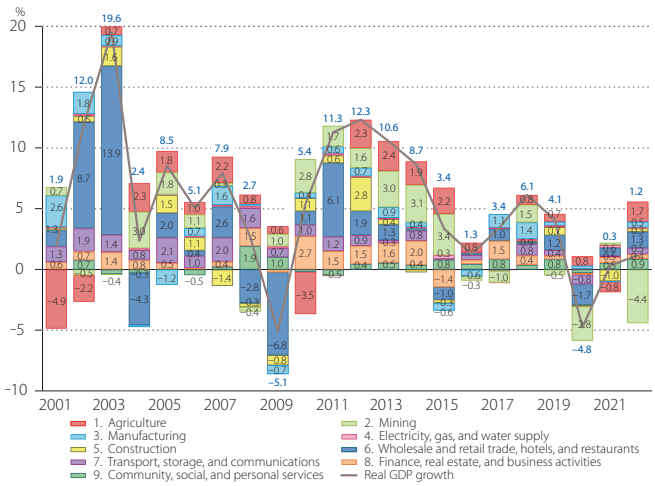


**Figure 2** Industry Origins of Economic Growth

## Labor

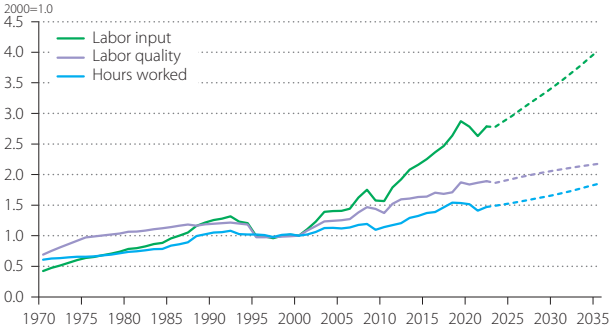


**Figure 3** Labor Inputs

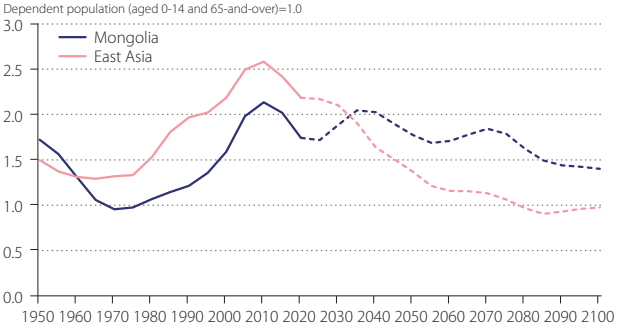


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

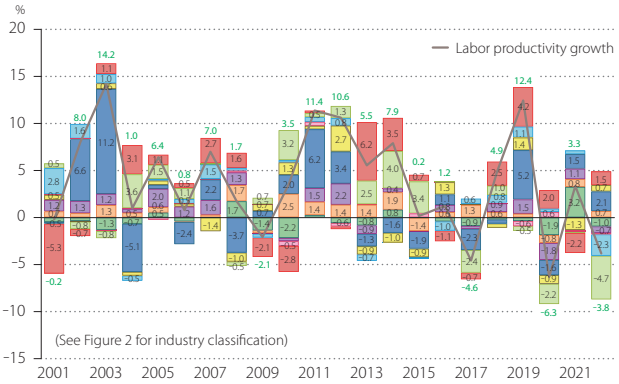


**Figure 7** Industry Origins of Labor Productivity Growth

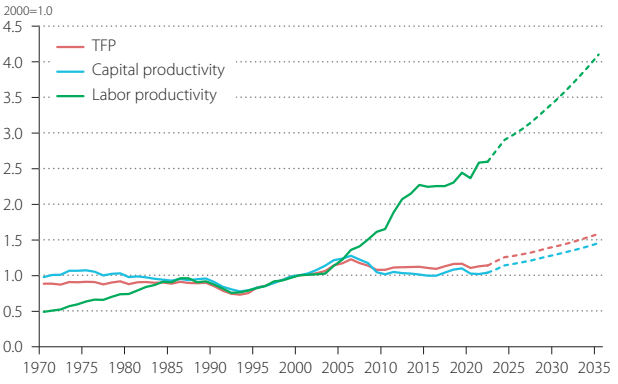


**Figure 8** Productivity Indicators

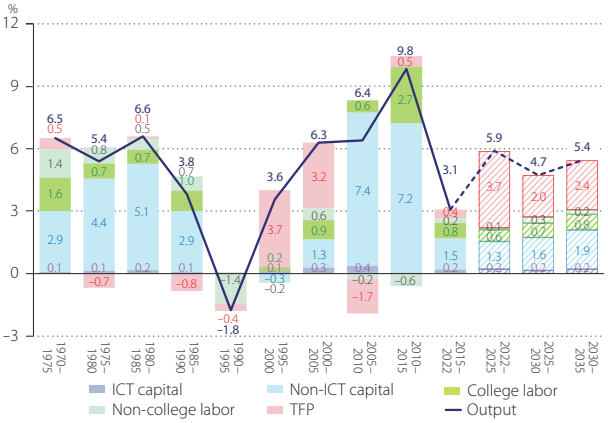


**Figure 9** Decomposition of Economic Growth

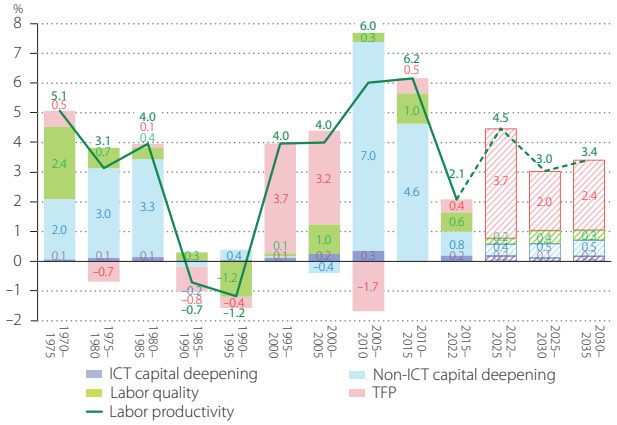


**Figure 10** Decomposition of Labor Productivity Growth

# Nepal

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 145 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 12,607 | Thousands persons |
| (exchange rate based) | 38 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 42.5 | % |
| Per capita GDP in 2022 | 4.9 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 44.8 | % |
| (exchange rate based) | 1.3 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 4.9 | Years |
| Per-worker labor productivity level in 2022 | 10.7 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 39.4 | % |
| Per-hour labor productivity level in 2022 | 5.9 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 0.7 | % |
| Capital stock per hour worked in 2022 | 17.2 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 24.5 | % |
| Energy productivity levels in 2021 | 8.2 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 5.7 | % |
| Carbon intensity of GDP in 2021 | 103.5 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 64.5 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 2.0 | 4.6 | 4.5 | 3.9 | 3.9 | 4.6 | –0.5 | 8.3 | 6.2 | 4.0 | 4.7 | 4.6 | 4.5 |
| Labor input growth | 3.6 | 4.9 | 5.5 | 2.8 | 1.9 | 2.7 | 3.4 | 4.4 | 3.3 | 3.6 | 3.1 | 2.6 | 3.0 |
| Labor quality growth | 0.5 | 3.5 | 3.2 | 1.7 | 0.0 | 0.0 | 0.2 | 0.4 | 0.2 | 2.8 | 2.5 | 2.3 | 2.5 |
| Hours worked growth | 3.1 | 1.4 | 2.3 | 1.1 | 2.0 | 2.7 | 3.2 | 4.0 | 3.1 | 0.8 | 0.6 | 0.3 | 0.5 |
| College labor input growth | 8.9 | 8.9 | 16.8 | 8.5 | 2.3 | 2.9 | 3.8 | 5.0 | 3.7 | 5.5 | 4.5 | 3.8 | 4.4 |
| Non–college labor input growth | 3.4 | 4.7 | 3.9 | 0.8 | 1.8 | 2.6 | 3.2 | 4.1 | 3.1 | 2.5 | 2.2 | 1.7 | 2.1 |
| ICT capital input growth | 20.7 | 11.9 | 11.1 | 5.3 | 9.7 | 13.6 | 13.0 | 10.3 | 9.6 | 11.0 | 8.3 | 11.8 | 10.3 |
| Non–ICT capital input growth | 3.3 | 6.1 | 5.6 | 4.8 | 5.7 | 6.9 | 8.0 | 6.8 | 7.1 | 6.5 | 6.3 | 6.2 | 6.3 |
| Per-worker labor productivity growth | –1.2 | 3.6 | 2.3 | 2.9 | 2.0 | 2.0 | –3.6 | 4.5 | 3.3 | 3.3 | 4.2 | 4.3 | 4.0 |
| Per–hour labor productivity growth | –1.1 | 3.2 | 2.2 | 2.9 | 2.0 | 2.0 | –3.7 | 4.3 | 3.1 | 3.2 | 4.1 | 4.3 | 4.0 |
| Capital productivity growth | –3.4 | –6.1 | –5.6 | –4.8 | –5.6 | –6.9 | –8.0 | –6.7 | –7.0 | –2.5 | –1.5 | –1.6 | –1.8 |
| TFP growth | –1.5 | –0.8 | –1.0 | 0.3 | 0.4 | 0.2 | –5.9 | 2.9 | 1.2 | –0.9 | 0.3 | 0.4 | 0.1 |

## Production

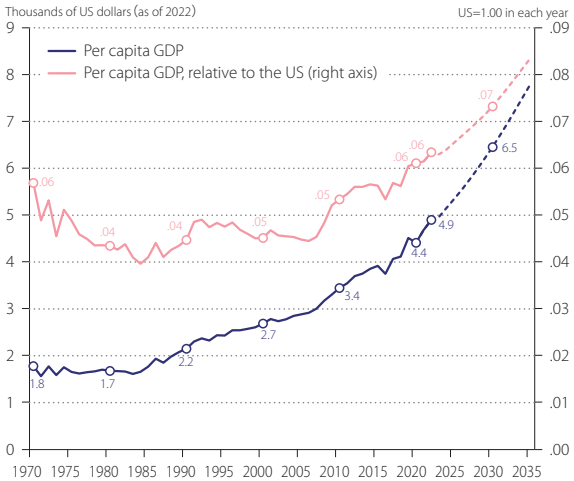


Figure 1 Per Capita GDP

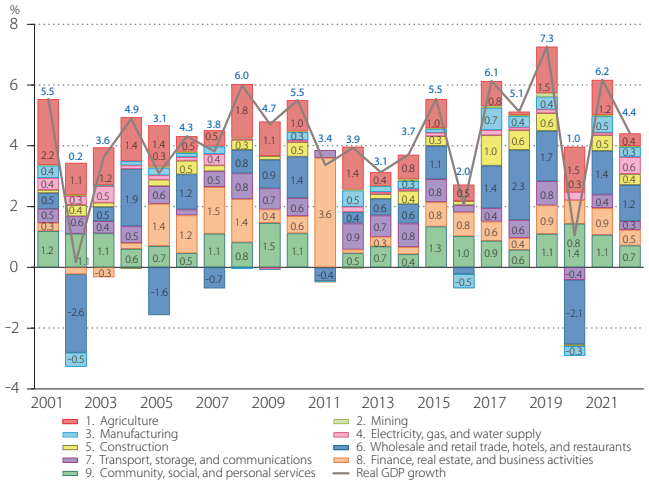


Figure 2 Industry Origins of Economic Growth

## Labor

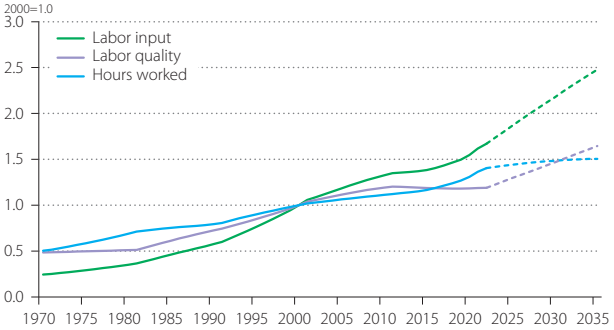


**Figure 3** Labor Inputs

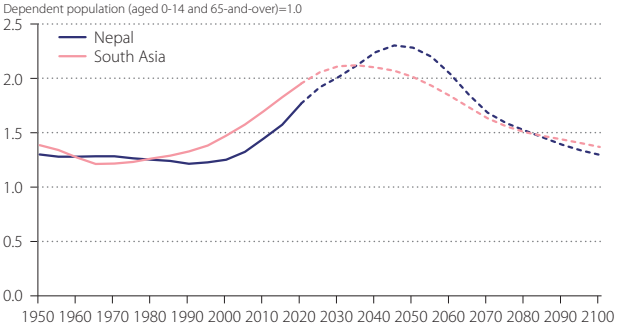


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

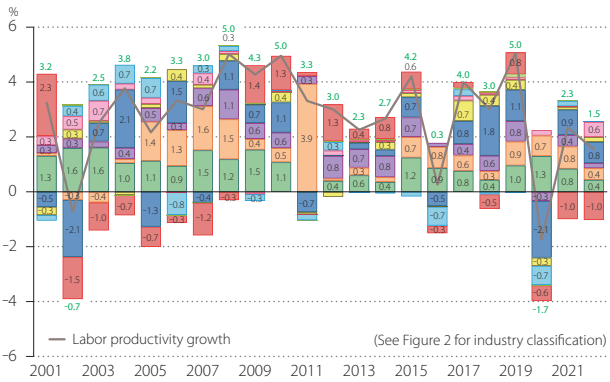


**Figure 7** Industry Origins of Labor Productivity Growth

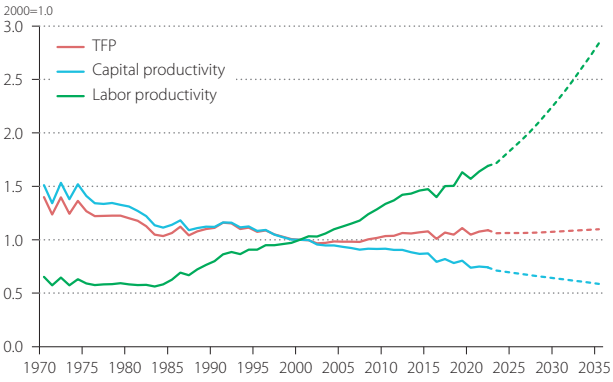


**Figure 8** Productivity Indicators

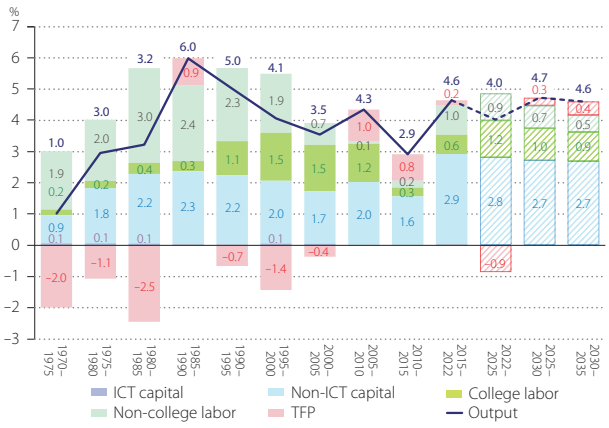


**Figure 9** Decomposition of Economic Growth

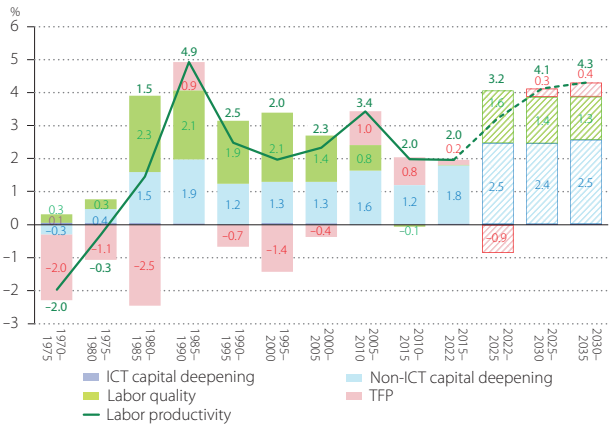


**Figure 10** Decomposition of Labor Productivity Growth

# Pakistan

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 1,505 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 66,680 | Thousands persons |
| (exchange rate based) | 325 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 31.7 | % |
| Per capita GDP in 2022 | 7.2 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 22.2 | % |
| (exchange rate based) | 1.5 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 5.2 | Years |
| Per-worker labor productivity level in 2022 | 21.1 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 15.3 | % |
| Per-hour labor productivity level in 2022 | 9.8 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 7.7 | % |
| Capital stock per hour worked in 2022 | 12.5 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 23.5 | % |
| Energy productivity levels in 2021 | 13.2 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 14.5 | % |
| Carbon intensity of GDP in 2021 | 150.6 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 37.5 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 4.7 | 6.9 | 6.3 | 4.3 | 3.8 | 4.1 | –0.9 | 5.8 | 4.8 | 1.8 | 3.4 | 4.0 | 3.3 |
| Labor input growth | 4.3 | 3.6 | 3.0 | 4.0 | 3.2 | 3.1 | 3.1 | 3.5 | 2.6 | 3.9 | 4.1 | 3.8 | 3.9 |
| Labor quality growth | 1.6 | 1.1 | 1.1 | 1.0 | 1.1 | 0.9 | 0.1 | 0.3 | 0.1 | 2.3 | 2.2 | 2.1 | 2.2 |
| Hours worked growth | 2.7 | 2.5 | 1.9 | 3.0 | 2.0 | 2.2 | 3.0 | 3.2 | 2.5 | 1.7 | 1.9 | 1.7 | 1.8 |
| College labor input growth | 5.9 | 6.8 | 8.1 | 5.3 | 4.2 | 3.9 | –1.0 | –0.6 | 2.6 | 5.2 | 5.4 | 5.2 | 5.3 |
| Non–college labor input growth | 4.2 | 3.2 | 2.1 | 3.6 | 2.8 | 2.8 | 4.8 | 5.1 | 2.5 | 3.5 | 3.5 | 3.2 | 3.4 |
| ICT capital input growth | 8.3 | 15.8 | 6.8 | 20.4 | 5.4 | 7.8 | 10.8 | 12.4 | 6.1 | 3.1 | 5.2 | 10.4 | 6.7 |
| Non–ICT capital input growth | 4.7 | 6.4 | 5.8 | 4.0 | 2.6 | 3.2 | 2.3 | 2.2 | 2.6 | 1.9 | 2.3 | 2.4 | 2.2 |
| Per-worker labor productivity growth | 1.8 | 4.3 | 4.3 | 1.0 | 1.9 | 2.2 | –2.9 | 3.6 | 2.3 | –0.2 | 1.4 | 2.1 | 1.3 |
| Per–hour labor productivity growth | 1.9 | 4.4 | 4.4 | 1.3 | 1.8 | 2.0 | –3.8 | 2.6 | 2.3 | 0.1 | 1.6 | 2.3 | 1.5 |
| Capital productivity growth | –4.6 | –6.4 | –5.7 | –4.2 | –2.6 | –3.2 | –2.6 | –2.5 | –2.7 | –0.2 | 1.1 | 1.3 | 0.9 |
| TFP growth | 0.2 | 2.1 | 1.8 | 0.1 | 1.0 | 0.9 | –3.7 | 2.9 | 2.2 | –1.0 | 0.3 | 0.8 | 0.2 |

## Production

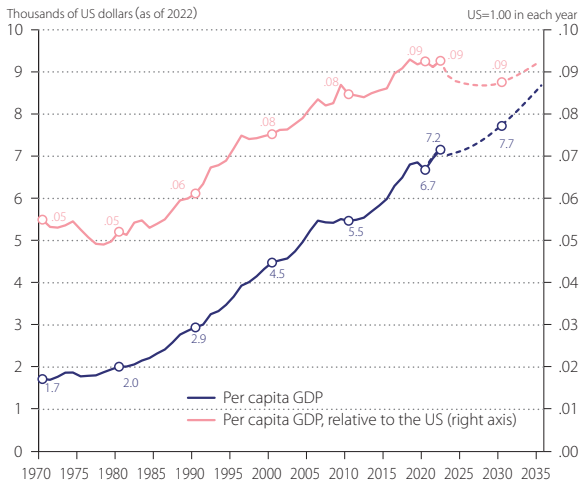


Figure 1 Per Capita GDP

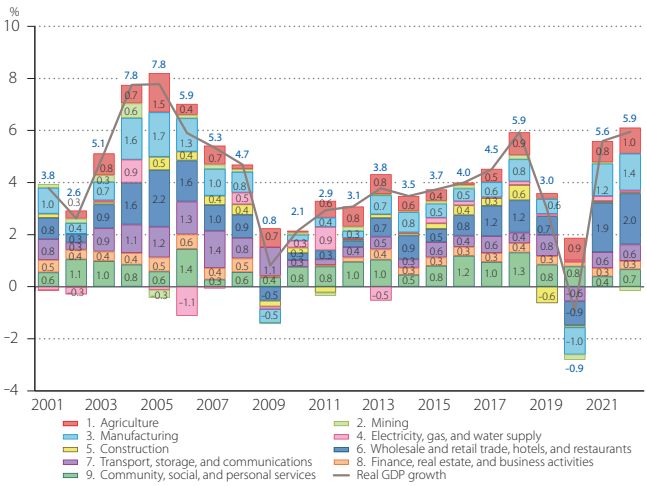


Figure 2 Industry Origins of Economic Growth

## Labor

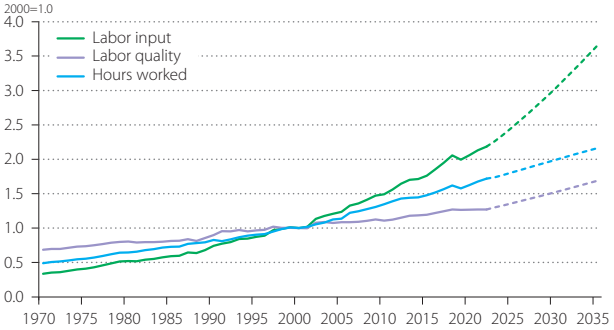


**Figure 3** Labor Inputs

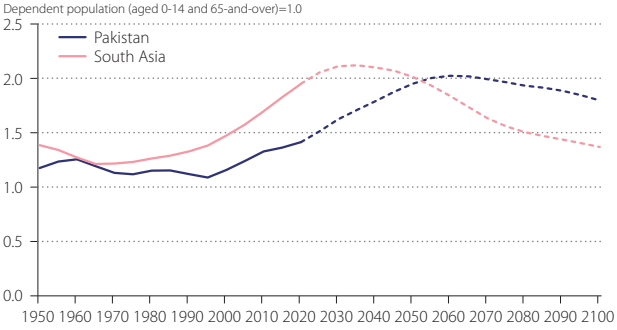


**Figure 4** Demographic Dividend

## Productivity

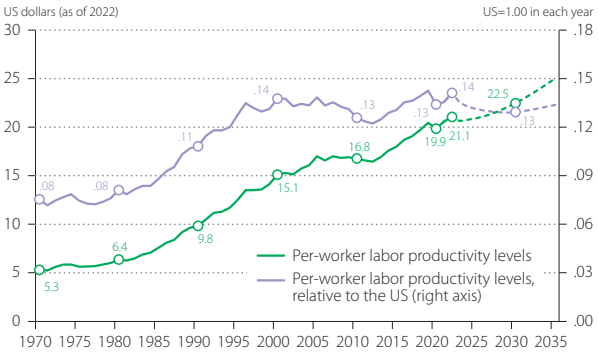


**Figure 5** Per-Worker Labor Productivity Level

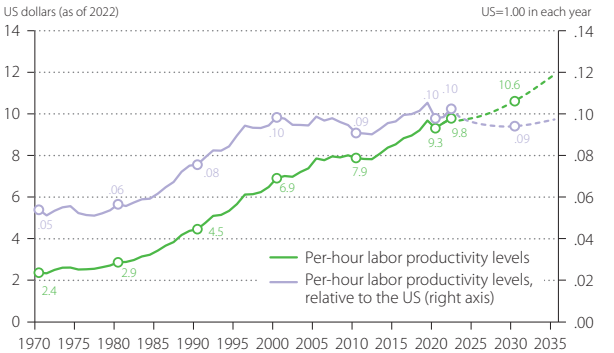


**Figure 6** Per-Hour Labor Productivity Level

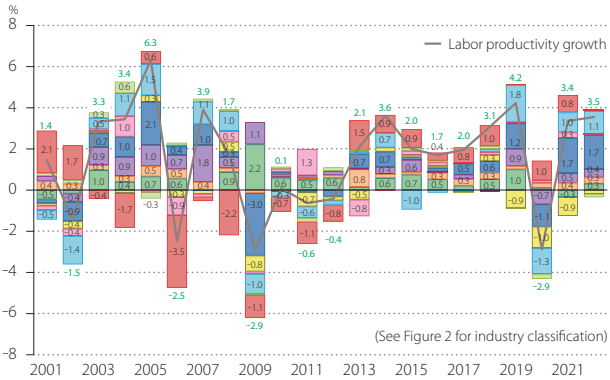


**Figure 7** Industry Origins of Labor Productivity Growth

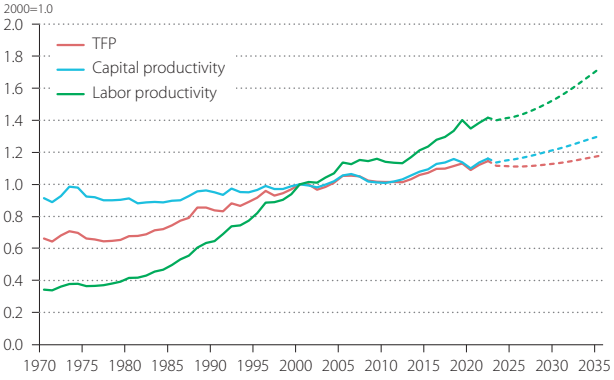


**Figure 8** Productivity Indicators

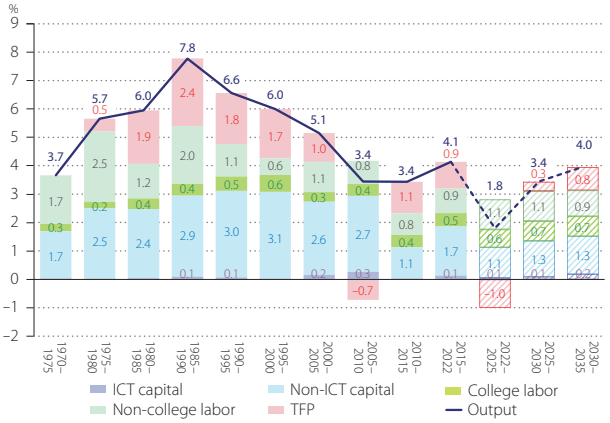


**Figure 9** Decomposition of Economic Growth

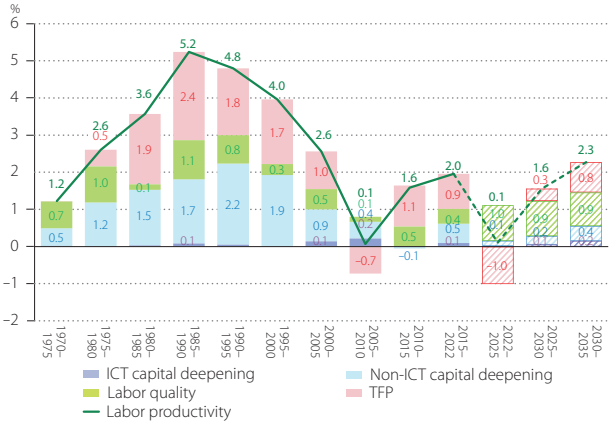


**Figure 10** Decomposition of Labor Productivity Growth

# Philippines

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 1,198 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 45,838 | Thousands persons |
| (exchange rate based) | 404 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 40.8 | % |
| Per capita GDP in 2022 | 10.7 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 40.6 | % |
| (exchange rate based) | 3.6 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 10.4 | Years |
| Per-worker labor productivity level in 2022 | 24.8 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 24.7 | % |
| Per-hour labor productivity level in 2022 | 12.4 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 4.2 | % |
| Capital stock per hour worked in 2022 | 25.2 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 9.5 | % |
| Energy productivity levels in 2021 | 29.6 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 17.2 | % |
| Carbon intensity of GDP in 2021 | 127.2 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 22.0 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 5.9 | 2.6 | 3.8 | 4.8 | 5.0 | 4.4 | −10.2 | 6.1 | 9.1 | 5.6 | 6.0 | 6.0 | 5.9 |
| Labor input growth | 4.6 | 4.1 | 3.3 | 3.3 | 2.8 | 2.5 | −11.4 | 6.4 | 10.4 | 4.0 | 3.2 | 2.8 | 3.2 |
| Labor quality growth | 1.1 | 1.4 | 1.3 | 0.8 | 1.0 | 0.9 | −1.4 | 1.4 | −0.9 | 1.7 | 1.5 | 1.4 | 1.5 |
| Hours worked growth | 3.6 | 2.7 | 2.0 | 2.5 | 1.8 | 1.6 | −10.0 | 5.0 | 11.3 | 2.3 | 1.6 | 1.4 | 1.7 |
| College labor input growth | 7.6 | 7.4 | 5.5 | 5.6 | 4.2 | 3.7 | −14.5 | 7.9 | 14.9 | 5.0 | 4.3 | 4.0 | 4.3 |
| Non–college labor input growth | 3.4 | 2.5 | 2.2 | 1.9 | 1.9 | 1.8 | −9.5 | 5.4 | 7.5 | 3.4 | 2.4 | 1.9 | 2.4 |
| ICT capital input growth | 8.4 | 10.1 | 11.8 | 7.3 | 9.1 | 9.4 | 6.9 | 5.1 | 4.9 | 7.5 | 8.6 | 13.0 | 10.0 |
| Non–ICT capital input growth | 7.2 | 3.9 | 4.1 | 3.2 | 6.1 | 5.8 | 5.5 | 2.0 | 3.9 | 3.8 | 4.1 | 4.4 | 4.2 |
| Per-worker labor productivity growth | 2.0 | −0.2 | 1.7 | 2.1 | 3.0 | 2.2 | −2.7 | 2.0 | −1.9 | 3.8 | 4.3 | 4.4 | 4.2 |
| Per–hour labor productivity growth | 2.3 | −0.1 | 1.8 | 2.3 | 3.2 | 2.8 | −0.1 | 1.1 | −2.1 | 3.3 | 4.4 | 4.6 | 4.2 |
| Capital productivity growth | −7.2 | −4.0 | −4.3 | −3.4 | −6.1 | −5.8 | −5.7 | −2.0 | −3.9 | 1.7 | 1.8 | 1.4 | 1.6 |
| TFP growth | −0.3 | −1.5 | −0.1 | 1.5 | 0.1 | −0.2 | −9.2 | 2.4 | 2.6 | 1.6 | 2.2 | 2.1 | 2.0 |

## Production

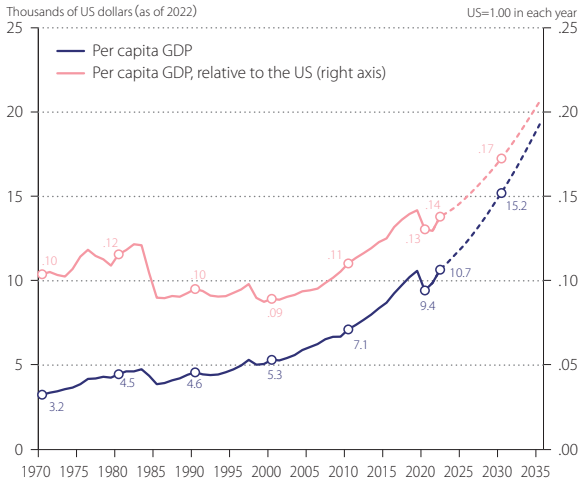


**Figure 1** Per Capita GDP

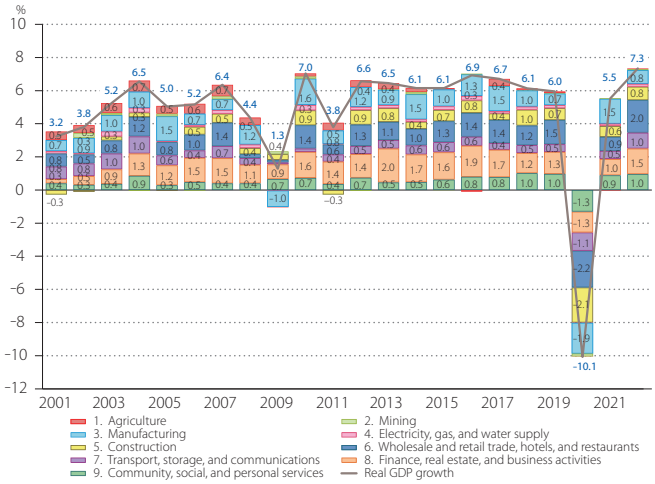


**Figure 2** Industry Origins of Economic Growth

## Labor

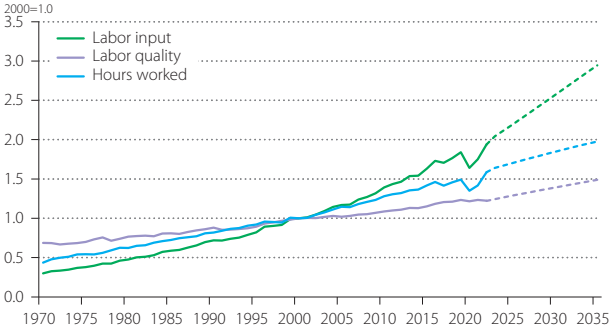


**Figure 3** Labor Inputs

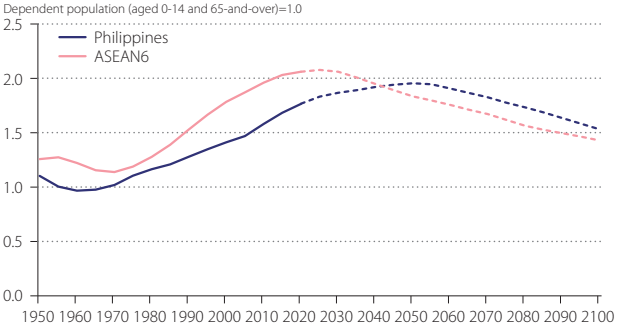


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

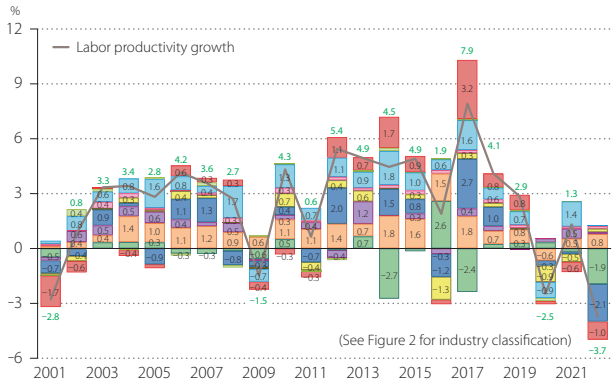


**Figure 7** Industry Origins of Labor Productivity Growth

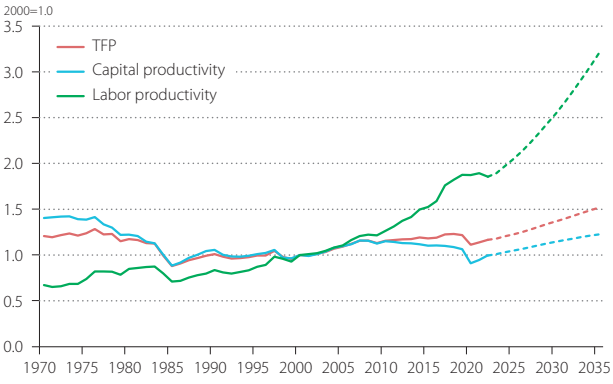


**Figure 8** Productivity Indicators

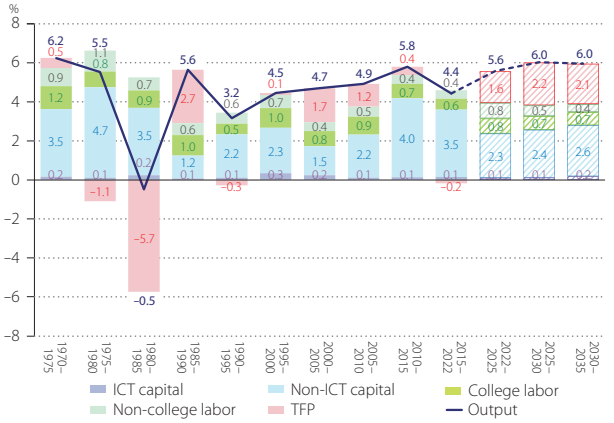


**Figure 9** Decomposition of Economic Growth

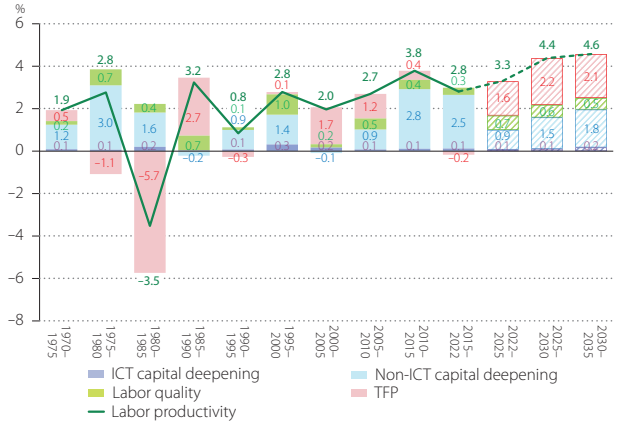


**Figure 10** Decomposition of Labor Productivity Growth

App.

# Singapore

## Key Indicators

| | | |
|---|---|---|
| GDP in 2022 | 725 | Billions of US dollars (as of 2022) |
| (exchange rate based) | 498 | Billions of US dollars (as of 2022) |
| Per capita GDP in 2022 | 128.6 | Thousands of US dollars (as of 2022) |
| (exchange rate based) | 88.4 | Thousands of US dollars (as of 2022) |
| Per-worker labor productivity level in 2022 | 186.2 | Thousands of US dollars per worker (as of 2022) |
| Per-hour labor productivity level in 2022 | 84.4 | US dollars per hour worked (as of 2022) |
| Capital stock per hour worked in 2022 | 161.0 | US dollars (as of 2022) |
| Energy productivity levels in 2021 | 34.6 | Thousands of US dollars per toe (as of 2022) |
| Carbon intensity of GDP in 2021 | 70.1 | g-CO2 per US dollar (as of 2022) |

| | | |
|---|---|---|
| Number of employment in 2022 | 3,656 | Thousands persons |
| Employment rate in 2022 | 64.9 | % |
| Female employment share in 2022 | 46.2 | % |
| Average schooling years of workers in 2022 | 10.6 | Years |
| Investment share in 2022 | 22.3 | % |
| ICT investment share in GFCF in 2022 | 30.8 | % |
| Agriculture share in GDP in 2022 | 0.0 | % |
| Manufacturing share in GDP in 2022 | 20.7 | % |
| Agriculture share in employment in 2022 | 0.6 | % |

| (%: average annual growth rate) | 1970 –80 | 1980 –90 | 1990 –2000 | 2000 –10 | 2010 –22 | 2015 –22 | 2019 –20 | 2020 –21 | 2021 –22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 8.7 | 7.1 | 7.4 | 6.0 | 3.9 | 3.3 | –2.9 | 6.9 | 4.7 | 1.9 | 2.2 | 1.2 | 1.7 |
| Labor input growth | 6.1 | 6.3 | 6.5 | 5.0 | 2.7 | 1.9 | –1.5 | 0.1 | 7.7 | 0.4 | –0.4 | –1.1 | –0.5 |
| Labor quality growth | 1.2 | 2.2 | 3.0 | 1.6 | 1.6 | 1.9 | 1.9 | 3.4 | 1.6 | 0.8 | 0.5 | 0.3 | 0.5 |
| Hours worked growth | 4.9 | 4.1 | 3.6 | 3.4 | 1.1 | 0.0 | –3.5 | –3.3 | 6.1 | –0.4 | –0.9 | –1.4 | –1.0 |
| College labor input growth | 9.7 | 13.5 | 17.8 | 9.5 | 5.5 | 4.6 | 1.1 | 4.9 | 8.9 | 1.3 | 0.1 | –0.7 | 0.1 |
| Non–college labor input growth | 5.7 | 5.2 | 2.7 | 2.0 | –0.1 | –1.1 | –4.6 | –6.0 | 6.2 | –0.7 | –1.1 | –1.5 | –1.2 |
| ICT capital input growth | 15.0 | 23.0 | 14.6 | 10.3 | 12.2 | 8.8 | 5.9 | 8.3 | 8.7 | 10.8 | 6.3 | 8.9 | 8.3 |
| Non–ICT capital input growth | 8.7 | 6.6 | 6.1 | 3.4 | 2.5 | 1.6 | 1.2 | –2.1 | 3.4 | 0.8 | 0.7 | –0.1 | 0.4 |
| Per-worker labor productivity growth | 3.5 | 3.7 | 4.4 | 2.3 | 2.4 | 2.8 | –1.3 | 9.4 | –0.2 | 2.6 | 2.9 | 2.3 | 2.6 |
| Per–hour labor productivity growth | 3.8 | 3.0 | 3.8 | 2.6 | 2.8 | 3.3 | 0.5 | 10.2 | –1.4 | 2.3 | 3.1 | 2.6 | 2.7 |
| Capital productivity growth | –8.9 | –7.4 | –6.7 | –3.9 | –3.4 | –2.4 | –1.9 | 0.8 | –4.0 | –0.1 | 0.8 | 0.2 | 0.3 |
| TFP growth | 1.2 | 0.3 | 0.7 | 1.7 | 0.8 | 1.1 | –3.3 | 7.2 | –0.8 | 0.5 | 1.5 | 1.1 | 1.1 |

## Production

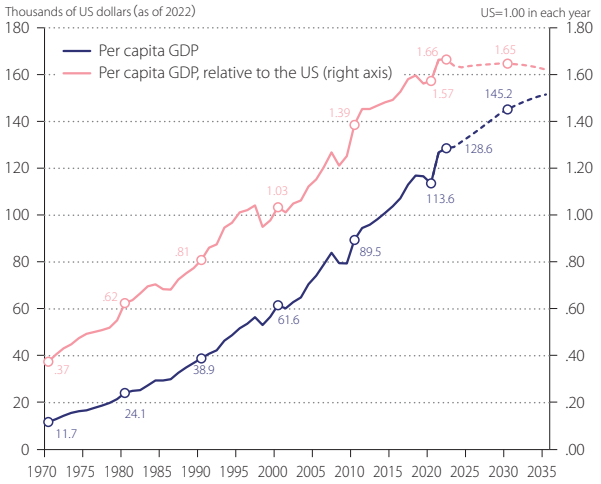


Figure 1 Per Capita GDP

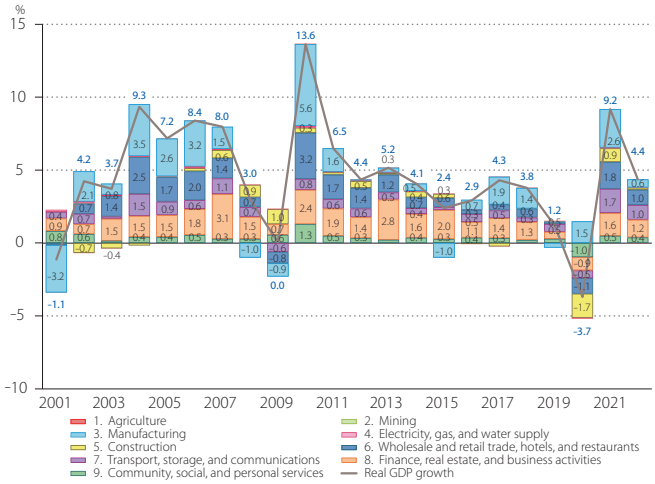


Figure 2 Industry Origins of Economic Growth

## Labor

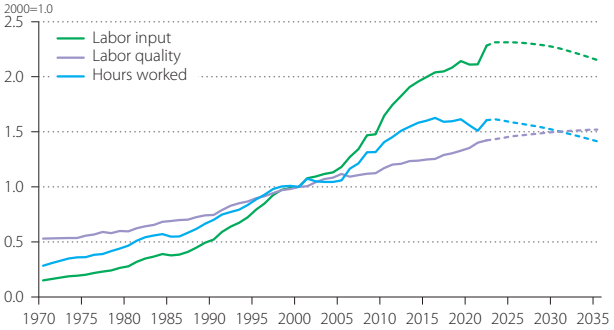


**Figure 3** Labor Inputs

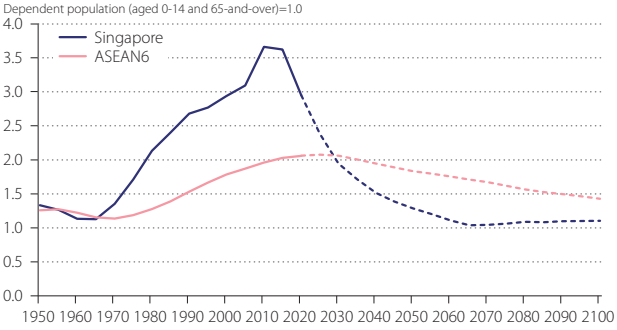


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

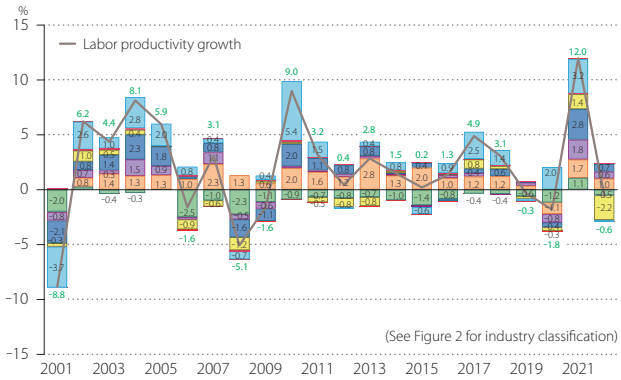


**Figure 7** Industry Origins of Labor Productivity Growth

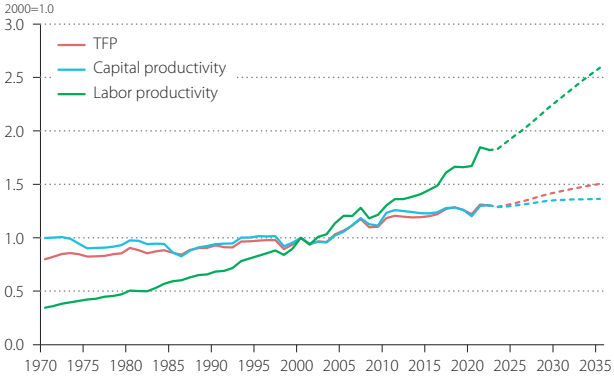


**Figure 8** Productivity Indicators

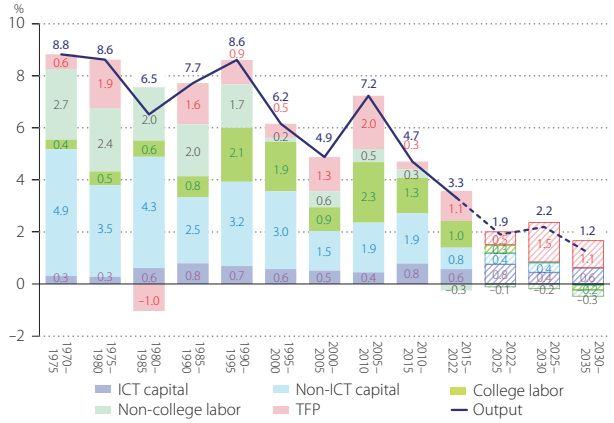


**Figure 9** Decomposition of Economic Growth

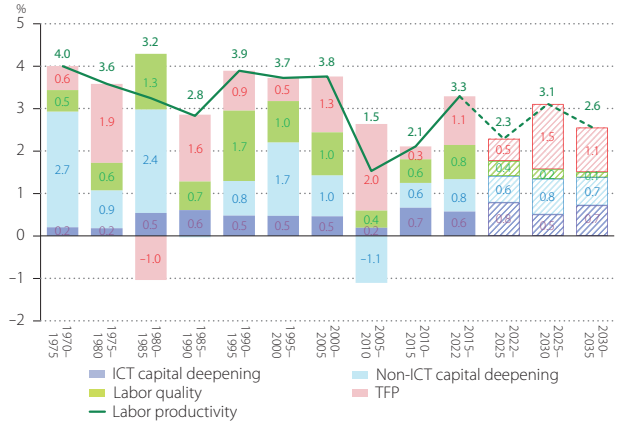


**Figure 10** Decomposition of Labor Productivity Growth

# Sri Lanka

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | 310 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 8,148 | Thousands persons |
| (exchange rate based) | 77 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 36.7 | % |
| Per capita GDP in 2022 | 14.0 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 34.0 | % |
| (exchange rate based) | 3.5 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 11.8 | Years |
| Per-worker labor productivity level in 2022 | 34.5 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 34.8 | % |
| Per-hour labor productivity level in 2022 | 17.9 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 7.9 | % |
| Capital stock per hour worked in 2022 | 51.7 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 9.2 | % |
| Energy productivity levels in 2021 | 32.5 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 20.6 | % |
| Carbon intensity of GDP in 2021 | 66.7 | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 26.5 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 4.1 | 4.2 | 5.2 | 5.7 | 2.7 | 0.0 | –4.0 | 3.0 | –11.8 | 0.2 | 1.7 | 1.8 | 1.4 |
| Labor input growth | 2.3 | 3.4 | 3.5 | 1.5 | 1.4 | 1.7 | –2.0 | 2.4 | 1.9 | 1.9 | 1.5 | 1.1 | 1.5 |
| Labor quality growth | 0.5 | 1.7 | 1.1 | 0.8 | 1.1 | 1.2 | 0.1 | 1.1 | 1.6 | 1.0 | 0.8 | 0.7 | 0.8 |
| Hours worked growth | 1.8 | 1.7 | 2.3 | 0.7 | 0.3 | 0.6 | –2.1 | 1.3 | 0.3 | 0.9 | 0.7 | 0.4 | 0.6 |
| College labor input growth | 0.4 | 12.3 | 6.8 | 4.4 | 4.2 | 4.7 | –2.2 | 6.1 | 4.0 | 2.2 | 2.3 | 1.9 | 2.1 |
| Non–college labor input growth | 2.5 | 2.2 | 2.5 | 0.3 | –0.4 | –0.4 | –1.9 | –0.5 | 0.1 | 1.6 | 0.9 | 0.4 | 0.9 |
| ICT capital input growth | 13.8 | 7.3 | 9.2 | 19.5 | 14.8 | 15.4 | 13.3 | 14.6 | 7.6 | 3.2 | 4.1 | 8.7 | 5.7 |
| Non–ICT capital input growth | 4.3 | 3.6 | 2.2 | 4.6 | 5.9 | 5.0 | 4.6 | 2.9 | 2.8 | 1.7 | 1.6 | 1.2 | 1.5 |
| Per-worker labor productivity growth | 2.7 | 2.6 | 3.0 | 4.3 | 2.6 | –0.6 | –1.8 | 1.6 | –12.2 | –0.9 | 0.8 | 1.2 | 0.6 |
| Per–hour labor productivity growth | 2.4 | 2.5 | 2.9 | 5.0 | 2.3 | –0.6 | –1.9 | 1.7 | –12.2 | –0.7 | 1.0 | 1.4 | 0.7 |
| Capital productivity growth | –4.3 | –3.6 | –2.3 | –4.8 | –6.2 | –5.4 | –5.0 | –3.4 | –3.1 | –1.6 | 0.0 | 0.3 | –0.3 |
| TFP growth | 0.8 | 0.7 | 2.3 | 2.3 | –2.0 | –4.3 | –6.7 | –0.1 | –14.4 | –1.7 | 0.0 | 0.4 | –0.2 |

## Production

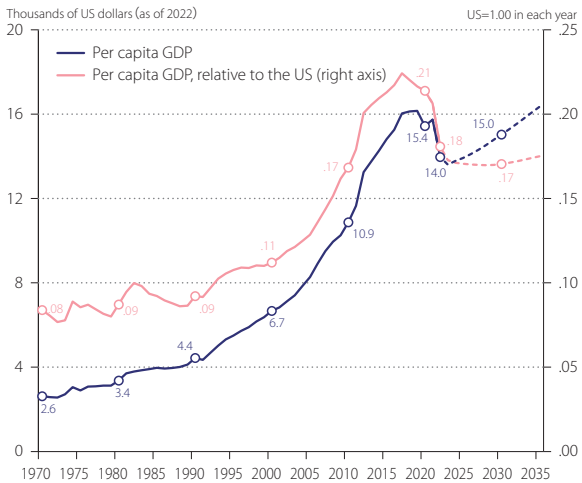


**Figure 1** Per Capita GDP

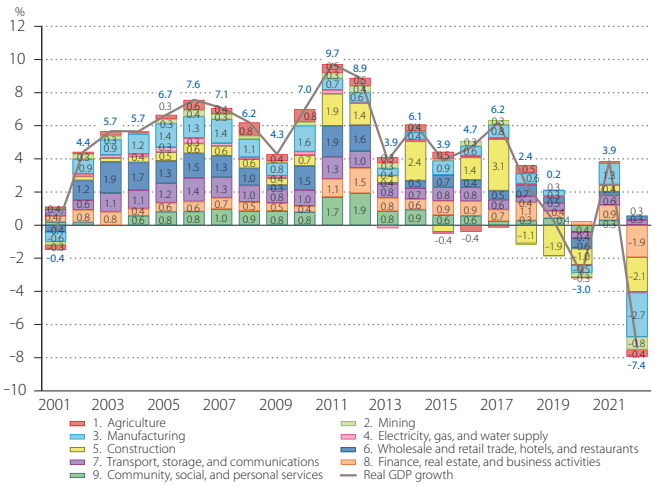


**Figure 2** Industry Origins of Economic Growth

## Labor

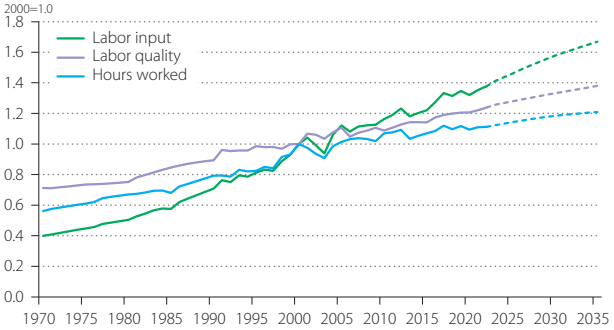


**Figure 3** Labor Inputs

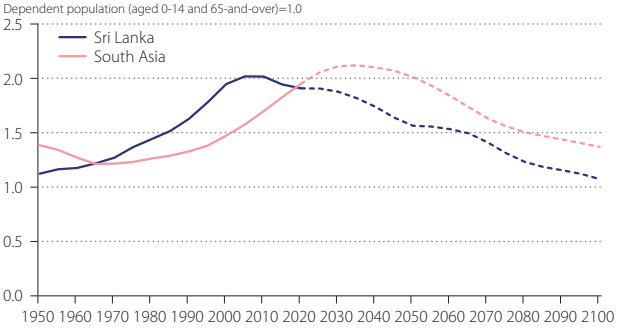


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

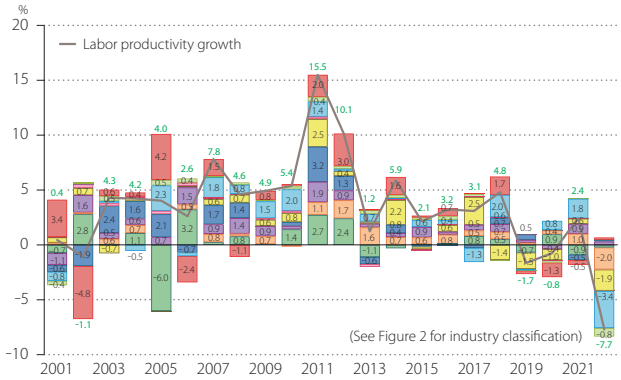


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

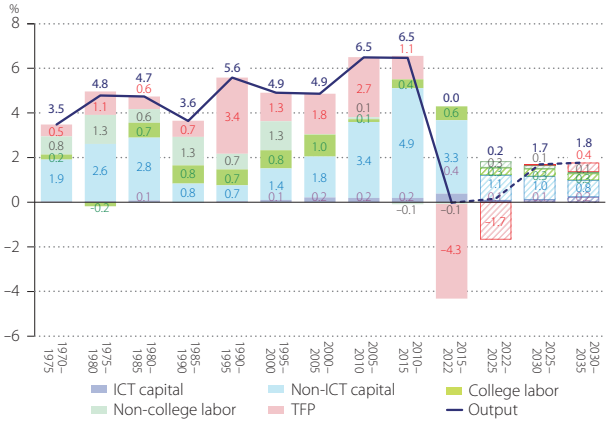


**Figure 9** Decomposition of Economic Growth

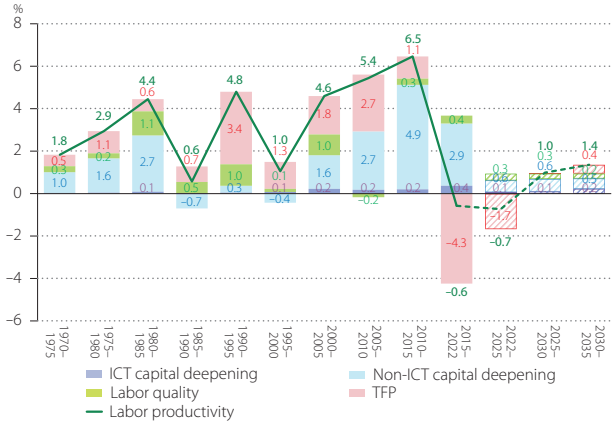


**Figure 10** Decomposition of Labor Productivity Growth

# Thailand

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 1,488 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 502 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 21.5 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 7.3 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 34.6 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 17.5 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 45.9 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 14.1 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 175.8 | g-CO2 per US dollar (as of 2022) | |

| | | | |
|---|---|---|---|
| Number of employment in 2022 | 39,533 | Thousands persons | |
| Employment rate in 2022 | 57.1 | % | |
| Female employment share in 2022 | 48.9 | % | |
| Average schooling years of workers in 2022 | 9.6 | Years | |
| Investment share in 2022 | 28.8 | % | |
| ICT investment share in GFCF in 2022 | 13.9 | % | |
| Agriculture share in GDP in 2022 | 8.7 | % | |
| Manufacturing share in GDP in 2022 | 27.1 | % | |
| Agriculture share in employment in 2022 | 29.8 | % | |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 7.0 | 7.8 | 4.6 | 4.6 | 2.0 | 1.1 | –4.7 | –1.2 | 4.3 | 2.0 | 3.1 | 2.8 | 2.7 |
| Labor input growth | 7.7 | 7.1 | 5.4 | 4.1 | 1.3 | 0.7 | –1.1 | –5.7 | 8.1 | 4.4 | 1.7 | 1.5 | 2.2 |
| Labor quality growth | 3.2 | 4.2 | 4.6 | 3.3 | 2.6 | 1.5 | 2.5 | –2.5 | 5.7 | 2.4 | 1.3 | 1.4 | 1.6 |
| Hours worked growth | 4.5 | 2.8 | 0.7 | 0.7 | –1.2 | –0.8 | –3.6 | –3.2 | 2.4 | 2.0 | 0.4 | 0.1 | 0.7 |
| College labor input growth | 15.1 | 11.3 | 6.8 | 3.9 | 3.5 | 2.5 | 2.7 | –4.5 | 12.0 | 5.1 | 2.6 | 2.3 | 3.1 |
| Non–college labor input growth | 6.2 | 5.0 | 4.1 | 4.4 | –1.1 | –1.5 | –5.6 | –7.2 | 2.9 | 3.3 | 0.3 | –0.1 | 0.9 |
| ICT capital input growth | 14.4 | 20.8 | 12.6 | 13.9 | 4.9 | 1.1 | –0.8 | 1.5 | 2.3 | 4.2 | 5.4 | 9.8 | 6.8 |
| Non–ICT capital input growth | 5.0 | 6.5 | 7.1 | 1.7 | 2.1 | 2.2 | 3.3 | 0.0 | 1.7 | 1.5 | 1.5 | 1.3 | 1.4 |
| Per-worker labor productivity growth | 3.0 | 4.2 | 3.4 | 3.1 | 2.1 | 1.2 | –7.3 | 2.2 | –2.5 | 2.3 | 2.4 | 2.4 | 2.4 |
| Per–hour labor productivity growth | 2.0 | 4.7 | 3.7 | 3.8 | 3.5 | 2.6 | –2.5 | 4.8 | 0.0 | 0.1 | 2.7 | 2.7 | 2.1 |
| Capital productivity growth | –5.1 | –6.8 | –7.4 | –2.4 | –2.3 | –2.1 | –3.0 | –0.1 | –1.7 | 0.3 | 1.3 | 0.9 | 0.9 |
| TFP growth | 0.3 | 0.6 | –2.2 | 1.4 | 0.3 | 0.2 | –7.5 | 3.7 | –1.7 | –0.7 | 1.3 | 1.0 | 0.8 |

## Production

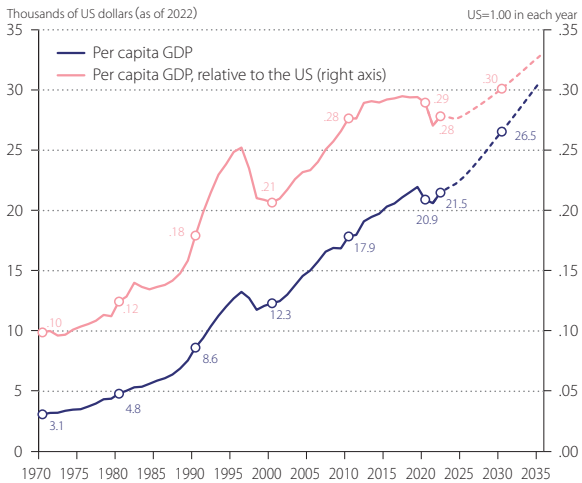


Figure 1 Per Capita GDP

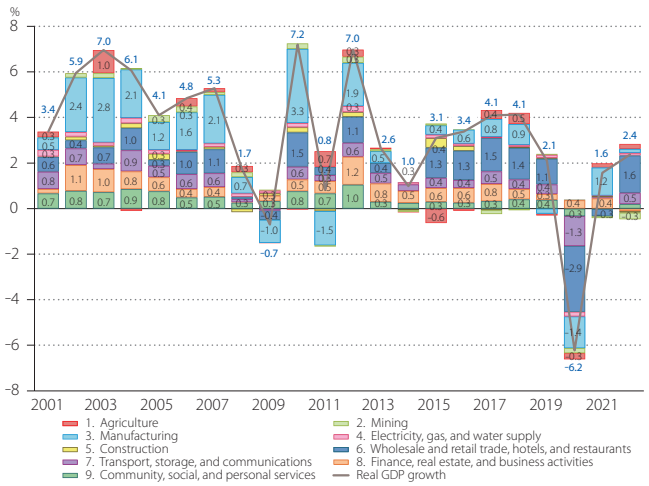


Figure 2 Industry Origins of Economic Growth

## Labor

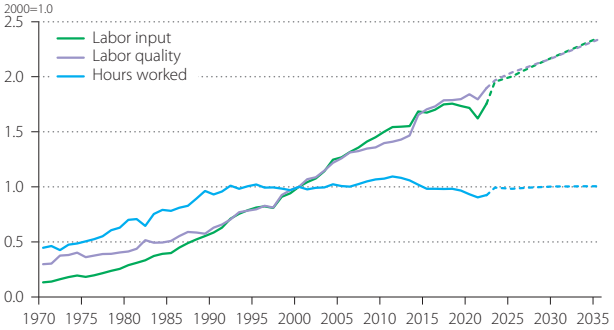


**Figure 3** Labor Inputs

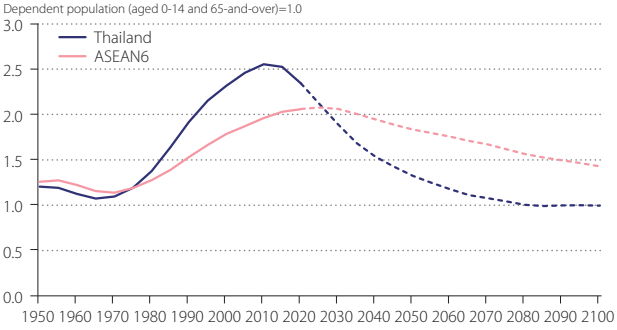


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level


**Figure 6** Per-Hour Labor Productivity Level

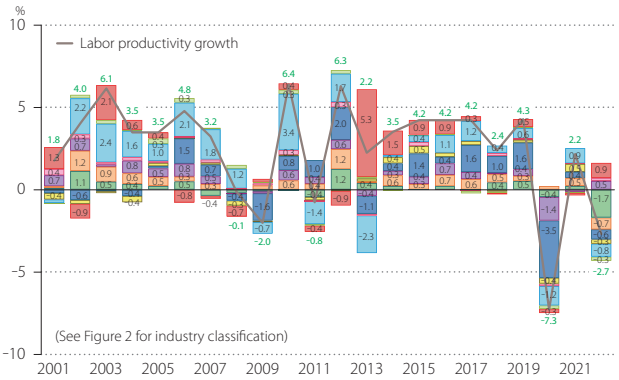


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

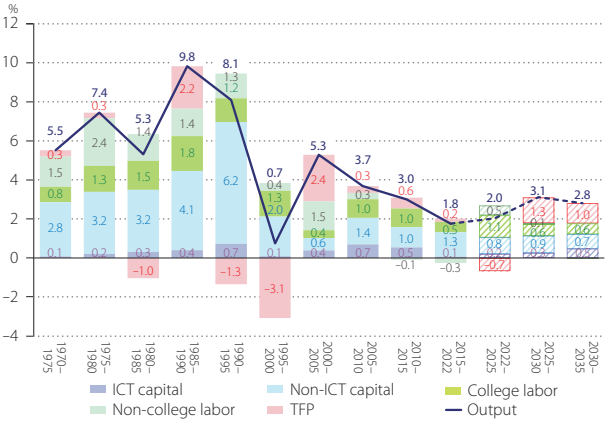


**Figure 9** Decomposition of Economic Growth

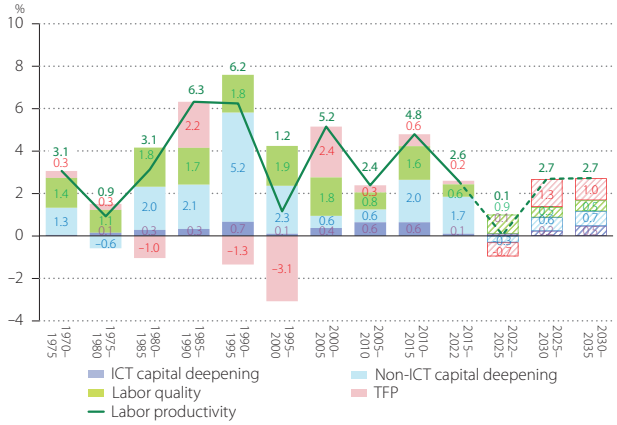


**Figure 10** Decomposition of Labor Productivity Growth

App.

# Turkiye

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 3,339 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 907 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 39.2 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 10.6 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 95.9 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 48.5 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 130.2 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 24.4 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 142.8 | g-CO2 per US dollar (as of 2022) | |

| | | | |
|---|---|---|---|
| Number of employment in 2022 | 30,901 | Thousands persons | |
| Employment rate in 2022 | 36.2 | % | |
| Female employment share in 2022 | 29.8 | % | |
| Average schooling years of workers in 2022 | 9.4 | Years | |
| Investment share in 2022 | 35.0 | % | |
| ICT investment share in GFCF in 2022 | 6.9 | % | |
| Agriculture share in GDP in 2022 | 7.2 | % | |
| Manufacturing share in GDP in 2022 | 24.7 | % | |
| Agriculture share in employment in 2022 | 15.8 | % | |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 4.0 | 5.1 | 3.6 | 3.9 | 5.5 | 4.6 | 1.8 | 10.8 | 5.4 | 4.2 | 3.6 | 3.1 | 3.5 |
| Labor input growth | 3.9 | 4.3 | 2.3 | 4.1 | 3.5 | 2.7 | –4.7 | 8.4 | 7.4 | 1.1 | 0.8 | 0.7 | 0.8 |
| Labor quality growth | 1.2 | 1.2 | 1.7 | 2.2 | 1.8 | 1.6 | 3.6 | 0.2 | 0.2 | 0.6 | 1.0 | 0.9 | 0.9 |
| Hours worked growth | 2.8 | 3.1 | 0.6 | 2.0 | 1.8 | 1.1 | –8.4 | 8.2 | 7.1 | 0.5 | –0.3 | –0.2 | –0.1 |
| College labor input growth | 12.7 | 7.1 | 5.8 | 9.0 | 6.9 | 5.4 | 1.6 | 8.4 | 6.2 | 2.8 | 2.2 | 2.1 | 2.3 |
| Non–college labor input growth | 3.3 | 3.9 | 1.7 | 2.6 | 1.6 | 1.0 | –9.1 | 8.5 | 8.2 | –0.2 | –0.5 | –0.6 | –0.5 |
| ICT capital input growth | 14.5 | 16.1 | 14.9 | 9.9 | 10.2 | 7.3 | 8.8 | 9.0 | 5.7 | 8.5 | 7.1 | 10.4 | 8.7 |
| Non–ICT capital input growth | 6.6 | 3.6 | 4.0 | 5.0 | 5.1 | 5.0 | 4.9 | 4.5 | 4.8 | 3.4 | 3.0 | 2.7 | 3.0 |
| Per-worker labor productivity growth | 1.4 | 2.5 | 3.0 | 2.3 | 3.0 | 2.6 | 6.4 | 3.7 | –1.1 | 4.3 | 3.7 | 3.1 | 3.6 |
| Per–hour labor productivity growth | 1.2 | 2.0 | 3.0 | 2.0 | 3.8 | 3.5 | 10.2 | 2.6 | –1.8 | 3.7 | 3.9 | 3.2 | 3.6 |
| Capital productivity growth | –6.7 | –3.7 | –4.1 | –5.1 | –5.2 | –5.1 | –5.0 | –4.6 | –4.7 | 0.6 | 0.4 | 0.1 | 0.3 |
| TFP growth | –2.0 | 1.2 | 0.0 | –0.9 | 0.9 | 0.4 | 0.4 | 4.9 | –0.2 | 1.4 | 1.2 | 0.9 | 1.1 |

## Production

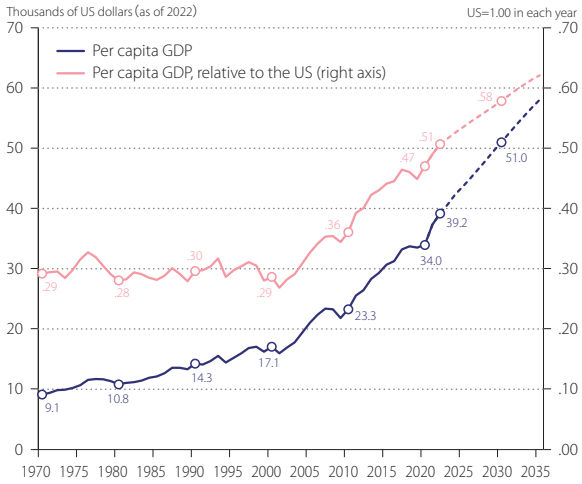


**Figure 1** Per Capita GDP

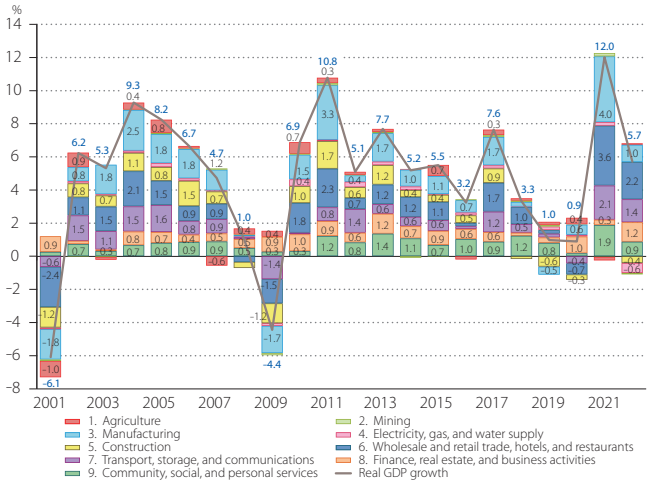


**Figure 2** Industry Origins of Economic Growth

## Labor

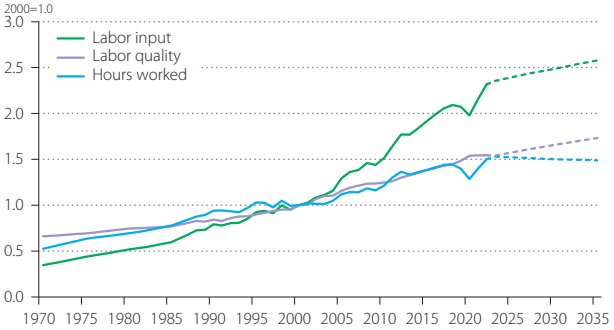


Figure 3 Labor Inputs

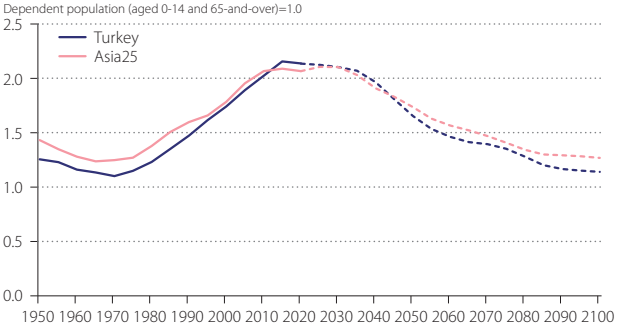


Figure 4 Demographic Dividend

## Productivity


Figure 5 Per-Worker Labor Productivity Level


Figure 6 Per-Hour Labor Productivity Level

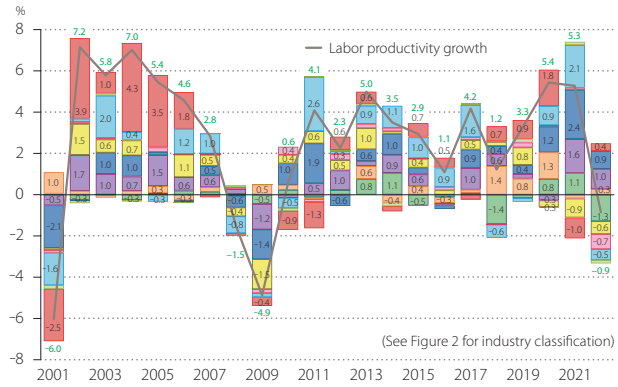


Figure 7 Industry Origins of Labor Productivity Growth

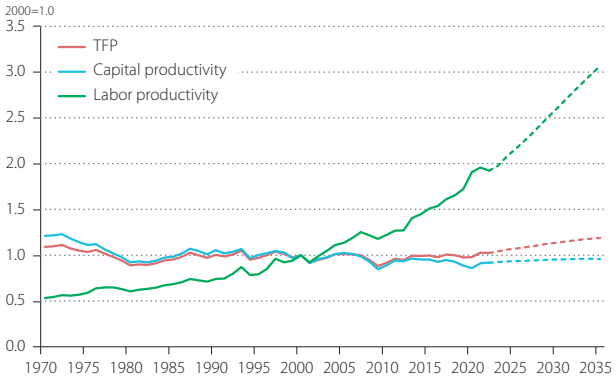


Figure 8 Productivity Indicators

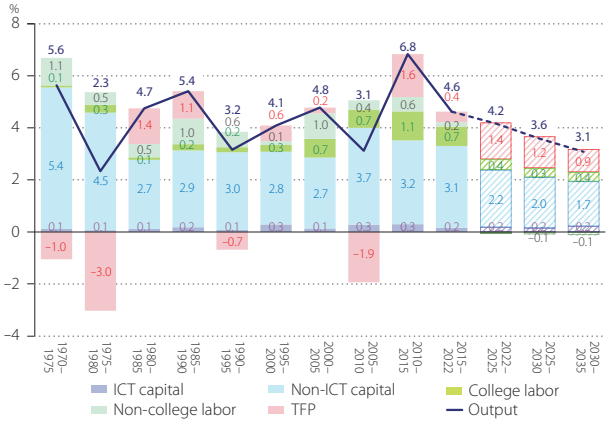


Figure 9 Decomposition of Economic Growth

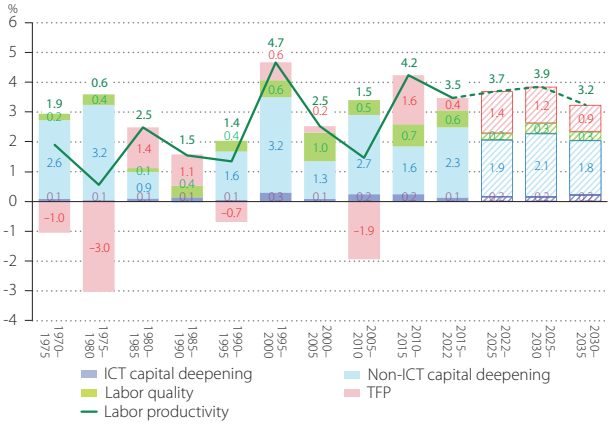


Figure 10 Decomposition of Labor Productivity Growth

App.

# Vietnam

## Key Indicators

| | | | |
|---|---|---|---|
| GDP in 2022 | 1,377 | Billions of US dollars (as of 2022) | |
| (exchange rate based) | 410 | Billions of US dollars (as of 2022) | |
| Per capita GDP in 2022 | 13.8 | Thousands of US dollars (as of 2022) | |
| (exchange rate based) | 4.1 | Thousands of US dollars (as of 2022) | |
| Per-worker labor productivity level in 2022 | 23.0 | Thousands of US dollars per worker (as of 2022) | |
| Per-hour labor productivity level in 2022 | 10.2 | US dollars per hour worked (as of 2022) | |
| Capital stock per hour worked in 2022 | 24.9 | US dollars (as of 2022) | |
| Energy productivity levels in 2021 | 16.8 | Thousands of US dollars per toe (as of 2022) | |
| Carbon intensity of GDP in 2021 | 243.8 | g-CO2 per US dollar (as of 2022) | |

| | | | |
|---|---|---|---|
| Number of employment in 2022 | 54,394 | Thousands persons | |
| Employment rate in 2022 | 54.7 | % | |
| Female employment share in 2022 | 46.8 | % | |
| Average schooling years of workers in 2022 | 9.3 | Years | |
| Investment share in 2022 | 33.5 | % | |
| ICT investment share in GFCF in 2022 | 3.6 | % | |
| Agriculture share in GDP in 2022 | 13.0 | % | |
| Manufacturing share in GDP in 2022 | 27.1 | % | |
| Agriculture share in employment in 2022 | 27.5 | % | |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 4.4 | 3.1 | 8.2 | 8.1 | 5.8 | 6.3 | 3.6 | 5.5 | 7.0 | 5.8 | 7.4 | 7.4 | 7.0 |
| Labor input growth | 5.2 | 3.6 | 2.7 | 4.4 | 2.0 | 2.5 | 1.1 | −6.6 | 10.4 | 0.7 | 2.2 | 1.6 | 1.6 |
| Labor quality growth | 1.0 | 0.4 | 0.3 | 2.4 | 1.4 | 1.8 | 2.2 | −1.3 | 1.8 | 0.9 | 1.0 | 0.8 | 0.9 |
| Hours worked growth | 4.2 | 3.2 | 2.5 | 2.0 | 0.6 | 0.8 | −1.1 | −5.3 | 8.7 | −0.2 | 1.2 | 0.8 | 0.7 |
| College labor input growth | 7.8 | 15.8 | 6.3 | 10.5 | 5.2 | 2.2 | 1.3 | −15.4 | 9.3 | 2.0 | 3.7 | 3.0 | 3.0 |
| Non–college labor input growth | 5.2 | 3.4 | 2.5 | 3.6 | 1.3 | 2.6 | 1.0 | −4.6 | 10.7 | 0.4 | 1.8 | 1.2 | 1.2 |
| ICT capital input growth | 11.6 | 18.1 | 17.1 | 24.2 | 17.7 | 12.8 | 10.8 | 11.4 | 8.1 | 9.4 | 9.8 | 14.4 | 11.5 |
| Non–ICT capital input growth | 5.2 | 4.6 | 8.1 | 11.1 | 6.0 | 6.0 | 6.4 | 6.2 | 6.0 | 5.5 | 6.1 | 6.3 | 6.1 |
| Per-worker labor productivity growth | 0.2 | −0.2 | 6.0 | 5.7 | 5.0 | 5.9 | 5.5 | 7.4 | 3.9 | 4.4 | 6.0 | 6.4 | 5.8 |
| Per–hour labor productivity growth | 0.2 | −0.2 | 5.7 | 6.1 | 5.2 | 5.6 | 4.7 | 10.8 | −1.7 | 5.9 | 6.2 | 6.7 | 6.3 |
| Capital productivity growth | −5.2 | −4.6 | −8.1 | −11.1 | −6.2 | −6.1 | −6.5 | −6.3 | −6.0 | 0.1 | 1.2 | 0.9 | 0.8 |
| TFP growth | −0.8 | −1.0 | 2.1 | −0.4 | 1.4 | 1.8 | −0.3 | 5.1 | −1.1 | 2.4 | 3.0 | 3.2 | 2.9 |

## Production

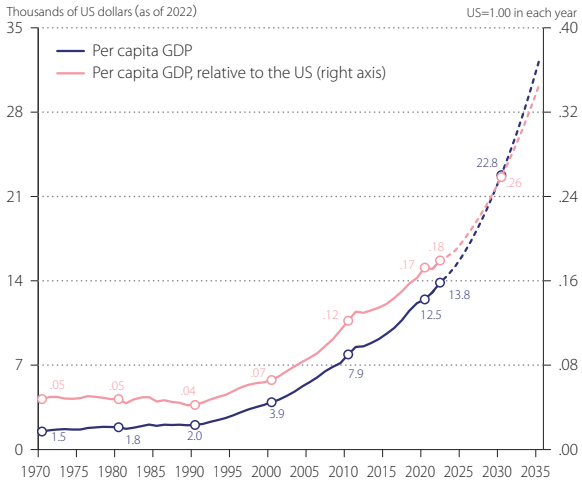


**Figure 1** Per Capita GDP

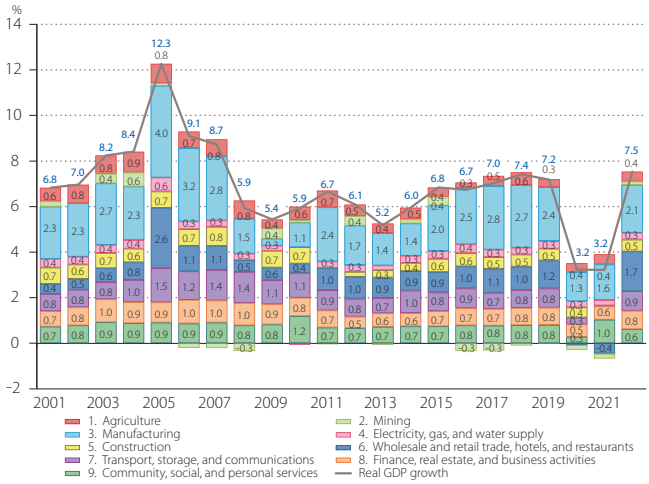


**Figure 2** Industry Origins of Economic Growth

## Labor

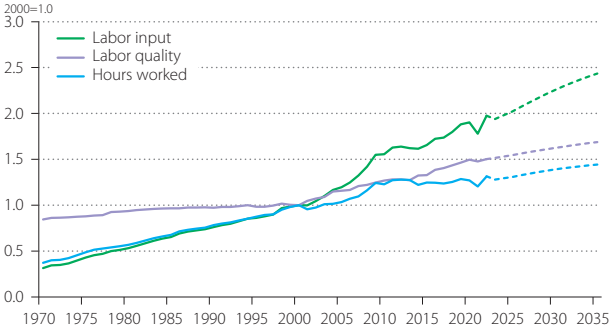


**Figure 3** Labor Inputs

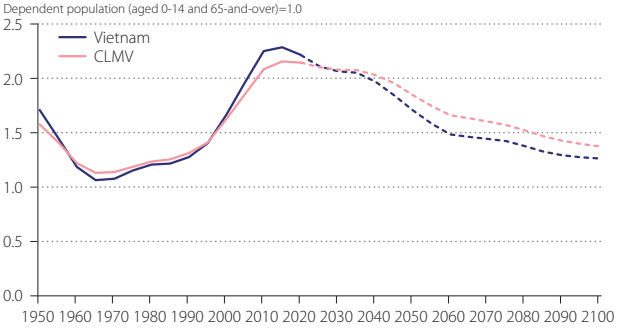


**Figure 4** Demographic Dividend

## Productivity


**Figure 5** Per-Worker Labor Productivity Level

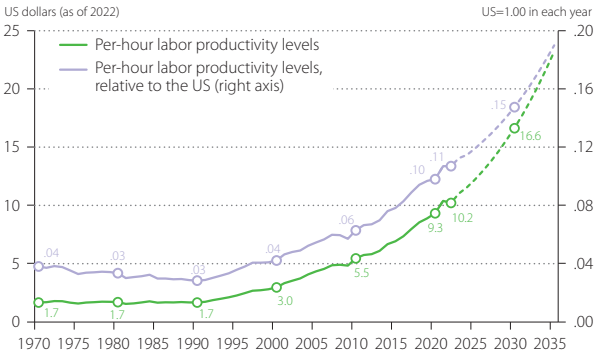


**Figure 6** Per-Hour Labor Productivity Level

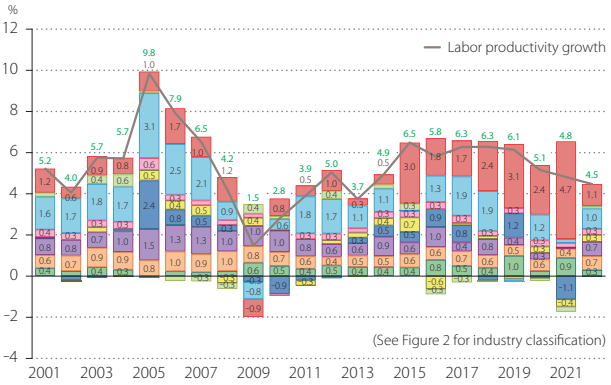


**Figure 7** Industry Origins of Labor Productivity Growth


**Figure 8** Productivity Indicators

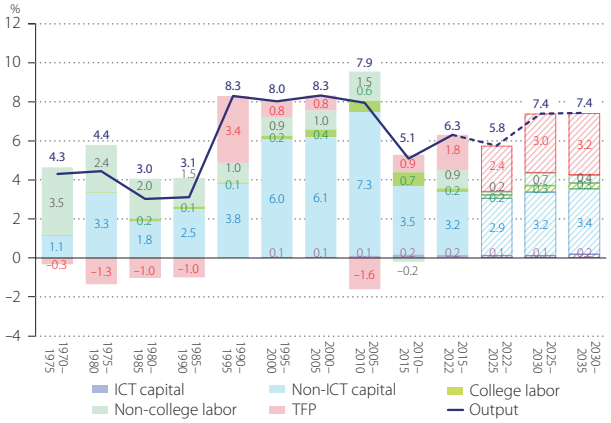


**Figure 9** Decomposition of Economic Growth

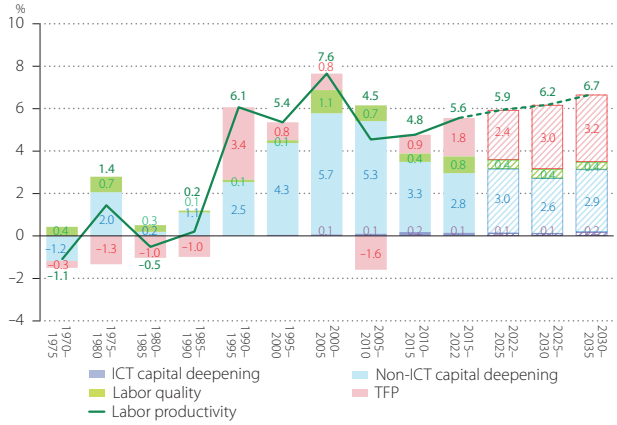


**Figure 10** Decomposition of Labor Productivity Growth

# APO21

## Key Indicators

| | | | | | |
|---|---|---|---|---|---|
| GDP in 2022 | | 41,548 | Billions of US dollars (as of 2022) | Number of employment in 2022 | 1,168,365 | Thousands persons |
| | (exchange rate based) | 16,361 | Billions of US dollars (as of 2022) | Employment rate in 2022 | 41.1 | % |
| Per capita GDP in 2022 | | 14.9 | Thousands of US dollars (as of 2022) | Female employment share in 2022 | 32.2 | % |
| | (exchange rate based) | 5.7 | Thousands of US dollars (as of 2022) | Average schooling years of workers in 2022 | 7.9 | Years |
| Per-worker labor productivity level in 2022 | | 34.2 | Thousands of US dollars per worker (as of 2022) | Investment share in 2022 | 29.9 | % |
| Per-hour labor productivity level in 2022 | | 16.4 | US dollars per hour worked (as of 2022) | ICT investment share in GFCF in 2022 | 9.3 | % |
| Capital stock per hour worked in 2022 | | 45.8 | US dollars (as of 2022) | Agriculture share in GDP in 2022 | 10.2 | % |
| Energy productivity levels in 2021 | | 18.1 | Thousands of US dollars per toe (as of 2022) | Manufacturing share in GDP in 2022 | 19.0 | % |
| Carbon intensity of GDP in 2021 | | n.a. | g-CO2 per US dollar (as of 2022) | Agriculture share in employment in 2022 | 33.4 | % |

| (%: average annual growth rate) | 1970–80 | 1980–90 | 1990–2000 | 2000–10 | 2010–22 | 2015–22 | 2019–20 | 2020–21 | 2021–22 | projection 2022–25 | 2025–30 | 2030–35 | 2022–35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP growth | 4.9 | 5.1 | 3.7 | 4.3 | 3.7 | 3.4 | –2.8 | 7.0 | 4.3 | 4.3 | 4.6 | 4.4 | 4.4 |
| Labor input growth | 3.2 | 3.3 | 2.7 | 2.9 | 2.1 | 1.6 | 0.3 | 0.1 | 3.3 | 2.3 | 2.0 | 1.7 | 1.9 |
| Labor quality growth | 0.6 | 1.1 | 1.1 | 1.4 | 1.1 | 0.7 | 0.5 | 0.1 | 0.9 | 1.4 | 1.3 | 1.3 | 1.3 |
| Hours worked growth | 2.5 | 2.2 | 1.6 | 1.6 | 1.0 | 0.9 | –0.3 | 0.0 | 2.4 | 0.9 | 0.7 | 0.4 | 0.6 |
| College labor input growth | 8.9 | 8.1 | 6.3 | 5.9 | 3.7 | 2.8 | 1.3 | 0.6 | 4.9 | 3.2 | 2.8 | 2.5 | 2.8 |
| Non–college labor input growth | 2.5 | 2.4 | 1.7 | 1.7 | 1.2 | 1.0 | –0.4 | –0.2 | 2.4 | 1.8 | 1.5 | 1.2 | 1.4 |
| ICT capital input growth | 12.5 | 18.2 | 10.9 | 7.0 | 6.0 | 5.4 | 4.6 | 4.2 | 3.3 | 2.8 | 3.2 | 3.3 | 3.1 |
| Non–ICT capital input growth | 5.3 | 4.3 | 3.9 | 3.3 | 3.6 | 3.6 | 3.4 | 3.0 | 3.3 | 3.3 | 3.9 | 4.1 | 3.8 |
| Per-worker labor productivity growth | 2.1 | 3.0 | 2.1 | 2.7 | 2.5 | 2.3 | –3.0 | 5.2 | 2.6 | 3.5 | 3.9 | 3.9 | 3.8 |
| Per–hour labor productivity growth | 2.1 | 3.0 | 2.1 | 2.7 | 2.7 | 2.5 | –2.8 | 6.0 | 2.3 | 3.3 | 3.9 | 4.0 | 3.8 |
| Capital productivity growth | –5.5 | –4.8 | –4.3 | –3.6 | –3.8 | –3.7 | –3.5 | –3.0 | –3.2 | 0.8 | 0.4 | 0.1 | 0.4 |
| TFP growth | 0.4 | 1.2 | 0.3 | 1.0 | 0.8 | 0.7 | –4.9 | 4.4 | 1.4 | 1.7 | 1.9 | 1.8 | 1.8 |

## Production

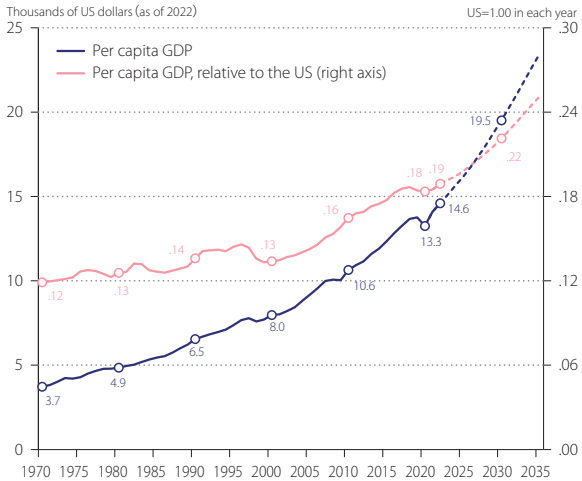


**Figure 1** Per Capita GDP

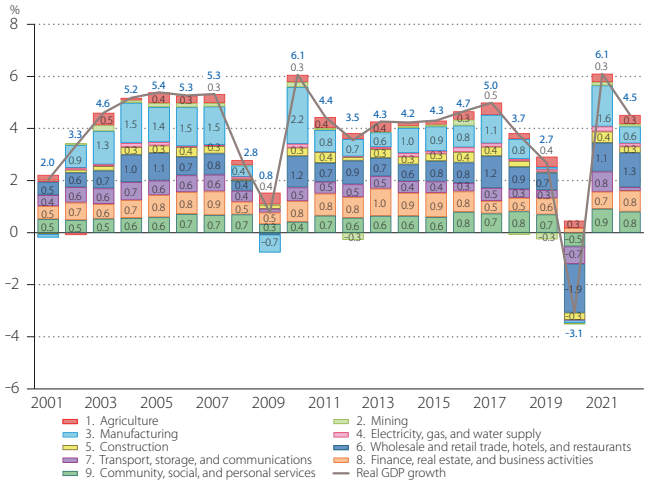


**Figure 2** Industry Origins of Economic Growth

## Labor

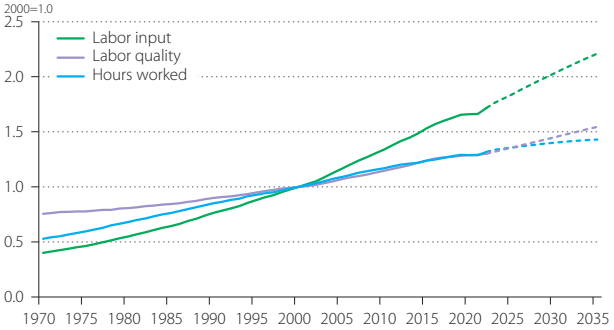


Figure 3 Labor Inputs

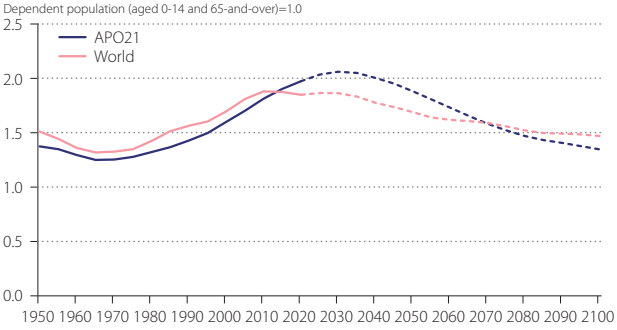


Figure 4 Demographic Dividend

## Productivity


Figure 5 Per-Worker Labor Productivity Level


Figure 6 Per-Hour Labor Productivity Level

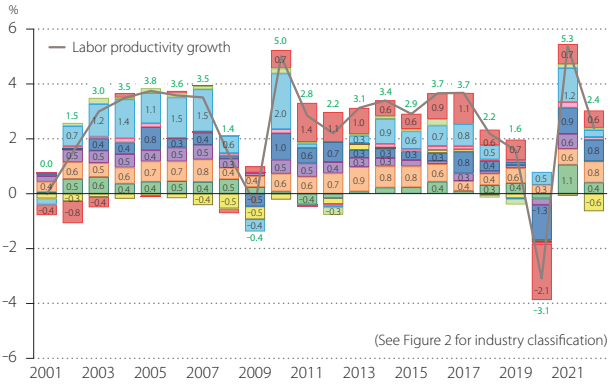


Figure 7 Industry Origins of Labor Productivity Growth

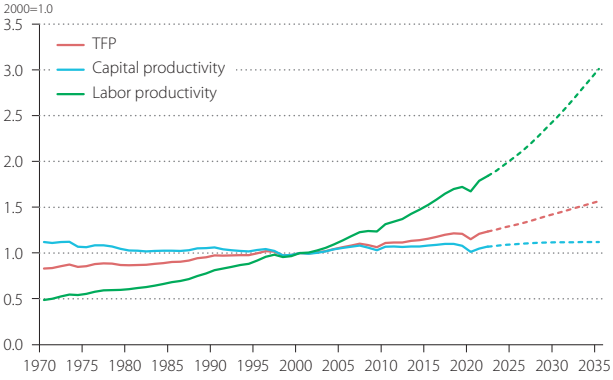


Figure 8 Productivity Indicators

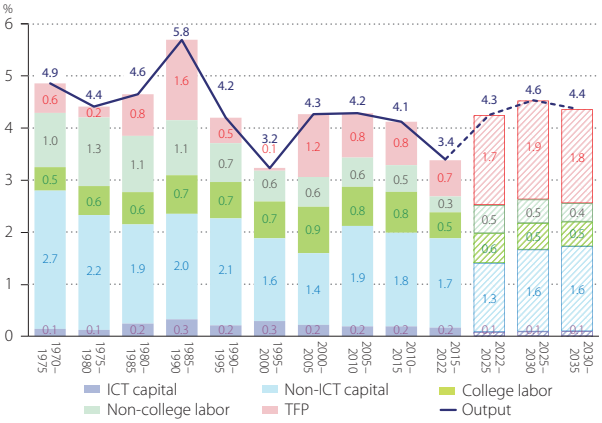


Figure 9 Decomposition of Economic Growth

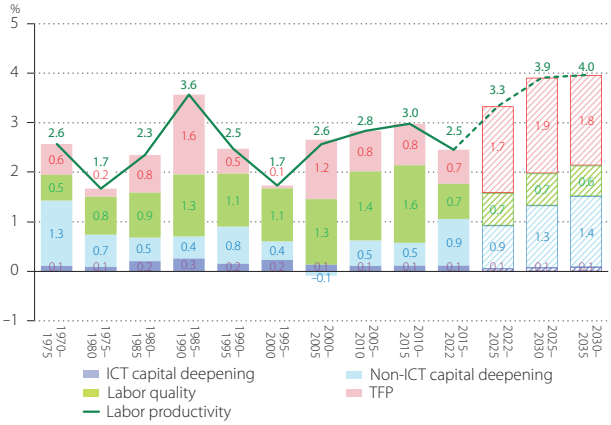


Figure 10 Decomposition of Labor Productivity Growth

App.

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